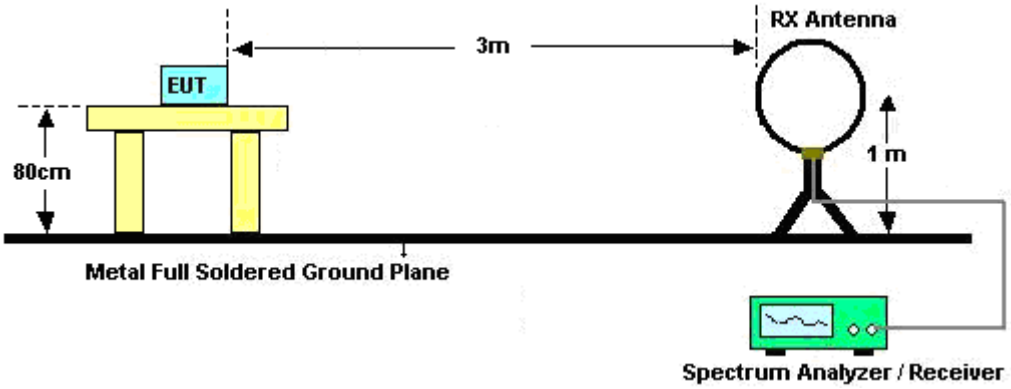
3.5.3 Test Procedures

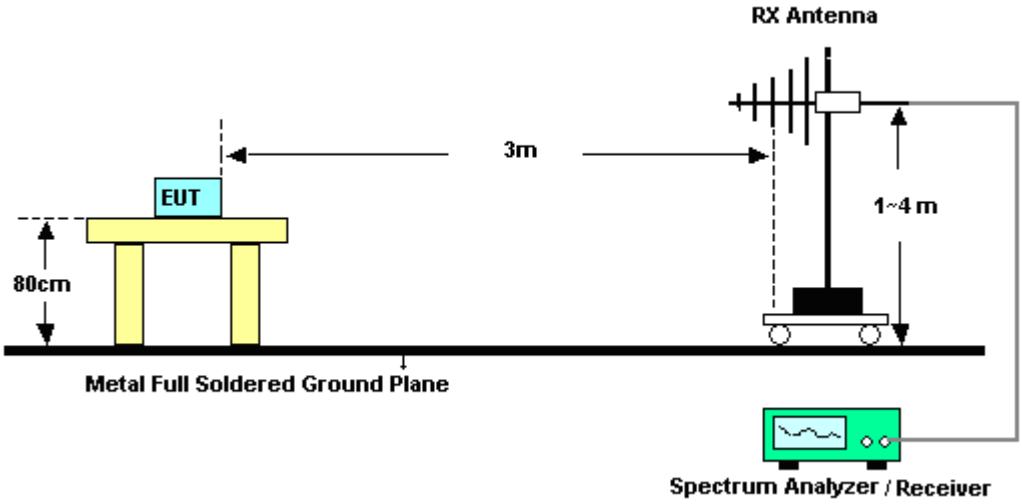
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was 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 was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1 GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1 GHz, the emission level of the EUT in peak mode was 20 dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
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

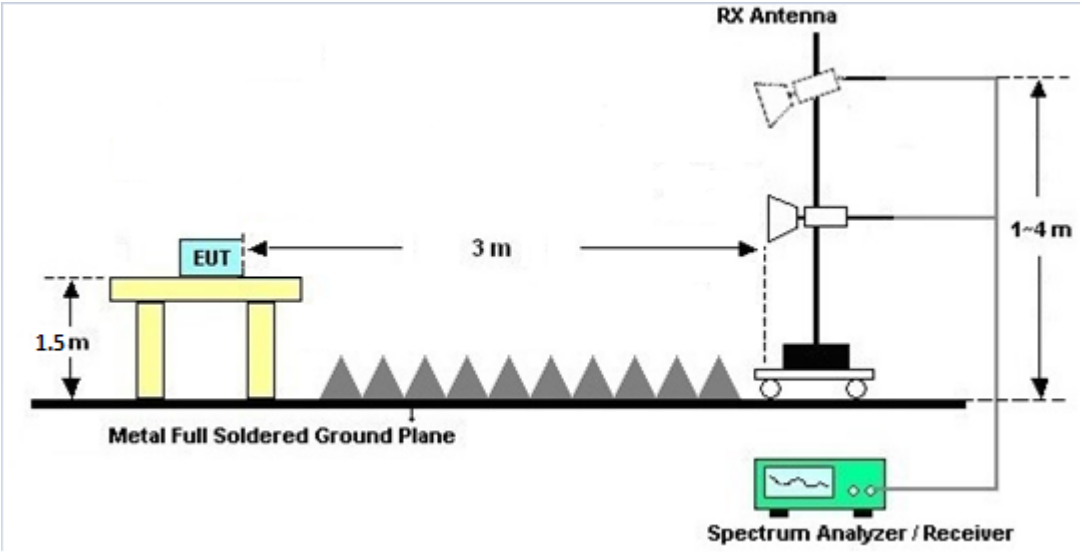
For radiated emissions below 30MHz



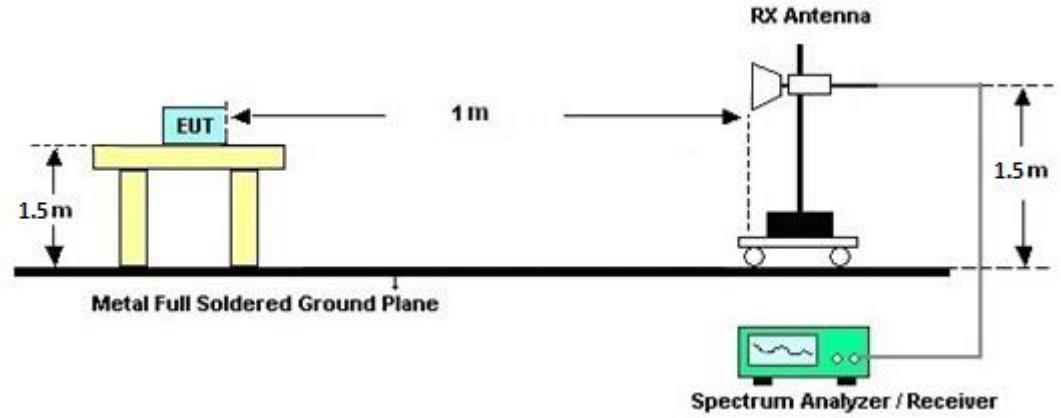
For radiated emissions from 30MHz to 1GHz



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 started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

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

3.5.6 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.

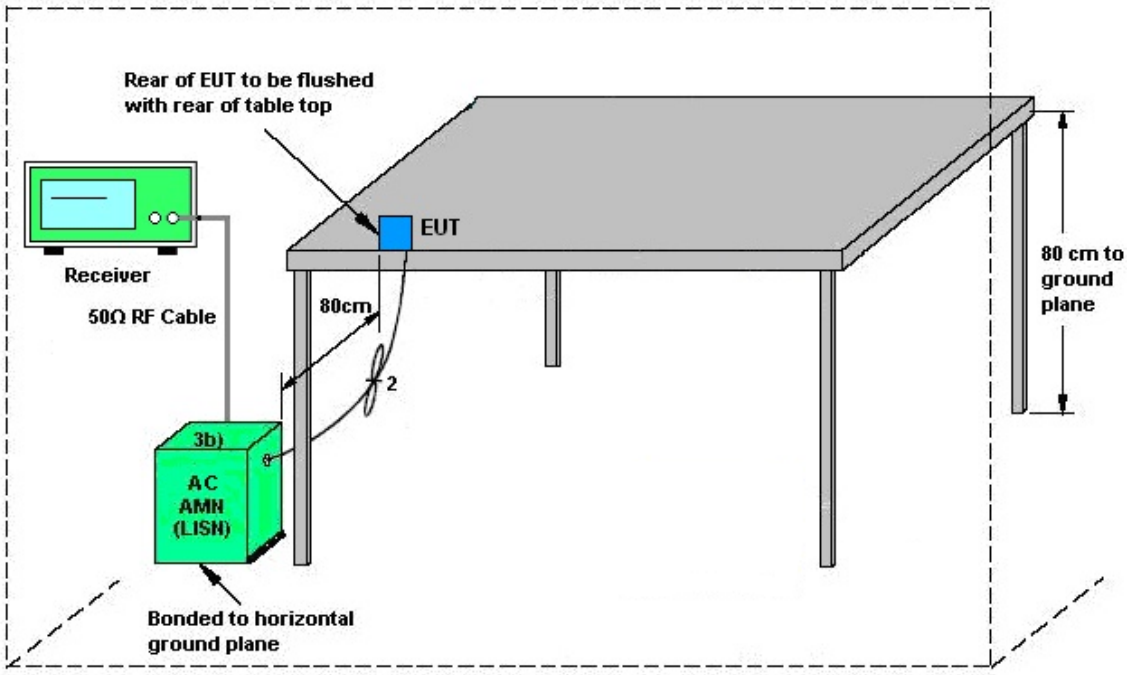
3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was 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 sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
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



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

3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. 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.

