

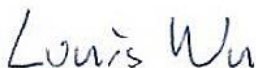


FCC CO-LOCATION RADIO TEST REPORT

FCC ID : UZ7PS30JP
Equipment : Personal Shopper
Brand Name : ZEBRA
Model Name : PS30JP
Applicant : Zebra Technologies Corporation
1 Zebra Plaza, Holtsville, NY 11742
Manufacturer : Zebra Technologies Corporation
1 Zebra Plaza, Holtsville, NY 11742
Standard : FCC Part 15 Subpart C §15.247
FCC Part 15 Subpart E §15.407

The product was received on Jan. 18, 2024 and testing was performed from Jan. 31, 2024 to Feb. 02, 2024. 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.



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.)



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History of this test report

Report No.	Version	Description	Issue Date
FR3D0512G	01	Initial issue of report	Feb. 08, 2024
FR3D0512G	02	Revise antenna information This report is an updated version, replacing the report issued on Feb. 08, 2024.	Feb. 20, 2024

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(d) 15.407(b)	Unwanted Emissions	Pass	1.04 dB under the limit at 5350.08 MHz
3.2	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/manufacture 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: Keven Cheng

Report Producer: Lucy Wu

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Personal Shopper
Brand Name	ZEBRA
Model Name	PS30JP
FCC ID	UZ7PS30JP
EUT supports Radios application	NFC WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE
HW Version	EV2
SW Version	13-13-11.00-TG-U00-PRD-NEM-04
FW Version	FUSION_QA_6_1.1.0.004_T
MFD	13DEC23
EUT Stage	Identical Prototype

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

Specification of Accessories				
Battery 1	Brand Name	Zebra	Part Number	BT-000355-0020
Battery 2	Brand Name	Zebra	Part Number	BT-000355-5020

Supported Unit Used in Test Configuration and System				
1-slot cradle	Brand Name	Zebra	Part Number	CRD-MC18-1SLOT-01
Adapter	Brand Name	Zebra	Part Number	PWR-BGA12V108W0WW
Programming USB cable	Brand Name	Zebra	Part Number	CBL-PS30-USBCHG-01
Soft Holster	Brand Name	Zebra	Part Number	SG-PS20-SFTHLT-01

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz for Bluetooth-LE 2412 MHz ~ 2462 MHz for WLAN (2.4GHz) 5260 MHz ~ 5320 MHz
Antenna Type / Gain	WLAN (2.4GHz): <Ant. 0>: IFA Antenna with gain 1.50 dBi <Ant. 1>: IFA Antenna with gain 2.10 dBi WLAN (5GHz): 5260 MHz ~ 5320 MHz>: <Ant. 0>: IFA Antenna with gain 3.80 dBi <Ant. 1>: IFA Antenna with gain 2.70 dBi Bluetooth: IFA Antenna with gain 1.50 dBi
Type of Modulation	Bluetooth-LE : GFSK 802.11ax: OFDMA (BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM)

Note:

1. For other wireless features of this EUT, test report will be issued separately.
2. 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. 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. 03CH11-HY

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

FCC designation No.: TW3786



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 E
- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- ♦ FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05r02
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ ANSI C63.10-2013

Remark:

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

- 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: 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.

2.1 Carrier Frequency and Channel

2400-2483.5 MHz	
Bluetooth - LE	
Channel	Freq. (MHz)
39	2480

2400-2483.5 MHz		5250-5350 MHz	
802.11ax HE40		802.11ax HE80	
Channel	Freq. (MHz)	Channel	Freq. (MHz)
06	2437	58	5290

<Co-Location>

Modulation	Data Rate
2.4GHz 802.11ax HE40 for MIMO <Ant. 0+1> + 5GHz 802.11ax HE80 for MIMO <Ant. 0+1>	MCS0 + MCS0
Bluetooth – LE for <Ant. 0> + 2.4GHz 802.11ax HE40 for <Ant. 1> + 5GHz 802.11ax HE80 for MIMO <Ant. 0+1>	GFSK + MCS0 + MCS0

Remark: All the tests were performed with Battery 1.

2.2 Connection Diagram of Test System



2.3 EUT Operation Test Setup

The RF test items, utility "QRCT V4.0.210.0" 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.

3 Test Result

3.1 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

3.1.1 Limit of Unwanted Emissions

- (1) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table:

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

Note: The following formula is used to convert the EIRP to field strength.

$$E = \frac{1000000\sqrt{30P}}{3} \quad \mu\text{V/m, where P is the eirp (Watts)}$$

EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27	68.3

- (2) KDB789033 D02 v02r01 G)2)c)

- (i) Sections 15.407(b)(1-3) specifies the unwanted emissions limit for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz.
- (ii) Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are based on the use of a peak detector.

3.1.2 Measuring Instruments

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

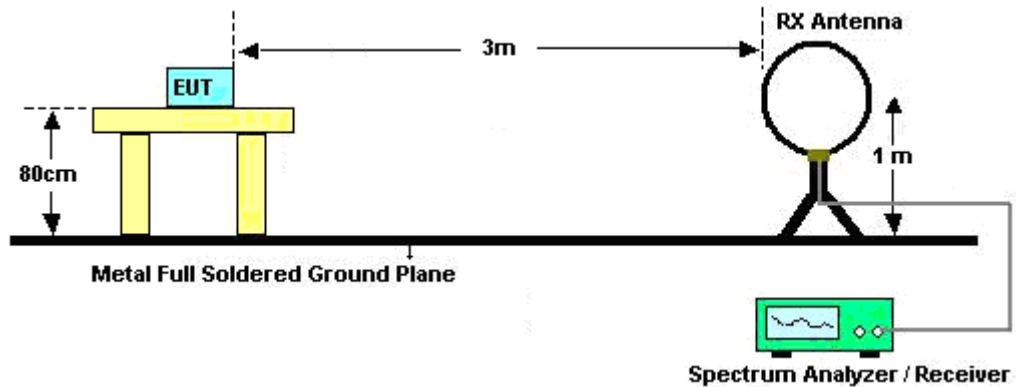
3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000 MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (3) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq$ 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.
2. 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.
3. The EUT is set 3 meters away from the receiving antenna which is mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT is arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
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 "-".

