

Prüfbericht-Nr.: Test report no.:	SE23Z8IW-003	Auftrags-Nr.: Order no.:	0290100214	Seite 1 von 80 Page 1 of 80	
Kunden-Referenz-Nr.: Client reference no.:	2458172	Auftragsdatum: Order date:	2022.09.29		
Auftraggeber: Client:	Nomono AS				
Prüfgegenstand: Test item:	Central hub of recording device				
Bezeichnung / Typ-Nr.: Identification / Type no.:	Space Recorder / FCC ID: 2A9CX-REC1				
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:	2023.01.13 - 2023.03.08				
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: 2023.05.17 Date:	Datum: 2023.05.17 Date:				
Stellung / Position:	Senior Technical Expert	Stellung / Position:	Lab Manager		
Sonstiges / Other:	The device contains multiple radio transmitters. Please see section 2.1 for details and section 3.7 for notes about the configurations tested.				
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	5 = mangelhaft N/T = nicht getestet
* 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 = 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. <i>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.</i>					

Revision History

REVISION	DATE	REMARKS	AUTHOR
001	2023.04.20	First release	Niall Forrester
002	2023.04.21	Corrected error in wireless frequencies	Niall Forrester
003	2023.05.17	Updated module text	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)	YES	4.1	PASS	
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.

*NOTE: See details in section 3.7 regarding which configurations were tested.

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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:	Space Recorder
Manufacturer:	Nomono
Model number / Marketing name:	Space Recorder
FCC ID:	2A9CX-REC1
Description:	Central hub of recording device
Ancillary Equipment:	See section 2.8

The device incorporates five separate radio transmitters:

A “Main” module for WLAN 2.4 GHz 802.11 b/g/n, WLAN 5GHz 802.11 a/n/ac and Bluetooth Low Energy.
This module uses its own SMT antenna

4 x “Microphone” modules (labelled “Tx0” “Tx3” below) for communicating with a wireless microphone via Bluetooth Low Energy. Each of these modules is connected to its own PCB antenna

2.2 Device Characteristics

Device Class for 47 CFR Part 15 B	Class B
Type of Power Supply	Internal battery Charging via dedicated charging base or Charging via USB C (No dedicated AC/DC adapter supplied with device)
Nominal Supply Voltage	3.6V DC (Battery) 5.0V DC (From charging base) 5.0V DC (USB)
Supply Voltage Range	2.75V – 4.2V (Battery) 4.9V – 5.1V (From charging base) 5.0V – 12.0V DC (USB)
Operating Temperature Range	0 to 45 °C
Operating Air Humidity Range	-
Highest Internal Frequency Source	5825 MHz

2.3 Test Samples

EUT #	EUT ID	Description	Used For:
1	A003401717-001	Modified with Semi-Rigid Hardware: 830-00002 rev. 4 Firmware: nRF radio: 2022.11.08 CPU: 2022.11.08	Conducted RF
2	A003403873-001	Standard Sample Hardware: 830-00002 rev. 4 Firmware: nRF radio: 2022.11.08 CPU: 2022.11.08	Radiated Emissions
3	A003414830-002	Standard Sample Hardware: 830-00002 rev. 4 Firmware: nRF radio: v0.8.0 CPU: v0.6.1	Radiated Emissions
4	A003414830-003	Standard Sample Hardware: 830-00002 rev. 4 Firmware: nRF radio: v0.8.0 CPU: v0.6.1	Radiated Emissions
5	A003418772-001	Modified with Semi-Rigid Hardware: 830-00002 rev. 4 Firmware: nRF radio: v0.8.0 CPU: v0.6.1	Conducted RF
6	A003421467-001	Standard Sample Hardware: 830-00002 rev. 4 Firmware: nRF radio: v0.8.0 CPU: v0.6.1	AC Conducted Emissions

2.4 Wireless Technologies and Bands Supported by the EUT

Technology	Band	Frequency Range (Tx)	Evaluation Performed*
WLAN 802.11b/g/n (Main)	2.4 GHz	2412 MHz - 2462 MHz	NO
WLAN 802.11a/n/ac (Main)	5 GHz	5180 MHz – 5825 MHz	NO
Bluetooth Low Energy (Main)	2.4 GHz	2402 MHz - 2480 MHz	YES
Bluetooth Low Energy (Microphone Tx0)	2.4 GHz	2402 MHz - 2480 MHz	YES
Bluetooth Low Energy (Microphone Tx1)	2.4 GHz	2402 MHz - 2480 MHz	YES
Bluetooth Low Energy (Microphone Tx2)	2.4 GHz	2402 MHz - 2480 MHz	YES
Bluetooth Low Energy (Microphone Tx3)	2.4 GHz	2402 MHz - 2480 MHz	YES

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

(Note that other parts of the recording system contain additional wireless transmitters have been tested separately)

2.5 Antenna Information

Technology	Band	Number of Antennas	Antenna Type(s)	Gain (dBi)
WLAN 802.11b/g/n (Main) & Bluetooth Low Energy (Main)	2.4 GHz	1	SMT Chip Antenna	4.20
WLAN 802.11a/n/ac (Main)	5 GHz	1	SMT Chip Antenna	4.50
Bluetooth Low Energy (Microphone Tx0)	2.4 GHz	1	PCB Antenna	2.05
Bluetooth Low Energy (Microphone Tx1)	2.4 GHz	1	PCB Antenna	1.99
Bluetooth Low Energy (Microphone Tx2)	2.4 GHz	1	PCB Antenna	2.58
Bluetooth Low Energy (Microphone Tx3)	2.4 GHz	1	PCB Antenna	1.16

2.6 Simultaneous Transmission Capabilities

Active Technologies	Bands	Active Modules
WLAN 802.11 b/g/n Bluetooth Low Energy Bluetooth Low Energy Bluetooth Low Energy Bluetooth Low Energy (All active simultaneously)	2.4 GHz 2.4 GHz 2.4 GHz 2.4 GHz 2.4 GHz	Main Microphone Tx0 Microphone Tx1 Microphone Tx2 Microphone Tx3 (All active simultaneously)
Bluetooth Low Energy Bluetooth Low Energy Bluetooth Low Energy Bluetooth Low Energy Bluetooth Low Energy (All active simultaneously)	2.4 GHz 2.4 GHz 2.4 GHz 2.4 GHz 2.4 GHz	Main Microphone Tx0 Microphone Tx1 Microphone Tx2 Microphone Tx3 (All active simultaneously)
WLAN 802.11 a/n/ac Bluetooth Low Energy Bluetooth Low Energy Bluetooth Low Energy Bluetooth Low Energy (All active simultaneously)	5 GHz 2.4 GHz 2.4 GHz 2.4 GHz 2.4 GHz	Main Microphone Tx0 Microphone Tx1 Microphone Tx2 Microphone Tx3 (All active simultaneously)

The configurations listed above represent the worst cases. Variations of these configurations where one or more radio transmitters is not active are also possible. The “Microphone” modules operate independent of each other and independent of the “Main” module. The “Main” module is not capable of transmitting WLAN 2.4GHz and WLAN 5GHz simultaneously, neither can it transmit Bluetooth Low Energy and WLAN simultaneously.

2.7 Wireless Technology Details

Technology	Band	Modulation Type(s)	No. of Channels	Channel Spacing	Adaptivity
WLAN 802.11b/g/n (Main)	2.4 GHz	CCK, BPSK, QPSK, 16-QAM, 64-QAM	As per 802.11 Spec	As per 802.11 Spec	N/A
WLAN 802.11a/n/ac (Main)	5 GHz	CCK, BPSK, QPSK, 16-QAM, 64-QAM	As per 802.11 Spec	As per 802.11 Spec	N/A
Bluetooth Low Energy (Main)	2.4 GHz	GFSK	40	2 MHz	N/A
Bluetooth Low Energy (Microphone Tx0)	2.4 GHz	GFSK	40	2 MHz	N/A
Bluetooth Low Energy (Microphone Tx1)	2.4 GHz	GFSK	40	2 MHz	N/A
Bluetooth Low Energy (Microphone Tx2)	2.4 GHz	GFSK	40	2 MHz	N/A
Bluetooth Low Energy (Microphone Tx3)	2.4 GHz	GFSK	40	2 MHz	N/A

2.8 Ancillary Equipment

ID	Description	Manufacturer / Model	Hardware & Software Versions
A003389898-003	USB Charger	Samsung EP-T4510	HW: 13.08.2022 FW: N/A

2.9 EUT Diagrams

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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 0

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	N/A
15.247 (a)(1)	Carrier (Hopping Channel) Separation	N/A
15.247 (a)(1)	Number of Hopping Channels	N/A
15.247 (a)(1)	Time of Occupancy (Dwell Time)	N/A
15.247 (a)(2)	6dB Bandwidth	CTE
15.247 (b)	Peak Conducted Output Power	CTE
15.247 (e)	Power Spectral Density	CTE

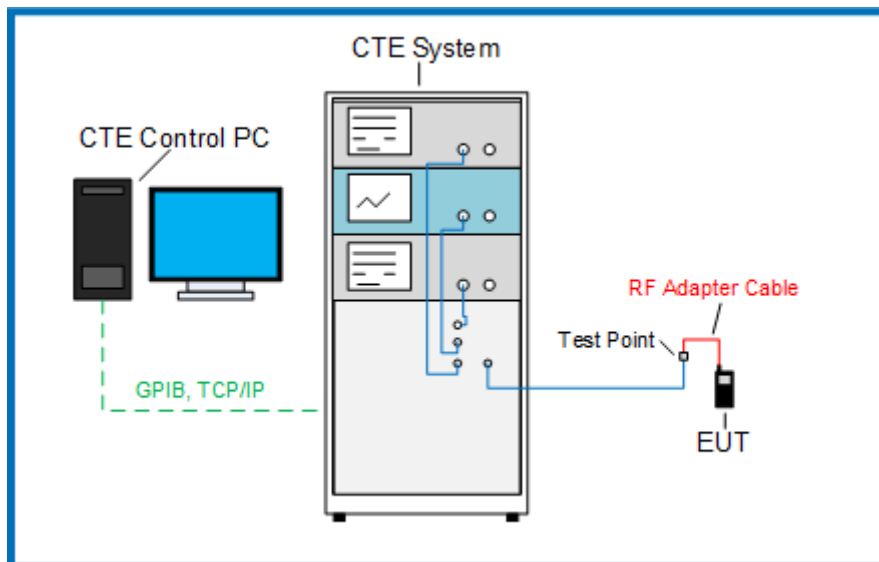
3.4.3 Test Equipment Setup – CTE System

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.

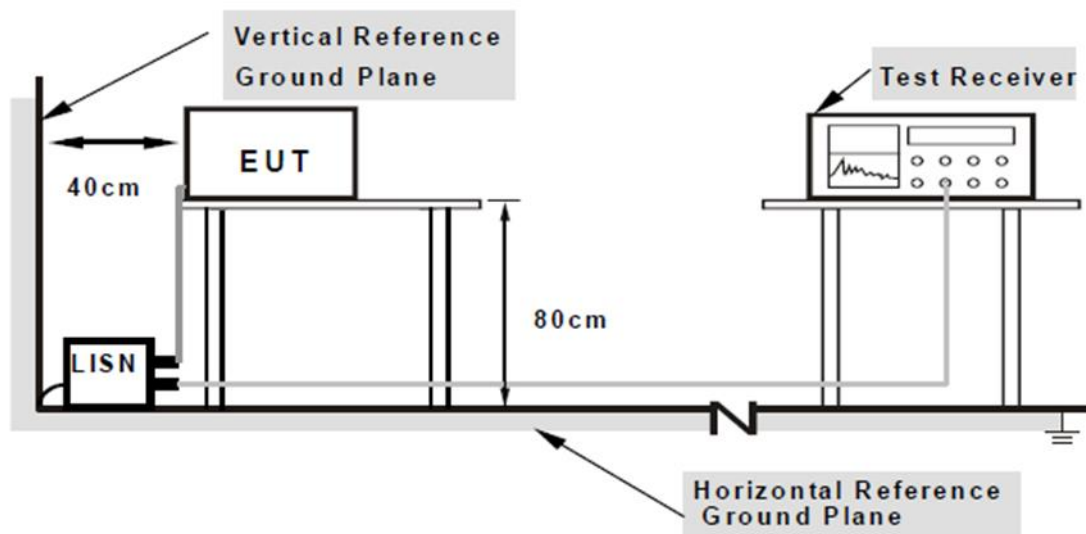
Losses in the cables and interconnects have been measured using the system's own automated routines and are compensated for automatically. Any additional loss in RF adapter cables supplied together with the EUT can be compensated for using the known characteristics of that adapter.

CTE Block Diagram



3.4.4 Test Equipment Setup – Conducted Emissions

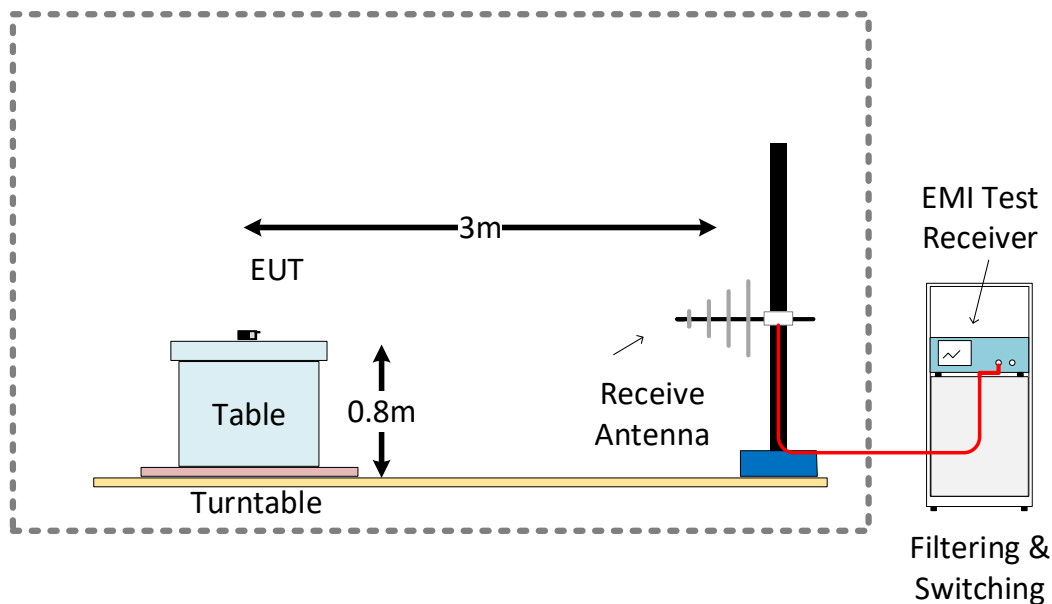
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The LISNs provide $50\Omega/50\mu\text{H}$ of coupling 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.



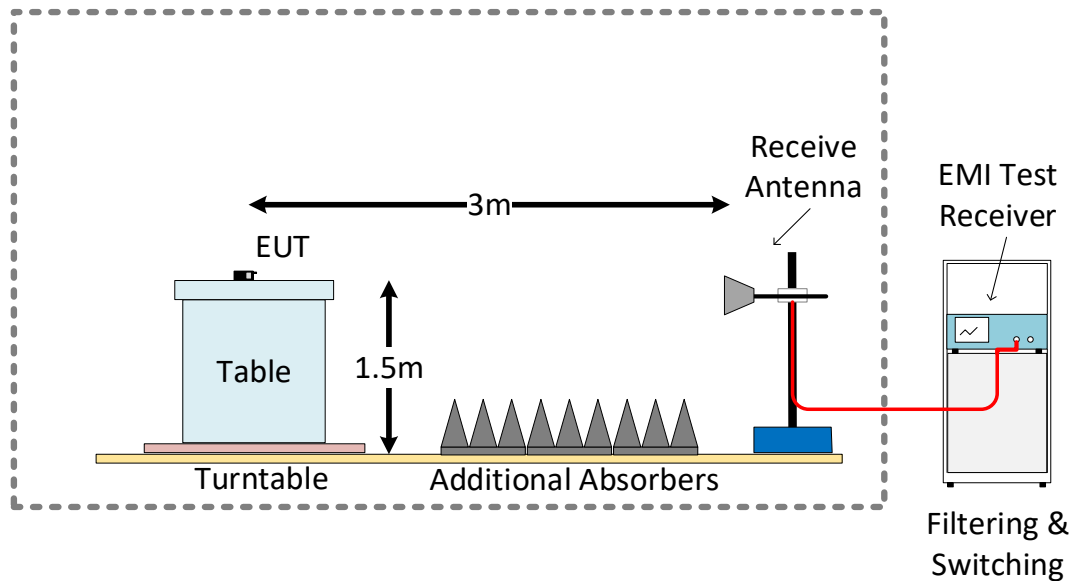
3.4.5 Test Equipment Setup – SAC 5 (Radiated Emissions and Restricted Band Edge)

- 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.

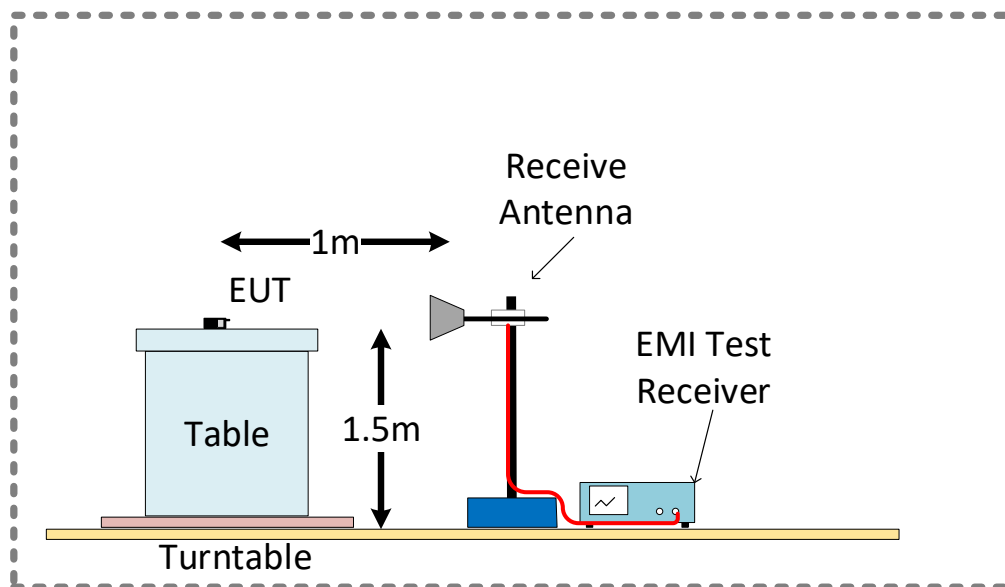
SAC 5 Test Setup Configuration 30MHz – 1GHz



SAC 5 Test Setup Configuration 1GHz – 18GHz

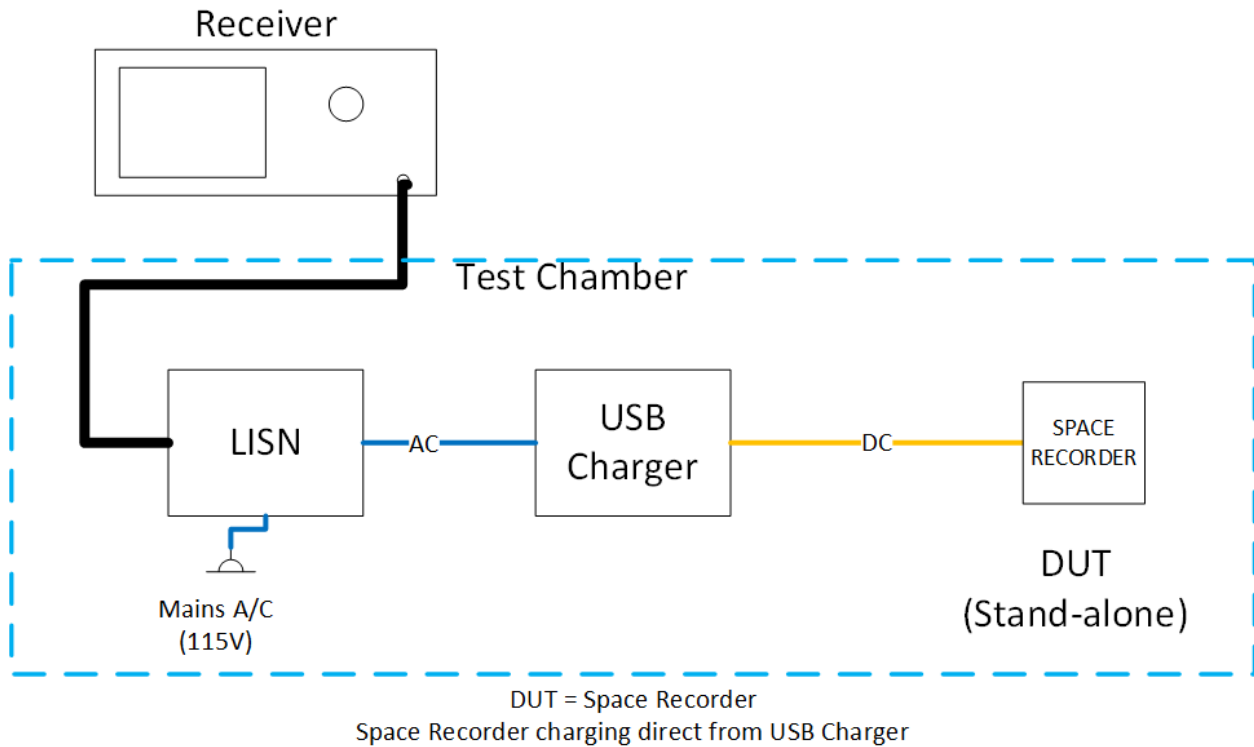


SAC 5 Test Setup Configuration 18GHz – 40GHz



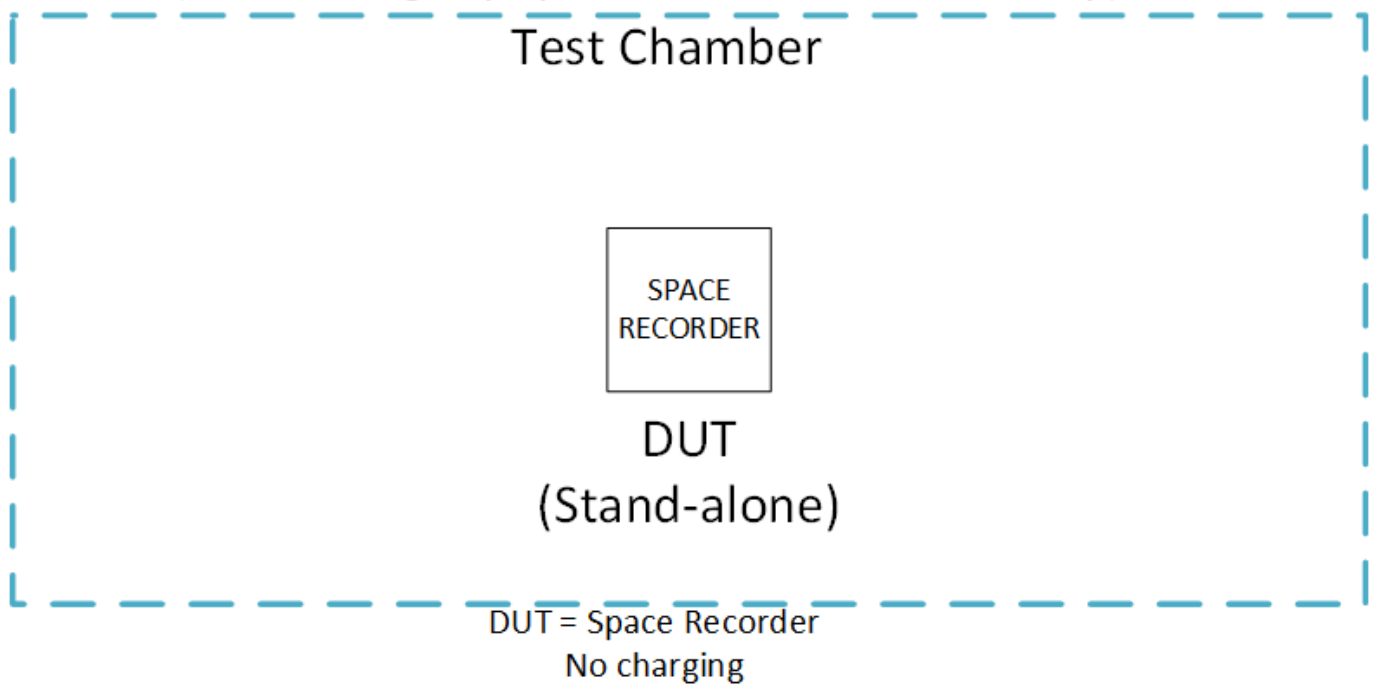
3.5 EUT Configuration During Test

AC Conducted Emissions Testing: Block Diagram (Stand-alone with charging)



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

(Measuring equipment omitted for clarity)



3.6 EUT Operation Modes

Operation mode	Description
Rec – Charge - CTX	Space Recorder only in “stand-alone” configuration. Device charging via USB (not in charging base) Radio transmitter(s) in ‘continuous transmit’ mode – channel frequency and modulation can be set manually. Details about which transmitters, channels etc. listed under “Wireless Configuration”
Rec – No Chg - CTX	Space Recorder only in “stand-alone” configuration. Device not charging (neither base nor USB) – battery power only Radio transmitter(s) in ‘continuous transmit’ mode – channel frequency and modulation can be set manually. Details about which transmitters, channels etc. listed under “Wireless Configuration”
Rec – Cond - DTM	Space Recorder 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 controlled by test equipment using Bluetooth “Direct Test Mode” Details about which transmitters, channels etc. listed under “Wireless Configuration”

Note that the Microphone Bluetooth transmitters in the device support both LE_1M and LE_2M Bluetooth Low Energy modulation modes whereas the device under test, the Space Recorder, 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
- Note about multiple “Microphone” transmitters

These four transmitters each have their own PCB antenna. All four are equivalent electrically, and in terms of their rated power. They differ slightly in their placement within the casing of the Space Recorder device. The antenna gain for each antenna has been determined individually whilst in place in the casing with all components in place

As such, the conducted radio tests have been run in full for all four Microphone transmitters, but radiated testing has been reduced slightly as follows:

- The “Microphone” module with the highest radiated power has been tested fully (all channels)
 - Spurious emissions testing on the other three “Microphone” modules has been performed only on the channel with the highest power
 - Band edges have been tested fully for all four “Microphone” modules
 - Note about the “Main” module
- The “Main” module supports WLAN 2.4GHz, WLAN 2.5 GHz and Bluetooth Low Energy.
- As the output power for Bluetooth Low Energy is substantially lower than the output power for WLAN 2.4 GHz, radiated testing (Spurious Emissions) for 2.4GHz band has only performed for the WLAN part. These results are available in a separate report.
- AC Power Line emissions has been tested with one “Microphone” module active (the one with the highest power output)
 - Results for additional testing with multiple radio transmitters operating simultaneously is available in a separate report.

