

Prüfbericht-Nr.: Test report no.:	SE23ORHY_001	Auftrags-Nr.: Order no.:	0290100212	Seite 1 von 50 Page 1 of 50
Kunden-Referenz-Nr.: Client reference no.:	2458172	Auftragsdatum: Order date:	2022.09.29	
Auftraggeber: Client:	Nomono AS			
Prüfgegenstand: Test item:	Lavalier microphone with wireless communication			
Bezeichnung / Typ-Nr.: Identification / Type no.:	Stellar Mic / FCC ID: 2A9CX-MIC1			
Auftrags-Inhalt: Order content:	Accredited Testing			
Prüfgrundlage: Test specification:	FCC 47 CFR Part 15.247 with parts 15.207 & 15.209 ANSI C63.10: 2013			
Wareneingangsdatum: Date of sample receipt:	2022.11.09			
Prüfmuster-Nr.: Test sample no.:	See section 2.3			
Prüfzeitraum: Testing period:	2023.01.04 - 2023.04.11			
Ort der Prüfung: Place of testing:	Lund, Sweden			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland Sweden			
Prüfergebnis*: Test result*:	Pass			
überprüft von: reviewed by:	genehmigt von: authorized by:			
Datum: 2023.04.20 Date:	Datum: 2023.04.20 Date:			
Stellung / Position:	Senior Technical Expert	Stellung / Position:	Lab Manager	
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:				
Prüfmuster vollständig und unbeschädigt Test item complete and undamaged				
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory F(ail) = failed a.m. test specification(s)	4 = sufficient N/A = not applicable
5 = mangelhaft N/T = nicht getestet 5 = poor N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts.				

Revision HistorySE23ORHY_001SE23ORHY_001

REVISION	DATE	REMARKS	AUTHOR
001	2023.04.20	First release	Niall Forrester
Note: Latest revision report will replace all previous reports			
This report based on FCC Part 15.247 Template version 1.3			

Summary of Test Results

FCC 47 CFR Rule Part	Test Description	Applicability	Report Section	RESULT	REMARKS
15.207	AC Power Line Conducted Emissions (Intentional Radiators)	NO	4.1	N/A	Battery power during operation
15.209	Radiated Emissions (Intentional Radiators)	YES	4.2	PASS	
15.247 (d)	Antenna Conducted Emissions	NO	4.3	N/A.	Radiated testing performed
15.247 (d)	Band Edge Compliance (Authorized Band)	YES	4.4	PASS	
15.247 (d)	Band Edge Compliance (Restricted Band)	YES	4.5	PASS	
15.247 (a)(1)	20dB Bandwidth	NO	4.6	N/A.	BLE is non-hopping
15.247 (a)(1)	Carrier (Hopping Channel) Separation	NO	4.7	N/A.	BLE is non-hopping
15.247 (a)(1)	Number of Hopping Channels	NO	4.8	N/A.	BLE is non-hopping
15.247 (a)(1)	Time of Occupancy (Dwell Time)	NO	4.9	N/A.	BLE is non-hopping
15.247 (a)(2)	6dB & 99% Bandwidth	YES	4.10	PASS	
15.247 (b)	Peak Conducted Output Power	YES	4.11	PASS	
15.247 (e)	Power Spectral Density	YES	4.12	PASS	
-	Maximum Power & e.r.p. Summary	-	4.13	-	For Information Only

Possible test case verdicts:

- | | |
|--|-----------------------|
| - Test case does not apply to the test object: | N/A |
| - Test object complies with the requirement: | PASS or COMPLIANT |
| - Test object does not meet the requirement: | FAIL or NOT COMPLIANT |
| - Test case not performed on the test object: | N.P. |

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1. GENERAL INFORMATION

1.1 Test Site

Test Facility:	TÜV Rheinland Sweden AB
Address:	Mobilvägen 10
	223 62 Lund
	Sweden
Swedac Registration Number:	10325
FCC Test Firm Registration Number:	517458
ISED Test Site Registration Number:	24753

1.2 Client Information

Company Name:	Nomono AS
Address:	Strandveien 43
	7067 Trondheim
	Norway
Contact Person:	Kristine Snyder / Sindre Georgsen
Contact e-Mail / Telephone	compliance@nomono.co +47 40 44 00 40 / +47 93 42 48 42

2. PRODUCT INFORMATION

2.1 General Description

Model name:	Stellar Mic
Manufacturer:	Nomono
Model number / Marketing name:	Stellar Mic
FCC ID:	2A9CX-MIC1
Description:	Lavaliere microphone with wireless communication
Ancillary Equipment:	See section 2.7

2.2 Device Characteristics

Type of Power Supply	Internal battery Charging via dedicated charging base
Nominal Supply Voltage	3.7V DC (Battery) 5.0V DC (From charging base)
Supply Voltage Range	3.0V - 4.2V (Battery) 4.9V – 5.1V (From charging base)
Operating Temperature Range	-10 to 45 °C
Operating Air Humidity Range	-
Highest Internal Frequency Source	2480 MHz

2.3 Test Samples

EUT #	EUT ID	Description	Used For:
1	A003368431-003	Standard Sample Hardware: 830-00005 rev. 3 Firmware: v0.6.4	Radiated Emissions
2	A003368431-012	Modified with Semi-Rigid Hardware: 830-00005 rev. 3 Firmware: v0.6.4	Conducted RF
3	A003419822-003	Standard Sample Hardware: 830-00005 rev. 3 Firmware: v0.6.13	Radiated Emissions
4	A003423486-001	Modified with Semi-Rigid Hardware: 830-00005 rev. 3 Firmware: v0.6.13	Conducted RF

2.4 Wireless Technologies and Bands Supported by the EUT

Technology	Band	Frequency Range (Tx)	Evaluation Performed
Bluetooth Low Energy (nRF5340)	2.4 GHz	2402 MHz - 2480 MHz	N/A

*This statement refers only to this report. Other wireless technologies may be covered by other reports.

2.5 Antenna Information

Technology	Band	Number of Antennas	Antenna Type(s)	Gain (dBi)
Bluetooth Low Energy (nRF5340)	2.4 GHz	1	SMT Ceramic Antenna	3.60

2.6 Wireless Technology Details

Technology	Band	Modulation Type(s)	No. of Channels	Channel Spacing	Adaptivity
Bluetooth Low Energy (nRF5340)	2.4 GHz	GFSK	40	2 MHz	N/A

2.7 Ancillary Equipment

None

2.8 EUT Diagrams

-

3. TEST METHODS

3.1 Test Standards

Testing was performed according to the following standards / references

Standard	Version	Description
FCC 47 CFR 15.247	-	Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
FCC 47 CFR 15.207	-	Conducted limits
FCC 47 CFR 15.209	-	Radiated emission limits; general requirements

3.2 Additional references

The following standards / references were also considered for the testing

Standard	Version	Description
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

3.3 Limits

FCC 47 CFR Rule Part	Test Description	Limit Reference (FCC 47 CFR Reference)
15.207	AC Power Line Conducted Emissions (Intentional Radiators)	15.207 (a)
15.209	Radiated Emissions (Intentional Radiators)	15.209 (a) *See Note 1
15.247 (d)	Antenna Conducted Emissions	N/A
15.247 (d)	Band Edge Compliance (Authorized Band)	15.247 (d)
15.247 (d)	Band Edge Compliance (Restricted Band)	15.247 (d)
15.247 (a)(1)	20dB Bandwidth	15.247 (a)(1)
15.247 (a)(1)	Carrier (Hopping Channel) Separation	15.247 (a)(1)
15.247 (a)(1)	Number of Hopping Channels	15.247 (a)(1)
15.247 (a)(1)	Time of Occupancy (Dwell Time)	15.247 (a)(1)
15.247 (a)(2)	6dB Bandwidth	15.247 (a)(2)
15.247 (b)	Peak Conducted Output Power	15.247 (b)(3) [Non-Hopping]
15.247 (e)	Power Spectral Density	15.247 (e)

Interpretation of the measurement results has been performed in accordance with ANSI C63.10 section 1.3

Compliance with the requirements has been based on the results of the measurements compared to the specified limits, not taking into account measurement instrumentation uncertainty.

Measurement Uncertainty figures are stated in section 6

Note 1

Radiated Emissions limits in the tables from 47 CFR sections 15.109 & 15.209 are presented in $\mu\text{V/m}$. Measurements on the test system are made in $\text{dB}\mu\text{V/m}$. To convert between these, the following adjustment is used:

$$\text{New Limit} = 20 \log \left(\frac{\text{Original Limit}}{10^6} \right) + 120$$

Example: from 15.209(a) the limit for 30MHz – 88MHz is $100\mu\text{V/m}$ at 3m. This gives:

$$\text{New Limit} = 20 \log \left(\frac{100}{10^6} \right) + 120 = 40\text{dB}\mu\text{V/m at 3m}$$

Additionally, in some cases testing has been performed at distances other than those specified in the tables. When this has occurred, the limits have been adjusted in accordance with the requirements in 47 CFR 15.31, using an extrapolation factor of 40dB/decade at frequencies below 30MHz and 20dB/decade at or above 30MHz

Example: from 15.209(a) the limit for 1.705MHz – 30MHz is $30\mu\text{V/m}$ ($\approx 29.54 \text{ dB}\mu\text{V/m}$) at 30m

$$\text{Limit@3m} = \text{Limit@30m} + 40 \log \left(\frac{30}{3} \right) = 29.54 + 40.00 = 69.54 \text{ dB}\mu\text{V/m at 3m}$$

Example: from 15.209(a) the limit for 1GHz – 18GHz is $500\mu\text{V/m}$ ($\approx 53.98 \text{ dB}\mu\text{V/m}$) at 3m

$$\text{Limit@1m} = \text{Limit@3m} + 20 \log \left(\frac{3}{1} \right) = 53.98 + 9.54 = 63.52 \text{ dB}\mu\text{V/m at 1m}$$

3.4 Description of Test Methods and Equipment Setup

3.4.1 General Description

Testing was performed in accordance with the various requirements of ANSI C63.4 and ANSI C63.10. Any deviations from the test methods are described in section 3.7

Where different arrangements of equipment were used for different types of measurements, these are tabulated in section 3.4.2 and details of each arrangement are included in subsequent sections

3.4.2 Test Equipment Setup Used by Test Type

FCC 47 CFR Rule Part	Test Description	Test Equipment Used
15.207	AC Power Line Conducted Emissions (Intentional Radiators)	Conducted Emissions
15.209	Radiated Emissions (Intentional Radiators)	SAC5
15.247 (d)	Antenna Conducted Emissions	N/A
15.247 (d)	Band Edge Compliance (Authorized band)	CTE
15.247 (d)	Band Edge Compliance (Restricted band)	SAC 5
15.247 (a)(1)	20dB Bandwidth	CTE
15.247 (a)(1)	Carrier (Hopping Channel) Separation	CTE
15.247 (a)(1)	Number of Hopping Channels	CTE
15.247 (a)(1)	Time of Occupancy (Dwell Time)	CTE
15.247 (a)(2)	6dB Bandwidth	CTE
15.247 (b)	Peak Conducted Output Power	CTE
15.247 (e)	Power Spectral Density	CTE

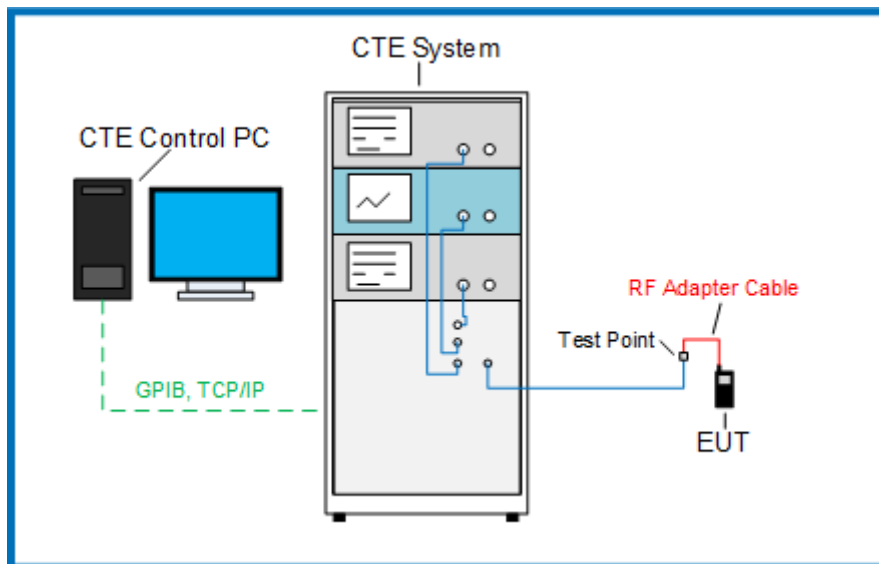
3.4.3 Test Equipment Setup – CTE System

The Comprehensive Test Environment (CTE) system consists of a number of instruments (see section 5.1.1) mounted in a rack together with automated relays and interconnecting hardware. The instruments and other equipment are controlled from a standard PC running software provided by the manufacturer. The RF output of the EUT is connected to the test system via a coaxial cable.

Tests are in the form of pre-defined scripts that can be loaded on the PC. The scripts, as well as the hardware setup, have been verified for conformance with the relevant test specifications.

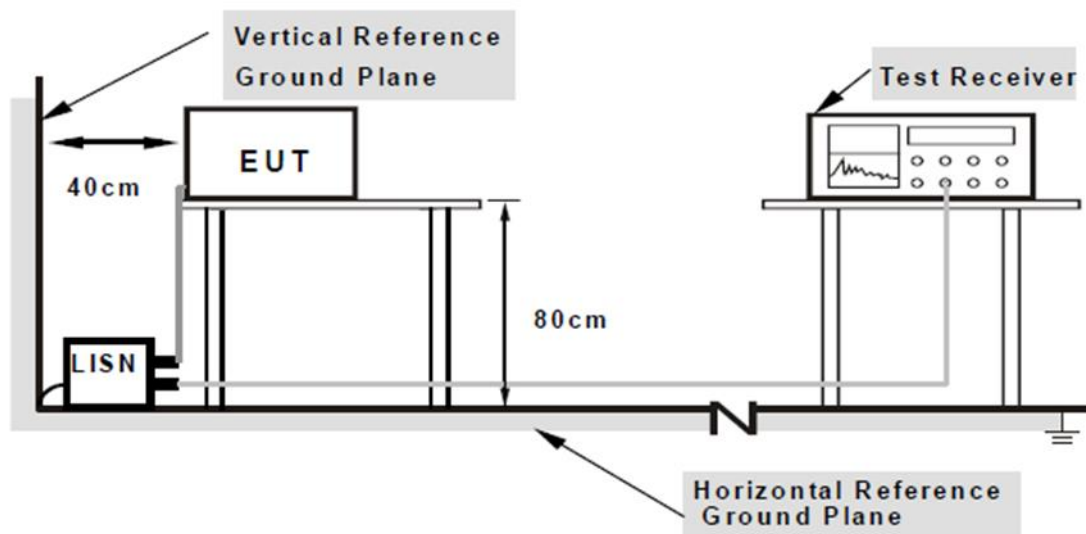
Losses in the cables and interconnects have been measured using the system's own automated routines and are compensated for automatically. Any additional loss in RF adapter cables supplied together with the EUT can be compensated for using the known characteristics of that adapter.

