Declaration of Conformity

UKCA / CE / FCC / ISED / PPE

Manufacturer:
Innovative Eyewear, Inc.
11900 Biscayne Blvd, Suite 630
North Miami, FL 33181, United States

1. Product Identification

- **Product Name:** Smart Eyewear
- **Trade Mark:** Lucyd Reebok
- **Model Numbers:** LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
- **Product Description:** Bluetooth-enabled smart eyewear with protective lens functionality
- **Intended Use:** Consumer audio eyewear with integrated protective features

2. Applicable Legislation

This declaration of conformity is issued under the sole responsibility of the manufacturer and confirms that the equipment complies with the following legislative acts and directives:

- **United Kingdom:**
  - Radio Equipment Regulations 2017 (SI 2017/1206)
- **European Union:**
  - Radio Equipment Directive 2014/53/EU
  - Low Voltage Directive 2014/35/EU
  - Electromagnetic Compatibility Directive 2014/30/EU
  - Restriction of Hazardous Substances Directive 2011/65/EU, as amended
  - Regulation (EU) 2016/425 on Personal Protective Equipment (PPE)
- **North America:**
  - FCC Title 47 CFR, Part 15 Subpart B and C
  - ISED Canada RSS-247 Issue 3; RSS-Gen Issue 5; ICES-003 Issue 7

3. Standards Applied

Radio and EMC:

- BS EN 55032:2015/A1:2020
- BS EN 55035:2017/A11:2020
- BS EN IEC 61000-3-2:2019/A1:2021
- BS EN 61000-3-3:2013/A2:2021
- ETSI EN 301 489-1 V2.2.3
- ETSI EN 301 489-17 V3.2.4
- EN 300 328 V2.2.2

Electrical Safety:

- BS EN IEC 62368-1:2020 + A11:2020
- BS EN 50663:2017

PPE and Eye Protection:

- EN 166:2002 – Pass [COLTS Labs Test Report IEI-02491]
- ANSI Z87.1-2020 – Pass [COLTS Labs Test Report IEI-01622-04]
- CAN/CSA Z94.3:20 – Pass [COLTS Labs Test Report IEI-01851-R.01]

Chemical Compliance:

- RoHS (IEC 62321 test methods) – Pass

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4. Certifications

- **FCC ID:** 2BBYK-LCD008
- **ISED ID:** 30961-LCD008
- **UKCA Certificate:** CQASZ20240901963E
- **RoHS Report:** NAP24090423C01E
- **ISED Representative (Canada):** ISED Company No. 27434

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5. Medical Device Classification

The Lucyd Armor Smart Eyewear is **not classified as a medical device** under:

- **EU Regulation (EU) 2017/745 (MDR)**
- **U.S. FDA Medical Device Regulations**

This device does not include any medical software or diagnostic/therapeutic features. While the product may support **corrective lenses** prescribed by an optician, this does **not constitute a medical function** within the meaning of applicable regulatory frameworks. No MDR or FDA registration is required for the base product.

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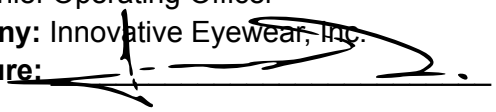
6. Declaration

We hereby declare that the product listed above is in conformity with the essential requirements and provisions of the applicable directives and regulations. This declaration is supported by a full technical file and test reports retained on record.

Date of Declaration: April 10 2025
Place of Issue: North Miami, Florida, USA

Authorized Signatory:
Name: Joaquin Abondano
Title: Chief Operating Officer
Company: Innovative Eyewear, Inc.
Signature: 

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Test Report: IEI-02491, Issue: 1

EN 166:2002

Innovative Eyewear, Inc.

Lucyd Armor Smart Safety Glasses

April 03, 2025

ACCREDITED
Test Laboratory
Certificate # 1612.01

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d. Unless otherwise stated, results in this report apply only to the samples tested and not the lots from which they were taken.

e. Decision Rule – COLTS makes all statements of conformity (pass/fail) based on actual values reported, unless otherwise stated.

Authorized By:

Jacob Gary
Director of Operations

Reviewed By:

Jason Fawell
Technical Engineer

Report Summary

Product Description: Lucyd Armor Smart Safety Glasses: Clear Lens, Black and Yellow Frame
Date Received: March 03, 2025
Date(s) Tested: March 24, 2025 to April 03, 2025
Standard: EN 166:2002
Laboratory Conditions: 23°C, 48% RH

Final Conclusion:

The Spectacle Sample: Lucyd Armor Smart Safety Glasses (Clear Lens, Black and Yellow Frame) does comply with EN 166:2002 for the test(s) included in this report.

Test Name	Result
6.1 General Construction	Pass
7.1.1 Field of Vision	Pass
7.1.2.1 Spherical and Astigmatic Powers	Pass
7.1.2.1 Prismatic Prism	Pass
7.1.2.2.1 Transmittance Oculars without filtering action	Pass
7.1.2.3 Diffusion of Light	Pass
7.1.3 Quality of Material and Surface	Pass
7.1.4.2.2 Increased Robustness - Complete eye-protectors and frames	Pass
7.1.5.1 Stability at an Elevated Temperature	Pass
7.1.7 Resistance to Ignition	Pass

Test Results - IEI-02491-01/Lucyd Armor Smart Safety Glasses Clear Lens, Black and Yellow Frame

EN 166 - 6.1 General Construction

6.1 General Construction

Test	Specification	Pass
Sample 1		Pass
Sample 2		Pass
Sample 3		Pass

EN 166 - 7.1.1 Field of Vision

7.1.1 Field of Vision

Test	Specification	Pass
Sample 1		Pass
Sample 2		Pass
Sample 3		Pass

EN 166 - 7.1.2.1 Spherical, Astigmatic Powers

7.1.2.1 Spherical and Astigmatic Powers

Test	Specification	Pass
Refractive Power - Sample 1		Pass
Left Eye		0.040 (Diopters)
Right Eye		0.040 (Diopters)
Astigmatism - Sample 1		Pass
Left Eye		0.040 (Diopters)
Right Eye		0.040 (Diopters)
Resolving Power - Sample 1		Pass
Left Eye		Pass
Right Eye		Pass
Refractive Power - Sample 2		Pass
Left Eye		0.040 (Diopters)
Right Eye		0.040 (Diopters)
Astigmatism - Sample 2		Pass
Left Eye		0.040 (Diopters)
Right Eye		0.040 (Diopters)
Resolving Power - Sample 2		Pass
Left Eye		Pass
Right Eye		Pass
Refractive Power - Sample 3		Pass
Left Eye		0.040 (Diopters)
Right Eye		0.040 (Diopters)
Astigmatism - Sample 3		Pass
Left Eye		0.040 (Diopters)
Right Eye		0.040 (Diopters)
Resolving Power - Sample 3		Pass
Left Eye		Pass

Test Results - IEI-02491-01/Lucyd Armor Smart Safety Glasses Clear Lens, Black and Yellow Frame

Right Eye		Pass

EN 166 - 7.1.2.1 Prism

7.1.2.1 Prismatic Prism

Test	Specification	Pass
Vertical - Sample 1		0.00 (Diopters)
Horizontal Base Out - Sample 1		0.30 (Diopters)
Vertical - Sample 2		0.00 (Diopters)
Horizontal Base Out - Sample 2		0.25 (Diopters)
Vertical - Sample 3		0.00 (Diopters)
Horizontal Base Out - Sample 3		0.10 (Diopters)

EN 166 - 7.1.2.2.1 Trans (w/o filtering action)

7.1.2.2.1 Transmittance Oculars without filtering action

Test	Specification	Pass
Sample 1		Pass
Left Eye		85.6 (%)
Right Eye		85.4 (%)
Sample 2		Pass
Left Eye		86.0 (%)
Right Eye		85.9 (%)
Sample 3		Pass
Right Eye		85.1 (%)
Left Eye		85.4 (%)

EN 166 - 7.1.2.3 Diffusion of Light

7.1.2.3 Diffusion of Light

Test	Specification	Pass
Sample 1		Pass
Left Eye		0.11 (%)
Right Eye		0.03 (%)
Sample 2		Pass
Left Eye		0.08 (%)
Right Eye		0.05 (%)
Sample 3		Pass
Left Eye		0.09 (%)
Right Eye		0.01 (%)

EN 166 - 7.1.3 Quality of Material and Surface

7.1.3 Quality of Material and Surface

Test	Specification	Pass
Sample 1		Pass
Sample 2		Pass
Sample 3		Pass

Test Results - IEI-02491-01/Lucyd Armor Smart Safety Glasses Clear Lens, Black and Yellow Frame

EN 166 - 7.1.4.2.2 Increased Robustness (Complete)

7.1.4.2.2 Increased Robustness - Complete eye-protectors and frames

Test	Specification	Pass
Sample 1 - Left Eye Frontal at 23°		Pass
Sample 2 - Left Eye Frontal at 55°		Pass
Sample 3 - Left Eye Frontal at -5°		Pass
Sample 4 - Left Eye Lateral at 23°		Pass
Sample 5 - Left Eye Lateral at 55°		Pass
Sample 6 - Left Eye Lateral at -5°		Pass
Sample 7 - Right Eye Frontal at 23°		Pass
Sample 8 - Right Eye Frontal at 55°		Pass
Sample 9 - Right Eye Frontal at -5°		Pass
Sample 10 - Right Eye Lateral at 23°		Pass
Sample 11 - Right Eye Lateral at 55°		Pass
Sample 12 - Right Eye Lateral at -5°		Pass

EN 166 - 7.1.5.1 Stability at Elevated Temp

7.1.5.1 Stability at an Elevated Temperature

Test	Specification	Pass
Sample 1		Pass
Sample 2		Pass
Sample 3		Pass

EN 166 - 7.1.6 Resistance To Corrosion

7.1.6 Resistance To Corrosion

Result		Pass
Sample 1		Pass
Sample 2		Pass
Sample 3		Pass

EN 166 - 7.1.7 Resistance to Ignition

7.1.7 Resistance to Ignition

Test	Specification	Pass
Sample 1		Pass
Lens 1		Pass
Front 1		Pass
Temple 1		Pass
Other 1		N/A
Sample 2		Pass
Lens 2		Pass
Front 2		Pass
Temple 2		Pass
Other 2		N/A

Test Results - IEI-02491-01/Lucyd Armor Smart Safety Glasses Clear Lens, Black and Yellow Frame

Sample 3		Pass
Lens 3		Pass
Front 3		Pass
Temple 3		Pass
Other 3		N/A

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APPENDIX 1

EN 166 Measurement Uncertainty Values		
Section	**Requirement**	**Uncertainty**
6.3	Headbands – Dimensional	0.5mm
7.1.2.1	Spherical/Astigmatic Refractive Power	0.007D
7.1.2.1	Prismatic Power	0.05Δ
7.1.2.2.1	Transmittance - Oculars without filtering action	0.41%
7.1.2.2.2	Transmittance - Oculars with filtering action	
	85% - 8.5%	0.41%
	8.5 – 3.16%	0.0018287%
	3.16 – 1.18%	0.0003283%
	1.18 – 0.44%	0.0003605%
	0.44 – 0.164%	0.0000961%
	0.164 – 0.061%	0.0001944%
	0.061 – 0.023%	0.0000459%
	0.023 – 0.0085%	0.0000706%
	0.0085 – 0.0032%	0.0000068%
	0.0032 – 0.0012%	0.0000055%
	0.0012 – 0.00044%	0.0000028%
	0.00044 – 0.00027%	0.0000017%
	UV	0.00006%
	IR	0.01000%
7.1.2.3	Diffusion of Light	0.05
7.3.2	Resistance to fogging of Oculars	1.54%

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Test Report: IEI-01622-04, Issue: 1

ANSI Z87.1-2020

Innovative Eyewear, Inc.

Lucyd Armor Smart Safety Glasses

July 01, 2024

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Certificate # 1612.01

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e. Decision Rule – COLTS makes all statements of conformity (pass/fail) based on actual values reported, unless otherwise stated.

Authorized By:

Jacob Gary
Director of Operations

Reviewed By:

Jason Fawell
Technical Engineer

Issued to: Innovative Eyewear, Inc.
11900 Biscayne Bl
Suite 630
Miami, FL 33181

Requested by: Harrison Gross

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Report Summary

Product Description: IEI-01622-04/Lucyd Armor Smart Safety Glasses: Black Frame, Photochromic Lenses (S, U6)
Date Received: June 05, 2024
Date(s) Tested: June 25, 2024 to July 01, 2024
Standard: ANSI Z87.1-2020
Laboratory Conditions: 23°C, 48% RH

Final Conclusion:

The Spectacle Sample: Lucyd Armor Smart Safety Glasses (Black Frame, Photochromic Lenses (S, U6)) does comply with ANSI Z87.1-2020 for the test(s) included in this report.

Test Name	Result
ANSI Z87.1-2020 Base Model General Requirements	
5.1.1 Optical Quality	**Pass**
5.1.4 Prism/Prism Imbalance (Spectacle)	**Pass**
5.1.4 Refractive/Resolving Power, Astigmatism	**Pass**
5.2 Physical Requirements	**Pass**
5.2.1 Drop Ball Impact Resistance	**Pass**
5.2.2 Ignition	**Pass**
5.2.3 Corrosion Resistance of Metal Components	**Pass**
5.2.4 Minimum Coverage Area	**Pass**
5.3.2 Placement of Markings	**Pass**
7.2.2.1.1 Special Purpose Filter Lenses - Transmission Requirements	**Pass**
ANSI Z87.1-2020 Optional Claim (U)	
7.2.2.1.1 Ultraviolet Filter Lenses - Transmission Requirements	**Pass**

Issued to: Innovative Eyewear, Inc.
11900 Biscayne Bl
Suite 630
Miami, FL 33181

Requested by: Harrison Gross

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Test Results - IEI-01622-04/Lucyd Armor Smart Safety Glasses Black Frame, Photochromic Lenses (S, U6)

ANSI Z87.1-2020 Base Model General Requirements

5.1.1 Optical Quality

Test	Specification	Pass
Free of visible defects that impair vision		Pass

5.1.4 Prism/Prism Imbalance (Spectacle)

Test	Specification	Pass
Complete Prism		Pass
Left Eye	Max: 0.50	0.141 (Diopters)
Right Eye	Max: 0.50	0.050 (Diopters)
Prismatic Imbalance		Pass
Vertical	Max: 0.25	0.10 (Diopters)
Horizontal Base Out	Max: 0.50	0.15 (Diopters)

5.1.4 Refractive/Resolving Power, Astigmatism

Test	Specification	Pass
Refractive Power		Pass
Left Eye	-0.06/0.06	0.000 (Diopters)
Right Eye	-0.06/0.06	0.000 (Diopters)
Astigmatism		Pass
Left Eye	0.00/0.06	0.060 (Diopters)
Right Eye	0.00/0.06	0.060 (Diopters)
Resolving Power		Pass
Left Eye		Pass
Right Eye		Pass

5.2 Physical Requirements

Test	Specification	Pass
Free of defects which may cause discomfort or injury		Pass

5.2.1 Drop Ball Impact Resistance

Test	Specification	Pass
Sample 1 - Left Eye		Pass
Sample 2 - Left Eye		Pass
Sample 3 - Right Eye		Pass
Sample 4 - Right Eye		Pass

5.2.2 Ignition

Test	Specification	Pass
Lens		Pass
Front		Pass
Other		N/A

5.2.3 Corrosion Resistance of Metal Components

Test	Specification	Pass

Test Results - IEI-01622-04/Lucyd Armor Smart Safety Glasses Black Frame, Photochromic Lenses (S, U6)

Function of protector not impaired		Pass

5.2.4 Minimum Coverage Area

Test	Specification	**Pass**
40 x 33 mm (34 x 28 mm - H)		Pass

5.3.2 Placement of Markings

Test	Specification	**Pass**
Markings		Pass

7.2.2.1.1 Special Purpose Filter Lenses - Transmission Requirements

Test	Specification	**Pass**
Tinted Lenses		Pass
Left Eye	8.00/99.99	84.6 (%)
Right Eye	8.00/99.99	84.6 (%)
Ratio	0.900/1.100	1.000

ANSI Z87.1-2020 Optional Claim (U)

7.2.2.1.1 Ultraviolet Filter Lenses - Transmission Requirements

Test	Specification	**Pass**
Near UV		Pass
Left Eye		0.000 (%)
Left Eye Edge		0.000 (%)
Right Eye		0.000 (%)
Right Eye Edge		0.000 (%)
Far UV		Pass
Left Eye		0.000 (%)
Left Eye Edge		0.000 (%)
Right Eye		0.000 (%)
Right Eye Edge		0.000 (%)

Issued to: Innovative Eyewear, Inc.
11900 Biscayne Bl
Suite 630
Miami, FL 33181

Requested by: Harrison Gross

Test Results - IEI-01622-04/Lucyd Armor Smart Safety Glasses Black Frame, Photochromic Lenses (S, U6)

Observations:

Test Name		Observation
5.3.2 Placement of Markings	Markings	Assessed using artwork

APPENDIX 1

ANSI Z87.1 - 2020 Measurement Uncertainty Values

Section	Requirement	Uncertainty
5.1.2	Luminous Transmittance	0.19%
5.1.3	Haze	0.08%
5.1.4	Refractive Power	0.018D
	Astigmatism	0.018D
	Prism	0.048Δ
5.4.5	Minimum Lens Thickness	0.012 mm
5.5.1	Replaceable Lenses – Goggles	0.17 mm
5.5.2	Replaceable Lenses – Welding Helmets and Handshields	0.17 mm
6.1	Relaxed Optics Level	See 5.1.4
6.2	Anti-Fog Properties	1.79%
7.2.1	Optical Radiation - Clear Lenses	See 5.1.2
7.2.2.1.1	Transmission Requirements	
	Table 7 (Welding Filters)	
	W1.3 – W3.0	See 5.1.2
	W4	0.0018287%
	W5	0.0003283%
	W6	0.0003605%
	W7	0.0000961%
	W8	0.0001944%
	W9	0.0000459%
	W10	0.0000707%
	W11	0.0000163%
	W12	0.0000055%
	W13	0.0000029%
	W14	0.0000017%
	EFUV	0.0000551%
	NUV	0.0000576%
	IR	0.010395%
	Table 8 (UV Filters)	
	EFUV	0.0000551%
	NUV	0.0000576%
	Table 9 (IR Filters)	0.010395%
	Table 10 (VIS Filters)	See 7.2.2.1.1 W1.3 – W10
	Table 11 Tinted	See 5.1.2
	Extra Dark	See 5.1.2
7.2.2.1.2	Visible Light Filters	
	Visible Light (L1.3 - L3)	See 5.1.2
	UVA	See Table 7 NUV
	UVB	See Table 7 EFUV
7.2.2.2	Transmittance of Non-lens Components	See 7.2.2.1.1 Table 7, 8 & 9
7.2.3.1	Automatic Darkening Welding Filter Lenses - Luminous Transmittance	See 7.2.2.1.1 Table 7
7.2.3.2	Automatic Darkening Welding Filter Lenses - UV/IR Transmittance	See 7.2.2.1.1 Table 7
7.2.3.3	Switching Index	0.0192 mSec
7.2.3.5	Angular dependence of luminous transmittance	See 7.2.2.1.1 Table 7

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Test Report: IEI-01851-R.01, Issue: 1

CAN/CSA Z94.3:20

Innovative Eyewear, Inc.

Lucyd Armor Smart Safety Glasses

January 07, 2025

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Test Laboratory
Certificate # 1612.01

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e. Decision Rule – COLTS makes all statements of conformity (pass/fail) based on actual values reported, unless otherwise stated.

Authorized By:

Jacob Gary
Director of Operations

Reviewed By:

Jason Fawell
Technical Engineer

Report Summary

Product Description: Lucyd Armor Smart Safety Glasses: Black Frame, Photochromic Lenses
Date Received: December 18, 2024
Date(s) Tested: January 06, 2025 to January 06, 2025
Standard: CAN/CSA Z94.3:20
Laboratory Conditions: 21°C, 51% RH

Final Conclusion:

The Spectacle Sample: Class 1 Lucyd Armor Smart Safety Glasses (Black Frame, Photochromic Lenses) does comply with CAN/CSA Z94.3:20 for the test(s) included in this report.

Test Name	Result
CAN/CSA Z94.3:20 Base Model	
6.1.3.1 Impact Resistance - Class 1 Plano Protector	**Pass**
6.2 Ignition Resistance - Class 1	**Pass**
6.4.2.1 Refractive (residual) Power	**Pass**
6.4.3 Resolving Power	**Pass**
6.4.4 Prismatic Deviation	**Pass**
6.4.5.1 Haze - Class 1 or 2 (Clear Lenses)	**Pass**
6.4.6 Luminous Transmittance (Clear Lenses)	**Pass**
6.8 Minimum Frontal Coverage - Class 1 and 2	**Pass**
6.9 Side Protection - Class 1 and 2	**Pass**
7.1 Field of View - Class 1	**Pass**
7.2.1 Side Protection - Class 1	**Pass**
7.2.2 Side protection - Class 1	**N/A**
7.2.3 Side protection - Ventilation	**Pass**
13.2 Manufacturer/Supplier Marking	**Pass**
13.4 Special Purpose Statement	**Pass**
13.6 User Information	**Pass**
CAN/CSA Z94.3:20 Sun Protection for Outdoor Workers	
16.2.1 Luminous Transmittance	**Pass**
16.2.2 Mean Transmittance	**Pass**
16.2.3.1 Colour Limits	**Pass**
16.2.3.2 Traffic Signal Transmittance	**Pass**
16.2.4 Ultraviolet Transmittance	**Pass**
16.2.5 Photochromic Lenses	**Pass**

Report Comments:

IEI-01851-01-R.01: Retest due to failure on 6.1.3.1 Impact Resistance.

Test Results - IEI-01851-01-R.01/Lucyd Armor Smart Safety Glasses Black Frame, Photochromic Lenses

CAN/CSA Z94.3:20 Base Model

6.1.3.1 Impact Resistance - Class 1 Plano Protector

Test	Specification	Pass
All Classes: Midpoint of the distance between the pupils (nasal area)	46.0/47.0	46.0 (m/s)
All Classes: Midpoint of the distance between the pupils (nasal area)		Pass
Left Eye - 0 degrees	46.0/47.0	46.7 (m/s)
Plano Lens - geometric centre (Result)		Pass
Left Eye - 15 mm temporally	46.0/47.0	46.5 (m/s)
Left Eye - 15 mm temporally		Pass
Right Eye - 0 degrees	46.0/47.0	46.5 (m/s)
Right Eye - 0 degrees		Pass
Right Eye - 15 mm temporally	46.0/47.0	46.6 (m/s)
Right Eye - 15 mm temporally		Pass
Dual Lens: Frontal impact - thinnest eyewire point or eyewire screw assembly	46.0/47.0	46.6 (m/s)
Dual Lens: Frontal Impact		Pass
Frontal Impact - Endpiece to eyewire (one side)		N/A
Lateral impact - Temple attaches to endpiece (one side)	46.0/47.0	46.7 (m/s)
Lateral impact - Temple attaches to endpiece (one side)		Pass
10 mm behind, 10 mm above cornea (one side)	46.0/47.0	46.6 (m/s)
10 mm behind, 10 mm above cornea (one side)		Pass
10 mm behind, 10 mm below cornea (one side)	46.0/47.0	46.7 (m/s)
10 mm behind, 10 mm below cornea (one side)		Pass
10 mm behind cornea (one side)	46.0/47.0	46.4 (m/s)
10 mm behind cornea (one side)		Pass

6.2 Ignition Resistance - Class 1

Test	Specification	Pass
Lens		Pass
Temple		Pass
Front		Pass
Nose Piece		Pass
Other		N/A

6.4.2.1 Refractive (residual) Power

Test	Specification	Pass
Left Eye	-0.120/0.120	-0.060 (Diopters)
Right Eye	-0.120/0.120	-0.050 (Diopters)

6.4.3 Resolving Power

Test	Specification	Pass

Test Results - IEI-01851-01-R.01/Lucyd Armor Smart Safety Glasses Black Frame, Photochromic Lenses

Left Eye		Pass
Center	Max: 60	40
3 mm from Edge	Max: 60	40
Right Eye		Pass
Center	Max: 60	40
3 mm from Edge	Max: 60	40

6.4.4 Prismatic Deviation

Test	Specification	Pass
Center		Pass
Vertical Imbalance	0.00/0.25	0.10 (Diopters)
Horizontal Imbalance (Out)	0.00/0.75	0.10 (Diopters)
10 mm Left		Pass
Vertical Imbalance	0.00/0.25	0.10 (Diopters)
Horizontal Imbalance (Out)	0.00/0.75	0.00 (Diopters)
10 mm Right		Pass
Vertical Imbalance	0.00/0.25	0.10 (Diopters)
Horizontal Imbalance (Out)	0.00/0.75	0.10 (Diopters)
10 mm Up		Pass
Vertical Imbalance	0.00/0.25	0.10 (Diopters)
Horizontal Imbalance (Out)	0.00/0.75	0.15 (Diopters)
10 mm Down		Pass
Vertical Imbalance	0.00/0.25	0.05 (Diopters)
Horizontal Imbalance (Out)	0.00/0.75	0.10 (Diopters)

6.4.5.1 Haze - Class 1 or 2 (Clear Lenses)

Test	Specification	Pass
Left Eye		0.56 (%)
Right Eye		0.49 (%)

6.4.6 Luminous Transmittance (Clear Lenses)

Test	Specification	Pass
Left Eye	Min: 85.00	86.70 (%)
Right Eye	Min: 85.00	85.90 (%)

6.8 Minimum Frontal Coverage - Class 1 and 2

Test	Specification	Pass
Coverage		Pass

6.9 Side Protection - Class 1 and 2

Test	Specification	Pass
Side Protection		Pass

7.1 Field of View - Class 1

Test Results - IEI-01851-01-R.01/Lucyd Armor Smart Safety Glasses Black Frame, Photochromic Lenses

Test	Specification	Pass
Horizontal Meridian		Pass
Vertical Meridian		Pass

7.2.1 Side Protection - Class 1

Test	Specification	Pass
Side Protection		Pass

7.2.2 Side protection - Class 1

Test	Specification	N/A
Opening		N/A

7.2.3 Side protection - Ventilation

Test	Specification	Pass
Class		1A
Ventilation		Non-ventilated

13.2 Manufacturer/Supplier Marking

Test	Specification	Pass
Markings		Pass

13.4 Special Purpose Statement

Test	Specification	Pass
Special Purpose Statement		Pass

13.6 User Information

Test	Specification	Pass
User Information		Pass

Test Results - IEI-01851-01-R.01/Lucyd Armor Smart Safety Glasses Black Frame, Photochromic Lenses

CAN/CSA Z94.3:20 Sun Protection for Outdoor Workers

16.2.1 Luminous Transmittance

Test	Specification	Pass
Primary Function (Table 7)		Cosmetic
Luminous Transmittance		Pass
Left Eye		48.46 (%)
Right Eye		44.60 (%)

16.2.2 Mean Transmittance

Test	Specification	Pass
UV A - Result		Pass
Left Eye	Min: 0.00	0.00 (%)
Right Eye	Min: 0.00	0.00 (%)
UV B - Result		Pass
Left Eye	Min: 0.00	0.00 (%)
Right Eye	Min: 0.00	0.00 (%)

16.2.3.1 Colour Limits

Test	Specification	Pass
Left Eye		Pass
Right Eye		Pass

16.2.3.2 Traffic Signal Transmittance

Test	Specification	Pass
Red		Pass
Left Eye	Min: 8.00	55.50 (%)
Right Eye	Min: 8.00	58.60 (%)
Yellow		Pass
Left Eye	Min: 6.00	43.40 (%)
Right Eye	Min: 6.00	47.30 (%)
Green		Pass
Left Eye	Min: 6.00	46.10 (%)
Right Eye	Min: 6.00	49.80 (%)

16.2.4 Ultraviolet Transmittance

Test	Specification	Pass
UV A - Result		Pass
Left Eye		0.00 (%)
Right Eye		0.00 (%)
UV B - Result		Pass
Left Eye		0.00 (%)
Right Eye		0.00 (%)

16.2.5 Photochromic Lenses

Test Results - IEI-01851-01-R.01/Lucyd Armor Smart Safety Glasses Black Frame, Photochromic Lenses

Test	Specification	Pass
Faded Luminous Transmittance	Min: 40	82.66 (%)
Darkened Luminous Transmittance	8/40	40.36 (%)
Ratio T(vo)/T(v1)		2.048
Faded UV A		0.00 (%)
Faded UV B		0.00 (%)
Faded State Primary Function		Cosmetic
Darkened State Primary Function		Cosmetic
Darkened UV A		0.00 (%)
Darkened UV B		0.00 (%)
Faded Color Limits		Pass
Darkened Color Limits		Pass
Faded Red Signal	Min: 8.00	85.30 (%)
Faded Yellow Signal	Min: 6.00	82.60 (%)
Faded Green Signal	Min: 6.00	82.70 (%)
Darkened Red Signal	Min: 8.00	51.10 (%)
Darkened Yellow Signal	Min: 6.00	39.00 (%)
Darkened Green Signal	Min: 6.00	41.90 (%)

Test Results - IEI-01851-01-R.01/Lucyd Armor Smart Safety Glasses Black Frame, Photochromic Lenses

Observations:

Test Name		Observation
13.2 Manufacturer/Supplier Marking	Markings	Assessed using artwork
13.4 Special Purpose Statement	Special Purpose Statement	Assessed using artwork
13.6 User Information	User Information	Assessed using artwork

APPENDIX 1

CSA Z94.3:20 Measurement Uncertainty Values

Section	Requirement	Uncertainty
6.4.1	Filter/Cover Plates	0.17 mm
	Faceshield Window	0.17 mm
6.4.2.1	Refractive Power	0.018D
6.4.2.2	Segment Power	0.01D
6.4.4	Prismatic Deviation	0.048Δ
6.4.5	Haze	0.19%
6.4.6	Transmittance	0.08%
	Clear – W3.0	0.19%
	W4	0.0018287%
	W5	0.0003283%
	W6	0.0003605%
	W7	0.0000961%
	W8	0.0001944%
	W9	0.0000459%
	W10	0.0000706%
	W11	0.0000068%
	W12	0.0000055%
	W13	0.0000028%
	W14	0.0000017%
6.5.2.4	EFUV	0.0000551%
	NUV	0.0000576%
	IR	0.010395%
6.5.3	Luminous Transmitance	See 6.5.2.1 Table 1
6.5.4	Automatic Darkening Welding Filters - Transmittance	See 6.4.6 & 6.5.2.4
6.5.4.5	Switching Index	0.0192 mSec
6.6	Size, residual power, resolving power, and prismatic deviation	See 6.4.1 - 6.4.5
8.3.2	Housing Transmittance	See 6.5.2.1 W8
9.2.3	Housing Transmittance	See 6.5.2.1 W14
9.3.3	Transmittance limit for materials	See 6.5.2.1 W14
9.3.5	Filter plates, cover plates, and mounting frames	See 6.4.1
10.2.3	Resolving power, prismatic deviation and Haze	See 6.4.3 - 6.4.5
10.2.4	Welding Filter Windows	See 6.5

VERIFICATION OF UKCA COMPLIANCE

Certificate No.: CQASZ20240901963E

Applicant	:	Innovative Eyewear, Inc
Address of Applicant	:	11900 Biscayne Blvd #630, North Miami, FL 33181, United States
Manufacturer	:	Shenzhen Gonbes Technology Co. Ltd
Address of Manufacturer	:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA
Factory	:	Shenzhen Gonbes Technology Co. Ltd
Address of Factory	:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA
Product name	:	Smart Eyewear
Model No.	:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Test Model No.	:	LCD008-10
Trade Mark	:	Lucyd Reebok
Test Report No.	:	CQASZ20240901963E-01 CQASZ20240901963E-02 CQASZ20240901963E-03 CQASZ20240901963E-04 CQASZ20240901963E-05 CQASZ20240901072S
Test Standard(s)	:	BS EN 55032:2015/A1:2020 BS EN 55035:2017/A11:2020 BS EN IEC 61000-3-2:2019/A1:2021 BS EN 61000-3-3:2013/A2:2021 ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 300 328 V2.2.2 (2019-07) BS EN 50663: 2017 BS EN IEC 62368-1:2020+A11:2020

On the basis of the referenced test report(s), sample(s) tested of the above product have been found to comply with the standards harmonized with Radio Equipment Regulations 2017 (S.I.2017/1206) at the time the tests were carried out. Other standards and Regulations may be relevant to the product. This verification is part of the full test report(s) and should be read in conjunction with it

Jack Ai
For Chief Executive
Date of Issue: October 12, 2024

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD. APPROVED

The UK Marking may only be used if all relevant and effective UK Directives are complied

Shenzhen Huaxia Testing Technology Co., Ltd.
1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China
Tel: (86)755-26648640 Fax: (86)755-26648637 Http://www.cqa-cert.com

Zhuoyang International Trading Corp
Unit 2523, 8339 Kennedy Rd, Markham, ON, L3R 5T5, Canada
Tel: +1 (647) 936-5112 Email: zhuoyangitc@gmail.com
ISED Company No.: **27434**

CANADIAN REPRESENTATIVE LETTER OF ATTESTATION

Canadian Representative

Company Name: Zhuoyang International Trading Corp
ISED Company Number: 27434
Company Address: Unit 2523, 8339 Kennedy Rd, Markham, ON, L3R 5T5, Canada
Contact Name: Zhuoyi Ye
Telephone No: +1(647)-936-5112
Email: zhuoyangitc@gmail.com

TO: Innovation, Science and Economic Development Canada
3701 Carling Ave., Bldg. 94,
Ottawa, ON K2H 8S2

ATTENTION: Certification and Engineering Bureau

This letter is to confirm that we have accepted the responsibility to act as Canadian Representative on behalf of the Applicant noted below. As Canadian Representative, we are aware of the requirements involved as outlined in ISED Canada applicable documents (RSP-100 Issue 12, Section 4.1 and/or DC-01 Issue 6, Section 3).

Applicant

Company Name: Innovative Eyewear, Inc
ISED Company Number: 30961
Company Address: 11900 Biscayne Bl, Suite 630 North Miami FL 33181 USA
Contact Name: Harrison Gross
Telephone No: +1 (800) 530-7230
Fax No: 1 (888) 609-4596

ISED Certification Number: 30961-LCD008
HVIN: LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41

This Agreement is only for the above HVIN and is valid until：2025-09-29

Signature: 

Signed by: Zhuoyi Ye

Date: September 29, 2024

TEST REPORT

For

Innovative Eyewear, Inc

Smart Eyewear

Model No.: LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41

Test Report Number: CQASZ20240901071S

Shenzhen Huaxia Testing Technology Co., Ltd.

Address: 1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Tel:+86-755-26648640 Fax:+86-755-26648637

Test Report issued under the responsibility of:

TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number..... :	CQASZ20240901071S
Date of issue ..... :	October 11, 2024
Total number of pages ..... :	73
Name of Testing Laboratory preparing the Report ..... :	Shenzhen Huaxia Testing Technology Co., Ltd.
Applicant's name..... :	Innovative Eyewear, Inc
Address ..... :	11900 Biscayne Blvd #630, North Miami, FL 33181, United States
Test specification:	
Standard ..... :	IEC 62368-1:2018; EN IEC 62368-1:2020+A11:2020
Test procedure..... :	Test report
Non-standard test method..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC62368_1E
Test Report Form(s) Originator.... :	UL(US)
Master TRF ..... :	Dated 2022-04-14

General disclaimer:

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the Testing Laboratory, responsible for this Test Report.

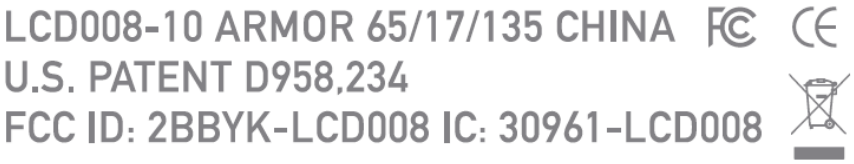
Test item description .....:	Smart Eyewear
Trade Mark(s) .....:	Lucyd Reebok
Manufacturer.....:	Shenzhen Gonbes Technology Co. Ltd RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA
Model/Type reference .....:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Ratings .....:	Battery:3.7V, 180mAh, 0.67Wh

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**Testing Laboratory:**	Shenzhen Huaxia Testing Technology Co., Ltd	
Testing location/ address ..... :		1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China	
Tested by (name, function, signature) ..... :		Eddie Yin Engineer	
Approved by (name, function, signature) .. :		Mike Wu Reviewer	
☐	**Testing procedure: CTF Stage 1:**	N/A	
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**	N/A	
Testing location/ address ..... :			
Tested by (name, function, signature)			
Witnessed by (name, function, signature). :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**	N/A	
☐	**Testing procedure: CTF Stage 4:**	N/A	
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature). :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

List of Attachments (including a total number of pages in each attachment): Appendix 1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES; Appendix 2: Photo-documentation	
Summary of testing:	
Tests performed (name of test and test clause): All applicable test	**Testing location:** Shenzhen Huaxia Testing Technology Co., Ltd. 1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China
Summary of compliance with National Differences (List of countries addressed): EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES ☒ **The product fulfils the requirements of EN IEC 62368-1:2020+A11:2020**	
Use of uncertainty of measurement for decisions on conformity (decision rule) : ☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method"). ☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply) **Information on uncertainty of measurement:** The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE. IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer. Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.	

Copy of marking plate:

The artwork below may be only a draft.



Lucyd Reebok
Smart Eyewear
Model No: LCD008-10

Note:

1. The height dimension of CE mark should not be less than 5mm, the height dimension of WEEE symbol should not be less than 7mm.
2. According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market
3. The marking plates of the other model is of the same.

Test item particulars:	
Product group ..... :	☒ end product ☐ built-in component
Classification of use by ..... :	☒ Ordinary person ☒ Children likely present ☐ Instructed person ☐ Skilled person
Supply connection ..... :	☐ AC mains ☐ DC mains ☒ not mains connected: ☒ ES1 ☐ ES2 ☐ ES3
Supply tolerance ..... :	☐ +10%/-10% ☐ +20%/-15% ☐ + %/ - % ☒ None
Supply connection – type ..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☒ other:
Considered current rating of protective device ..... :	☐ 16 (20 for America and Canada) A; Location: ☐ building ☐ equipment ☒ N/A
Equipment mobility ..... :	☐ movable ☐ hand-held ☒ transportable ☐ direct plug-in ☐ stationary ☐ for building-in ☐ wall/ceiling-mounted ☐ SRME/rack-mounted ☐ other:
Overvoltage category (OVC) ..... :	☐ OVC I ☐ OVC II ☐ OVC III ☐ OVC IV ☒ other:
Class of equipment ..... :	☐ Class I ☐ Class II ☒ Class III ☐ Not classified ☐
Special installation location ..... :	☒ N/A ☐ restricted access area ☐ outdoor location ☐
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified T_{ma} ..... :	25 °C ☐ Outdoor: minimum °C
IP protection class ..... :	☒ IPX0 ☐ IP___
Power systems ..... :	☐ TN ☐ TT ☐ IT - V_{L-L} ☒ not AC mains
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ 5000 m
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ 500 m
Mass of equipment (kg) ..... :	0.042 kg

Possible test case verdicts:	
- test case does not apply to the test object....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement....:	F (Fail)
Testing:	
Date of receipt of test item .....:	September 11, 2024
Date (s) of performance of tests .....:	September 11, 2024 – September 24, 2024
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. **Throughout this report a ☐ comma ☒ point is used as the decimal separator.** ☐ **This Test Report Form contains requirements according to IEC/ISO …... Standard dated ….. and includes** Corrigendum dated ……. (Note: The above text maybe removed if not applicable)	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....:	☐ **Yes** ☒ **Not applicable**
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) ..... :	Same as manufacturer
General product information and other remarks: The EUT was supplied by external power DC source or internal battery. The external power DC source was considered as ES1/PS1.	
Model Differences- All models are identical except for only the frame style. After comparison, tests carried out on model LCD008-10 were considered representative.	
Additional application considerations – (Considerations used to test a component or sub-assembly): N/A	

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	**Possible Hazard**			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES1: All circuit	Ordinary	N/A	N/A	N/A
ES1: Battery output	Ordinary	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1st S	2nd S
PS1: All circuit	Enclosure and PCB	N/A	N/A	N/A
PS1: Battery output	Enclosure and PCB	N/A	N/A	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	N/A	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Sharp edges and corners	Ordinary	N/A	N/A	N/A
MS1: Equipment mass	Ordinary	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: Accessible surfaces	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: LED Indicating lights	Ordinary	N/A	N/A	N/A
Supplementary Information: “B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				

ENERGY SOURCE DIAGRAM
Optional. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems. Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings
☒ **ES** ☒ **PS** ☒ **MS** ☒ **TS** ☒ **RS**

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components		P
4.1.3	Equipment design and construction		P
4.1.4	Specified ambient temperature for outdoor use (°C) ..... :		N/A
4.1.5	Constructions and components not specifically covered		N/A
4.1.8	Liquids and liquid filled components (LFC)	(See G.15)	N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness		P
4.4.3.1	General		P
4.4.3.2	Steady force tests	(See Clause T.3, T.4, T.5)	P
4.4.3.3	Drop tests	(See Clause T.7)	P
4.4.3.4	Impact tests		N/A
4.4.3.5	Internal accessible safeguard tests		N/A
4.4.3.6	Glass impact tests	(See Clause T.9, Annex U)	N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Clause T.8)	P
4.4.3.9	Air comprising a safeguard		N/A
4.4.3.10	Accessibility, glass, safeguard effectiveness		P
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks	(See Annex K)	N/A
4.5	**Explosion**		P
4.5.1	General	(See Annex M for batteries)	P
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	P
	No harm by explosion during single fault conditions	(See Clause B.4)	P
4.6	**Fixing of conductors**		N/A
	Fix conductors not to defeat a safeguard		N/A
	Compliance is checked by test ..... :	(See Clause T.2)	N/A
4.7	**Equipment for direct insertion into mains socket–outlets**		N/A
4.7.2	Mains plug part complies with relevant standard .. :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	Torque (Nm) ..... :		N/A
4.8	**Equipment containing coin/button cell batteries**		N/A
4.8.1	General		N/A
4.8.2	Instructional safeguard ..... :		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	**Likelihood of fire or shock due to entry of conductive object**		N/A
4.10	**Component requirements**		N/A
4.10.1	Disconnect Device	(See Annex L)	N/A
4.10.2	Switches and relays	(See Annex G)	N/A

5	**ELECTRICALLY-CAUSED INJURY**		P
5.2	**Classification and limits of electrical energy sources**		P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current limits .....:	(See appended table 5.2)	P
5.2.2.3	Capacitance limits .....:	(See appended table 5.2)	N/A
5.2.2.4	Single pulse limits .....:	(See appended table 5.2)	N/A
5.2.2.5	Limits for repetitive pulses .....:	(See appended table 5.2)	N/A
5.2.2.6	Ringing signals	(See Annex H)	N/A
5.2.2.7	Audio signals	(See Clause E.1)	N/A
5.3	**Protection against electrical energy sources**		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		N/A
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		N/A
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements		N/A
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V) .....:	(See appended table 5.4.9)	N/A
5.3.2.2 b)	Air gap – distance (mm) .....:		N/A
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	**Insulation materials and requirements**		N/A
5.4.1.2	Properties of insulating material		N/A
5.4.1.3	Material is non-hygroscopic		N/A
5.4.1.4	Maximum operating temperature for insulating materials .....:	(See appended table)	N/A
5.4.1.5	Pollution degrees .....:		N/A
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling test		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage .....:	(See appended table 5.4.1.8)	N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat test.....:	(See appended table 5.4.1.10.2)	N/A
5.4.1.10.3	Ball pressure test .....:	(See appended table 5.4.1.10.3)	N/A
5.4.2	Clearances		N/A
5.4.2.1	General requirements		N/A
	Clearances in circuits connected to AC Mains, Alternative method	(See Annex X)	N/A
5.4.2.2	Procedure 1 for determining clearance		N/A
	Temporary overvoltage .....:		—
5.4.2.3	Procedure 2 for determining clearance		N/A
5.4.2.3.2.2	a.c. mains transient voltage.....:		—
5.4.2.3.2.3	d.c. mains transient voltage .....:		—
5.4.2.3.2.4	External circuit transient voltage.....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.3.2.5	Transient voltage determined by measurement .....:		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test .....:	(See appended table 5.4.2)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....:		N/A
5.4.2.6	Clearance measurement .....:	(See appended table 5.4.2)	N/A
5.4.3	Creepage distances		N/A
5.4.3.1	General		N/A
5.4.3.3	Material group .....:	IIIb	—
5.4.3.4	Creepage distances measurement .....:	(See appended table 5.4.3)	N/A
5.4.4	Solid insulation		N/A
5.4.4.1	General requirements		N/A
5.4.4.2	Minimum distance through insulation .....:	(See appended table 5.4.4.2)	N/A
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs) .....:		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs) .....:		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material .....:	(See appended table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P, K_R, d, V_{PW} (V) .....:	(See appended Table 5.4.4.9)	N/A
	Alternative by electric strength test, tested voltage (V), K_R .....:	(See appended Tables 5.4.4.9 and 5.4.9)	N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance (MΩ).....:		N/A
	Electric strength test .....:	(See appended table 5.4.9)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%), temperature (°C), duration (h) ..... :		—
5.4.9	Electric strength test		N/A
5.4.9.1	Test procedure for type test of solid insulation.....:	(See appended table 5.4.9)	N/A
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test ..... :	(See appended table 5.4.9)	N/A
5.4.10.2.3	Steady-state test..... :	(See appended table 5.4.9)	N/A
5.4.10.3	Verification for insulation breakdown for impulse test ..... :		N/A
5.4.11	Separation between external circuits and earth		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V)..... :		—
	Nominal voltage U_{peak} (V)..... :		—
	Max increase due to variation ΔU_{sp} ..... :		—
	Max increase due to ageing ΔU_{sa} ..... :		—
5.4.11.3	Test method and compliance ..... :	(See appended table 5.4.9)	N/A
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid ..... :	(See appended table 5.4.9)	N/A
5.4.12.3	Compatibility of an insulating liquid ..... :	(See appended table 5.4.9)	N/A
5.4.12.4	Container for insulating liquid ..... :		N/A
5.5	**Components as safeguards**		N/A
5.5.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector ..... :	(See appended table 5.5.2.2)	N/A
5.5.3	Transformers		N/A
5.5.4	Optocouplers	(See sub-clause 5.4 or Clause G.12)	N/A
5.5.5	Relays	(See sub-clause 5.4)	N/A
5.5.6	Resistors	(See Clause G.10)	N/A
5.5.7	SPDs	(See Clause G.8)	N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable ..... :		N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA)..... :		—
5.6	**Protective conductor**		N/A
5.6.2	Requirement for protective conductors		N/A
5.6	**Protective conductor**		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm^2) ..... :		—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2). ..... :		—
5.6.4.2	Protective current rating (A)..... :		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :		N/A
	Terminal size for connecting protective bonding conductors (mm) .....:		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective bonding system		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method ..... :	(See appended table 5.6.6)	N/A
5.6.6.3	Resistance (Ω) or voltage drop ..... :	(See appended table 5.6.6)	N/A
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size (mm^2) ..... :		N/A
	Class II with functional earthing marking ..... :		N/A
	Appliance inlet cl & cr (mm) ..... :		N/A
5.7	**Prospective touch voltage, touch current and protective conductor current**		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current		N/A
5.7.2.2	Measurement of voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
5.7.4	Unearthed accessible parts ..... :	(See appended table 5.7.4)	N/A
5.7.5	Earthed accessible conductive parts ..... :	(See appended table 5.7.5)	N/A
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA) ..... :		N/A
	Instructional Safeguard ..... :		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to earthed external circuits, current (mA) ..... :		N/A
	b) Equipment connected to unearthed external circuits, current (mA) ..... :		N/A
5.8	**Backfeed safeguard in battery backed up supplies**		N/A
	Mains terminal ES ..... :	(See appended table 5.8)	N/A
	Air gap (mm) ..... :		N/A

6	**ELECTRICALLY- CAUSED FIRE**	P
6.2	**Classification of PS and PIS**	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.2	Power source circuit classifications.....:	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS .....:	(See appended table 6.2.3.1)	N/A
6.2.3.2	Resistive PIS .....:	(See appended table 6.2.3.2)	N/A
6.3	**Safeguards against fire under normal operating and abnormal operating conditions**		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials ..... :	(See appended table B.1.5 and B.3)	P
	Combustible materials outside fire enclosure .....:		N/A
6.4	**Safeguards against fire under single fault conditions**		P
6.4.1	Safeguard method		P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions ..... :	(See appended table B.4)	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards		N/A
6.4.6	Control of fire spread in PS3 circuits		N/A
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		N/A
6.4.8.2	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties		N/A
	Openings dimensions (mm)..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.4	Bottom openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
	Flammability tests for the bottom of a fire enclosure	(See Clause S.3)	N/A
	Instructional Safeguard.....:		N/A
6.4.8.3.5	Side openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)..... :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating ..... :		N/A
6.4.9	Flammability of insulating liquid.....:		N/A
6.5	**Internal and external wiring**		N/A
6.5.1	General requirements		N/A
6.5.2	Requirements for interconnection to building wiring ..... :		N/A
6.5.3	Internal wiring size (mm^2) for socket-outlets..... :		N/A
6.6	**Safeguards against fire due to the connection to additional equipment**		N/A
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		P
7.2	**Reduction of exposure to hazardous substances**		N/A
7.3	**Ozone exposure**		N/A
7.4	**Use of personal safeguards or personal protective equipment (PPE)**		N/A
	Personal safeguards and instructions ..... :		—
7.5	**Use of instructional safeguards and instructions**		N/A
	Instructional safeguard (ISO 7010)..... :		—
7.6	**Batteries and their protection circuits**		P
8	**MECHANICALLY-CAUSED INJURY**		P
8.2	**Mechanical energy source classifications**		P
8.3	**Safeguards against mechanical energy sources**		P
8.4	**Safeguards against parts with sharp edges and corners**		N/A
8.4.1	Safeguards		N/A
	Instructional Safeguard.....:		N/A
8.4.2	Sharp edges or corners		N/A
8.5	**Safeguards against moving parts**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts		N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard.....:		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m).....:		N/A
	Space between end point and nearest fixed mechanical part (mm) .....:		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly .....:		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts .....:		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N).....:		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test.....:		N/A
8.5.5.3	Glass particles dimensions (mm) .....:		N/A
8.6	**Stability of equipment**		N/A
8.6.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Instructional safeguard.....:		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test .....:		N/A
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm) .....:		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test .....:		N/A
8.7	**Equipment mounted to wall, ceiling or other structure**		N/A
8.7.1	Mount means type .....:		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N).....:		N/A
	Test 2, number of attachment points and test force (N).....:		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm).....:		N/A
8.8	**Handles strength**		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles.....:		—
	Force applied (N) .....:		—
8.9	**Wheels or casters attachment requirements**		N/A
8.9.2	Pull test		N/A
8.10	**Carts, stands and similar carriers**		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions .....:		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N) .....:		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N) .....:		—
8.10.6	Thermoplastic temperature stability		N/A
8.11	**Mounting means for slide-rail mounted equipment (SRME)**		N/A
8.11.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard.....:		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied.....:		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
8.12	**Telescoping or rod antennas**		N/A
	Button/ball diameter (mm) .....:		—
9	**THERMAL BURN INJURY**		P
9.2	**Thermal energy source classifications**		P
9.3	**Touch temperature limits**		P
9.3.1	Touch temperatures of accessible parts .....:	(See appended table)	P
9.3.2	Test method and compliance		P
9.4	**Safeguards against thermal energy sources**		N/A
9.5	**Requirements for safeguards**		N/A
9.5.1	Equipment safeguard		N/A
9.5.2	Instructional safeguard.....:		N/A
9.6	**Requirements for wireless power transmitters**		N/A
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance .....:	(See appended table 9.6)	N/A
10	**RADIATION**		P
10.2	**Radiation energy source classification**		P
10.2.1	General classification	LED Indicating lights	P
	Lasers ..... :	No laser radiation.	—
	Lamps and lamp systems..... :		—
	Image projectors ..... :		—
	X-Ray..... :		—
	Personal music player ..... :		—
10.3	**Safeguards against laser radiation**		N/A
	The standard(s) equipment containing laser(s)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	comply .....:		
10.4	**Safeguards against optical radiation from lamps and lamp systems (including LED types)**		P
10.4.1	General requirements	LED Indicating lights are considered as RS1.	P
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location .....:		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure .....:	(See Annex C)	N/A
10.4.3	Instructional safeguard ..... :		N/A
10.5	**Safeguards against X-radiation**		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons ..... :		—
10.5.3	Maximum radiation (pA/kg)..... :	(See appended tables B.3 & B.4)	—
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$, dB(A).....:		N/A
	Unweighted RMS output voltage (mV).....:		N/A
	Digital output signal (dBFS).....:		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30) .....:		N/A
	Warning for MEL ≥ 100 dB(A) .....:		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards ..... :		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV)..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A) .....:		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A) .....:		N/A

B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.1	**General**		P
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
B.2	**Normal operating conditions**		P
B.2.1	General requirements ..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers ..... :	(See Annex E)	N/A
B.2.3	Supply voltage and tolerances		N/A
B.2.5	Input test ..... :	(See appended table B.2.5)	N/A
B.3	**Simulated abnormal operating conditions**		N/A
B.3.1	General		N/A
B.3.2	Covering of ventilation openings		N/A
	Instructional safeguard ..... :		N/A
B.3.3	DC mains polarity test		N/A
B.3.4	Setting of voltage selector		N/A
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity		N/A
B.3.7	Audio amplifier abnormal operating conditions		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions ..... :	(See appended table B.3)	N/A
B.4	**Simulated single fault conditions**		P
B.4.1	General		P
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test	(See appended table B.4)	N/A
B.4.4	Functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnection of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance during and after single fault conditions ..... :	(See appended table B.4)	P
B.4.9	Battery charging and discharging under single fault conditions	(See Annex M)	P
C	**UV RADIATION**		N/A
C.1	**Protection of materials in equipment from UV radiation**		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	**UV light conditioning test**		N/A
C.2.1	Test apparatus..... :		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
D	**TEST GENERATORS**		N/A
D.1	**Impulse test generators**		N/A
D.2	**Antenna interface test generator**		N/A
D.3	**Electronic pulse generator**		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		N/A
E.1	**Electrical energy source classification for audio signals**		N/A
	Maximum non-clipped output power (W)..... :		—
	Rated load impedance (Ω) ..... :		—
	Open-circuit output voltage (V)..... :		—
	Instructional safeguard ..... :		—
E.2	**Audio amplifier normal operating conditions**		N/A
	Audio signal source type ..... :		—
	Audio output power (W)..... :		—
	Audio output voltage (V) ..... :		—
	Rated load impedance (Ω) ..... :		—
	Requirements for temperature measurement		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
E.3	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	**General**		P
	Language ..... :		—
F.2	**Letter symbols and graphical symbols**		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific		P
F.3	**Equipment markings**		P
F.3.1	Equipment marking locations		P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification ..... :	See marking plate	—
F.3.2.2	Model identification ..... :	See marking plate	—
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains		P
F.3.3.3	Nature of the supply voltage..... :	See marking plate	—
F.3.3.4	Rated voltage..... :	See marking plate	—
F.3.3.5	Rated frequency ..... :	See marking plate	—
F.3.3.6	Rated current or rated power..... :	See marking plate	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings ..... :	No such parts	N/A
F.3.5.2	Switch position identification marking..... :	No switches	N/A
F.3.5.3	Replacement fuse identification and rating markings ..... :		N/A
	Instructional safeguards for neutral fuse ..... :		N/A
F.3.5.4	Replacement battery identification marking ..... :		N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.1.1	Protective earthing conductor terminal ..... :		N/A
F.3.6.1.2	Protective bonding conductor terminals ..... :		N/A
F.3.6.2	Equipment class marking ..... :		N/A
F.3.6.3	Functional earthing terminal marking ..... :		N/A
F.3.7	Equipment IP rating marking ..... :	IPX0	N/A
F.3.8	External power supply output marking ..... :		N/A
F.3.9	Durability, legibility and permanence of marking		P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After rubbing test by water and petroleum spirit, the label still easily discernible, indelible and legible.	P
F.4	**Instructions**		P
	a) Information prior to installation and initial use		P
	b) Equipment for use in locations where children not likely to be present		N/A
	c) Instructions for installation and interconnection		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		N/A
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		N/A
	j) Permanently connected equipment not provided with all-pole mains switch		N/A
	k) Replaceable components or modules providing safeguard function	See user manual	P
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A
F.5	Instructional safeguards		N/A
G	**COMPONENTS**		P
G.1	**Switches**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.1.1	General		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance		N/A
G.2	**Relays**		N/A
G.2.1	Requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
G.3	**Protective devices**		N/A
G.3.1	Thermal cut-offs		N/A
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors		N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions..... :	(See appended table B.4)	N/A
G.4	**Connectors**		N/A
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration..... :		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	**Wound components**		N/A
G.5.1	Wire insulation in wound components		N/A
G.5.1.2	Protection against mechanical stress		N/A
G.5.2	Endurance test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle) ..... :		—
	Test temperature (°C)..... :		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A
G.5.3	Transformers		N/A
G.5.3.1	Compliance method..... :		N/A
	Position ..... :		N/A
	Method of protection ..... :		N/A
G.5.3.2	Insulation		N/A
	Protection from displacement of windings..... :		—
G.5.3.3	Transformer overload tests		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding temperatures		N/A
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter..... :		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation..... :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days) ..... :		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature ..... :		N/A
G.5.4.6.3	Alternative method		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage ..... :		—
G.6	**Wire Insulation**		N/A
G.6.1	General		N/A
G.6.2	Enamelled winding wire insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements		N/A
	Type ..... :		—
G.7.2	Cross sectional area (mm^2 or AWG) ..... :		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)..... :		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)..... :		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	Overall diameter or minor overall dimension, *D* (mm) ..... :		—
	Radius of curvature after test (mm)..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	**Varistors**		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
G.9	**Integrated circuit (IC) current limiters**		N/A
G.9.1	Requirements		N/A
	IC limiter output current (max. 5A)..... :		—
	Manufacturers' defined drift ..... :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
G.10	**Resistors**		N/A
G.10.1	General		N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A
G.10.6	Overload test		N/A
G.11	**Capacitors and RC units**		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	**Optocouplers**		N/A
	Optocouplers comply with IEC 60747-5-5 with specifics		N/A
	Type test voltage $V_{ini,a}$..... :		—
	Routine test voltage, $V_{ini,b}$ ..... :		—
G.13	**Printed boards**		P
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation ..... :		N/A
	Number of insulation layers (pcs) ..... :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements ..... :	(See Clause G.13)	N/A
G.15	**Pressurized liquid filled components**		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test..... :		—
	Mains voltage that impulses to be superimposed on ..... :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test ..... :		—
G.16.3	Capacitor discharge test..... :		N/A
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	**General**		N/A
H.2	**Method A**		N/A
H.3	**Method B**		N/A
H.3.1	Ringing signal		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.1.1	Frequency (Hz) ..... :		—
H.3.1.2	Voltage (V) ..... :		—
H.3.1.3	Cadence; time (s) and voltage (V) ..... :		—
H.3.1.4	Single fault current (mA): ..... :		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) ..... :		N/A
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
J.1	**General**		N/A
	Winding wire insulation ..... :		—
	Solid round winding wire, diameter (mm) ..... :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm^2) ..... :		N/A
J.2/J.3	Tests and Manufacturing	(See separate test report)	—
K	**SAFETY INTERLOCKS**		N/A
K.1	**General requirements**		N/A
	Instructional safeguard ..... :		N/A
K.2	**Components of safety interlock safeguard mechanism**		N/A
K.3	**Inadvertent change of operating mode**		N/A
K.4	**Interlock safeguard override**		N/A
K.5	**Fail-safe**		N/A
K.5.1	Under single fault condition		N/A
K.6	**Mechanically operated safety interlocks**		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance ..... :		N/A
K.7	**Interlock circuit isolation**		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm) ..... :		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm) ..... :		N/A
	Electric strength test before and after the test of K.7.2 ..... :	(See appended table 5.4.9)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.7.2	Overload test, Current (A) ..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	**DISCONNECT DEVICES**		N/A
L.1	**General requirements**		N/A
L.2	**Permanently connected equipment**		N/A
L.3	**Parts that remain energized**		N/A
L.4	**Single-phase equipment**		N/A
L.5	**Three-phase equipment**		N/A
L.6	**Switches as disconnect devices**		N/A
L.7	**Plugs as disconnect devices**		N/A
L.8	**Multiple power sources**		N/A
	Instructional safeguard ..... :		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		P
M.1	**General requirements**		P
M.2	**Safety of batteries and their cells**		P
M.2.1	Batteries and their cells comply with relevant IEC standards ..... :	Approved lithium battery used and comply with IEC 62133	P
M.3	**Protection circuits for batteries provided within the equipment**		P
M.3.1	Requirements		P
M.3.2	Test method		P
	Overcharging of a rechargeable battery		P
	Excessive discharging		P
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery	Battery connector can prevent the battery from being reverse charged	N/A
M.3.3	Compliance	(See appended table M.3)	P
M.4	**Additional safeguards for equipment containing a portable secondary lithium battery**		P
M.4.1	General		P
M.4.2	Charging safeguards		P
M.4.2.1	Requirements		P
M.4.2.2	Compliance ..... :	(See appended table M.4.2)	P
M.4.3	Fire enclosure ..... :	Battery cell comply with PS1	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4	Drop test of equipment containing a secondary lithium battery		P
M.4.4.2	Preparation and procedure for the drop test		P
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): ..... :		P
M.4.4.4	Check of the charge/discharge function		P
M.4.4.5	Charge / discharge cycle test		P
M.4.4.6	Compliance		P
M.5	**Risk of burn due to short-circuit during carrying**		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
M.6	**Safeguards against short-circuits**		P
M.6.1	External and internal faults		P
M.6.2	Compliance		N/A
M.7	**Risk of explosion from lead acid and NiCd batteries**		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate ..... :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, Q (m^3/h) ..... :		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%) ..... :		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate..... :		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%) ..... :		N/A
M.7.4	Marking ..... :		N/A
M.8	**Protection against internal ignition from external spark sources of batteries with aqueous electrolyte**		N/A
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume V_Z (m^3/s) ..... :		—
M.8.2.3	Correction factors ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
M.8.2.4	Calculation of distance *d* (mm) ..... :		—
M.9	**Preventing electrolyte spillage**		P
M.9.1	Protection from electrolyte spillage		P
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse	Mentioned in user manual	P
	Instructional safeguard ..... :	Mentioned in user manual	P
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Material(s) used..... :		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		N/A
	Value of *X* (mm)..... :		—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		N/A
P.1	**General**		N/A
P.2	**Safeguards against entry or consequences of entry of a foreign object**		N/A
P.2.1	General		N/A
P.2.2	Safeguards against entry of a foreign object		N/A
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts..... :		N/A
P.2.3.2	Consequence of entry test..... :		N/A
P.3	**Safeguards against spillage of internal liquids**		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance		N/A
P.4	**Metallized coatings and adhesives securing parts**		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T_C (°C) ..... :		—
	Duration (weeks) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict

Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		N/A
Q.1	**Limited power sources**		N/A
Q.1.1	Requirements		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance ..... :	(See appended table Q.1)	N/A
	Current rating of overcurrent protective device (A) ..... :		N/A
Q.2	**Test for external circuits – paired conductor cable**		N/A
	Maximum output current (A) ..... :		N/A
	Current limiting method ..... :		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	**General**		N/A
R.2	**Test setup**		N/A
	Overcurrent protective device for test ..... :		—
R.3	**Test method**		N/A
	Cord/cable used for test ..... :		—
R.4	**Compliance**		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	**Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W**		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	**Flammability test for fire enclosure and fire barrier integrity**		N/A
	Samples, material ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
S.3	**Flammability test for the bottom of a fire enclosure**		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples ..... :		—
	Wall thickness (mm) ..... :		—
S.4	**Flammability classification of materials**		N/A
S.5	**Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W**		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
T	**MECHANICAL STRENGTH TESTS**		P
T.1	**General**		P
T.2	**Steady force test, 10 N ..... :**		N/A
T.3	**Steady force test, 30 N ..... :**		N/A
T.4	**Steady force test, 100 N ..... :**	(See appended table T.4)	P
T.5	**Steady force test, 250 N ..... :**		N/A
T.6	**Enclosure impact test**		N/A
	Fall test		N/A
	Swing test		N/A
T.7	**Drop test ..... :**	(See appended table T.7)	P
T.8	**Stress relief test..... :**	(See appended table T.8)	P
T.9	**Glass Impact Test .....:**	(See appended table T.9)	N/A
T.10	**Glass fragmentation test**		N/A
	Number of particles counted.....:		N/A
T.11	**Test for telescoping or rod antennas**		N/A
	Torque value (Nm) ..... :		N/A
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION**		N/A
U.1	**General**		N/A
	Instructional safeguard **:**		N/A
U.2	**Test method and compliance for non-intrinsically protected CRTs**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

U.3	**Protective screen**		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS**		N/A
V.1	**Accessible parts of equipment**		N/A
V.1.1	General	Enclosure	N/A
V.1.2	Surfaces and openings tested with jointed test probes		N/A
V.1.3	Openings tested with straight unjointed test probes		N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A
V.2	**Accessible part criterion**		N/A
X	**ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)**		N/A
	Clearance .....:	(See appended table X)	N/A
Y	**CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES**		N/A
Y.1	**General**		N/A
Y.2	**Resistance to UV radiation**		N/A
Y.3	**Resistance to corrosion**		N/A
Y.3	**Resistance to corrosion**		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by ..... :		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure ..... :		N/A
Y.3.5	Compliance		N/A
Y.4	**Gaskets**		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods ..... :		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means	(See Annex P.4)	N/A
Y.5	**Protection of equipment within an outdoor enclosure**		N/A
Y.5.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3 ..... :		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	**Mechanical strength of enclosures**		N/A
Y.6.1	General		N/A
Y.6.2	Impact test ..... :	(See Table T.6)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE: Classification of electrical energy sources						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type[1)]	Additional Info [2)]	
5Vdc	All circuit	Normal	5.0Vdc	--	--	DC	ES1
		Abnormal	--	--	--	DC	
		Single fault –SC	--	--	--	DC	
4.2Vdc	Battery output	Normal	4.2Vdc	--	--	DC	ES1
		Abnormal	--	--	--	DC	
		Single fault –SC	--	--	--	DC	
Supplementary information:							
1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc. 2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc.							

