FCC RADIO TEST REPORT

FCC ID	:	UZ7DS8288
Equipment	:	Cordless Scanner
Brand Name	:	Zebra
Model Name	:	DS8288
Applicant	:	Zebra Technologies Corporation 3 Overlook Point, Lincolnshire, IL 60069 USA
Manufacturer	:	Zebra Technologies Corporation 3 Overlook Point, Lincolnshire, IL 60069 USA
Standard	:	FCC Part 15 Subpart C §15.247

The product was received on Apr. 30, 2025 and testing was performed from May 06, 2025 to Jun. 09, 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
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History of this test report

Report No.	Version	Description	Issue Date
FR541703B	01	Initial issue of report	Jul. 11, 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	7.9 dB under the limit at 2488.00 MHz
3.6	15.207	AC Conducted Emission	Pass	4.43 dB under the limit at 23.78 MHz
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: Wei Chen

Report Producer: Shannon Huang

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Cordless Scanner
Brand Name	Zebra
Model Name	DS8288
FCC ID	UZ7DS8288
EUT supports Radios application	Bluetooth BR/EDR/LE
HW Version	PC-002206-03
FW Version	CAAGMS00-001-N20D0
MFD	26MAR25
EUT Stage	Identical Prototype

Remark: The EUT's information above is declared by manufacturer.

Specification of Accessories				
Battery	**Brand Name**	Zebra	**Part Number**	BT-000489-0040
Powercap	**Brand Name**	Zebra	**Part Number**	PP-000489-00

Specification of Accessories				
Cradle 1	**Brand Name**	Zebra	**Part Number**	CR8288-SC
Cradle 2	**Brand Name**	Zebra	**Part Number**	CR8288-PC
5V Adapter	**Brand Name**	Zebra	**Part Number**	PWR-WUA5V4W0US
12V Adaptor	**Brand Name**	Zebra	**Part Number**	PWR-BGA12V50W0WW
USB cable with 12V supply, 7ft	**Brand Name**	Zebra	**Model Name**	CBA-U42-S07PAR
USB cable with 5V supply, 7ft	**Brand Name**	Zebra	**Model Name**	CBA-U21-S07ZBR
RS232 with 5V supply, 7ft	**Brand Name**	Zebra	**Model Name**	CBA-R01-S07PBR
RS232 with 12v supply, 7FT	**Brand Name**	Zebra	**Model Name**	CBA-R12-S07PAR
USB-C cable, 7ft	**Brand Name**	Zebra	**Model Name**	CBA-U65-S07ZAR

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz
Number of Channels	40
Carrier Frequency of Each Channel	40 Channel (37 hopping + 3 advertising channel)
Maximum Output Power to Antenna	Bluetooth – LE (1Mbps): 3.92 dBm / 0.0025 W
OB	1.051 MHz
Antenna Type / Gain	Chip with gain 5.05 dBi
Type of Modulation	Bluetooth LE: GFSK

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

1.3 Modification of EUT

No modifications made to the EUT during the testing.

1.4 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	CO05-HY (TAF Code: 1190)
Remark	The AC Conducted Emission test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory.

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

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	TH05-HY, 03CH20-HY

FCC designation No.: TW1190

1.5 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	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 adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst case emissions were reported in this report.

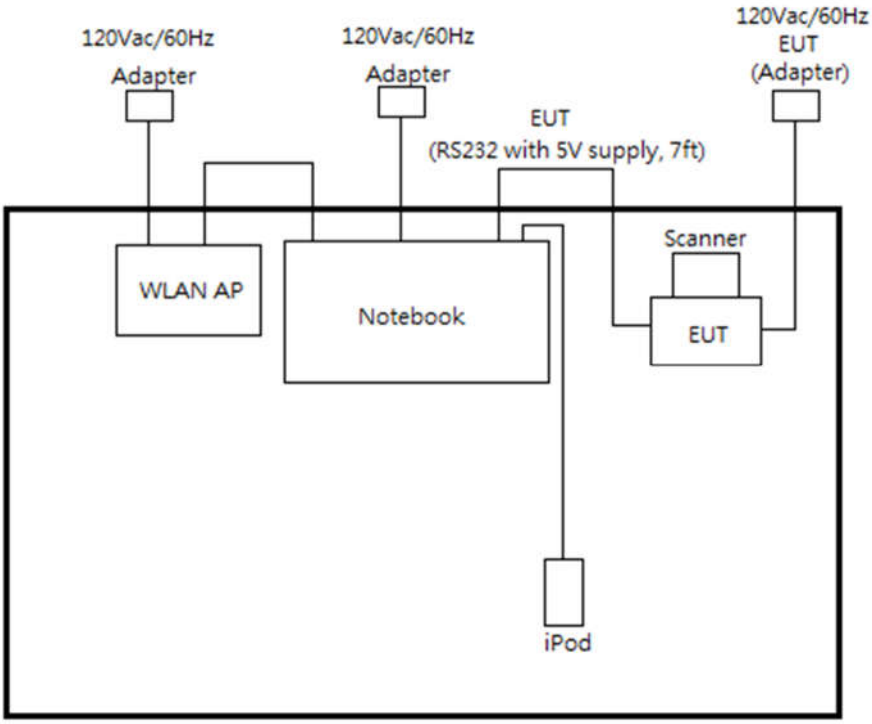
b. AC power line Conducted Emission was tested under maximum output power.

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	**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
AC Conducted Emission	Mode 1: Cradle (CR8288-SC) RS232 cable (CBA-R12-S07PAR) (Load with NB) + Powercap (PP-000489-00) + Adaptor (PWR-BGA12V50W0WW)
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

<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.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded,1.8m
2.	iPod	Apple	A1285	DoC	Shielded, 1.0m	N/A
3.	NOTE BOOK	Dell	Latitude 3420	FCC DoC	N/A	AC I/P：Unshielded, 1.2m DC O/P：Shielded, 1.8m

2.5 EUT Operation Test Setup

The RF test items, utility BT Regulatory Test APP: 2.2.0.0 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.

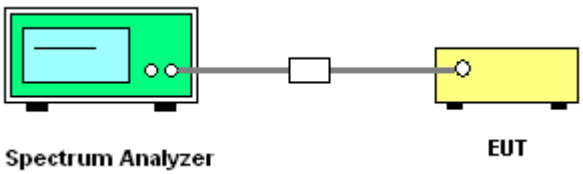
3.1.2 Measuring Instruments

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.

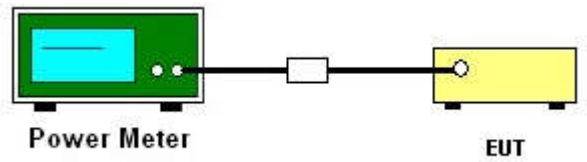
3.2.2 Measuring Instruments

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.

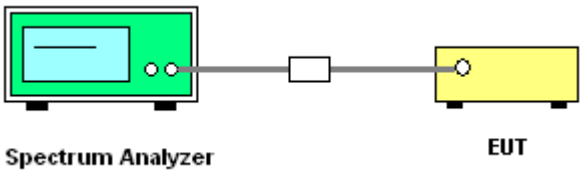
3.3.2 Measuring Instruments

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.

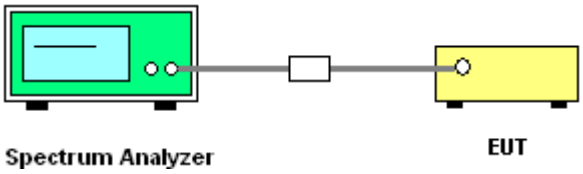
3.4.2 Measuring Instruments

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

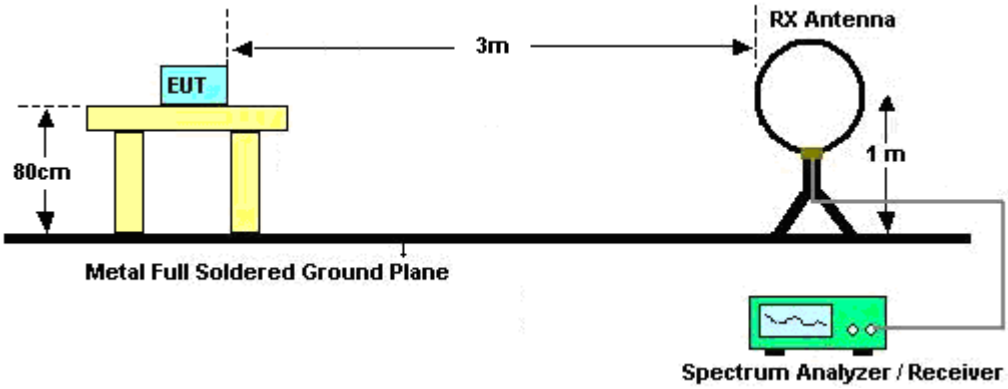
Please refer to the measuring equipment list in this test report.

3.5.3 Test Procedures

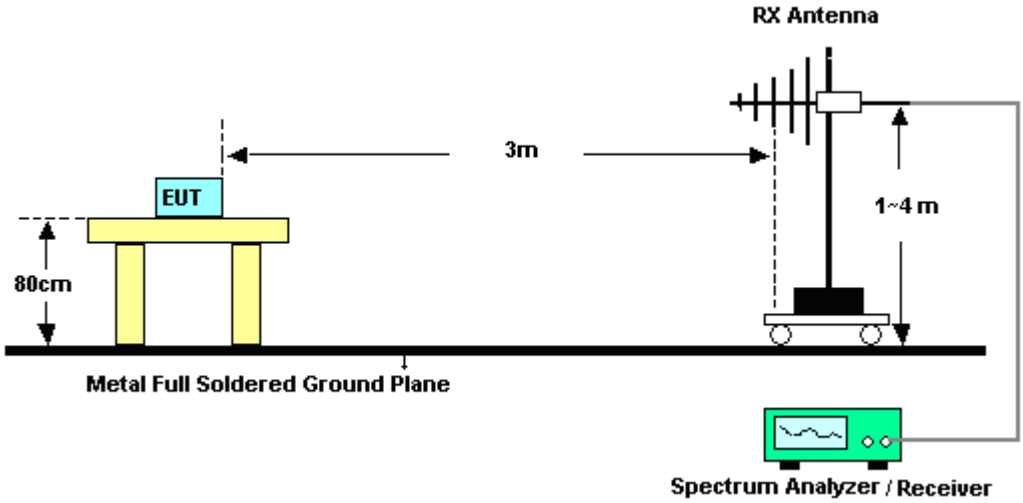
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the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

