FCC RADIO TEST REPORT

FCC ID	:	OEOM7218AMRM0
Equipment	:	ML7218A-GAIA-M0-PE11
Brand Name	:	TELINK SEMICONDUCTOR (SHANG HAI) CO., LTD.
Model Name	:	ML7218A-GAIA-M0-PE11
Applicant	:	TELINK SEMICONDUCTOR (SHANG HAI) CO., LTD. 10-11/F, Building 1, 61 Shengxia Road, PuDongDistrict,Shanghai, China 201203
Manufacturer	:	Dongguan Shengmengtai Surface Mount Technology Co.,Ltd Room 301, Building 7, No. 45 Kangyi Road, QingxiTown, Dongguan City
Standard	:	FCC Part 15 Subpart C §15.247

The product was received on Jun. 03, 2025 and testing was performed from Jun. 11, 2025 to Jun. 25, 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

Report No.	Version	Description	Issue Date
FR560345A	01	Initial issue of report	Jul. 08, 2025
FR560345A	02	Revised Appendix C. This report is an updated version, replacing the report issued on Jul. 08, 2025.	Jul. 17, 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: Danny Lee

Report Producer: Shannon Huang

1 General Description

1.1 Product Feature of Equipment Under Test

Product Specification is subject to this standard
General Specs Bluetooth, and Zigbee 2.4GHz **Antenna Type** Zigbee : PCB Antenna

Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	1.5

Remark: The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

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, 03CH23-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
- 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.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	11	2405	19	2445
	12	2410	20	2450
	13	2415	21	2455
	14	2420	22	2460
	15	2425	23	2465
	16	2430	24	2470
	17	2435	25	2475
	18	2440	26	2480

2.2 Test Mode

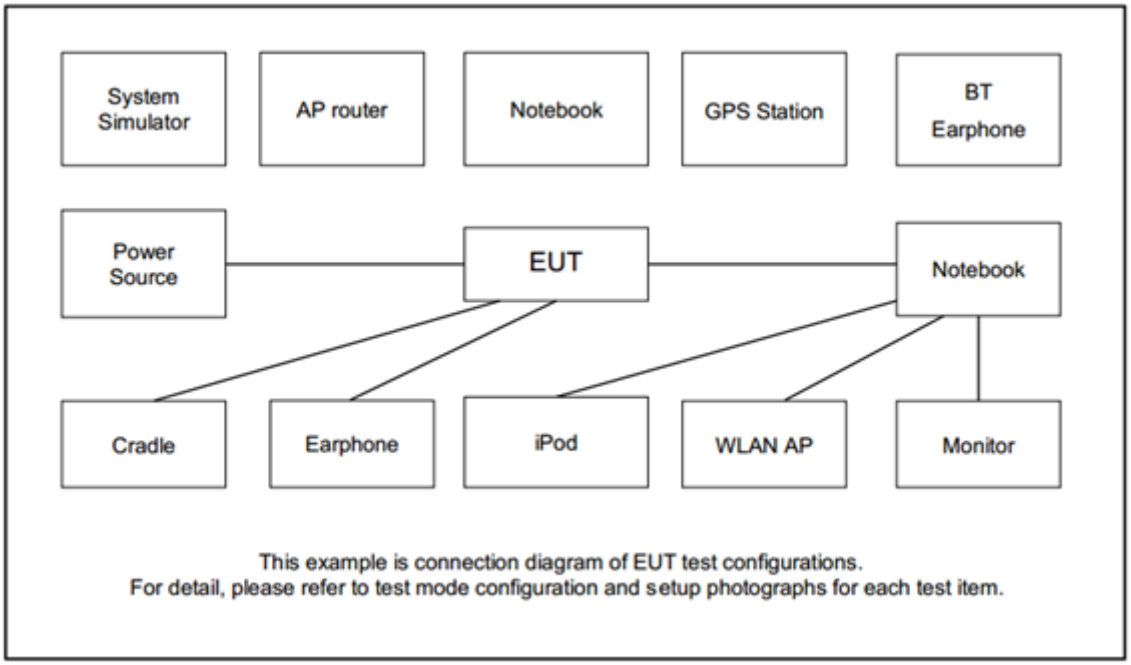
a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental 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 adjusting the measurement antenna orientation, following C63.10 exploratory test procedures.

b. 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	**Zigbee / O-QFSK**
	Mode 1: Zigbee Tx CH11_2405 MHz Mode 2: Zigbee Tx CH18_2440 MHz Mode 3: Zigbee Tx CH25_2475 MHz Mode 4: Zigbee Tx CH26_2480 MHz
AC Conducted Emission	Mode 1: Zigbee TX + Fixture with USB Cable(Charging from Notebook)
Remark: 1. For radiation spurious emission, the modulation and the data rate picked for testing are determined by the Max. RF conducted power. 2. The detailed Radiated test modes are shown in Appendix C.	

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC52	MSQ-RTAC4A00	N/A	Unshielded, 1.8m
2.	Notebook	Lenovo	IdeaPad Gaming 3 15IHU6	PD9AX201NG	N/A	AC I/P：Unshielded, 1.2m DC O/P：Shielded, 1.8m
3.	Notebook	Lenovo	81DE	FCC DoC	N/A	Unshielded, 1.8m
4.	iPod	Apple	A1199	FCC DoC	Shielded, 1.0m	N/A
5.	Fixture	TELINK SEMICONDUCTOR (SHANGHAI) CO., LTD.	Telink Burning EVK V3	N/A	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, utility BDT v5.8.3 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.

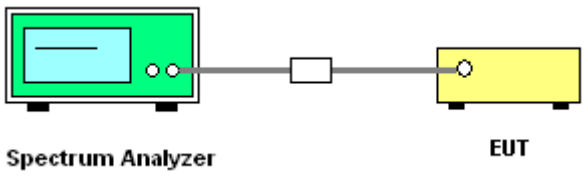
3.1.2 Measuring Instruments

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.

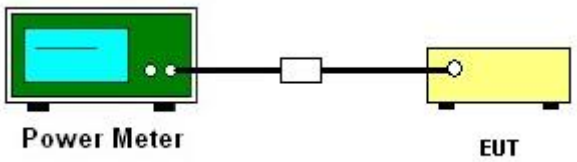
3.2.2 Measuring Instruments

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

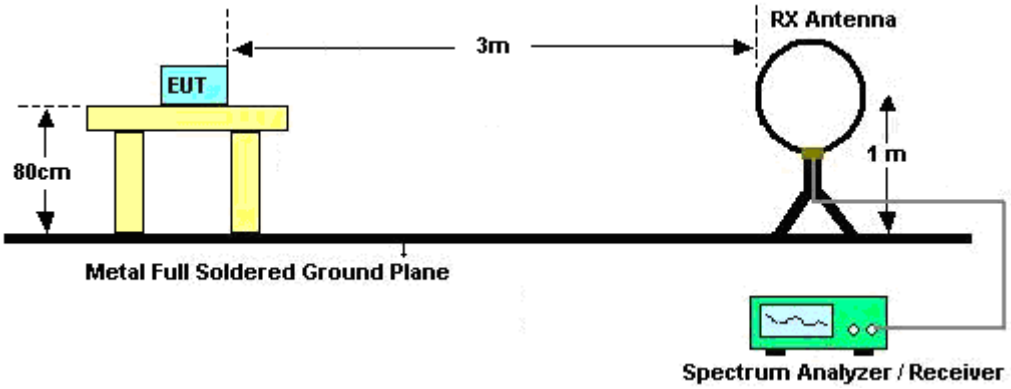
Please refer to the measuring equipment list in this test report.

3.5.3 Test Procedures

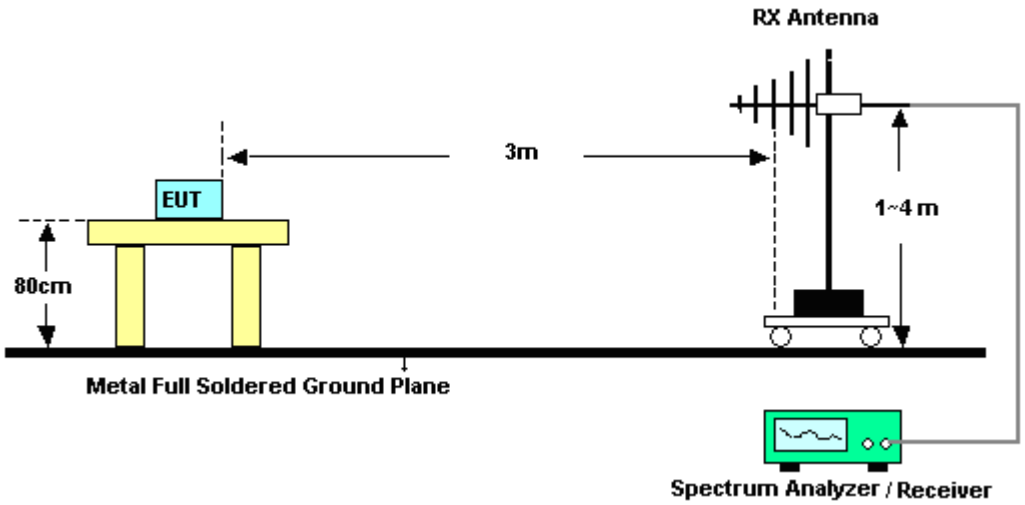
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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

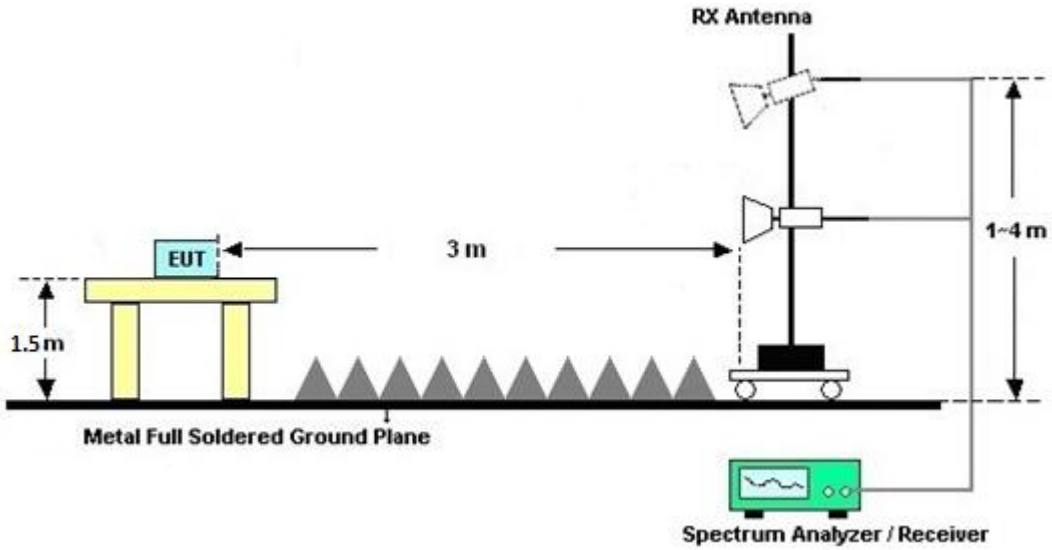
For radiated test below 30MHz



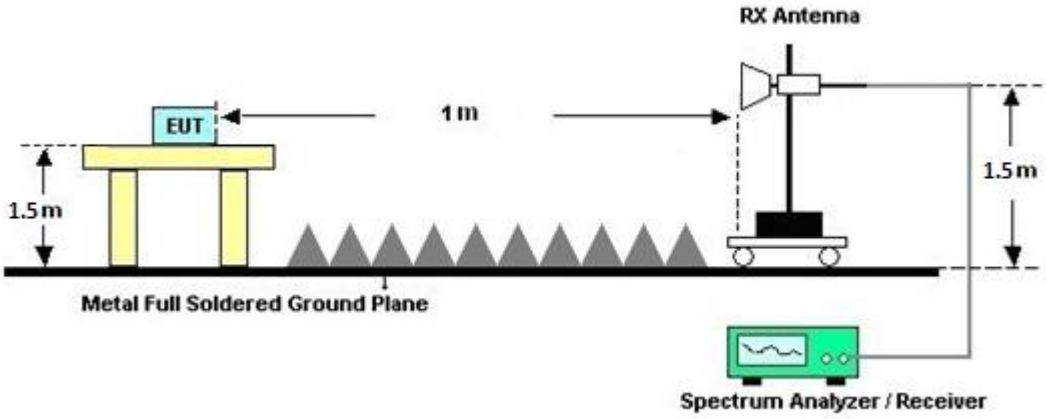
For radiated test from 30MHz to 1GHz



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.

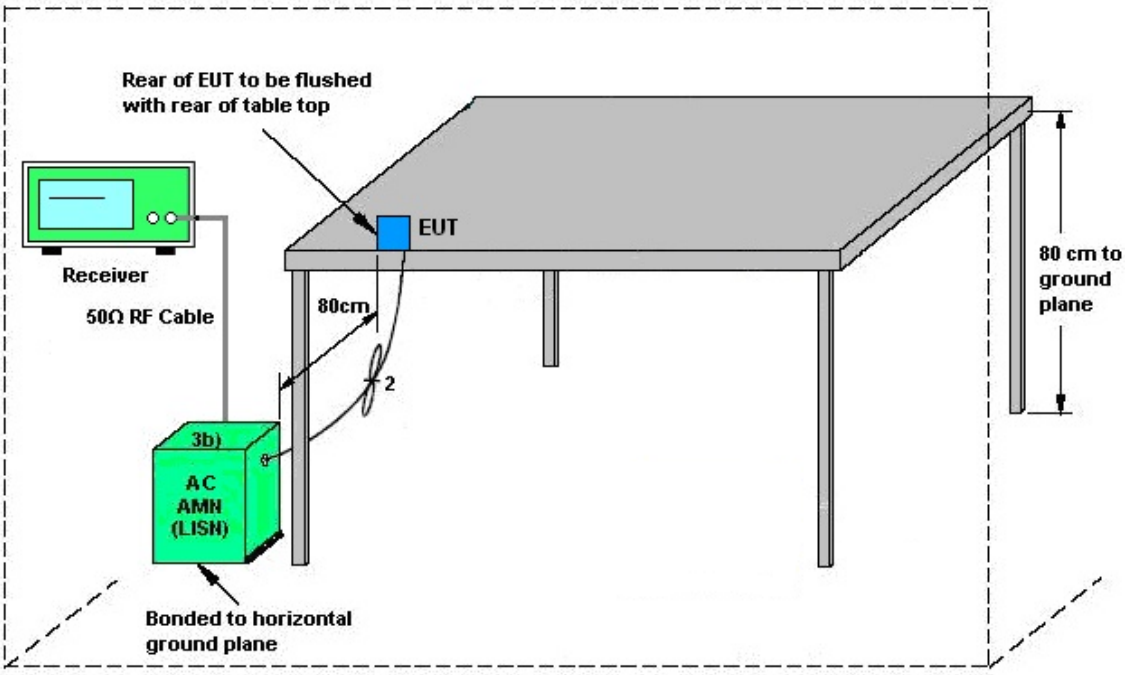
3.6.2 Measuring Instruments

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

Antenna permanently attached.