CTE Block Diagram



3.4.4 Test Equipment Setup – Conducted Emissions

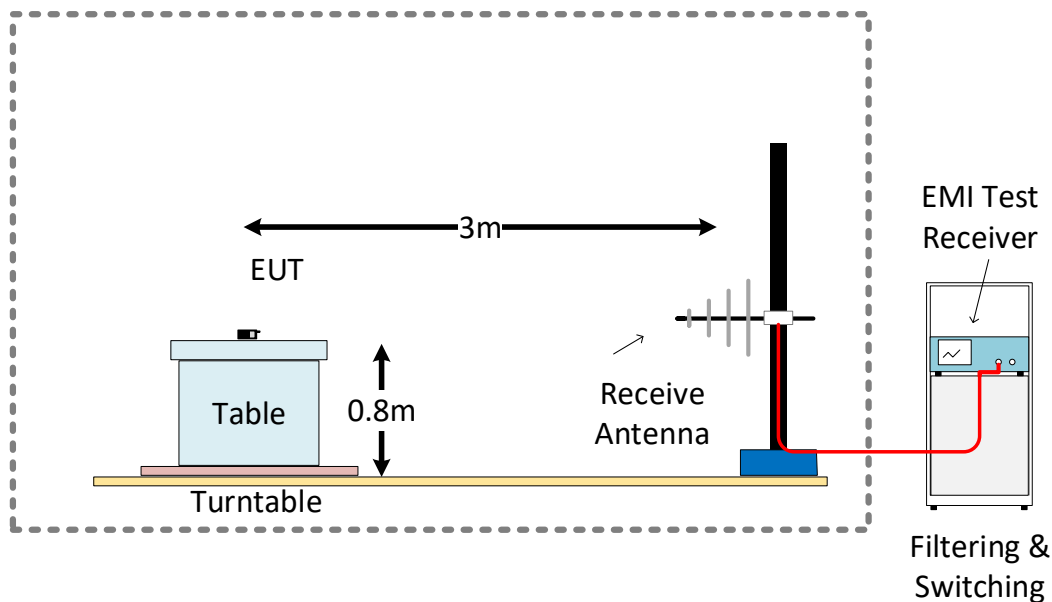
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The LISNs provide $50\Omega/50\mu\text{H}$ of coupling impedance for the measuring instrument.
- The lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10 dB under the prescribed limits could not be reported.



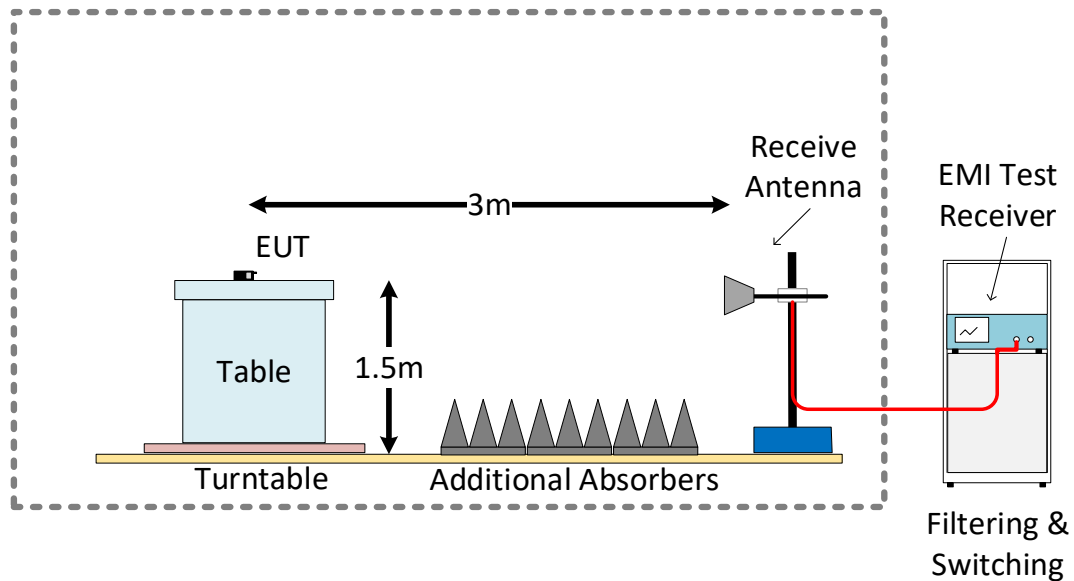
3.4.5 Test Equipment Setup – SAC 5 (Radiated Emissions and Restricted Band Edge)

- For frequency range 30MHz-1GHz Log-Periodic Antenna was used. Antenna elevated from 100 cm from floor to 400 cm from floor, and was placed at 3 m from center of turntable in tilted position. The equipment under test (EUT) was placed at the middle of the turntable at 80 cm height from floor. The antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.
- For frequency range 1GHz-18GHz horn Antenna was used. Antenna elevated from 100 cm from floor to 200 cm from floor, and was placed at 3 m from center of turntable. The equipment under test (EUT) was placed at the middle of the turntable at 150 cm height from floor. The antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.
- For frequency range 18GHz-40GHz double horn Antenna was used. Antenna's height was adjusted to 150 cm from floor, and 1 m distance to center of turntable. The equipment under test (EUT) was placed at the middle of the turntable on at 150 cm height from floor.
- For all frequency ranges the turntable was rotated 360° for obtaining the maximum emission.

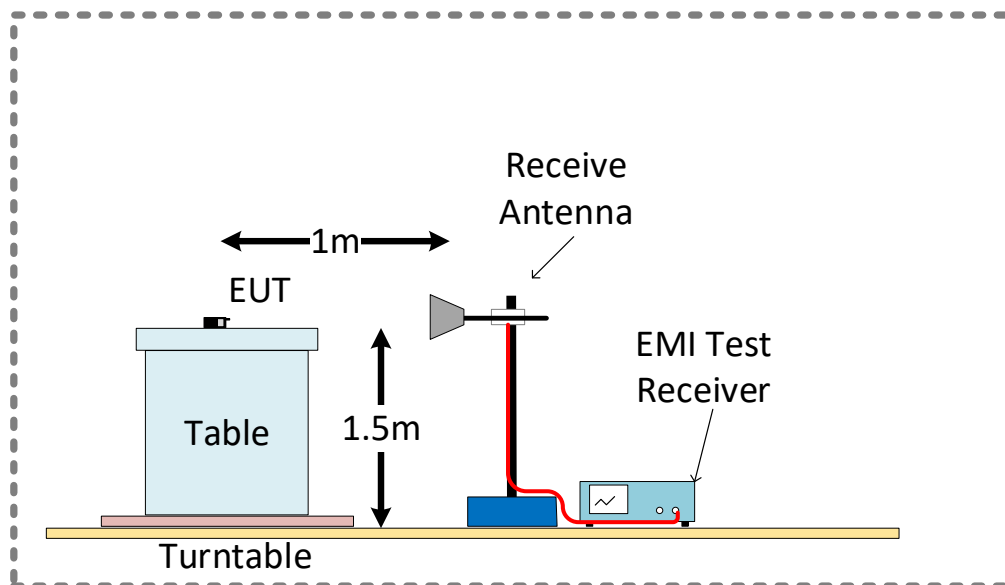
SAC 5 Test Setup Configuration 30MHz – 1GHz



SAC 5 Test Setup Configuration 1GHz – 18GHz

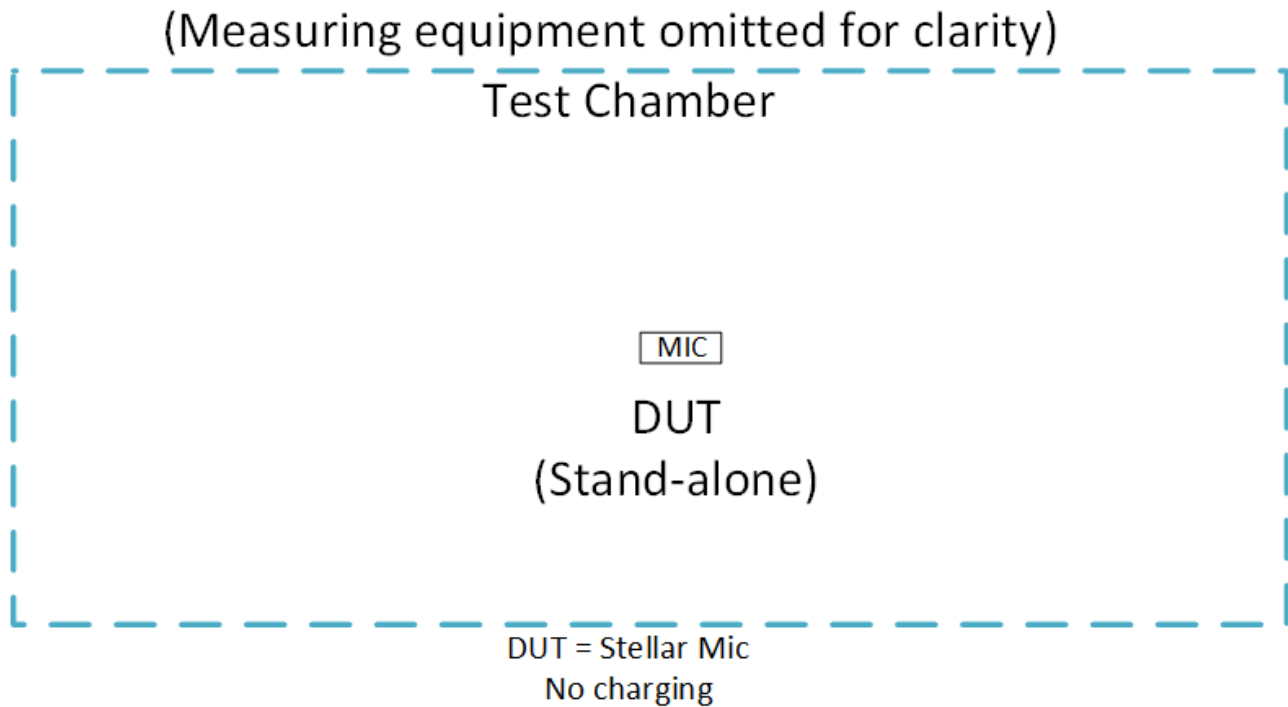


SAC 5 Test Setup Configuration 18GHz – 40GHz



3.5 EUT Configuration During Test

Radiated Emissions & Radiated RF Testing: Block Diagram (Stand-alone, no charging)



3.6 EUT Operation Modes

Operation mode	Description
Mic – No Chg – CTX	Stellar Mic only in “stand-alone” configuration. Device not charging (not in charging base) – battery power only Radio transmitter (Bluetooth Low Energy) in ‘continuous transmit’ mode – channel frequency and modulation can be set manually
Mic – Cond – DTM	Stellar Mic only in “stand-alone” configuration Antenna replaced by semi-rigid cable for conducted measurements Device not charging – DC power from lab power supply Radio Transmitter (Bluetooth Low Energy) controlled by test equipment using Bluetooth “Direct Test Mode”

Note that the Bluetooth transmitter in the device supports both LE_1M and LE_2M Bluetooth Low Energy modulation modes whereas the device under test, the Stellar Mic, only utilises the LE_2M mode during normal operation. Conducted testing has been performed on both modes, but for radiated emissions tests, only the LE_2M mode has been tested.

3.7 Deviations from the Test Standard

As defined in FCC 47 CFR Title 47 Part 15.35 (a), a peak detector has been used in place of the quasi-peak detector for measurements between 9kHz and 30MHz in order to reduce test time

3.8 Environmental Conditions

3.8.1 Environmental Conditions – CTE System

Date	Time	Temperature (°C)	Relative Humidity (%)
2023.01.04	15:38	18.6	48
2023.02.28	10:57	20.2	31

3.8.2 Environmental Conditions – Conducted Emissions System

N/A

3.8.3 Environmental Conditions – SAC5 (Radiated Emissions)

Date	Time	Temperature (°C)	Relative Humidity (%)
2023.01.12	07:33	18.8	41
2023.01.17	07:50	18.4	37
2023.01.20	09:21	19.0	33
2023.01.24	08:15	18.1	33
2023.04.11	07:55	19.3	31

4. TEST RESULTS

4.1 Test Results – AC Power Line Conducted Emissions (Intentional Transmitter)

4.1.1 AC Power Line Conducted Emissions (Intentional) – Test Summary

This requirement is not applicable as the device is battery powered during normal operation when the transmitter is active. AC Power Line Conducted Emissions with the device charging are tested as part of FCC Part 15B

4.2 Test Results – Radiated Emissions (Intentional Transmitter)

4.2.1 Radiated Emissions (Intentional) – Test Summary

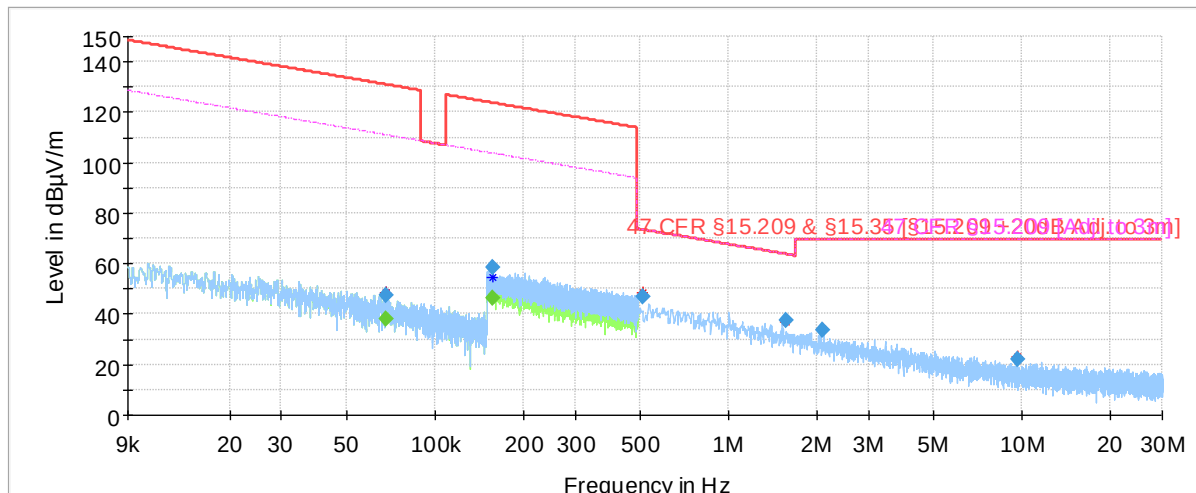
Test Specification		FCC 47 CFR 15.209 (Part 15 Subpart C)	
Test Engineer & Date		Niall Forrester	2023.01.12 – 2023.04.11
EUT and Ancillary Equipment IDs		A003368431-003	N/A
EUT Operation Mode(s)		Mic – No Chg – CTX	
EUT Wireless Configuration(s)		Bluetooth Low Energy (see details below)	
EUT Hardware Configuration(s)		Stand-alone (Stellar Mic)	
Overall Result		PASS	

Test Parameter	Wireless Configuration	Frequency Range	Result
Radiated Emissions	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402 MHz)	9 kHz – 30 MHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402 MHz)	30 MHz – 1 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402 MHz)	1 GHz – 18 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402 MHz)	18 GHz – 40 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M Mid Channel (GFSK 2440 MHz)	9 kHz – 30 MHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M Mid Channel (GFSK 2440 MHz)	30 MHz – 1 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M Mid Channel (GFSK 2440 MHz)	1 GHz – 18 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M Mid Channel (GFSK 2440 MHz)	18 GHz – 40 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M High Channel (GFSK 2480 MHz)	9 kHz – 30 MHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M High Channel (GFSK 2480 MHz)	30 MHz – 1 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M High Channel (GFSK 2480 MHz)	1 GHz – 18 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M High Channel (GFSK 2480 MHz)	18 GHz – 40 GHz	PASS

4.2.2 Radiated Emissions (Intentional) – Test Details

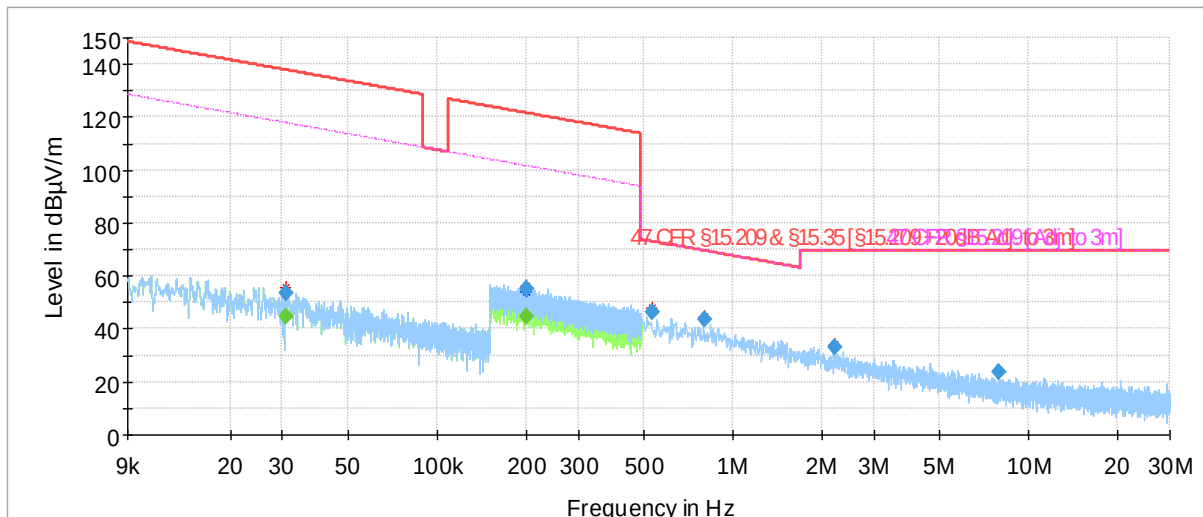
Low Channel: 9 KHz – 30 MHz

Test mode condition	Bluetooth Low Energy LE_2M, Low channel (2402 MHz)	
Antenna orientation	Loop Antenna parallel to axis	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: SAC 5	