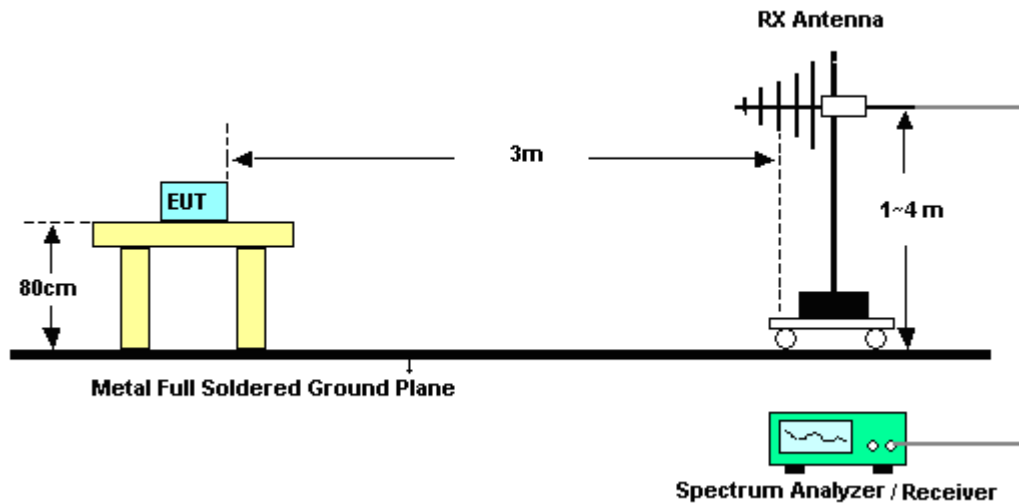
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-”.

3.1.4 Test Setup

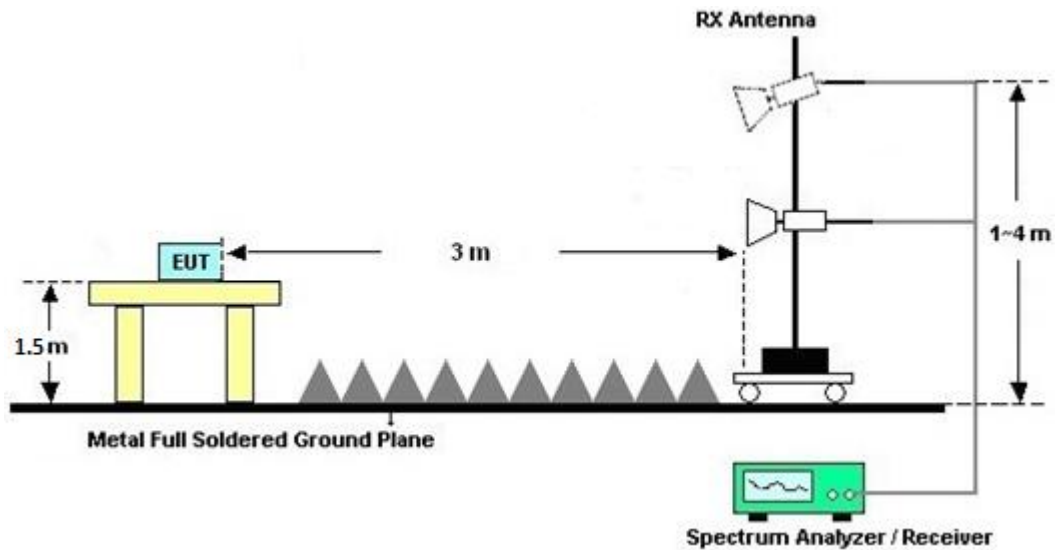
For radiated emissions below 30MHz



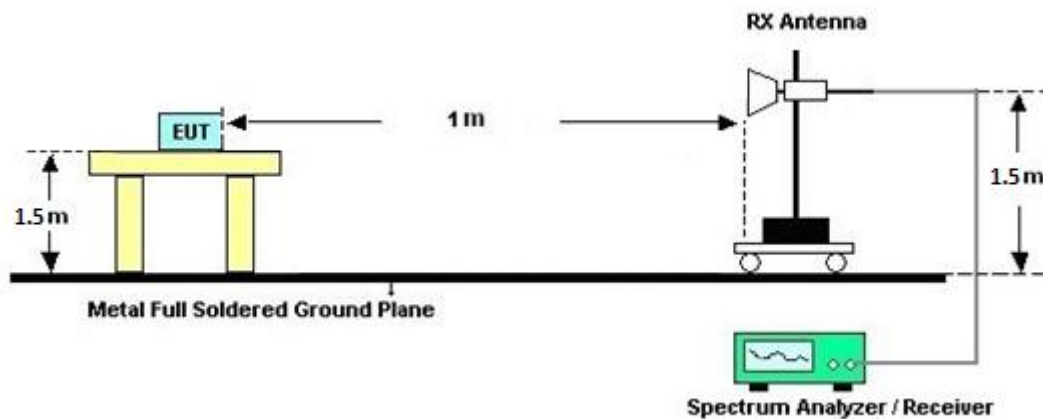
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



3.1.5 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 came out very similar.



3.1.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix A and B.

3.1.7 Duty Cycle

Please refer to Appendix C.

3.1.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix A and B.



3.2 Antenna Requirements

3.2.1 Standard Applicable

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 rule.

3.2.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 07, 2023	Jan. 31, 2024~ Feb. 02, 2024	Oct. 06, 2024	Radiation (03CH11-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 12, 2023	Jan. 31, 2024~ Feb. 02, 2024	Sep. 11, 2024	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-01620	1GHz~18GHz	Aug. 17, 2023	Jan. 31, 2024~ Feb. 02, 2024	Aug. 16, 2024	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	1223	18GHz~40GHz	Jul. 10, 2023	Jan. 31, 2024~ Feb. 02, 2024	Jul. 09, 2024	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 08, 2023	Jan. 31, 2024~ Feb. 02, 2024	Dec. 07, 2024	Radiation (03CH11-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-10M-7000-MR	EC1900245	10MHz-7GHz	Jan. 09, 2024	Jan. 31, 2024~ Feb. 02, 2024	Jan. 08, 2025	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055007	1GHz~18GHz	Jun. 14, 2023	Jan. 31, 2024~ Feb. 02, 2024	Jun. 13, 2024	Radiation (03CH11-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 27, 2023	Jan. 31, 2024~ Feb. 02, 2024	Jun. 26, 2024	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 05, 2023	Jan. 31, 2024~ Feb. 02, 2024	Oct. 04, 2024	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Jan. 31, 2024~ Feb. 02, 2024	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Jan. 31, 2024~ Feb. 02, 2024	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Jan. 31, 2024~ Feb. 02, 2024	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Jan. 31, 2024~ Feb. 02, 2024	N/A	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY1595/2	30MHz~40GHz	Mar. 07, 2023	Jan. 31, 2024~ Feb. 02, 2024	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz~40GHz	Mar. 07, 2023	Jan. 31, 2024~ Feb. 02, 2024	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 07, 2023	Jan. 31, 2024~ Feb. 02, 2024	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	30M~40G	Mar. 07, 2023	Jan. 31, 2024~ Feb. 02, 2024	Mar. 06, 2024	Radiation (03CH11-HY)
Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN11	1.53G Low Pass	Sep. 11, 2023	Jan. 31, 2024~ Feb. 02, 2024	Sep. 10, 2024	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60SS	SN3	3GHz High Pass Filter	Sep. 11, 2023	Jan. 31, 2024~ Feb. 02, 2024	Sep. 10, 2024	Radiation (03CH11-HY)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40SS	SN3	6.75GHz High Pass Filter	Sep. 11, 2023	Jan. 31, 2024~ Feb. 02, 2024	Sep. 10, 2024	Radiation (03CH11-HY)
Filter	Wainwright	WLK10-4630-5093-11000-40SS	SN1	4.5G Low Pass	Sep. 11, 2023	Jan. 31, 2024~ Feb. 02, 2024	Sep. 10, 2024	Radiation (03CH11-HY)



