FCC RADIO TEST REPORT

FCC ID	:	**UZ7ET65AW**
Equipment	:	**Rugged 2 in 1 Android Tablet**
Brand Name	:	**Zebra**
Model Name	:	**ET65AW**
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**

The product was received on Jul. 12, 2023 and testing was performed from Jul. 19, 2023 to Aug. 22, 2023. We, Sporton International Inc. EMC & Wireless Communications 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. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issue Date
FR371211C	01	Initial issue of report	Sep. 19, 2023

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	Reporting only	-
3.2	15.247(b)	Power Output Measurement	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges	Pass	-
		Conducted Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	1.07 dB under the limit at 2386.95 MHz
3.6	15.207	AC Conducted Emission	Pass	4.38 dB under the limit at 13.56 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: Keven Cheng
Report Producer: Clio Lo

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Rugged 2 in 1 Android Tablet
Brand Name	Zebra
Model Name	ET65AW
FCC ID	UZ7ET65AW
EUT supports Radios application	WCDMA/HSPA/LTE/5G NR/NFC/GNSS 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	DV2
SW Version	A13
FW Version	1.1.2.0.645.4
MFD	21JUN23
EUT Stage	Identical Prototype

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

Specification of Accessories				
Adapter	**Brand Name**	Zebra	**Part Number**	PWR-BGA15V45W-UC2-WW
Battery 1	**Brand Name**	Zebra	**Part Number**	BT-000471-0020
Battery 2	**Brand Name**	Zebra	**Part Number**	BT-000471-0820

Supported Unit Used in Test Configuration and System				
USB TYPE C to 3.5mm audio connector	**Brand Name**	Zebra	**Part Number**	ADP-USBC-35MM1-01
3.5mm Earphone	**Brand Name**	Zebra	**Part Number**	HDST-35MM-PTVP-01
USB TYPE C Earphone	**Brand Name**	Zebra	**Part Number**	HPST-USBC-PTT1-01
Headset Jumper	**Brand Name**	Zebra	**Part Number**	CBL-TC51-HDST35-01

1.2 Product Specification of Equipment Under Test

<table>
<tr><th colspan="2">Product Specification is subject to this standard</th></tr>
<tr><td>Tx/Rx Frequency Range</td><td>2412 MHz ~ 2462 MHz</td></tr>
<tr><td>Maximum Output Power to Antenna</td><td>MIMO <Ant. 7+8>
802.11b : 25.72 dBm / 0.3733 W
802.11g : 24.31 dBm / 0.2698 W
802.11n HT20 : 23.41 dBm / 0.2193 W
802.11n HT40 : 20.86 dBm / 0.1219 W
802.11ac VHT20 : 23.51 dBm / 0.2244 W
802.11ac VHT40 : 20.96 dBm / 0.1247 W
802.11ax HE20 : 23.61 dBm / 0.2296 W
802.11ax HE40 : 21.06 dBm / 0.1276 W</td></tr>
<tr><td>99% Occupied Bandwidth</td><td>MIMO <Ant. 7>
802.11b: 13.24 MHz
802.11g: 16.58 MHz
802.11ax HE20: 18.98 MHz
802.11ax HE40: 37.96 MHz
MIMO <Ant. 8>
802.11b: 13.44 MHz
802.11g: 16.58 MHz
802.11ax HE20: 18.98 MHz
802.11ax HE40: 37.96 MHz</td></tr>
<tr><td>Antenna Type / Gain</td><td><Ant. 7>: Monopole Antenna with gain 2.57 dBi
<Ant. 8>: Monopole Antenna with gain 2.06 dBi</td></tr>
<tr><td>Type of Modulation</td><td>802.11b : DSSS (DBPSK / DQPSK / CCK)
802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
802.11ax : OFDMA
(BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)</td></tr>
<tr><td>Antenna Function Description</td><td>
<table>
<tr><th></th><th>Ant. 9</th><th>Ant. 8</th></tr>
<tr><td>802.11
b/g/n/ac/ax
MIMO</td><td>V</td><td>V</td></tr>
<tr><td>802.11ax
TXBF</td><td>V</td><td>V</td></tr>
</table>
</td></tr>
</table>

Remark:

1. MIMO Ant. 7+8 Directional Gain is a calculated result from MIMO Ant. 7 and MIMO Ant. 8. The formula used in calculation is documented in section 1.2.1.
2. Power of MIMO Ant. 7 + Ant. 8 is a calculated result from sum of the power MIMO Ant. 7 and MIMO Ant. 8.
3. 802.11ax Support Tx Beamforming mode, and the manufacturer declares that Tx Beamforming power/EIRP is less than CDD mode 3dbm, so CDD mode cover Tx Beamforming mode.
4. The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

1.2.1 Antenna Directional Gain

<For CDD Mode>

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

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

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

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

For PSD measurements, the directional gain calculation.

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

where

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

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

N_{ANT} = the total number of antennas

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

G_k is the gain in dBi of the kth antenna.

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

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

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

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

	Ant 7 (dBi)	Ant 8 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4GHz	2.57	2.06	2.57	5.33	0.00	0.00

Calculation example:

If a device has two antenna, G_{ANT1}= 2.57dBi; G_{ANT2}=2.06dBi

Directional gain of power measurement = max(2.57, 2.06) + 0 = 2.57 dBi

Directional gain of PSD derived from formula which is

10 x log { { [10^ (2.57 dBi / 20) + 10^ (2.06 dBi / 20)] ^ 2 } / 2 }

= 5.33 dBi

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

<TXBF Modes>

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

where

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

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

N_{ANT} = the total number of antennas

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

G_k is the gain in dBi of the kth antenna.

The EUT supports beamforming for 802.11ax modes.

The directional gain calculation is following F)2)e)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table

			DG	DG	Power	PSD
			for	for	Limit	Limit
	Ant 7	Ant 8	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4GHz	2.57	2.06	5.33	5.33	0.00	0.00

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

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, 03CH07-HY

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

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	TH05-HY (TAF Code: 3786)
Remark	The Conducted test item subcontracted to Sporton International Inc. Wensan Laboratory.

FCC designation No.: TW1190 and 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 C §15.247
- FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05r02
- FCC KDB 414788 D01 Radiated Test Site v01r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

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

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		

2.2 Test Mode

This device support 26/52/106/242/484-tone RU.

The PSD of partial RU is reduced to be smaller than full RU according to TCB workshop interim guidance Oct. 2018.

The 802.11ax mode is investigated among different tones, full resource units (RU), partial resource units. The partial RU has no higher power than full RU's, thus the full RU is chosen as main test configuration.

The 242-tone RU is covered by 20MHz channel and 484-tone RU is covered by 40MHz channel.

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

The power for 802.11n and 802.11ac mode is smaller than 802.11ax mode, so all other conducted and radiated test is covered by 802.11ax mode.

The final test modes include the worst data rates for each modulation shown in the table below.

MIMO Antenna

Modulation	Data Rate
802.11b	**1 Mbps**
802.11g	**6 Mbps**
802.11n HT20 (Covered by HE20)	**MCS0**
802.11n HT40 (Covered by HE40)	**MCS0**
802.11ac VHT20 (Covered by HE20)	**MCS0**
802.11ac VHT40 (Covered by HE40)	**MCS0**
802.11ax HE20	**MCS0**
802.11ax HE40	**MCS0**

Remark: The conducted power level of each chain in MIMO mode is equal or higher than SISO mode.

Test Cases	
AC Conducted Emission	Mode 1 : 5G NR n13 Idle + WLAN (2.4GHz) Link + Bluetooth Idle + NFC on + USB TYPE-A Cable (Data Link with USB HD) (Copy data from USB HD to eMMC) + USB TYPE-A with Mouse + USB TYPE-C (Charging from AC Adapter) + Battery 1

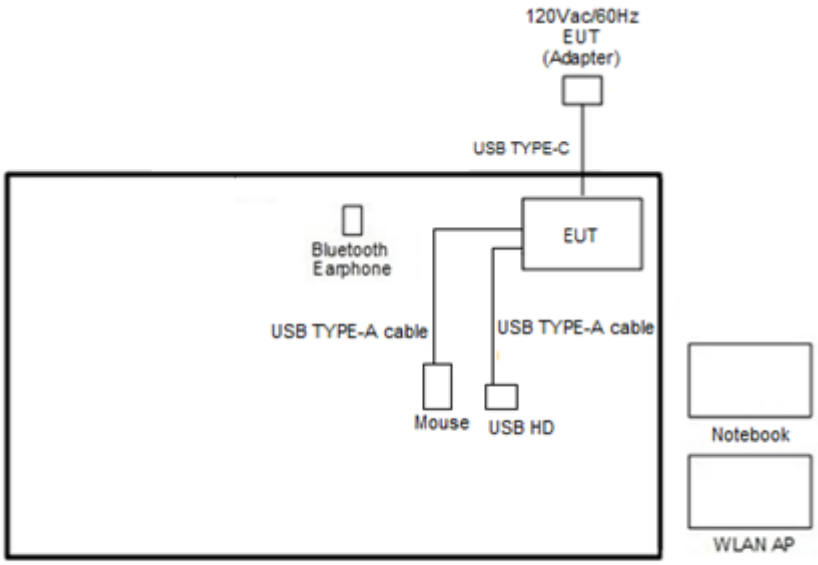
Remark:
1. For Radiated Test Cases, the tests were performed with Battery 1.
2. Data Link with USB HD means data application transferred mode between EUT and USB HD.

Ch. #	2400-2483.5 MHz			
	802.11b	802.11g	802.11ax HE20	802.11ax HE40
Low	01	01	01	03
Middle	06	06	06	06
High	11	11	11	09

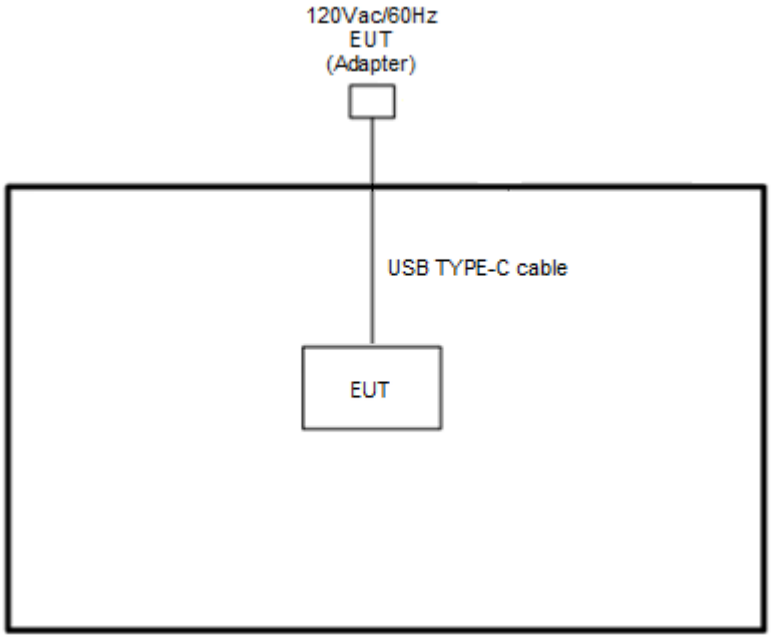
Remark: For radiation spurious emission, the modulation and the data rate picked for testing are determined by the Max. RF conducted power.

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode>



<WLAN 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.	Bluetooth Earphone	Sony Ericsson	MW600	PY700A2029	N/A	N/A
2.	5G Wireless Test Platform	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Latitude 3420	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	USB HD	ADATA	HV620S-1T	FCC DoC	Shielded, 1.0 m	N/A
6.	Mouse	N/A	N/A	FCC DoC	Shielded, 2.0 m	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “QRCT Version 4.0.211.0” 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.

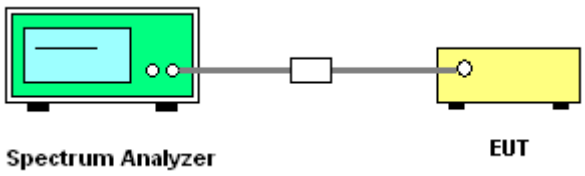
3.1.2 Measuring Instruments

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 6 dB 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 and 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 with 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.

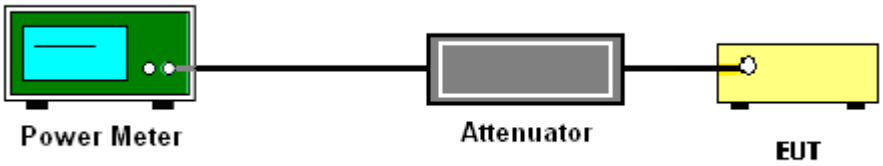
3.2.2 Measuring Instruments

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. 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. Measure the conducted output power and record the results in the test report.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

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.

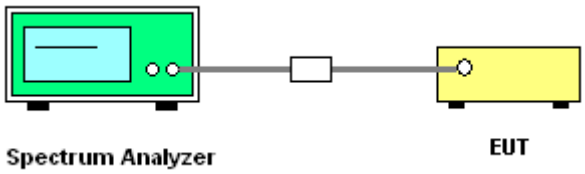
3.3.3 Test Procedures

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. (6dB 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. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

   Method (c): Measure and add 10 log(N_{ANT}) dB.

   With this technique, spectrum measurements are performed at each output of the device, but rather than summing the spectra or the spectral peaks across the outputs, the quantity 10 log(N_{ANT}) dB is added to each spectrum value before comparing to the emission limit. The addition of 10 log(N_{ANT}) dB serves to apportion the emission limit among the N_{ANT} outputs so that each output is permitted to contribute no more than $1/N_{ANT}$ th of the PSD limit .

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 Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

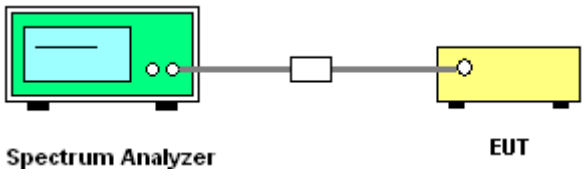
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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 per 15.247(d).
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 and Spurious Emission

Please refer to Appendix A.

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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 output power of this device is measured by spectrum analyzer, the attenuation under this paragraph 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.

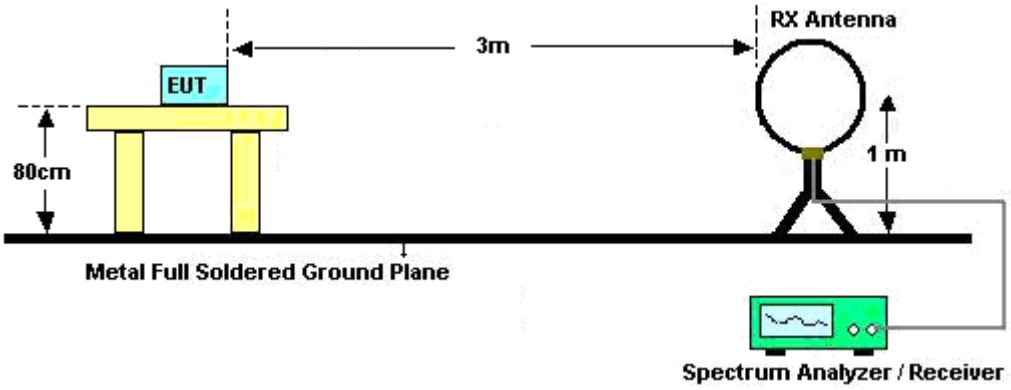
3.5.3 Test Procedures

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 “-“.

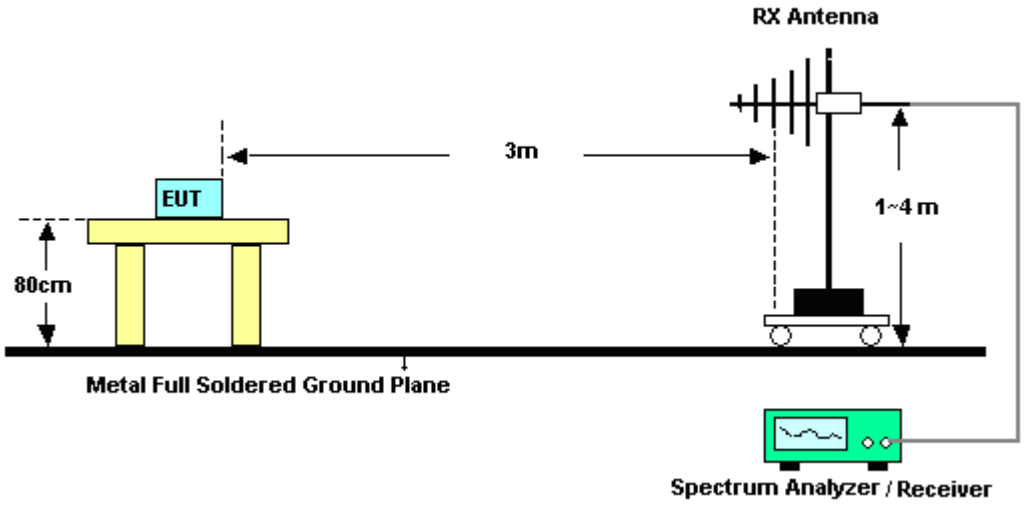
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with 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

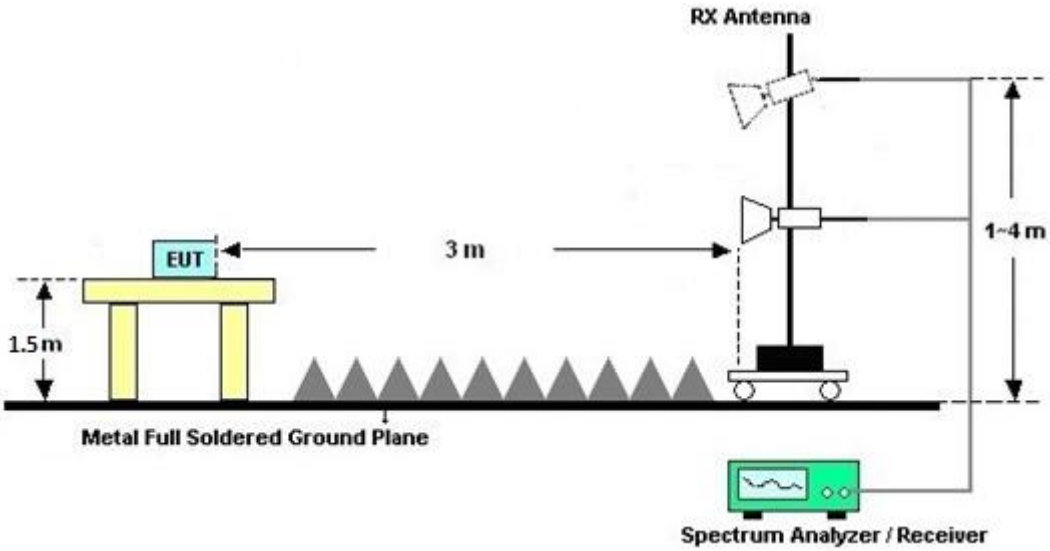
For radiated emissions below 30MHz



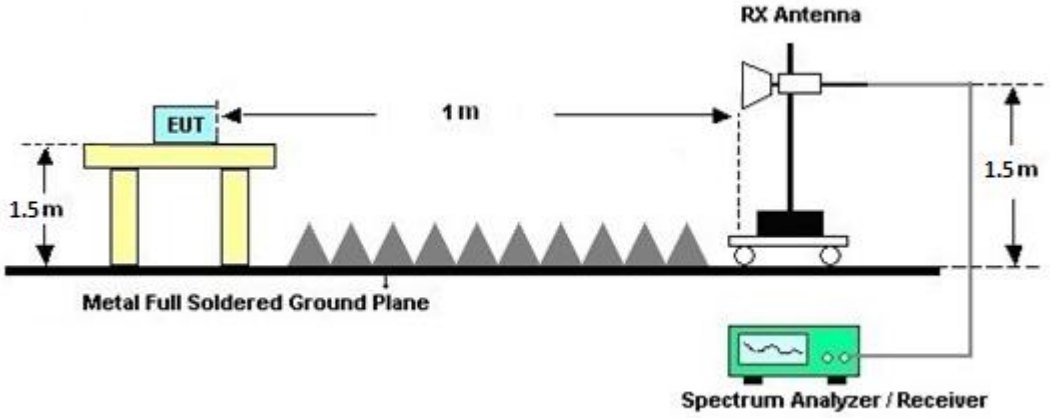
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



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

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 and D.