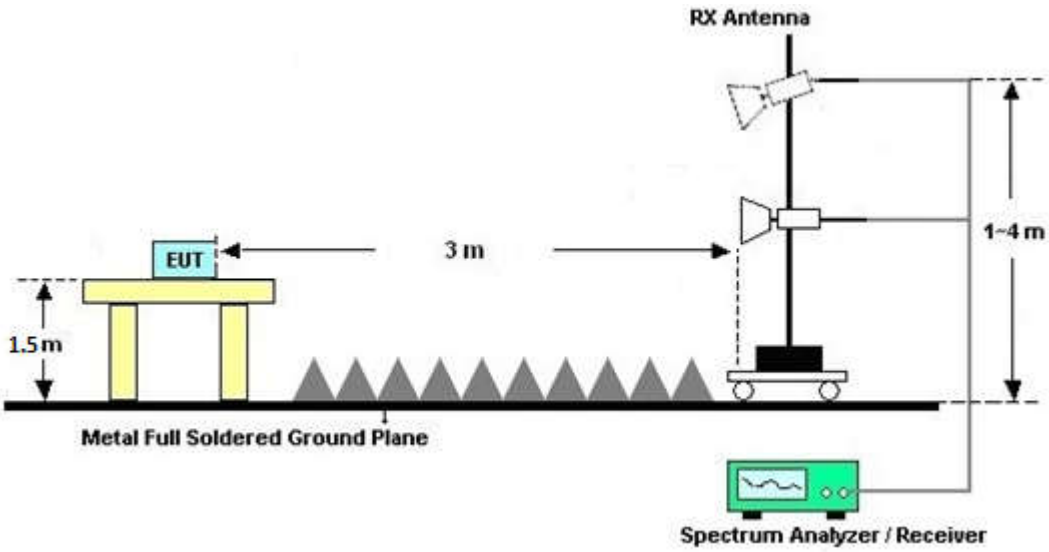
For radiated test below 30MHz



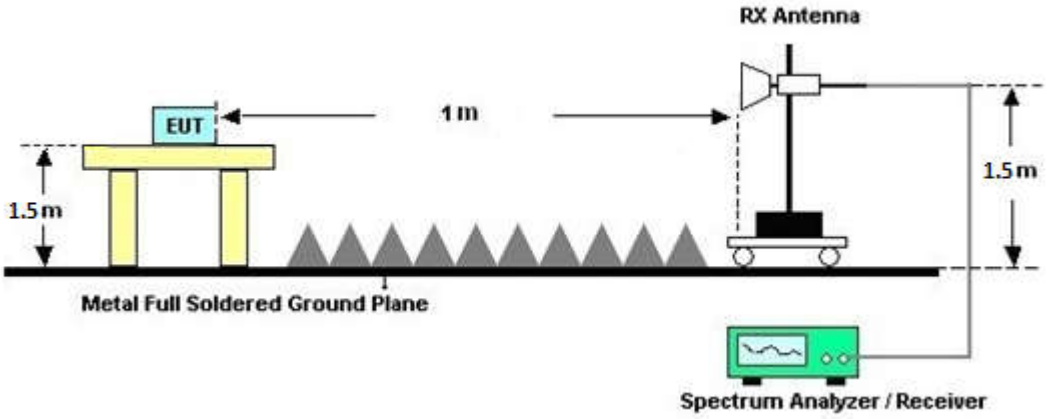
For radiated test from 30MHz to 1GHz



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.

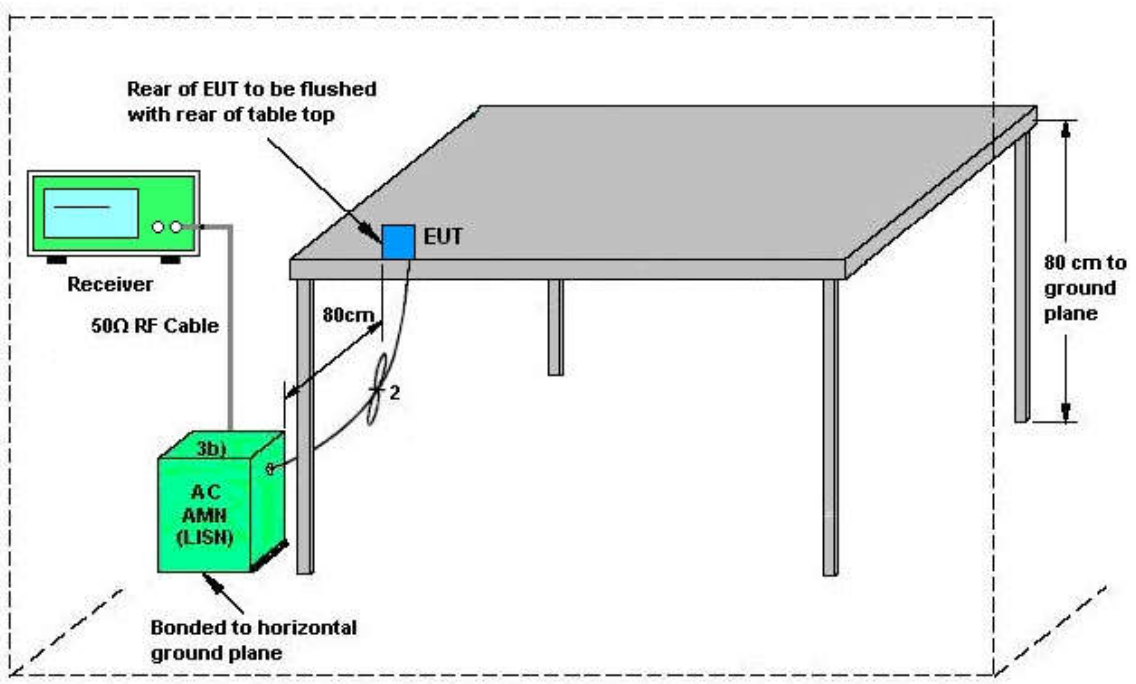
3.6.2 Measuring Instruments

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
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	May 06, 2025~ Jun. 09, 2025	N/A	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Oct. 14, 2024	May 06, 2025~ Jun. 09, 2025	Oct. 13, 2025	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 12, 2024	May 06, 2025~ Jun. 09, 2025	Dec. 11, 2025	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 14, 2024	May 06, 2025~ Jun. 09, 2025	Nov. 13, 2025	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	May 06, 2025~ Jun. 09, 2025	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Jul. 30, 2024	May 06, 2025~ Jun. 09, 2025	Jul. 29, 2025	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	MQT24082501	N/A	Oct. 15, 2024	May 06, 2025~ Jun. 09, 2025	Oct. 14, 2025	Conduction (CO05-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 01, 2024	May 19, 2025~ May 27, 2025	Oct. 31, 2025	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	13I00030SNO31 (NO:182)	9kHz~6GHz	Jan. 09, 2025	May 19, 2025~ May 27, 2025	Jan. 08, 2026	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV3044	101467	10HZ~44GHZ	Jan. 14, 2025	May 19, 2025~ May 27, 2025	Jan. 13, 2026	Conducted (TH05-HY)
Switch Control Mainframe	E-Instument	ETF-1405-0	EC1900157 (BOX6)	N/A	Feb. 10, 2025	May 19, 2025~ May 27, 2025	Feb. 09, 2026	Conducted (TH05-HY)
Software	Sporton	BTWIFI_Final_version_240513	N/A	Conducted Other Test Item	N/A	May 19, 2025~ May 27, 2025	N/A	Conducted (TH05-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY57290111	N/A	Nov. 22,2024	May 16, 2025~ May 23, 2025	Nov. 21, 2025	Radiation (03CH20-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Aug. 29, 2024	May 16, 2025~ May 23, 2025	Aug. 28, 2025	Radiation (03CH20-HY)
Preamplifier	EMEC	EM18G40G	060871	18GHz~40GHz	Aug. 23, 2024	May 16, 2025~ May 23, 2025	Aug. 22, 2025	Radiation (03CH20-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	May 16, 2025~ May 23, 2025	N/A	Radiation (03CH20-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	May 16, 2025~ May 23, 2025	N/A	Radiation (03CH20-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	May 16, 2025~ May 23, 2025	N/A	Radiation (03CH20-HY)
Signal Analyzer	Keysight	N9010B	MY60240520	N/A	Dec. 09, 2024	May 16, 2025~ May 23, 2025	Dec. 08, 2025	Radiation (03CH20-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	55606 & 08	30MHz~1GHz	Nov. 27, 2024	May 16, 2025~ May 23, 2025	Nov. 26, 2025	Radiation (03CH20-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	02360	1GHz-18GHz	Nov. 01, 2024	May 16, 2025~ May 23, 2025	Oct. 31, 2025	Radiation (03CH20-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	1225	18GHz-40GHz	Jun. 24, 2024	May 16, 2025~ May 23, 2025	Jun. 23, 2025	Radiation (03CH20-HY)
Preamplifier	COM-POWER	PAM-103	18020201	1MHz-1000MHz	Dec. 31, 2024	May 16, 2025~ May 23, 2025	Dec. 30, 2025	Radiation (03CH20-HY)
Amplifier	EMCI	EMC118A45S E	980792	N/A	Nov. 12, 2024	May 16, 2025~ May 23, 2025	Nov. 11, 2025	Radiation (03CH20-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	519229/2,804 015/2,804027 /2	N/A	Jan. 16, 2025	May 16, 2025~ May 23, 2025	Jan. 15, 2026	Radiation (03CH20-HY)
Hygrometer	TECPEL	DTM-303A	TP215159	N/A	Sep. 10, 2024	May 16, 2025~ May 23, 2025	Sep. 09, 2025	Radiation (03CH20-HY)
Software	Audix	N/A	RK-002156	N/A	N/A	May 16, 2025~ May 23, 2025	N/A	Radiation (03CH20-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))	6.7 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))	5.6 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:	Derek Hsu	Temperature:	21~25	°C
Test Date:	2025/05/19~2025/05/27	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
BLE	1Mbps	1	0	2402	1.051	0.520	0.50	Pass
BLE	1Mbps	1	19	2440	1.050	0.506	0.50	Pass
BLE	1Mbps	1	39	2480	1.051	0.511	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
BLE	1Mbps	1	0	2402	3.66	30.00	5.05	8.71	36.00	Pass
BLE	1Mbps	1	19	2440	3.71	30.00	5.05	8.76	36.00	Pass
BLE	1Mbps	1	39	2480	3.92	30.00	5.05	8.97	36.00	Pass

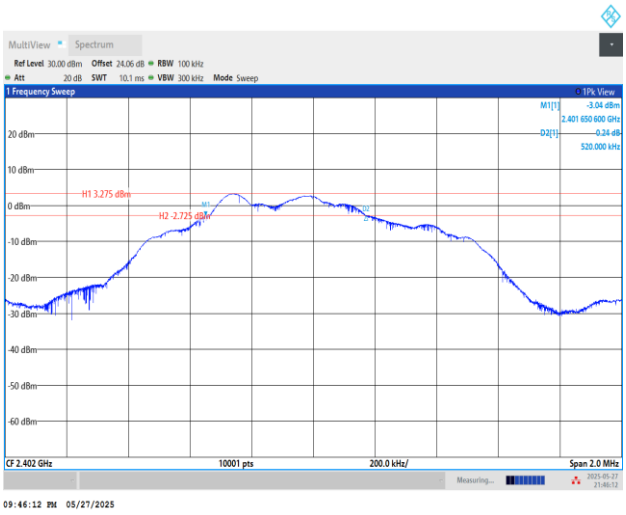
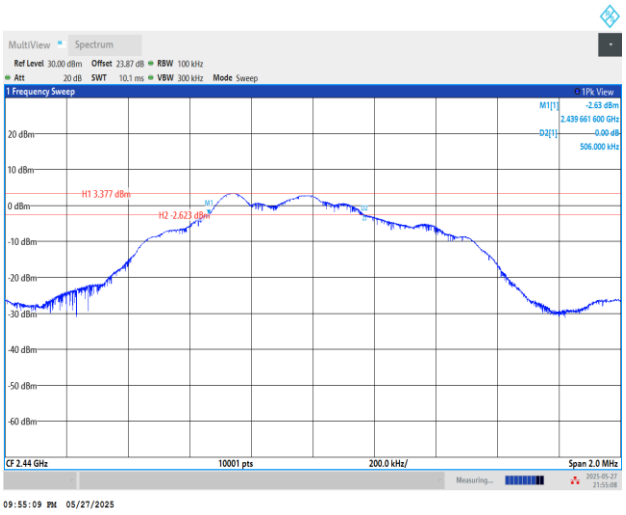
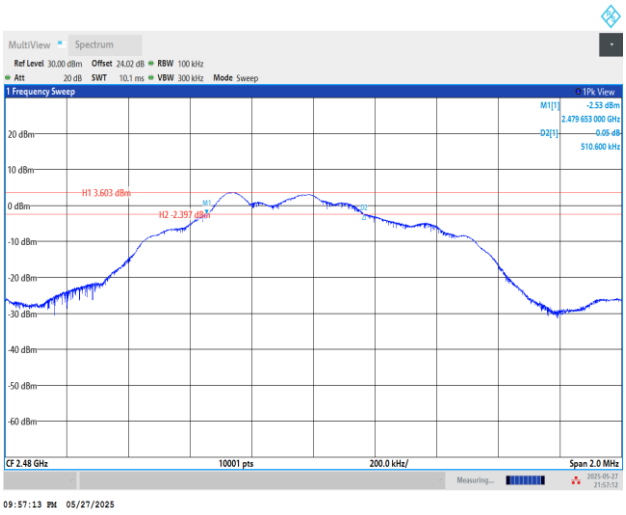
TEST RESULTS DATA
Peak Power Density

Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE	1Mbps	1	0	2402	3.27	-13.62	5.05	8.00	Pass
BLE	1Mbps	1	19	2440	3.38	-13.51	5.05	8.00	Pass
BLE	1Mbps	1	39	2480	3.61	-13.27	5.05	8.00	Pass

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

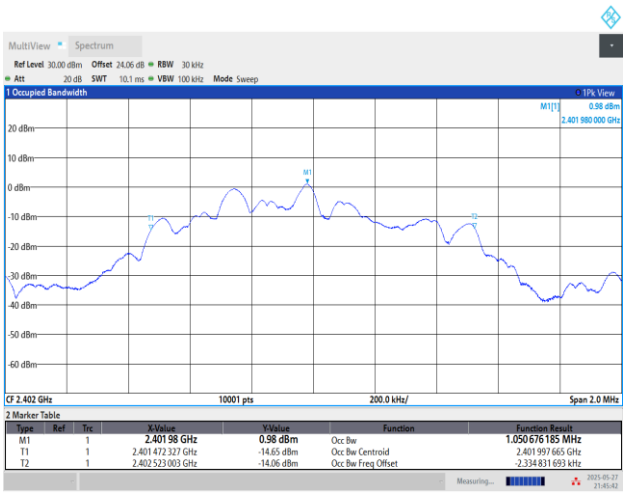
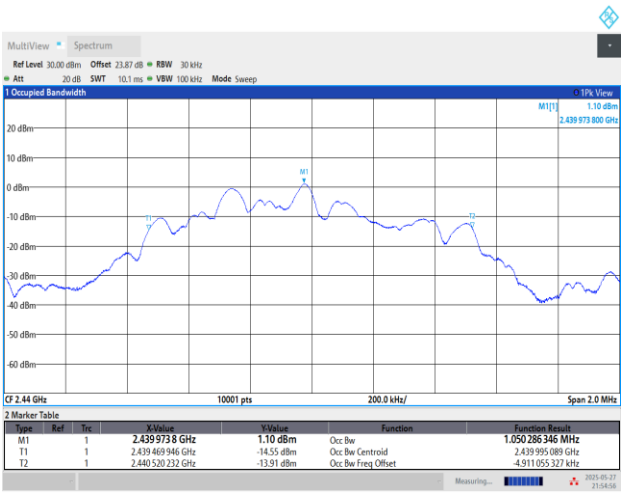
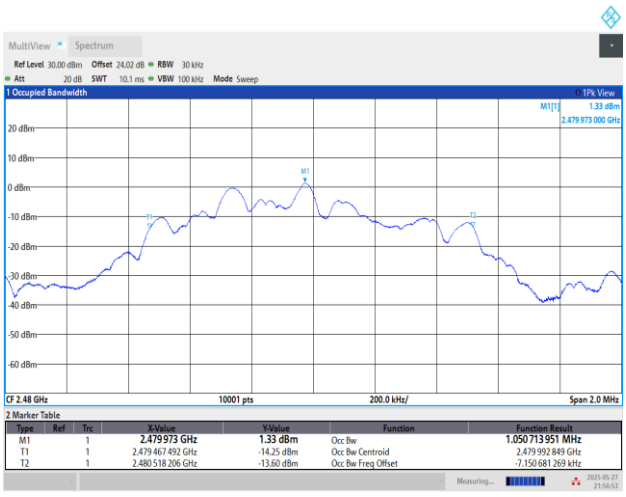
6dB Bandwidth

<1M>

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

99% Occupied Bandwidth

<1M>

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

Power Spectral Density (dBm/3kHz)

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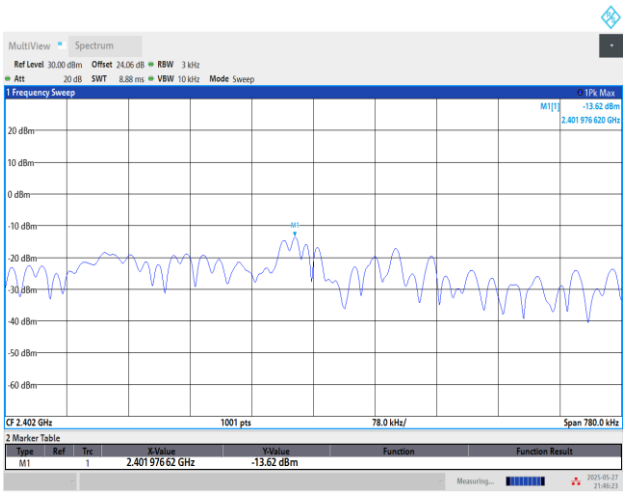
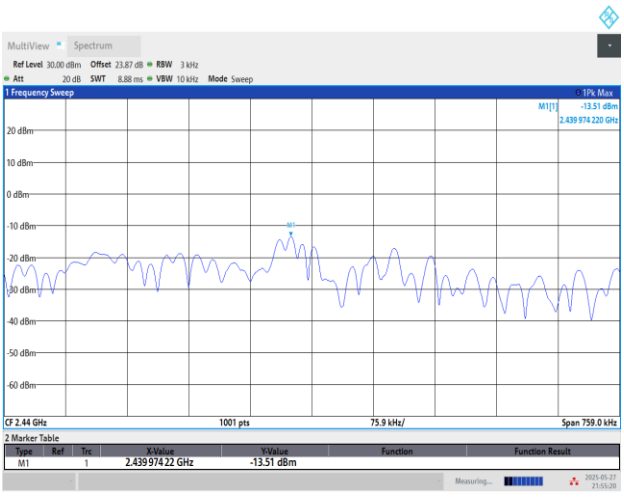
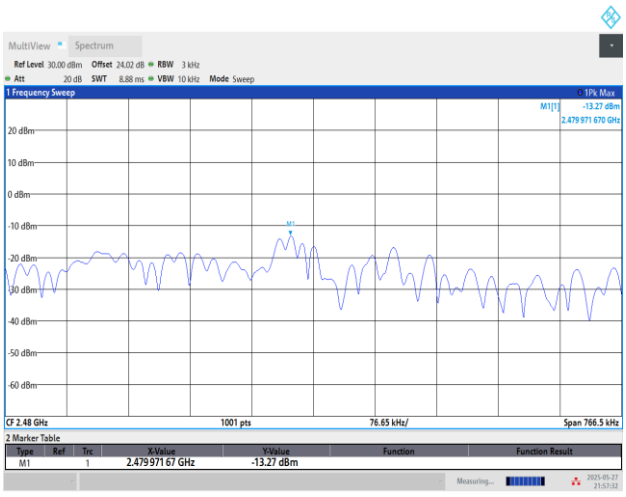
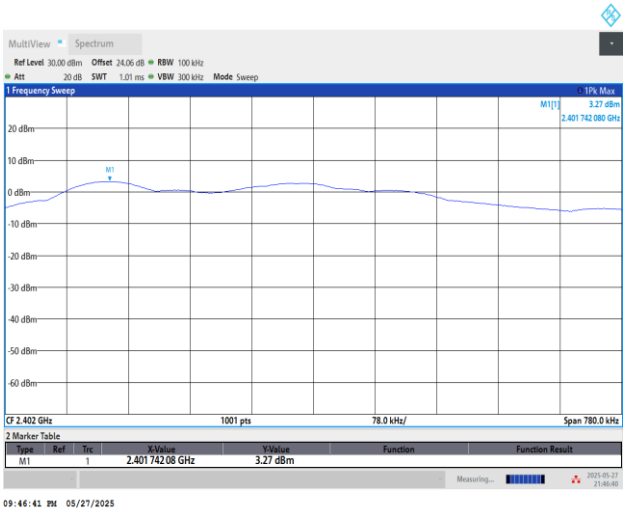
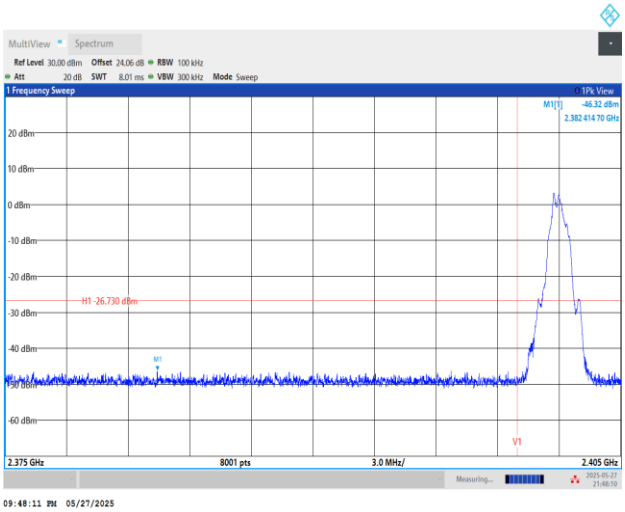
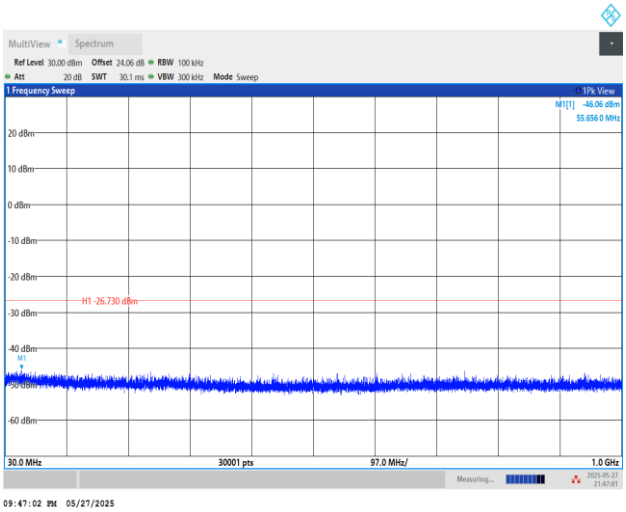
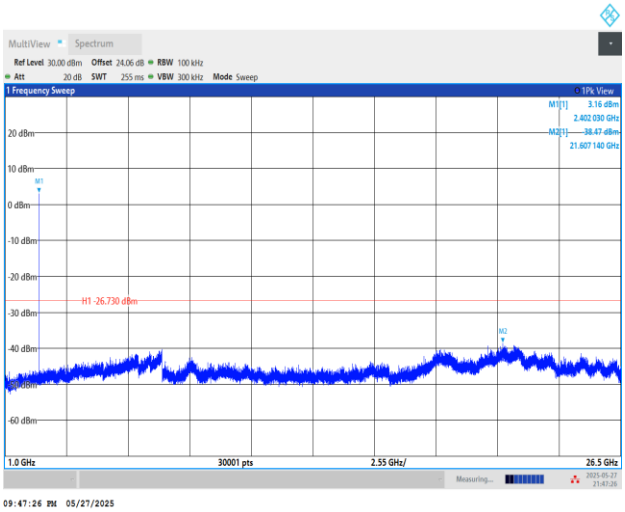
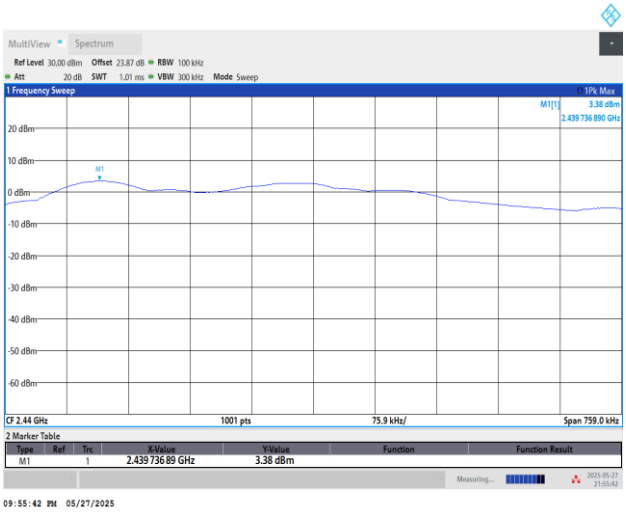
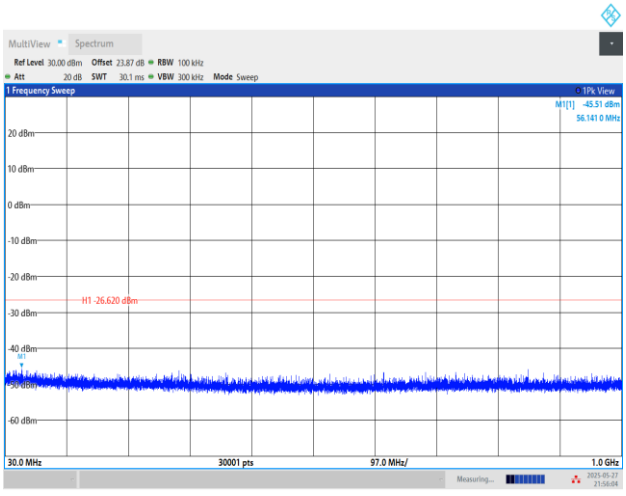
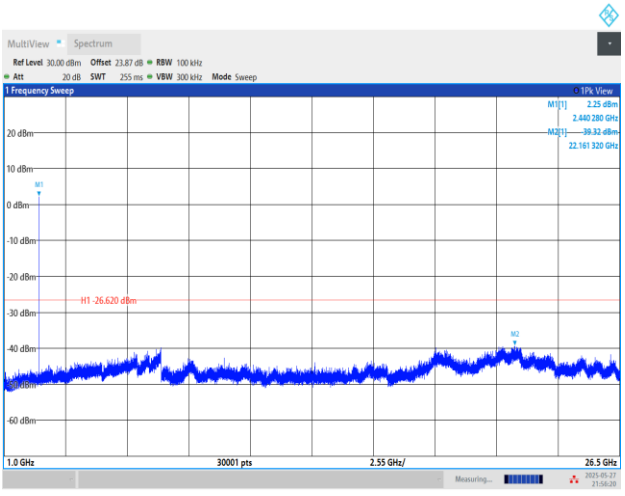
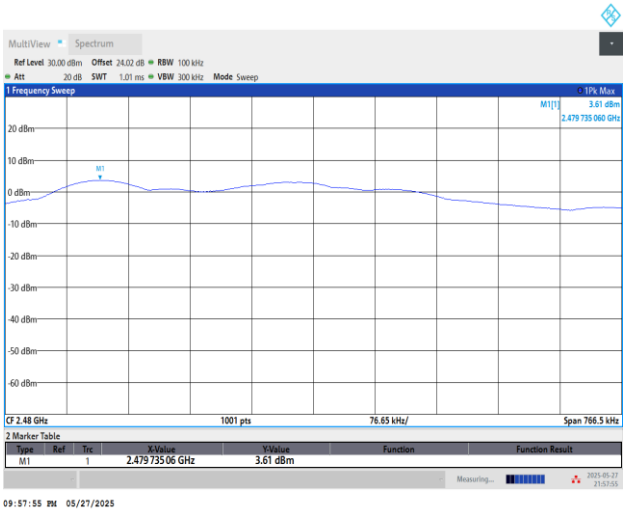
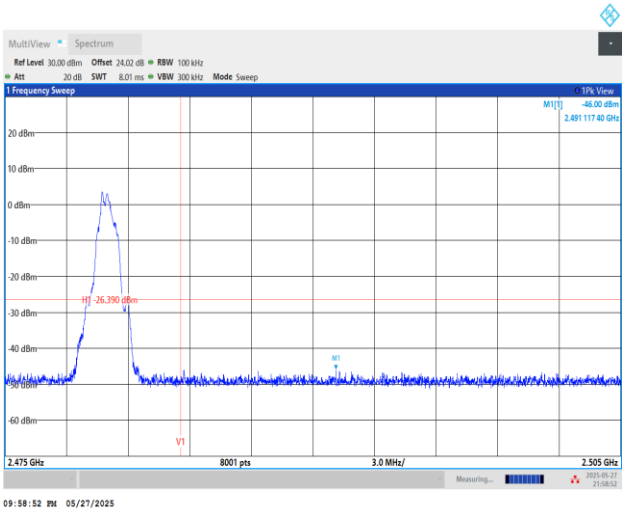
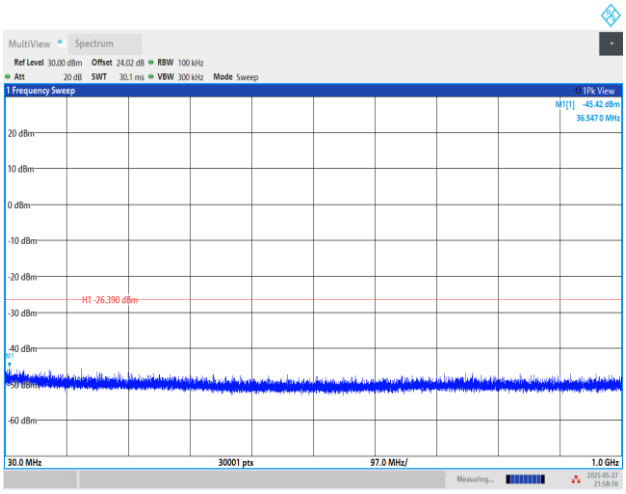
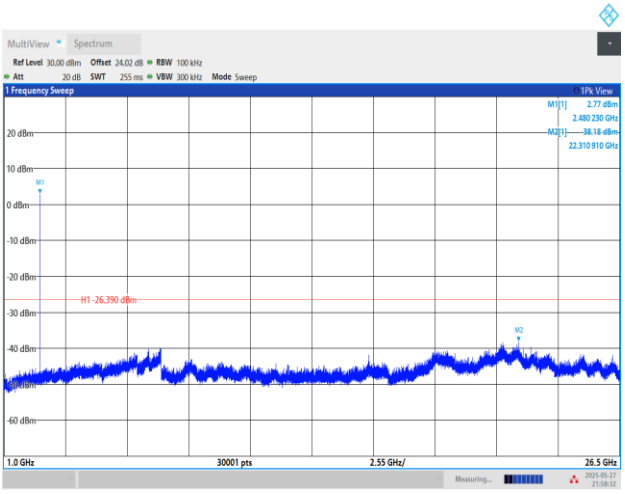
Power Density (dBm/3kHz) Plot Channel 0	Power Density (dBm/3kHz) Plot Channel 19
	