5.4.1.8	TABLE: Working voltage measurement				N/A
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	
--	--	--	--	--	
Supplementary information:					

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N/A
Method.....:		ISO 306 / B50		—
Object/ Part No./Material	Manufacturer/trademark	Thickness (mm)	T softening (°C)	
--	--	--	--	
Supplementary information:				

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics				N/A
Allowed impression diameter (mm).....:		≤ 2 mm			—
Object/Part No./Material	Manufacturer/trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)	
--	--	--	--	--	
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							N/A
Clearance (cl) and creepage distance (cr) at/of/between:	U_p (V)	U_{rms} (V)	Freq [1] (Hz)	Required cl (mm)	cl (mm)	E.S. [2] (V)	Required cr (mm)	cr (mm)
--	--	--	--	--	--	--	--	--
Supplementary information:								
1) Only for frequency above 30 kHz 2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)								

5.4.4.2	TABLE: Minimum distance through insulation			
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)
--	--	--	--	--
Supplementary information:				

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz					N/A
Insulation material	E_P	Frequency (kHz)	K_R	Thickness d (mm)	Insulation	V_{PW} (Vpk)
--	--	--	--	--	--	--
Supplementary information:						

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:	Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No	
--	--	--	--	
Supplementary information:				

5.5.2.2	TABLE: Stored discharge on capacitors				N/A
Location	Supply voltage (V)	Operating and fault condition [1]	Switch position	Measured voltage (Vpk)	ES Class
--	--	--	--	--	--
Supplementary information:					
X-capacitors installed for testing:					

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Clause	Requirement + Test	Result - Remark	Verdict

[ ] bleeding resistor rating:
[ ] ICX:
1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit

5.6.6	TABLE: Resistance of protective conductors and terminations				N/A
Location		Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
--		--	--	--	--
Supplementary information:					

5.7.4	TABLE: Unearthed accessible parts					N/A
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V_{rms} or V_{pk})	Current (A_{rms} or A_{pk})	Freq. (Hz)	
--	--	--	--	--	--	--
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	TABLE: Earthed accessible conductive part			N/A
Supply voltage (V) ..... :				—
Phase(s) ..... :	[ ] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye			
Power Distribution System ..... :	[ ] TN [ ]TT [ ] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
--	--	--	--	
Supplementary Information:				

5.8	TABLE: Backfeed safeguard in battery backed up supplies					N/A
Location	Supply voltage (V)	Operating and fault condition	Time (s)	Open-circuit voltage (V)	Touch current (A)	ES Class
--	--	--	--	--	--	--
Supplementary information:						
Abbreviation: SC= short circuit, OC= open circuit						

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power[1)] (W)	Time (S)	PS class
DC input	--	--	--	--	--	PS1#
Battery output	Normal	3.83	2.42	9.26	3	PS1
Battery output	Battery B- to P- SC	3.75	2.73	10.45	3	PS1
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit 1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3. 2) #: The external power DC source was considered as ES1/PS1.						

6.2.3.1	TABLE: Determination of Arcing PIS			N/A
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
--	--	--	--	--
Supplementary information:				

6.2.3.2	TABLE: Determination of resistive PIS		N/A
Location	Operating and fault condition	Dissipate power (W)	Arcing PIS? Yes / No
--	--	--	--
Supplementary information:			
Abbreviation: SC= short circuit; OC= open circuit			

8.5.5	TABLE: High pressure lamp			N/A
Lamp manufacturer	Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No
--	--	--	--	--
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

9.6	TABLE: Temperature measurements for wireless power transmitters								N/A
Supply voltage (V)..... :	--								—
Max. transmit power of transmitter (W)..... :	--								—
Foreign objects	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm		
	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	
--	--	--	--	--	--	--	--	--	
Supplementary information:									

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements				P
Supply voltage (V)..... :	5Vdc (Battery charging)	4.2V (Battery discharging)	--	--	—
Ambient temperature during test T_{amb} (°C) .... :	See below	See below	--	--	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
DC inlet	28.6	--	--	--	Ref.
PCB near U2	33.7	34.5	--	--	130
PCB near ANT1	32.4	33.6	--	--	130
Battery surface	30.2	31.4	--	--	45/60
Enclosure inside	29.7	30.5	--	--	Ref.
Enclosure outside	28.5	29.4	--	--	48
Ambient	25.0	25.0	--	--	--
Accessible part temperature of clause 9.0					

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

B.2.5	TABLE: Input test							N/A
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
--	--	--	--	--	--	--	--	--
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured								

B.3, B.4	TABLE: Abnormal operating and fault condition tests						P
Ambient temperature T_{amb} (°C)..... :					See below		—
Power source for EUT: Manufacturer, model/type, outputrating .. :					--		—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation	
U2 Pin 1-2 (Charging)	SC	5Vdc	10mins	--	--	Duration the test, no fire, no explosion, no expulsion of molten metal, no hazards occur.	
C3 (Charging)	SC	5Vdc	10mins	--	--	Duration the test, no fire, no explosion, no expulsion of molten metal, no hazards occur.	
Battery B- to P- (Charging)	SC	5Vdc	7h	--	--	Duration the test, no fire, no explosion, no expulsion of molten metal, no hazards occur.	
C5 (Discharging)	SC	4.2Vdc	10mins	--	--	Duration the test, no fire, no explosion, no expulsion of molten metal, no hazards occur.	
Battery B- to P- (Discharging)	SC	4.2Vdc	7h	--	--	Duration the test, no fire, no explosion, no expulsion of molten metal, no hazards occur.	
Supplementary information:							
Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.							

M.3	TABLE: Protection circuits for batteries provided within the equipment		P
Is it possible to install the battery in a reverse polarity position? ..... :		--	—
Equipment Specification	Charging		
	Voltage (V)	Current (A)	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

	--		--			
Manufacturer/type	Battery specification					
	Non-rechargeable batteries		Rechargeable batteries			
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)
			Voltage (V)	Current (A)		
See TABLE4.1.2: Critical components information	--	--	4.2	0.18	0.18	--
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.						
Specified battery temperature (°C) ..... :			Charge: 0°C-45°C			

Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
Input port	Normal	Charge mode	7h	30.2	0.03	5.00	NL,NS,NE,NF
Battery	Normal	Discharge mode	7h	31.4	0.04	4.2	NL,NS,NE,NF
Battery B- to P-	SC	Discharge mode	7h	32.6	0.07	4.2	NL,NS,NE,NF
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

M.4.2	**TABLE: Charging safeguards for equipment containing a secondary lithium battery**	P
Maximum specified charging voltage (V) ..... :	4.2	—
Maximum specified charging current (A) ..... :	0.18	—
Highest specified charging temperature (°C) ..... :	45	
Lowest specified charging temperature (°C) ..... :	0	

Battery manufacturer/type	Operating and fault condition	Measurement			Observation
		Charging voltage (V)	Charging current (A)	Temp. (°C)	
See TABLE4.1.2: Critical components information	Normal	4.2	0	44.5	HSCT. The battery temperature does not exceed the specified temperature. When the battery temperature was 44.5°C, the battery charging circuit stops charging.
See TABLE4.1.2: Critical components information	Normal	4.2	0.01	0.7	LSCT. Complied the manufacturer specified value.
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature

Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**						N/A
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--	--
Supplementary Information:							

T.2, T.3, T.4, T.5	**TABLE: Steady force test**					P
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation
Top/Side/Bottom	See table 4.1.2	See table 4.1.2	--	100	5	No damage, all safeguard remain effective.
Supplementary information:						

T.6, T.9	**TABLE: Impact test**			N/A
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
--	--	--	--	--
Supplementary information:				

T.7	**TABLE: Drop test**			P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
Top/Side/Bottom	See table 4.1.2	See table 4.1.2	1000	No damage, all safeguard remain effective.
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

T.8	TABLE: Stress relief test					P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
External enclosure	See table 4.1.2	See table 4.1.2	70	7	No damage, all safeguard remain effective.	
Supplementary information:						

X	TABLE: Alternative method for determining minimum clearances distances			N/A
Clearance distanced between:	Peak of working voltage (V)	Required cl (mm)	Measured cl (mm)	
--	--	--	--	
Supplementary information:				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: Critical components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Plastic enclosure	EMS-CHEMIE AG	Grilamid TR 90	HB, 65°C minimum thickness 0.75mm	UL 94 UL 746	UL E53898
PCB	Shenzhen Zhongyou Express Circuit Co., Ltd	ZY-M	V-0, 130°C	UL 796	UL E528727
Alt.	Interchangeable	Interchangeable	V-0, 130°C	UL 796	UL
Lithium ion Polymer Battery	Shenzhen Mitacbattery technology Co., LTD.	501430	3.7V, 180mAh, 0.67Wh	IEC 62133-2:2017/AMD1:2021	CMC Testing International (Shenzhen) Co., Ltd. Test report: CMC221010006
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

(Audio/video, information and communication technology equipment - Part 1: Safety requirements)

Differences according to ..... : EN IEC 62368-1:2020+A11:2020

Attachment Form No..... : EU_GD_IEC62368_1E

Attachment Originator..... : UL(Demko)

Master Attachment..... : 2021-02-04

	CENELEC COMMON MODIFICATIONS (EN)		--
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2018. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2018 are prefixed "Z".		P
	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords		P
1	**Modification to Clause 3 .**		N/A
3.3.19	**Sound exposure** *Replace 3.3.19 of IEC 62368-1 with the following definitions:*		N/A
3.3.19.1	**momentary exposure level, MEL** metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2. Note 1 to entry: MEL is measured as A-weighted levels in dB. Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.		N/A
3.3.19.3	**sound exposure, *E*** A-weighted sound pressure (p) squared and integrated over a stated period of time, T Note 1 to entry: The SI unit is Pa^2 s.		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	$E = \int_0^T p(t)^2 \, dt$		
3.3.19.4	**sound exposure level, *SEL*** logarithmic measure of sound exposure relative to a reference value, E_0, typically the 1 kHz threshold of hearing in humans. Note 1 to entry: *SEL* is measured as A-weighted levels in dB. $SEL = 10 \lg \left(\frac{E}{E_0}\right)$ dB Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.		N/A
3.3.19.5	**digital signal level relative to full scale, dBFS** levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.		N/A
2	**Modification to Clause 10**		N/A
10.6	**Safeguards against acoustic energy sources** Replace 10.6 of IEC 62368-1 with the following:		N/A
10.6.1.1	**Introduction** **Safeguard** requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an **ordinary person**, that: – is designed to allow the user to listen to audio or audiovisual content / material; and – uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and – has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	continuous use (for example, on a street, in a subway, at an airport, etc.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3. NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible. Listening devices sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to: – professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. – hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music players: • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. – a player while connected to an external amplifier that does not allow the user to walk around while in use. For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply. The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		
10.6.1.2	**Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.		
10.6.2	**Classification of devices without the capacity to estimate sound dose**		N/A
10.6.2.1	**General** This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3. For classifying the acoustic output $L_{Aeq,T}$, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period. For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song. NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.		N/A
10.6.2.2	**RS1 limits (to be superseded, see 10.6.3.2)** RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 85 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1. – The RS1 limits will be updated for all devices as per 10.6.3.2.		
10.6.2.3	**RS2 limits (to be superseded, see 10.6.3.3)** RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic 130 detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 100 dB(A) when playing the fixed “programme simulation noise” as described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or -10 dBFS (digital interface) when playing the fixed “programme simulation noise” as described in EN 50332-1.		N/A
10.6.2.4	**RS3 limits** RS3 is a class 3 acoustic energy source that exceeds RS2 limits.		N/A
10.6.3	**Classification of devices (new)**		N/A
10.6.3.1	**General** Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision of 23 June 2009, are given below.		N/A
10.6.3.2	**RS1 limits (new)** RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.		
10.6.3.3	**RS2 limits (new)** RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly sound exposure level, as described in EN 50332-3, shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN50332-3, shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.		N/A
10.6.4	**Requirements for maximum sound exposure**		N/A
10.6.4.1	**Measurement methods** All volume controls shall be turned to maximum during tests. Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.		N/A
10.6.4.2	**Protection of persons** Except as given below, protection requirements for parts **accessible** to **ordinary persons**, **instructed persons** and **skilled persons** are given in 4.3. NOTE 1 Volume control is not considered a **safeguard.** Between RS2 and an **ordinary person**, the **basic safeguard** may be replaced by an **instructional safeguard** in accordance with Clause F.5, except that the **instructional safeguard** shall be placed on the equipment, or on the packaging, or in the instruction manual. Alternatively, the **instructional safeguard** may be given through the equipment display during use. The elements of the **instructional safeguard** shall be as follows:		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	– element 1a: the symbol  , IEC 60417-6044 (2011-01) – element 2: “High sound pressure” or equivalent wording – element 3: “Hearing damage risk” or equivalent wording – element 4: “Do not listen at high volume levels for long periods.” or equivalent wording An **equipment safeguard** shall prevent exposure of an **ordinary person** to an RS2 source without intentional physical action from the **ordinary person** and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off. The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output exceeding RS1. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time. NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed. NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off. A **skilled person** shall not be unintentionally exposed to RS3.		
10.6.5	**Requirements for dose-based systems**		N/A
10.6.5.1	**General requirements** Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause. The manufacturer may offer optional settings to allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the safeguards. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration.		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.		
10.6.5.2	**Dose-based warning and requirements** When a dose of 100 % *CSD* is reached, and at least at every 100 % further increase of *CSD*, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to compliance with class RS1. The warning shall at least clearly indicate that listening above 100 % *CSD* leads to the risk of hearing damage or loss.		N/A
10.6.5.3	**Exposure-based requirements** With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at. The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3. The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or faster. Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the unweighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than -10 dBFS for a digital interface. NOTE In case the source is known not to be music (or test signal), the EL may be disabled.		N/A
10.6.6	**Requirements for listening devices (headphones, earphones, etc.)**		N/A
10.6.6.1	**Corded listening devices with analogue input** With 94 dB L_{Aeq} acoustic pressure output of the listening device, and with the volume and sound		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.		
10.6.6.2	**Corded listening devices with digital input** With any playing device playing the fixed “programme simulation noise” described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.3	**Cordless listening devices** In cordless mode, – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.4	**Measurement method** *Measurements shall be made in accordance with EN 50332-2 as applicable.*		N/A
3	**Modification to the whole document**		P

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Delete all the “country” notes in the reference document according to the following list:		P

0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2
3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2
5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3
5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note
5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3 and 4
5.6.8	Note 2	5.7.6	Note	5.7.7.1	Note 1 and Note 2
8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2
~~10.6.1~~	Note 3	F.3.3.6	Note 3	Y.4.1	Note
Y.4.5	Note				

4	**Modification to Clause 1**		N/A
1	***Add** the following note:* *NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.*		N/A
5	**Modification to 4.Z1**		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	***Add*** *the following new subclause after 4.9:* To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		N/A
6	**Modification to 5.4.2.3.2.4**		N/A
5.4.2.3.2.4	***Add*** *the following to the end of this subclause:* The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.		N/A
7	**Modification to 10.2.1**		N/A
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.		N/A
8	**Modification to 10.5.1**		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	***Add** the following after the first paragraph:* For RS 1 compliance is checked by measurement under the following conditions: In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made. NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus. Moreover, the measurement shall be made under fault conditions causing an increase of the high voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
9	**Modification to G.7.1**		N/A
G.7.1	***Add** the following note:* NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A
10	**Modification to Bibliography**		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		N/A
11	**ADDITION OF ANNEXES**		N/A
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		P
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”	See the marking plate	P
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	No high touch current measured.	N/A
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		P
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.4.2.1	**France** After the indent for **pluggable equipment type A**, the following is added: – in certain cases, the **protective current rating** of the circuit supplied from the mains is taken as 20 A instead of 16 A.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		
5.6.8	**Norway** To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as **class I equipment**. See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.6	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
5.7.7.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.		
8.5.4.2.3	**United Kingdom** Add the following after the 2nd dash bullet in 3rd paragraph: An emergency stop system complying with the requirements of IEC 60204-1 and ISO 13850 is required where there is a risk of personal injury.		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a polyphase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added:		N/A

Appendix 1_ IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, “13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N/A
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification*: German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ZD	**IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)**	N/A

N/A

Type of flexible cord	Code designations	
	IEC	CENELEC
PVC insulated cords		
Flat twin tinsel cord	60227 IEC 41	H03VH-Y
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F
Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F
Rubber insulated cords		
Braided cord	60245 IEC 51	H03RT-F
Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F
Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F
Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F
Cords having high flexibility		
Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H
Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H
Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H
Cords insulated and sheathed with halogen-free thermoplastic compounds		
Light halogen-free thermoplastic insulated and sheathed flexible cords		H03Z1Z1-F H03Z1Z1H2-F
Ordinary halogen-free thermoplastic insulated and sheathed flexible cords		H05Z1Z1-F H05Z1Z1H2-F

Appendix 2: Photos

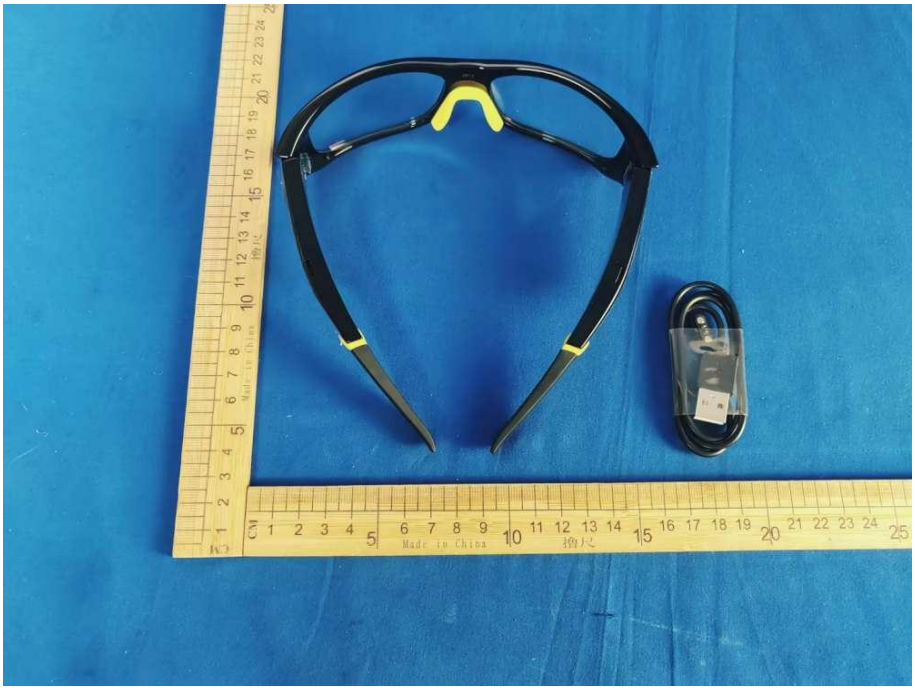

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

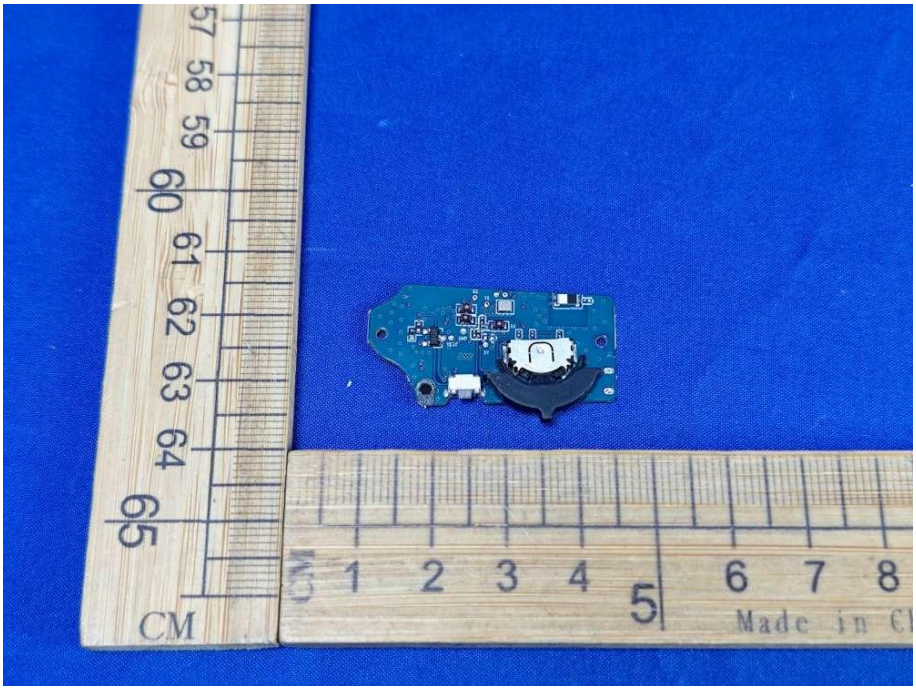

Figure 7

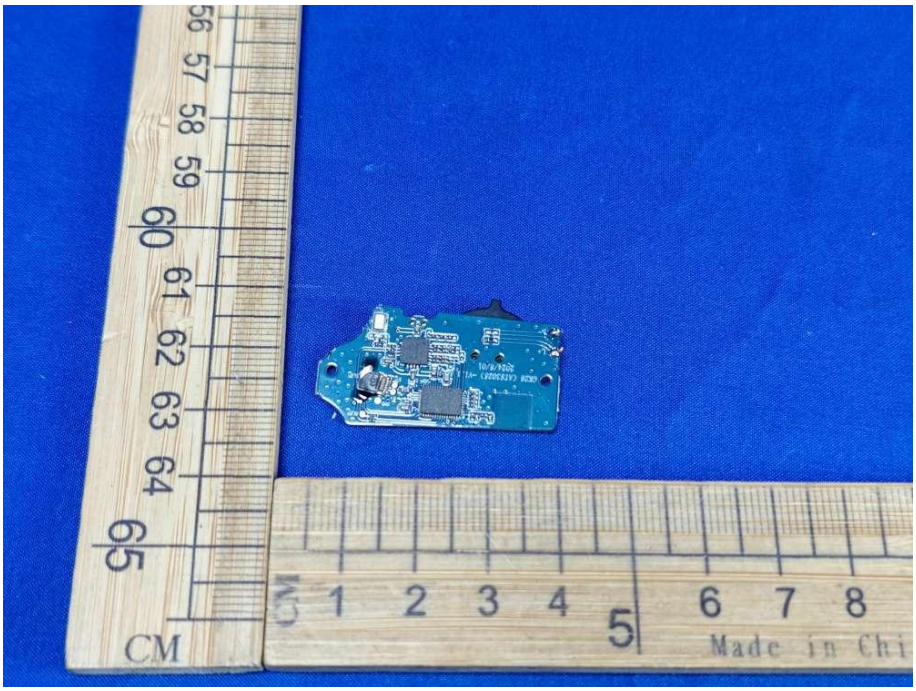

Figure 8

Figure 9

******End of Report******

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Report Template Revision Date: 2021-11-03

TEST REPORT

Report No.:	CQASZ20240901961E-01
Applicant:	Innovative Eyewear, Inc
Address of Applicant:	11900 Biscayne Bl, Suite 630, North Miami, FL 33181, United States
Equipment Under Test (EUT):	
EUT Name:	Smart Eyewear
Model No.:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Test Model No.:	LCD008-10
Brand Name:	Lucyd Reebok
IC:	30961-LCD008
Standards:	RSS-247 Issue 3 August 2023
	RSS-GEN Issue 5 Amd 2 February 2021
Date of Receipt:	2024-09-10
Date of Test:	2024-09-10 to 2024-09-19
Date of Issue:	2024-09-27
Test Result:	**PASS***

***In the configuration tested, the EUT complied with the standards specified above**

Tested By: lewis zhou
(Lewis Zhou)

Reviewed By: Timo Lei
(Timo Lei)

Approved By: Alex
(Alex Wang)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20240901961E-01	Rev.01	Initial report	2024-09-27

2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	RSS-Gen Issue 5	ANSI C63.10: 2013	PASS
Conducted Emission	RSS-Gen Issue 5	ANSI C63.10: 2013	PASS
Maximum Peak Output Power & EIRP	RSS 247 5.4(b)	RSS-Gen Issue 5 & ANSI C63.10: 2013	PASS
20dB Occupied Bandwidth	RSS 247 5.1(a)	RSS-Gen Issue 5	PASS
99% Occupied Bandwidth	RSS-Gen Issue 5	RSS-Gen Issue 5	PASS
Carrier Frequencies Separated	RSS 247 5.1(b)	ANSI C63.10: 2013	PASS
Hopping Channel Number	RSS 247 5.1(d)	ANSI C63.10: 2013	PASS
Dwell Time	RSS 247 5.1(d)	ANSI C63.10: 2013	PASS
Band-edge for RF Transmit Conducted Emissions	RSS 247 5.5	ANSI C63.10: 2013	PASS
Spurious RF Transmit Conducted Emissions	RSS 247 5.5	ANSI C63.10: 2013	PASS
Pseudorandom Frequency Hopping Sequence	RSS 247 5.1(b)	ANSI C63.10: 2013	PASS
Radiated Transmit Spurious Emissions	RSS-Gen Issue 5	RSS-Gen Issue 5 & ANSI C63.10: 2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	RSS-Gen Issue 5	RSS-Gen Issue 5 & ANSI C63.10: 2013	PASS

3 Contents

Page

4 General Information

4.1 Client Information

Applicant:	Innovative Eyewear, Inc
Address of Applicant:	11900 Biscayne Bl, Suite 630, North Miami, FL 33181, United States
Manufacturer:	Shenzhen Gonbes Technology Co. Ltd
Address of Manufacturer:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA
Factory:	Shenzhen Gonbes Technology Co. Ltd
Address of Factory:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA

4.2 General Description of EUT

Product Name:	Smart Eyewear
Model No.:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Test Model No.:	LCD008-10
Trade Mark:	Lucyd Reebok
Software Version:	GBS_ATS3025_GK28_V2.2_20240806.fw
Hardware Version:	GK28(ATS3025)-V1.1
Test sample SN:	41526668963
Power Supply:	Li-ion battery: DC 3.7V 180mAh, Charge by DC 5V for adapter

4.3 Product Specification subjective to this standard

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.3
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☐ Mobile ☒ Portable
Test Software of EUT:	FCC
Antenna Type:	Chip antenna
Antenna Gain:	1.24dBi
Simultaneous Transmission	☐ Simultaneous TX is supported and evaluated in this report. ☒ Simultaneous TX is not supported.

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	21	2422MHz	41	2442MHz	61	2462MHz
2	2403MHz	22	2423MHz	42	2443MHz	62	2463MHz
3	2404MHz	23	2424MHz	43	2444MHz	63	2464MHz
4	2405MHz	24	2425MHz	44	2445MHz	64	2465MHz
5	2406MHz	25	2426MHz	45	2446MHz	65	2466MHz
6	2407MHz	26	2427MHz	46	2447MHz	66	2467MHz
7	2408MHz	27	2428MHz	47	2448MHz	67	2468MHz
8	2409MHz	28	2429MHz	48	2449MHz	68	2469MHz
9	2410MHz	29	2430MHz	49	2450MHz	69	2470MHz
10	2411MHz	30	2431MHz	50	2451MHz	70	2471MHz
11	2412MHz	31	2432MHz	51	2452MHz	71	2472MHz
12	2413MHz	32	2433MHz	52	2453MHz	72	2473MHz
13	2414MHz	33	2434MHz	53	2454MHz	73	2474MHz
14	2415MHz	34	2435MHz	54	2455MHz	74	2475MHz
15	2416MHz	35	2436MHz	55	2456MHz	75	2476MHz
16	2417MHz	36	2437MHz	56	2457MHz	76	2477MHz
17	2418MHz	37	2438MHz	57	2458MHz	77	2478MHz
18	2419MHz	38	2439MHz	58	2459MHz	78	2479MHz
19	2420MHz	39	2440MHz	59	2460MHz	79	2480MHz
20	2421MHz	40	2441MHz	60	2461MHz		

Note:
In RSS-Gen, regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel	2402MHz
The Middle channel	2441MHz
The Highest channel	2480MHz

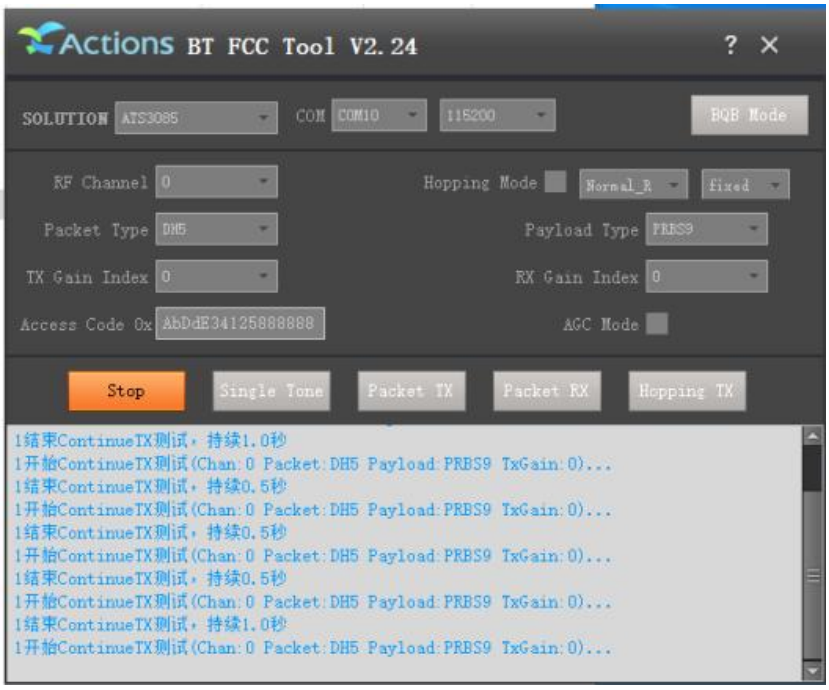
4.4 Additional Instructions

EUT Test Software Settings:	
Mode:	☒ Special software is used. ☐ Through engineering command into the engineering mode. engineering command: *#*#3646633#*#*
EUT Power level:	Class2 (Power level is built-in set parameters and cannot be changed and selected)

Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

Mode	Channel	Frequency(MHz)
DH1/DH3/DH5	CH0	2402
	CH39	2441
	CH78	2480
2DH1/2DH3/2DH5	CH0	2402
	CH39	2441
	CH78	2480
3DH1/3DH3/3DH5	CH0	2402
	CH39	2441
	CH78	2480

Run Software:



4.5 Test Environment

Operating Environment:	
Radiated Emissions:	
Temperature:	25.3 °C
Humidity:	55 % RH
Atmospheric Pressure:	1009 mbar
Conducted Emissions:	
Temperature:	25.6 °C
Humidity:	60 % RH
Atmospheric Pressure:	1009 mbar
Radio conducted item test (RF Conducted test room):	
Temperature:	25.2 °C
Humidity:	50 % RH
Atmospheric Pressure:	1009 mbar
Test mode:	
Test Mode:	Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

4.6 Description of Support Units

The EUT has been tested with associated equipment below.

1）Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Adapter	Mi	/	/	CQA

2) Cable

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
/	/	/	/	/

4.7 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty	Notes
1	Radiated Emission (Below 1GHz)	5.12dB	(1)
2	Radiated Emission (Above 1GHz)	4.60dB	(1)
3	Conducted Disturbance (0.15~30MHz)	3.34dB	(1)
4	Radio Frequency	3×10^{-8}	(1)
5	Duty cycle	0.6 %.	(1)
6	Occupied Bandwidth	1.1%	(1)
7	RF conducted power	0.86dB	(1)
8	RF power density	0.74	(1)
9	Conducted Spurious emissions	0.86dB	(1)
10	Temperature test	0.8℃	(1)
11	Humidity test	2.0%	(1)
12	Supply voltages	0.5 %.	(1)
13	Frequency Error	5.5 Hz	(1)

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.8 Test Location

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

4.9 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

ISED#: 22984

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements.

CAB identifier number: CN0055

- **FCC Registration No.: 522263**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

- **A2LA (Certificate No. 4742.01)**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

4.10 Equipment List

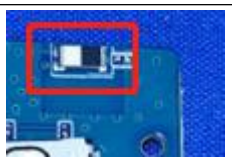
Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU26	CQA-038	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU40	CQA-075	2024/9/2	2025/9/1
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2024/9/2	2025/9/1
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2024/9/2	2025/9/1
Preamplifier	EMCI	EMC184055SE	CQA-089	2024/9/2	2025/9/1
Loop antenna	Schwarzbeck	FMZB1516	CQA-060	2023/9/8	2026/9/7
Bilog Antenna	R&S	HL562	CQA-011	2023/11/01	2026/10/31
Horn Antenna	R&S	HF906	CQA-012	2023/11/01	2026/10/31
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2023/9/7	2026/9/6
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2024/9/2	2025/9/1
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2024/9/2	2025/9/1
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2024/9/2	2025/9/1
Antenna Connector	CQA	RFC-01	CQA-080	2024/9/2	2025/9/1
Power Sensor	KEYSIGHT	U2021XA	CQA-30	2024/9/2	2025/9/1
N1918A Power Analysis Manager Power Panel	Agilent	N1918A	CQA-074	2024/9/2	2025/9/1
Power meter	R&S	NRVD	CQA-029	2024/9/2	2025/9/1
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2024/9/2	2025/9/1
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
LISN	R&S	ENV216	CQA-003	2024/9/2	2025/9/1
Coaxial cable	CQA	N/A	CQA-C009	2024/9/2	2025/9/1
DC power	KEYSIGHT	E3631A	CQA-028	2024/9/2	2025/9/1

Test software:

	Manufacturer	Software brand
RF Conducted test software	Tonscend	JS1120-3
Conducted Emissions test software	Audix	e3
Radiated Emissions test software	Audix	e3

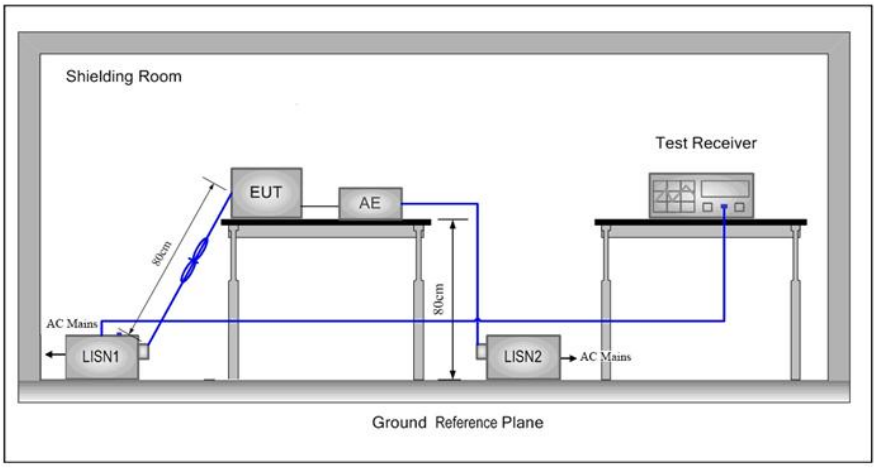
5 Test Results and Measurement Data

5.1 Antenna Requirement

Standard Requirement:	RSS-Gen Issue 5
EUT Antenna:	
The antenna is Chip antenna. The connection/connection type between the antenna to the EUT's antenna port is: permanently attachment. This is either permanently attachment or a unique coupling that satisfies the requirement.	

5.2 Conducted Emissions

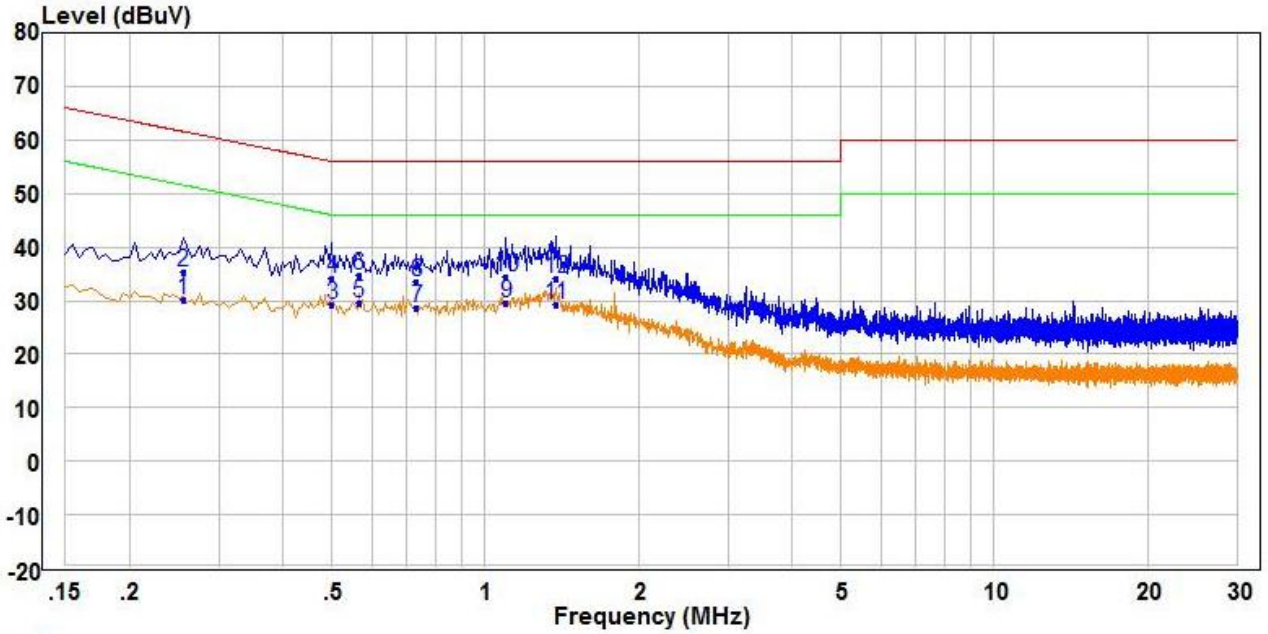
<table>
<tr><td>Test Requirement:</td><td>RSS-Gen Issue 5</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013 & RSS-Gen Issue 5</td></tr>
<tr><td>Test Frequency Range:</td><td>150kHz to 30MHz</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test Procedure:</td><td>1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</td></tr>
</table>

Test Setup:	

Exploratory Test Mode:	Non-hopping transmitting mode with all kind of modulation and all kind of data type at the lowest, middle, high channel.
Final Test Mode:	Through Pre-scan, find the DH5 of data type and GFSK modulation at the lowest channel is the worst case. Only the worst case is recorded in the report.
Test Voltage:	AC 120V/60Hz
Test Results:	Pass

Measurement Data

Live line:



		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.255	20.68	9.54	30.22	51.59	-21.37	Average	Line
2		0.255	25.72	9.54	35.26	61.59	-26.33	QP	Line
3		0.500	19.57	9.70	29.27	46.00	-16.73	Average	Line
4		0.500	24.39	9.70	34.09	56.00	-21.91	QP	Line
5	PP	0.565	19.74	9.77	29.51	46.00	-16.49	Average	Line
6	QP	0.565	25.01	9.77	34.78	56.00	-21.22	QP	Line
7		0.735	18.73	9.88	28.61	46.00	-17.39	Average	Line
8		0.735	23.53	9.88	33.41	56.00	-22.59	QP	Line
9		1.100	19.50	9.97	29.47	46.00	-16.53	Average	Line
10		1.100	24.54	9.97	34.51	56.00	-21.49	QP	Line
11		1.375	18.58	10.59	29.17	46.00	-16.83	Average	Line
12		1.375	23.66	10.59	34.25	56.00	-21.75	QP	Line

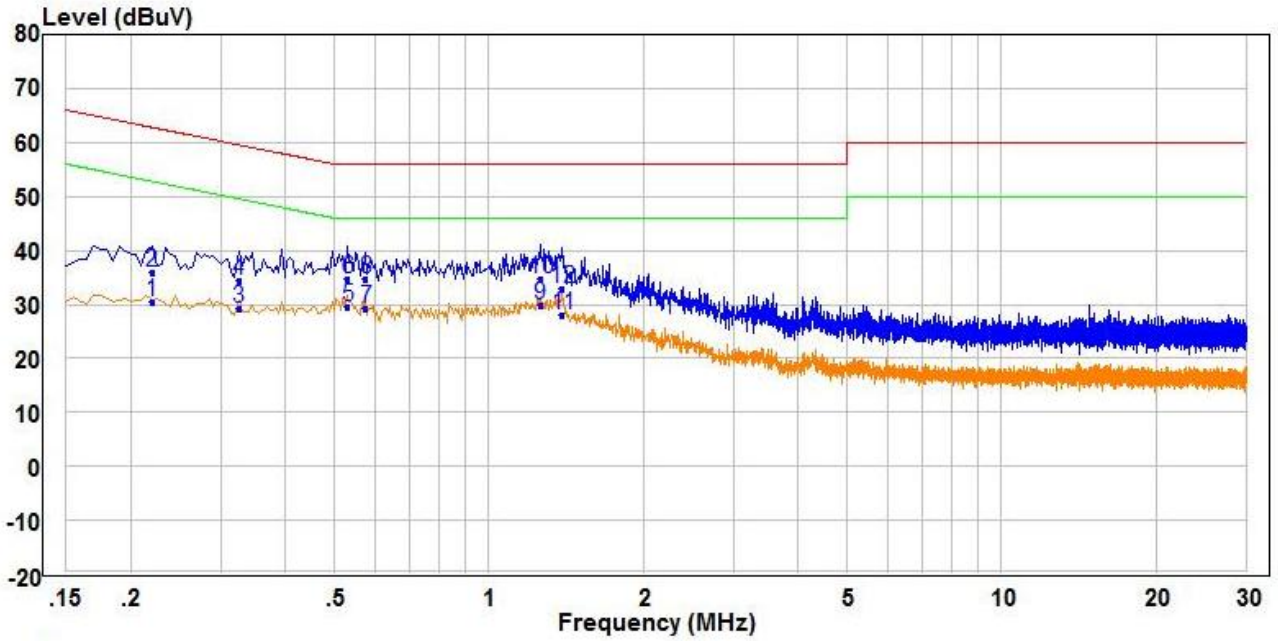
Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral line:



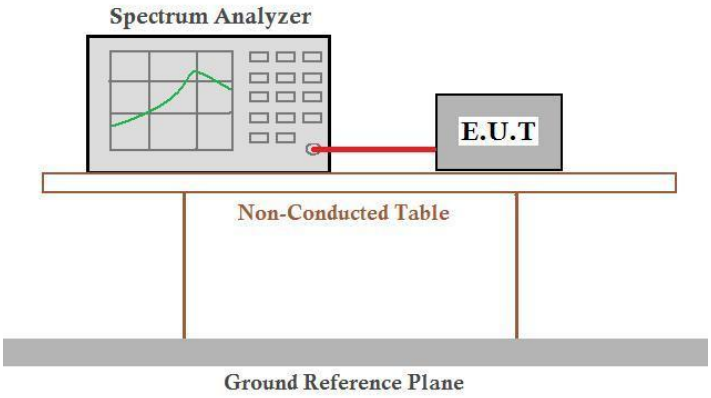
		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.220	20.87	9.58	30.45	52.82	-22.37	Average	Neutral
2		0.220	26.28	9.58	35.86	62.82	-26.96	QP	Neutral
3		0.325	19.83	9.51	29.34	49.58	-20.24	Average	Neutral
4		0.325	24.94	9.51	34.45	59.58	-25.13	QP	Neutral
5		0.530	19.85	9.73	29.58	46.00	-16.42	Average	Neutral
6		0.530	25.03	9.73	34.76	56.00	-21.24	QP	Neutral
7		0.575	19.48	9.78	29.26	46.00	-16.74	Average	Neutral
8		0.575	24.81	9.78	34.59	56.00	-21.41	QP	Neutral
9	PP	1.260	20.02	9.71	29.73	46.00	-16.27	Average	Neutral
10	QP	1.260	25.16	9.71	34.87	56.00	-21.13	QP	Neutral
11		1.390	18.34	9.72	28.06	46.00	-17.94	Average	Neutral
12		1.390	23.07	9.72	32.79	56.00	-23.21	QP	Neutral

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

5.3 Conducted Peak Output Power & EIRP

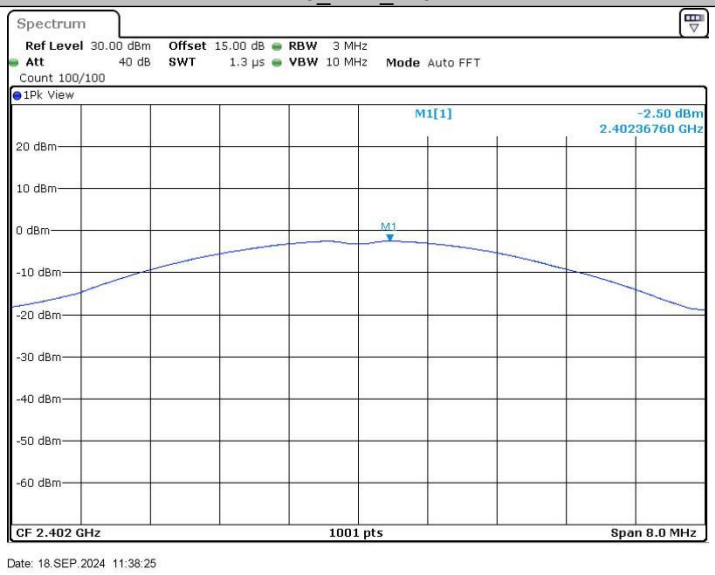
Test Requirement:	RSS 247 5.4(2)
Test Method:	RSS-Gen Issue 5 & ANSI C63.10: 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Conducted Peak Output Power Limit:	0.125W/21dBm
EIRP	4W/36dBm
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Only the worst case is recorded in the report.
Test Results:	Pass

Measurement Data

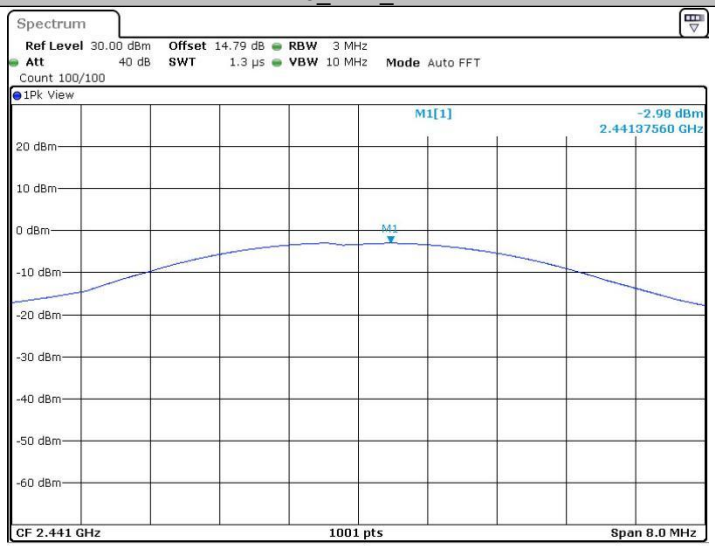
GFSK mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	EIRP (dBm)	Limit (dBm)	Result
Lowest	-2.5	21.00	-1.26	36.00	Pass
Middle	-2.98	21.00	-1.74	36.00	Pass
Highest	-1.19	21.00	0.05	36.00	Pass
π/4DQPSK mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	EIRP (dBm)	Limit (dBm)	Result
Lowest	-2.34	21.00	-1.1	36.00	Pass
Middle	-2.78	21.00	-1.54	36.00	Pass
Highest	-0.95	21.00	0.29	36.00	Pass
8DPSK mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	EIRP (dBm)	Limit (dBm)	Result
Lowest	-2.44	21.00	-1.2	36.00	Pass
Middle	-2.65	21.00	-1.41	36.00	Pass
Highest	-1.09	21.00	0.15	36.00	Pass

Test plot as follows:

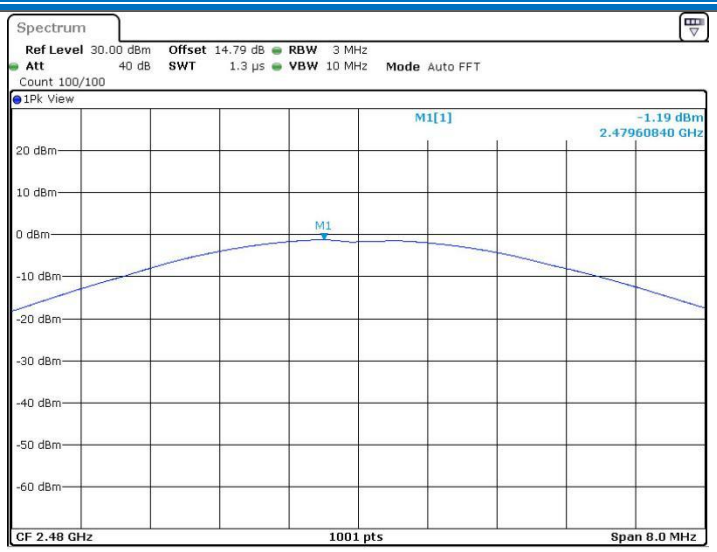
DH5_Ant1_2402



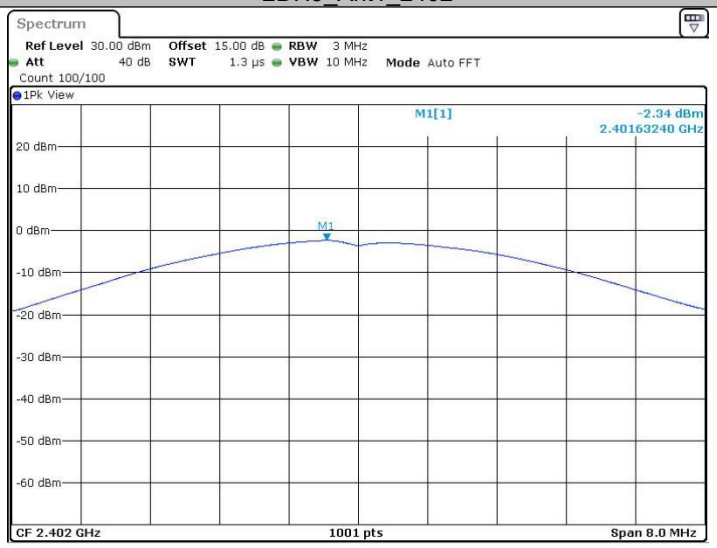
DH5_Ant1_2441



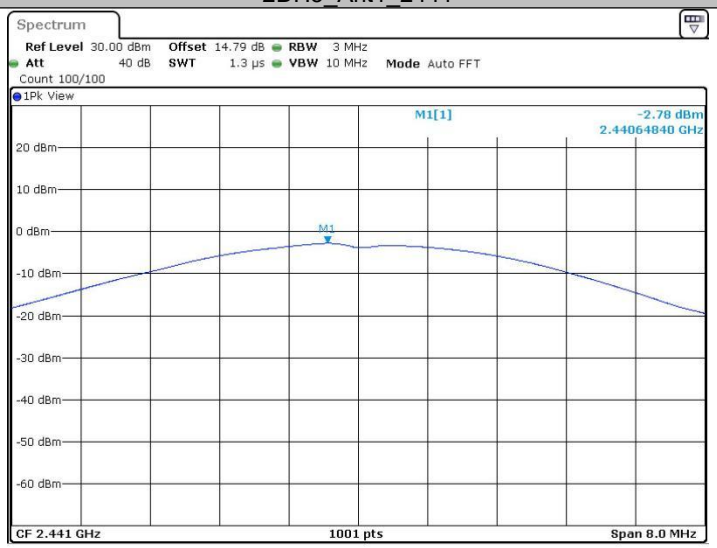
DH5_Ant1_2480



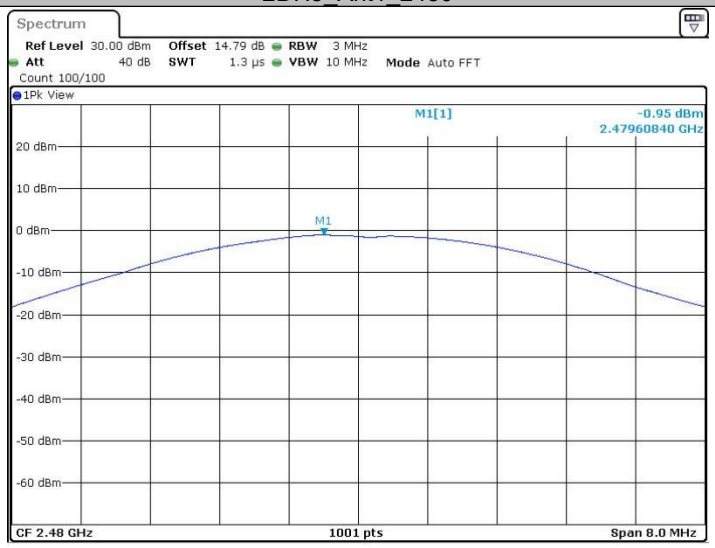
2DH5_Ant1_2402



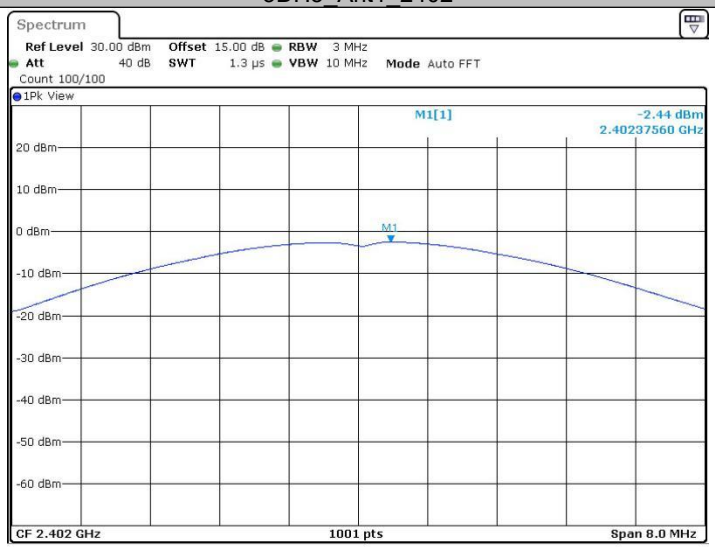
2DH5_Ant1_2441



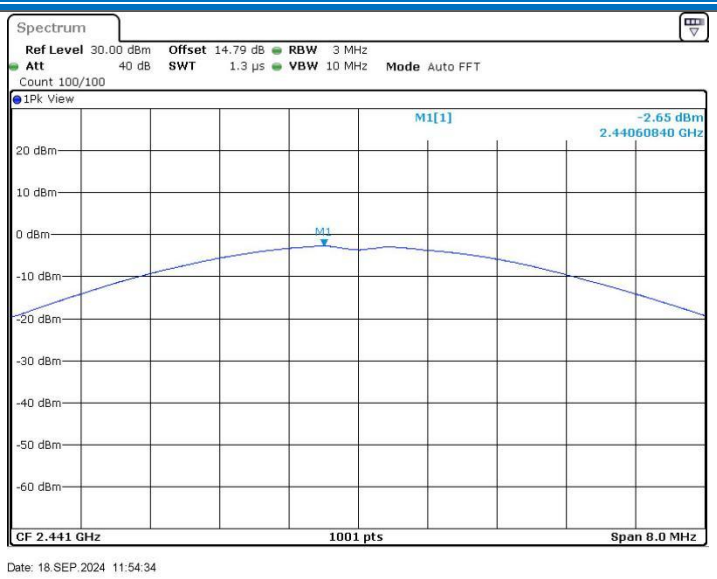
2DH5_Ant1_2480



3DH5_Ant1_2402

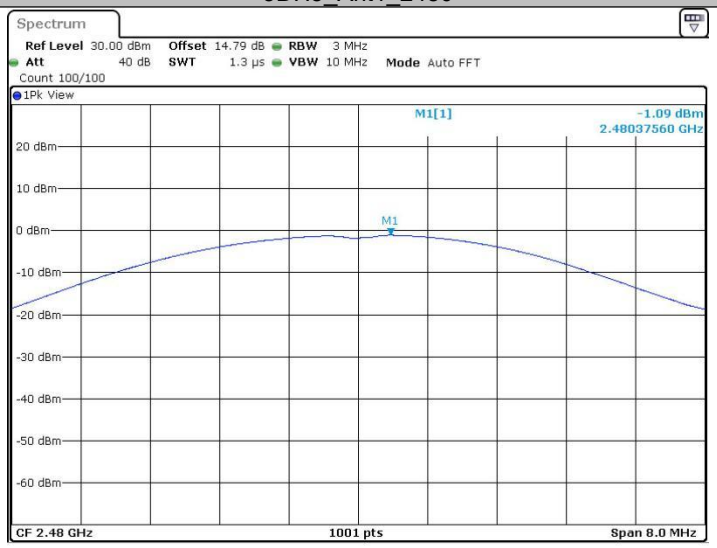


3DH5_Ant1_2441



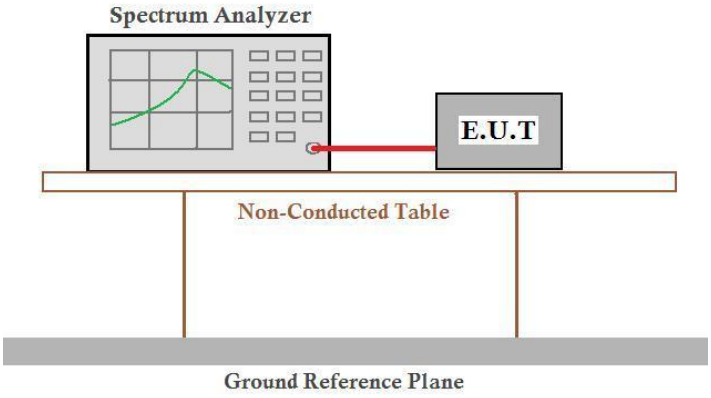
Date: 18.SEP.2024 11:54:34

3DH5_Ant1_2480



Date: 18.SEP.2024 11:56:30

5.4 20dB Occupy Bandwidth

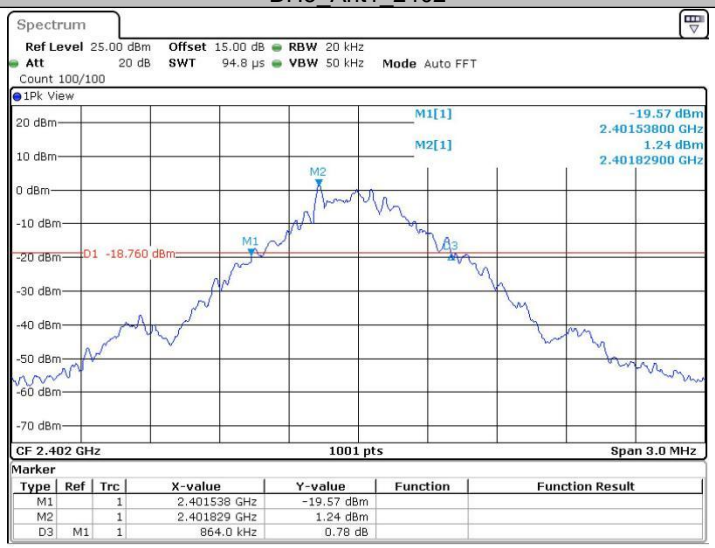
Test Requirement:	RSS 247 5.1(1)
Test Method:	RSS-Gen Issue 5
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	NA
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.
Test Results:	Pass

Measurement Data

Test channel	20dB Occupy Bandwidth (MHz)		
	GFSK	π/4DQPSK	8DPSK
Lowest	0.86	1.21	1.18
Middle	0.87	1.21	1.18
Highest	0.89	1.21	1.18

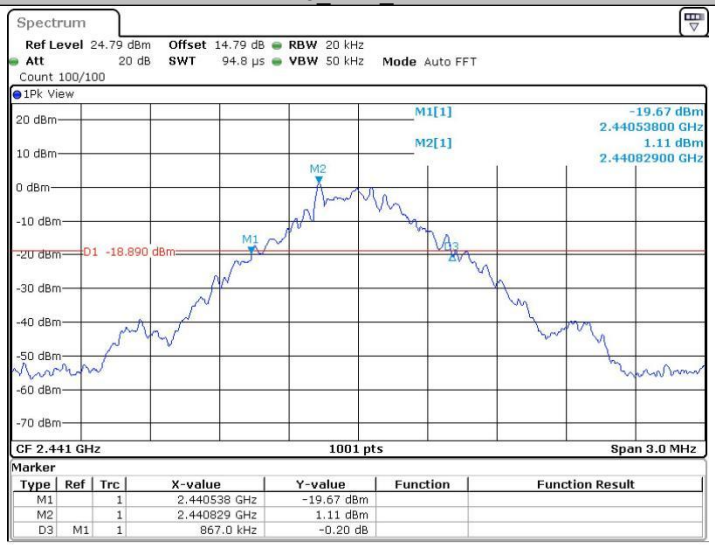
Test plot as follows:

DH5_Ant1_2402



Date: 18.SEP.2024 10:21:57

DH5_Ant1_2441

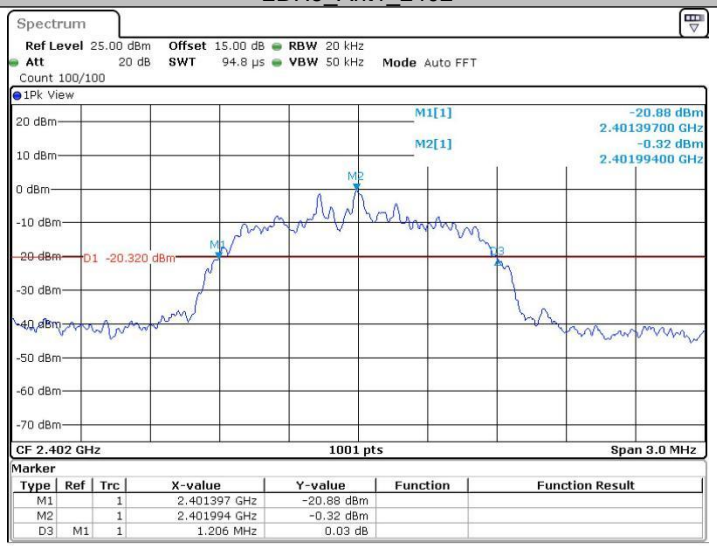


Date: 18.SEP.2024 10:24:48

DH5_Ant1_2480

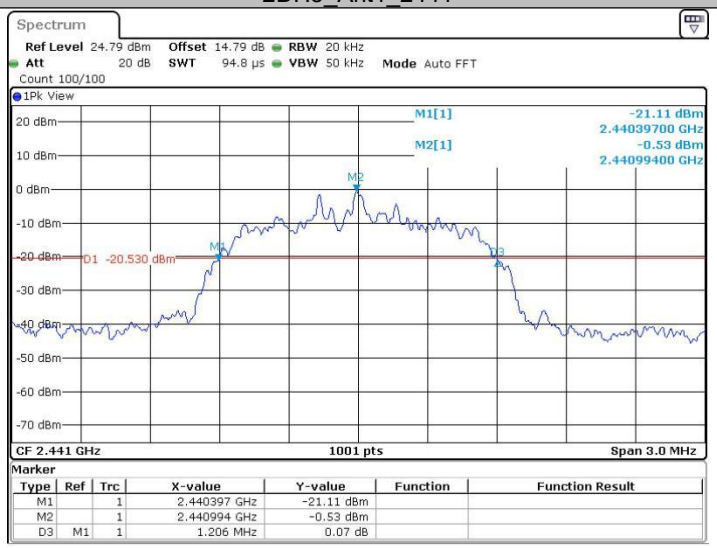
Date: 18.SEP.2024 10:27:24

2DH5_Ant1_2402



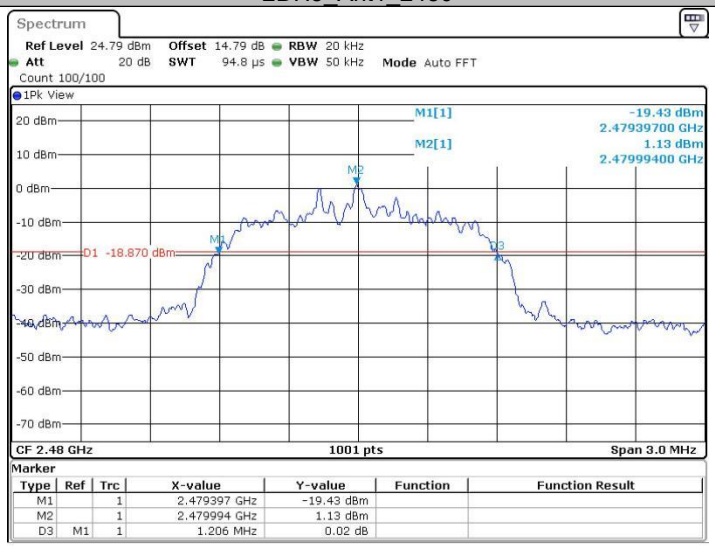
Date: 18.SEP.2024 10:29:56

2DH5_Ant1_2441



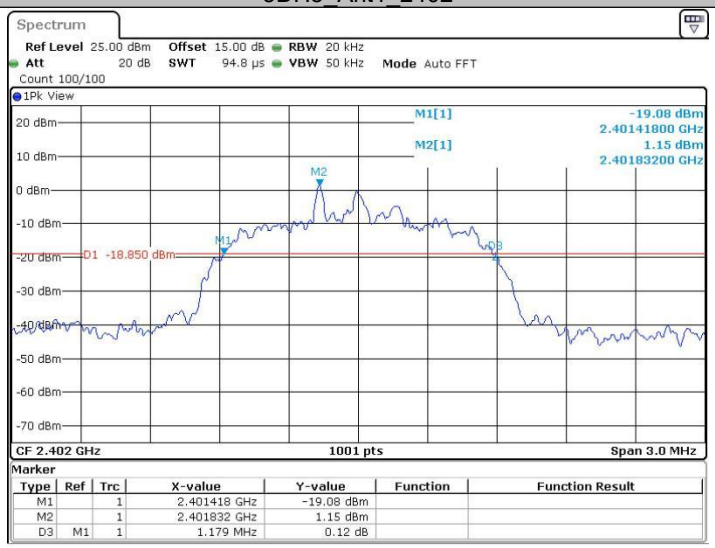
Date: 18.SEP.2024 10:32:39

2DH5_Ant1_2480



Date: 18.SEP.2024 10:33:44

3DH5_Ant1_2402

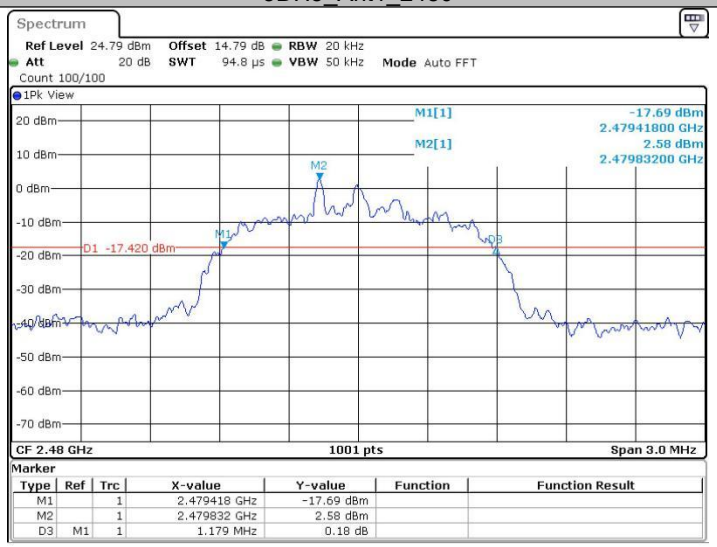


Date: 18.SEP.2024 10:38:43

3DH5_Ant1_2441

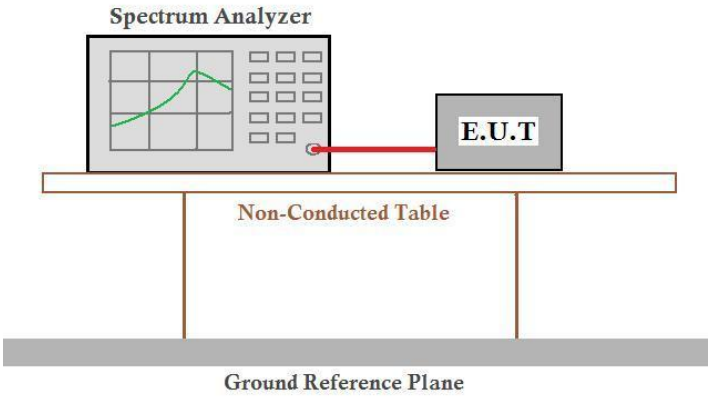
Date: 18.SEP.2024 10:41:25

3DH5_Ant1_2480



Date: 18.SEP.2024 10:42:28

5.5 99% Occupy Bandwidth

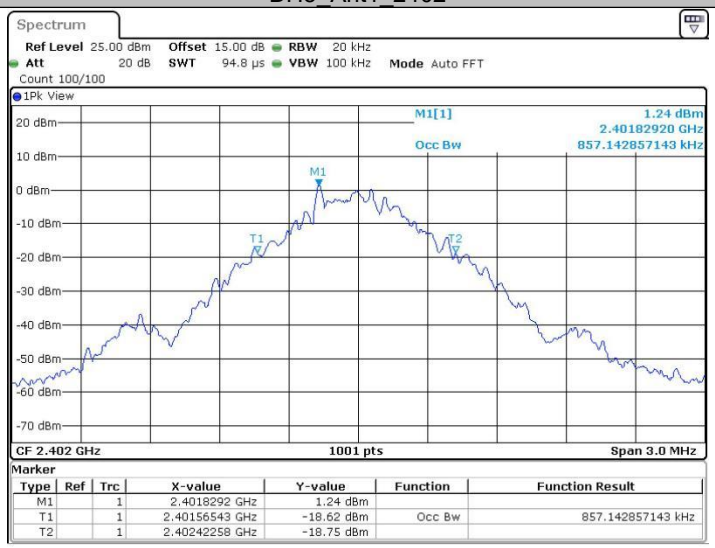
Test Requirement:	RSS-Gen Issue 5
Test Method:	RSS-Gen Issue 5
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	NA
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.
Test Results:	Pass

Measurement Data

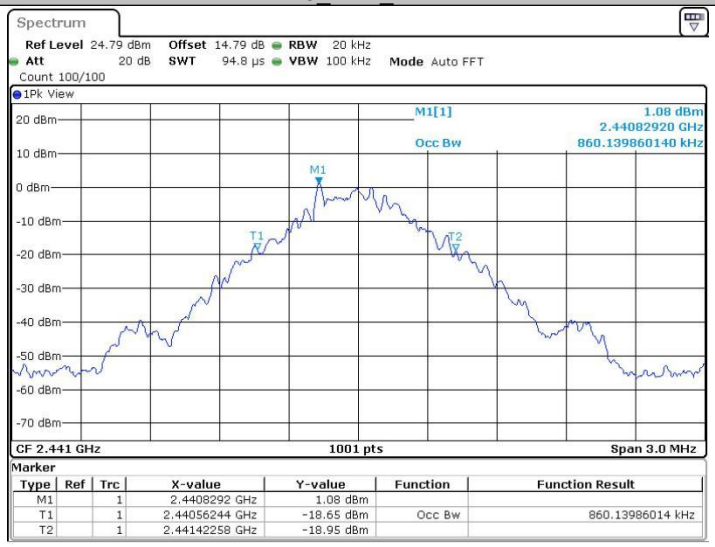
Test channel	99% Occupy Bandwidth (MHz)		
	GFSK	π/4DQPSK	8DPSK
Lowest	0.857	1.151	1.13
Middle	0.86	1.151	1.13
Highest	0.86	1.151	1.13

Test plot as follows:

DH5_Ant1_2402

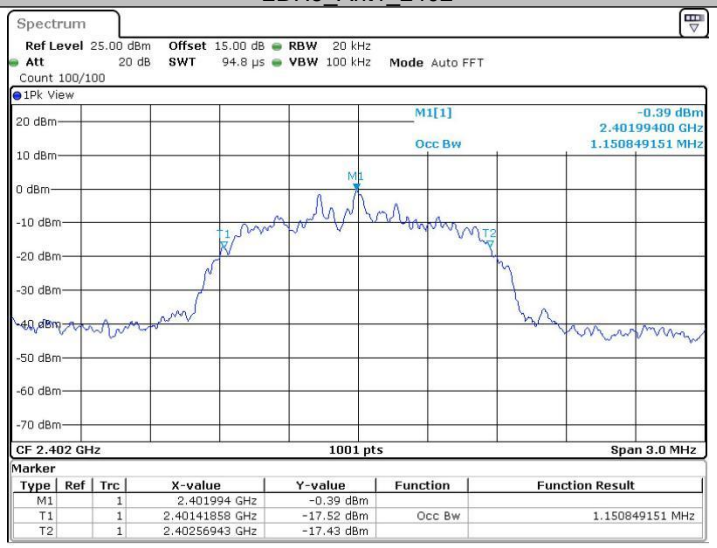


DH5_Ant1_2441

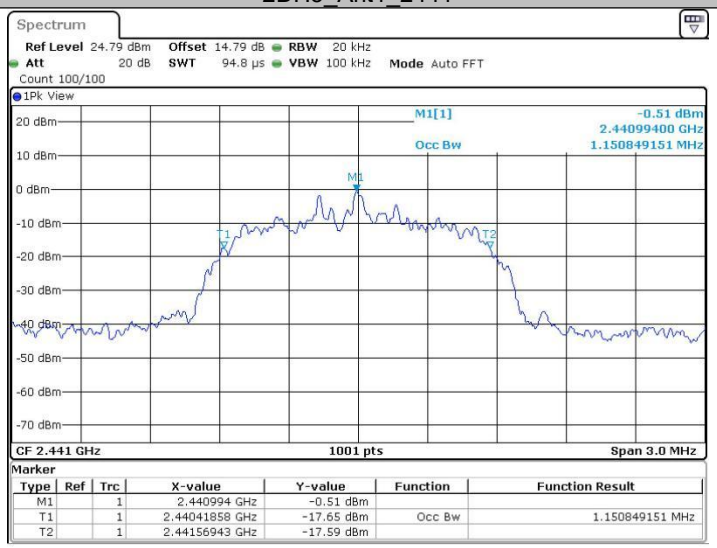


DH5_Ant1_2480

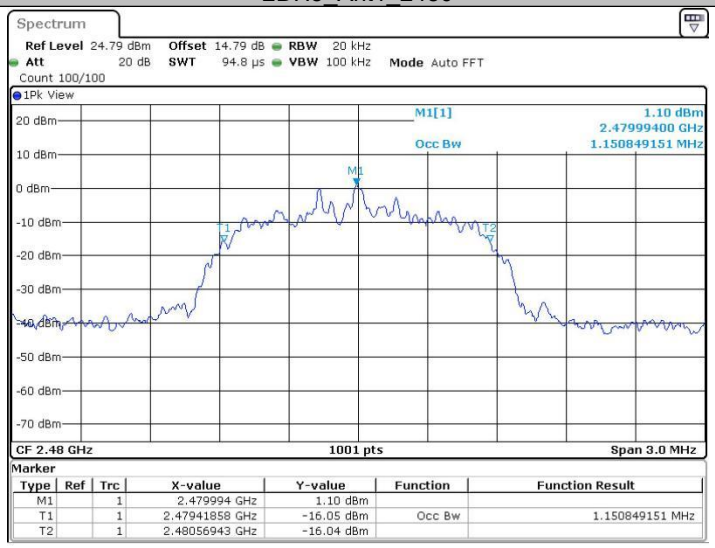
2DH5_Ant1_2402



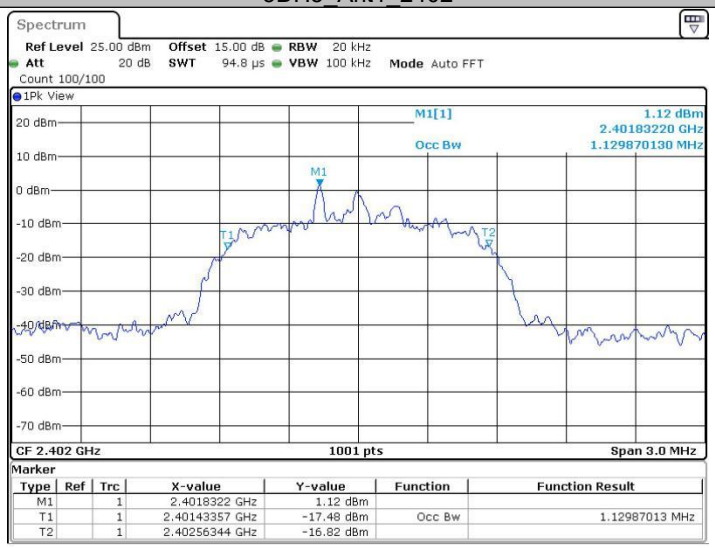
2DH5_Ant1_2441



2DH5_Ant1_2480

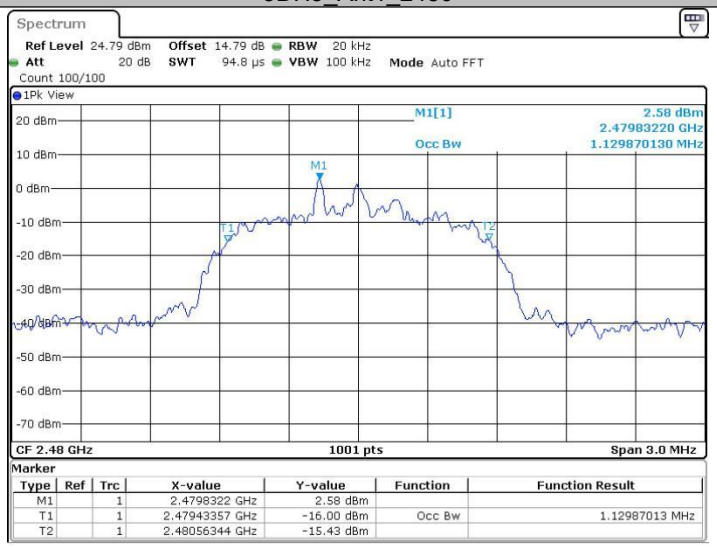


3DH5_Ant1_2402

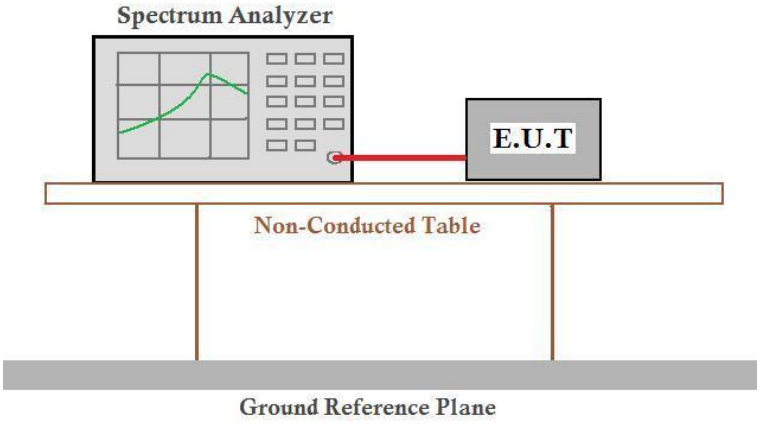


3DH5_Ant1_2441

3DH5_Ant1_2480



5.6 Carrier Frequencies Separation

Test Requirement:	RSS 247 5.1(2)
Test Method:	ANSI C63.10: 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Exploratory Test Mode:	Hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.
Limit:	0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)
Test Results:	Pass

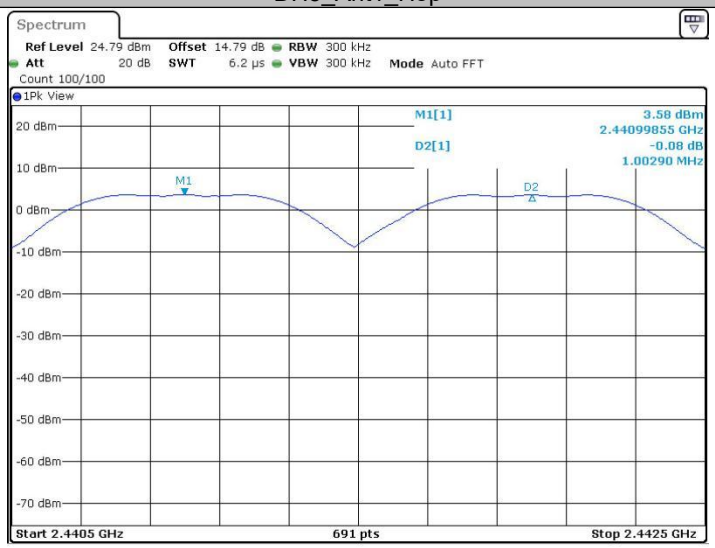
Measurement Data

TestMode	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH5	Hop	1.003	≥0.593	PASS
2DH5	Hop	1	≥0.807	PASS
3DH5	Hop	1.003	≥0.787	PASS

Mode	20dB bandwidth (MHz) (worse case)	Limit (MHz) (Carrier Frequencies Separation)
GFSK	0.89	≥0.593
π/4DQPSK	1.21	≥0.807
8DPSK	1.18	≥0.787

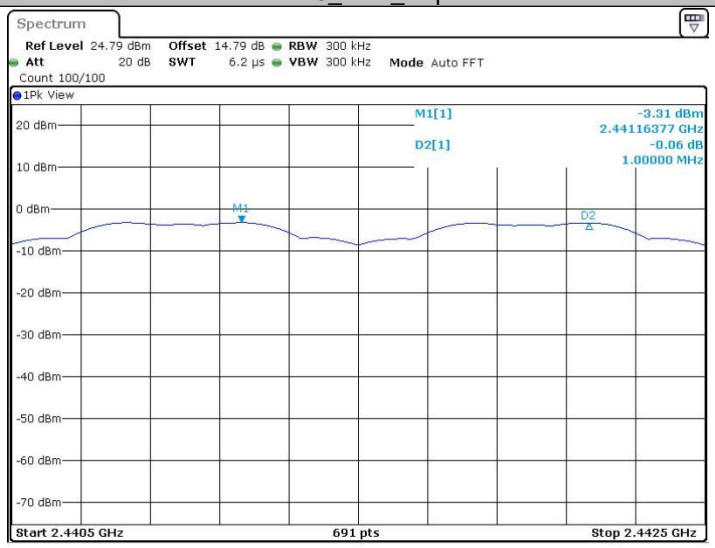
Test plot as follows:

DH5_Ant1_Hop



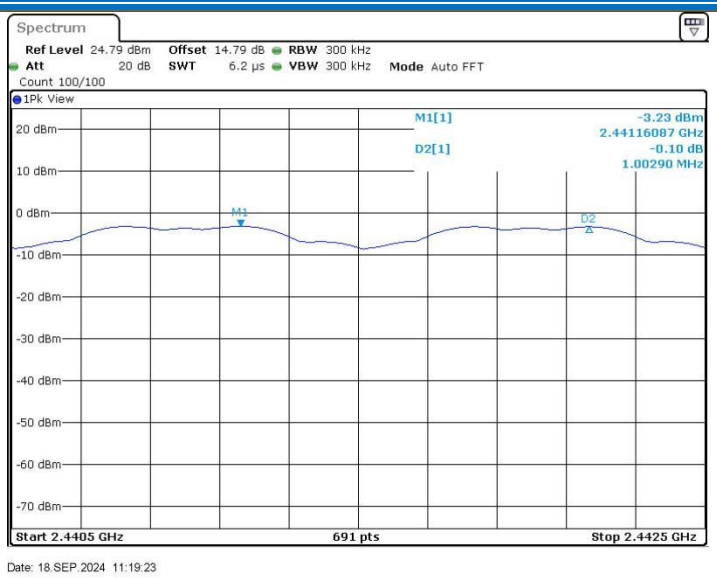
Date: 18.SEP.2024 10:47:36

2DH5_Ant1_Hop

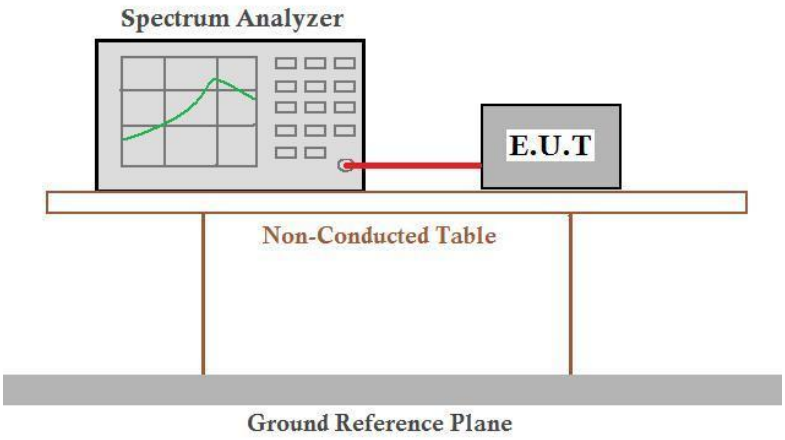


Date: 18.SEP.2024 10:58:26

3DH5_Ant1_Hop


Spectrum
Ref Level 24.79 dBm Offset 14.79 dB RBW 300 kHz
Att 20 dB SWT 6.2 µs VBW 300 kHz Mode Auto FFT
Count 100/100
1Pk View
M1[1] -3.23 dBm
2.44116087 GHz
D2[1] -0.10 dB
1.00290 MHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D2
Start 2.4405 GHz
691 pts
Stop 2.4425 GHz
Date: 18.SEP.2024 11:19:23

5.7 Hopping Channel Number

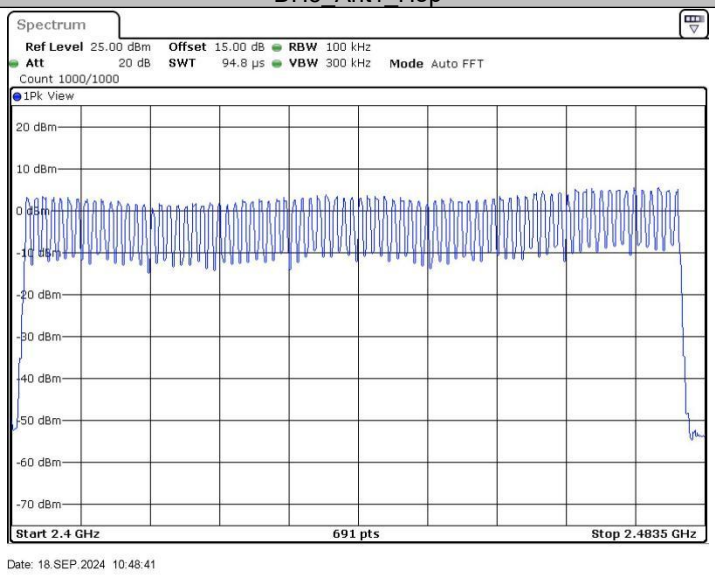
Test Requirement:	RSS 247 5.1(4)
Test Method:	ANSI C63.10: 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	At least 15 channels
Test Mode:	Hopping transmitting with all kind of modulation.
Test Results:	Pass

Measurement Data

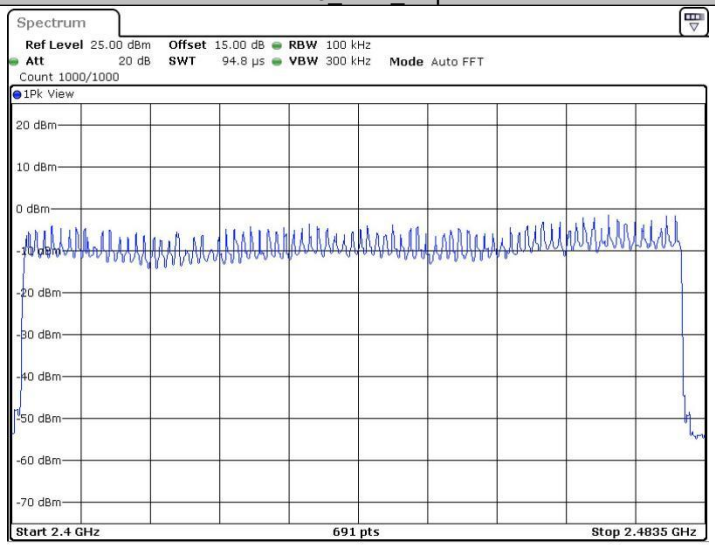
Test mode	Hopping channel numbers	Limit	Results
GFSK	79	15	Pass
π/4DQPSK	79	15	Pass
8DPSK	79	15	Pass

Test plot as follows:

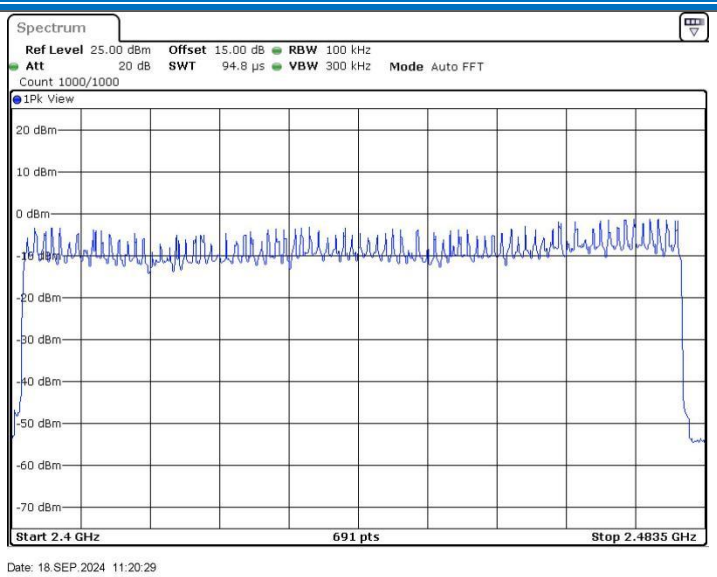
DH5_Ant1_Hop



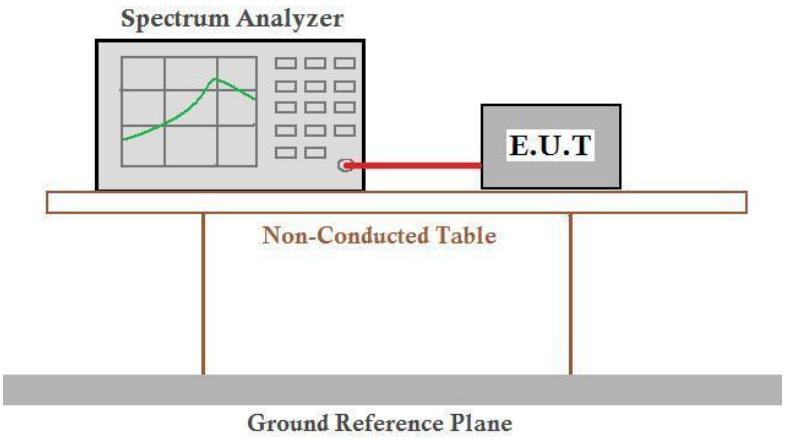
2DH5_Ant1_Hop



3DH5_Ant1_Hop


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 1000/1000
1Pk View
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 2.4 GHz
691 pts
Stop 2.4835 GHz
Date: 18.SEP.2024 11:20:29

5.8 Dwell Time

Test Requirement:	RSS 247 5.1(4)
Test Method:	ANSI C63.10: 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	⩽0.4 Second
Test Mode:	Hopping transmitting with all kind of modulation and all kind of data type.
Test Results:	Pass

Measurement Data

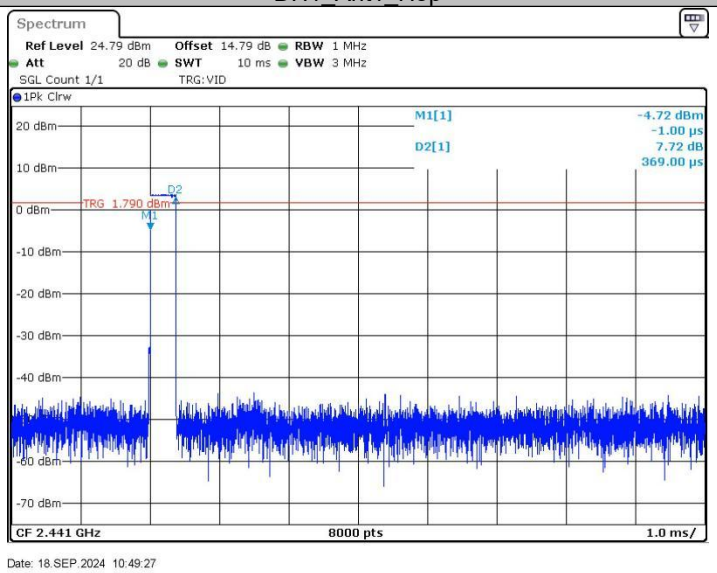
TestMode	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Hop	0.369	330	0.122	≤0.4	PASS
DH3	Hop	1.610	160	0.258	≤0.4	PASS
DH5	Hop	2.850	110	0.314	≤0.4	PASS
2DH1	Hop	0.376	330	0.124	≤0.4	PASS
2DH3	Hop	1.621	160	0.259	≤0.4	PASS
2DH5	Hop	2.862	120	0.343	≤0.4	PASS
3DH1	Hop	0.378	330	0.125	≤0.4	PASS
3DH3	Hop	1.619	170	0.275	≤0.4	PASS
3DH5	Hop	2.863	110	0.315	≤0.4	PASS

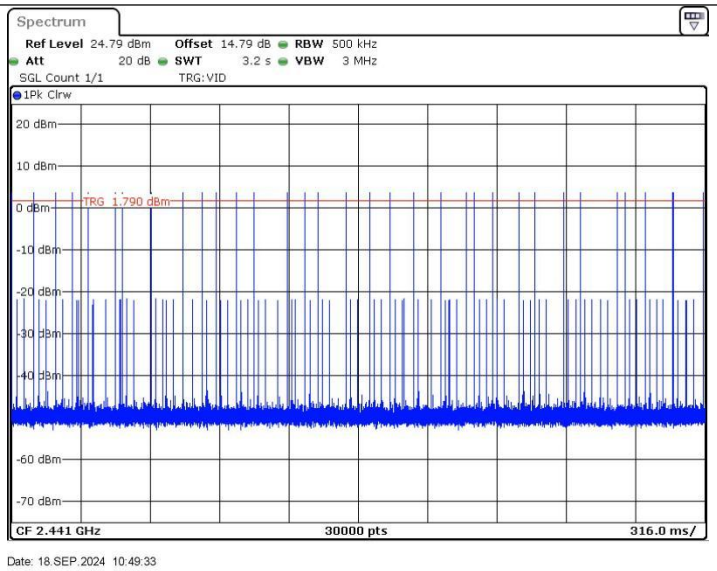
Remark:

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s

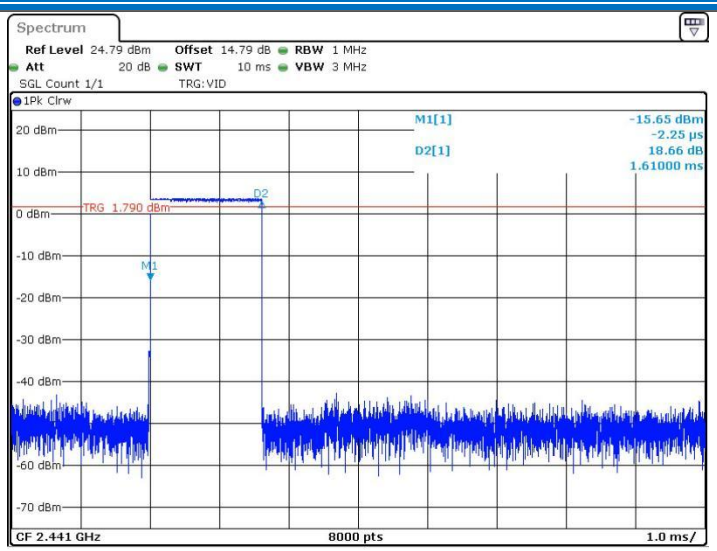
Test plot as follows:

DH1_Ant1_Hop

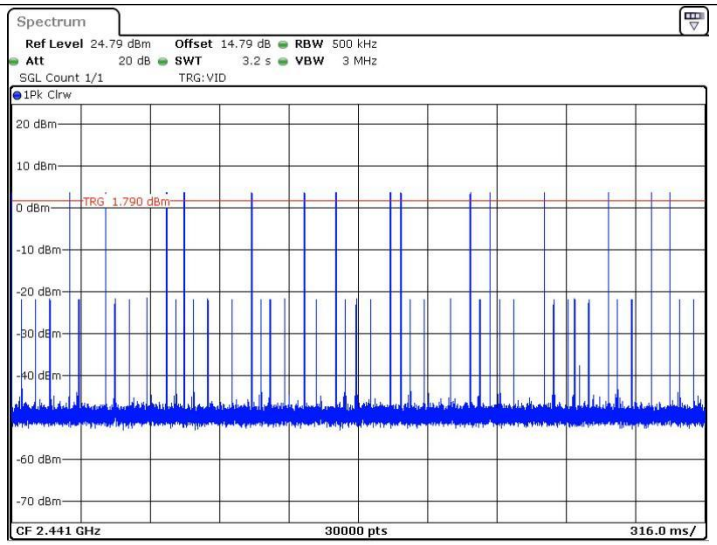




DH3_Ant1_Hop

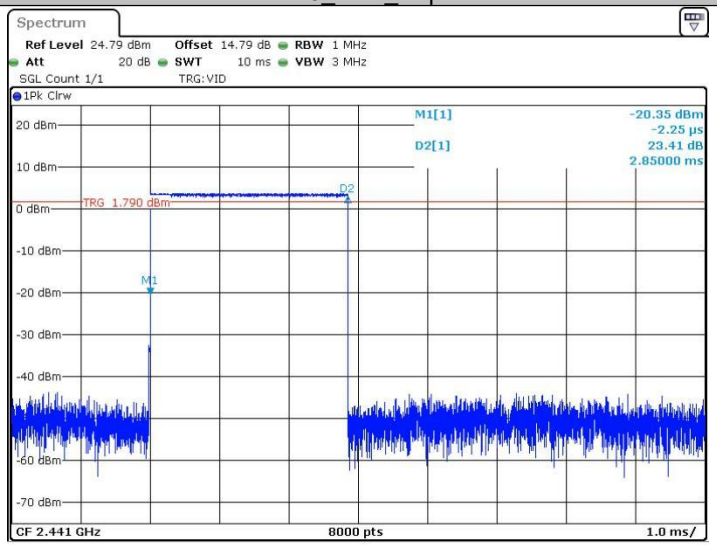


Date: 18.SEP.2024 10:49:57

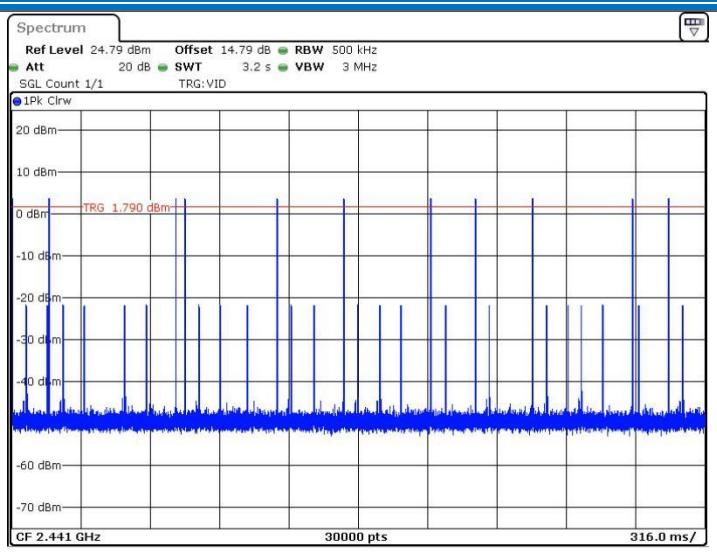


Date: 18.SEP.2024 10:50:03

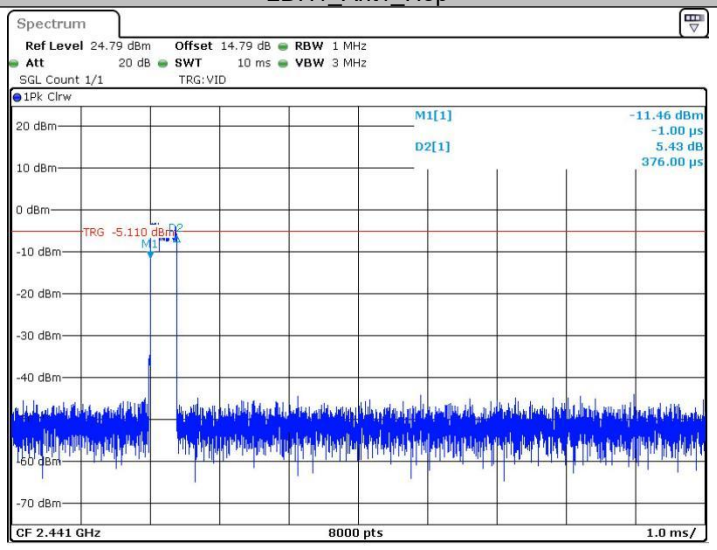
DH5_Ant1_Hop

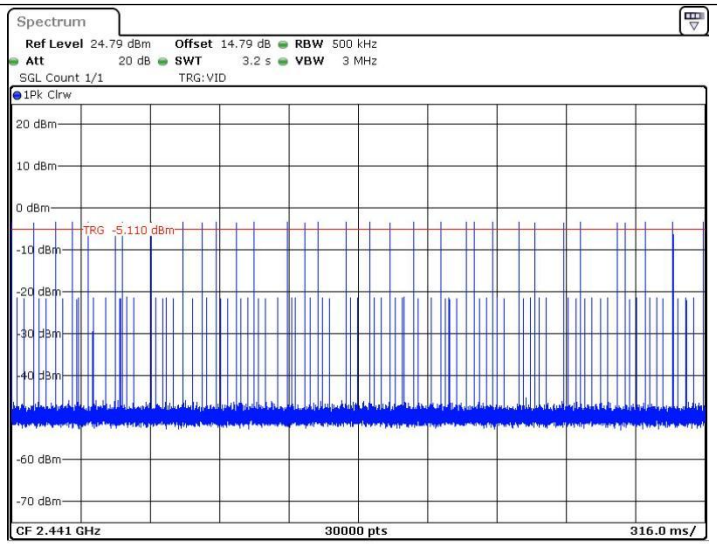


Date: 18.SEP.2024 10:48:57

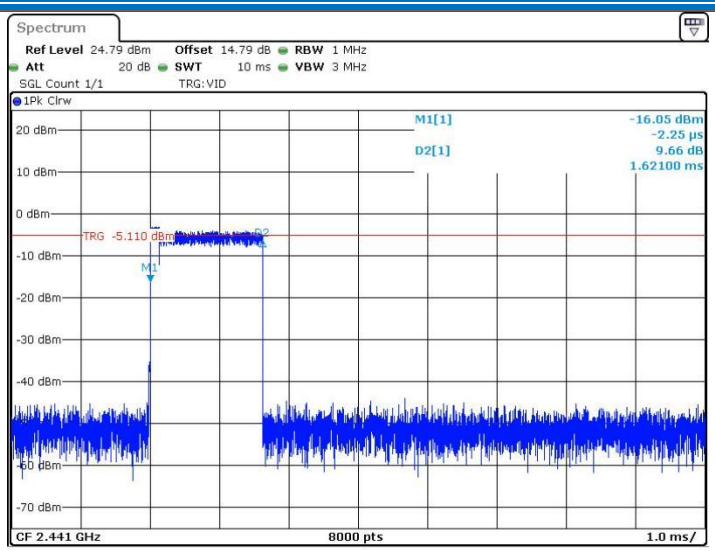


2DH1_Ant1_Hop

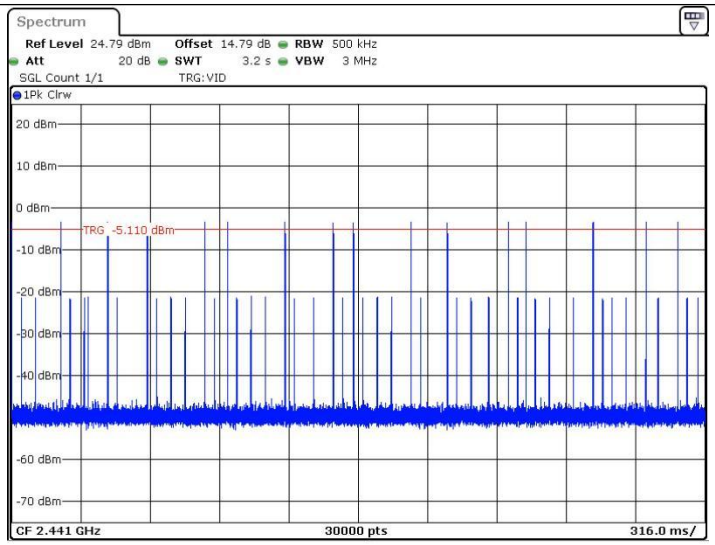




2DH3_Ant1_Hop

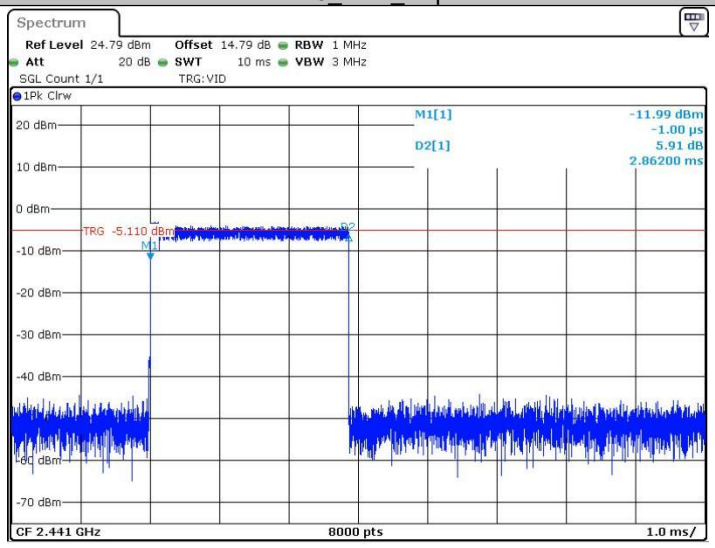


Date: 18.SEP.2024 11:09:14

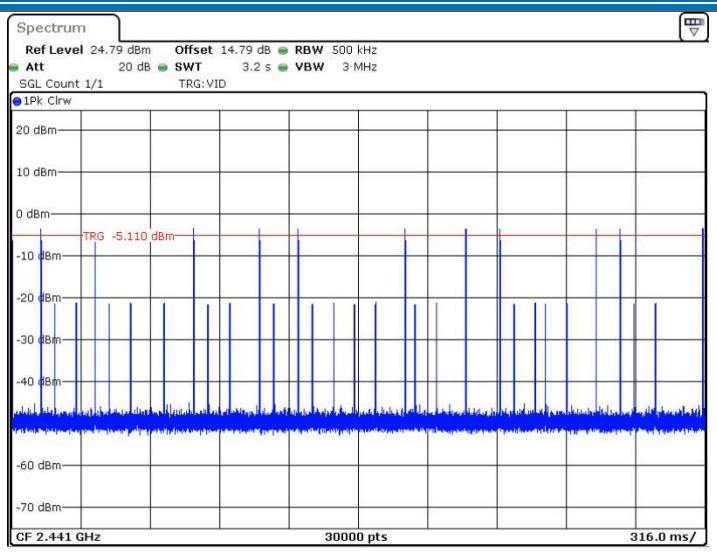


Date: 18.SEP.2024 11:09:20

2DH5_Ant1_Hop

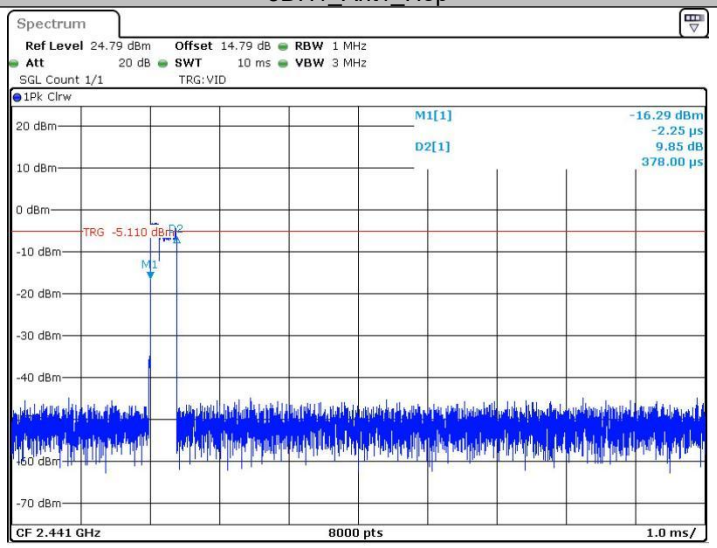


Date: 18.SEP.2024 10:59:46

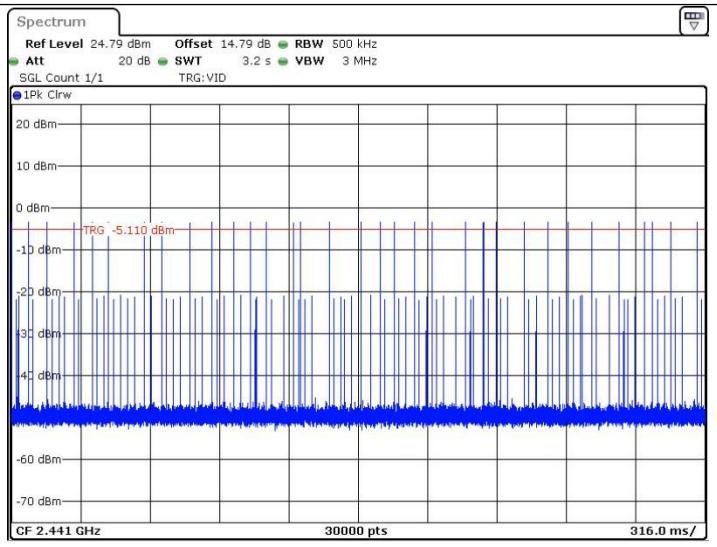


Date: 18.SEP.2024 10:59:52

3DH1_Ant1_Hop

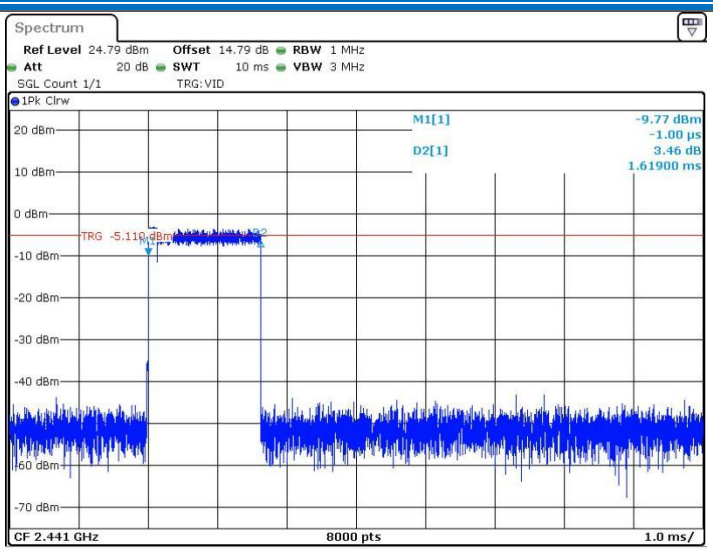


Date: 18.SEP.2024 11:22:38

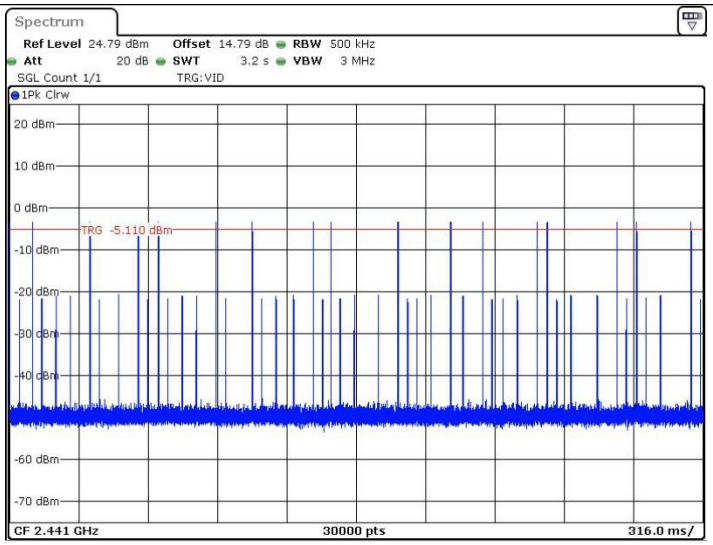


Date: 18.SEP.2024 11:22:44

3DH3_Ant1_Hop

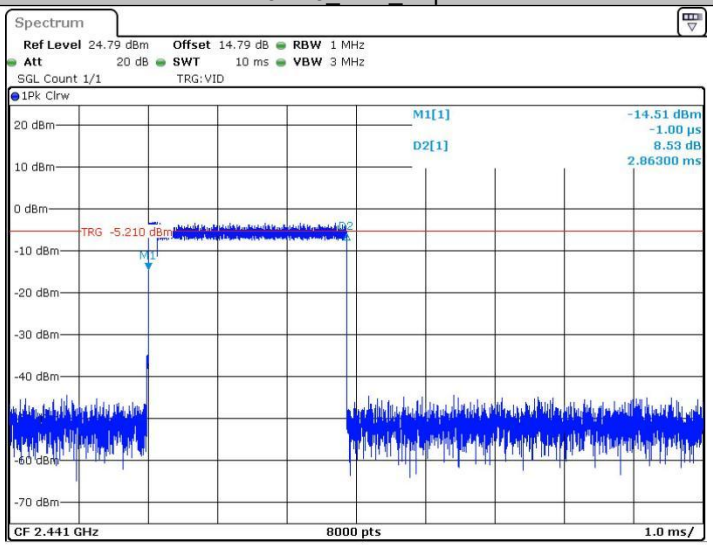


Date: 18.SEP.2024 11:29:00

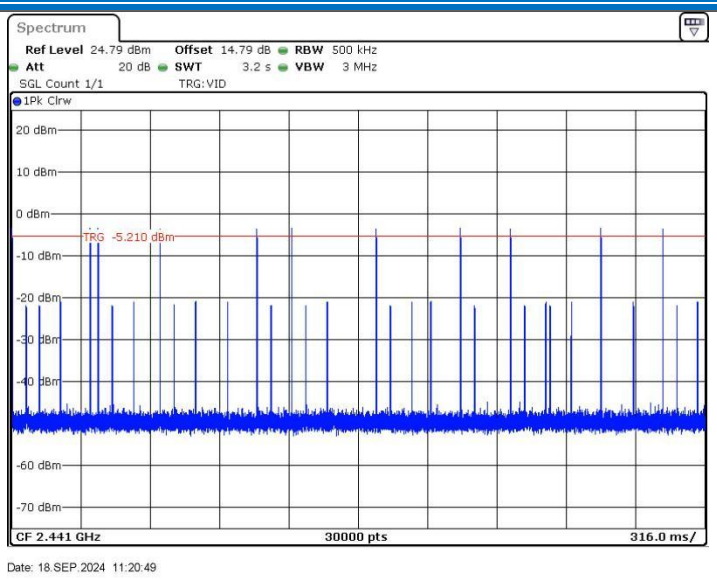


Date: 18.SEP.2024 11:29:06

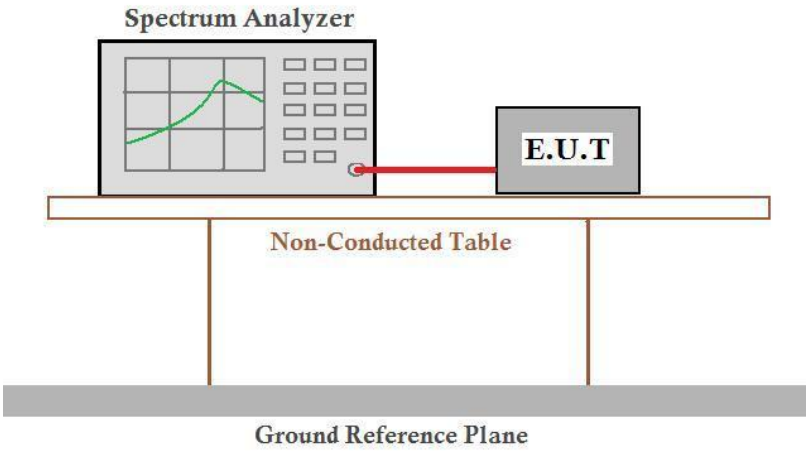
3DH5_Ant1_Hop



Date: 18.SEP.2024 11:20:44


Spectrum
Ref Level 24.79 dBm Offset 14.79 dB RBW 500 kHz
Att 20 dB SWT 3.2 s VBW 3 MHz
SGL Count 1/1 TRG:VID
1Pk Clrw
20 dBm
10 dBm
0 dBm
TRG -5.210 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-60 dBm
-70 dBm
CF 2.441 GHz
30000 pts
316.0 ms/
Date: 18.SEP.2024 11:20:49

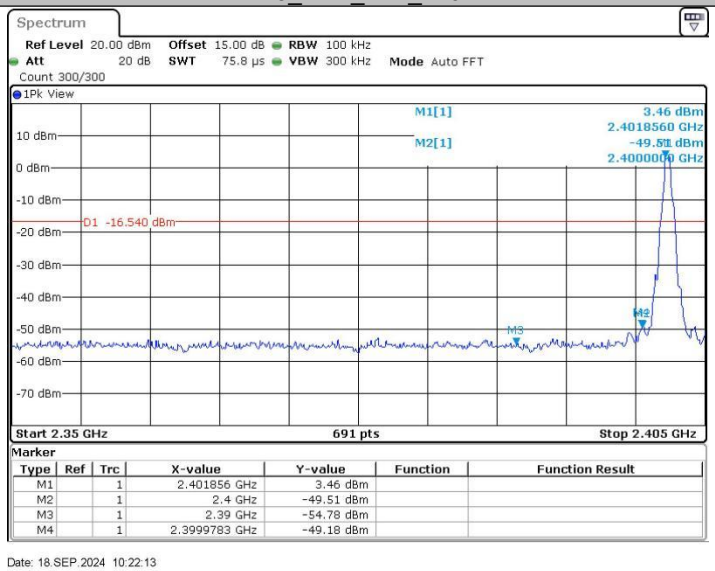
5.9 Band Edge for RF Conducted Emissions

Test Requirement:	RSS 247 5.5
Test Method:	ANSI C63.10: 2013
Test Setup:	 *Remark: Offset=cable loss+ attenuation factor.*
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Exploratory Test Mode:	Hopping and Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.
Test Results:	Pass

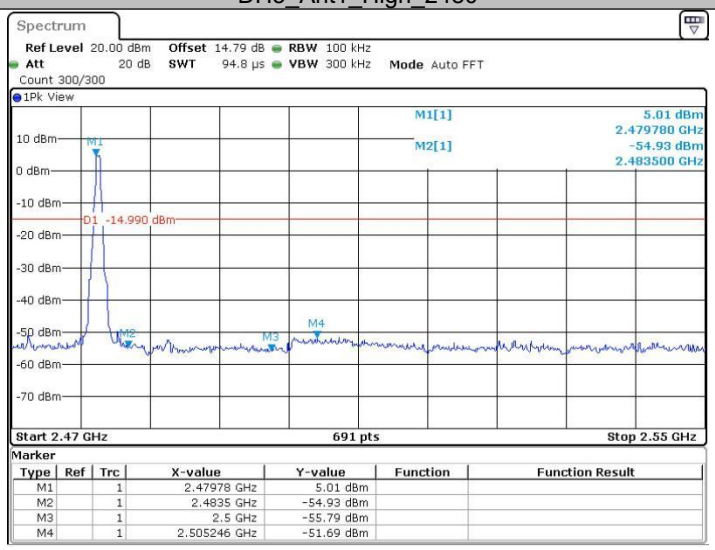
TestMode	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Low	2402	3.46	-49.18	≤-16.54	PASS
	High	2480	5.01	-51.69	≤-14.99	PASS
	Low	Hop_2402	3.20	-52.42	≤-16.8	PASS
	High	Hop_2480	-2.28	-51.05	≤-22.28	PASS
2DH5	Low	2402	3.43	-50.17	≤-16.57	PASS
	High	2480	4.17	-50.69	≤-15.83	PASS
	Low	Hop_2402	-9.75	-53.08	≤-29.75	PASS
	High	Hop_2480	-3.39	-51.31	≤-23.39	PASS
3DH5	Low	2402	3.66	-51.1	≤-16.34	PASS
	High	2480	5.04	-51.35	≤-14.96	PASS
	Low	Hop_2402	-9.23	-52	≤-29.23	PASS
	High	Hop_2480	-3.00	-51.4	≤-23	PASS

Test plot as follows:

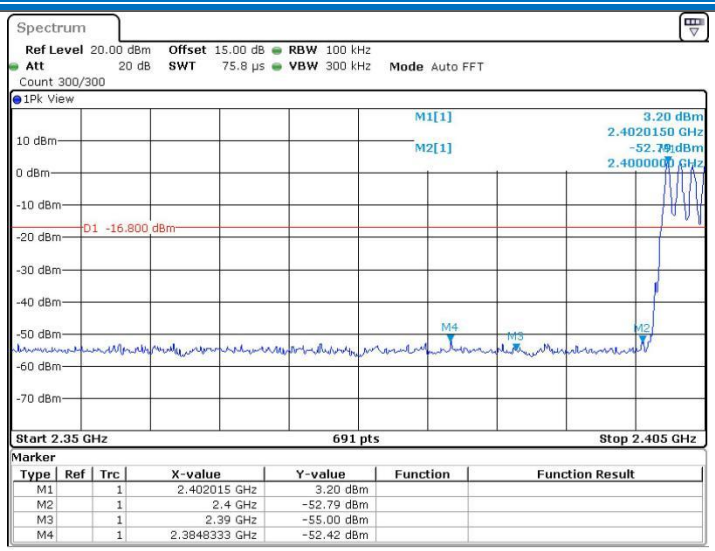
DH5_Ant1_Low_2402



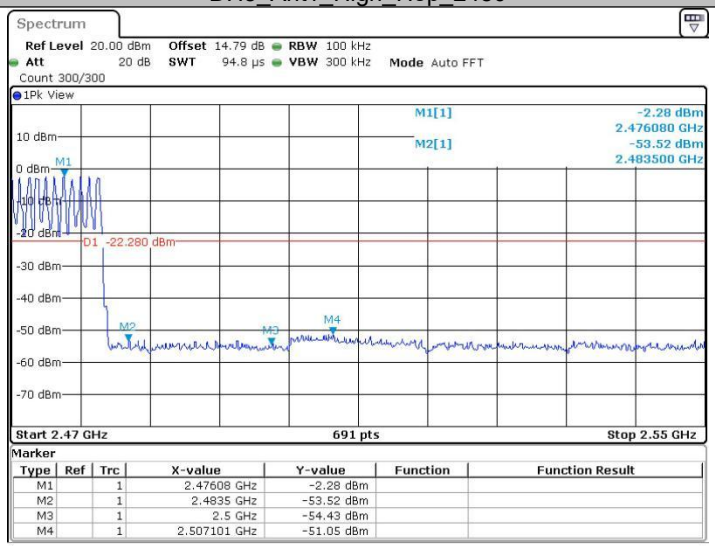
DH5_Ant1_High_2480



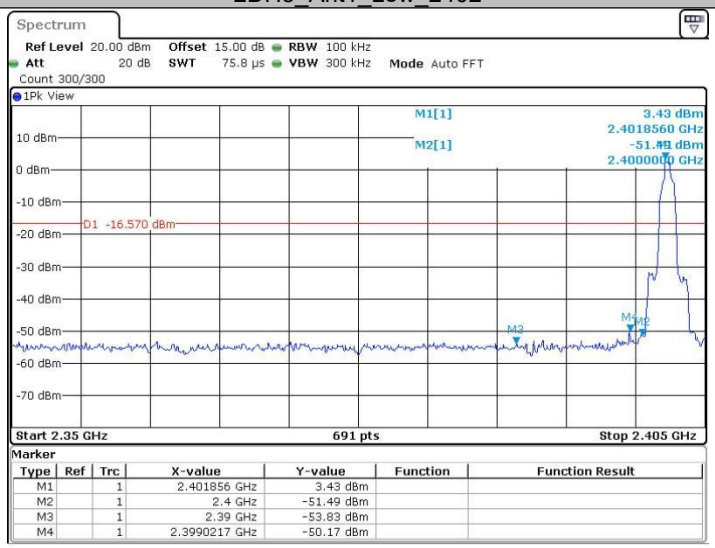
DH5_Ant1_Low_Hop_2402



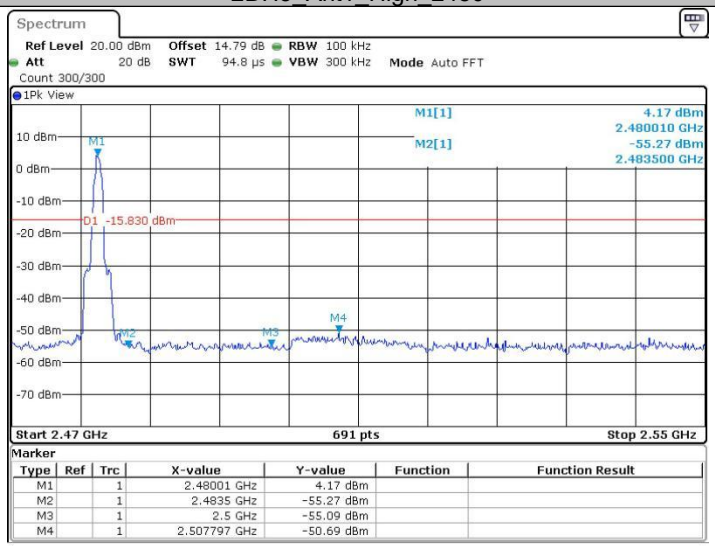
DH5_Ant1_High_Hop_2480



2DH5_Ant1_Low_2402



2DH5_Ant1_High_2480



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48001 GHz	4.17 dBm		
M2		1	2.4835 GHz	-55.27 dBm		
M3		1	2.5 GHz	-55.09 dBm		
M4		1	2.507797 GHz	-50.69 dBm		

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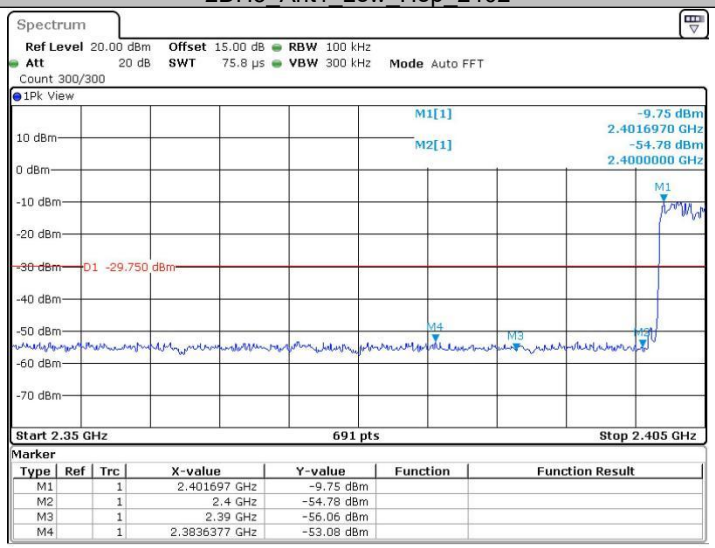
2DH5_Ant1_Low_Hop_2402

