FCC RADIO TEST REPORT

FCC ID	:	**A4RG4QUR**
Equipment	:	**Phone**
Model Name	:	**G4QUR**
Applicant	:	**Google LLC** **1600 Amphitheatre Parkway,** **Mountain View, California, 94043 USA**
Standard	:	**FCC Part 15 Subpart C §15.247**

The product was received on Dec. 12, 2024 and testing was performed from Dec. 20, 2024 to Mar. 21, 2025. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory
No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)

Table of Contents

History of this test report **3**
Summary of Test Result **4**
1 General Description **5**
1.1 Product Feature of Equipment Under Test 5
1.2 Modification of EUT 6
1.3 Testing Location 7
1.4 Applicable Standards 7
2 Test Configuration of Equipment Under Test **8**
2.1 Carrier Frequency Channel 8
2.2 Test Mode 9
2.3 Connection Diagram of Test System 11
2.4 Support Unit used in test configuration and system 11
2.5 EUT Operation Test Setup 12
2.6 Measurement Results Explanation Example 12
3 Test Result **13**
3.1 6dB and 99% Bandwidth Measurement 13
3.2 Output Power Measurement 14
3.3 Power Spectral Density Measurement 15
3.4 Conducted Band Edges and Spurious Emission Measurement 16
3.5 Radiated Band Edges and Spurious Emission Measurement 17
3.6 AC Conducted Emission Measurement 21
3.7 Antenna Requirements 23
4 List of Measuring Equipment **24**
5 Measurement Uncertainty **26**
Appendix A. Conducted Test Results
Appendix B. AC Conducted Emission Test Result
Appendix C. Radiated Spurious Emission Test Data
Appendix D. Duty Cycle Plots
Appendix E. Setup Photographs

History of this test report

Report No.	Version	Description	Issue Date
FR4N0917B	01	Initial issue of report	Apr. 10, 2025
FR4N0917B	02	Revise Section 2.2 and Section 5 This report is an updated version, replacing the report issued on Apr. 10, 2025.	Apr. 16, 2025

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(2)	6dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Pass	-
3.2	15.247(b)(3) 15.247(b)(4)	Output Power	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges and Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Spurious Emission	Pass	-
3.6	15.207	AC Conducted Emission	Pass	-
3.7	15.203	Antenna Requirement	Pass	-

Conformity Assessment Condition:
1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”.
Disclaimer:
The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: William Chen

Report Producer: Dara Chiu

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature
General Specs GSM/WCDMA/LTE/5G NR/NTN , Bluetooth, BLE, BLE channel sounding, Thread, Wi-Fi 802.11be, NFC, WPC Rx, UWB and GNSS Rx. **Antenna Type** Bluetooth: **<Ant.3>:** IFA Antenna **<Ant.4>:** ILA Antenna

EUT Information List	
S/N	**Performed Test Item**
4B251FDCH0002V	RF Conducted Measurement
4B201FDCH0000X	Radiated Spurious Emission
51091FDCH0006V	Conducted Emission

Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	Ant.3: 1.9 Ant.4: 1.9

Remark:

1. MIMO Ant. 4+3 Directional Gain is a calculated result from MIMO Ant. 4 and MIMO Ant. 3. The formula used in calculation is documented in section 1.1.1.
2. Power of MIMO Ant. 4 + Ant. 3 is a calculated result from sum of the power MIMO Ant. 4 and MIMO Ant. 3.
3. The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

1.1.1 Antenna Directional Gain

Follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)ii)

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows:

G_{ANT} is set equal to the gain of the antenna having the highest gain.

For the directional gain calculation.

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

As minimum N_{SS}=1 is supported by EUT, the formula can be simplified as:

Directional gain = $10*\log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ dBi

Where G1, G2….GN denote single antenna gain.

The directional gain “DG” is calculated as following table.

			DG	DG	Power	PSD
			for	for	Limit	Limit
	Ant 1	Ant 2	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
Bluetooth	1.90	1.90	4.91	4.91	0.00	0.00

Calculation example:

If a device has two antenna, G_{ANT3}= 1.90 dBi; G_{ANT4}= 1.90 dBi

Directional gain derived from formula which is

10 x log { { [10^ (1.90 dBi / 20) + 10^ (1.90 dBi / 20)] ^ 2 } / 2 }

= 4.91 dBi

Power and PSD limit reduction = Composite gain – 6dBi, (min = 0)

1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 Testing Location

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	TH05-HY, CO07-HY, 03CH13-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW3786

1.4 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05r02
- FCC KDB 414788 D01 Radiated Test Site v01r01
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	0	2402	21	2444
	1	2404	22	2446
	2	2406	23	2448
	3	2408	24	2450
	4	2410	25	2452
	5	2412	26	2454
	6	2414	27	2456
	7	2416	28	2458
	8	2418	29	2460
	9	2420	30	2462
	10	2422	31	2464
	11	2424	32	2466
	12	2426	33	2468
	13	2428	34	2470
	14	2430	35	2472
	15	2432	36	2474
	16	2434	37	2476
	17	2436	38	2478
	18	2438	39	2480
	19	2440	-	-
	20	2442	-	-

2.2 Test Mode

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape) and accessory (Adapter or Earphone), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find Z Plane with Adapter as worst plane.

b. The SISO mode conducted power is covered by MIMO mode per chain, so only the MIMO mode is tested.

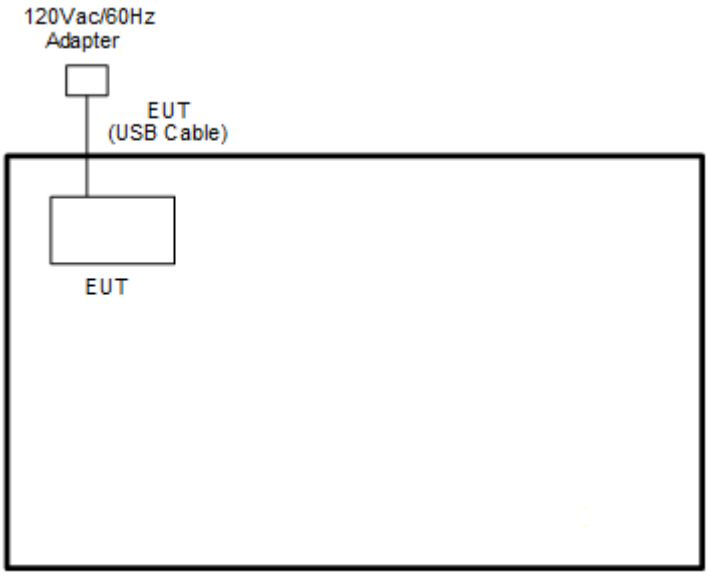
c. AC power line Conducted Emission was tested under maximum output power.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

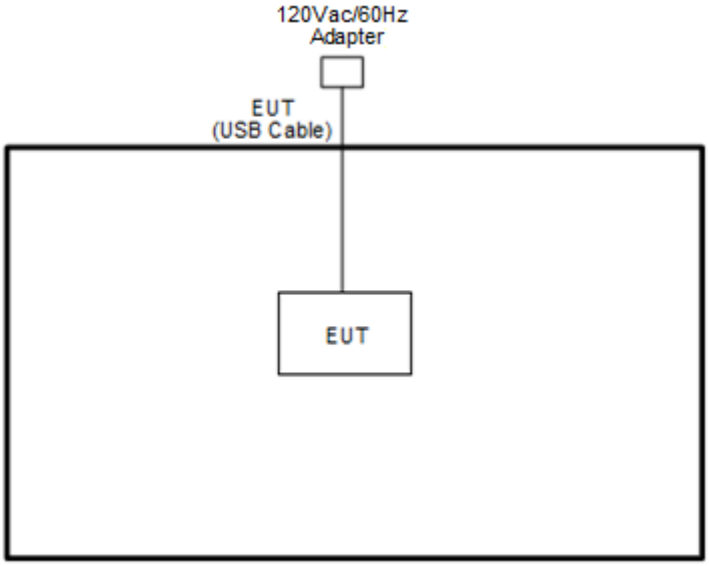
Summary table of Test Cases	
Test Item	**Data Rate / Modulation**
Conducted Test Cases	**Bluetooth – LE / GFSK**
	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps Mode 4: Bluetooth Tx CH01_2402 MHz_2Mbps Mode 5: Bluetooth Tx CH19_2440 MHz_2Mbps Mode 6: Bluetooth Tx CH38_2478 MHz_2Mbps
Radiated Test Cases	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps Mode 4: Bluetooth Tx CH01_2402 MHz_2Mbps Mode 5: Bluetooth Tx CH19_2440 MHz_2Mbps Mode 6: Bluetooth Tx CH38_2478 MHz_2Mbps
AC Conducted Emission	Mode 1: Bluetooth LE (1Mbps) Channel 19 Tx + USB Cable 2 (Charging from AC Adapter)
Remark: 1. For Radiated Test Cases, the tests were performed with USB Cable 2. 2. During the preliminary test, both charging modes (Adapter mode and WPC Rx mode) were verified. It is determined that the adaptor mode is the worst case for official test.	

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode>



<Bluetooth-LE Tx Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Adapter	N/A	GW8L7	N/A	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “BT DUT Control GUI.exe (v.03-11-24)” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10 dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

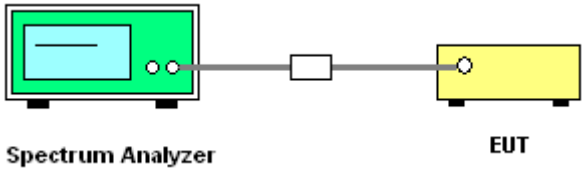
3.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) ≥ 3 * RBW.
6. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

3.1.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5 MHz, the limit for output power is 30 dBm. If transmitting antenna of directional gain greater than 6 dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

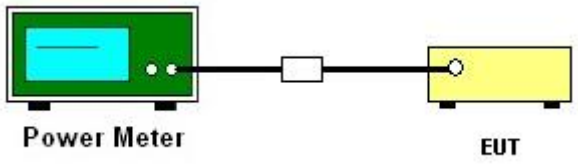
3.2.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.2.3 Test Procedures

1. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G
2. The RF output of EUT is connected to the power meter by RF cable and attenuator.
3. The path loss is compensated to the results for each measurement.
4. Set the maximum power setting and enable the EUT to transmit continuously.
5. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Average Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8 dBm in any 3 kHz band at any time interval of continuous transmission.

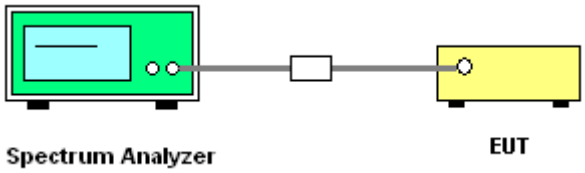
3.3.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.3.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth (VBW) = 10 kHz. In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6 dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. The Measured power density (dBm)/ 100 kHz is a reference level and is used as 20 dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission

All harmonics/spurious must be at least 30 dB down from the highest emission level within the authorized band.

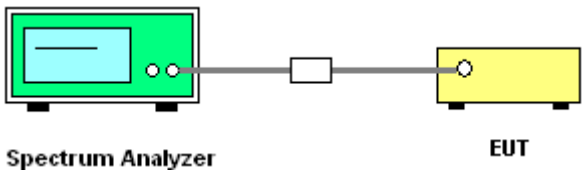
3.4.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.4.3 Test Procedure

1. The testing follows the ANSI C63.10 Section 11.11.3 Emission level measurement.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Set RBW = 100 kHz, VBW = 300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup



3.4.5 Test Result of Conducted Band Edges Plots

Please refer to Appendix A.

3.4.6 Test Result of Conducted Spurious Emission Plots

Please refer to Appendix A.

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.5.2 Measuring Instruments

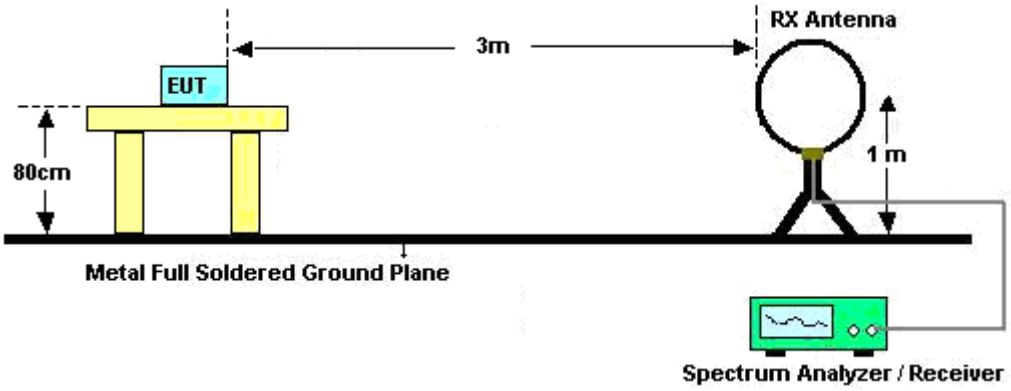
Please refer to the measuring equipment list in this test report.

3.5.3 Test Procedures

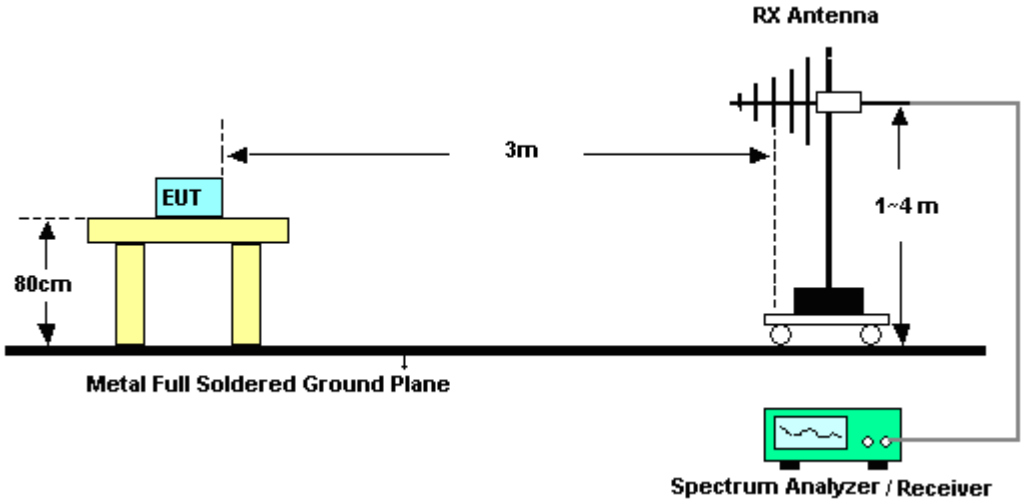
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
4. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as "-".
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as "-".
8. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW = 100 kHz for f < 1 GHz; VBW RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW = 3 MHz for f 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

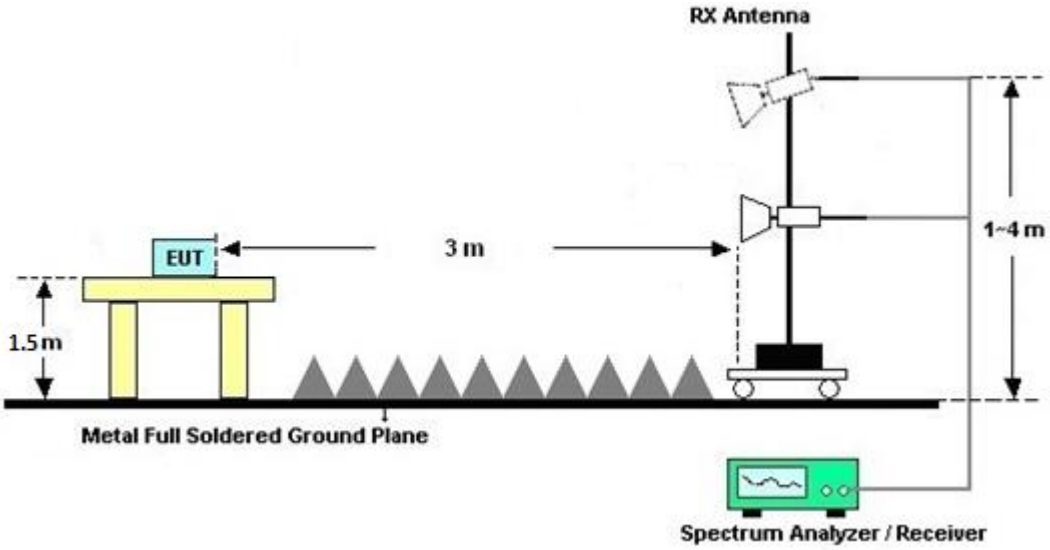
For radiated test below 30MHz



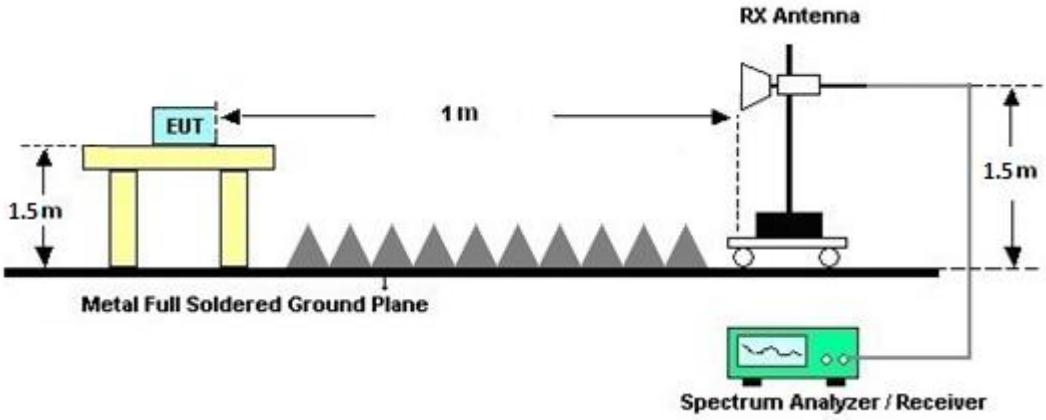
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



3.5.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result comes out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.5.7 Duty Cycle

Please refer to Appendix D.

3.5.8 Test Result of Radiated Spurious Emission (30 MHz ~ 10th Harmonic)

Please refer to Appendix C.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

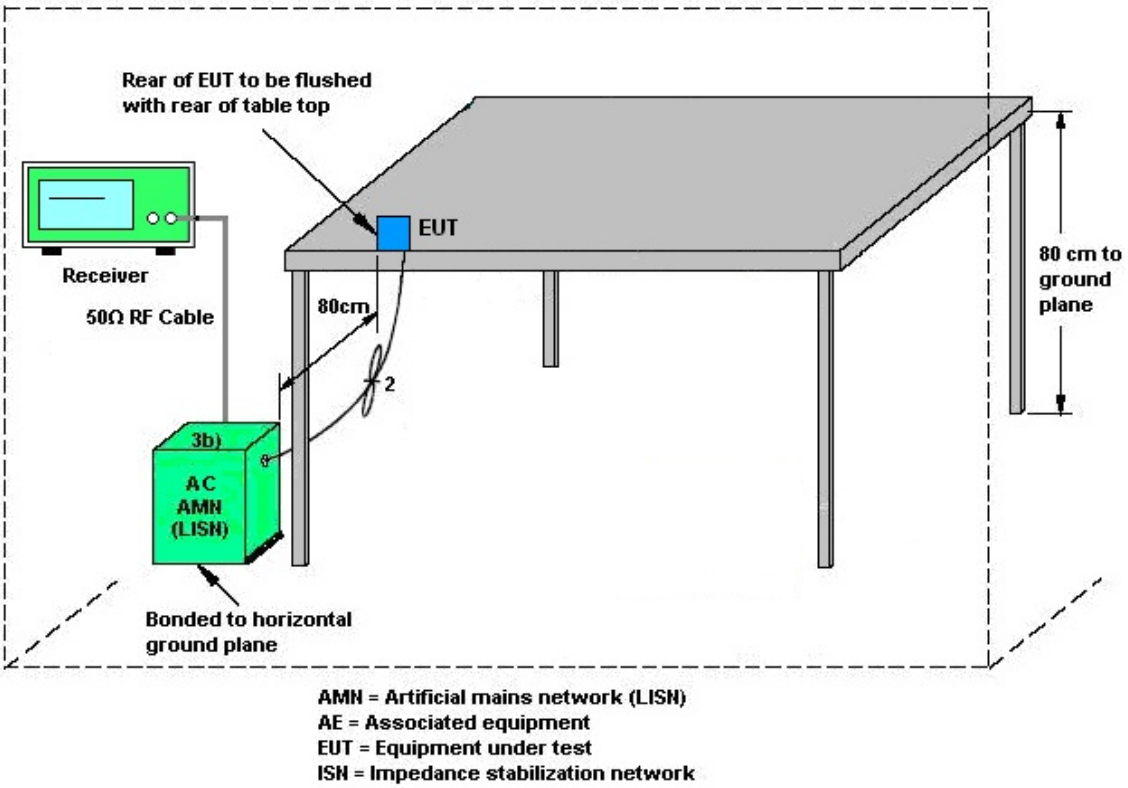
3.6.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.6.3 Test Procedures

1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN shall be used.
6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
7. The frequency range from 150 kHz to 30 MHz is scanned.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9 kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.6.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 Standard Applicable

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

3.7.2 Antenna Anti-Replacement Construction

Unique (non-standard) antenna connector.

4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9kHz~30MHz	Aug. 29, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	Aug. 28, 2025	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801606/2	9k~30M	Apr. 22, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	Apr. 21, 2025	Radiation (03CH13-HY)
Notch Filter	Wainwright	WHKX6-7268-9200-26500-40CD	SN2	9GHz High Pass Filter	May 22, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	May 21, 2025	Radiation (03CH13-HY)
Notch Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	SN5	6.75GHz High Pass Filter	Mar. 08, 2024	Dec. 28, 2024 ~ Mar. 06, 2025	Mar. 07, 2025	Radiation (03CH13-HY)
Notch Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	SN5	6.75GHz High Pass Filter	Mar. 07, 2025	Mar. 07, 2025	Mar. 06, 2026	Radiation (03CH13-HY)
Notch Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN12	1.53GHz Low Pass Filter	Sep. 11, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	Sep. 10, 2025	Radiation (03CH13-HY)
Notch Filter	Wainwright	WHKX12-2700-3000-18000-60SS	SN3	3GHz High Pass Filter	Jul. 09, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	Jul. 08, 2025	Radiation (03CH13-HY)
Notch Filter	Wainwright	WRCQV14-6025-6425-7125-7525-60SS	SN2	N/A	Jan. 05, 2024	Dec. 28, 2024 ~ Jan. 02, 2025	Jan. 04, 2025	Radiation (03CH13-HY)
Notch Filter	Wainwright	WRCQV14-6025-6425-7125-7525-60SS	SN2	N/A	Jan. 03, 2025	Jan. 03, 2025 ~ Mar. 07, 2025	Jan. 02, 2026	Radiation (03CH13-HY)
Notch Filter	Wainwright	WRCQV14-5425-5825-6525-6925-60SS	SN1	N/A	Jan. 05, 2024	Dec. 28, 2024 ~ Jan. 02, 2025	Jan. 04, 2025	Radiation (03CH13-HY)
Notch Filter	Wainwright	WRCQV14-5425-5825-6525-6925-60SS	SN1	N/A	Jan. 03, 2025	Jan. 03, 2025 ~ Mar. 07, 2025	Jan. 02, 2026	Radiation (03CH13-HY)
Amplifier	SONOMA	310N	187282	9kHz~1GHz	Dec. 12, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	Dec. 11, 2025	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	40103 & 07	30MHz~1GHz	Apr. 12, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	Apr. 11, 2025	Radiation (03CH13-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz~26.5GHz	Sep. 09, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	Sep. 08, 2025	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1326	1GHz~18GHz	Aug. 15, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	Aug. 14, 2025	Radiation (03CH13-HY)
Hygrometer	TECPEL	DTM-303A	TP215159	N/A	Sep. 10, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	Sep. 09, 2025	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1590074	1GHz~18GHz	May 15, 2024	Dec. 28, 2024 ~ Mar. 07, 2025	May 14, 2025	Radiation (03CH13-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	May 27, 2024	Dec. 28, 2024~ Mar. 07, 2025	May 26, 2025	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	1224	18GHz-40GHz	Jun. 24, 2024	Dec. 28, 2024~ Mar. 07, 2025	Jun. 23, 2025	Radiation (03CH13-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 01, 2024	Dec. 20, 2024 ~ Jan. 18, 2025	Oct. 31, 2025	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	17I00015SNO 35 (NO:109)	10MHz~6GHz	Jan. 15, 2024	Dec. 20, 2024 ~ Jan. 13, 2025	Jan. 14, 2025	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO 13 (NO:255)	10MHz~6GHz	Dec. 27, 2024	Jan. 14, 2025 ~ Jan. 18, 2025	Dec. 26, 2025	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 23, 2024	Dec. 20, 2024 ~ Jan. 18, 2025	Aug. 22, 2025	Conducted (TH05-HY)
Switch Control Mainframe	Burgeon	ETF-058	EC1300484 (BOX3)	N/A	May 20, 2024	Dec. 20, 2024 ~ Jan. 18, 2025	May 19, 2025	Conducted (TH05-HY)
Software	Sporton	BTWIFI_Final_ version_241211	N/A	Conducted Other Test Item	N/A	Dec. 20, 2024 ~ Jan. 18, 2025	N/A	Conducted (TH05-HY)
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	Mar. 19,2025 ~ Mar. 21, 2025	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Mar. 19,2025 ~ Mar. 21, 2025	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	9561-F N00373	9kHz-200MHz	Oct. 23, 2024	Mar. 19,2025 ~ Mar. 21, 2025	Oct. 22, 2025	Conduction (CO07-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	Mar. 03, 2025	Mar. 19,2025 ~ Mar. 21, 2025	Mar. 02, 2026	Conduction (CO07-HY)
Lisn	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 12, 2024	Mar. 19,2025 ~ Mar. 21, 2025	Dec. 11, 2025	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102317	9kHz~3.6GHz	Sep. 23, 2024	Mar. 19,2025 ~ Mar. 21, 2025	Sep. 22, 2025	Conduction (CO07-HY)

5 Measurement Uncertainty

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.7 dB**

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.3 dB**

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.5 dB**

Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.8 dB**

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.1 dB**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Mina Liu	Temperature:	21~25	°C
Test Date:	2024/12/20~2025/01/18	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass /Fail
					Ant3	Ant4	Ant3	Ant4		
BLE	1Mbps	2	0	2402	1.048	1.048	0.716	0.715	0.50	Pass
BLE	1Mbps	2	19	2440	1.049	1.048	0.715	0.717	0.50	Pass
BLE	1Mbps	2	39	2480	1.049	1.049	0.717	0.717	0.50	Pass
BLE	2Mbps	2	1	2404	2.100	2.100	1.232	1.234	0.50	Pass
BLE	2Mbps	2	19	2440	2.101	2.100	1.234	1.238	0.50	Pass
BLE	2Mbps	2	38	2478	2.101	2.099	1.236	1.234	0.50	Pass