3.7.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(N_{ANT}/N_{SS}=1) dB.

For power measurements on IEEE 802.11 devices,

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

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)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.

<CDD Modes>

			DG for Power	DG for PSD	Power Limit Reduction	PSD Limit Reduction
	Ant. 4 (dBi)	Ant. 3 (dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	-1.20	-1.10	-1.10	1.86	0.00	0.00

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

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

4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jan. 04, 2021	Jun. 09, 2021~ Jul. 28, 2021	Jan. 03, 2022	Radiation (03CH13-HY)
Amplifier	Sonoma-Instrument	310 N	187282	9KHz~1GHz	Dec. 16, 2020	Jun. 09, 2021~ Jul. 28, 2021	Dec. 15, 2021	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1241	1GHz ~ 18GHz	Jul. 15, 2020	Jun. 09, 2021~ Jul. 13, 2021	Jul. 14, 2021	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1241	1GHz ~ 18GHz	Jul. 13, 2021	Jul. 13, 2021 ~ Jul. 28, 2021	Jul. 12, 2022	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1590074	1GHz~18GHz	May 18, 2021	Jun. 09, 2021~ Jul. 28, 2021	May 17, 2022	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY53270147	1GHz~26.5GHz	Oct. 28, 2020	Jun. 09, 2021~ Jul. 28, 2021	Oct. 27, 2021	Radiation (03CH13-HY)
Signal Generator	Anritsu	MG3694C	163401	0.1Hz~40GHz	Jan. 31, 2021	Jun. 09, 2021~ Jul. 28, 2021	Jan. 30, 2022	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	10Hz~44GHz	Mar. 18, 2021	Jun. 09, 2021~ Jul. 28, 2021	Mar. 17, 2022	Radiation (03CH13-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jun. 09, 2021~ Jul. 28, 2021	N/A	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jun. 09, 2021~ Jul. 28, 2021	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jun. 09, 2021~ Jul. 28, 2021	N/A	Radiation (03CH13-HY)
Software	Audix	E3 6.2009-8-24	RK-000992	N/A	N/A	Jun. 09, 2021~ Jul. 28, 2021	N/A	Radiation (03CH13-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 11, 2020	Jun. 09, 2021~ Jul. 28, 2021	Dec. 10, 2021	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0030/126E	30M-18G	Feb. 10, 2021	Jun. 09, 2021~ Jul. 28, 2021	Feb. 09, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	804793/4	30M-18G	Feb. 10, 2021	Jun. 09, 2021~ Jul. 28, 2021	Feb. 09, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30M~40GHz	Feb. 22, 2021	Jun. 09, 2021~ Jul. 28, 2021	Feb. 21, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY4274/2	30MHz~40GHz	Mar. 11, 2021	Jun. 09, 2021~ Jul. 28, 2021	Mar. 10, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24961/4	30M-18G	Feb. 10, 2021	Jun. 09, 2021~ Jul. 28, 2021	Feb. 09, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 11, 2021	Jun. 09, 2021~ Jul. 28, 2021	Mar. 10, 2022	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Dec. 11, 2020	Jun. 09, 2021~ Jul. 28, 2021	Dec. 10, 2021	Radiation (03CH13-HY)
Hygrometer	TECPEL	DTM-303B	TP200879	N/A	Oct. 22, 2020	Jun. 09, 2021~ Jul. 28, 2021	Oct. 21, 2021	Radiation (03CH13-HY)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	Sn5	6.75GHz High Pass Filter	Mar. 11, 2021	Jun. 09, 2021~ Jul. 28, 2021	Mar. 10, 2022	Radiation (03CH13-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60SS	SN2	3GHz High Pass Filter	May 17, 2021	Jul. 12, 2021~ Jul. 28, 2021	May 16, 2022	Radiation (03CH13-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 03, 2021	Jun. 24, 2021~ Jul. 11, 2021	Mar. 02, 2022	Conducted (TH02-HY)
Power Sensor	DARE	RPR3006W	RPR6W-2 101001	10MHz~8GHz	Feb. 03, 2021	Jun. 24, 2021~ Jul. 11, 2021	Feb. 02, 2022	Conducted (TH02-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz ~ 40GHz	Jul. 22, 2020	Jun. 24, 2021~ Jul. 11, 2021	Jul. 21, 2021	Conducted (TH02-HY)
Switch Box & RF Cable	EM Electronics	EMSW18SE	SW200302	N/A	Mar. 17, 2021	Jun. 24, 2021~ Jul. 11, 2021	Mar. 16, 2022	Conducted (TH02-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jul. 02, 2021	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 30, 2020	Jul. 02, 2021	Nov. 29, 2021	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 18, 2020	Jul. 02, 2021	Nov. 17, 2021	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 16, 2020	Jul. 02, 2021	Nov. 15, 2021	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Jul. 02, 2021	N/A	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Feb. 25, 2021	Jul. 02, 2021	Feb. 24, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 31, 2020	Jul. 02, 2021	Dec. 30, 2021	Conduction (CO05-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.3 dB**

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

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

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.8 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.6 dB**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Shiming Liu	Temperature:	22.5~25.2	°C
Test Date:	2021/6/24~2021/7/11	Relative Humidity:	49.1~58.7	%

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
					Ant4	Ant3	Ant4	Ant3		
11b	1Mbps	2	1	2412	13.34	13.24	9.02	8.56	0.50	Pass
11b	1Mbps	2	6	2437	13.14	13.14	8.06	8.06	0.50	Pass
11b	1Mbps	2	11	2462	13.44	13.29	8.56	8.08	0.50	Pass
11b	1Mbps	2	12	2467	13.49	13.44	8.04	8.54	0.50	Pass
11b	1Mbps	2	13	2472	13.19	13.19	8.06	8.54	0.50	Pass
11g	6Mbps	2	1	2412	17.23	17.03	16.29	16.31	0.50	Pass
11g	6Mbps	2	6	2437	17.08	16.83	16.31	16.33	0.50	Pass
11g	6Mbps	2	11	2462	17.38	17.13	16.05	15.73	0.50	Pass
11g	6Mbps	2	12	2467	17.48	17.18	16.07	16.29	0.50	Pass
11g	6Mbps	2	13	2472	16.93	16.78	16.31	16.33	0.50	Pass
HT20	MCS0	2	1	2412	18.28	17.98	17.29	17.57	0.50	Pass
HT20	MCS0	2	6	2437	18.23	17.93	17.55	17.57	0.50	Pass
HT20	MCS0	2	11	2462	18.18	18.08	16.93	17.57	0.50	Pass
HT20	MCS0	2	12	2467	18.28	18.08	17.57	17.57	0.50	Pass
HT20	MCS0	2	13	2472	17.93	17.83	17.31	17.57	0.50	Pass