Power Density (dBm/3kHz) Plot Channel 39	
	

Band Edge and Conducted Spurious Emission

<1M>

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**
	

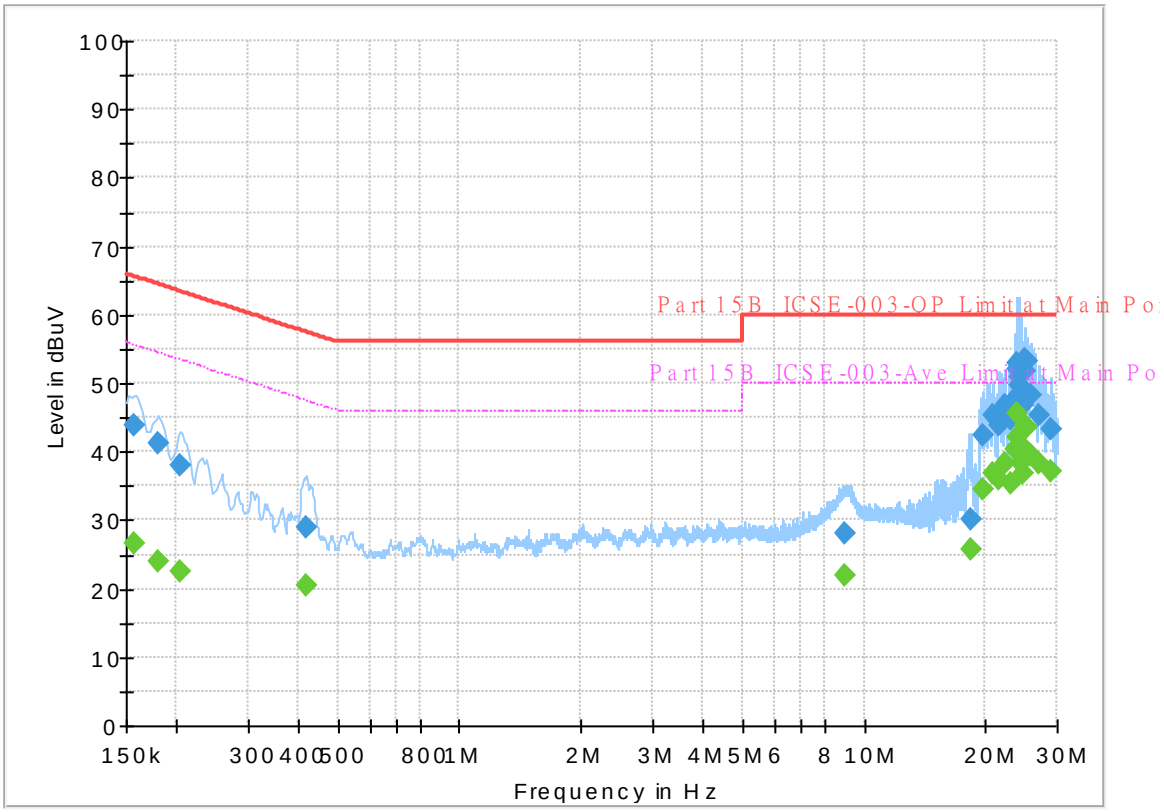
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Brian Chen	**Temperature :**	23 ~ 26℃
		Relative Humidity :	45 ~ 55%

EUT Information

Report NO :	541703
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



Final_Result

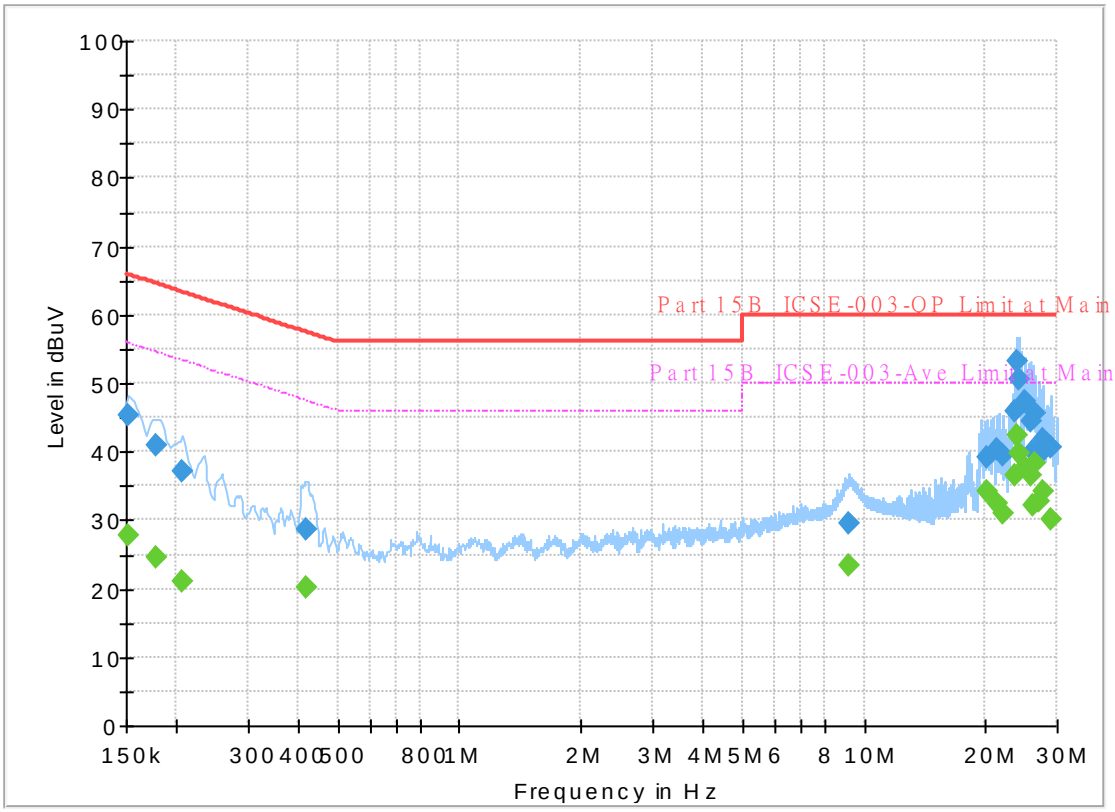
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156750	---	26.72	55.63	28.91	L1	OFF	19.8
0.156750	43.95	---	65.63	21.68	L1	OFF	19.8
0.179250	---	24.07	54.52	30.45	L1	OFF	19.8
0.179250	41.18	---	64.52	23.34	L1	OFF	19.8
0.204000	---	22.44	53.45	31.01	L1	OFF	19.8
0.204000	37.89	---	63.45	25.56	L1	OFF	19.8
0.420000	---	20.51	47.45	26.94	L1	OFF	19.8
0.420000	28.81	---	57.45	28.64	L1	OFF	19.8
9.003750	---	21.97	50.00	28.03	L1	OFF	19.9
9.003750	27.94	---	60.00	32.06	L1	OFF	19.9
18.309750	---	25.66	50.00	24.34	L1	OFF	19.9
18.309750	30.09	---	60.00	29.91	L1	OFF	19.9
19.628250	---	34.44	50.00	15.56	L1	OFF	19.9
19.628250	42.42	---	60.00	17.58	L1	OFF	19.9
20.782500	---	36.93	50.00	13.07	L1	OFF	19.9
20.782500	45.22	---	60.00	14.78	L1	OFF	19.9
21.603750	---	36.02	50.00	13.98	L1	OFF	19.9
21.603750	43.80	---	60.00	16.20	L1	OFF	19.9
22.267500	---	38.44	50.00	11.56	L1	OFF	19.9
22.267500	46.73	---	60.00	13.27	L1	OFF	19.9
23.073000	---	35.52	50.00	14.48	L1	OFF	19.9