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.067988	---	38.18	110.96	72.77	1000.0	0.200	100.0	H	192.0
0.067988	47.39	---	130.96	83.56	1000.0	0.200	100.0	H	192.0
0.157488	---	46.25	103.66	57.41	1000.0	9.000	100.0	H	166.0
0.157488	58.20	---	123.66	65.46	1000.0	9.000	100.0	H	166.0
0.508540	47.02	---	73.48	26.46	1000.0	9.000	100.0	H	-13.0
1.567606	37.46	---	63.73	26.27	1000.0	9.000	100.0	H	115.0
2.085428	33.51	---	69.50	36.00	1000.0	9.000	100.0	H	229.0
9.638284	22.28	---	69.50	47.22	1000.0	9.000	100.0	H	-14.0

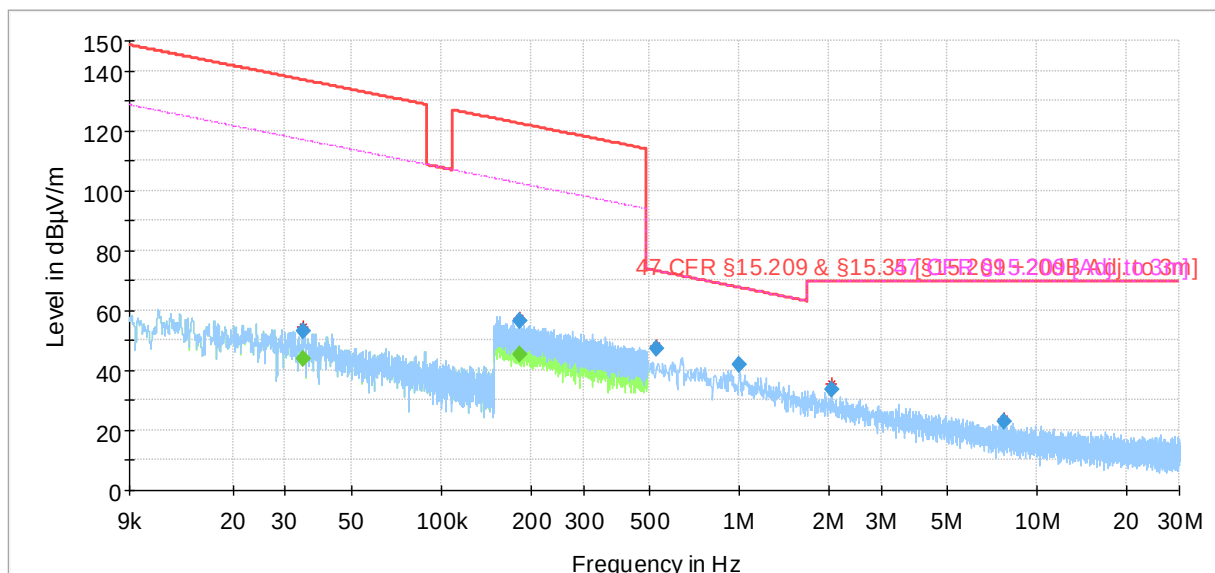
Test mode condition	Bluetooth Low Energy LE_2M, Low channel (2402 MHz)	
Antenna orientation	Loop Antenna perpendicular to axis	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: SAC 5	



- Preview Result 2-AVG
- Preview Result 1-PK+
- * Critical_Freqs AVG
- * Critical_Freqs PK+
- 47 CFR §15.209 & §15.35 [§15.209 +20dB Adj. to 3m]
- 47 CFR §15.209 [Adj. to 3m]
- ◆ Final_Result PK+
- ◆ Final_Result AVG
- × MaxPeak-PK+ (Single)
- + Average-AVG (Single)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.030845	---	44.83	117.82	72.99	1000.0	0.200	100.0	H	25.0
0.030845	53.50	---	137.82	84.32	1000.0	0.200	100.0	H	25.0
0.201072	55.10	---	121.54	66.44	1000.0	9.000	100.0	H	281.0
0.201072	---	44.40	101.54	57.13	1000.0	9.000	100.0	H	281.0
0.534437	46.32	---	73.05	26.73	1000.0	9.000	100.0	H	192.0
0.799085	43.38	---	69.56	26.18	1000.0	9.000	100.0	H	222.0
2.201351	32.84	---	69.50	36.66	1000.0	9.000	100.0	H	127.0
7.886567	23.93	---	69.50	45.57	1000.0	9.000	100.0	H	220.0

Test mode condition	Bluetooth Low Energy LE_2M, Low channel (2402 MHz)	
Antenna orientation	Loop Antenna parallel to floor	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: SAC 5	

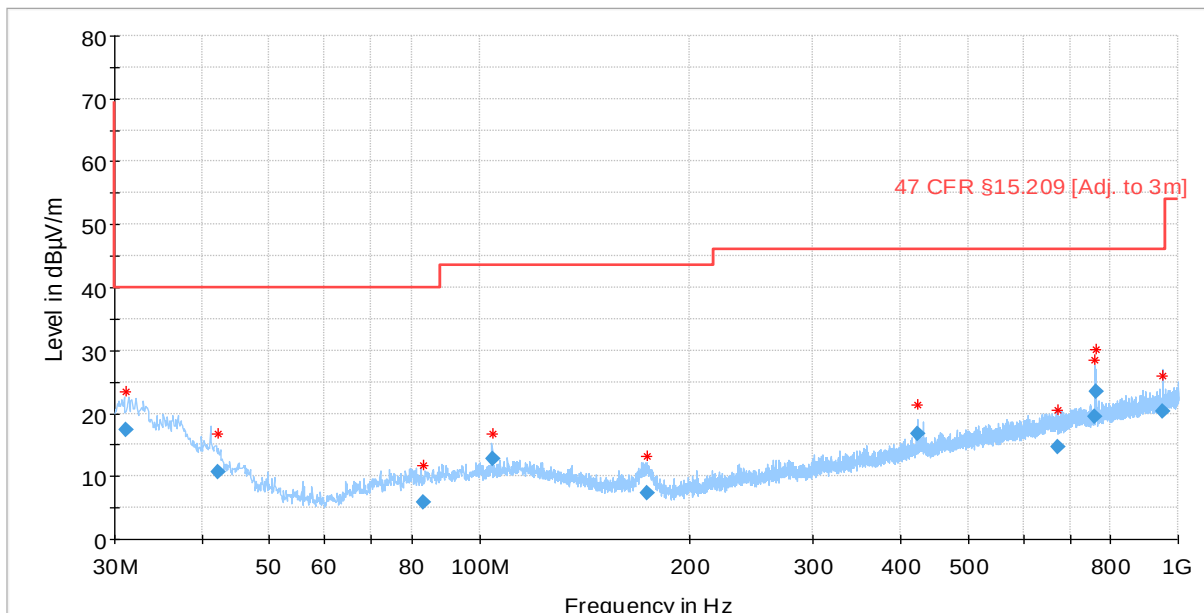


- Preview Result 2-AVG
- Preview Result 1-PK+
- * Critical_Freqs AVG
- * Critical_Freqs PK+
- 47 CFR §15.209 & §15.35 [§15.209 +20dB Adj. to 3m]
- 47 CFR §15.209 [Adj. to 3m]
- ◆ Final_Result PK+
- ◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.034536	52.93	---	136.84	83.90	1000.0	0.200	100.0	H	116.0
0.034536	---	43.88	116.84	72.96	1000.0	0.200	100.0	H	116.0
0.183195	56.67	---	122.35	65.68	1000.0	9.000	100.0	H	-45.0
0.183195	---	45.05	102.35	57.29	1000.0	9.000	100.0	H	-45.0
0.529393	47.15	---	73.13	25.98	1000.0	9.000	100.0	H	244.0
0.996499	41.78	---	67.65	25.88	1000.0	9.000	100.0	H	89.0
2.045069	33.72	---	69.50	35.78	1000.0	9.000	100.0	H	225.0
7.755920	22.81	---	69.50	46.69	1000.0	9.000	100.0	H	192.0

Low Channel: 30 MHz – 1 GHz

Test mode condition	Bluetooth Low Energy LE_2M, Low channel (2402 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	30 MHz – 1 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.20
Chamber details	Chamber: SAC 5	

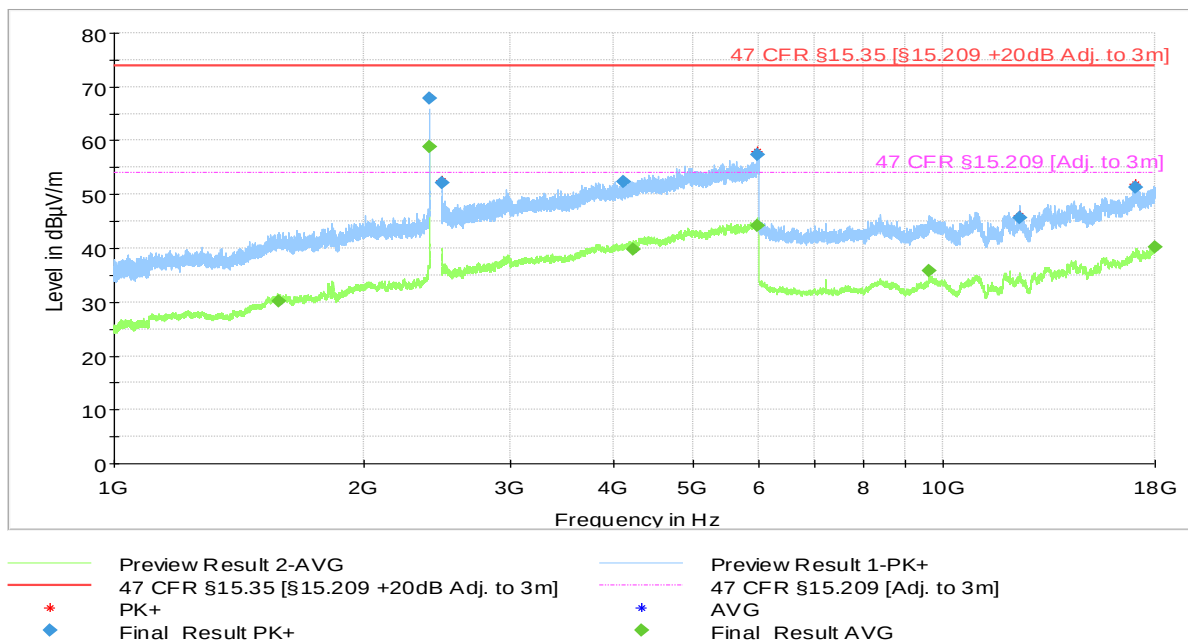


— Preview Result 2-AVG
* Critical_Freqs AVG
— 47 CFR §15.209 [Adj. to 3m]
◆ Final_Result AVG
— Preview Result 1-PK+
* Critical_Freqs PK+
◆ Final_Result QPK

Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
31.159800	17.44	---	40.00	22.56	1000.0	120.000	379.0	V	-18.0
42.136640	10.61	---	40.00	29.39	1000.0	120.000	325.0	V	243.0
82.979760	5.89	---	40.00	34.11	1000.0	120.000	157.0	V	221.0
104.217560	12.72	---	43.52	30.80	1000.0	120.000	100.0	V	87.0
173.741240	7.36	---	43.52	36.16	1000.0	120.000	275.0	V	-18.0
423.999120	16.74	---	46.02	29.28	1000.0	120.000	100.0	H	252.0
671.039840	14.62	---	46.02	31.40	1000.0	120.000	308.0	H	177.0
760.960280	19.54	---	46.02	26.48	1000.0	120.000	329.0	H	323.0
762.829560	23.38	---	46.02	22.64	1000.0	120.000	207.0	H	158.0
951.388480	20.41	---	46.02	25.61	1000.0	120.000	179.0	V	22.0

Low Channel: 1 GHz – 18 GHz

Test mode condition	Bluetooth Low Energy LE_2M, Low channel (2402 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	1 GHz – 18 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.12
Chamber details	Chamber: SAC 5	

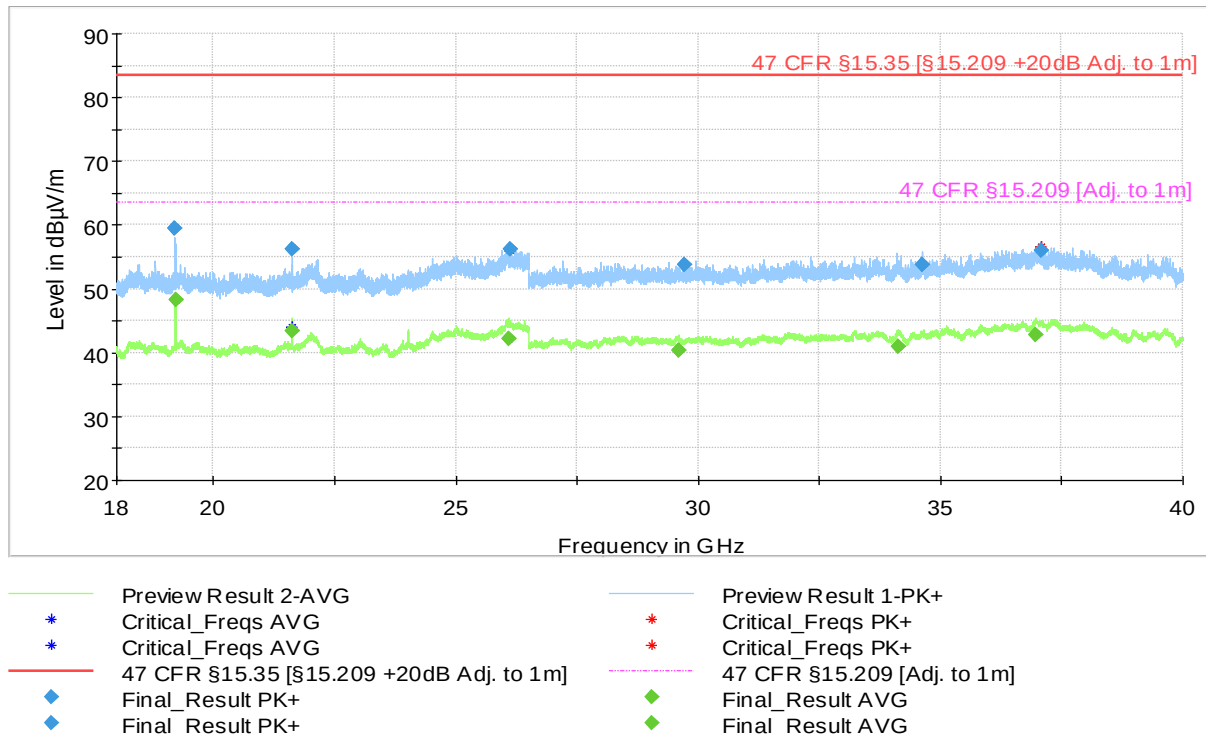


NOTE: peak at 2400MHz is an artefact of the measuring equipment and not due to the DUT
See Band Edge tests for more detailed results at this frequency

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1577.285000	---	30.10	53.98	23.88	1000.0	1000.000	188.0	V	68.0
2483.512000	52.15	---	73.98	21.83	1000.0	1000.000	113.0	V	325.0
4107.689000	52.36	---	73.98	21.62	1000.0	1000.000	125.0	V	292.0
4230.701000	---	39.78	53.98	14.20	1000.0	1000.000	125.0	H	131.0
5973.781000	---	44.19	53.98	9.79	1000.0	1000.000	138.0	H	290.0
5977.291000	57.37	---	73.98	16.61	1000.0	1000.000	125.0	V	-22.0
9609.753000	---	35.73	53.98	18.25	1000.0	1000.000	125.0	V	267.0
12353.956000	45.57	---	73.98	28.41	1000.0	1000.000	176.0	H	266.0
17069.525000	51.36	---	73.98	22.61	1000.0	1000.000	175.0	H	22.0
17990.533000	---	40.18	53.98	13.80	1000.0	1000.000	171.0	V	19.0