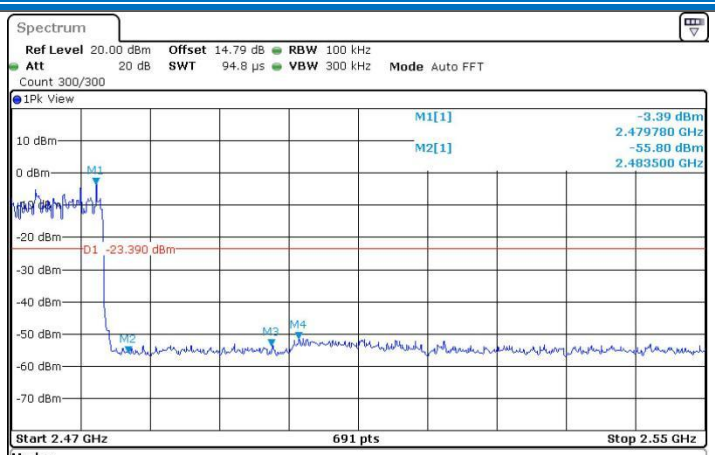


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401697 GHz	-9.75 dBm		
M2		1	2.4 GHz	-54.78 dBm		
M3		1	2.39 GHz	-56.06 dBm		
M4		1	2.3836377 GHz	-53.08 dBm		

Date: 18.SEP.2024 10:54:24

2DH5_Ant1_High_Hop_2480



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47978 GHz	-3.39 dBm		
M2		1	2.4835 GHz	-55.80 dBm		
M3		1	2.5 GHz	-53.70 dBm		
M4		1	2.503159 GHz	-51.31 dBm		

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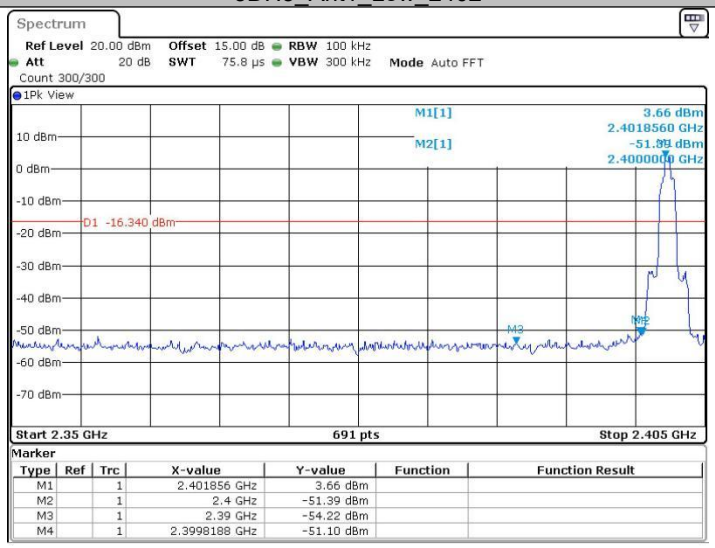
3DH5_Ant1_Low_2402



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401856 GHz	3.66 dBm		
M2		1	2.4 GHz	-51.39 dBm		
M3		1	2.39 GHz	-54.22 dBm		
M4		1	2.3998188 GHz	-51.10 dBm		

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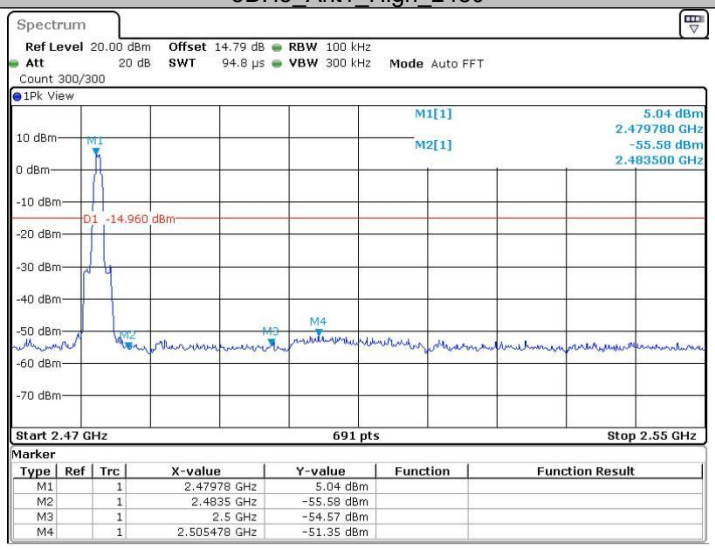
3DH5_Ant1_High_2480



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47978 GHz	5.04 dBm		
M2		1	2.4835 GHz	-55.58 dBm		
M3		1	2.5 GHz	-54.57 dBm		
M4		1	2.505478 GHz	-51.35 dBm		

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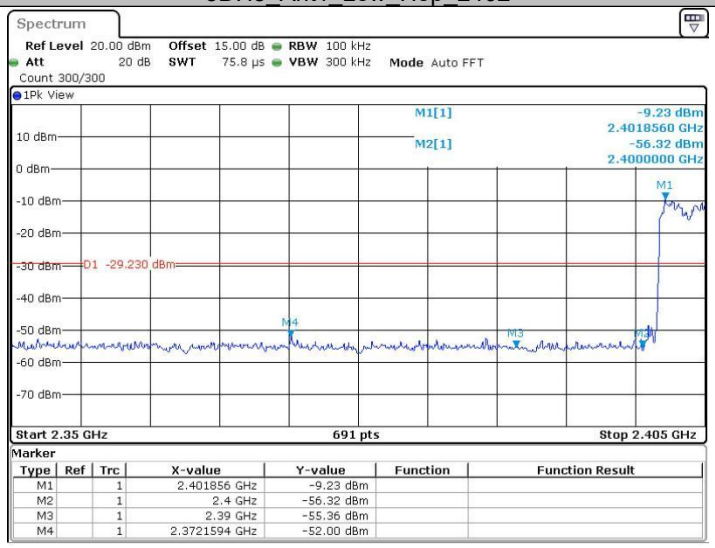
3DH5_Ant1_Low_Hop_2402



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401856 GHz	-9.23 dBm		
M2		1	2.4 GHz	-56.32 dBm		
M3		1	2.39 GHz	-55.36 dBm		
M4		1	2.3721594 GHz	-52.00 dBm		

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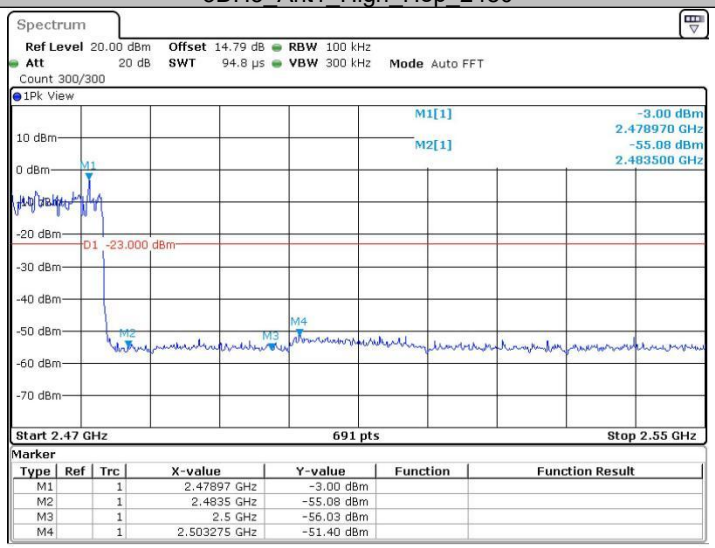
3DH5_Ant1_High_Hop_2480

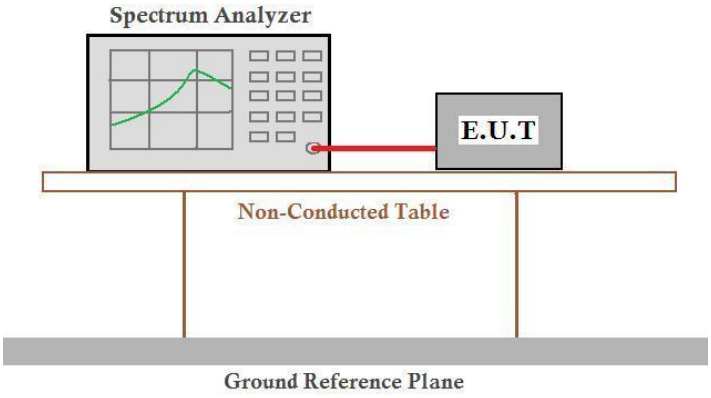


Marker

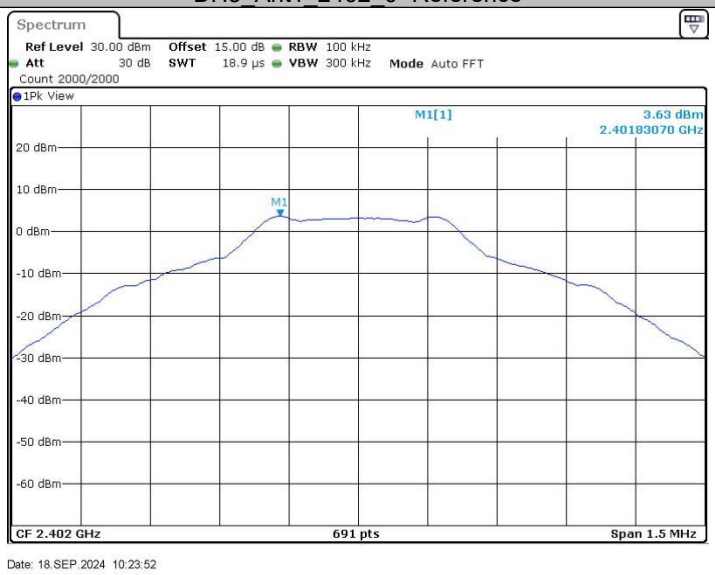
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47897 GHz	-3.00 dBm		
M2		1	2.4835 GHz	-55.08 dBm		
M3		1	2.5 GHz	-56.03 dBm		
M4		1	2.503275 GHz	-51.40 dBm		

Date: 18.SEP.2024 11:29:30

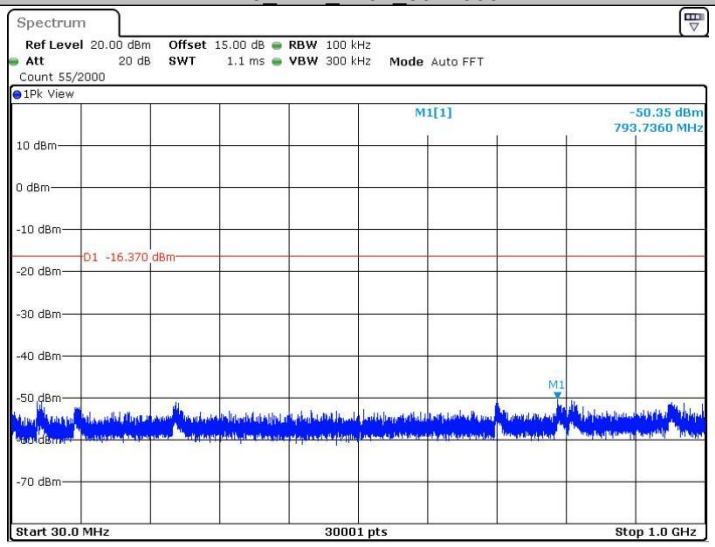
5.10 RF Antenna Conducted Spurious Emissions

Test Requirement:	RSS 247 5.5
Test Method:	ANSI C63.10: 2013
Test Setup:	 *Remark: Offset=cable loss+ attenuation factor.*
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.
Test Results:	Pass

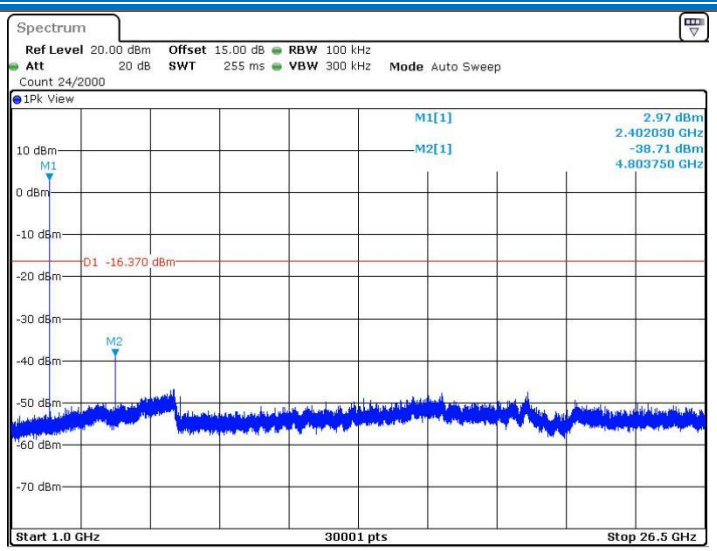
DH5_Ant1_2402_0~Reference



DH5_Ant1_2402_30~1000

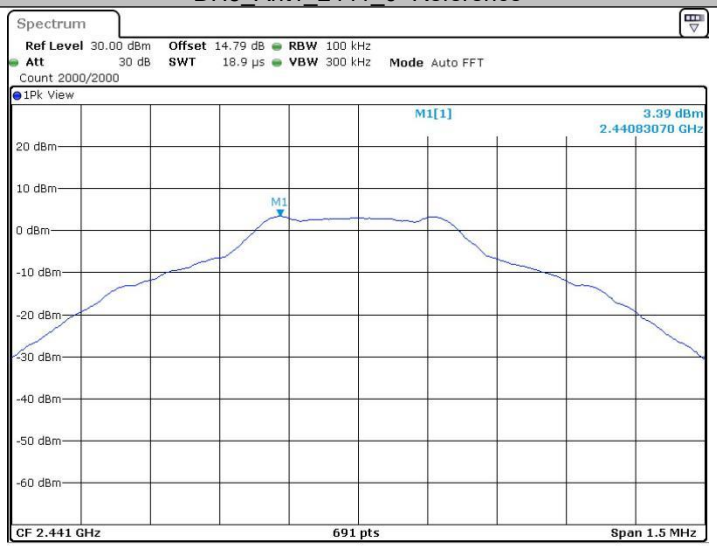


DH5_Ant1_2402_1000~26500



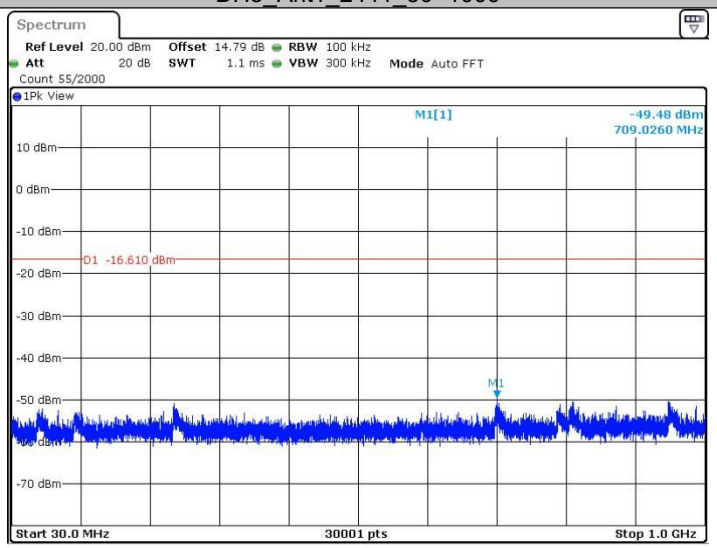
Date: 18.SEP.2024 10:24:20

DH5_Ant1_2441_0~Reference



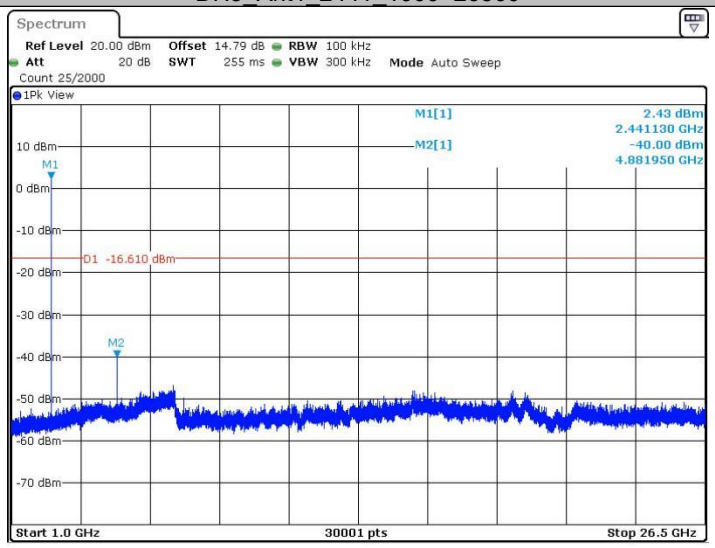
Date: 18.SEP.2024 10:25:03

DH5_Ant1_2441_30~1000



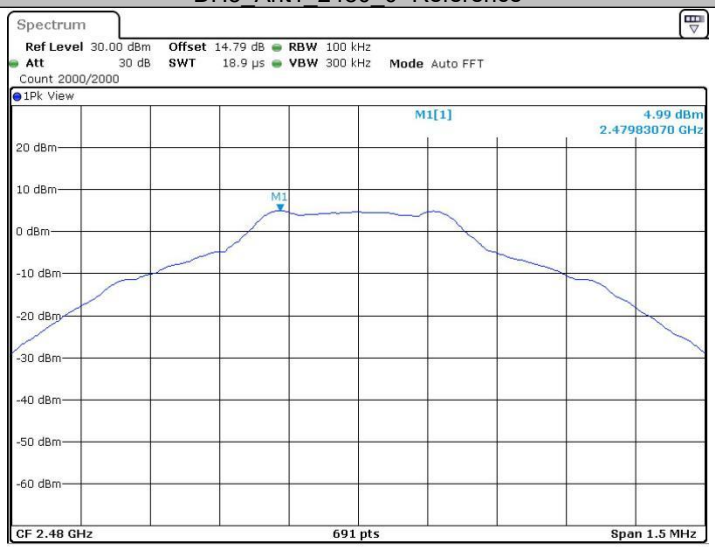
Date: 18.SEP.2024 10:25:10

DH5_Ant1_2441_1000~26500



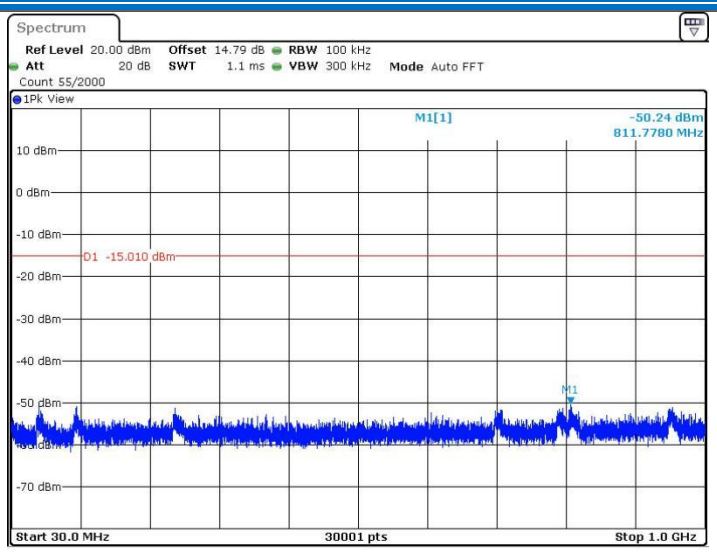
Date: 18.SEP.2024 10:25:32

DH5_Ant1_2480_0~Reference



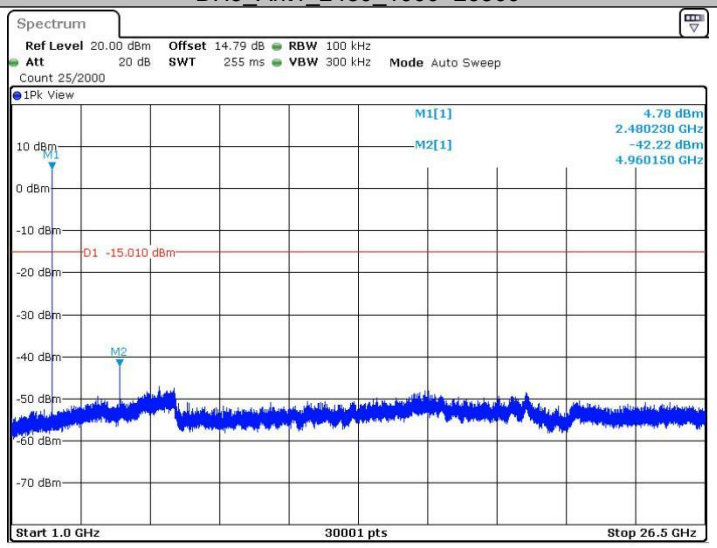
Date: 18.SEP.2024 10:29:10

DH5_Ant1_2480_30~1000



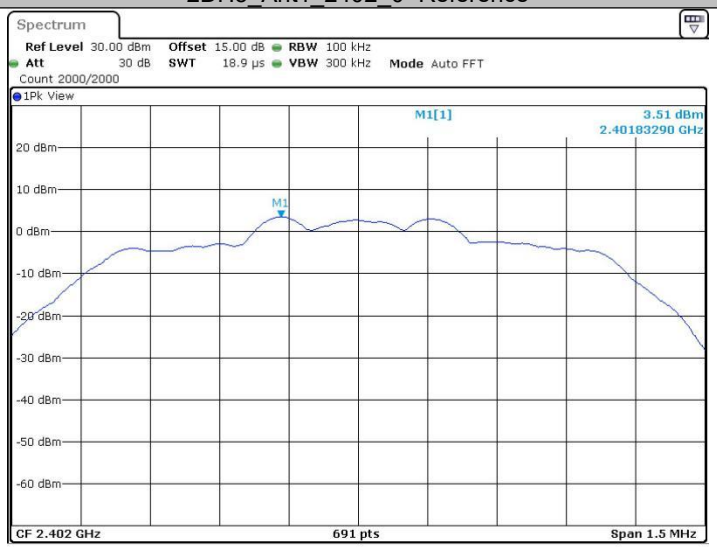
Date: 18.SEP.2024 10:29:16

DH5_Ant1_2480_1000~26500



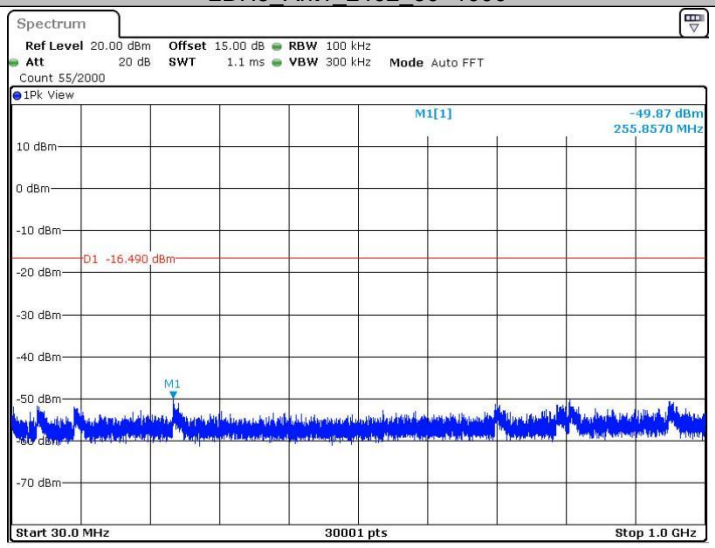
Date: 18.SEP.2024 10:29:38

2DH5_Ant1_2402_0~Reference



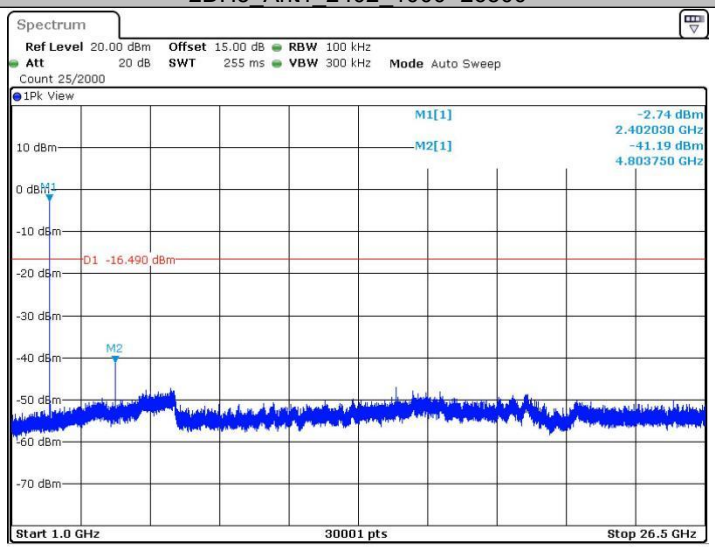
Date: 18.SEP.2024 10:31:52

2DH5_Ant1_2402_30~1000



Date: 18.SEP.2024 10:31:58

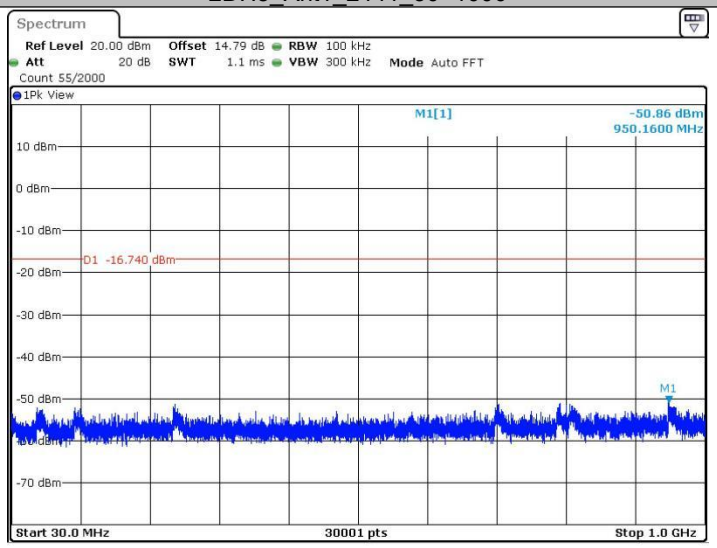
2DH5_Ant1_2402_1000~26500



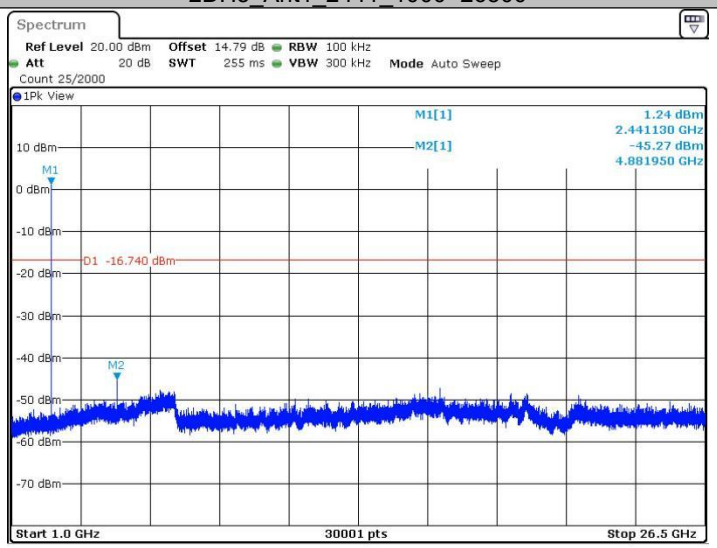
Date: 18.SEP.2024 10:32:20

2DH5_Ant1_2441_0~Reference

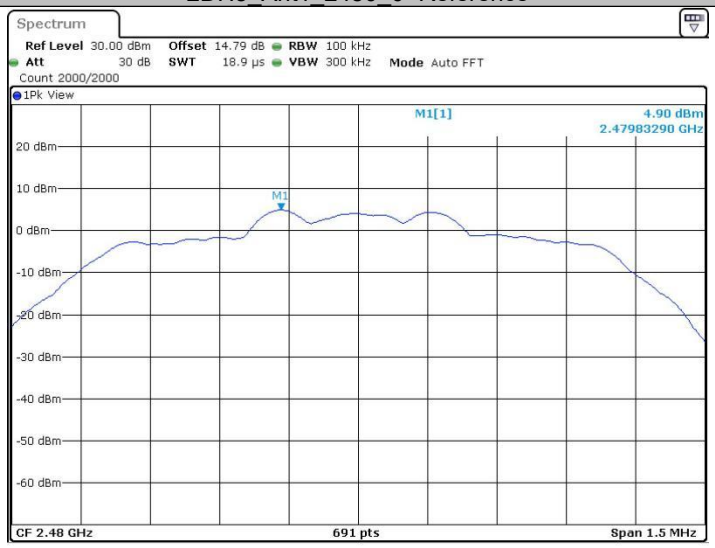
2DH5_Ant1_2441_30~1000



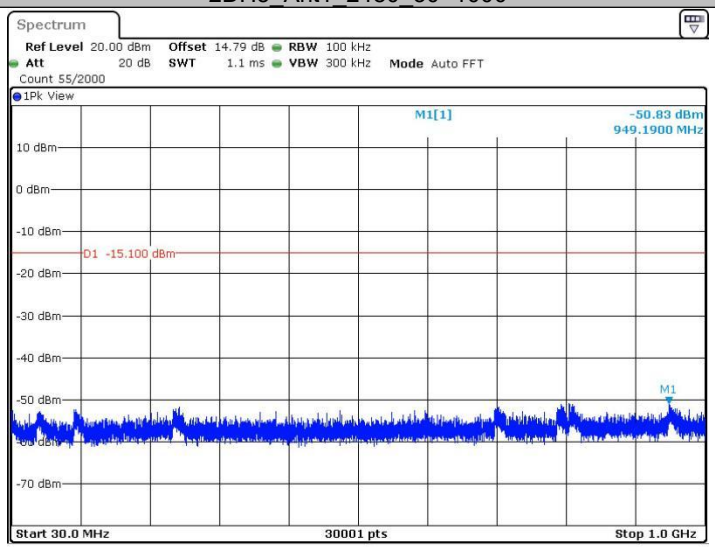
2DH5_Ant1_2441_1000~26500



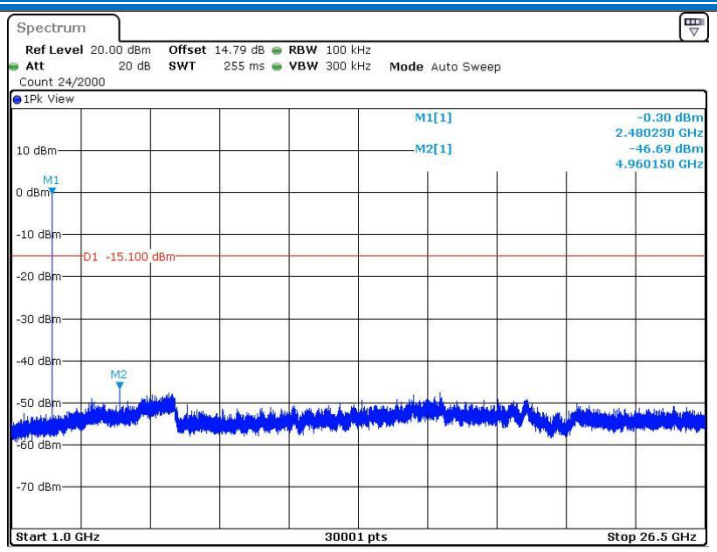
2DH5_Ant1_2480_0~Reference



2DH5_Ant1_2480_30~1000

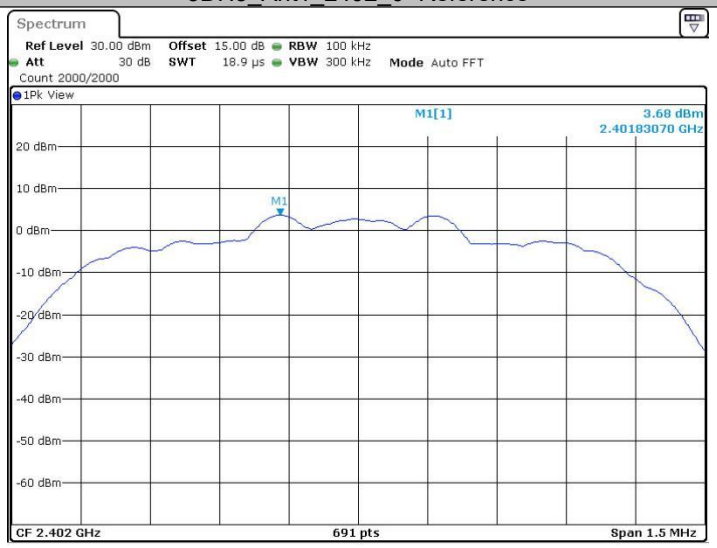


2DH5_Ant1_2480_1000~26500



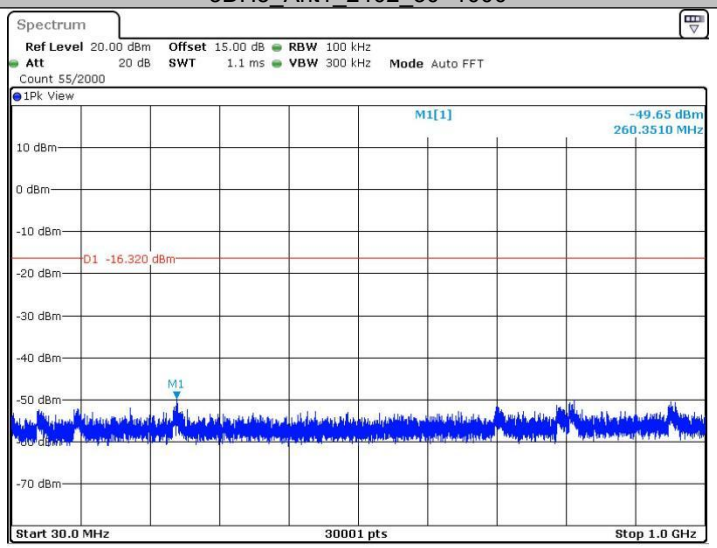
Date: 18.SEP.2024 10:36:00

3DH5_Ant1_2402_0~Reference



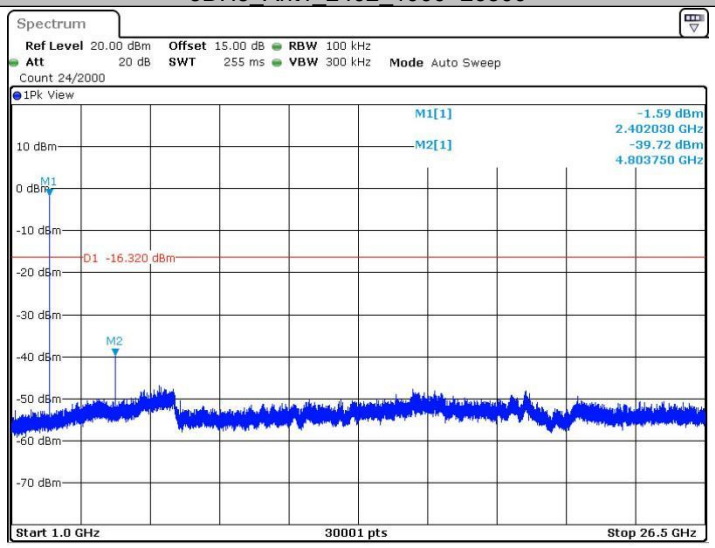
Date: 18.SEP.2024 10:40:38

3DH5_Ant1_2402_30~1000



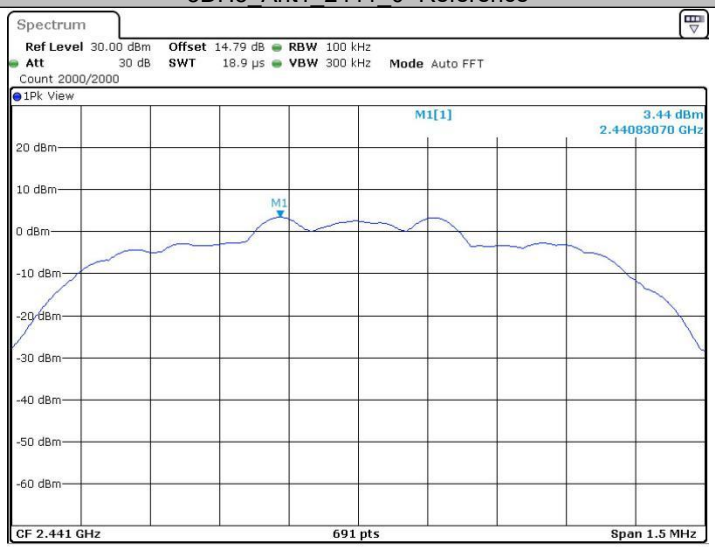
Date: 18.SEP.2024 10:40:44

3DH5_Ant1_2402_1000~26500



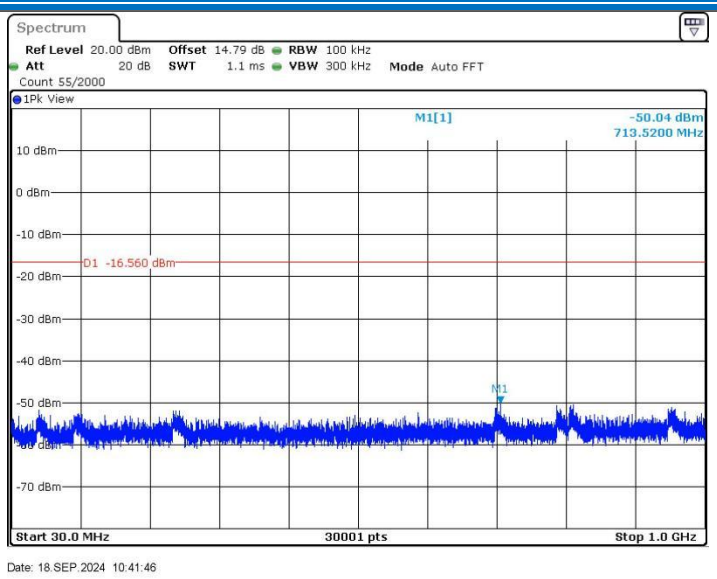
Date: 18.SEP.2024 10:41:06

3DH5_Ant1_2441_0~Reference



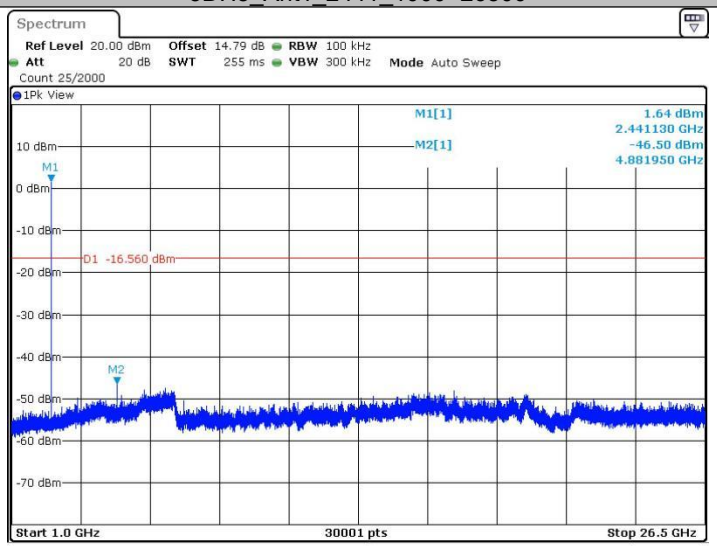
Date: 18.SEP.2024 10:41:40

3DH5_Ant1_2441_30~1000



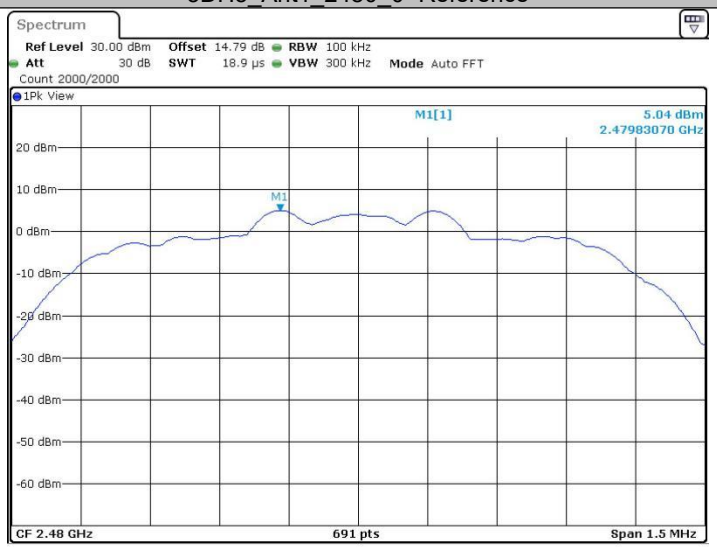
Date: 18.SEP.2024 10:41:46

3DH5_Ant1_2441_1000~26500



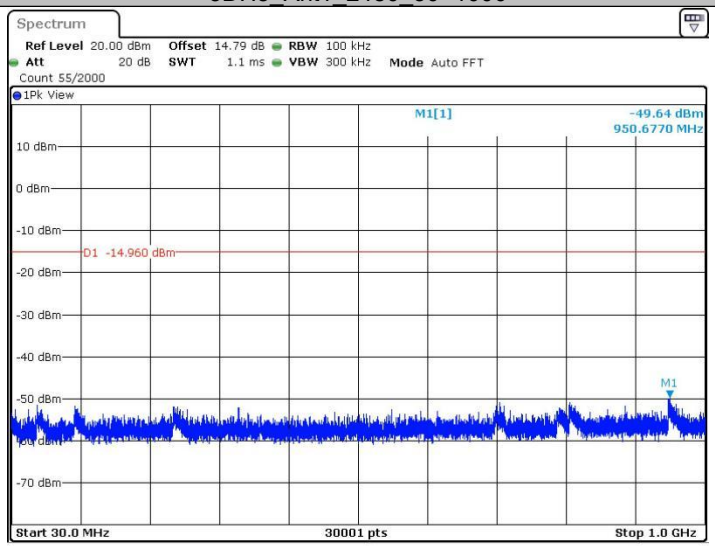
Date: 18.SEP.2024 10:42:08

3DH5_Ant1_2480_0~Reference

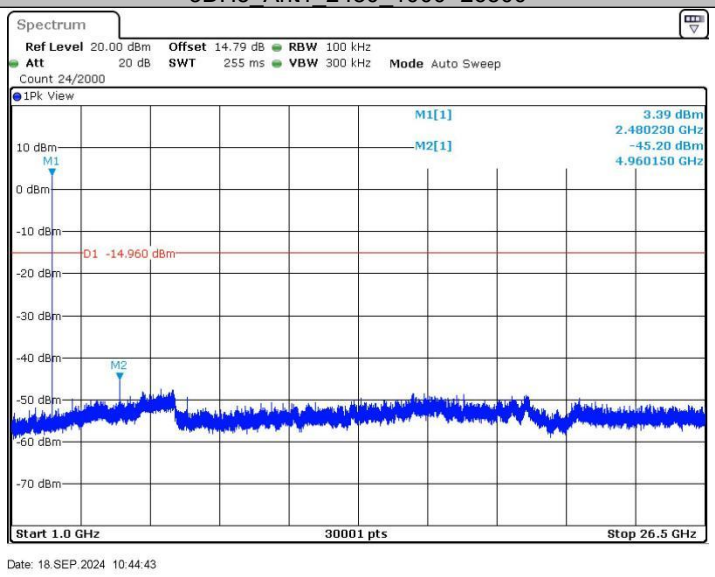


Date: 18.SEP.2024 10:44:15

3DH5_Ant1_2480_30~1000



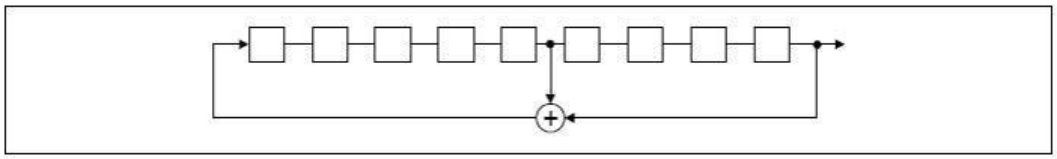
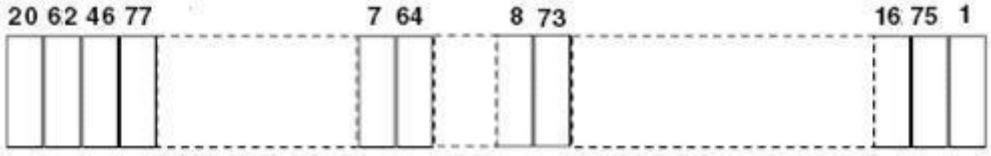
3DH5_Ant1_2480_1000~26500



Remark:

Pre test 9kHz to 25GHz, find the highest point when testing, so only the worst data were shown in the test report. Per FCC Part 15.33 (a) and 15.31 (o) ,The amplitude of spurious emissions from intentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.

5.11 Pseudorandom Frequency Hopping Sequence

Test Requirement:	RSS247 5.1(2) requirement:
FHSs shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the -20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, FHSs operating in the band 2400-2483.5 MHz may have hopping channel carrier frequencies that are separated by 25 kHz or two thirds of the -20 dB bandwidth of the hopping channel, whichever is greater, provided that the systems operate with an output power no greater than 0.125 W. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.	
EUT Pseudorandom Frequency Hopping Sequence	
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized with nine ones. • Number of shift register stages: 9 • Length of pseudo-random sequence: 2^9 -1 = 511 bits • Longest sequence of zeros: 8 (non-inverted signal)  *Linear Feedback Shift Register for Generation of the PRBS sequence* An example of Pseudorandom Frequency Hopping Sequence as follow:  Each frequency used equally on the average by each transmitter. The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.	
The device does not have the ability to be coordinated with other FHSS systems in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitters.	

5.12 Radiated Spurious Emission & Restricted bands

Test Requirement:	RSS-Gen Issue 5
Test Method:	ANSI C63.10: 2013 & RSS-Gen Issue 5
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.015MHz	Quasi-peak	200Hz	1kHz	Quasi-peak
0.015MHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120 kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	Quasi-peak	300
0.490MHz-1.705MHz	24000/F(kHz)	-	Quasi-peak	30
1.705MHz-30MHz	30	-	Quasi-peak	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3
		74.0	Peak	3

Test Setup:

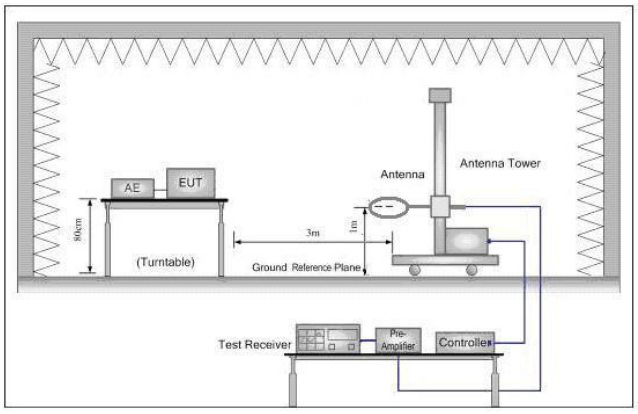


Figure 1. Below 30MHz

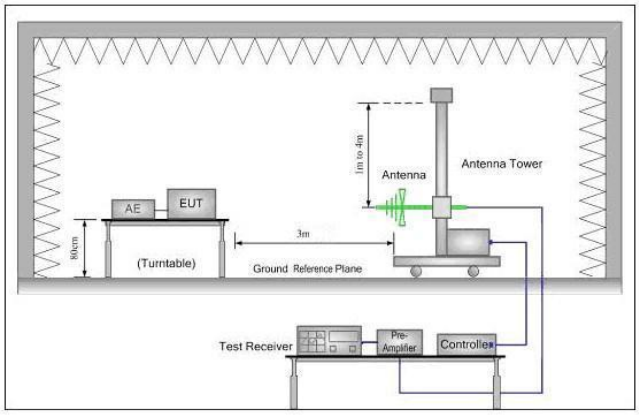


Figure 2. 30MHz to 1GHz

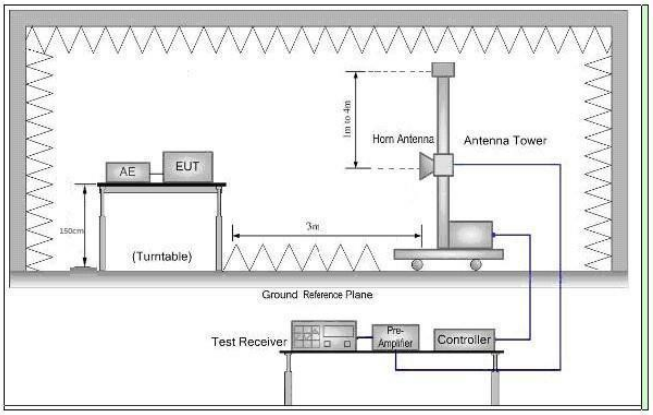


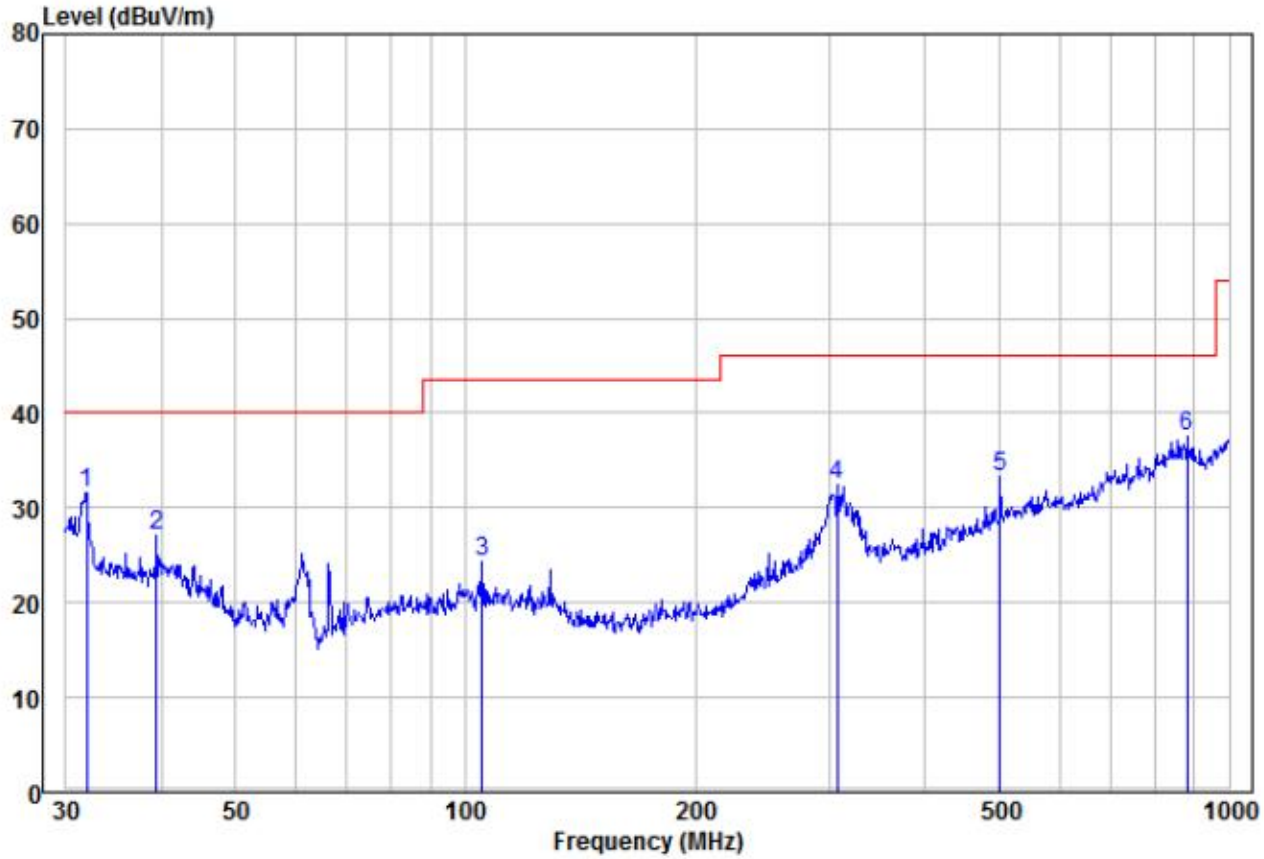
Figure 3. Above 1 GHz

Test Procedure:	a. For below 1GHz test, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz test, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to height 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. h. Test the EUT in the lowest channel (2402MHz),the middle channel (2441MHz),the Highest channel (2480MHz) i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. j. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Non-hopping transmitting mode or receiving mode with all kind of modulation and all kind of data type Transmitting mode Receiving mode

Final Test Mode:	Through Pre-scan, find the DH5 of data type and GFSK modulation is the worst case. Pretest the EUT at Transmitting mode, Charge + Transmitting mode, Receiving mode and Charge + Receiving mode, found the Charge + Transmitting mode which it is worse case For below 1GHz part, through pre-scan, the worst case is the highest channel. Only the worst case is recorded in the report.
Test Results:	Pass

5.12.1 Radiated Emission below 1GHz

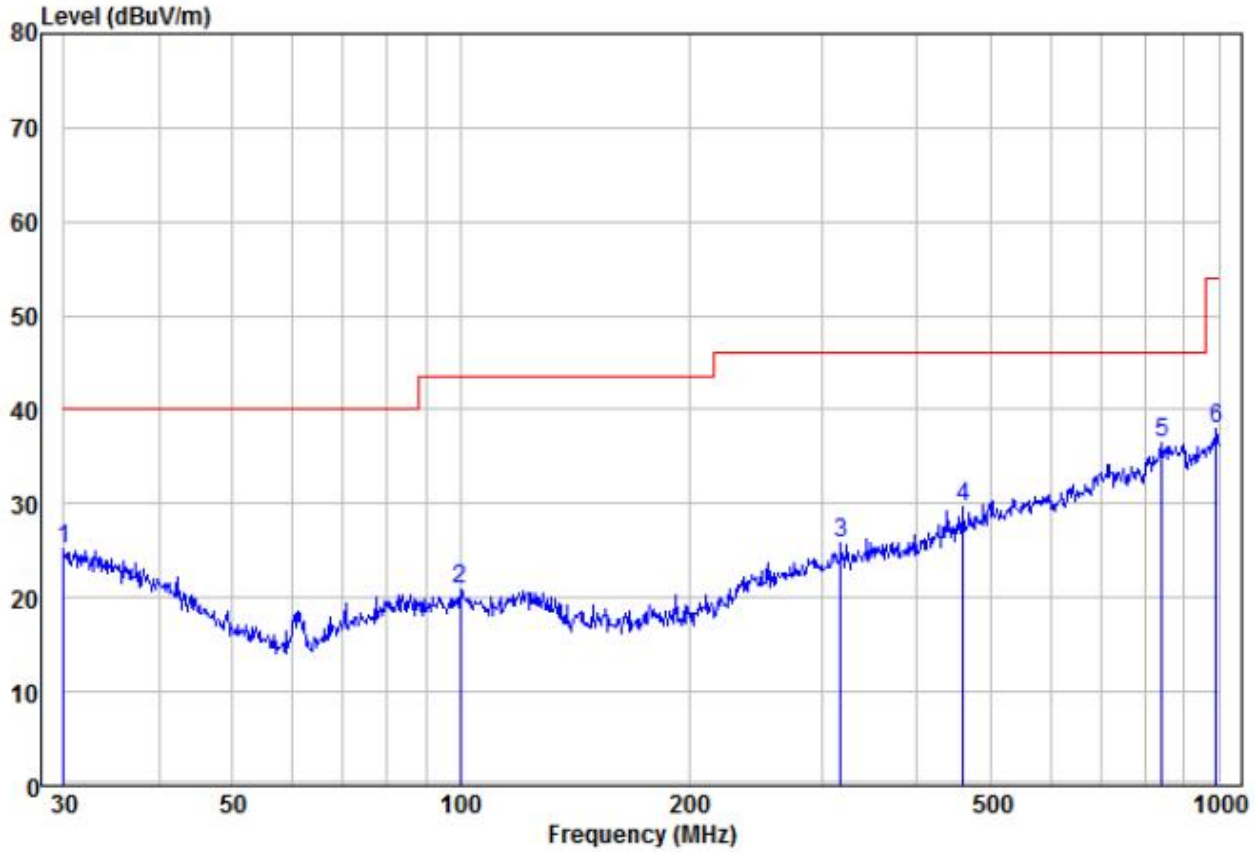
Vertical



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1 pp	31.95	15.98	15.68	31.66	40.00	-8.34	Peak	VERTICAL
2	39.44	13.37	13.64	27.01	40.00	-12.99	Peak	VERTICAL
3	105.27	12.86	11.53	24.39	43.50	-19.11	Peak	VERTICAL
4	306.75	16.83	15.50	32.33	46.00	-13.67	Peak	VERTICAL
5	501.18	13.04	20.31	33.35	46.00	-12.65	Peak	VERTICAL
6	881.41	10.70	26.75	37.45	46.00	-8.55	Peak	VERTICAL

Remark:
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Factor= Antenna Factor + Cable Factor – Preamplifier Factor,
Level = Read Level + Factor,
Over Limit=Level-Limit Line.

Horizontal



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	30.00	9.09	16.08	25.17	40.00	-14.83	Peak	HORIZONTAL
2	99.88	9.20	11.75	20.95	43.50	-22.55	Peak	HORIZONTAL
3	317.70	9.99	15.78	25.77	46.00	-20.23	Peak	HORIZONTAL
4	460.73	10.76	18.95	29.71	46.00	-16.29	Peak	HORIZONTAL
5 pp	842.13	9.59	26.82	36.41	46.00	-9.59	Peak	HORIZONTAL
6	993.01	10.39	27.52	37.91	54.00	-16.09	Peak	HORIZONTAL

Remark:
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Factor= Antenna Factor + Cable Factor – Preamplifier Factor,
Level = Read Level + Factor,
Over Limit=Level-Limit Line.