3.5.7 Duty Cycle

Please refer to Appendix E.

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

Please refer to Appendix C and D.

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.

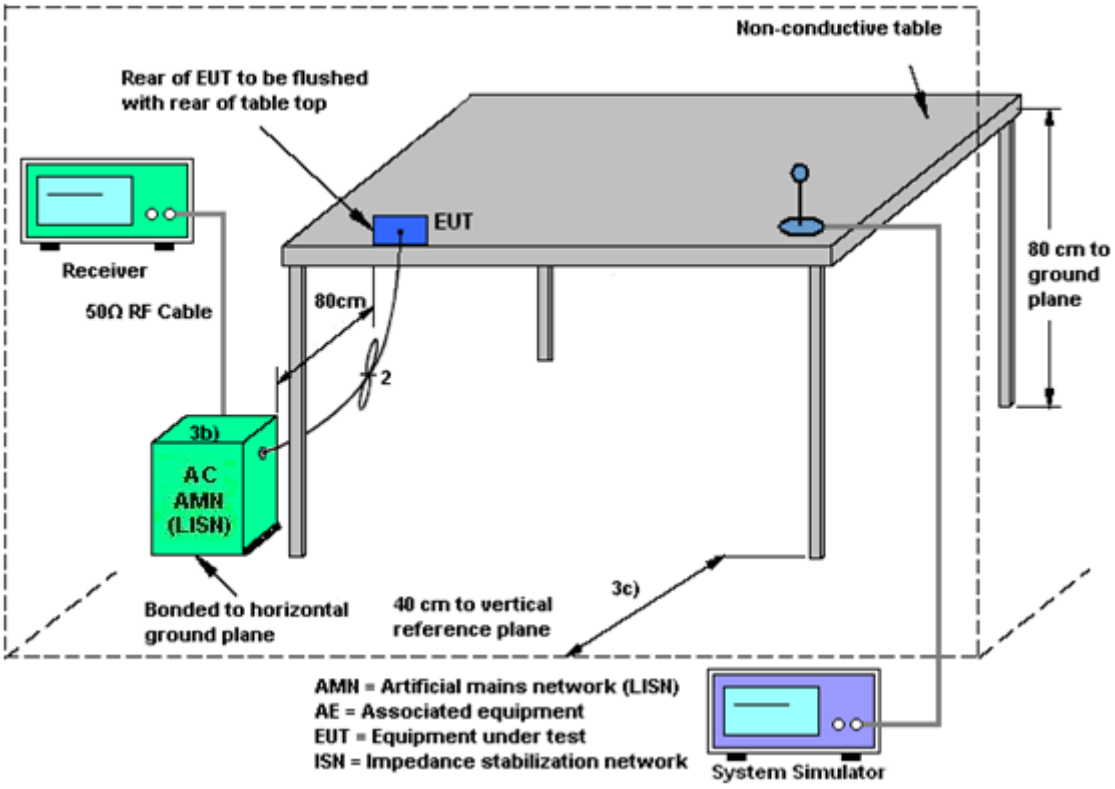
3.6.2 Measuring Instruments

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 = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 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.

3.7.2 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 & 00800N1D01N -06	35419 & 03	30MHz~1GHz	Apr. 23, 2023	Jul. 19, 2023~ Aug. 07, 2023	Apr. 22, 2024	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Dec. 01, 2022	Jul. 19, 2023~ Aug. 07, 2023	Nov. 30, 2023	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Feb. 28, 2023	Jul. 19, 2023~ Aug. 07, 2023	Feb. 27, 2024	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590075	1GHz~18GHz	Apr. 20, 2023	Jul. 19, 2023~ Aug. 07, 2023	Apr. 19, 2024	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10MHz~1GHz	Oct. 03, 2022	Jul. 19, 2023~ Aug. 07, 2023	Oct. 02, 2023	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Mar. 24, 2023	Jul. 19, 2023~ Aug. 07, 2023	Mar. 23, 2024	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9030A	MY52350276	3Hz~44GHz	Mar. 28, 2023	Jul. 19, 2023~ Aug. 07, 2023	Mar. 27, 2024	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY15682/4	30MHz to 18GHz	Feb. 22, 2023	Jul. 19, 2023~ Aug. 07, 2023	Feb. 21, 2024	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24971/4	9kHz to 18GHz	Feb. 22, 2023	Jul. 19, 2023~ Aug. 07, 2023	Feb. 21, 2024	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4	9kHz to 18GHz	Feb. 22, 2023	Jul. 19, 2023~ Aug. 07, 2023	Feb. 21, 2024	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126	532078/126E	30MHz~18GHz	Sep. 16, 2022	Jul. 19, 2023~ Aug. 07, 2023	Sep. 15, 2023	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2858/2	18GHz~40GHz	Feb. 22, 2023	Jul. 19, 2023~ Aug. 07, 2023	Feb. 21, 2024	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801606/2	9KHz ~ 40GHz	Apr. 20, 2023	Jul. 19, 2023~ Aug. 07, 2023	Apr. 19, 2024	Radiation (03CH07-HY)
Controller	EMEC	EM1000	N/A	Control Ant Mast	N/A	Jul. 19, 2023~ Aug. 07, 2023	N/A	Radiation (03CH07-HY)
Controller	MF	MF-7802	N/A	Control Turn table	N/A	Jul. 19, 2023~ Aug. 07, 2023	N/A	Radiation (03CH07-HY)
Antenna Mast	EMEC	AM-BS-4500E	N/A	Boresight mast 1M~4M	N/A	Jul. 19, 2023~ Aug. 07, 2023	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Jul. 19, 2023~ Aug. 07, 2023	N/A	Radiation (03CH07-HY)
Software	Audix	E3	N/A	N/A	N/A	Jul. 19, 2023~ Aug. 07, 2023	N/A	Radiation (03CH07-HY)
USB Data Logger	TECPEL	TR-32	HE17XB2495	N/A	Mar. 14, 2023	Jul. 19, 2023~ Aug. 07, 2023	Mar. 13, 2024	Radiation (03CH07-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 27, 2023	Jul. 19, 2023~ Aug. 07, 2023	Jun. 26, 2024	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18GHz~40GHz	Nov. 24, 2022	Jul. 19, 2023~ Aug. 07, 2023	Nov. 23, 2023	Radiation (03CH07-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 17, 2022	Aug. 02, 2023~ Aug. 22, 2023	Nov. 16, 2023	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO 12 (NO:113)	10MHz~6GHz	Dec. 13, 2022	Aug. 02, 2023~ Aug. 22, 2023	Dec. 12, 2023	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101905	10Hz - 40GHz(amp)	Jul. 14, 2023	Aug. 02, 2023~ Aug. 22, 2023	Jul. 13, 2024	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jul. 20, 2023	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 01, 2022	Jul. 20, 2023	Nov. 30, 2023	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 17, 2022	Jul. 20, 2023	Nov. 16, 2023	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 01, 2022	Jul. 20, 2023	Nov. 30, 2023	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 17, 2022	Jul. 20, 2023	Nov. 16, 2023	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Jul. 20, 2023	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Aug. 01, 2022	Jul. 20, 2023	Jul. 31, 2023	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 29, 2022	Jul. 20, 2023	Dec. 28, 2023	Conduction (CO05-HY)

5 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.5 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.5 dB**

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.2 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.3 dB**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Sylvia Li and Ray Wang	Temperature:	21~25	°C
Test Date:	2023/8/2~2023/8/22	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band MIMO										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant7	Ant8	Ant7	Ant8		
11b	1Mbps	2	1	2412	13.09	13.29	8.10	8.10	0.50	Pass
11b	1Mbps	2	6	2437	13.14	13.44	8.10	8.58	0.50	Pass
11b	1Mbps	2	11	2462	13.24	12.99	8.12	8.10	0.50	Pass
11g	6Mbps	2	1	2412	16.38	16.43	16.34	16.36	0.50	Pass
11g	6Mbps	2	6	2437	16.58	16.58	16.36	16.36	0.50	Pass
11g	6Mbps	2	11	2462	16.48	16.38	16.36	16.36	0.50	Pass

Report Number : FR371211C

TEST RESULTS DATA
Average Output Power

2.4GHz Band MIMO																
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
					Ant7	Ant8	SUM	Ant7	Ant8	Ant7	Ant8	Ant7	Ant8	Ant7	Ant8	
11b	1Mbps	2	1	2412	23.00	22.40	25.72	30.00		2.57		28.29		36.00		Pass
11b	1Mbps	2	6	2437	22.60	22.10	25.37	30.00		2.57		27.94		36.00		Pass
11b	1Mbps	2	11	2462	22.00	21.70	24.86	30.00		2.57		27.43		36.00		Pass
11g	6Mbps	2	1	2412	18.30	18.30	21.31	30.00		2.57		23.88		36.00		Pass
11g	6Mbps	2	6	2437	21.40	21.20	24.31	30.00		2.57		26.88		36.00		Pass
11g	6Mbps	2	11	2462	17.90	18.00	20.96	30.00		2.57		23.53		36.00		Pass
HT20	MCS0	2	1	2412	17.50	17.50	20.51	30.00		2.57		23.08		36.00		Pass
HT20	MCS0	2	6	2437	20.40	20.40	23.41	30.00		2.57		25.98		36.00		Pass
HT20	MCS0	2	11	2462	16.30	16.80	19.57	30.00		2.57		22.14		36.00		Pass
HT40	MCS0	2	3	2422	17.20	17.00	20.11	30.00		2.57		22.68		36.00		Pass
HT40	MCS0	2	6	2437	17.70	18.00	20.86	30.00		2.57		23.43		36.00		Pass
HT40	MCS0	2	9	2452	17.20	16.90	20.06	30.00		2.57		22.63		36.00		Pass
VHT20	MCS0	2	1	2412	17.60	17.60	20.61	30.00		2.57		23.18		36.00		Pass
VHT20	MCS0	2	6	2437	20.50	20.50	23.51	30.00		2.57		26.08		36.00		Pass
VHT20	MCS0	2	11	2462	16.40	16.90	19.67	30.00		2.57		22.24		36.00		Pass
VHT40	MCS0	2	3	2422	17.30	17.10	20.21	30.00		2.57		22.78		36.00		Pass
VHT40	MCS0	2	6	2437	17.80	18.10	20.96	30.00		2.57		23.53		36.00		Pass
VHT40	MCS0	2	9	2452	17.30	17.00	20.16	30.00		2.57		22.73		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant7	Ant8	Worse + 3.01	Ant7	Ant8	Ant7	Ant8	
11b	1Mbps	2	1	2412	0.33	-0.12	3.34	5.33		8.00		Pass
11b	1Mbps	2	6	2437	0.00	-0.73	3.01	5.33		8.00		Pass
11b	1Mbps	2	11	2462	-0.63	-0.83	2.38	5.33		8.00		Pass
11g	6Mbps	2	1	2412	-8.54	-8.50	-5.49	5.33		8.00		Pass
11g	6Mbps	2	6	2437	-5.69	-6.39	-2.68	5.33		8.00		Pass
11g	6Mbps	2	11	2462	-9.02	-9.23	-6.01	5.33		8.00		Pass

Measured power density (dBm) has offset with cable loss.

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band MIMO											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
						Ant7	Ant8	Ant7	Ant8		
HE20	MCS0	2	1	2412	Full	18.93	18.93	18.58	18.83	0.50	Pass
HE20	MCS0	2	6	2437	Full	18.98	18.98	18.98	18.33	0.50	Pass
HE20	MCS0	2	11	2462	Full	18.93	18.88	18.95	18.38	0.50	Pass
HE40	MCS0	2	3	2422	Full	37.86	37.86	37.84	37.96	0.50	Pass
HE40	MCS0	2	6	2437	Full	37.86	37.96	37.64	37.20	0.50	Pass
HE40	MCS0	2	9	2452	Full	37.96	37.86	38.08	38.00	0.50	Pass

TEST RESULTS DATA
Average Output Power

2.4GHz Band MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Average Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
						Ant7	Ant8	SUM	Ant7	Ant8	Ant7	Ant8	Ant7	Ant8	Ant7	Ant8	
HE20	MCS0	2	1	2412	Full	17.70	17.70	20.71	30.00		2.57		23.28		36.00		Pass
HE20	MCS0	2	1	2412	26/0	9.80	8.90	12.38	30.00		2.57		14.95		36.00		Pass
HE20	MCS0	2	1	2412	52/37	12.00	11.80	14.91	30.00		2.57		17.48		36.00		Pass
HE20	MCS0	2	1	2412	106/53	14.30	14.10	17.21	30.00		2.57		19.78		36.00		Pass
HE20	MCS0	2	6	2437	Full	20.60	20.60	23.61	30.00		2.57		26.18		36.00		Pass
HE20	MCS0	2	6	2437	26/4	12.00	12.00	15.01	30.00		2.57		17.58		36.00		Pass
HE20	MCS0	2	6	2437	52/38	13.90	14.40	17.17	30.00		2.57		19.74		36.00		Pass
HE20	MCS0	2	6	2437	106/53	16.40	16.80	19.61	30.00		2.57		22.18		36.00		Pass
HE20	MCS0	2	11	2462	Full	16.50	17.00	19.77	30.00		2.57		22.34		36.00		Pass
HE20	MCS0	2	11	2462	26/8	8.00	7.60	10.81	30.00		2.57		13.38		36.00		Pass
HE20	MCS0	2	11	2462	52/40	10.90	10.90	13.91	30.00		2.57		16.48		36.00		Pass
HE20	MCS0	2	11	2462	106/54	13.70	13.60	16.66	30.00		2.57		19.23		36.00		Pass
HE40	MCS0	2	3	2422	Full	17.40	17.20	20.31	30.00		2.57		22.88		36.00		Pass
HE40	MCS0	2	3	2422	242/61	14.20	14.10	17.16	30.00		2.57		19.73		36.00		Pass
HE40	MCS0	2	6	2437	Full	17.90	18.20	21.06	30.00		2.57		23.63		36.00		Pass
HE40	MCS0	2	6	2437	242/61	14.60	14.90	17.76	30.00		2.57		20.33		36.00		Pass
HE40	MCS0	2	9	2452	Full	17.40	17.10	20.26	30.00		2.57		22.83		36.00		Pass
HE40	MCS0	2	9	2452	242/62	14.30	14.50	17.41	30.00		2.57		19.98		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
						Ant7	Ant8	Worse + 3.01	Ant7	Ant8	Ant7	Ant8	
HE20	MCS0	2	1	2412	Full	-8.19	-8.38	-5.18	5.33		8.00		Pass
HE20	MCS0	2	1	2412	26/0	-8.47	-8.76	-5.46	5.33		8.00		Pass
HE20	MCS0	2	1	2412	52/37	-8.32	-8.58	-5.31	5.33		8.00		Pass
HE20	MCS0	2	1	2412	106/53	-8.35	-8.69	-5.34	5.33		8.00		Pass
HE20	MCS0	2	6	2437	Full	-5.52	-5.55	-2.51	5.33		8.00		Pass
HE20	MCS0	2	6	2437	26/4	-5.66	-5.81	-2.65	5.33		8.00		Pass
HE20	MCS0	2	6	2437	52/38	-5.65	-5.74	-2.64	5.33		8.00		Pass
HE20	MCS0	2	6	2437	106/53	-6.07	-6.06	-3.05	5.33		8.00		Pass
HE20	MCS0	2	11	2462	Full	-8.77	-8.88	-5.76	5.33		8.00		Pass
HE20	MCS0	2	11	2462	26/8	-9.11	-8.91	-5.90	5.33		8.00		Pass
HE20	MCS0	2	11	2462	52/40	-8.99	-9.13	-5.98	5.33		8.00		Pass
HE20	MCS0	2	11	2462	106/54	-8.87	-9.04	-5.86	5.33		8.00		Pass
HE40	MCS0	2	3	2422	Full	-11.97	-11.34	-8.33	5.33		8.00		Pass
HE40	MCS0	2	3	2422	242/61	-11.79	-11.74	-8.73	5.33		8.00		Pass
HE40	MCS0	2	6	2437	Full	-11.53	-11.57	-8.52	5.33		8.00		Pass
HE40	MCS0	2	6	2437	242/61	-11.64	-11.87	-8.63	5.33		8.00		Pass
HE40	MCS0	2	9	2452	Full	-11.88	-12.23	-8.87	5.33		8.00		Pass
HE40	MCS0	2	9	2452	242/62	-11.97	-12.38	-8.96	5.33		8.00		Pass

Measured power density (dBm) has offset with cable loss.