Low Channel: 18 GHz – 40 GHz

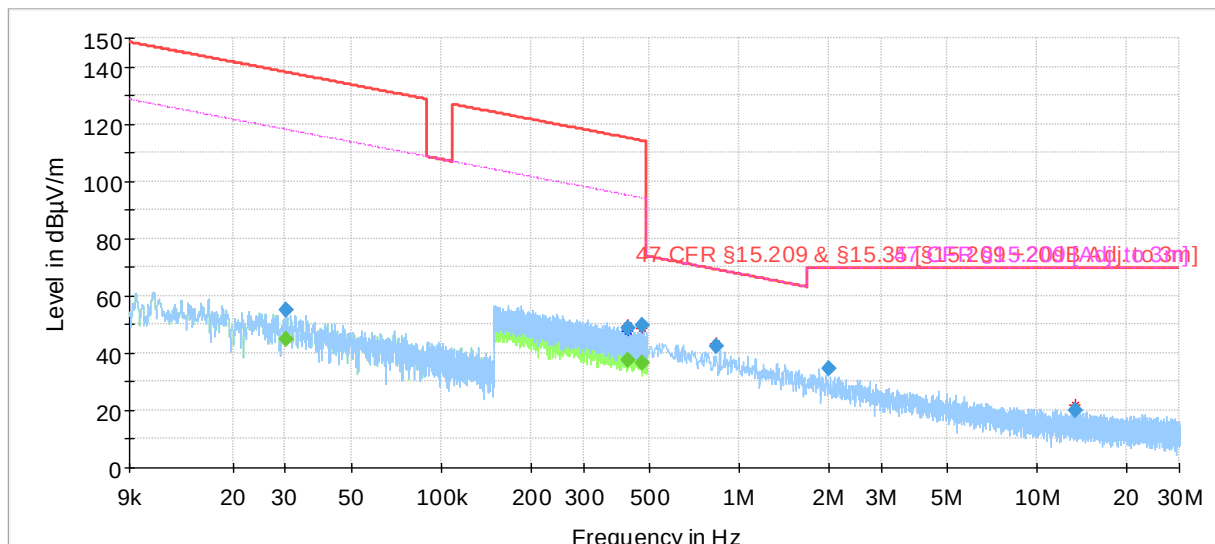
Test mode condition	Bluetooth Low Energy LE_2M, Low channel (2402 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	18 GHz – 40 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003419822-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.04.11
Chamber details	Chamber: SAC 5	



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
19211.781000	59.57	---	83.52	23.95	1000.0	1000.000	155.0	V	98.0
19219.775000	---	48.27	63.52	15.25	1000.0	1000.000	155.0	V	98.0
21621.999000	---	43.37	63.52	20.15	1000.0	1000.000	155.0	V	102.0
21622.099000	56.22	---	83.52	27.31	1000.0	1000.000	155.0	V	112.0
26079.642000	---	42.16	63.52	21.36	1000.0	1000.000	155.0	H	262.0
26121.832000	56.19	---	83.52	27.33	1000.0	1000.000	155.0	H	222.0
29595.957000	---	40.37	63.52	23.15	1000.0	1000.000	155.0	H	188.0
29725.962000	53.79	---	83.52	29.73	1000.0	1000.000	155.0	V	314.0
34126.515000	---	40.87	63.52	22.65	1000.0	1000.000	155.0	H	188.0
34635.658000	53.82	---	83.52	29.70	1000.0	1000.000	155.0	H	42.0
36970.957000	---	42.88	63.52	20.65	1000.0	1000.000	155.0	H	202.0
37079.564000	56.00	---	83.52	27.52	1000.0	1000.000	155.0	H	158.0

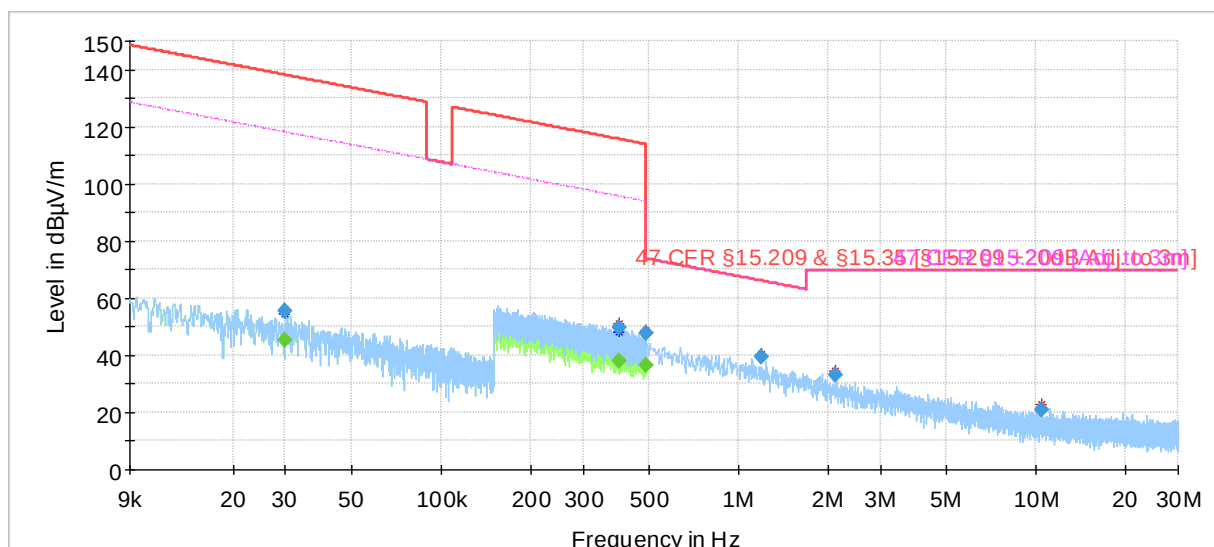
Mid Channel: 9 KHz – 30 MHz

Test mode condition	Bluetooth Low Energy LE_2M, Mid channel (2440 MHz)	
Antenna orientation	Loop Antenna parallel to Axis	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: SAC 5	



Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.030358	---	44.94	117.96	73.02	1000.0	0.200	100.0	H	-41.0
0.030358	55.22	---	137.96	82.73	1000.0	0.200	100.0	H	-41.0
0.425514	---	37.58	95.03	57.44	1000.0	9.000	100.0	H	49.0
0.425514	48.59	---	115.03	66.43	1000.0	9.000	100.0	H	49.0
0.473953	49.59	---	114.09	64.50	1000.0	9.000	100.0	H	25.0
0.473953	---	36.61	94.09	57.48	1000.0	9.000	100.0	H	25.0
0.837345	42.47	---	69.16	26.68	1000.0	9.000	100.0	H	37.0
2.003423	34.73	---	69.50	34.77	1000.0	9.000	100.0	H	294.0
13.468179	20.07	---	69.50	49.43	1000.0	9.000	100.0	H	38.0

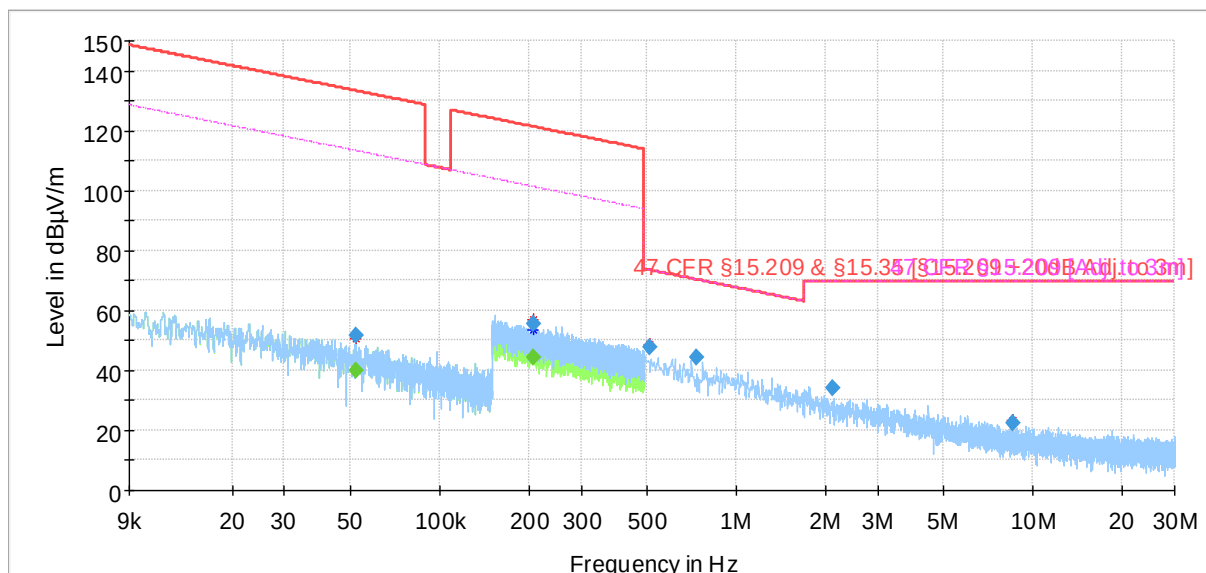
Test mode condition	Bluetooth Low Energy LE_2M, Mid channel (2440 MHz)	
Antenna orientation	Loop Antenna perpendicular to Axis	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: SAC 5	



- Preview Result 2-AVG
- Preview Result 1-PK+
- * Critical_Freqs AVG
- * Critical_Freqs PK+
- 47 CFR §15.209 & §15.35 [§15.209 +20dB Adj. to 3m]
- 47 CFR §15.209 [Adj. to 3m]
- ◆ Final_Result PK+
- ◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.029718	55.71	---	138.14	82.43	1000.0	0.200	100.0	H	127.0
0.029718	---	45.14	118.14	73.00	1000.0	0.200	100.0	H	127.0
0.397434	---	38.06	95.62	57.56	1000.0	9.000	100.0	H	26.0
0.397434	49.65	---	115.62	65.97	1000.0	9.000	100.0	H	26.0
0.488425	47.81	---	113.83	66.02	1000.0	9.000	100.0	H	206.0
0.488425	---	36.32	93.83	57.51	1000.0	9.000	100.0	H	206.0
1.198433	39.50	---	66.05	26.55	1000.0	9.000	100.0	H	-25.0
2.120411	33.21	---	69.50	36.29	1000.0	9.000	100.0	H	-41.0
10.426539	21.01	---	69.50	48.49	1000.0	9.000	100.0	H	295.0

Test mode condition	Bluetooth Low Energy LE_2M, Mid channel (2440 MHz)	
Antenna orientation	Loop Antenna parallel to floor	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: SAC 5	

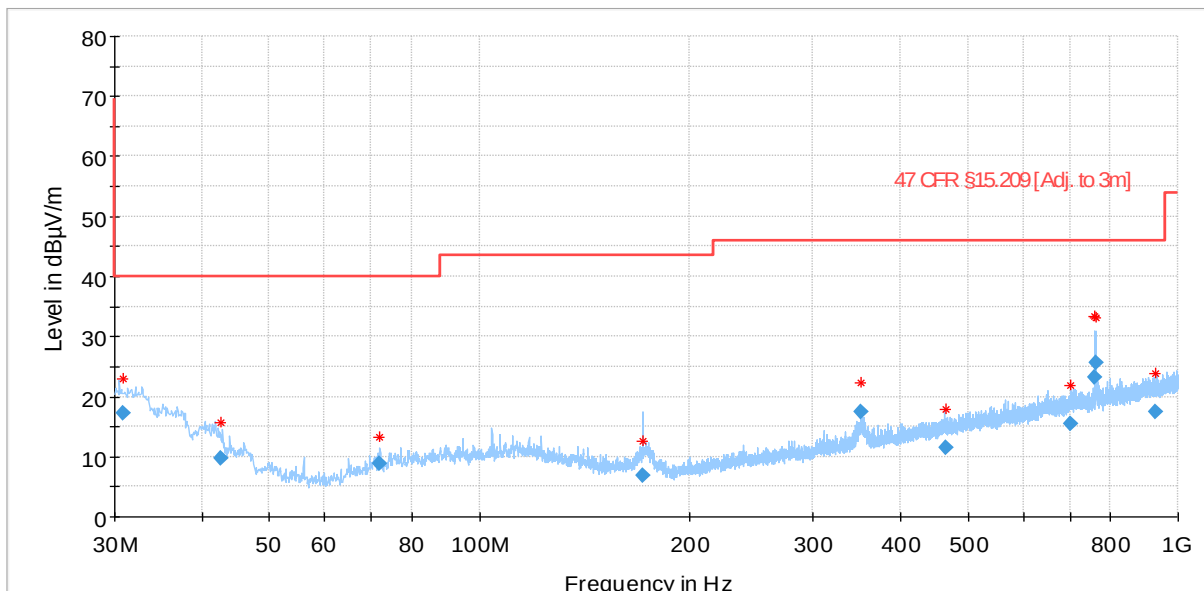


- Preview Result 2-AVG
- Preview Result 1-PK+
- * Critical_Freqs AVG
- * Critical_Freqs PK+
- 47 CFR §15.209 & §15.35 [§15.209 +20dB Adj. to 3m]
- - - 47 CFR §15.209 [Adj. to 3m]
- ◆ Final_Result PK+
- ◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.052129	---	39.94	113.26	73.32	1000.0	0.200	100.0	H	25.0
0.052129	51.67	---	133.26	81.59	1000.0	0.200	100.0	H	25.0
0.206840	---	44.17	101.29	57.13	1000.0	9.000	100.0	H	217.0
0.206840	55.60	---	121.29	65.69	1000.0	9.000	100.0	H	217.0
0.508974	47.61	---	73.47	25.87	1000.0	9.000	100.0	H	139.0
0.737792	44.44	---	70.26	25.81	1000.0	9.000	100.0	H	216.0
2.105444	33.97	---	69.50	35.53	1000.0	9.000	100.0	H	25.0
8.593254	22.35	---	69.50	47.15	1000.0	9.000	100.0	H	135.0

Mid Channel: 30 MHz – 1 GHz

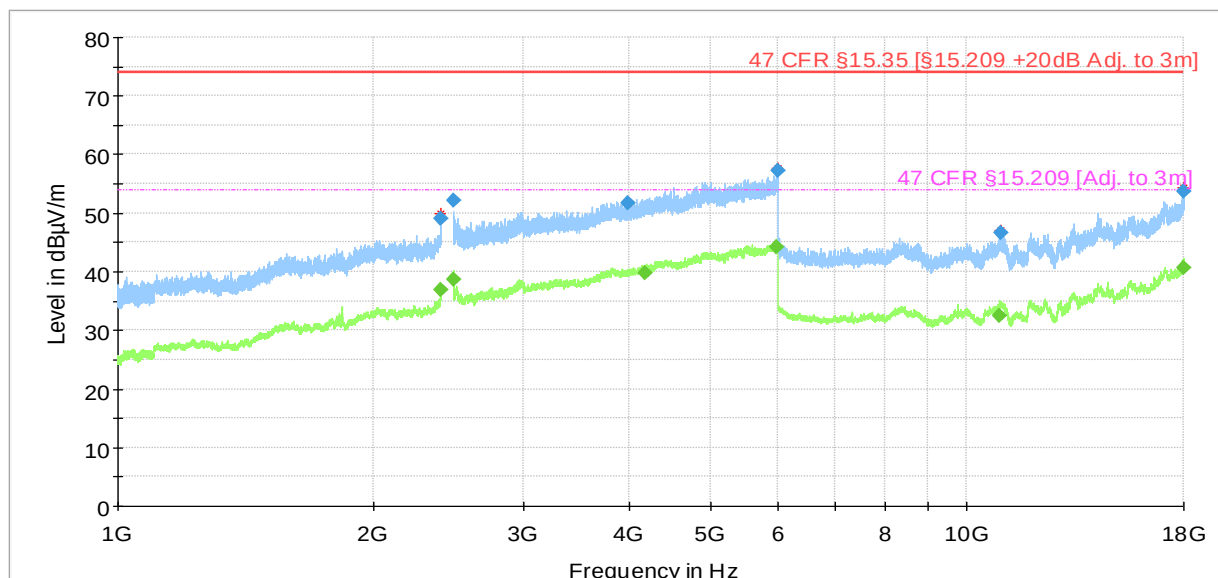
Test mode condition	Bluetooth Low Energy LE_2M, Mid channel (2440 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	30 MHz – 1 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.17
Chamber details	Chamber: SAC 5	



Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
30.865179	17.22	---	40.00	22.78	1000.0	120.000	275.0	V	177.0
42.526200	9.72	---	40.00	30.28	1000.0	120.000	379.0	H	68.0
71.982480	8.92	---	40.00	31.08	1000.0	120.000	179.0	V	68.0
171.325880	6.91	---	43.52	36.62	1000.0	120.000	325.0	H	158.0
352.006320	17.39	---	46.02	28.63	1000.0	120.000	100.0	H	292.0
463.909400	11.55	---	46.02	34.47	1000.0	120.000	229.0	H	297.0
702.639600	15.37	---	46.02	30.65	1000.0	120.000	225.0	H	202.0
760.611080	23.18	---	46.02	22.84	1000.0	120.000	157.0	V	-3.0
762.648640	25.66	---	46.02	20.36	1000.0	120.000	157.0	V	278.0
929.846840	17.56	---	46.02	28.46	1000.0	120.000	325.0	V	292.0

Mid Channel: 1 GHz – 18 GHz

Test mode condition	Bluetooth Low Energy LE_2M, Mid channel (2440 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	1 GHz – 18 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.17
Chamber details	Chamber: SAC 5	



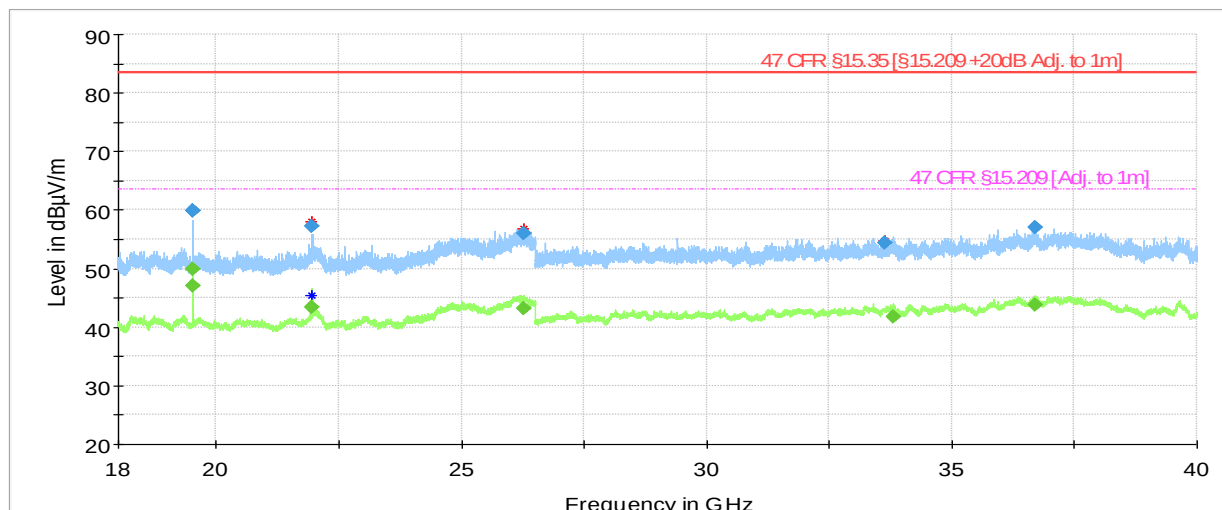
— Preview Result 2-AVG
— 47 CFR §15.35 [§15.209 +20dB Adj. to 3m]
* PK+
x MaxPeak-PK+ (Single)
◆ Final_Result PK+

— Preview Result 1-PK+
— 47 CFR §15.209 [Adj. to 3m]
* AVG
+ Average-AVG (Single)
◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2399.878000	49.16	---	73.98	24.82	1000.0	1000.000	148.0	H	296.0
2399.950500	---	36.81	53.98	17.17	1000.0	1000.000	120.0	V	202.0
2483.560620	52.16	---	73.98	21.81	1000.0	1000.000	100.0	H	100.0
2483.680849	---	38.64	53.98	15.34	1000.0	1000.000	100.0	V	248.0
3988.768000	51.78	---	73.98	22.20	1000.0	1000.000	100.0	H	178.0
4185.117000	---	39.75	53.98	14.23	1000.0	1000.000	189.0	H	154.0
5974.898000	---	44.15	53.98	9.83	1000.0	1000.000	112.0	V	22.0
5980.355000	57.33	---	73.98	16.65	1000.0	1000.000	210.0	H	158.0
10931.723000	---	32.58	53.98	21.39	1000.0	1000.000	125.0	V	248.0
10952.714000	46.56	---	73.98	27.42	1000.0	1000.000	176.0	V	112.0
17976.630000	---	40.61	53.98	13.37	1000.0	1000.000	125.0	V	-4.0
17986.344000	53.74	---	73.98	20.23	1000.0	1000.000	170.0	V	200.0

Mid Channel: 18 GHz – 40 GHz

Test mode condition	Bluetooth Low Energy LE_2M, Mid channel (2440 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	18 GHz – 40 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003419822-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.04.11
Chamber details	Chamber: SAC 5	

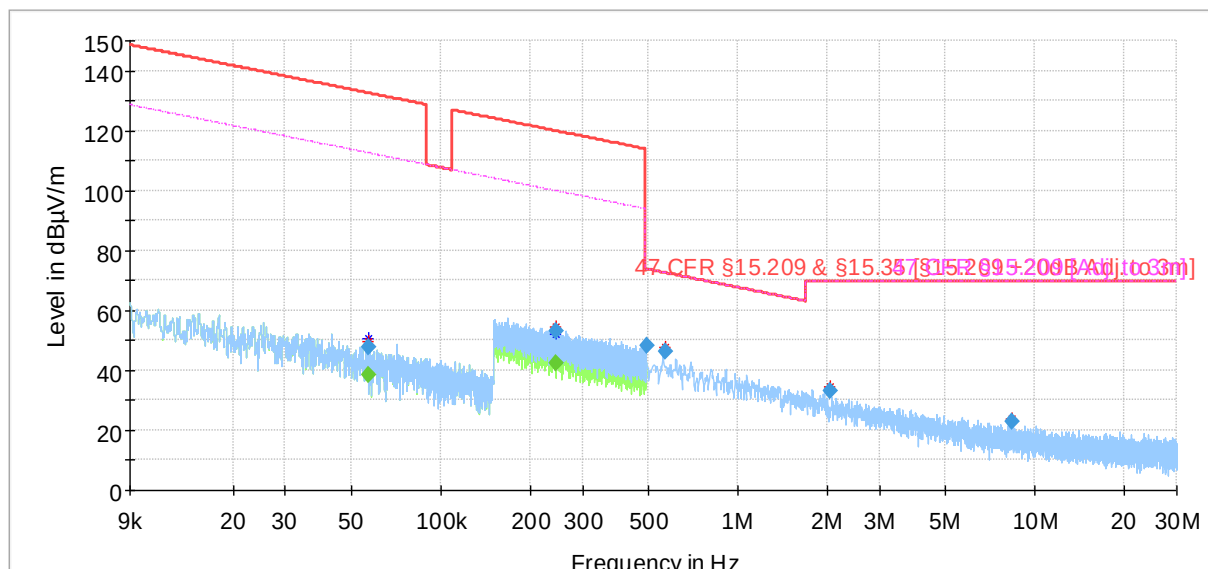


Preview Result 2-AVG	Preview Result 1-PK+
* Critical_Freqs AVG	* Critical_Freqs PK+
* Critical_Freqs AVG	* Critical_Freqs PK+
47 CFR §15.35 [§15.209 +20dB Adj. to 1m]	47 CFR §15.209 [Adj. to 1m]
◆ Final_Result PK+	◆ Final_Result AVG
◆ Final_Result PK+	◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
19515.748000	59.84	---	83.52	23.68	1000.0	1000.000	155.0	H	292.0
19515.921000	---	47.06	63.52	16.47	1000.0	1000.000	155.0	H	128.0
19523.701000	---	49.93	63.52	13.59	1000.0	1000.000	155.0	H	292.0
19523.924000	59.98	---	83.52	23.54	1000.0	1000.000	155.0	H	292.0
21955.436000	---	43.40	63.52	20.12	1000.0	1000.000	155.0	V	-4.0
21955.642000	57.17	---	83.52	26.35	1000.0	1000.000	155.0	V	112.0
26254.666000	55.95	---	83.52	27.57	1000.0	1000.000	155.0	V	248.0
26272.032000	---	43.17	63.52	20.35	1000.0	1000.000	155.0	V	128.0
33624.340000	54.40	---	83.52	29.12	1000.0	1000.000	155.0	V	22.0
33805.189000	---	41.78	63.52	21.74	1000.0	1000.000	155.0	V	158.0
36686.602000	---	43.85	63.52	19.67	1000.0	1000.000	155.0	V	-4.0
36690.566000	56.96	---	83.52	26.57	1000.0	1000.000	155.0	H	22.0

High Channel: 9 KHz – 30 MHz

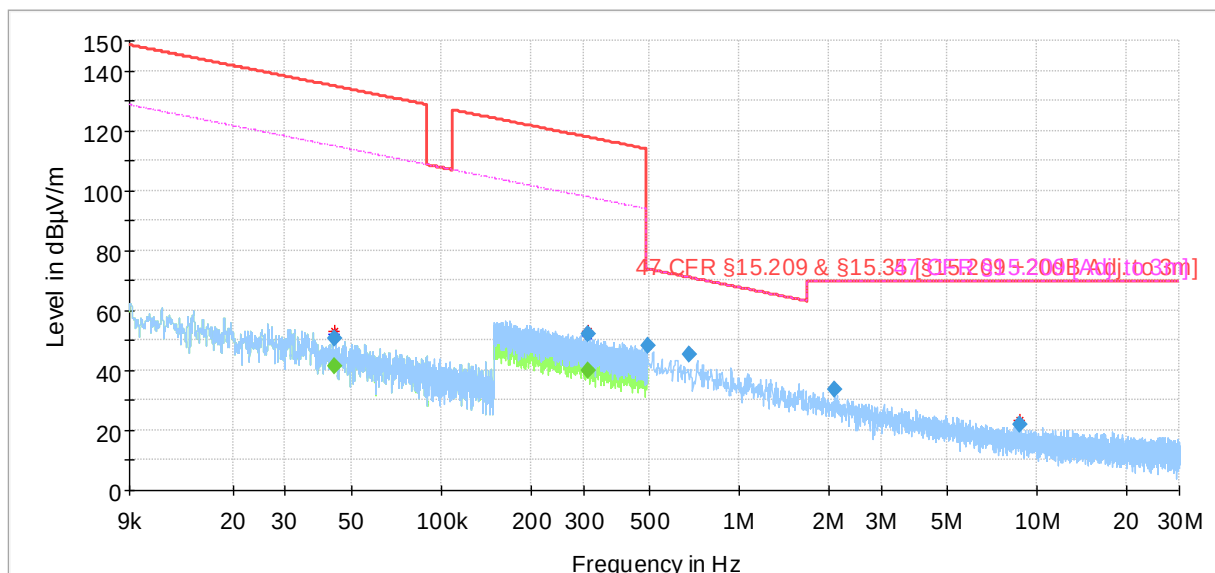
Test mode condition	Bluetooth Low Energy LE_2M, High channel (2480 MHz)	
Antenna orientation	Loop Antenna parallel to Axis	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: SAC 5	



- Preview Result 2-AVG
- Preview Result 1-PK+
- * Critical_Freqs AVG
- * Critical_Freqs PK+
- 47 CFR §15.209 & §15.35 [§15.209 +20dB Adj. to 3m]
- - - 47 CFR §15.209 [Adj. to 3m]
- ◆ Final_Result PK+
- ◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.057373	47.66	---	132.43	84.77	1000.0	0.200	100.0	H	282.0
0.057373	---	38.47	112.43	73.96	1000.0	0.200	100.0	H	282.0
0.244792	---	42.39	99.83	57.44	1000.0	9.000	100.0	H	45.0
0.244792	53.25	---	119.83	66.57	1000.0	9.000	100.0	H	45.0
0.495886	48.44	---	73.70	25.26	1000.0	9.000	100.0	H	166.0
0.567646	46.42	---	72.53	26.11	1000.0	9.000	100.0	H	45.0
2.036080	33.05	---	69.50	36.45	1000.0	9.000	100.0	H	295.0
8.363855	22.99	---	69.50	46.51	1000.0	9.000	100.0	H	192.0

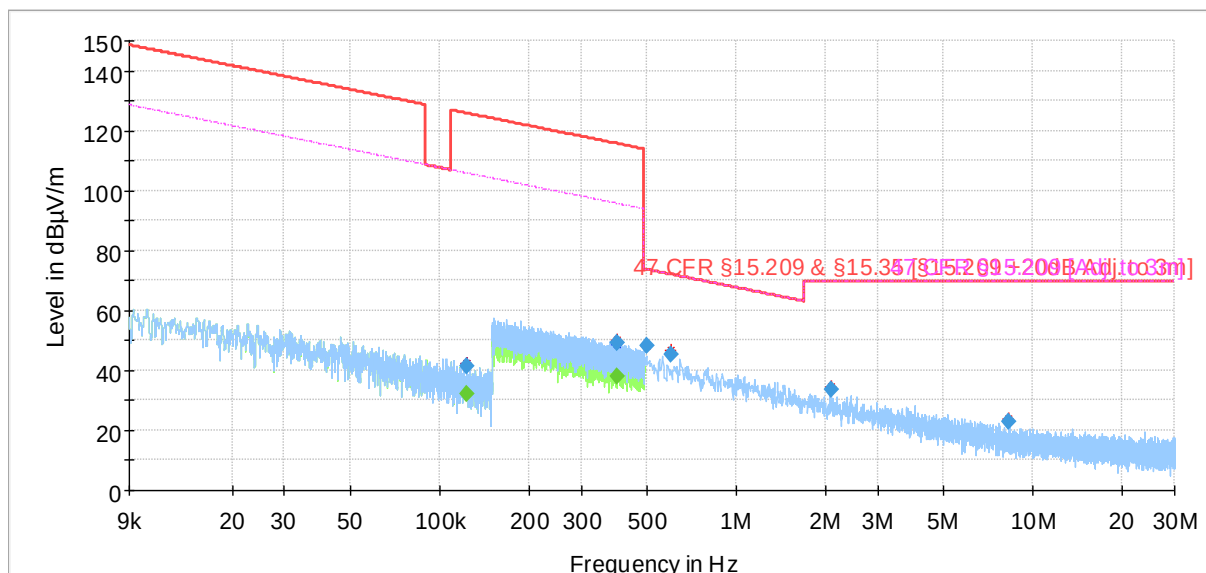
Test mode condition	Bluetooth Low Energy LE_2M, High channel (2480 MHz)	
Antenna orientation	Loop Antenna perpendicular to Axis	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: SAC 5	



- Preview Result 2-AVG
- Preview Result 1-PK+
- * Critical_Freqs AVG
- * Critical_Freqs PK+
- 47 CFR §15.209 & §15.35 [§15.209 +20dB Adj. to 3m]
- - - 47 CFR §15.209 [Adj. to 3m]
- ◆ Final_Result PK+
- ◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.044035	50.74	---	134.73	83.98	1000.0	0.200	100.0	H	135.0
0.044035	---	41.17	114.73	73.56	1000.0	0.200	100.0	H	135.0
0.310781	52.09	---	117.76	65.67	1000.0	9.000	100.0	H	135.0
0.310781	---	40.13	97.76	57.63	1000.0	9.000	100.0	H	135.0
0.497156	48.15	---	73.67	25.53	1000.0	9.000	100.0	H	191.0
0.679533	45.29	---	70.97	25.67	1000.0	9.000	100.0	H	307.0
2.088980	33.72	---	69.50	35.78	1000.0	9.000	100.0	H	315.0
8.779645	21.97	---	69.50	47.53	1000.0	9.000	100.0	H	-41.0

Test mode condition	Bluetooth Low Energy LE_2M, High channel (2480 MHz)	
Antenna orientation	Loop Antenna parallel to floor	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: SAC 5	