5 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.1 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.3 dB
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Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.3 dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3 dB
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Appendix A. Radiated Spurious Emission

Test Engineer :	Fu Chen, Sam Chou and Troye Hsieh	Temperature :	18.1~20.8°C
		Relative Humidity :	47.2~55.3%

WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx

2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE40 Full (Band Edge @ 3m)

WIFI Ant	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE40 Full CH06 2437MHz		2389.38	52.71	-21.29	74	42.69	27.49	17.33	34.8	130	271	P	H
		2388.54	42.04	-11.96	54	32.02	27.49	17.33	34.8	130	271	A	H
	*	2437	106.29	-	-	96.1	27.6	17.39	34.8	130	271	P	H
	*	2437	97.13	-	-	86.94	27.6	17.39	34.8	130	271	A	H
		2484.56	63.61	-10.39	74	53.26	27.7	17.45	34.8	130	271	P	H
		2483.52	52.54	-1.46	54	42.19	27.7	17.45	34.8	130	271	A	H
		2389.66	52.16	-21.84	74	42.13	27.5	17.33	34.8	100	138	P	V
		2389.94	42.64	-11.36	54	32.61	27.5	17.33	34.8	100	138	A	V
	*	2437	101.9	-	-	91.71	27.6	17.39	34.8	100	138	P	V
	*	2437	92.77	-	-	82.58	27.6	17.39	34.8	100	138	A	V
		2484.08	60.99	-13.01	74	50.64	27.7	17.45	34.8	100	138	P	V
		2483.52	49.97	-4.03	54	39.62	27.7	17.45	34.8	100	138	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 - 5250~5350MHz

WIFI 802.11ax HE80 Full (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE80 Full CH 58 5290MHz		5138	51.65	-22.35	74	42.26	33.2	11.08	34.89	268	133	P	H
		5140.1	41.92	-12.08	54	32.53	33.2	11.08	34.89	268	133	A	H
	*	5290	104.15	-	-	94.84	32.92	11.36	34.97	268	133	P	H
	*	5290	94.94	-	-	85.63	32.92	11.36	34.97	268	133	A	H
		5353.92	55.71	-18.29	74	46.18	32.99	11.54	35	268	133	P	H
		5355.36	45.13	-8.87	54	35.6	32.99	11.54	35	268	133	A	H
		5125.7	53.53	-20.47	74	44.15	33.2	11.07	34.89	100	122	P	V
		5145.2	43.69	-10.31	54	34.31	33.2	11.08	34.9	100	122	A	V
	*	5290	110.91	-	-	101.6	32.92	11.36	34.97	100	122	P	V
	*	5290	102.65	-	-	93.34	32.92	11.36	34.97	100	122	A	V
		5354.16	61.62	-12.38	74	52.09	32.99	11.54	35	100	122	P	V
		5350.08	51.99	-2.01	54	42.46	33	11.53	35	100	122	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx
(Harmonic@ 3m)

WIFI Ant 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Full CH06 2437MHz + 802.11ax HE80 Full CH 58 5290MHz		4874	52.39	-21.61	74	43.49	32.7	11.04	34.84	-	-	P	H
		4874	38.95	-15.05	54	30.05	32.7	11.04	34.84	-	-	A	H
		7311	45.55	-28.45	74	52.17	36.86	11.3	58.45	-	-	P	H
		10580	44.58	-23.62	68.2	48.39	38.98	10.63	60.34	-	-	P	H
		15870	45.62	-28.38	74	47.26	37.58	10.62	60.97	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
		4874	49.99	-24.01	74	41.09	32.7	11.04	34.84	-	-	P	V
		4874	38.91	-15.09	54	30.01	32.7	11.04	34.84	-	-	A	V
		7311	44.8	-29.2	74	51.42	36.86	11.3	58.45	-	-	P	V
		10580	44.32	-23.88	68.2	48.13	38.98	10.63	60.34	-	-	P	V
		15870	44.67	-29.33	74	46.31	37.58	10.62	60.97	-	-	P	V
													V
													V
													V
													V
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													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												

**WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx
(LF@ 3m)**

[illegible]



BLE (2M) CH39 Tx + WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 39 2480MHz	*	2480	98.57	-	-	88.19	27.7	17.48	34.8	124	278	P	H
	*	2480	97.11	-	-	86.73	27.7	17.48	34.8	124	278	A	H
		2484	60.92	-13.08	74	50.54	27.7	17.48	34.8	124	278	P	H
		2483.68	51.58	-2.42	54	41.2	27.7	17.48	34.8	124	278	A	H
													H
													H
	*	2480	81.92	-	-	71.54	27.7	17.48	34.8	108	271	P	V
	*	2480	80.15	-	-	69.77	27.7	17.48	34.8	108	271	A	V
		2483.52	59.82	-14.18	74	49.44	27.7	17.48	34.8	108	271	P	V
		2483.8	49.59	-4.41	54	39.21	27.7	17.48	34.8	108	271	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE40 Full (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE40 Full CH06 2437MHz		2389.94	54.6	-19.4	74	44.57	27.5	17.33	34.8	124	278	P	H
		2389.94	44.32	-9.68	54	34.29	27.5	17.33	34.8	124	278	A	H
	*	2437	101.31	-	-	91.12	27.6	17.39	34.8	124	278	P	H
	*	2437	92.39	-	-	82.2	27.6	17.39	34.8	124	278	A	H
		2484.72	60.57	-13.43	74	50.22	27.7	17.45	34.8	124	278	P	H
		2483.52	48.76	-5.24	54	38.41	27.7	17.45	34.8	124	278	A	H
		2389.66	51.49	-22.51	74	41.46	27.5	17.33	34.8	108	271	P	V
		2389.94	41.85	-12.15	54	31.82	27.5	17.33	34.8	108	271	A	V
	*	2437	99.25	-	-	89.06	27.6	17.39	34.8	108	271	P	V
	*	2437	89.31	-	-	79.12	27.6	17.39	34.8	108	271	A	V
		2483.52	59.94	-14.06	74	49.59	27.7	17.45	34.8	108	271	P	V
		2483.52	47.02	-6.98	54	36.67	27.7	17.45	34.8	108	271	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 - 5250~5350MHz