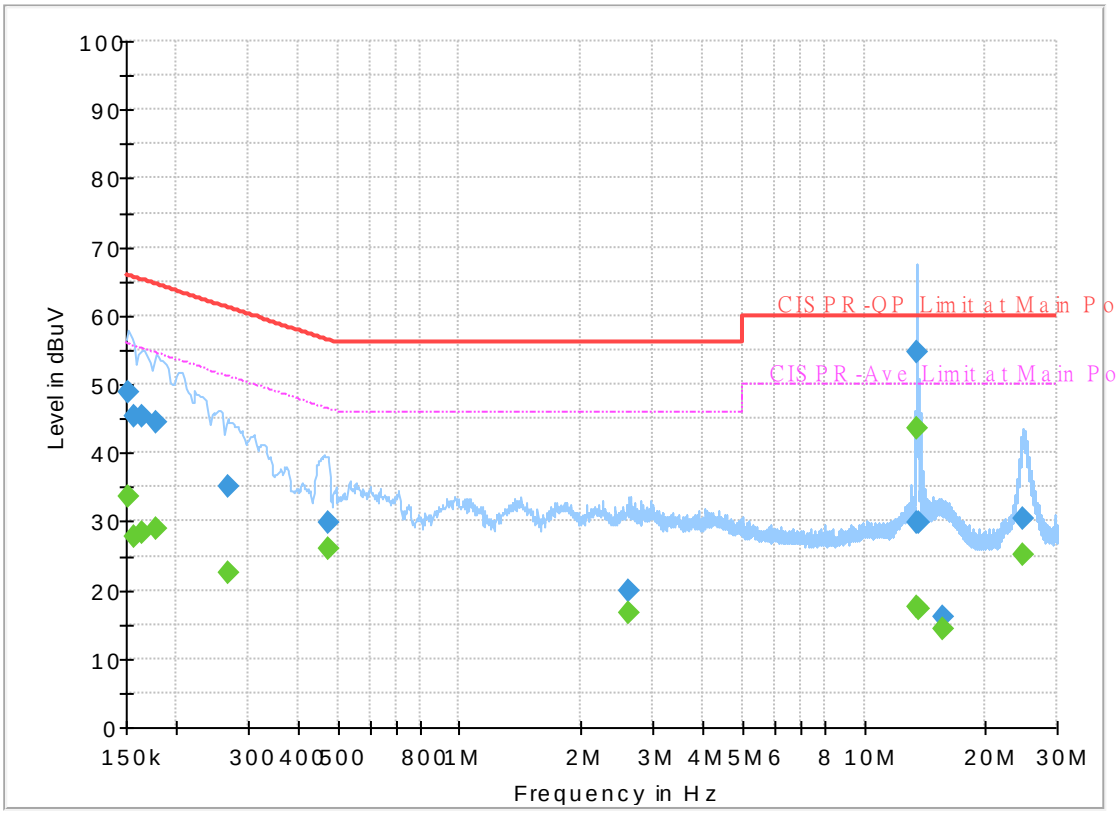
Appendix B. AC Conducted Emission Test Results

Test Engineer :	LI-YAN-XUN	**Temperature :**	23~26℃
		Relative Humidity :	45~55%

EUT Information

Report NO :	371211
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



Final_Result

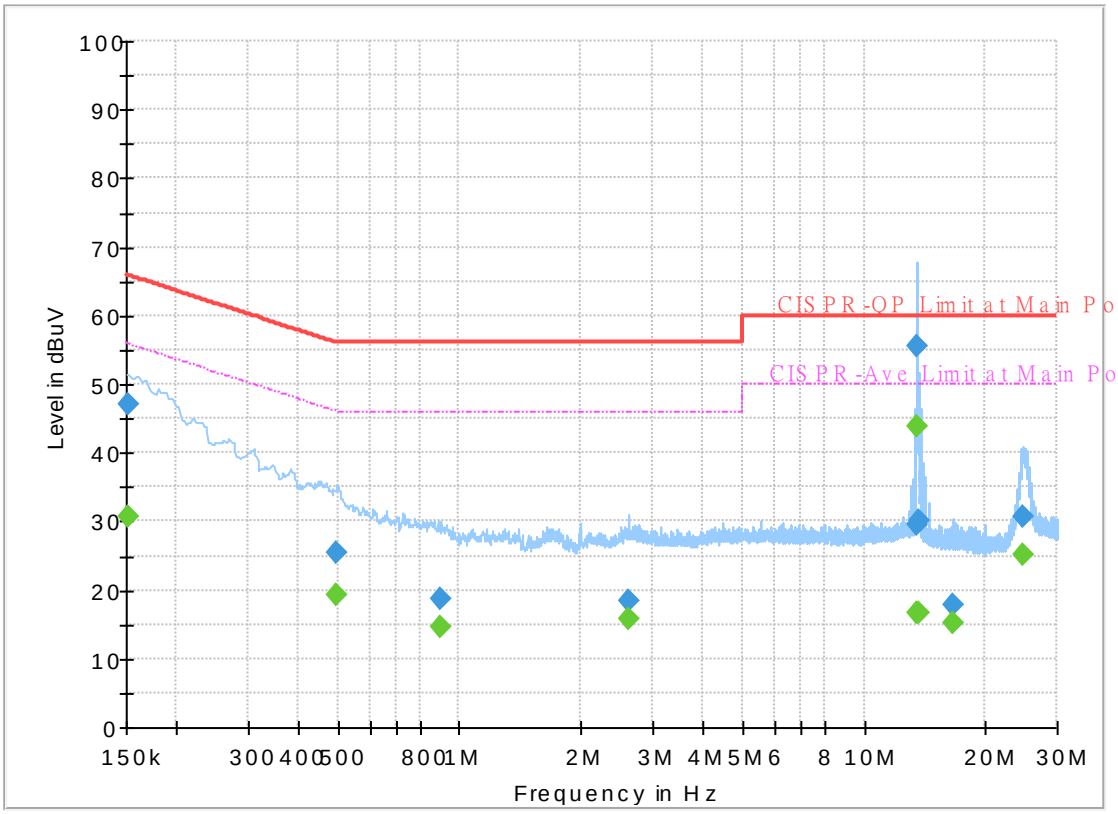
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	33.60	55.88	22.28	L1	OFF	19.8
0.152250	48.70	---	65.88	17.18	L1	OFF	19.8
0.156750	---	27.84	55.63	27.79	L1	OFF	19.8
0.156750	45.33	---	65.63	20.30	L1	OFF	19.8
0.163500	---	28.31	55.28	26.97	L1	OFF	19.8
0.163500	45.30	---	65.28	19.98	L1	OFF	19.8
0.177000	---	29.01	54.63	25.62	L1	OFF	19.8
0.177000	44.41	---	64.63	20.22	L1	OFF	19.8
0.269250	---	22.57	51.14	28.57	L1	OFF	19.8
0.269250	35.16	---	61.14	25.98	L1	OFF	19.8
0.474000	---	25.91	46.44	20.53	L1	OFF	19.8
0.474000	29.92	---	56.44	26.52	L1	OFF	19.8
2.634000	---	16.64	46.00	29.36	L1	OFF	19.9
2.634000	19.79	---	56.00	36.21	L1	OFF	19.9
13.454250	---	17.57	50.00	32.43	L1	OFF	19.9
13.454250	29.85	---	60.00	30.15	L1	OFF	19.9
13.560000	---	43.57	50.00	6.43	L1	OFF	19.9
13.560000	54.76	---	60.00	5.24	L1	OFF	19.9
13.665750	---	17.26	50.00	32.74	L1	OFF	19.9
13.665750	29.73	---	60.00	30.27	L1	OFF	19.9
15.708750	---	14.36	50.00	35.64	L1	OFF	19.9

15.708750	**16.08**	**---**	**60.00**	**43.92**	**L1**	**OFF**	**19.9**
24.742500	**---**	**25.18**	**50.00**	**24.82**	**L1**	**OFF**	**19.9**
24.742500	**30.35**	**---**	**60.00**	**29.65**	**L1**	**OFF**	**19.9**

EUT Information

Report NO :	371211
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	---	30.60	55.88	25.28	N	OFF	19.8
0.152250	47.14	---	65.88	18.74	N	OFF	19.8
0.496500	---	19.20	46.06	26.86	N	OFF	19.8
0.496500	25.54	---	56.06	30.52	N	OFF	19.8
0.901500	---	14.72	46.00	31.28	N	OFF	19.8
0.901500	18.84	---	56.00	37.16	N	OFF	19.8
2.625000	---	15.65	46.00	30.35	N	OFF	19.8
2.625000	18.36	---	56.00	37.64	N	OFF	19.8
13.454250	---	16.76	50.00	33.24	N	OFF	20.0
13.454250	29.58	---	60.00	30.42	N	OFF	20.0
13.560000	---	43.87	50.00	6.13	N	OFF	20.0
13.560000	55.62	---	60.00	4.38	N	OFF	20.0
13.665750	---	16.59	50.00	33.41	N	OFF	20.0
13.665750	29.98	---	60.00	30.02	N	OFF	20.0
16.579500	---	15.18	50.00	34.82	N	OFF	20.0
16.579500	17.92	---	60.00	42.08	N	OFF	20.0
24.657000	---	25.22	50.00	24.78	N	OFF	20.1
24.657000	30.82	---	60.00	29.18	N	OFF	20.1

Appendix C. Radiated Spurious Emission

Test Engineer :	Jesse Wang, Stan Hsieh and Ken Wu	Temperature :	23.3~26.4°C
		Relative Humidity :	43.7~62.5%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (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.	
7+8		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2388.855	58.04	-15.96	74	41.87	32.1	18.27	34.2	400	350	P	H
		2387.28	49.85	-4.15	54	33.68	32.1	18.27	34.2	400	350	A	H
	*	2412	117.27	-	-	101.12	32.08	18.27	34.2	400	350	P	H
	*	2412	114.09	-	-	97.94	32.08	18.27	34.2	400	350	A	H
													H
													H
		2387.49	57.03	-16.97	74	40.86	32.1	18.27	34.2	174	263	P	V
		2390	49.04	-4.96	54	32.87	32.1	18.27	34.2	174	263	A	V
	*	2412	114.2	-	-	98.05	32.08	18.27	34.2	174	263	P	V
	*	2412	111.04	-	-	94.89	32.08	18.27	34.2	174	263	A	V
													V
													V
802.11b CH 06 2437MHz		2388.12	56.27	-17.73	74	40.1	32.1	18.27	34.2	389	351	P	H
		2389.66	47.15	-6.85	54	30.98	32.1	18.27	34.2	389	351	A	H
	*	2437	117.96	-	-	101.8	32.03	18.34	34.21	389	351	P	H
	*	2437	114.83	-	-	98.67	32.03	18.34	34.21	389	351	A	H
		2484.11	56.82	-17.18	74	40.65	32	18.39	34.22	389	351	P	H
		2483.83	48.18	-5.82	54	32.01	32	18.39	34.22	389	351	A	H
		2388.12	55.93	-18.07	74	39.76	32.1	18.27	34.2	100	232	P	V
		2389.94	45.98	-8.02	54	29.81	32.1	18.27	34.2	100	232	A	V
	*	2437	117.61	-	-	101.45	32.03	18.34	34.21	100	232	P	V
	*	2437	114.6	-	-	98.44	32.03	18.34	34.21	100	232	A	V
		2491.6	56.72	-17.28	74	40.55	32	18.39	34.22	100	232	P	V
		2485.65	46.26	-7.74	54	30.09	32	18.39	34.22	100	232	A	V

WIFI Ant. 7+8	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)
802.11b CH 11 2462MHz	*	2462	113.26	-	-	97.06	32	18.41	34.21	363	309	P	H
	*	2462	110.29	-	-	94.09	32	18.41	34.21	363	309	A	H
		2483.52	57.21	-16.79	74	41.04	32	18.39	34.22	363	309	P	H
		2483.52	49.52	-4.48	54	33.35	32	18.39	34.22	363	309	A	H
													H
													H
	*	2462	111.42	-	-	95.22	32	18.41	34.21	327	244	P	V
	*	2462	108.24	-	-	92.04	32	18.41	34.21	327	244	A	V
		2487.96	56.96	-17.04	74	40.79	32	18.39	34.22	327	244	P	V
		2483.52	48.38	-5.62	54	32.21	32	18.39	34.22	327	244	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 802.11b (Harmonic @ 3m)

WIFI Ant. 7+8	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)
		4824	46.05	-27.95	74	57.93	34.1	13.03	59.01	232	353	P	H
		4824	41.37	-12.63	54	53.25	34.1	13.03	59.01	232	353	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
802.11b CH 01 2412MHz													H
		4824	45.53	-28.47	74	57.41	34.1	13.03	59.01	329	49	P	V
		4824	40.92	-13.08	54	52.8	34.1	13.03	59.01	329	49	A	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7+8	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)
		4874	49.57	-24.43	74	61.3	34.15	13.04	58.92	217	360	P	H
		4874	46.16	-7.84	54	57.89	34.15	13.04	58.92	217	360	A	H
		7311	52.91	-21.09	74	59.39	35.7	15.38	57.56	104	3	P	H
		7311	49.11	-4.89	54	55.59	35.7	15.38	57.56	104	3	A	H
													H
													H
													H
													H
													H
													H
													H
802.11b CH 06 2437MHz													H
		4874	47.76	-26.24	74	59.49	34.15	13.04	58.92	313	33	P	V
		4874	44.96	-9.04	54	56.69	34.15	13.04	58.92	313	33	A	V
		7311	50.58	-23.42	74	57.06	35.7	15.38	57.56	100	22	P	V
		7311	48.01	-5.99	54	54.49	35.7	15.38	57.56	100	22	A	V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7+8	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)
		4924	46.96	-27.04	74	58.57	34.2	13.03	58.84	200	2	P	H
		4924	41.75	-12.25	54	53.36	34.2	13.03	58.84	200	2	A	H
		7386	45.49	-28.51	74	52.16	35.63	15.34	57.64	158	2	P	H
		7386	38.26	-15.74	54	44.93	35.63	15.34	57.64	158	2	A	H
													H
													H
													H
													H
													H
													H
													H
802.11b CH 11 2462MHz													H
		4924	45.55	-28.45	74	57.16	34.2	13.03	58.84	309	31	P	V
		4924	40.75	-13.25	54	52.36	34.2	13.03	58.84	309	31	A	V
		7386	46.65	-27.35	74	53.32	35.63	15.34	57.64	100	22	P	V
		7386	39.47	-14.53	54	46.14	35.63	15.34	57.64	100	22	A	V
													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.

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 7+8	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)
802.11g CH 01 2412MHz		2389.905	67.29	-6.71	74	51.12	32.1	18.27	34.2	249	352	P	H
		2390	52.92	-1.08	54	36.75	32.1	18.27	34.2	249	352	A	H
	*	2412	110.81	-	-	94.66	32.08	18.27	34.2	249	352	P	H
	*	2412	103.57	-	-	87.42	32.08	18.27	34.2	249	352	A	H
													H
													H
		2390	66.4	-7.6	74	50.23	32.1	18.27	34.2	281	239	P	V
		2390	52.5	-1.5	54	36.33	32.1	18.27	34.2	281	239	A	V
	*	2412	110.13	-	-	93.98	32.08	18.27	34.2	281	239	P	V
	*	2412	103.02	-	-	86.87	32.08	18.27	34.2	281	239	A	V
													V
													V
802.11g CH 06 2437MHz		2389.94	61.28	-12.72	74	45.11	32.1	18.27	34.2	294	324	P	H
		2389.94	49.56	-4.44	54	33.39	32.1	18.27	34.2	294	324	A	H
	*	2437	115.26	-	-	99.1	32.03	18.34	34.21	294	324	P	H
	*	2437	107.68	-	-	91.52	32.03	18.34	34.21	294	324	A	H
		2486	66.84	-7.16	74	50.67	32	18.39	34.22	294	324	P	H
		2483.5	52.16	-1.84	54	35.99	32	18.39	34.22	294	324	A	H
		2389.52	59.68	-14.32	74	43.51	32.1	18.27	34.2	163	259	P	V
		2389.94	48.04	-5.96	54	31.87	32.1	18.27	34.2	163	259	A	V
	*	2437	117.37	-	-	101.21	32.03	18.34	34.21	163	259	P	V
	*	2437	109.32	-	-	93.16	32.03	18.34	34.21	163	259	A	V
		2484.25	64.88	-9.12	74	48.71	32	18.39	34.22	163	259	P	V
		2483.5	52.15	-1.85	54	35.98	32	18.39	34.22	163	259	A	V

WIFI Ant. 7+8	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)
802.11g CH 11 2462MHz	*	2462	111.16	-	-	94.96	32	18.41	34.21	185	324	P	H
	*	2462	103.99	-	-	87.79	32	18.41	34.21	185	324	A	H
		2483.52	64.75	-9.25	74	48.58	32	18.39	34.22	185	324	P	H
		2483.52	51.56	-2.44	54	35.39	32	18.39	34.22	185	324	A	H
													H
													H
	*	2462	111.38	-	-	95.18	32	18.41	34.21	259	237	P	V
	*	2462	104.06	-	-	87.86	32	18.41	34.21	259	237	A	V
		2483.52	63.36	-10.64	74	47.19	32	18.39	34.22	185	288	P	V
		2483.52	50.44	-3.56	54	34.27	32	18.39	34.22	185	288	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 802.11g (Harmonic @ 3m)

WIFI Ant. 7+8	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)
802.11g CH 01 2412MHz		4824	42.19	-31.81	74	54.07	34.1	13.03	59.01	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4824	41.88	-32.12	74	53.76	34.1	13.03	59.01	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7+8	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)
		4874	47.13	-26.87	74	58.86	34.15	13.04	58.92	168	0	P	H
		4874	36.64	-17.36	54	48.37	34.15	13.04	58.92	168	0	A	H
		7311	48.74	-25.26	74	55.22	35.7	15.38	57.56	100	16	P	H
		7311	39.86	-14.14	54	46.34	35.7	15.38	57.56	100	16	A	H
													H
													H
													H
													H
													H
													H
													H
802.11g CH 06 2437MHz													H
		4874	44.37	-29.63	74	56.1	34.15	13.04	58.92	308	28	P	V
		4874	33.98	-20.02	54	45.71	34.15	13.04	58.92	308	28	A	V
		7311	49.67	-24.33	74	56.15	35.7	15.38	57.56	100	234	P	V
		7311	39.23	-14.77	54	45.71	35.7	15.38	57.56	100	234	A	V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7+8	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)
		4924	43.02	-30.98	74	54.63	34.2	13.03	58.84	-	-	P	H
		7386	41.44	-32.56	74	48.11	35.63	15.34	57.64	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
802.11g CH 11 2462MHz													H
		4924	41.16	-32.84	74	52.77	34.2	13.03	58.84	-	-	P	V
		7386	42.07	-31.93	74	48.74	35.63	15.34	57.64	-	-	P	V
													V
													V
													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.