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
					Ant4	Ant3	SUM	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	
11b	1Mbps	2	1	2412	22.75	22.25	25.52	30.00		-1.10		24.42		36.00		Pass
11b	1Mbps	2	6	2437	21.75	21.55	24.66	30.00		-1.10		23.56		36.00		Pass
11b	1Mbps	2	11	2462	22.35	21.65	25.02	30.00		-1.10		23.92		36.00		Pass
11b	1Mbps	2	12	2467	22.05	21.55	24.82	30.00		-1.10		23.72		36.00		Pass
11b	1Mbps	2	13	2472	20.95	20.75	23.86	30.00		-1.10		22.76		36.00		Pass
11g	6Mbps	2	1	2412	19.85	19.15	22.52	30.00		-1.10		21.42		36.00		Pass
11g	6Mbps	2	6	2437	20.65	20.35	23.51	30.00		-1.10		22.41		36.00		Pass
11g	6Mbps	2	11	2462	18.65	18.45	21.56	30.00		-1.10		20.46		36.00		Pass
11g	6Mbps	2	12	2467	16.85	16.85	19.86	30.00		-1.10		18.76		36.00		Pass
11g	6Mbps	2	13	2472	16.35	15.85	19.12	30.00		-1.10		18.02		36.00		Pass
HT20	MCS0	2	1	2412	19.85	19.05	22.48	30.00		-1.10		21.38		36.00		Pass
HT20	MCS0	2	6	2437	20.75	20.25	23.52	30.00		-1.10		22.42		36.00		Pass
HT20	MCS0	2	11	2462	18.05	17.85	20.96	30.00		-1.10		19.86		36.00		Pass
HT20	MCS0	2	12	2467	17.45	17.05	20.26	30.00		-1.10		19.16		36.00		Pass
HT20	MCS0	2	13	2472	16.45	16.15	19.31	30.00		-1.10		18.21		36.00		Pass
VHT20	MCS0	2	1	2412	19.75	18.95	22.38	30.00		-1.10		21.28		36.00		Pass
VHT20	MCS0	2	6	2437	20.65	20.15	23.42	30.00		-1.10		22.32		36.00		Pass
VHT20	MCS0	2	11	2462	17.95	17.75	20.86	30.00		-1.10		19.76		36.00		Pass
VHT20	MCS0	2	12	2467	17.35	16.95	20.16	30.00		-1.10		19.06		36.00		Pass
VHT20	MCS0	2	13	2472	16.35	16.05	19.21	30.00		-1.10		18.11		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
					Ant4	Ant3	Worse + 3.01	Ant4	Ant3	Ant4	Ant3	
11b	1Mbps	2	1	2412	0.26	-0.29	3.27	1.86		8.00		Pass
11b	1Mbps	2	6	2437	-0.62	-0.86	2.39	1.86		8.00		Pass
11b	1Mbps	2	11	2462	-0.09	-0.80	2.92	1.86		8.00		Pass
11b	1Mbps	2	12	2467	-0.36	-0.61	2.65	1.86		8.00		Pass
11b	1Mbps	2	13	2472	-1.49	-1.35	1.66	1.86		8.00		Pass
11g	6Mbps	2	1	2412	-5.23	-6.01	-2.22	1.86		8.00		Pass
11g	6Mbps	2	6	2437	-4.33	-4.71	-1.32	1.86		8.00		Pass
11g	6Mbps	2	11	2462	-6.21	-6.39	-3.20	1.86		8.00		Pass
11g	6Mbps	2	12	2467	-7.97	-7.91	-4.90	1.86		8.00		Pass
11g	6Mbps	2	13	2472	-8.47	-9.31	-5.46	1.86		8.00		Pass
HT20	MCS0	2	1	2412	-5.89	-6.50	-2.88	1.86		8.00		Pass
HT20	MCS0	2	6	2437	-5.05	-5.51	-2.04	1.86		8.00		Pass
HT20	MCS0	2	11	2462	-7.62	-7.76	-4.61	1.86		8.00		Pass
HT20	MCS0	2	12	2467	-8.08	-8.60	-5.07	1.86		8.00		Pass
HT20	MCS0	2	13	2472	-9.15	-9.34	-6.14	1.86		8.00		Pass

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

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
						Ant4	Ant3	SUM	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	
HE20	MCS0	2	1	2412	Full	19.65	18.85	22.28	30.00		-1.10		21.18		36.00		Pass
HE20	MCS0	2	1	2412	26/0	11.65	11.75	14.71	30.00		-1.10		13.61		36.00		Pass
HE20	MCS0	2	1	2412	52/37	12.95	12.65	15.81	30.00		-1.10		14.71		36.00		Pass
HE20	MCS0	2	1	2412	106/53	16.55	16.05	19.32	30.00		-1.10		18.22		36.00		Pass
HE20	MCS0	2	6	2437	Full	20.55	20.05	23.32	30.00		-1.10		22.22		36.00		Pass
HE20	MCS0	2	6	2437	26/4	12.75	12.85	15.81	30.00		-1.10		14.71		36.00		Pass
HE20	MCS0	2	6	2437	52/39	14.45	14.15	17.31	30.00		-1.10		16.21		36.00		Pass
HE20	MCS0	2	6	2437	106/53	16.85	16.45	19.66	30.00		-1.10		18.56		36.00		Pass
HE20	MCS0	2	11	2462	Full	17.85	17.65	20.76	30.00		-1.10		19.66		36.00		Pass
HE20	MCS0	2	11	2462	26/8	9.45	10.05	12.77	30.00		-1.10		11.67		36.00		Pass
HE20	MCS0	2	11	2462	52/40	12.05	12.05	15.06	30.00		-1.10		13.96		36.00		Pass
HE20	MCS0	2	11	2462	106/54	14.95	15.45	18.22	30.00		-1.10		17.12		36.00		Pass
HE20	MCS0	2	12	2467	Full	17.25	16.85	20.06	30.00		-1.10		18.96		36.00		Pass
HE20	MCS0	2	12	2467	26/8	8.85	9.45	12.17	30.00		-1.10		11.07		36.00		Pass
HE20	MCS0	2	12	2467	52/40	11.45	11.55	14.51	30.00		-1.10		13.41		36.00		Pass
HE20	MCS0	2	12	2467	106/54	14.45	14.85	17.66	30.00		-1.10		16.56		36.00		Pass
HE20	MCS0	2	13	2472	Full	16.25	15.95	19.11	30.00		-1.10		18.01		36.00		Pass
HE20	MCS0	2	13	2472	26/8	8.55	9.15	11.87	30.00		-1.10		10.77		36.00		Pass
HE20	MCS0	2	13	2472	52/40	11.45	11.45	14.46	30.00		-1.10		13.36		36.00		Pass
HE20	MCS0	2	13	2472	106/54	12.65	12.85	15.76	30.00		-1.10		14.66		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
						Ant4	Ant3	Worse + 3.01	Ant4	Ant3	Ant4	Ant3	
HE20	MCS0	2	1	2412	Full	-6.13	-6.73	-3.12	1.86		8.00		Pass
HE20	MCS0	2	1	2412	26/0	-6.16	-6.85	-3.15	1.86		8.00		Pass
HE20	MCS0	2	1	2412	52/37	-6.16	-7.17	-3.15	1.86		8.00		Pass
HE20	MCS0	2	1	2412	106/53	-6.36	-6.70	-3.35	1.86		8.00		Pass
HE20	MCS0	2	6	2437	Full	-5.41	-5.61	-2.40	1.86		8.00		Pass
HE20	MCS0	2	6	2437	26/4	-5.75	-5.81	-2.74	1.86		8.00		Pass
HE20	MCS0	2	6	2437	52/39	-5.69	-5.76	-2.68	1.86		8.00		Pass
HE20	MCS0	2	6	2437	106/53	-5.87	-5.76	-2.75	1.86		8.00		Pass
HE20	MCS0	2	11	2462	Full	-7.74	-8.00	-4.73	1.86		8.00		Pass
HE20	MCS0	2	11	2462	26/8	-8.03	-8.21	-5.02	1.86		8.00		Pass
HE20	MCS0	2	11	2462	52/40	-7.97	-8.10	-4.96	1.86		8.00		Pass
HE20	MCS0	2	11	2462	106/54	-7.94	-8.04	-4.93	1.86		8.00		Pass
HE20	MCS0	2	12	2467	Full	-8.21	-8.86	-5.20	1.86		8.00		Pass
HE20	MCS0	2	12	2467	26/8	-8.53	-9.00	-5.52	1.86		8.00		Pass
HE20	MCS0	2	12	2467	52/40	-8.31	-8.96	-5.30	1.86		8.00		Pass
HE20	MCS0	2	12	2467	106/54	-8.43	-8.91	-5.42	1.86		8.00		Pass
HE20	MCS0	2	13	2472	Full	-9.19	-9.58	-6.18	1.86		8.00		Pass
HE20	MCS0	2	13	2472	26/8	-9.50	-9.88	-6.49	1.86		8.00		Pass
HE20	MCS0	2	13	2472	52/40	-9.61	-9.91	-6.60	1.86		8.00		Pass
HE20	MCS0	2	13	2472	106/54	-9.30	-9.97	-6.29	1.86		8.00		Pass