3.8 Environmental Conditions

3.8.1 Environmental Conditions – CTE System

Date	Time	Temperature (°C)	Relative Humidity (%)
2023.01.13	07:54	18.8	41
2023.01.16	08:20	19.4	34
2023.01.18	08:15	18.3	31
2023.03.07	09:50	20.4	37
2023.03.08	08:08	19.8	21

3.8.2 Environmental Conditions – Conducted Emissions System

Date	Time	Temperature (°C)	Relative Humidity (%)
2023.03.02	09:57	22.5	23

3.8.3 Environmental Conditions – SAC5 (Radiated Emissions)

Date	Time	Temperature (°C)	Relative Humidity (%)
2023.01.20	09:21	19.0	33
2023.01.23	07:25	17.9	36
2023.01.24	08:15	18.1	33
2023.01.26	08:00	18.3	32
2023.01.27	08:01	18.3	33
2023.01.30	07:43	18.0	35
2023.01.31	07:46	19.9	30
2023.02.16	08:01	18.8	35
2023.02.17	09:50	18.5	38

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

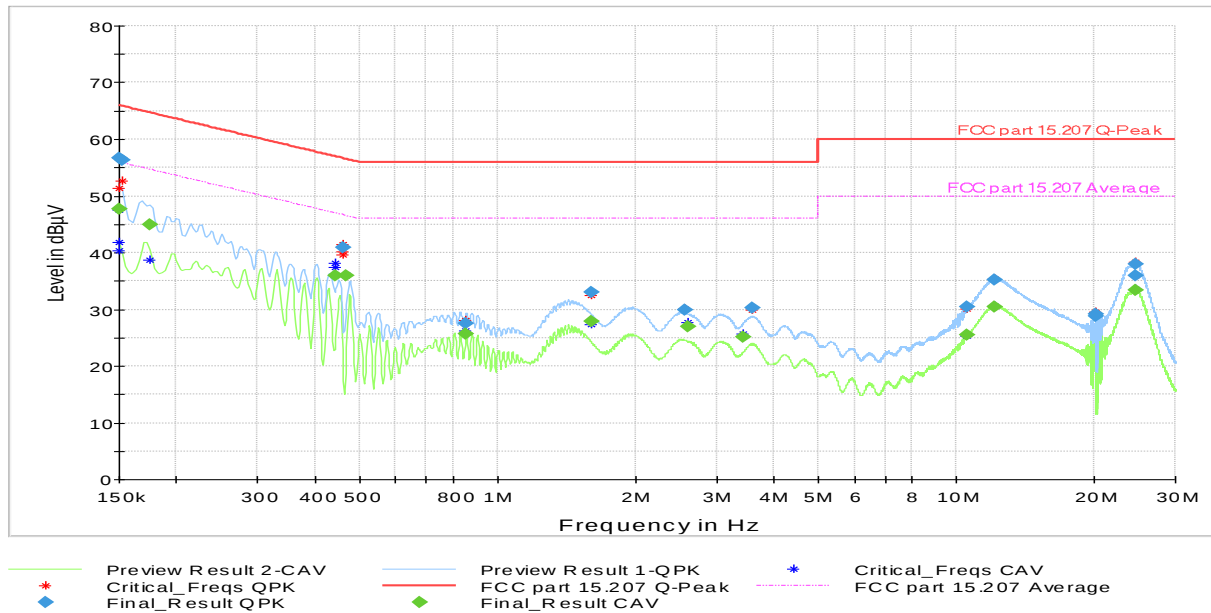
Test Specification	FCC 47 CFR 15.207 (Part 15 Subpart C)		
Test Engineer & Date	Niall Forrester	2023.03.02	
EUT and Ancillary Equipment IDs	A003421467-001	A003389898-003	
EUT Operation Mode(s)	Rec – No Chg - CTX		
EUT Wireless Configuration(s)	Bluetooth Low Energy (see details below)		
EUT Hardware Configuration(s)	Stand-alone (Space Recorder)		
Overall Result	PASS		

Test Parameter	Wireless Configuration	Frequency Range	Result*
AC Conducted Power Line Emissions – “N” Line 115V / 60Hz Stand-alone	Bluetooth Low Energy LE_2M (Microphone Tx2) Mid Channel (GFSK 2440 MHz)	150kHz – 30MHz	PASS
AC Conducted Power Line Emissions – “L1” Line 115V / 60Hz Stand-alone	Bluetooth Low Energy LE_2M (Microphone Tx2) Mid Channel (GFSK 2440 MHz)	150kHz – 30MHz	PASS

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

4.1.2 AC Power Line Conducted Emissions (Intentional) – Test Details: Stand-alone

Test mode condition	Conducted Emissions	
Sweep frequency	150 kHz – 30 MHz	
Standard	FCC 47 Part 15.207	
EUT	A003421467-001	
Ancillary Equipment	A003389898-003	
Test Engineer	Niall Forrester	Date: 2023.03.02



Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line
0.150000	56.62	---	66.00	9.38	1000.0	9.000	N
0.150000	---	47.78	56.00	8.22	1000.0	9.000	L1
0.152250	56.37	---	65.88	9.50	1000.0	9.000	N
0.174750	---	44.87	54.73	9.86	1000.0	9.000	L1
0.444750	---	35.88	46.97	11.10	1000.0	9.000	L1
0.462750	40.99	---	56.64	15.66	1000.0	9.000	L1
0.467250	---	36.04	46.56	10.53	1000.0	9.000	L1
0.849750	---	25.65	46.00	20.35	1000.0	9.000	L1
0.852000	27.52	---	56.00	28.48	1000.0	9.000	N
1.596750	---	27.92	46.00	18.08	1000.0	9.000	N
1.596750	33.02	---	56.00	22.98	1000.0	9.000	N
2.568750	29.92	---	56.00	26.08	1000.0	9.000	N
2.595750	---	26.97	46.00	19.03	1000.0	9.000	L1
3.423750	---	25.10	46.00	20.90	1000.0	9.000	L1
3.601500	30.33	---	56.00	25.67	1000.0	9.000	N
10.531500	30.44	---	60.00	29.56	1000.0	9.000	N
10.551750	---	25.46	50.00	24.54	1000.0	9.000	N
12.135750	---	30.50	50.00	19.50	1000.0	9.000	N
12.144750	35.27	---	60.00	24.73	1000.0	9.000	N
20.186250	28.85	---	60.00	31.15	1000.0	9.000	N
20.188500	29.22	---	60.00	30.78	1000.0	9.000	N
24.472500	---	33.45	50.00	16.55	1000.0	9.000	N
24.492750	35.95	---	60.00	24.05	1000.0	9.000	L1
24.580500	38.03	---	60.00	21.97	1000.0	9.000	N

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 Sam Ebadeh	2023.01.23 – 2023.02.17
EUT and Ancillary Equipment IDs	A003403873-001 A003414830-002 A003414830-003	N/A
EUT Operation Mode(s)	Rec – No Chg - CTX	
EUT Wireless Configuration(s)	Bluetooth Low Energy (see details below)	
EUT Hardware Configuration(s)	Stand-alone (Space Recorder)	
Overall Result	PASS	

Test Parameter	Wireless Configuration	Frequency Range	Result
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx0) Low Channel (GFSK 2402 MHz)	30 MHz – 1 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx0) Low Channel (GFSK 2402 MHz)	1 GHz – 18 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx0) Low Channel (GFSK 2402 MHz)	18 GHz – 40 GHz	PASS

Test Parameter	Wireless Configuration	Frequency Range	Result
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx1) Low Channel (GFSK 2402 MHz)	30 MHz – 1 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx1) Low Channel (GFSK 2402 MHz)	1 GHz – 18 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx1) Low Channel (GFSK 2402 MHz)	18 GHz – 40 GHz	PASS

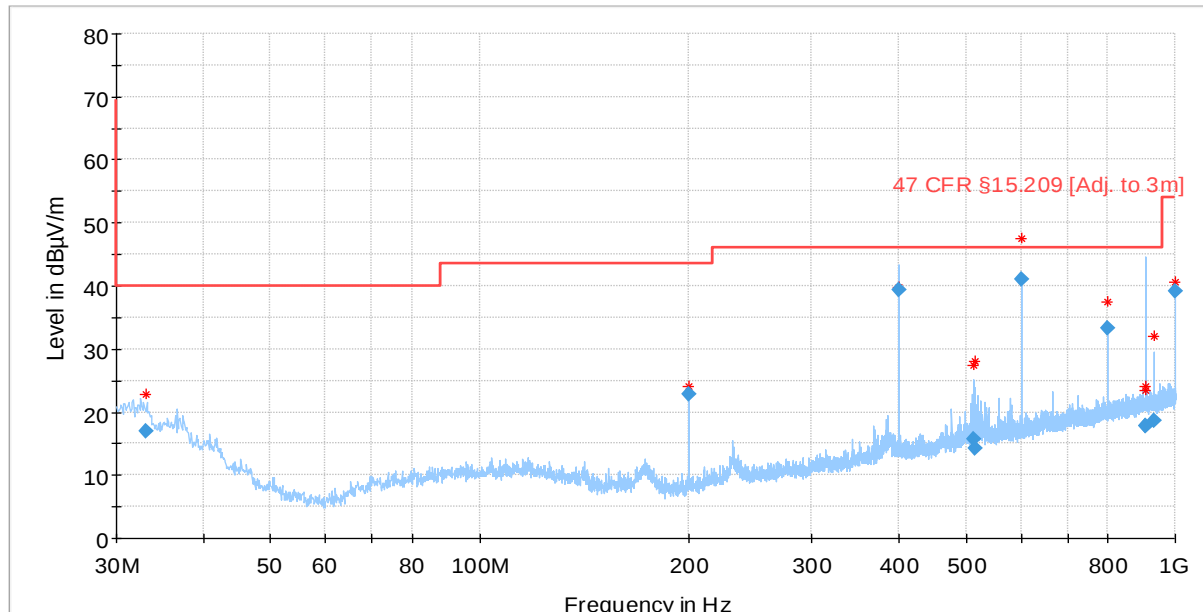
Test Parameter	Wireless Configuration	Frequency Range	Result
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx2) Low Channel (GFSK 2402 MHz)	9 kHz – 30 MHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx2) Low Channel (GFSK 2402 MHz)	30 MHz – 1 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx2) Low Channel (GFSK 2402 MHz)	1 GHz – 18 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx2) Low Channel (GFSK 2402 MHz)	18 GHz – 40 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx2) Mid Channel (GFSK 2440 MHz)	30 MHz – 1 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx2) Mid Channel (GFSK 2440 MHz)	1 GHz – 18 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx2) Mid Channel (GFSK 2440 MHz)	18 GHz – 40 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx2) High Channel (GFSK 2480 MHz)	30 MHz – 1 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx2) High Channel (GFSK 2480 MHz)	1 GHz – 18 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx2) High Channel (GFSK 2480 MHz)	18 GHz – 40 GHz	PASS

Test Parameter	Wireless Configuration	Frequency Range	Result
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx3) Low Channel (GFSK 2402 MHz)	30 MHz – 1 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx3) Low Channel (GFSK 2402 MHz)	1 GHz – 18 GHz	PASS
Radiated Emissions	Bluetooth Low Energy LE_2M (Microphone Tx3) Low Channel (GFSK 2402 MHz)	18 GHz – 40 GHz	PASS

4.2.2 Radiated Emissions (Intentional) – Test Details: Microphone Tx0

Microphone Tx0 - Low Channel: 30 MHz – 1 GHz

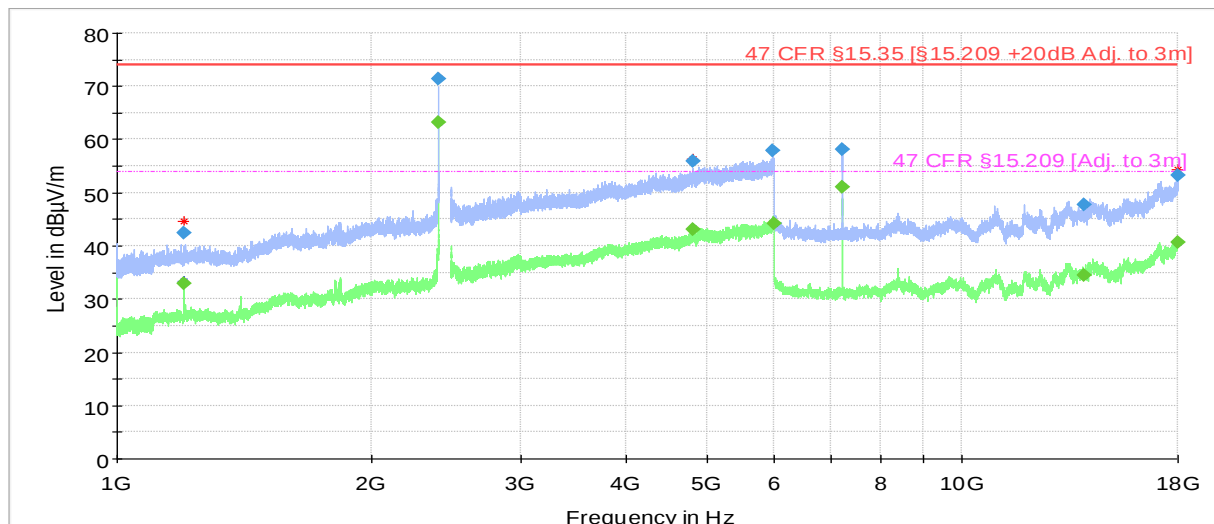
Test mode condition	Microphone Tx0 BLE LE_2M, Low channel (2402 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	30 MHz – 1 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003403873-001	
Ancillary Equipment	-	
Test Engineer	Niall Forrester	Date: 2023.01.26
Chamber details	Chamber: SAC 5	



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
33.114080	16.98	40.00	23.02	1000.0	120.000	179.0	V	65.0
199.992000	22.90	43.52	20.62	1000.0	120.000	100.0	V	72.0
400.004200	39.44	46.02	6.58	1000.0	120.000	225.0	V	292.0
513.589320	15.75	46.02	30.27	1000.0	120.000	100.0	V	202.0
515.178520	14.31	46.02	31.71	1000.0	120.000	125.0	V	72.0
600.002360	41.15	46.02	4.87	1000.0	120.000	100.0	V	338.0
800.000160	33.33	46.02	12.69	1000.0	120.000	157.0	V	292.0
905.969000	17.87	46.02	28.15	1000.0	120.000	406.0	H	234.0
906.780720	17.84	46.02	28.18	1000.0	120.000	375.0	H	244.0
932.973680	18.60	46.02	27.42	1000.0	120.000	125.0	V	311.0
999.997780	39.06	53.98	14.92	1000.0	120.000	104.0	V	131.0

Microphone Tx0 - Low Channel: 1 GHz – 18 GHz

Test mode condition	Microphone Tx0 BLE 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	A003403873-001	
Ancillary Equipment	-	
Test Engineer	Niall Forrester	Date: 2023.01.23
Chamber details	Chamber: SAC 5	



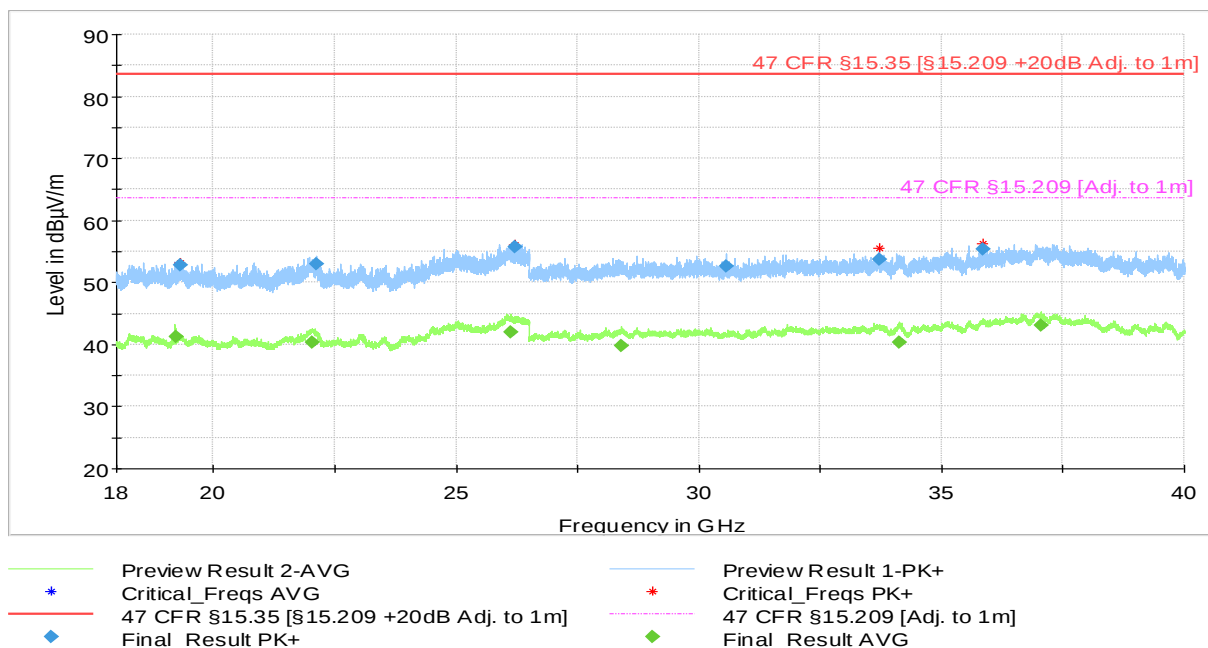
—	preview Result 2-AVG	—	Preview Result 1-PK+
*	Critical_Freqs AVG	*	Critical_Freqs PK+
—	47 CFR §15.35 [§15.209 +20dB Adj. to 3m]	—	47 CFR §15.209 [Adj. to 3m]
◆	Final_Result PK+	◆	Final_Result AVG
×	MaxPeak-PK+ (Single)	+	Average-AVG (Single)

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)
1199.833000	42.46	---	73.98	31.52	1000.0	1000.000	175.0	H	-18.0
1199.946000	---	32.82	53.98	21.16	1000.0	1000.000	175.0	H	-18.0
4803.237000	---	43.14	53.98	10.84	1000.0	1000.000	100.0	V	11.0
4803.268000	55.89	---	73.98	18.09	1000.0	1000.000	102.0	V	10.0
5974.642000	58.01	---	73.98	15.97	1000.0	1000.000	199.0	H	191.0
5983.103000	---	44.13	53.98	9.85	1000.0	1000.000	100.0	V	179.0
7204.693000	58.19	---	73.98	15.79	1000.0	1000.000	158.0	V	311.0
7207.373000	---	51.11	53.98	2.87	1000.0	1000.000	175.0	V	310.0
13942.665000	47.81	---	73.98	26.17	1000.0	1000.000	210.0	H	248.0
13943.521000	---	34.45	53.98	19.53	1000.0	1000.000	175.0	H	248.0
17985.478000	53.25	---	73.98	20.73	1000.0	1000.000	159.0	H	202.0
17994.151000	---	40.60	53.98	13.38	1000.0	1000.000	125.0	H	162.0

Microphone Tx0 - Low Channel: 18 GHz – 40 GHz

Test mode condition	Microphone Tx0 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.30
Chamber details	Chamber: SAC 5	

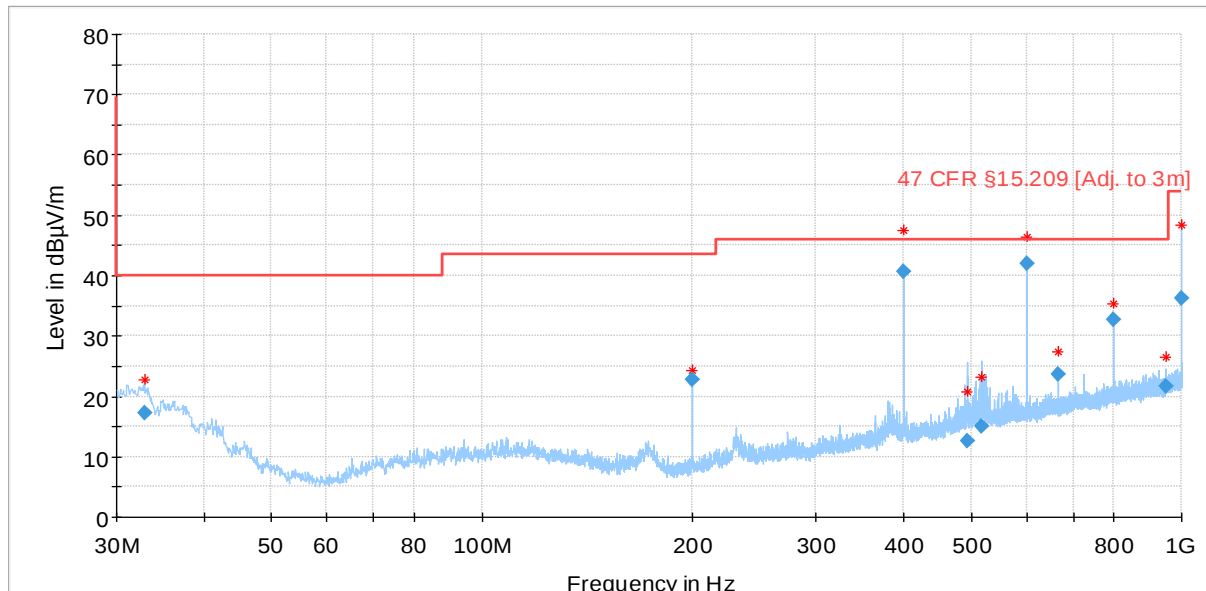


Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
19212.573000	---	41.18	63.52	22.34	1000.0	1000.000	155.0	H	26.0
19322.343000	52.81	---	83.52	30.71	1000.0	1000.000	155.0	V	112.0
22035.700000	---	40.35	63.52	23.18	1000.0	1000.000	155.0	V	322.0
22115.902000	52.97	---	83.52	30.55	1000.0	1000.000	155.0	V	68.0
26126.673000	---	42.00	63.52	21.52	1000.0	1000.000	155.0	V	82.0
26212.598000	55.75	---	83.52	27.77	1000.0	1000.000	155.0	V	342.0
28387.439000	---	39.87	63.52	23.65	1000.0	1000.000	155.0	V	292.0
30560.603000	52.65	---	83.52	30.87	1000.0	1000.000	155.0	H	38.0
33705.173000	53.75	---	83.52	29.78	1000.0	1000.000	155.0	V	202.0
34126.538000	---	40.32	63.52	23.20	1000.0	1000.000	155.0	V	22.0
35862.980000	55.45	---	83.52	28.07	1000.0	1000.000	155.0	H	252.0
37038.538000	---	43.10	63.52	20.43	1000.0	1000.000	155.0	H	278.0

4.2.3 Radiated Emissions (Intentional) – Test Details: Microphone Tx1

Microphone Tx1 - Low Channel: 30 MHz – 1 GHz

Test mode condition	Microphone Tx1 BLE 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	A003403873-001	
Ancillary Equipment	-	
Test Engineer	Niall Forrester	Date: 2023.01.26
Chamber details	Chamber: SAC 5	