2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 Full (Band Edge @ 3m)

WIFI Ant. 7+8	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)
		2389.905	62.57	-11.43	74	46.4	32.1	18.27	34.2	201	196	P	H
		2390	50.79	-3.21	54	34.62	32.1	18.27	34.2	201	196	A	H
	*	2412	110.64	-	-	94.49	32.08	18.27	34.2	201	196	P	H
	*	2412	102.61	-	-	86.46	32.08	18.27	34.2	201	196	A	H
802.11ax													H
HE20 Full													H
CH 01		2390	65.99	-8.01	74	49.82	32.1	18.27	34.2	349	299	P	V
2412MHz		2390	50.66	-3.34	54	34.49	32.1	18.27	34.2	349	299	A	V
	*	2412	110.51	-	-	94.36	32.08	18.27	34.2	349	299	P	V
	*	2412	102.39	-	-	86.24	32.08	18.27	34.2	349	299	A	V
													V
													V
		2389.94	58.88	-15.12	74	42.71	32.1	18.27	34.2	298	320	P	H
		2389.94	47.94	-6.06	54	31.77	32.1	18.27	34.2	298	320	A	H
	*	2437	115.2	-	-	99.04	32.03	18.34	34.21	298	320	P	H
	*	2437	107.01	-	-	90.85	32.03	18.34	34.21	298	320	A	H
802.11ax		2484.25	64.43	-9.57	74	48.26	32	18.39	34.22	298	320	P	H
HE20 Full		2483.5	51.15	-2.85	54	34.98	32	18.39	34.22	298	320	A	H
CH 06		2389.38	58.65	-15.35	74	42.48	32.1	18.27	34.2	188	262	P	V
2437MHz		2389.94	47.69	-6.31	54	31.52	32.1	18.27	34.2	188	262	A	V
	*	2437	115.74	-	-	99.58	32.03	18.34	34.21	188	262	P	V
	*	2437	107.84	-	-	91.68	32.03	18.34	34.21	188	262	A	V
		2484.18	62.09	-11.91	74	45.92	32	18.39	34.22	188	262	P	V
		2483.5	49.65	-4.35	54	33.48	32	18.39	34.22	188	262	A	V

WIFI Ant. 7+8	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)
	*	2462	110.57	-	-	94.37	32	18.41	34.21	113	329	P	H
	*	2462	102.03	-	-	85.83	32	18.41	34.21	113	329	A	H
		2484.28	65.24	-8.76	74	49.07	32	18.39	34.22	113	329	P	H
		2483.56	51.84	-2.16	54	35.67	32	18.39	34.22	113	329	A	H
802.11ax													H
HE20 Full													H
CH 11	*	2462	108.81	-	-	92.61	32	18.41	34.21	179	287	P	V
2462MHz	*	2462	101.31	-	-	85.11	32	18.41	34.21	179	287	A	V
		2483.76	64.53	-9.47	74	48.36	32	18.39	34.22	179	287	P	V
		2483.52	51.22	-2.78	54	35.05	32	18.39	34.22	179	287	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 802.11 ax HE20 Full (Harmonic @ 3m)

WIFI Ant. 7+8	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)
		4824	42.43	-31.57	74	54.31	34.1	13.03	59.01	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE20 Full													H
CH 01		4824	41.38	-32.62	74	53.26	34.1	13.03	59.01	-	-	P	V
2412MHz													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7+8	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)
		4874	43.45	-30.55	74	55.18	34.15	13.04	58.92	200	360	P	H
		4874	35.16	-18.84	54	46.89	34.15	13.04	58.92	200	360	A	H
		7311	44.17	-29.83	74	50.65	35.7	15.38	57.56	151	0	P	H
		7311	37.61	-16.39	54	44.09	35.7	15.38	57.56	151	0	A	H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE20 Full													H
CH 06		4874	42.38	-31.62	74	54.11	34.15	13.04	58.92	-	-	P	V
2437MHz		7311	45.43	-28.57	74	51.91	35.7	15.38	57.56	260	19	P	V
		7311	37.71	-16.29	54	44.19	35.7	15.38	57.56	260	19	A	V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7+8	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)
		4924	41.88	-32.12	74	53.49	34.2	13.03	58.84	-	-	P	H
		7386	41.73	-32.27	74	48.4	35.63	15.34	57.64	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE20 Full													H
CH 11		4924	41.59	-32.41	74	53.2	34.2	13.03	58.84	-	-	P	V
2462MHz		7386	41.04	-32.96	74	47.71	35.63	15.34	57.64	-	-	P	V
													V
													V
													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.

2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 Partial 106 (Band Edge @ 3m)

WIFI Ant. 7+8	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)
		2386.125	69.76	-4.24	74	53.59	32.1	18.27	34.2	199	0	P	H
		2389.905	50.64	-3.36	54	34.47	32.1	18.27	34.2	199	0	A	H
	*	2412	111.93	-	-	95.78	32.08	18.27	34.2	199	0	P	H
802.11ax	*	2412	104.06	-	-	87.91	32.08	18.27	34.2	199	0	A	H
HE20													H
Partial													H
106/53		2387.175	69.18	-4.82	74	53.01	32.1	18.27	34.2	400	229	P	V
CH 01		2390	50.5	-3.5	54	34.33	32.1	18.27	34.2	400	229	A	V
2412MHz	*	2412	109.96	-	-	93.81	32.08	18.27	34.2	400	229	P	V
	*	2412	103.07	-	-	86.92	32.08	18.27	34.2	400	229	A	V
													V
													V
	*	2462	112.91	-	-	96.71	32	18.41	34.21	201	327	P	H
	*	2462	105.15	-	-	88.95	32	18.41	34.21	201	327	A	H
		2483.84	70.55	-3.45	74	54.38	32	18.39	34.22	201	327	P	H
802.11ax		2483.52	47.33	-6.67	54	31.16	32	18.39	34.22	201	327	A	H
HE20													H
Partial													H
106/54	*	2462	108.51	-	-	92.31	32	18.41	34.21	300	10	P	V
CH 11	*	2462	100.71	-	-	84.51	32	18.41	34.21	300	10	A	V
2462MHz		2483.56	69	-5	74	52.83	32	18.39	34.22	300	10	P	V
		2483.96	47.2	-6.8	54	31.03	32	18.39	34.22	300	10	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 Ant. 7+8	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)
		2389.94	69.2	-4.8	74	53.03	32.1	18.27	34.2	263	350	P	H
		2389.94	51.42	-2.58	54	35.25	32.1	18.27	34.2	263	350	A	H
	*	2422	108.21	-	-	92	32.06	18.35	34.2	263	350	P	H
	*	2422	100.32	-	-	84.11	32.06	18.35	34.2	263	350	A	H
802.11ax		2486.21	54.92	-19.08	74	38.75	32	18.39	34.22	263	350	P	H
HE40 Full		2484.95	45.16	-8.84	54	28.99	32	18.39	34.22	263	350	A	H
CH 03		2389.52	64.74	-9.26	74	48.57	32.1	18.27	34.2	316	243	P	V
2422MHz		2389.94	51.39	-2.61	54	35.22	32.1	18.27	34.2	316	243	A	V
	*	2422	108.87	-	-	92.66	32.06	18.35	34.2	316	243	P	V
	*	2422	100.08	-	-	83.87	32.06	18.35	34.2	316	243	A	V
		2499.72	55.14	-18.86	74	38.97	32	18.39	34.22	316	243	P	V
		2484.81	45.01	-8.99	54	28.84	32	18.39	34.22	316	243	A	V
		2389.66	61.63	-12.37	74	45.46	32.1	18.27	34.2	298	322	P	H
		2389.94	48.02	-5.98	54	31.85	32.1	18.27	34.2	298	322	A	H
	*	2437	110.59	-	-	94.43	32.03	18.34	34.21	298	322	P	H
	*	2437	101.11	-	-	84.95	32.03	18.34	34.21	298	322	A	H
802.11ax		2484.74	65.1	-8.9	74	48.93	32	18.39	34.22	298	322	P	H
HE40 Full		2483.5	50.83	-3.17	54	34.66	32	18.39	34.22	298	322	A	H
CH 06		2388.12	57.24	-16.76	74	41.07	32.1	18.27	34.2	300	238	P	V
2437MHz		2389.94	47.09	-6.91	54	30.92	32.1	18.27	34.2	300	238	A	V
	*	2437	109.99	-	-	93.83	32.03	18.34	34.21	300	238	P	V
	*	2437	101.26	-	-	85.1	32.03	18.34	34.21	300	238	A	V
		2485.44	63.59	-10.41	74	47.42	32	18.39	34.22	300	238	P	V
		2483.5	49.43	-4.57	54	33.26	32	18.39	34.22	300	238	A	V

WIFI Ant. 7+8	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)
		2389.94	54.8	-19.2	74	38.63	32.1	18.27	34.2	300	330	P	H
		2389.94	44.88	-9.12	54	28.71	32.1	18.27	34.2	300	330	A	H
	*	2452	108.79	-	-	92.67	32	18.33	34.21	300	330	P	H
	*	2452	98.96	-	-	82.84	32	18.33	34.21	300	330	A	H
802.11ax		2484.6	69.76	-4.24	74	53.59	32	18.39	34.22	300	330	P	H
HE40 Full		2483.69	51.24	-2.76	54	35.07	32	18.39	34.22	300	330	A	H
CH 09		2343.32	54.69	-19.31	74	38.67	32.06	18.15	34.19	201	291	P	V
2452MHz		2388.68	44.62	-9.38	54	28.45	32.1	18.27	34.2	201	291	A	V
	*	2452	107.79	-	-	91.67	32	18.33	34.21	201	291	P	V
	*	2452	98.07	-	-	81.95	32	18.33	34.21	201	291	A	V
		2483.5	67.33	-6.67	74	51.16	32	18.39	34.22	201	291	P	V
		2483.5	50.67	-3.33	54	34.5	32	18.39	34.22	201	291	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE40 Full (Harmonic @ 3m)

WIFI Ant. 7+8	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)
		4844	42.29	-31.71	74	54.07	34.18	13.01	58.97	-	-	P	H
		7266	42.78	-31.22	74	49.13	35.77	15.4	57.52	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE40 Full													H
CH 03		4844	41.97	-32.03	74	53.75	34.18	13.01	58.97	-	-	P	V
2422MHz		7266	42.11	-31.89	74	48.46	35.77	15.4	57.52	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7+8	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)
		4874	42.75	-31.25	74	54.48	34.15	13.04	58.92	-	-	P	H
		7311	43.4	-30.6	74	49.88	35.7	15.38	57.56	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE40 Full													H
CH 06		4874	42.1	-31.9	74	53.83	34.15	13.04	58.92	-	-	P	V
2437MHz		7311	42.85	-31.15	74	49.33	35.7	15.38	57.56	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7+8	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)
		4904	41.27	-32.73	74	52.98	34.12	13.04	58.87	-	-	P	H
		7356	41.81	-32.19	74	48.38	35.69	15.35	57.61	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE40 Full													H
CH 09		4904	42.01	-31.99	74	53.72	34.12	13.04	58.87	-	-	P	V
2452MHz		7356	41.31	-32.69	74	47.88	35.69	15.35	57.61	-	-	P	V
													V
													V
													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.

2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE40 Partial 242 (Band Edge @ 3m)

WIFI Ant. 7+8	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)
		2387.25	71.84	-2.16	74	55.67	32.1	18.27	34.2	400	340	P	H
		2387.25	50.29	-3.71	54	34.12	32.1	18.27	34.2	400	334	A	H
	*	2422	108.53	-	-	92.32	32.06	18.35	34.2	400	334	P	H
	*	2422	98.95	-	-	82.74	32.06	18.35	34.2	400	333	A	H
802.11ax		2486.23	57.73	-16.27	74	41.56	32	18.39	34.22	400	333	P	H
HE40		2486.86	45.03	-8.97	54	28.86	32	18.39	34.22	400	332	A	H
Partial		2386.95	72.93	-1.07	74	56.76	32.1	18.27	34.2	355	237	P	V
242/61		2386.95	50.39	-3.61	54	34.22	32.1	18.27	34.2	355	237	A	V
CH 03	*	2422	109.31	-	-	93.1	32.06	18.35	34.2	355	237	P	V
2422MHz	*	2422	101.1	-	-	84.89	32.06	18.35	34.2	355	237	A	V
		2487.13	55.07	-18.93	74	38.9	32	18.39	34.22	355	237	P	V
		2485.51	45	-9	54	28.83	32	18.39	34.22	355	237	A	V
		2389.52	57.98	-16.02	74	41.81	32.1	18.27	34.2	182	328	P	H
		2389.38	44.52	-9.48	54	28.35	32.1	18.27	34.2	182	328	A	H
	*	2452	107.42	-	-	91.3	32	18.33	34.21	182	328	P	H
	*	2452	99.39	-	-	83.27	32	18.33	34.21	182	328	A	H
802.11ax		2483.5	71.62	-2.38	74	55.45	32	18.39	34.22	182	328	P	H
HE40		2483.5	50.55	-3.45	54	34.38	32	18.39	34.22	182	328	A	H
Partial		2383.64	54.96	-19.04	74	38.79	32.1	18.27	34.2	327	248	P	V
242/62		2389.8	44.66	-9.34	54	28.49	32.1	18.27	34.2	327	248	A	V
CH 09	*	2452	106.84	-	-	90.72	32	18.33	34.21	327	248	P	V
2452MHz	*	2452	98.73	-	-	82.61	32	18.33	34.21	327	248	A	V
		2484.32	64.25	-9.75	74	48.08	32	18.39	34.22	327	248	P	V
		2483.69	45.27	-8.73	54	29.1	32	18.39	34.22	327	248	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11ax HE40 Partial 242 (LF)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
7+8		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE40 Partial 242/61 LF		30	23.2	-16.8	40	27.41	24.51	1.36	30.08	-	-	P	H
		64.02	24.83	-15.17	40	41.43	11.81	1.52	29.93	-	-	P	H
		121.26	27.22	-16.28	43.5	37.89	17.36	1.94	29.97	-	-	P	H
		761.3	29.6	-16.4	46	27.02	27.73	4.56	29.71	-	-	P	H
		857.9	31.71	-14.29	46	27.2	28.9	4.86	29.25	-	-	P	H
		955.2	32.58	-13.42	46	25.64	30.6	5.14	28.8	-	-	P	H
													H
													H
													H
													H
													H
													H
		30	33.08	-6.92	40	37.29	24.51	1.36	30.08	-	-	P	V
		63.75	22.96	-17.04	40	39.57	11.8	1.52	29.93	-	-	P	V
		120.45	23.36	-20.14	43.5	34.05	17.34	1.94	29.97	-	-	P	V
		858.6	31.85	-14.15	46	27.33	28.9	4.86	29.24	-	-	P	V
		886.6	35.44	-10.56	46	30.87	28.63	5.03	29.09	-	-	P	V
		956.6	33.02	-12.98	46	26.05	30.63	5.14	28.8	-	-	P	V
													V
													V
													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against 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	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

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.	
7+8		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

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 @ 2390MHz:

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 @ 2390MHz:

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 D. Radiated Spurious Emission Plots

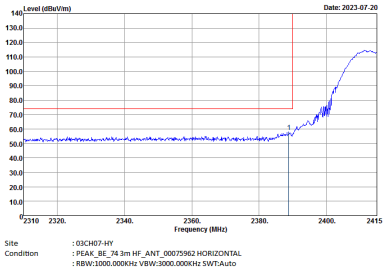
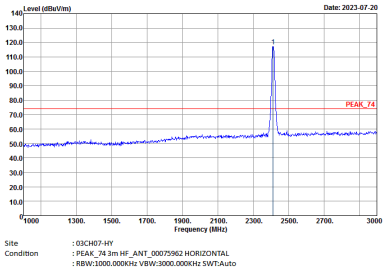
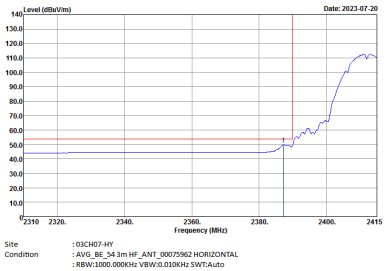
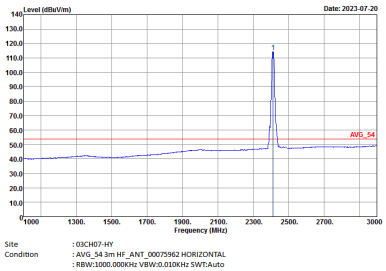
Test Engineer :	Jesse Wang, Stan Hsieh and Ken Wu	**Temperature :**	23.3~26.4°C
		Relative Humidity :	43.7~62.5%