4 List of Measuring Equipment

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	Jun. 11, 2025~ Jun. 25, 2025	Oct. 31, 2025	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	13I00030SNO 31 (NO:182)	9kHz~6GHz	Jan. 09, 2025	Jun. 11, 2025~ Jun. 25, 2025	Jan. 08, 2026	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 23, 2024	Jun. 11, 2025~ Jun. 25, 2025	Aug. 22, 2025	Conducted (TH05-HY)
Switch Control Mainframe	E-Instrument	ETF-1405-0	EC1900157 (BOX6)	N/A	Feb. 10, 2025	Jun. 11, 2025~ Jun. 25, 2025	Feb. 09, 2026	Conducted (TH05-HY)
Software	Sporton	BTWIFI_Final_ version_240513	N/A	Conducted Other Test Item	N/A	Jun. 11, 2025~ Jun. 25, 2025	N/A	Conducted (TH05-HY)
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	Jun. 24, 2025~ Jun. 25, 2025	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Jun. 24, 2025~ Jun. 25, 2025	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBE CK	VTSD 9561-F N	9561-F N00373	9kHz-200MHz	Oct. 23, 2024	Jun. 24, 2025~ Jun. 25, 2025	Oct. 22, 2025	Conduction (CO07-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	Mar. 03, 2025	Jun. 24, 2025~ Jun. 25, 2025	Mar. 02, 2026	Conduction (CO07-HY)
Two-Line V-Network	TESEQ	NNB 51	45051	N/A	Mar. 24, 2025	Jun. 24, 2025~ Jun. 25, 2025	Mar. 23, 2026	Conduction (CO07-HY)
Four-Line V-Network	TESEQ	NNB 52	36122	N/A	Mar. 26, 2025	Jun. 24, 2025~ Jun. 25, 2025	Mar. 25, 2026	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102317	9kHz~3.6GHz	Sep. 23, 2024	Jun. 24, 2025~ Jun. 25, 2025	Sep. 22, 2025	Conduction (CO07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Aug. 29, 2024	Jun. 18, 2025~ Jun. 23, 2025	Aug. 28, 2025	Radiation (03CH23-HY)
Bilog Antenna	TESEQ & WOKEN	CBL 6111D & 00802N1D-06	62028 & 003	30MHz~1GHz	Nov. 27, 2024	Jun. 18, 2025~ Jun. 23, 2025	Nov. 26, 2025	Radiation (03CH23-HY)
Amplifier	SONOMA	310N	421582	9kHz~1GHz	Jul. 14, 2024	Jun. 18, 2025~ Jun. 23, 2025	Jul. 13, 2025	Radiation (03CH23-HY)
Amplifier	EMEC	EM01G18GA	060878	N/A	Sep. 27, 2024	Jun. 18, 2025~ Jun. 23, 2025	Sep. 26, 2025	Radiation (03CH23-HY)
Double Ridged Guide Horn Antenna	RFSPIN	DRH18-E	KV2D06A18E S	1GHz~18GHz	Oct. 25, 2024	Jun. 18, 2025~ Jun. 23, 2025	Oct. 24, 2025	Radiation (03CH23-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	1230	18GHz-40GHz	Oct. 25, 2024	Jun. 18, 2025~ Jun. 23, 2025	Oct. 24, 2025	Radiation (03CH23-HY)
Preamplifier	EMEC	EM18G40G	060873	18GHz~40GHz	Sep. 02, 2024	Jun. 18, 2025~ Jun. 23, 2025	Sep. 01, 2025	Radiation (03CH23-HY)
Signal Analyzer	Keysight	N9010B	MY62170337	N/A	Aug. 21, 2024	Jun. 18, 2025~ Jun. 23, 2025	Aug. 20, 2025	Radiation (03CH23-HY)
EMI Test Receiver	Keysight	N9038B	MY62210111	20Hz~8.4GHz	Sep. 03, 2024	Jun. 18, 2025~ Jun. 23, 2025	Sep. 02, 2025	Radiation (03CH23-HY)
Hygrometer	TECPEL	DTM-303A	TP211542	N/A	Oct. 21, 2024	Jun. 18, 2025~ Jun. 23, 2025	Oct. 20, 2025	Radiation (03CH23-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jun. 18, 2025~ Jun. 23, 2025	N/A	Radiation (03CH23-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jun. 18, 2025~ Jun. 23, 2025	N/A	Radiation (03CH23-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jun. 18, 2025~ Jun. 23, 2025	N/A	Radiation (03CH23-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Software	Audix	E3 6.09824_2019 122	RK-002348	N/A	N/A	Jun. 18, 2025~ Jun. 23, 2025	N/A	Radiation (03CH23-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804395/2	N/A	Nov. 26, 2024	Jun. 18, 2025~ Jun. 23, 2025	Nov. 25, 2025	Radiation (03CH23-HY)
RF Cable	EMC	EMC101Y	231115/231119/231122	N/A	Nov. 26, 2024	Jun. 18, 2025~ Jun. 23, 2025	Nov. 25, 2025	Radiation (03CH23-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))	**6.6 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.4 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))	**5.7 dB**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Mina Liu	Temperature:	21~25	°C
Test Date:	2025/6/11~2025/6/23	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
Zigbee	250kbps	1	11	2405	2.329	1.524	0.50	Pass
Zigbee	250kbps	1	18	2440	2.329	1.475	0.50	Pass
Zigbee	250kbps	1	25	2475	2.334	1.461	0.50	Pass
Zigbee	250kbps	1	26	2480	2.325	1.461	0.50	Pass

TEST RESULTS DATA
Average Power Table

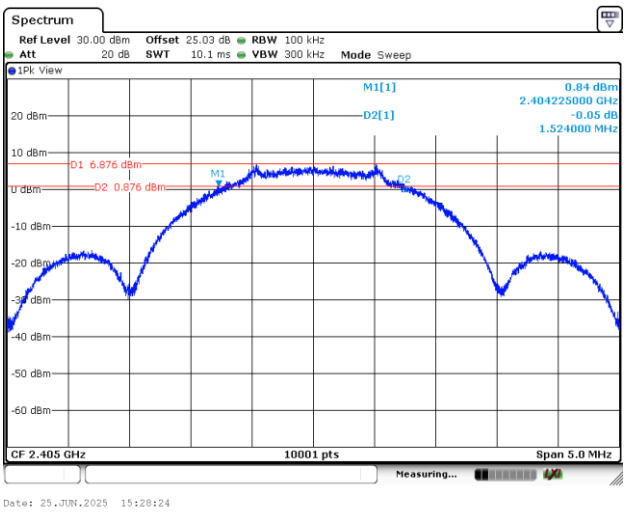
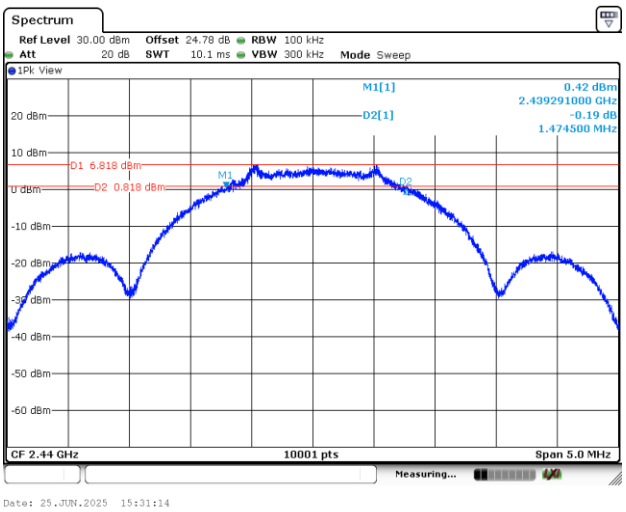
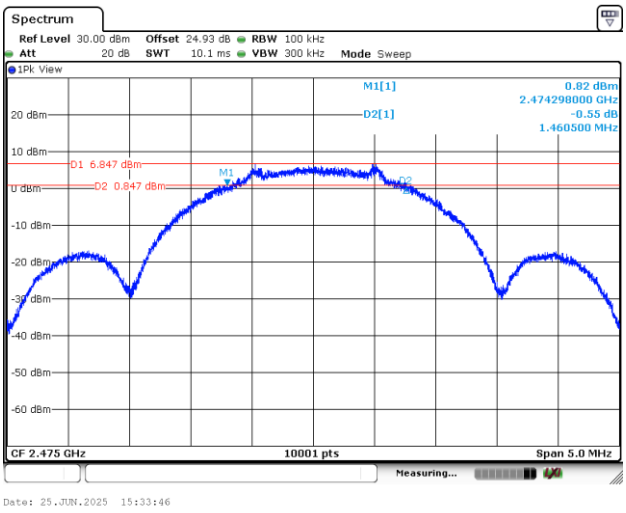
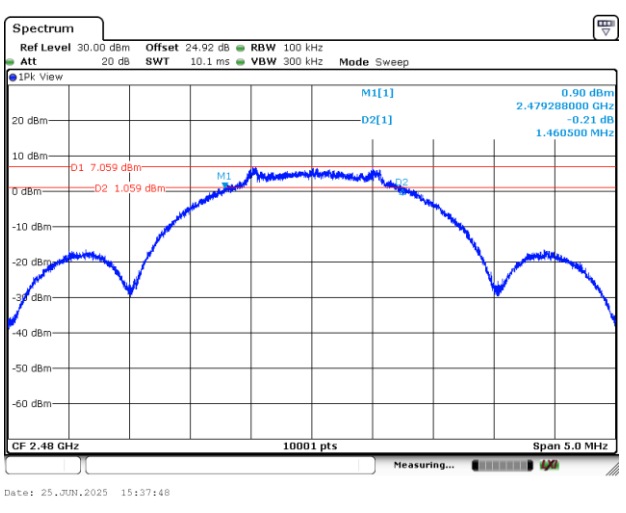
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
Zigbee	250kbps	1	11	2405	8.18	30.00	1.50	9.68	36.00	Pass
Zigbee	250kbps	1	18	2440	8.00	30.00	1.50	9.50	36.00	Pass
Zigbee	250kbps	1	25	2475	8.01	30.00	1.50	9.51	36.00	Pass
Zigbee	250kbps	1	26	2480	8.12	30.00	1.50	9.62	36.00	Pass

TEST RESULTS DATA
Peak Power Density

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
Zigbee	250kbps	1	11	2405	7.05	-4.41	1.50	8.00	Pass
Zigbee	250kbps	1	18	2440	7.83	-4.74	1.50	8.00	Pass
Zigbee	250kbps	1	25	2475	6.95	-4.11	1.50	8.00	Pass
Zigbee	250kbps	1	26	2480	7.13	-4.61	1.50	8.00	Pass

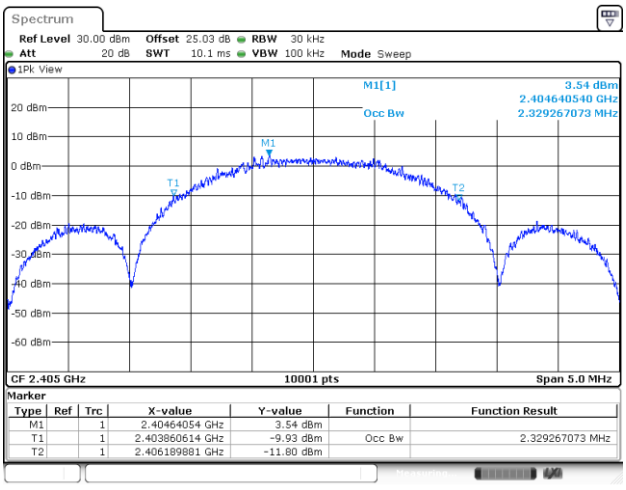
Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 30dBc limit.