5.12.2 Transmitter Emission above 1GHz

Worse case mode:		GFSK(DH5)		Test channel:		Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
2390	54.67	-9.2	45.47	74	-28.53	**Peak**	**H**
2400	55.34	-9.39	45.95	74	-28.05	Peak	H
4804	51.94	-4.33	47.61	74	-26.39	Peak	H
7206	48.70	1.01	49.71	74	-24.29	Peak	H
2390	53.55	-9.2	44.35	74	-29.65	**Peak**	**V**
2400	56.10	-9.39	46.71	74	-27.29	Peak	V
4804	53.98	-4.33	49.65	74	-24.35	Peak	V
7206	50.99	1.01	52.00	74	-22.00	Peak	V

Worse case mode:		GFSK(DH5)		Test channel:		Middle	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
4882	51.45	-4.11	47.34	74	-26.66	peak	H
7323	51.15	1.51	52.66	74	-21.34	peak	H
4882	51.86	-4.11	47.75	74	-26.25	peak	V
7323	50.38	1.51	51.89	74	-22.11	peak	V

Worse case mode:		GFSK(DH5)		Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
2483.5	54.97	-9.29	45.68	74	-28.32	**Peak**	**H**
4960	50.74	-4.04	46.70	74	-27.30	Peak	H
7440	50.22	1.57	51.79	74	-22.21	Peak	H
2483.5	54.81	-9.29	45.52	74	-28.48	**Peak**	**V**
4960	49.00	-4.04	44.96	74	-29.04	Peak	V
7440	49.80	1.57	51.37	74	-22.63	Peak	V

Worse case mode:		π /4DQPSK (2DH5)		Test channel:		Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
2390	55.87	-9.2	46.67	74	-27.33	**Peak**	**H**
2400	55.51	-9.39	46.12	74	-27.88	Peak	H
4804	51.82	-4.33	47.49	74	-26.51	Peak	H
7206	50.09	1.01	51.10	74	-22.90	Peak	H
2390	55.60	-9.2	46.40	74	-27.60	**Peak**	**V**
2400	54.67	-9.39	45.28	74	-28.72	Peak	V
4804	54.12	-4.33	49.79	74	-24.21	Peak	V
7206	48.77	1.01	49.78	74	-24.22	Peak	V

Worse case mode:		π /4DQPSK (2DH5)		Test channel:		Middle	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
4882	51.51	-4.11	47.40	74	-26.60	peak	H
7323	51.04	1.51	52.55	74	-21.45	peak	H
4882	53.53	-4.11	49.42	74	-24.58	peak	V
7323	50.72	1.51	52.23	74	-21.77	peak	V

Worse case mode:		π /4DQPSK (2DH5)		Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
2483.5	55.38	-9.29	46.09	74	-27.91	**Peak**	**H**
4960	52.40	-4.04	48.36	74	-25.64	Peak	H
7440	49.23	1.57	50.80	74	-23.20	Peak	H
2483.5	55.60	-9.29	46.31	74	-27.69	**Peak**	**V**
4960	50.33	-4.04	46.29	74	-27.71	Peak	V
7440	50.14	1.57	51.71	74	-22.29	Peak	V

Worse case mode:	8DPSK (3DH5)		Test channel:		Lowest	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
2390	54.94	-9.2	45.74	74	-28.26	**Peak**	**H**
2400	54.35	-9.39	44.96	74	-29.04	Peak	H
4804	54.11	-4.33	49.78	74	-24.22	Peak	H
7206	51.06	1.01	52.07	74	-21.93	Peak	H
2390	53.72	-9.2	44.52	74	-29.48	**Peak**	**V**
2400	55.76	-9.39	46.37	74	-27.63	Peak	V
4804	52.43	-4.33	48.10	74	-25.90	Peak	V
7206	50.21	1.01	51.22	74	-22.78	Peak	V

Worse case mode:	8DPSK (3DH5)		Test channel:		Middle	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
4882	50.43	-4.11	46.32	74	-27.68	peak	H
7323	50.61	1.51	52.12	74	-21.88	peak	H
4882	51.64	-4.11	47.53	74	-26.47	peak	V
7323	48.80	1.51	50.31	74	-23.69	peak	V

Worse case mode:	8DPSK (3DH5)		Test channel:		Highest	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
2483.5	54.94	-9.29	45.65	74	-28.35	**Peak**	**H**
4960	51.31	-4.04	47.27	74	-26.73	Peak	H
7440	49.91	1.57	51.48	74	-22.52	Peak	H
2483.5	56.07	-9.29	46.78	74	-27.22	**Peak**	**V**
4960	49.24	-4.04	45.20	74	-28.80	Peak	V
7440	49.48	1.57	51.05	74	-22.95	Peak	V

Remark:

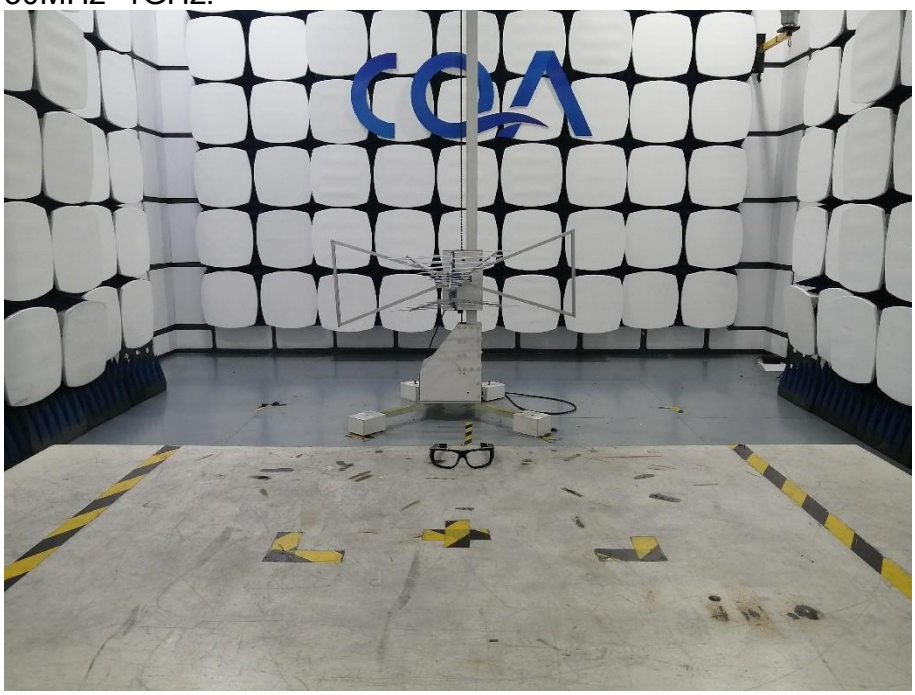
1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
   Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
2) Scan from 9kHz to 25GHz, the disturbance above 10GHz and below 30MHz was very low. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

6 Photographs - EUT Test Setup

6.1 Radiated Spurious Emission Test Setup

9kHz~30MHz:

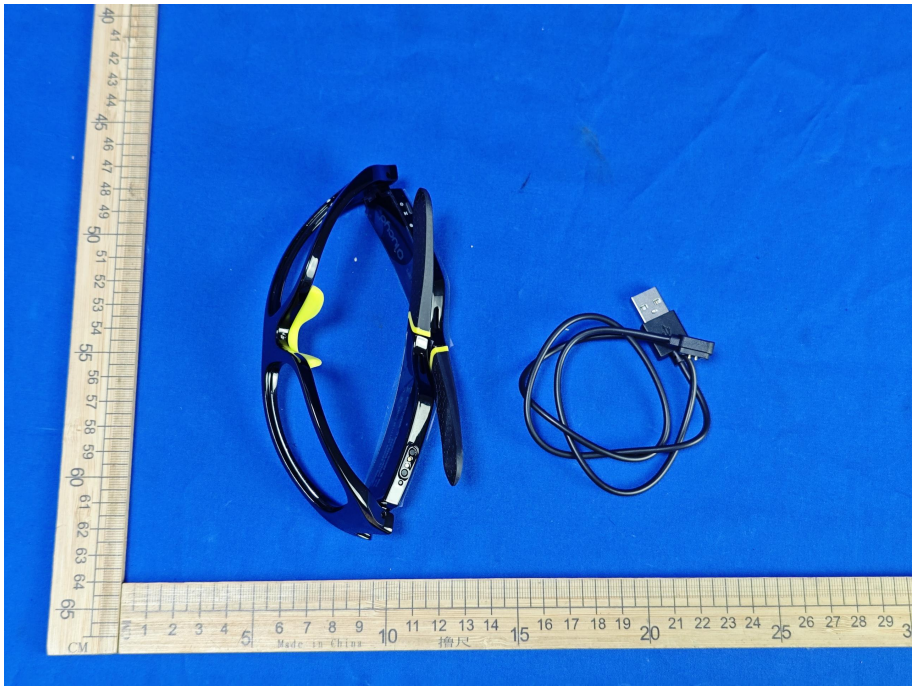
30MHz~1GHz:



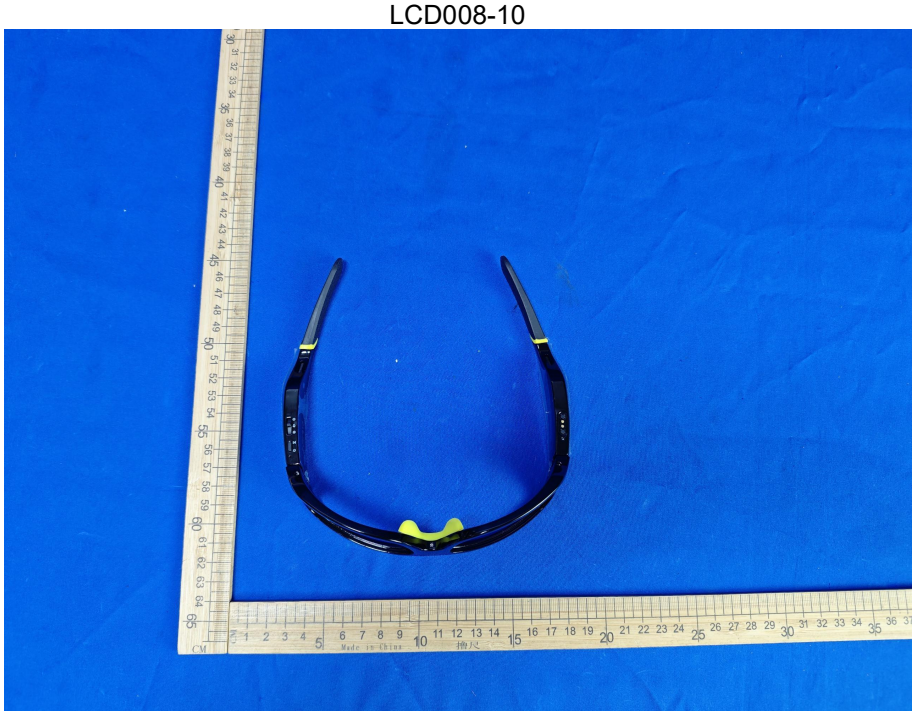
Above 1GHz:

6.2 Conducted Emission

7 Photographs - EUT Constructional Details

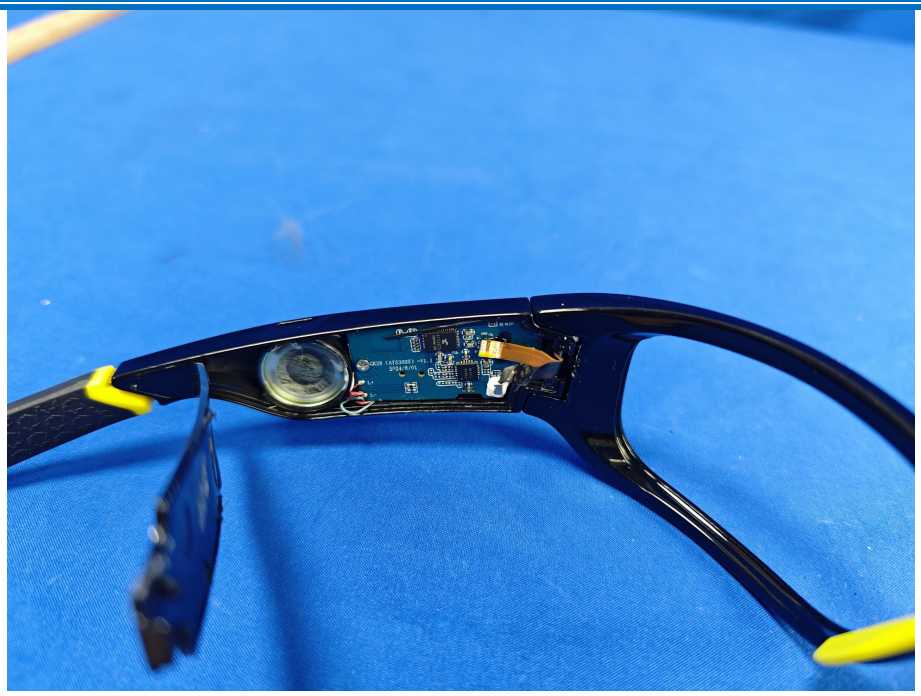


LCD008-10




CM
Made in China


CM
Made in China

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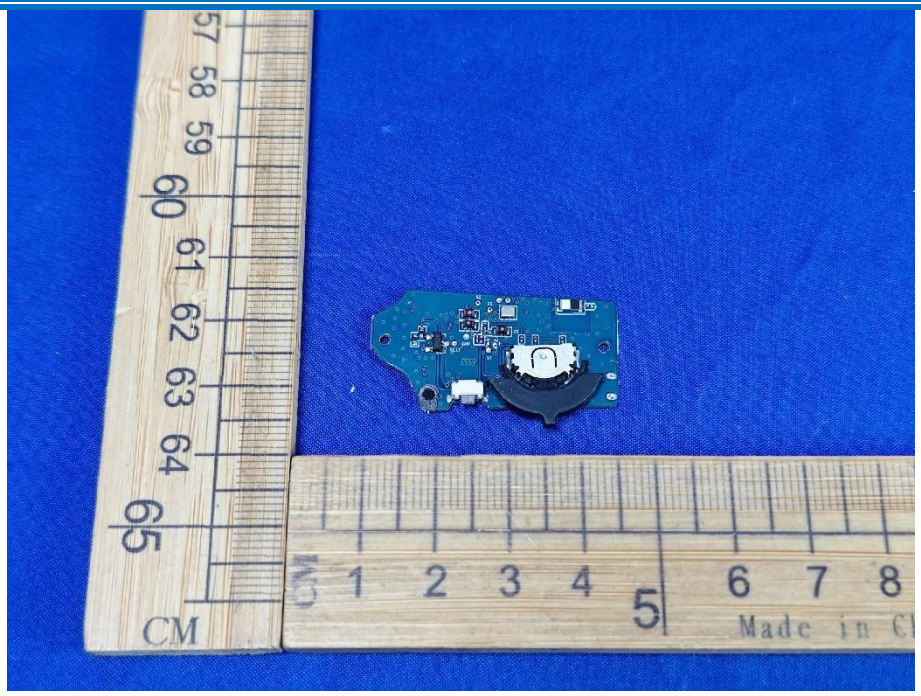
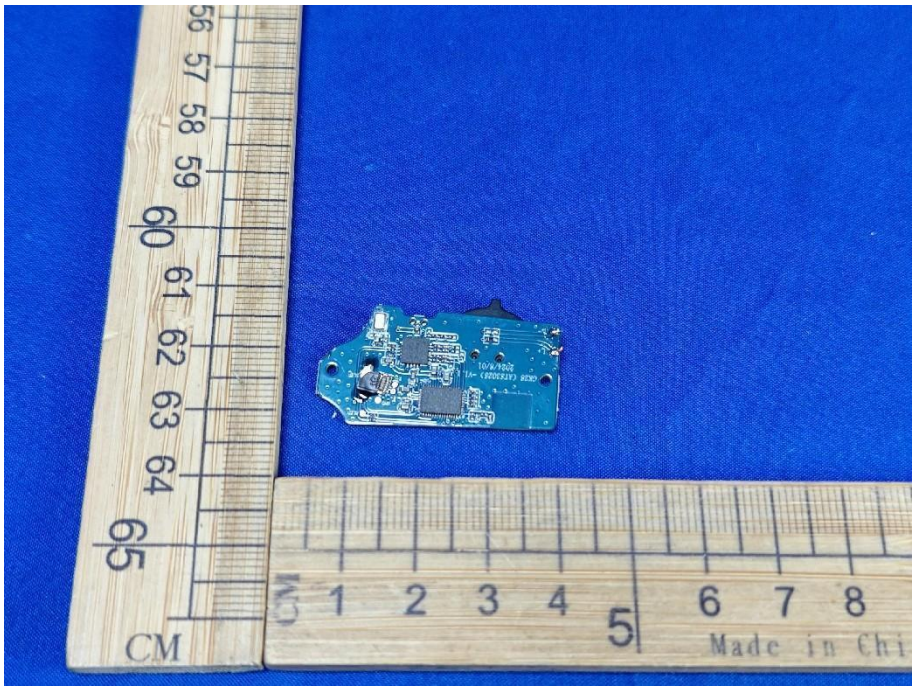
180mAh 0.67Wh
+240823468


CM
Made in C


CM
Made in Chi

LCD010-10

VERIFICATION OF CONFORMITY

VERIFICATION OF CONFORMITY

Verification No.:	NAP24090423C01E
Applicant:	Innovative Eyewear, Inc
Address:	11900 Biscayne Blvd #630, North Miami, FL 33181, United States
Product:	Smart Eyewear
Model:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Trade Mark:	Lucyd Reebok
Manufacturer:	Shenzhen Gonbes Technology Co. Ltd
Manufacturer Address:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA
Factory:	Shenzhen Gonbes Technology Co. Ltd
Factory Address:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA
Test Report No.:	NAP2409042301E
Test Standards:	IEC 62321-3-1:2013;IEC 62321-4:2013+A1:2017;IEC 62321-5:2013; IEC 62321-6:2015;IEC 62321-7-1:2015;IEC 62321-8:2017; IEC 62321-7-2:2017
Issuance date:	2024/09/20

The EUT described above has been tested by us with the listed standards and found in compliance with the council RoHS Directive(EU)2015/863 amending Annex Ⅱ to Directive 2011/65/EU. It is possible to use CE marking to demonstrate the compliance with this RoHS Directive.

RoHS
Directive 2011/65/EU WWW.RoHS.GS
CE

NAP Testing Technology Service (Zhongshan) Co., LTD

Lian Yi

Lian Yi
Authorized Signatory

NAP Testing Technology Service (Zhongshan) Co., LTD
Inspection & Testing Services

Remark(s):

1、 This verification is based on the submitted sample(s).It does not imply an assessment of the whole production and other relevant directives have to be observed.

2、 This verification is part of the full test report(s) and should be used in conjunction with it.

Test Report

Report No.：NAP2409042301E

Applicant: Innovative Eyewear, Inc

Address: 11900 Biscayne Blvd #630, North Miami, FL 33181, United States

The following test sample information is provided and confirmed by the applicant:

Sample Name:	Smart Eyewear
Model:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Trade Mark:	Lucyd Reebok
Manufacturer:	Shenzhen Gonbes Technology Co. Ltd
Manufacturer Address:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA
Factory:	Shenzhen Gonbes Technology Co. Ltd
Factory Address:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA

Date of sample(s) received：	Sep.13,2024
Date of Test Period：	Sep.13,2024 ~ Sep.20,2024
Date of Report：	Sep.20,2024

TEST REQUESTED	CONCLUSION
1. As specified by client, to determine the ROHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU -Screening by X-ray fluorescence spectroscopy and confirmed by wet chemical method of Lead, Cadmium, Mercury, Chromium and Brominated flame retardants (PBB & PBDE) in submitted samples.	PASS
2. As specified by client, to determine the Total Phthalates Content [ROHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU] in submitted samples.	PASS

NAP Testing Technology Service (Zhongshan) Co., LTD

Lian Yi

Lian Yi

Authorized Signatory

NAP Testing Technology Service (Zhongshan) Co., LTD Inspection & Testing Services

NAP Testing Technology Service (Zhongshan) Co., LTD
TEL：0760-86519632 E-mail:service@nap-testing.com
Add：4th floor Zone A and 5th floor, Site no. 81, Lixi Avenue, Banfu Borough, Zhongshan City, Guangdong Province, China

Test Report

Test Result(s)：

1. ROHS DIRECTIVE (EU) 2015/863 AMENDING ANNEX II TO DIRECTIVE 2011/65/EU -SCREENING BY X-RAY FLUORESCENCE SPECTROSCOPY AND CONFIRMED BY WET CHEMICAL METHOD OF LEAD, CADMIUM, MERCURY, CHROMIUM AND BROMINATED FLAME RETARDANTS (PBB & PBDE)

TESTED MATERIAL	SCHEME	TARGET RoHS SUBSTANCES	TEST METHOD USED	XRF RESULT (in mg/kg)	CHEMICAL TEST RESULT (in mg/kg)
001	001	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
002	002	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
003	003	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
004	004	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
005	005	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
006	006	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	

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Test Report

TESTED MATERIAL	SCHEME	TARGET RoHS SUBSTANCES	TEST METHOD USED	XRF RESULT (in mg/kg)	CHEMICAL TEST RESULT (in mg/kg)
007	007	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
008	008	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
009	009	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
010	010	All	XRF + Chemical	Cd: N.D	Cr^{6+}: Negative
				Cr: Inconclusive	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	
011	011	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	
012	012	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	

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013	013	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
014	014	All	XRF + Chemical	Cd: N.D	PBBs: N.D (<5.0) PBDEs: N.D (<5.0)
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: Inconclusive	
015	015	All	XRF + Chemical	Cd: N.D	Cr^{6+}: Negative
				Cr: Inconclusive	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	
016	016	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
017	017	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	
018	018	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	

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Test Report

TESTED MATERIAL	SCHEME	TARGET RoHS SUBSTANCES	TEST METHOD USED	XRF RESULT (in mg/kg)	CHEMICAL TEST RESULT (in mg/kg)
019	019	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	
020	020	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	
021	021	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	
022	022	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
023	023	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	
024	024	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	

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Test Report

TESTED MATERIAL	SCHEME	TARGET RoHS SUBSTANCES	TEST METHOD USED	XRF RESULT (in mg/kg)	CHEMICAL TEST RESULT (in mg/kg)
025	025	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	
026	026	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
027	027	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
028	028	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
029	029	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	
030	030	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.D	

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Test Report

TESTED MATERIAL	SCHEME	TARGET RoHS SUBSTANCES	TEST METHOD USED	XRF RESULT (in mg/kg)	CHEMICAL TEST RESULT (in mg/kg)
031	031	All	XRF	Cd: N.D	N/T
				Cr: N.D	
				Pb: N.D	
				Hg: N.D	
				Br: N.A.	

Remark(s):

- RL = Reporting Limits
- N.D = Not Detected (<RL)
- Mg/kg = parts per million = ppm
- N/T = Not tested
- N.A.= Not applicable

2. Total Phthalates Content [ROHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU]

Test Method: IEC 62321-8: 2017

Analyte	CAS No.	Requirement (Max.), %	Reporting Limit, %	Sample, %
				001+002+009+014+022+026+027
Dibutyl Phthalate, DBP	84-74-2	0.1	0.005	<0.005
Benzyl Butyl Phthalate, BBP	85-68-7	0.1	0.005	<0.005
Diethylhexyl Phthalate, DEHP	117-81-7	0.1	0.005	<0.005
Diisobutyl Phthalate, DIBP	84-69-5	0.1	0.005	<0.005
Rating				PASS

Analyte	CAS No.	Requirement (Max.), %	Reporting Limit, %	Sample, %
				003+004+016+024
Dibutyl Phthalate, DBP	84-74-2	0.1	0.005	<0.005
Benzyl Butyl Phthalate, BBP	85-68-7	0.1	0.005	<0.005
Diethylhexyl Phthalate, DEHP	117-81-7	0.1	0.005	<0.005
Diisobutyl Phthalate, DIBP	84-69-5	0.1	0.005	<0.005
Rating				PASS

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Test Report

Analyte	CAS No.	Requirement (Max.), %	Reporting Limit, %	Sample, %
				028+029+030
Dibutyl Phthalate, DBP	84-74-2	0.1	0.005	<0.005
Benzyl Butyl Phthalate, BBP	85-68-7	0.1	0.005	<0.005
Diethylhexyl Phthalate, DEHP	117-81-7	0.1	0.005	<0.005
Diisobutyl Phthalate, DIBP	84-69-5	0.1	0.005	<0.005
Rating				PASS

Remark(s):

-All concentrations expressed in percentage (%)

-"<" means less than

-Method for determination of Phthalates are determined by Gas Chromatography Mass Selective Detector (GC-MSD)

-The test results only apply to the items tested.

TEST METHODS:

(1) Sample prepared with reference to IEC 62321-2 Ed1.0:2021 Determination of certain substances in electrotechnical products – Part 2: Disassembly, disjunction and mechanical sample preparation;

(2) Sample Screening testing with reference to IEC 62321-3-1 Ed1.0:2013 Determination of certain substances in electrotechnical products – Part 3-1: Screening – Lead, mercury, Cadmium, total chromium and total bromine using X-ray fluorescence spectrometry;

(a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr^{6+}.

(b) Results are obtained by XRF for primary screening, and further chemical testing by ICP-OES(for Cd, Pb, Hg), UV-Vis(for Cr^{6+}) and GC/MS(for PBBs, PBDEs) is recommended to be performed.

XRF screening limits in mg/kg for regulated elements according to IEC 62321-3-1 Ed1.0:2013

ELEMENT	POLYMER	METALS	COMPOSITE MATERIAL
Cd	BL≤(70-3σ) <X<(130+3σ) ≤OL	BL≤(70-3σ) <X<(130+3σ) ≤OL	LOD < X < (150+3σ)≤ OL
Pb	BL≤(700-3σ) <X<(1300+3σ) ≤OL	BL≤(700-3σ) <X<(1300+3σ) ≤OL	BL≤(500-3σ) <X<(1500+3σ) ≤OL
Hg	BL≤(700-3σ) <X<(1300+3σ) ≤OL	BL≤(700-3σ) <X<(1300+3σ) ≤OL	BL≤(500-3σ) <X<(1500+3σ) ≤OL
Cr	BL≤(700-3σ) <X	BL≤(700-3σ) <X	BL≤(500-3σ) <X
Br	BL≤(300-3σ) <X	--	BL≤(250-3σ) <X

Remark(s):

BL = Below Limit, OL = Over Limit, LOD = Limit of Detection, -- = Not Regulated

The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

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Test Report

TEST METHODS:

(3) Wet Chemical Test Method

TESTING ITEM	CHEMICAL TESTING METHOD	RL	LIMIT
Cd	With reference to IEC 62321-5 Ed1.0:2013, by acid digestion and determined by ICP-OES	5.0mg/kg	100mg/kg
Pb	With reference to IEC 62321-5 Ed1.0:2013, by acid digestion and determined by ICP-OES	5.0mg/kg	1000mg/kg
Hg	With reference to IEC 62321-4 Ed1.1:2017, by acid digestion and determined by ICP-OES	5.0mg/kg	1000mg/kg
Cr^{6+} (for non-metal)	With reference to IEC 62321-7-2 Ed1.0:2017, by the colorimetric method	5.0mg/kg	1000mg/kg
Cr^{6+} (for metal)	With reference to IEC 62321-7-1 Ed1.0:2015 by the water-boiling method	/	/
PBBs Content	With reference to IEC 62321-6 Ed1.0:2015, by solvent extraction and determined by GC-MSD	5.0mg/kg	1000mg/kg
PBDEs Content	With reference to IEC 62321-6 Ed1.0:2015, by solvent extraction and determined by GC-MSD	5.0mg/kg	1000mg/kg
DEHP,BBP,DBP, DIBP	With reference to IEC 62321-8 Ed1.0:2017 clause 8.2.1.4 by gas chromatography-mass spectrometry	50mg/kg	1000mg/kg

Remark(s): According to IEC 62321-7-1 Ed1.0:2015, result on Cr^{6+} for metal sample is shown as Positive/Negative.

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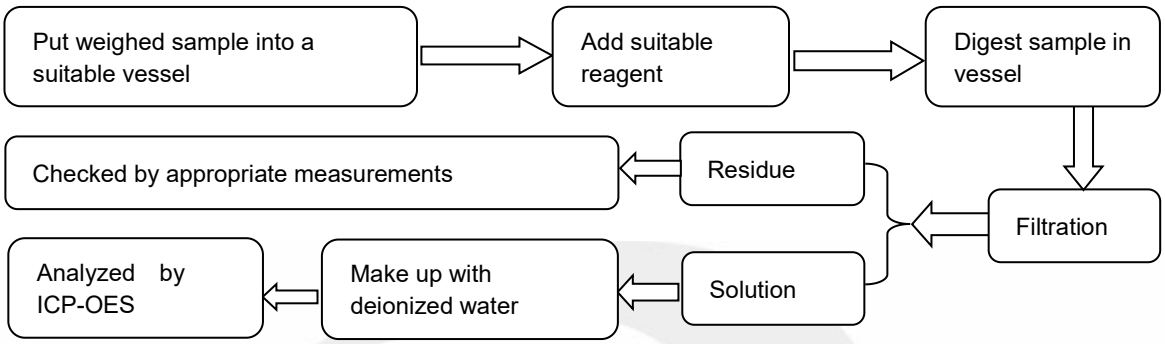
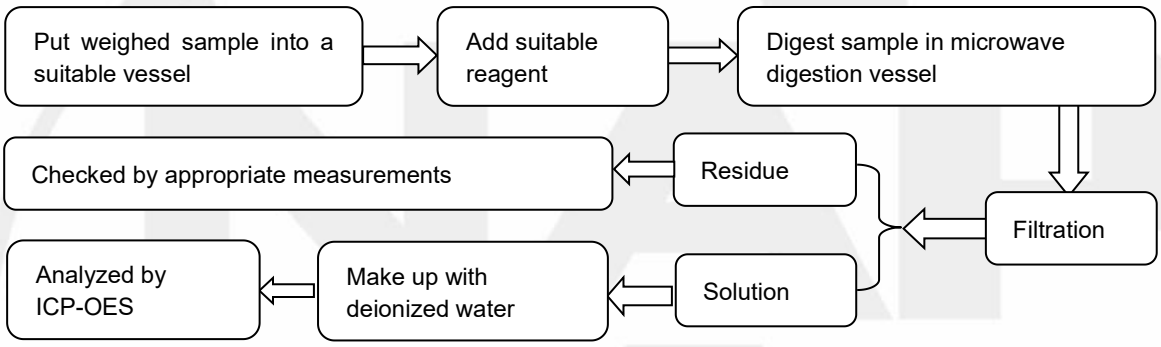
Test Report

TEST PROCESS

1. Test for Lead (Pb), Cadmium (Cd) contents(IEC 62321-5 Ed1.0:2013):

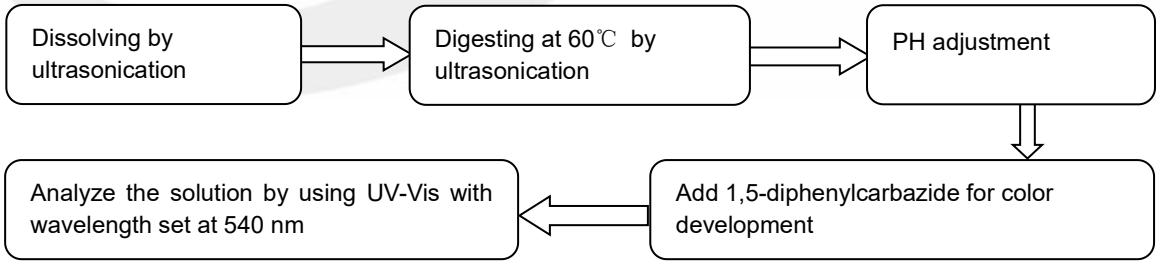


2. Test for Mercury (Hg) contents (IEC 62321-4 Ed1.1:2017):



3. Test for Nonmetallic Materials Chromium(Cr(VI)) contents (IEC 62321-7-2 Ed1.0:2017):

3.1 ABS/PC/PVC



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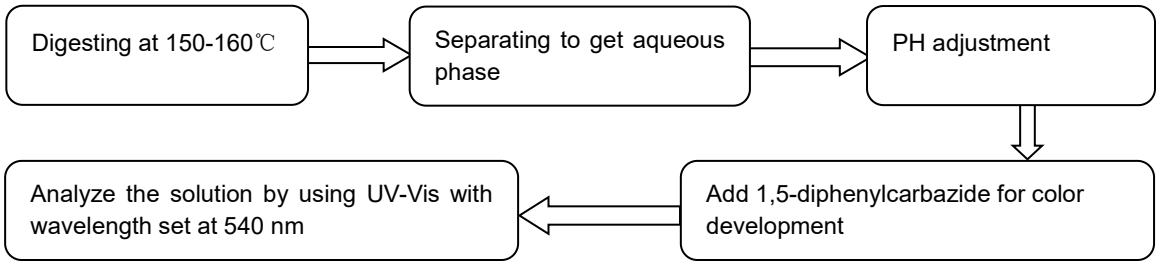
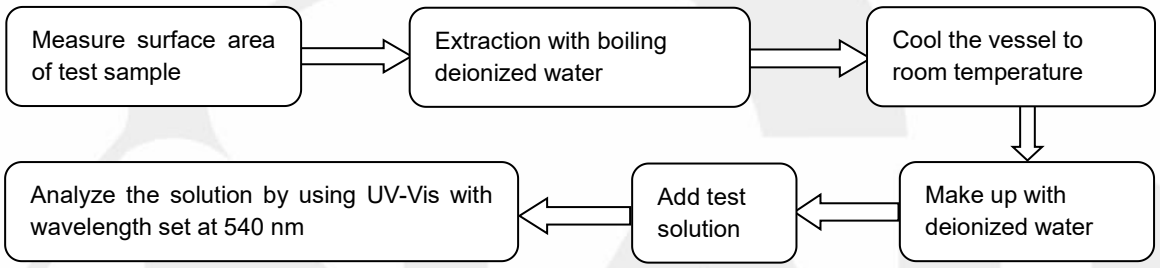
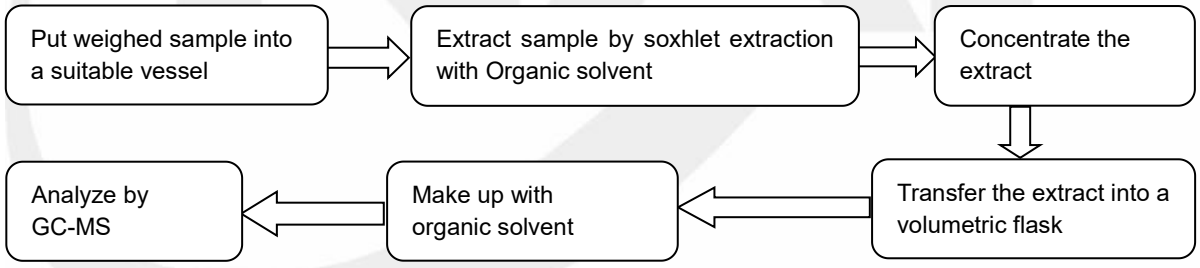
3.2 others



4. Test for metal Chromium(Cr(VI)) contents (IEC 62321-7-1 Ed1.0:2015):



5. Test for PBBs & PBDEs contents (IEC 62321-6 Ed1.0:2015):



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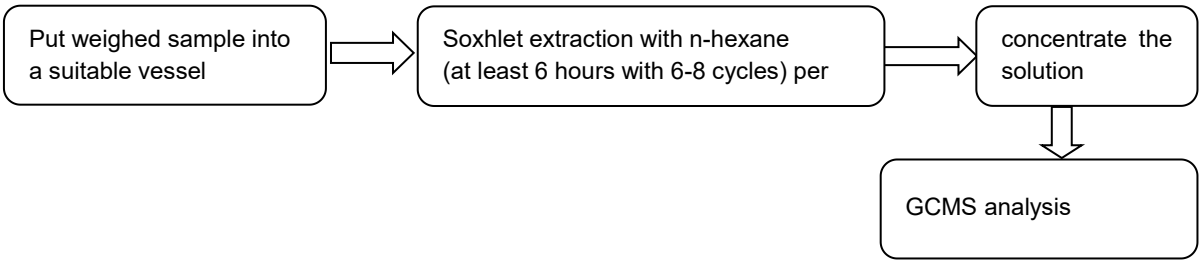
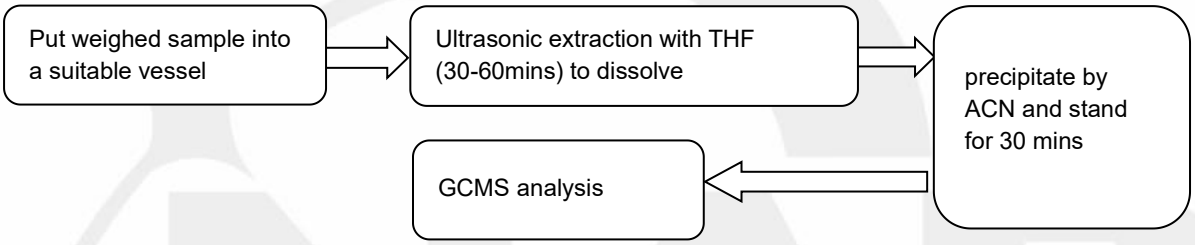
6. Test for Phthalate content (DEHP,BBP,DBP,DIBP) (IEC 62321-8 Ed1.0:2017):

6.1 Test for general polymer



6.2 Test for THF soluble polymer



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Test Report

Sample description:

(001) Black plastic border
(002) Transparent plastic lenses
(003) Yellow soft plastic nose pad
(004) Black soft plastic cover
(005) Black and white electronic components
(006) Silver electronic components (crystal oscillator)
(007) Black electronic component (transistor)
(008) Black electronic components (chip capacitors)
(009) Black plastic switch
(010) Silver metal casing (switch)
(011) tin solder
(012) Brown electronic components (chip capacitors)
(013) Black electronic components (ICs)
(014) Blue PCB board
(015) Silver metal screw
(016) Translucent soft plastic film (speaker)
(017) Silver metal frame (speaker)
(018) Silver magnet
(019) Silver metal wire with blue coating
(020) Silver metal wire with red coating
(021) Copper colored metal head
(022) Yellow plastic film (battery)
(023) Silver metal casing (USB)
(024) Black plastic casing (USB)
(025) Copper colored metal pins (USB)
(026) White plastic frame (USB)
(027) Transparent plastic adhesive (USB)
(028) Black plastic wire jacket (USB)
(029) Red plastic wire jacket (USB)
(030) Black plastic wire jacket (USB)
(031) Silver metal wire

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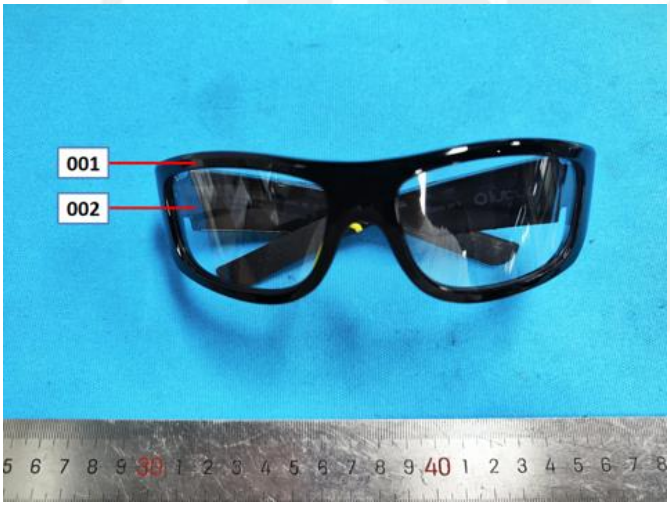
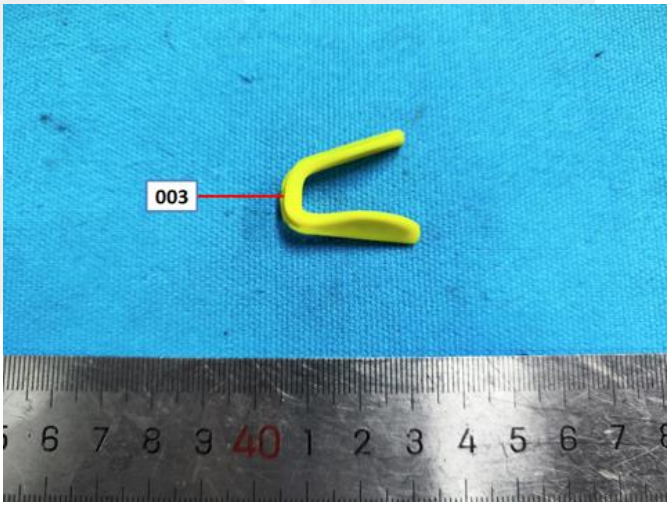
Test Report

Photo(s) of test sample(s):

(whole product)





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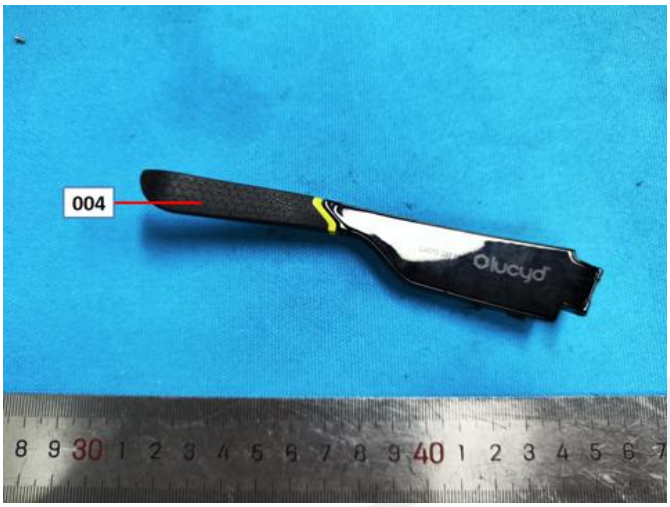

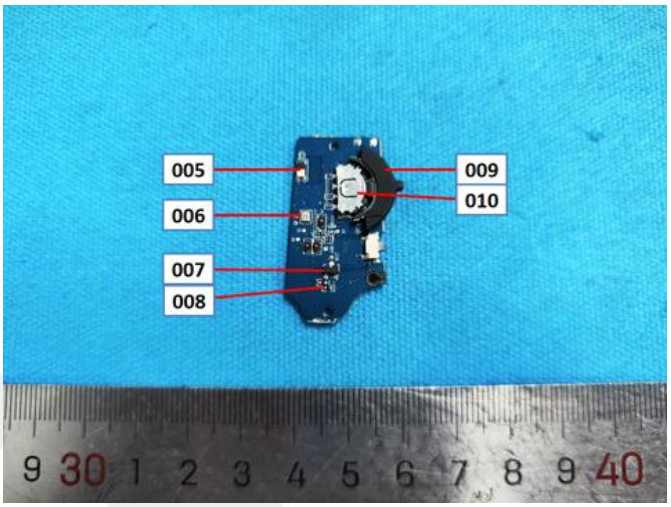

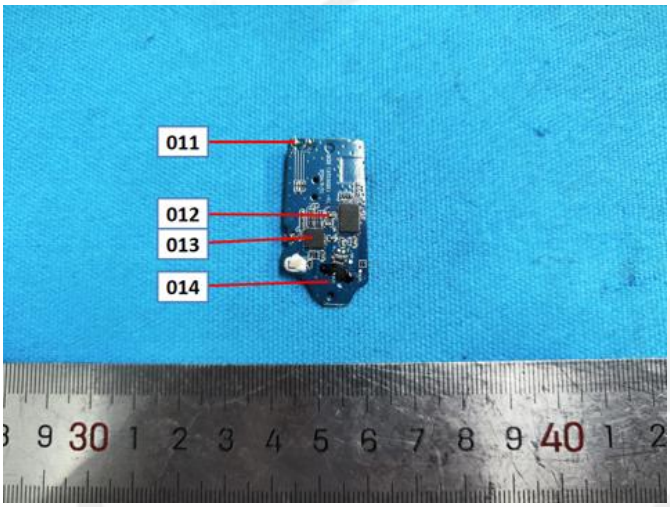

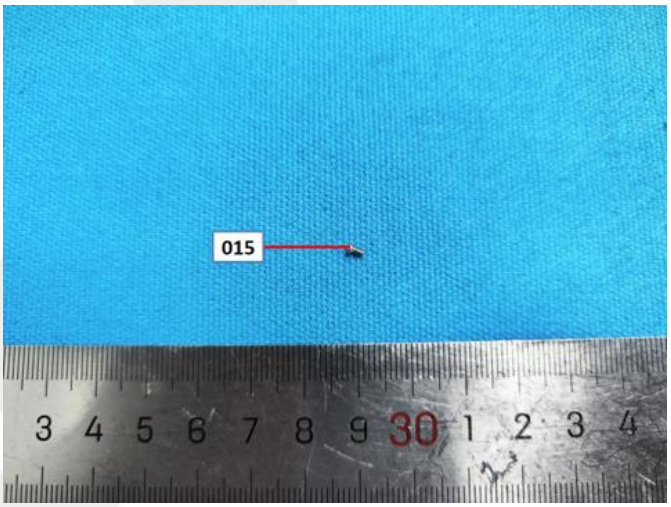

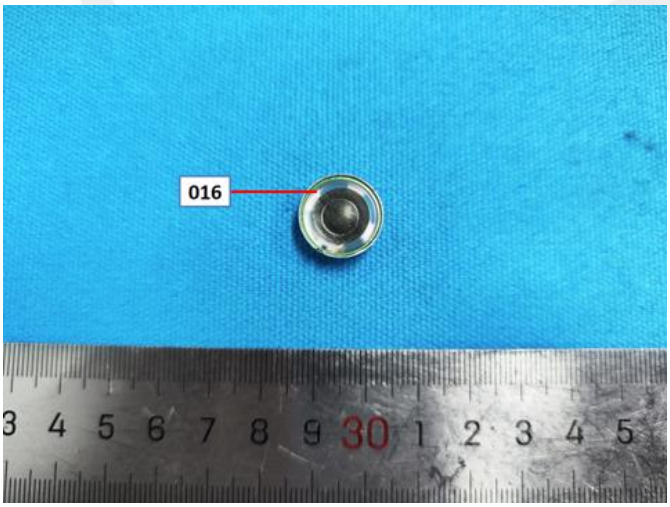

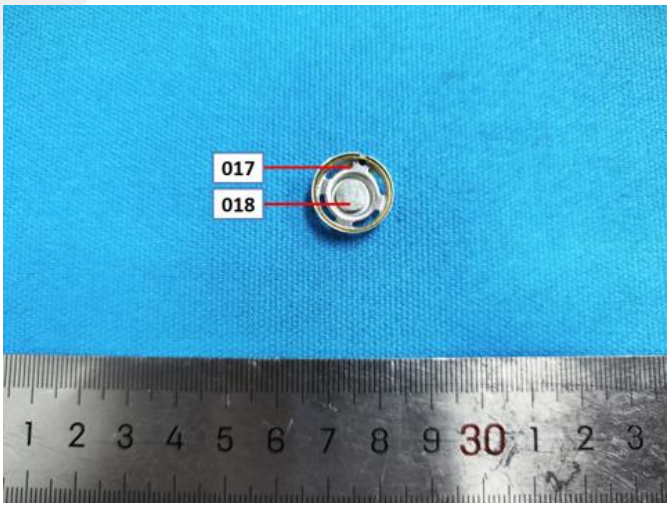

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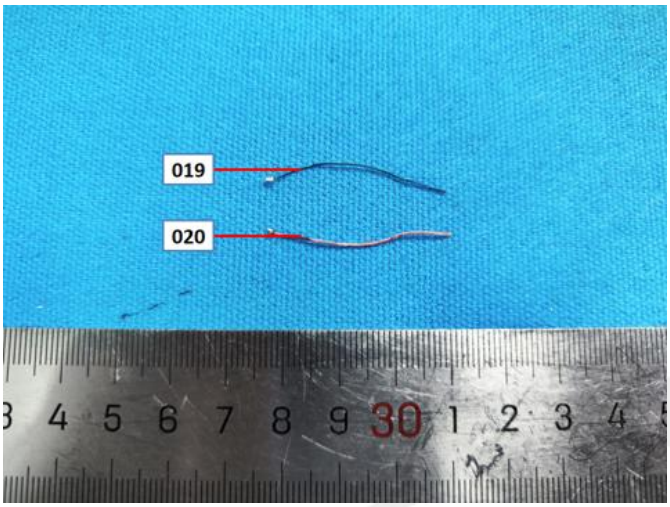

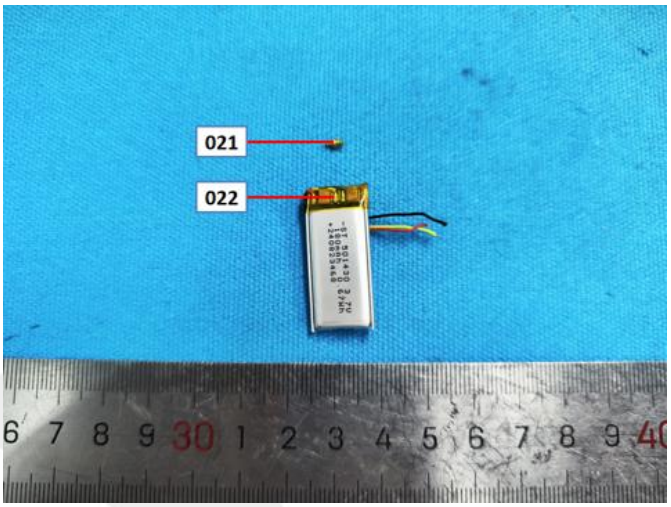

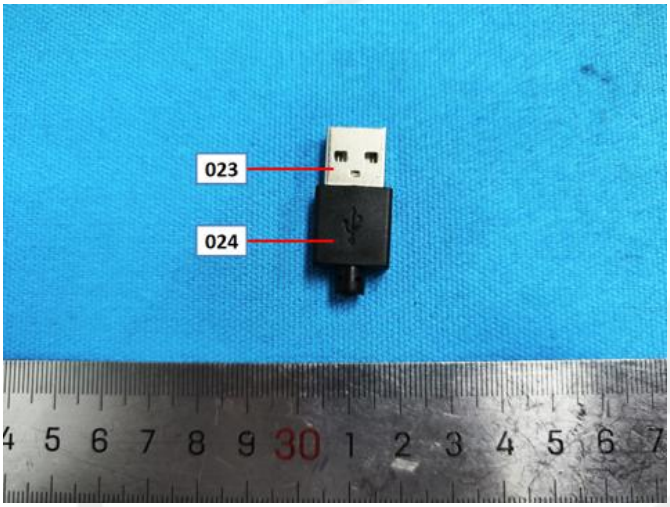

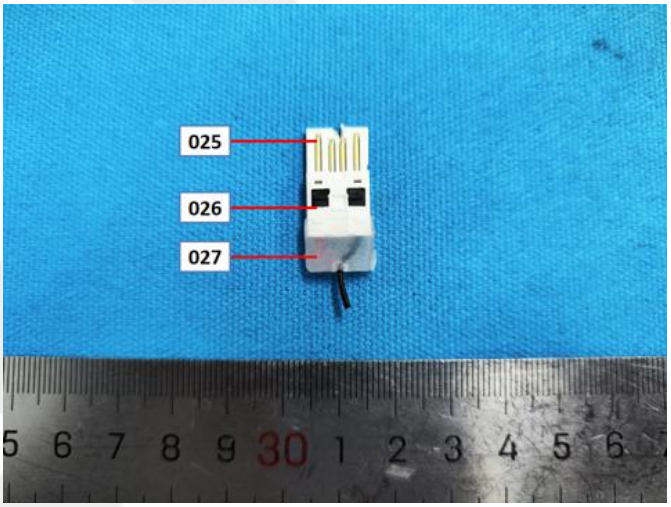

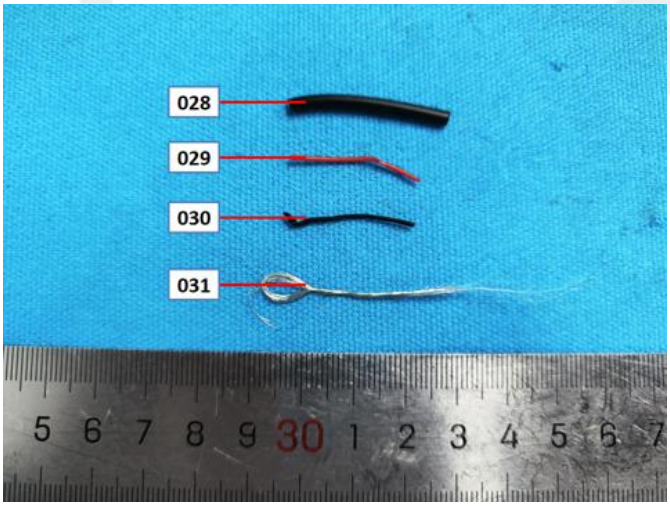

********** End of Report **********

NAP Testing Technology Service (Zhongshan) Co., LTD
TEL：0760-86519632 E-mail:service@nap-testing.com
Add：4th floor Zone A and 5th floor, Site no. 81, Lixi Avenue, Banfu Borough, Zhongshan City, Guangdong Province, China

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640
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Website: www.cqa-cert.com

Report Template Version: V05
Report Template Revision Date: 2021-11-03

Test Report

Report No. :	CQASZ20240901960E-01
Applicant:	Innovative Eyewear, Inc
Address of Applicant:	11900 Biscayne Bl#630, North Miami, FL 33181, United States
Equipment Under Test (EUT):	
Product:	Smart Eyewear
Model No.:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Test Model No.:	LCD008-10
Brand Name:	Lucyd Reebok
FCC ID:	2BBYK-LCD008
Standards:	47 CFR Part 15, Subpart C
	KDB558074 D01 15.247 Meas Guidance v05r02
	ANSI C63.10:2013
Date of Receipt:	2024-09-10
Date of Test:	2024-09-10 to 2024-09-19
Date of Issue:	2024-09-27
Test Result :	**PASS***

***In the configuration tested, the EUT complied with the standards specified above.**

Tested By: lewis zhou
(Lewis Zhou)

Reviewed By: Timo Lei
(Timo Lei)

Approved By: Alex
(Alex Wang)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20240901960E-01	Rev.01	Initial report	2024-09-27

2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15.203	/	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10-2013	PASS
Conducted Peak Output Power	47 CFR Part 15.247	ANSI C63.10-2013	PASS
20dB Occupied Bandwidth	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Carrier Frequencies Separation	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Hopping Channel Number	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Dwell Time	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Pseudorandom Frequency Hopping Sequence	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15.247	ANSI C63.10-2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Radiated Spurious emissions	47 CFR Part 15.209	ANSI C63.10-2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15.205/15.209	ANSI C63.10-2013	PASS

Remark:

The tested sample(s) and the sample information are provided by the client.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radiated Frequency.

CH: In this whole report CH means channel.

Volt: In this whole report Volt means Voltage.

Temp: In this whole report Temp means Temperature.

Humid: In this whole report Humid means humidity.

Press: In this whole report Press means Pressure.

N/A: In this whole report not application

3 Contents

4 General Information

4.1 Client Information

Applicant:	Innovative Eyewear, Inc
Address of Applicant:	11900 Biscayne Bl#630, North Miami, FL 33181, United States
Manufacturer:	Shenzhen Gonbes Technology Co. Ltd
Address of Manufacturer:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA
Factory:	Shenzhen Gonbes Technology Co. Ltd
Address of Factory:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA

4.2 General Description of EUT

Product Name:	Smart Eyewear
Model No.:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Test Model No.:	LCD008-10
Trade Mark:	Lucyd Reebok
Software Version:	GBS_ATS3025_GK28_V2.2_20240806.fw
Hardware Version:	GK28(ATS3025)-V1.1
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.3
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☐ Mobile ☒ Portable
Test Software of EUT:	FCC
Antenna Type:	Chip antenna
Antenna Gain:	1.24dBi
Power Supply:	Li-ion battery: DC 3.7V 180mAh, Charge by DC 5V for adapter
Simultaneous Transmission	☐ Simultaneous TX is supported and evaluated in this report. ☒ Simultaneous TX is not supported.

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	20	2422MHz	40	2442MHz	60	2462MHz
1	2403MHz	21	2423MHz	41	2443MHz	61	2463MHz
2	2404MHz	22	2424MHz	42	2444MHz	62	2464MHz
3	2405MHz	23	2425MHz	43	2445MHz	63	2465MHz
4	2406MHz	24	2426MHz	44	2446MHz	64	2466MHz
5	2407MHz	25	2427MHz	45	2447MHz	65	2467MHz
6	2408MHz	26	2428MHz	46	2448MHz	66	2468MHz
7	2409MHz	27	2429MHz	47	2449MHz	67	2469MHz
8	2410MHz	28	2430MHz	48	2450MHz	68	2470MHz
9	2411MHz	29	2431MHz	49	2451MHz	69	2471MHz
10	2412MHz	30	2432MHz	50	2452MHz	70	2472MHz
11	2413MHz	31	2433MHz	51	2453MHz	71	2473MHz
12	2414MHz	32	2434MHz	52	2454MHz	72	2474MHz
13	2415MHz	33	2435MHz	53	2455MHz	73	2475MHz
14	2416MHz	34	2436MHz	54	2456MHz	74	2476MHz
15	2417MHz	35	2437MHz	55	2457MHz	75	2477MHz
16	2418MHz	36	2438MHz	56	2458MHz	76	2478MHz
17	2419MHz	37	2439MHz	57	2459MHz	77	2479MHz
18	2420MHz	38	2440MHz	58	2460MHz	78	2480MHz
19	2421MHz	39	2441MHz	59	2461MHz		

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel	2402MHz
The Middle channel	2441MHz
The Highest channel	2480MHz

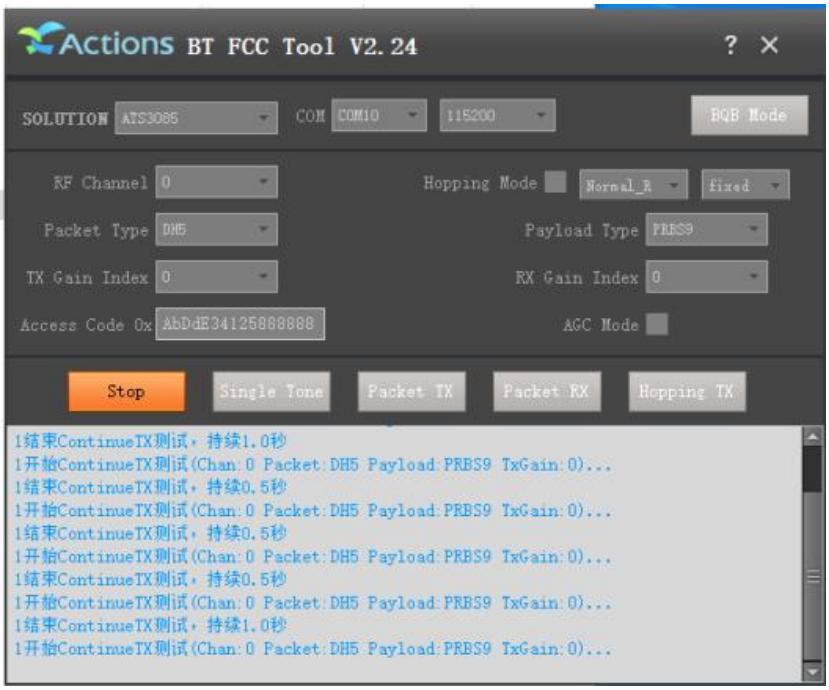
4.3 Additional Instructions

EUT Test Software Settings:	
Mode:	☒ Special software is used. ☐ Through engineering command into the engineering mode. engineering command: *#*#3646633#*#*
EUT Power level:	(Power level is built-in set parameters and cannot be changed and selected)

Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

Mode	Channel	Frequency(MHz)
DH1/DH3/DH5	CH0	2402
	CH39	2441
	CH78	2480
2DH1/2DH3/2DH5	CH0	2402
	CH39	2441
	CH78	2480
3DH1/3DH3/3DH5	CH0	2402
	CH39	2441
	CH78	2480

Run Software:



4.4 Test Environment

Operating Environment:	
Temperature:	25 °C
Humidity:	54% RH
Atmospheric Pressure:	1009mbar
Test Mode:	Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

4.5 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.	Remark	Supplied
Adapter	MI	/	/	CQA

4.6 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty
1	Radiated Emission (Below 1GHz)	5.12dB
2	Radiated Emission (Above 1GHz)	4.60dB
3	Conducted Disturbance (0.15~30MHz)	3.34dB
4	Radio Frequency	3×10^{-8}
5	Duty cycle	0.6 %
6	Occupied Bandwidth	1.1%
7	RF conducted power	0.86dB
8	RF power density	0.74
9	Conducted Spurious emissions	0.86dB
10	Temperature test	0.8℃
11	Humidity test	2.0%
12	Supply voltages	0.5 %
13	Frequency Error	5.5 Hz

4.7 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

4.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:
IC Registration No.: 22984-1
The 3m Semi-anechoic chamber of Shenzhen Huaxia Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L5785)**

CNAS has accredited Shenzhen Huaxia Testing Technology Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 4742.01)**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

- **FCC Registration No.: 522263**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

4.9 Abnormalities from Standard Conditions

None.

4.10 Other Information Requested by the Customer

None.

4.11 Equipment List

Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU26	CQA-038	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU40	CQA-075	2024/9/2	2025/9/1
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2024/9/2	2025/9/1
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2024/9/2	2025/9/1
Preamplifier	EMCI	EMC184055SE	CQA-089	2024/9/2	2025/9/1
Loop antenna	Schwarzbeck	FMZB1516	CQA-060	2023/9/8	2026/9/7
Bilog Antenna	R&S	HL562	CQA-011	2023/11/01	2026/10/31
Horn Antenna	R&S	HF906	CQA-012	2023/11/01	2026/10/31
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2023/9/7	2026/9/6
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2024/9/2	2025/9/1
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2024/9/2	2025/9/1
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2024/9/2	2025/9/1
Antenna Connector	CQA	RFC-01	CQA-080	2024/9/2	2025/9/1
Power Sensor	KEYSIGHT	U2021XA	CQA-30	2024/9/2	2025/9/1
N1918A Power Analysis Manager Power Panel	Agilent	N1918A	CQA-074	2024/9/2	2025/9/1
Power meter	R&S	NRVD	CQA-029	2024/9/2	2025/9/1
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2024/9/2	2025/9/1
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
LISN	R&S	ENV216	CQA-003	2024/9/2	2025/9/1
Coaxial cable	CQA	N/A	CQA-C009	2024/9/2	2025/9/1
DC power	KEYSIGHT	E3631A	CQA-028	2024/9/2	2025/9/1

Note:

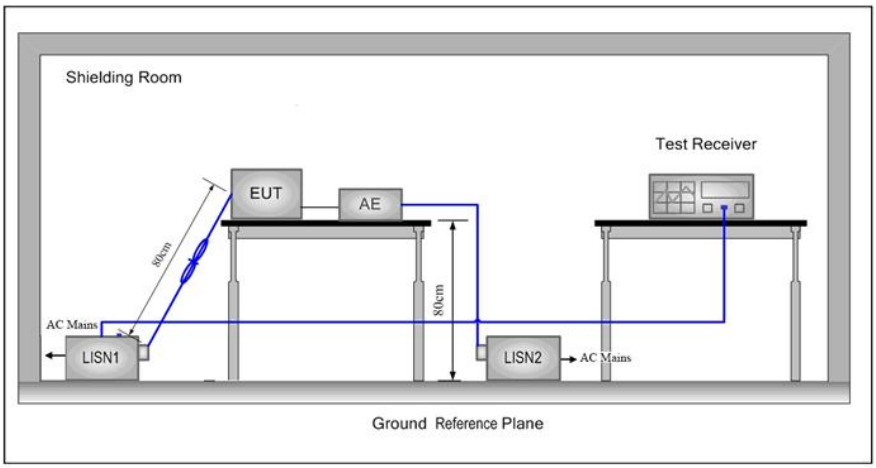
The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

5 Test results and Measurement Data

5.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
EUT Antenna:	
The antenna is Chip antenna. **The connection/connection type between the antenna to the EUT's antenna port is: permanently attachment.** **This is either permanently attachment or a unique coupling that satisfies the requirement.**	

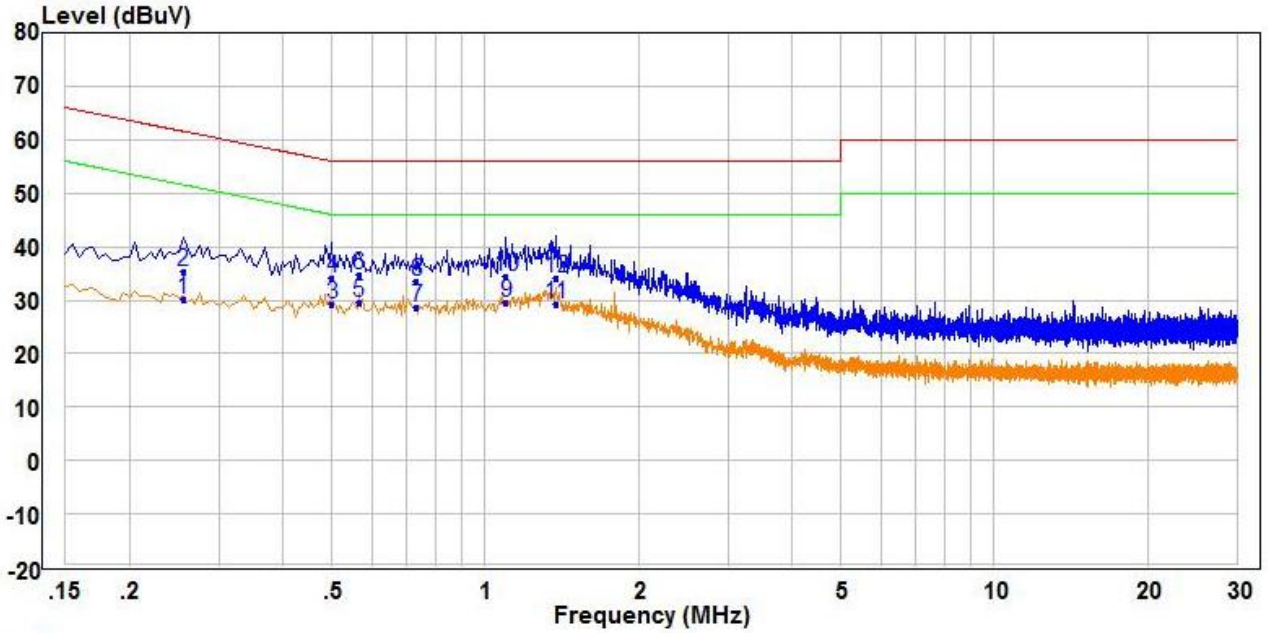
5.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207
Test Method:	ANSI C63.10: 2013
Test Frequency Range:	150kHz to 30MHz
Limit:	Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 5-30: 60 / 50 * Decreases with the logarithm of the frequency.
Test Procedure:	1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.
Test Setup:	

Exploratory Test Mode:	Non-hopping transmitting mode with all kind of modulation and all kind of data type at the lowest, middle, high channel.
Final Test Mode:	Through Pre-scan, find the DH5 of data type and GFSK modulation at the lowest channel is the worst case. Only the worst case is recorded in the report.
Test Voltage:	AC 120V/60Hz
Test Results:	Pass

Measurement Data

Live line:



		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.255	20.68	9.54	30.22	51.59	-21.37	Average	Line
2		0.255	25.72	9.54	35.26	61.59	-26.33	QP	Line
3		0.500	19.57	9.70	29.27	46.00	-16.73	Average	Line
4		0.500	24.39	9.70	34.09	56.00	-21.91	QP	Line
5	PP	0.565	19.74	9.77	29.51	46.00	-16.49	Average	Line
6	QP	0.565	25.01	9.77	34.78	56.00	-21.22	QP	Line
7		0.735	18.73	9.88	28.61	46.00	-17.39	Average	Line
8		0.735	23.53	9.88	33.41	56.00	-22.59	QP	Line
9		1.100	19.50	9.97	29.47	46.00	-16.53	Average	Line
10		1.100	24.54	9.97	34.51	56.00	-21.49	QP	Line
11		1.375	18.58	10.59	29.17	46.00	-16.83	Average	Line
12		1.375	23.66	10.59	34.25	56.00	-21.75	QP	Line

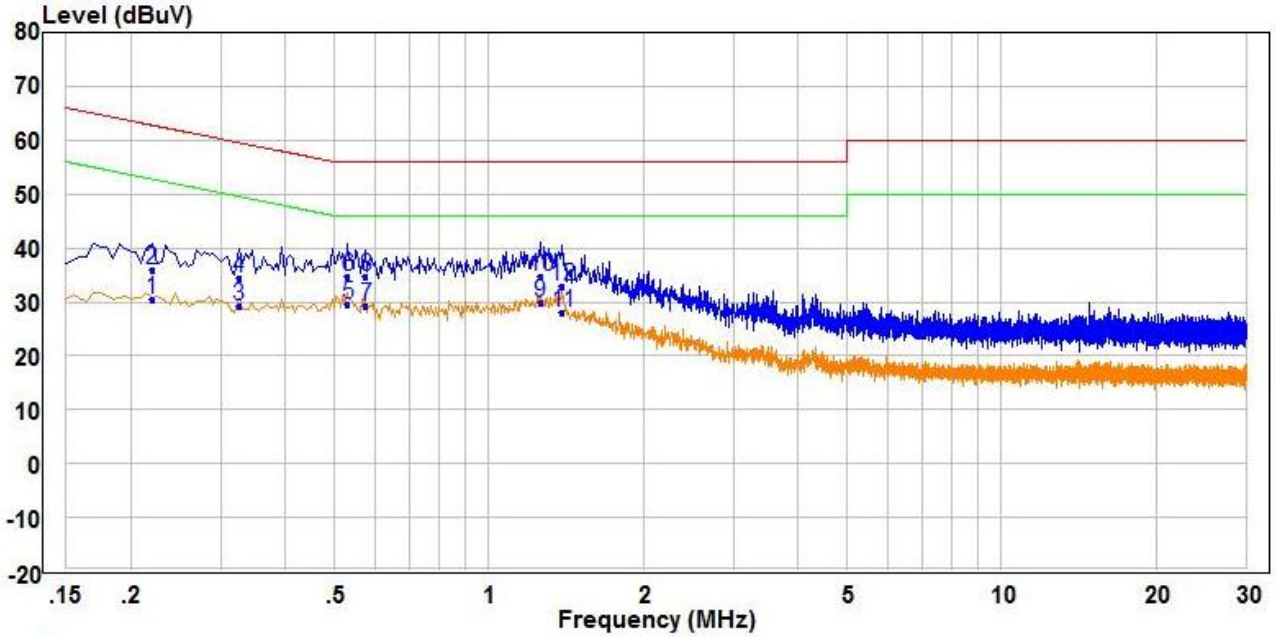
Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral line:



		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.220	20.87	9.58	30.45	52.82	-22.37	Average	Neutral
2		0.220	26.28	9.58	35.86	62.82	-26.96	QP	Neutral
3		0.325	19.83	9.51	29.34	49.58	-20.24	Average	Neutral
4		0.325	24.94	9.51	34.45	59.58	-25.13	QP	Neutral
5		0.530	19.85	9.73	29.58	46.00	-16.42	Average	Neutral
6		0.530	25.03	9.73	34.76	56.00	-21.24	QP	Neutral
7		0.575	19.48	9.78	29.26	46.00	-16.74	Average	Neutral
8		0.575	24.81	9.78	34.59	56.00	-21.41	QP	Neutral
9	PP	1.260	20.02	9.71	29.73	46.00	-16.27	Average	Neutral
10	QP	1.260	25.16	9.71	34.87	56.00	-21.13	QP	Neutral
11		1.390	18.34	9.72	28.06	46.00	-17.94	Average	Neutral
12		1.390	23.07	9.72	32.79	56.00	-23.21	QP	Neutral

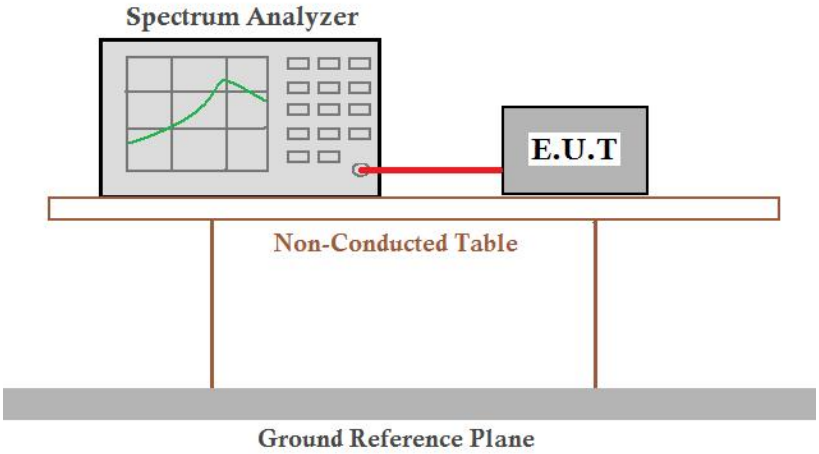
Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.