23.073000	44.79	---	60.00	15.21	L1	OFF	19.9
23.613000	---	40.23	50.00	9.77	L1	OFF	19.9
23.613000	47.77	---	60.00	12.23	L1	OFF	19.9
23.777250	---	45.57	50.00	4.43	L1	OFF	19.9
23.777250	53.03	---	60.00	6.97	L1	OFF	19.9
23.948250	---	42.09	50.00	7.91	L1	OFF	19.9
23.948250	52.04	---	60.00	7.96	L1	OFF	19.9
24.101250	---	39.91	50.00	10.09	L1	OFF	19.9
24.101250	49.73	---	60.00	10.27	L1	OFF	19.9
24.236250	---	40.84	50.00	9.16	L1	OFF	19.9
24.236250	50.82	---	60.00	9.18	L1	OFF	19.9
24.402750	---	38.21	50.00	11.79	L1	OFF	19.9
24.402750	48.55	---	60.00	11.45	L1	OFF	19.9
24.774000	---	36.87	50.00	13.13	L1	OFF	19.9
24.774000	46.69	---	60.00	13.31	L1	OFF	19.9
24.933750	---	43.89	50.00	6.11	L1	OFF	19.9
24.933750	53.53	---	60.00	6.47	L1	OFF	19.9
25.041750	---	40.38	50.00	9.62	L1	OFF	19.9
25.041750	51.68	---	60.00	8.32	L1	OFF	19.9
25.221750	---	43.60	50.00	6.40	L1	OFF	19.9
25.221750	53.18	---	60.00	6.82	L1	OFF	19.9
25.752750	---	39.33	50.00	10.67	L1	OFF	19.9
25.752750	48.26	---	60.00	11.74	L1	OFF	19.9
27.215250	---	38.23	50.00	11.77	L1	OFF	19.9
27.215250	45.25	---	60.00	14.75	L1	OFF	19.9
29.028750	---	37.10	50.00	12.90	L1	OFF	19.9
29.028750	43.13	---	60.00	16.87	L1	OFF	19.9

EUT Information

Report NO :	541703
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	27.89	55.88	27.99	N	OFF	19.8
0.152250	45.29	---	65.88	20.59	N	OFF	19.8
0.177000	---	24.68	54.63	29.95	N	OFF	19.8
0.177000	40.95	---	64.63	23.68	N	OFF	19.8
0.206250	---	20.94	53.36	32.42	N	OFF	19.8
0.206250	37.02	---	63.36	26.34	N	OFF	19.8
0.420000	---	20.17	47.45	27.28	N	OFF	19.8
0.420000	28.64	---	57.45	28.81	N	OFF	19.8
9.197250	---	23.49	50.00	26.51	N	OFF	19.9
9.197250	29.50	---	60.00	30.50	N	OFF	19.9
20.096250	---	34.08	50.00	15.92	N	OFF	20.1
20.096250	39.05	---	60.00	20.95	N	OFF	20.1
21.412500	---	32.50	50.00	17.50	N	OFF	20.1
21.412500	40.49	---	60.00	19.51	N	OFF	20.1
22.089750	---	30.95	50.00	19.05	N	OFF	20.1
22.089750	39.45	---	60.00	20.55	N	OFF	20.1
23.536500	---	36.63	50.00	13.37	N	OFF	20.1
23.536500	45.77	---	60.00	14.23	N	OFF	20.1
23.901000	---	42.50	50.00	7.50	N	OFF	20.1
23.901000	53.19	---	60.00	6.81	N	OFF	20.1
24.209250	---	39.73	50.00	10.27	N	OFF	20.1

24.209250	50.69	---	60.00	9.31	N	OFF	20.1
25.023750	---	37.76	50.00	12.24	N	OFF	20.1
25.023750	47.32	---	60.00	12.68	N	OFF	20.1
25.725750	---	36.48	50.00	13.52	N	OFF	20.1
25.725750	44.55	---	60.00	15.45	N	OFF	20.1
26.218500	---	32.22	50.00	17.78	N	OFF	20.1
26.218500	40.09	---	60.00	19.91	N	OFF	20.1
26.479500	---	38.16	50.00	11.84	N	OFF	20.1
26.479500	45.68	---	60.00	14.32	N	OFF	20.1
27.073500	---	32.62	50.00	17.38	N	OFF	20.1
27.073500	39.41	---	60.00	20.59	N	OFF	20.1
27.685500	---	34.24	50.00	15.76	N	OFF	20.1
27.685500	41.69	---	60.00	18.31	N	OFF	20.1
28.833000	---	30.07	50.00	19.93	N	OFF	20.1
28.833000	40.76	---	60.00	19.24	N	OFF	20.1

Appendix C. Radiated Spurious Emission Test Data

Test Engineer :	John Chuang、David Dai, and Sam Chou	**Relative Humidity(%):**	67.3 ~ 69.5
		Temperature(℃):	19.9 ~ 22.7

Note symbol

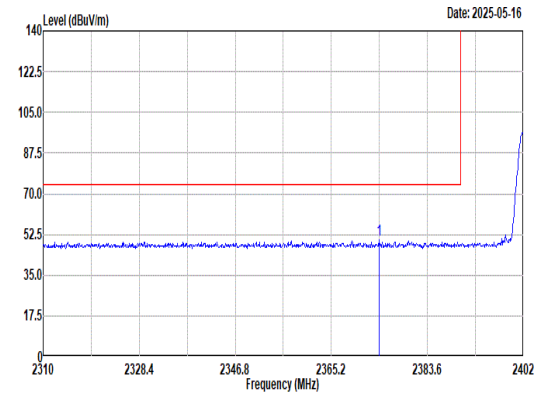
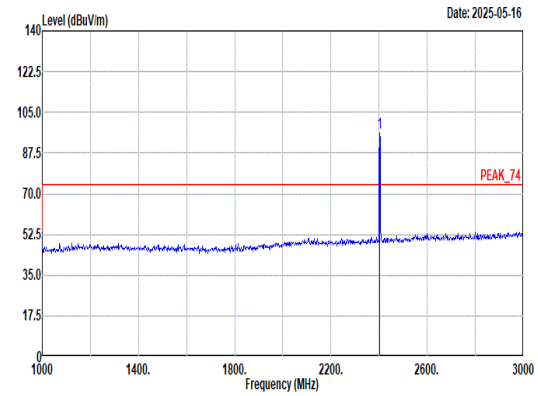
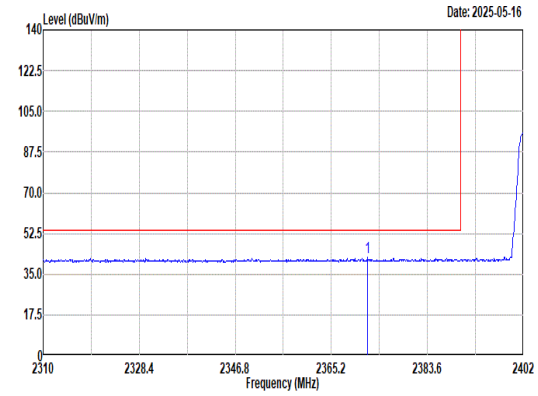
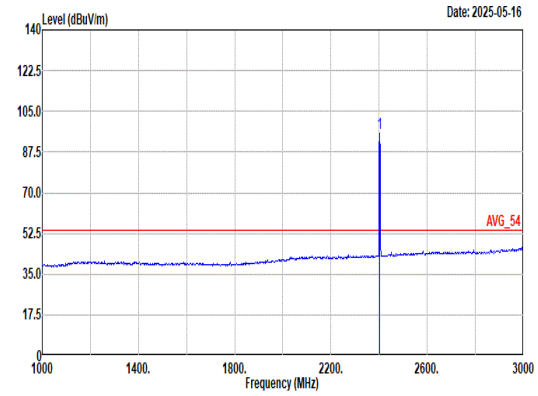
-L	**Low channel location**
-R	**High channel location**

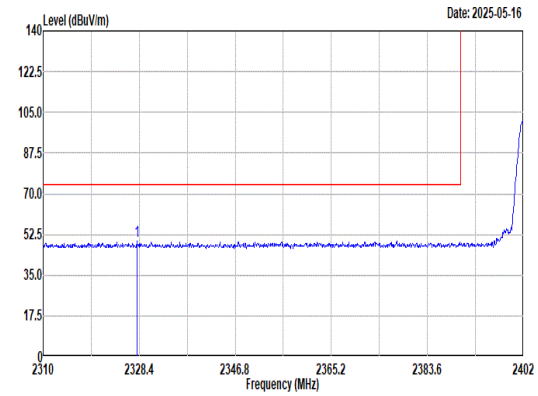
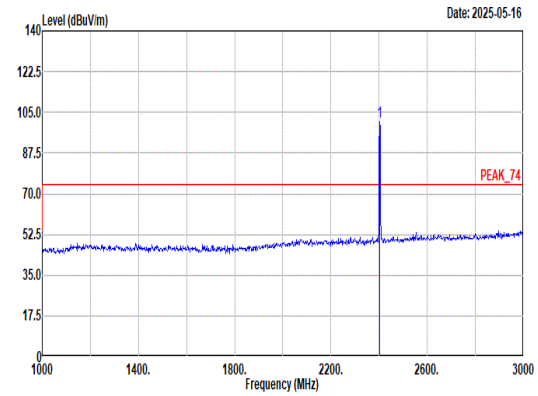
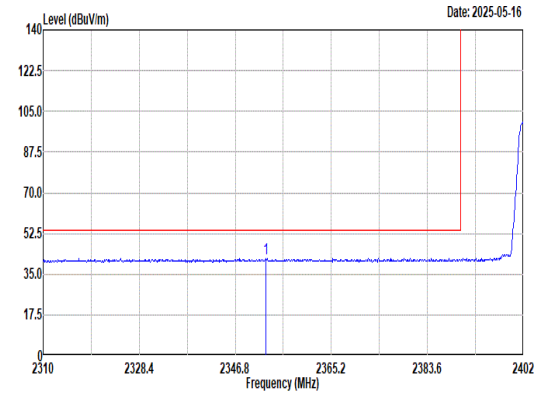
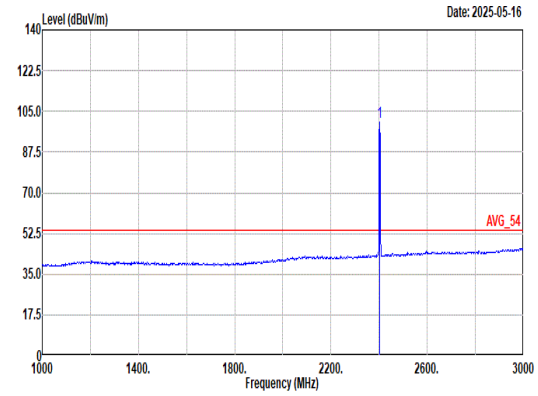
C1. Radiated Spurious Emission Test Modes