TEST RESULTS DATA
Average Power Table

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			Conducted Power Limit (dBm)	DG (dBi)	Total EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant3	Ant4	SUM					
BLE	1Mbps	2	0	2402	19.69	18.82	22.29	30.00	4.91	27.20	36.00	Pass
BLE	1Mbps	2	19	2440	19.50	19.17	22.35	30.00	4.91	27.26	36.00	Pass
BLE	1Mbps	2	39	2480	19.45	19.27	22.37	30.00	4.91	27.28	36.00	Pass
BLE	2Mbps	2	1	2404	19.79	18.85	22.36	30.00	4.91	27.27	36.00	Pass
BLE	2Mbps	2	19	2440	19.48	19.16	22.33	30.00	4.91	27.24	36.00	Pass
BLE	2Mbps	2	38	2478	19.57	19.39	22.49	30.00	4.91	27.40	36.00	Pass

TEST RESULTS DATA
Peak Power Density

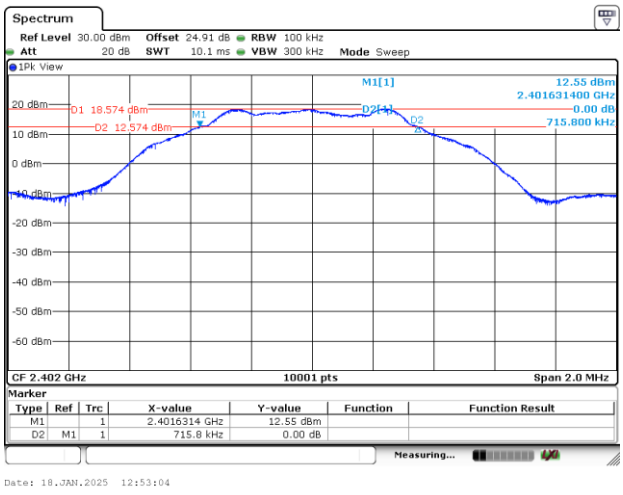
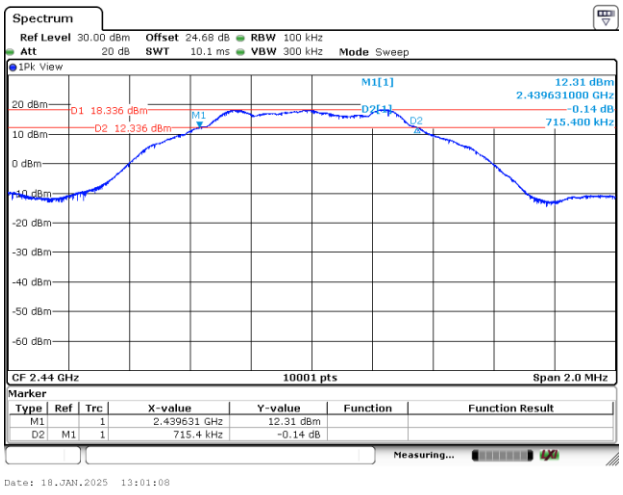
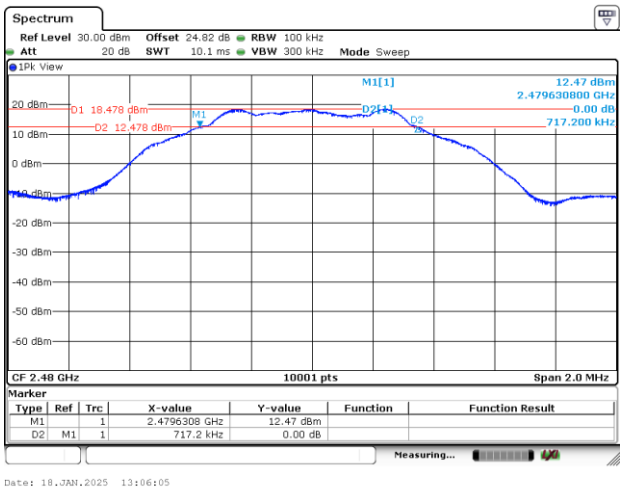
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	Peak PSD Worst +3.01 (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass /Fail
BLE	1Mbps	2	0	2402	18.55	3.94	6.95	4.91	8.00	Pass
BLE	1Mbps	2	19	2440	18.33	3.65	6.66	4.91	8.00	Pass
BLE	1Mbps	2	39	2480	18.47	3.79	6.80	4.91	8.00	Pass
BLE	2Mbps	2	1	2404	18.61	0.36	3.37	4.91	8.00	Pass
BLE	2Mbps	2	19	2440	18.18	-0.04	2.97	4.91	8.00	Pass
BLE	2Mbps	2	38	2478	18.49	0.24	3.25	4.91	8.00	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 30dBc limit.

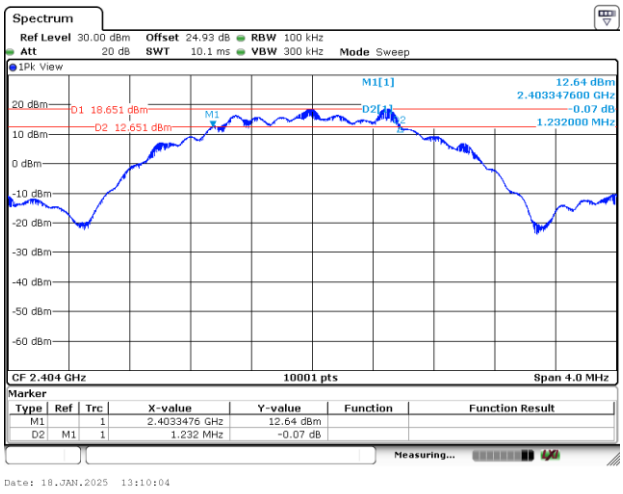
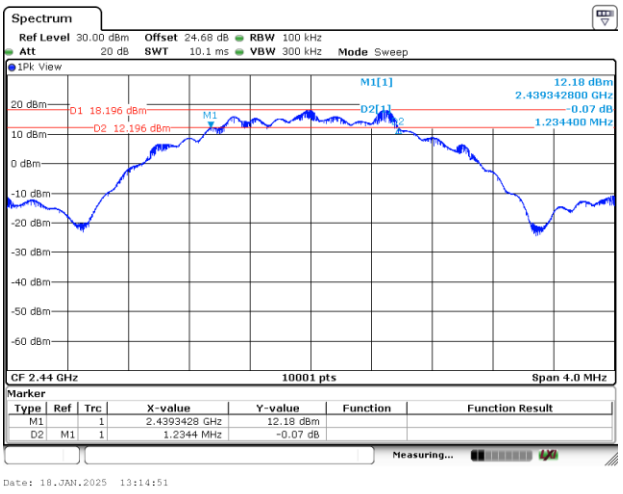
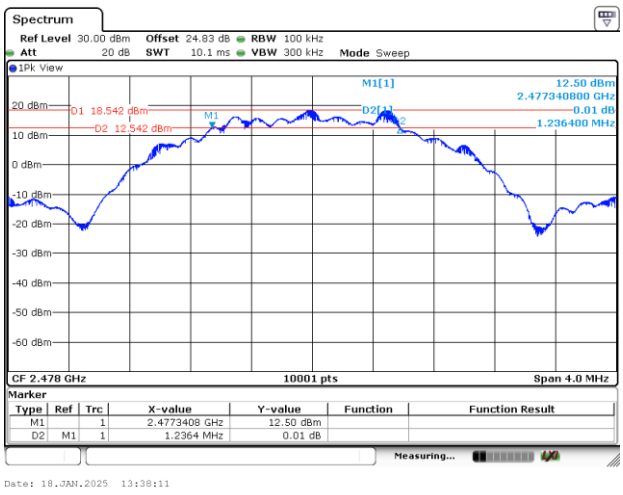
Number of TX = 2, Ant. 1 (Measured)

6dB Bandwidth

<1Mbps>

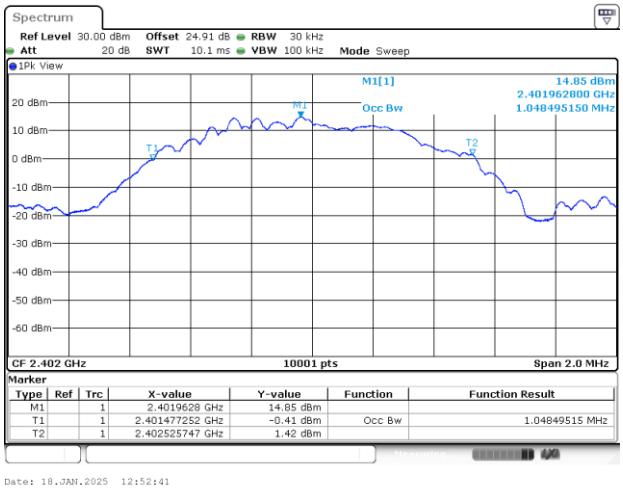
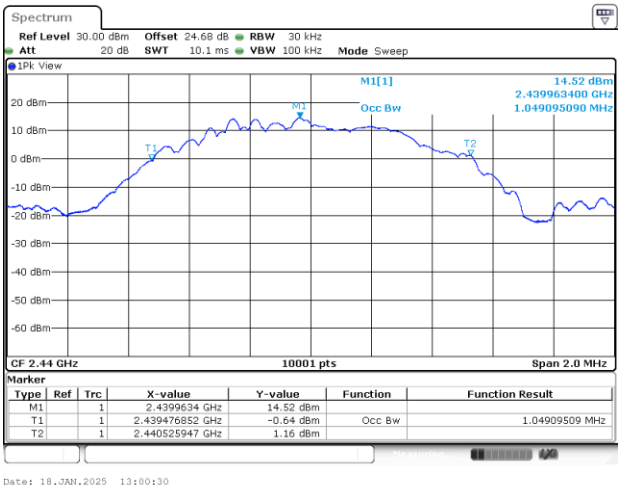
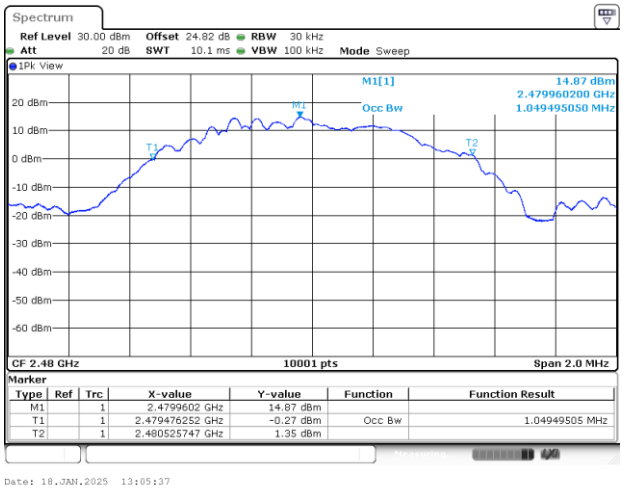
6 dB Bandwidth Plot on Channel 0	6 dB Bandwidth Plot on Channel 19
	
6 dB Bandwidth Plot on Channel 39	
	

<2Mbps>

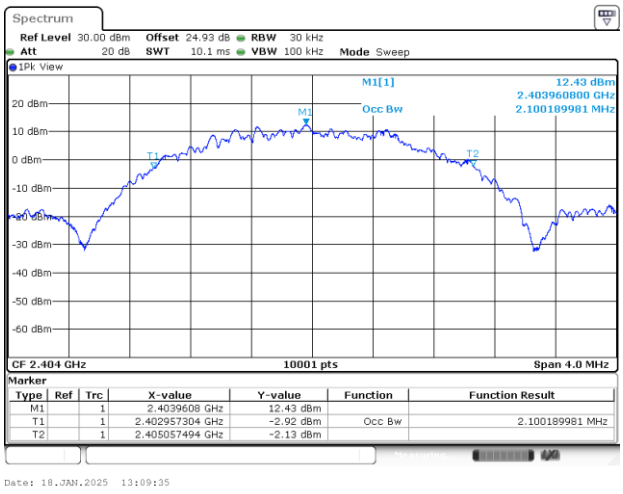
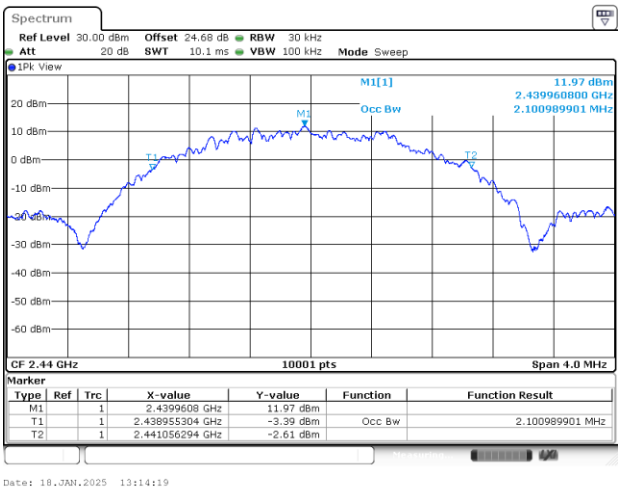
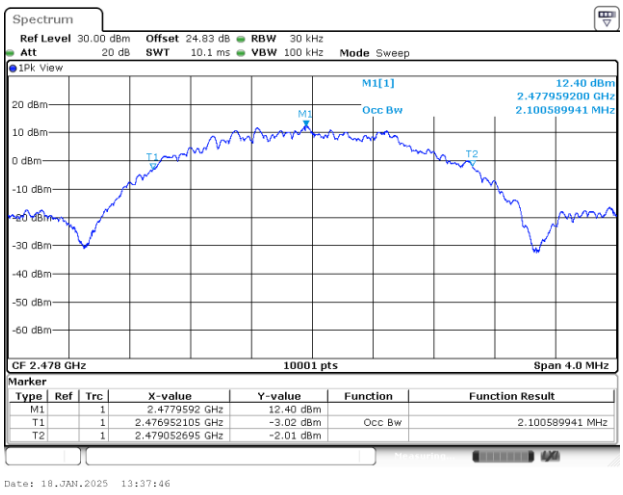
6 dB Bandwidth Plot on Channel 01	6 dB Bandwidth Plot on Channel 19
	
6 dB Bandwidth Plot on Channel 38	
	

99% Occupied Bandwidth

<1Mbps>

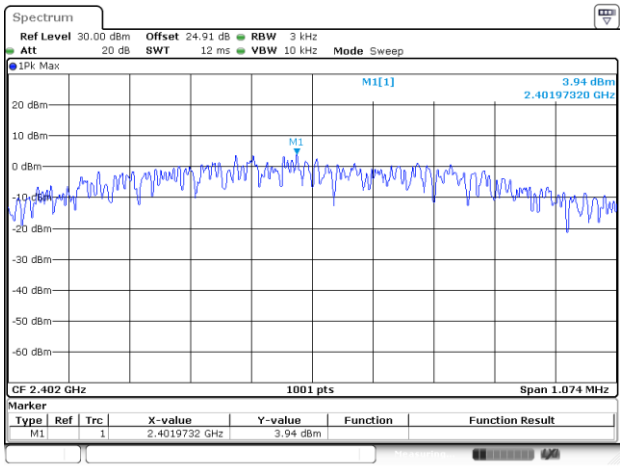
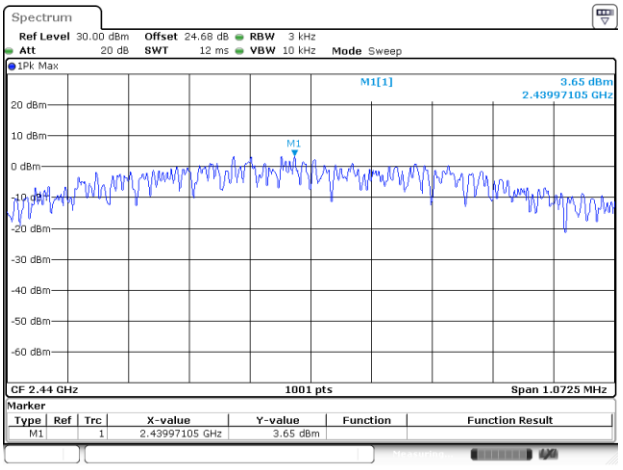
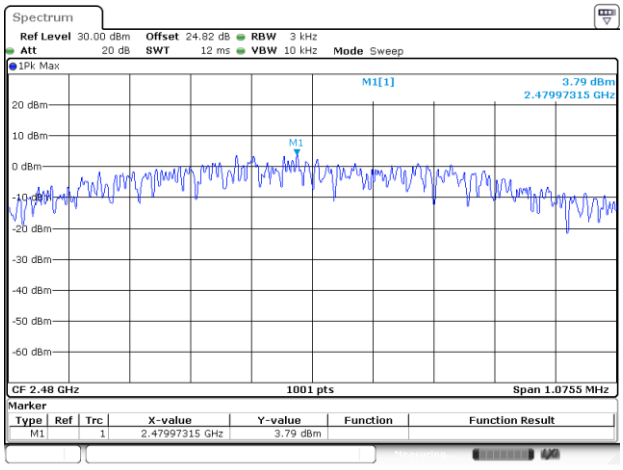
99% Occupied Bandwidth Plot on Channel 0	99% Occupied Bandwidth Plot on Channel 19
	
99% Occupied Bandwidth Plot on Channel 39	
	

<2Mbps>

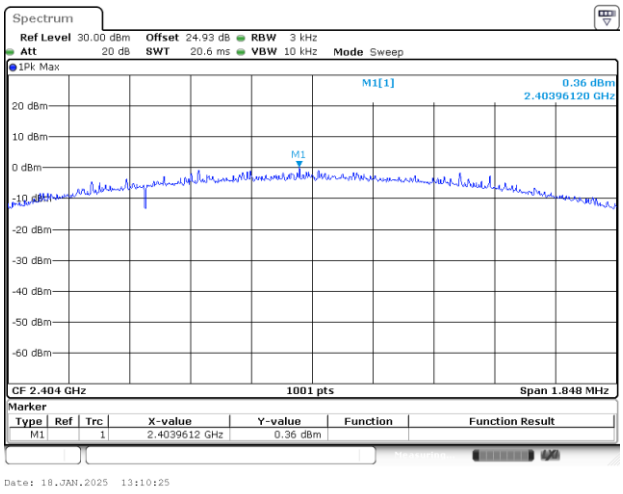
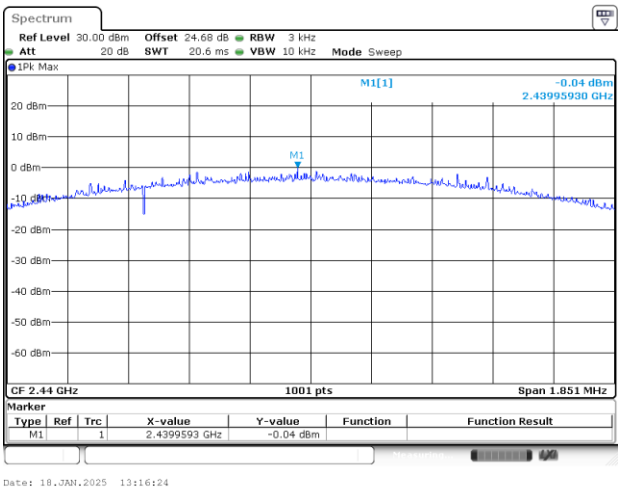
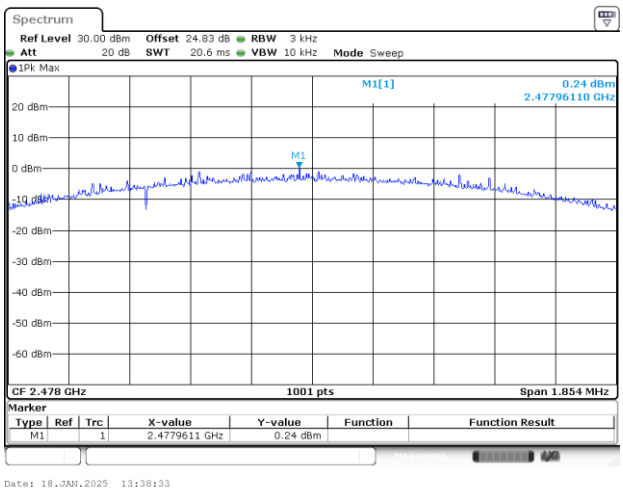
99% Occupied Bandwidth Plot on Channel 01	99% Occupied Bandwidth Plot on Channel 19
	
99% Occupied Bandwidth Plot on Channel 38	
	

Power Spectral Density (dBm/3kHz)

<1Mbps>

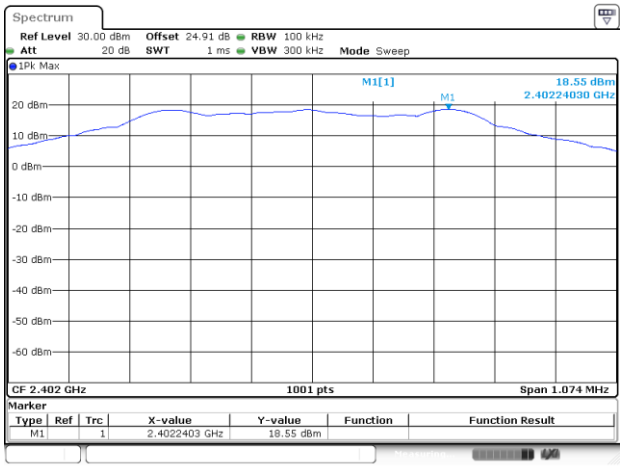
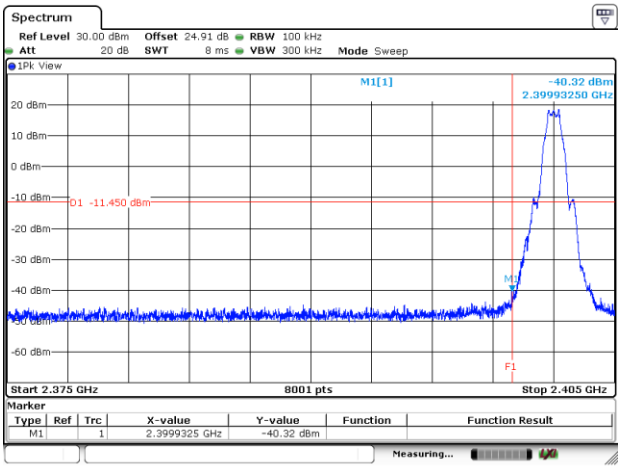
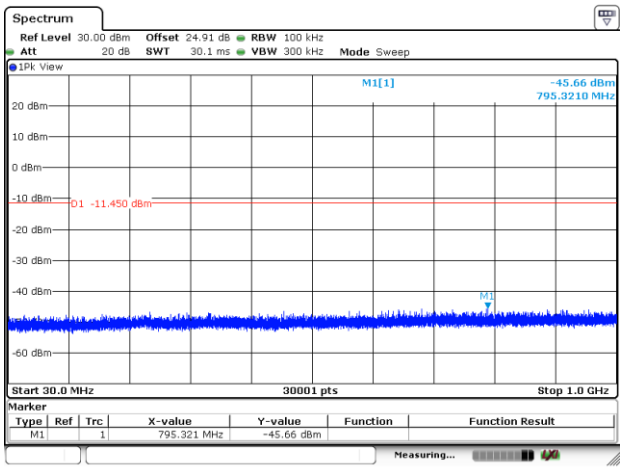
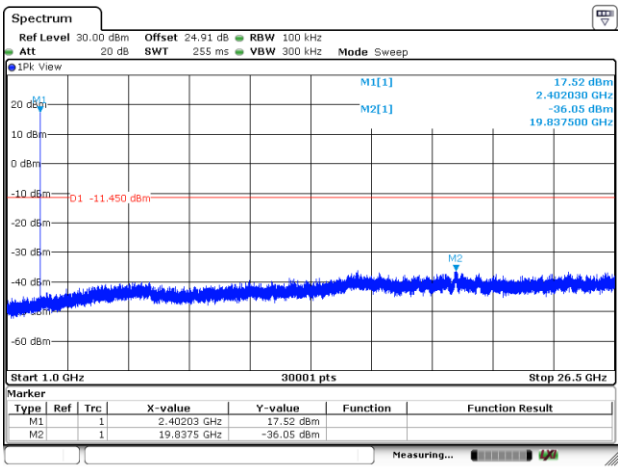
Power Density (dBm/3kHz) Plot Channel 0	Power Density (dBm/3kHz) Plot Channel 19
	
Power Density (dBm/3kHz) Plot Channel 39	
	

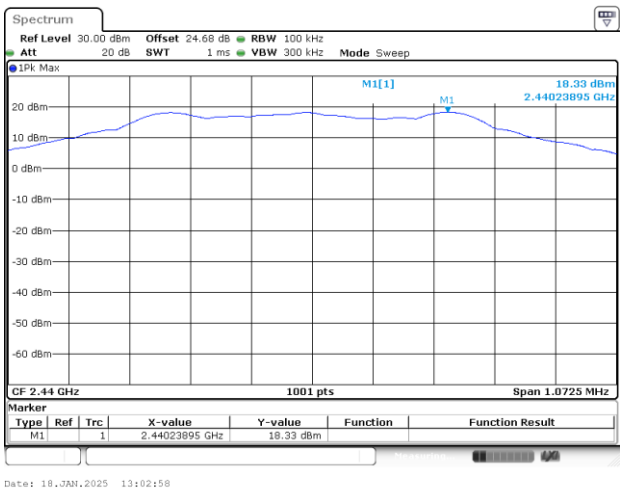
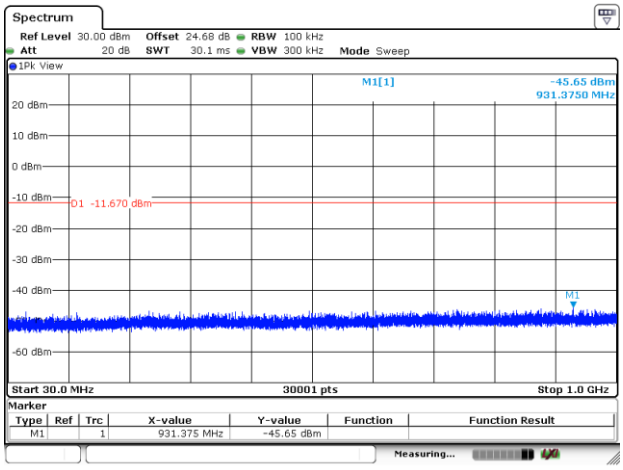
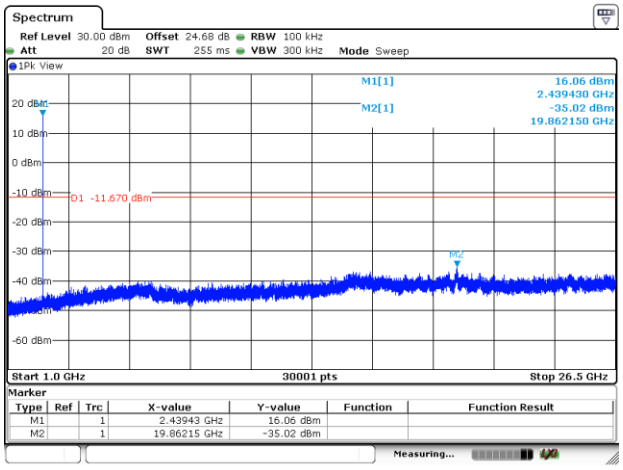
<2Mbps>