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

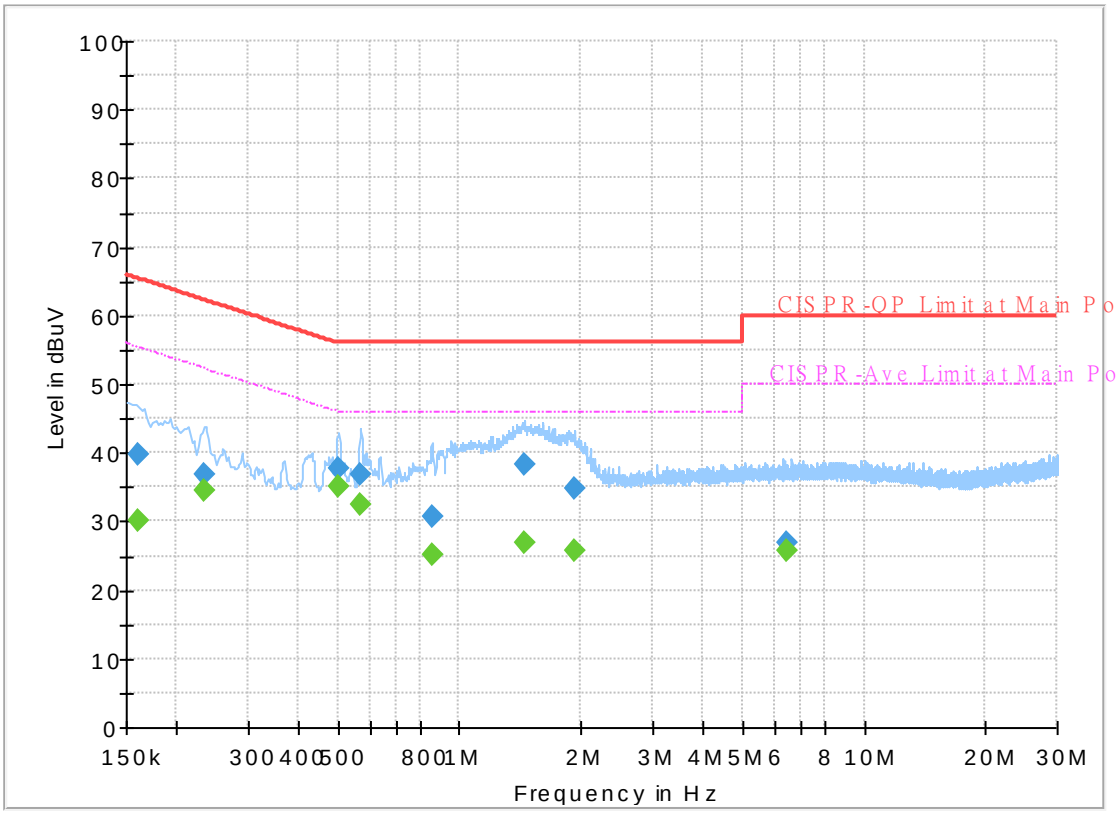
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Howard Huang	**Temperature :**	23~26℃
		Relative Humidity :	40~50%

EUT Information

Report NO :	0D2942-04
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



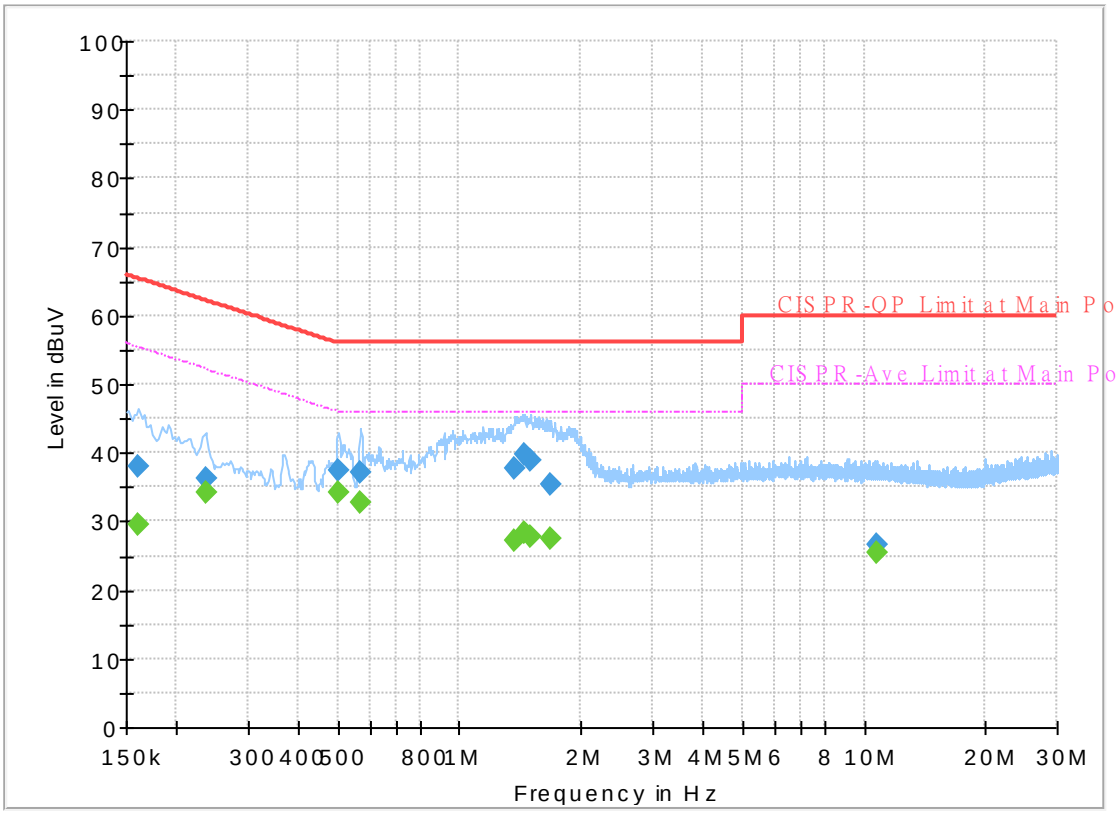
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.161250	---	30.13	55.40	25.27	L1	OFF	19.5
0.161250	39.90	---	65.40	25.50	L1	OFF	19.5
0.233250	---	34.54	52.33	17.79	L1	OFF	19.5
0.233250	36.85	---	62.33	25.48	L1	OFF	19.5
0.501000	---	35.17	46.00	10.83	L1	OFF	19.7
0.501000	37.76	---	56.00	18.24	L1	OFF	19.7
0.568500	---	32.49	46.00	13.51	L1	OFF	19.7
0.568500	36.76	---	56.00	19.24	L1	OFF	19.7
0.854250	---	25.02	46.00	20.98	L1	OFF	20.0
0.854250	30.82	---	56.00	25.18	L1	OFF	20.0
1.446000	---	26.86	46.00	19.14	L1	OFF	20.0
1.446000	38.16	---	56.00	17.84	L1	OFF	20.0
1.923000	---	25.67	46.00	20.33	L1	OFF	20.0
1.923000	34.66	---	56.00	21.34	L1	OFF	20.0
6.450000	---	25.67	50.00	24.33	L1	OFF	19.9
6.450000	26.96	---	60.00	33.04	L1	OFF	19.9

EUT Information

Report NO :	0D2942-04
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)
0.161250	---	29.59	55.40	25.81	N	OFF	19.5
0.161250	38.15	---	65.40	27.25	N	OFF	19.5
0.235500	---	34.22	52.25	18.03	N	OFF	19.5
0.235500	36.21	---	62.25	26.04	N	OFF	19.5
0.503250	---	34.30	46.00	11.70	N	OFF	19.7
0.503250	37.38	---	56.00	18.62	N	OFF	19.7
0.568500	---	32.65	46.00	13.35	N	OFF	19.8
0.568500	37.13	---	56.00	18.87	N	OFF	19.8
1.374000	---	27.13	46.00	18.87	N	OFF	20.0
1.374000	37.61	---	56.00	18.39	N	OFF	20.0
1.446000	---	28.22	46.00	17.78	N	OFF	20.0
1.446000	39.79	---	56.00	16.21	N	OFF	20.0
1.500000	---	27.77	46.00	18.23	N	OFF	20.0
1.500000	38.84	---	56.00	17.16	N	OFF	20.0
1.686750	---	27.49	46.00	18.51	N	OFF	20.0
1.686750	35.40	---	56.00	20.60	N	OFF	20.0
10.749750	---	25.41	50.00	24.59	N	OFF	20.1
10.749750	26.71	---	60.00	33.29	N	OFF	20.1