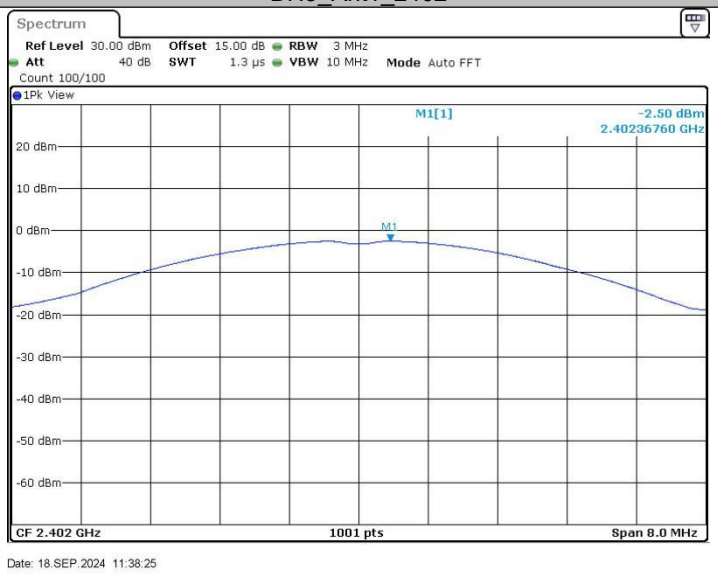
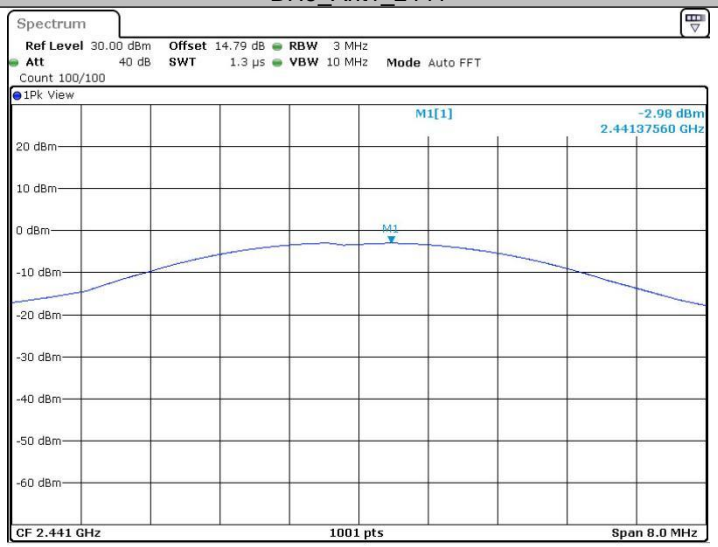
5.3 Conducted Peak Output Power

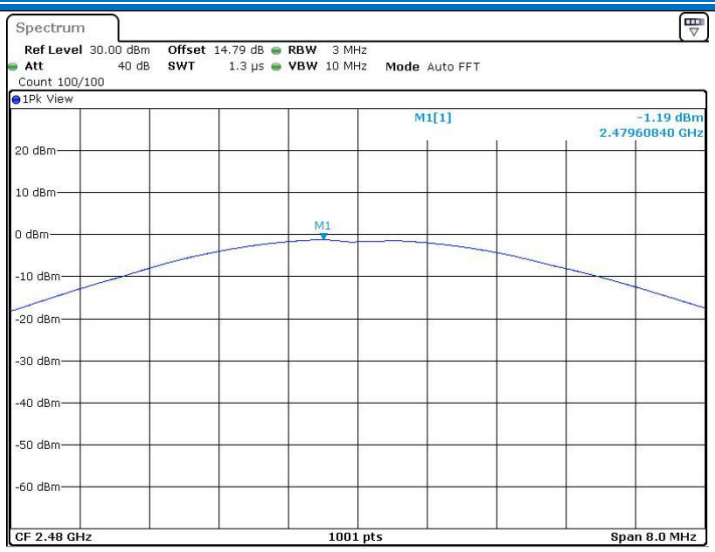
Test Requirement:	47 CFR Part 15C Section 15.247 (b)(1)
Test Method:	ANSI C63.10:2013
Test Setup:	***Setup for Power meter measurement method***  ***Setup for Spectrum analyser measurement method***  *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	21dBm
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Only the worst case is recorded in the report.
Test Results:	Pass

Measurement Data

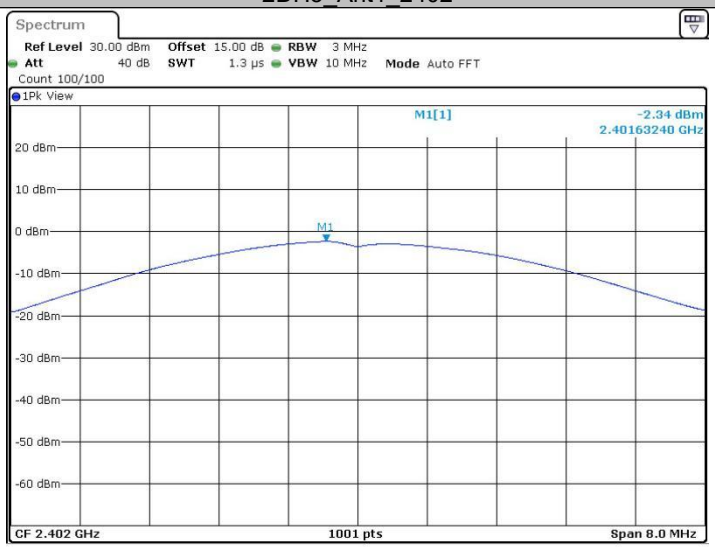
GFSK mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-2.5	21.00	Pass
Middle	-2.98	21.00	Pass
Highest	-1.19	21.00	Pass
π/4DQPSK mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-2.34	21.00	Pass
Middle	-2.78	21.00	Pass
Highest	-0.95	21.00	Pass
8DPSK mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-2.44	21.00	Pass
Middle	-2.65	21.00	Pass
Highest	-1.09	21.00	Pass

Test plot as follows:

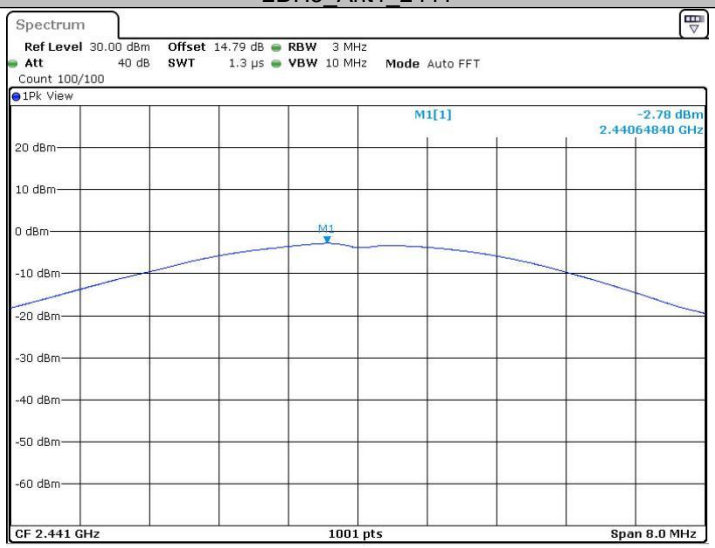
DH5_Ant1_2402

DH5_Ant1_2441

DH5_Ant1_2480



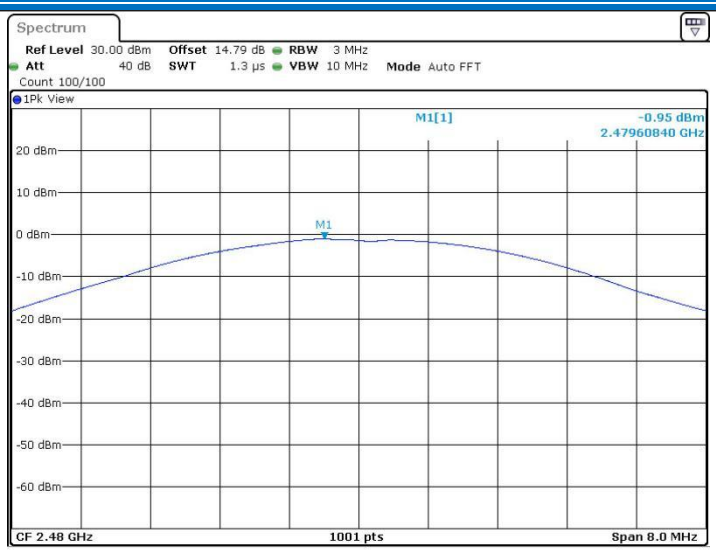
2DH5_Ant1_2402



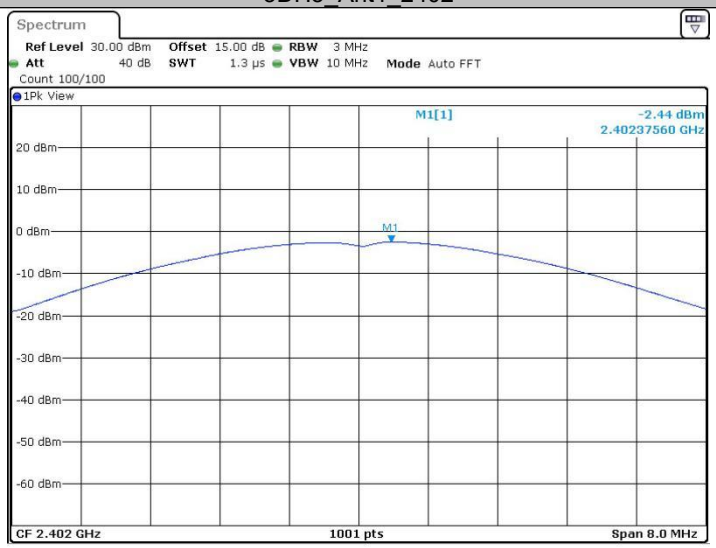
2DH5_Ant1_2441



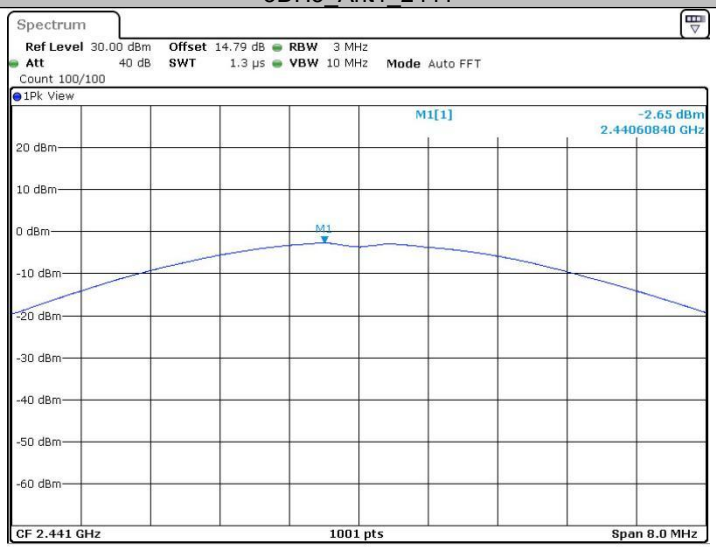
2DH5_Ant1_2480



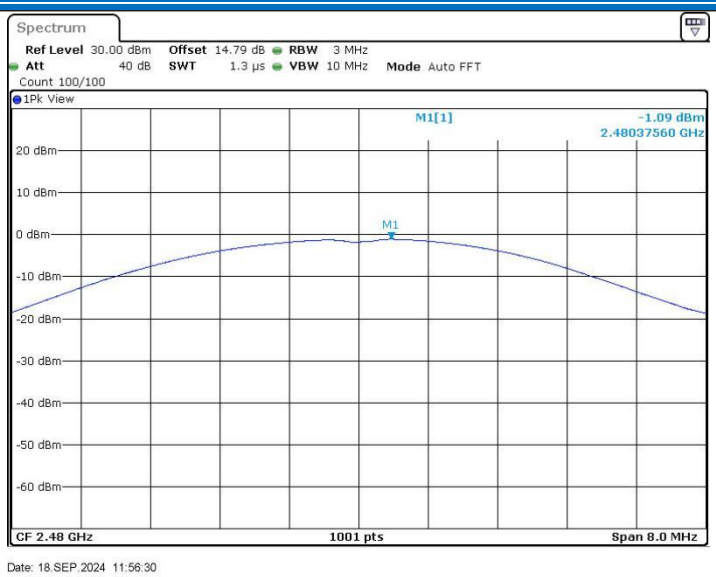
3DH5_Ant1_2402



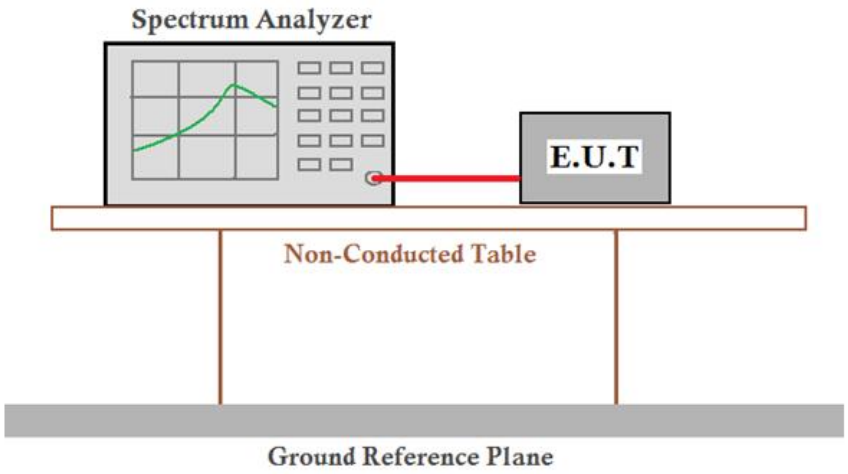
3DH5_Ant1_2441



3DH5_Ant1_2480


Spectrum
Ref Level 30.00 dBm Offset 14.79 dB RBW 3 MHz
Att 40 dB SWT 1.3 µs VBW 10 MHz Mode Auto FFT
Count 100/100
1Pk View
M1[1] -1.09 dBm
2.48037560 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
M1
CF 2.48 GHz
1001 pts
Span 8.0 MHz
Date: 18.SEP.2024 11:56:30

5.4 20dB Occupied Bandwidth

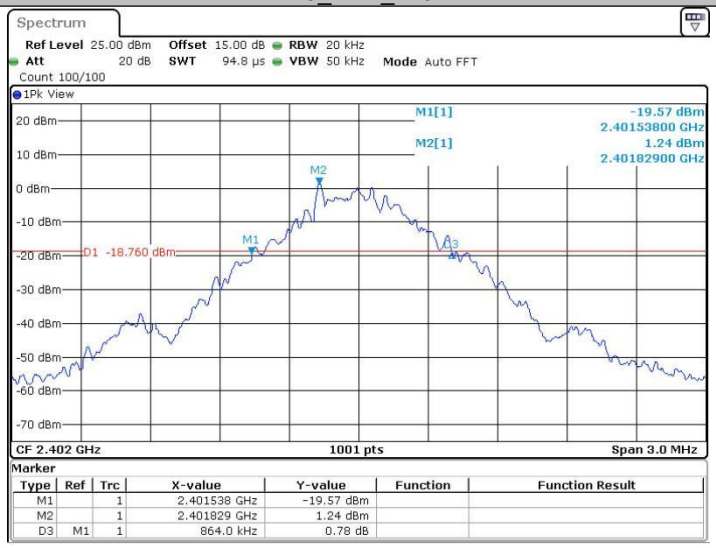
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013
Test Setup:	 Remark: Offset=Cable loss+ attenuation factor.
Limit:	NA
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Only the worst case is recorded in the report.
Test Results:	Pass

Measurement Data

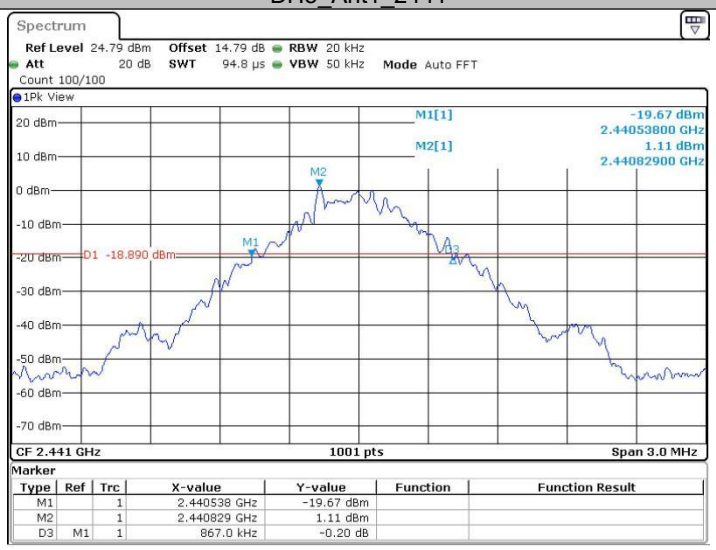
Test channel	20dB Occupy Bandwidth (MHz)		
	GFSK	π/4DQPSK	8DPSK
Lowest	0.86	1.21	1.18
Middle	0.87	1.21	1.18
Highest	0.89	1.21	1.18

Test plot as follows:

DH5_Ant1_2402

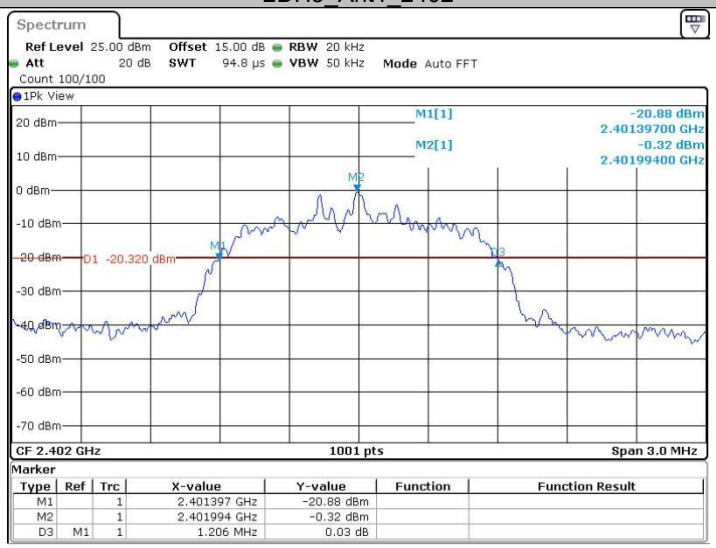


DH5_Ant1_2441

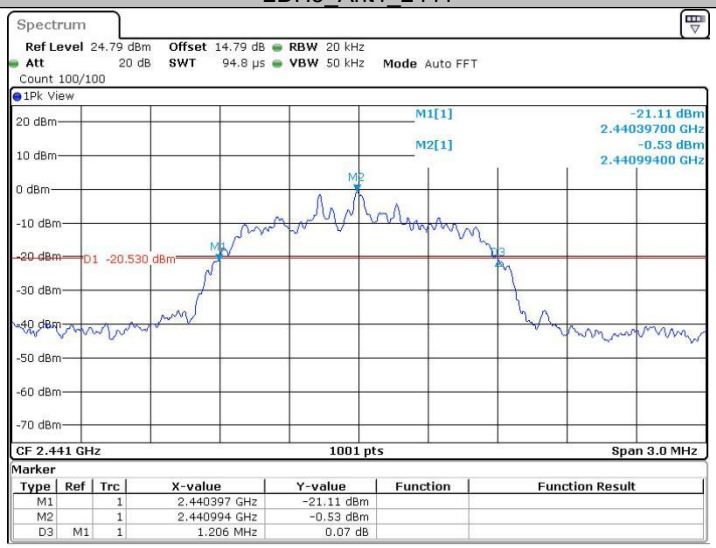


DH5_Ant1_2480

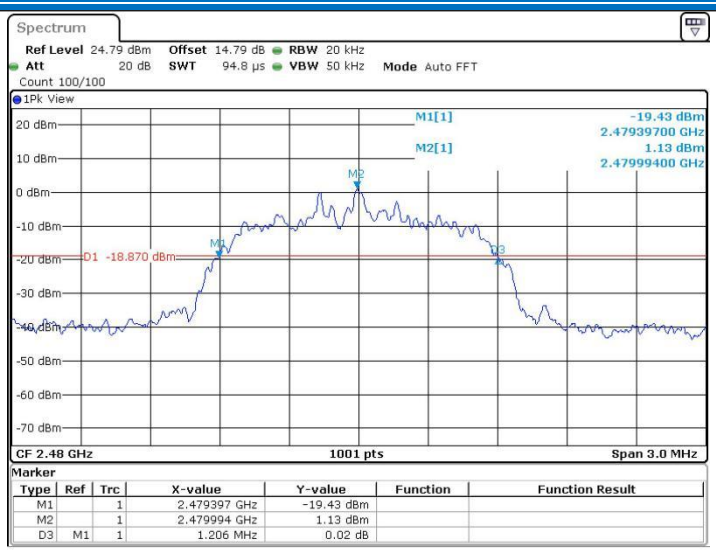
2DH5_Ant1_2402



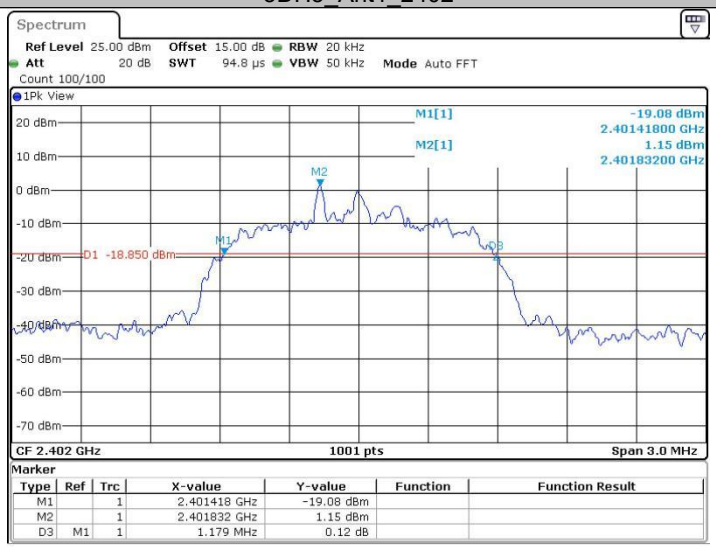
2DH5_Ant1_2441



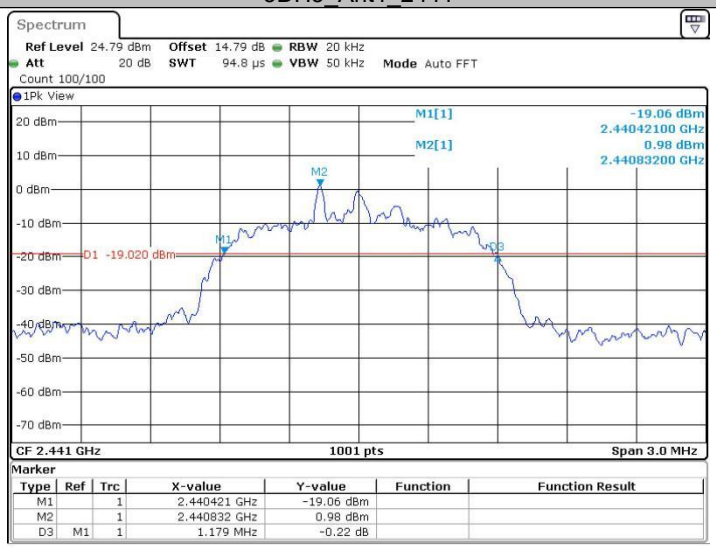
2DH5_Ant1_2480



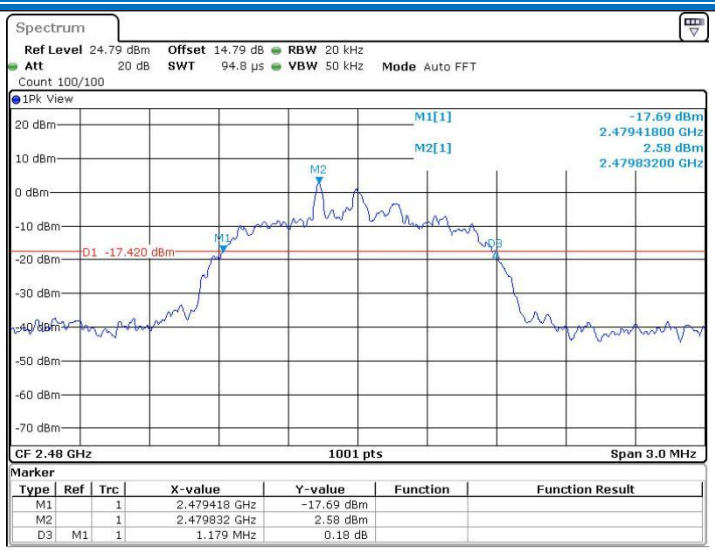
3DH5_Ant1_2402



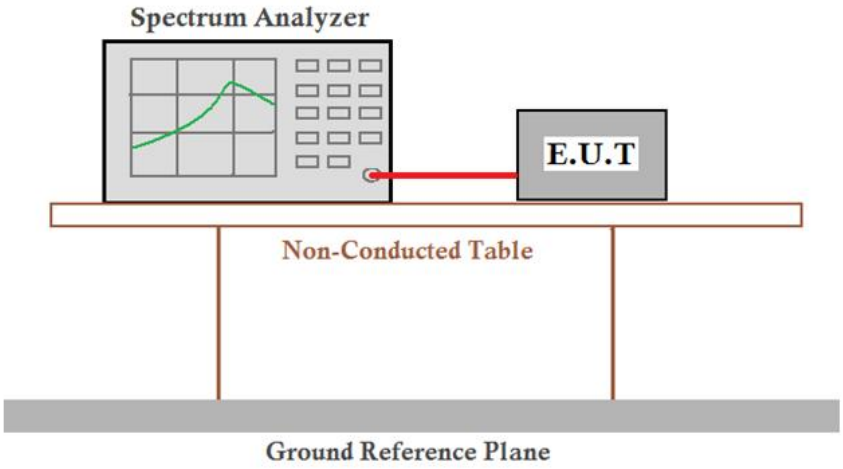
3DH5_Ant1_2441



3DH5_Ant1_2480


Spectrum
Ref Level 24.79 dBm Offset 14.79 dB RBW 20 kHz
Att 20 dB SWT 94.8 µs VBW 50 kHz Mode Auto FFT
Count 100/100
1Pk View
M1[1] -17.69 dBm
2.47941800 GHz
M2[1] 2.58 dBm
2.47983200 GHz
D1 -17.420 dBm
CF 2.48 GHz
1001 pts
Span 3.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.479418 GHz -17.69 dBm
M2 1 2.479832 GHz 2.58 dBm
D3 M1 1 1.179 MHz 0.18 dB
Date: 18.SEP.2024 10:42:28

5.5 Carrier Frequencies Separation

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013
Test Setup:	 Remark: Offset=Cable loss+ attenuation factor.
Limit:	2/3 of the 20dB bandwidth
	Remark: the transmission power is less than 0.125W.
Exploratory Test Mode:	Hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Only the worst case is recorded in the report.
Test Results:	Pass

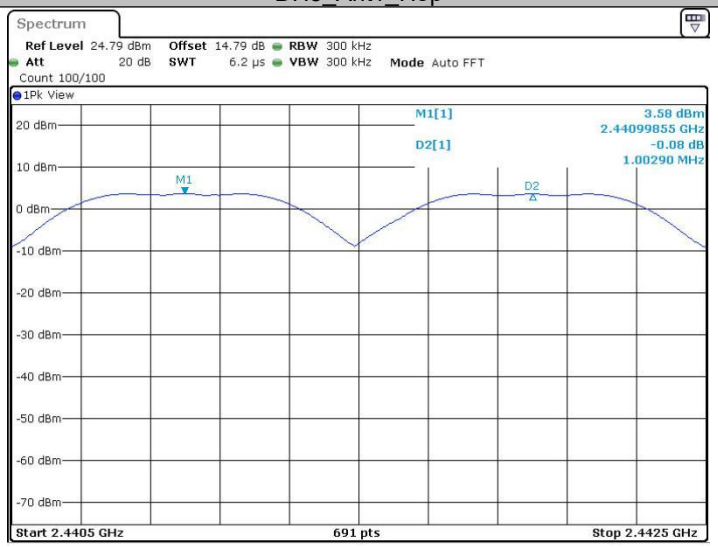
Measurement Data

TestMode	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH5	Hop	1.003	≥0.593	PASS
2DH5	Hop	1	≥0.807	PASS
3DH5	Hop	1.003	≥0.787	PASS

Mode	20dB bandwidth (MHz) (worse case)	Limit (MHz) (Carrier Frequencies Separation)
GFSK	0.89	≥0.593
π/4DQPSK	1.21	≥0.807
8DPSK	1.18	≥0.787

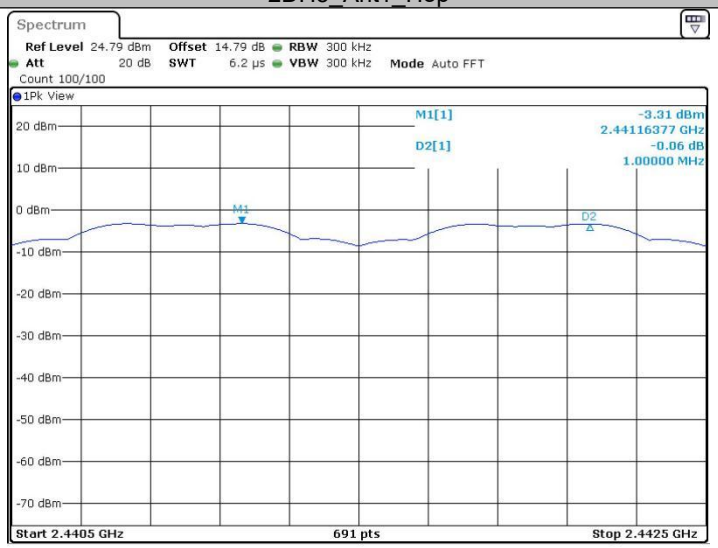
Test plot as follows:

DH5_Ant1_Hop



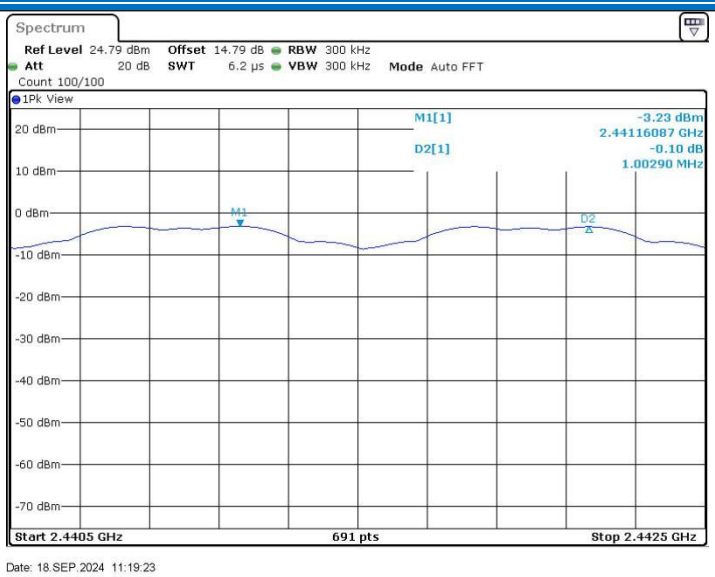
Date: 18.SEP.2024 10:47:36

2DH5_Ant1_Hop

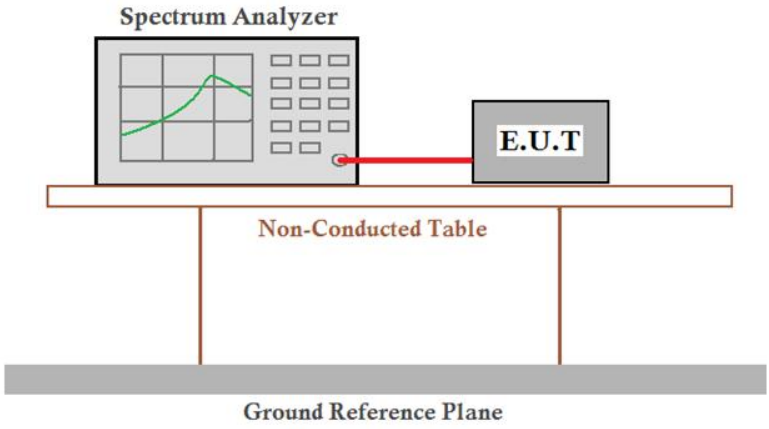


Date: 18.SEP.2024 10:58:26

3DH5_Ant1_Hop


Spectrum
Ref Level 24.79 dBm Offset 14.79 dB RBW 300 kHz
Att 20 dB SWT 6.2 µs VBW 300 kHz Mode Auto FFT
Count 100/100
1Pk View
M1[1] -3.23 dBm
2.44116087 GHz
D2[1] -0.10 dB
1.00290 MHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D2
Start 2.4405 GHz
691 pts
Stop 2.4425 GHz
Date: 18.SEP.2024 11:19:23

5.6 Hopping Channel Number

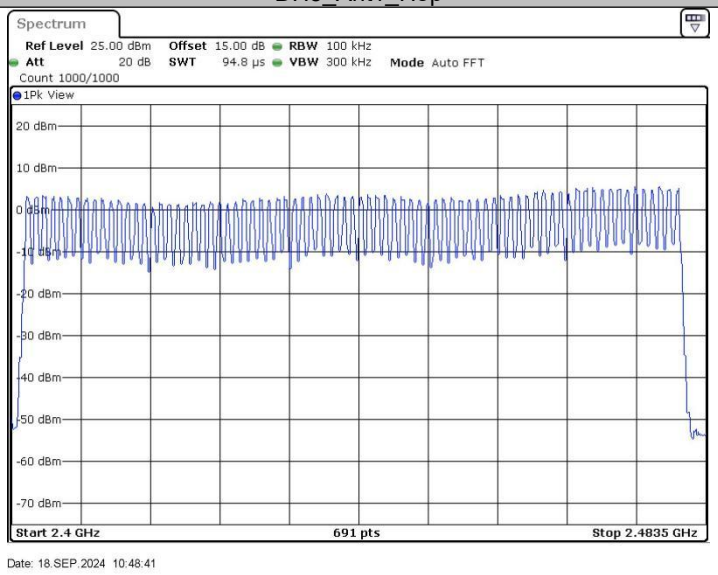
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	At least 15 channels
Exploratory Test Mode:	hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Only the worst case is recorded in the report.
Test Results:	Pass

Measurement Data

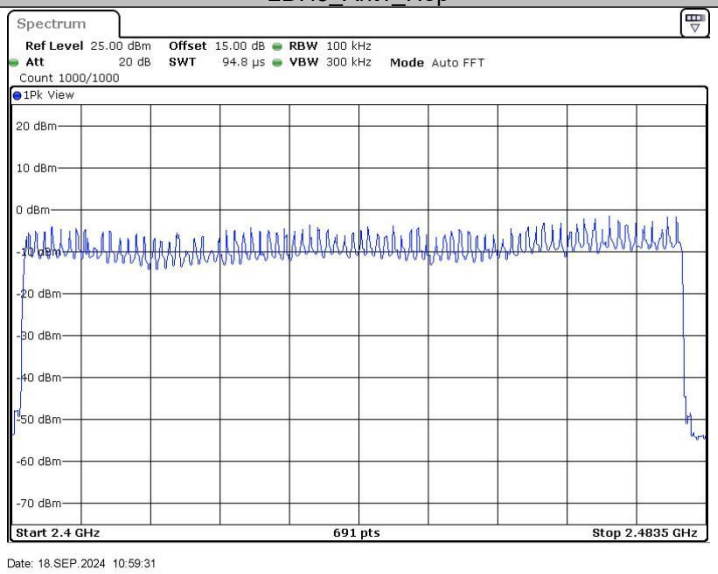
Mode	Hopping channel numbers	Limit
GFSK	79	≥15
π/4DQPSK	79	≥15
8DPSK	79	≥15

Test plot as follows:

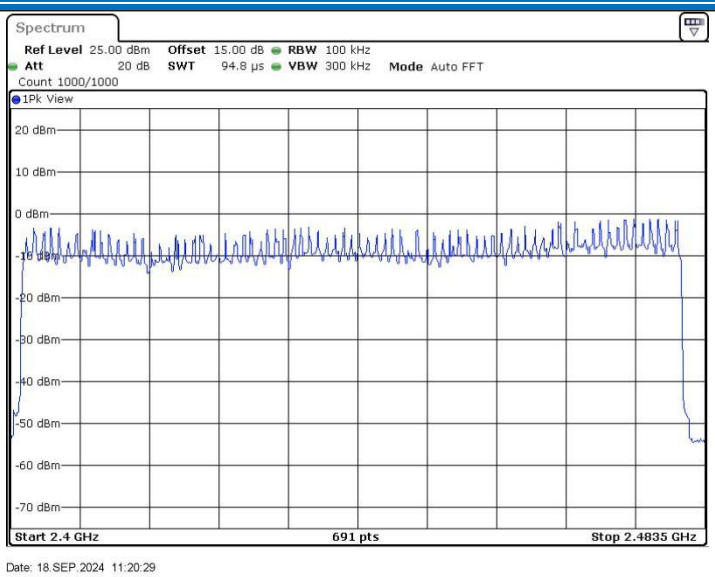
DH5_Ant1_Hop



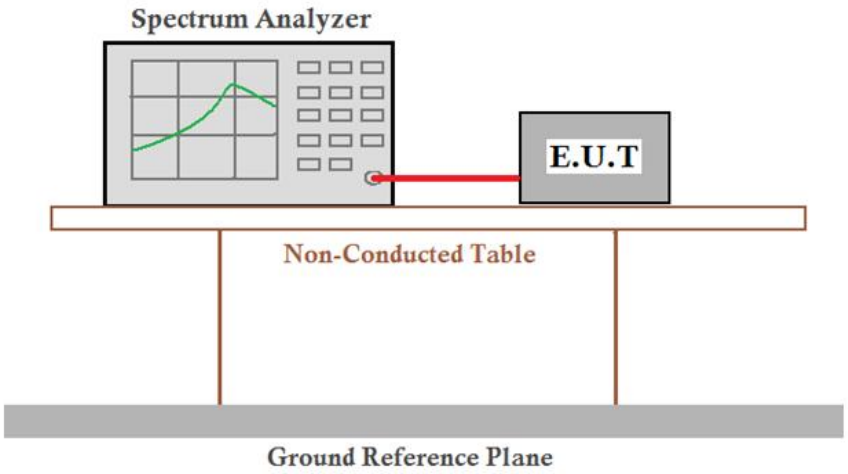
2DH5_Ant1_Hop



3DH5_Ant1_Hop


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 1000/1000
1Pk View
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 2.4 GHz
691 pts
Stop 2.4835 GHz
Date: 18.SEP.2024 11:20:29

5.7 Dwell Time

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Test Mode:	Hopping transmitting with all kind of modulation and all kind of data type.
Limit:	0.4 Second
Test Results:	Pass

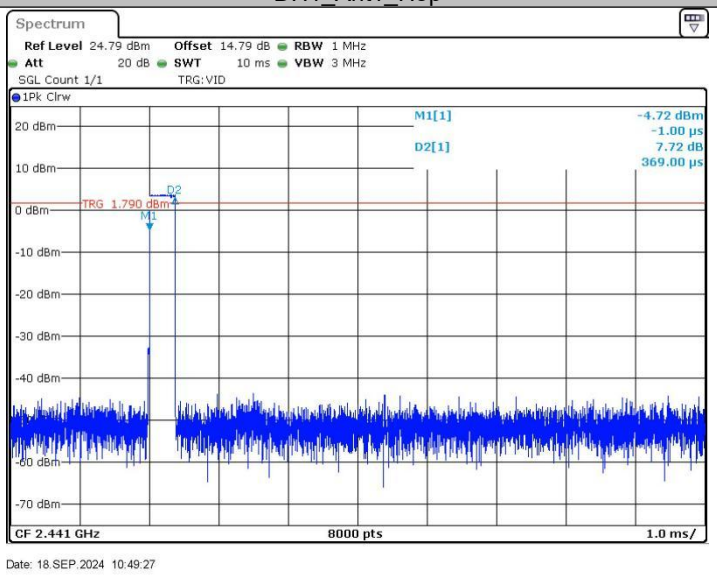
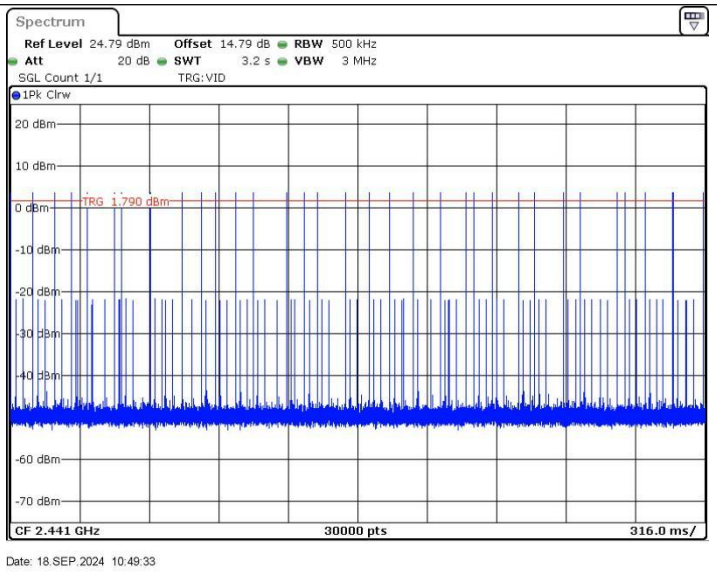
Measurement Data

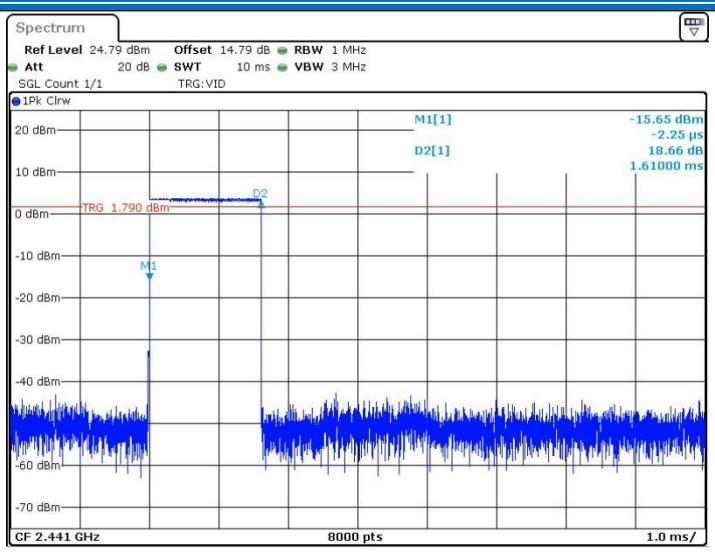
TestMode	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Hop	0.369	330	0.122	≤0.4	PASS
DH3	Hop	1.610	160	0.258	≤0.4	PASS
DH5	Hop	2.850	110	0.314	≤0.4	PASS
2DH1	Hop	0.376	330	0.124	≤0.4	PASS
2DH3	Hop	1.621	160	0.259	≤0.4	PASS
2DH5	Hop	2.862	120	0.343	≤0.4	PASS
3DH1	Hop	0.378	330	0.125	≤0.4	PASS
3DH3	Hop	1.619	170	0.275	≤0.4	PASS
3DH5	Hop	2.863	110	0.315	≤0.4	PASS

Remark:

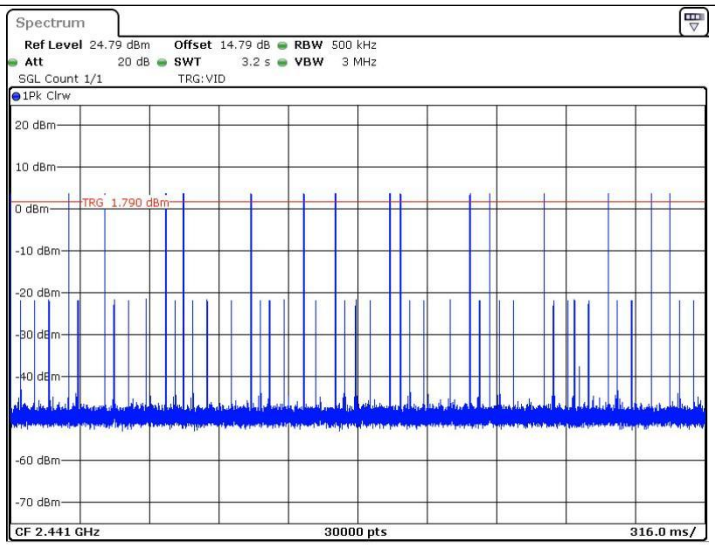
The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s

Test plot as follows:

DH1_Ant1_Hop


DH3_Ant1_Hop

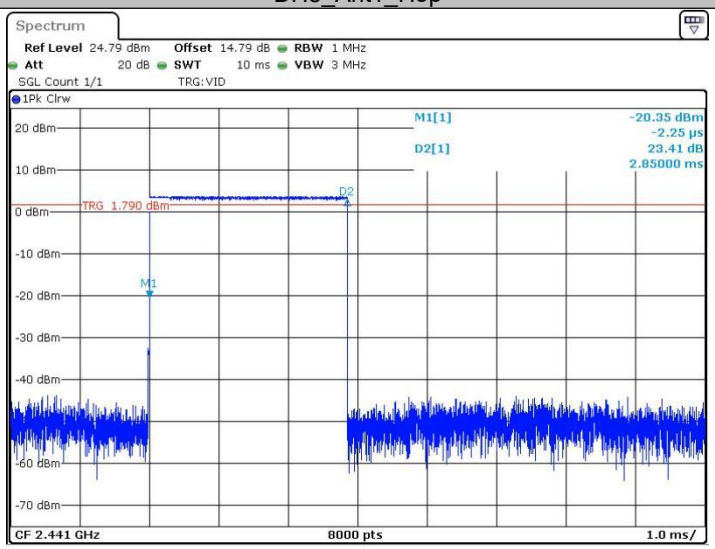


Date: 18.SEP.2024 10:49:57

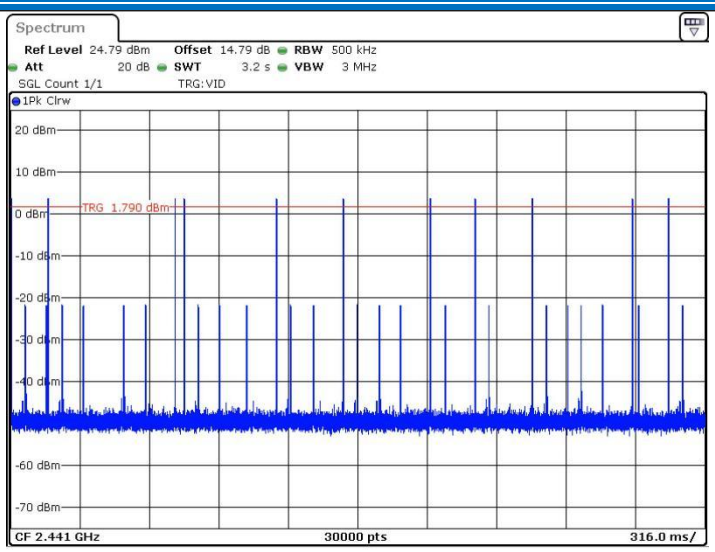


Date: 18.SEP.2024 10:50:03

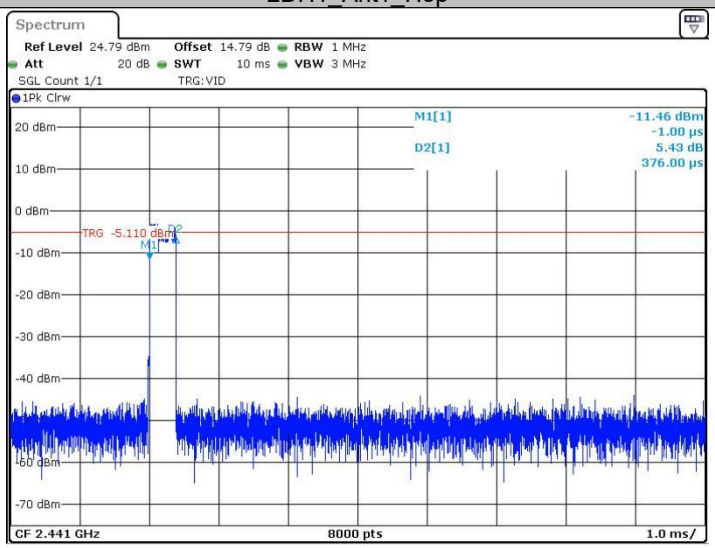
DH5_Ant1_Hop

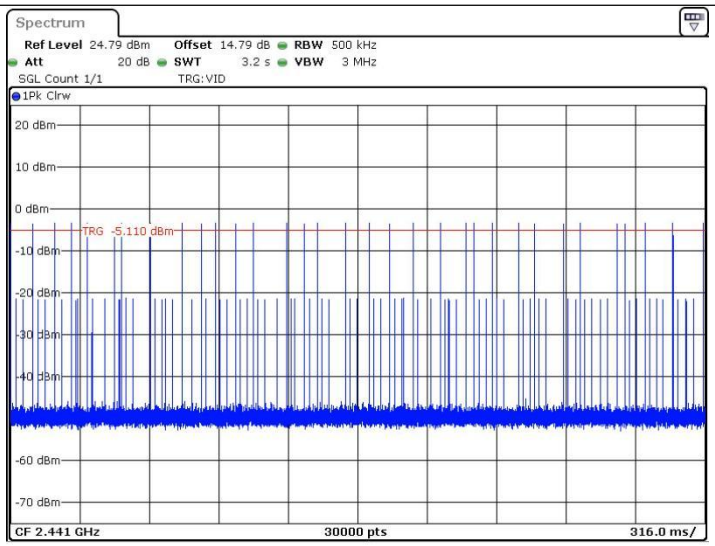


Date: 18.SEP.2024 10:48:57

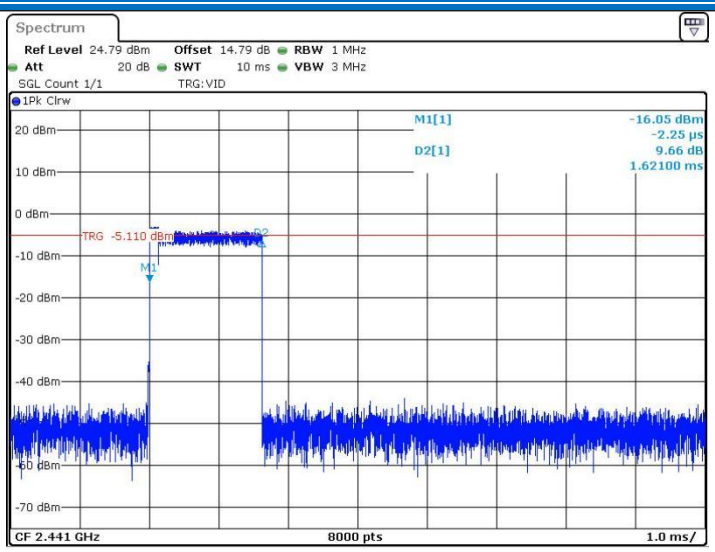


2DH1_Ant1_Hop

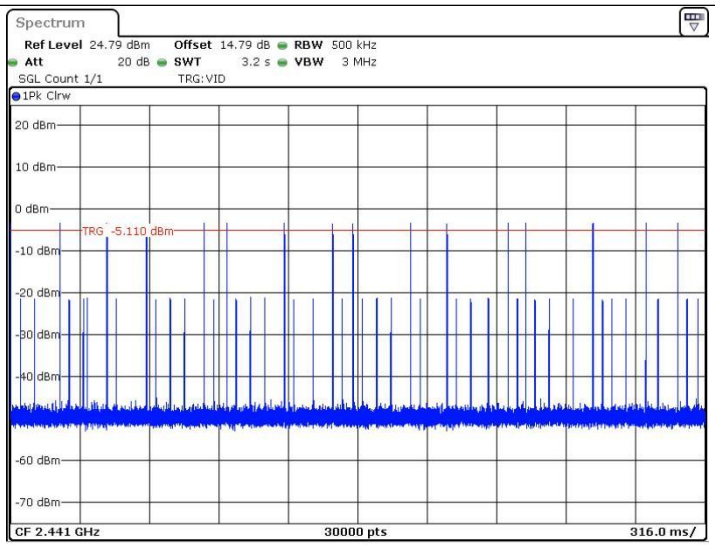




2DH3_Ant1_Hop

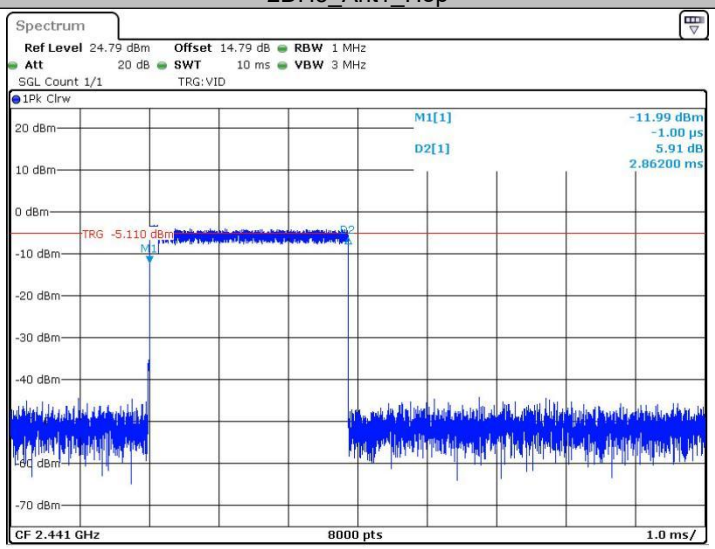


Date: 18.SEP.2024 11:09:14

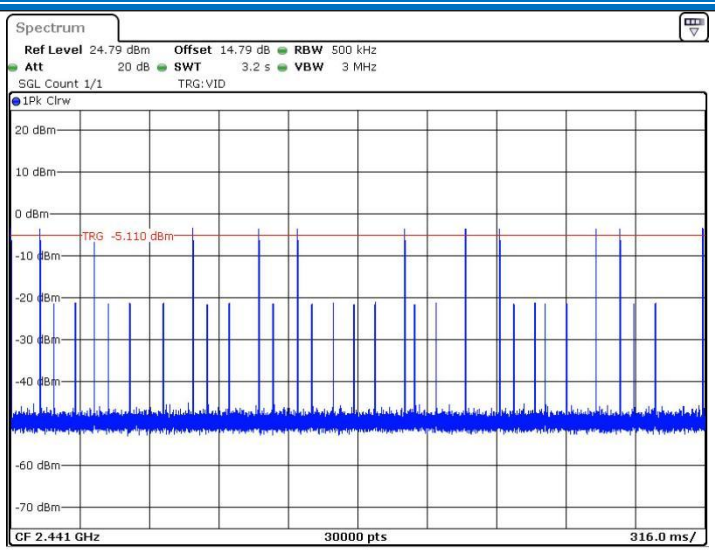


Date: 18.SEP.2024 11:09:20

2DH5_Ant1_Hop

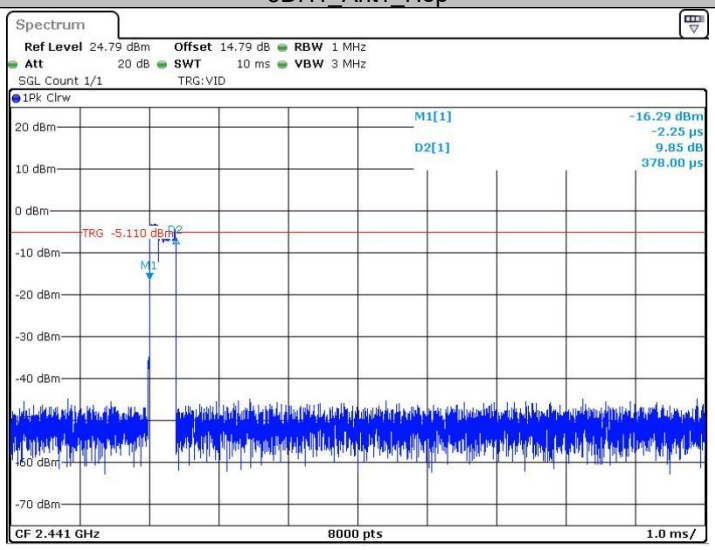


Date: 18.SEP.2024 10:59:46

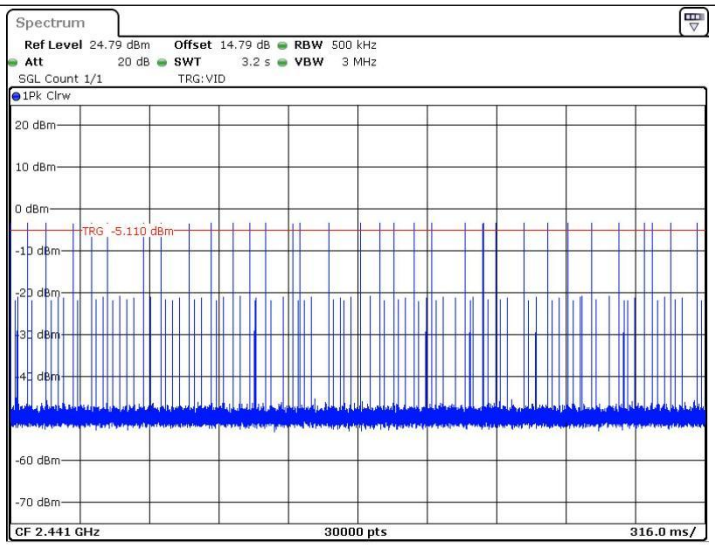


Date: 18.SEP.2024 10:59:52

3DH1_Ant1_Hop

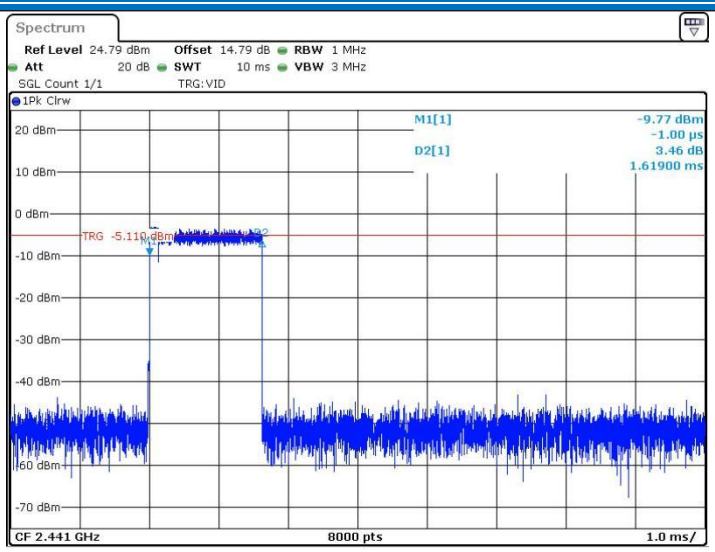


Date: 18.SEP.2024 11:22:38

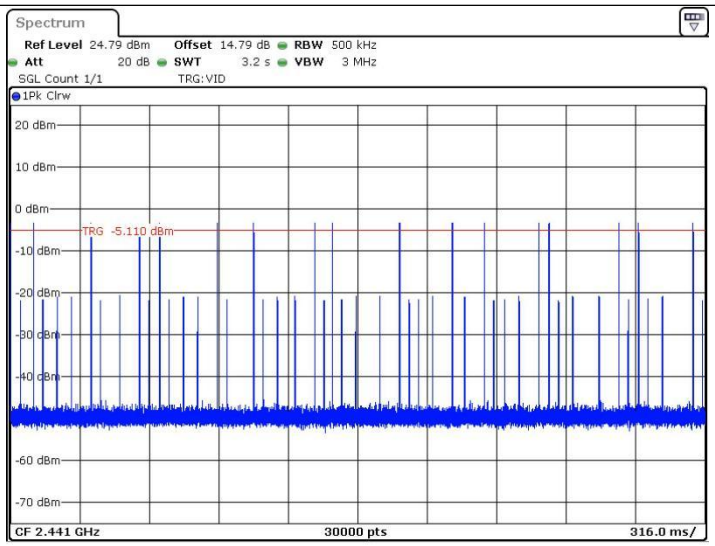


Date: 18.SEP.2024 11:22:44

3DH3_Ant1_Hop

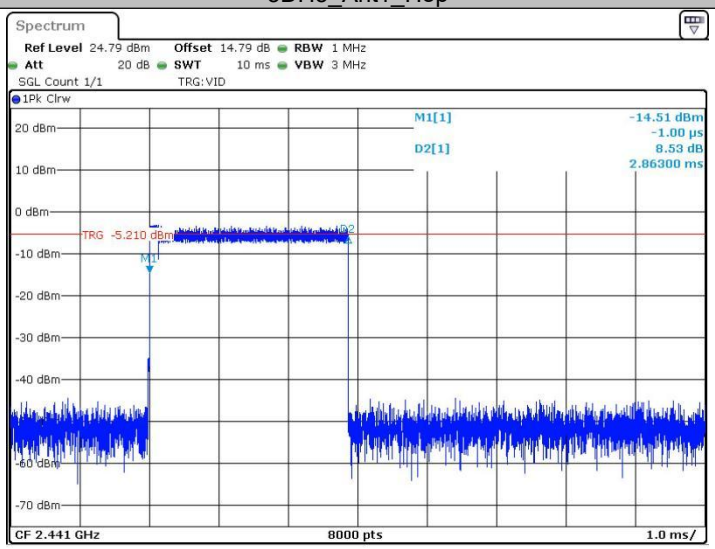


Date: 18.SEP.2024 11:29:00

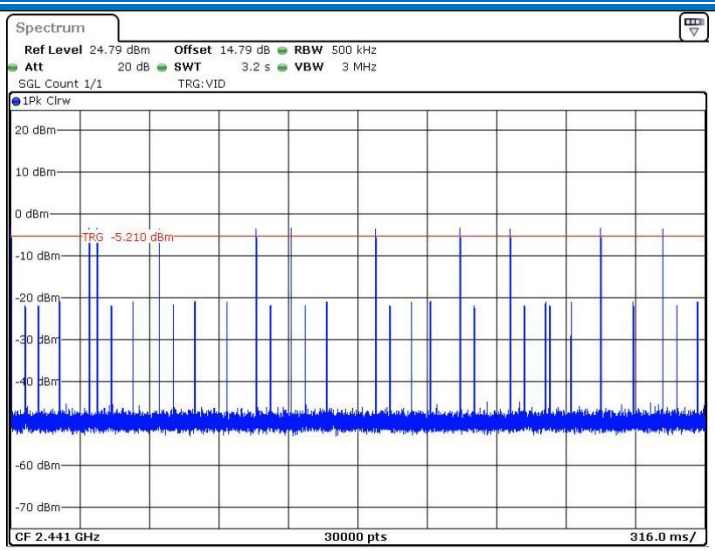


Date: 18.SEP.2024 11:29:06

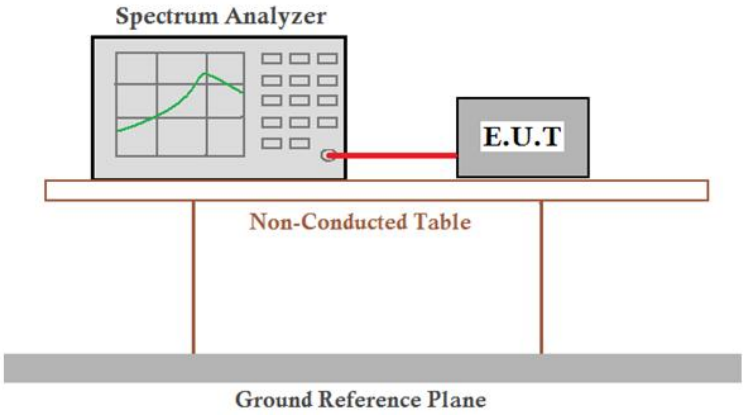
3DH5_Ant1_Hop



Date: 18.SEP.2024 11:20:44


Spectrum
Ref Level 24.79 dBm Offset 14.79 dB RBW 500 kHz
Att 20 dB SWT 3.2 s VBW 3 MHz
SGL Count 1/1 TRG:VID
1Pk Clrw
20 dBm
10 dBm
0 dBm
TRG -5.210 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-60 dBm
-70 dBm
CF 2.441 GHz
30000 pts
316.0 ms/
Date: 18.SEP.2024 11:20:49