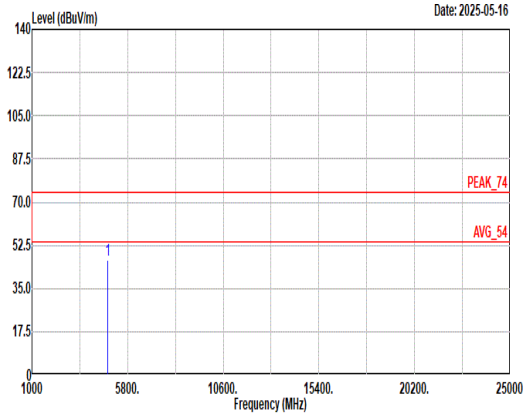
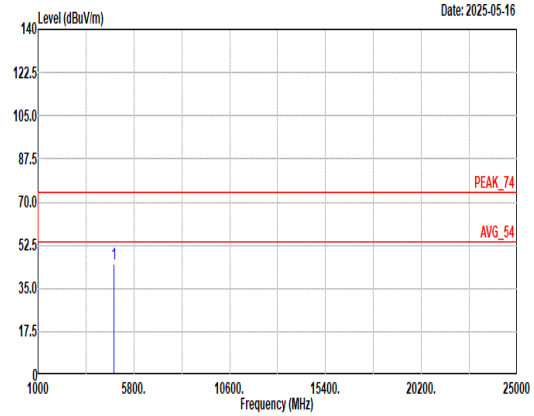
Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 5	2400-2483.5	1	Bluetooth-LE GSFK	00	2402	1Mbps	-	-
Mode 6	2400-2483.5	1	Bluetooth-LE GSFK	19	2440	1Mbps	-	-
Mode 7	2400-2483.5	1	Bluetooth-LE GSFK	39	2480	1Mbps	-	-
Mode 8	2400-2483.5	1	Bluetooth-LE GSFK	19	2440	1Mbps	-	LF

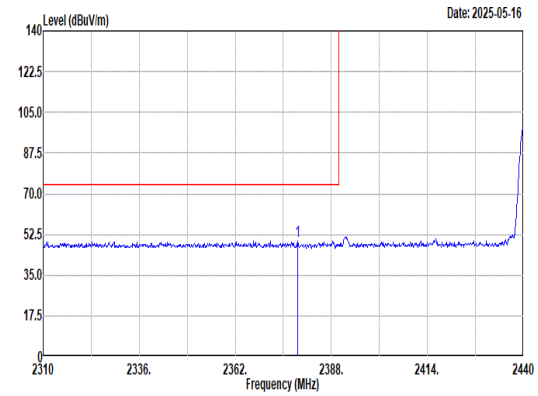
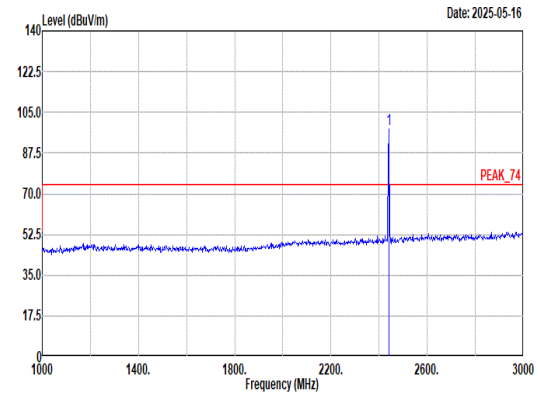
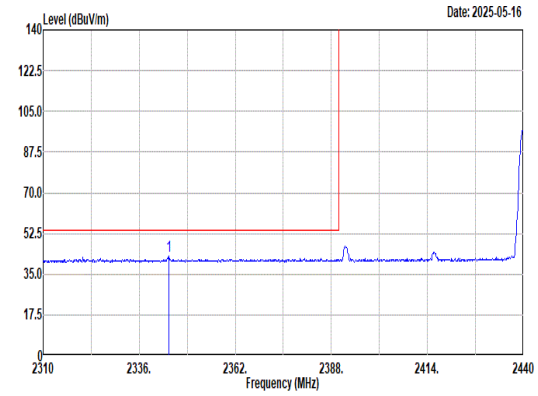
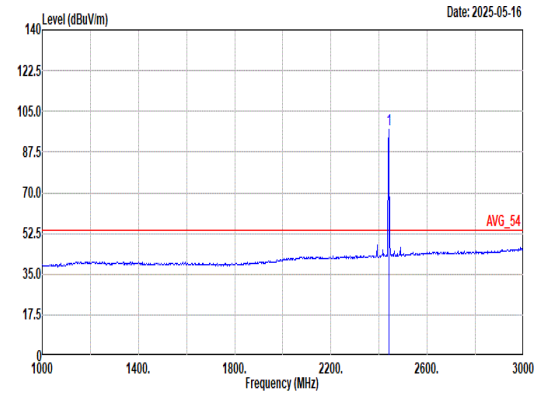
C2. Summary of each worse mode

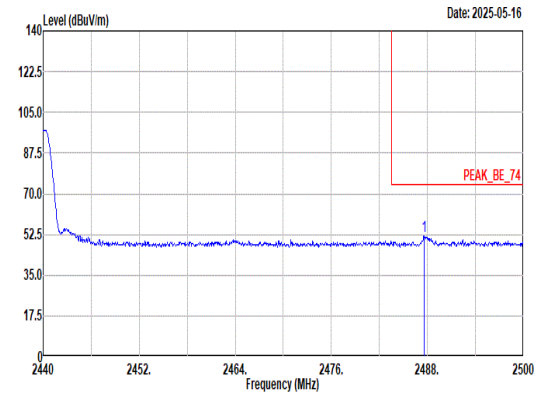
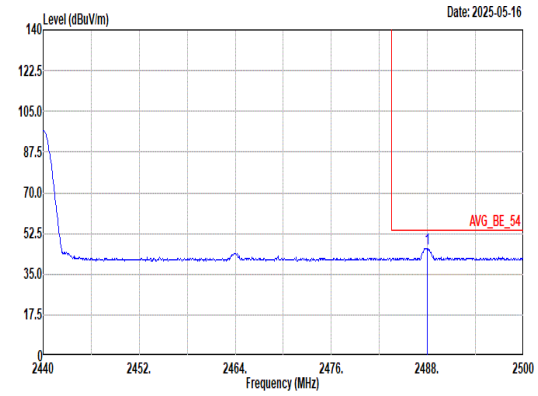
Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	RU	Remark
5	Bluetooth-LE GSFK	00	2372.19	42.07	54.00	-11.93	H	Avg.	Pass	-	Band Edge
	Bluetooth-LE GSFK	00	4804.00	46.66	74.00	-27.34	H	Peak	Pass	-	Harmonic
6	Bluetooth-LE GSFK	19	2488.00	46.10	54.00	-7.90	H	Avg.	Pass	-	Band Edge
	Bluetooth-LE GSFK	19	7320.00	40.63	54.00	-13.37	V	Avg.	Pass	-	Harmonic
7	Bluetooth-LE GSFK	39	2483.52	45.93	54.00	-8.07	V	Avg.	Pass	-	Band Edge
	Bluetooth-LE GSFK	39	7440.00	47.95	74.00	-26.05	H	Peak	Pass	-	Harmonic
8	LF	19	948.59	36.41	46.00	-9.59	H	Peak	Pass	-	LF

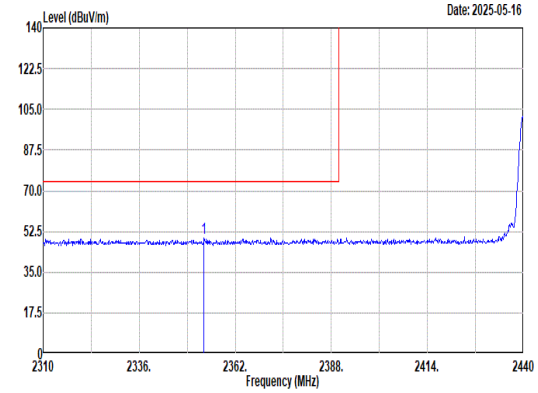
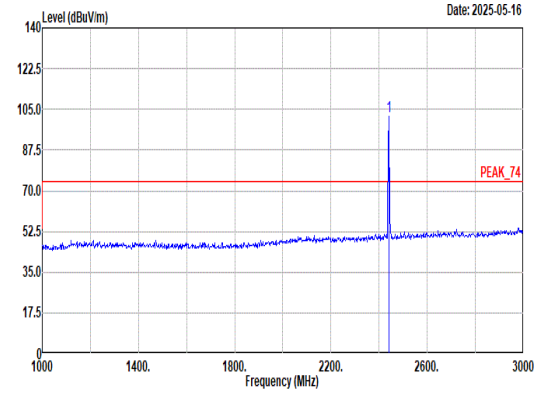
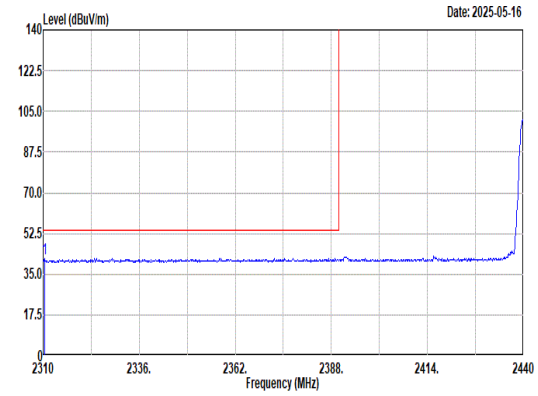
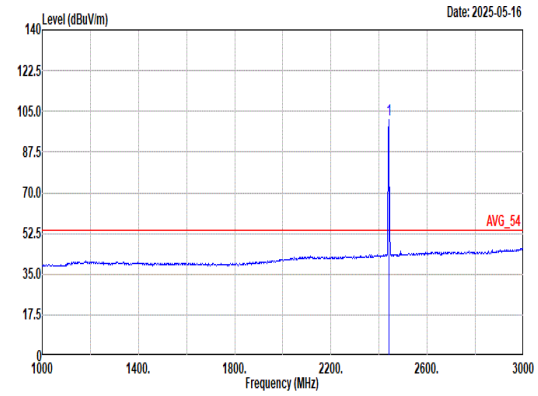
Mode	5	
	Band Edge	
	2400-2483.5_Bluetooth-LE GSFK_CH00_2402MHz	
ANT	1	
Pol.	Horizontal	Fundamental
Peak	 Site : 03CH20-HY Condition: PEAK_BE_74 3m HF_9120D_02038_240729 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2374.40 50.38 74.00 -23.62 41.07 27.30 8.59 36.26 9.68 112 145 PEAK	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02038_240729 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 96.16 ------ ------ 86.69 27.42 8.64 36.27 9.68 112 145 PEAK
Avg	 Site : 03CH20-HY Condition: AVG_BE_54 3m HF_9120D_02038_240729 HORIZONTAL : RBW:1000.000kHz VBW:11.000kHz 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 2372.19 42.07 54.00 -11.93 32.76 27.30 8.59 36.26 9.68 112 145 AVERAGE	 Site : 03CH20-HY Condition: AVG_54 3m HF_9120D_02038_240729 HORIZONTAL : RBW:1000.000kHz VBW:11.000kHz 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 95.78 ------ ------ 86.31 27.42 8.64 36.27 9.68 112 145 AVERAGE