Appendix C. Radiated Spurious Emission

Test Engineer :	Daniel Lee, Jacky Hong and Wilson Wu	**Temperature :**	20~25°C
		Relative Humidity :	40~60%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
4+3		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2385.81	54.77	-19.23	74	40.86	27.63	14.12	27.84	118	304	P	H
		2389.8	44.66	-9.34	54	30.76	27.62	14.12	27.84	118	304	A	H
	*	2412	111.79	-	-	97.91	27.58	14.14	27.84	118	304	P	H
	*	2412	108.55	-	-	94.67	27.58	14.14	27.84	118	304	A	H
													H
													H
		2366.07	54.85	-19.15	74	40.93	27.67	14.1	27.85	400	29	P	V
		2390	43.91	-10.09	54	30.01	27.62	14.12	27.84	400	29	A	V
	*	2412	108.62	-	-	94.74	27.58	14.14	27.84	400	29	P	V
	*	2412	105.59	-	-	91.71	27.58	14.14	27.84	400	29	A	V
													V
													V
802.11b CH 06 2437MHz		2365.02	54.97	-19.03	74	41.05	27.67	14.1	27.85	112	303	P	H
		2386.44	43.78	-10.22	54	29.87	27.63	14.12	27.84	112	303	A	H
	*	2437	112.25	-	-	98.39	27.53	14.16	27.83	112	303	P	H
	*	2437	109.09	-	-	95.23	27.53	14.16	27.83	112	303	A	H
		2493.16	54.71	-19.29	74	40.83	27.5	14.2	27.82	112	303	P	H
		2486.59	43.81	-10.19	54	29.93	27.5	14.2	27.82	112	303	A	H
		2373	55.02	-18.98	74	41.12	27.65	14.1	27.85	396	29	P	V
		2383.64	43.7	-10.3	54	29.8	27.63	14.11	27.84	396	29	A	V
	*	2437	107.99	-	-	94.13	27.53	14.16	27.83	396	29	P	V
	*	2437	104.88	-	-	91.02	27.53	14.16	27.83	396	29	A	V
		2487.31	54.91	-19.09	74	41.03	27.5	14.2	27.82	396	29	P	V
		2498.83	43.73	-10.27	54	29.84	27.5	14.21	27.82	396	29	A	V

802.11b CH 11 2462MHz	*	2462	111.69	-	-	97.84	27.5	14.18	27.83	117	308	P	H
	*	2462	108.55	-	-	94.7	27.5	14.18	27.83	117	308	A	H
		2484.68	54.59	-19.41	74	40.71	27.5	14.2	27.82	117	308	P	H
		2484.64	45.25	-8.75	54	31.37	27.5	14.2	27.82	117	308	A	H
													H
													H
	*	2462	108.66	-	-	94.81	27.5	14.18	27.83	396	28	P	V
	*	2462	105.54	-	-	91.69	27.5	14.18	27.83	396	28	A	V
		2488.2	54.93	-19.07	74	41.05	27.5	14.2	27.82	396	28	P	V
		2484.64	43.91	-10.09	54	30.03	27.5	14.2	27.82	396	28	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (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 12 2467MHz	*	2467	112.28	-	-	98.43	27.5	14.18	27.83	109	307	P	H
	*	2467	109.12	-	-	95.27	27.5	14.18	27.83	109	307	A	H
		2484.36	58.35	-15.65	74	44.47	27.5	14.2	27.82	109	307	P	H
		2484.48	50.6	-3.4	54	36.72	27.5	14.2	27.82	109	307	A	H
													H
													H
	*	2467	108.46	-	-	94.61	27.5	14.18	27.83	388	29	P	V
	*	2467	105.34	-	-	91.49	27.5	14.18	27.83	388	29	A	V
		2484.52	56.66	-17.34	74	42.78	27.5	14.2	27.82	388	29	P	V
		2484.44	47.18	-6.82	54	33.3	27.5	14.2	27.82	388	29	A	V
													V
													V
802.11b CH 13 2472MHz	*	2472	111.88	-	-	98.02	27.5	14.19	27.83	111	307	P	H
	*	2472	108.86	-	-	95	27.5	14.19	27.83	111	307	A	H
		2483.56	58.66	-15.34	74	44.78	27.5	14.2	27.82	111	307	P	H
		2483.52	50.73	-3.27	54	36.85	27.5	14.2	27.82	111	307	A	H
													H
													H
	*	2472	107.83	-	-	93.97	27.5	14.19	27.83	389	27	P	V
	*	2472	104.7	-	-	90.84	27.5	14.19	27.83	389	27	A	V
		2483.52	56.43	-17.57	74	42.55	27.5	14.2	27.82	389	27	P	V
		2483.52	47.26	-6.74	54	33.38	27.5	14.2	27.82	389	27	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. 4+3	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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 01 2412MHz		4824	43.3	-30.7	74	62.62	31.15	6.59	57.06	100	0	P	H
		18000	56.21	-17.79	74	51.65	48.1	13.18	56.72	172	213	P	H
		18000	46.35	-7.65	54	41.79	48.1	13.18	56.72	172	213	A	H
													H
		4824	42.4	-31.6	74	61.72	31.15	6.59	57.06	100	0	P	V
		18000	57.19	-16.81	74	52.63	48.1	13.18	56.72	108	177	P	V
		18000	47.09	-6.91	54	42.53	48.1	13.18	56.72	108	177	A	V
													V
802.11b CH 06 2437MHz		4874	44.89	-29.11	74	63.86	31.2	6.8	56.97	100	0	P	H
		7311	54.26	-19.74	74	65.65	36.78	8.73	56.9	100	327	P	H
		7311	49.81	-4.19	54	61.2	36.78	8.73	56.9	100	327	A	H
		17985	56.65	-17.35	74	52.52	47.68	13.17	56.72	188	221	P	H
		17985	46.54	-7.46	54	42.41	47.68	13.17	56.72	188	221	A	H
		4874	42.96	-31.04	74	61.93	31.2	6.8	56.97	100	0	P	V
		7311	52.3	-21.7	74	63.69	36.78	8.73	56.9	349	15	P	V
		7311	47.42	-6.58	54	58.81	36.78	8.73	56.9	349	15	A	V
		17985	55.8	-18.2	74	51.67	47.68	13.17	56.72	115	158	P	V
		17985	45.66	-8.34	54	41.53	47.68	13.17	56.72	115	158	A	V