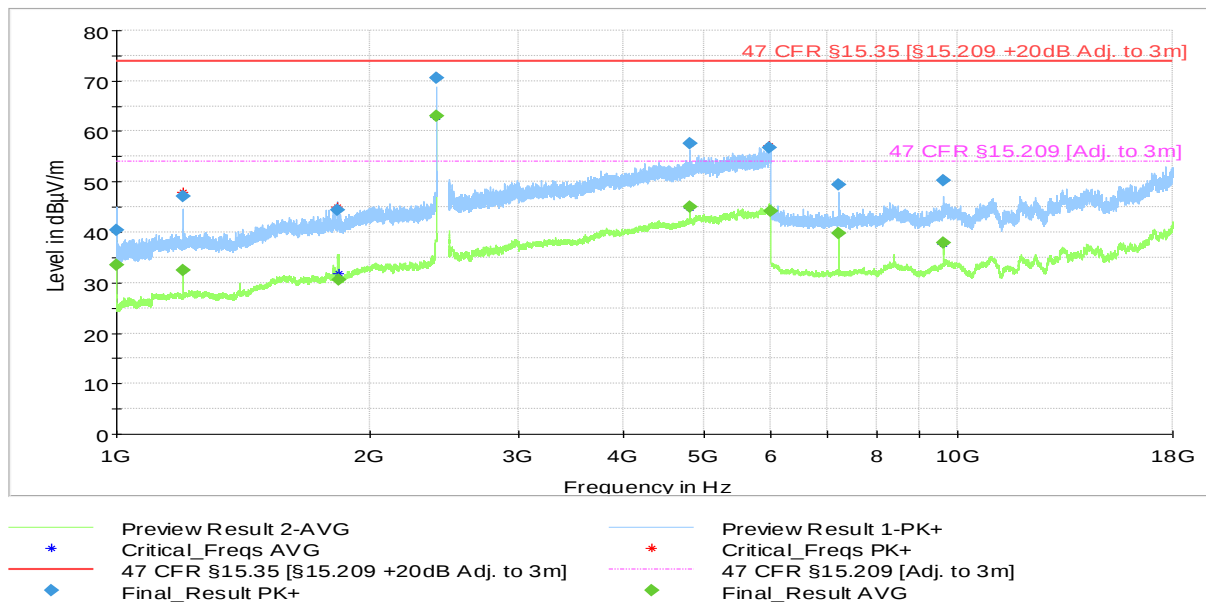


Preview Result 2-AVG	Preview Result 1-PK+
Critical_Freqs AVG	Critical_Freqs PK+
47 CFR §15.209 [Adj. to 3m]	Final_Result QPK
Final_Result AVG	MaxPeak-PK+ (Single)
QuasiPeak-QPK (Single)	Average-AVG (Single)

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
32.965560	17.18	40.00	22.82	1000.0	120.000	375.0	V	200.0
199.999440	22.72	43.52	20.80	1000.0	120.000	100.0	V	72.0
400.003360	40.63	46.02	5.39	1000.0	120.000	225.0	V	188.0
493.434480	12.70	46.02	33.32	1000.0	120.000	175.0	V	158.0
517.754280	15.09	46.02	30.93	1000.0	120.000	406.0	V	324.0
600.006320	42.01	46.02	4.01	1000.0	120.000	100.0	V	267.0
666.660480	23.69	46.02	22.33	1000.0	120.000	225.0	V	248.0
799.988280	32.62	46.02	13.40	1000.0	120.000	129.0	V	292.0
951.365600	21.66	46.02	24.36	1000.0	120.000	275.0	H	206.0
999.998200	36.18	53.98	17.79	1000.0	120.000	207.0	V	-22.0

Microphone Tx1 - Low Channel: 1 GHz – 18 GHz

Test mode condition	Microphone Tx1 BLE 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	A003403873-001	
Ancillary Equipment	-	
Test Engineer	Niall Forrester	Date: 2023.01.23
Chamber details	Chamber: SAC 5	

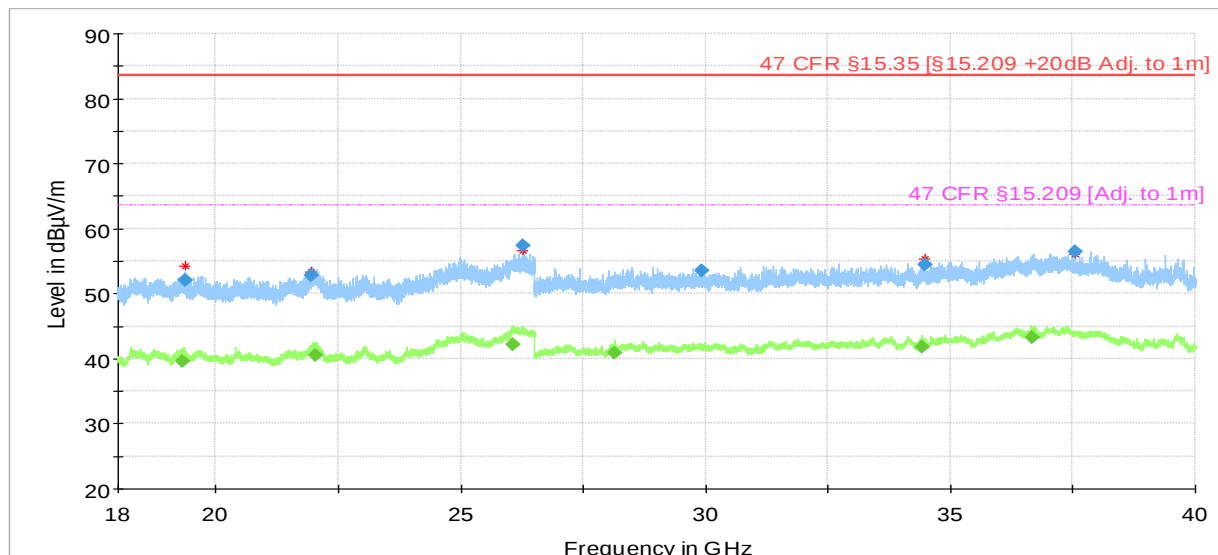


NOTE: peak at 2400MHz is an artefact of the measuring equipment and not due to the DUT
See Band Edge tests for more detailed results at this frequency

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1000.001022	---	33.55	53.98	20.43	1000.0	1000.000	175.0	V	335.0
1000.133371	40.42	---	73.98	33.56	1000.0	1000.000	188.0	V	324.0
1199.812000	---	32.41	53.98	21.57	1000.0	1000.000	100.0	V	132.0
1200.353000	47.03	---	73.98	26.95	1000.0	1000.000	175.0	V	248.0
1830.210000	44.40	---	73.98	29.58	1000.0	1000.000	175.0	H	248.0
1835.343000	---	30.63	53.98	23.35	1000.0	1000.000	207.0	H	252.0
4803.057000	---	44.94	53.98	9.03	1000.0	1000.000	178.0	H	-22.0
4805.083000	57.65	---	73.98	16.33	1000.0	1000.000	199.0	H	-22.0
5963.565000	56.84	---	73.98	17.14	1000.0	1000.000	125.0	V	162.0
5978.743000	---	44.14	53.98	9.84	1000.0	1000.000	121.0	H	42.0
7204.999000	---	39.71	53.98	14.27	1000.0	1000.000	147.0	H	220.0
7207.599000	49.34	---	73.98	24.64	1000.0	1000.000	126.0	V	322.0
9610.187000	50.30	---	73.98	23.68	1000.0	1000.000	125.0	V	-22.0
9610.279000	---	37.81	53.98	16.17	1000.0	1000.000	199.0	V	40.0

Microphone Tx1 - Low Channel: 18 GHz – 40 GHz

Test mode condition	Microphone Tx1 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.30
Chamber details	Chamber: SAC 5	



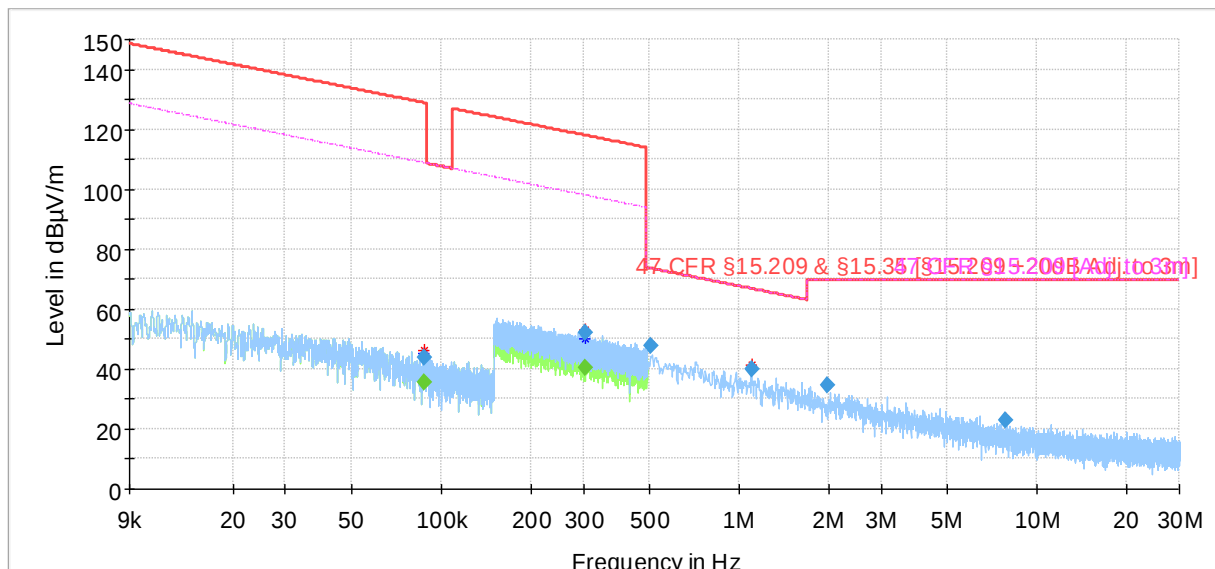
— Preview Result 2-AVG
— Preview Result 1-PK+
* Critical_Freqs AVG
* Critical_Freqs PK+
— 47 CFR §15.35 [§15.209 +20dB Adj. to 1m]
— 47 CFR §15.209 [Adj. to 1m]
◆ Final_Result PK+
◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
19326.387000	---	39.59	63.52	23.93	1000.0	1000.000	155.0	V	52.0
19378.401000	52.14	---	83.52	31.38	1000.0	1000.000	155.0	H	42.0
21958.359000	52.72	---	83.52	30.81	1000.0	1000.000	155.0	H	22.0
22043.431000	---	40.50	63.52	23.02	1000.0	1000.000	155.0	V	112.0
26065.054000	---	42.20	63.52	21.32	1000.0	1000.000	155.0	H	22.0
26270.316000	57.36	---	83.52	26.16	1000.0	1000.000	155.0	H	322.0
28128.592000	---	40.87	63.52	22.65	1000.0	1000.000	155.0	V	52.0
29927.928000	53.52	---	83.52	30.00	1000.0	1000.000	155.0	H	142.0
34406.754000	---	41.89	63.52	21.63	1000.0	1000.000	155.0	V	188.0
34480.728000	54.51	---	83.52	29.01	1000.0	1000.000	155.0	V	82.0
36655.783000	---	43.29	63.52	20.23	1000.0	1000.000	155.0	H	252.0
37541.995000	56.49	---	83.52	27.03	1000.0	1000.000	155.0	V	352.0

4.2.4 Radiated Emissions (Intentional) – Test Details: Microphone Tx2

Microphone Tx2 - Low Channel: 9 kHz – 30 MHz

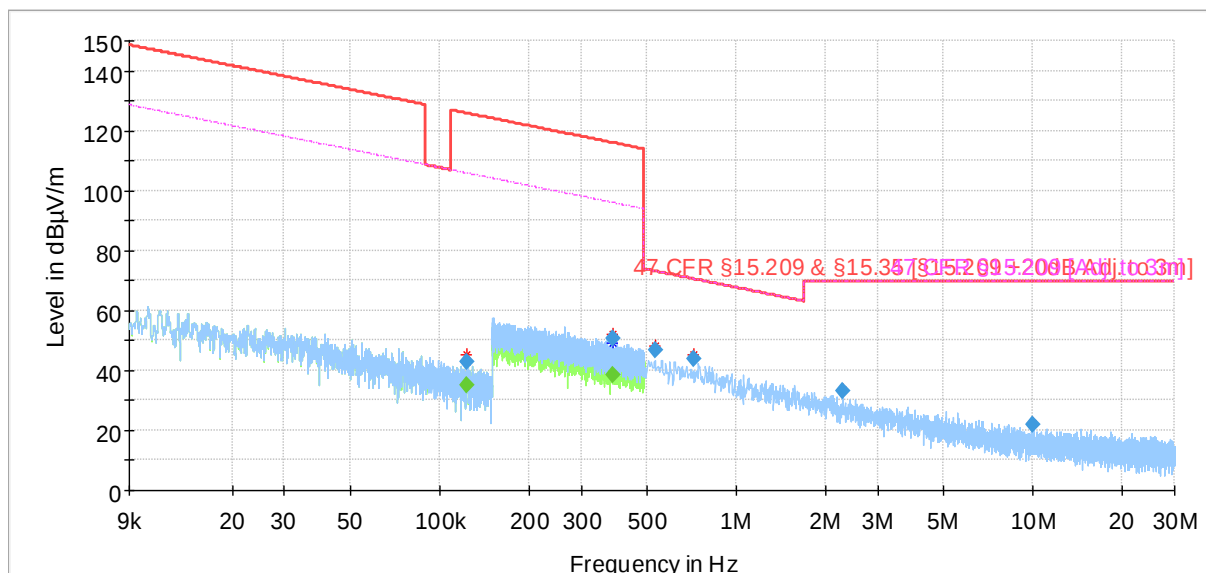
Test mode condition	Microphone Tx2 BLE LE_2M, Low channel (2402 MHz)	
Antenna orientation	Loop Antenna parallel to axis	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: 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)
0.088181	---	35.32	108.70	73.37	1000.0	0.200	100.0	H	192.0
0.088181	43.97	---	128.70	84.73	1000.0	0.200	100.0	H	192.0
0.304513	52.13	---	117.93	65.80	1000.0	9.000	100.0	H	45.0
0.304513	---	40.38	97.93	57.55	1000.0	9.000	100.0	H	45.0
0.503989	47.65	---	73.56	25.91	1000.0	9.000	100.0	H	89.0
1.101315	39.76	---	66.79	27.03	1000.0	9.000	100.0	H	45.0
1.988071	34.46	---	69.50	35.04	1000.0	9.000	100.0	H	105.0
7.866211	22.95	---	69.50	46.55	1000.0	9.000	100.0	H	89.0

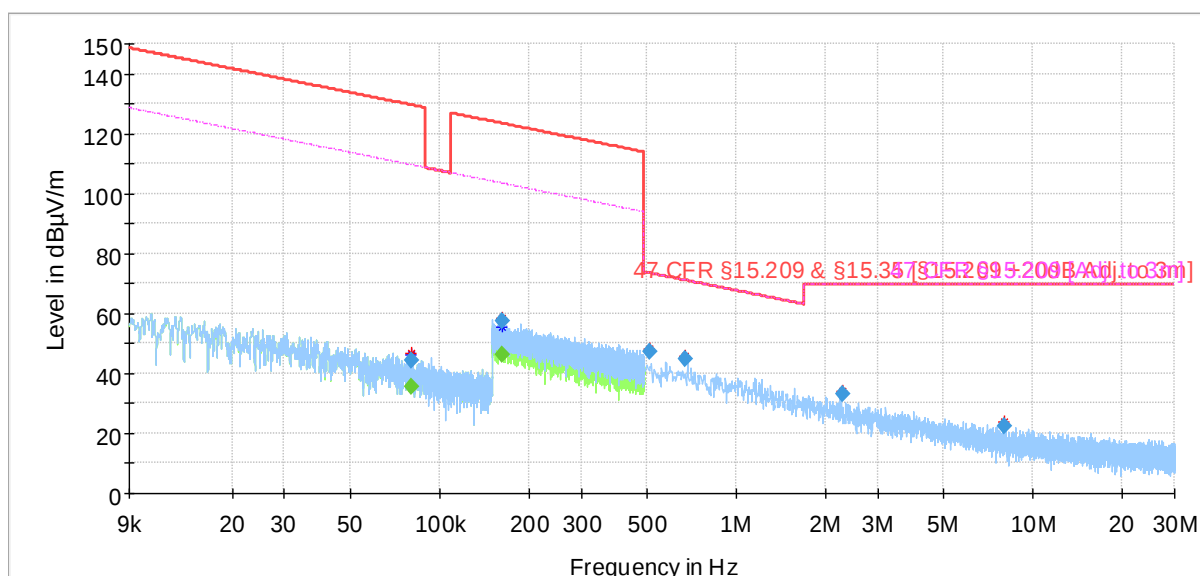
Test mode condition	Microphone Tx2 BLE LE_2M, Low channel (2402 MHz)	
Antenna orientation	Loop Antenna perpendicular to axis	
Sweep frequency	9 kHz – 30 MHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	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)
0.123601	42.72	---	125.76	83.04	1000.0	0.200	100.0	H	217.0
0.123601	---	35.03	105.76	70.74	1000.0	0.200	100.0	H	217.0
0.384669	50.63	---	115.90	65.27	1000.0	9.000	100.0	H	135.0
0.384669	---	38.34	95.90	57.56	1000.0	9.000	100.0	H	135.0
0.532697	46.84	---	73.08	26.24	1000.0	9.000	100.0	H	229.0
0.716191	43.92	---	70.51	26.59	1000.0	9.000	100.0	H	191.0
2.281454	33.08	---	69.50	36.42	1000.0	9.000	100.0	H	306.0
9.959982	21.98	---	69.50	47.52	1000.0	9.000	100.0	H	-1.0

Test mode condition	Microphone Tx2 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.24
Chamber details	Chamber: SAC 5	

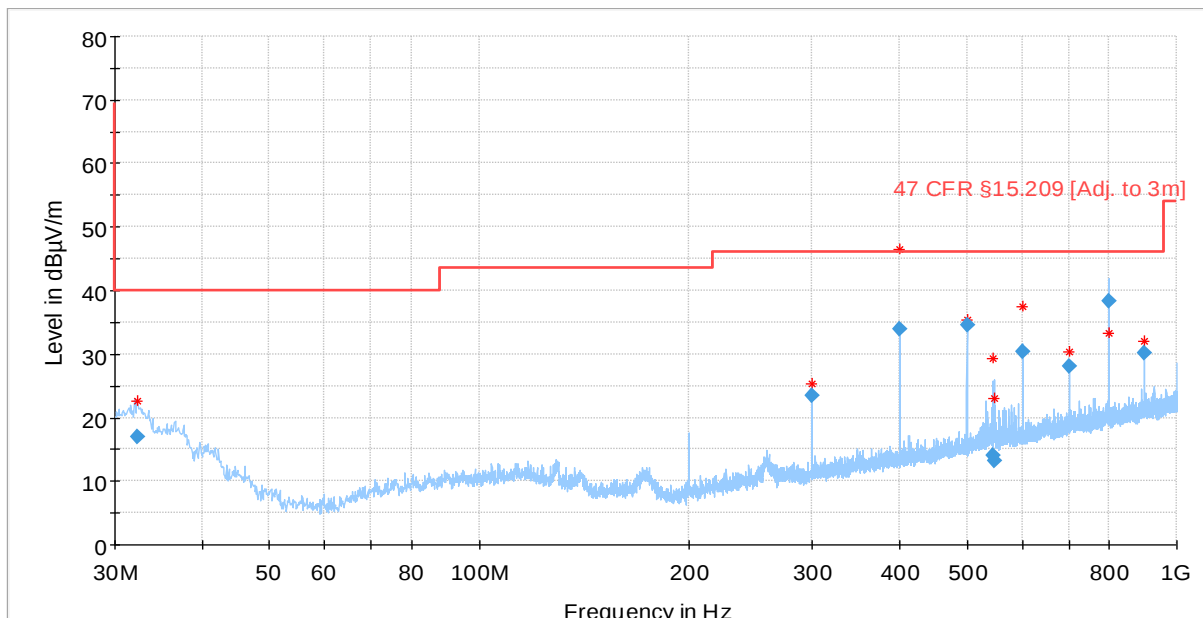


- Preview Result 2-AVG
- Preview Result 1-PK+
- * Critical_Freqs AVG
- * Critical_Freqs PK+
- 47 CFR §15.209 & §15.35 [§15.209 +20dB Adj. to 3m]
- 47 CFR §15.209 [Adj. to 3m]
- ◆ Final_Result PK+
- ◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.080187	---	35.51	109.52	74.01	1000.0	0.200	100.0	H	89.0
0.080187	44.43	---	129.52	85.09	1000.0	0.200	100.0	H	89.0
0.162467	57.49	---	123.39	65.90	1000.0	9.000	100.0	H	315.0
0.162467	---	46.17	103.39	57.22	1000.0	9.000	100.0	H	315.0
0.509939	47.42	---	73.46	26.03	1000.0	9.000	100.0	H	139.0
0.674614	44.62	---	71.03	26.41	1000.0	9.000	100.0	H	294.0
2.274900	33.06	---	69.50	36.44	1000.0	9.000	100.0	H	225.0
8.036672	22.64	---	69.50	46.86	1000.0	9.000	100.0	H	295.0

Microphone Tx2 - Low Channel: 30 MHz – 1 GHz

Test mode condition	Microphone Tx2 BLE 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	A003414830-002	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023-02-16
Chamber details	Chamber: SAC 5	

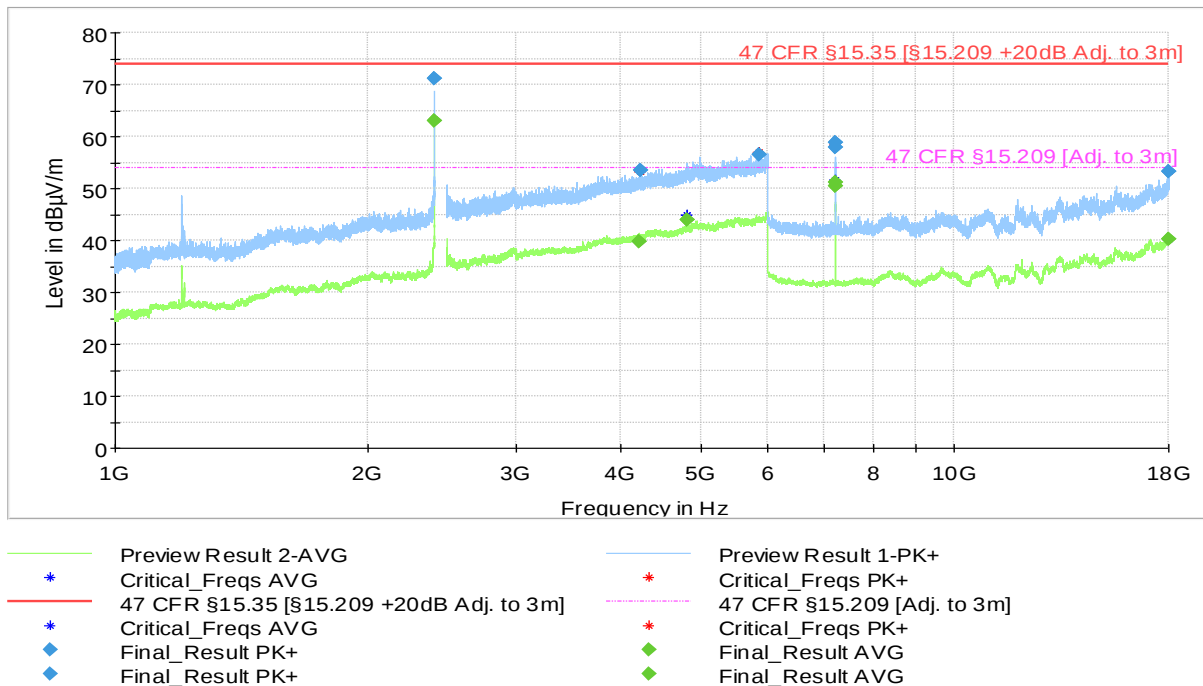


Preview Result 2-AVG	Preview Result 1-PK+
Critical_Freqs AVG	Critical_Freqs PK+
47 CFR §15.209 [Adj. to 3m]	Final_Result QPK
Final_Result AVG	

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
32.386200	16.87	40.00	23.13	1000.0	120.000	229.0	V	88.0
300.010040	23.41	46.02	22.61	1000.0	120.000	279.0	V	290.0
400.003840	33.93	46.02	12.09	1000.0	120.000	175.0	V	324.0
500.003040	34.51	46.02	11.51	1000.0	120.000	125.0	V	311.0
545.620720	14.06	46.02	31.96	1000.0	120.000	104.0	V	162.0
548.324560	13.15	46.02	32.87	1000.0	120.000	375.0	V	68.0
600.034520	30.27	46.02	15.75	1000.0	120.000	104.0	V	-18.0
699.998200	28.07	46.02	17.95	1000.0	120.000	179.0	V	280.0
799.985680	38.40	46.02	7.62	1000.0	120.000	157.0	V	313.0
899.999520	30.11	46.02	15.91	1000.0	120.000	129.0	V	-22.0