Power Density (dBm/3kHz) Plot Channel 01	Power Density (dBm/3kHz) Plot Channel 19
	
Power Density (dBm/3kHz) Plot Channel 38	
	

Band Edge and Conducted Spurious Emission

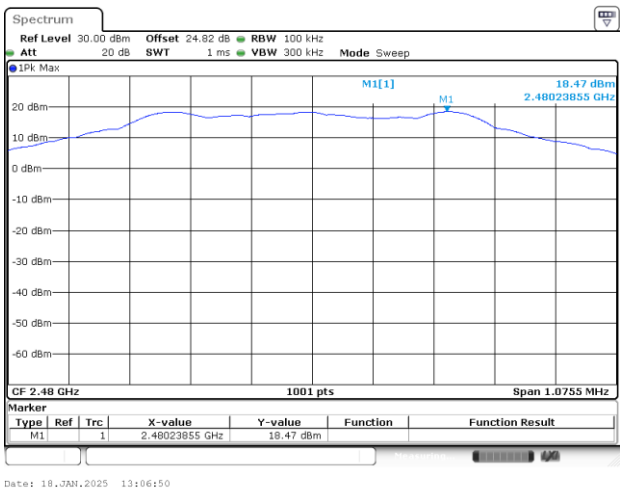
<1Mbps>

Channel 0	
100kHz PSD reference Level Plot	**Plot on Channel 0**
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

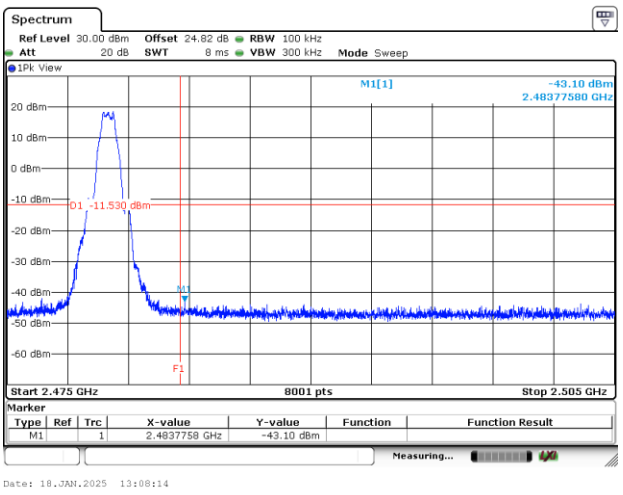
Channel 19	
100kHz PSD reference Level Plot	**Plot on Channel 19**
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

Channel 39

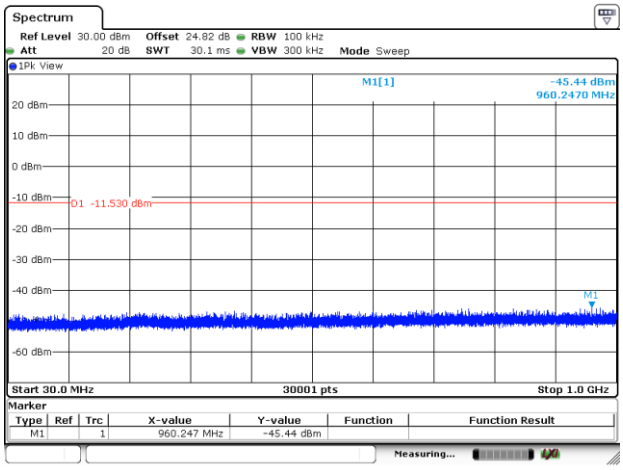
100kHz PSD reference Level Plot



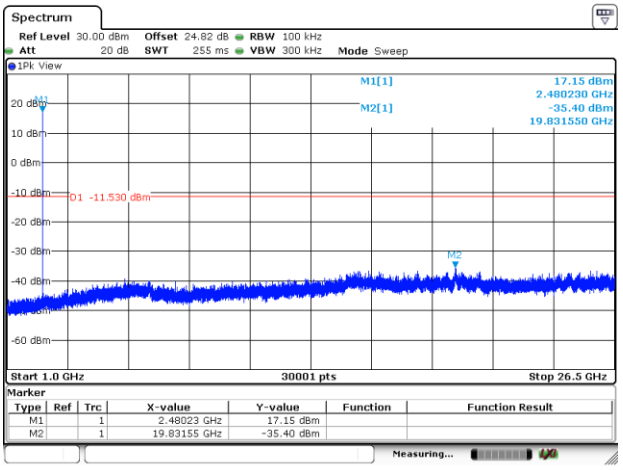
Plot on Channel 39



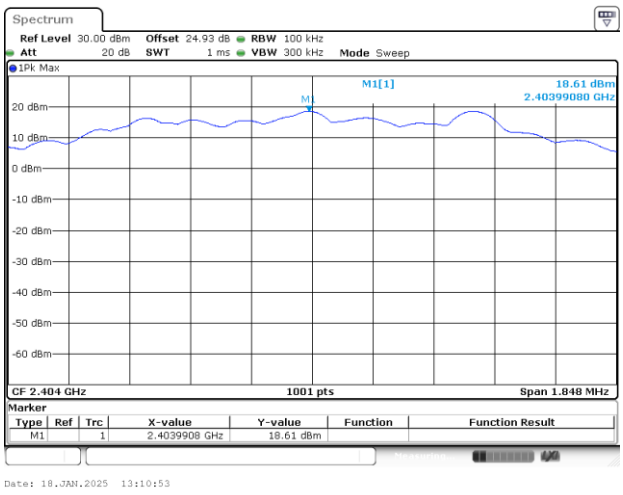
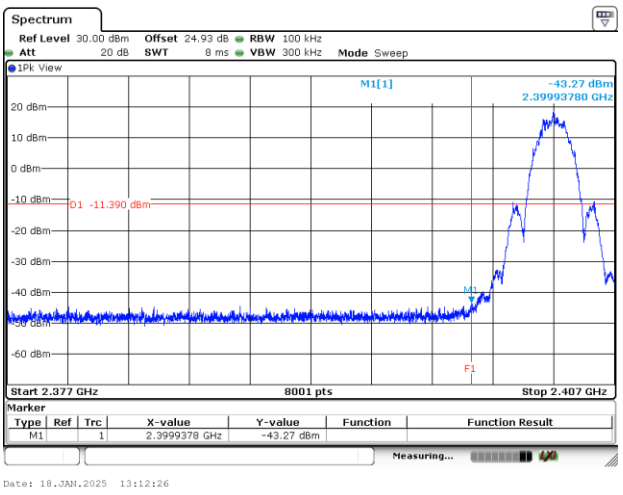
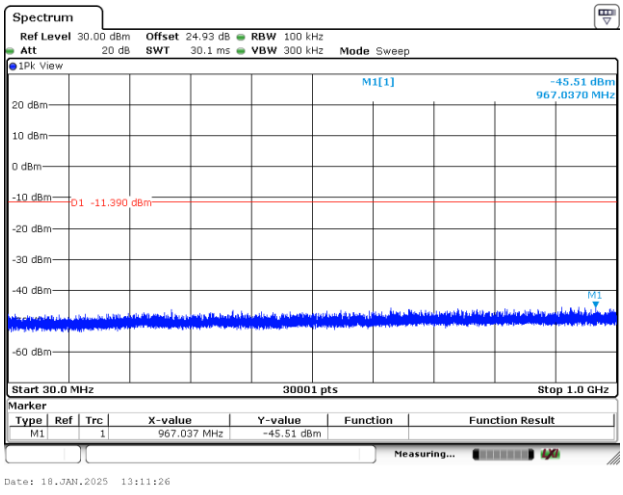
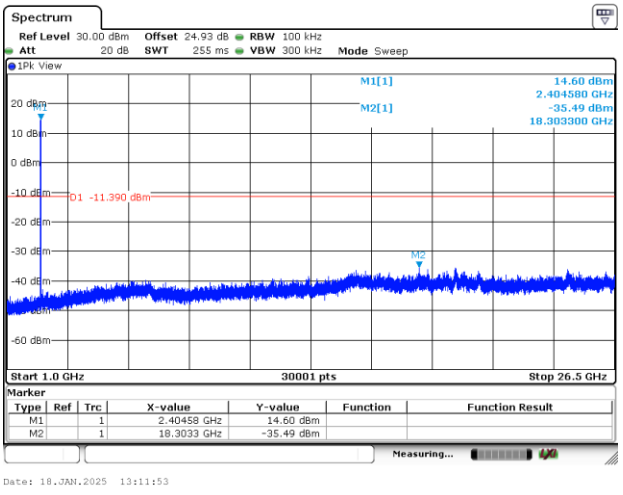
Spurious Emission 30MHz~1GHz Plot

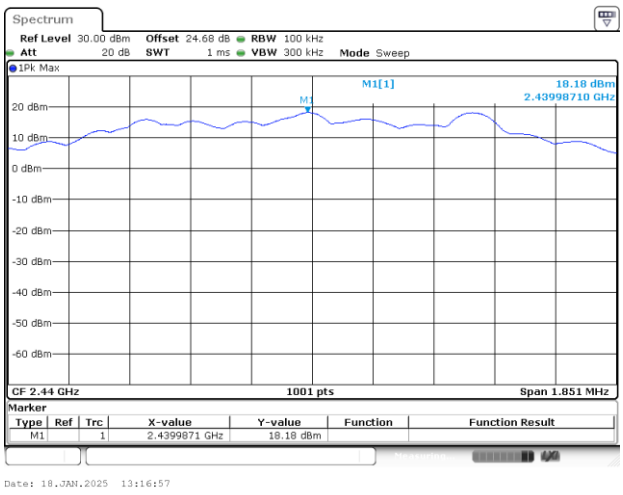
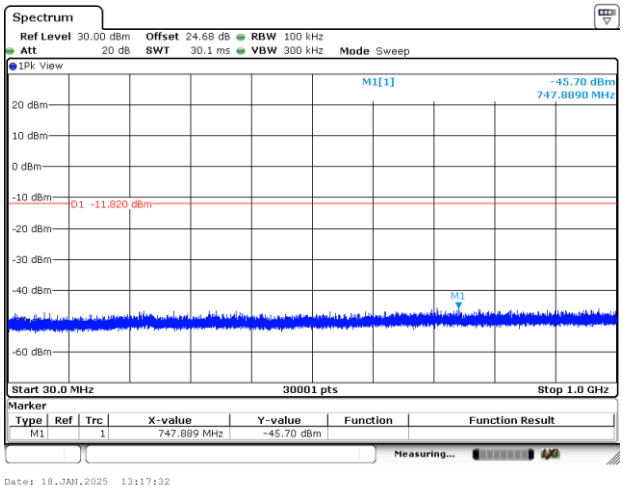
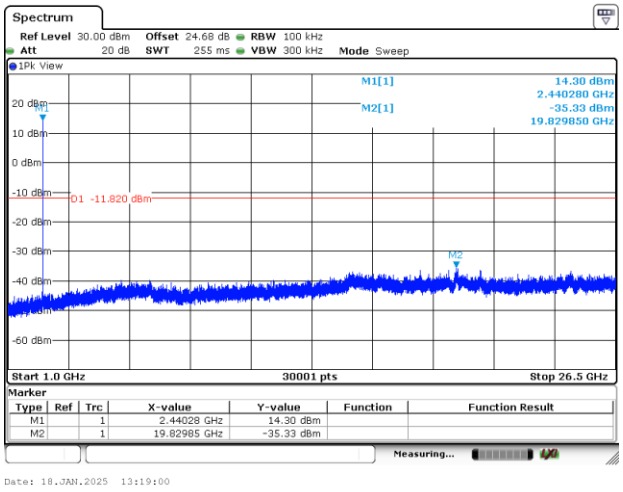


Spurious Emission 1GHz~26.5GHz Plot



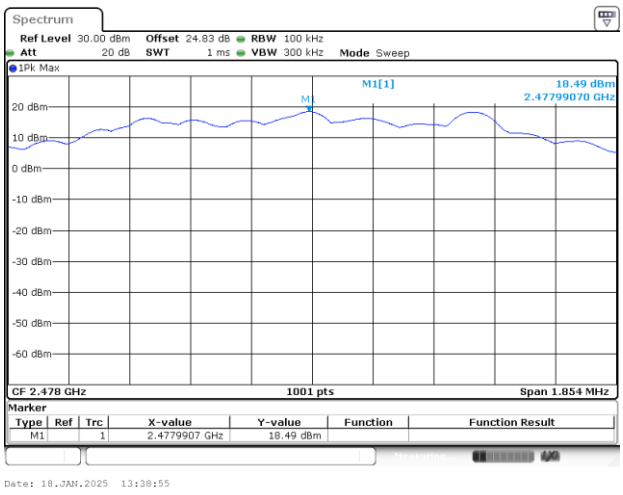
<2Mbps>

Channel 01	
100kHz PSD reference Level Plot	**Plot on Channel 01**
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

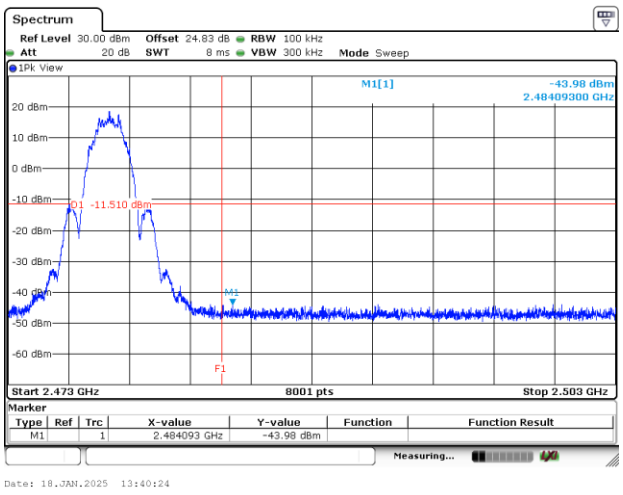
Channel 19	
100kHz PSD reference Level Plot	**Plot on Channel 19**
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

Channel 38

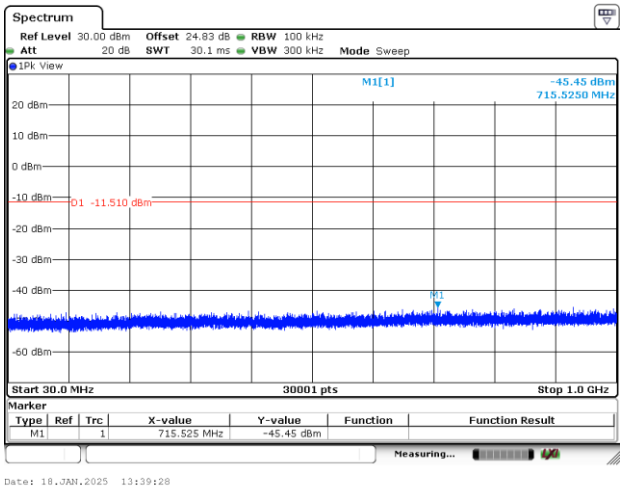
100kHz PSD reference Level Plot



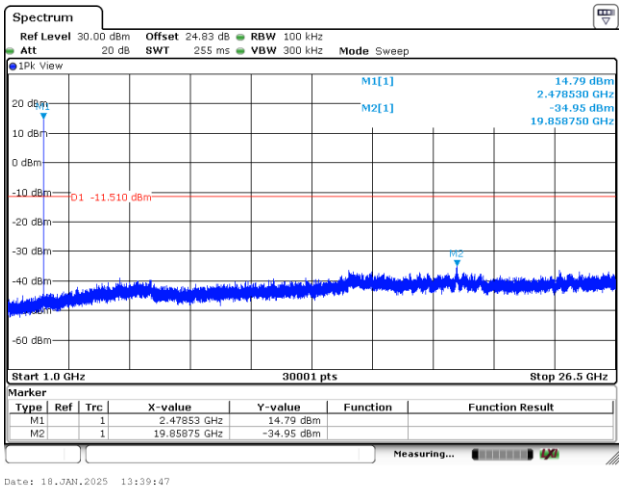
Plot on Channel 38



Spurious Emission 30MHz~1GHz Plot



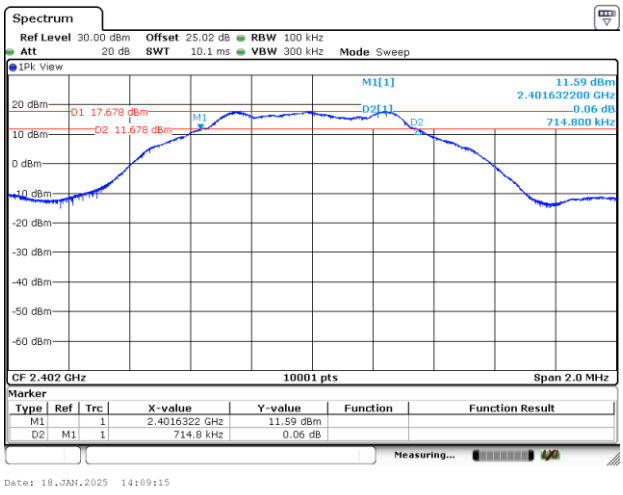
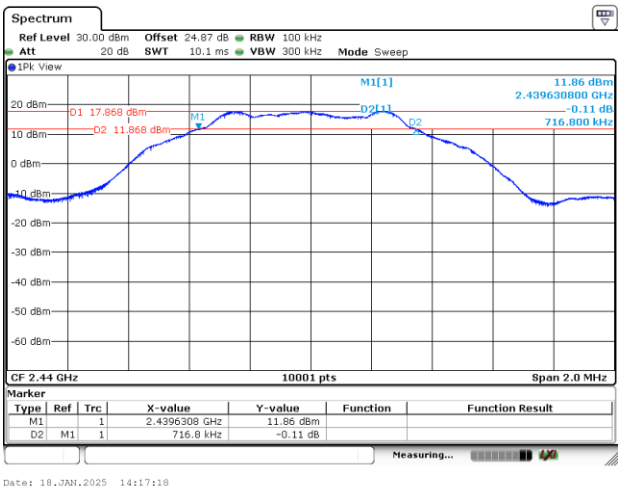
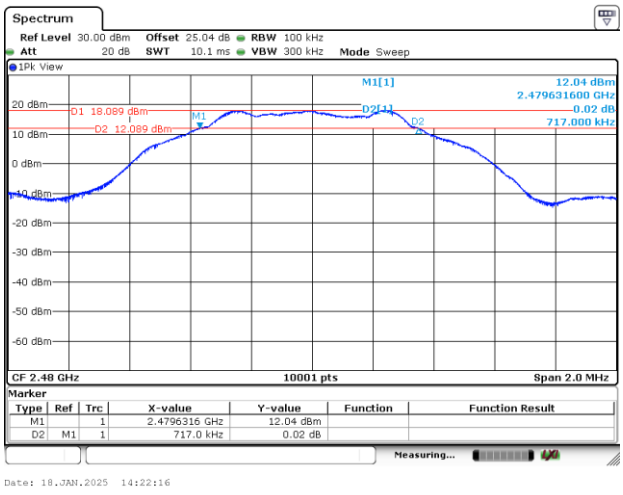
Spurious Emission 1GHz~26.5GHz Plot



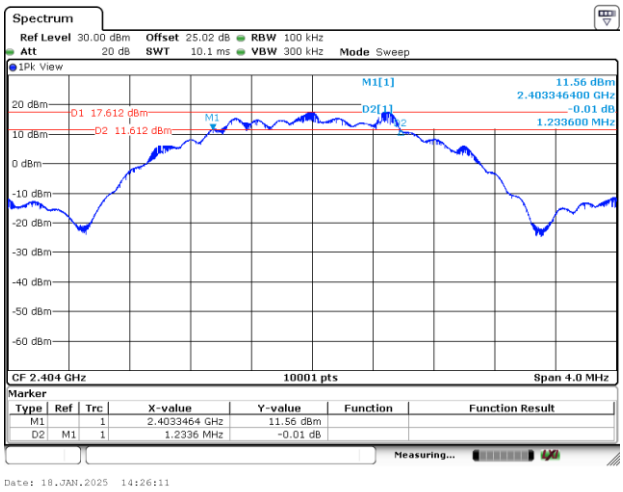
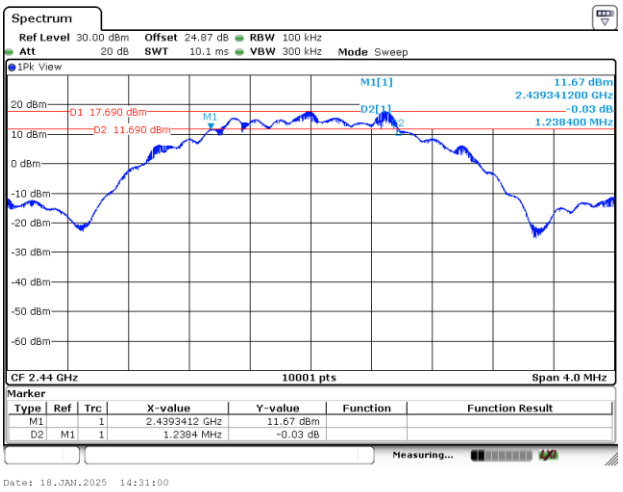
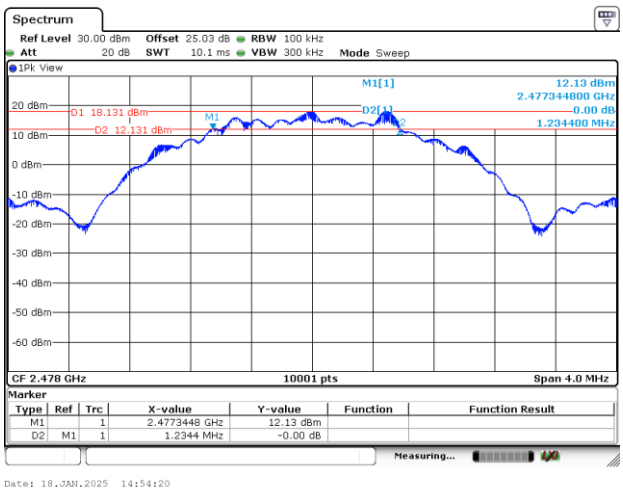
Number of TX = 2, Ant. 2 (Measured)

6dB Bandwidth

<1Mbps>

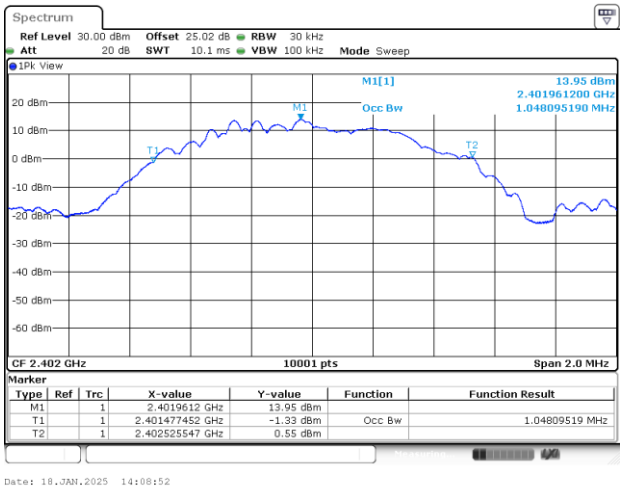
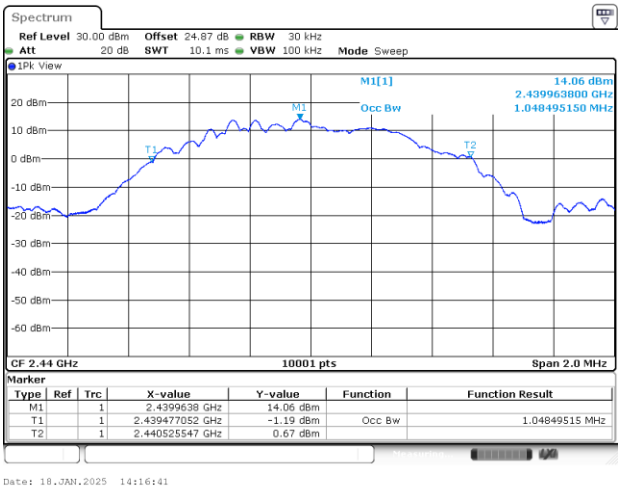
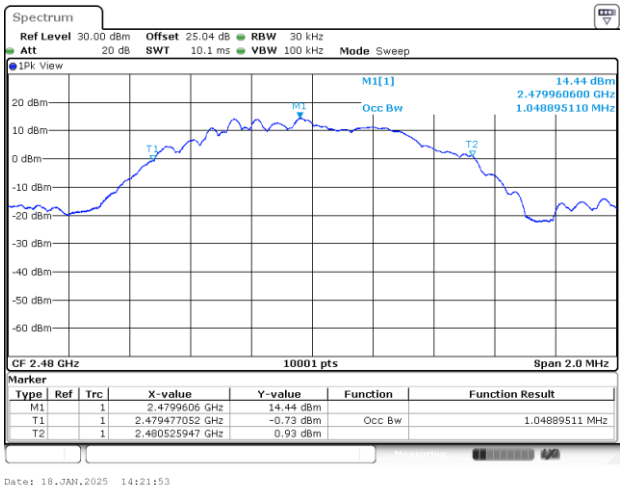
6 dB Bandwidth Plot on Channel 0	6 dB Bandwidth Plot on Channel 19
	
6 dB Bandwidth Plot on Channel 39	
	

<2Mbps>

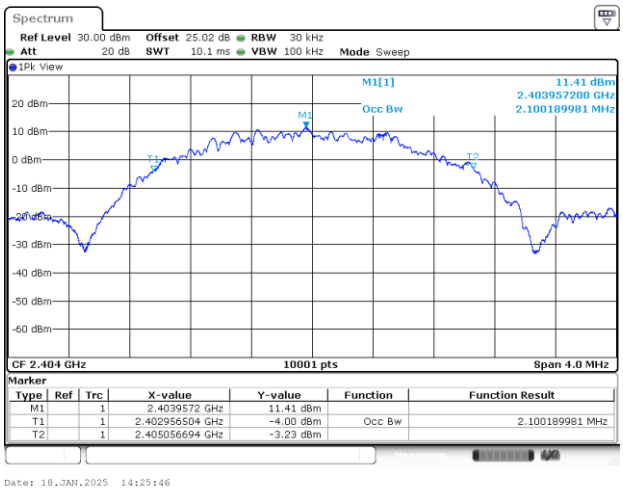
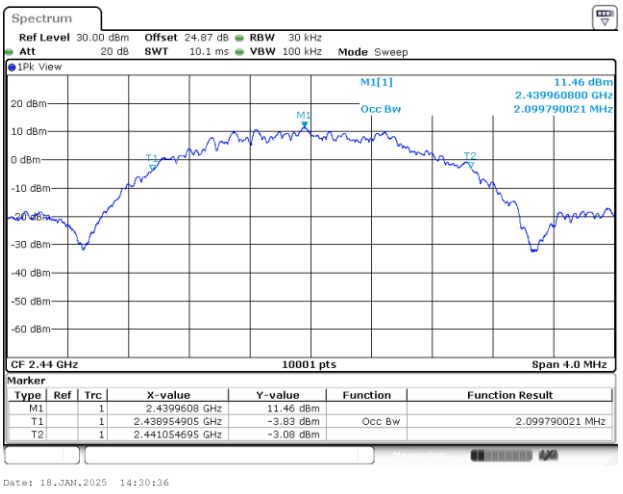
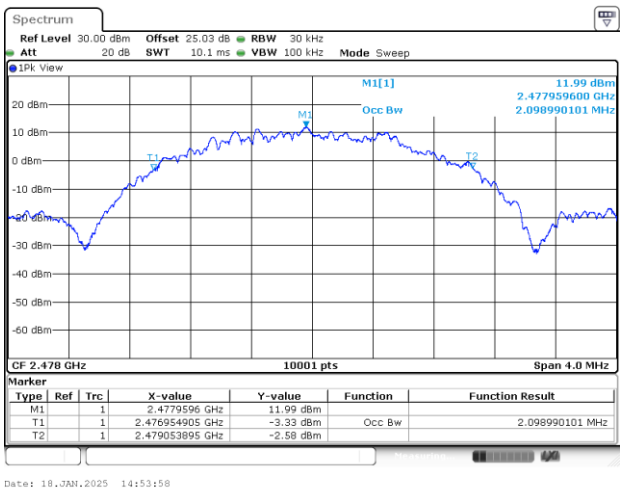
6 dB Bandwidth Plot on Channel 01	6 dB Bandwidth Plot on Channel 19
	