802.11b CH 11 2462MHz		4924	47.6	-26.4	74	66.16	31.3	7.02	56.88	100	0	P	H
		7386	54.11	-19.89	74	65.88	36.56	8.72	57.05	100	332	P	H
		7386	50.09	-3.91	54	61.86	36.56	8.72	57.05	100	332	A	H
		18000	56.11	-17.89	74	51.55	48.1	13.18	56.72	182	220	P	H
		18000	45.95	-8.05	54	41.39	48.1	13.18	56.72	182	220	A	H
		4924	45.53	-28.47	74	64.09	31.3	7.02	56.88	100	0	P	V
		7386	54	-20	74	65.77	36.56	8.72	57.05	326	17	P	V
		7386	49.77	-4.23	54	61.54	36.56	8.72	57.05	326	17	A	V
		18000	56.12	-17.88	74	51.56	48.1	13.18	56.72	107	165	P	V
		18000	46.18	-7.82	54	41.62	48.1	13.18	56.72	107	165	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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 12 2467MHz		4934	46.15	-27.85	74	64.61	31.34	7.06	56.86	100	0	P	H
		7401	55.13	-18.87	74	66.99	36.51	8.71	57.08	100	343	P	H
		7401	50.54	-3.46	54	62.4	36.51	8.71	57.08	100	343	A	H
		17985	57.11	-16.89	74	52.98	47.68	13.17	56.72	188	215	P	H
		17985	46.84	-7.16	54	42.71	47.68	13.17	56.72	188	215	A	H
		4934	44.97	-29.03	74	63.43	31.34	7.06	56.86	100	0	P	V
		7401	50.69	-23.31	74	62.55	36.51	8.71	57.08	357	17	P	V
		7401	44.22	-9.78	54	56.08	36.51	8.71	57.08	357	17	A	V
		18000	56.99	-17.01	74	52.43	48.1	13.18	56.72	110	172	P	V
		18000	47.09	-6.91	54	42.53	48.1	13.18	56.72	110	172	A	V
802.11b CH 13 2472MHz		4944	43.39	-30.61	74	61.74	31.38	7.11	56.84	100	0	P	H
		7416	52.91	-21.09	74	64.7	36.63	8.7	57.12	105	325	P	H
		7416	47.95	-6.05	54	59.74	36.63	8.7	57.12	105	325	A	H
		17985	56.09	-17.91	74	51.96	47.68	13.17	56.72	179	218	P	H
		17985	45.99	-8.01	54	41.86	47.68	13.17	56.72	179	218	A	H
		4944	43.08	-30.92	74	61.43	31.38	7.11	56.84	100	0	P	V
		7416	49.81	-24.19	74	61.6	36.63	8.7	57.12	100	0	P	V
		17985	56.8	-17.2	74	52.67	47.68	13.17	56.72	103	167	P	V
		17985	46.64	-7.36	54	42.51	47.68	13.17	56.72	103	167	A	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. 4+3	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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	61.69	-12.31	74	47.79	27.62	14.12	27.84	143	294	P	H
		2390	51.06	-2.94	54	37.16	27.62	14.12	27.84	143	294	A	H
	*	2412	115.33	-	-	101.45	27.58	14.14	27.84	143	294	P	H
	*	2412	106.96	-	-	93.08	27.58	14.14	27.84	143	294	A	H
													H
													H
		2389.905	55.56	-18.44	74	41.66	27.62	14.12	27.84	354	64	P	V
		2390	46.53	-7.47	54	32.63	27.62	14.12	27.84	354	64	A	V
	*	2412	105.57	-	-	91.69	27.58	14.14	27.84	354	64	P	V
	*	2412	101.83	-	-	87.95	27.58	14.14	27.84	354	64	A	V
													V
													V
802.11g CH 06 2437MHz		2355.22	55.48	-18.52	74	41.55	27.69	14.09	27.85	139	292	P	H
		2322.74	44.53	-9.47	54	30.59	27.75	14.05	27.86	139	292	A	H
	*	2437	116.03	-	-	102.17	27.53	14.16	27.83	139	292	P	H
	*	2437	107.36	-	-	93.5	27.53	14.16	27.83	139	292	A	H
		2485.86	55.27	-18.73	74	41.39	27.5	14.2	27.82	139	292	P	H
		2485.09	44.94	-9.06	54	31.06	27.5	14.2	27.82	139	292	A	H
		2364.32	55.48	-18.52	74	41.57	27.67	14.09	27.85	352	62	P	V
		2331.42	44.61	-9.39	54	30.66	27.74	14.06	27.85	352	62	A	V
	*	2437	107.85	-	-	93.99	27.53	14.16	27.83	352	62	P	V
	*	2437	101.56	-	-	87.7	27.53	14.16	27.83	352	62	A	V
		2499.86	54.38	-19.62	74	40.49	27.5	14.21	27.82	352	62	P	V
		2497.48	44.49	-9.51	54	30.6	27.5	14.21	27.82	352	62	A	V

802.11g CH 11 2462MHz	*	2462	114.12	-	-	100.27	27.5	14.18	27.83	143	291	P	H
	*	2462	106.31	-	-	92.46	27.5	14.18	27.83	143	291	A	H
		2484.12	62.23	-11.77	74	48.35	27.5	14.2	27.82	143	291	P	H
		2483.52	50.95	-3.05	54	37.07	27.5	14.2	27.82	143	291	A	H
													H
													H
	*	2462	107.89	-	-	94.04	27.5	14.18	27.83	338	61	P	V
	*	2462	99.38	-	-	85.53	27.5	14.18	27.83	338	61	A	V
		2483.52	54.7	-19.3	74	40.82	27.5	14.2	27.82	338	61	P	V
		2485.2	45.42	-8.58	54	31.54	27.5	14.2	27.82	338	61	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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 12 2467MHz	*	2467	112.25	-	-	98.4	27.5	14.18	27.83	116	298	P	H
	*	2467	104.5	-	-	90.65	27.5	14.18	27.83	116	298	A	H
		2483.64	61.34	-12.66	74	47.46	27.5	14.2	27.82	116	298	P	H
		2483.6	51.8	-2.2	54	37.92	27.5	14.2	27.82	116	298	A	H
													H
													H
	*	2467	107.67	-	-	93.82	27.5	14.18	27.83	379	114	P	V
	*	2467	99.94	-	-	86.09	27.5	14.18	27.83	379	114	A	V
		2483.52	56.1	-17.9	74	42.22	27.5	14.2	27.82	379	114	P	V
		2483.52	46.76	-7.24	54	32.88	27.5	14.2	27.82	379	114	A	V
													V
													V
802.11g CH 13 2472MHz	*	2472	112.59	-	-	98.73	27.5	14.19	27.83	109	296	P	H
	*	2472	104.97	-	-	91.11	27.5	14.19	27.83	109	296	A	H
		2483.72	62.51	-11.49	74	48.63	27.5	14.2	27.82	109	296	P	H
		2484	52.02	-1.98	54	38.14	27.5	14.2	27.82	109	296	A	H
													H
													H
	*	2472	106.68	-	-	92.82	27.5	14.19	27.83	336	93	P	V
	*	2472	99.07	-	-	85.21	27.5	14.19	27.83	336	93	A	V
		2486.32	55.89	-18.11	74	42.01	27.5	14.2	27.82	336	93	P	V
		2483.6	45.89	-8.11	54	32.01	27.5	14.2	27.82	336	93	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. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (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	41.02	-32.98	74	60.34	31.15	6.59	57.06	100	0	P	H
		18000	56.32	-17.68	74	51.76	48.1	13.18	56.72	175	209	P	H
		18000	46.18	-7.82	54	41.62	48.1	13.18	56.72	175	209	A	H
													H
		4824	40.07	-33.93	74	59.39	31.15	6.59	57.06	100	0	P	V
		18000	56.03	-17.97	74	51.47	48.1	13.18	56.72	115	171	P	V
		18000	45.94	-8.06	54	41.38	48.1	13.18	56.72	115	171	A	V
													V
802.11g CH 06 2437MHz		4874	44.37	-29.63	74	63.34	31.2	6.8	56.97	100	0	P	H
		7311	55.62	-18.38	74	67.01	36.78	8.73	56.9	100	327	P	H
		7311	43.44	-10.56	54	54.83	36.78	8.73	56.9	100	327	A	H
		18000	55.81	-18.19	74	51.25	48.1	13.17	56.72	188	219	P	H
		18000	45.89	-8.11	54	41.33	48.1	13.17	56.72	188	219	A	H
		4874	43.04	-30.96	74	62.01	31.2	6.8	56.97	100	0	P	V
		7311	55.08	-18.92	74	66.47	36.78	8.73	56.9	350	17	P	V
		7311	42.56	-11.44	54	53.95	36.78	8.73	56.9	350	17	A	V
		17985	55.51	-18.49	74	51.38	47.68	13.17	56.72	113	171	P	V
		17985	45.69	-8.31	54	41.56	47.68	13.17	56.72	113	171	A	V
802.11g CH 11 2462MHz		4924	44.31	-29.69	74	62.87	31.3	7.02	56.88	100	0	P	H
		7386	46.01	-27.99	74	57.78	36.56	8.72	57.05	100	0	P	H
		18000	57.06	-16.94	74	52.5	48.1	13.18	56.72	256	330	P	H
		18000	46.96	-7.04	54	42.4	48.1	13.18	56.72	256	330	A	H
		4924	41.41	-32.59	74	59.97	31.3	7.02	56.88	100	0	P	V
		7386	46.21	-27.79	74	57.98	36.56	8.72	57.05	100	0	P	V
		18000	57.76	-16.24	74	53.2	48.1	13.18	56.72	311	198	P	V
		18000	47.26	-6.74	54	42.7	48.1	13.18	56.72	311	198	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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 12 2467MHz		4934	40.55	-33.45	74	59.01	31.34	7.06	56.86	100	0	P	H
		7401	44.85	-29.15	74	56.71	36.51	8.71	57.08	100	0	P	H
		18000	57.06	-16.94	74	52.5	48.1	13.18	56.72	258	205	P	H
		18000	46.86	-7.14	54	42.3	48.1	13.18	56.72	258	205	A	H
		4934	42.55	-31.45	74	61.01	31.34	7.06	56.86	100	0	P	V
		7401	44.66	-29.34	74	56.52	36.51	8.71	57.08	100	0	P	V
		17985	56.33	-17.67	74	52.2	47.68	13.17	56.72	311	188	P	V
		17985	46.53	-7.47	54	42.4	47.68	13.17	56.72	311	188	A	V
802.11g CH 13 2472MHz		4944	39.37	-34.63	74	57.72	31.38	7.11	56.84	100	0	P	H
		7416	44.82	-29.18	74	56.61	36.63	8.7	57.12	100	0	P	H
		18000	56.96	-17.04	74	52.4	48.1	13.18	56.72	264	196	P	H
		18000	46.76	-7.24	54	42.2	48.1	13.18	56.72	264	196	A	H
		4944	39.66	-34.34	74	58.01	31.38	7.11	56.84	100	0	P	V
		7416	45.55	-28.45	74	57.34	36.63	8.7	57.12	100	0	P	V
		18000	56.86	-17.14	74	52.3	48.1	13.18	56.72	232	206	P	V
		18000	46.96	-7.04	54	42.4	48.1	13.18	56.72	232	206	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 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (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)
		2388.75	61.65	-12.35	74	47.75	27.62	14.12	27.84	139	297	P	H
		2390	52.2	-1.8	54	38.3	27.62	14.12	27.84	139	297	A	H
	*	2412	113.07	-	-	99.19	27.58	14.14	27.84	139	297	P	H
	*	2412	105.86	-	-	91.98	27.58	14.14	27.84	139	297	A	H
802.11n													H
HT20													H
CH 01		2389.8	58.54	-15.46	74	44.64	27.62	14.12	27.84	359	61	P	V
2412MHz		2390	48.1	-5.9	54	34.2	27.62	14.12	27.84	359	61	A	V
	*	2412	106.85	-	-	92.97	27.58	14.14	27.84	359	61	P	V
	*	2412	98.68	-	-	84.8	27.58	14.14	27.84	359	61	A	V
													V
													V
		2355.92	54.79	-19.21	74	40.86	27.69	14.09	27.85	114	293	P	H
		2380.56	44.66	-9.34	54	30.75	27.64	14.11	27.84	114	293	A	H
	*	2437	114.37	-	-	100.51	27.53	14.16	27.83	114	293	P	H
	*	2437	106.68	-	-	92.82	27.53	14.16	27.83	114	293	A	H
802.11n		2483.76	58.82	-15.18	74	44.94	27.5	14.2	27.82	114	293	P	H
HT20		2483.5	45.08	-8.92	54	31.2	27.5	14.2	27.82	114	293	A	H
CH 06		2374.12	55.35	-18.65	74	41.45	27.65	14.1	27.85	400	54	P	V
2437MHz		2372.86	44.52	-9.48	54	30.62	27.65	14.1	27.85	400	54	A	V
	*	2437	106.46	-	-	92.6	27.53	14.16	27.83	400	54	P	V
	*	2437	98.81	-	-	84.95	27.53	14.16	27.83	400	54	A	V
		2487.33	54.16	-19.84	74	40.28	27.5	14.2	27.82	400	54	P	V
		2496.15	44.57	-9.43	54	30.68	27.5	14.21	27.82	400	54	A	V