6dB Bandwidth

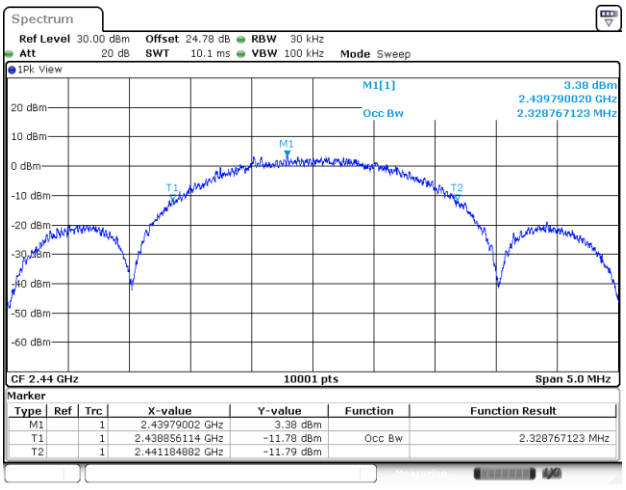
6 dB Bandwidth Plot on Channel 11	6 dB Bandwidth Plot on Channel 18
	
6 dB Bandwidth Plot on Channel 25	**6 dB Bandwidth Plot on Channel 26**
	

99% Occupied Bandwidth

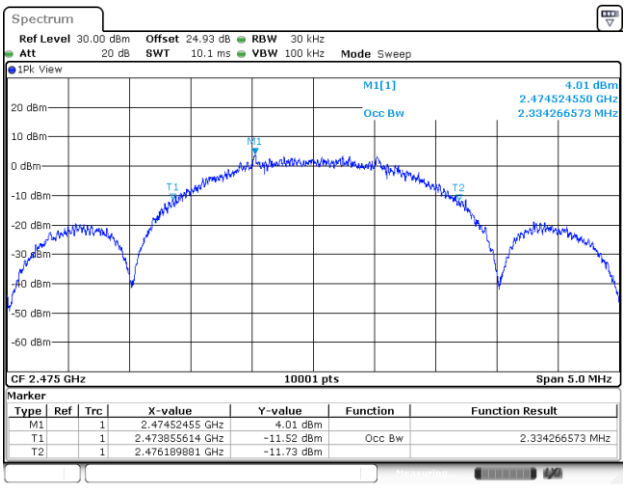
99% Occupied Bandwidth Plot on Channel 11



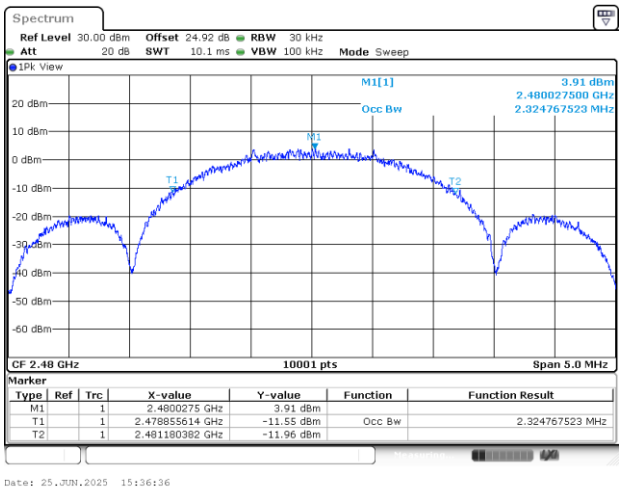
99% Occupied Bandwidth Plot on Channel 18



99% Occupied Bandwidth Plot on Channel 25

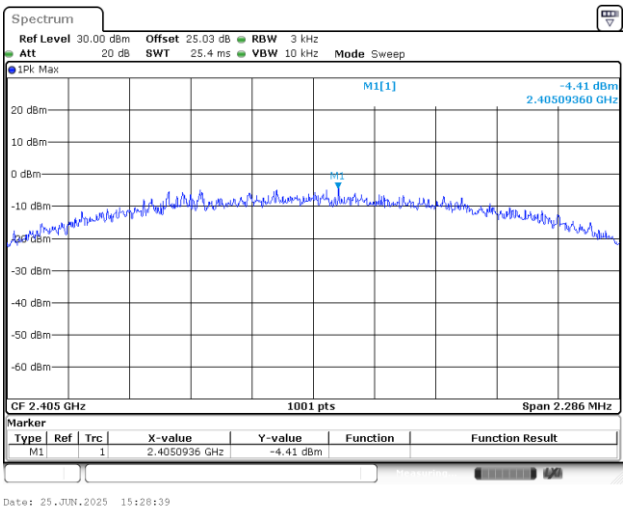


99% Occupied Bandwidth Plot on Channel 26

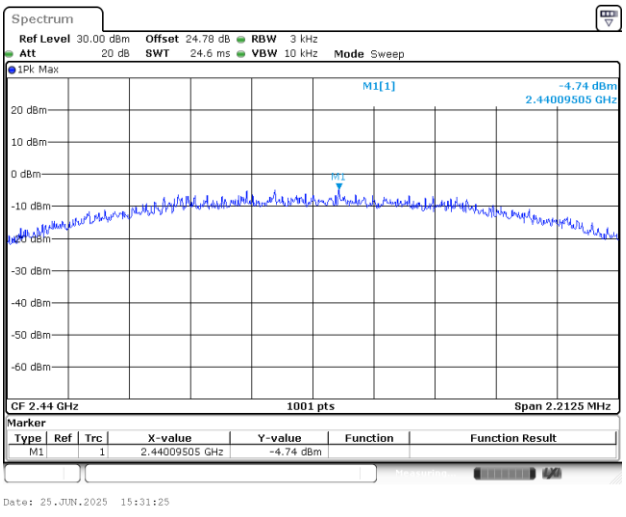


Power Spectral Density (dBm/3kHz)

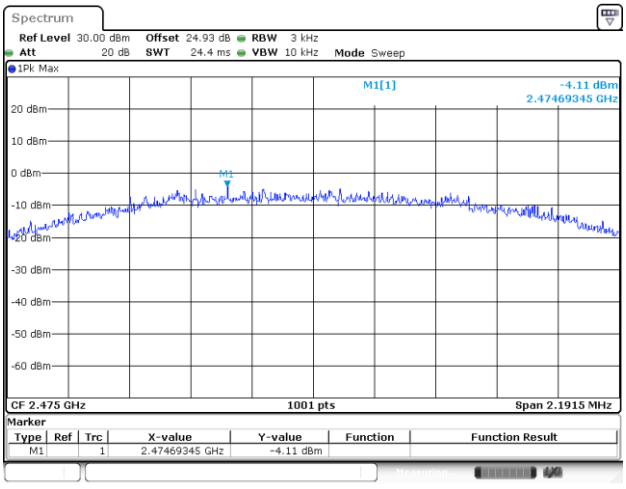
Power Density (dBm/3kHz) Plot Channel 11



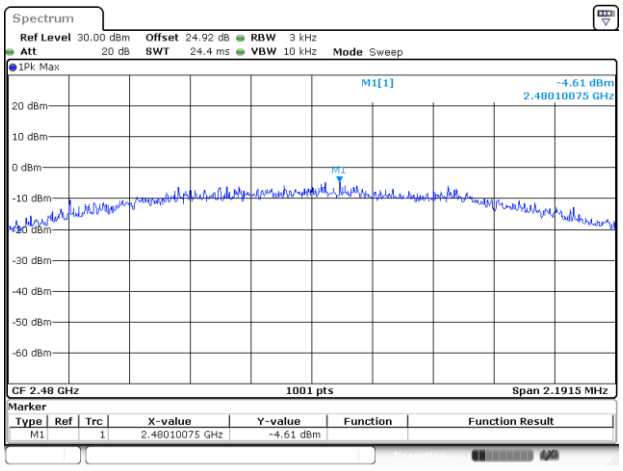
Power Density (dBm/3kHz) Plot Channel 18



Power Density (dBm/3kHz) Plot Channel 25



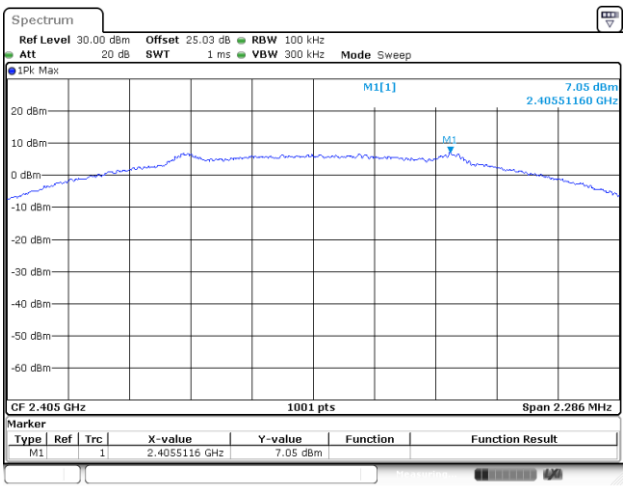
Power Density (dBm/3kHz) Plot Channel 26



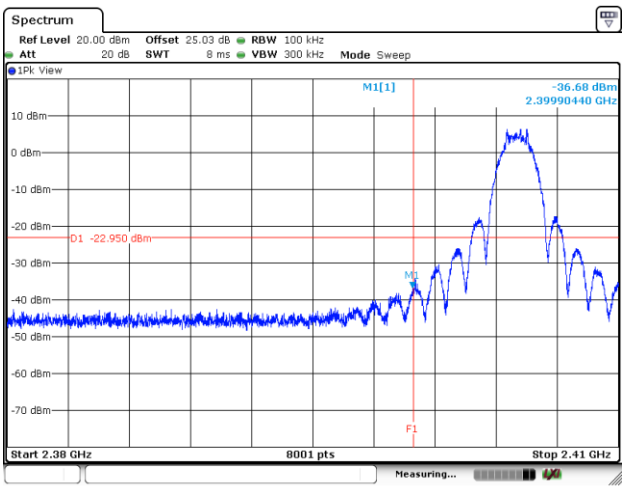
Band Edge and Conducted Spurious Emission

Channel 11

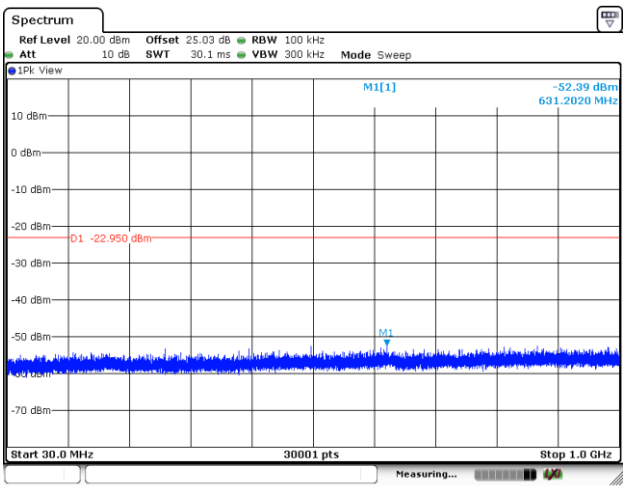
100kHz PSD reference Level Plot



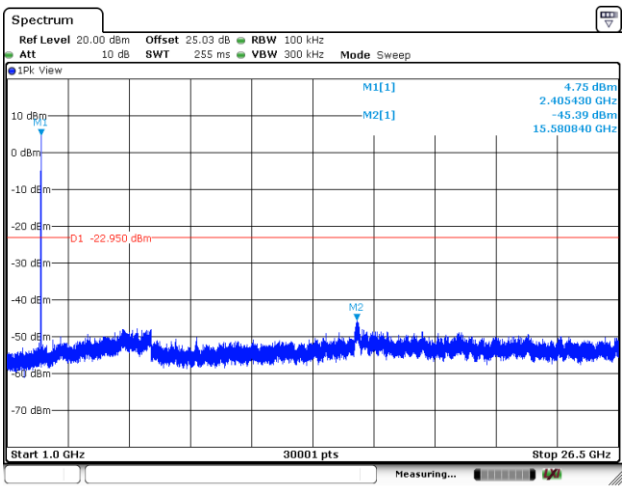
Plot on Channel 11

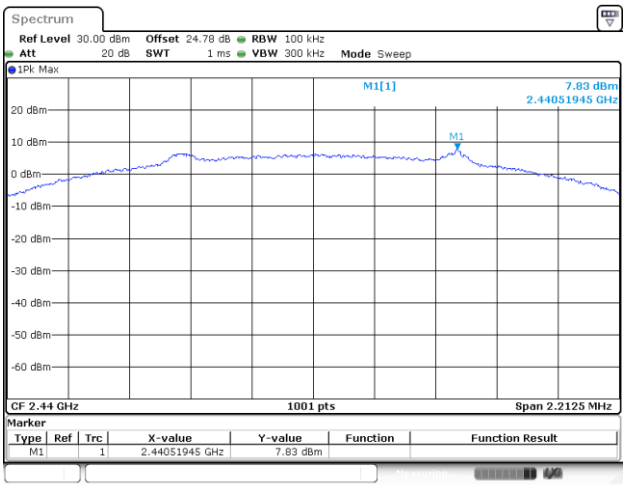
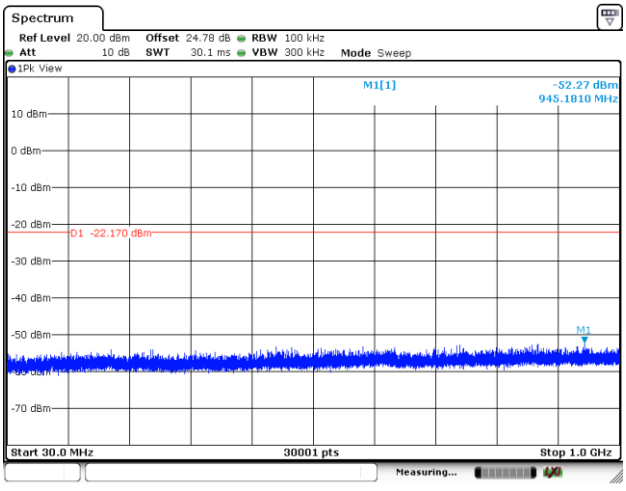
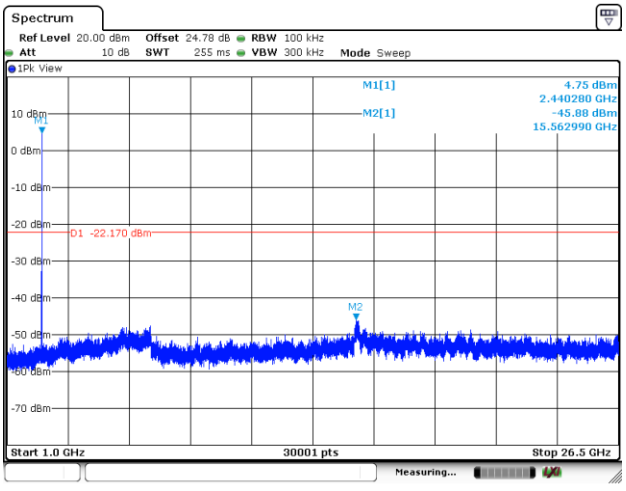