6 dB Bandwidth Plot on Channel 38	
	

99% Occupied Bandwidth

<1Mbps>

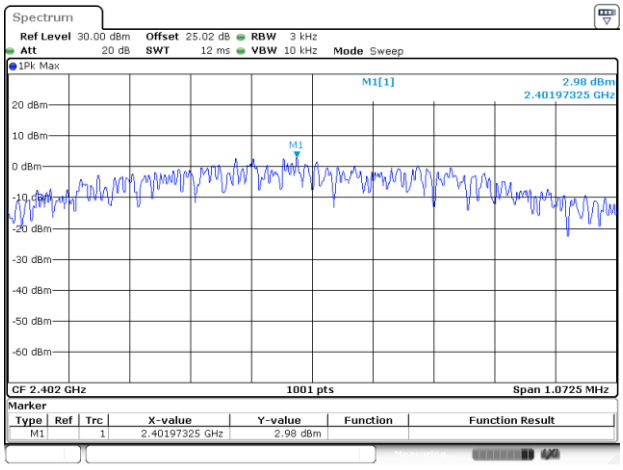
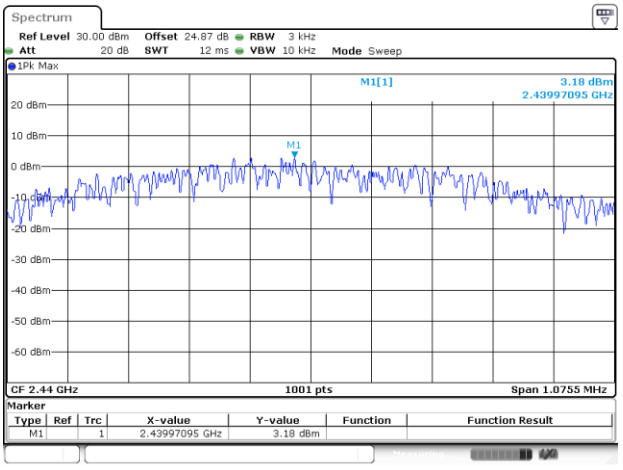
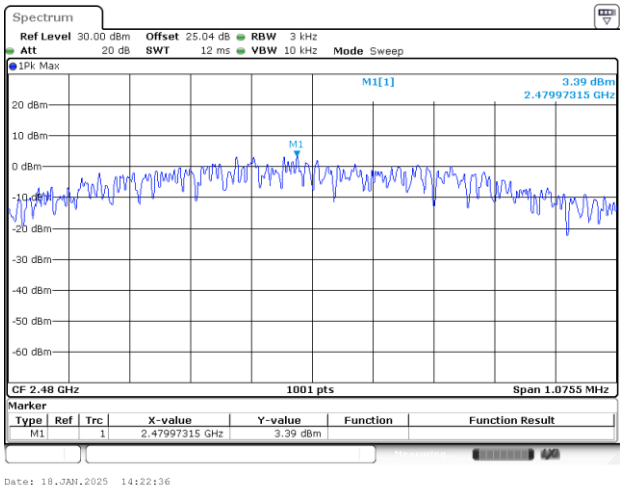
99% Occupied Bandwidth Plot on Channel 0	99% Occupied Bandwidth Plot on Channel 19
	
99% Occupied Bandwidth Plot on Channel 39	
	

<2Mbps>

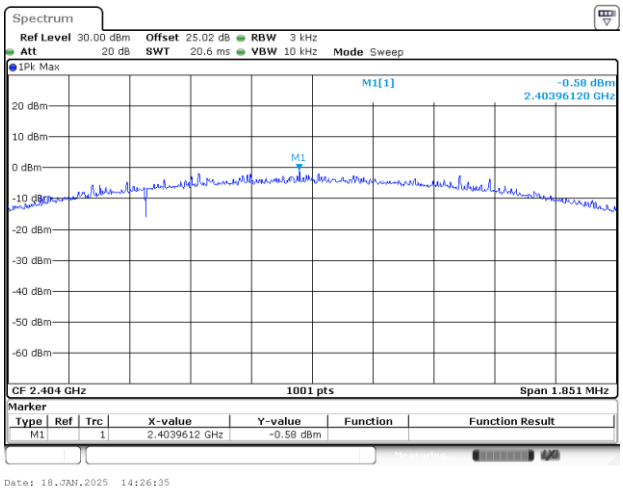
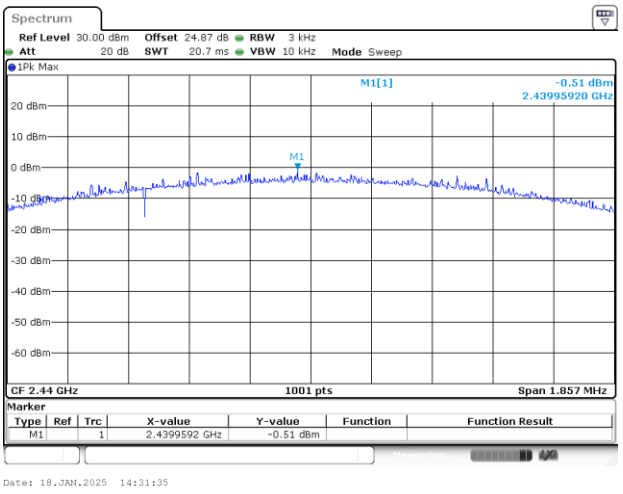
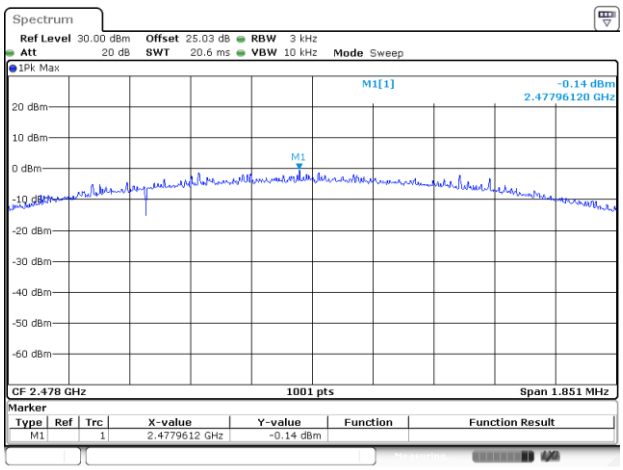
99% Occupied Bandwidth Plot on Channel 01	99% Occupied Bandwidth Plot on Channel 19
	
99% Occupied Bandwidth Plot on Channel 38	
	

Power Spectral Density (dBm/3kHz)

<1Mbps>

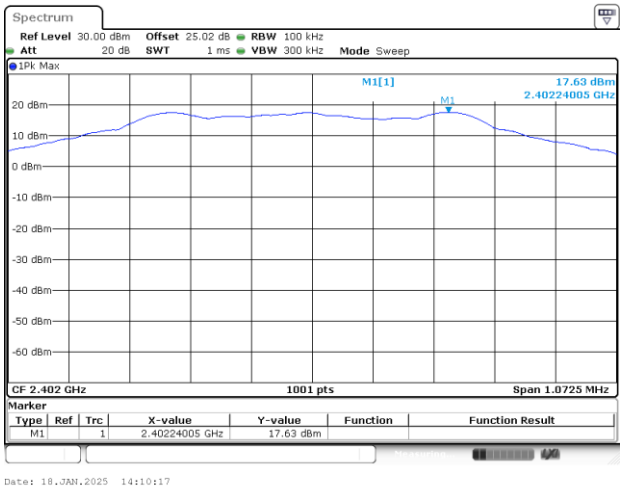
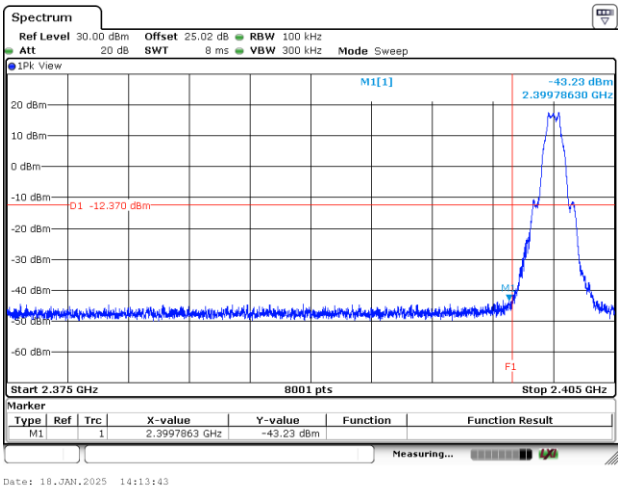
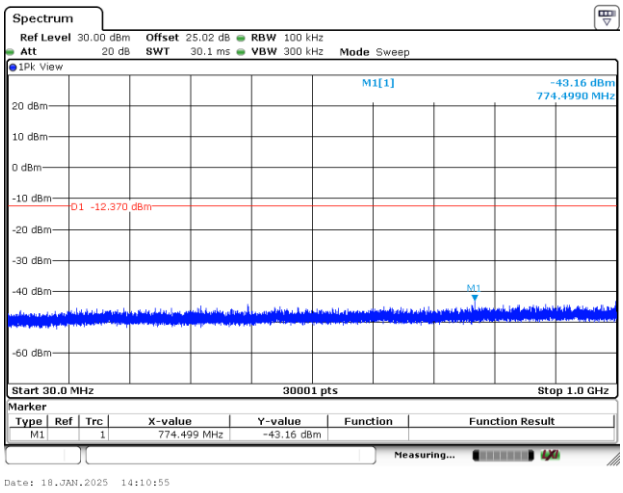
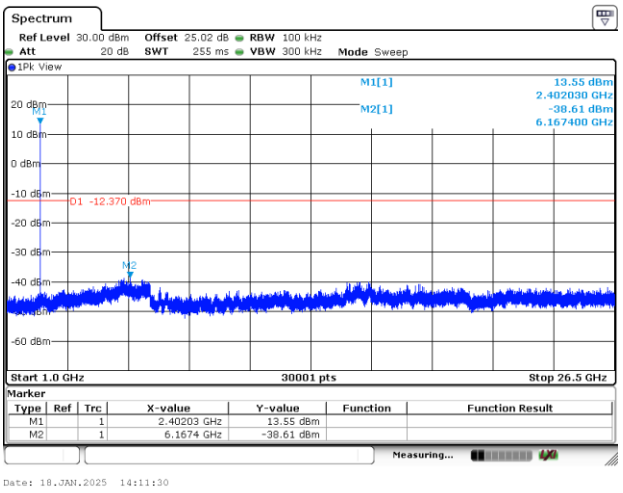
Power Density (dBm/3kHz) Plot Channel 0	Power Density (dBm/3kHz) Plot Channel 19
	
Power Density (dBm/3kHz) Plot Channel 39	
	

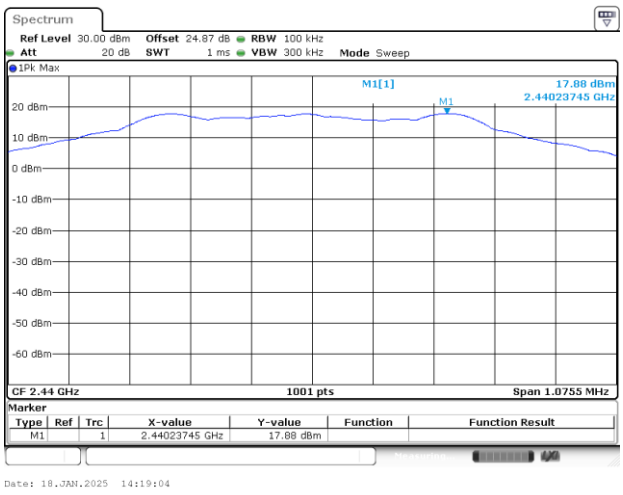
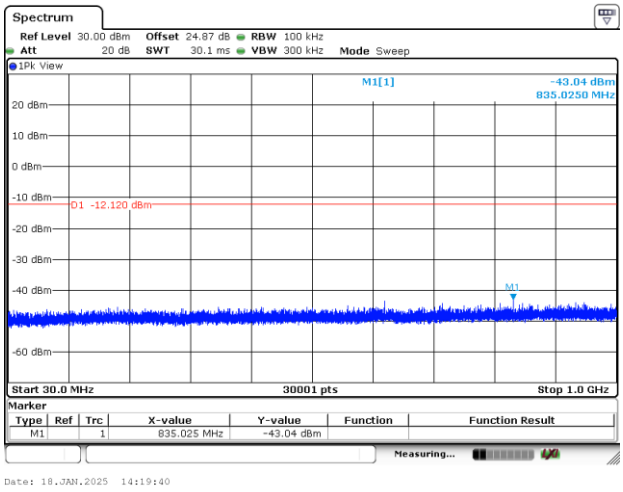
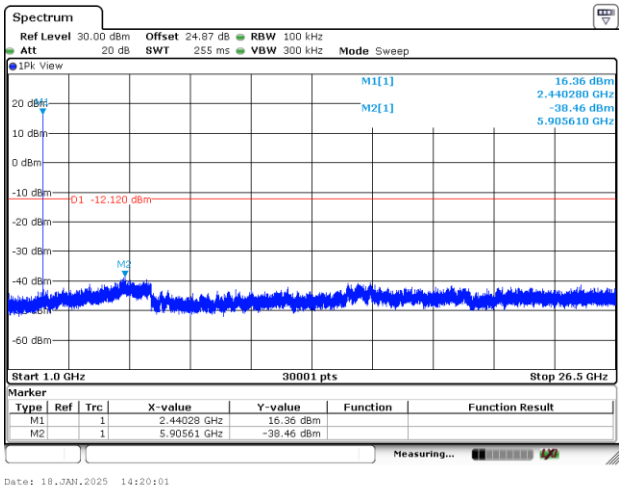
<2Mbps>

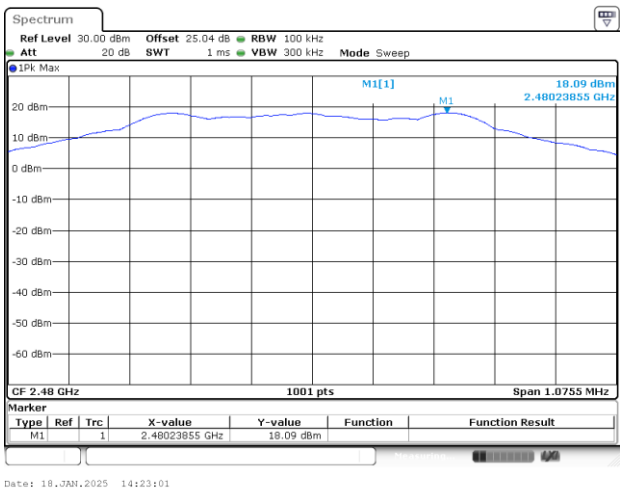
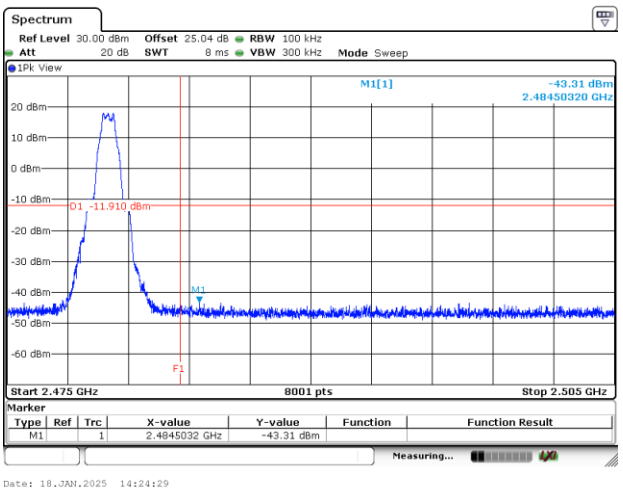
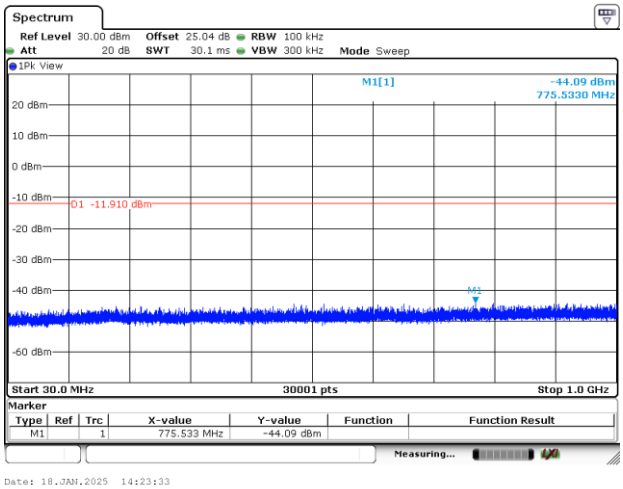
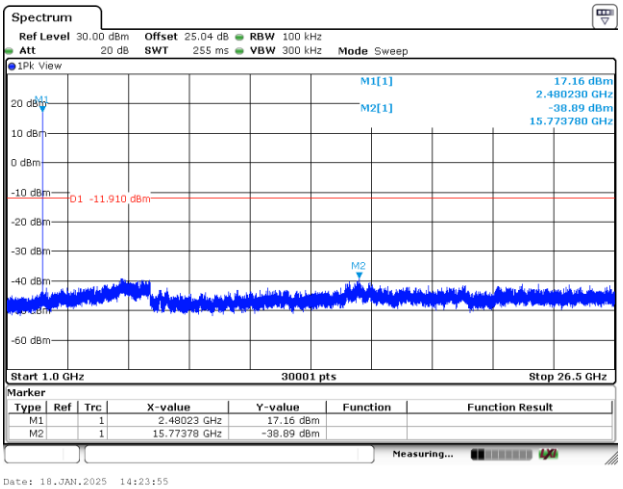
Power Density (dBm/3kHz) Plot Channel 01	Power Density (dBm/3kHz) Plot Channel 19
	
Power Density (dBm/3kHz) Plot Channel 38	
	

Band Edge and Conducted Spurious Emission

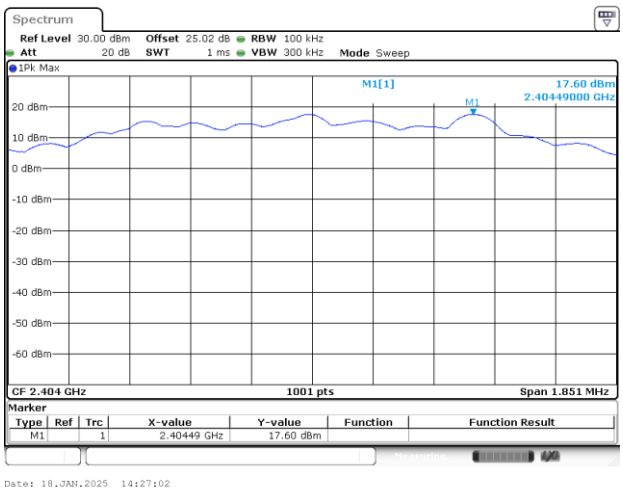
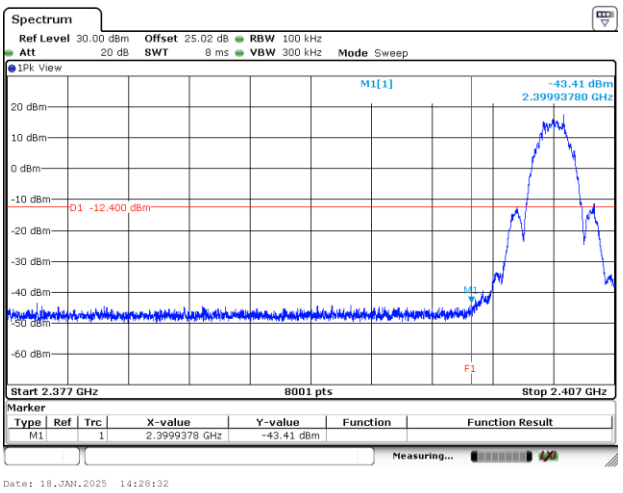
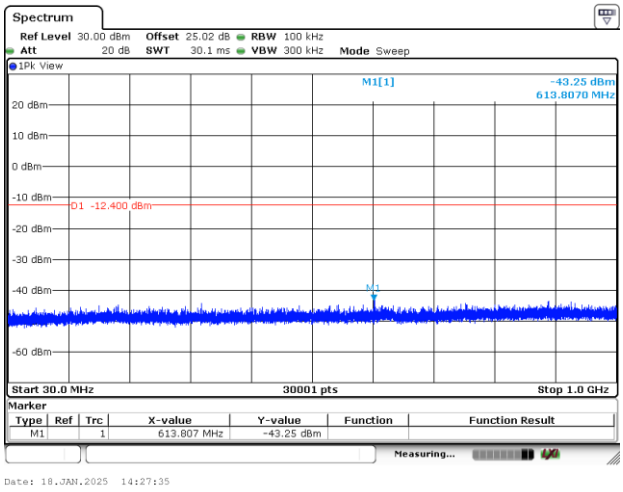
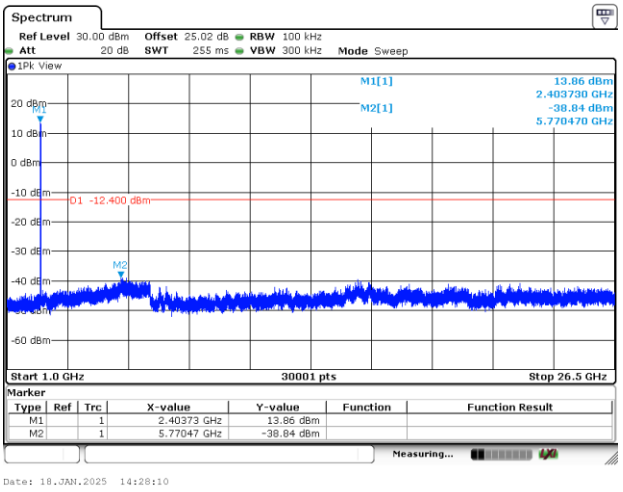
<1Mbps>

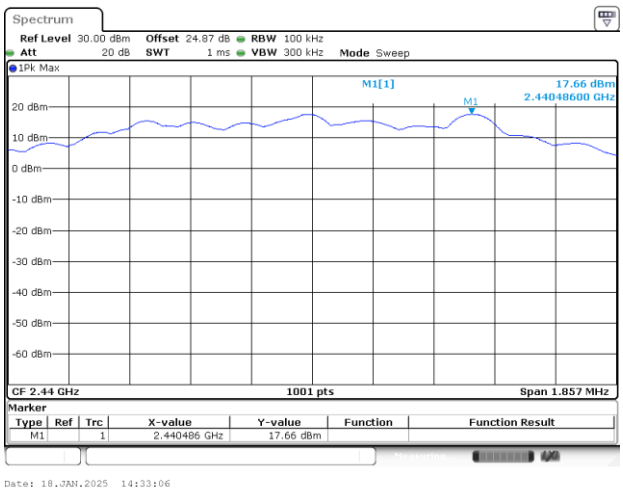
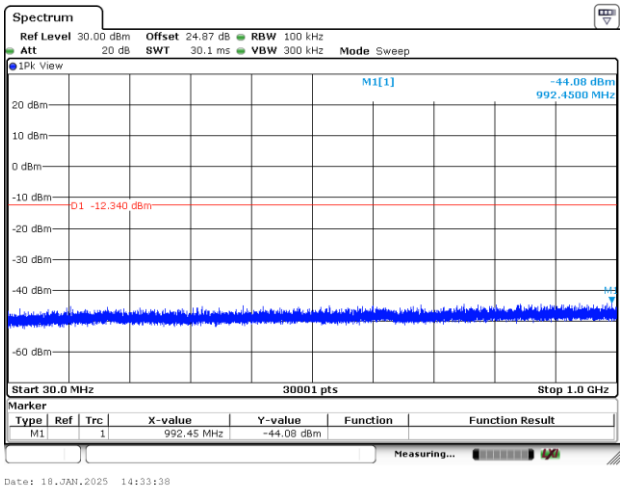
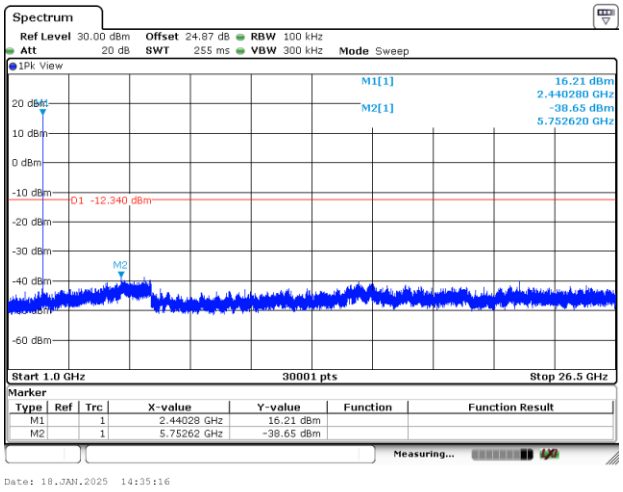
Channel 0	
100kHz PSD reference Level Plot	**Plot on Channel 0**
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

Channel 19	
100kHz PSD reference Level Plot	**Plot on Channel 19**
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

Channel 39	
100kHz PSD reference Level Plot	**Plot on Channel 39**
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

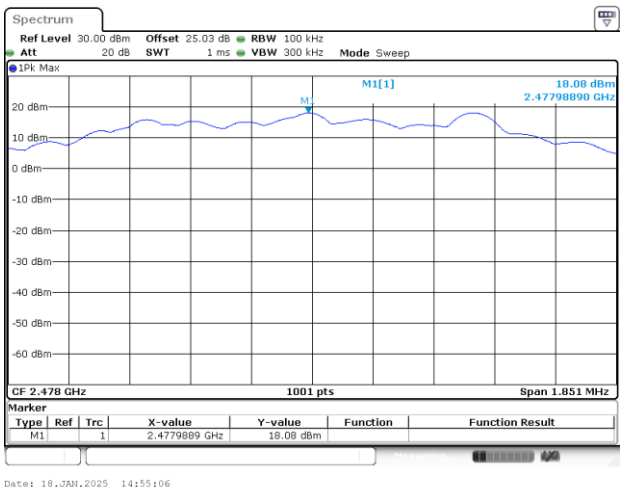
<2Mbps>

Channel 01	
100kHz PSD reference Level Plot	**Plot on Channel 01**
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