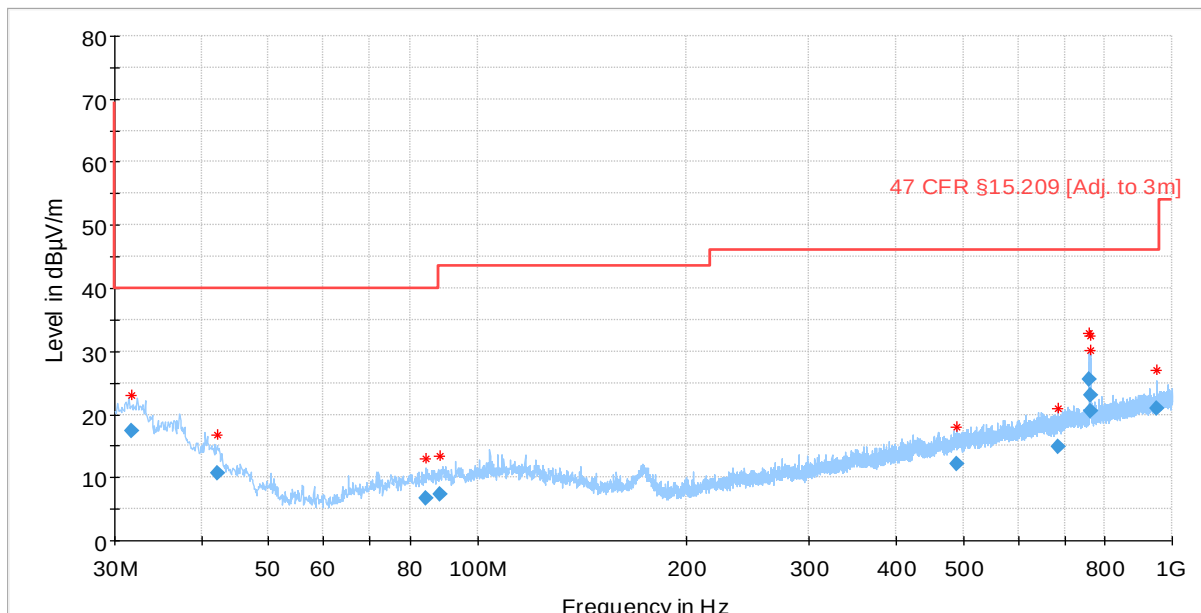


- Preview Result 2-AVG
- Preview Result 1-PK+
- * Critical_Freqs AVG
- * Critical_Freqs PK+
- 47 CFR §15.209 & §15.35 [§15.209 +20dB Adj. to 3m]
- 47 CFR §15.209 [Adj. to 3m]
- ◆ Final_Result PK+
- ◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.123864	41.55	---	125.75	84.20	1000.0	0.200	100.0	H	315.0
0.123864	---	31.91	105.75	73.84	1000.0	0.200	100.0	H	315.0
0.397642	---	37.97	95.61	57.64	1000.0	9.000	100.0	H	139.0
0.397642	49.06	---	115.61	66.56	1000.0	9.000	100.0	H	139.0
0.498923	48.14	---	73.64	25.51	1000.0	9.000	100.0	H	204.0
0.604688	45.42	---	71.98	26.56	1000.0	9.000	100.0	H	64.0
2.100746	33.45	---	69.50	36.05	1000.0	9.000	100.0	H	-26.0
8.260170	23.04	---	69.50	46.46	1000.0	9.000	100.0	H	49.0

High Channel: 30 MHz – 1 GHz

Test mode condition	Bluetooth Low Energy LE_2M, High channel (2480 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	30 MHz – 1 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.20
Chamber details	Chamber: SAC 5	

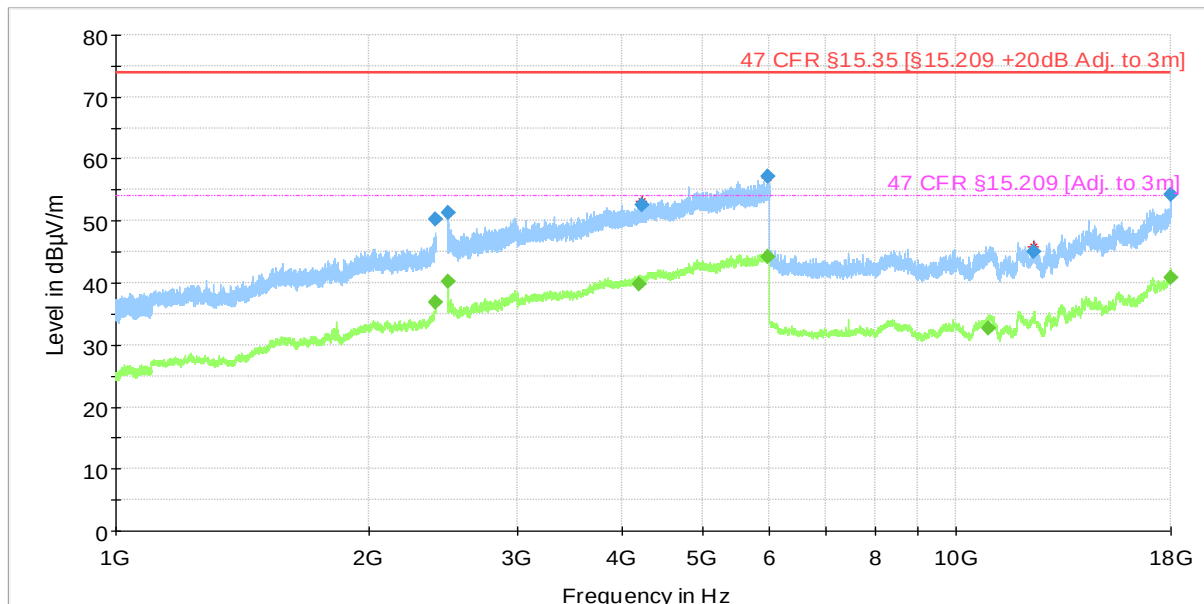


— Preview Result 2-AVG
* Critical_Freqs AVG
— 47 CFR §15.209 [Adj. to 3m]
◆ Final_Result AVG
— Preview Result 1-PK+
* Critical_Freqs PK+
◆ Final_Result QPK

Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
31.737000	17.46	---	40.00	22.54	1000.0	120.000	329.0	H	158.0
42.221040	10.64	---	40.00	29.36	1000.0	120.000	158.0	H	109.0
84.284160	6.62	---	40.00	33.38	1000.0	120.000	225.0	V	248.0
88.049280	7.29	---	43.52	36.23	1000.0	120.000	175.0	V	202.0
489.620760	12.07	---	46.02	33.95	1000.0	120.000	104.0	V	19.0
683.897760	14.81	---	46.02	31.21	1000.0	120.000	379.0	H	130.0
758.821840	25.55	---	46.02	20.47	1000.0	120.000	158.0	V	248.0
761.987440	23.01	---	46.02	23.01	1000.0	120.000	175.0	V	40.0
761.993640	20.49	---	46.02	25.53	1000.0	120.000	406.0	V	267.0
951.347720	20.89	---	46.02	25.13	1000.0	120.000	179.0	V	176.0

High Channel: 1 GHz – 18 GHz

Test mode condition	Bluetooth Low Energy LE_2M, High channel (2480 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	1 GHz – 18 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.17
Chamber details	Chamber: SAC 5	



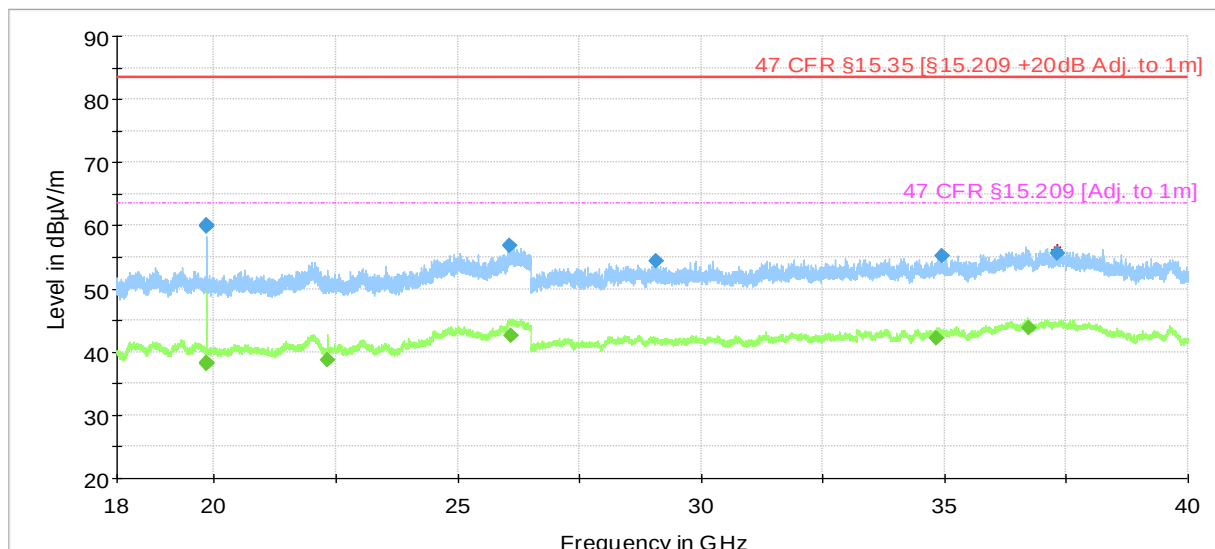
— Preview Result 2-AVG
— 47 CFR §15.35 [§15.209 +20dB Adj. to 3m]
* PK+
◆ Final_Result PK+

— Preview Result 1-PK+
— 47 CFR §15.209 [Adj. to 3m]
* AVG
◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2399.930500	50.18	---	73.98	23.80	1000.0	1000.000	112.0	V	248.0
2399.972500	---	36.88	53.98	17.10	1000.0	1000.000	175.0	H	206.0
2483.510000	---	40.11	53.98	13.86	1000.0	1000.000	187.0	H	132.0
2483.781156	51.22	---	73.98	22.76	1000.0	1000.000	100.0	V	248.0
4187.395000	---	39.75	53.98	14.23	1000.0	1000.000	125.0	V	335.0
4234.228000	52.66	---	73.98	21.32	1000.0	1000.000	138.0	V	280.0
5972.872000	57.15	---	73.98	16.83	1000.0	1000.000	125.0	V	116.0
5975.245000	---	44.17	53.98	9.81	1000.0	1000.000	102.0	V	110.0
10924.561000	---	32.67	53.98	21.31	1000.0	1000.000	170.0	H	158.0
12350.165000	44.98	---	73.98	29.00	1000.0	1000.000	125.0	V	68.0
17990.980000	---	40.76	53.98	13.22	1000.0	1000.000	125.0	H	109.0
17998.975760	54.24	---	73.98	19.74	1000.0	1000.000	159.0	H	309.0

High Channel: 18 GHz – 40 GHz

Test mode condition	Bluetooth Low Energy LE_2M, High channel (2480 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	18 GHz – 40 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003419822-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.04.11
Chamber details	Chamber: SAC 5	



—	Preview Result 2-AVG	—	Preview Result 1-PK+
*	Critical_Freqs AVG	*	Critical_Freqs PK+
*	Critical_Freqs AVG	*	Critical_Freqs PK+
—	47 CFR §15.35 [§15.209 +20dB Adj. to 1m]	—	47 CFR §15.209 [Adj. to 1m]
◆	Final_Result PK+	◆	Final_Result AVG
◆	Final_Result PK+	◆	Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
19835.150000	---	38.19	63.52	25.34	1000.0	1000.000	155.0	V	82.0
19835.870000	60.10	---	83.52	23.43	1000.0	1000.000	155.0	V	98.0
19840.713000	---	38.28	63.52	25.24	1000.0	1000.000	155.0	V	98.0
19844.012000	59.82	---	83.52	23.71	1000.0	1000.000	155.0	V	98.0
22313.902000	---	38.66	63.52	24.86	1000.0	1000.000	155.0	V	98.0
26071.120000	56.80	---	83.52	26.72	1000.0	1000.000	155.0	V	112.0
26083.343000	---	42.52	63.52	21.00	1000.0	1000.000	155.0	H	112.0
29068.959000	54.40	---	83.52	29.13	1000.0	1000.000	155.0	V	142.0
34833.839000	---	42.28	63.52	21.24	1000.0	1000.000	155.0	H	276.0
34957.501000	55.27	---	83.52	28.25	1000.0	1000.000	155.0	H	188.0
36715.111000	---	43.83	63.52	19.69	1000.0	1000.000	155.0	V	232.0
37320.619000	55.66	---	83.52	27.86	1000.0	1000.000	155.0	H	26.0

4.3 Test Results – Antenna Conducted Emissions

4.3.1 Antenna Conducted Emissions – Test Summary

Emissions measurements have been performed as radiated test (see section 4.2)

4.4 Test Results – Band Edge Compliance (Authorized Band)

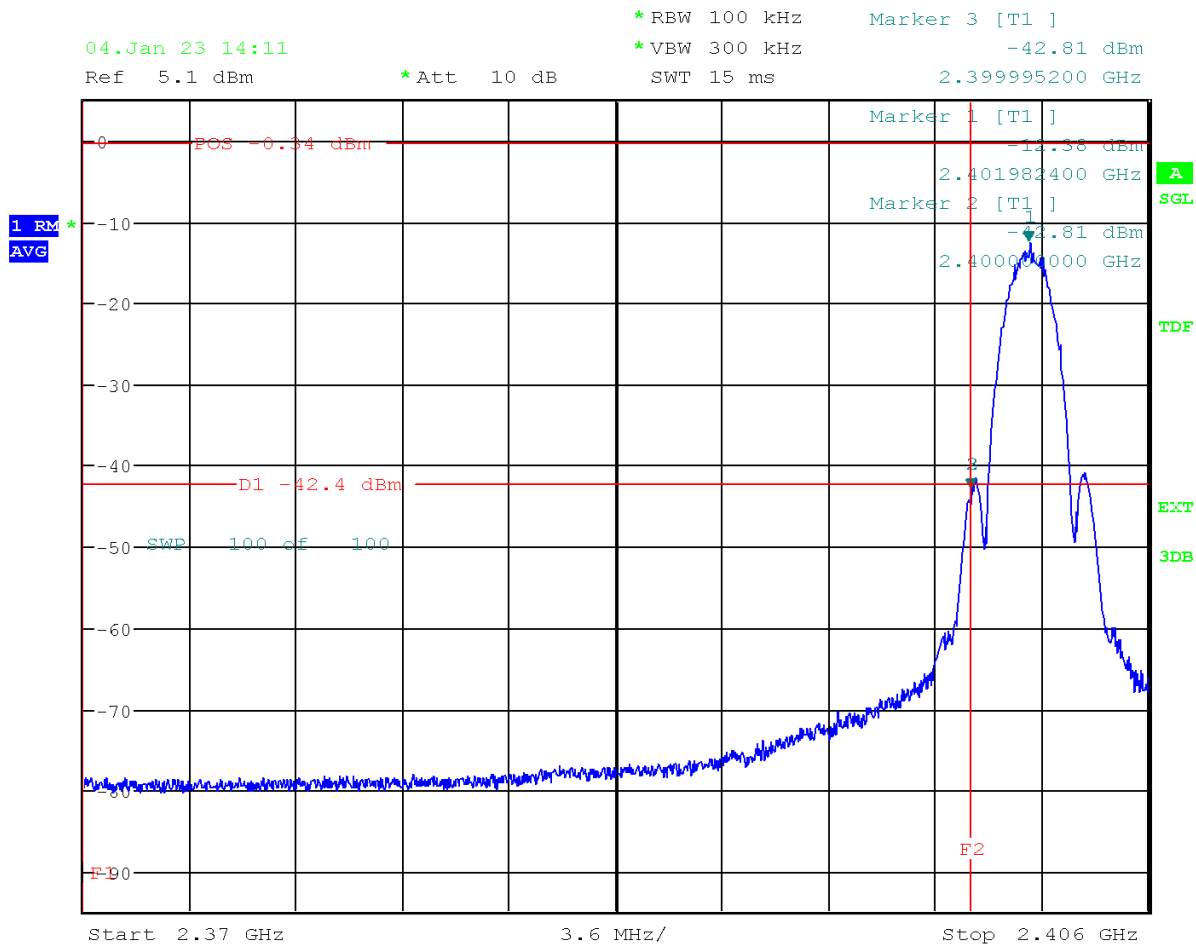
4.4.1 Band Edge Compliance (Authorized Band) – Test Summary