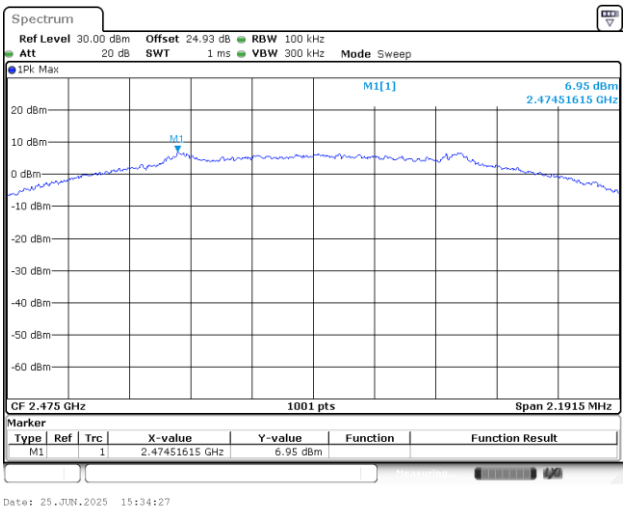
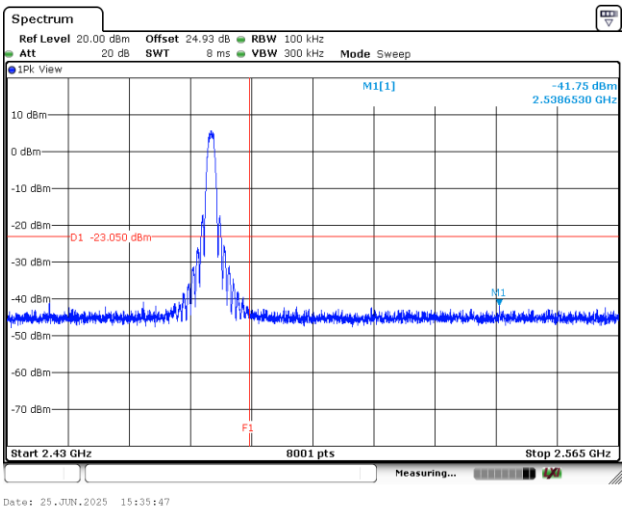
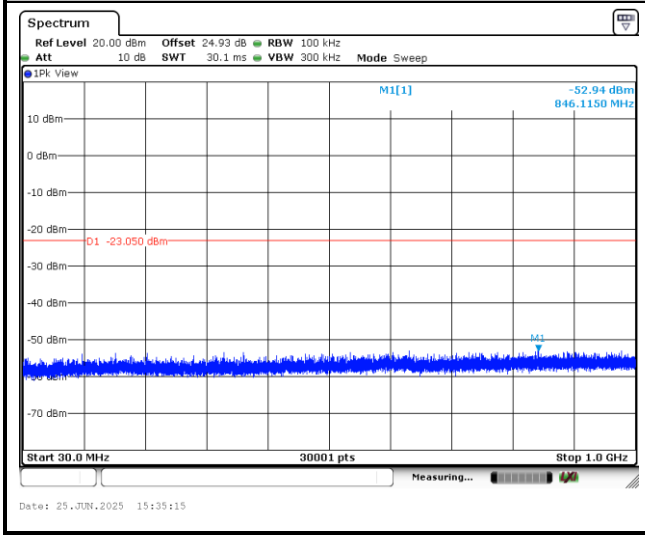
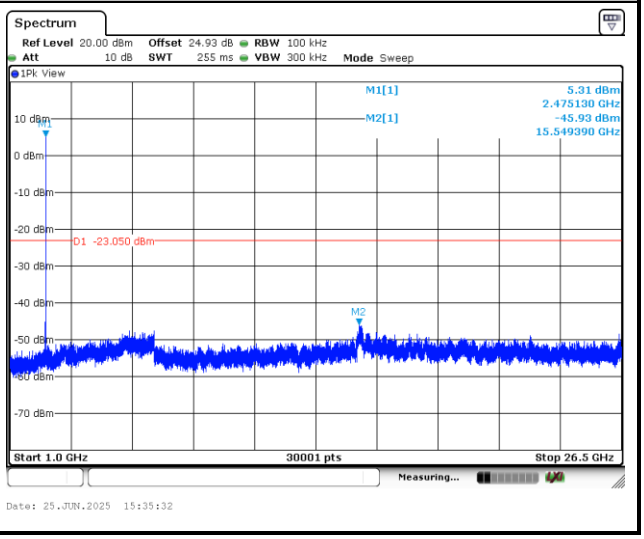
Spurious Emission 30MHz~1GHz Plot



Spurious Emission 1GHz~26.5GHz Plot

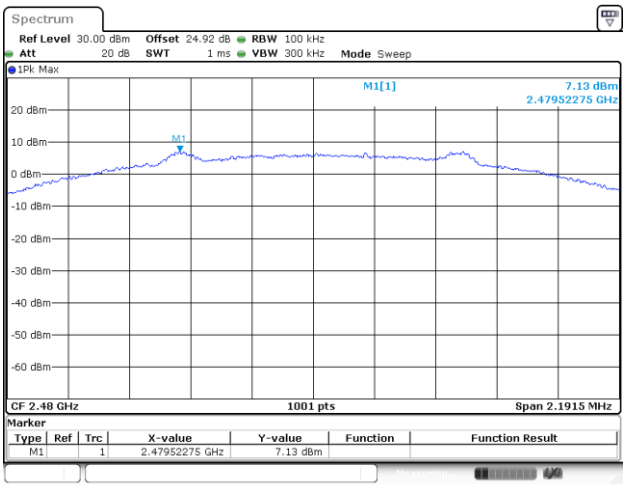


Channel 18	
100kHz PSD reference Level Plot	
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

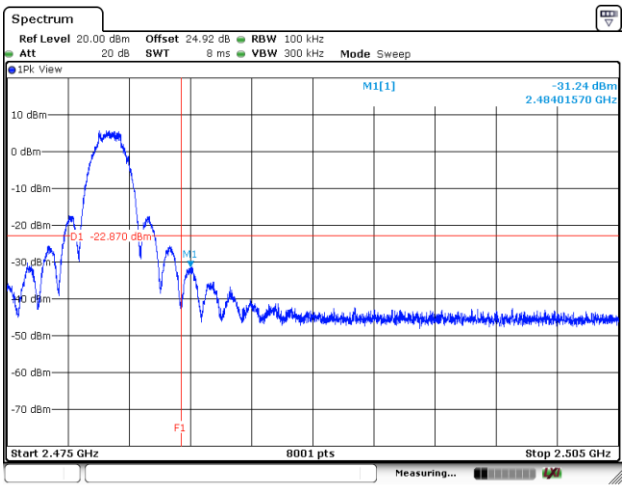
Channel 25	
100kHz PSD reference Level Plot	**Plot on Channel 25**
	
Spurious Emission 30MHz~1GHz Plot	**Spurious Emission 1GHz~26.5GHz Plot**
	

Channel 26

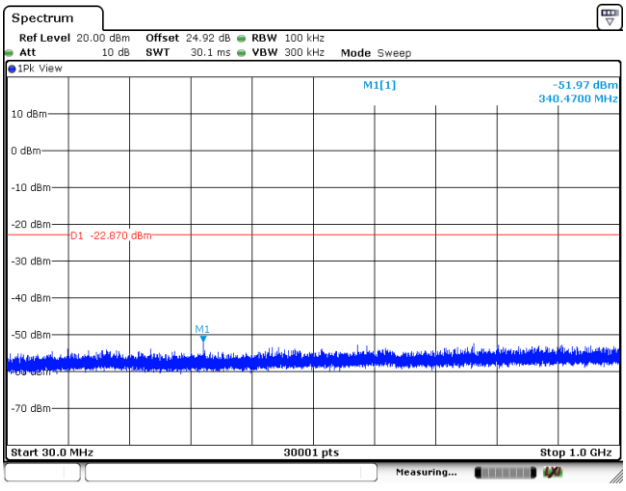
100kHz PSD reference Level Plot



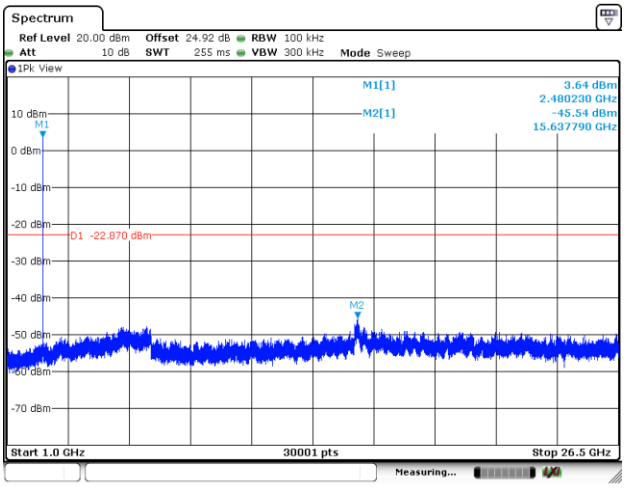
Plot on Channel 26



Spurious Emission 30MHz~1GHz Plot



Spurious Emission 1GHz~26.5GHz Plot

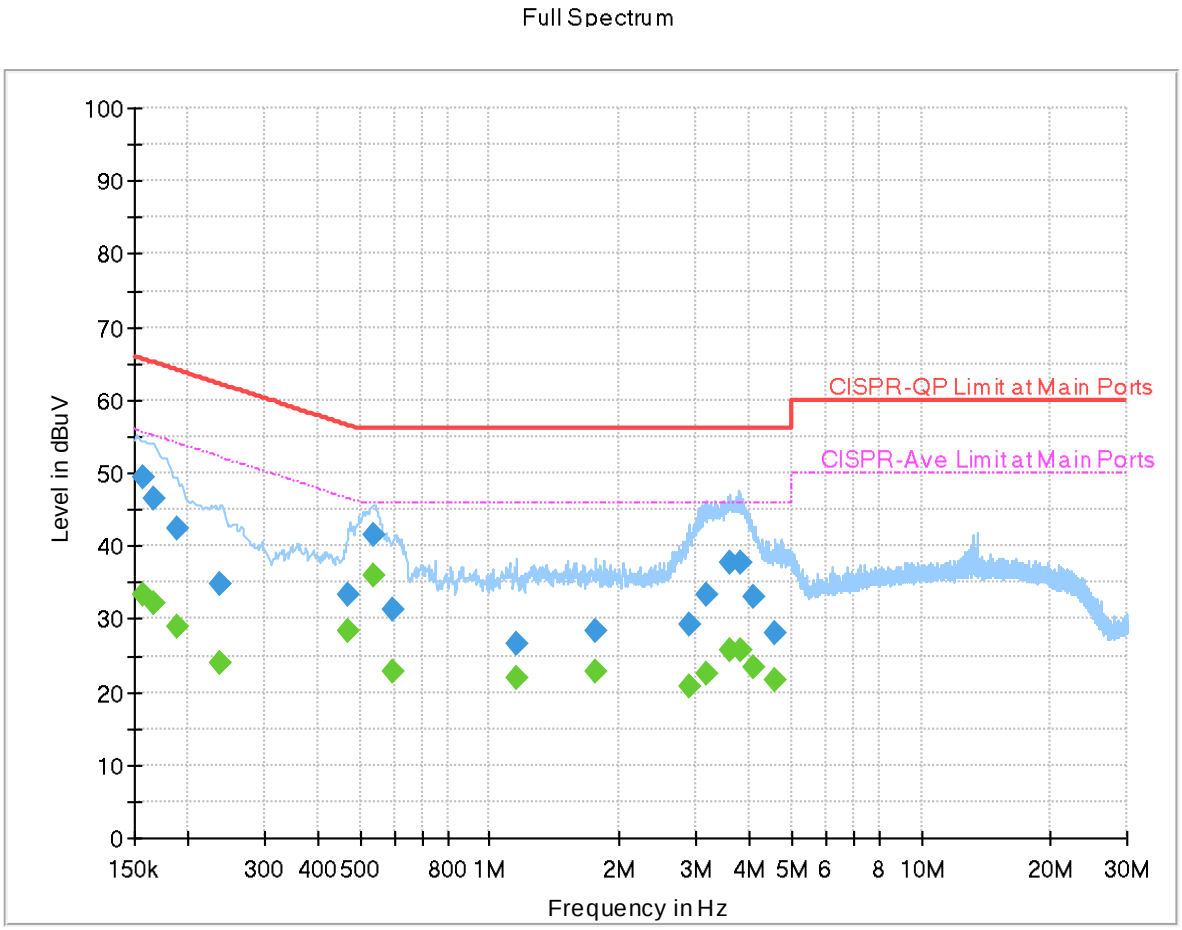


Appendix B. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	**Temperature :**	23.7 ~ 26.6 ℃
		Relative Humidity :	48.2 ~ 57.3 %