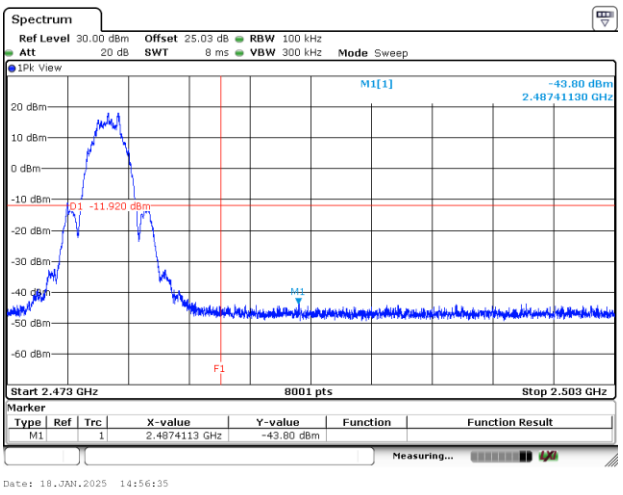
Channel 19	
100kHz PSD reference Level Plot	**Plot on Channel 19**
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

Channel 38

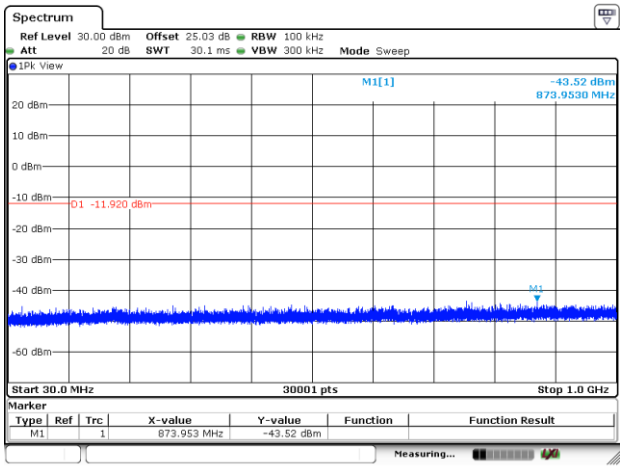
100kHz PSD reference Level Plot



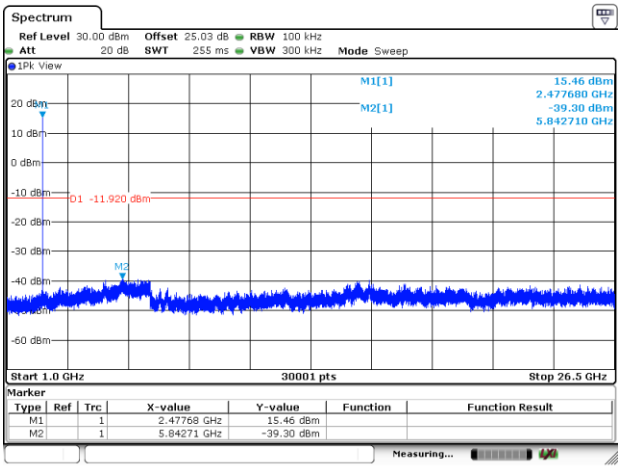
Plot on Channel 38



Spurious Emission 30MHz~1GHz Plot



Spurious Emission 1GHz~26.5GHz Plot

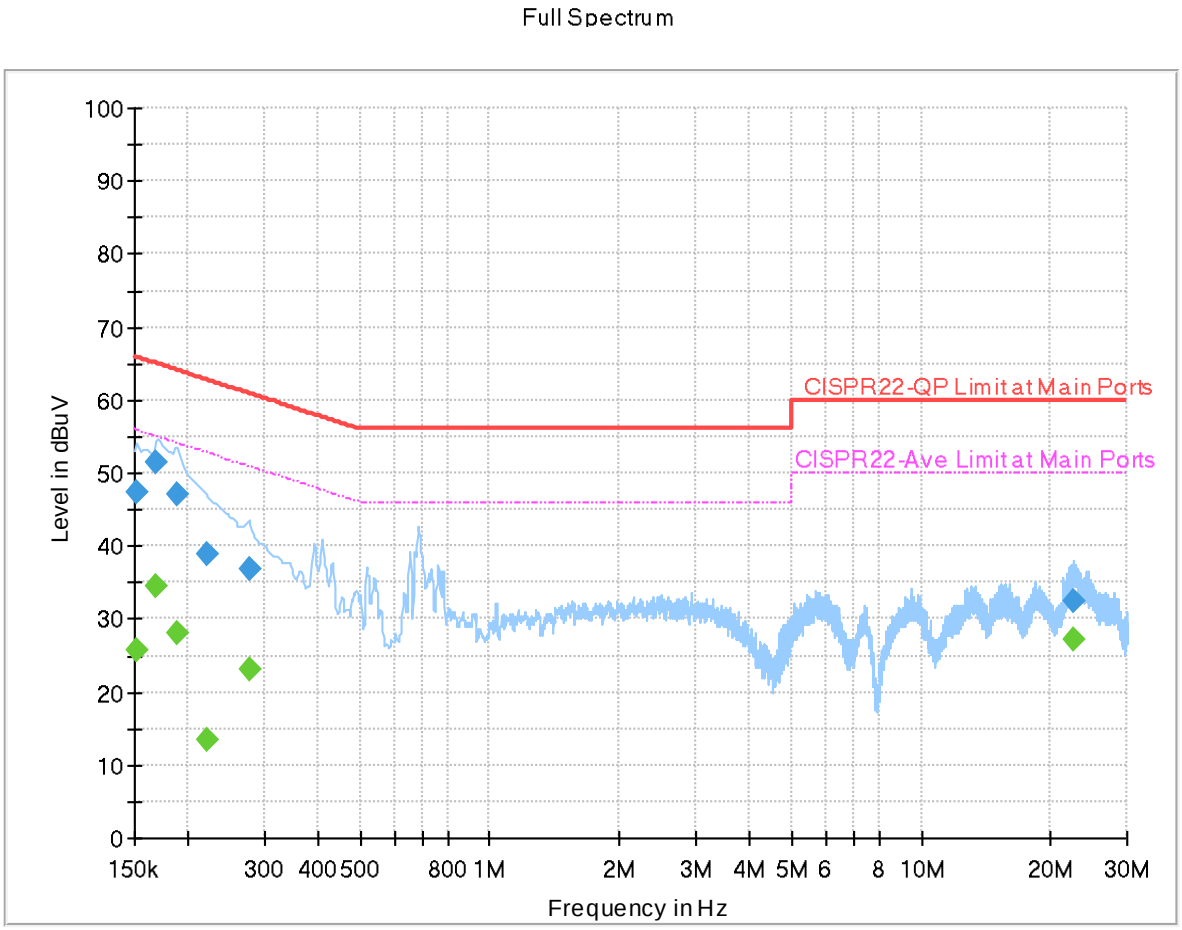


Appendix B. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	**Temperature :**	16.1 ~ 22.7℃
		Relative Humidity :	45.9 ~ 48.9%

EUT Information

Report NO :	4N0917
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

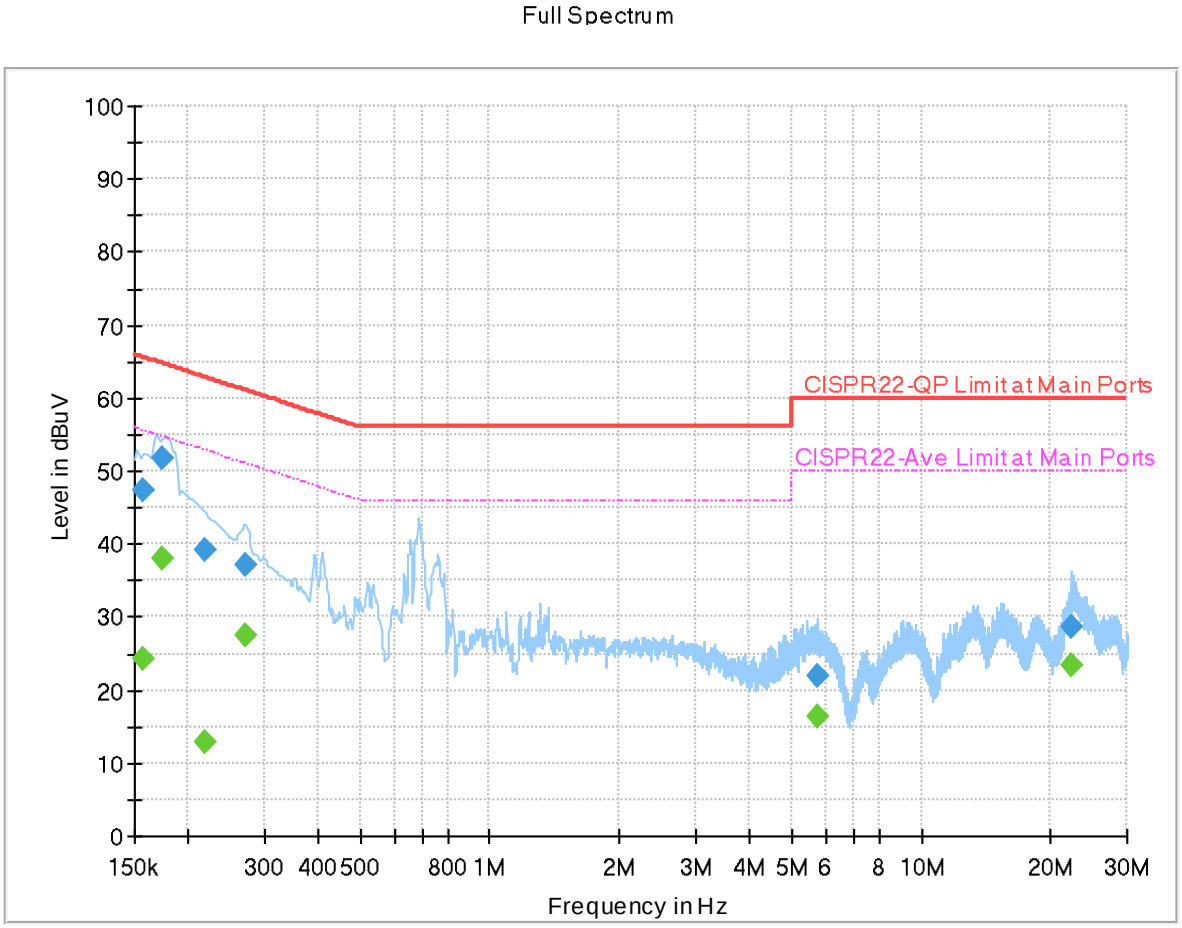


Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	25.87	55.88	30.01	L1	OFF	19.8
0.152250	47.46	---	65.88	18.42	L1	OFF	19.8
0.168000	---	34.58	55.06	20.48	L1	OFF	19.8
0.168000	51.48	---	65.06	13.58	L1	OFF	19.8
0.188250	---	28.21	54.11	25.90	L1	OFF	19.8
0.188250	47.10	---	64.11	17.01	L1	OFF	19.8
0.222000	---	13.57	52.74	39.17	L1	OFF	19.8
0.222000	38.97	---	62.74	23.77	L1	OFF	19.8
0.276000	---	23.21	50.94	27.73	L1	OFF	19.8
0.276000	36.86	---	60.94	24.08	L1	OFF	19.8
22.557750	---	27.09	50.00	22.91	L1	OFF	20.7
22.557750	32.53	---	60.00	27.47	L1	OFF	20.7

EUT Information

Report NO :	4N0917
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156750	---	24.21	55.63	31.42	N	OFF	19.8
0.156750	47.29	---	65.63	18.34	N	OFF	19.8
0.173760	---	37.94	54.78	16.84	N	OFF	19.8
0.173760	51.83	---	64.78	12.95	N	OFF	19.8
0.217500	---	12.83	52.91	40.08	N	OFF	19.8
0.217500	39.18	---	62.91	23.73	N	OFF	19.8
0.271905	---	27.48	51.06	23.58	N	OFF	19.8
0.271905	37.16	---	61.06	23.90	N	OFF	19.8
5.746605	---	16.23	50.00	33.77	N	OFF	20.0
5.746605	21.97	---	60.00	38.03	N	OFF	20.0
22.387200	---	23.27	50.00	26.73	N	OFF	20.8
22.387200	28.73	---	60.00	31.27	N	OFF	20.8

Appendix C. Radiated Spurious Emission Test Data

Test Engineer :	Rain Lee, Jacky Hong and White Hou	Temperature :	20~26°C
		Relative Humidity :	40~65%

Note symbol

-L	**Low channel location**
-R	**High channel location**

C1-1. Radiated Spurious Emission Test Modes

Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 9	2400-2483.5	3+4	Bluetooth-LE_GFSK	00	2402	1Mbps	-	-
Mode 10	2400-2483.5	3+4	Bluetooth-LE_GFSK	19	2440	1Mbps	-	-
Mode 11	2400-2483.5	3+4	Bluetooth-LE_GFSK	39	2480	1Mbps	-	-
Mode 15	2400-2483.5	3+4	Bluetooth-LE_GFSK	39	2480	1Mbps	-	LF
Mode 16	2400-2483.5	3+4	Bluetooth-LE_GFSK	39	2480	1Mbps	-	SHF

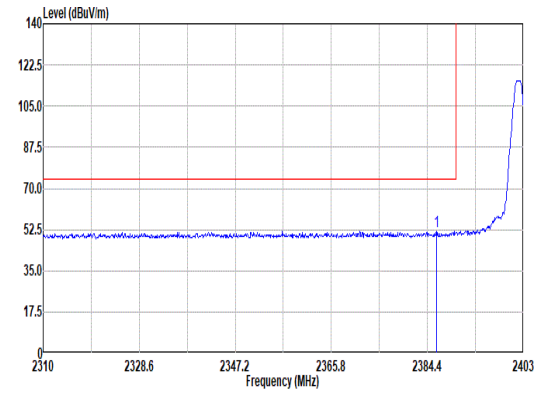
C1-2. Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	RU	Remark
9	Bluetooth-LE_GFSK	00	2389.42	42.59	54.00	-11.41	H	Avg.	Pass	-	Band Edge
	Bluetooth-LE_GFSK	00	4804.00	40.57	74.00	-33.43	H	Peak	Pass	-	Harmonic
10	Bluetooth-LE_GFSK	19	2484.64	43.21	54.00	-10.79	V	Avg.	Pass	-	Band Edge
	Bluetooth-LE_GFSK	19	7320.00	46.21	54.00	-7.79	V	Avg.	Pass	-	Harmonic
11	Bluetooth-LE_GFSK	39	2483.54	48.35	54.00	-5.65	H	Avg.	Pass	-	Band Edge
	Bluetooth-LE_GFSK	39	7440.00	46.58	54.00	-7.42	H	Avg.	Pass	-	Harmonic
15	LF	39	47.46	33.62	40.00	-6.38	V	QP	Pass	-	LF
16	SHF	39	23984.00	40.88	74.00	-33.12	H	Peak	Pass	-	SHF

Mode	9
	Band Edge
	2400-2483.5_Bluetooth-LE_GFSK _CH00_2402MHz
ANT	3+4

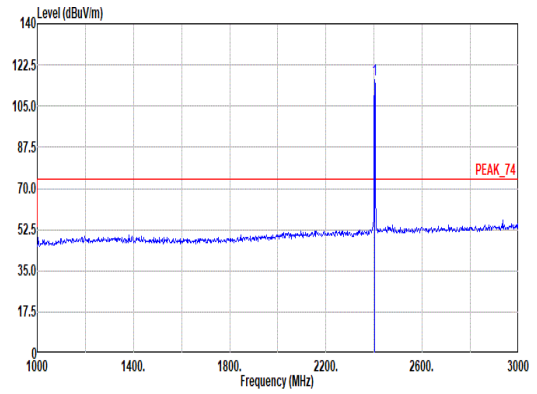
Pol.	Horizontal	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

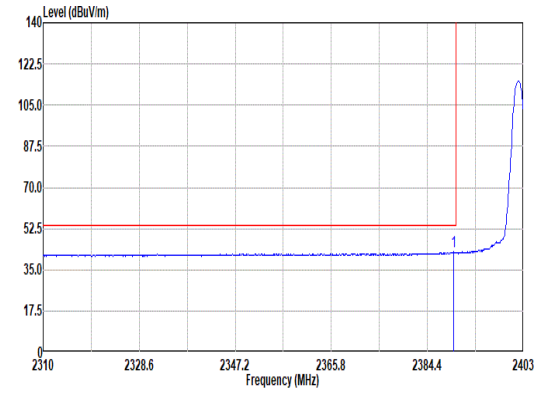
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2386.17	51.70	74.00	-22.30	44.66	27.46	6.73	37.08	9.93	100	55	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

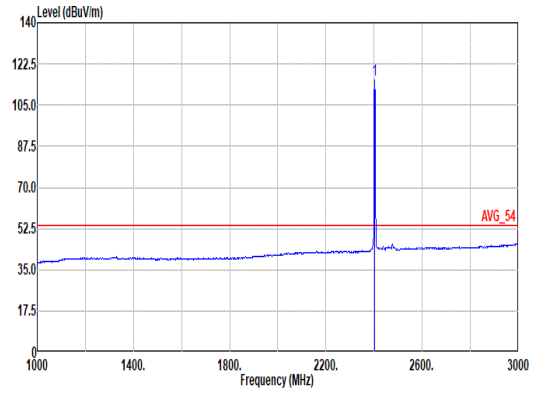
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2402.00	116.02	------	------	108.82	27.60	6.75	37.08	9.93	100	55	PEAK

Avg



Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2389.42	42.59	54.00	-11.41	35.51	27.49	6.74	37.08	9.93	100	55	AVERAGE



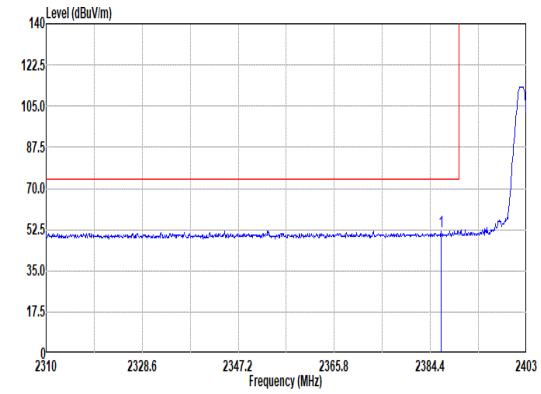
Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2402.00	115.46	------	------	108.26	27.60	6.75	37.08	9.93	100	55	AVERAGE

Mode	9
	Band Edge
	2400-2483.5_Bluetooth-LE_GFSK _CH00_2402MHz
ANT	3+4

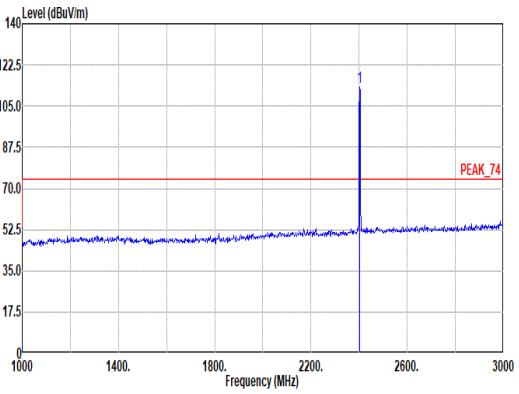
Pol.	Vertical	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

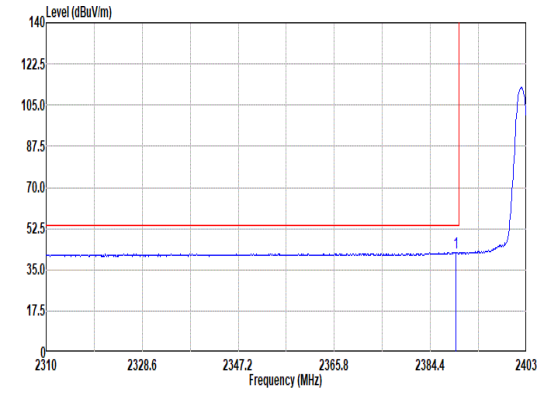
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2386.45	51.99	74.00	-22.01	44.95	27.46	6.73	37.08	9.93	269	77	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

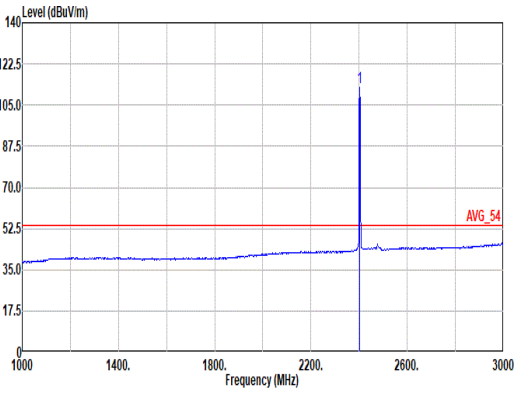
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2402.00	113.23	------	------	106.03	27.60	6.75	37.08	9.93	269	77	PEAK

Avg



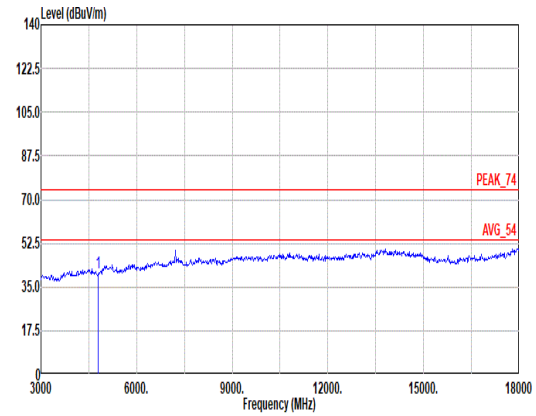
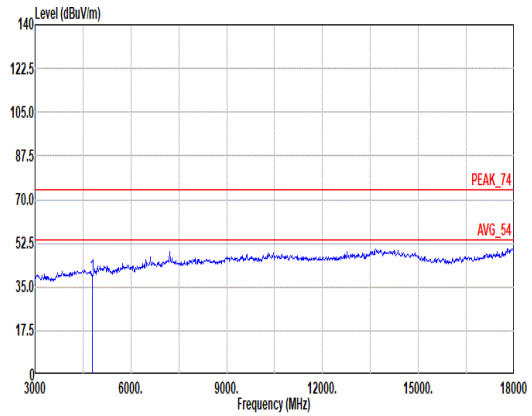
Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

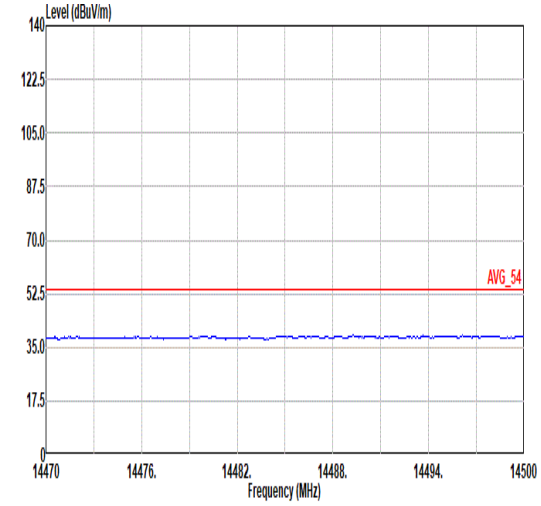
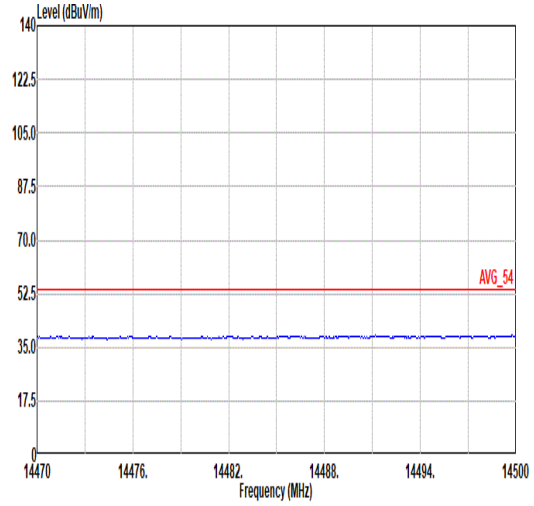
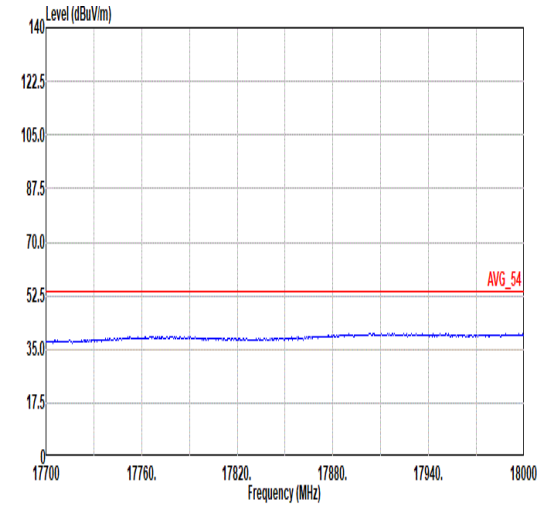
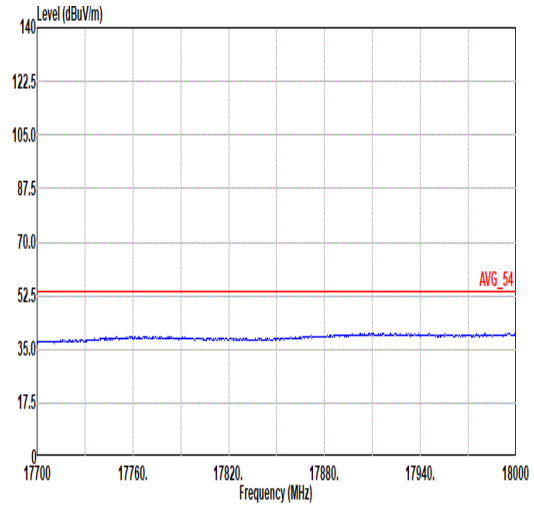
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2389.33	42.30	54.00	-11.70	35.22	27.49	6.74	37.08	9.93	269	77	AVERAGE



Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

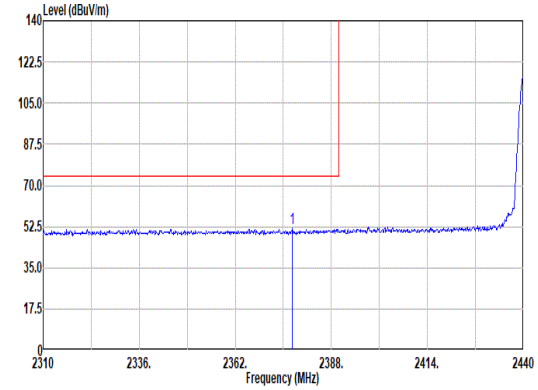
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2402.00	112.72	------	------	105.52	27.60	6.75	37.08	9.93	269	77	AVERAGE