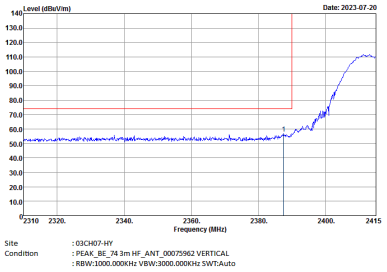
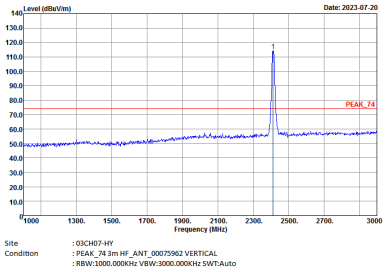
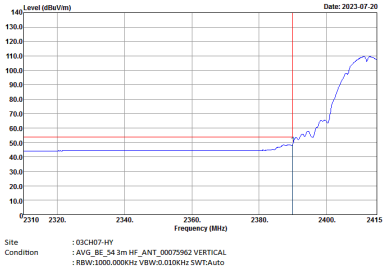
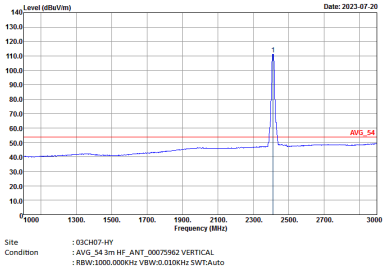
Note symbol

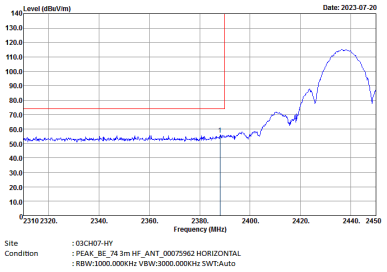
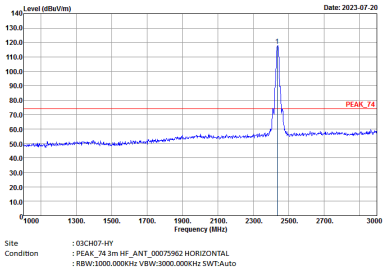
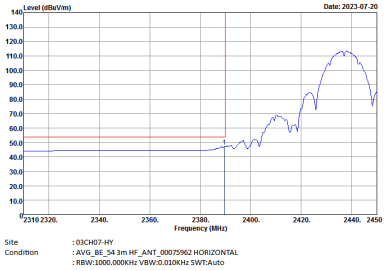
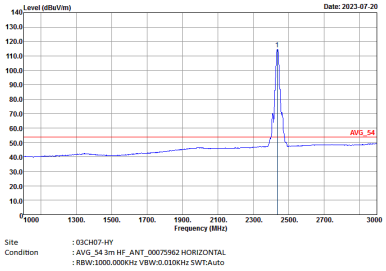
-L	**Low channel location**
-R	**High channel location**

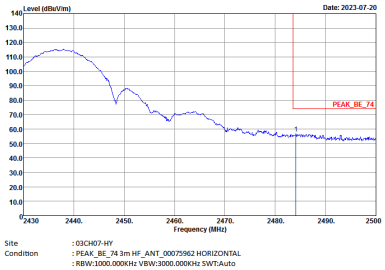
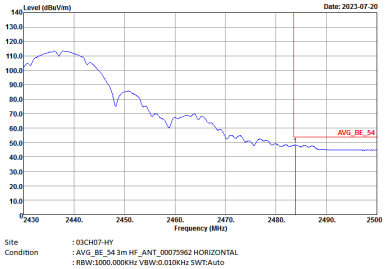
2.4GHz 2400~2483.5MHz

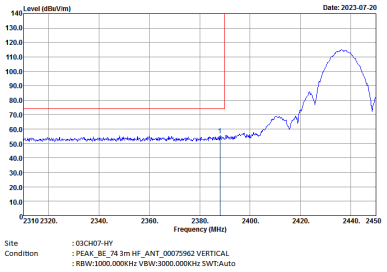
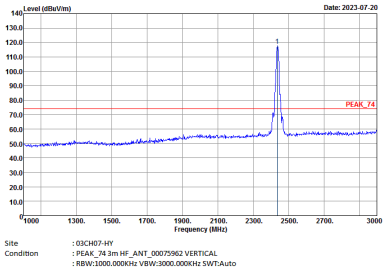
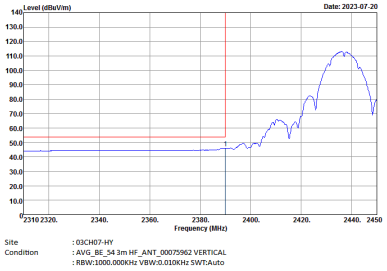
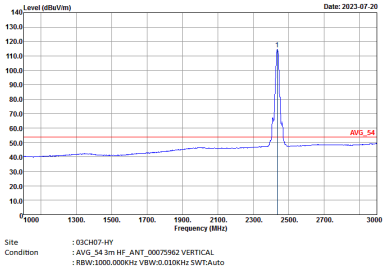
WIFI 802.11b (Band Edge @ 3m)

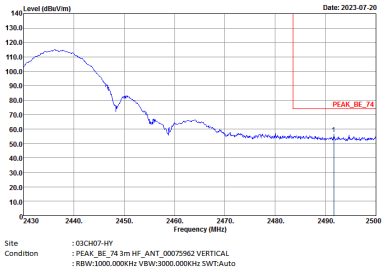
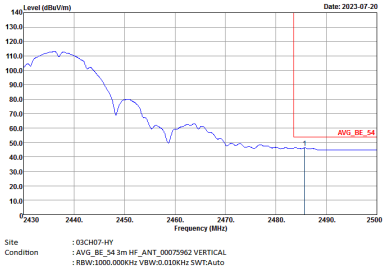
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
7+8	Horizontal	Fundamental
Peak		
Avg.		

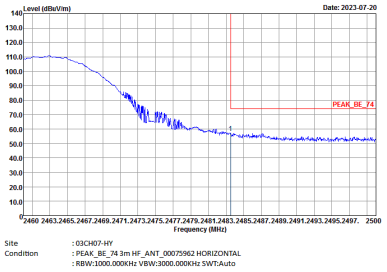
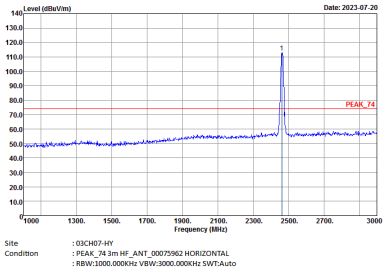
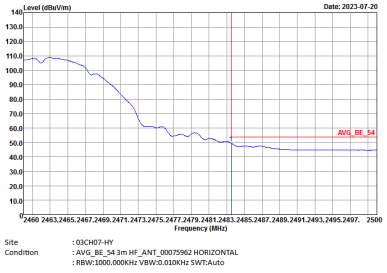
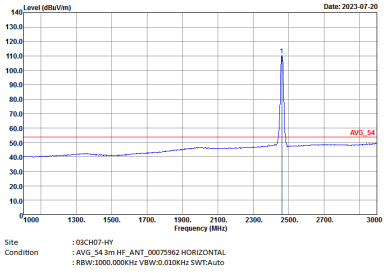
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
7+8	Vertical	Fundamental
Peak		
Avg.		

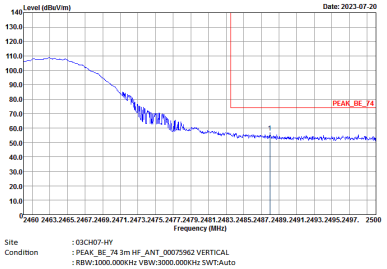
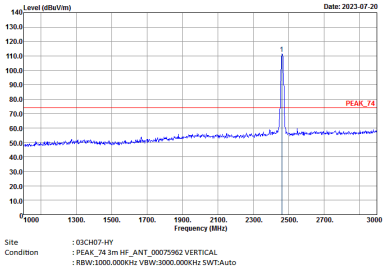
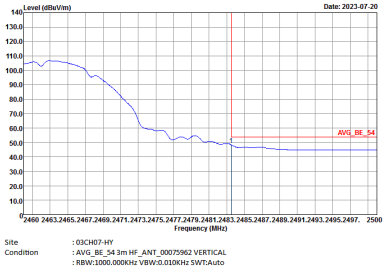
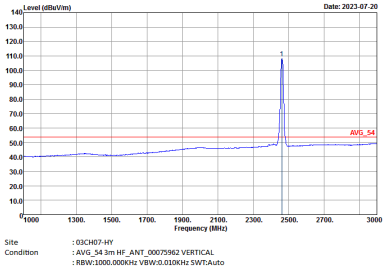
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
7+8	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
7+8	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
7+8	Vertical	Fundamental
Peak		
Avg.		

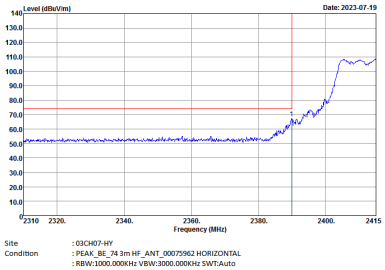
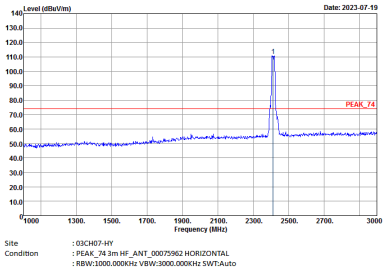
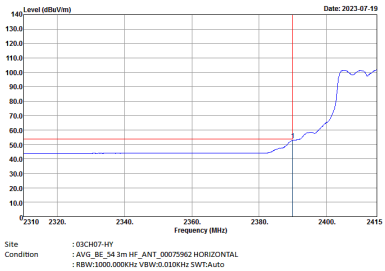
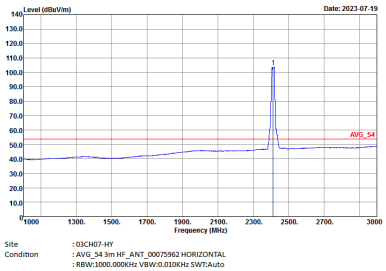
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
7+8	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

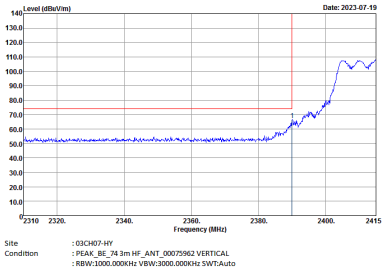
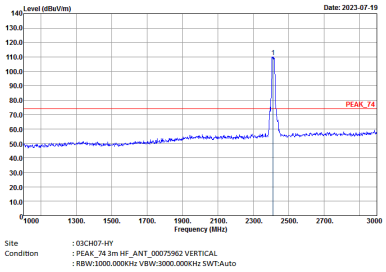
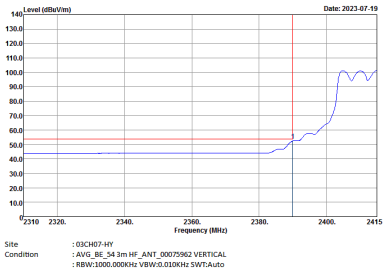
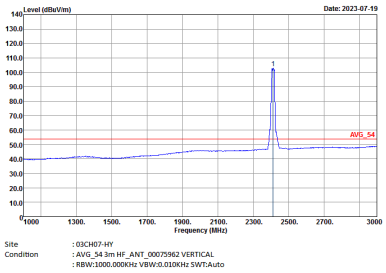
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
7+8	Horizontal	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

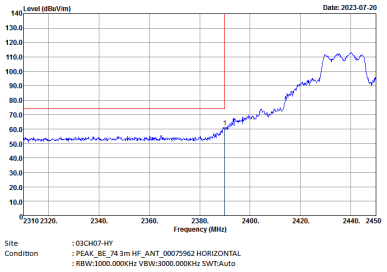
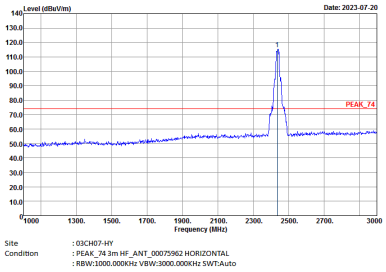
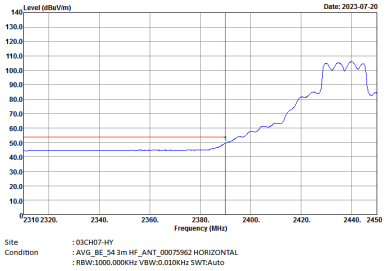
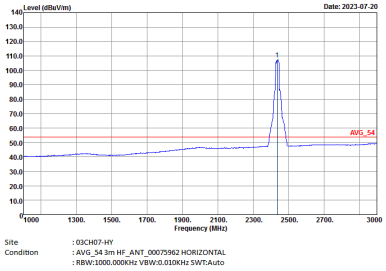
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
7+8	Vertical	Fundamental
Peak		
Avg.		

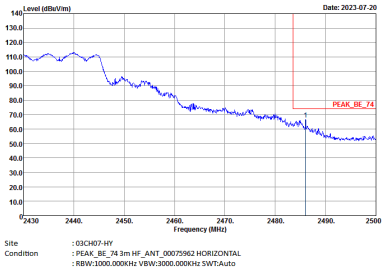
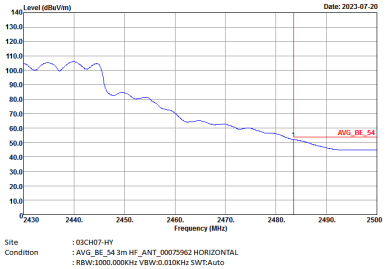
2.4GHz 2400~2483.5MHz

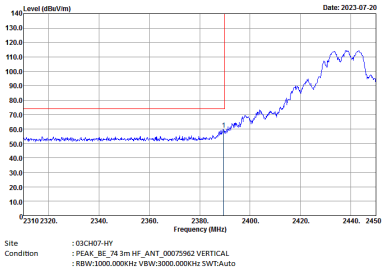
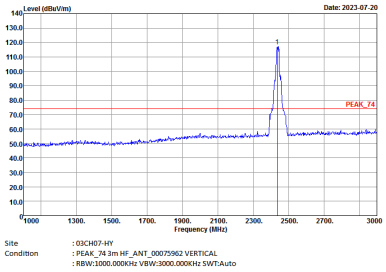
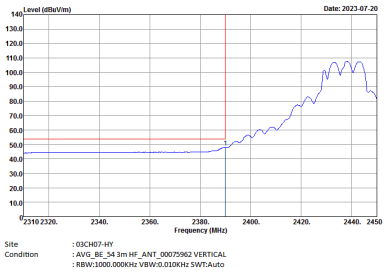
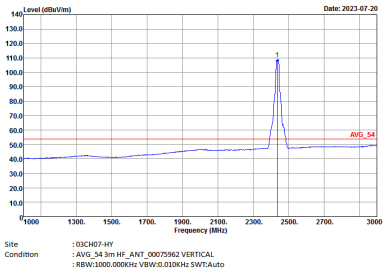
WIFI 802.11g (Band Edge @ 3m)

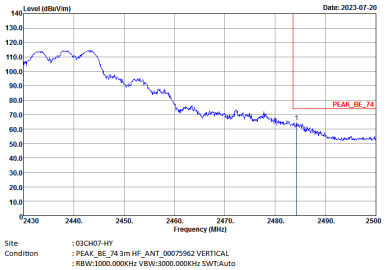
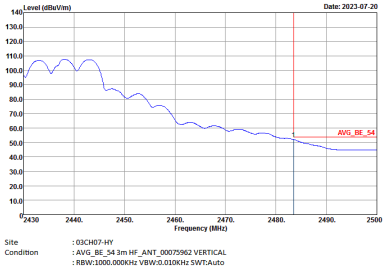
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
7+8	Horizontal	Fundamental
Peak		
Avg.		

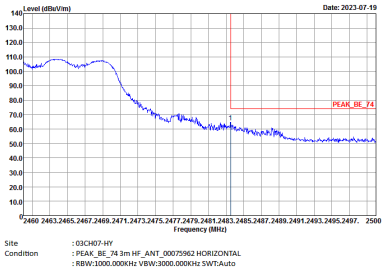
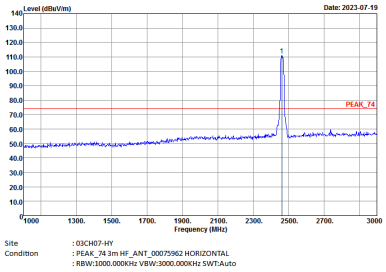
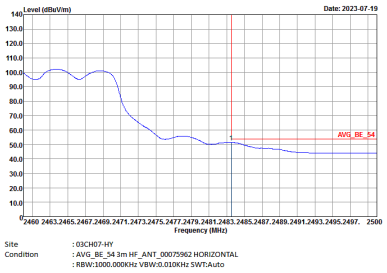
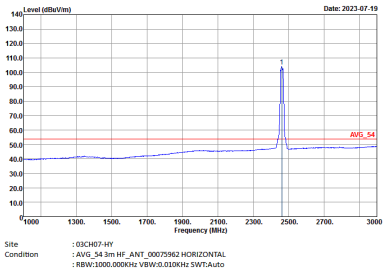
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
7+8	Vertical	Fundamental
Peak		
Avg.		