	*	2462	112.94	-	-	99.09	27.5	14.18	27.83	137	294	P	H
	*	2462	104.42	-	-	90.57	27.5	14.18	27.83	137	294	A	H
		2483.76	62.1	-11.9	74	48.22	27.5	14.2	27.82	137	294	P	H
		2483.52	51.15	-2.85	54	37.27	27.5	14.2	27.82	137	294	A	H
802.11n													H
HT20													H
CH 11	*	2462	104.59	-	-	90.74	27.5	14.18	27.83	387	63	P	V
2462MHz	*	2462	98.5	-	-	84.65	27.5	14.18	27.83	387	63	A	V
		2483.52	56.27	-17.73	74	42.39	27.5	14.2	27.82	387	63	P	V
		2483.52	46.52	-7.48	54	32.64	27.5	14.2	27.82	387	63	A	V
													V
													V

Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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)
	*	2467	110.98	-	-	97.13	27.5	14.18	27.83	100	300	P	H
	*	2467	103.44	-	-	89.59	27.5	14.18	27.83	100	300	A	H
		2484.84	61.09	-12.91	74	47.21	27.5	14.2	27.82	100	300	P	H
		2483.52	51.9	-2.1	54	38.02	27.5	14.2	27.82	100	300	A	H
802.11n													H
HT20													H
CH 12	*	2467	105.92	-	-	92.07	27.5	14.18	27.83	334	91	P	V
2467MHz	*	2467	98.62	-	-	84.77	27.5	14.18	27.83	334	91	A	V
		2483.6	58.04	-15.96	74	44.16	27.5	14.2	27.82	334	91	P	V
		2483.52	48.11	-5.89	54	34.23	27.5	14.2	27.82	334	91	A	V
													V
													V
	*	2472	110.49	-	-	96.63	27.5	14.19	27.83	100	302	P	H
	*	2472	102.8	-	-	88.94	27.5	14.19	27.83	100	302	A	H
		2483.56	61.54	-12.46	74	47.66	27.5	14.2	27.82	100	302	P	H
		2483.68	51.63	-2.37	54	37.75	27.5	14.2	27.82	100	302	A	H
802.11n													H
HT20													H
CH 13	*	2472	106.14	-	-	92.28	27.5	14.19	27.83	373	114	P	V
2472MHz	*	2472	98.36	-	-	84.5	27.5	14.19	27.83	373	114	A	V
		2484.72	56.94	-17.06	74	43.06	27.5	14.2	27.82	373	114	P	V
		2484.76	47.42	-6.58	54	33.54	27.5	14.2	27.82	373	114	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 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (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	41.56	-32.44	74	60.88	31.15	6.59	57.06	100	0	P	H
		18000	56.66	-17.34	74	52.1	48.1	13.18	56.72	247	189	P	H
802.11n		18000	46.76	-7.24	54	42.2	48.1	13.18	56.72	247	189	A	H
HT20													H
CH 01		4824	40.71	-33.29	74	60.03	31.15	6.59	57.06	100	0	P	V
2412MHz		18000	57.06	-16.94	74	52.5	48.1	13.18	56.72	285	205	P	V
		18000	47.16	-6.84	54	42.6	48.1	13.18	56.72	285	205	A	V
													H
		4874	43.28	-30.72	74	62.25	31.2	6.8	56.97	100	0	P	H
		7311	54.35	-19.65	74	65.74	36.78	8.73	56.9	100	321	P	H
		7311	43.35	-10.65	54	54.74	36.78	8.73	56.9	100	321	A	H
802.11n		17985	57.03	-16.97	74	52.9	47.68	13.17	56.72	249	90	P	H
HT20		17985	46.43	-7.57	54	42.3	47.68	13.17	56.72	249	90	A	H
CH 06		4874	42.51	-31.49	74	61.48	31.2	6.8	56.97	100	0	P	V
2437MHz		7311	48.56	-25.44	74	59.95	36.78	8.73	56.9	100	0	P	V
		18000	57.16	-16.84	74	52.6	48.1	13.18	56.72	255	206	P	V
		18000	46.96	-7.04	54	42.4	48.1	13.18	56.72	255	206	A	V
													V
		4924	43.72	-30.28	74	62.28	31.3	7.02	56.88	100	0	P	H
		7386	45.18	-28.82	74	56.95	36.56	8.72	57.05	100	0	P	H
802.11n		17985	56.26	-17.74	74	52.13	47.68	13.17	56.72	178	207	P	H
HT20		17985	46.18	-7.82	54	42.05	47.68	13.17	56.72	178	207	A	H
CH 11		4924	40.98	-33.02	74	59.54	31.3	7.02	56.88	100	0	P	V
2462MHz		7386	45.07	-28.93	74	56.84	36.56	8.72	57.05	100	0	P	V
		17985	55.75	-18.25	74	51.62	47.68	13.17	56.72	110	172	P	V
		17985	45.66	-8.34	54	41.53	47.68	13.17	56.72	110	172	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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)
		4934	40.88	-33.12	74	59.34	31.34	7.06	56.86	10	0	P	H
		7401	44.18	-29.82	74	56.04	36.51	8.71	57.08	100	0	P	H
802.11n		18000	56.19	-17.81	74	51.63	48.1	13.18	56.72	177	219	P	H
HT20		18000	46.23	-7.77	54	41.67	48.1	13.18	56.72	177	219	A	H
CH 12		4934	40.21	-33.79	74	58.67	31.34	7.06	56.86	100	0	P	V
2467MHz		7401	44.62	-29.38	74	56.48	36.51	8.71	57.08	100	0	P	V
		17985	56.12	-17.88	74	51.99	47.68	13.17	56.72	115	172	P	V
		17985	46.16	-7.84	54	42.03	47.68	13.17	56.72	115	172	A	V
		4944	39.22	-34.78	74	57.57	31.38	7.11	56.84	100	0	P	H
		7416	45.06	-28.94	74	56.85	36.63	8.7	57.12	100	0	P	H
802.11n		17985	55.99	-18.01	74	51.86	47.68	13.17	56.72	168	209	P	H
HT20		17985	45.95	-8.05	54	41.82	47.68	13.17	56.72	168	209	A	H
CH 13		4944	40.12	-33.88	74	58.47	31.38	7.11	56.84	100	0	P	V
2472MHz		7416	44.37	-29.63	74	56.16	36.63	8.7	57.12	100	0	P	V
		18000	56.48	-17.52	74	51.92	48.1	13.18	56.72	100	159	P	V
		18000	46.39	-7.61	54	41.83	48.1	13.18	56.72	100	159	A	V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Emission above 18GHz