EUT Information

Report NO :	560345
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line



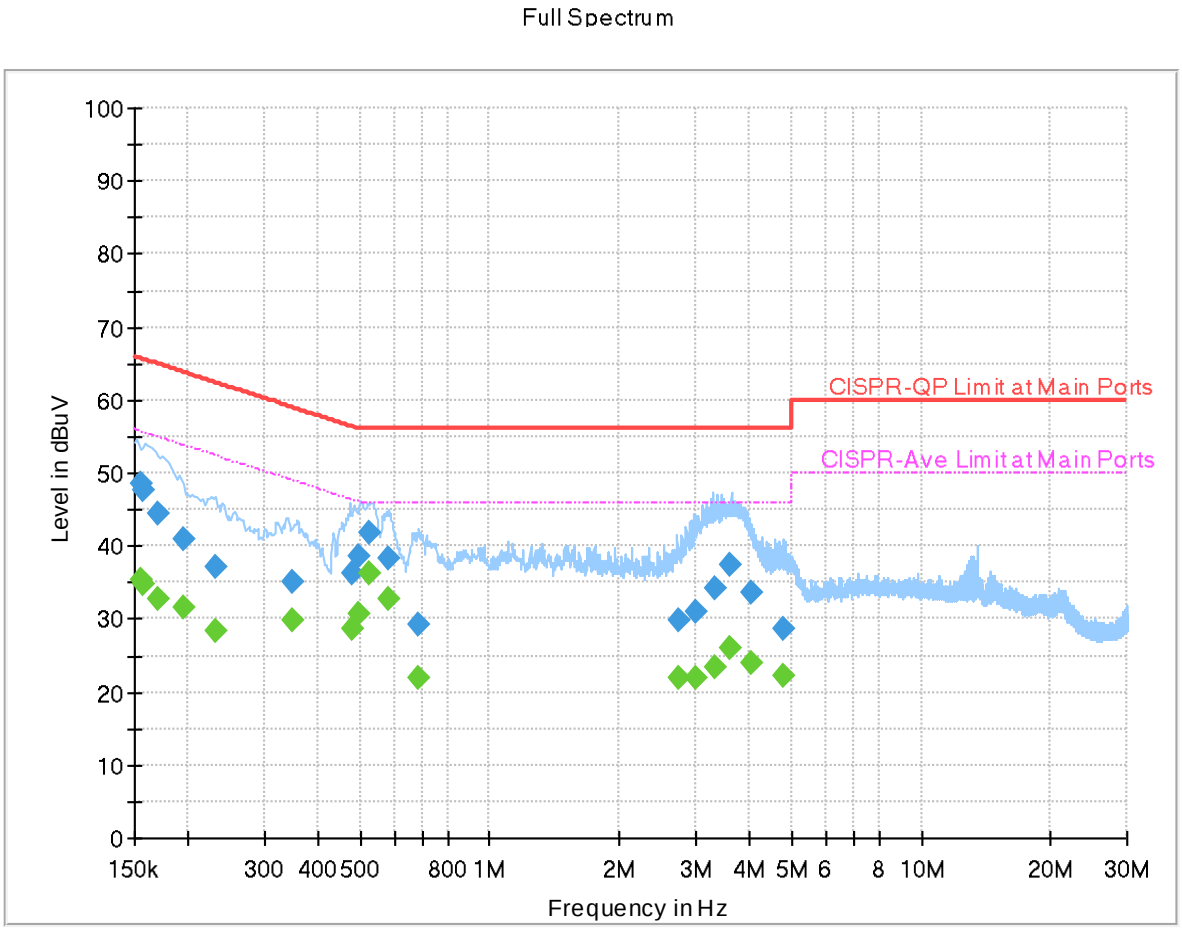
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	PE	Corr. (dB)
0.156750	---	33.26	55.63	22.37	L1	FLO	20.0
0.156750	49.35	---	65.63	16.28	L1	FLO	20.0
0.166830	---	32.23	55.12	22.89	L1	FLO	20.0
0.166830	46.41	---	65.12	18.71	L1	FLO	20.0
0.188250	---	29.05	54.11	25.06	L1	FLO	20.0
0.188250	42.29	---	64.11	21.82	L1	FLO	20.0
0.237390	---	23.94	52.19	28.25	L1	FLO	20.0
0.237390	34.76	---	62.19	27.43	L1	FLO	20.0
0.470040	---	28.35	46.51	18.16	L1	FLO	20.0
0.470040	33.21	---	56.51	23.30	L1	FLO	20.0
0.534750	---	36.09	46.00	9.91	L1	FLO	20.0
0.534750	41.57	---	56.00	14.43	L1	FLO	20.0
0.598560	---	22.79	46.00	23.21	L1	FLO	20.0
0.598560	31.24	---	56.00	24.76	L1	FLO	20.0
1.150350	---	21.91	46.00	24.09	L1	FLO	20.0
1.150350	26.55	---	56.00	29.45	L1	FLO	20.0
1.764420	---	22.68	46.00	23.32	L1	FLO	20.0
1.764420	28.43	---	56.00	27.57	L1	FLO	20.0
2.904000	---	20.70	46.00	25.30	L1	FLO	20.1

2.904000	**29.34**	**---**	**56.00**	**26.66**	**L1**	**FLO**	**20.1**
3.185250	**---**	**22.64**	**46.00**	**23.36**	**L1**	**FLO**	**20.1**
3.185250	**33.26**	**---**	**56.00**	**22.74**	**L1**	**FLO**	**20.1**
3.597000	**---**	**25.75**	**46.00**	**20.25**	**L1**	**FLO**	**20.1**
3.597000	**37.83**	**---**	**56.00**	**18.17**	**L1**	**FLO**	**20.1**
3.797250	**---**	**25.76**	**46.00**	**20.24**	**L1**	**FLO**	**20.1**
3.797250	**37.61**	**---**	**56.00**	**18.39**	**L1**	**FLO**	**20.1**
4.105500	**---**	**23.44**	**46.00**	**22.56**	**L1**	**FLO**	**20.1**
4.105500	**32.99**	**---**	**56.00**	**23.01**	**L1**	**FLO**	**20.1**
4.572870	**---**	**21.60**	**46.00**	**24.40**	**L1**	**FLO**	**20.2**
4.572870	**28.18**	**---**	**56.00**	**27.82**	**L1**	**FLO**	**20.2**

EUT Information

Report NO :	560345
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	PE	Corr. (dB)
0.154500	---	35.28	55.75	20.47	N	FLO	20.0
0.154500	48.63	---	65.75	17.12	N	FLO	20.0
0.156750	---	34.85	55.63	20.78	N	FLO	20.0
0.156750	47.65	---	65.63	17.98	N	FLO	20.0
0.170340	---	32.66	54.94	22.28	N	FLO	20.0
0.170340	44.59	---	64.94	20.35	N	FLO	20.0
0.195000	---	31.47	53.82	22.35	N	FLO	20.0
0.195000	40.85	---	63.82	22.97	N	FLO	20.0
0.230100	---	28.24	52.45	24.21	N	FLO	20.0
0.230100	37.27	---	62.45	25.18	N	FLO	20.0
0.349620	---	29.72	48.97	19.25	N	FLO	20.0
0.349620	35.08	---	58.97	23.89	N	FLO	20.0
0.480750	---	28.79	46.33	17.54	N	FLO	20.0
0.480750	36.25	---	56.33	20.08	N	FLO	20.0
0.496500	---	30.79	46.06	15.27	N	FLO	20.0
0.496500	38.65	---	56.06	17.41	N	FLO	20.0
0.526830	---	36.18	46.00	9.82	N	FLO	20.0
0.526830	41.78	---	56.00	14.22	N	FLO	20.0
0.581100	---	32.76	46.00	13.24	N	FLO	20.0

0.581100	**38.44**	**---**	**56.00**	**17.56**	**N**	**FLO**	**20.0**
0.679830	**---**	**22.07**	**46.00**	**23.93**	**N**	**FLO**	**20.0**
0.679830	**29.33**	**---**	**56.00**	**26.67**	**N**	**FLO**	**20.0**
2.726250	**---**	**21.95**	**46.00**	**24.05**	**N**	**FLO**	**20.1**
2.726250	**29.68**	**---**	**56.00**	**26.32**	**N**	**FLO**	**20.1**
2.988330	**---**	**21.89**	**46.00**	**24.11**	**N**	**FLO**	**20.1**
2.988330	**31.01**	**---**	**56.00**	**24.99**	**N**	**FLO**	**20.1**
3.309000	**---**	**23.43**	**46.00**	**22.57**	**N**	**FLO**	**20.1**
3.309000	**34.34**	**---**	**56.00**	**21.66**	**N**	**FLO**	**20.1**
3.622380	**---**	**26.12**	**46.00**	**19.88**	**N**	**FLO**	**20.1**
3.622380	**37.46**	**---**	**56.00**	**18.54**	**N**	**FLO**	**20.1**
4.049250	**---**	**24.01**	**46.00**	**21.99**	**N**	**FLO**	**20.1**
4.049250	**33.60**	**---**	**56.00**	**22.40**	**N**	**FLO**	**20.1**
4.776000	**---**	**22.33**	**46.00**	**23.67**	**N**	**FLO**	**20.2**
4.776000	**28.54**	**---**	**56.00**	**27.46**	**N**	**FLO**	**20.2**

Appendix C Radiated Spurious Emission Test Data

Test Engineer :	Leo Li, Karl Hou, and Lucifer Jiang	**Relative Humidity(%):**	56.2 ~ 58.7
		Temperature(℃):	20.9 ~ 21.3

C1. Radiated Spurious Emission Test Modes

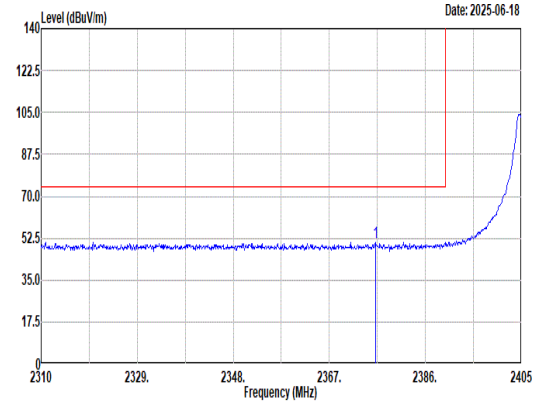
Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 1	2400-2483.5	1	Zigbee	11	2405	250kbps	-	-
Mode 2	2400-2483.5	1	Zigbee	18	2440	250kbps	-	-
Mode 3	2400-2483.5	1	Zigbee	25	2475	250kbps	-	-
Mode 4	2400-2483.5	1	Zigbee	26	2480	250kbps	-	-
Mode 5	2400-2483.5	1	Zigbee	18	2440	250kbps	-	LF

C2. Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	RU	Remark
1	Zigbee	11	2389.99	40.13	54.00	-13.87	H	Avg.	Pass	-	Band Edge
	Zigbee	11	4810.00	44.93	54.00	-9.07	H	Avg.	Pass	-	Harmonic
2	Zigbee	18	2499.39	39.37	54.00	-14.63	V	Avg.	Pass	-	Band Edge
	Zigbee	18	7320.00	48.88	54.00	-5.12	H	Avg.	Pass	-	Harmonic
3	Zigbee	25	2483.53	44.95	54.00	-9.05	H	Avg.	Pass	-	Band Edge
	Zigbee	25	4950.00	47.10	54.00	-6.90	H	Avg.	Pass	-	Harmonic
4	Zigbee	26	2483.52	42.49	54.00	-11.51	H	Avg.	Pass	-	Band Edge
	Zigbee	26	4960.00	47.53	54.00	-6.47	H	Avg.	Pass	-	Harmonic
5	Zigbee	18	62.98	35.55	40.00	-4.45	H	QP	Pass	-	LF

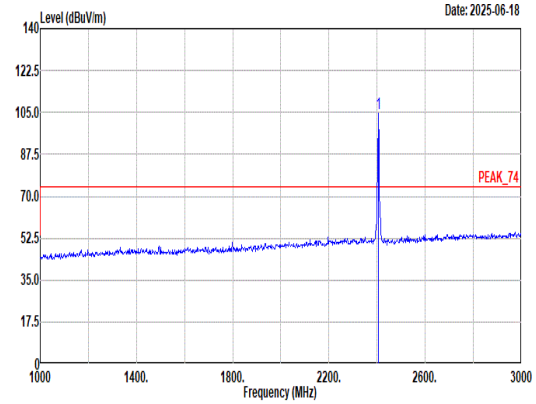
Mode	1	
	Band Edge	
	2400-2483.5_Zigbee_CH11_2405MHz	
ANT	1	
Pol.	Horizontal	Fundamental

Peak



Site : 03CH23-HY
Condition: PEAK_BE_74 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

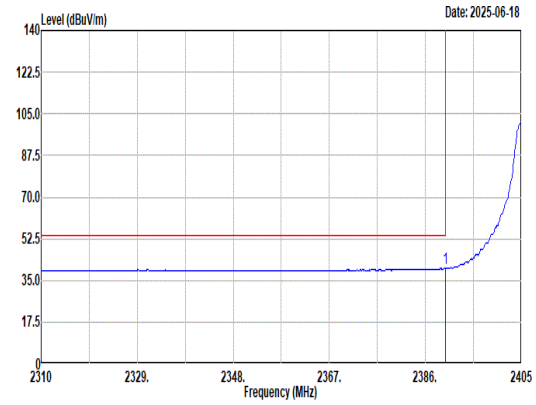
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2376.12	50.74	74.00	-23.26	38.23	26.90	7.19	31.96	10.38	178	15	Peak



Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

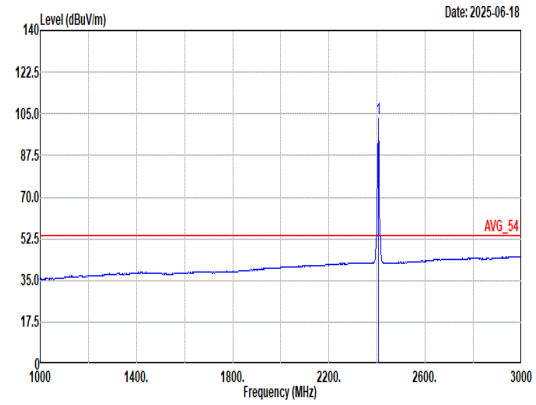
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2405.00	104.38	------	------	91.90	26.84	7.24	31.98	10.38	178	15	Peak

Avg



Site : 03CH23-HY
Condition: AVG_BE_54 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:0.010kHz 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	40.13	54.00	-13.87	27.61	26.90	7.21	31.97	10.38	178	15	Average

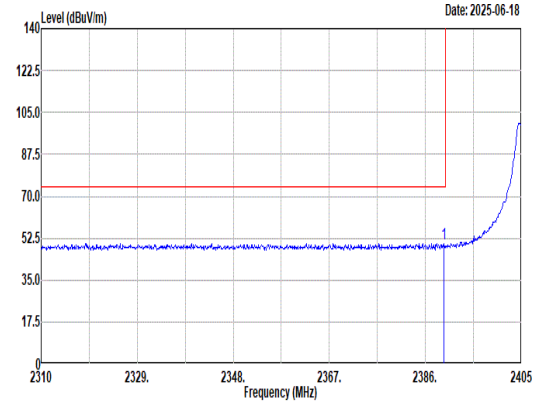


Site : 03CH23-HY
Condition: AVG_54 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

	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	2405.00	102.99	------	------	90.51	26.84	7.24	31.98	10.38	178	15	Average

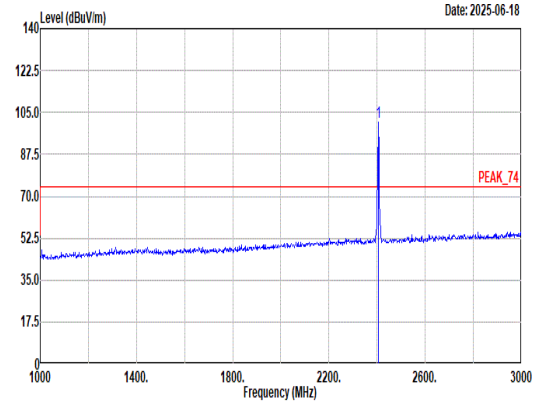
Mode	1	
	Band Edge	
	2400-2483.5_Zigbee_CH11_2405MHz	
ANT	1	
Pol.	Vertical	Fundamental