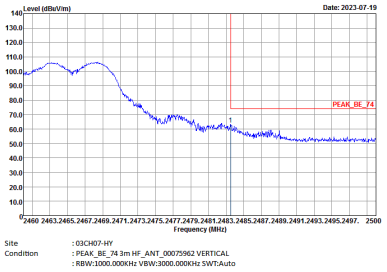
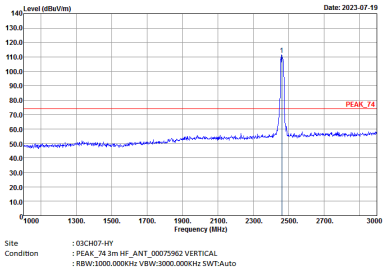
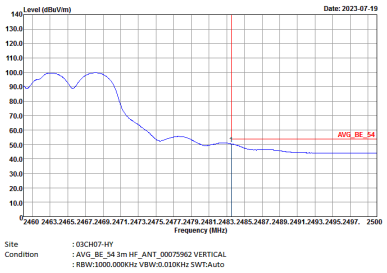
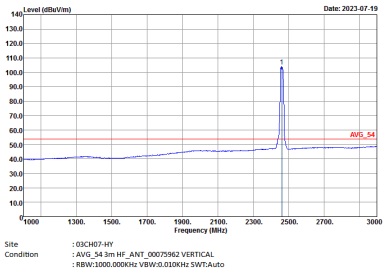
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
7+8	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
7+8	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
7+8	Vertical	Fundamental
Peak		
Avg.		

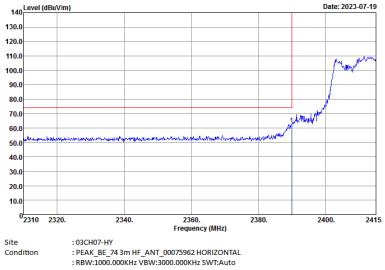
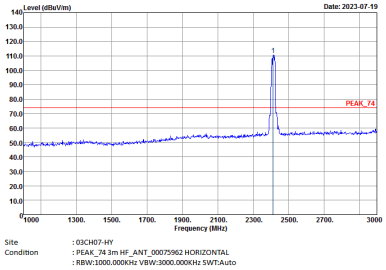
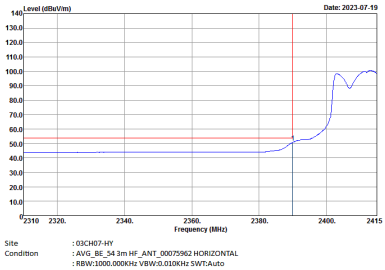
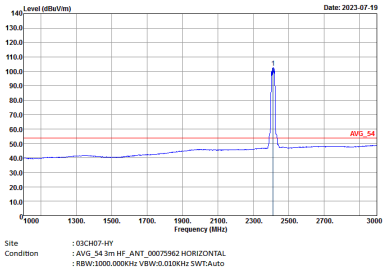
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
7+8	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

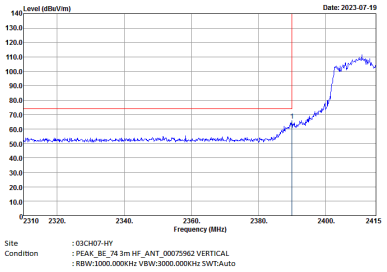
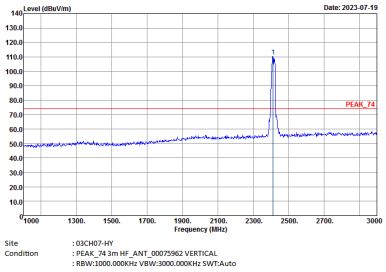
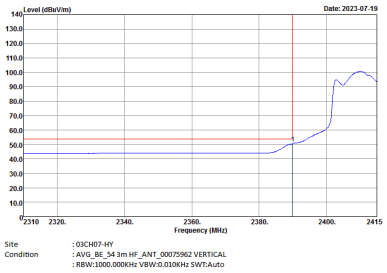
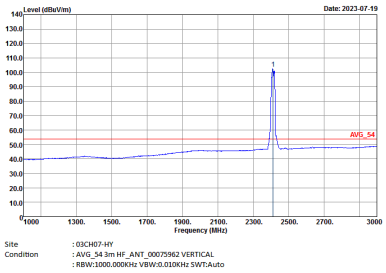
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
7+8	Horizontal	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

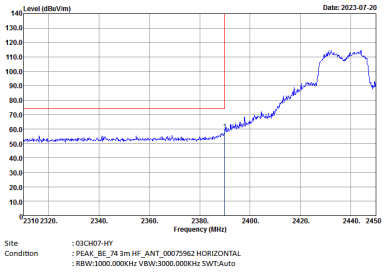
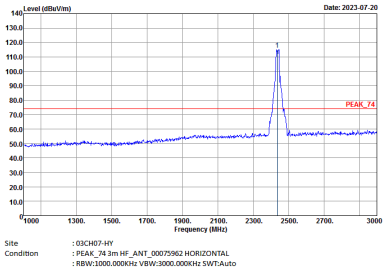
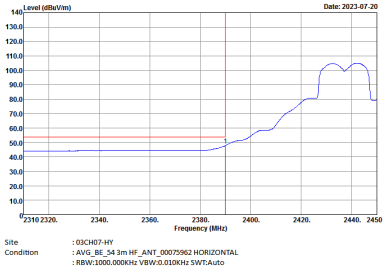
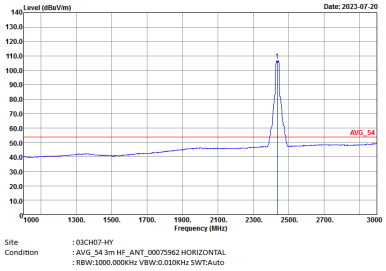
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
7+8	Vertical	Fundamental
Peak		
Avg.		

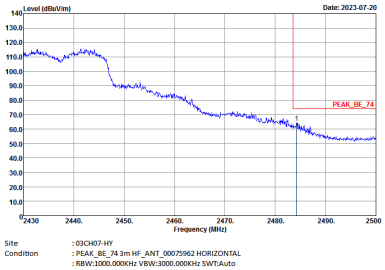
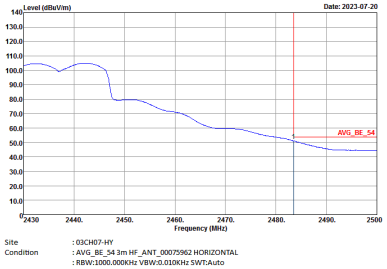
2.4GHz 2400~2483.5MHz

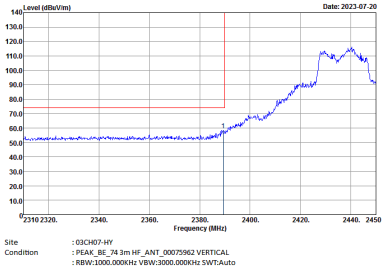
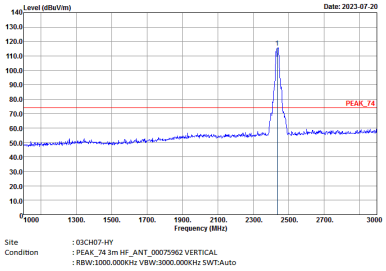
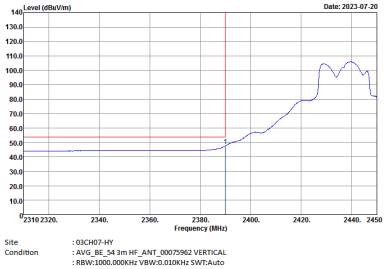
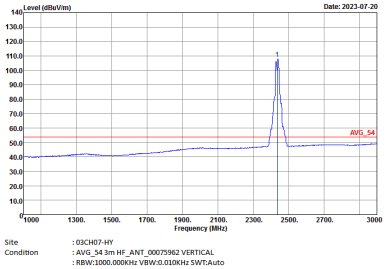
WIFI 802.11ax HE20 Full (Band Edge @ 3m)

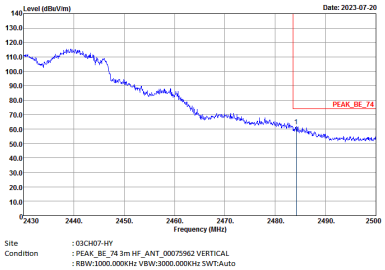
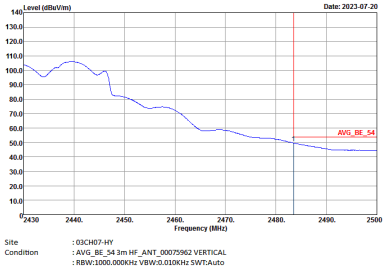
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH01 2412MHz	
7+8	Horizontal	Fundamental
Peak		
Avg.		

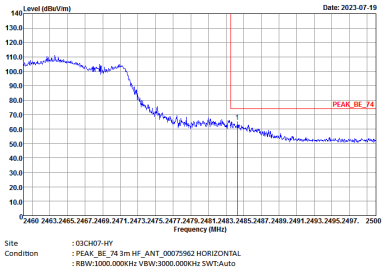
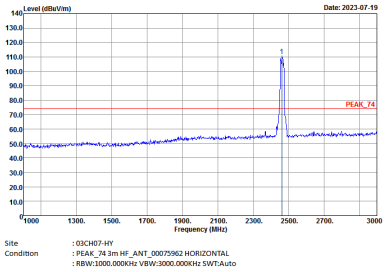
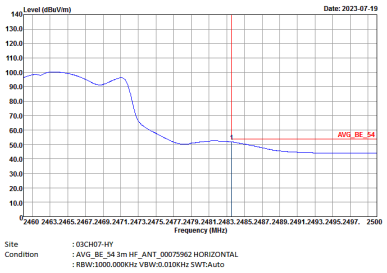
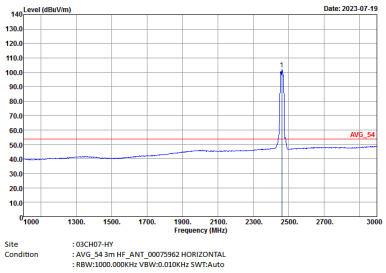
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH01 2412MHz	
7+8	Vertical	Fundamental
Peak		
Avg.		

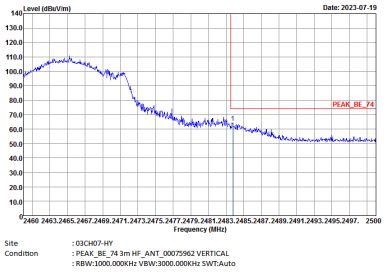
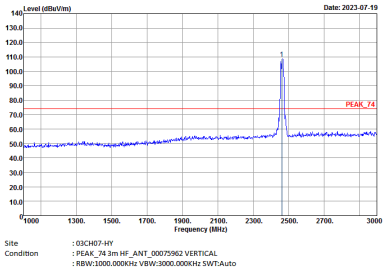
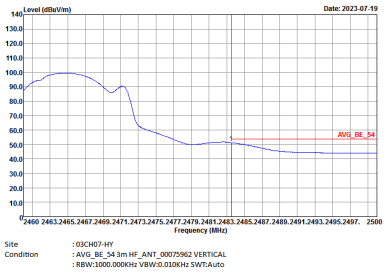
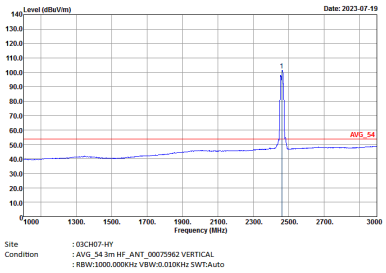
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH06 2437MHz - L	
7+8	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH06 2437MHz - R	
7+8	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH06 2437MHz - L	
7+8	Vertical	Fundamental
Peak		
Avg.		

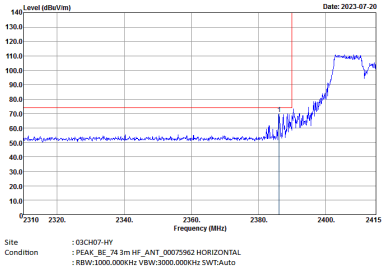
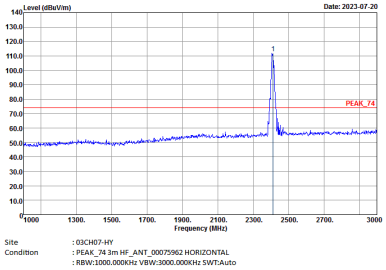
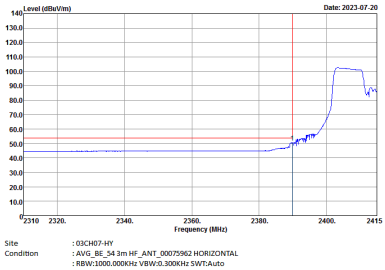
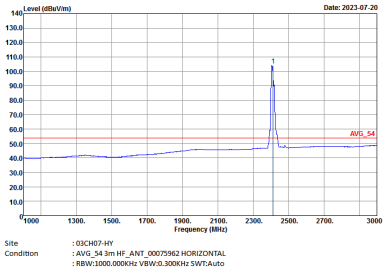
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH06 2437MHz - R	
7+8	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

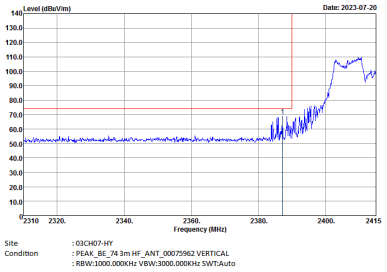
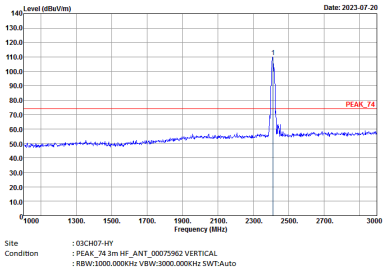
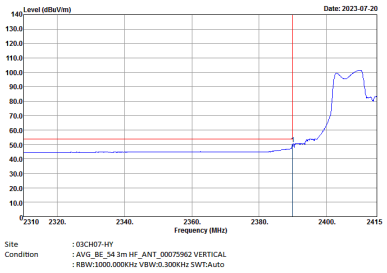
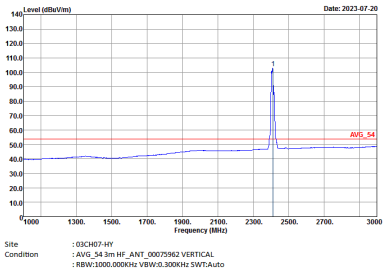
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH11 2462MHz	
7+8	Horizontal	Fundamental
Peak		
Avg.		

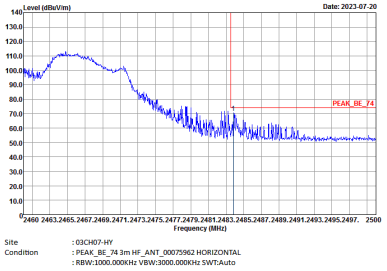
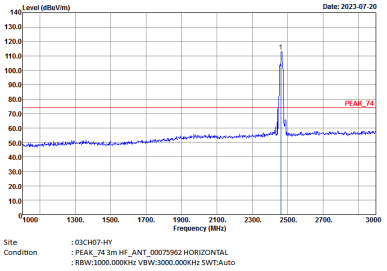
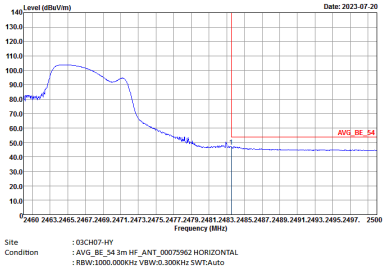
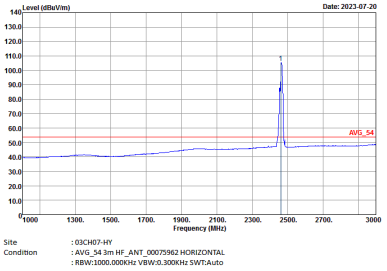
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH11 2462MHz	
7+8	Vertical	Fundamental
Peak		
Avg.		

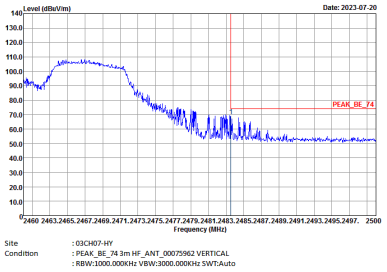
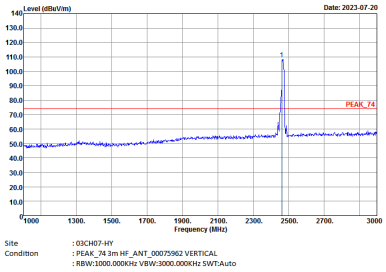
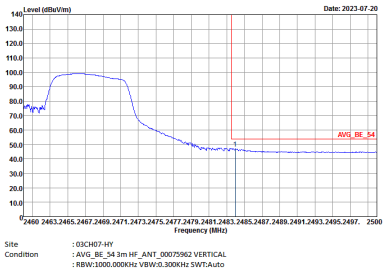
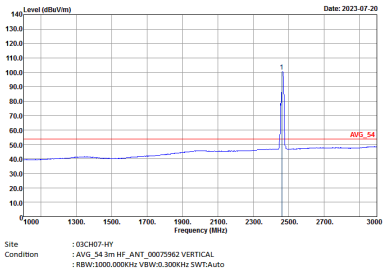
2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 Partial 106 (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/53 CH01 2412MHz	
7+8	Horizontal	Fundamental
Peak		
Avg.		