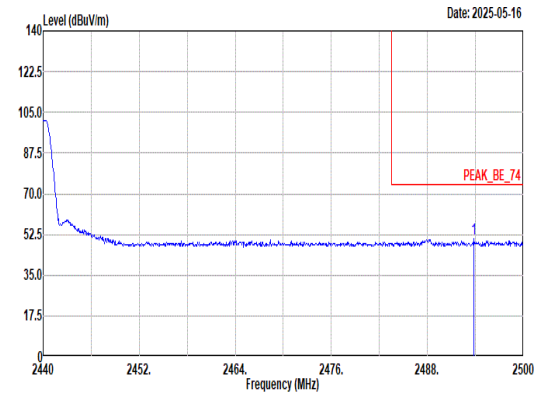
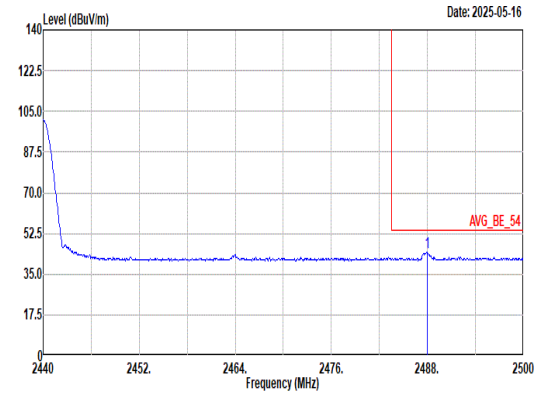
Mode	5	
	Band Edge	
	2400-2483.5_Bluetooth-LE GSFK_CH00_2402MHz	
ANT	1	
Pol.	Vertical	Fundamental
Peak	 Site : 03CH20-HY Condition: PEAK_BE_74 3m HF_9120D_02038_240729 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2327.94 49.42 74.00 -24.58 40.18 27.30 8.51 36.25 9.68 122 101 PEAK	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02038_240729 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 2402.00 100.91 ------ ------ 91.44 27.42 8.64 36.27 9.68 122 101 PEAK
Avg	 Site : 03CH20-HY Condition: AVG_BE_54 3m HF_9120D_02038_240729 VERTICAL : RBW:1000.000kHz VBW:11.000kHz 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 2352.60 41.85 54.00 -12.15 32.58 27.30 8.55 36.26 9.68 122 101 AVERAGE	 Site : 03CH20-HY Condition: AVG_54 3m HF_9120D_02038_240729 VERTICAL : RBW:1000.000kHz VBW:11.000kHz 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 2402.00 100.51 ------ ------ 91.04 27.42 8.64 36.27 9.68 122 101 AVERAGE

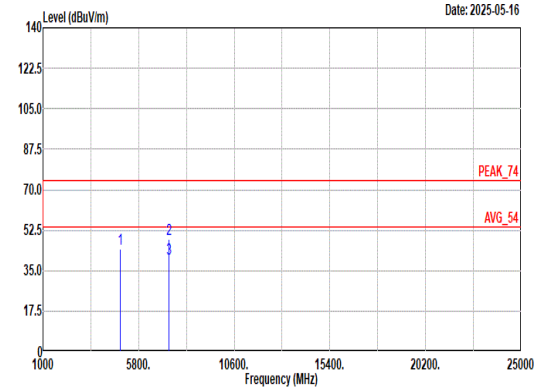
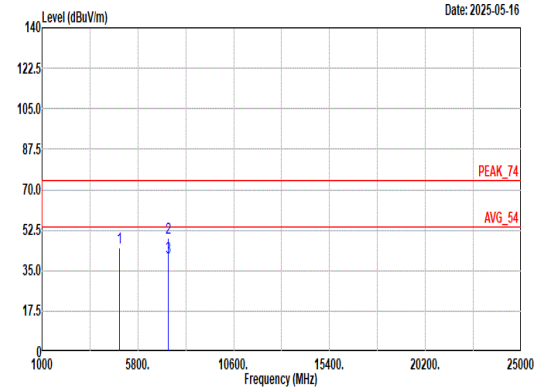
Mode	5	
	Harmonic	
	2400-2483.5_Bluetooth-LE GSFK_CH00_2402MHz	
ANT	1	
Pol.	Horizontal	Vertical
Peak Avg	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02360_241101 HORIZONTAL Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4804.00 46.66 74.00 -27.34 39.06 32.23 12.25 37.51 0.63 -- -- PEAK	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02360_241101 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 44.76 74.00 -29.24 37.16 32.23 12.25 37.51 0.63 -- -- PEAK

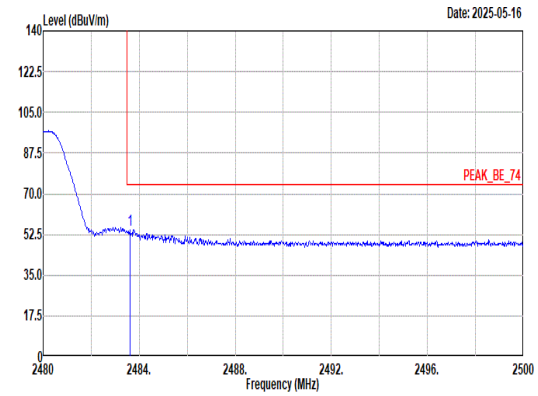
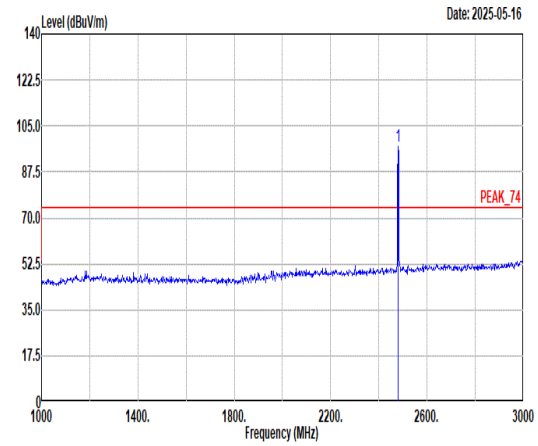
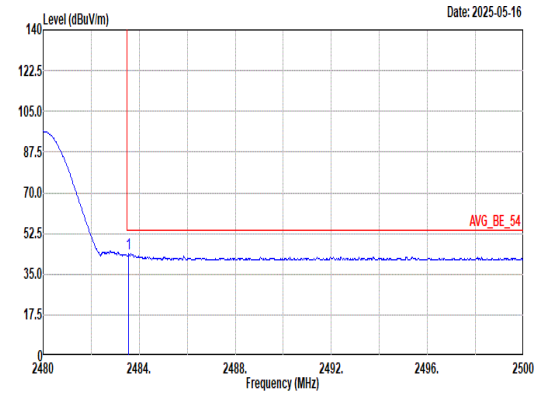
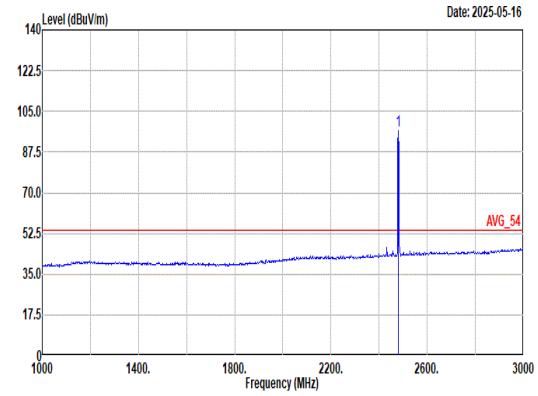
Mode	6	
	Band Edge - L	
	2400-2483.5_Bluetooth-LE GSFK_CH19_2440MHz	
ANT	1	
Pol.	Horizontal	Fundamental
Peak	 Site : 03CH20-HY Condition: PEAK_BE_74 3m HF_9120D_02038_240729 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2378.90 49.70 74.00 -24.30 40.38 27.30 8.60 36.26 9.68 269 293 PEAK	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02038_240729 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 97.52 ------ ------ 87.81 27.60 8.71 36.28 9.68 269 293 PEAK
Avg	 Site : 03CH20-HY Condition: AVG_BE_54 3m HF_9120D_02038_240729 HORIZONTAL : RBW:1000.000kHz VBW:11.000kHz 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 2343.93 42.64 54.00 -11.36 33.43 27.24 8.54 36.25 9.68 269 293 AVERAGE	 Site : 03CH20-HY Condition: AVG_54 3m HF_9120D_02038_240729 HORIZONTAL : RBW:1000.000kHz VBW:11.000kHz 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 97.05 ------ ------ 87.34 27.60 8.71 36.28 9.68 269 293 AVERAGE

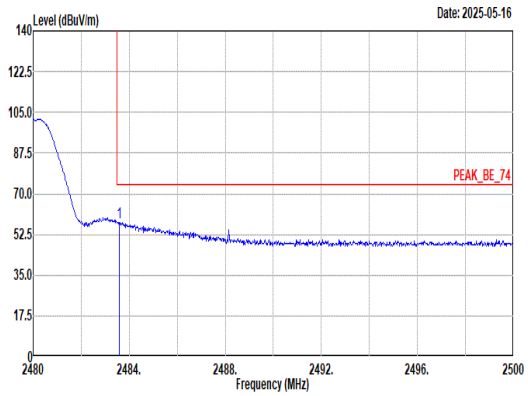
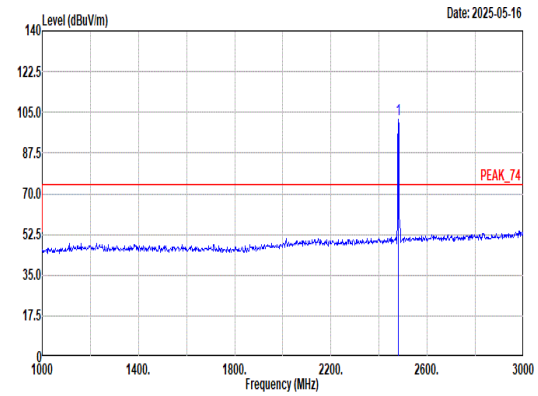
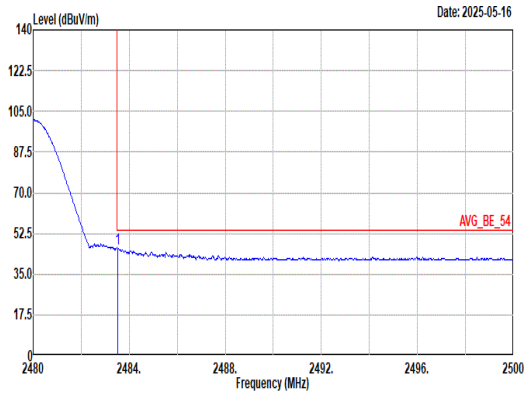
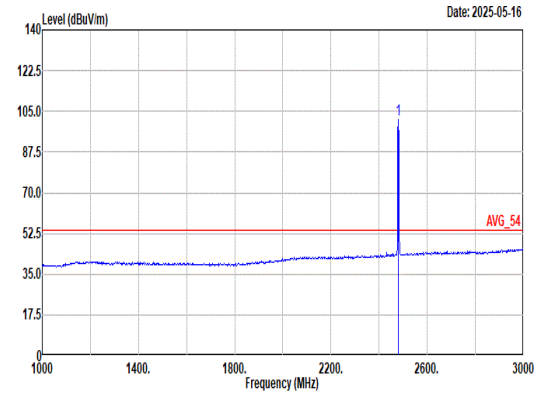
Mode	6	
	Band Edge - R	
	2400-2483.5_Bluetooth-LE GSFK_CH19_2440MHz	
ANT	1	
Pol.	Horizontal	Fundamental
Peak	 Site : 03CH20-HY Condition: PEAK_BE_74 3m HF_9120D_02038_240729 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2487.58 51.84 74.00 -22.16 41.88 27.78 8.80 36.30 9.68 269 293 PEAK	Blank
Avg	 Site : 03CH20-HY Condition: AVG_BE_54 3m HF_9120D_02038_240729 HORIZONTAL : RBW:1000.000kHz VBW:11.000kHz 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 2488.00 46.10 54.00 -7.90 36.14 27.78 8.80 36.30 9.68 269 293 AVERAGE	Blank