Microphone Tx2 - Low Channel: 1 GHz – 18 GHz

Test mode condition	Microphone Tx2 BLE 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	A003414830-002	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023-02-16
Chamber details	Chamber: SAC 5	

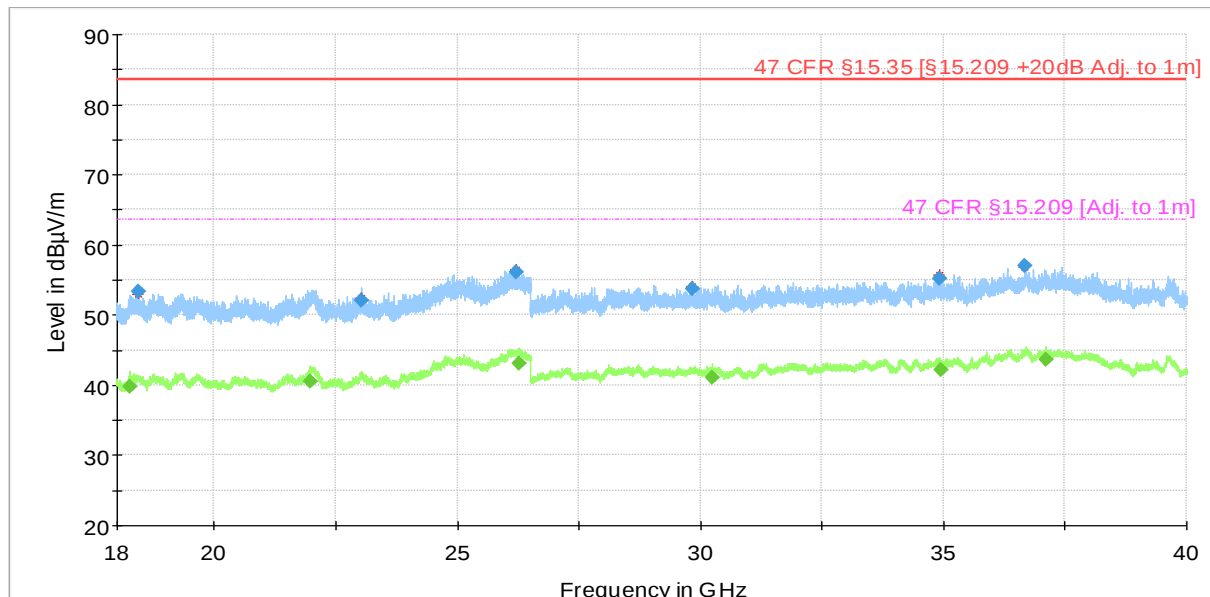


NOTE: peak at 2400MHz is an artefact of the measuring equipment and not due to the DUT
See Band Edge tests for more detailed results at this frequency

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
4206.199000	---	39.71	53.98	14.27	1000.0	1000.000	210.0	V	26.0
4221.376000	53.50	---	73.98	20.48	1000.0	1000.000	210.0	V	112.0
4804.988000	---	43.94	53.98	10.04	1000.0	1000.000	125.0	V	162.0
5853.262000	56.41	---	73.98	17.57	1000.0	1000.000	177.0	H	221.0
7204.562000	58.02	---	73.98	15.96	1000.0	1000.000	159.0	V	322.0
7204.708000	58.83	---	73.98	15.15	1000.0	1000.000	171.0	V	322.0
7207.376000	---	51.17	53.98	2.81	1000.0	1000.000	170.0	V	322.0
7207.402000	---	50.42	53.98	3.56	1000.0	1000.000	162.0	V	322.0
17991.848000	53.14	---	73.98	20.84	1000.0	1000.000	175.0	V	199.0
17996.506000	---	40.20	53.98	13.78	1000.0	1000.000	125.0	V	296.0

Microphone Tx2 - 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.30
Chamber details	Chamber: SAC 5	

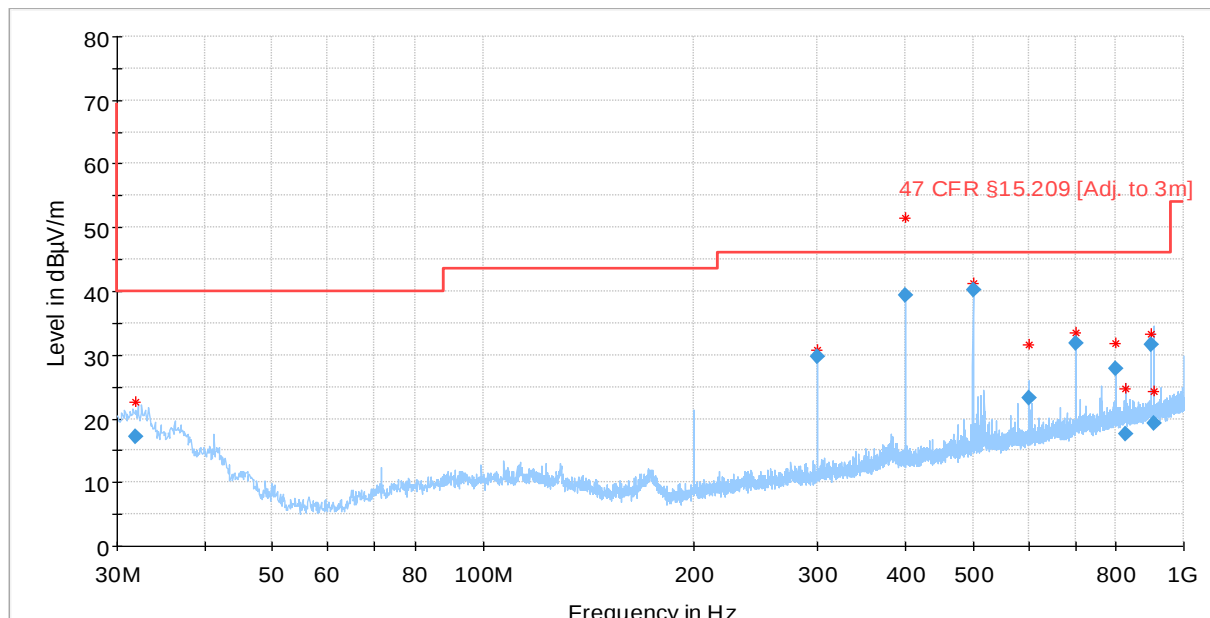


— Preview Result 2-AVG
— Preview Result 1-PK+
* Critical_Freqs AVG
* Critical_Freqs PK+
— 47 CFR §15.35 [§15.209 +20dB Adj. to 1m]
— 47 CFR §15.209 [Adj. to 1m]
◆ Final_Result PK+
◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
18259.886000	---	39.84	63.52	23.69	1000.0	1000.000	155.0	V	-4.0
18445.821000	53.38	---	83.52	30.14	1000.0	1000.000	155.0	V	36.0
21976.794000	---	40.60	63.52	22.92	1000.0	1000.000	155.0	H	202.0
23027.410000	52.13	---	83.52	31.39	1000.0	1000.000	155.0	H	22.0
26216.929000	56.16	---	83.52	27.36	1000.0	1000.000	155.0	V	158.0
26266.741000	---	43.17	63.52	20.36	1000.0	1000.000	155.0	V	132.0
29827.548000	53.76	---	83.52	29.76	1000.0	1000.000	155.0	H	132.0
30237.442000	---	41.03	63.52	22.50	1000.0	1000.000	155.0	V	8.0
34916.090000	55.12	---	83.52	28.40	1000.0	1000.000	155.0	V	12.0
34931.080000	---	42.26	63.52	21.26	1000.0	1000.000	155.0	V	126.0
36670.549000	57.09	---	83.52	26.43	1000.0	1000.000	155.0	V	128.0
37106.084000	---	43.58	63.52	19.94	1000.0	1000.000	155.0	V	306.0

Microphone Tx2 - Mid Channel: 30 MHz – 1 GHz

Test mode condition	Microphone Tx2 BLE 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	A003414830-003	
Ancillary Equipment	N/A	
Test Engineer	Sam Ebadeh	Date: 2023-02-17
Chamber details	Chamber: SAC 5	

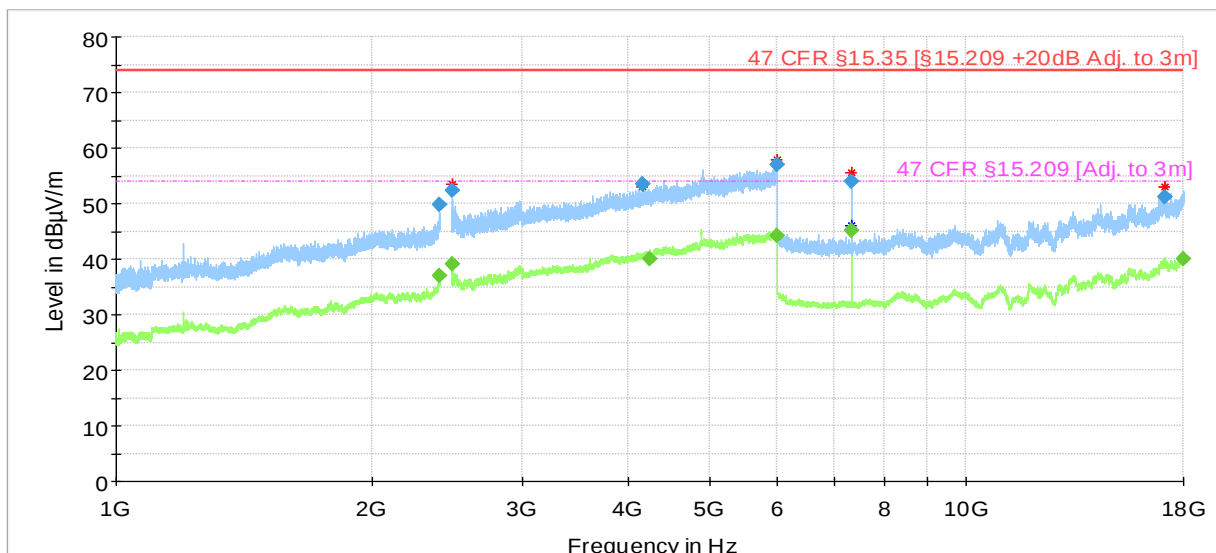


- Preview Result 2-AVG
- * Critical_Freqs AVG
- 47 CFR §15.209 [Adj. to 3m]
- Final_Result AVG
- Preview Result 1-PK+
- * Critical_Freqs PK+
- Final_Result QPK

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
31.943920	17.12	40.00	22.88	1000.0	120.000	175.0	H	87.0
300.001640	29.70	46.02	16.32	1000.0	120.000	279.0	V	248.0
399.999760	39.30	46.02	6.72	1000.0	120.000	175.0	V	248.0
499.996800	40.13	46.02	5.89	1000.0	120.000	129.0	V	40.0
599.951600	23.29	46.02	22.73	1000.0	120.000	100.0	V	41.0
700.001000	31.74	46.02	14.29	1000.0	120.000	225.0	V	311.0
799.990480	27.75	46.02	18.27	1000.0	120.000	175.0	V	19.0
826.092800	17.51	46.02	28.51	1000.0	120.000	161.0	V	296.0
899.993160	31.58	46.02	14.44	1000.0	120.000	129.0	V	296.0
906.978320	19.30	46.02	26.72	1000.0	120.000	129.0	V	162.0

Microphone Tx2 - Mid Channel: 1 GHz – 18 GHz

Test mode condition	Microphone Tx2 BLE 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	A003414830-002	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023-02-16
Chamber details	Chamber: SAC 5	

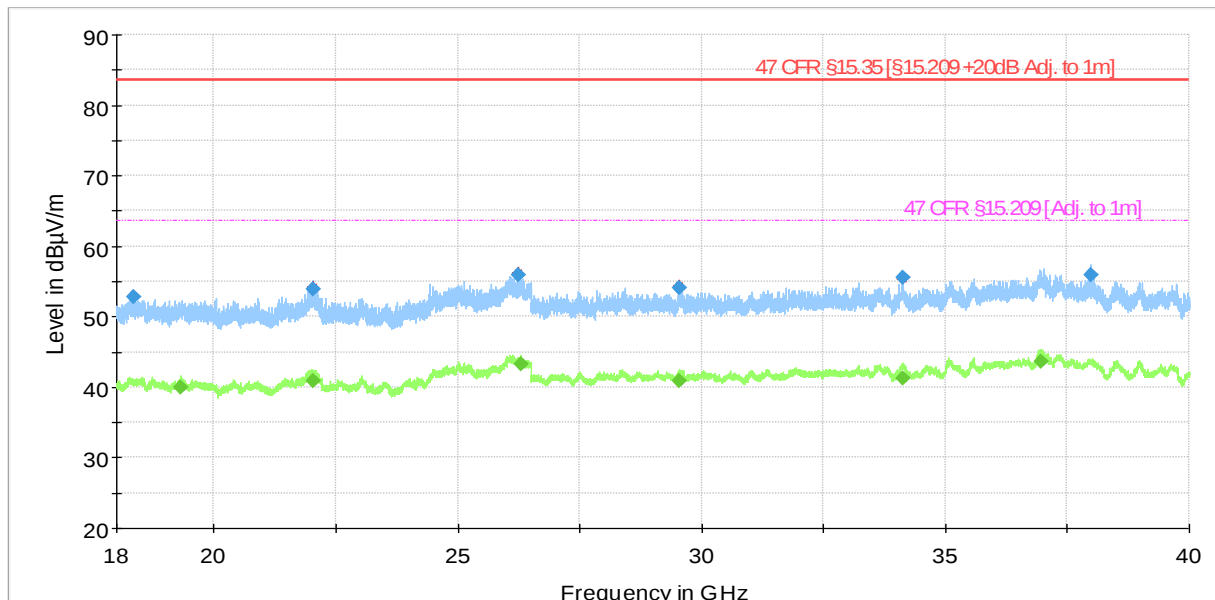


Preview Result 2-AVG	Preview Result 1-PK+
* Critical_Freqs AVG	* Critical_Freqs PK+
47 CFR §15.35 [§15.209 +20dB Adj. to 3m]	47 CFR §15.209 [Adj. to 3m]
* Critical_Freqs AVG	* Critical_Freqs PK+
◆ Final_Result PK+	◆ Final_Result AVG
◆ Final_Result PK+	◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2399.943500	49.75	---	73.98	24.23	1000.0	1000.000	100.0	H	22.0
2399.947000	---	36.92	53.98	17.06	1000.0	1000.000	100.0	V	296.0
2483.512124	52.38	---	73.98	21.60	1000.0	1000.000	175.0	V	202.0
2483.539500	---	39.07	53.98	14.91	1000.0	1000.000	187.0	V	131.0
4163.736000	53.42	---	73.98	20.56	1000.0	1000.000	127.0	V	112.0
4243.815000	---	39.92	53.98	14.06	1000.0	1000.000	125.0	H	158.0
5979.327000	---	44.18	53.98	9.80	1000.0	1000.000	159.0	V	110.0
5983.232000	57.02	---	73.98	16.96	1000.0	1000.000	178.0	V	112.0
7318.795000	---	45.16	53.98	8.82	1000.0	1000.000	100.0	V	178.0
7321.655000	54.03	---	73.98	19.94	1000.0	1000.000	100.0	V	175.0
17148.476000	51.05	---	73.98	22.93	1000.0	1000.000	125.0	V	158.0
17998.846340	---	39.95	53.98	14.03	1000.0	1000.000	175.0	H	322.0

Microphone Tx2 - Mid Channel: 18 GHz – 40 GHz

Test mode condition	Microphone Tx2 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.31
Chamber details	Chamber: SAC 5	

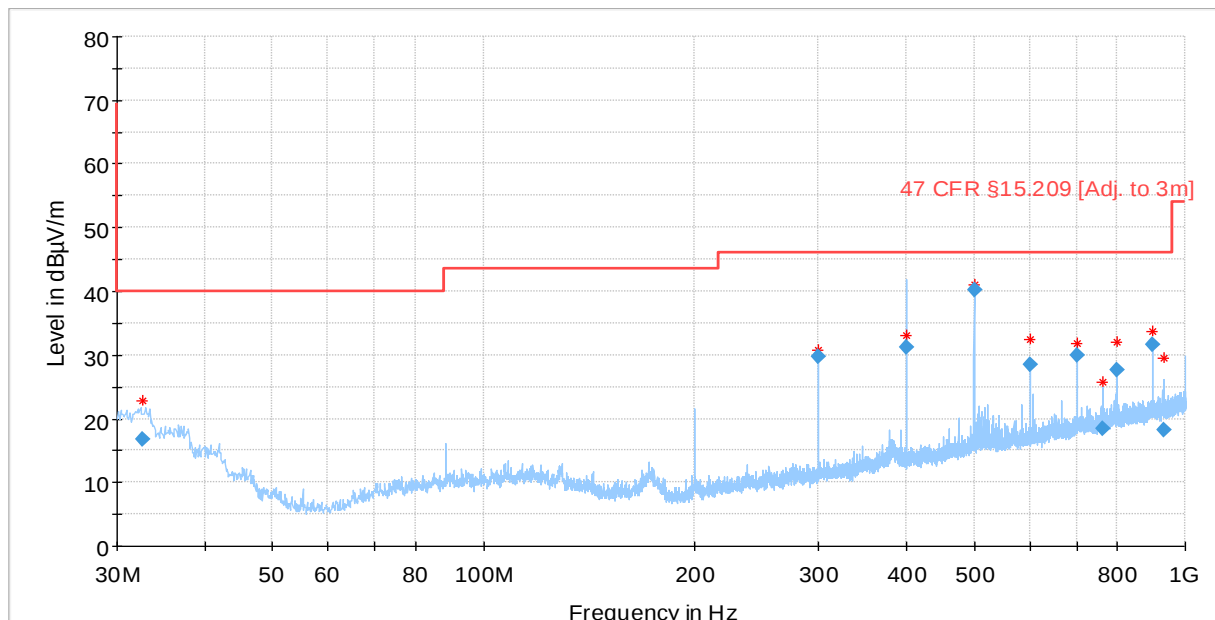


— Preview Result 2-AVG
— Preview Result 1-PK+
* Critical_Freqs AVG
* Critical_Freqs PK+
— 47 CFR §15.35 [§15.209 +20dB Adj. to 1m]
— 47 CFR §15.209 [Adj. to 1m]
◆ Final_Result PK+
◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
18356.056000	52.86	---	83.52	30.66	1000.0	1000.000	155.0	H	216.0
19316.742000	---	39.91	63.52	23.61	1000.0	1000.000	155.0	H	98.0
22019.989000	---	40.97	63.52	22.55	1000.0	1000.000	155.0	H	248.0
22020.114000	53.84	---	83.52	29.68	1000.0	1000.000	155.0	H	12.0
26245.182000	55.92	---	83.52	27.60	1000.0	1000.000	155.0	V	176.0
26283.733000	---	43.29	63.52	20.24	1000.0	1000.000	155.0	V	42.0
29535.376000	---	40.92	63.52	22.60	1000.0	1000.000	155.0	H	342.0
29554.292000	54.11	---	83.52	29.41	1000.0	1000.000	155.0	H	342.0
34115.280000	---	41.17	63.52	22.35	1000.0	1000.000	155.0	V	68.0
34131.506000	55.59	---	83.52	27.93	1000.0	1000.000	155.0	H	52.0
36960.046000	---	43.61	63.52	19.91	1000.0	1000.000	155.0	V	68.0
37988.413000	55.95	---	83.52	27.57	1000.0	1000.000	155.0	V	128.0

Microphone Tx2 - High Channel: 30 MHz – 1 GHz

Test mode condition	Microphone Tx2 BLE 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	A003414830-003	
Ancillary Equipment	N/A	
Test Engineer	Sam Ebadeh	Date: 2023-02-17
Chamber details	Chamber: SAC 5	

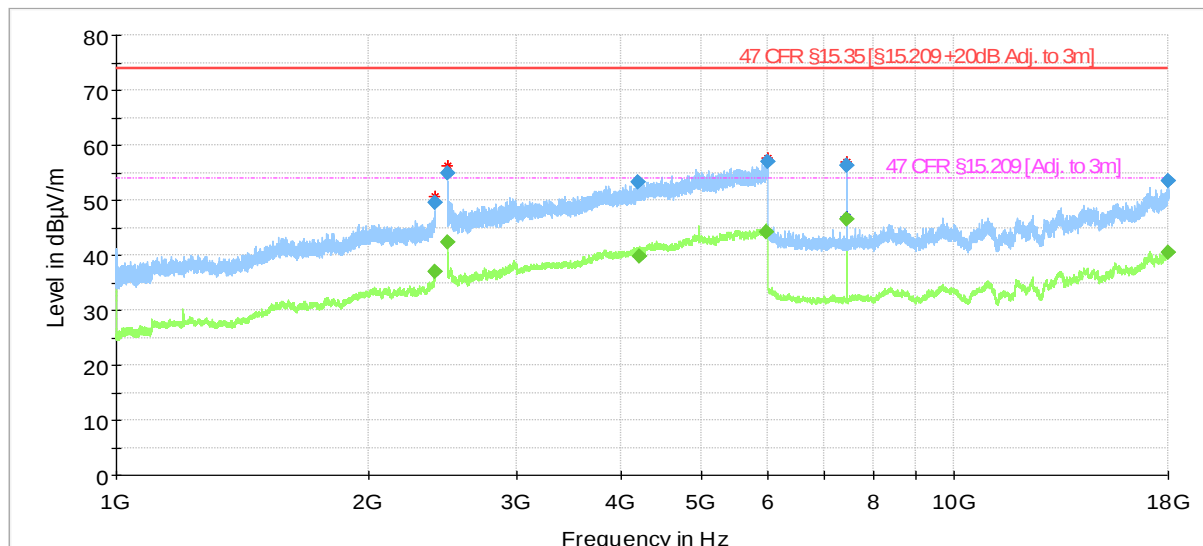


— Preview Result 2-AVG
* Critical_Freqs AVG
— 47 CFR §15.209 [Adj. to 3m]
◆ Final_Result AVG
— Preview Result 1-PK+
* Critical_Freqs PK+
◆ Final_Result QPK

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
32.623120	16.70	40.00	23.30	1000.0	120.000	125.0	H	236.0
300.008120	29.73	46.02	16.30	1000.0	120.000	279.0	V	267.0
400.001320	31.20	46.02	14.82	1000.0	120.000	325.0	H	112.0
500.003160	40.18	46.02	5.84	1000.0	120.000	125.0	V	87.0
599.991560	28.58	46.02	17.45	1000.0	120.000	104.0	V	22.0
700.002680	29.87	46.02	16.15	1000.0	120.000	179.0	V	176.0
762.890240	18.50	46.02	27.52	1000.0	120.000	307.0	V	221.0
800.002120	27.74	46.02	18.28	1000.0	120.000	160.0	V	19.0
899.997440	31.60	46.02	14.42	1000.0	120.000	100.0	H	68.0
932.944040	18.24	46.02	27.78	1000.0	120.000	125.0	V	-18.0

Microphone Tx2 - High Channel: 1 GHz – 18 GHz

Test mode condition	Microphone Tx2 BLE 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	A003414830-002	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023-02-16
Chamber details	Chamber: SAC 5	