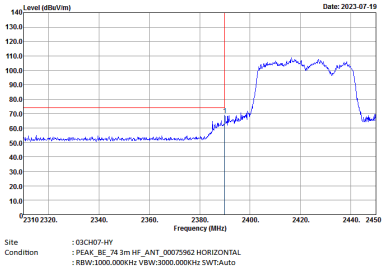
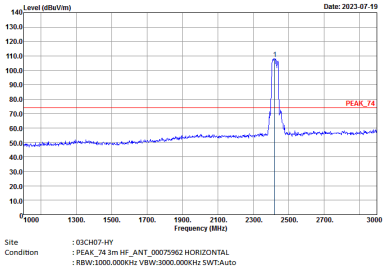
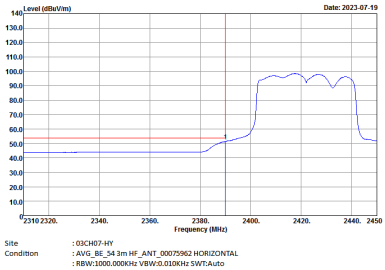
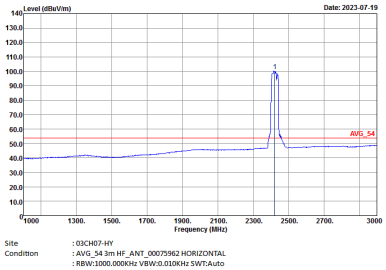
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/53 CH01 2412MHz	
7+8	Vertical	Fundamental
Peak		
Avg.		

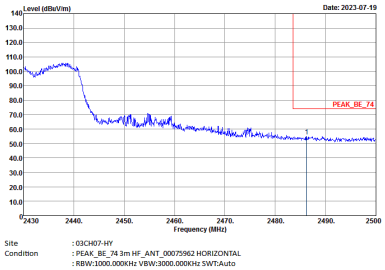
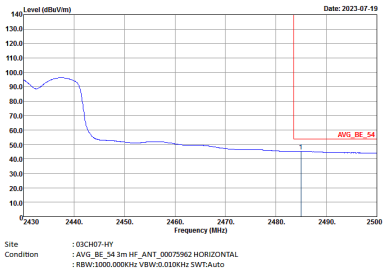
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/54 CH11 2462MHz	
7+8	Horizontal	Fundamental
Peak		
Avg.		

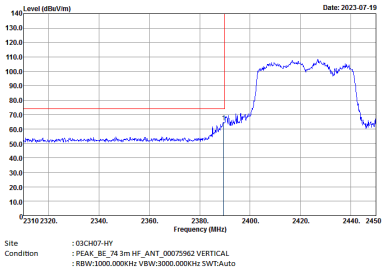
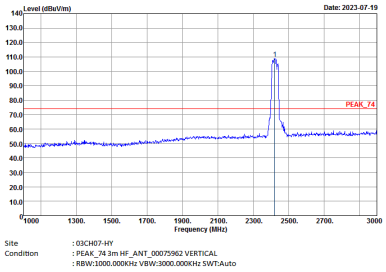
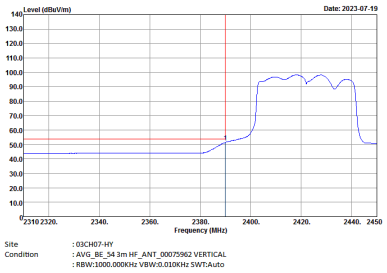
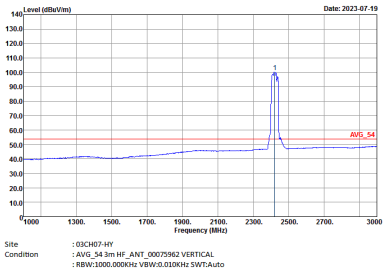
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/54 CH11 2462MHz	
7+8	Vertical	Fundamental
Peak		
Avg.		

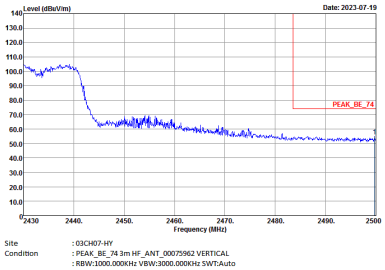
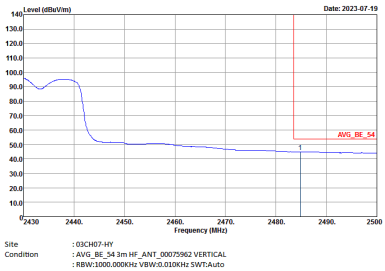
2.4GHz 2400~2483.5MHz

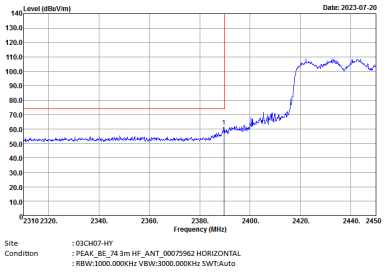
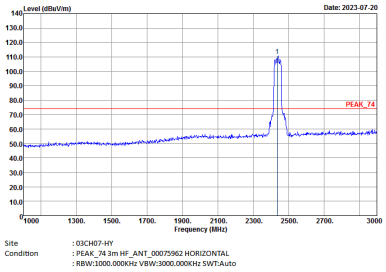
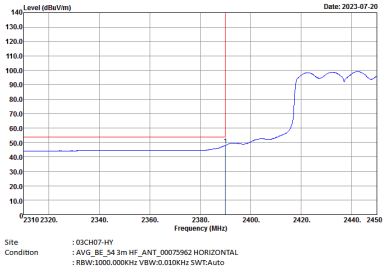
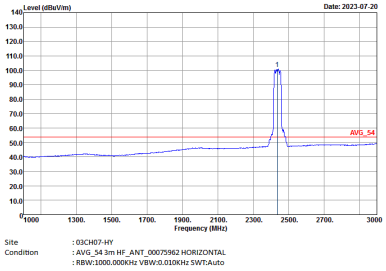
WIFI 802.11ax HE40 Full (Band Edge @ 3m)

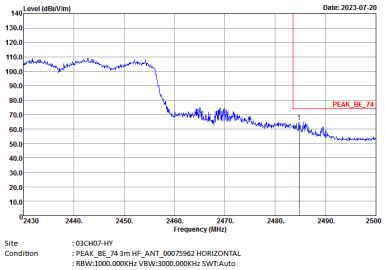
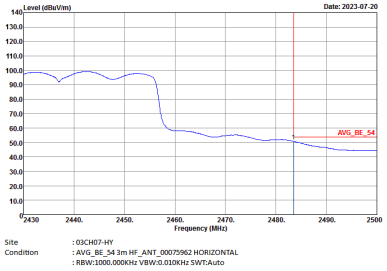
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH03 2422MHz - L	
7+8	Horizontal	Fundamental
Peak		
Avg.		

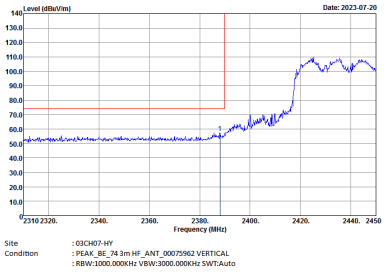
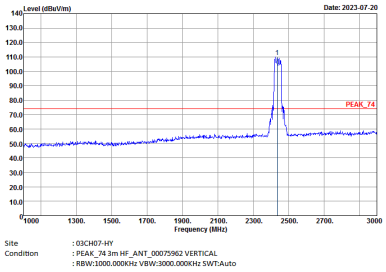
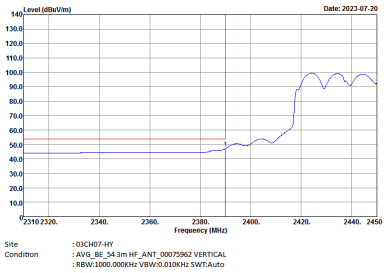
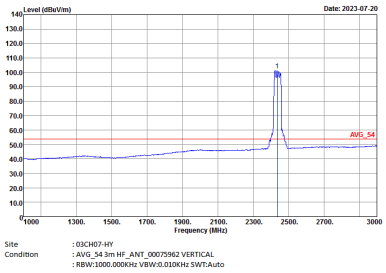
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH03 2422MHz - R	
7+8	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

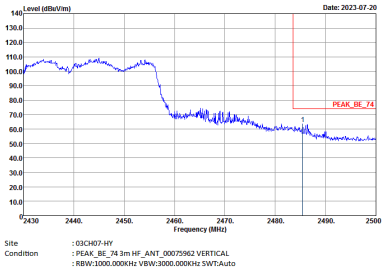
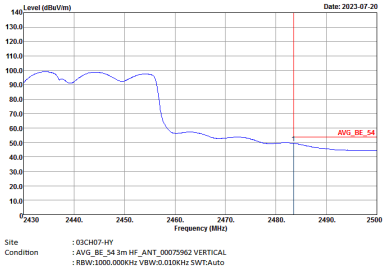
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH03 2422MHz - L	
7+8	Vertical	Fundamental
Peak		
Avg.		

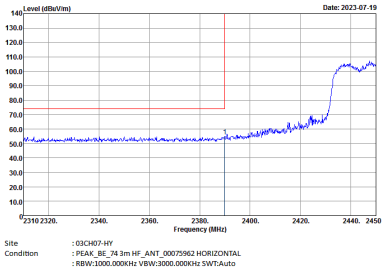
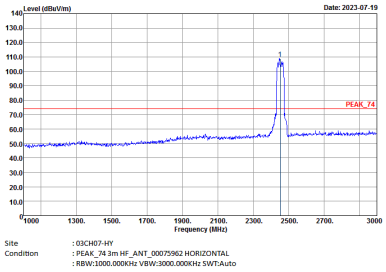
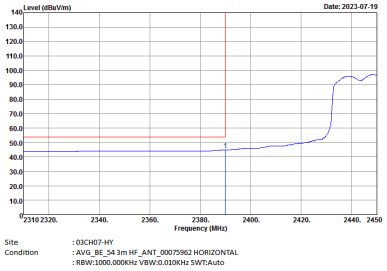
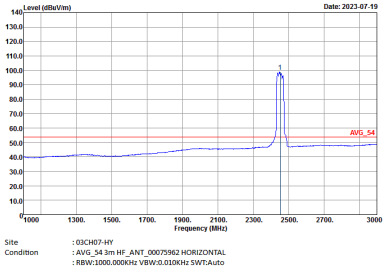
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH03 2422MHz - R	
7+8	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

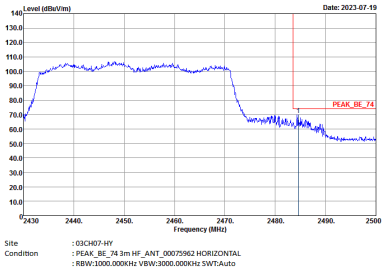
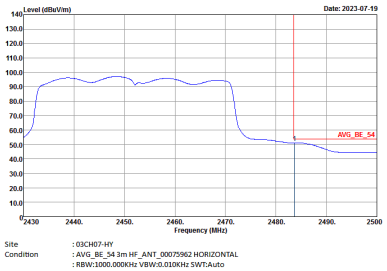
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - L	
7+8	Horizontal	Fundamental
Peak		
Avg.		

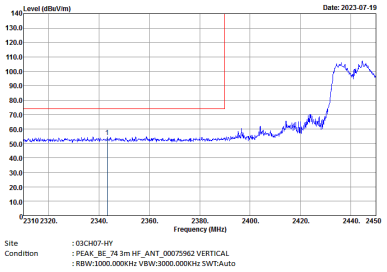
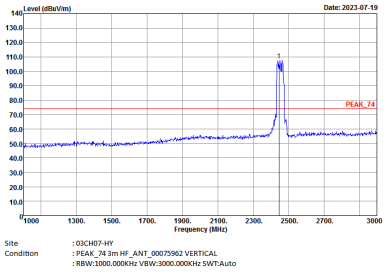
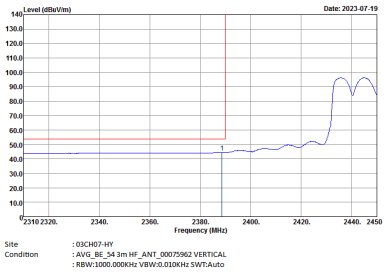
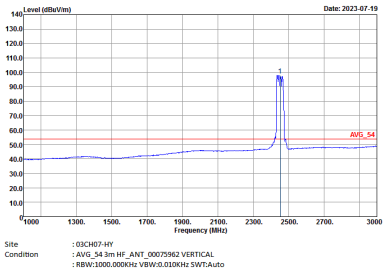
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - R	
7+8	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

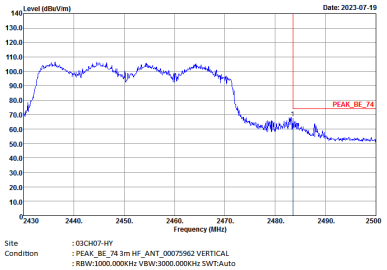
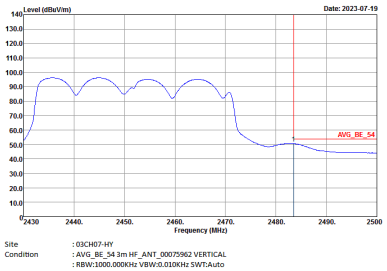
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - L	
7+8	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH06 2437MHz - R	
7+8	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH09 2452MHz - L	
7+8	Horizontal	Fundamental
Peak		
Avg.		

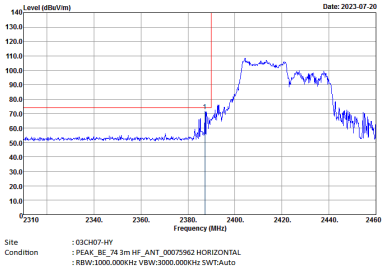
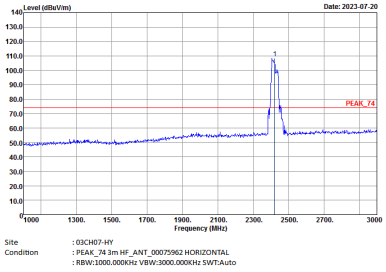
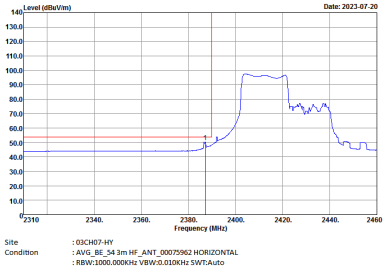
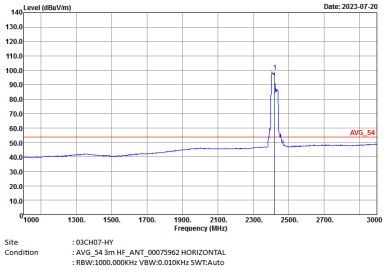
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH09 2452MHz - R	
7+8	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

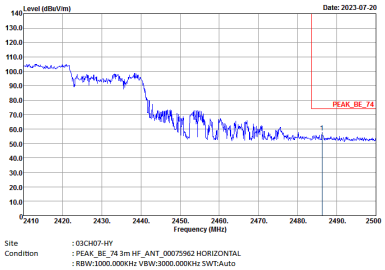
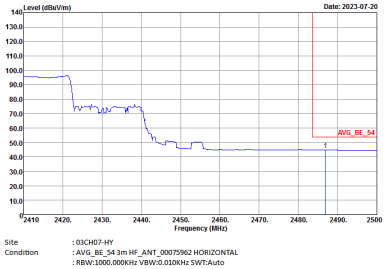
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH09 2452MHz - L	
7+8	Vertical	Fundamental
Peak		
Avg.		

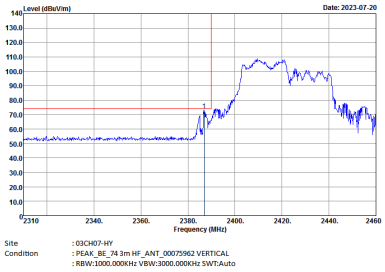
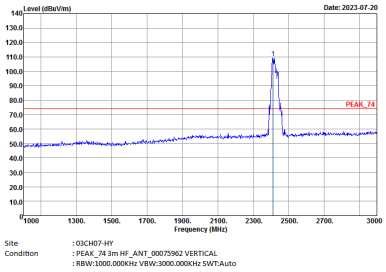
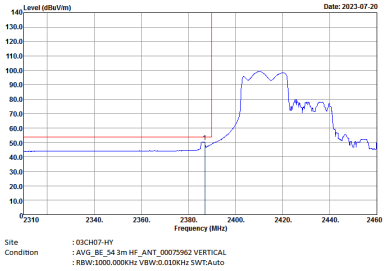
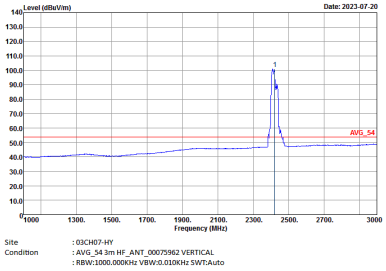
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH09 2452MHz - R	
7+8	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

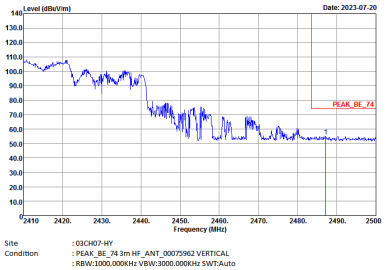
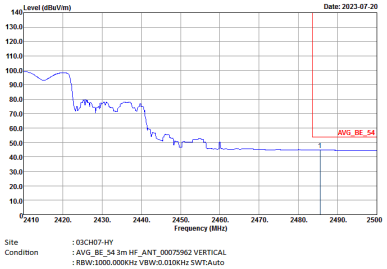
2.4GHz 2400~2483.5MHz

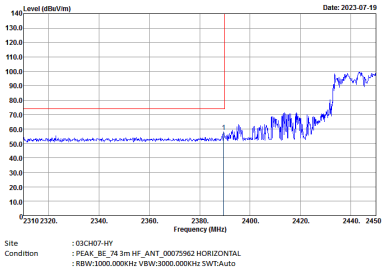
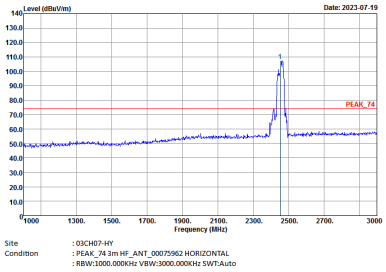
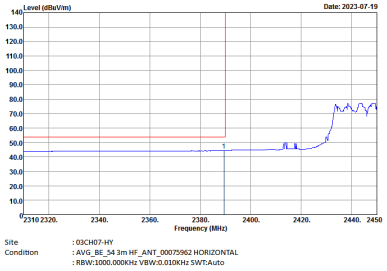
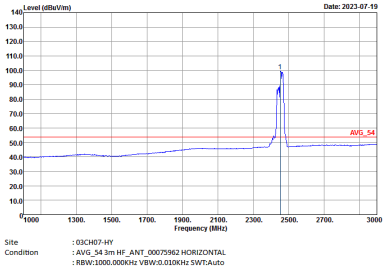
WIFI 802.11ax HE40 Partial 242 (Band Edge @ 3m)

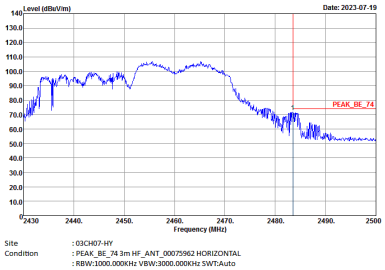
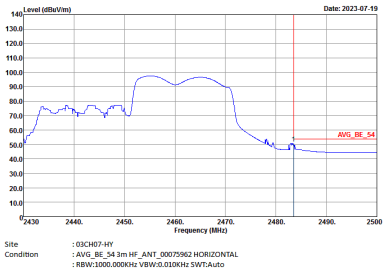
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Partial 242/61 CH03 2422MHz - L	
7+8	Horizontal	Fundamental
Peak		
Avg.		