Mode	9	
	Harmonic	
	2400-2483.5_Bluetooth-LE_GFSK _CH00_2402MHz	
ANT	3+4	
Pol.	Horizontal	Vertical
Peak Avg	 Site : 03CH13-HY Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4804.00 40.57 74.00 -33.43 55.55 32.42 9.34 57.44 0.70 -- -- PEAK	 Site : 03CH13-HY Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4804.00 39.69 74.00 -34.31 54.67 32.42 9.34 57.44 0.70 -- -- PEAK

Mode	9	
	Harmonic	
	2400-2483.5_Bluetooth-LE_GFSK _CH00_2402MHz	
ANT	3+4	
Pol.	Horizontal	Vertical
14.47G ~14.5G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
17.7G ~18G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL

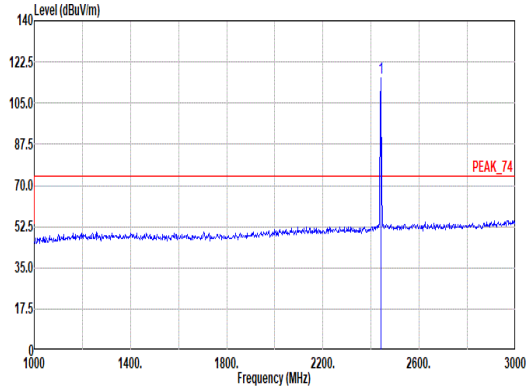
Mode	10	
	Band Edge - L	
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz	
ANT	3+4	
Pol.	Horizontal	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

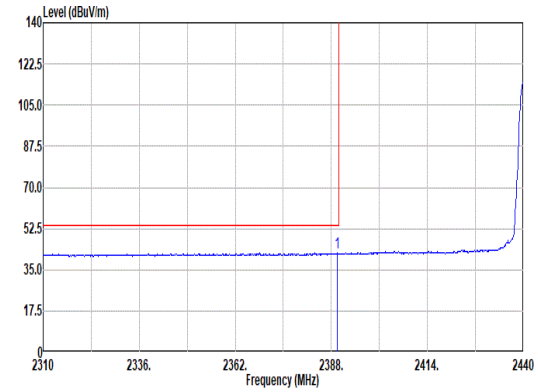
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2377.47	51.66	74.00	-22.34	44.69	27.40	6.72	37.08	9.93	100	59	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

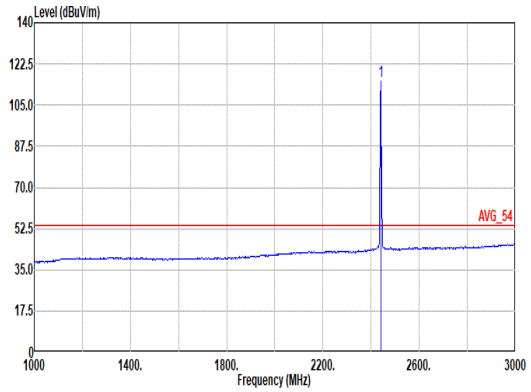
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2440.00	115.73	------	------	108.47	27.60	6.81	37.08	9.93	100	59	PEAK

Avg



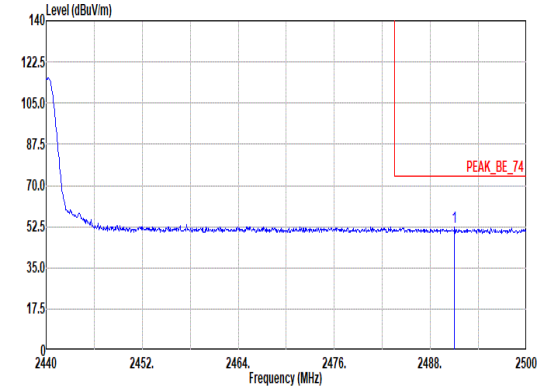
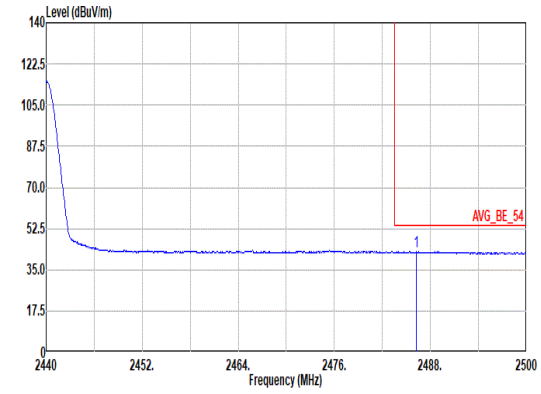
Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2389.69	42.15	54.00	-11.85	35.06	27.50	6.74	37.08	9.93	100	59	AVERAGE



Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

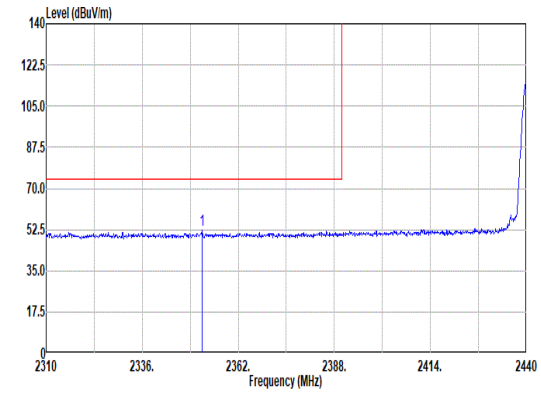
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2440.00	115.21	------	------	107.95	27.60	6.81	37.08	9.93	100	59	AVERAGE

Mode	10	
	Band Edge - R	
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz	
ANT	3+4	
Pol.	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition: PEAK_BE_74 3m HORN_9120D_1326 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2491.00 52.07 74.00 -21.93 44.52 27.81 6.88 37.07 9.93 100 59 PEAK	Blank
Avg	 Site : 03CH13-HY Condition: AVG_BE_54 3m HORN_9120D_1326 HORIZONTAL : RBW:1000.000kHz VBW:2.700kHz SWT:Auto Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2486.20 42.83 54.00 -11.17 35.30 27.80 6.87 37.07 9.93 100 59 AVERAGE	Blank

Mode	10
	Band Edge - L
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz
ANT	3+4

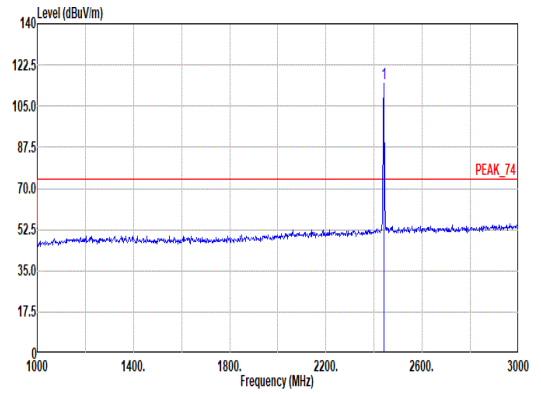
Pol.	Vertical	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

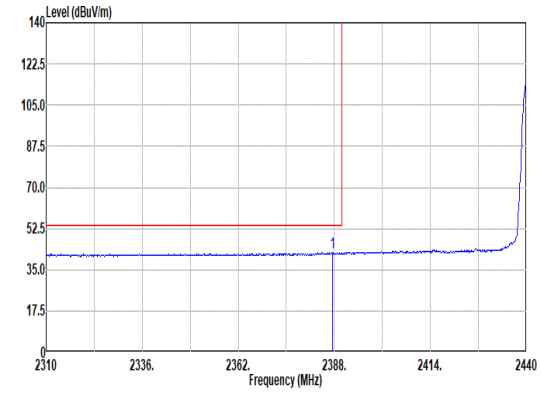
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2352.25	52.35	74.00	-21.65	45.52	27.30	6.69	37.09	9.93	290	83	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

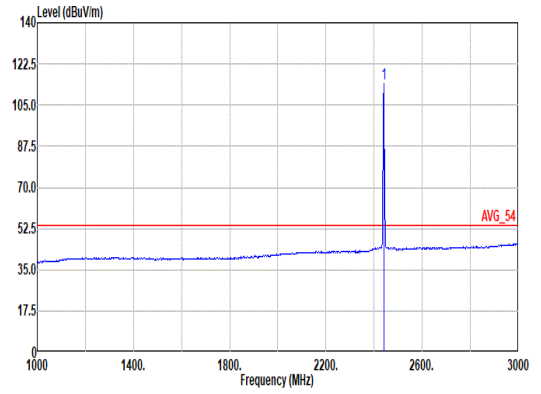
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2440.00	114.70	------	------	107.44	27.60	6.81	37.08	9.93	290	83	PEAK

Avg



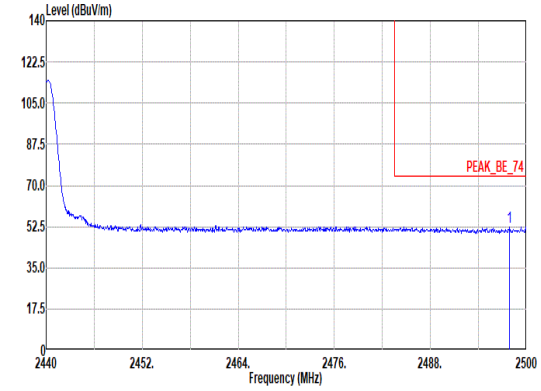
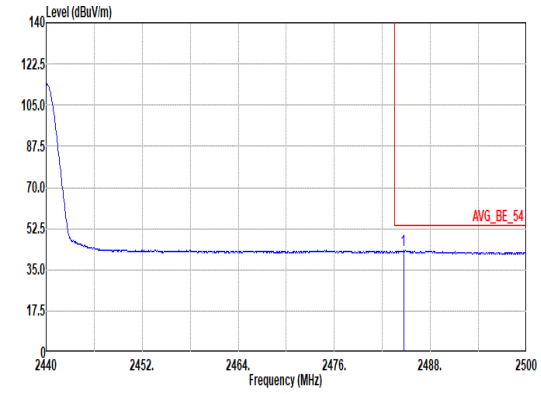
Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2387.48	42.25	54.00	-11.75	35.20	27.47	6.73	37.08	9.93	290	83	AVERAGE

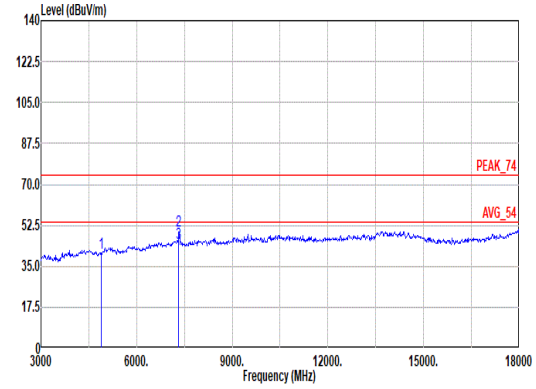
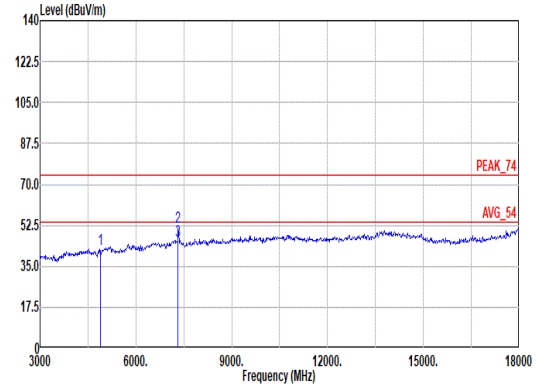


Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2440.00	114.21	------	------	106.95	27.60	6.81	37.08	9.93	290	83	AVERAGE

Mode	10	
	Band Edge - R	
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz	
ANT	3+4	
Pol.	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition: PEAK_BE_74 3m HORN_9120D_1326 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2497.90 52.31 74.00 -21.69 44.68 27.88 6.89 37.07 9.93 290 83 PEAK	Blank
Avg	 Site : 03CH13-HY Condition: AVG_BE_54 3m HORN_9120D_1326 VERTICAL : RBW:1000.000kHz VBW:2.700kHz SWT:Auto Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2484.64 43.21 54.00 -10.79 35.68 27.80 6.87 37.07 9.93 290 83 AVERAGE	Blank

Mode	10
	Harmonic
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz
ANT	3+4

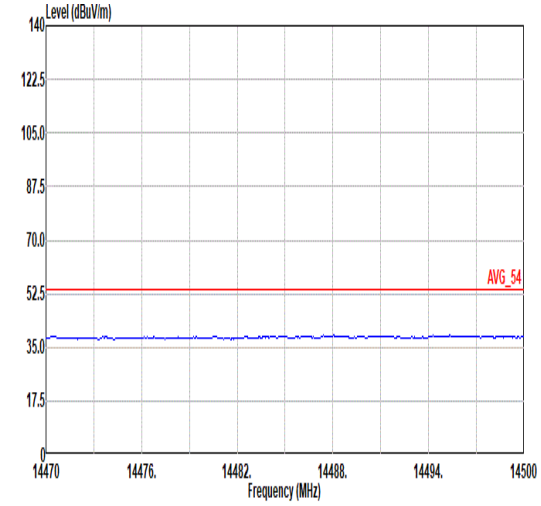
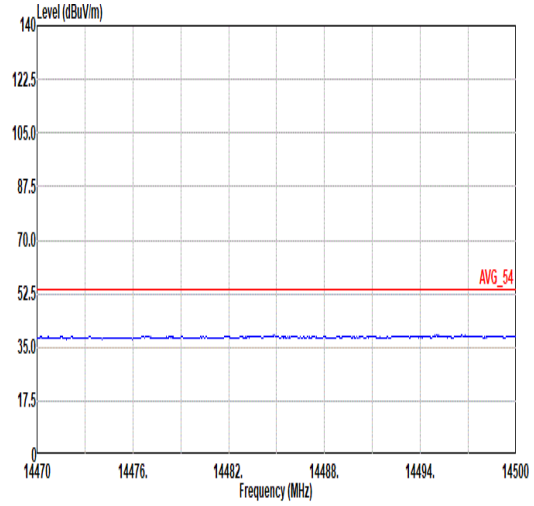
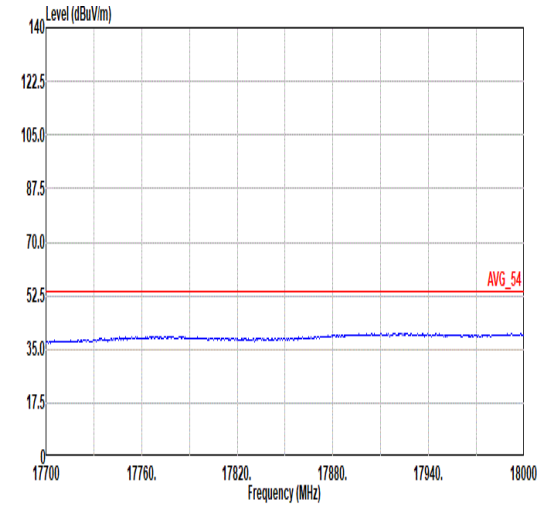
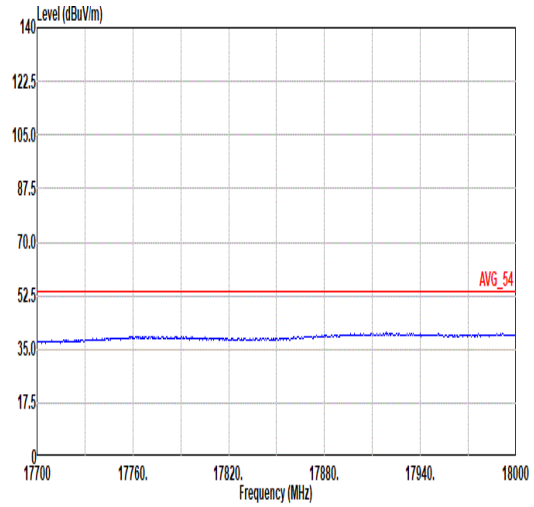
Pol.	Horizontal	Vertical
Peak Avg		

Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	4880.00	40.82	74.00	-33.18	54.85	32.72	9.81	57.27	0.71	--	--	PEAK
2	7320.00	50.34	74.00	-23.66	57.23	37.08	12.76	57.39	0.66	100	307	PEAK
3	7320.00	45.04	54.00	-8.96	51.93	37.08	12.76	57.39	0.66	100	307	Average

Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL

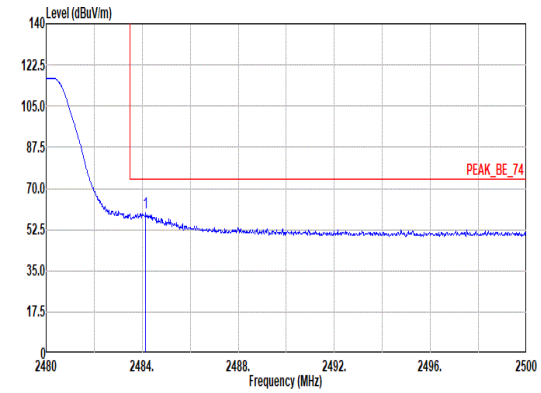
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	4880.00	42.20	74.00	-31.80	56.23	32.72	9.81	57.27	0.71	--	--	PEAK
2	7320.00	51.62	74.00	-22.38	58.51	37.08	12.76	57.39	0.66	102	21	PEAK
3	7320.00	46.21	54.00	-7.79	53.10	37.08	12.76	57.39	0.66	102	21	Average

Mode	10	
	Harmonic	
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz	
ANT	3+4	
Pol.	Horizontal	Vertical
14.47G ~14.5G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
17.7G ~18G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL

Mode	11
	Band Edge
	2400-2483.5_Bluetooth-LE_GFSK _CH39_2480MHz
ANT	3+4

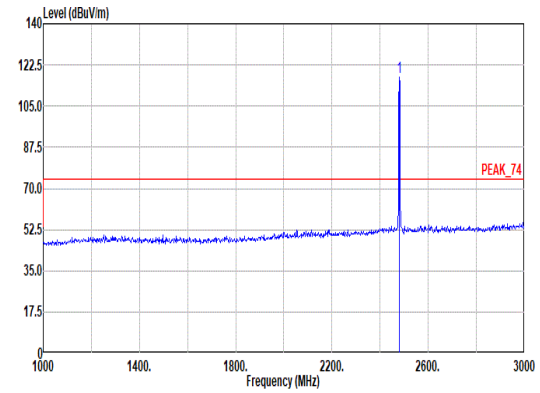
Pol.	Horizontal	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

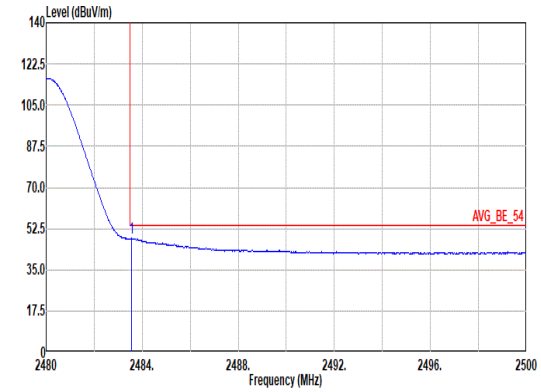
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2484.14	59.62	74.00	-14.38	52.09	27.80	6.87	37.07	9.93	100	148	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

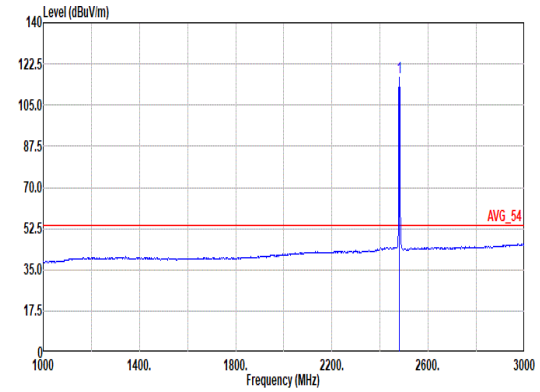
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2480.00	117.27	------	------	109.75	27.80	6.86	37.07	9.93	100	148	PEAK

Avg



Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2483.54	48.35	54.00	-5.65	40.82	27.80	6.87	37.07	9.93	100	148	AVERAGE

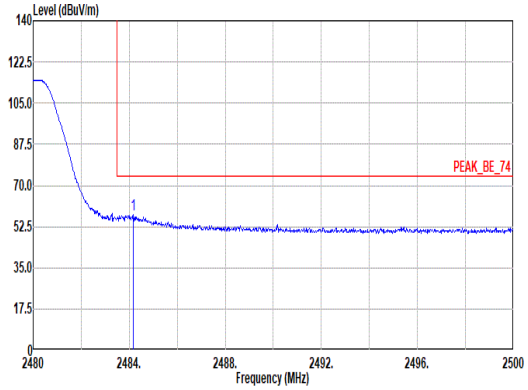


Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2480.00	116.72	------	------	109.20	27.80	6.86	37.07	9.93	100	148	AVERAGE

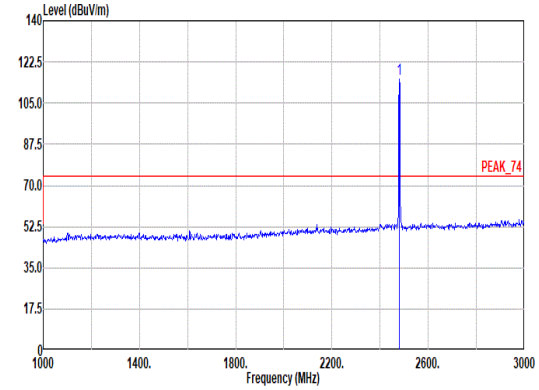
Mode	11	
	Band Edge	
	2400-2483.5_Bluetooth-LE_GFSK _CH39_2480MHz	
ANT	3+4	
Pol.	Vertical	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

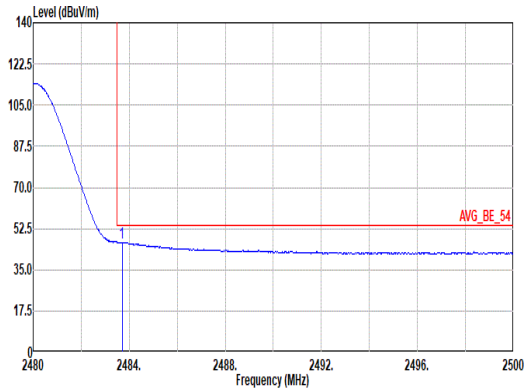
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2484.18	57.74	74.00	-16.26	50.21	27.80	6.87	37.07	9.93	283	84	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

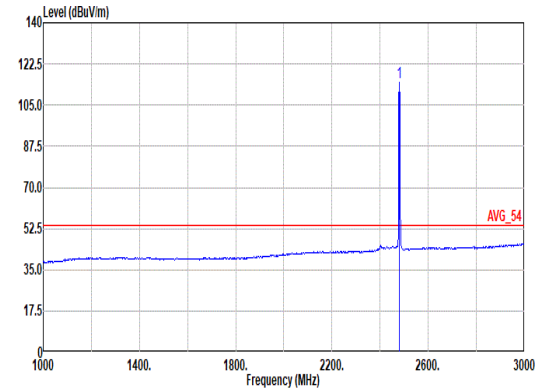
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2480.00	115.13	------	------	107.61	27.80	6.86	37.07	9.93	283	84	PEAK

Avg



Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

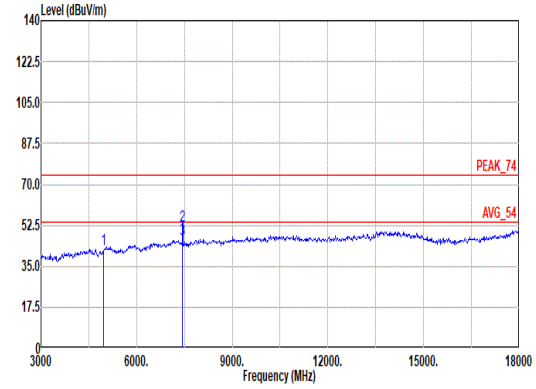
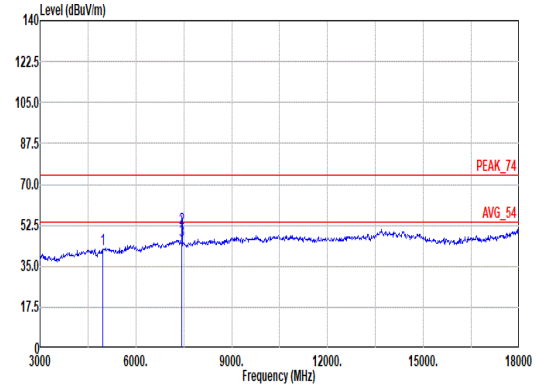
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2483.70	46.74	54.00	-7.26	39.21	27.80	6.87	37.07	9.93	283	84	AVERAGE



Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:2.700kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2480.00	114.60	------	------	107.08	27.80	6.86	37.07	9.93	283	84	AVERAGE

Mode	11
	Harmonic
	2400-2483.5_Bluetooth-LE_GFSK _CH39_2480MHz
ANT	3+4

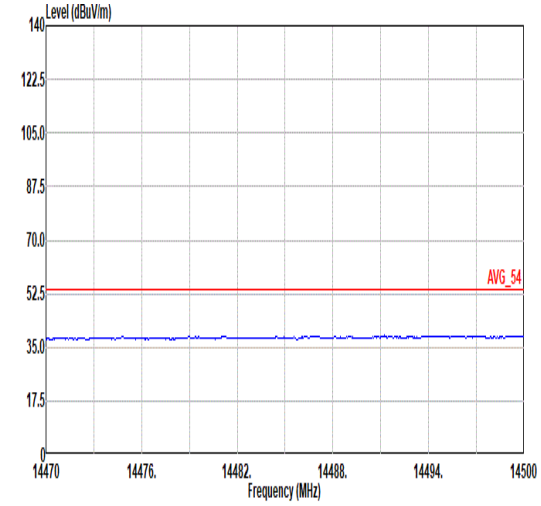
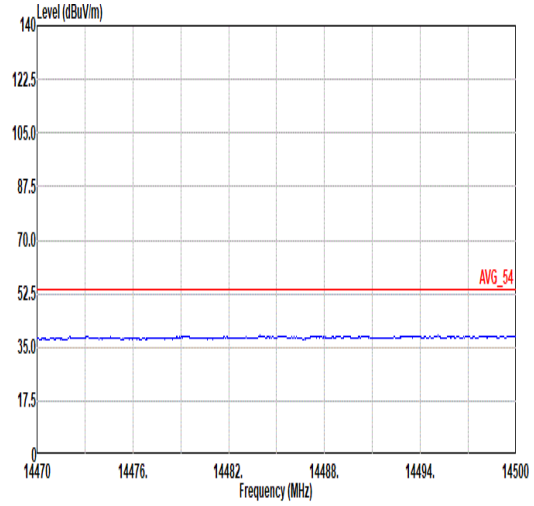
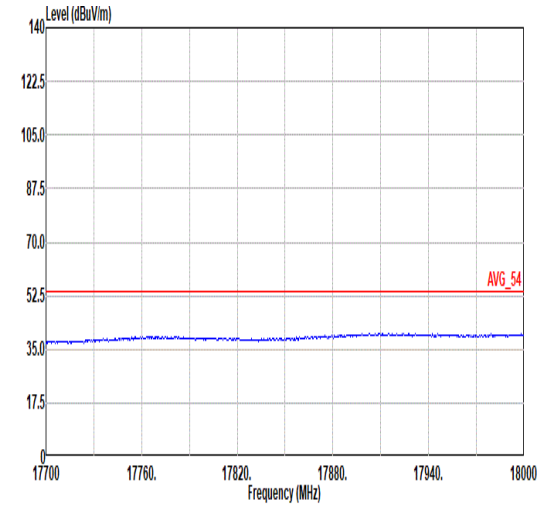
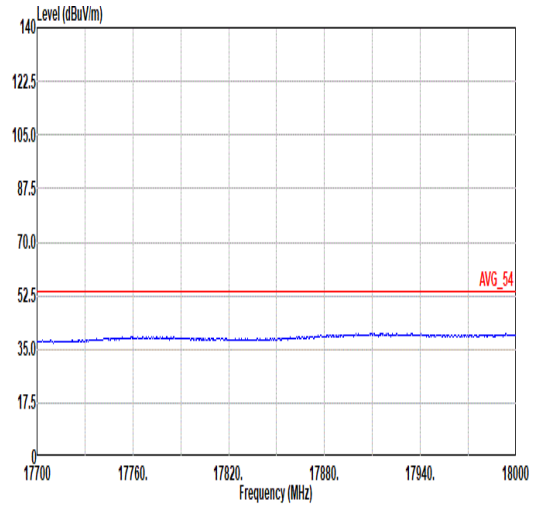
Pol.	Horizontal	Vertical
Peak Avg		

Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	4960.00	42.04	74.00	-31.96	54.97	33.14	10.30	57.09	0.72	--	--	PEAK
2	7440.00	52.19	74.00	-21.81	59.77	36.52	12.85	57.62	0.67	361	71	PEAK
3	7440.00	46.58	54.00	-7.42	54.16	36.52	12.85	57.62	0.67	361	71	Average

Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL

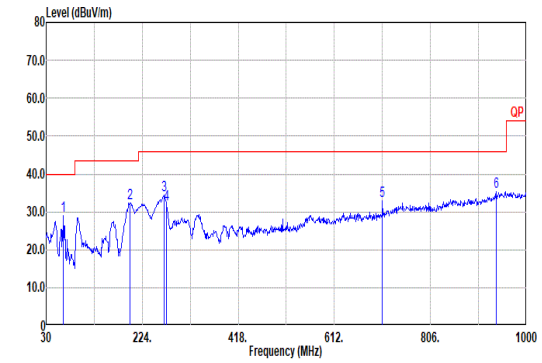
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	4960.00	42.21	74.00	-31.79	55.14	33.14	10.30	57.09	0.72	--	--	PEAK
2	7440.00	51.13	74.00	-22.87	58.71	36.52	12.85	57.62	0.67	100	17	Peak
3	7440.00	46.02	54.00	-7.98	53.60	36.52	12.85	57.62	0.67	100	17	Average

Mode	11	
	Harmonic	
	2400-2483.5_Bluetooth-LE_GFSK _CH39_2480MHz	
ANT	3+4	
Pol.	Horizontal	Vertical
14.47G ~14.5G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
17.7G ~18G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL

Mode	15
	LF
	2400-2483.5_Bluetooth-LE_GFSK _CH39_2480MHz
ANT	3+4

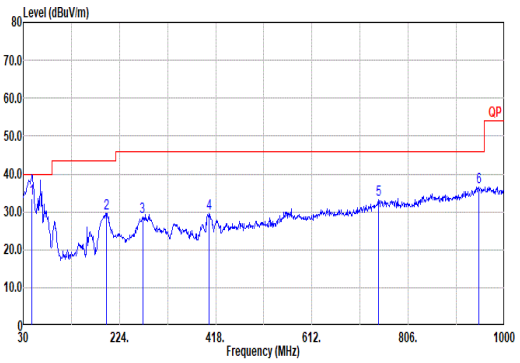
Pol.	Horizontal	Vertical

QP/ Peak



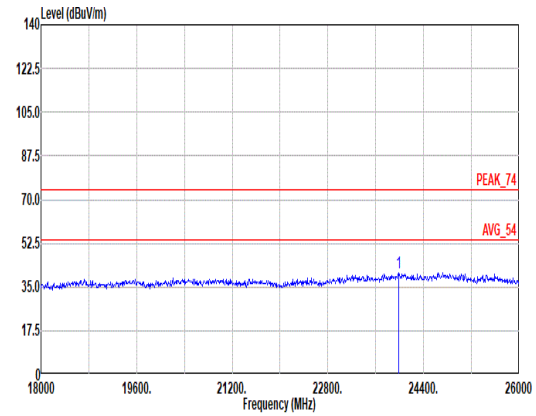
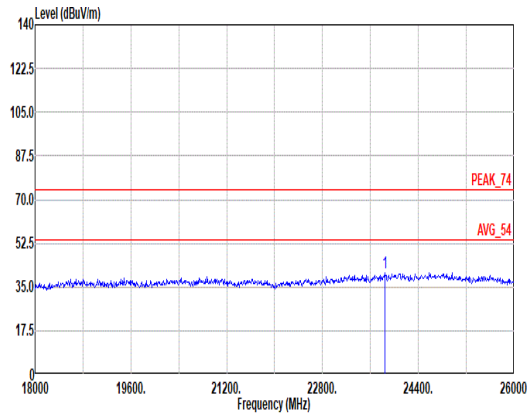
Site : 03CH13-HY
Condition: QP 3m BILOG_40103 HORIZONTAL

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	64.92	28.84	40.00	-11.16	47.49	12.00	1.18	31.91	0.08	--	--	Peak
2	198.78	32.37	43.50	-11.13	47.14	14.98	2.01	31.82	0.06	--	--	Peak
3	268.62	34.46	46.00	-11.54	44.46	19.28	2.35	31.75	0.12	--	--	Peak
4	273.47	31.87	46.00	-14.13	42.28	18.86	2.37	31.76	0.12	--	--	Peak
5	709.00	32.93	46.00	-13.07	33.97	26.78	3.76	31.72	0.14	--	--	Peak
6	938.89	35.32	46.00	-10.68	31.06	30.53	4.30	30.77	0.20	--	--	Peak



Site : 03CH13-HY
Condition: QP 3m BILOG_40103 VERTICAL

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	47.46	33.62	40.00	-6.38	48.96	15.52	1.00	31.98	0.12	100	228	QP
2	197.81	29.66	43.50	-13.84	44.50	14.90	2.01	31.82	0.07	--	--	Peak
3	270.56	28.72	46.00	-17.28	39.02	18.98	2.36	31.76	0.12	--	--	Peak
4	404.42	29.44	46.00	-16.56	36.06	22.09	2.88	31.67	0.08	--	--	Peak
5	745.86	33.19	46.00	-12.81	32.54	28.30	3.83	31.62	0.14	--	--	Peak
6	947.62	36.55	46.00	-9.45	31.84	30.90	4.31	30.70	0.20	--	--	Peak

Mode	16	
	SHF	
	2400-2483.5_Bluetooth-LE_GFSK _CH39_2480MHz	
ANT	3+4	
Pol.	Horizontal	Vertical
Peak	 Site : 03CH13-HY Condition: PEAK_74 1m SHF_1224 HORIZONTAL Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 23984.00 40.88 74.00 -33.12 58.57 38.77 6.89 53.81 -9.54 -- -- Peak	 Site : 03CH13-HY Condition: PEAK_74 1m SHF_1224 VERTICAL Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 23848.00 40.83 74.00 -33.17 58.66 38.70 6.90 53.89 -9.54 -- -- Peak

C2-1. Radiated Spurious Emission Test Modes

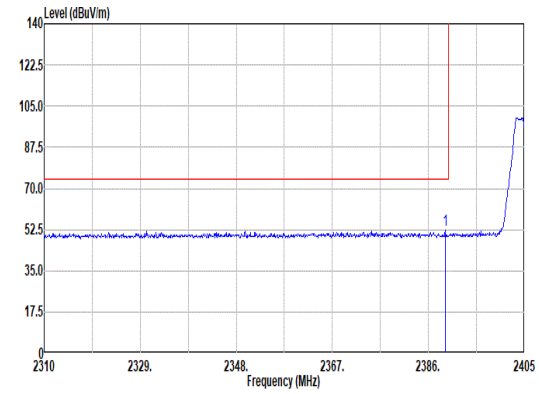
Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 12	2400-2483.5	3+4	Bluetooth-LE_GFSK	01	2404	2Mbps	-	-
Mode 13	2400-2483.5	3+4	Bluetooth-LE_GFSK	19	2440	2Mbps	-	-
Mode 14	2400-2483.5	3+4	Bluetooth-LE_GFSK	38	2478	2Mbps	-	-

C2-2. Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	RU	Remark
12	Bluetooth-LE_GFSK	01	2389.52	41.35	54.00	-12.65	V	Avg.	Pass	-	Band Edge
	Bluetooth-LE_GFSK	01	4808.00	40.60	74.00	-33.40	H	Peak	Pass	-	Harmonic
13	Bluetooth-LE_GFSK	19	2490.10	42.09	54.00	-11.91	H	Avg.	Pass	-	Band Edge
	Bluetooth-LE_GFSK	19	7320.00	39.88	54.00	-14.12	H	Avg.	Pass	-	Harmonic
14	Bluetooth-LE_GFSK	38	2483.52	45.18	54.00	-8.82	H	Avg.	Pass	-	Band Edge
	Bluetooth-LE_GFSK	38	7434.00	39.36	54.00	-14.64	H	Avg.	Pass	-	Harmonic

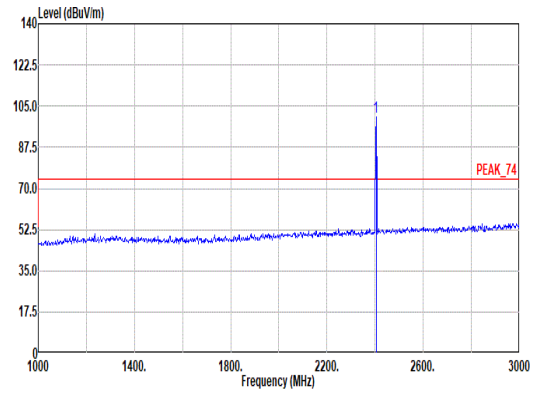
Mode	12	
	Band Edge	
	2400-2483.5_Bluetooth-LE_GFSK _CH01_2404MHz	
ANT	3+4	
Pol.	Horizontal	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

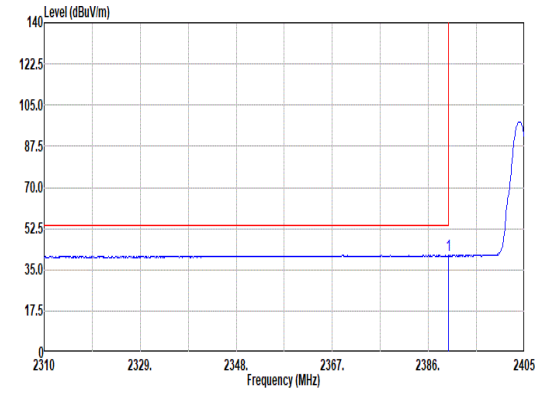
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2389.33	52.29	74.00	-21.71	45.21	27.49	6.74	37.08	9.93	300	102	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

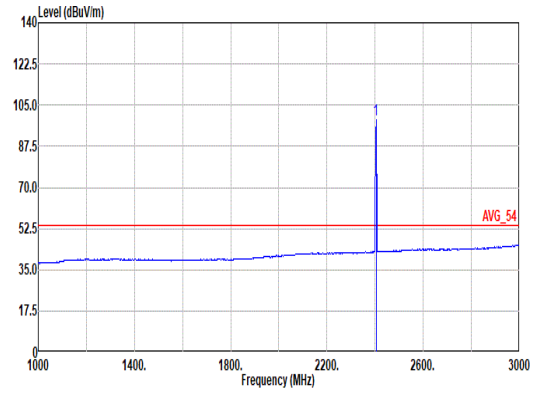
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2404.00	100.27	------	------	93.06	27.60	6.76	37.08	9.93	300	102	PEAK

Avg



Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2389.99	41.19	54.00	-12.81	34.10	27.50	6.74	37.08	9.93	300	102	AVERAGE

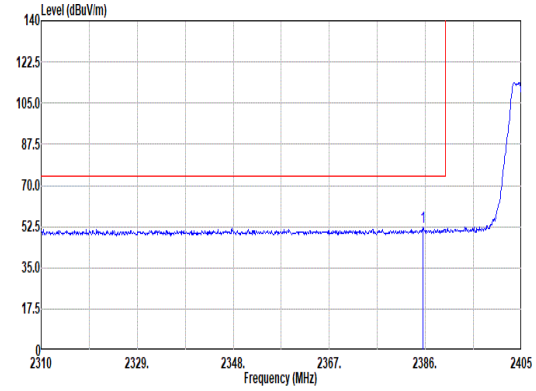


Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2404.00	98.69	------	------	91.48	27.60	6.76	37.08	9.93	300	102	AVERAGE

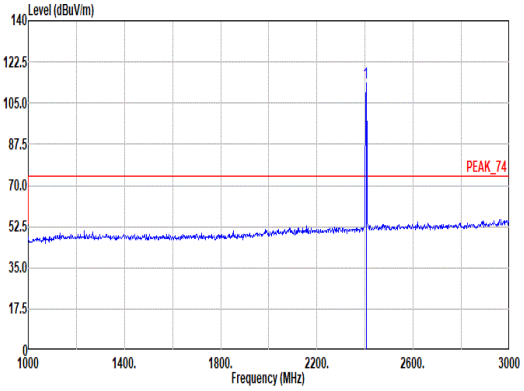
Mode	12	
	Band Edge	
	2400-2483.5_Bluetooth-LE_GFSK _CH01_2404MHz	
ANT	3+4	
Pol.	Vertical	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

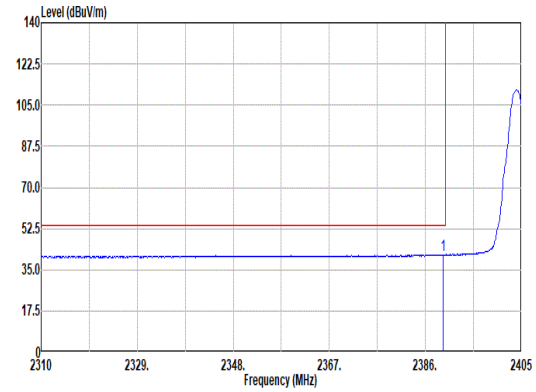
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2385.53	52.24	74.00	-21.76	45.20	27.46	6.73	37.08	9.93	300	102	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

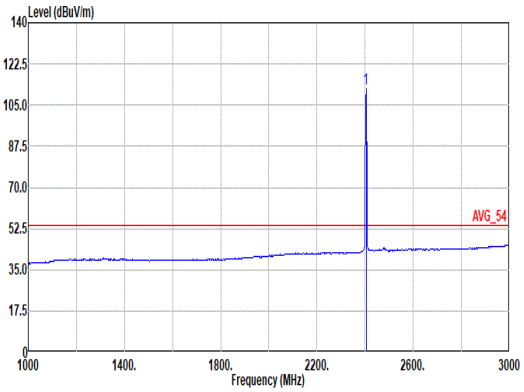
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2404.00	113.80	------	------	106.59	27.60	6.76	37.08	9.93	300	102	PEAK

Avg



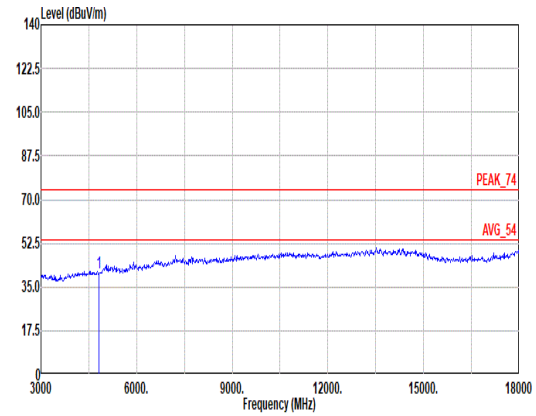
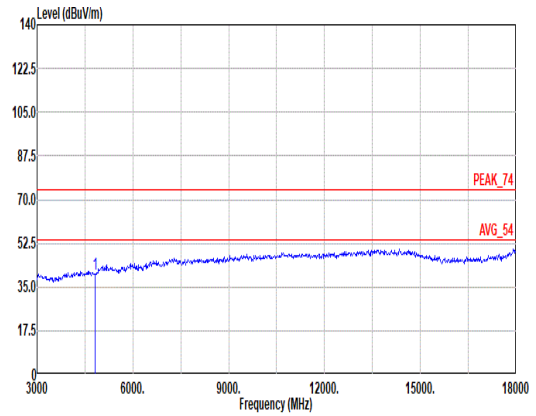
Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

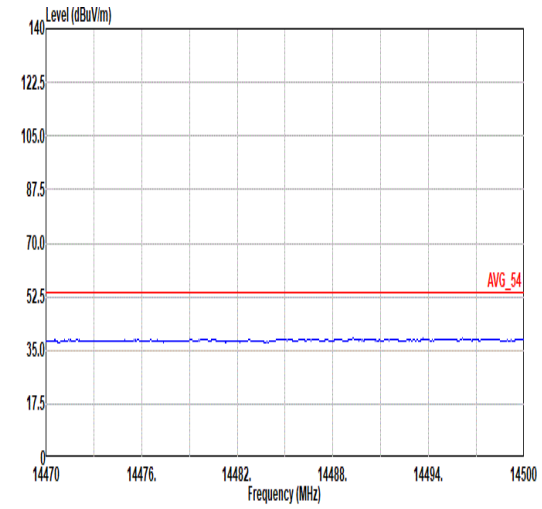
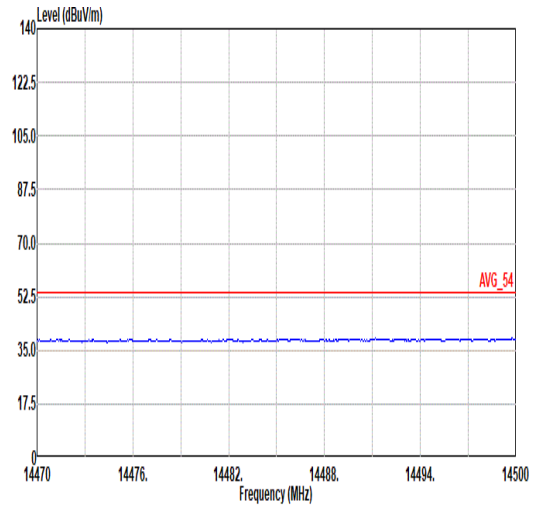
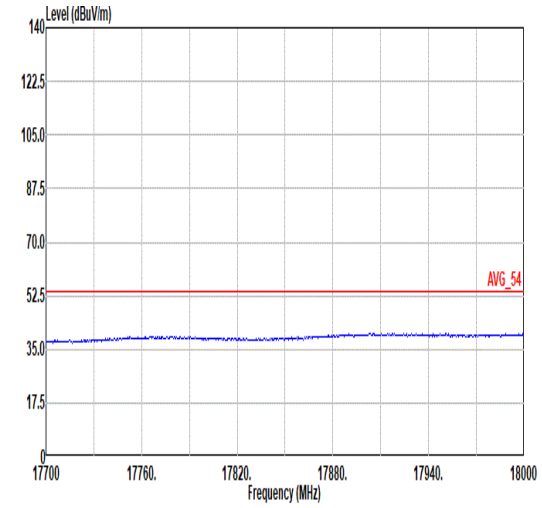
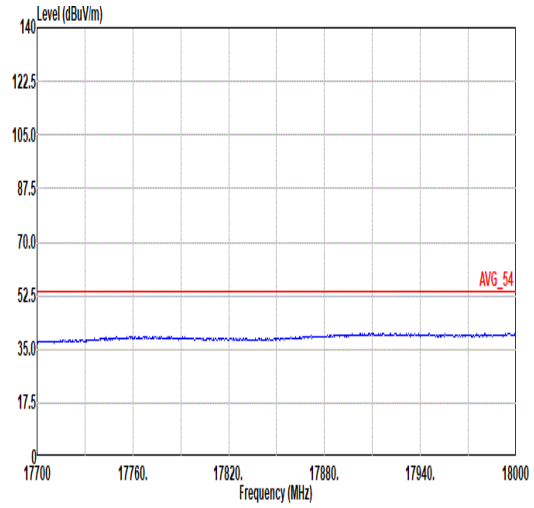
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2389.52	41.35	54.00	-12.65	34.26	27.50	6.74	37.08	9.93	300	102	AVERAGE



Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

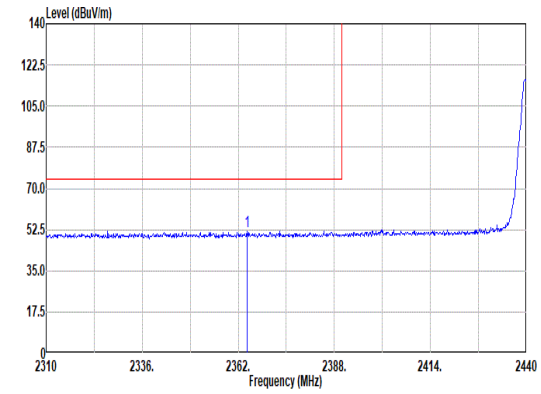
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2404.00	112.24	------	------	105.03	27.60	6.76	37.08	9.93	300	102	AVERAGE

Mode	12	
	Harmonic	
	2400-2483.5_Bluetooth-LE_GFSK _CH01_2404MHz	
ANT	3+4	
Pol.	Horizontal	Vertical
Peak Avg	 Site : 03CH13-HY Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4808.00 40.60 74.00 -33.40 55.53 32.43 9.37 57.43 0.70 -- -- PEAK	 Site : 03CH13-HY Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4808.00 40.30 74.00 -33.70 55.23 32.43 9.37 57.43 0.70 -- -- PEAK

Mode	12	
	Harmonic	
	2400-2483.5_Bluetooth-LE_GFSK _CH01_2404MHz	
ANT	3+4	
Pol.	Horizontal	Vertical
14.47G ~14.5G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
17.7G ~18G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL

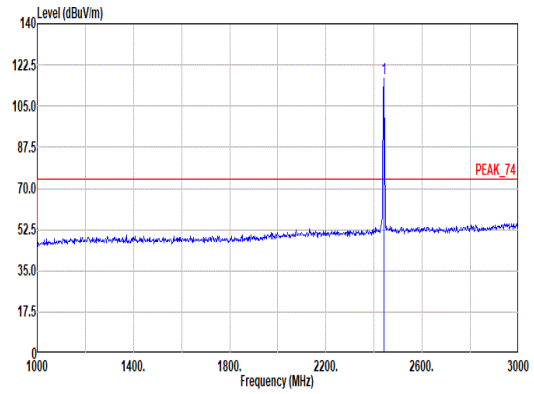
Mode	13	
	Band Edge - L	
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz	
ANT	3+4	
Pol.	Horizontal	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

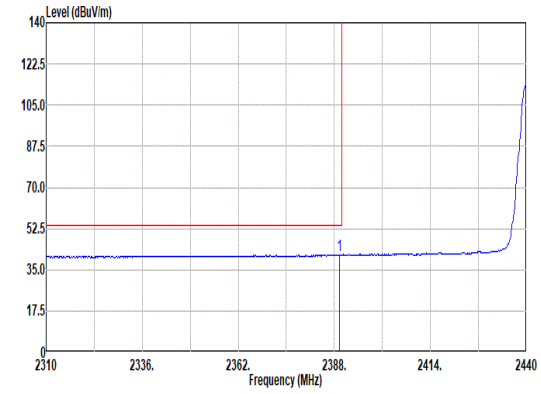
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2364.34	51.93	74.00	-22.07	45.05	27.34	6.70	37.09	9.93	115	150	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

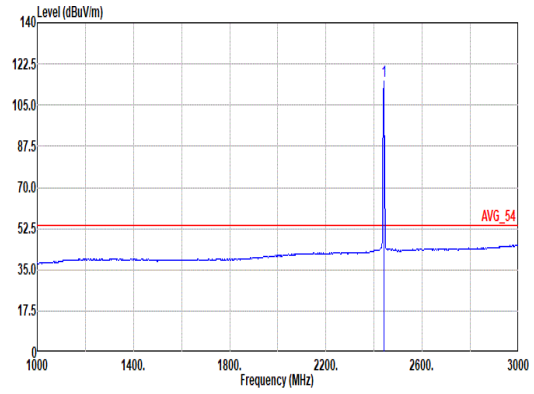
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2440.00	116.54	------	------	109.28	27.60	6.81	37.08	9.93	115	150	PEAK

Avg



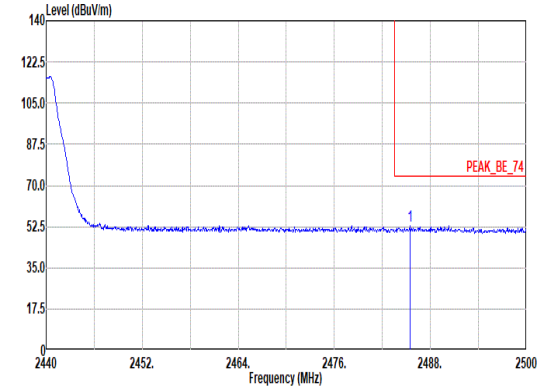
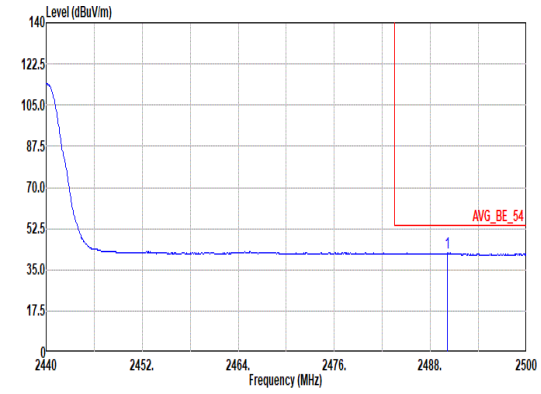
Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2389.43	41.40	54.00	-12.60	34.32	27.49	6.74	37.08	9.93	115	150	AVERAGE



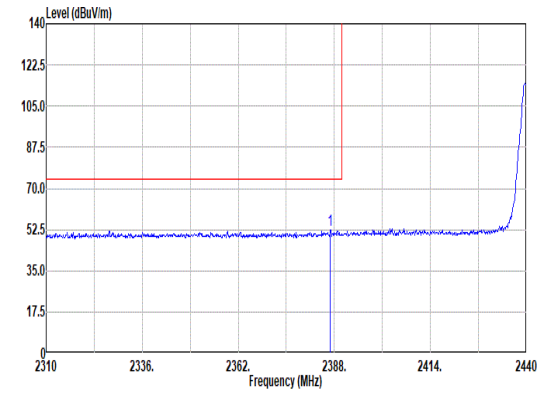
Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2440.00	114.95	------	------	107.69	27.60	6.81	37.08	9.93	115	150	AVERAGE