5.8 Band-edge for RF Conducted Emissions

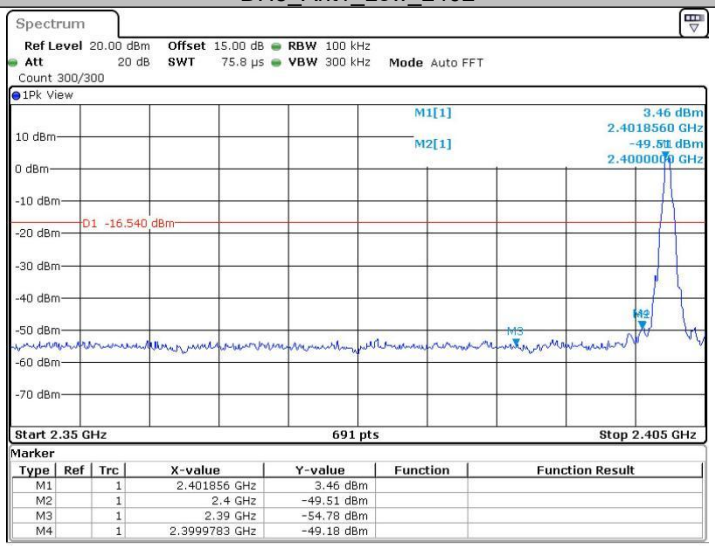
Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10:2013
Test Setup:	 *Remark: Offset=cable loss+ attenuation factor.*
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Exploratory Test Mode:	Hopping and Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Only the worst case is recorded in the report.
Test Results:	Pass

Measurement Data

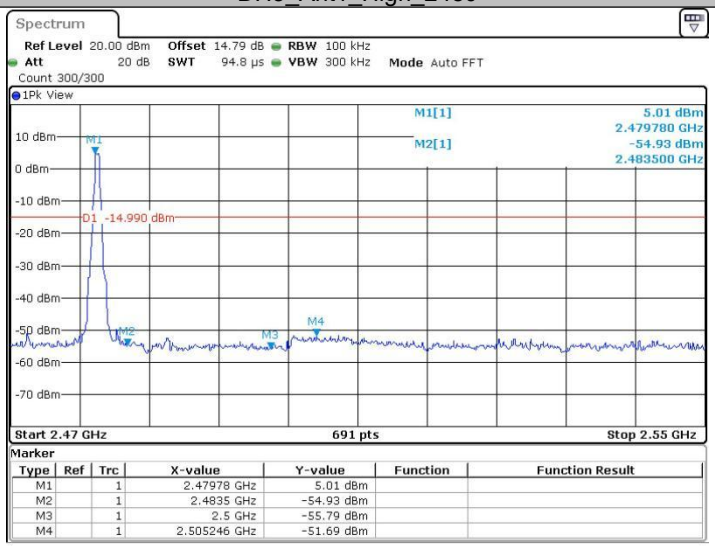
TestMode	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Low	2402	3.46	-49.18	≤-16.54	PASS
	High	2480	5.01	-51.69	≤-14.99	PASS
	Low	Hop_2402	3.20	-52.42	≤-16.8	PASS
	High	Hop_2480	-2.28	-51.05	≤-22.28	PASS
2DH5	Low	2402	3.43	-50.17	≤-16.57	PASS
	High	2480	4.17	-50.69	≤-15.83	PASS
	Low	Hop_2402	-9.75	-53.08	≤-29.75	PASS
	High	Hop_2480	-3.39	-51.31	≤-23.39	PASS
3DH5	Low	2402	3.66	-51.1	≤-16.34	PASS
	High	2480	5.04	-51.35	≤-14.96	PASS
	Low	Hop_2402	-9.23	-52	≤-29.23	PASS
	High	Hop_2480	-3.00	-51.4	≤-23	PASS

Test plot as follows:

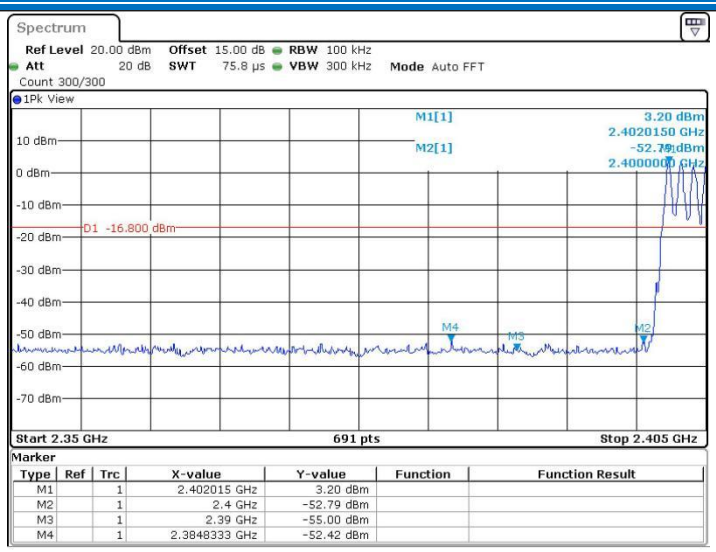
DH5_Ant1_Low_2402



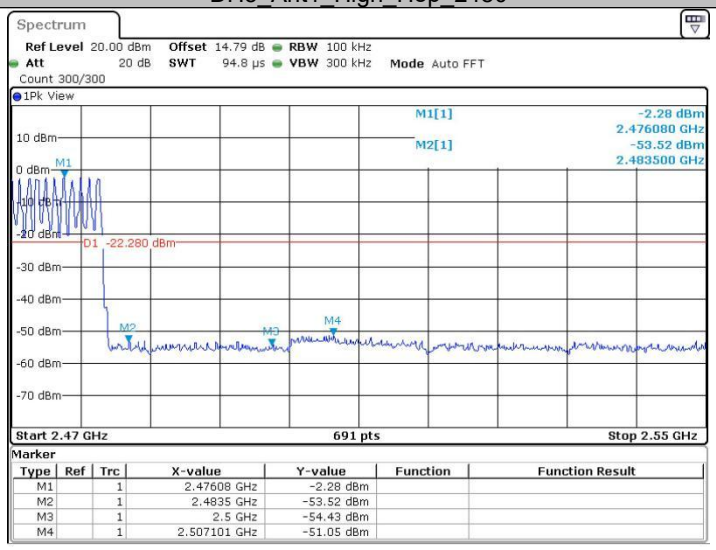
DH5_Ant1_High_2480



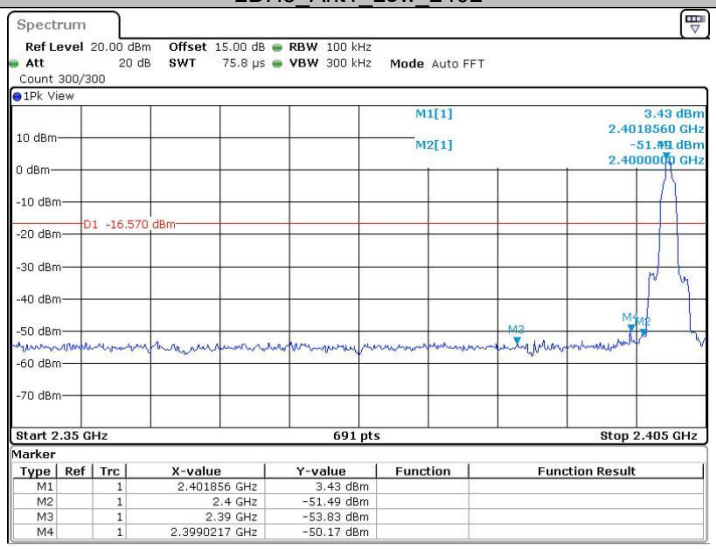
DH5_Ant1_Low_Hop_2402



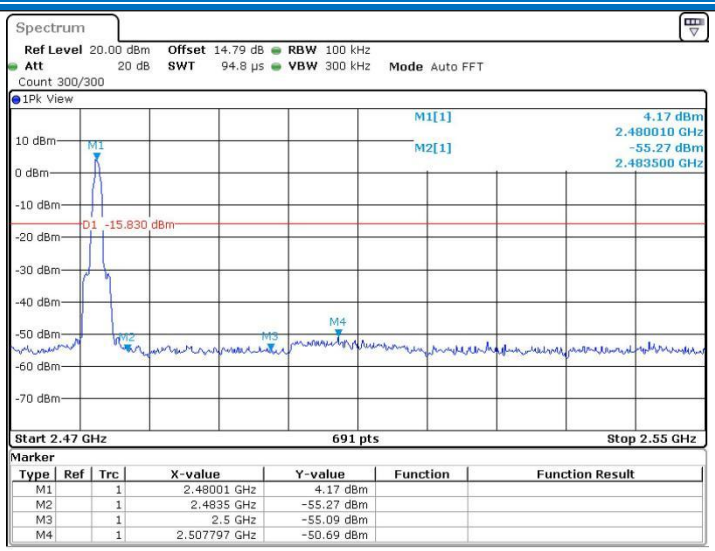
DH5_Ant1_High_Hop_2480



2DH5_Ant1_Low_2402



2DH5_Ant1_High_2480

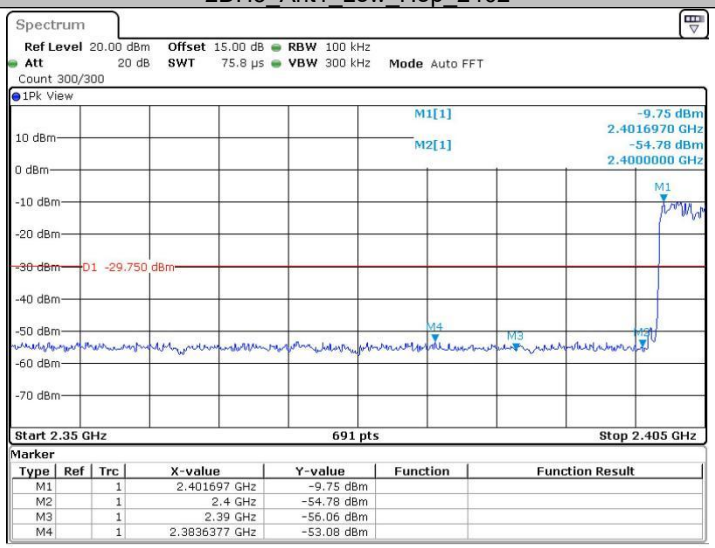


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48001 GHz	4.17 dBm		
M2		1	2.4835 GHz	-55.27 dBm		
M3		1	2.5 GHz	-55.09 dBm		
M4		1	2.507797 GHz	-50.69 dBm		

Date: 18.SEP.2024 10:34:01

2DH5_Ant1_Low_Hop_2402

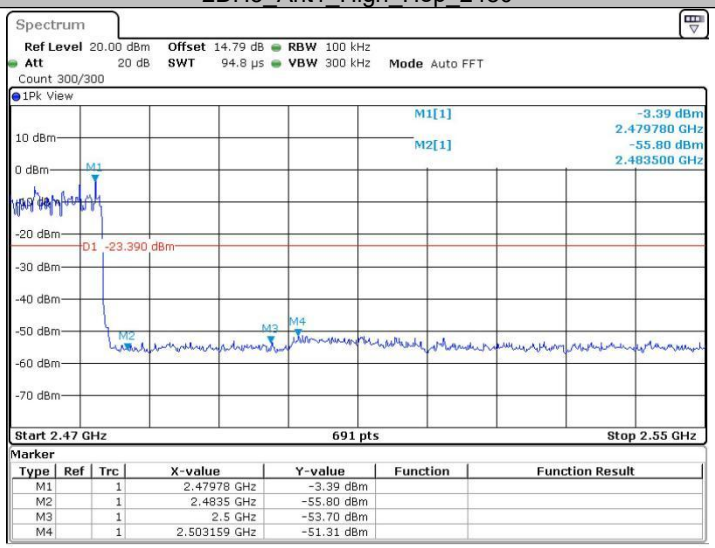


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401697 GHz	-9.75 dBm		
M2		1	2.4 GHz	-54.78 dBm		
M3		1	2.39 GHz	-56.06 dBm		
M4		1	2.3836377 GHz	-53.08 dBm		

Date: 18.SEP.2024 10:54:24

2DH5_Ant1_High_Hop_2480

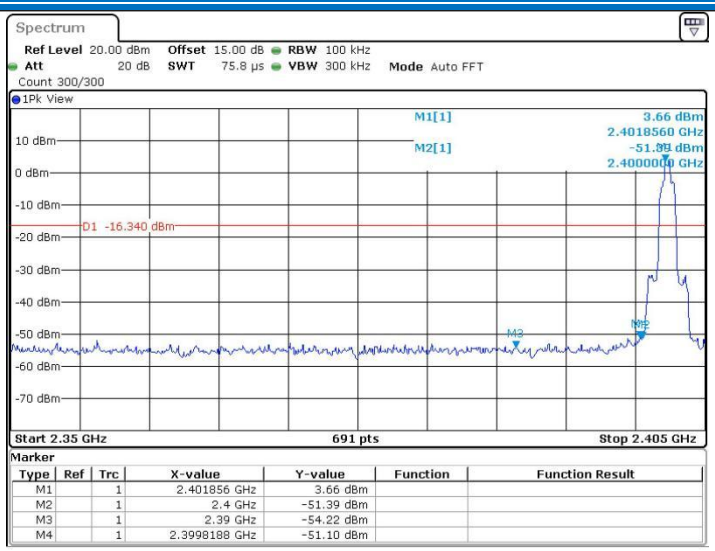


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47978 GHz	-3.39 dBm		
M2		1	2.4835 GHz	-55.80 dBm		
M3		1	2.5 GHz	-53.70 dBm		
M4		1	2.503159 GHz	-51.31 dBm		

Date: 18.SEP.2024 11:12:14

3DH5_Ant1_Low_2402

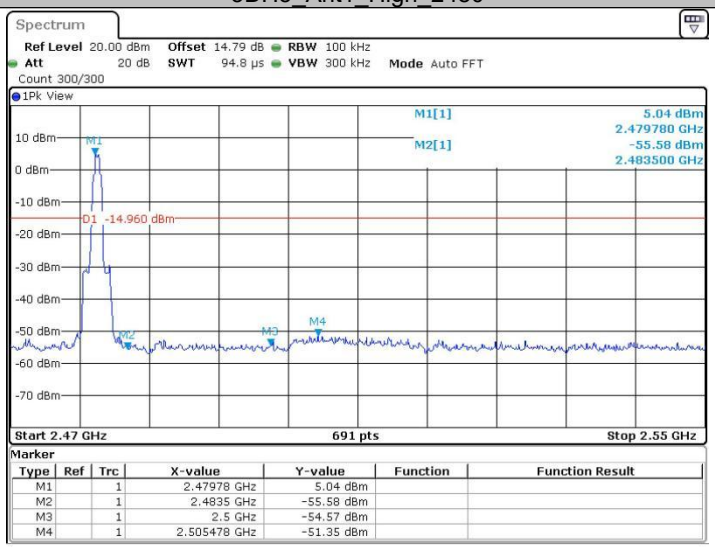


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401856 GHz	3.66 dBm		
M2		1	2.4 GHz	-51.39 dBm		
M3		1	2.39 GHz	-54.22 dBm		
M4		1	2.3998188 GHz	-51.10 dBm		

Date: 18.SEP.2024 10:38:59

3DH5_Ant1_High_2480

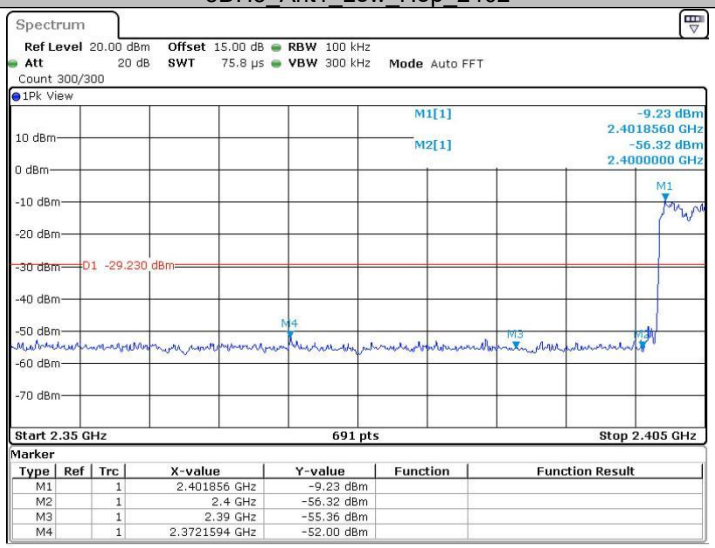


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47978 GHz	5.04 dBm		
M2		1	2.4835 GHz	-55.58 dBm		
M3		1	2.5 GHz	-54.57 dBm		
M4		1	2.505478 GHz	-51.35 dBm		

Date: 18.SEP.2024 10:42:45

3DH5_Ant1_Low_Hop_2402



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401856 GHz	-9.23 dBm		
M2		1	2.4 GHz	-56.32 dBm		
M3		1	2.39 GHz	-55.36 dBm		
M4		1	2.3721594 GHz	-52.00 dBm		

Date: 18.SEP.2024 11:16:47

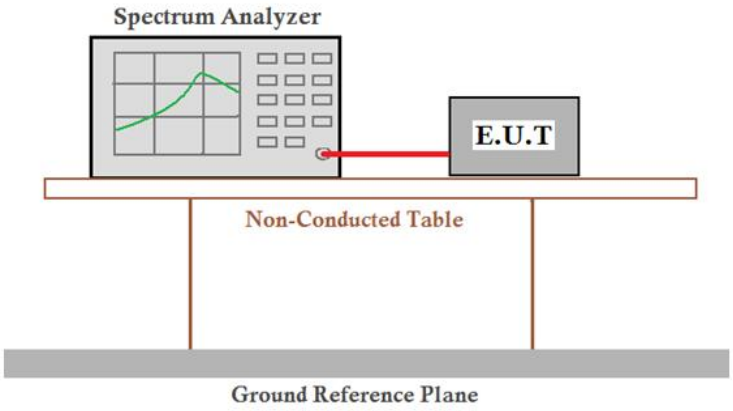
3DH5_Ant1_High_Hop_2480

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47897 GHz	-3.00 dBm		
M2		1	2.4835 GHz	-55.08 dBm		
M3		1	2.5 GHz	-56.03 dBm		
M4		1	2.503275 GHz	-51.40 dBm		

Date: 18.SEP.2024 11:29:30

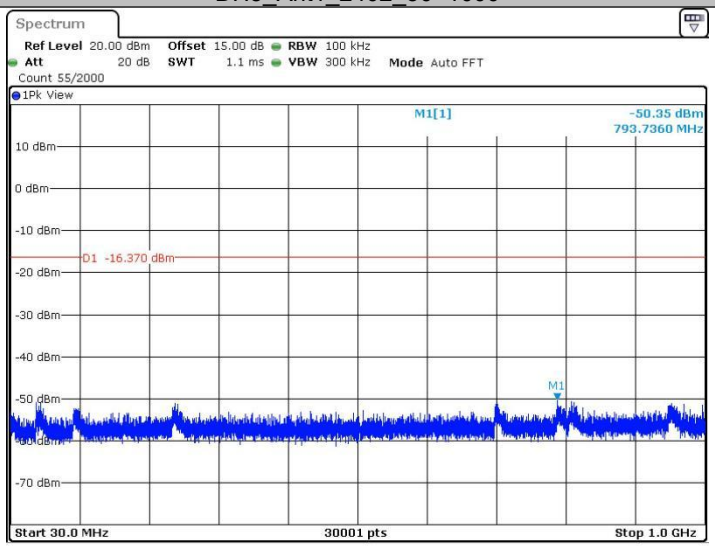
5.9 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10:2013
Test Setup:	 *Remark: Offset=cable loss+ attenuation factor.*
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.
Test Results:	Pass

DH5_Ant1_2402_0~Reference

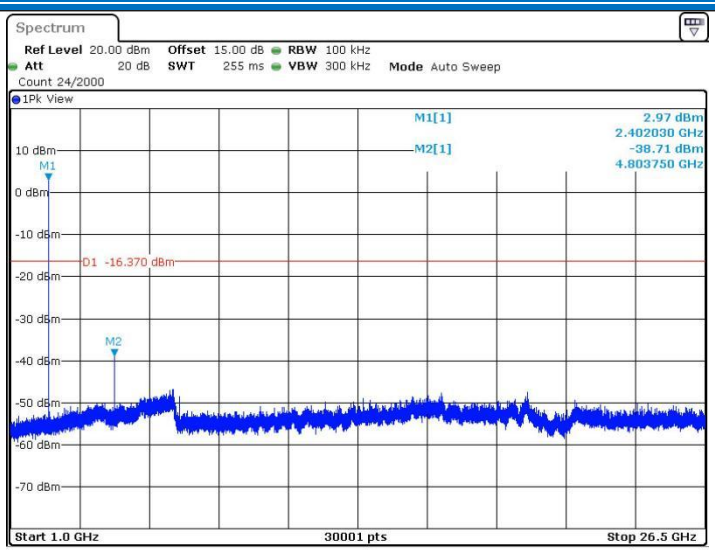
Date: 18.SEP.2024 10:23:52

DH5_Ant1_2402_30~1000



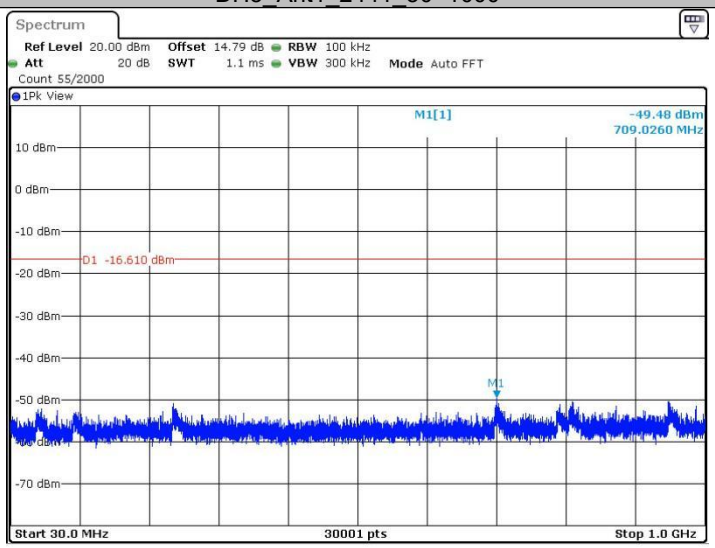
Date: 18.SEP.2024 10:23:58

DH5_Ant1_2402_1000~26500

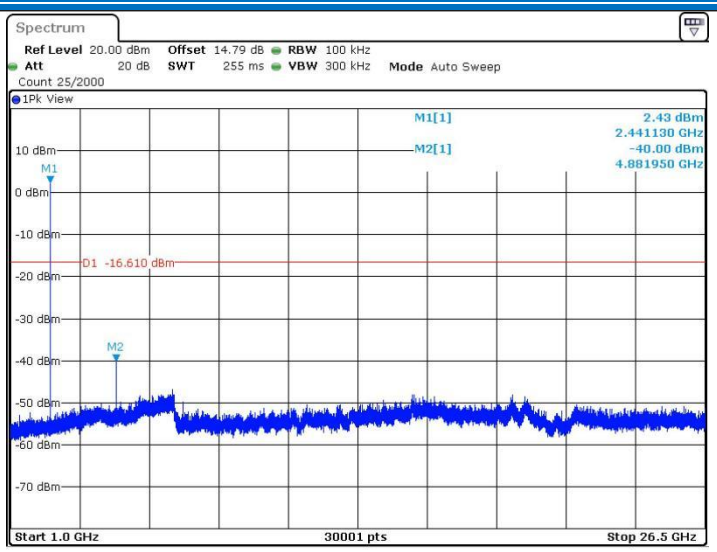


DH5_Ant1_2441_0~Reference

DH5_Ant1_2441_30~1000

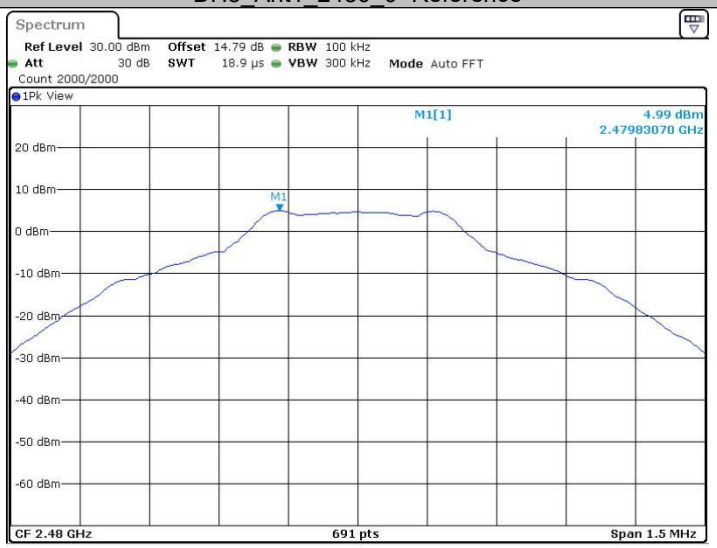


DH5_Ant1_2441_1000~26500



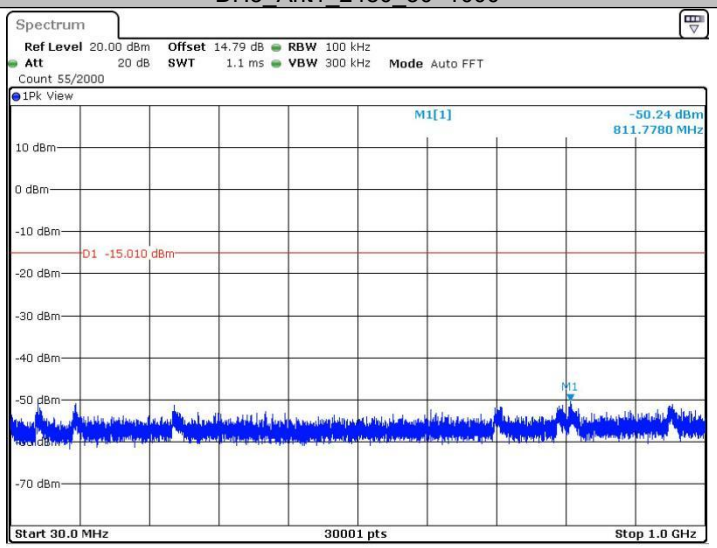
Date: 18.SEP.2024 10:25:32

DH5_Ant1_2480_0~Reference



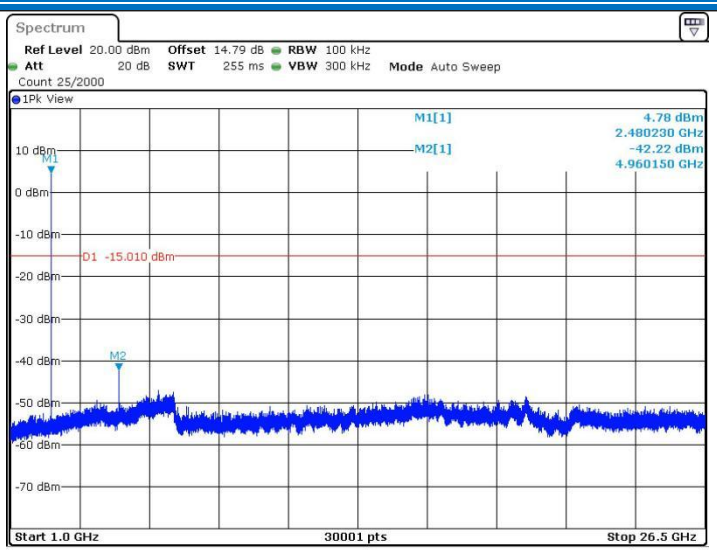
Date: 18.SEP.2024 10:29:10

DH5_Ant1_2480_30~1000

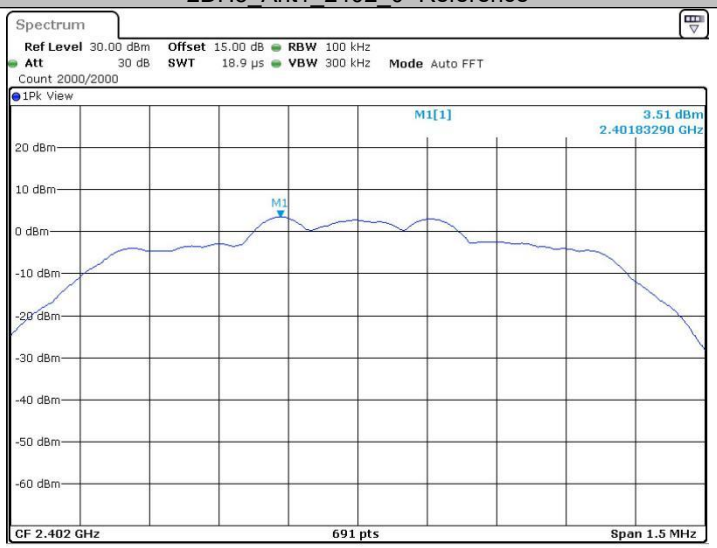


Date: 18.SEP.2024 10:29:16

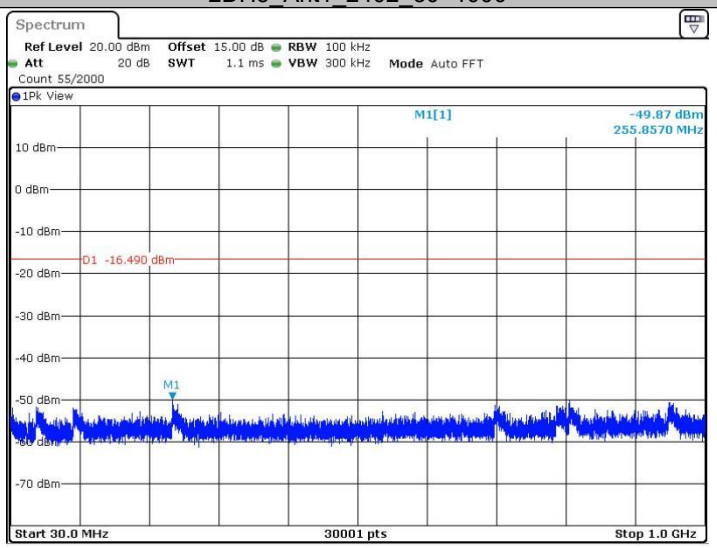
DH5_Ant1_2480_1000~26500



2DH5_Ant1_2402_0~Reference



2DH5_Ant1_2402_30~1000



2DH5_Ant1_2402_1000~26500

Shenzhen Huaxia Testing Technology Co., Ltd

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Report Template Version: V05
Report Template Revision Date: 2021-11-03

RF Exposure Evaluation Report

Report No.:	CQASZ20240901960E-03
Applicant:	Innovative Eyewear, Inc
Address of Applicant:	11900 Biscayne Bl#630, North Miami, FL 33181, United States
Equipment Under Test (EUT):	
EUT Name:	Smart Eyewear
Model No.:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Test Model No.:	LCD008-10
Brand Name:	Lucyd Reebok
FCC ID:	2BBYK-LCD008
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498 D04 Interim General RF Exposure Guidance v01
Date of Receipt:	2024-09-10
Date of Test:	2024-09-10 to 2024-09-19
Date of Issue:	2024-09-27
Test Result:	**PASS***

*In the configuration tested, the EUT complied with the standards specified above.

Tested By: lewis zhou
(Lewis Zhou)

Reviewed By: Timo Lei
(Timo Lei)

Approved By: Alex
(Alex Wang)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20240901960E-03	Rev.01	Initial report	2024-09-27

2 Contents

3 General Information

3.1 Client Information

Applicant:	Innovative Eyewear, Inc
Address of Applicant:	11900 Biscayne Bl#630, North Miami, FL 33181, United States
Manufacturer:	Shenzhen Gonbes Technology Co. Ltd
Address of Manufacturer:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA
Factory:	Shenzhen Gonbes Technology Co. Ltd
Address of Factory:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA

3.2 General Description of EUT

Product Name:	Smart Eyewear
Model No.:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Test Model No.:	LCD008-10
Trade Mark:	Lucyd Reebok
Software Version:	GBS_ATS3025_GK28_V2.2_20240806.fw
Hardware Version:	GK28(ATS3025)-V1.1
Power Supply:	Li-ion battery: DC 3.7V 180mAh, Charge by DC 5V for adapter
Simultaneous Transmission	☐ Simultaneous TX is supported and evaluated in this report. ☒ Simultaneous TX is not supported.

3.3 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps/2Mbps
Number of Channel:	40
Product Type:	☐ Mobile ☒ Portable
Antenna Type:	Chip antenna
Antenna Gain:	1.24dBi

3.4 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Product Type:	☐ Mobile ☒ Portable
Antenna Type:	Chip antenna
Antenna Gain:	1.24dBi

4 RF Exposure Evaluation

4.1 SAR Evaluation for Portable condition

4.1.1 Standard Requirement

447498 D04 Interim General RF Exposure Guidance v01

3.2. SAR Test Reduction Guidance

SAR test reduction procedures [Glossary] allow using a particular set of test data as representative of other, similar, test conditions. This may be applied for data within different test positions (e.g. body, head, extremity), wireless modes (e.g. Wi-Fi, cellular), and frequency bands.This test reduction process provides for the use of test data for one specific channel, while referencing to those data for demonstrating compliance in other required channels for each test position of an exposure condition, within the operating mode of a frequency band. This is limited specifically to when the reported 1-g or 10-g SAR for the mid-band or highest output power channel meets any of the following conditions.

4.1.2 Limits

SAR-based thresholds are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum timeaveraged power or maximum time-averaged ERP, whichever is greater.

If the ERP of a device is not easily determined, such as for a portable device with a small form factor, the applicant may use the available maximum time-averaged power exclusively if the device antenna or radiating structure does not exceed an electrical length of $\lambda/4$.

As for devices with antennas of length greater than $\lambda/4$ where the gain is not well defined, but always less than that of a half-wave dipole (length $\lambda/2$), the available maximum time-averaged power generated by the device may be used in place of the maximum time-averaged ERP, where that value is not known.

The separation distance is the smallest distance from any part of the antenna or radiating structure for all persons, during operation at the applicable ERP. In the case of mobile or portable devices, the separation distance is from the outer housing of the device where it is closest to the antenna.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold Pth (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). Pth is given by Formula (B.2).

$$P_{\text{th}}\,(\text{mW}) = \begin{cases} ERP_{20\,\text{cm}}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\,\text{cm}} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases} \quad \text{(B.2)}$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\,\text{cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20\text{cm}}$ is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)										
		5	10	15	20	25	30	35	40	45	50
	300	39	65	88	110	129	148	166	184	201	217
	450	22	44	67	89	112	135	158	180	203	226
	835	9	25	44	66	90	116	145	175	207	240
	1900	3	12	26	44	66	92	122	157	195	236
	2450	3	10	22	38	59	83	111	143	179	219
	3600	2	8	18	32	49	71	96	125	158	195
	5800	1	6	14	25	40	58	80	106	136	169

4.1.3 SAR Exclusion Evaluation Result

1) For BLE

Measurement Data

Channel	Conducted Peak Output Power (dBm)	EIRP (dBm)	ERP (dBm)	Maximum tune-up Power (mW)	Exclusion threshold (mW)
Lowest (2402MHz)	4.18	5.42	3.27	2.12	3.0
Middle (2440MHz)	3.85	5.09	2.94	1.97	
Highest (2480MHz)	5.5	6.74	4.59	2.88	

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20240901960E-02

2) **For BT**

Measurement Data

Channel	Conducted Peak Output Power (dBm)	EIRP (dBm)	ERP (dBm)	Maximum tune-up Power (mW)	Exclusion threshold (mW)
Lowest (2402MHz)	-2.34	-1.10	-3.25	0.47	3.0
Middle (2441MHz)	-2.78	-1.54	-3.69	0.43	
Highest (2480MHz)	-0.95	0.29	-1.86	0.65	

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20240901960E-01

*** END OF REPORT ***

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Report Template Version: V05
Report Template Revision Date: 2021-11-03

Test Report

Report No.:	CQASZ20240901960E-02
Applicant:	Innovative Eyewear, Inc
Address of Applicant:	11900 Biscayne Bl#630, North Miami, FL 33181, United States
Equipment Under Test (EUT):	
Product:	Smart Eyewear
Model No.:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Test Model No.:	LCD008-10
Brand Name:	Lucyd Reebok
FCC ID:	2BBYK-LCD008
Standards:	47 CFR Part 15, Subpart C
	KDB558074 D01 15.247 Meas Guidance v05r02
	ANSI C63.10:2013
Date of Receipt:	2024-09-10
Date of Test:	2024-09-10 to 2024-09-19
Date of Issue:	2024-09-27
Test Result:	**PASS***

***In the configuration tested, the EUT complied with the standards specified above.**

Tested By: lewis zhou
(Lewis Zhou)

Reviewed By: Timo Lei
(Timo Lei)

Approved By: Alex
(Alex Wang)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20240901960E-02	Rev.01	Initial report	2024-09-27

2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203/15.247 (c)	ANSI C63.10 2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013	PASS
Conducted Peak Output Power	47 CFR Part 15, Subpart C Section 15.247 (b)(3)	ANSI C63.10 2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(2)	ANSI C63.10 2013	PASS
Power Spectral Density	47 CFR Part 15, Subpart C Section 15.247 (e)	ANSI C63.10 2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS

3 Contents

4 General Information

4.1 Client Information

Applicant:	Innovative Eyewear, Inc
Address of Applicant:	11900 Biscayne Bl#630, North Miami, FL 33181, United States
Manufacturer:	Shenzhen Gonbes Technology Co. Ltd
Address of Manufacturer:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA
Factory:	Shenzhen Gonbes Technology Co. Ltd
Address of Factory:	RM501, Bldg 3, Mengliyuan Industrial Park, 124 Yousong Rd, Longhua Str, Longhua Dist, Shenzhen, Guangdong Province, 518000, CHINA

4.2 General Description of EUT

Product Name:	Smart Eyewear
Model No.:	LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Test Model No.:	LCD008-10
Trade Mark:	Lucyd Reebok
Software Version:	GBS_ATS3025_GK28_V2.2_20240806.fw
Hardware Version:	GK28(ATS3025)-V1.1
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.3
Modulation Type:	GFSK
Transfer Rate:	1Mbps, 2Mbps
Number of Channel:	40
Product Type:	☐ Mobile ☒ Portable
Test Software of EUT:	FCC
Antenna Type:	Chip antenna
Antenna Gain:	1.24dBi
EUT Power Supply:	Li-ion battery: DC 3.7V 180mAh, Charge by DC 5V for adapter
Simultaneous Transmission	☐ Simultaneous TX is supported and evaluated in this report. ☒ Simultaneous TX is not supported.

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz
5	2412MHz	15	2432MHz	25	2452MHz	35	2472MHz
6	2414MHz	16	2434MHz	26	2454MHz	36	2474MHz
7	2416MHz	17	2436MHz	27	2456MHz	37	2476MHz
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel (CH0)	2402MHz
The middle channel (CH19)	2440MHz
The highest channel (CH39)	2480MHz

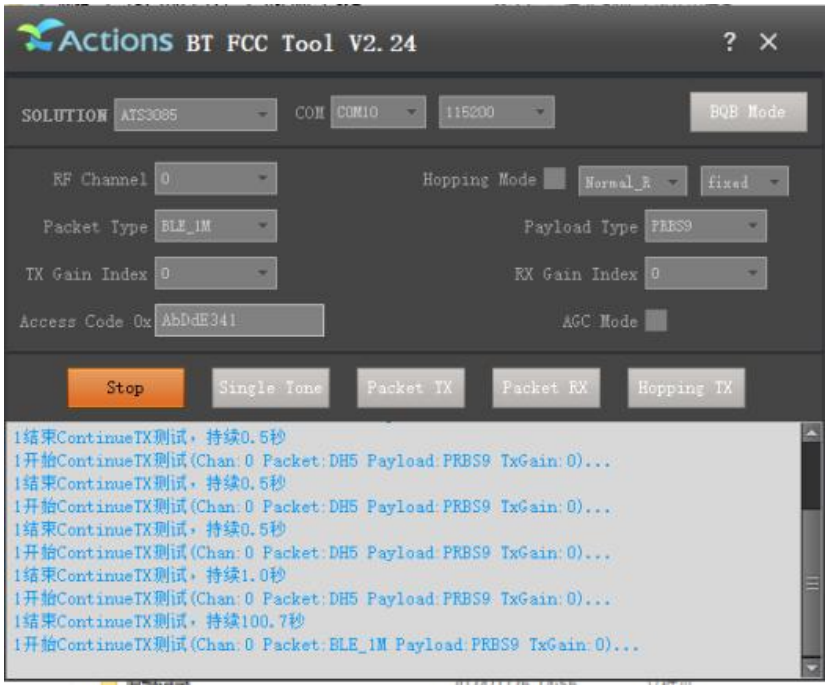
4.3 Additional Instructions

EUT Test Software Settings:	
Mode:	☒ Special software is used. ☐ Through engineering command into the engineering mode. engineering command: *#*#3646633#*#*
EUT Power level:	Class2 (Power level is built-in set parameters and cannot be changed and selected)

Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

Mode	Channel	Frequency(MHz)
GFSK	CH0	2402
	CH19	2440
	CH39	2480

Run Software:



4.4 Test Environment

Operating Environment:	
Temperature:	24.5°C
Humidity:	59% RH
Atmospheric Pressure:	1009mbar
Test Mode:	Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

4.5 Description of Support Units

The EUT has been tested with associated equipment below.

1）Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Adapter	MI	/	/	CQA

2) Cable

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
/	/	/	/	/

4.6 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty
1	Radiated Emission (Below 1GHz)	5.12dB
2	Radiated Emission (Above 1GHz)	4.60dB
3	Conducted Disturbance (0.15~30MHz)	3.34dB
4	Radio Frequency	3×10^{-8}
5	Duty cycle	0.6 %
6	Occupied Bandwidth	1.1%
7	RF conducted power	0.86dB
8	RF power density	0.74
9	Conducted Spurious emissions	0.86dB
10	Temperature test	0.8℃
11	Humidity test	2.0%
12	Supply voltages	0.5 %
13	Frequency Error	5.5 Hz

4.7 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

4.8 Test Facility

• A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

• FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

4.9 Deviation from Standards

None.

4.10 Other Information Requested by the Customer

None.

4.11 Equipment List

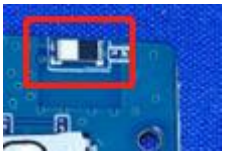
Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU26	CQA-038	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU40	CQA-075	2024/9/2	2025/9/1
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2024/9/2	2025/9/1
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2024/9/2	2025/9/1
Preamplifier	EMCI	EMC184055SE	CQA-089	2024/9/2	2025/9/1
Loop antenna	Schwarzbeck	FMZB1516	CQA-060	2023/9/8	2026/9/7
Bilog Antenna	R&S	HL562	CQA-011	2023/11/01	2026/10/31
Horn Antenna	R&S	HF906	CQA-012	2023/11/01	2026/10/31
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2023/9/7	2026/9/6
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2024/9/2	2025/9/1
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2024/9/2	2025/9/1
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2024/9/2	2025/9/1
Antenna Connector	CQA	RFC-01	CQA-080	2024/9/2	2025/9/1
Power Sensor	KEYSIGHT	U2021XA	CQA-30	2024/9/2	2025/9/1
N1918A Power Analysis Manager Power Panel	Agilent	N1918A	CQA-074	2024/9/2	2025/9/1
Power meter	R&S	NRVD	CQA-029	2024/9/2	2025/9/1
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2024/9/2	2025/9/1
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
LISN	R&S	ENV216	CQA-003	2024/9/2	2025/9/1
Coaxial cable	CQA	N/A	CQA-C009	2024/9/2	2025/9/1
DC power	KEYSIGHT	E3631A	CQA-028	2024/9/2	2025/9/1

Note:

The temporary antenna connector is soldered on the pcb board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

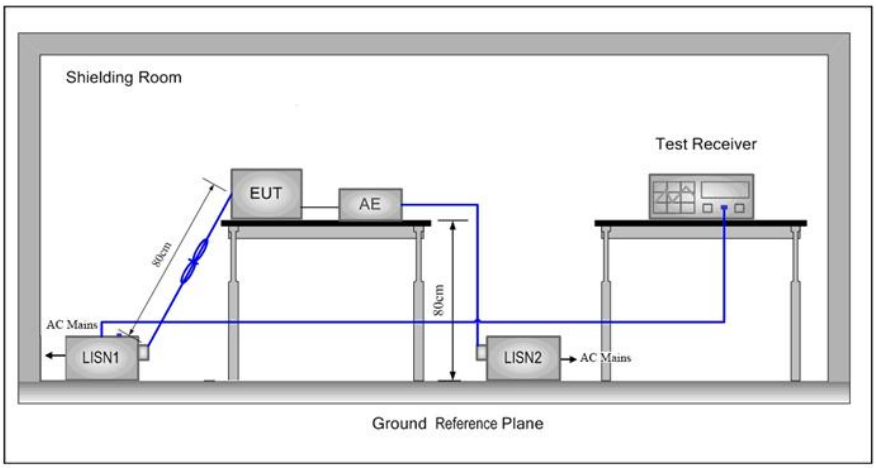
5 Test results and Measurement Data

5.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
EUT Antenna:	
The antenna is Chip antenna. The connection/connection type between the antenna to the EUT's antenna port is: permanently attachment. This is either permanently attachment or a unique coupling that satisfies the requirement.	

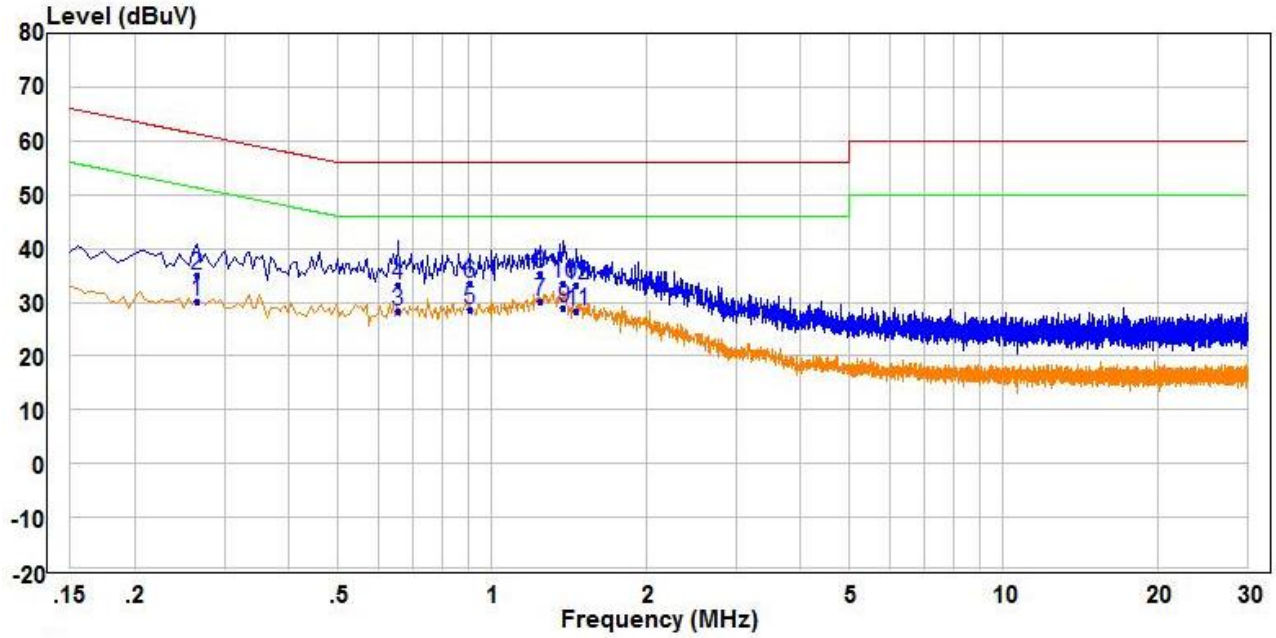
5.2 Conducted Emissions

<table>
<tr><td>Test Requirement:</td><td>47 CFR Part 15C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013</td></tr>
<tr><td>Test Frequency Range:</td><td>150kHz to 30MHz</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr>
<tr><th>Quasi-peak</th><th>Average</th></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test Procedure:</td><td>1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</td></tr>
</table>

Test Setup:	
Test Mode:	Through Pre-scan, find the transmitting mode at the lowest channel is the worst case.
Test Voltage:	AC 120V/60Hz
Test Results:	Pass

Measurement Data

Live line:



		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.265	20.62	9.53	30.15	51.27	-21.12	Average	Line
2		0.265	25.39	9.53	34.92	61.27	-26.35	QP	Line
3		0.655	18.34	9.86	28.20	46.00	-17.80	Average	Line
4		0.655	23.39	9.86	33.25	56.00	-22.75	QP	Line
5		0.905	18.81	9.76	28.57	46.00	-17.43	Average	Line
6		0.905	23.60	9.76	33.36	56.00	-22.64	QP	Line
7	PP	1.240	19.82	10.30	30.12	46.00	-15.88	Average	Line
8	QP	1.240	24.90	10.30	35.20	56.00	-20.80	QP	Line
9		1.380	18.26	10.60	28.86	46.00	-17.14	Average	Line
10		1.380	23.04	10.60	33.64	56.00	-22.36	QP	Line
11		1.465	17.59	10.77	28.36	46.00	-17.64	Average	Line
12		1.465	22.45	10.77	33.22	56.00	-22.78	QP	Line

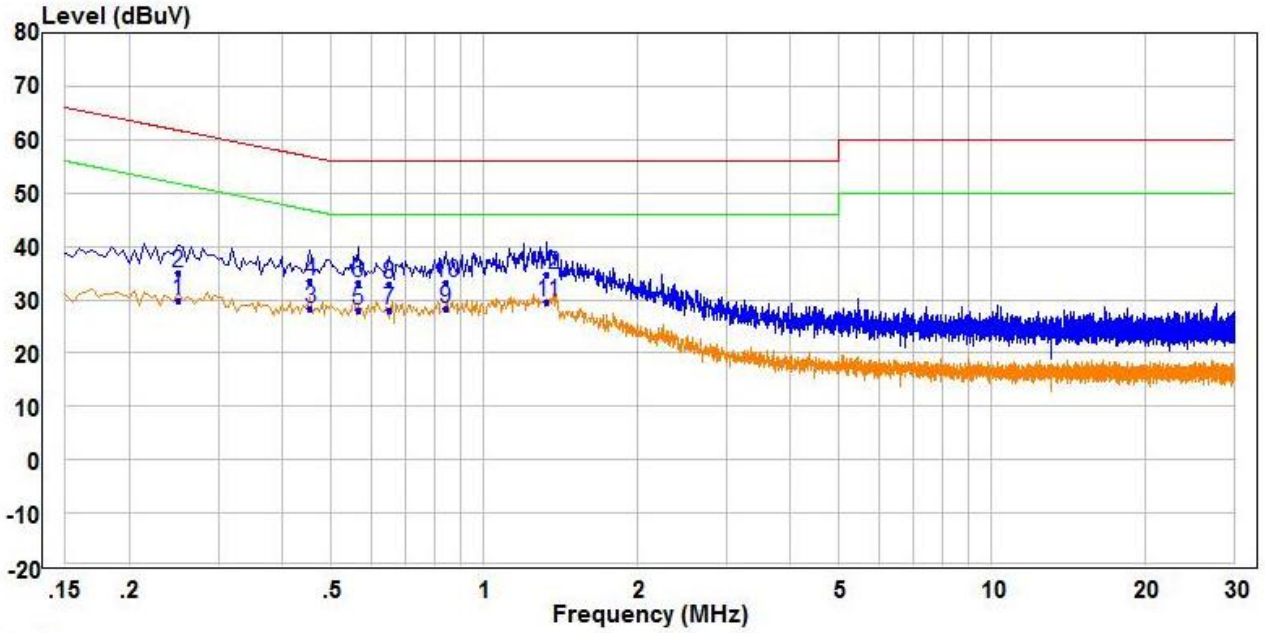
Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral line:



		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.250	20.45	9.54	29.99	51.76	-21.77	Average	Neutral
2		0.250	25.64	9.54	35.18	61.76	-26.58	QP	Neutral
3		0.455	18.79	9.66	28.45	46.78	-18.33	Average	Neutral
4		0.455	23.89	9.66	33.55	56.78	-23.23	QP	Neutral
5		0.565	18.38	9.77	28.15	46.00	-17.85	Average	Neutral
6		0.565	23.42	9.77	33.19	56.00	-22.81	QP	Neutral
7		0.650	18.21	9.85	28.06	46.00	-17.94	Average	Neutral
8		0.650	23.19	9.85	33.04	56.00	-22.96	QP	Neutral
9		0.840	18.58	9.81	28.39	46.00	-17.61	Average	Neutral
10		0.840	23.42	9.81	33.23	56.00	-22.77	QP	Neutral
11	PP	1.330	19.86	9.72	29.58	46.00	-16.42	Average	Neutral
12	QP	1.330	25.13	9.72	34.85	56.00	-21.15	QP	Neutral

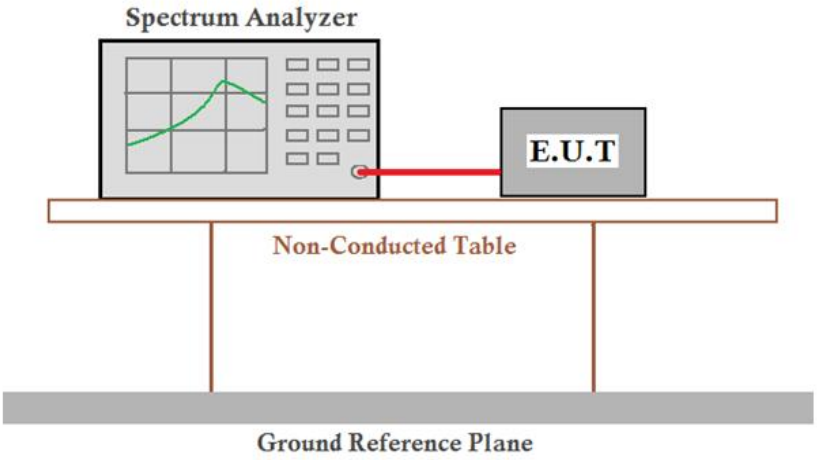
Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.

5.3 Conducted Peak Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	30dBm
Test Mode:	Transmitting with GFSK modulation.
Test Results:	Pass

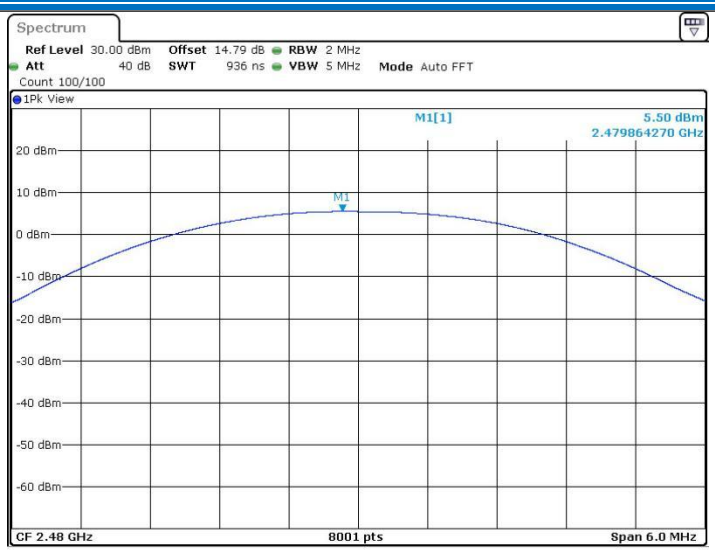
Measurement Data

GFSK mode (1Mbps)			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	4.18	30.00	Pass
Middle	3.85	30.00	Pass
Highest	5.5	30.00	Pass
GFSK mode (2Mbps)			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	3.9	30.00	Pass
Middle	3.62	30.00	Pass
Highest	5.34	30.00	Pass

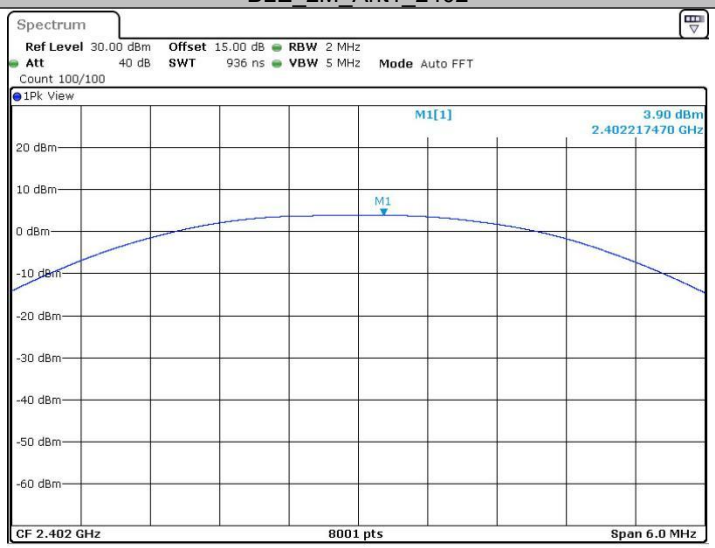
BLE_1M_Ant1_2402

BLE_1M_Ant1_2440

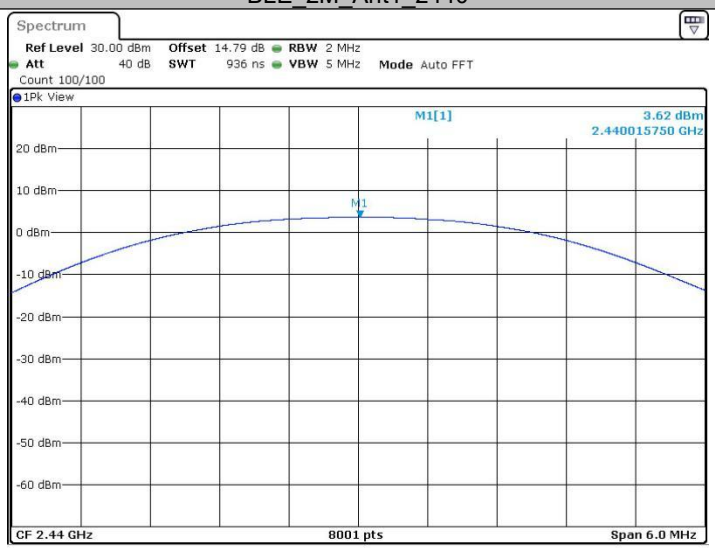
BLE_1M_Ant1_2480



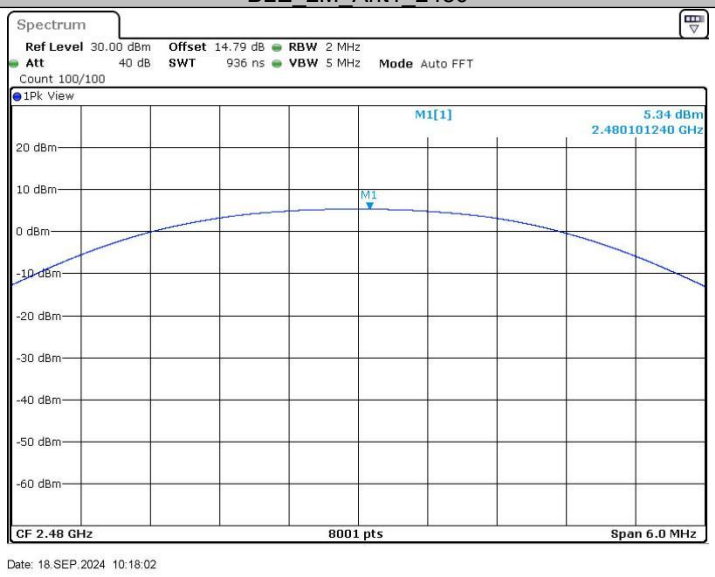
BLE_2M_Ant1_2402



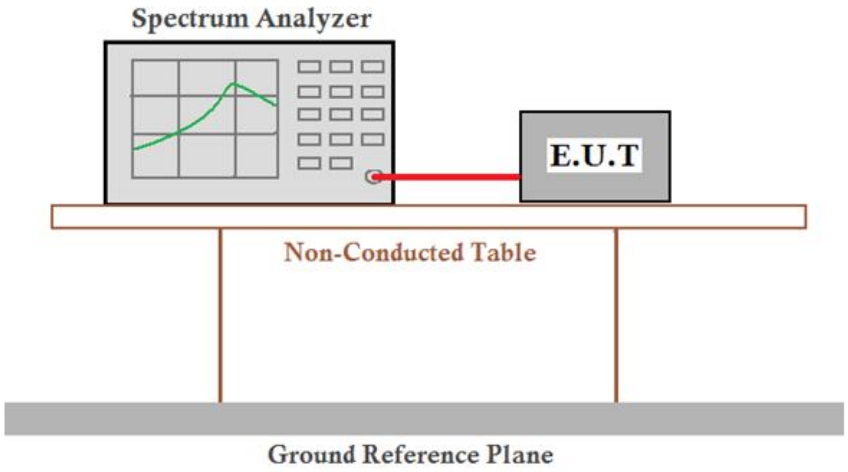
BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



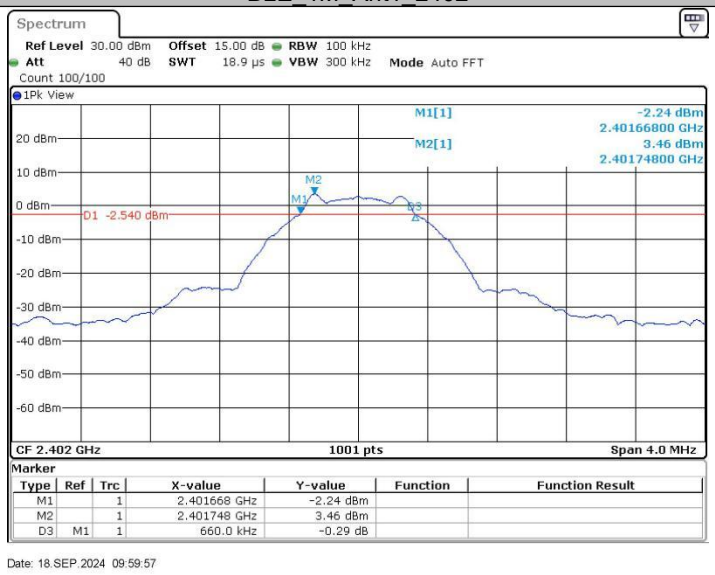
5.4 6dB Occupy Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	≥ 500 kHz
Instruments Used:	Refer to section 4.11 for details.
Test Results:	Pass

Measurement Data

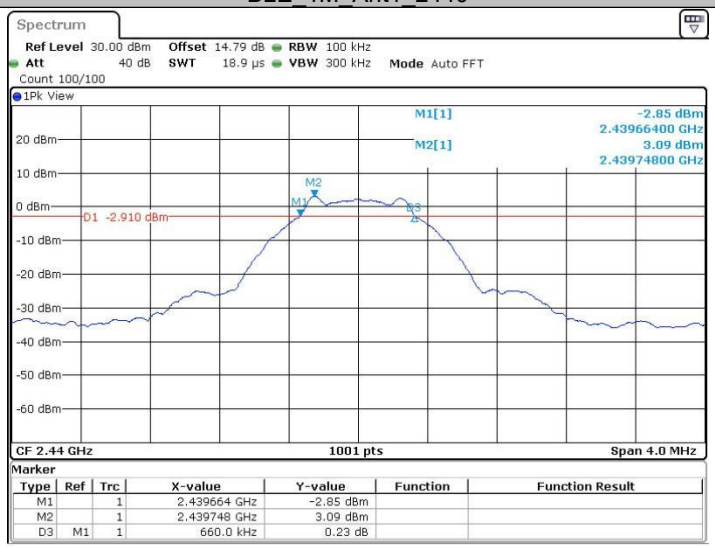
GFSK mode (1Mbps)			
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	0.66	≥500	Pass
Middle	0.66	≥500	Pass
Highest	0.66	≥500	Pass
GFSK mode (2Mbps)			
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	1.13	≥500	Pass
Middle	1.13	≥500	Pass
Highest	1.13	≥500	Pass