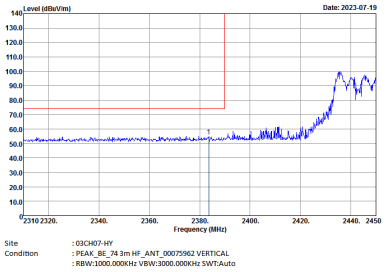
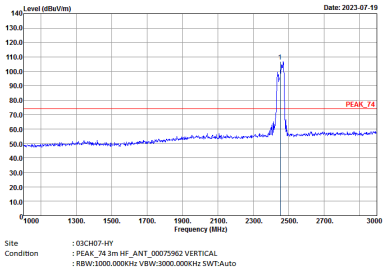
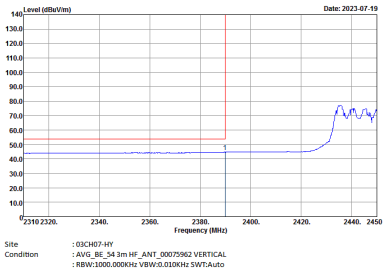
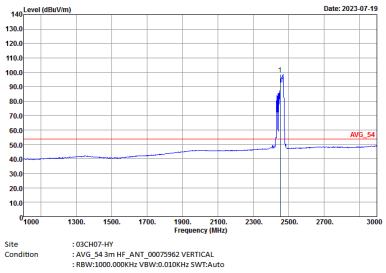
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Partial 242/61 CH03 2422MHz - R	
7+8	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

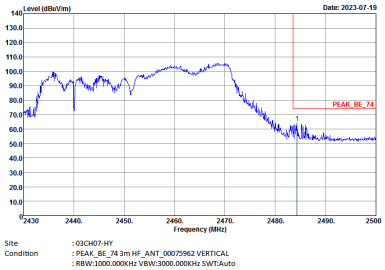
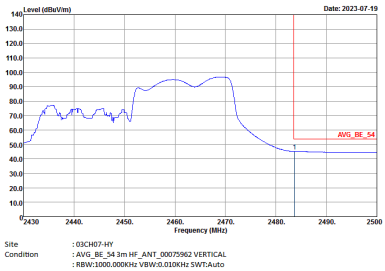
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Partial 242/61 CH03 2422MHz - L	
7+8	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Partial 242/61 CH03 2422MHz - R	
7+8	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Partial 242/62 CH09 2452MHz - L	
7+8	Horizontal	Fundamental
Peak		
Avg.		

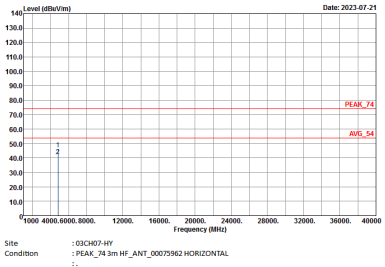
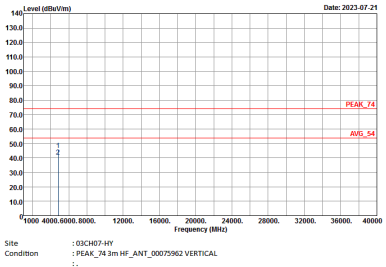
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Partial 242/62 CH09 2452MHz - R	
7+8	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

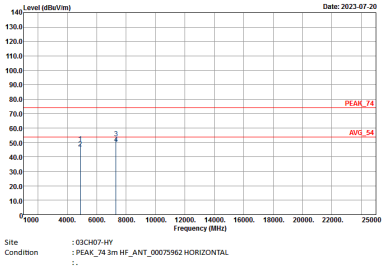
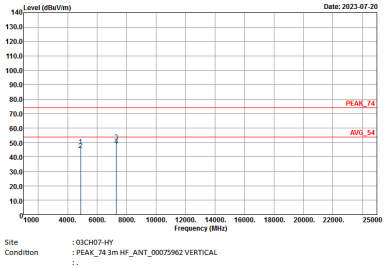
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Partial 242/62 CH09 2452MHz - L	
7+8	Vertical	Fundamental
Peak		
Avg.		

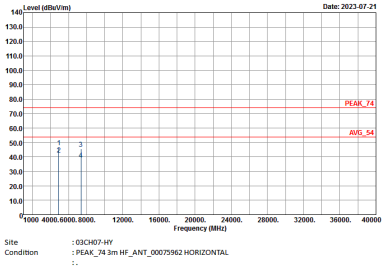
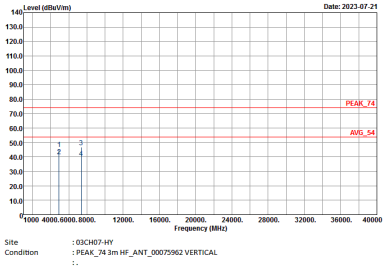
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40 Partial 242/62 CH09 2452MHz - R	
7+8	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

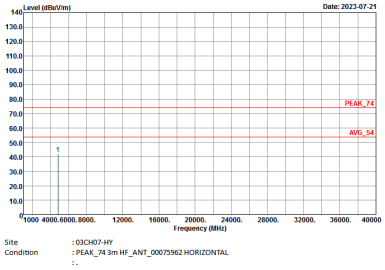
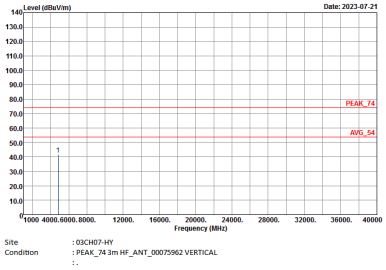
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
7+8	Horizontal	Vertical
Peak Avg.		

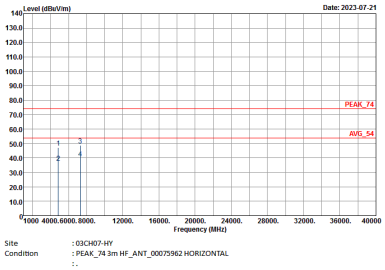
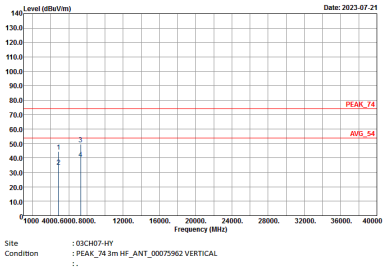
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
7+8	Horizontal	Vertical
Peak Avg.		

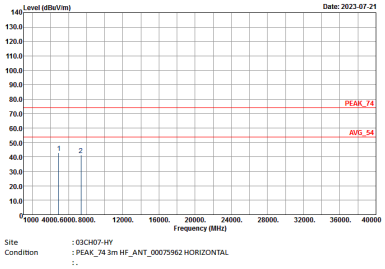
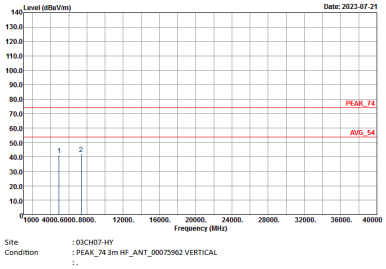
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
7+8	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

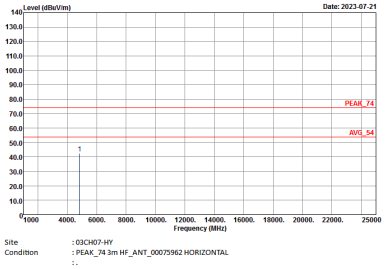
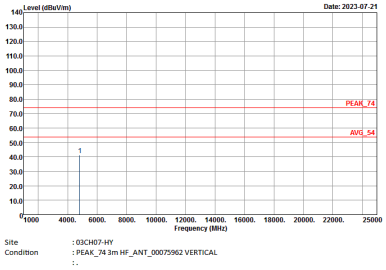
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
7+8	Horizontal	Vertical
Peak Avg.		

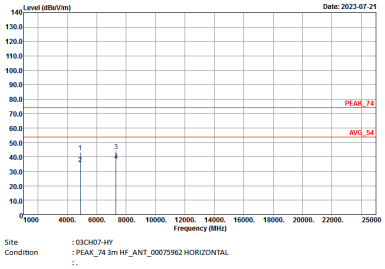
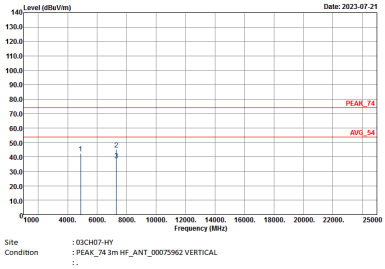
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
7+8	Horizontal	Vertical
Peak Avg.		

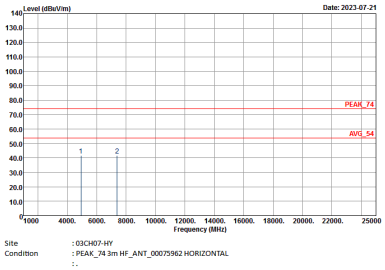
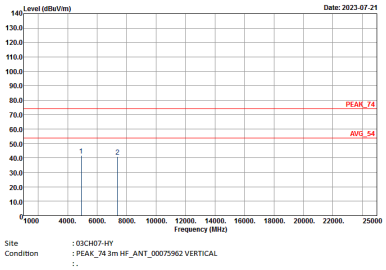
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
7+8	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE20 Full (Harmonic @ 3m)

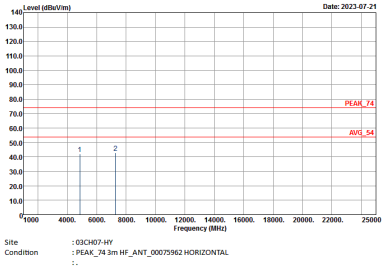
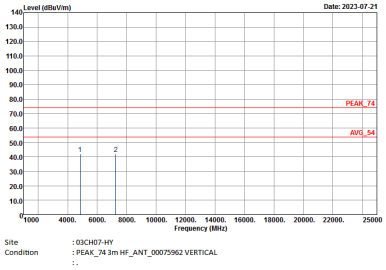
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11 ax HE20 Full CH01 2412MHz	
7+8	Horizontal	Vertical
Peak Avg.		

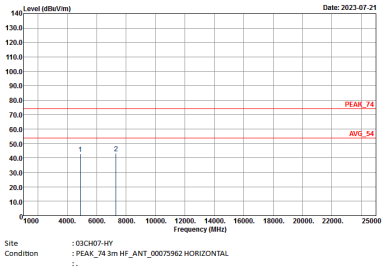
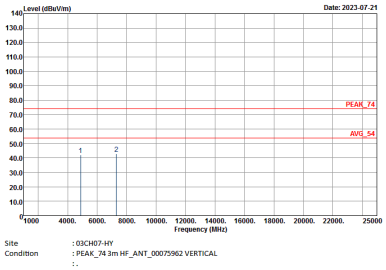
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11 ax HE20 Full CH06 2437MHz	
7+8	Horizontal	Vertical
Peak Avg.		

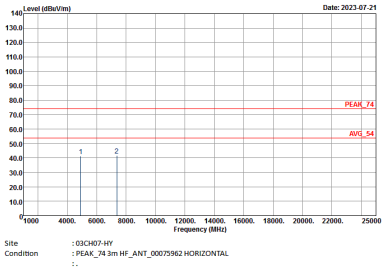
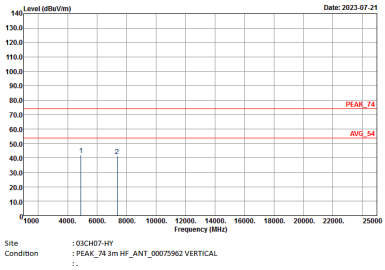
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11 ax HE20 Full CH11 2462MHz	
7+8	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE40 Full (Harmonic @ 3m)

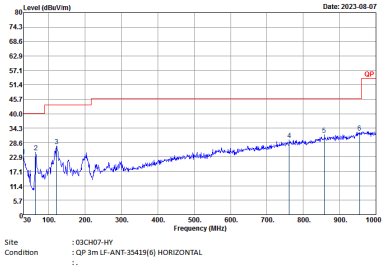
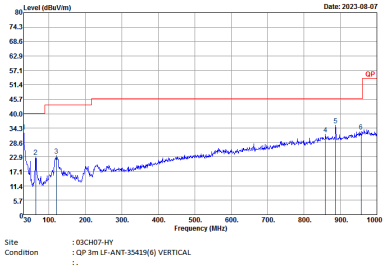
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11 ax HE40 Full CH03 2422MHz	
7+8	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11 ax HE40 Full CH06 2437MHz	
7+8	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11 ax HE40 Full CH09 2452MHz	
7+8	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

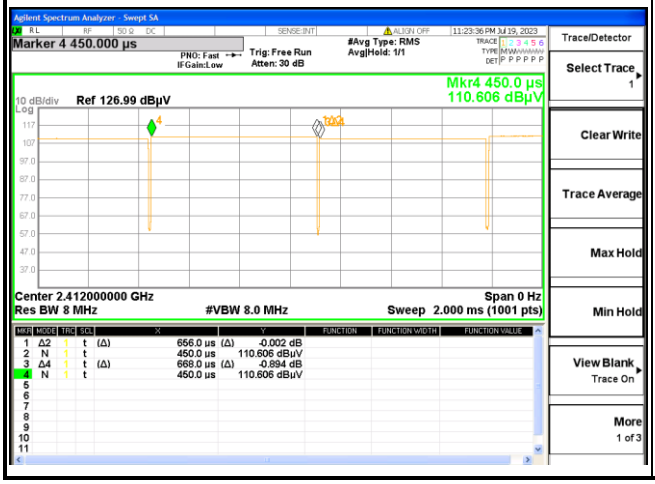
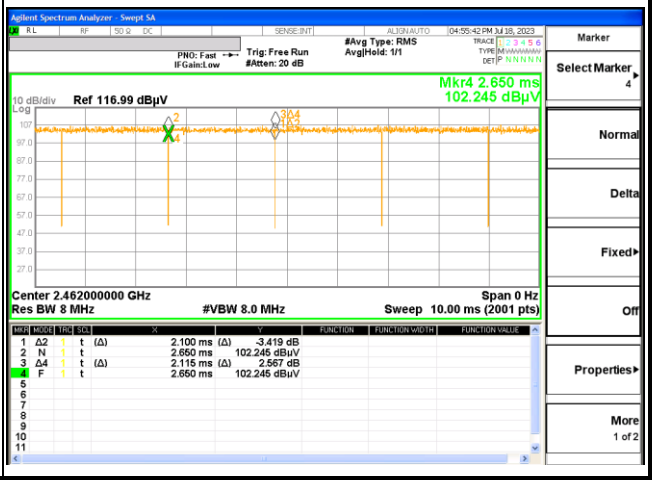
2.4GHz WIFI 802.11ax HE40 Partial 242 (LF)

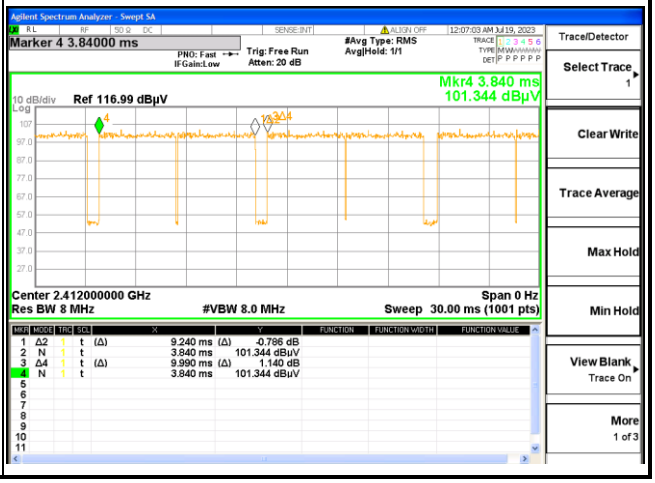
WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11ax HE40 Partial 242/61 LF	
7+8	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
7+8	802.11b	98.20	-	-	10Hz
7+8	802.11g	99.29	-	-	10Hz
7+8	2.4GHz 802.11ax HE20 Full RU	99.58	-	-	10Hz
7+8	2.4GHz 802.11ax HE20 106 RU	92.49	9240	0.11	300Hz
7+8	2.4GHz 802.11ax HE40 Full RU	99.73	-	-	10Hz
7+8	2.4GHz 802.11ax HE40 242 RU	99.09	-	-	10Hz

MIMO <Ant. 7+8>

802.11b	802.11g
	

802.11ax HE20 Full RU	802.11ax HE20 106 RU
	

802.11ax HE40 Full RU	802.11ax HE40 242 RU