Peak



Site : 03CH23-HY
Condition: PEAK_BE_74 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

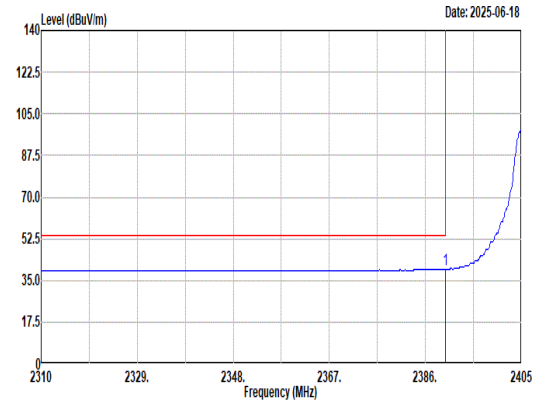
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2389.71	50.44	74.00	-23.56	37.92	26.90	7.21	31.97	10.38	399	36	Peak



Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

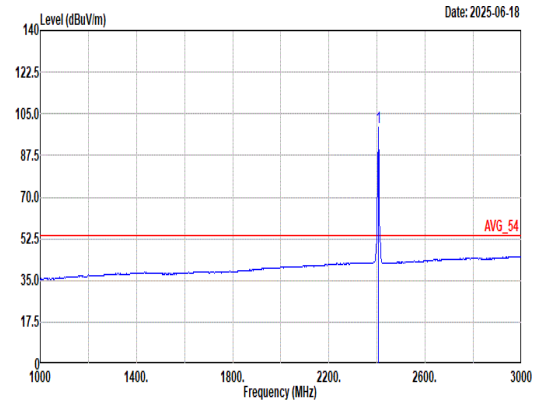
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2405.00	100.84	------	------	88.33	26.86	7.24	31.97	10.38	399	36	Peak

Avg



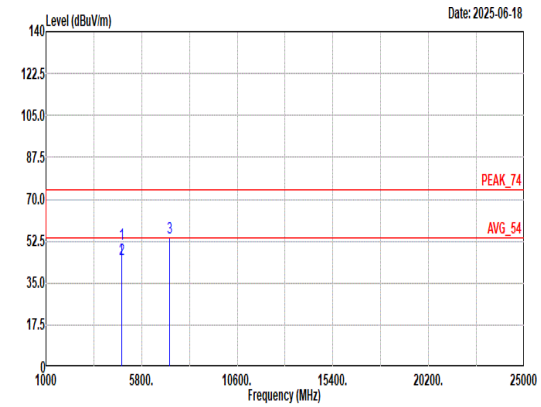
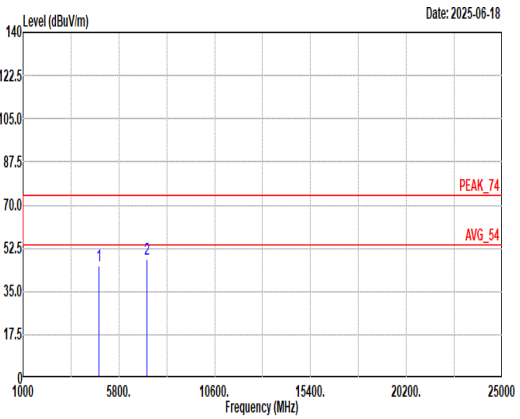
Site : 03CH23-HY
Condition: AVG_BE_54 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

	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	2389.90	39.75	54.00	-14.25	27.23	26.90	7.21	31.97	10.38	399	36	Average



Site : 03CH23-HY
Condition: AVG_54 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

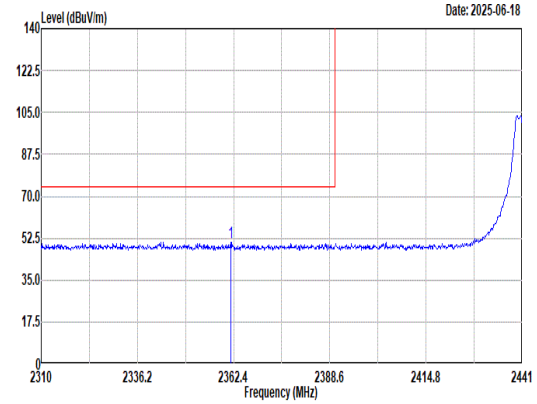
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2405.00	99.42	------	------	86.94	26.84	7.24	31.98	10.38	399	36	Average

Mode	1	
	Harmonic	
	2400-2483.5_Zigbee_CH11_2405MHz	
ANT	1	
Pol.	Horizontal	Vertical
Peak Avg	 Site : 03CH23-HY Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 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 4810.00 51.35 74.00 -22.65 40.73 32.30 10.14 33.16 1.34 100 172 Peak 2 4810.00 44.93 54.00 -9.07 34.31 32.30 10.14 33.16 1.34 100 172 Average 3 7215.00 53.79 ------ ------ 38.65 36.56 12.45 35.91 2.04 100 116 Peak	 Site : 03CH23-HY Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 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 4810.00 45.57 74.00 -28.43 34.95 32.30 10.14 33.16 1.34 -- -- Peak 2 7215.00 48.07 ------ ------ 32.93 36.56 12.45 35.91 2.04 288 0 Peak

Remark: The unwanted signal 7215MHz can be ignored since it falls within the non-restricted band and meets the requirements of 15.247(d).

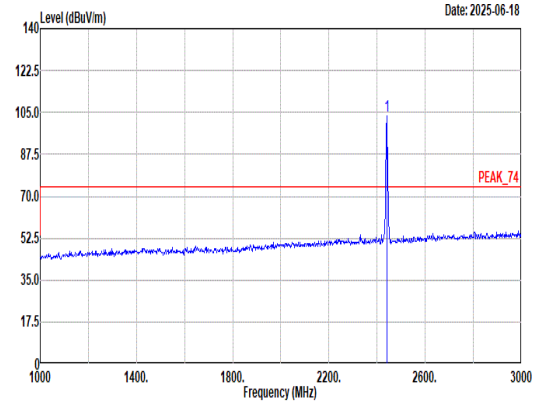
Mode	2	
	Band Edge - L	
	2400-2483.5_Zigbee_CH18_2440MHz	
ANT	1	
Pol.	Horizontal	Fundamental

Peak



Site : 03CH23-HY
Condition: PEAK_BE_74 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

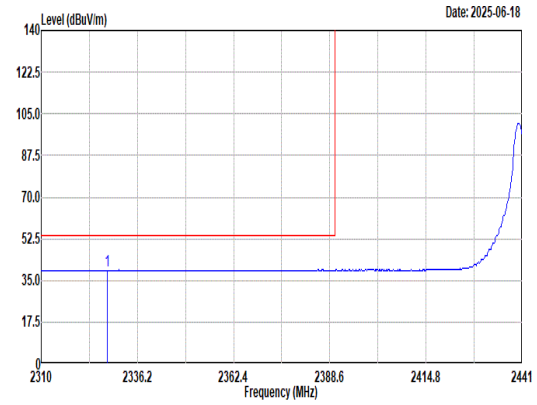
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2361.61	50.94	74.00	-23.06	38.45	26.90	7.17	31.95	10.37	207	15	Peak



Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

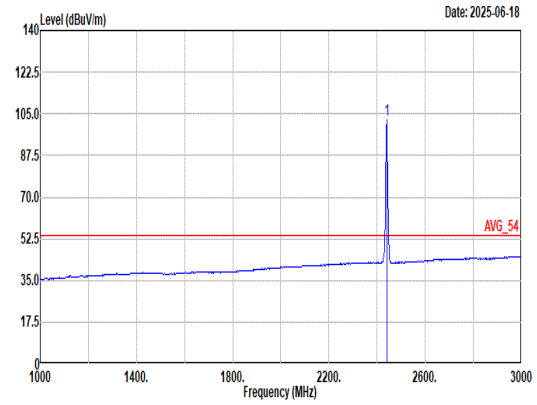
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2440.00	103.64	------	------	91.28	26.70	7.28	32.00	10.38	207	15	Peak

Avg



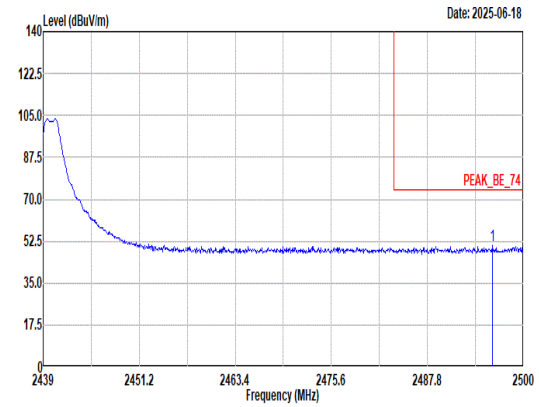
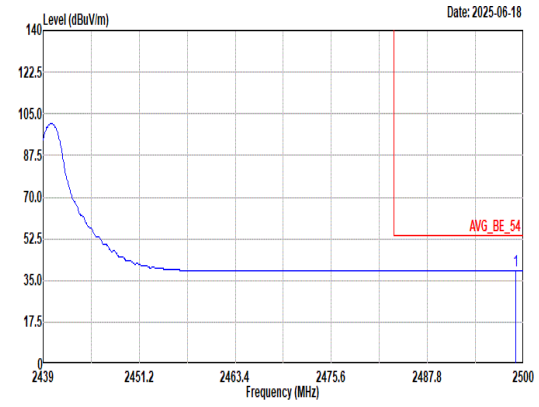
Site : 03CH23-HY
Condition: AVG_BE_54 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

	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	2328.08	39.36	54.00	-14.64	26.72	27.08	7.11	31.92	10.37	207	15	Average



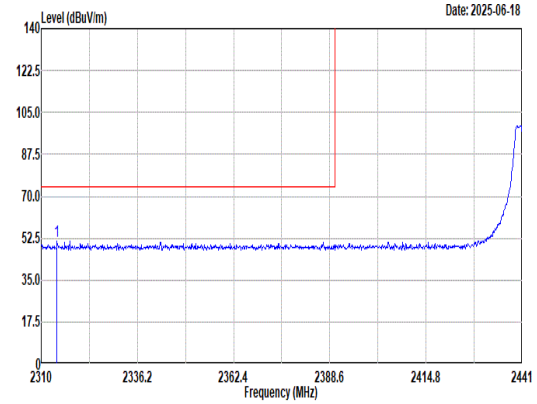
Site : 03CH23-HY
Condition: AVG_54 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

	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	102.29	------	------	89.93	26.70	7.28	32.00	10.38	207	15	Average

Mode	2	
	Band Edge - R	
	2400-2483.5_Zigbee_CH18_2440MHz	
ANT	1	
Pol.	Horizontal	Fundamental
Peak	 Site : 03CH23-HY Condition: PEAK_BE_74 3m DRH18-E_KV2D06A18ES_241025 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 2496.10 50.67 74.00 -23.33 38.22 26.76 7.35 32.04 10.38 207 15 Peak	Blank
Avg	 Site : 03CH23-HY Condition: AVG_BE_54 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz 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 2499.02 39.35 54.00 -14.65 26.86 26.79 7.36 32.04 10.38 207 15 Average	Blank

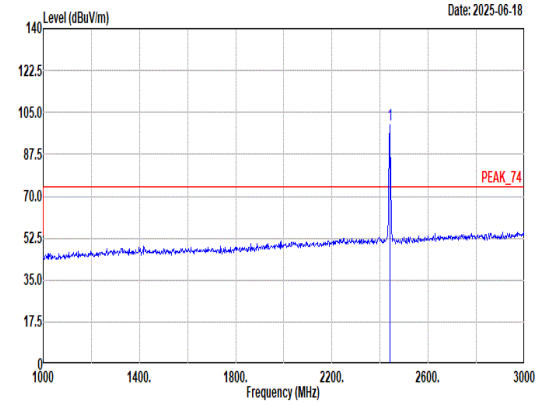
Mode	2	
	Band Edge - L	
	2400-2483.5_Zigbee_CH18_2440MHz	
ANT	1	
Pol.	Vertical	Fundamental

Peak



Site : 03CH23-HY
Condition: PEAK_BE_74 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

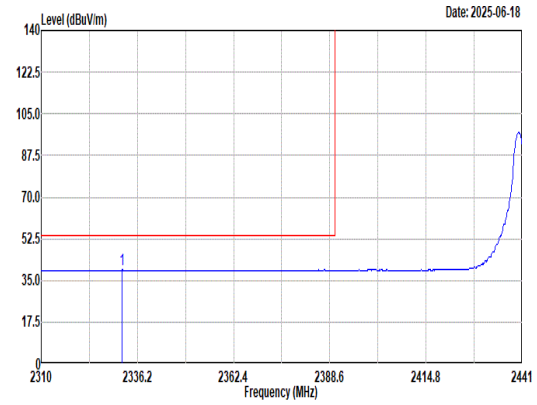
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2314.32	51.41	74.00	-22.59	38.81	27.06	7.09	31.91	10.36	394	34	Peak



Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

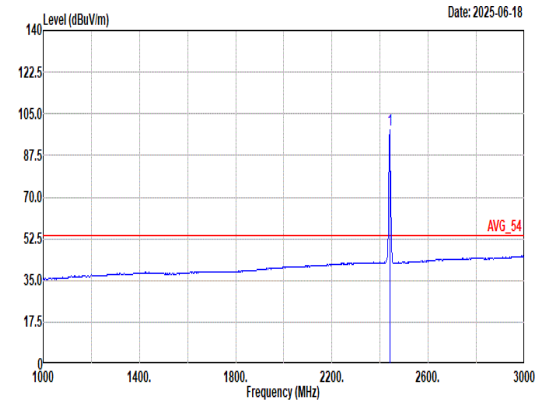
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2440.00	99.73	------	------	87.37	26.70	7.28	32.00	10.38	394	34	Peak