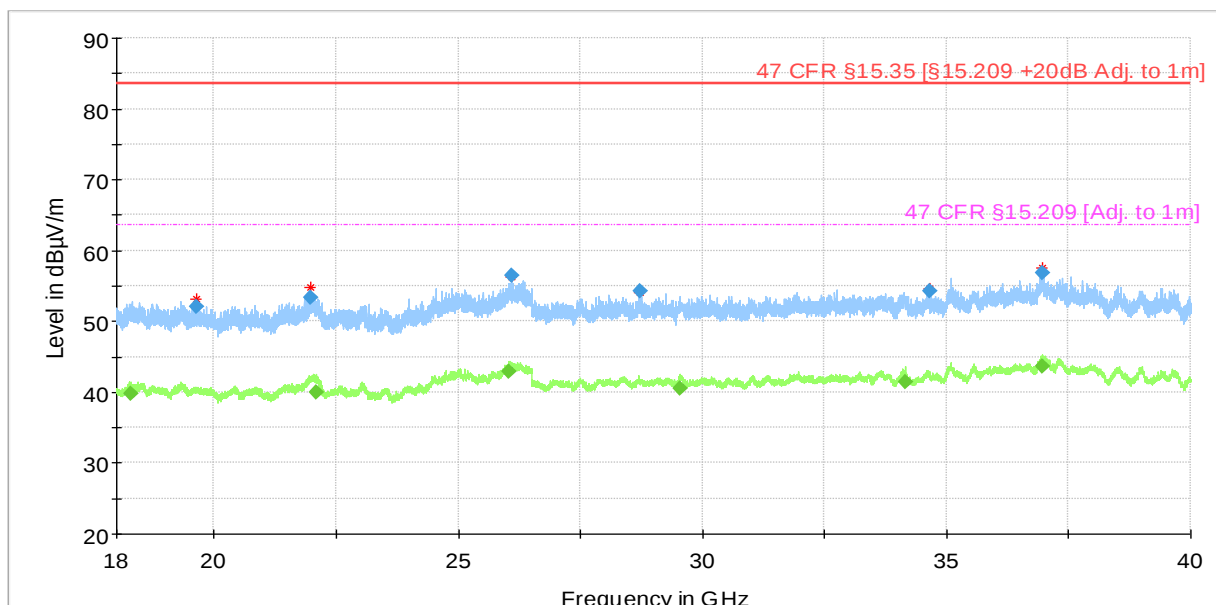


Preview Result 2-AVG	Preview Result 1-PK+
* Critical_Freqs AVG	* Critical_Freqs PK+
47 CFR §15.35 [§15.209 +20dB Adj. to 3m]	47 CFR §15.209 [Adj. to 3m]
* Critical_Freqs AVG	* Critical_Freqs PK+
◆ Final_Result PK+	◆ Final_Result AVG
◆ Final_Result PK+	◆ Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2399.918000	---	36.93	53.98	17.05	1000.0	1000.000	175.0	V	-2.0
2399.963706	49.65	---	73.98	24.33	1000.0	1000.000	210.0	V	110.0
2483.505557	---	42.41	53.98	11.57	1000.0	1000.000	175.0	V	88.0
2483.558446	54.98	---	73.98	19.00	1000.0	1000.000	148.0	V	88.0
4191.018000	53.23	---	73.98	20.75	1000.0	1000.000	121.0	H	100.0
4209.172000	---	39.76	53.98	14.22	1000.0	1000.000	170.0	V	280.0
5974.760000	---	44.25	53.98	9.73	1000.0	1000.000	121.0	V	20.0
5980.139000	56.96	---	73.98	17.02	1000.0	1000.000	125.0	V	112.0
7441.429000	---	46.51	53.98	7.47	1000.0	1000.000	175.0	V	220.0
7441.725000	56.17	---	73.98	17.80	1000.0	1000.000	175.0	V	220.0
17976.296000	53.49	---	73.98	20.49	1000.0	1000.000	175.0	V	292.0
17984.093000	---	40.41	53.98	13.57	1000.0	1000.000	175.0	V	-22.0

Microphone Tx2 - High Channel: 18 GHz – 40 GHz

Test mode condition	Microphone Tx2 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.31
Chamber details	Chamber: SAC 5	



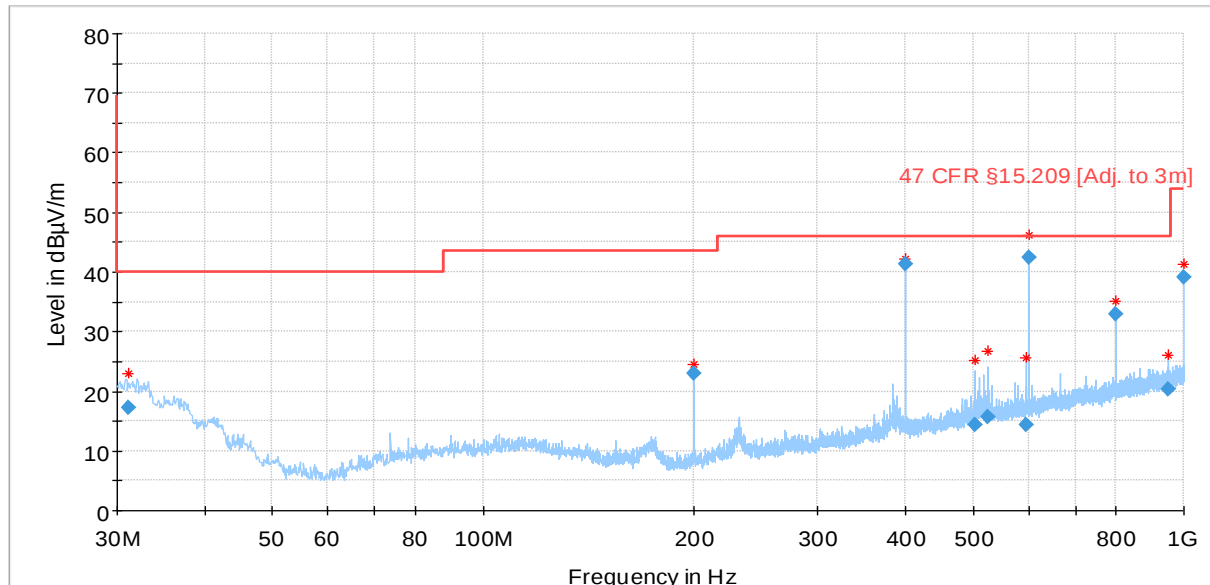
	Preview Result 2-AVG		Preview Result 1-PK+
	Critical_Freqs AVG		Critical_Freqs PK+
	47 CFR §15.35 [§15.209 +20dB Adj. to 1m]		47 CFR §15.209 [Adj. to 1m]
	Final_Result PK+		Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
18278.639000	---	39.79	63.52	23.74	1000.0	1000.000	155.0	V	-8.0
19631.584000	52.09	---	83.52	31.43	1000.0	1000.000	155.0	V	188.0
21973.976000	53.33	---	83.52	30.19	1000.0	1000.000	155.0	V	322.0
22082.312000	---	40.05	63.52	23.47	1000.0	1000.000	155.0	V	202.0
26040.118000	---	42.96	63.52	20.57	1000.0	1000.000	155.0	V	-8.0
26094.002000	56.43	---	83.52	27.09	1000.0	1000.000	155.0	V	248.0
28730.116000	54.24	---	83.52	29.29	1000.0	1000.000	155.0	V	82.0
29548.450000	---	40.56	63.52	22.96	1000.0	1000.000	155.0	V	142.0
34145.387000	---	41.49	63.52	22.03	1000.0	1000.000	155.0	V	162.0
34640.659000	54.34	---	83.52	29.18	1000.0	1000.000	155.0	H	352.0
36953.014000	56.76	---	83.52	26.77	1000.0	1000.000	155.0	V	6.0
36972.251000	---	43.68	63.52	19.84	1000.0	1000.000	155.0	V	82.0

4.2.5 Radiated Emissions (Intentional) – Test Details: Microphone Tx3

Microphone Tx3 - Low Channel: 30 MHz – 1 GHz

Test mode condition	Microphone Tx3 BLE 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	A003403873-001	
Ancillary Equipment	-	
Test Engineer	Niall Forrester	Date: 2023.01.26
Chamber details	Chamber: SAC 5	

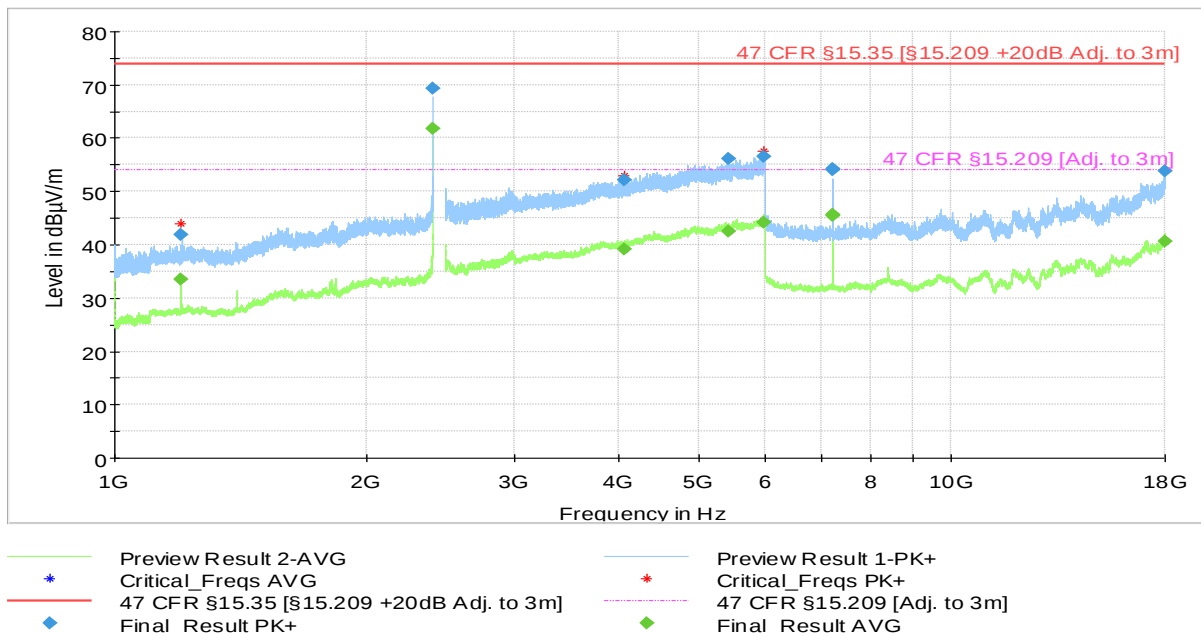


Preview Result 2-AVG	Preview Result 1-PK+
* Critical_Freqs AVG	* Critical_Freqs PK+
— 47 CFR §15.209 [Adj. to 3m]	◆ Final_Result QPK
◆ Final_Result AVG	× MaxPeak-PK+ (Single)
+ QuasiPeak-QPK (Single)	× Average-AVG (Single)

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
31.163280	17.19	40.00	22.81	1000.0	120.000	229.0	H	248.0
200.008320	23.07	43.52	20.45	1000.0	120.000	100.0	V	68.0
400.001080	41.32	46.02	4.70	1000.0	120.000	175.0	V	200.0
504.234480	14.26	46.02	31.76	1000.0	120.000	125.0	V	131.0
524.080400	15.59	46.02	30.43	1000.0	120.000	100.0	V	202.0
596.468240	14.43	46.02	31.59	1000.0	120.000	100.0	V	296.0
600.004760	42.39	46.02	3.63	1000.0	120.000	100.0	V	311.0
800.003880	33.03	46.02	12.99	1000.0	120.000	157.0	V	311.0
951.317360	20.25	46.02	25.78	1000.0	120.000	279.0	V	10.0
999.996580	39.01	53.98	14.97	1000.0	120.000	104.0	V	143.0

Microphone Tx3 - Low Channel: 1 GHz – 18 GHz

Test mode condition	Microphone Tx3 BLE 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	A003403873-001	
Ancillary Equipment	-	
Test Engineer	Niall Forrester	Date: 2023.01.23
Chamber details	Chamber: SAC 5	

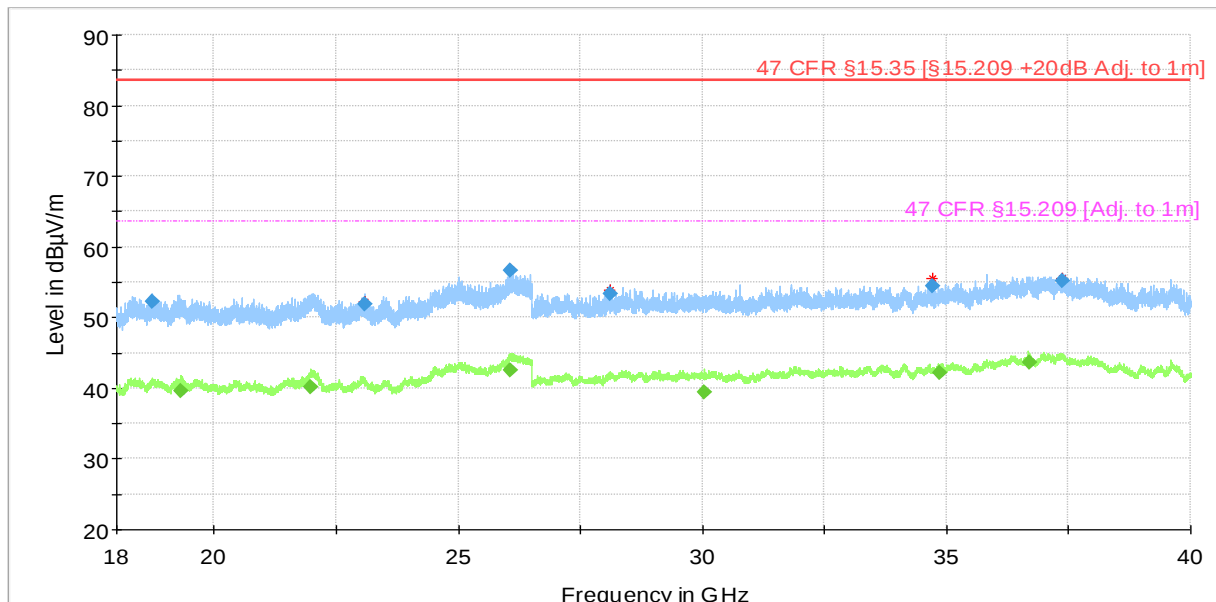


NOTE: peak at 2400MHz is an artefact of the measuring equipment and not due to the DUT
See Band Edge tests for more detailed results at this frequency

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1199.876000	41.94	---	73.98	32.03	1000.0	1000.000	125.0	H	268.0
1200.062000	---	33.44	53.98	20.54	1000.0	1000.000	100.0	V	112.0
4060.540000	---	39.09	53.98	14.89	1000.0	1000.000	207.0	H	325.0
4060.753000	52.14	---	73.98	21.84	1000.0	1000.000	175.0	H	112.0
5414.454000	56.11	---	73.98	17.87	1000.0	1000.000	100.0	V	190.0
5417.378000	---	42.57	53.98	11.41	1000.0	1000.000	137.0	V	68.0
5967.850000	56.62	---	73.98	17.36	1000.0	1000.000	188.0	V	178.0
5974.352000	---	44.12	53.98	9.86	1000.0	1000.000	148.0	H	235.0
7204.693000	54.12	---	73.98	19.86	1000.0	1000.000	100.0	H	189.0
7207.398000	---	45.60	53.98	8.38	1000.0	1000.000	100.0	H	188.0
7207.457000	---	45.53	53.98	8.45	1000.0	1000.000	100.0	H	189.0
7207.609000	54.21	---	73.98	19.77	1000.0	1000.000	100.0	H	189.0
17997.478500	53.74	---	73.98	20.24	1000.0	1000.000	210.0	H	26.0
17998.169060	---	40.66	53.98	13.32	1000.0	1000.000	175.0	V	130.0

Microphone Tx3 - Low Channel: 18 GHz – 40 GHz

Test mode condition	Microphone Tx3 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.30
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 +20dB Adj. to 1m]
— 47 CFR §15.209 [Adj. to 1m]
◆ 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)
18731.300000	52.21	---	83.52	31.31	1000.0	1000.000	155.0	H	128.0
19320.817000	---	39.59	63.52	23.94	1000.0	1000.000	155.0	H	282.0
21982.450000	---	40.11	63.52	23.41	1000.0	1000.000	155.0	H	202.0
23096.875000	51.87	---	83.52	31.65	1000.0	1000.000	155.0	H	188.0
26059.446000	56.58	---	83.52	26.94	1000.0	1000.000	155.0	H	308.0
26068.760000	---	42.63	63.52	20.90	1000.0	1000.000	155.0	H	248.0
28111.606000	53.34	---	83.52	30.18	1000.0	1000.000	155.0	V	68.0
30032.223000	---	39.43	63.52	24.10	1000.0	1000.000	155.0	V	158.0
34705.394000	54.53	---	83.52	29.00	1000.0	1000.000	155.0	V	36.0
34844.946000	---	42.14	63.52	21.38	1000.0	1000.000	155.0	H	292.0
36684.913000	---	43.65	63.52	19.87	1000.0	1000.000	155.0	V	82.0
37363.030000	55.13	---	83.52	28.39	1000.0	1000.000	155.0	V	128.0

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	2023.01.13 – 2023.01.18
EUT and Ancillary Equipment IDs	A003401717-001	N/A
EUT Operation Mode(s)	Rec – Cond - DTM	
EUT Wireless Configuration(s)	Bluetooth Low Energy (see details below)	
EUT Hardware Configuration(s)	Stand-alone (Space Recorder)	
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 (Microphone Tx0) Low Channel (GFSK 2402 MHz)	4.05	-49.35	-15.95	PASS
Avg. Emissions at Band Edge (Auth. Band – Low Edge)	Bluetooth Low Energy LE_2M (Microphone Tx0) Low Channel (GFSK 2402 MHz)	3.47	-31.08	-16.53	PASS
Peak Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_1M (Microphone Tx0) High Channel (GFSK 2480 MHz)	4.09	-57.00	-15.91	PASS
Peak Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_2M (Microphone Tx0) High Channel (GFSK 2480 MHz)	4.24	-53.12	-15.76	PASS

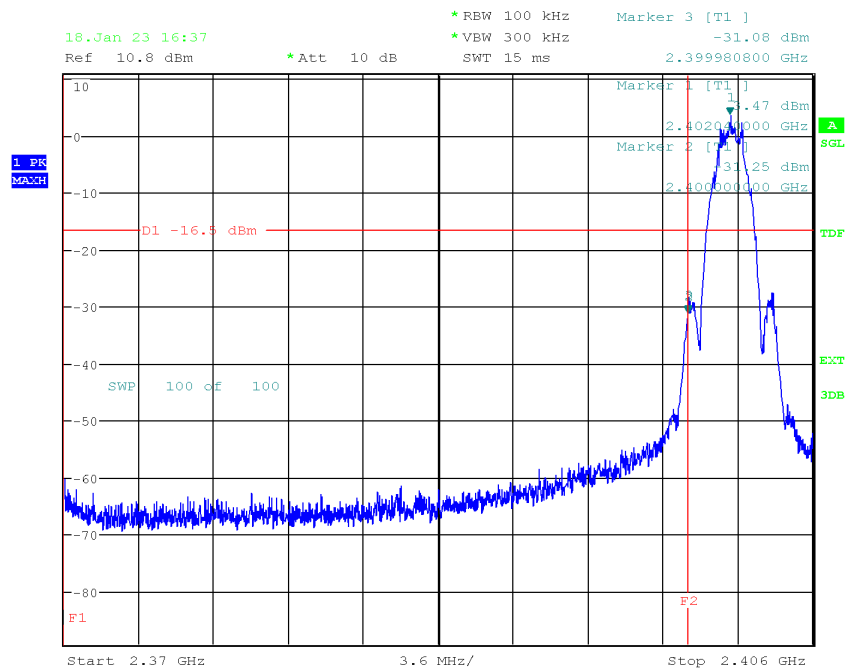
Test Parameter	Wireless Configuration	RF Power (dBm)	Max Emission (dBm)	Limit (dBm)	Result
Peak Emissions at Band Edge (Auth. Band – Low Edge)	Bluetooth Low Energy LE_1M (Microphone Tx1) Low Channel (GFSK 2402 MHz)	4.30	-49.67	-15.70	PASS
Peak Emissions at Band Edge (Auth. Band – Low Edge)	Bluetooth Low Energy LE_2M (Microphone Tx1) Low Channel (GFSK 2402 MHz)	4.36	-32.47	-15.64	PASS
Peak Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_1M (Microphone Tx1) High Channel (GFSK 2480 MHz)	4.01	-57.54	-15.99	PASS
Avg. Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_2M (Microphone Tx1) High Channel (GFSK 2480 MHz)	4.07	-52.98	-15.93	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 (Microphone Tx2) Low Channel (GFSK 2402 MHz)	4.74	-50.13	-15.26	PASS
Peak Emissions at Band Edge (Auth. Band – Low Edge)	Bluetooth Low Energy LE_2M (Microphone Tx2) Low Channel (GFSK 2402 MHz)	4.66	-29.12	-15.34	PASS
Peak Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_1M (Microphone Tx2) High Channel (GFSK 2480 MHz)	4.54	-56.99	-15.46	PASS
Avg. Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_2M (Microphone Tx2) High Channel (GFSK 2480 MHz)	4.21	-52.17	-15.79	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 (Microphone Tx3) Low Channel (GFSK 2402 MHz)	4.64	-48.61	-15.36	PASS
Peak Emissions at Band Edge (Auth. Band – Low Edge)	Bluetooth Low Energy LE_2M (Microphone Tx3) Low Channel (GFSK 2402 MHz)	4.66	-30.32	-15.34	PASS
Peak Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_1M (Microphone Tx3) High Channel (GFSK 2480 MHz)	4.64	-57.75	-15.36	PASS
Avg. Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_2M (Microphone Tx3) High Channel (GFSK 2480 MHz)	3.99	-52.74	-16.01	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 (Main) Low Channel (GFSK 2402 MHz)	3.22	-55.83	-16.78	PASS
Peak Emissions at Band Edge (Auth. Band – High Edge)	Bluetooth Low Energy LE_1M (Main) High Channel (GFSK 2480 MHz)	4.03	-62.25	-15.97	PASS

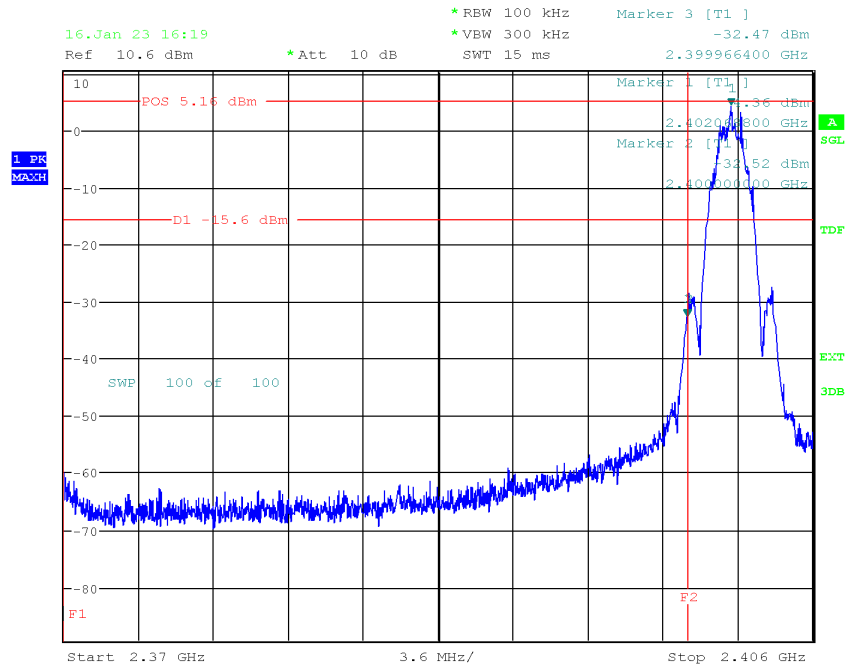
4.4.2 Band Edge Compliance (Authorized Band) – Test Details: Microphone Tx0 (Worst Case Plot): Microphone Tx0 - Low Channel, LE_2M