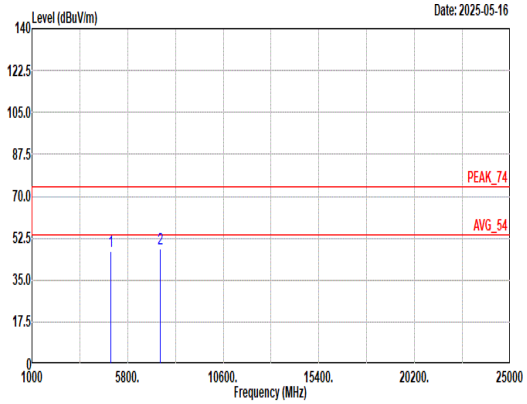
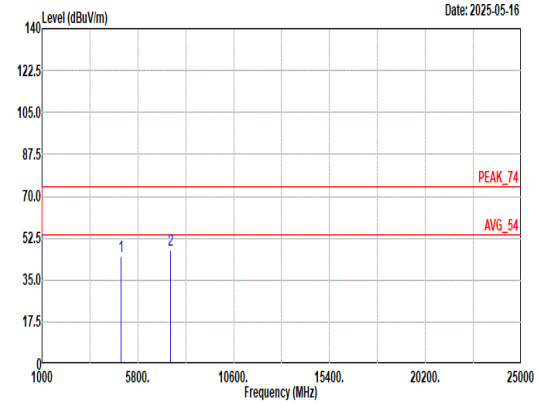
Mode	6	
	Band Edge - L	
	2400-2483.5_Bluetooth-LE GSFK_CH19_2440MHz	
ANT	1	
Pol.	Vertical	Fundamental
Peak	 Site : 03CH20-HY Condition: PEAK_BE_74 3m HF_9120D_02038_240729 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2353.55 49.49 74.00 -24.51 40.22 27.30 8.55 36.26 9.68 115 108 PEAK	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02038_240729 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 2440.00 101.84 ------ ------ 92.13 27.60 8.71 36.28 9.68 115 108 PEAK
Avg	 Site : 03CH20-HY Condition: AVG_BE_54 3m HF_9120D_02038_240729 VERTICAL : RBW:1000.000kHz VBW:11.000kHz 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 2310.39 41.78 54.00 -12.22 32.67 27.20 8.47 36.24 9.68 115 108 AVERAGE	 Site : 03CH20-HY Condition: AVG_54 3m HF_9120D_02038_240729 VERTICAL : RBW:1000.000kHz VBW:11.000kHz 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 2440.00 101.48 ------ ------ 91.77 27.60 8.71 36.28 9.68 115 108 AVERAGE

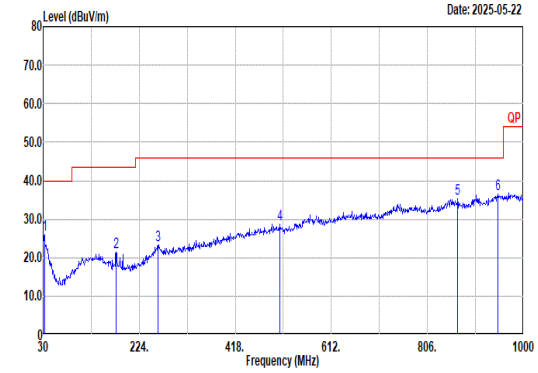
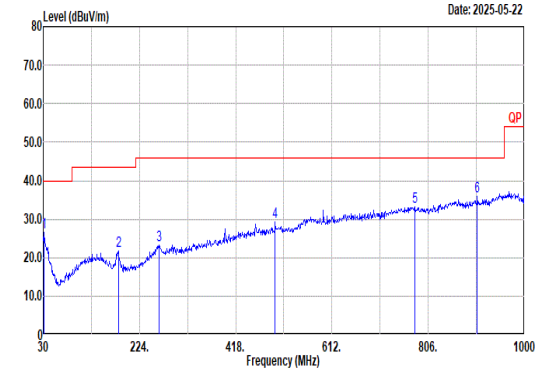
Mode	6	
	Band Edge - R	
	2400-2483.5_Bluetooth-LE GSFK_CH19_2440MHz	
ANT	1	
Pol.	Vertical	Fundamental
Peak	 Site : 03CH20-HY Condition: PEAK_BE_74 3m HF_9120D_02038_240729 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2493.82 50.61 74.00 -23.39 40.62 27.80 8.81 36.30 9.68 115 108 PEAK	Blank
Avg	 Site : 03CH20-HY Condition: AVG_BE_54 3m HF_9120D_02038_240729 VERTICAL : RBW:1000.000kHz VBW:11.000kHz 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 2487.94 44.23 54.00 -9.77 34.27 27.78 8.80 36.30 9.68 115 108 AVERAGE	Blank

Mode	6	
	Harmonic	
	2400-2483.5_Bluetooth-LE GSFK_CH19_2440MHz	
ANT	1	
Pol.	Horizontal	Vertical
Peak Avg	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02360_241101 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 44.11 74.00 -29.89 35.94 32.72 12.39 37.57 0.63 -- -- PEAK 2 7320.00 48.80 74.00 -25.20 34.70 36.78 15.38 38.48 0.42 181 0 PEAK 3 7320.00 40.04 54.00 -13.96 25.94 36.78 15.38 38.48 0.42 181 0 Average	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02360_241101 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 44.72 74.00 -29.28 36.55 32.72 12.39 37.57 0.63 -- -- PEAK 2 7320.00 49.31 74.00 -24.69 35.21 36.78 15.38 38.48 0.42 100 174 PEAK 3 7320.00 40.63 54.00 -13.37 26.53 36.78 15.38 38.48 0.42 100 174 Average

Mode	7	
	Band Edge	
	2400-2483.5_Bluetooth-LE GSFK_CH39_2480MHz	
ANT	1	
Pol.	Horizontal	Fundamental
Peak	 Site : 03CH20-HY Condition: PEAK_BE_74 3m HF_9120D_02038_240729 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 2483.62 54.52 74.00 -19.48 44.61 27.74 8.79 36.30 9.68 293 293 PEAK	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02038_240729 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 97.19 ------ ------ 87.31 27.70 8.79 36.29 9.68 293 293 PEAK
Avg	 Site : 03CH20-HY Condition: AVG_BE_54 3m HF_9120D_02038_240729 HORIZONTAL : RBW:1000.000kHz VBW:11.000kHz 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 2483.56 43.81 54.00 -10.19 33.90 27.74 8.79 36.30 9.68 293 293 AVERAGE	 Site : 03CH20-HY Condition: AVG_54 3m HF_9120D_02038_240729 HORIZONTAL : RBW:1000.000kHz VBW:11.000kHz 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 96.66 ------ ------ 86.78 27.70 8.79 36.29 9.68 293 293 AVERAGE

Mode	7	
	Band Edge	
	2400-2483.5_Bluetooth-LE GSFK_CH39_2480MHz	
ANT	1	
Pol.	Vertical	Fundamental
Peak	 Site : 03CH20-HY Condition: PEAK_BE_74 3m HF_9120D_02038_240729 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 2483.60 57.80 74.00 -16.20 47.89 27.74 8.79 36.30 9.68 113 109 PEAK	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02038_240729 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 2480.00 102.09 ------ ------ 92.21 27.70 8.79 36.29 9.68 113 109 PEAK
Avg	 Site : 03CH20-HY Condition: AVG_BE_54 3m HF_9120D_02038_240729 VERTICAL : RBW:1000.000kHz VBW:11.000kHz 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 45.93 54.00 -8.07 36.02 27.74 8.79 36.30 9.68 113 109 AVERAGE	 Site : 03CH20-HY Condition: AVG_54 3m HF_9120D_02038_240729 VERTICAL : RBW:1000.000kHz VBW:11.000kHz 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 2480.00 101.63 ------ ------ 91.75 27.70 8.79 36.29 9.68 113 109 AVERAGE

Mode	7	
	Harmonic	
	2400-2483.5_Bluetooth-LE GSFK_CH39_2480MHz	
ANT	1	
Pol.	Horizontal	Vertical
Peak Avg	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02360_241101 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 46.78 74.00 -27.22 38.10 33.16 12.54 37.64 0.62 -- -- PEAK 2 7440.00 47.95 74.00 -26.05 34.39 36.22 15.51 38.58 0.41 -- -- PEAK	 Site : 03CH20-HY Condition: PEAK_74 3m HF_9120D_02360_241101 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 44.83 74.00 -29.17 36.15 33.16 12.54 37.64 0.62 -- -- PEAK 2 7440.00 47.32 74.00 -26.68 33.76 36.22 15.51 38.58 0.41 -- -- PEAK

Mode	8	
	LF	
	2400-2483.5_Bluetooth-LE GSFK_CH19_2440MHz	
ANT	1	
Pol.	Horizontal	Vertical
QP/ Peak		

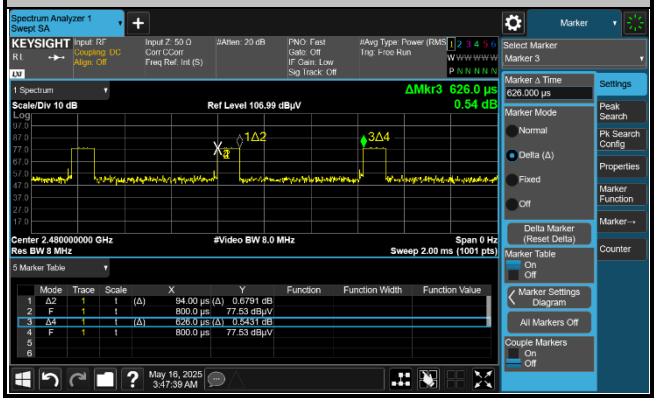
Site : 03CH20-HY
Condition: QP 3m Bilog_55606 & 08_241127 HORIZONTAL

	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	32.91	25.93	40.00	-14.07	37.23	23.21	1.01	35.75	0.23	--	--	Peak
2	177.44	21.42	43.50	-22.08	39.17	15.24	2.37	35.55	0.19	--	--	Peak
3	261.83	23.30	46.00	-22.70	35.37	20.24	2.87	35.37	0.19	--	--	Peak
4	507.24	28.58	46.00	-17.42	35.21	24.02	3.97	34.75	0.13	--	--	Peak
5	867.11	35.45	46.00	-10.55	34.39	29.17	5.20	33.43	0.12	--	--	Peak
6	948.59	36.41	46.00	-9.59	33.38	30.66	5.43	33.16	0.10	--	--	Peak

Site : 03CH20-HY
Condition: QP 3m Bilog_55606 & 08_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	30.97	26.71	40.00	-13.29	37.11	24.12	0.98	35.75	0.25	--	--	Peak
2	181.32	21.78	43.50	-21.72	39.67	15.06	2.40	35.54	0.19	--	--	Peak
3	263.77	23.18	46.00	-22.82	35.14	20.34	2.88	35.37	0.19	--	--	Peak
4	497.54	29.19	46.00	-16.81	35.99	23.92	3.93	34.78	0.13	--	--	Peak
5	779.81	33.35	46.00	-12.65	33.84	28.20	4.93	33.77	0.15	--	--	Peak
6	904.94	35.93	46.00	-10.07	34.64	29.14	5.31	33.31	0.15	--	--	Peak

Appendix D. Duty Cycle Plots

Band	Duty Cycle (%)	T(us)	1/T(kHz)	VBW Setting
Bluetooth - LE for 1Mbps	15.02	94	10.64	11kHz

Bluetooth - LE for 1Mbps