Mode	13	
	Band Edge - R	
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz	
ANT	3+4	
Pol.	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition: PEAK_BE_74 3m HORN_9120D_1326 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2485.48 52.74 74.00 -21.26 45.21 27.80 6.87 37.07 9.93 115 150 PEAK	Blank
Avg	 Site : 03CH13-HY Condition: AVG_BE_54 3m HORN_9120D_1326 HORIZONTAL : RBW:1000.000kHz VBW:1.000kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2490.10 42.09 54.00 -11.91 34.55 27.80 6.88 37.07 9.93 115 150 AVERAGE	Blank

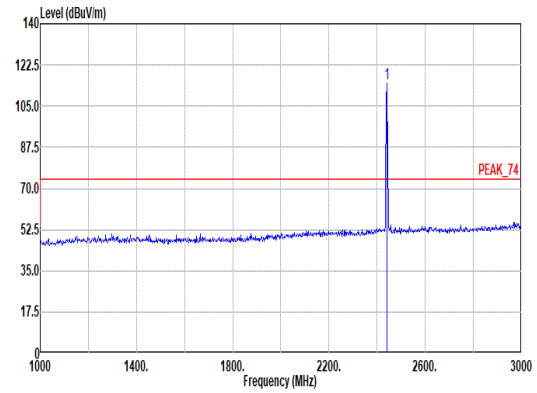
Mode	13	
	Band Edge - L	
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz	
ANT	3+4	
Pol.	Vertical	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

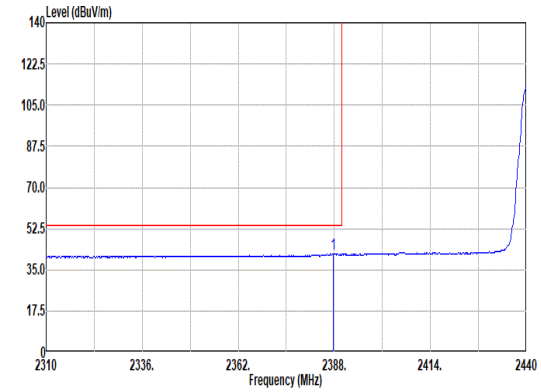
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2386.96	52.12	74.00	-21.88	45.07	27.47	6.73	37.08	9.93	292	99	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

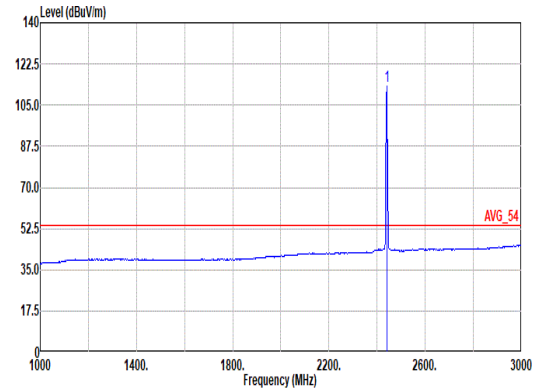
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2440.00	114.86	------	------	107.60	27.60	6.81	37.08	9.93	292	99	PEAK

Avg



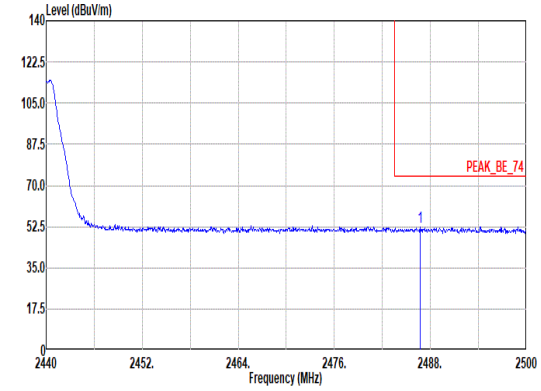
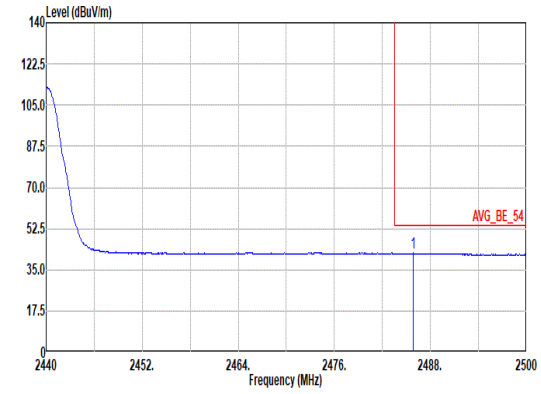
Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2387.74	41.73	54.00	-12.27	34.67	27.48	6.73	37.08	9.93	292	99	AVERAGE



Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

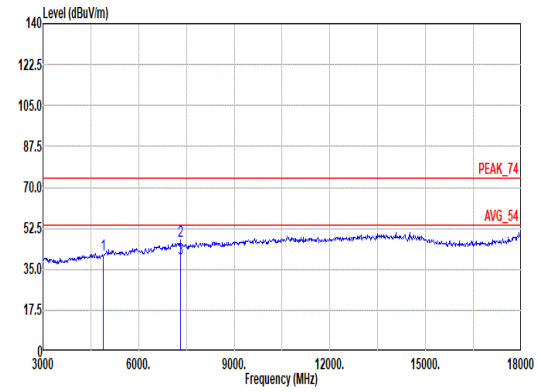
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2440.00	113.31	------	------	106.05	27.60	6.81	37.08	9.93	292	99	AVERAGE

Mode	13	
	Band Edge - R	
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz	
ANT	3+4	
Pol.	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition: PEAK_BE_74 3m HORN_9120D_1326 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2486.74 52.45 74.00 -21.55 44.92 27.80 6.87 37.07 9.93 292 99 PEAK	Blank
Avg	 Site : 03CH13-HY Condition: AVG_BE_54 3m HORN_9120D_1326 VERTICAL : RBW:1000.000kHz VBW:1.000kHz SWT:Auto Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2485.84 42.03 54.00 -11.97 34.50 27.80 6.87 37.07 9.93 292 99 AVERAGE	Blank

Mode	13	
	Harmonic	
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz	
ANT	3+4	
Pol.	Horizontal	Vertical

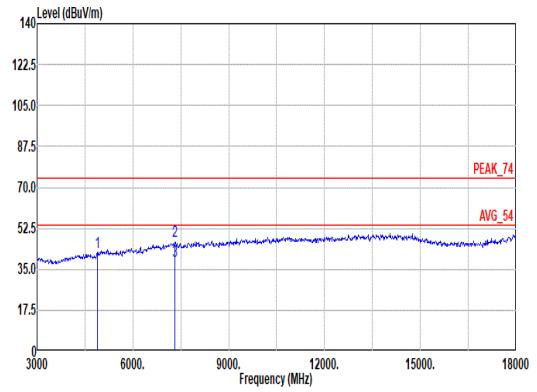
Peak

Avg



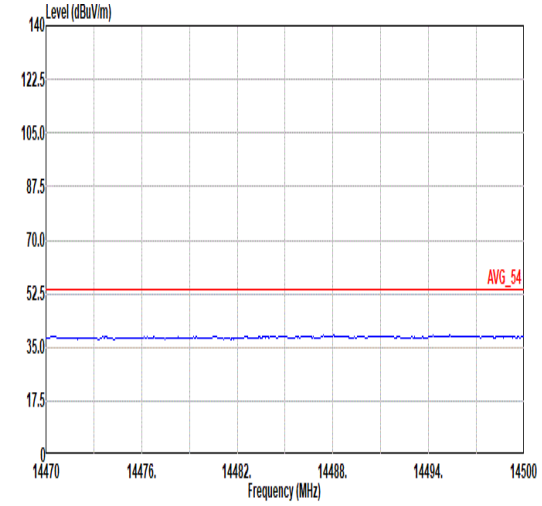
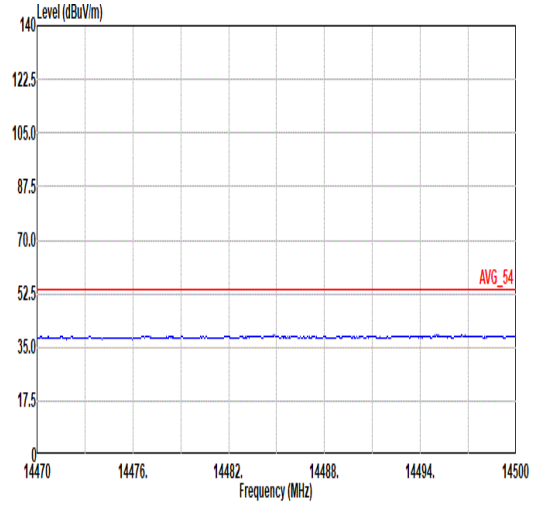
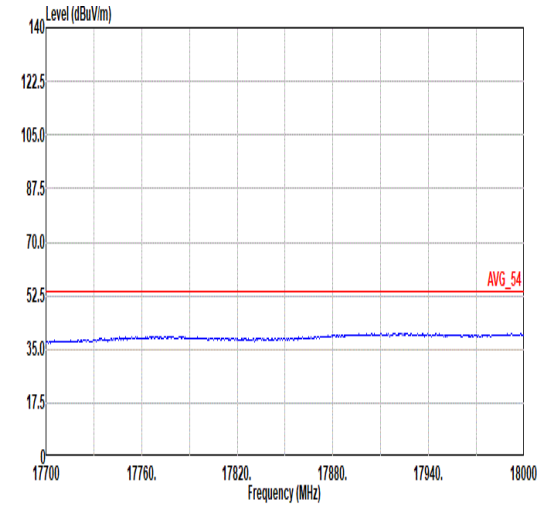
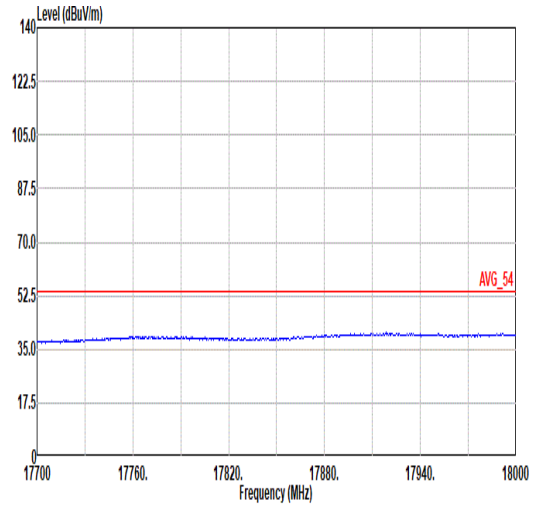
Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	4880.00	41.16	74.00	-32.84	55.19	32.72	9.81	57.27	0.71	--	--	PEAK
2	7320.00	46.96	74.00	-27.04	53.85	37.08	12.76	57.39	0.66	100	305	PEAK
3	7320.00	39.88	54.00	-14.12	46.77	37.08	12.76	57.39	0.66	100	305	Average



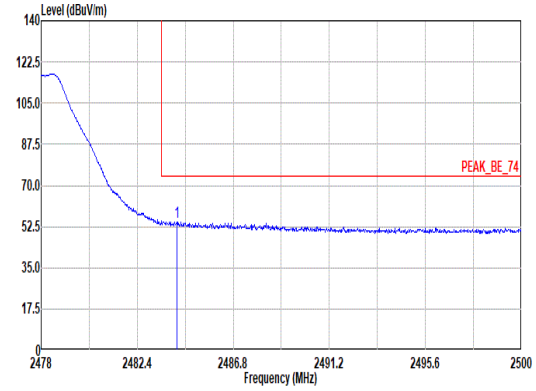
Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	4880.00	42.43	74.00	-31.57	56.46	32.72	9.81	57.27	0.71	--	--	PEAK
2	7320.00	46.80	74.00	-27.20	53.69	37.08	12.76	57.39	0.66	100	33	PEAK
3	7320.00	38.68	54.00	-15.32	45.57	37.08	12.76	57.39	0.66	100	33	Average

Mode	13	
	Harmonic	
	2400-2483.5_Bluetooth-LE_GFSK _CH19_2440MHz	
ANT	3+4	
Pol.	Horizontal	Vertical
14.47G ~14.5G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
17.7G ~18G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL

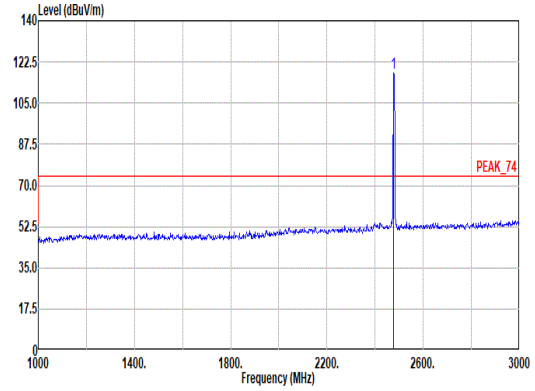
Mode	14	
	Band Edge	
	2400-2483.5_Bluetooth-LE_GFSK _CH38_2478MHz	
ANT	3+4	
Pol.	Horizontal	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

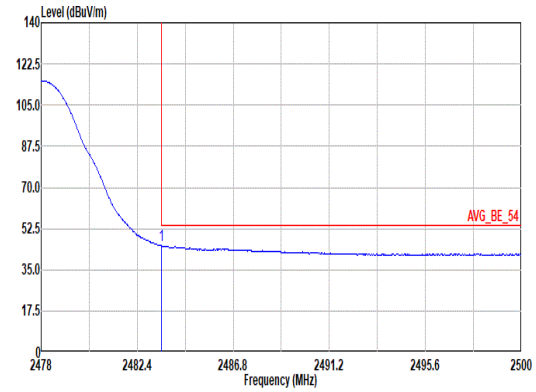
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2484.20	54.67	74.00	-19.33	47.14	27.80	6.87	37.07	9.93	107	146	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

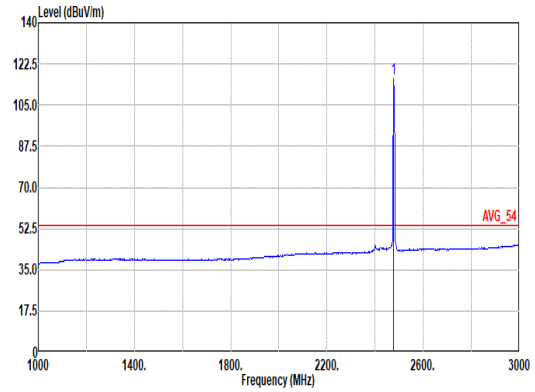
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2478.00	117.69	------	------	110.19	27.78	6.86	37.07	9.93	107	146	PEAK

Avg



Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2483.52	45.18	54.00	-8.82	37.65	27.80	6.87	37.07	9.93	107	146	AVERAGE

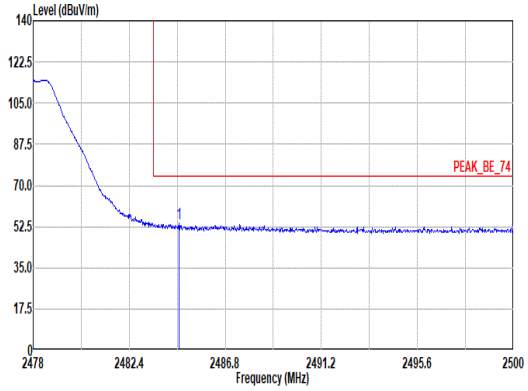


Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2478.00	116.08	------	------	108.58	27.78	6.86	37.07	9.93	107	146	AVERAGE

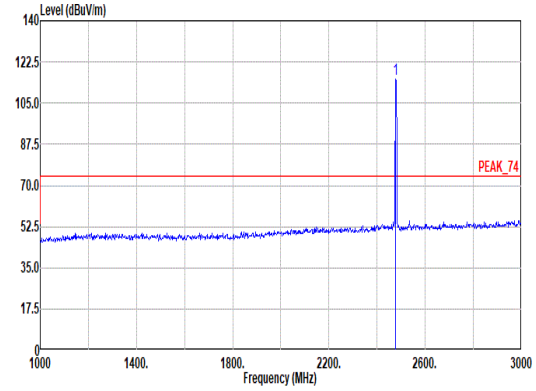
Mode	14	
	Band Edge	
	2400-2483.5_Bluetooth-LE_GFSK _CH38_2478MHz	
ANT	3+4	
Pol.	Vertical	Fundamental

Peak



Site : 03CH13-HY
Condition: PEAK_BE_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

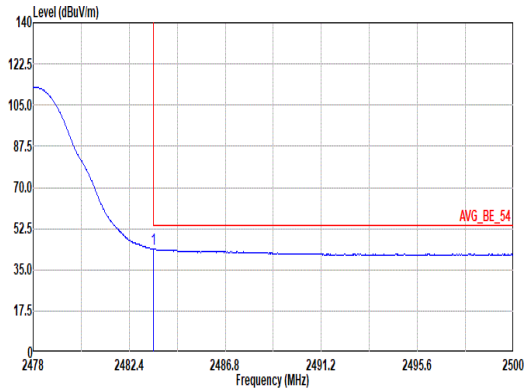
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2484.69	53.81	74.00	-20.19	46.28	27.80	6.87	37.07	9.93	320	56	PEAK



Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

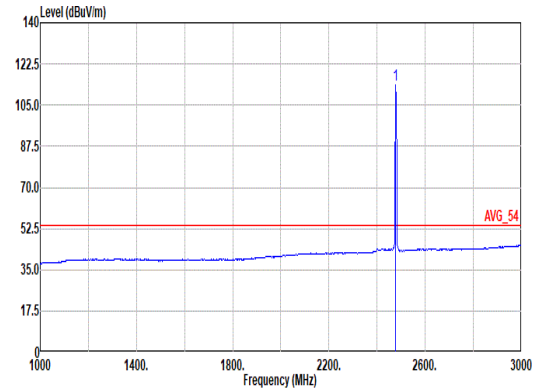
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2478.00	115.14	------	------	107.64	27.78	6.86	37.07	9.93	320	56	PEAK

Avg



Site : 03CH13-HY
Condition: AVG_BE_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

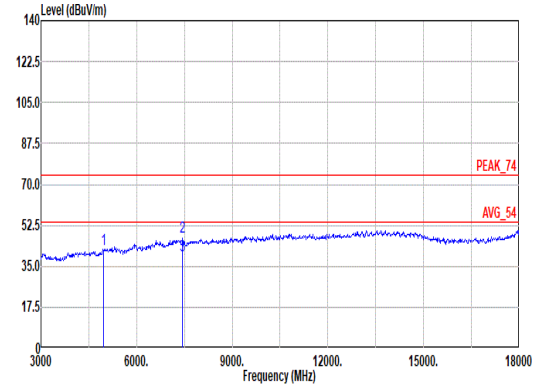
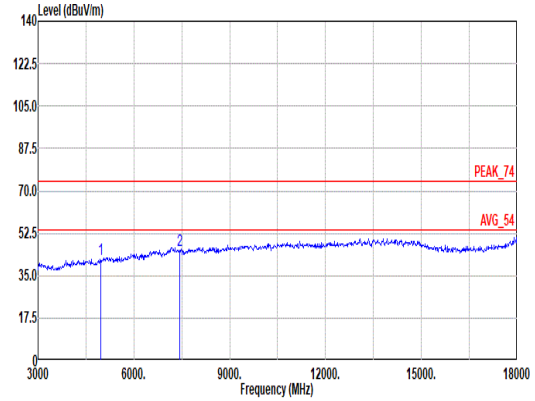
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2483.52	43.89	54.00	-10.11	36.36	27.80	6.87	37.07	9.93	320	56	AVERAGE



Site : 03CH13-HY
Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
: RBW:1000.000kHz VBW:1.000kHz SWT:Auto

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2478.00	113.61	------	------	106.11	27.78	6.86	37.07	9.93	320	56	AVERAGE

Mode	14
	Harmonic
	2400-2483.5_Bluetooth-LE_GFSK _CH38_2478MHz
ANT	3+4

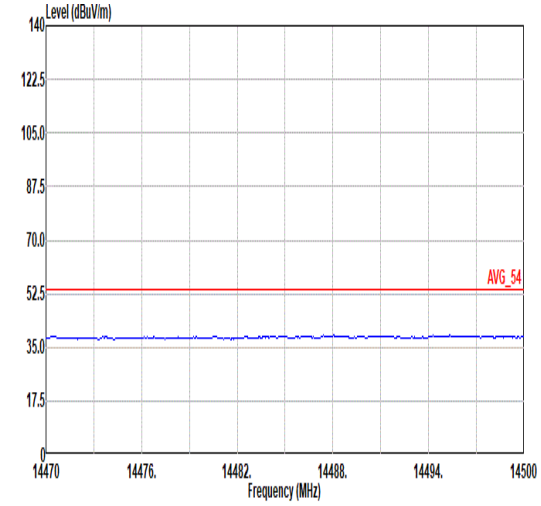
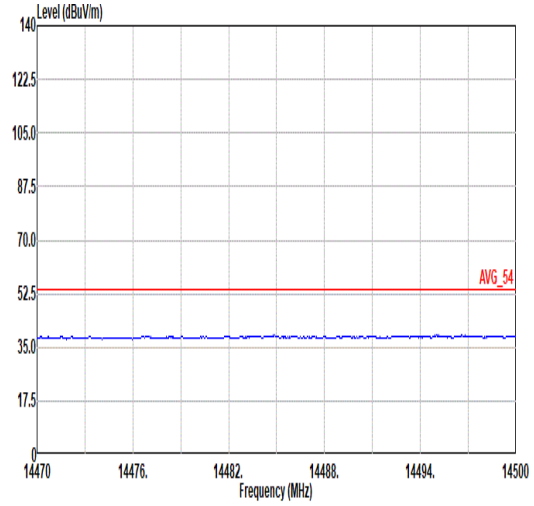
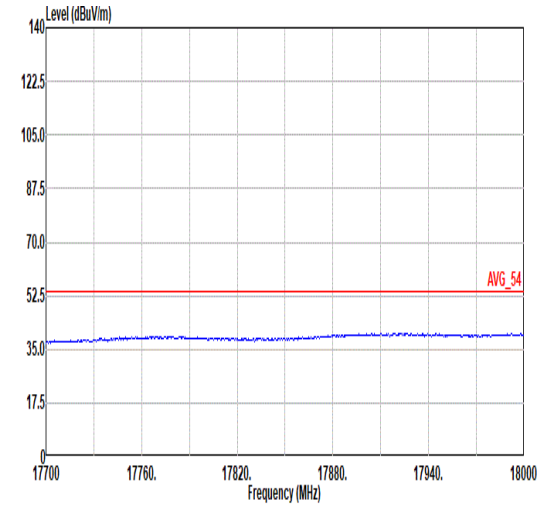
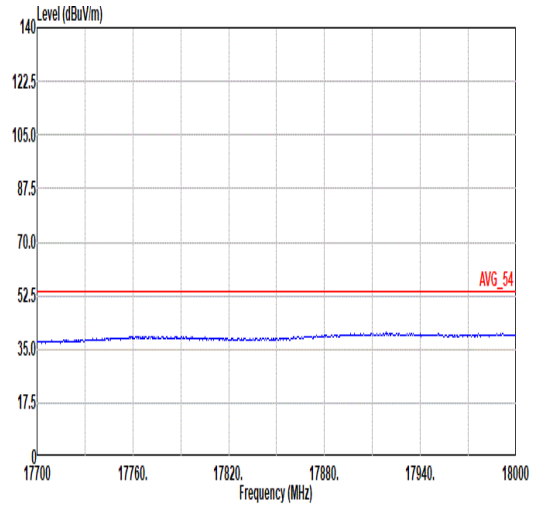
Pol.	Horizontal	Vertical
Peak Avg		

Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 HORIZONTAL

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	4956.00	42.41	74.00	-31.59	55.40	33.12	10.27	57.10	0.72	--	--	PEAK
2	7434.00	47.59	74.00	-26.41	55.16	36.53	12.84	57.61	0.67	212	286	PEAK
3	7434.00	39.36	54.00	-14.64	46.93	36.53	12.84	57.61	0.67	212	286	Average

Site : 03CH13-HY
Condition: PEAK_74 3m HORN_9120D_1326 VERTICAL

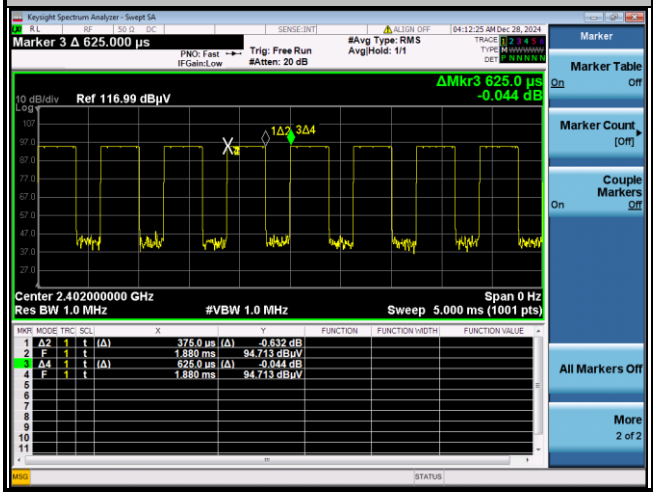
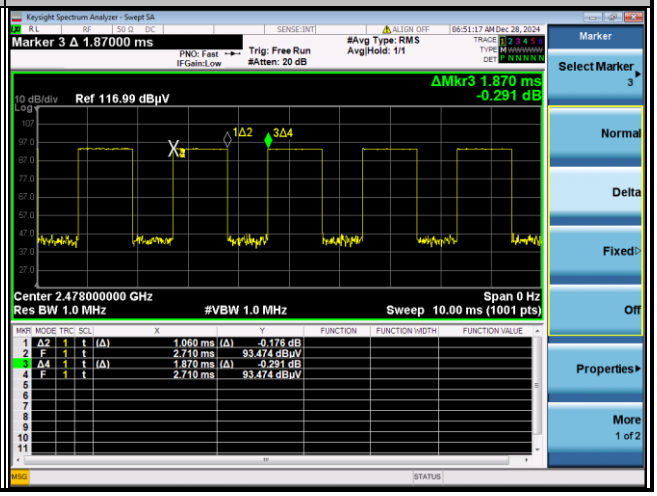
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	4956.00	41.55	74.00	-32.45	54.54	33.12	10.27	57.10	0.72	--	--	PEAK
2	7434.00	45.26	74.00	-28.74	52.83	36.53	12.84	57.61	0.67	--	--	PEAK

Mode	14	
	Harmonic	
	2400-2483.5_Bluetooth-LE_GFSK _CH38_2478MHz	
ANT	3+4	
Pol.	Horizontal	Vertical
14.47G ~14.5G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL
17.7G ~18G Avg	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 HORIZONTAL	 Site : 03CH13-HY Condition: AVG_54 3m HORN_9120D_1326 VERTICAL

Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle (%)	T(us)	1/T(kHz)	VBW Setting
3+4	Bluetooth - LE for 1Mbps	60.00	375.0	2.67	2.7 kHz
3+4	Bluetooth - LE for 2Mbps	56.68	1060.0	0.94	1 kHz

<Ant. 3+4>

Bluetooth – LE for 1Mbps	Bluetooth – LE for 2Mbps
	

———THE END———