Date: 18.JAN.2023 16:37:49

4.4.3 Band Edge Compliance (Authorized Band) – Test Details: Microphone Tx1 (Worst Case Plot):

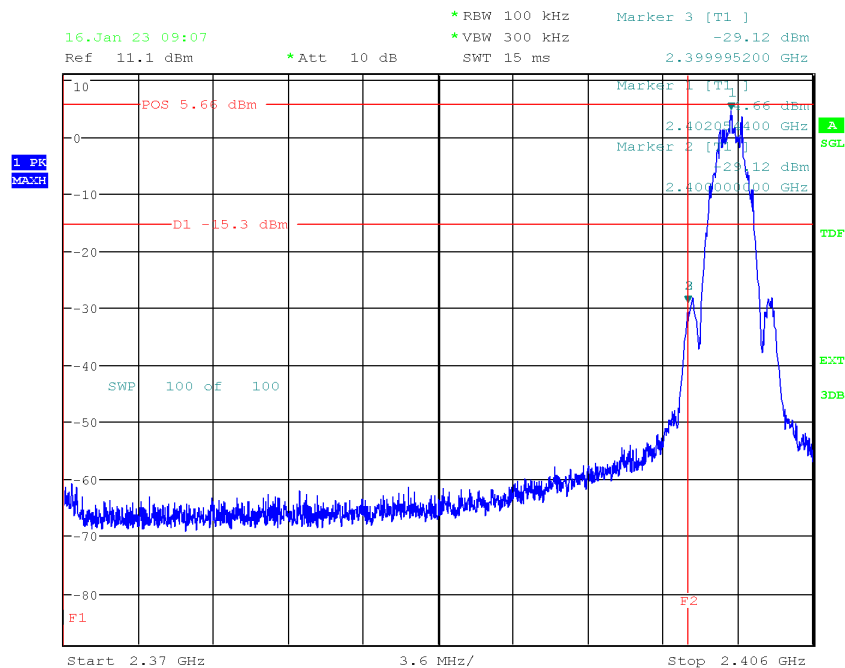
Microphone Tx1 - Low Channel, LE_2M



Date: 16.JAN.2023 16:19:56

4.4.4 Band Edge Compliance (Authorized Band) – Test Details: Microphone Tx2 (Worst Case Plot):

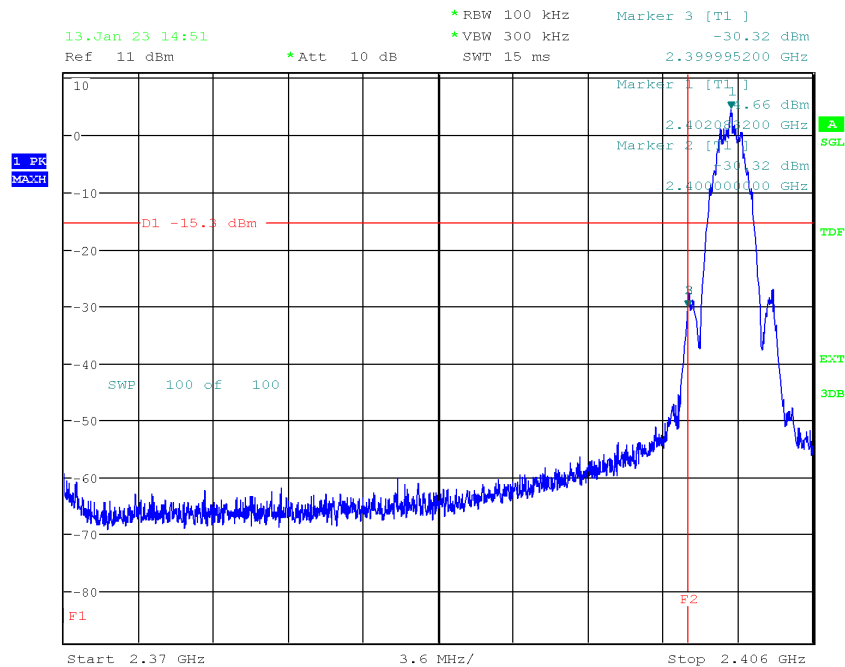
Microphone Tx2 - Low Channel, LE_2M



Date: 16.JAN.2023 09:07:45

4.4.5 Band Edge Compliance (Authorized Band) – Test Details: Microphone Tx3 (Worst Case Plot):

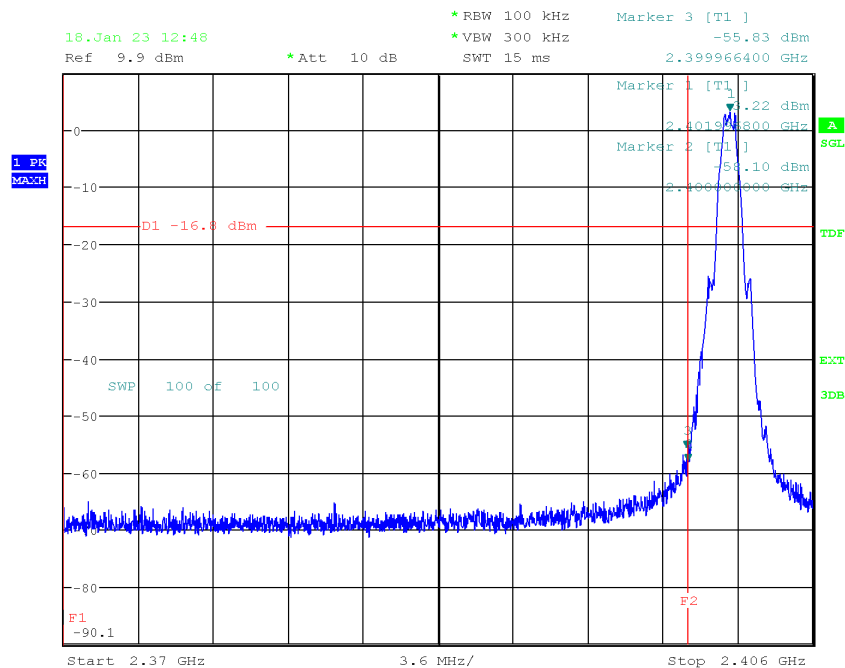
Microphone Tx3 - Low Channel, LE_2M



Date: 13.JAN.2023 14:51:36

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

Main - Low Channel, LE_1M



Date: 18.JAN.2023 12:48:30

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	2023.01.20 – 2023.01.30
EUT and Ancillary Equipment IDs	A003403873-001	N/A
EUT Operation Mode(s)	Rec – No Chg - CTX	
EUT Wireless Configuration(s)	Bluetooth Low Energy (see details below)	
EUT Hardware Configuration(s)	Stand-alone (Space Recorder)	
Overall Result	PASS	

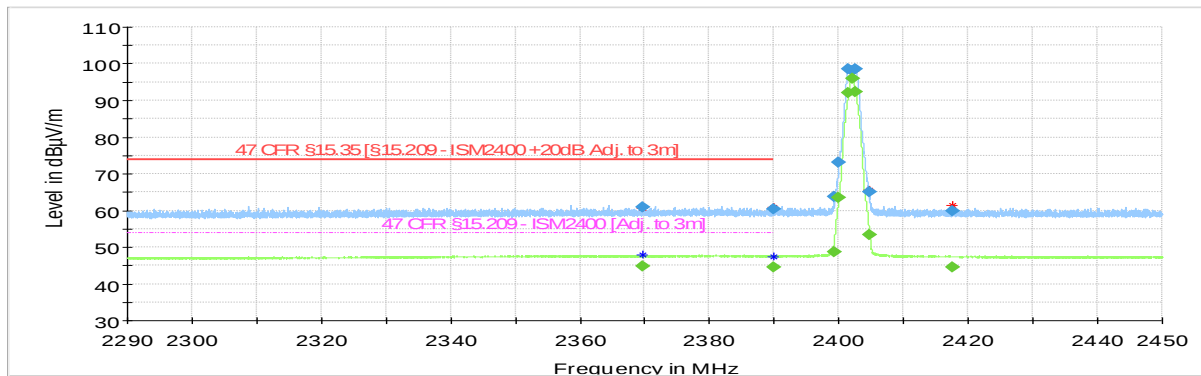
Test Parameter	Wireless Configuration	Result*
Emissions at Band Edge (Rest. Band – Low Edge)	Bluetooth Low Energy LE_2M (Microphone Tx0) Low Channel (GFSK 2402 MHz)	PASS
Emissions at Band Edge (Rest. Band – High Edge)	Bluetooth Low Energy LE_2M (Microphone Tx0) High Channel (GFSK 2480 MHz)	PASS
Emissions at Band Edge (Rest. Band – Low Edge)	Bluetooth Low Energy LE_2M (Microphone Tx1) Low Channel (GFSK 2402 MHz)	PASS
Emissions at Band Edge (Rest. Band – High Edge)	Bluetooth Low Energy LE_2M (Microphone Tx1) High Channel (GFSK 2480 MHz)	PASS
Emissions at Band Edge (Rest. Band – Low Edge)	Bluetooth Low Energy LE_2M (Microphone Tx2) Low Channel (GFSK 2402 MHz)	PASS
Emissions at Band Edge (Rest. Band – High Edge)	Bluetooth Low Energy LE_2M (Microphone Tx2) High Channel (GFSK 2480 MHz)	PASS
Emissions at Band Edge (Rest. Band – Low Edge)	Bluetooth Low Energy LE_2M (Microphone Tx3) Low Channel (GFSK 2402 MHz)	PASS
Emissions at Band Edge (Rest. Band – High Edge)	Bluetooth Low Energy LE_2M (Microphone Tx3) 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: Microphone Tx0

Restricted Band – Low Edge – Microphone Tx0 - Low Channel

Test mode condition	Microphone Tx0 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.27
Chamber details	Chamber: SAC 5	

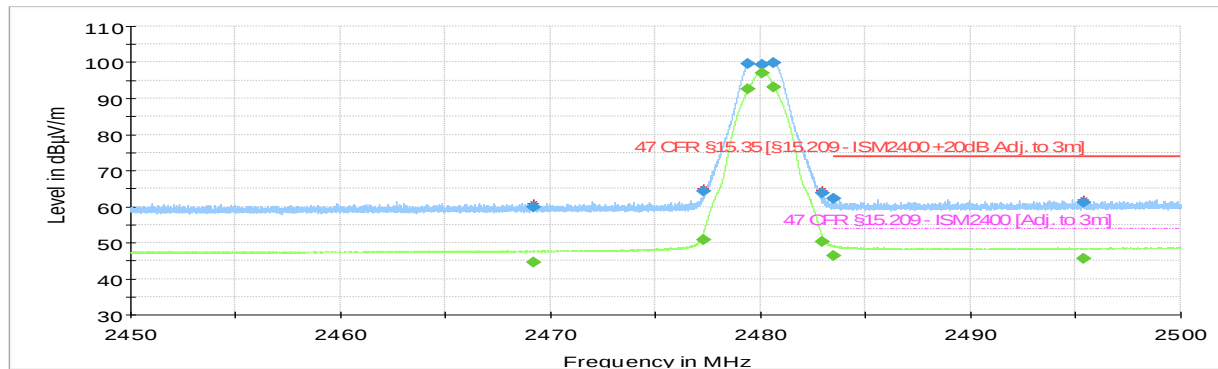


Preview Result 2-AVG
 Preview Result 1-PK+
 Critical_Freqs AVG
 Critical_Freqs PK+
 47 CFR §15.35 [§15.209 - ISM2400 +20dB Adj. to 3m]
 47 CFR §15.209 - ISM2400 [Adj. to 3m]
 Final_Result PK+
 Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2369.568000	---	44.68	53.98	9.30	1000.0	1000.000	193.0	H	177.0
2369.568000	60.82	---	73.98	13.16	1000.0	1000.000	193.0	H	177.0
2390.000000	60.39	---	73.98	13.59	1000.0	1000.000	107.0	V	131.0
2390.000000	---	44.64	53.98	9.34	1000.0	1000.000	107.0	V	131.0
2399.200000	---	48.81	---	---	1000.0	1000.000	182.0	V	-9.0
2399.200000	63.78	---	---	---	1000.0	1000.000	182.0	V	-9.0
2400.000000	---	63.52	---	---	1000.0	1000.000	175.0	V	338.0
2400.000000	73.22	---	---	---	1000.0	1000.000	175.0	V	338.0
2401.488000	---	91.98	---	---	1000.0	1000.000	143.0	H	315.0
2401.488000	98.55	---	---	---	1000.0	1000.000	143.0	H	315.0
2402.048000	---	95.97	---	---	1000.0	1000.000	143.0	H	312.0
2402.048000	98.07	---	---	---	1000.0	1000.000	143.0	H	312.0
2402.592000	---	92.34	---	---	1000.0	1000.000	143.0	H	315.0
2402.592000	98.54	---	---	---	1000.0	1000.000	143.0	H	315.0
2404.688000	---	53.30	---	---	1000.0	1000.000	161.0	H	312.0
2404.688000	65.14	---	---	---	1000.0	1000.000	161.0	H	312.0
2417.632000	59.91	---	---	---	1000.0	1000.000	149.0	V	-15.0
2417.632000	---	44.45	---	---	1000.0	1000.000	149.0	V	-15.0

Restricted Band – High Edge – Microphone Tx0 - High Channel

Test mode condition	Microphone Tx0 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.27
Chamber details	Chamber: SAC 5	

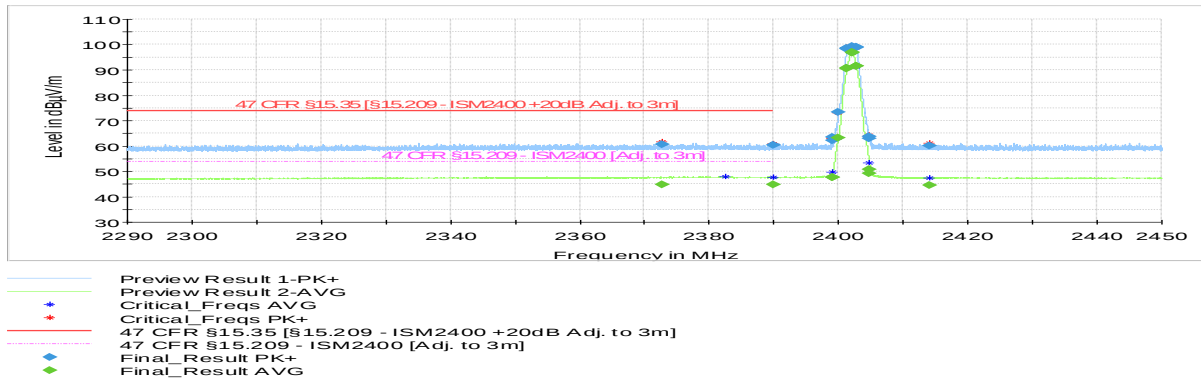


Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2469.200000	---	44.66	---	---	1000.0	1000.000	109.0	V	186.0
2469.200000	59.77	---	---	---	1000.0	1000.000	109.0	V	186.0
2477.250000	---	50.86	---	---	1000.0	1000.000	148.0	H	316.0
2477.250000	64.35	---	---	---	1000.0	1000.000	148.0	H	316.0
2479.400000	99.73	---	---	---	1000.0	1000.000	156.0	H	321.0
2479.400000	---	92.55	---	---	1000.0	1000.000	156.0	H	321.0
2480.035000	99.33	---	---	---	1000.0	1000.000	148.0	H	320.0
2480.035000	---	97.12	---	---	1000.0	1000.000	148.0	H	320.0
2480.640000	---	93.08	---	---	1000.0	1000.000	196.0	H	319.0
2480.640000	99.76	---	---	---	1000.0	1000.000	196.0	H	319.0
2482.900000	---	50.34	---	---	1000.0	1000.000	117.0	H	315.0
2482.900000	63.70	---	---	---	1000.0	1000.000	117.0	H	315.0
2483.500000	62.16	---	73.98	11.82	1000.0	1000.000	100.0	H	327.0
2483.500000	---	46.47	53.98	7.51	1000.0	1000.000	100.0	H	327.0
2495.370000	61.14	---	73.98	12.84	1000.0	1000.000	100.0	H	148.0
2495.370000	---	45.60	53.98	8.38	1000.0	1000.000	100.0	H	148.0

4.5.3 Band Edge Compliance (Restricted Band) – Test Details: Microphone Tx1

Restricted Band – Low Edge – Microphone Tx1 - Low Channel

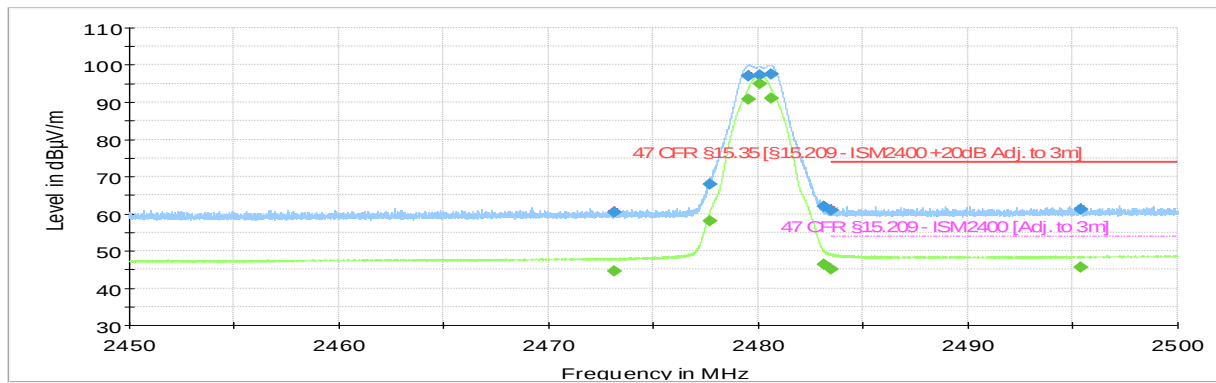
Test mode condition	Microphone Tx1 BLE LE_2M, Low channel (2402 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	1 GHz – 18 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.30
Chamber details	Chamber: 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)
2372.752000	60.56	---	73.98	13.42	1000.0	1000.000	143.0	H	150.0
2372.752000	---	44.83	53.98	9.15	1000.0	1000.000	143.0	H	150.0
2390.000000	60.34	---	73.98	13.64	1000.0	1000.000	100.0	H	-22.0
2390.000000	---	44.78	53.98	9.20	1000.0	1000.000	100.0	H	-22.0
2399.072000	62.19	---	---	---	1000.0	1000.000	155.0	V	-12.0
2399.072000	---	47.64	---	---	1000.0	1000.000	155.0	V	-12.0
2399.120000	---	47.60	---	---	1000.0	1000.000	144.0	V	18.0
2399.120000	63.44	---	---	---	1000.0	1000.000	144.0	V	18.0
2400.000000	---	63.15	---	---	1000.0	1000.000	193.0	V	-13.0
2400.000000	73.48	---	---	---	1000.0	1000.000	193.0	V	-13.0
2401.328000	98.35	---	---	---	1000.0	1000.000	187.0	V	-9.0
2401.328000	---	90.59	---	---	1000.0	1000.000	187.0	V	-9.0
2401.344000	98.54	---	---	---	1000.0	1000.000	187.0	V	-5.0
2401.344000	---	90.81	---	---	1000.0	1000.000	187.0	V	-5.0
2402.032000	---	97.08	---	---	1000.0	1000.000	193.0	V	-8.0
2402.032000	99.24	---	---	---	1000.0	1000.000	193.0	V	-8.0
2402.064000	98.86	---	---	---	1000.0	1000.000	189.0	V	-9.0
2402.064000	---	96.71	---	---	1000.0	1000.000	189.0	V	-9.0
2402.736000	98.73	---	---	---	1000.0	1000.000	193.0	V	-9.0
2402.736000	---	91.46	---	---	1000.0	1000.000	193.0	V	-9.0
2402.752000	99.01	---	---	---	1000.0	1000.000	161.0	V	-3.0
2402.752000	---	91.66	---	---	1000.0	1000.000	161.0	V	-3.0
2404.768000	63.65	---	---	---	1000.0	1000.000	175.0	V	-22.0
2404.768000	---	50.70	---	---	1000.0	1000.000	175.0	V	-22.0
2404.800000	---	49.20	---	---	1000.0	1000.000	177.0	H	78.0
2404.800000	62.94	---	---	---	1000.0	1000.000	177.0	H	78.0
2413.984000	60.03	---	---	---	1000.0	1000.000	155.0	H	140.0
2413.984000	---	44.59	---	---	1000.0	1000.000	155.0	H	140.0

Restricted Band – High Edge – Microphone Tx1 - High Channel

Test mode condition	Microphone Tx1 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.27
Chamber details	Chamber: SAC 5	



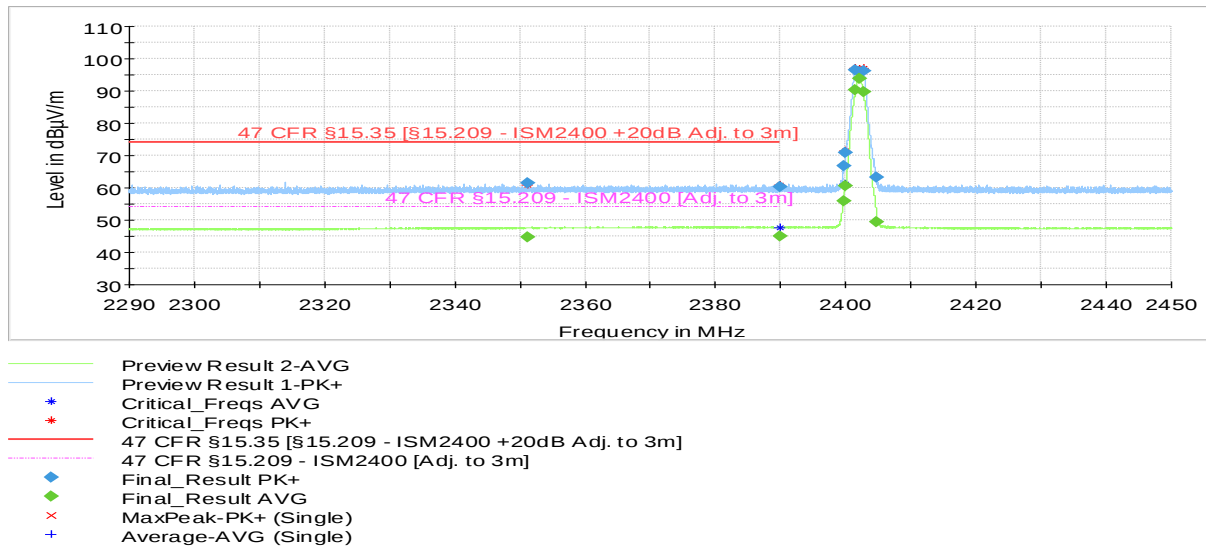
Preview Result 2-AVG
 Preview Result 1-PK+
 Critical_Freqs AVG
 Critical_Freqs PK+
 47 CFR §15.35 [§15.209 - ISM2400 +20dB Adj. to 3m]
 47 CFR §15.209 - ISM2400 [Adj. to 3m]
 Final_Result PK+
 Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2473.150000	---	44.66	---	---	1000.0	1000.000	140.0	H	355.0
2473.150000	60.34	---	---	---	1000.0	1000.000	140.0	H	355.0
2477.705000	---	57.93	---	---	1000.0	1000.000	164.0	H	85.0
2477.705000	68.01	---	---	---	1000.0	1000.000	164.0	H	85.0
2479.520000	97.01	---	---	---	1000.0	1000.000	156.0	H	75.0
2479.520000	---	90.83	---	---	1000.0	1000.000	156.0	H	75.0
2480.060000	---	95.05	---	---	1000.0	1000.000	164.0	H	80.0
2480.060000	97.26	---	---	---	1000.0	1000.000	164.0	H	80.0
2480.625000	---	91.07	---	---	1000.0	1000.000	164.0	H	80.0
2480.625000	97.63	---	---	---	1000.0	1000.000	164.0	H	80.0
2483.145000	61.94	---	---	---	1000.0	1000.000	164.0	H	115.0
2483.145000	---	46.31	---	---	1000.0	1000.000	164.0	H	115.0
2483.500000	60.92	---	73.98	13.06	1000.0	1000.000	123.0	V	91.0
2483.500000	---	45.09	53.98	8.89	1000.0	1000.000	123.0	V	91.0
2495.370000	61.26	---	73.98	12.71	1000.0	1000.000	210.0	H	44.0
2495.370000	---	45.49	53.98	8.49	1000.0	1000.000	210.0	H	44.0

4.5.4 Band Edge Compliance (Restricted Band) – Test Details: Microphone Tx2

Restricted Band – Low Edge – Microphone Tx2 - Low Channel

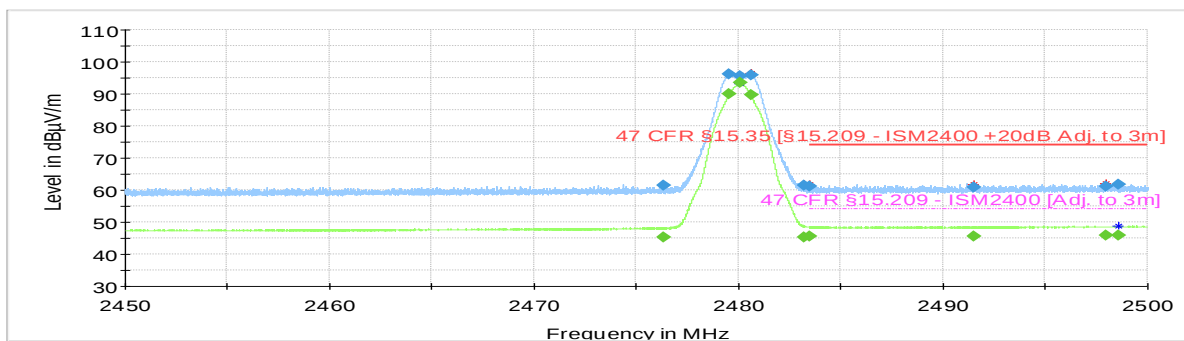
Test mode condition	Microphone Tx2 BLE LE_2M, Low channel (2402 MHz)	
Antenna orientation	Horizontal & vertical	
Sweep frequency	1 GHz – 18 GHz	
Standard	47 CFR FCC Part 15 subpart C	
EUT	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.30
Chamber details	Chamber: 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)
2351.120000	61.41	---	73.98	12.57	1000.0	1000.000	175.0	H	168.0
2351.120000	---	44.73	53.98	9.25	1000.0	1000.000	175.0	H	168.0
2390.000000	---	44.88	53.98	9.10	1000.0	1000.000	113.0	V	87.0
2390.000000	60.16	---	73.98	13.82	1000.0	1000.000	113.0	V	87.0
2399.616000	66.86	---	---	---	1000.0	1000.000	177.0	V	93.0
2399.616000	---	55.76	---	---	1000.0	1000.000	177.0	V	93.0
2400.000000	---	60.47	---	---	1000.0	1000.000	193.0	V	81.0
2400.000000	70.96	---	---	---	1000.0	1000.000	193.0	V	81.0
2401.520000	96.61	---	---	---	1000.0	1000.000	193.0	V	81.0
2401.520000	---	90.22	---	---	1000.0	1000.000	193.0	V	81.0
2402.064000	---	93.83	---	---	1000.0	1000.000	193.0	V	82.0
2402.064000	95.99	---	---	---	1000.0	1000.000	193.0	V	82.0
2402.656000	---	89.60	---	---	1000.0	1000.000	193.0	V	78.0
2402.656000	96.26	---	---	---	1000.0	1000.000	193.0	V	78.0
2404.800000	63.33	---	---	---	1000.0	1000.000	113.0	V	87.0
2404.800000	---	49.50	---	---	1000.0	1000.000	113.0	V	87.0