Test Specification	47 CFR 15.247 (d)				
Test Engineer & Date	Niall Forrester		2023.01.04		
EUT and Ancillary Equipment IDs	A003368431-012 A003419822-003		N/A		
EUT Operation Mode(s)	Mic – Cond – DTM				
EUT Wireless Configuration(s)	Bluetooth Low Energy (see details below)				
EUT Hardware Configuration(s)	Stand-alone (Stellar Mic)				
Overall Result	PASS				

Test Parameter	Wireless Configuration	RF Power (dBm)	Max Emission (dBm)	Limit (dBm)	Result
Peak Emissions at Band Edge (Auth. Band – Low Edge)	Bluetooth Low Energy LE_1M Low Channel (GFSK 2402 MHz)	-1.16	-43.13	-21.16	PASS
Avg. Emissions at Band Edge (Auth. Band – Low Edge)	Bluetooth Low Energy LE_1M Low Channel (GFSK 2402 MHz)	-8.54	-60.13	-38.54	PASS
Peak Emissions at Band Edge (Auth. Band – Low Edge)	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402 MHz)	-1.64	-33.26	-21.64	PASS
Avg. Emissions at Band Edge (Auth. Band – Low Edge)	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402 MHz)	-12.38	-42.81	-42.38	PASS
Peak Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_1M High Channel (GFSK 2480 MHz)	-1.22	-49.43	-21.22	PASS
Avg. Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_1M High Channel (GFSK 2480 MHz)	-8.61	-66.97	-38.61	PASS
Peak Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_2M High Channel (GFSK 2480 MHz)	-2.49	-22.49	-50.17	PASS
Avg. Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_2M High Channel (GFSK 2480 MHz)	-12.20	-42.20	-64.28	PASS

4.4.2 Band Edge Compliance (Authorized Band) – Test Details (Worst Case Plot):

Low Channel, LE_2M, Average Detector



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4.5 Test Results – Band Edge Compliance (Restricted Band)

4.5.1 Band Edge Compliance (Restricted Band) – Test Summary

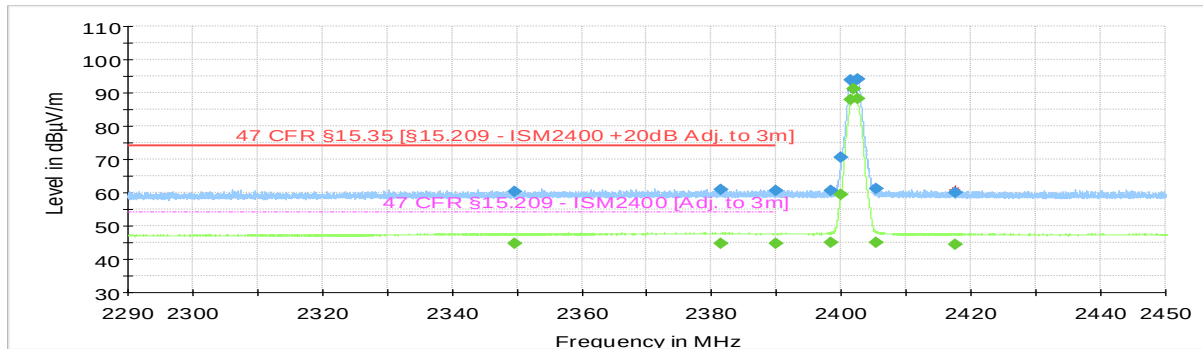
Test Specification	47 CFR 15.209 & 15.247 (d)	
Test Engineer & Date	Niall Forrester	2023.01.12 – 2023.01.17
EUT and Ancillary Equipment IDs	A003368431-003	N/A
EUT Operation Mode(s)	Mic – No Chg – CTX	
EUT Wireless Configuration(s)	Bluetooth Low Energy (see details below)	
EUT Hardware Configuration(s)	Stand-alone (Stellar Mic)	
Overall Result	PASS	
Test Parameter	Wireless Configuration	Result*
Emissions at Band Edge (Rest. Band – Low Edge)	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402 MHz)	PASS
Emissions at Band Edge (Rest. Band – High Edge)	Bluetooth Low Energy LE_2M High Channel (GFSK 2480 MHz)	PASS

* For detailed measurements, see tables and graphs in sections below

4.5.2 Band Edge Compliance (Restricted Band) – Test Details

Restricted Band – Low Edge – Low Channel LE_2M

Test mode condition	Bluetooth Low Energy LE_2M, Low channel (2402 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	1 GHz – 18 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.12
Chamber details	Chamber: SAC 5	

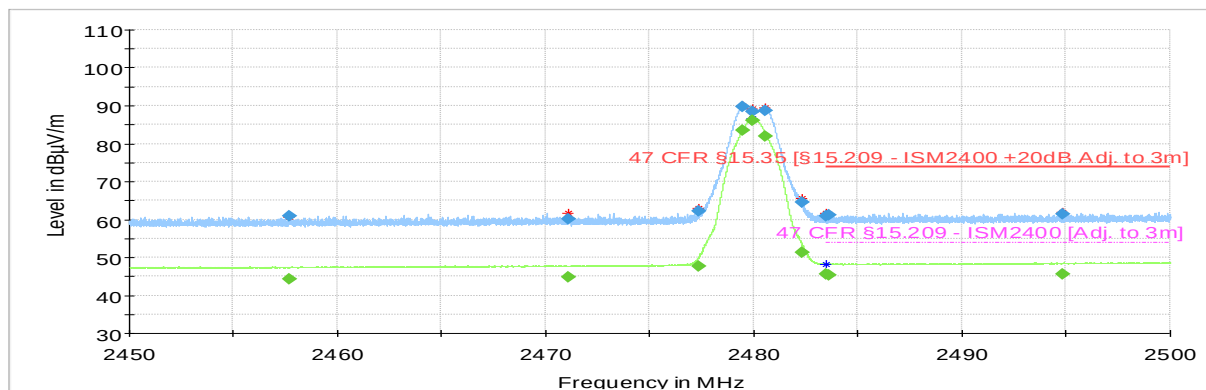


Preview Result 2-AVG
 Preview Result 1-PK+
 Critical_Freqs AVG
 Critical_Freqs PK+
 47 CFR §15.35 [§15.209 - ISM2400 +20dB Adj. to 3m]
 47 CFR §15.209 - ISM2400 [Adj. to 3m]
 Final_Result PK+
 Final_Result AVG
 MaxPeak-PK+ (Single)
 Average-AVG (Single)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2349.600000	---	44.63	53.98	9.35	1000.0	1000.000	125.0	V	264.0
2349.600000	60.36	---	73.98	13.62	1000.0	1000.000	125.0	V	264.0
2381.488000	60.89	---	73.98	13.09	1000.0	1000.000	100.0	H	121.0
2381.488000	---	44.83	53.98	9.15	1000.0	1000.000	100.0	H	121.0
2390.000000	60.54	---	73.98	13.44	1000.0	1000.000	143.0	H	165.0
2390.000000	---	44.75	53.98	9.23	1000.0	1000.000	143.0	H	165.0
2398.304000	---	44.86	---	---	1000.0	1000.000	167.0	H	279.0
2398.304000	60.56	---	---	---	1000.0	1000.000	167.0	H	279.0
2400.000000	---	59.43	---	---	1000.0	1000.000	175.0	H	320.0
2400.000000	70.65	---	---	---	1000.0	1000.000	175.0	H	320.0
2401.504000	---	88.07	---	---	1000.0	1000.000	150.0	H	320.0
2401.504000	93.82	---	---	---	1000.0	1000.000	150.0	H	320.0
2401.984000	93.32	---	---	---	1000.0	1000.000	150.0	H	328.0
2401.984000	---	91.10	---	---	1000.0	1000.000	150.0	H	328.0
2402.496000	94.12	---	---	---	1000.0	1000.000	175.0	H	325.0
2402.496000	---	88.16	---	---	1000.0	1000.000	175.0	H	325.0
2405.392000	---	44.98	---	---	1000.0	1000.000	125.0	V	12.0
2405.392000	61.09	---	---	---	1000.0	1000.000	125.0	V	12.0
2417.504000	---	44.51	---	---	1000.0	1000.000	161.0	V	205.0
2417.504000	60.03	---	---	---	1000.0	1000.000	161.0	V	205.0

Restricted Band – High Edge – High Channel LE_2M

Test mode condition	Bluetooth Low Energy LE_2M, High channel (2480 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	1 GHz – 18 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003368431-003	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.17
Chamber details	Chamber: SAC 5	



Preview Result 2-AVG
 Preview Result 1-PK+
 Critical_Freqs AVG
 Critical_Freqs PK+
 47 CFR §15.35 [§15.209 - ISM2400 +20dB Adj. to 3m]
 47 CFR §15.209 - ISM2400 [Adj. to 3m]
 Final_Result PK+
 Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2457.695000	---	44.34	---	---	1000.0	1000.000	210.0	H	133.0
2457.695000	61.01	---	---	---	1000.0	1000.000	210.0	H	133.0
2471.080000	---	44.78	---	---	1000.0	1000.000	148.0	H	228.0
2471.080000	60.10	---	---	---	1000.0	1000.000	148.0	H	228.0
2477.335000	---	47.62	---	---	1000.0	1000.000	173.0	H	327.0
2477.335000	62.26	---	---	---	1000.0	1000.000	173.0	H	327.0
2479.430000	89.76	---	---	---	1000.0	1000.000	140.0	H	320.0
2479.430000	---	83.38	---	---	1000.0	1000.000	140.0	H	320.0
2479.935000	---	85.98	---	---	1000.0	1000.000	156.0	H	315.0
2479.935000	88.47	---	---	---	1000.0	1000.000	156.0	H	315.0
2480.550000	88.61	---	---	---	1000.0	1000.000	156.0	H	312.0
2480.550000	---	81.83	---	---	1000.0	1000.000	156.0	H	312.0
2482.285000	---	51.39	---	---	1000.0	1000.000	206.0	H	173.0
2482.285000	64.48	---	---	---	1000.0	1000.000	206.0	H	173.0
2483.500000	60.92	---	73.98	13.06	1000.0	1000.000	148.0	H	142.0
2483.500000	---	45.50	53.98	8.47	1000.0	1000.000	148.0	H	142.0
2483.615000	---	45.41	53.98	8.57	1000.0	1000.000	210.0	V	111.0
2483.615000	61.21	---	73.98	12.77	1000.0	1000.000	210.0	V	111.0
2494.810000	61.49	---	73.98	12.49	1000.0	1000.000	139.0	V	148.0
2494.810000	---	45.62	53.98	8.36	1000.0	1000.000	139.0	V	148.0

4.6 Test Results – 20dB Bandwidth

4.6.1 20dB Bandwidth – Test Summary

This requirement is not applicable as the radio technology is non-hopping

4.7 Test Results – Carrier (Hopping Channel) Separation

4.7.1 Carrier (Hopping Channel) Separation – Test Summary

This requirement is not applicable as the radio technology is non-hopping

4.8 Test Results – Number of Hopping Channels

4.8.1 Number of Hopping Channels – Test Summary

This requirement is not applicable as the radio technology is non-hopping

4.9 Test Results – Time of Occupancy (Dwell Time)

4.9.1 Time of Occupancy (Dwell Time) – Test Summary

This requirement is not applicable as the radio technology is non-hopping

4.10 Test Results – 6dB & 99% Bandwidth

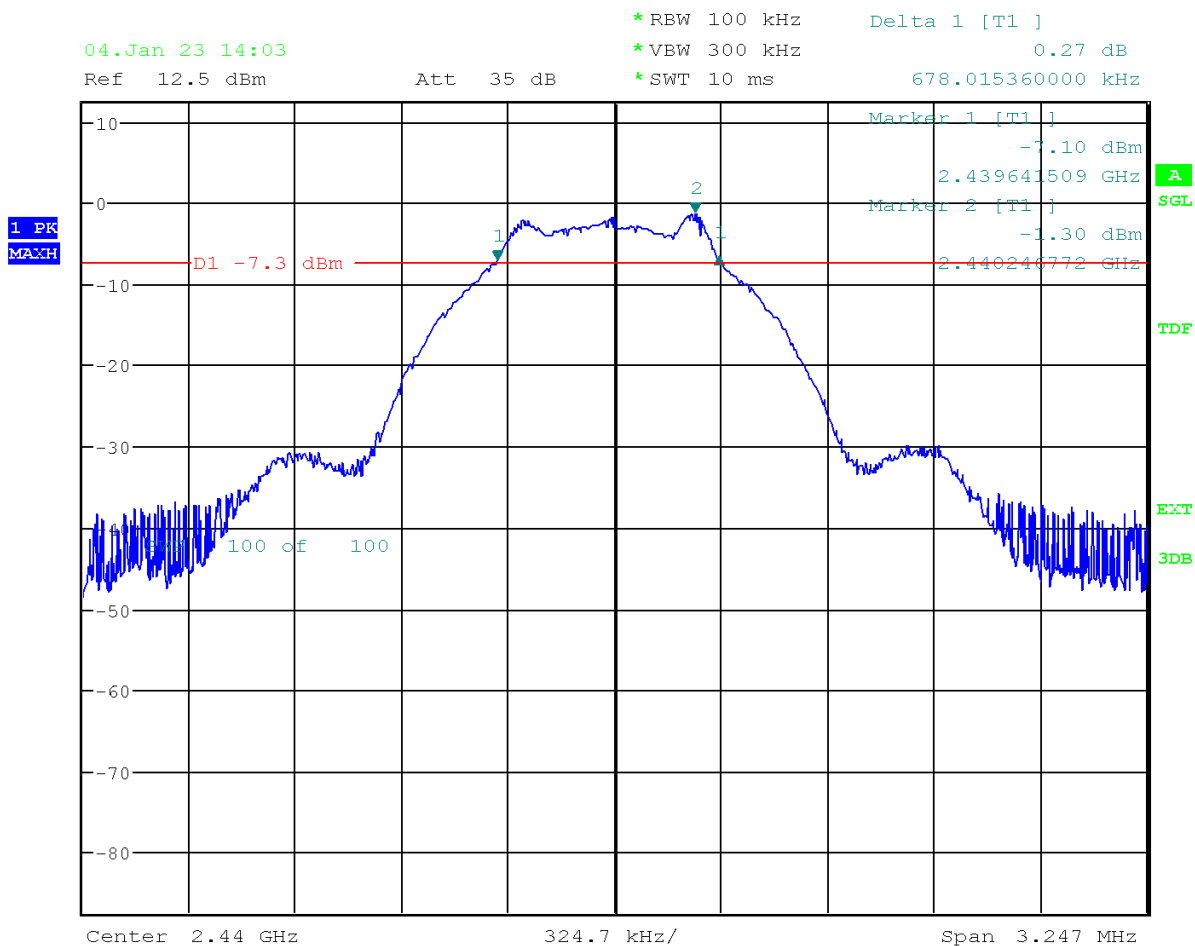
4.10.1 6dB & 99% Bandwidth – Test Summary

Test Specification		15.247 (a)(2)		
Test Engineer & Date		Niall Forrester	2023.01.04	
EUT and Ancillary Equipment IDs		A003368431-012	-	
EUT Operation Mode(s)		Mic – Cond – DTM		
EUT Wireless Configuration(s)		Bluetooth Low Energy (see details below)		
EUT Hardware Configuration(s)		Stand-alone (Stellar Mic)		
Overall Result		PASS		

Test Parameter	Wireless Configuration	Measured (kHz)	Limit (kHz)	Result
6dB Bandwidth	Bluetooth Low Energy LE_1M Low Channel (GFSK 2402 MHz)	681.25	>500	PASS
99% Bandwidth	Bluetooth Low Energy LE_1M Low Channel (GFSK 2402 MHz)	1050.39	-	Info Only
6dB Bandwidth	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402 MHz)	1151.75	>500	PASS
99% Bandwidth	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402 MHz)	2096.25	-	Info Only
6dB Bandwidth	Bluetooth Low Energy LE_1M Mid Channel (GFSK 2440 MHz)	678.02	>500	PASS
99% Bandwidth	Bluetooth Low Energy LE_1M Mid Channel (GFSK 2440 MHz)	1059.82	-	Info Only
6dB Bandwidth	Bluetooth Low Energy LE_2M Mid Channel (GFSK 2440 MHz)	1138.05	>500	PASS
99% Bandwidth	Bluetooth Low Energy LE_2M Mid Channel (GFSK 2440 MHz)	2128.03	-	Info Only
6dB Bandwidth	Bluetooth Low Energy LE_1M High Channel (GFSK 2480 MHz)	681.02	>500	PASS
99% Bandwidth	Bluetooth Low Energy LE_1M High Channel (GFSK 2480 MHz)	1062.11	-	Info Only
6dB Bandwidth	Bluetooth Low Energy LE_2M High Channel (GFSK 2480 MHz)	1125.27	>500	PASS
99% Bandwidth	Bluetooth Low Energy LE_2M High Channel (GFSK 2480 MHz)	2122.81	-	Info Only