WIFI 802.11ax HE80 Full (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE80 Full CH 58 5290MHz		5098.1	51.65	-22.35	74	42.27	33.2	11.05	34.87	265	134	P	H
		5140.4	42.14	-11.86	54	32.75	33.2	11.08	34.89	265	134	A	H
	*	5290	104.44	-	-	95.13	32.92	11.36	34.97	265	134	P	H
	*	5290	94.71	-	-	85.4	32.92	11.36	34.97	265	134	A	H
		5354.4	55.4	-18.6	74	45.87	32.99	11.54	35	265	134	P	H
		5353.44	45.47	-8.53	54	35.94	32.99	11.54	35	265	134	A	H
		5126.3	53.93	-20.07	74	44.55	33.2	11.07	34.89	100	122	P	V
		5136.2	44.17	-9.83	54	34.79	33.2	11.07	34.89	100	122	A	V
	*	5290	111.39	-	-	102.08	32.92	11.36	34.97	100	122	P	V
	*	5290	102.17	-	-	92.86	32.92	11.36	34.97	100	122	A	V
		5350.32	63.36	-10.64	74	53.83	33	11.53	35	100	122	P	V
		5350.08	52.96	-1.04	54	43.43	33	11.53	35	100	122	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BLE (2M) CH39 Tx + WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx
(Harmonic@ 3m)

Ant. Simultaneously	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
BLE CH39 2480MHz + WLAN (2.4GHz) 802.11ax HE40 Full CH06 2437MHz + WLAN (5GHz) 802.11ax HE80 Full CH 58 5290MHz		4874	49.16	-24.84	74	40.26	32.7	11.04	34.84	-	-	P	H	
		4874	38.92	-15.08	54	30.02	32.7	11.04	34.84	-	-	A	H	
		7311	45.41	-28.59	74	52.03	36.86	14.97	58.45	-	-	P	H	
		10580	44.81	-23.39	68.2	48.62	38.98	17.55	60.34	-	-	P	H	
		15870	46.72	-27.28	74	48.36	37.58	21.75	60.97	-	-	P	H	
														H
														H
														H
														H
														H
														H
														H
		4874	51	-23	74	42.1	32.7	11.04	34.84	-	-	P	V	
		4874	38.87	-15.13	54	29.97	32.7	11.04	34.84	-	-	A	V	
		7311	45.12	-28.88	74	51.74	36.86	14.97	58.45	-	-	P	V	
		10580	45.12	-23.08	68.2	48.93	38.98	17.55	60.34	-	-	P	V	
		15870	47.39	-26.61	74	49.03	37.58	21.75	60.97	-	-	P	V	
														V
														V
														V
														V
														V
														V
														V
Remark	1. No other spurious found.													
	2. All results are PASS against Peak and Average limit line.													
	3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.													



BLE (2M) CH39 Tx + WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx
(LF@ 3m)

Ant. Simultaneously	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH39 2480MHz + WLAN (2.4GHz) 802.11ax HE40 Full CH06 2437MHz + WLAN (5GHz) 802.11ax HE80 Full CH 58 5290MHz LF		30.27	22.47	-17.53	40	30.03	23.91	0.99	32.46	-	-	P	H
		54.03	20.51	-19.49	40	38.74	12.63	1.31	32.17	-	-	P	H
		98.31	17.89	-25.61	43.5	32.87	15.69	1.7	32.37	-	-	P	H
		484.8	24.93	-21.07	46	30.26	23.54	3.49	32.36	-	-	P	H
		741	30.19	-15.81	46	29.58	27.85	4.32	31.56	-	-	P	H
		966.4	35.04	-18.96	54	29.79	31.11	4.94	30.8	-	-	P	H
													H
													H
													H
													H
													H
		47.55	23.97	-16.03	40	39.49	15.49	1.23	32.24	-	-	P	V
		54.03	26.89	-13.11	40	45.12	12.63	1.31	32.17	-	-	P	V
		98.31	23.28	-20.22	43.5	38.26	15.69	1.7	32.37	-	-	P	V
		122.88	24.06	-19.44	43.5	36.84	17.41	1.89	32.08	-	-	P	V
		843.2	32.18	-13.82	46	30.5	28.74	4.56	31.62	-	-	P	V
		955.9	34.55	-11.45	46	29.65	30.91	4.92	30.93	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is Margin line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax		5300	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
HE80 Full													
CH 58		5300	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H
5290MHz													

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Margin (dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 5300MHz:

1. Level(dBμV/m)
 = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
 = 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
 = 55.45 (dBμV/m)
2. Margin (dB)
 = Level(dBμV/m) – Limit Line(dBμV/m)
 = 55.45(dBμV/m) – 74(dBμV/m)
 = -18.55(dB)

For Average Limit @ 5300MHz:

1. Level(dBμV/m)
 = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
 = 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
 = 43.54 (dBμV/m)
2. Margin (dB)
 = Level(dBμV/m) – Limit Line(dBμV/m)
 = 43.54 (dBμV/m) – 54(dBμV/m)
 = -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix B. Radiated Spurious Emission Plots

Test Engineer :	Fu Chen, Sam Chou and Troye Hsieh	Temperature :	18.1~20.8°C
		Relative Humidity :	47.2~55.3%

Note symbol

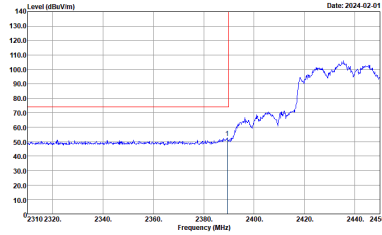
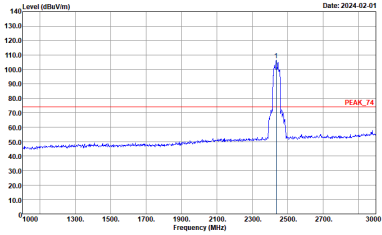
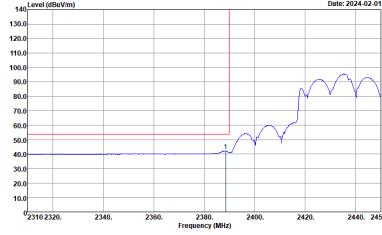
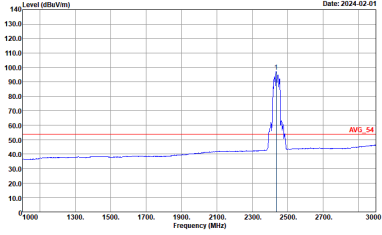
-L	Low channel location
-R	High channel location



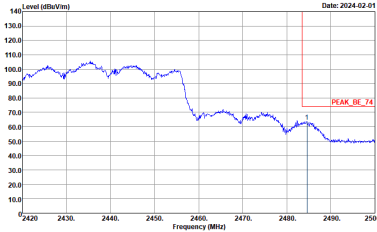
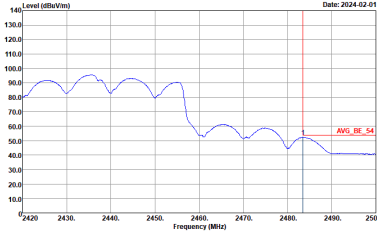
WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx

2.4GHz 2400~2483.5MHz

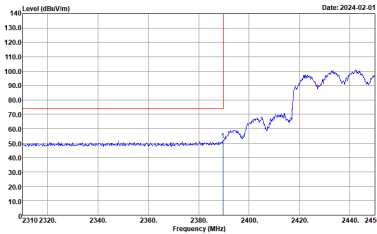
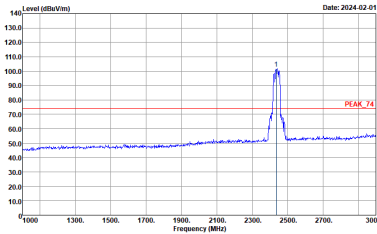
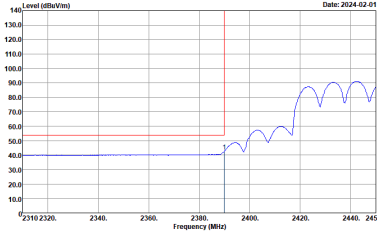
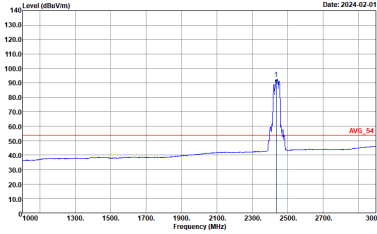
WIFI 802.11ax HE40 Full (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - L	
0+1	Horizontal	Fundamental
Peak	 Site : 03CH11-1HY Condition : PEAK_BE_74 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-1HY Condition : PEAK_74 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH11-1HY Condition : AVG_BE_54 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-1HY Condition : AVG_54 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

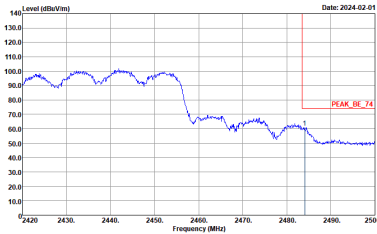
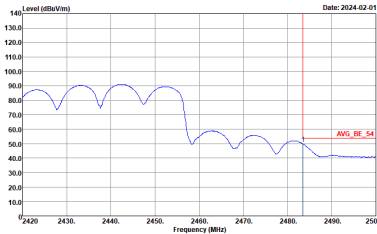


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - R	
0+1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_01620_230817 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_01620_230817 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank



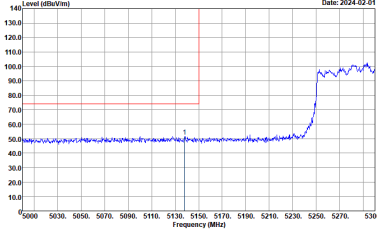
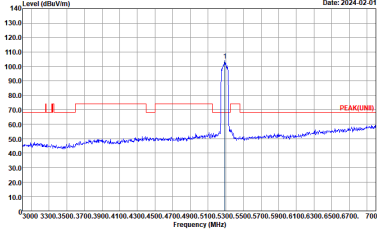
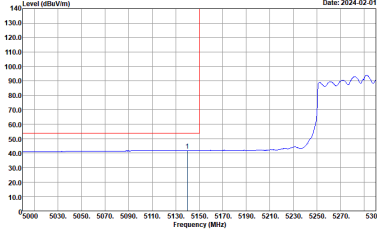
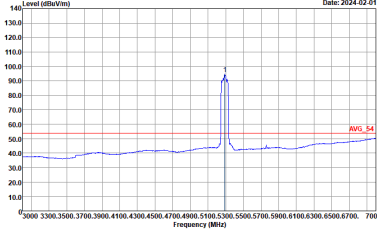
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - L	
0+1	Vertical	Fundamental
Peak	 Site : 03CHI1-HY Condition : PEAK_BE_74 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CHI1-HY Condition : PEAK_74 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CHI1-HY Condition : AVG_BE_54 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CHI1-HY Condition : AVG_54 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



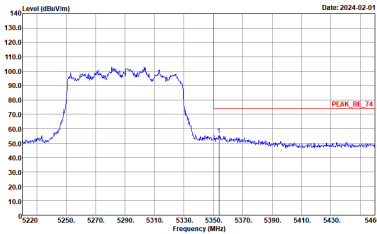
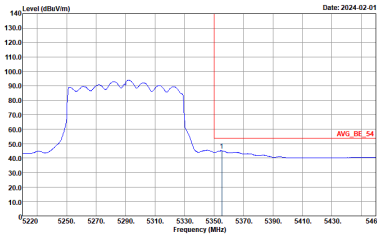
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - R	
0+1	Vertical	Fundamental
Peak	 Site : 03CHI1-HY Condition : PEAK_BE_74 3m 91200_01620_230817 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank
Avg.	 Site : 03CHI1-HY Condition : AVG_BE_54 3m 91200_01620_230817 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank



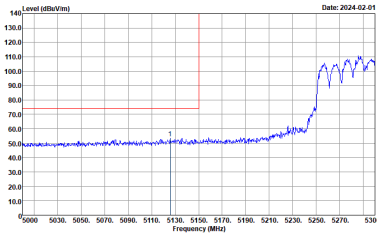
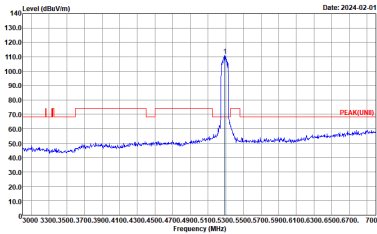
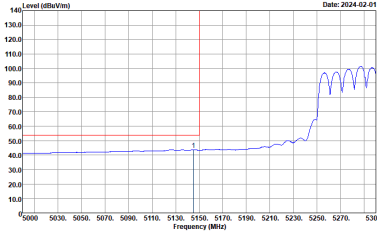
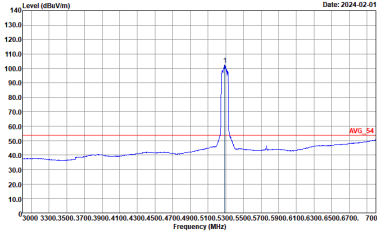
Band 2 - 5250~5350MHz
WIFI 802.11ax HE80 Full (Band Edge @ 3m)

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - L	
0+1	Horizontal	Fundamental
Peak	 Site : 03CHI1-HY Condition : PEAK_BE_74 3m 91200_01620_230817 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CHI1-HY Condition : PEAK(FUND) 3m 91200_01620_230817 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CHI1-HY Condition : AVG_BE_54 3m 91200_01620_230817 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CHI1-HY Condition : AVG_54 3m 91200_01620_230817 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto

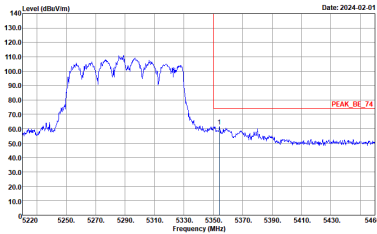
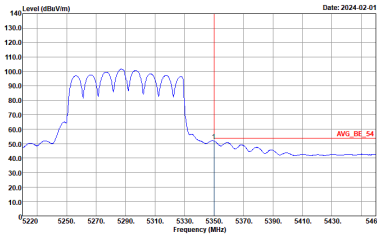


WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz – R	
0+1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_01620_230817 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_01620_230817 HORIZONTAL RBW:1000.000kHz VBW:0.010kHz SWT:Auto	Left blank



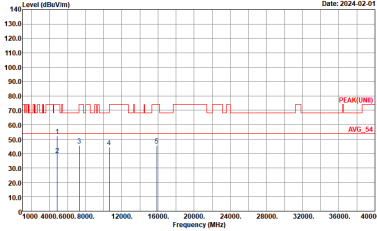
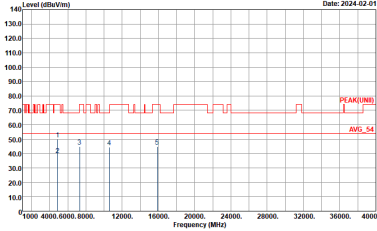
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - L	
0+1	Vertical	Fundamental
Peak	 Site : 03CHI1-HY Condition : PEAK_BE_74 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CHI1-HY Condition : PEAK(LINE) 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CHI1-HY Condition : AVG_BE_54 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CHI1-HY Condition : AVG_54 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto



WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - R	
0+1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_01620_230817 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_01620_230817 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto	Left blank

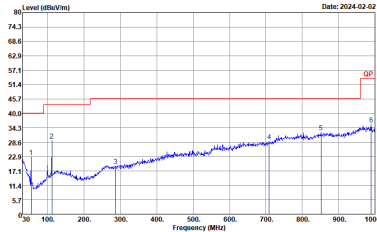
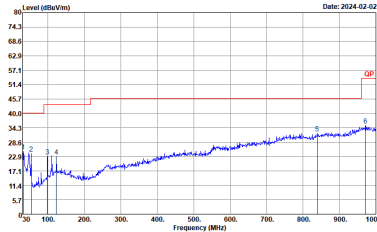


WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx
(Harmonic@ 3m)

WIFI	Harmonic @ 3m	
ANT	802.11ax HE40 Full CH06 +802.11ax HE80 Full CH58	
0+1	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_01620_230817 HORIZONTAL :	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_01620_230817 VERTICAL :



WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx
(LF@ 3m)

WIFI	LF @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz+802.11ax HE80 Full CH58 5290MHz	
0+1	Horizontal	Vertical
Peak Avg.	 Site : 03CHI1-HY Condition : QP 3m 2_BILO6_35414_231007 HORIZONTAL :	 Site : 03CHI1-HY Condition : QP 3m 2_BILO6_35414_231007 VERTICAL :



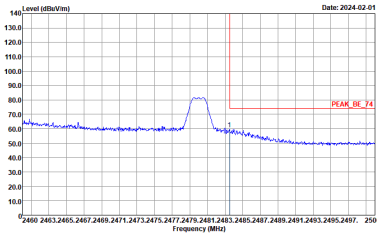
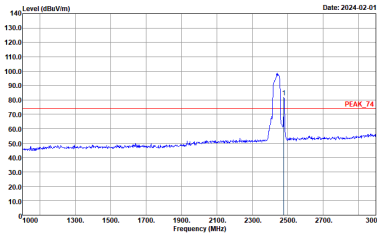
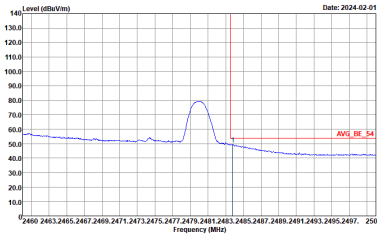
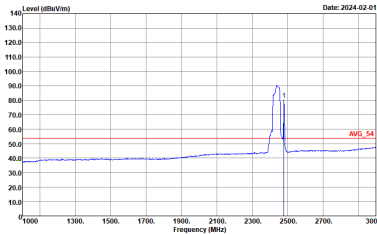
BLE (2M) CH39 Tx + WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Fundamental
Peak	Site : 03CH11-1HY Condition : PEAK_BE_74 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Site : 03CH11-1HY Condition : PEAK_74 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Avg.	Site : 03CH11-1HY Condition : AVG_BE_54 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000kHz VBW:5.100kHz SWT:Auto	Site : 03CH11-1HY Condition : AVG_54 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000kHz VBW:5.100kHz SWT:Auto

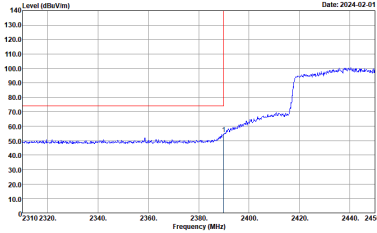
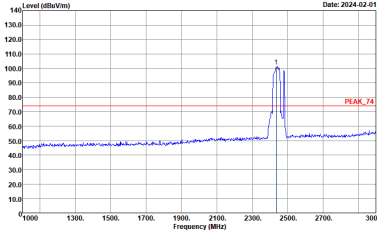
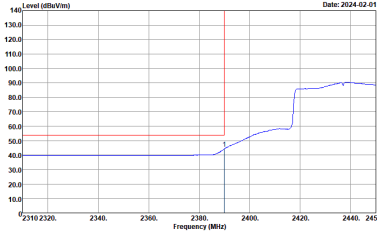
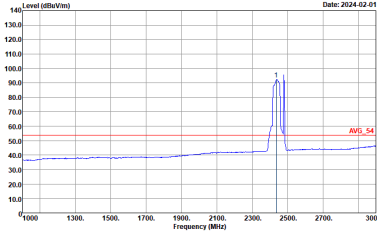


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2480MHz	
	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_01620_230817 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_01620_230817 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_01620_230817 VERTICAL RBW:1000.000kHz VBW:5.000kHz SWT:Auto	 Site : 03CH11-HY Condition : AVG_54 3m 91200_01620_230817 VERTICAL RBW:1000.000kHz VBW:5.000kHz SWT:Auto

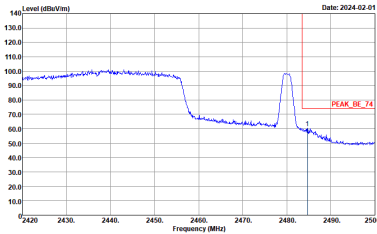
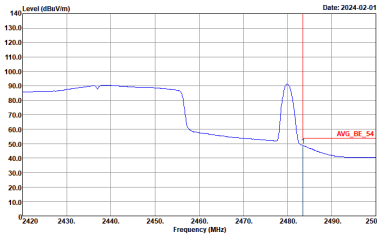