Restricted Band – High Edge – Microphone Tx2 - High Channel

Test mode condition	Microphone Tx2 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.20
Chamber details	Chamber: SAC 5	



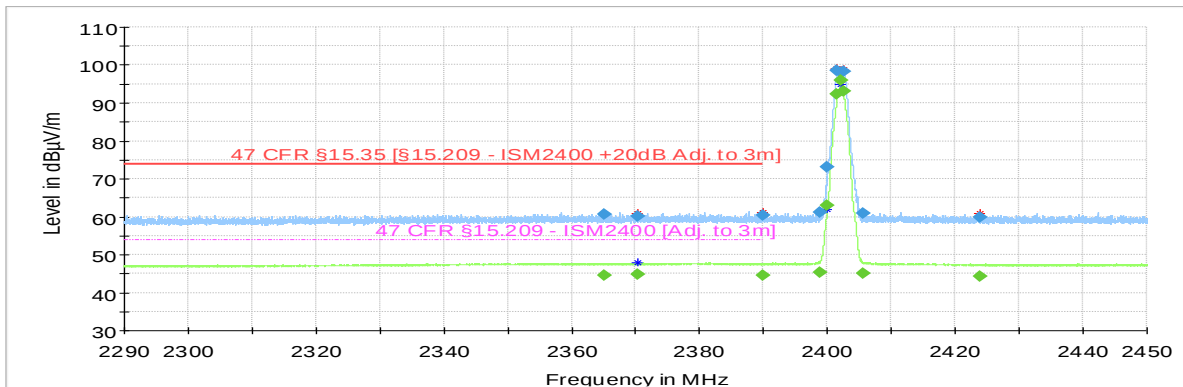
Preview Result 2-AVG
 Preview Result 1-PK+
 Critical_Freqs AVG
 Critical_Freqs PK+
 47 CFR §15.35 [§15.209 - ISM2400 +20dB Adj. to 3m]
 47 CFR §15.209 - ISM2400 [Adj. to 3m]
 Final_Result PK+
 Final_Result AVG
 MaxPeak-PK+ (Single)
 Average-AVG (Single)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2476.300000	---	45.28	---	---	1000.0	1000.000	139.0	V	180.0
2476.300000	61.38	---	---	---	1000.0	1000.000	139.0	V	180.0
2479.540000	---	90.04	---	---	1000.0	1000.000	196.0	H	166.0
2479.540000	96.03	---	---	---	1000.0	1000.000	196.0	H	166.0
2480.045000	---	93.49	---	---	1000.0	1000.000	197.0	H	167.0
2480.045000	95.73	---	---	---	1000.0	1000.000	197.0	H	167.0
2480.580000	95.89	---	---	---	1000.0	1000.000	196.0	H	166.0
2480.580000	---	89.77	---	---	1000.0	1000.000	196.0	H	166.0
2483.205000	---	45.34	---	---	1000.0	1000.000	100.0	V	277.0
2483.205000	61.42	---	---	---	1000.0	1000.000	100.0	V	277.0
2483.500000	---	45.70	53.98	8.28	1000.0	1000.000	210.0	V	143.0
2483.500000	61.30	---	73.98	12.68	1000.0	1000.000	210.0	V	143.0
2491.490000	60.89	---	73.98	13.09	1000.0	1000.000	172.0	H	73.0
2491.490000	---	45.57	53.98	8.41	1000.0	1000.000	172.0	H	73.0
2497.955000	---	45.84	53.98	8.14	1000.0	1000.000	147.0	H	170.0
2497.955000	61.06	---	73.98	12.92	1000.0	1000.000	147.0	H	170.0
2498.565000	61.82	---	73.98	12.16	1000.0	1000.000	164.0	H	4.0
2498.565000	---	45.84	53.98	8.14	1000.0	1000.000	164.0	H	4.0

4.5.5 Band Edge Compliance (Restricted Band) – Test Details: Microphone Tx3

Restricted Band – Low Edge – Microphone Tx3 - Low Channel

Test mode condition	Microphone Tx3 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.23
Chamber details	Chamber: SAC 5	

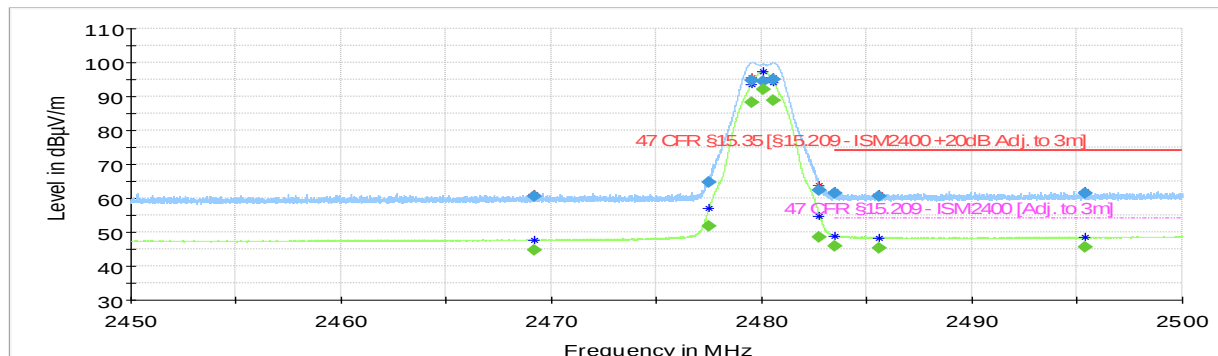


Preview Result 2-AVG
 Preview Result 1-PK+
 Critical_Freqs AVG
 Critical_Freqs PK+
 47 CFR §15.35 [§15.209 - ISM2400 +20dB Adj. to 3m]
 47 CFR §15.209 - ISM2400 [Adj. to 3m]
 Final_Result PK+
 Final_Result AVG

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2365.008000	60.61	---	73.98	13.37	1000.0	1000.000	199.0	H	134.0
2365.008000	---	44.63	53.98	9.35	1000.0	1000.000	199.0	H	134.0
2370.304000	60.22	---	73.98	13.76	1000.0	1000.000	201.0	V	237.0
2370.304000	---	44.77	53.98	9.21	1000.0	1000.000	201.0	V	237.0
2390.000000	---	44.64	53.98	9.34	1000.0	1000.000	125.0	H	153.0
2390.000000	60.29	---	73.98	13.69	1000.0	1000.000	125.0	H	153.0
2398.880000	---	45.35	---	---	1000.0	1000.000	100.0	V	202.0
2398.880000	61.16	---	---	---	1000.0	1000.000	100.0	V	202.0
2400.000000	---	63.11	---	---	1000.0	1000.000	193.0	V	202.0
2400.000000	73.12	---	---	---	1000.0	1000.000	193.0	V	202.0
2401.536000	---	92.32	---	---	1000.0	1000.000	193.0	V	212.0
2401.536000	98.70	---	---	---	1000.0	1000.000	193.0	V	212.0
2402.080000	---	96.03	---	---	1000.0	1000.000	193.0	V	212.0
2402.080000	98.15	---	---	---	1000.0	1000.000	193.0	V	212.0
2402.544000	98.43	---	---	---	1000.0	1000.000	193.0	V	212.0
2402.544000	---	93.06	---	---	1000.0	1000.000	193.0	V	212.0
2405.584000	---	45.06	---	---	1000.0	1000.000	112.0	V	174.0
2405.584000	61.00	---	---	---	1000.0	1000.000	112.0	V	174.0
2423.888000	59.77	---	---	---	1000.0	1000.000	137.0	H	282.0
2423.888000	---	44.32	---	---	1000.0	1000.000	137.0	H	282.0

Restricted Band – High Edge – Microphone Tx3 - High Channel

Test mode condition	Microphone Tx3 BLE 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	A003403873-001	
Ancillary Equipment	N/A	
Test Engineer	Niall Forrester	Date: 2023.01.30
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)
2469.200000	---	44.72	---	---	1000.0	1000.000	172.0	H	183.0
2469.200000	60.50	---	---	---	1000.0	1000.000	172.0	H	183.0
2477.495000	64.74	---	---	---	1000.0	1000.000	188.0	H	283.0
2477.495000	---	51.90	---	---	1000.0	1000.000	188.0	H	283.0
2479.500000	---	88.28	---	---	1000.0	1000.000	180.0	H	290.0
2479.500000	94.77	---	---	---	1000.0	1000.000	180.0	H	290.0
2480.040000	94.42	---	---	---	1000.0	1000.000	181.0	H	294.0
2480.040000	---	92.02	---	---	1000.0	1000.000	181.0	H	294.0
2480.570000	---	88.95	---	---	1000.0	1000.000	180.0	H	288.0
2480.570000	94.87	---	---	---	1000.0	1000.000	180.0	H	288.0
2482.755000	62.35	---	---	---	1000.0	1000.000	164.0	H	301.0
2482.755000	---	48.44	---	---	1000.0	1000.000	164.0	H	301.0
2483.500000	61.33	---	73.98	12.65	1000.0	1000.000	164.0	H	264.0
2483.500000	---	45.74	53.98	8.24	1000.0	1000.000	164.0	H	264.0
2485.580000	60.55	---	73.98	13.43	1000.0	1000.000	100.0	H	318.0
2485.580000	---	45.39	53.98	8.59	1000.0	1000.000	100.0	H	318.0
2495.370000	---	45.66	53.98	8.32	1000.0	1000.000	179.0	V	25.0
2495.370000	61.34	---	73.98	12.64	1000.0	1000.000	179.0	V	25.0

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

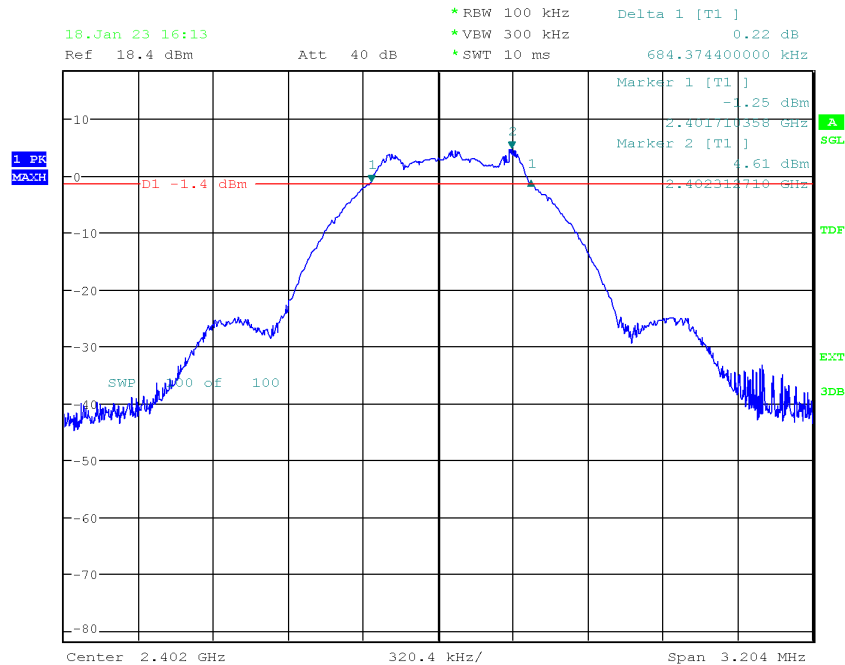
Test Specification	15.247 (a)(2)	
Test Engineer & Date	Niall Forrester	2023.01.13 – 2023.01.18
EUT and Ancillary Equipment IDs	A003401717-001	N/A
EUT Operation Mode(s)	Rec – Cond - DTM	
EUT Wireless Configuration(s)	Bluetooth Low Energy (see details below)	
EUT Hardware Configuration(s)	Stand-alone (Space Recorder)	
Overall Result	PASS	

Test Parameter	Wireless Configuration	Measured BLE LE_1M (kHz)	Measured BLE LE_2M (kHz)	Limit (kHz)	Result
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx0) Low Channel (GFSK 2402 MHz)	684.37	1136.68	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx0) High Channel (GFSK 2480 MHz)	691.57	1150.16	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx0) High Channel (GFSK 2480 MHz)	693.11	1124.47	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx1) Low Channel (GFSK 2402 MHz)	717.70	1137.63	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx1) High Channel (GFSK 2480 MHz)	692.60	1131.74	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx1) High Channel (GFSK 2480 MHz)	684.88	1135.35	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx2) Low Channel (GFSK 2402 MHz)	684.88	1135.35	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx2) High Channel (GFSK 2480 MHz)	690.53	1128.39	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx2) High Channel (GFSK 2480 MHz)	706.04	1135.69	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx3) Low Channel (GFSK 2402 MHz)	685.91	1126.46	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx3) High Channel (GFSK 2480 MHz)	686.94	1136.30	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Microphone Tx3) High Channel (GFSK 2480 MHz)	685.91	1135.35	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Main) Low Channel (GFSK 2402 MHz)	709.72	N/A	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Main) High Channel (GFSK 2480 MHz)	710.76	N/A	>500	PASS
6dB Bandwidth	Bluetooth Low Energy (Main) High Channel (GFSK 2480 MHz)	700.35	N/A	>500	PASS

Test Parameter	Wireless Configuration	Measured BLE LE_1M (kHz)	Measured BLE LE_2M (kHz)	Limit (kHz)	Result
99% Bandwidth	Bluetooth Low Energy (Microphone Tx0) Low Channel (GFSK 2402 MHz)	1048.35	2051.10	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx0) High Channel (GFSK 2480 MHz)	1055.55	2063.25	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx0) High Channel (GFSK 2480 MHz)	1057.84	2055.74	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx1) Low Channel (GFSK 2402 MHz)	1050.91	2048.72	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx1) High Channel (GFSK 2480 MHz)	1050.36	2075.81	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx1) High Channel (GFSK 2480 MHz)	1047.78	2053.38	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx2) Low Channel (GFSK 2402 MHz)	1050.36	2053.38	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx2) High Channel (GFSK 2480 MHz)	1057.84	2058.08	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx2) High Channel (GFSK 2480 MHz)	1057.84	2063.03	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx3) Low Channel (GFSK 2402 MHz)	1048.07	2056.23	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx3) High Channel (GFSK 2480 MHz)	1053.48	2061.15	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Microphone Tx3) High Channel (GFSK 2480 MHz)	1048.07	2053.38	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Main) Low Channel (GFSK 2402 MHz)	1054.28	N/A	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Main) High Channel (GFSK 2480 MHz)	1054.30	N/A	-	Info Only
99% Bandwidth	Bluetooth Low Energy (Main) High Channel (GFSK 2480 MHz)	1054.30	N/A	-	Info Only

4.10.2 6dB & 99% Bandwidth – Test Details: Microphone Tx0 (Worst Case Plot):

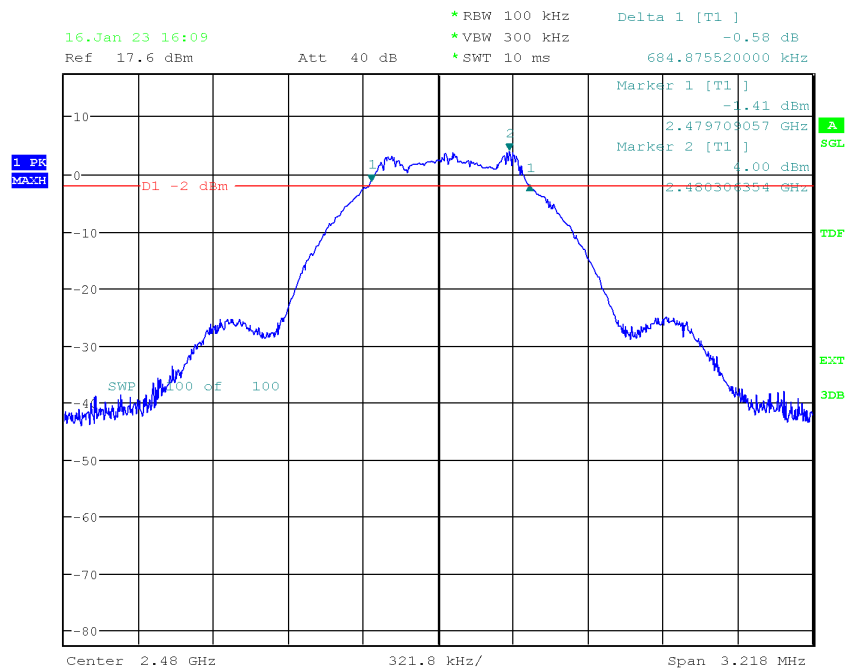
Microphone Tx0 - Low Channel, LE_1M



Date: 18.JAN.2023 16:13:17

4.10.3 6dB & 99% Bandwidth – Test Details: Microphone Tx1 (Worst Case Plot):

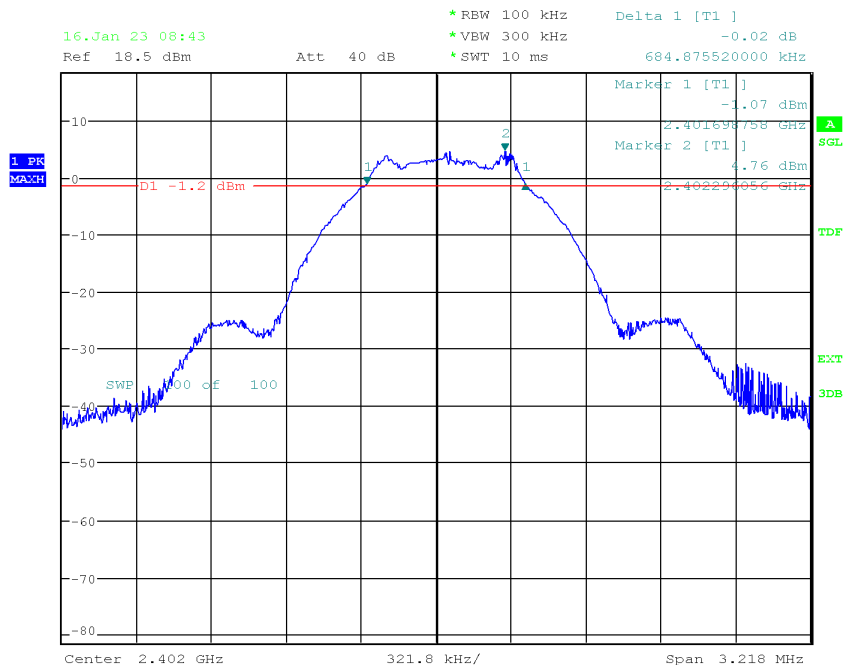
Microphone Tx1 - High Channel, LE_1M



Date: 16.JAN.2023 16:09:06

4.10.4 6dB & 99% Bandwidth – Test Details: Microphone Tx2 (Worst Case Plot):

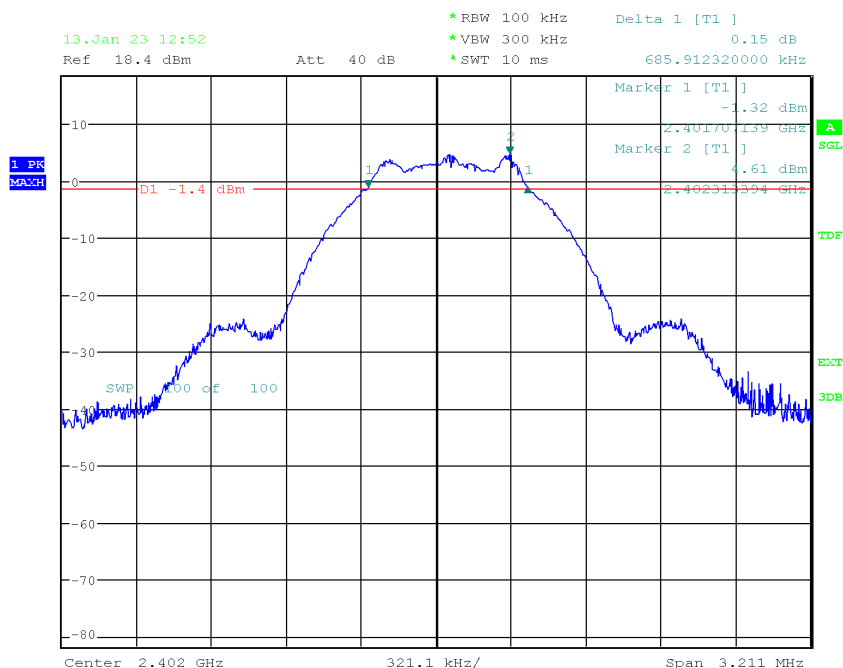
Microphone Tx2 - Low Channel, LE_1M



Date: 16.JAN.2023 08:43:16

4.10.5 6dB & 99% Bandwidth – Test Details: Microphone Tx3 (Worst Case Plot):

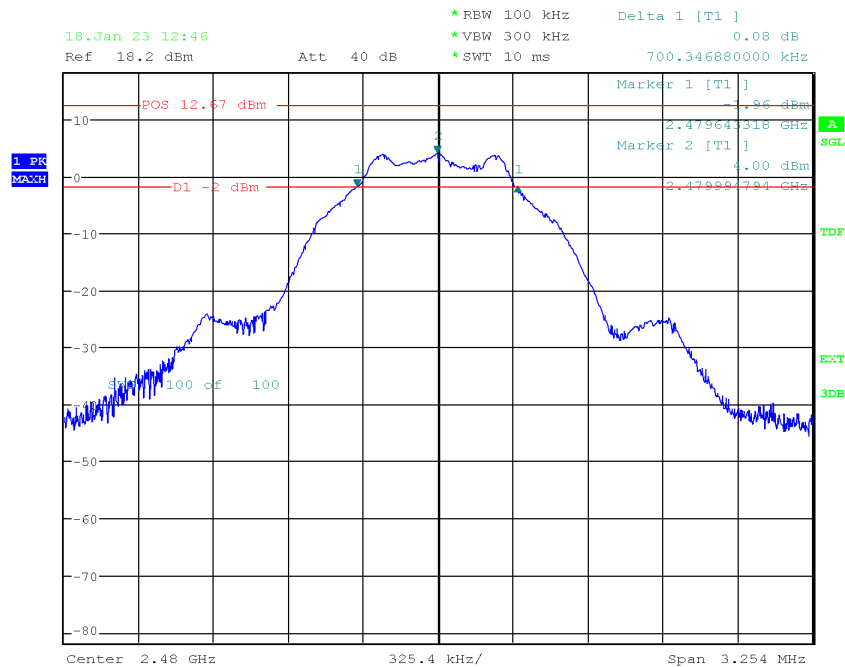
Microphone Tx3 - Low Channel, LE_1M



Date: 13.JAN.2023 12:52:47

4.10.6 6dB & 99% Bandwidth – Test Details: Main (Worst Case Plot):

Main - High Channel, LE_1M



Date: 18.JAN.2023 12:46:17

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	2023.03.07 – 2023.03.08
EUT and Ancillary Equipment IDs	A003418772_001	N/A
EUT Operation Mode(s)	Rec – Cond - DTM	
EUT Wireless Configuration(s)	Bluetooth Low Energy (see details below)	
EUT Hardware Configuration(s)	Stand-alone (Space Recorder)	
Overall Result	PASS	

Test Parameter	Wireless Configuration	Measured Level (dBm)			Limit (dBm)	Result
		Low* 2.75V	Nom* 3.6V	High* 4.2V		
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx0) Low Channel (GFSK 2402 MHz)	4.81	4.85	4.78	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx0) Low Channel (GFSK 2402 MHz)	4.81	4.87	4.81	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx0) Mid Channel (GFSK 2440 MHz)	4.70	4.76	4.69	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx0) Mid Channel (GFSK 2440 MHz)	4.74	4.74	4.71	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx0) High Channel (GFSK 2480 MHz)	4.47	4.46	4.42	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx0) High Channel (GFSK 2480 MHz)	4.43	4.48	4.44	> -20 < 30	PASS

Test Parameter	Wireless Configuration	Measured Level (dBm)			Limit (dBm)	Result
		Low* 2.75V	Nom* 3.6V	High* 4.2V		
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx1) Low Channel (GFSK 2402 MHz)	4.78	4.72	4.69	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx1) Low Channel (GFSK 2402 MHz)	4.77	4.71	4.67	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx1) Mid Channel (GFSK 2440 MHz)	4.65	4.58	4.59	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx1) Mid Channel (GFSK 2440 MHz)	4.66	4.62	4.57	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx1) High Channel (GFSK 2480 MHz)	4.36	4.32	4.34	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx1) High Channel (GFSK 2480 MHz)	4.35	4.32	4.37	> -20 < 30	PASS