Avg



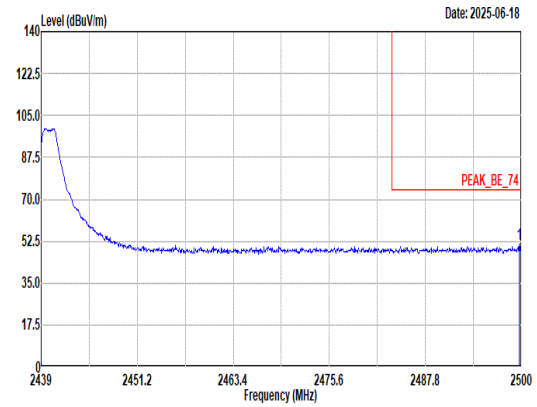
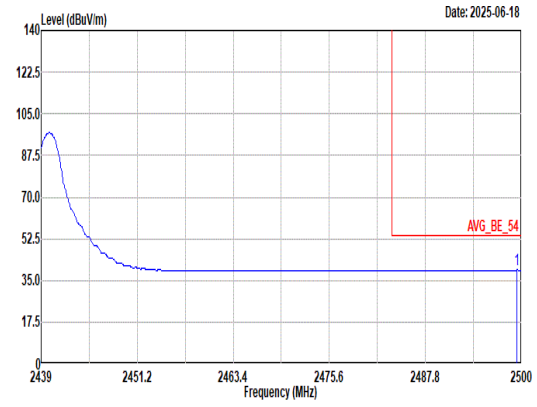
Site : 03CH23-HY
Condition: AVG_BE_54 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

	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	2332.01	39.37	54.00	-14.63	26.71	27.10	7.12	31.93	10.37	394	34	Average

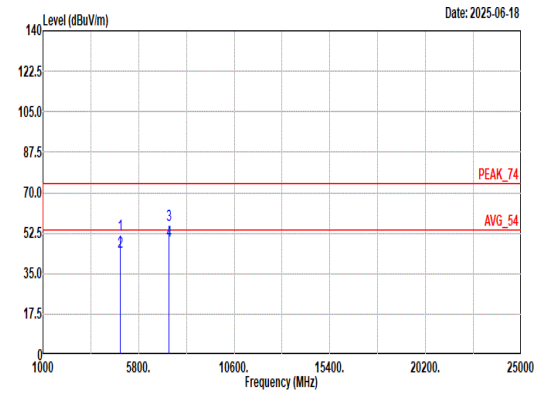
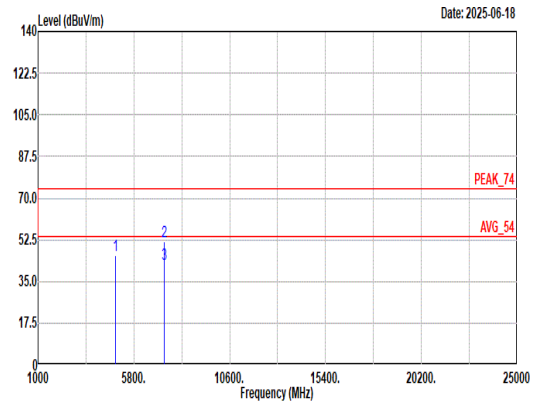


Site : 03CH23-HY
Condition: AVG_54 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

	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	98.25	------	------	85.89	26.70	7.28	32.00	10.38	394	34	Average

Mode	2	
	Band Edge - R	
	2400-2483.5_Zigbee_CH18_2440MHz	
ANT	1	
Pol.	Vertical	Fundamental
Peak	 Site : 03CH23-HY Condition: PEAK_BE_74 3m DRH18-E_KV2D06A18ES_241025 VERTICAL : 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 2499.70 51.14 74.00 -22.86 38.64 26.80 7.36 32.04 10.38 394 34 Peak	Blank
Avg	 Site : 03CH23-HY Condition: AVG_BE_54 3m DRH18-E_KV2D06A18ES_241025 VERTICAL : RBW:1000.000kHz VBW:0.010kHz 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 2499.39 39.37 54.00 -14.63 26.88 26.79 7.36 32.04 10.38 394 34 Average	Blank

Mode	2
	Harmonic
	2400-2483.5_Zigbee_CH18_2440MHz
ANT	1

Pol.	Horizontal	Vertical
Peak Avg		

Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL

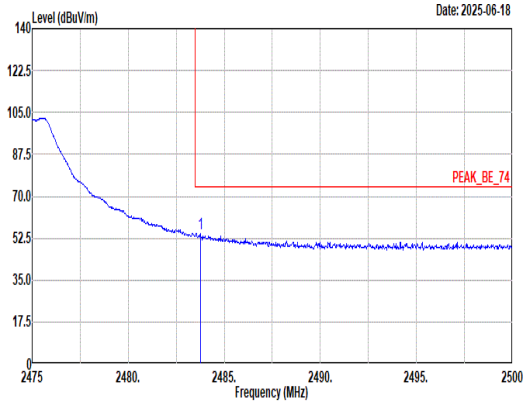
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	4880.00	51.79	74.00	-22.21	40.76	32.48	10.25	33.17	1.47	100	168	Peak
2	4880.00	44.42	54.00	-9.58	33.39	32.48	10.25	33.17	1.47	100	168	Average
3	7320.00	55.78	74.00	-18.22	40.32	36.94	12.49	35.98	2.01	100	128	Peak
4	7320.00	48.88	54.00	-5.12	33.42	36.94	12.49	35.98	2.01	100	128	Average

Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 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	45.85	74.00	-28.15	34.82	32.48	10.25	33.17	1.47	--	--	Peak
2	7320.00	51.69	74.00	-22.31	36.23	36.94	12.49	35.98	2.01	104	281	Peak
3	7320.00	42.48	54.00	-11.52	27.02	36.94	12.49	35.98	2.01	104	281	Average

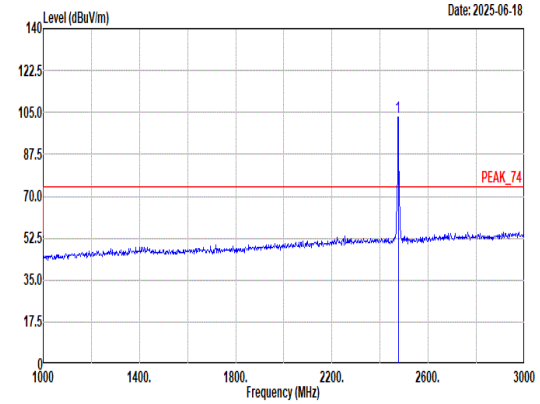
Mode	3	
	Band Edge	
	2400-2483.5_Zigbee_CH25_2475MHz	
ANT	1	
Pol.	Horizontal	Fundamental

Peak



Site : 03CH23-HY
Condition: PEAK_BE_74 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

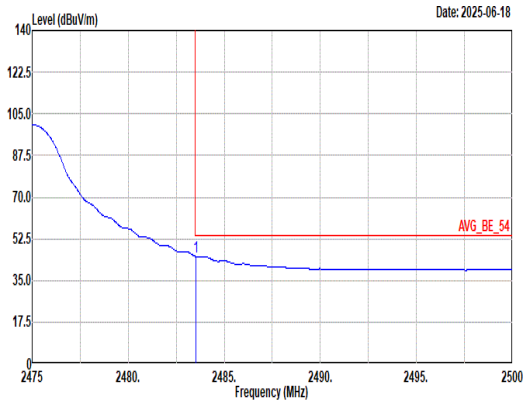
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2483.75	54.38	74.00	-19.62	41.99	26.70	7.34	32.03	10.38	205	16	Peak



Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

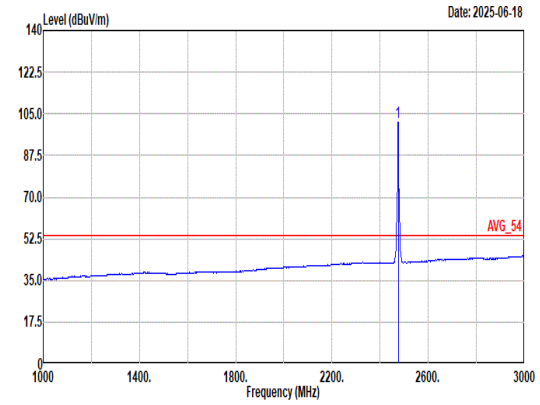
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2475.00	102.96	------	------	90.61	26.66	7.33	32.02	10.38	205	16	Peak

Avg



Site : 03CH23-HY
Condition: AVG_BE_54 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:0.010kHz 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	2483.53	44.95	54.00	-9.05	32.56	26.70	7.34	32.03	10.38	205	16	Average

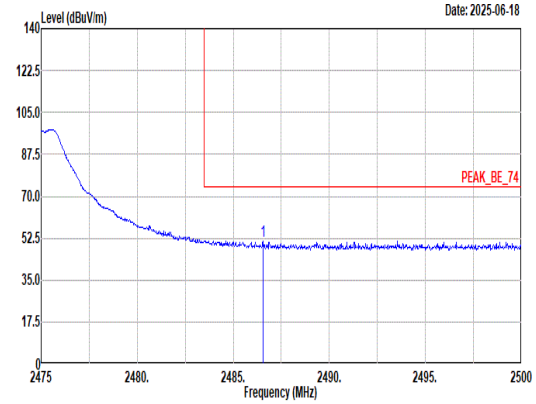


Site : 03CH23-HY
Condition: AVG_54 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

	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	2475.00	101.51	------	------	89.16	26.66	7.33	32.02	10.38	205	16	Average

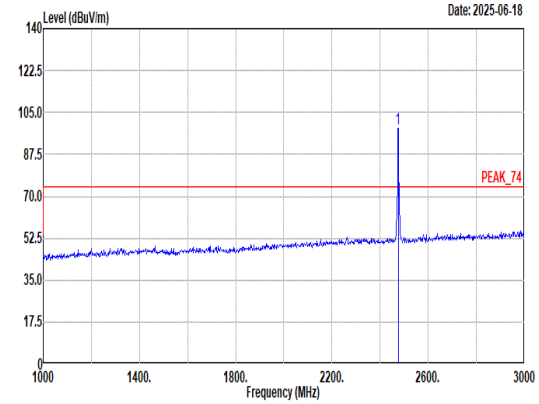
Mode	3	
	Band Edge	
	2400-2483.5_Zigbee_CH25_2475MHz	
ANT	1	
Pol.	Vertical	Fundamental

Peak



Site : 03CH23-HY
Condition: PEAK_BE_74 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

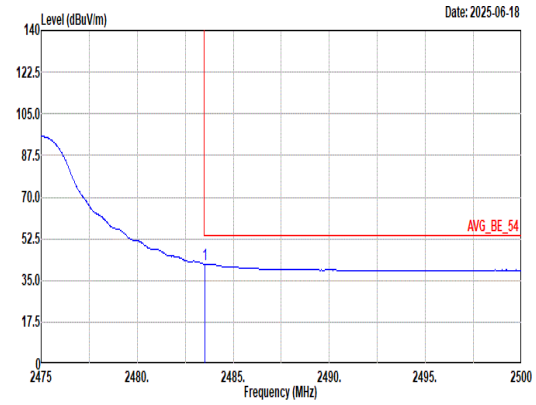
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2486.55	51.37	74.00	-22.63	38.98	26.70	7.34	32.03	10.38	337	41	Peak



Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

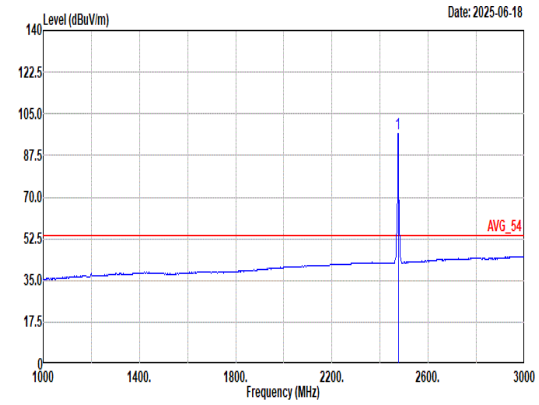
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2475.00	98.16	------	------	85.81	26.66	7.33	32.02	10.38	337	41	Peak

Avg



Site : 03CH23-HY
Condition: AVG_BE_54 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

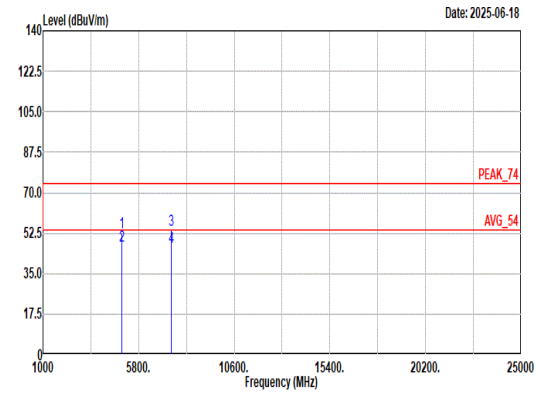
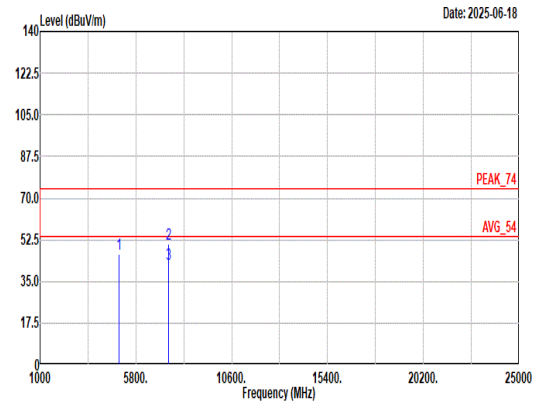
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2483.53	41.69	54.00	-12.31	29.30	26.70	7.34	32.03	10.38	337	41	Average



Site : 03CH23-HY
Condition: AVG_54 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:0.010kHz 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	2475.00	96.69	------	------	84.34	26.66	7.33	32.02	10.38	337	41	Average