BLE_1M_Ant1_2402



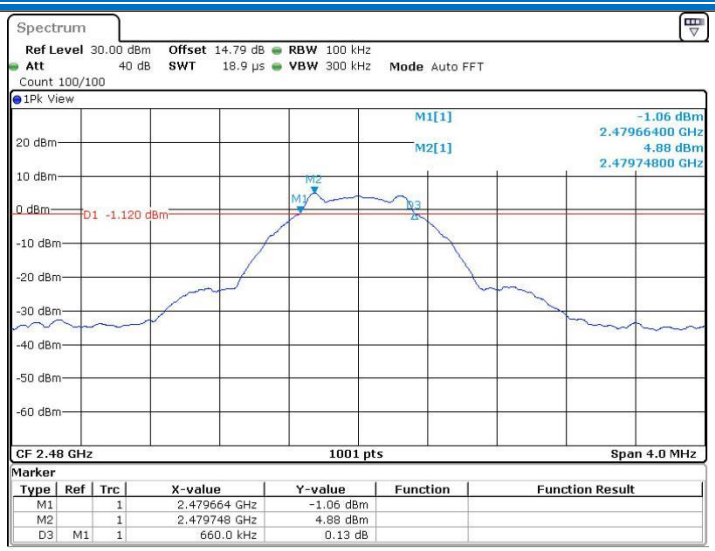
Date: 18.SEP.2024 09:59:57

BLE_1M_Ant1_2440



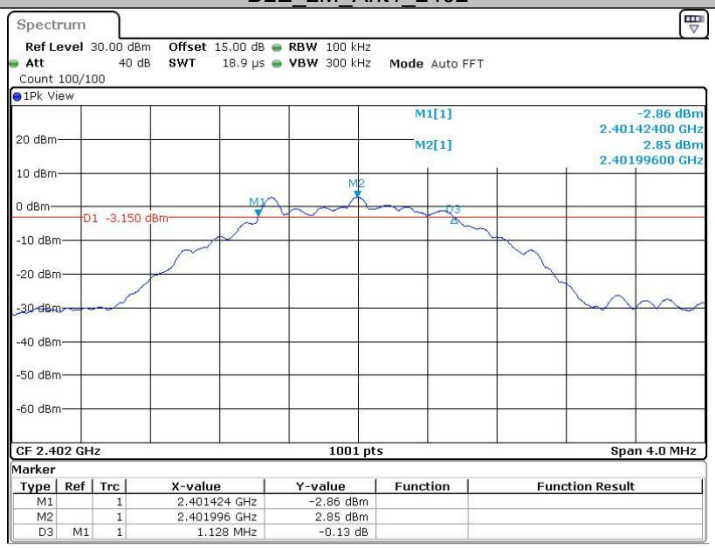
Date: 18.SEP.2024 10:04:49

BLE_1M_Ant1_2480



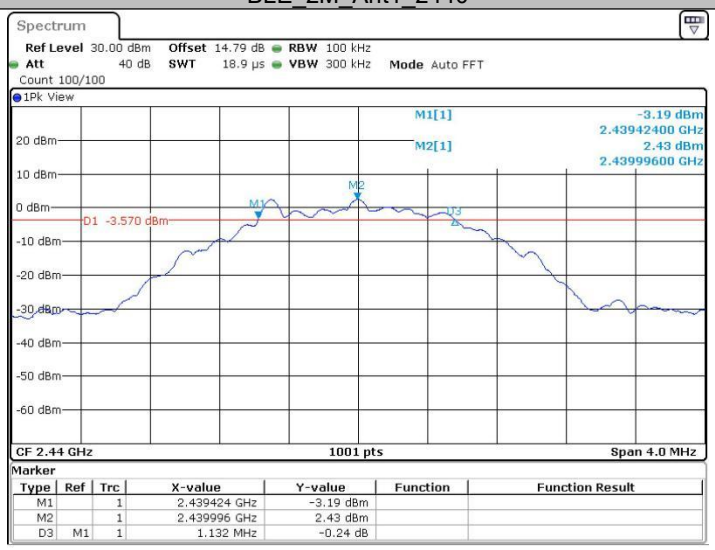
Date: 18.SEP.2024 10:06:04

BLE_2M_Ant1_2402



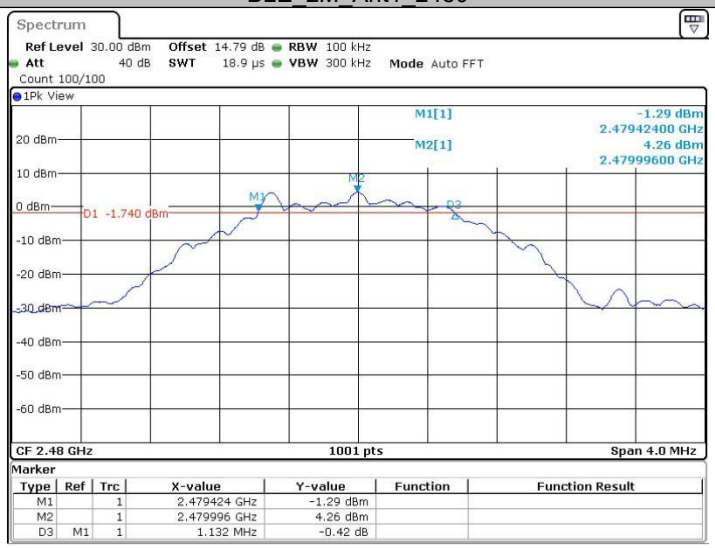
Date: 18.SEP.2024 10:11:58

BLE_2M_Ant1_2440

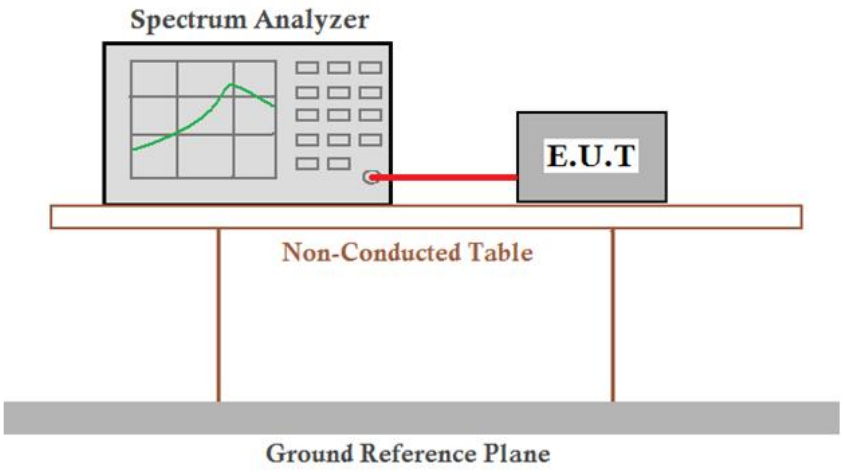


Date: 18.SEP.2024 10:16:12

BLE_2M_Ant1_2480



5.5 Power Spectral Density

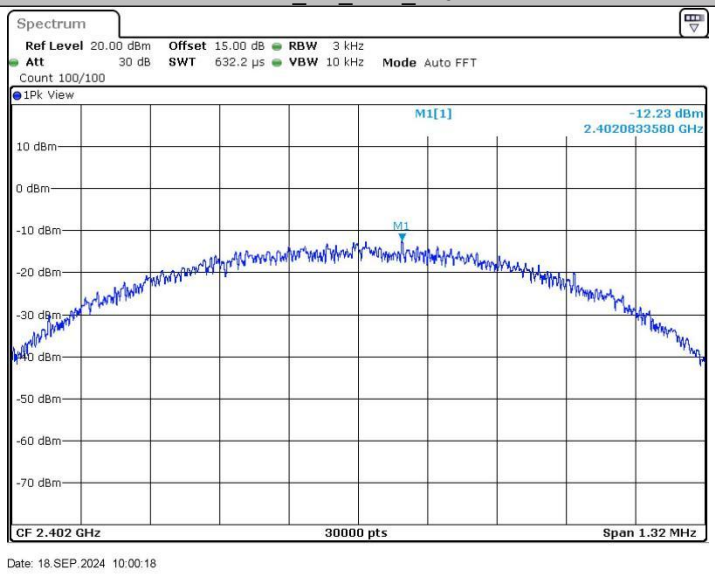
Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	≤8.00dBm/3kHz
Test Mode:	Transmitting with GFSK modulation.
Test Results:	Pass

Measurement Data

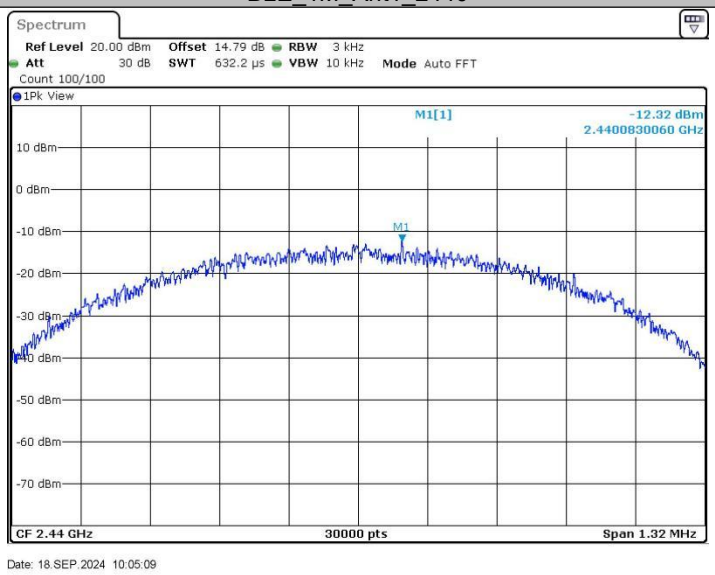
GFSK mode (1Mbps)			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-12.23	≤8.00	Pass
Middle	-12.32	≤8.00	Pass
Highest	-10.81	≤8.00	Pass
GFSK mode (2Mbps)			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-15.32	≤8.00	Pass
Middle	-15.5	≤8.00	Pass
Highest	-14	≤8.00	Pass

Test plot as follows:

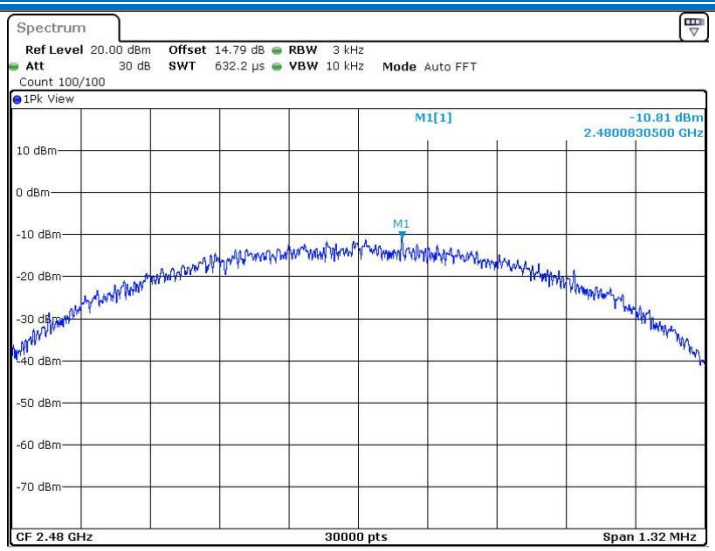
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440

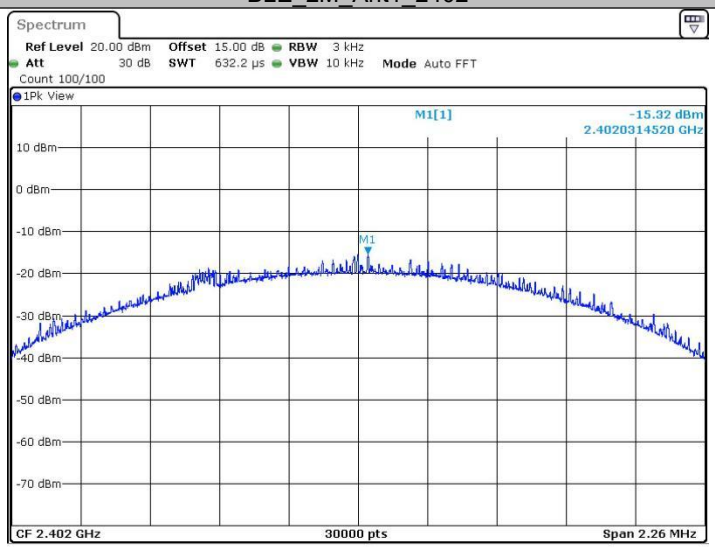


BLE_1M_Ant1_2480



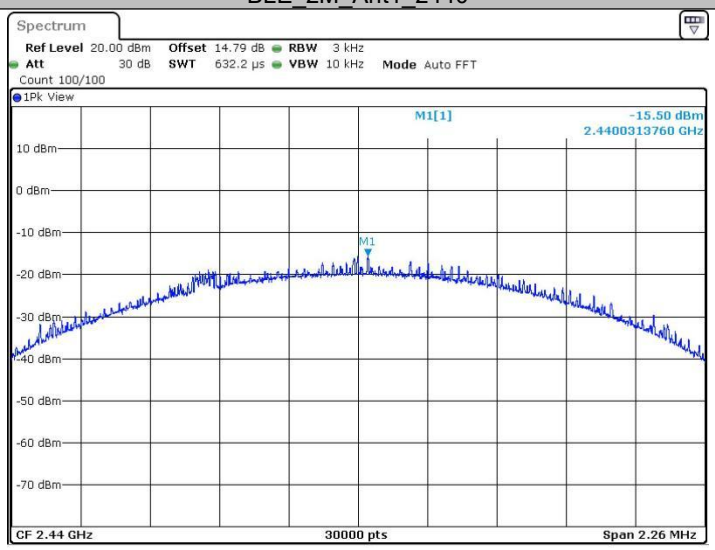
Date: 18.SEP.2024 10:06:25

BLE_2M_Ant1_2402



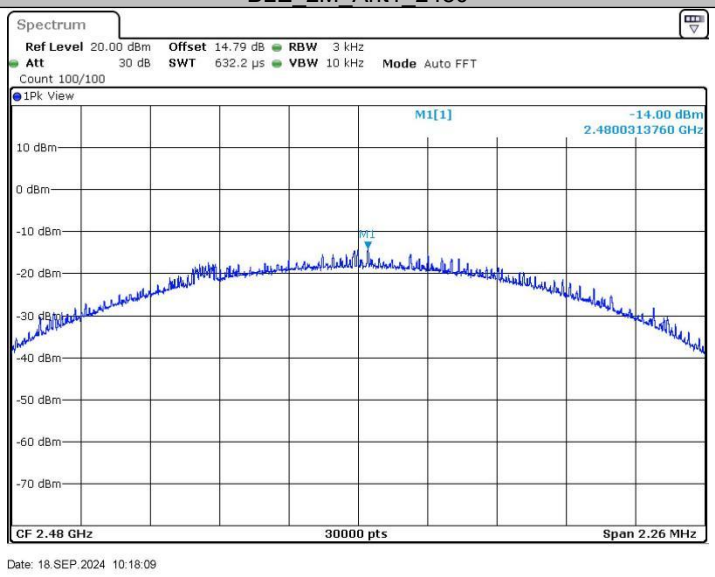
Date: 18.SEP.2024 10:12:19

BLE_2M_Ant1_2440

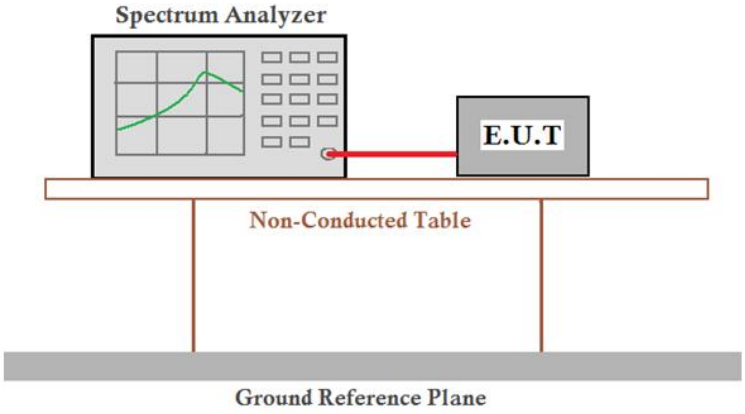


Date: 18.SEP.2024 10:16:33

BLE_2M_Ant1_2480



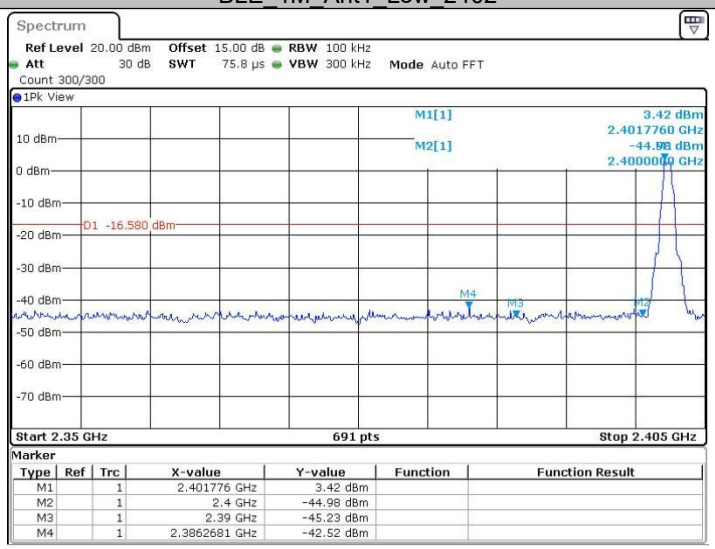
5.6 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Mode:	Transmitting with GFSK modulation.
Test Results:	Pass

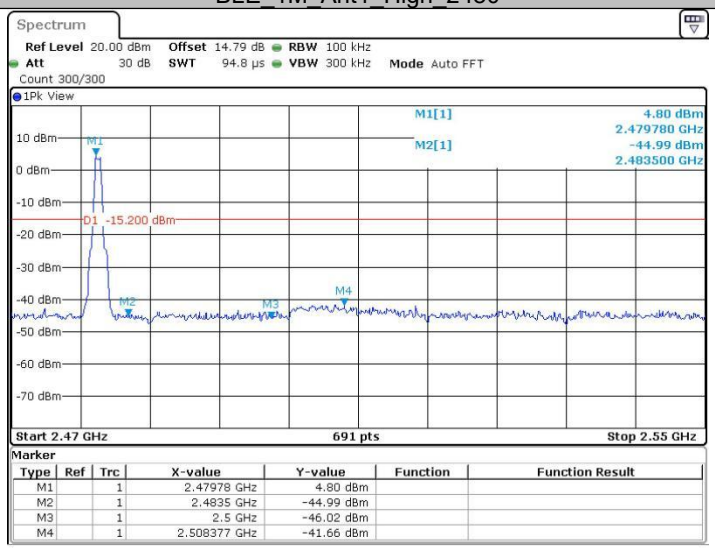
TestMode	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Low	2402	3.42	-42.52	≤-16.58	PASS
	High	2480	4.80	-41.66	≤-15.2	PASS
BLE_2M	Low	2402	2.83	-35.81	≤-17.17	PASS
	High	2480	4.19	-40.84	≤-15.81	PASS

Test plot as follows:

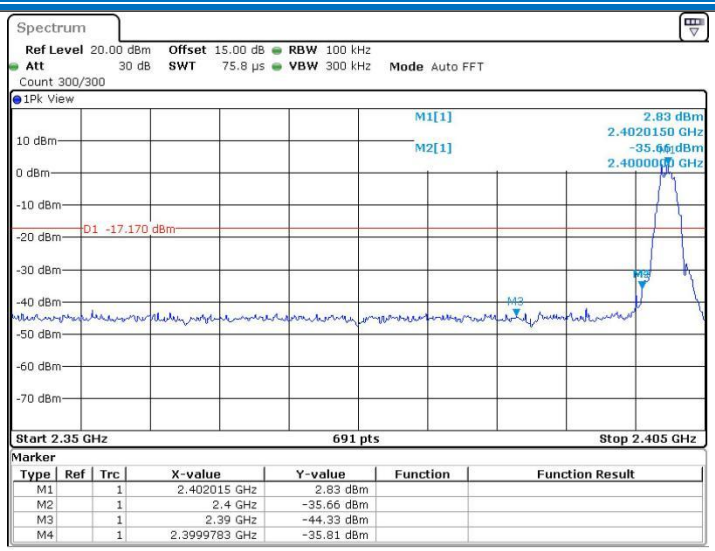
BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480

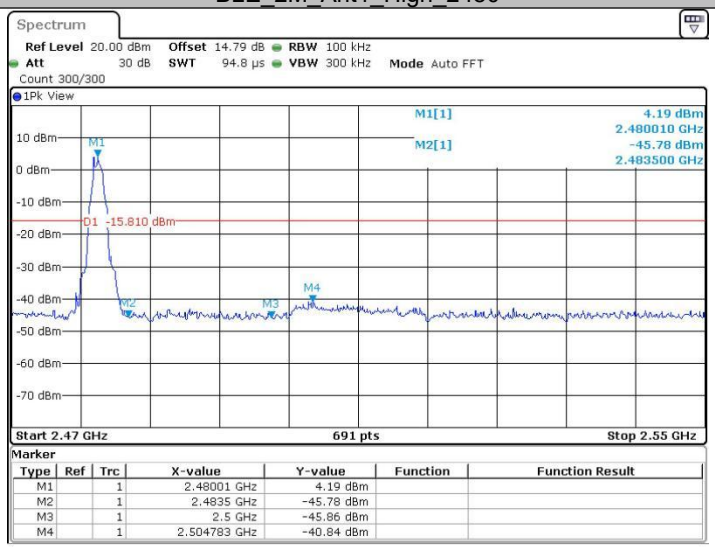


BLE_2M_Ant1_Low_2402



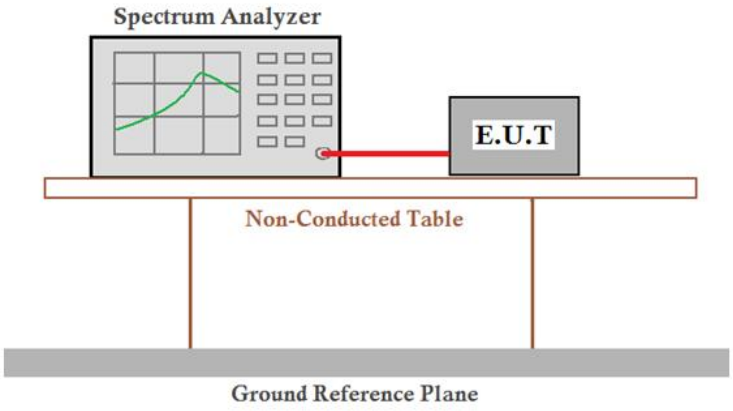
Date: 18.SEP.2024 10:12:29

BLE_2M_Ant1_High_2480



Date: 18.SEP.2024 10:18:19

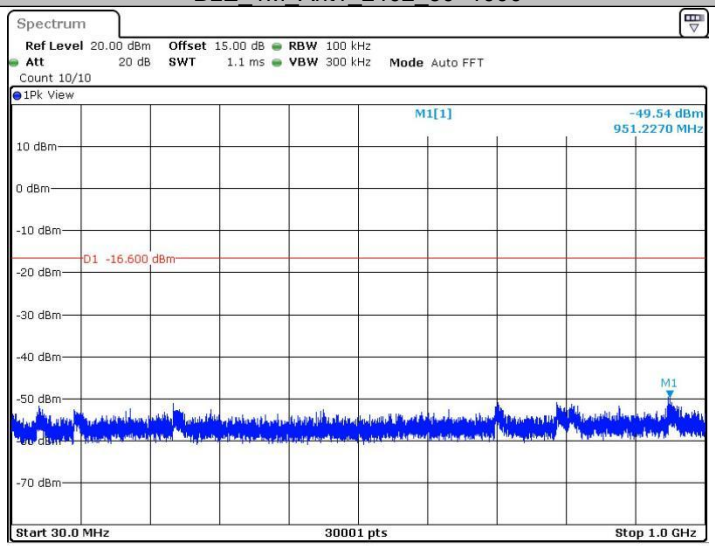
5.7 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Mode:	Transmitting with GFSK modulation.
Test Results:	Pass

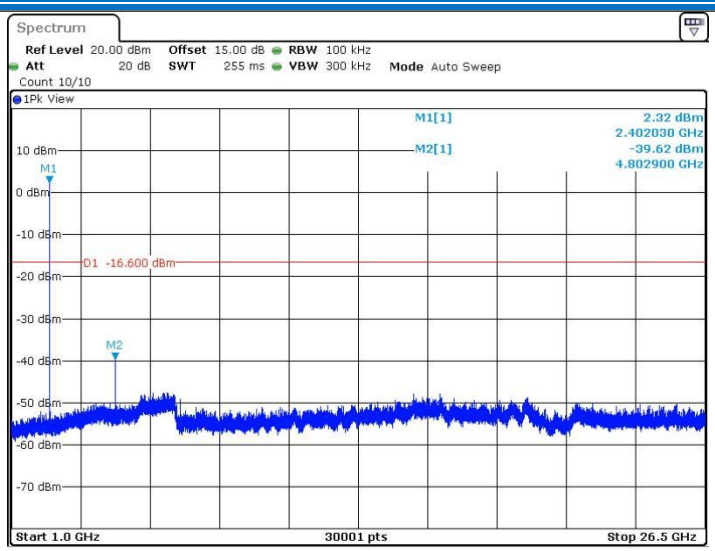
Test plot as follows:

BLE_1M_Ant1_2402_0~Reference

BLE_1M_Ant1_2402_30~1000

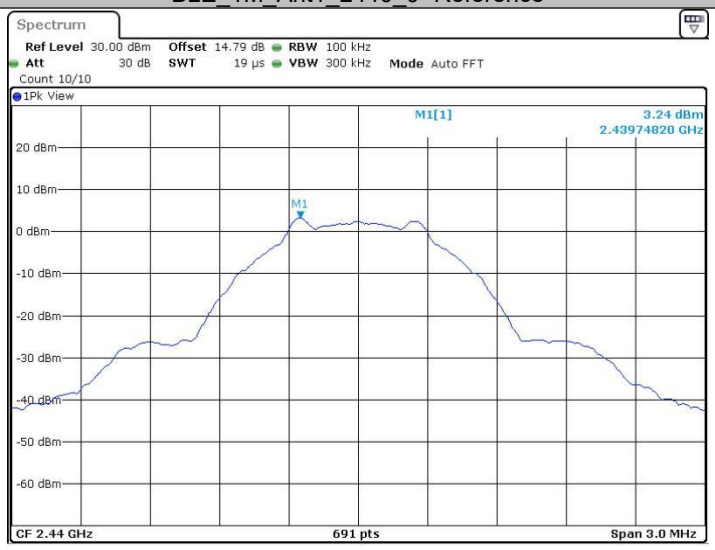


BLE_1M_Ant1_2402_1000~26500



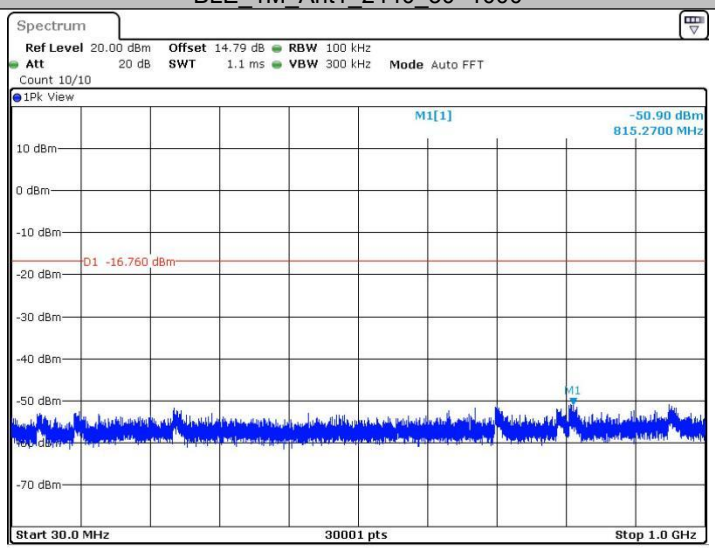
Date: 18.SEP.2024 10:02:36

BLE_1M_Ant1_2440_0~Reference



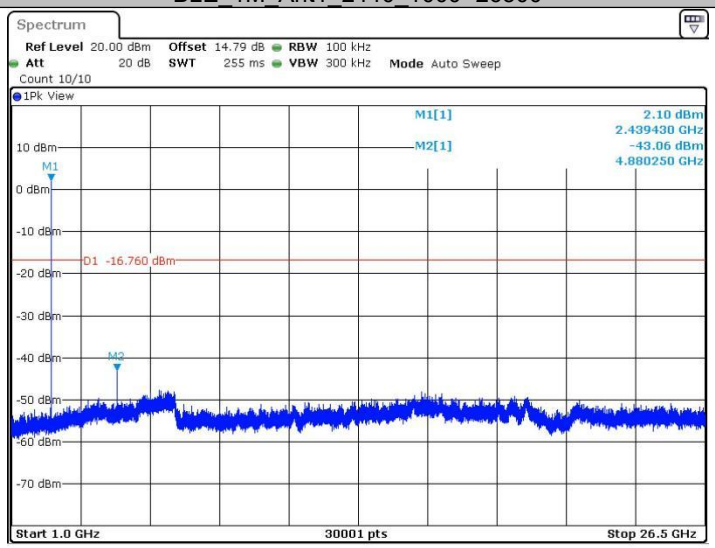
Date: 18.SEP.2024 10:05:18

BLE_1M_Ant1_2440_30~1000



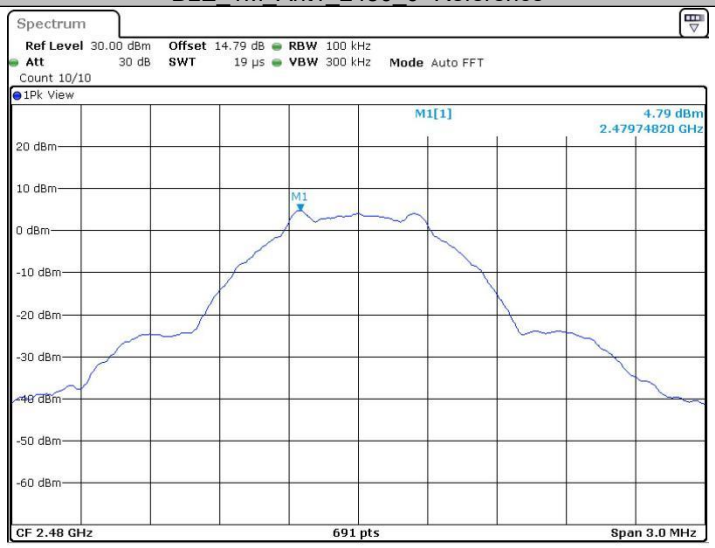
Date: 18.SEP.2024 10:05:24

BLE_1M_Ant1_2440_1000~26500



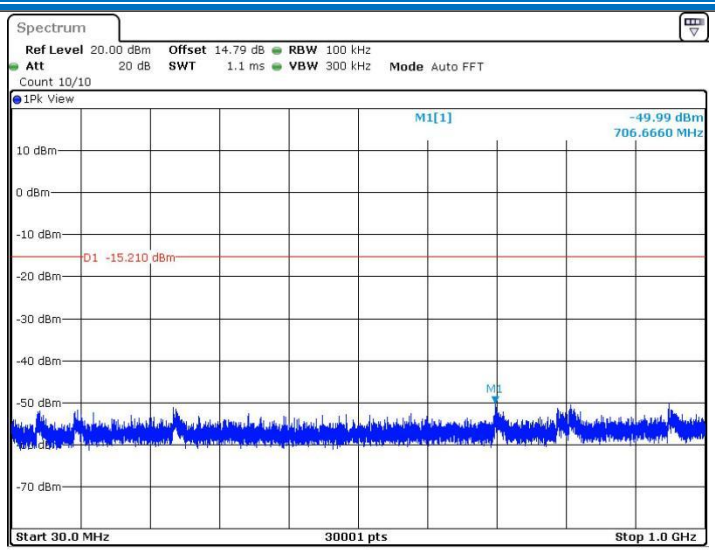
Date: 18.SEP.2024 10:05:46

BLE_1M_Ant1_2480_0~Reference



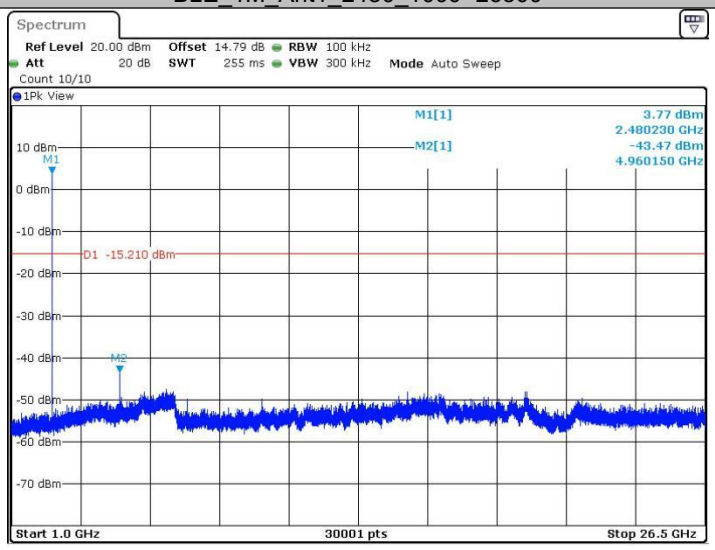
Date: 18.SEP.2024 10:08:04

BLE_1M_Ant1_2480_30~1000



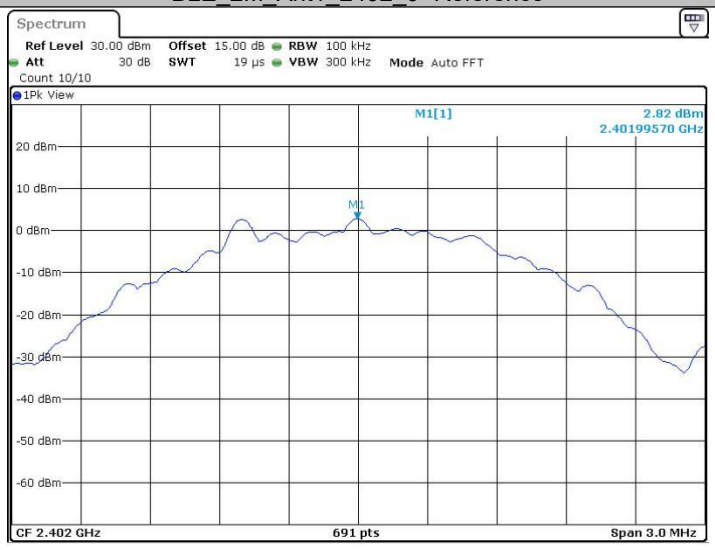
Date: 18.SEP.2024 10:08:11

BLE_1M_Ant1_2480_1000~26500



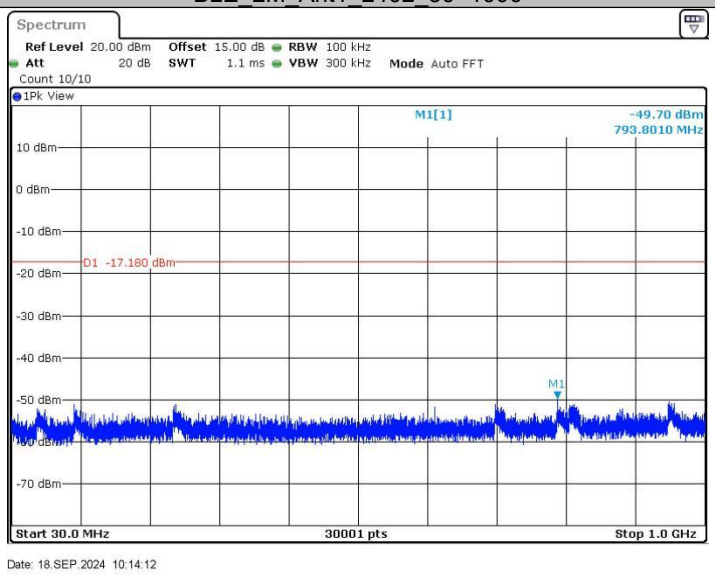
Date: 18.SEP.2024 10:08:33

BLE_2M_Ant1_2402_0~Reference



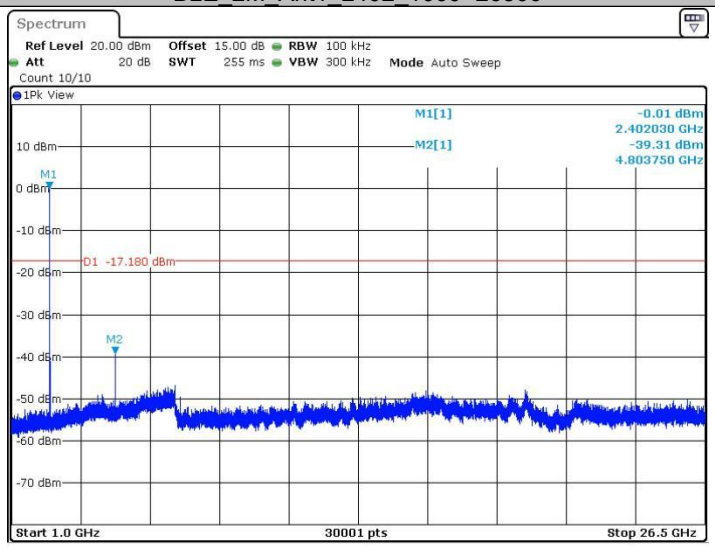
Date: 18.SEP.2024 10:14:06

BLE_2M_Ant1_2402_30~1000



Date: 18.SEP.2024 10:14:12

BLE_2M_Ant1_2402_1000~26500

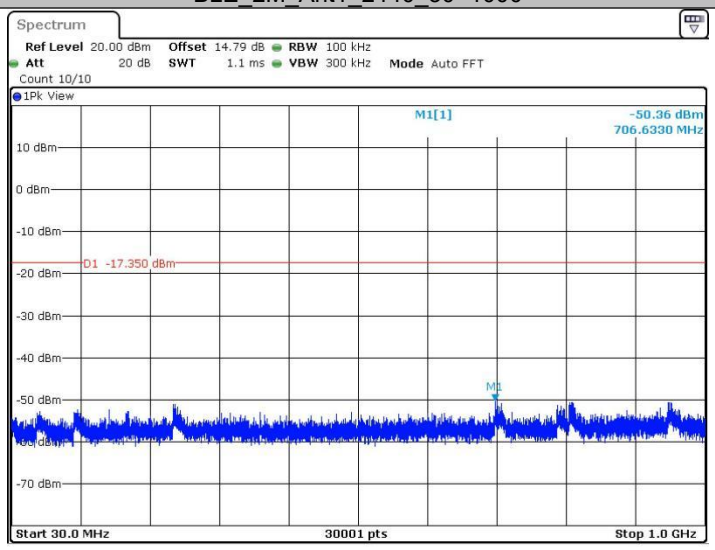


Date: 18.SEP.2024 10:14:34

BLE_2M_Ant1_2440_0~Reference

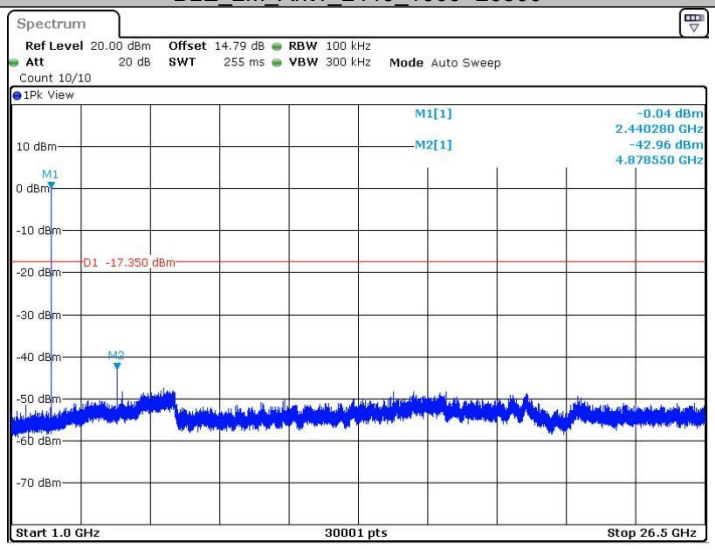
Date: 18.SEP.2024 10:16:42

BLE_2M_Ant1_2440_30~1000



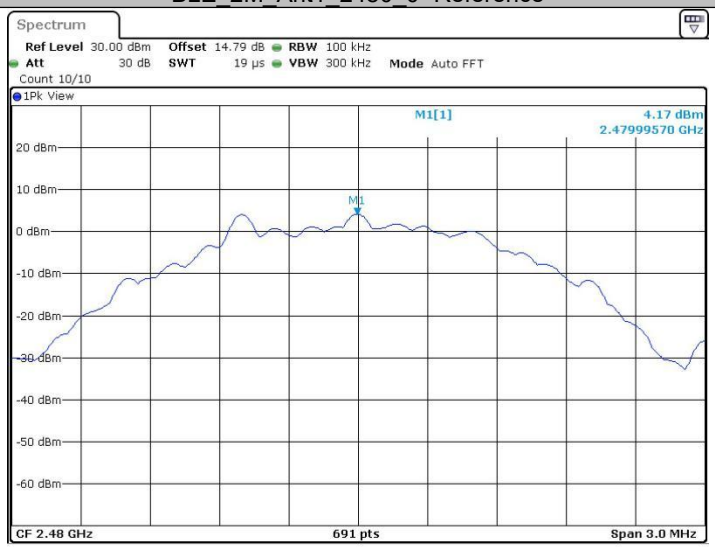
Date: 18.SEP.2024 10:16:48

BLE_2M_Ant1_2440_1000~26500



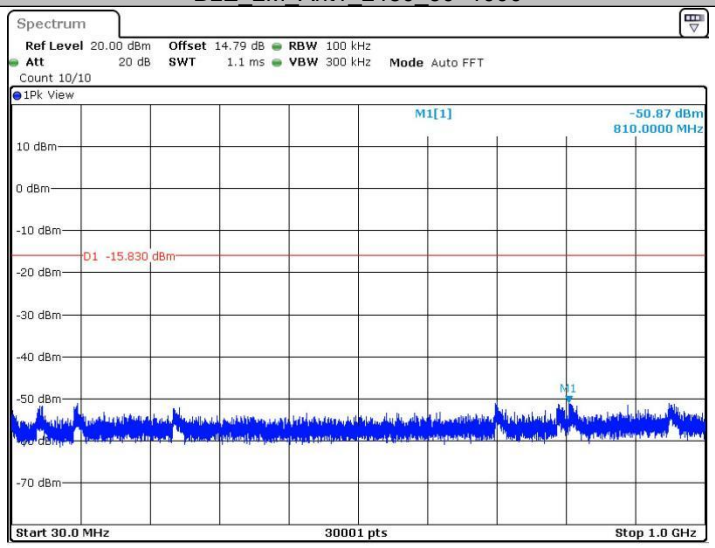
Date: 18.SEP.2024 10:17:10

BLE_2M_Ant1_2480_0~Reference



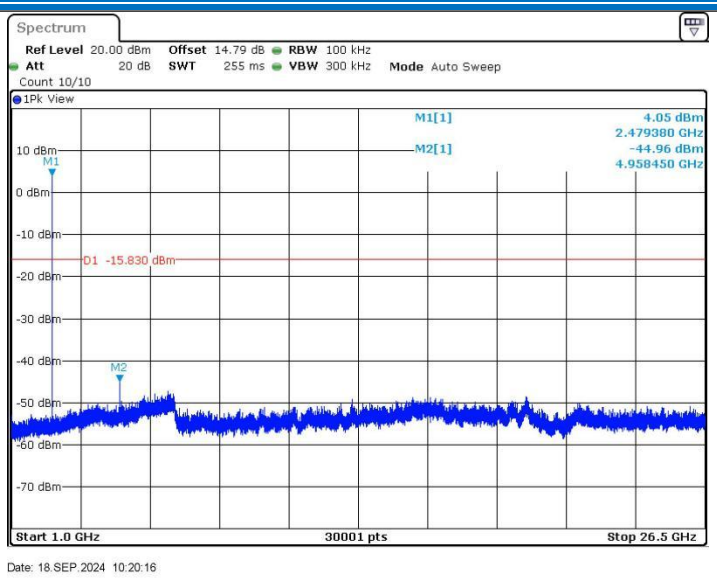
Date: 18.SEP.2024 10:19:48

BLE_2M_Ant1_2480_30~1000



Date: 18.SEP.2024 10:19:54

BLE_2M_Ant1_2480_1000~26500



Remark:

Pretest 9kHz to 25GHz, find the highest point when testing, so only the worst data were shown in the test report. Per FCC Part 15.33 (a) and 15.31 (o) ,The amplitude of spurious emissions from intentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.

5.8 Radiated Spurious Emission & Restricted bands

5.8.1 Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205
Test Method:	ANSI C63.10 2013
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Test Setup:	

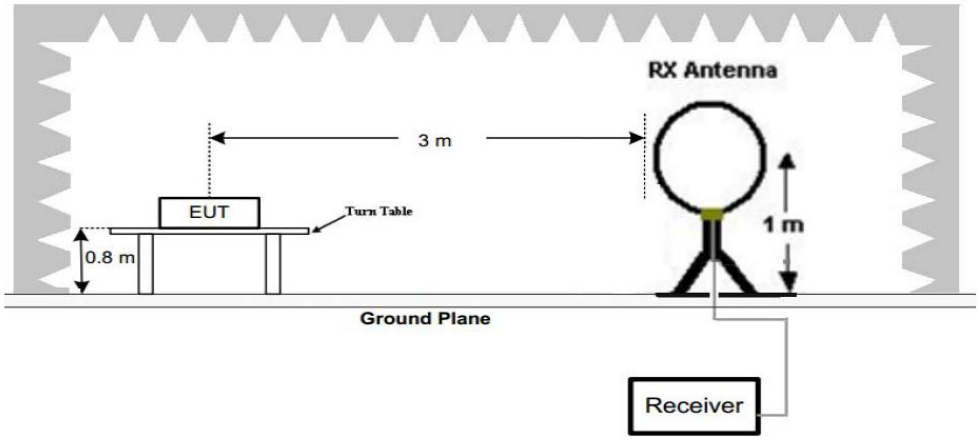


Figure 1. Below 30MHz

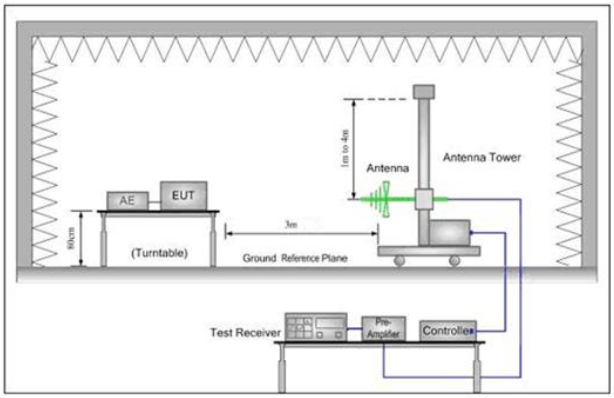


Figure 2. 30MHz to 1GHz

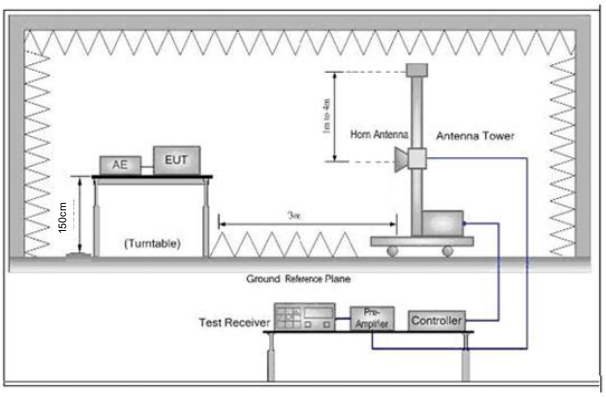


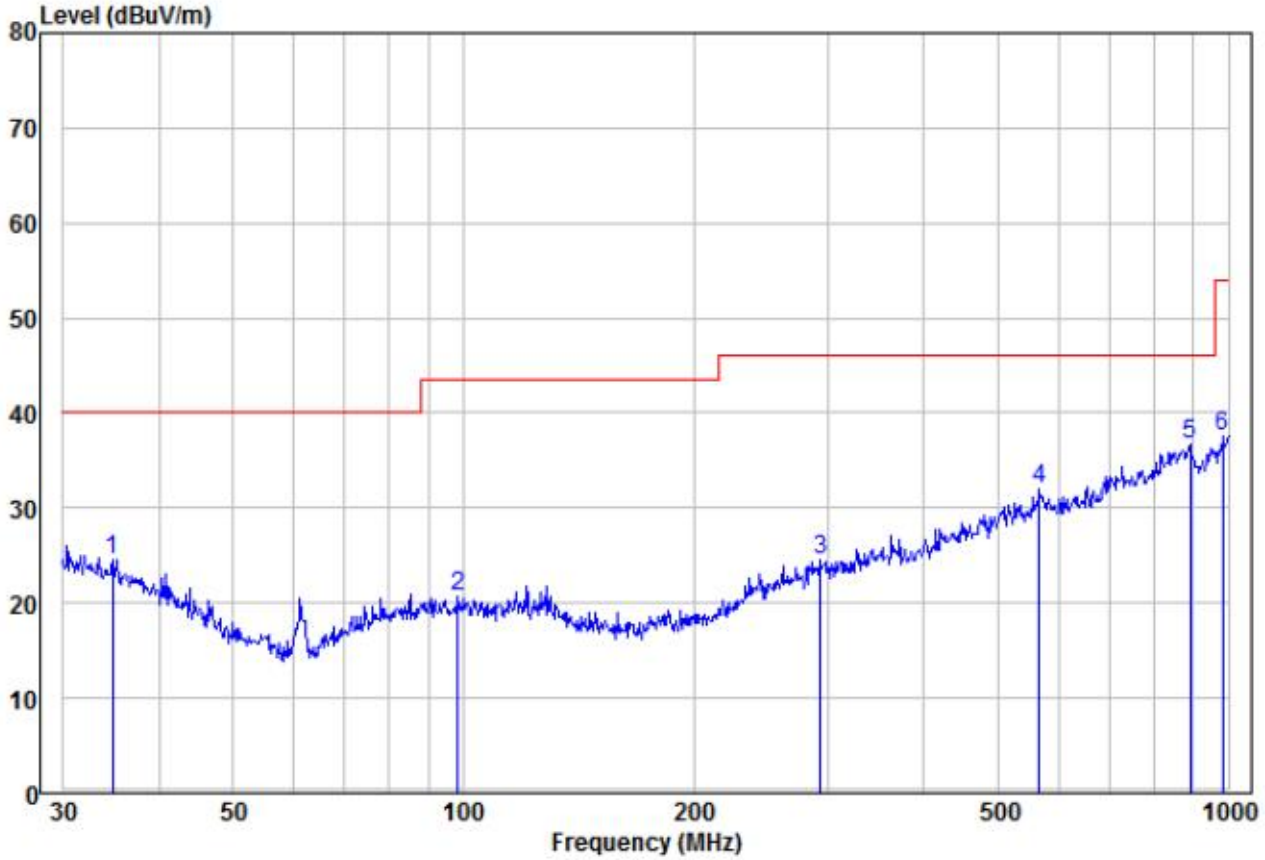
Figure 3. Above 1 GHz

Test Procedure:	a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. Note: For the radiated emission test above 1GHz: Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both

	horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel (2402MHz),the middle channel (2440MHz),the Highest channel (2480MHz) h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting with GFSK modulation. Transmitting mode.
Final Test Mode:	Through Pre-scan, find the 1Mbps of data type and GFSK modulation is the worst case. For below 1GHz part, through pre-scan, the worst case is the highest channel. Only the worst case is recorded in the report.
Test Results:	Pass

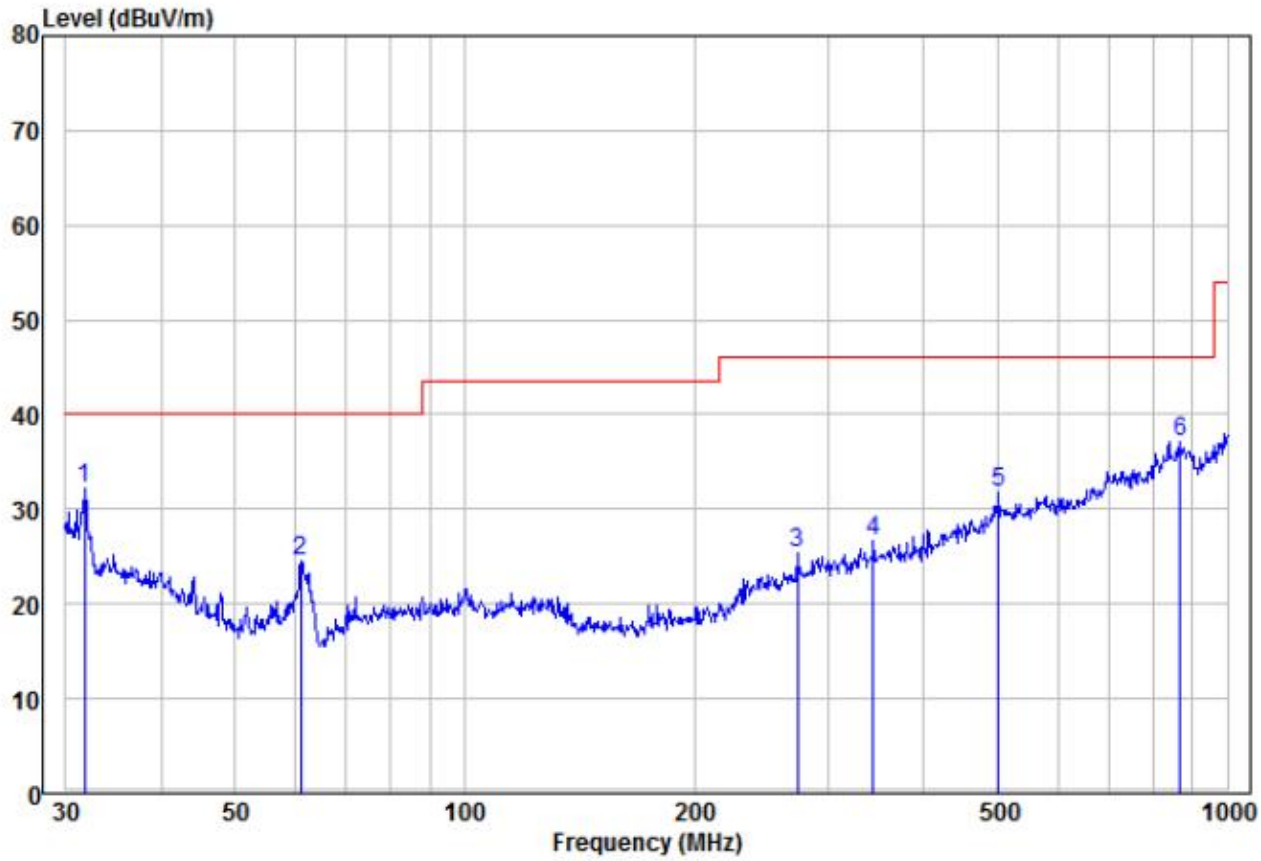
Radiated Emission below 1GHz

30MHz~1GHz, the worst case		
Test mode:	Transmitting mode	Horizontal



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	34.76	9.46	15.08	24.54	40.00	-15.46	Peak	HORIZONTAL
2	98.49	8.97	11.65	20.62	43.50	-22.88	Peak	HORIZONTAL
3	293.08	9.48	15.09	24.57	46.00	-21.43	Peak	HORIZONTAL
4	566.62	10.89	21.15	32.04	46.00	-13.96	Peak	HORIZONTAL
5 pp	890.73	9.98	26.73	36.71	46.00	-9.29	Peak	HORIZONTAL
6	982.62	10.39	27.25	37.64	54.00	-16.36	Peak	HORIZONTAL

30MHz~1GHz, the worst case		
Test mode:	Transmitting mode	Vertical



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1 pp	31.73	16.42	15.71	32.13	40.00	-7.87	Peak	VERTICAL
2	60.92	18.34	6.10	24.44	40.00	-15.56	Peak	VERTICAL
3	273.23	10.97	14.41	25.38	46.00	-20.62	Peak	VERTICAL
4	343.18	10.24	16.43	26.67	46.00	-19.33	Peak	VERTICAL
5	501.18	11.58	20.31	31.89	46.00	-14.11	Peak	VERTICAL
6	869.13	10.33	26.78	37.11	46.00	-8.89	Peak	VERTICAL

Transmitter Emission above 1GHz

Worse case mode:		GFSK(1Mbps)		Test channel:		Lowest	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
2390	**54.70**	**-9.2**	**45.50**	**74**	**-28.50**	**Peak**	**H**
2400	**54.66**	**-9.39**	**45.27**	**74**	**-28.73**	Peak	H
4804	**54.15**	**-4.33**	**49.82**	**74**	**-24.18**	Peak	H
7206	**48.69**	**1.01**	**49.70**	**74**	**-24.30**	Peak	H
2390	**53.76**	**-9.2**	**44.56**	**74**	**-29.44**	**Peak**	**V**
2400	**52.91**	**-9.39**	**43.52**	**74**	**-30.48**	Peak	V
4804	**55.01**	**-4.33**	**50.68**	**74**	**-23.32**	Peak	V
7206	**50.86**	**1.01**	**51.87**	**74**	**-22.13**	Peak	V

Worse case mode:		GFSK(1Mbps)		Test channel:		Middle	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
4880	**51.77**	**-4.11**	**47.66**	**74**	**-26.34**	peak	H
7320	**48.92**	**1.51**	**50.43**	**74**	**-23.57**	peak	H
4880	**51.69**	**-4.11**	**47.58**	**74**	**-26.42**	peak	V
7320	**49.88**	**1.51**	**51.39**	**74**	**-22.61**	peak	V

Worse case mode:		GFSK(1Mbps)		Test channel:		Highest	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
2483.5	**56.89**	**-9.29**	**47.60**	**74**	**-26.40**	**Peak**	**H**
4960	**51.03**	**-4.04**	**46.99**	**74**	**-27.01**	Peak	H
7440	**50.52**	**1.57**	**52.09**	**74**	**-21.91**	Peak	H
2483.5	**57.16**	**-9.29**	**47.87**	**74**	**-26.13**	**Peak**	**V**
4960	**50.89**	**-4.04**	**46.85**	**74**	**-27.15**	Peak	V
7440	**48.39**	**1.57**	**49.96**	**74**	**-24.04**	Peak	V

Worse case mode:		GFSK(2Mbps)		Test channel:		Lowest	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
2390	**55.28**	**-9.2**	**46.08**	**74**	**-27.92**	**Peak**	**H**
2400	**56.25**	**-9.39**	**46.86**	**74**	**-27.14**	Peak	H
4804	**51.47**	**-4.33**	**47.14**	**74**	**-26.86**	Peak	H
7206	**49.41**	**1.01**	**50.42**	**74**	**-23.58**	Peak	H
2390	**54.14**	**-9.2**	**44.94**	**74**	**-29.06**	**Peak**	**V**
2400	**50.49**	**-9.39**	**41.10**	**74**	**-32.90**	Peak	V
4804	**54.05**	**-4.33**	**49.72**	**74**	**-24.28**	Peak	V
7206	**49.83**	**1.01**	**50.84**	**74**	**-23.16**	Peak	V

Worse case mode:		GFSK(2Mbps)		Test channel:		Middle	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
4880	**53.04**	**-4.11**	**48.93**	**74**	**-25.07**	peak	H
7320	**50.94**	**1.51**	**52.45**	**74**	**-21.55**	peak	H
4880	**53.68**	**-4.11**	**49.57**	**74**	**-24.43**	peak	V
7320	**50.27**	**1.51**	**51.78**	**74**	**-22.22**	peak	V

Worse case mode:		GFSK(2Mbps)		Test channel:		Highest	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
2483.5	**55.65**	**-9.29**	**46.36**	**74**	**-27.64**	**Peak**	**H**
4960	**52.51**	**-4.04**	**48.47**	**74**	**-25.53**	Peak	H
7440	**49.16**	**1.57**	**50.73**	**74**	**-23.27**	Peak	H
2483.5	**57.13**	**-9.29**	**47.84**	**74**	**-26.16**	**Peak**	**V**
4960	**51.55**	**-4.04**	**47.51**	**74**	**-26.49**	Peak	V
7440	**50.69**	**1.57**	**52.26**	**74**	**-21.74**	Peak	V

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
   Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
2) Scan from 9kHz to 25GHz, the disturbance above 10GHz and below 30MHz was very low. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

6 Photographs - EUT Test Setup

6.1 Radiated Spurious Emission

9kHz~30MHz:

30MHz~1GHz:

Above 1GHz:

6.2 Conducted Emissions Test Setup

7 Photographs - EUT Constructional Details

Refer to Photographs - EUT Constructional Details OF EUT for CQASZ20240901960E-01.

*** END OF REPORT ***

QAI LABORATORIES
U.S.A: 888.540.4024
CANADA: 877.461.8378
LOCATIONS: WWW.QAI.ORG/LOCATIONS

CANADIAN CERTIFICATION

Date: Oct 27, 2024

Job Number: 0473
Radio Cert.No.: IC: 30961-LCD008

Company Name (Grantee): Innovative Eyewear, Inc

Company Address (Grantee): 11900 Biscayne Bl, Suite 630 North
Miami FL 33181 USA

Attention: Company Contact (Grantee): Innovative Eyewear, Inc

Dear Company Name (Grantee): Innovative Eyewear, Inc

We have reviewed the test report and related documents and are pleased to advise that this device meets our procedural and specification requirements for certification. The field offices have been notified.

The assigned certification number and the model number must be shown on each equipment model. This certification identification information may be shown on the equipment model identification plate or on a separate label that shall be indelible and tamper proof. The certification number shall be prefixed with the letters "IC:".
Radio equipment is certified as described on the attached certification certificate.

Certificate(s) are attached for the following HVIN/ model(s):
LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Please feel free to contact us if you have any questions or comments.

Sincerely,

QAI Laboratories, Inc

CANADIAN CERTIFICATION

TECHNICAL ACCEPTANCE CERTIFICATE

Certification No.0473

Issued To ►

Innovative Eyewear, Inc

11900 Biscayne Bl, Suite 630 North Miami FL 33181 USA

►**IC**: 30961-LCD008

Tested By ► Shenzhen Huaxia Testing Technology Co., Ltd.

Company Number: 22984

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Type of Equipment	► Other
Type of Service	► New Family Certification
Hardware Version Id Number (HVIN)	► LCD008-10, LCD010-10, LCD010-11, LCD010-20, LCD010-21, LCD010-30, LCD010-31, LCD010-40, LCD010-41
Firmware Version Id Number (FVIN)	► GBS_ATS3025_GK28_V2.2_20240806.fw
Product Marketing Name: (PMN)	► Smart Eyewear
Host Marketing (HMN)	► N/A

FREQUENCY RANGE	EMISSION DESIGNATIONS NECESSARY BANDWIDTII & EMISSION CLASSIFICATION	R.F POWER/ Field Strength	ANTENNA INFO	SPECIFICATION / ISSUE & DATE
2402-2480MHZ	**860KF1D--**	**0.0008W**	**FPC antenna 1.24dBi**	**RSS-247 Issue 3 ;Aug.2023**
2402-2480MHZ	**1M15G1D--**	**0.0008W**	**FPC antenna 1.24dBi**	**RSS-247 Issue 3 ;Aug.2023**
2402-2480MHZ	**1M97F1D--**	**0.0034W**	**FPC antenna 1.24dBi**	**RSS-247 Issue 3 ;Aug.2023**

Note 1: This equipment also complies with ICES-003 Issue 7 (March 2015) and RSS-Gen, Issue 5

Certification of equipment means only that the equipment has met the requirements of the above-noted specification. Licence applications, where applicable to use certified equipment, are acted on accordingly by the ISED issuing office and will depend on the existing radio environment, service and location of operation. 1bis certificate is issued on condition that the holder complies and will continue to comply with the requirements and procedures issued by ISED. The equipment for which this certificate is issued shall not be manufactured, imported, distributed, leased, offered for sale or sold unless the equipment complies with the applicable technical specifications and procedures issued by ISED.

I hereby attest that the subject equipment was tested and found in compliance with the above-noted specifications.

La certification de l'equipement signifie uniquement que l'equipement a satisfait aux exigences de la specification susmentionnee. Les demandes de licence, le cas echeant pour utiliser un equipement certifie, sont traitees en consequence par le bureau emetteur d'ISED et dependront de l'environnement radio, du service et du lieu d'exploitation existants. Ce certificat est delivre a condition que le titulaire se conforme et continuera de se conformer aux exigences et procedures emises par ISED. L'equipement pour lequel ce certificat est deliver ne doit pas etre fabrique, importe, distribue, loue, mis en vente OU vendu a mains que l'equipement ne soit conforme aux specifications et procedures techniques applicables emises par ISED.

J'atteste par la presente que le materiel a fait l'objet d'essai et juge conforme a la specification ci-dessus.

DATE: Oct 27, 2024

Alireza Nezam, PE, NCE

Head Compliance Engineer

EMC-003843-NE