4.10.2 6dB & 99% Bandwidth – Test Details (Worst Case Plot):

Mid Channel, LE_1M



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4.11 Test Results – Peak Conducted Output Power

4.11.1 Peak Conducted Output Power – Test Summary

Test Specification	15.247 (b)				
Test Engineer & Date	Niall Forrester			2023.02.28	
EUT and Ancillary Equipment IDs	A003423486-001			N/A	
EUT Operation Mode(s)	Mic – Cond – DTM				
EUT Wireless Configuration(s)	Bluetooth Low Energy (see details below)				
EUT Hardware Configuration(s)	Stand-alone (Stellar Mic)				
Overall Result	PASS				

Test Parameter	Wireless Configuration	Measured Level (dBm)			Limit (dBm)	Result
		Low* 3.0V	Nom* 3.7V	High* 4.2V		
Peak Conducted Output Power	Bluetooth Low Energy LE_1M Low Channel (GFSK 2402 MHz)	-0.68	-0.71	-0.68	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402 MHz)	-0.65	-0.69	-0.68	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M Mid Channel (GFSK 2440 MHz)	-0.80	-0.78	-0.78	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M Mid Channel (GFSK 2440 MHz)	-0.77	-0.76	-0.73	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M High Channel (GFSK 2480 MHz)	-0.76	-0.77	-0.60	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M High Channel (GFSK 2480 MHz)	-0.74	-0.69	-0.48	> -20 < 30	PASS

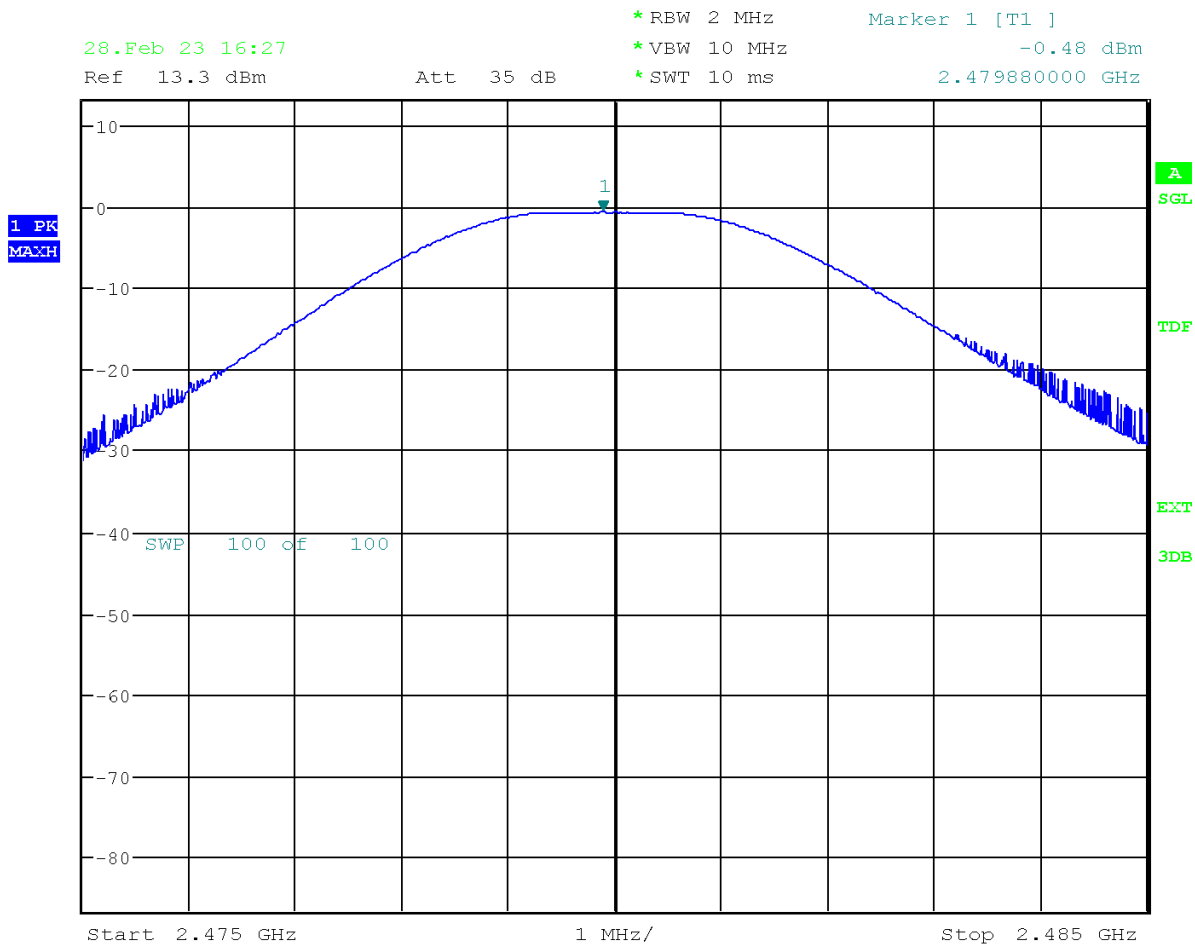
*NOTE

During test, voltage levels were controlled at the VBUS, to emulate nominal, maximum and minimum battery levels. The actual levels set at VBUS were as follows:

Low:	VBUS level 4.0V	equivalent to battery level 3.0V
Nominal:	VBUS level 4.6V	equivalent to battery level 3.7V
High:	VBUS level 5.2V	equivalent to battery level 4.2V

4.11.2 Peak Conducted Output Power – Test Details (Worst case Plot)

High Channel, LE_2M, High Temperature



Date: 28.FEB.2023 16:27:17

4.12 Test Results – Power Spectral Density

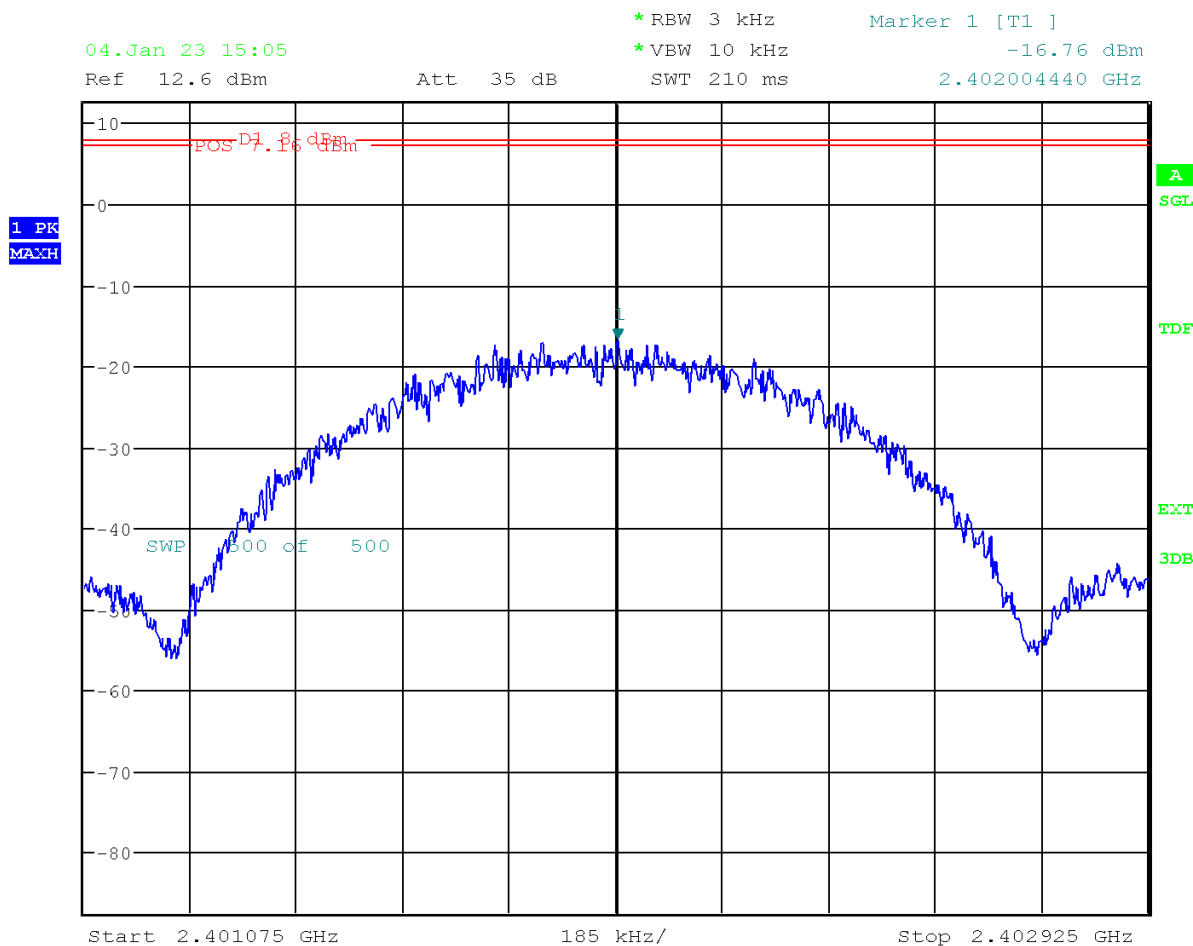
4.12.1 Power Spectral Density – Test Summary

Test Specification		15.247 (e)			
Test Engineer & Date		Niall Forrester		2023.01.04	
EUT and Ancillary Equipment IDs		A003368431-012		-	
EUT Operation Mode(s)		Mic – Cond – DTM			
EUT Wireless Configuration(s)		Bluetooth Low Energy (see details below)			
EUT Hardware Configuration(s)		Stand-alone (Stellar Mic)			
Overall Result		PASS			

Test Parameter	Wireless Configuration	Measured (dBm/3kHz)	Low Limit (dBm/3kHz)	High Limit (dBm/3kHz)	Result
Power Density	Bluetooth Low Energy LE_1M Low Channel (GFSK 2402)	-16.76	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M Low Channel (GFSK 2402)	-20.15	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M Mid Channel (GFSK 2440)	-16.96	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M Mid Channel (GFSK 2440)	-20.23	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M High Channel (GFSK 2480)	-17.08	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M High Channel (GFSK 2480)	-20.44	-30.00	8.00	PASS

4.12.2 Power Spectral Density – Test Details (Plot for maximum power density)

Low Channel, LE_1M



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4.13 Test Results – Maximum Power and e.r.p. Summary

The following details are presented for information only

Technology	Band / Configuration	Measured Maximum Conducted Power (dBm)	Measured Maximum Conducted Power (mW)	Antenna Gain (dBi)	Calculated Maximum e.r.p (dBm)	Calculated Maximum e.r.p (mW)
Bluetooth Low Energy (nRF5340)	2.4 GHz LE_2M	-0.48	0.90	3.60	0.97	1.25

5. TEST EQUIPMENT STATUS

5.1 List of Hardware with Calibration Dates

5.1.1 Hardware List – CTE System

Type	Manufacturer	Model	Serial Number / ID	Calibration Date	Calibration Due
Comprehensive Testing Environment	TÜV Rheinland LGA Products	HWE 6000	00139	N/A	N/A
Bluetooth Signaling Unit	Rohde & Schwarz	CMW500	163750 2711468	2022.07.18	2023.07.18
Spectrum Analyzer	Rohde & Schwarz	FSU26	100308 2704108	2022.07.13	2023.07.13
Vector Signal Generator	Rohde & Schwarz	SMU200A	101584 2704111	2022.09.08	2023.09.08
Power Supply	Keithley	2303	1198722 2717714	2022.08.22	2023.08.22
Multimeter	Keithley	2700	1035251 2704115	2022.07.06	2023.07.06
Average Power Sensor	Rohde & Schwarz	NRP-Z31	102145 2704104	2022.07.14	2023.07.14
Temperature Chamber	Vötsch	VT4002	58566081940010 2717693	N/A	N/A
Single Input Thermometer	Fluke	Fluke-51-2	41410362WS 2807523	2022.07.02	2023.07.02
Temperature probe	Fluke	80PK-1	WPL26041802 2807528	2022.07.02	2023.07.02
Digital Multimeter	Fluke	87	61320241 2744110	2022.07.05	2023.07.05
Humidity Temperature Probe	Lufft	OPUS 20	146.0216.0802.030 2703980	2022.07.27	2024.07.27

5.1.2 Hardware List – Conducted Emissions System

Type	Manufacturer	Model	Serial Number / ID	Calibration Date	Calibration Due
Two-Line V-network	Rohde & Schwarz	ENV216	101090 2704076	2022.07.14	2023.07.14
Test Receiver 9KHz to 3.5 GHz	Rohde & Schwarz	ESR3	101674 2704016	2022.08.19	2023.08.19
Humidity Temperature Probe	Lufft	OPUS 20	146.0216.0802.030 2703980	2022.07.27	2024.07.27

5.1.3 Hardware List – SAC5 System

Type	Manufacturer	Model	Serial Number / ID	Calibration Date	Calibration Due
EMI Test Receiver	Rohde & Schwarz	ESW44	101760 2881044	2022.07.21	2023.07.21
Ultra Broadband Antenna	Rohde & Schwarz	HL562E	100988 2823181	2021.07.26	2023.07.26
Double Ridged Waveguide Horn Antenna	Rohde & Schwarz	HF907	102678 2823164	2021.07.26	2023.07.26
Horn Antenna	ETS Lindgren	UG-596A/U	20898 2814839	2022.07.26	2024.07.26
Horn Antenna – 40 GHz	ETS Lindgren	UG-600A/U	20623 2814834	2022.07.26	2024.07.26
Control Device	Maturo	NCD	NCD/393/2372.01 2884216	N/A	N/A
Open Switch & Control Unit	Rohde & Schwarz	OSP150	100081 2884198	2022.08.01	2023.08.01
Open Switch & Control Unit	Rohde & Schwarz	OSP120	100084 2761253	2022.08.01	2023.08.01
Shielded Filter Unit	Rohde & Schwarz	OSP-F Extension 1	101333 2761265	2022.08.01	2023.08.01
Shielded Filter Unit	Rohde & Schwarz	OSP-F Extension 2	101335 2761266	2022.08.01	2023.08.01
Shielded Filter Unit	Rohde & Schwarz	OSP-F Base Unit	101330 2761262	2022.08.01	2023.08.01
Humidity Temperature Probe	Lufft	OPUS 20	146.0216.0802.030 2703980	2022.07.27	2024.07.27

5.2 Software / Firmware Versions

Equipment	Software / Firmware Name	Version
Comprehensive Testing Environment (CTE)	CTE – TMF CTE – BT	V51.0 V44.0
Conducted Emissions System	EMC 32	V10.60.20
SAC 5	EMC 32	V10.60.20

6. MEASUREMENT UNCERTAINTY

6.1 Measurement Uncertainty for CTE

Parameter	Uncertainty (Coverage Factor k=2)
Maximum Output Power (15.247b)	±0.51 dB
6dB / 20dB Channel Bandwidth & 99% Occupied bandwidth (15.247a)	<5%
Carrier Frequency Separation (15.247a)	N/A
Number of Hopping Channels (15.247a)	N/A
Time of Occupancy – Dwell Time (15.247a)	N/A
Band Edge Compliance of Conducted Emissions (15.247a)	±1.04 dB
Conducted Spurious Emissions (15.247d)	±2.98 dB
Power Spectral Density (15.247e)	±0.51 dB

6.2 Measurement Uncertainty for Conducted Emissions

Parameter	Uncertainty (Coverage Factor k=2)
Conducted emissions with LISN 150KHz to 30 MHz	2.98 dB

6.3 Measurement Uncertainty for SAC 5 (Radiated Emissions & Band Edge)

Parameter	Uncertainty (Coverage Factor k=2)
Field Strength 10 Hz -9 kHz	3.38 dB
Field Strength 9 kHz -30 MHz	3.38 dB
Field Strength 30 MHz -1000 MHz	3.38 dB
Field Strength 1 GHz -18 GHz	4.88 dB
Field Strength 18 GHz - 40 GHz	5.14 dB

7. PHOTOGRAPHS

See Appendix 1 for photographs