Mode	3
	Harmonic
	2400-2483.5_Zigbee_CH25_2475MHz
ANT	1

Pol.	Horizontal	Vertical
Peak Avg		

Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL

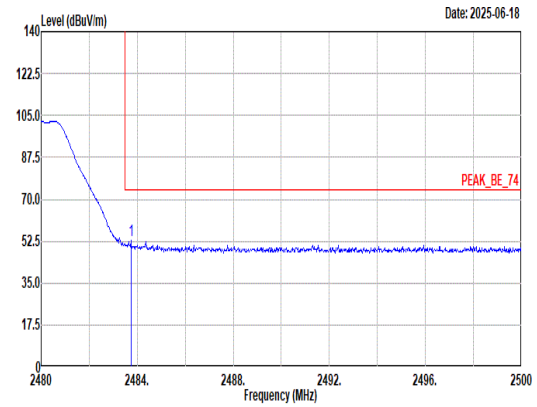
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	4950.00	53.03	74.00	-20.97	41.43	32.80	10.37	33.18	1.61	100	139	Peak
2	4950.00	47.10	54.00	-6.90	35.50	32.80	10.37	33.18	1.61	100	139	Average
3	7425.00	53.75	74.00	-20.25	38.36	36.90	12.57	36.06	1.98	101	118	Peak
4	7425.00	46.53	54.00	-7.47	31.14	36.90	12.57	36.06	1.98	101	118	Average

Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 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	4950.00	46.60	74.00	-27.40	35.00	32.80	10.37	33.18	1.61	--	--	Peak
2	7425.00	50.73	74.00	-23.27	35.34	36.90	12.57	36.06	1.98	106	287	Peak
3	7425.00	42.40	54.00	-11.60	27.01	36.90	12.57	36.06	1.98	106	287	Average

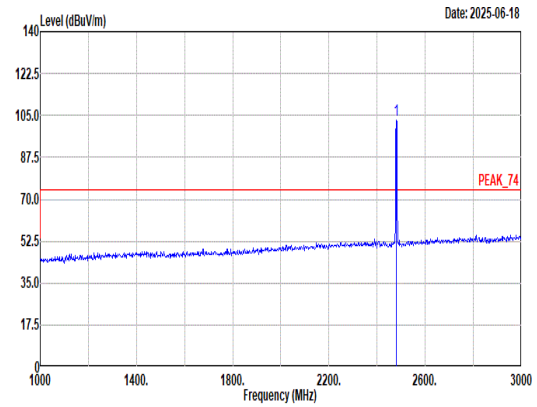
Mode	4	
	Band Edge	
	2400-2483.5_Zigbee_CH26_2480MHz	
ANT	1	
Pol.	Horizontal	Fundamental

Peak



Site : 03CH23-HY
Condition: PEAK_BE_74 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

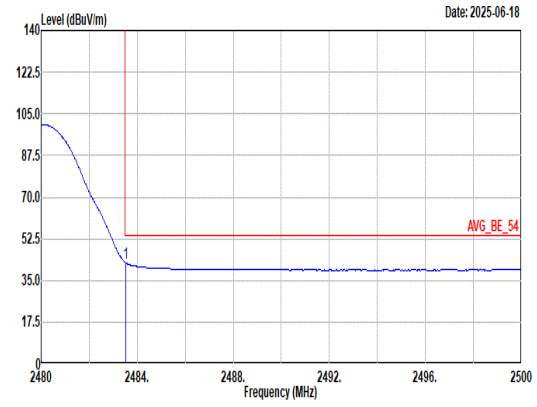
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2483.74	52.61	74.00	-21.39	40.22	26.70	7.34	32.03	10.38	113	169	Peak



Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

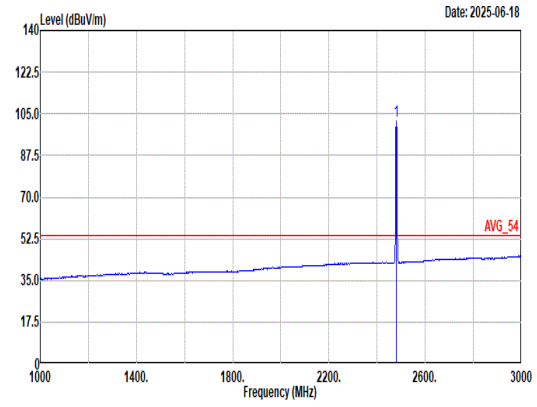
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2480.00	103.05	------	------	90.67	26.70	7.33	32.03	10.38	113	169	Peak

Avg



Site : 03CH23-HY
Condition: AVG_BE_54 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:0.010kHz 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	42.49	54.00	-11.51	30.10	26.70	7.34	32.03	10.38	113	169	Average

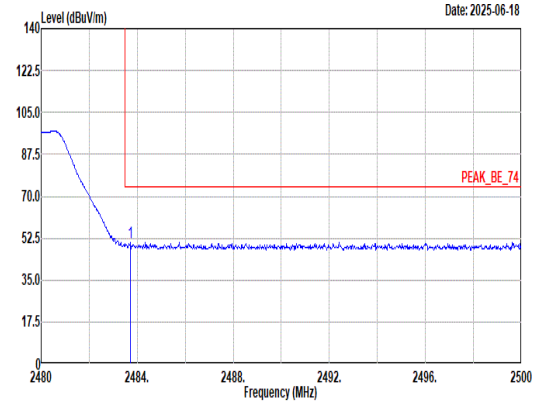


Site : 03CH23-HY
Condition: AVG_54 3m DRH18-E_KV2D06A18ES_241025 HORIZONTAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

	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	101.73	------	------	89.35	26.70	7.33	32.03	10.38	113	169	Average

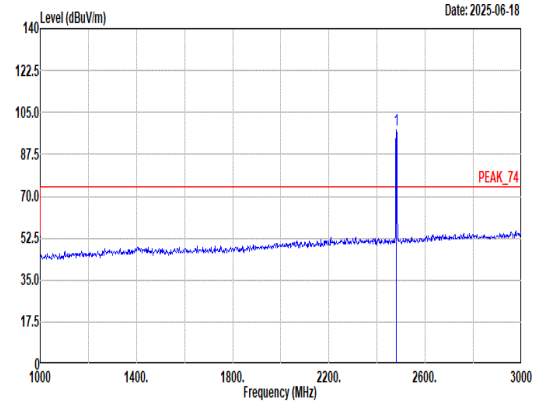
Mode	4	
	Band Edge	
	2400-2483.5_Zigbee_CH26_2480MHz	
ANT	1	
Pol.	Vertical	Fundamental

Peak



Site : 03CH23-HY
Condition: PEAK_BE_74 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

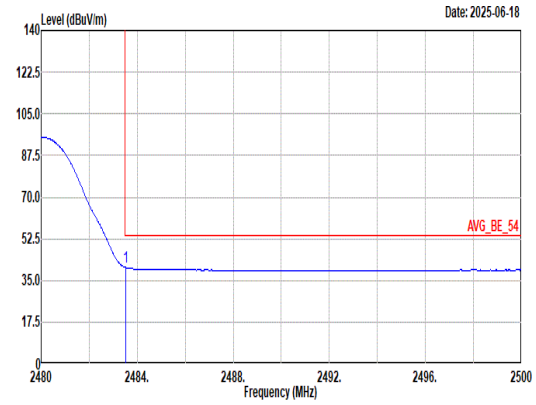
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2483.72	50.76	74.00	-23.24	38.37	26.70	7.34	32.03	10.38	373	46	Peak



Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

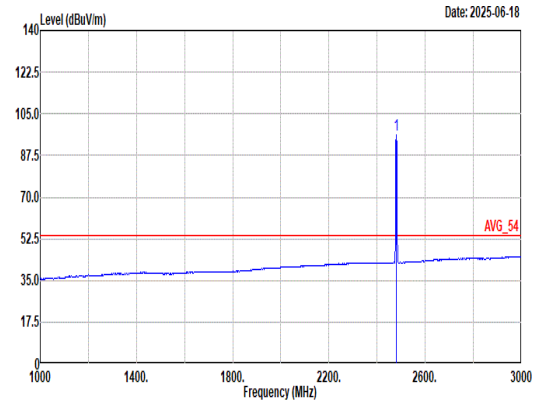
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2480.00	97.63	------	------	85.25	26.70	7.33	32.03	10.38	373	46	Peak

Avg



Site : 03CH23-HY
Condition: AVG_BE_54 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:0.010kHz 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	40.43	54.00	-13.57	28.04	26.70	7.34	32.03	10.38	373	46	Average

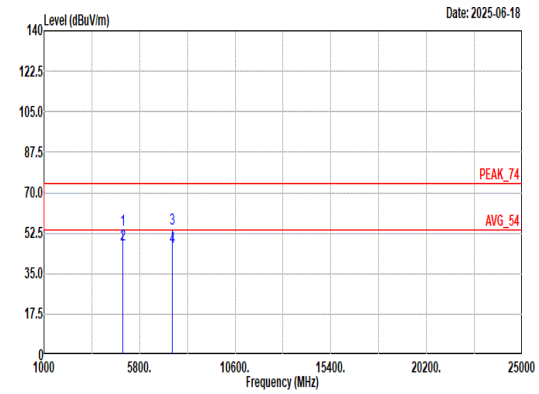


Site : 03CH23-HY
Condition: AVG_54 3m DRH18-E_KV2D06A18ES_241025 VERTICAL
: RBW:1000.000kHz VBW:0.010kHz SWT:Auto

	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	96.29	------	------	83.91	26.70	7.33	32.03	10.38	373	46	Average

Mode	4	
	Harmonic	
	2400-2483.5_Zigbee_CH26_2480MHz	
ANT	1	
Pol.	Horizontal	Vertical

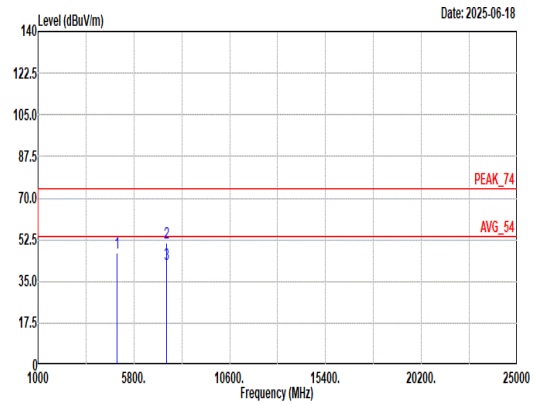
Peak



Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 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	53.74	74.00	-20.26	42.12	32.80	10.38	33.18	1.62	100	140	Peak
2	4960.00	47.53	54.00	-6.47	35.91	32.80	10.38	33.18	1.62	100	140	Average
3	7440.00	54.44	74.00	-19.56	39.04	36.90	12.59	36.07	1.98	102	123	Peak
4	7440.00	46.51	54.00	-7.49	31.11	36.90	12.59	36.07	1.98	102	123	Average

Avg

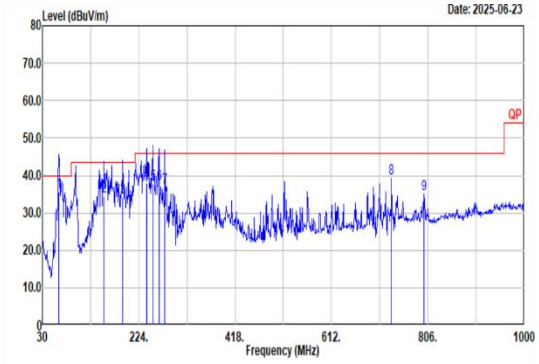


Site : 03CH23-HY
Condition: PEAK_74 3m DRH18-E_KV2D06A18ES_241025 VERTICAL

	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	46.80	74.00	-27.20	35.18	32.80	10.38	33.18	1.62	--	--	Peak
2	7440.00	51.29	74.00	-22.71	35.89	36.90	12.59	36.07	1.98	100	287	Peak
3	7440.00	42.49	54.00	-11.51	27.09	36.90	12.59	36.07	1.98	100	287	Average

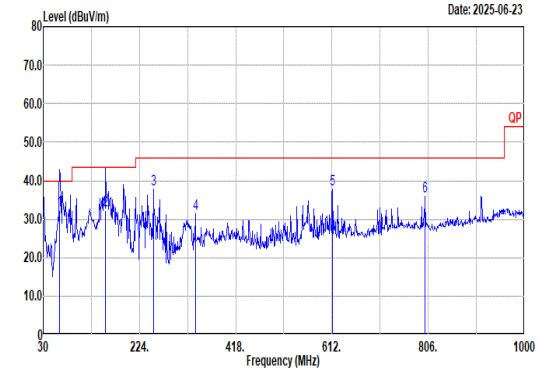
Mode	5	
	LF	
	2400-2483.5_Zigbee_CH18_2440MHz	
ANT	1	
Pol.	Horizontal	Vertical

QP/ Peak



Site : 03CH23-HY
Condition: QP 3m CBL6111D_62028 & 003_241127 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	62.98	35.55	40.00	-4.45	55.35	11.95	0.97	32.75	0.03	302	24	QP
2	154.16	34.48	43.50	-9.02	48.55	17.00	1.61	32.74	0.06	200	73	QP
3	191.99	34.03	43.50	-9.47	50.05	14.91	1.77	32.76	0.06	195	120	QP
4	240.49	37.96	46.00	-8.04	48.65	20.04	2.00	32.80	0.07	200	177	QP
5	252.13	37.68	46.00	-8.32	48.29	20.09	2.05	32.82	0.07	200	224	QP
6	264.74	37.79	46.00	-8.21	48.35	20.10	2.10	32.83	0.07	100	237	QP
7	276.38	36.79	46.00	-9.21	48.62	18.79	2.15	32.84	0.07	100	342	QP
8	732.28	39.16	46.00	-6.84	40.41	27.78	3.66	32.82	0.13	--	--	Peak
9	797.27	34.95	46.00	-11.05	35.46	28.26	3.82	32.77	0.18	--	--	Peak



Site : 03CH23-HY
Condition: QP 3m CBL6111D_62028 & 003_241127 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	62.98	32.43	40.00	-7.57	52.23	11.95	0.97	32.75	0.03	400	102	QP
2	156.10	32.29	43.50	-11.21	46.46	16.88	1.62	32.74	0.07	153	355	QP
3	252.13	37.64	46.00	-8.36	48.25	20.09	2.05	32.82	0.07	--	--	Peak
4	336.52	31.40	46.00	-14.60	41.77	19.91	2.49	32.84	0.07	--	--	Peak
5	612.97	37.63	46.00	-8.37	41.39	25.82	3.35	33.05	0.12	--	--	Peak
6	800.18	36.07	46.00	-9.93	36.58	28.25	3.83	32.77	0.18	--	--	Peak

Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	VBW Setting
Zigbee	100	10Hz

Zigbee