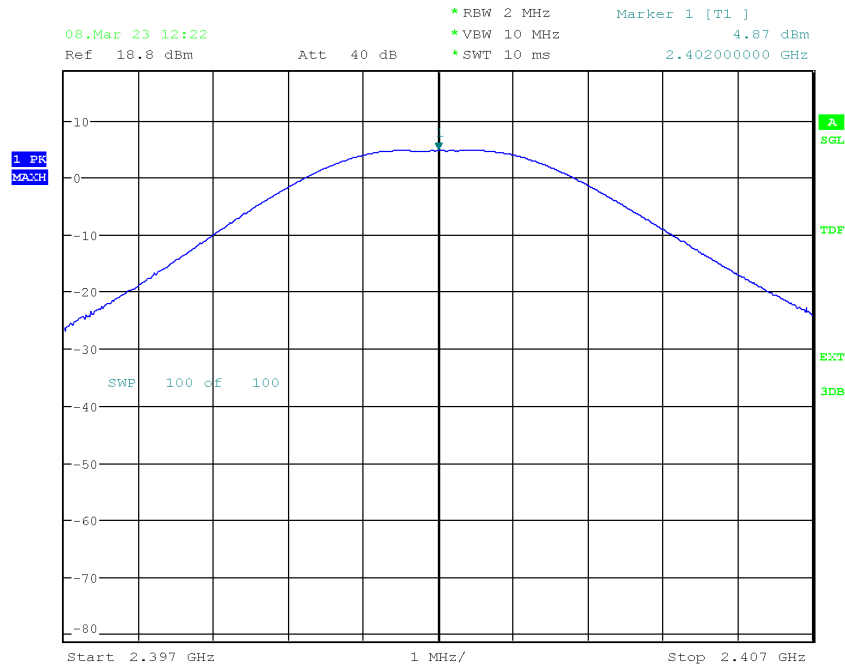
Test Parameter	Wireless Configuration	Measured Level (dBm)			Limit (dBm)	Result
		Low* 2.75V	Nom* 3.6V	High* 4.2V		
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx2) Low Channel (GFSK 2402 MHz)	5.25	5.18	5.22	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx2) Low Channel (GFSK 2402 MHz)	5.26	5.18	5.24	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx2) Mid Channel (GFSK 2440 MHz)	5.12	5.08	5.17	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx2) Mid Channel (GFSK 2440 MHz)	5.16	5.04	5.17	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx2) High Channel (GFSK 2480 MHz)	4.86	4.81	5.03	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx2) High Channel (GFSK 2480 MHz)	4.85	4.80	5.02	> -20 < 30	PASS

Test Parameter	Wireless Configuration	Measured Level (dBm)			Limit (dBm)	Result
		Low* 2.75V	Nom* 3.6V	High* 4.2V		
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx3) Low Channel (GFSK 2402 MHz)	5.20	5.27	5.22	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx3) Low Channel (GFSK 2402 MHz)	5.22	5.25	5.25	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx3) Mid Channel (GFSK 2440 MHz)	5.13	5.19	5.15	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx3) Mid Channel (GFSK 2440 MHz)	5.16	5.20	5.20	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Microphone Tx3) High Channel (GFSK 2480 MHz)	4.99	5.01	4.99	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_2M (Microphone Tx3) High Channel (GFSK 2480 MHz)	4.99	5.05	5.02	> -20 < 30	PASS

Test Parameter	Wireless Configuration	Measured Level (dBm)			Limit (dBm)	Result
		Low* 2.75V	Nom* 3.6V	High* 4.2V		
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Main) Low Channel (GFSK 2402 MHz)	4.58	4.43	4.13	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Main) Mid Channel (GFSK 2440 MHz)	5.40	5.20	4.95	> -20 < 30	PASS
Peak Conducted Output Power	Bluetooth Low Energy LE_1M (Main) High Channel (GFSK 2480 MHz)	5.36	4.96	4.79	> -20 < 30	PASS

4.11.2 Peak Conducted Output Power – Test Details: Microphone Tx0 (Worst case Plot)

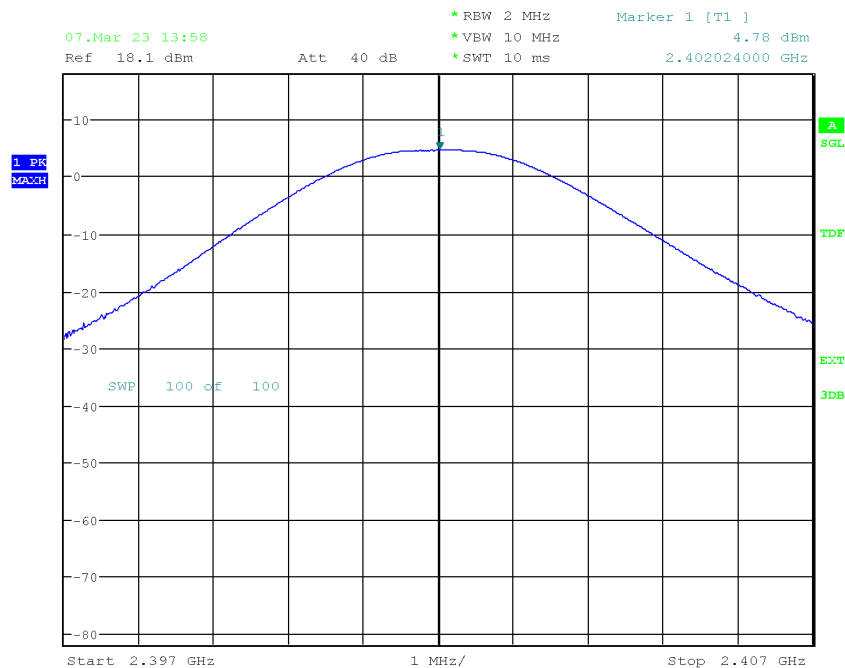
Microphone Tx0 - Low Channel, LE_2M, Nominal Voltage



Date: 8.MAR.2023 12:22:40

4.11.3 Peak Conducted Output Power – Test Details: Microphone Tx1 (Worst case Plot)

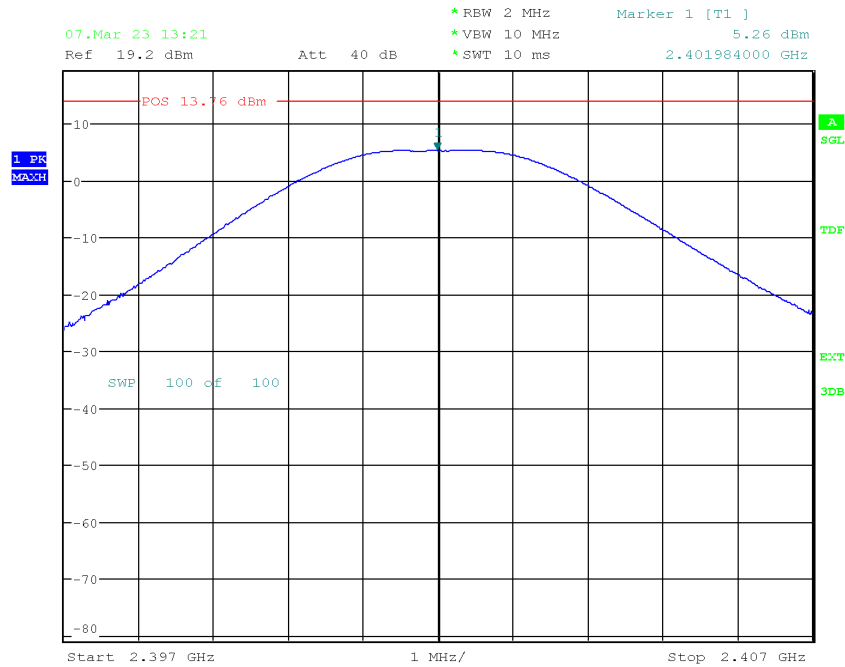
Microphone Tx1 - Low Channel, LE_1M, Low Voltage



Date: 7.MAR.2023 13:58:38

4.11.4 Peak Conducted Output Power – Test Details: Microphone Tx2 (Worst case Plot)

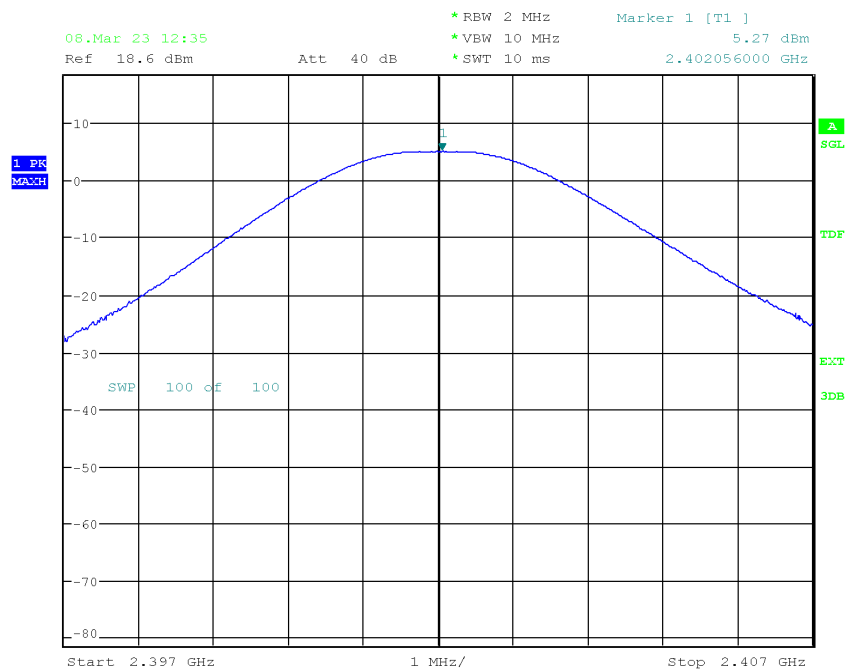
Microphone Tx2 - Low Channel, LE_2M, Low Voltage



Date: 7.MAR.2023 13:21:41

4.11.5 Peak Conducted Output Power – Test Details: Microphone Tx3 (Worst case Plot)

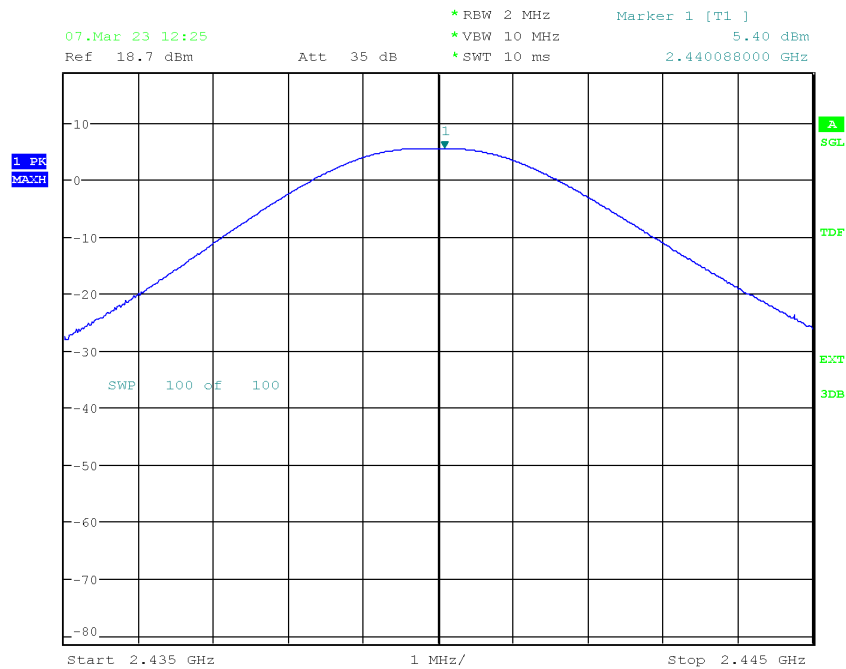
Microphone Tx3 - Low Channel, LE_1M, Nominal Voltage



Date: 8.MAR.2023 12:35:41

4.11.6 Peak Conducted Output Power – Test Details: Main (Worst case Plot)

Main – Mid Channel, LE_1M, Low Voltage



Date: 7.MAR.2023 12:25:24

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	2023.01.13 – 2023.01.18
EUT and Ancillary Equipment IDs	A003401717-001	N/A
EUT Operation Mode(s)	Rec – Cond - DTM	
EUT Wireless Configuration(s)	Bluetooth Low Energy (see details below)	
EUT Hardware Configuration(s)	Stand-alone (Space Recorder)	
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 (Microphone Tx0) Low Channel (GFSK 2402 MHz)	-11.28	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx0) Low Channel (GFSK 2402 MHz)	-13.26	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx0) Mid Channel (GFSK 2440 MHz)	-11.49	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx0) Mid Channel (GFSK 2440 MHz)	-13.33	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx0) High Channel (GFSK 2480 MHz)	-11.80	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx0) High Channel (GFSK 2480 MHz)	-13.65	-30.00	8.00	PASS

Test Parameter	Wireless Configuration	Measured (dBm/3kHz)	Low Limit (dBm/3kHz)	High Limit (dBm/3kHz)	Result
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx1) Low Channel (GFSK 2402 MHz)	-11.40	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx1) Low Channel (GFSK 2402 MHz)	-13.45	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx1) Mid Channel (GFSK 2440 MHz)	-11.59	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx1) Mid Channel (GFSK 2440 MHz)	-13.57	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx1) High Channel (GFSK 2480 MHz)	-11.85	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx1) High Channel (GFSK 2480 MHz)	-13.68	-30.00	8.00	PASS

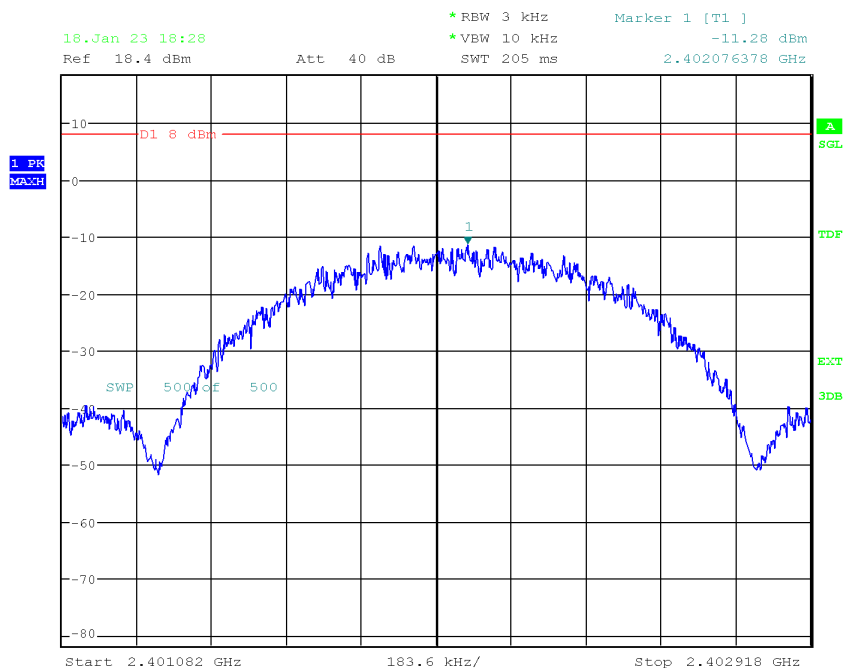
Test Parameter	Wireless Configuration	Measured (dBm/3kHz)	Low Limit (dBm/3kHz)	High Limit (dBm/3kHz)	Result
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx2) Low Channel (GFSK 2402 MHz)	-10.90	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx2) Low Channel (GFSK 2402 MHz)	-12.91	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx2) Mid Channel (GFSK 2440 MHz)	-11.11	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx2) Mid Channel (GFSK 2440 MHz)	-12.97	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx2) High Channel (GFSK 2480 MHz)	-11.35	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx2) High Channel (GFSK 2480 MHz)	-13.16	-30.00	8.00	PASS

Test Parameter	Wireless Configuration	Measured (dBm/3kHz)	Low Limit (dBm/3kHz)	High Limit (dBm/3kHz)	Result
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx3) Low Channel (GFSK 2402 MHz)	-11.03	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx3) Low Channel (GFSK 2402 MHz)	-13.00	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx3) Mid Channel (GFSK 2440 MHz)	-11.15	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx3) Mid Channel (GFSK 2440 MHz)	-12.95	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M (Microphone Tx3) High Channel (GFSK 2480 MHz)	-11.37	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_2M (Microphone Tx3) High Channel (GFSK 2480 MHz)	-13.18	-30.00	8.00	PASS

Test Parameter	Wireless Configuration	Measured (dBm/3kHz)	Low Limit (dBm/3kHz)	High Limit (dBm/3kHz)	Result
Power Density	Bluetooth Low Energy LE_1M (Main) Low Channel (GFSK 2402 MHz)	-10.55	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M (Main) Mid Channel (GFSK 2440 MHz)	-9.34	-30.00	8.00	PASS
Power Density	Bluetooth Low Energy LE_1M (Main) High Channel (GFSK 2480 MHz)	-9.81	-30.00	8.00	PASS

4.12.2 Power Spectral Density – Test Details: Microphone Tx0 (Plot for maximum power density)

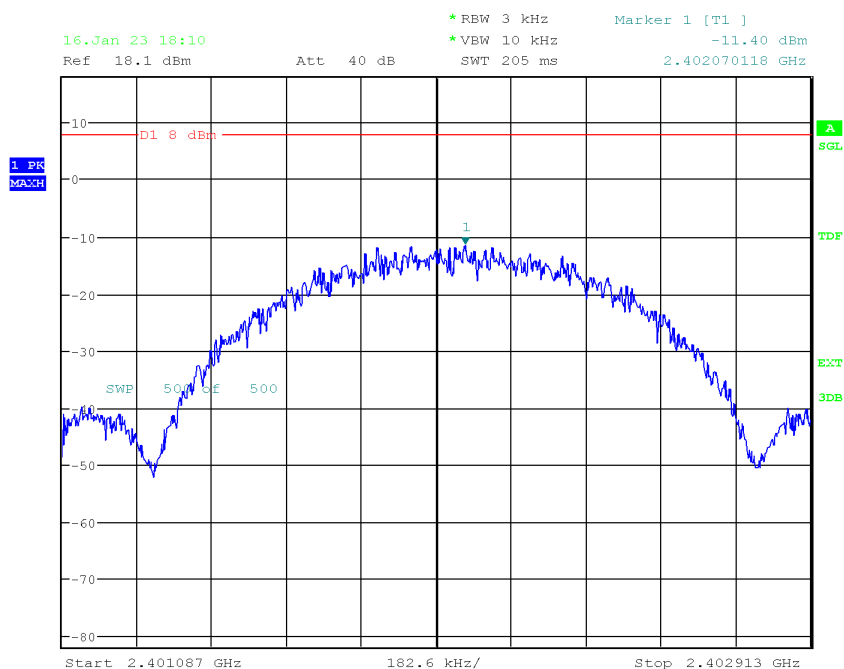
Microphone Tx0 - Low Channel, LE_1M



Date: 18.JAN.2023 18:28:44

4.12.3 Power Spectral Density – Test Details: Microphone Tx1 (Plot for maximum power density)

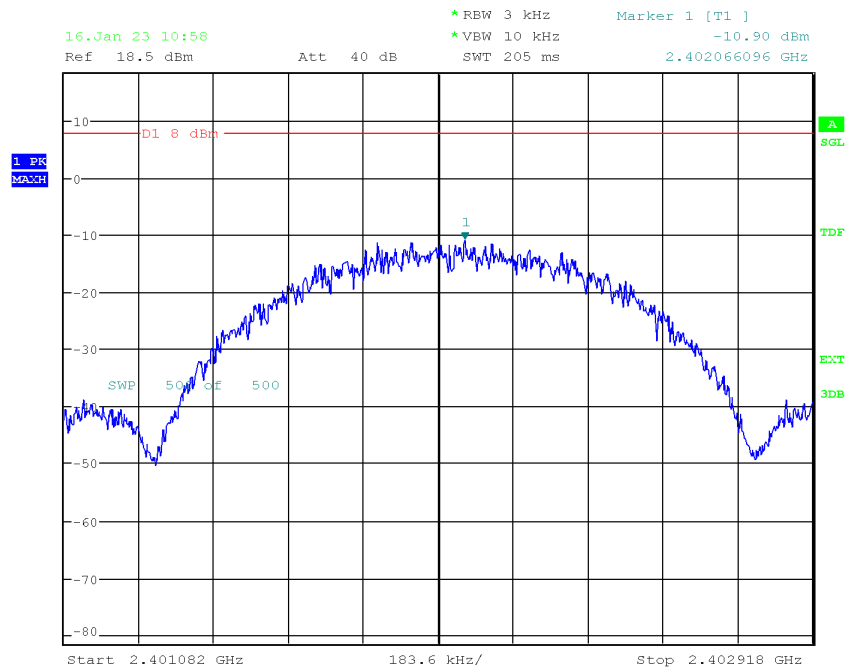
Microphone Tx1 - Low Channel, LE_1M



Date: 16.JAN.2023 18:10:47

4.12.4 Power Spectral Density – Test Details: Microphone Tx2 (Plot for maximum power density)

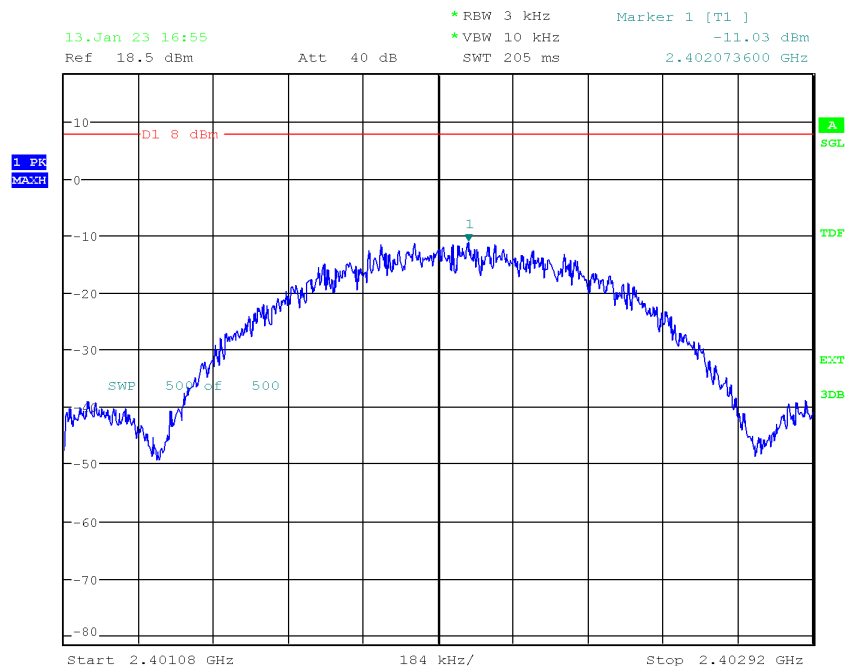
Microphone Tx2 - Low Channel, LE_1M



Date: 16.JAN.2023 10:58:26

4.12.5 Power Spectral Density – Test Details: Microphone Tx3 (Plot for maximum power density)

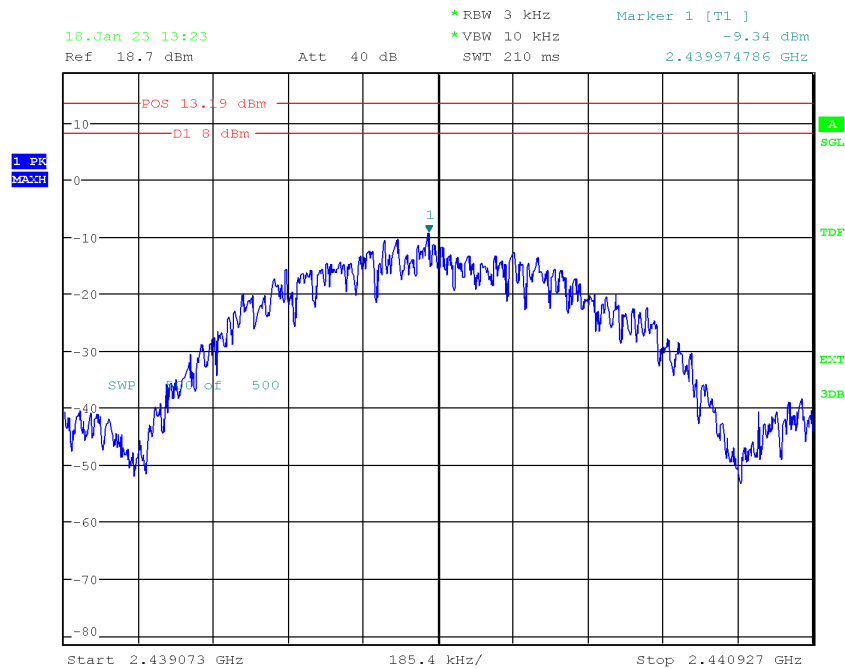
Microphone Tx3 - Low Channel, LE_1M



Date: 13.JAN.2023 16:55:53

4.12.6 Power Spectral Density – Test Details: Main (Plot for maximum power density)

Main - Mid Channel, LE_1M



Date: 18.JAN.2023 13:23:05

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 (Main)	2.4 GHz	5.40	3.47	4.20	7.45	5.56
Bluetooth Low Energy (Microphone Tx0)	2.4 GHz	4.87	3.07	2.05	4.77	3.00
Bluetooth Low Energy (Microphone Tx1)	2.4 GHz	4.78	3.01	1.99	4.62	2.90
Bluetooth Low Energy (Microphone Tx2)	2.4 GHz	5.26	3.36	2.58	5.69	3.71
Bluetooth Low Energy (Microphone Tx3)	2.4 GHz	5.27	3.37	1.16	4.28	2.68

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