2.4GHz 2400~2483.5MHz

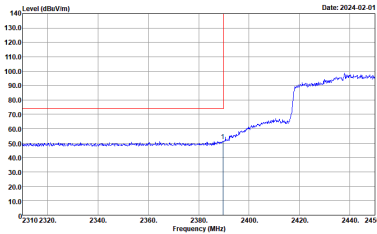
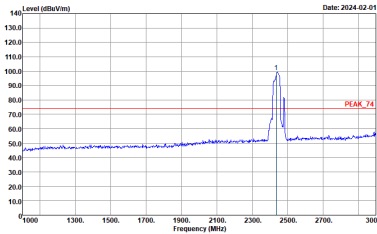
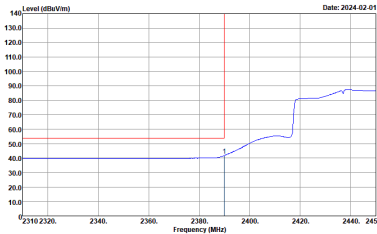
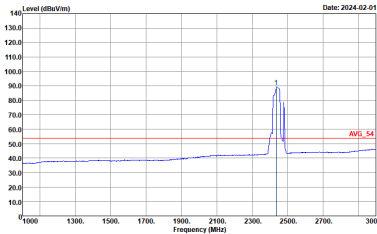
WIFI 802.11ax HE40 Full (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto	 Site : 03CH11-HY Condition : AVG_54 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto

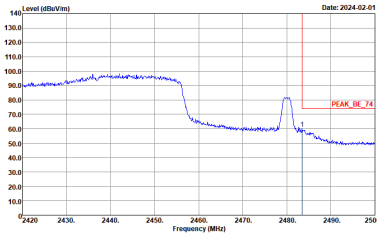
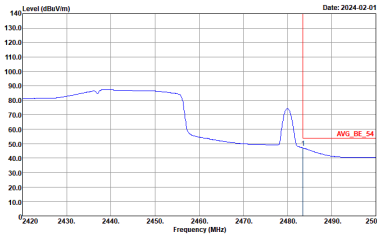


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_01620_230817 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_01620_230817 HORIZONTAL RBW:1000.000kHz VBW:0.010kHz SWT:Auto	Left blank



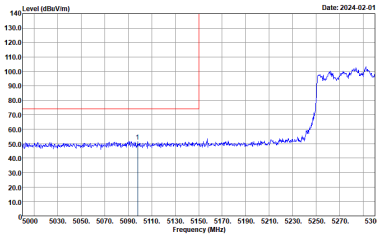
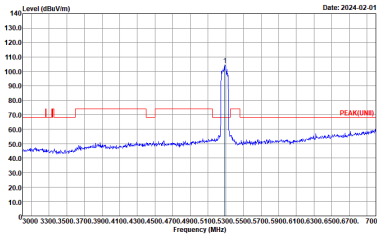
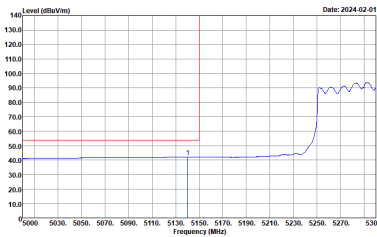
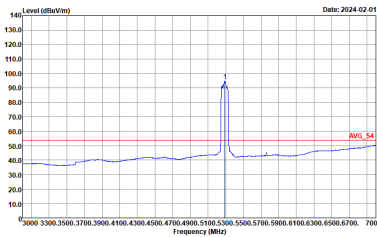
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CHI1-HY Condition : PEAK_BE_74 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CHI1-HY Condition : PEAK_74 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CHI1-HY Condition : AVG_BE_54 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CHI1-HY Condition : AVG_54 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto



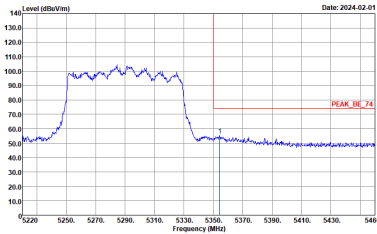
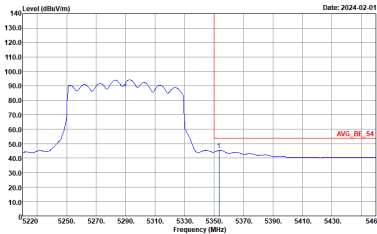
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH03 2422MHz - R	
1	Vertical	Fundamental
Peak	 Site : 03CHI1-HY Condition : PEAK_BE_74 3m 91200_01620_230817 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank
Avg.	 Site : 03CHI1-HY Condition : AVG_BE_54 3m 91200_01620_230817 VERTICAL RBW:1000.000kHz VBW:0.010kHz SWT:Auto	Left blank



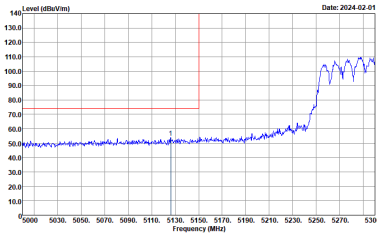
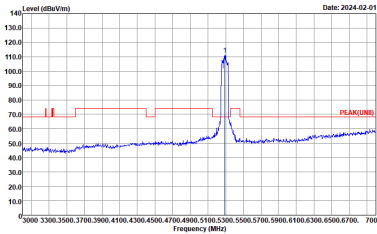
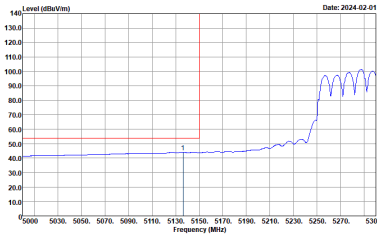
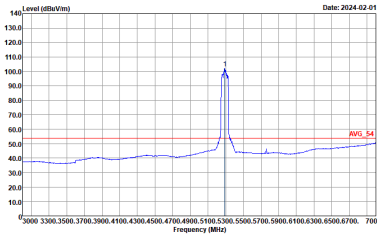
Band 2 - 5250~5350MHz
WIFI 802.11ax HE80 Full (Band Edge @ 3m)

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - L	
0+1	Horizontal	Fundamental
Peak	 Site : 03CHI1-HY Condition : PEAK_BE_74 3m 91200_01620_230817 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CHI1-HY Condition : PEAK(FUND) 3m 91200_01620_230817 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CHI1-HY Condition : AVG_BE_54 3m 91200_01620_230817 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CHI1-HY Condition : AVG_54 3m 91200_01620_230817 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto

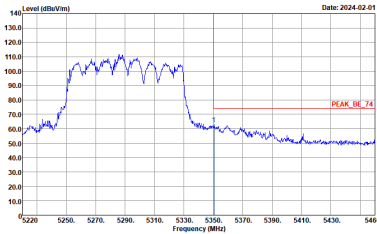
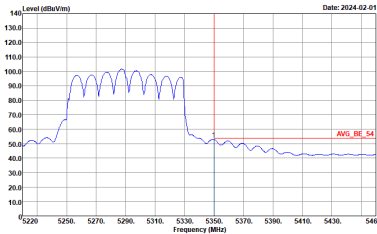


WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - R	
0+1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_01620_230817 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_01620_230817 HORIZONTAL RBW:1000.000kHz VBW:0.010kHz SWT:Auto	Left blank



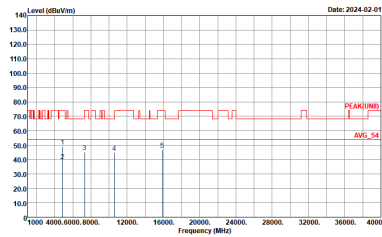
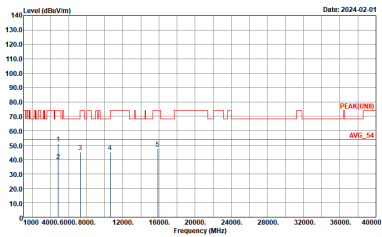
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - L	
0+1	Vertical	Fundamental
Peak	 Site : 03CHI1-HY Condition : PEAK_BE_74 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CHI1-HY Condition : PEAK(LINE) 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CHI1-HY Condition : AVG_BE_54 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CHI1-HY Condition : AVG_54 3m 91200_01620_230817 VERTICAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto



WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - R	
0+1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_01620_230817 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_01620_230817 VERTICAL RBW:1000.000kHz VBW:0.010kHz SWT:Auto	Left blank



BLE (2M) CH39 Tx + WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx
(Harmonic@ 3m)

	Harmonic @ 3m	
Ant.	BLE (2M) CH39+802.11ax HE40 Full CH06 +802.11ax HE80 Full CH58	
Simultaneously	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_01620_230817 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



BLE (2M) CH39 Tx + WLAN (2.4GHz) 802.11ax HE40 CH06 Tx + WLAN (5GHz) 802.11ax HE80 CH58 Tx
(LF@ 3m)

	LF @ 3m	
Ant.	BLE (2M) CH39+802.11ax HE40 Full CH06 +802.11ax HE80 Full CH58	
Simultaneously	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2024-02-02 Site : 03CH11-HY Condition : QP 3m 2_81LO6_35414_231007 HORIZONTAL :	Level (dBuV/m) Date: 2024-02-02 Site : 03CH11-HY Condition : QP 3m 2_81LO6_35414_231007 VERTICAL :

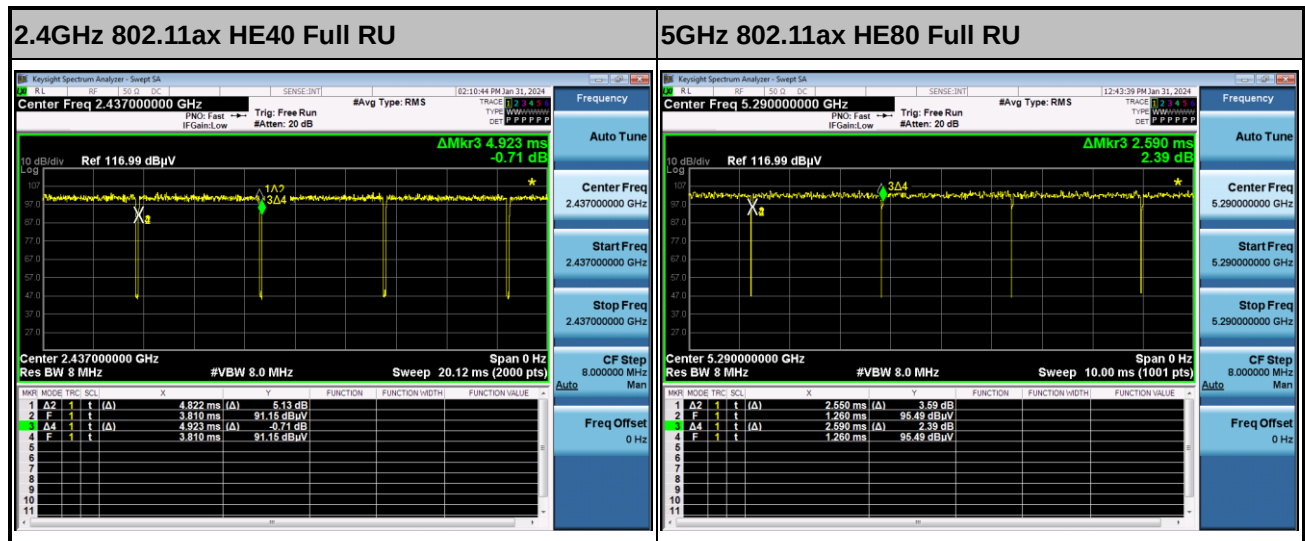


Appendix C. Duty Cycle Plots

<Mode 1>

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
0+1	2.4GHz 802.11ax HE40 Full RU	97.95	4822	0.207	300Hz
0+1	5GHz 802.11ax HE80 Full RU	98.46	-	-	10Hz

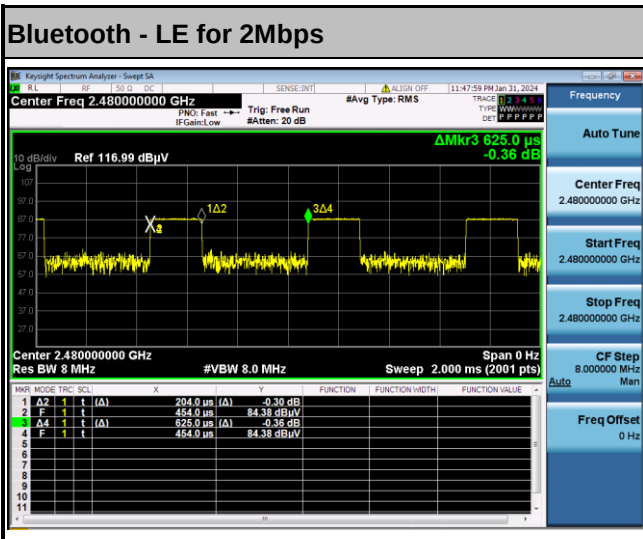
MIMO <Ant. 0+1>





<Mode 2>

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
-	Bluetooth - LE for 2Mbps	32.64	204	4.902	5.1kHz
1	2.4GHz 802.11ax HE40 Full RU	99.69	-	-	10Hz
0+1	5GHz 802.11ax HE80 Full RU	99.42	-	-	10Hz



<Ant. 1>

MIMO <Ant. 0+1>