2.4GHz WIFI 802.11n HT20 (SHF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
4+3		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		24908	39.24	-34.76	74	55.92	39.29	-2.81	53.16	150	0	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT20		21300	38.8	-35.2	74	59.04	37.84	-3.28	54.8	150	0	P	V
SHF													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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)
		30.97	21.69	-18.31	40	29.55	23.85	0.52	32.23	-	-	P	H
		121.18	23.38	-20.12	43.5	37.11	17.48	1.03	32.24	-	-	P	H
		496.57	25.5	-20.5	46	31.66	23.8	1.98	31.94	-	-	P	H
		560.59	26.17	-19.83	46	30.5	25.89	2.11	32.33	-	-	P	H
		842.86	31.18	-14.82	46	31.23	28.52	2.63	31.2	-	-	P	H
		955.38	33.35	-12.65	46	30.74	30.56	2.81	30.76	100	0	P	H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT20		31.94	31.63	-8.37	40	39.97	23.36	0.53	32.23	100	0	P	V
LF		93.05	29.86	-13.64	43.5	46.06	15.15	0.89	32.24	-	-	P	V
		123.12	24.68	-18.82	43.5	38.35	17.53	1.04	32.24	-	-	P	V
		267.65	22.3	-23.7	46	33.42	19.37	1.5	31.99	-	-	P	V
		861.29	31.27	-14.73	46	30.91	28.86	2.65	31.15	-	-	P	V
		930.16	32.54	-13.46	46	31.47	29.2	2.76	30.89	-	-	P	V
													V
													V
													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against limit line.

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 **over limit** 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	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
4+3		(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. Over Limit(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. Over Limit(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. Over Limit(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

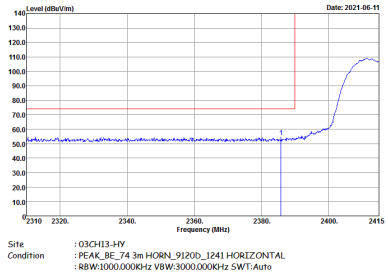
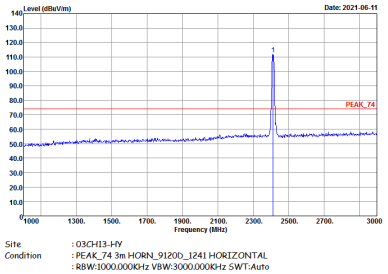
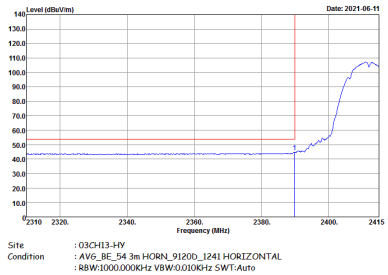
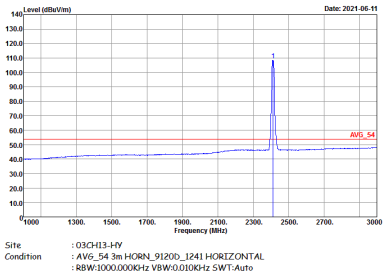
Test Engineer :	Daniel Lee, Jacky Hong and Wilson Wu	**Temperature :**	20~25°C
		Relative Humidity :	40~60%

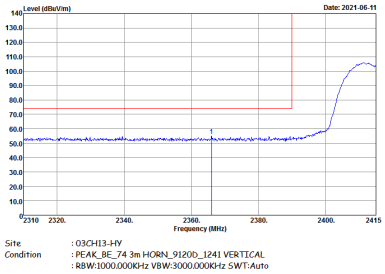
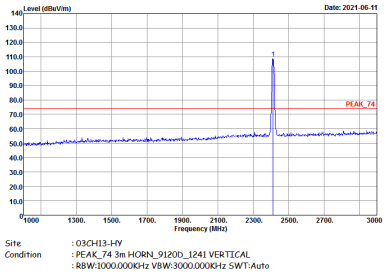
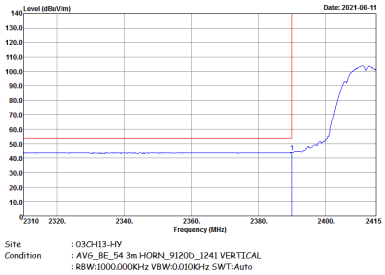
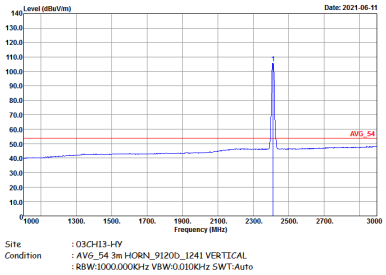
Note symbol

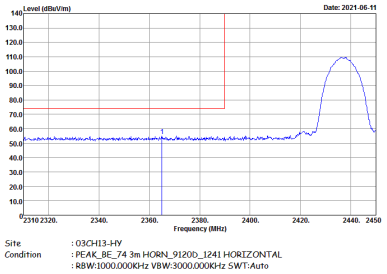
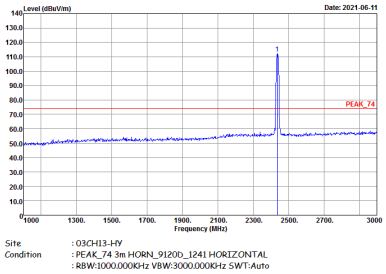
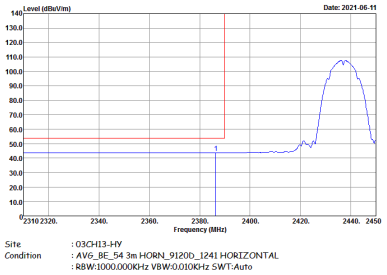
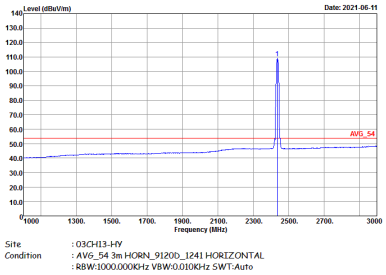
-L	**Low channel location**
-R	**High channel location**

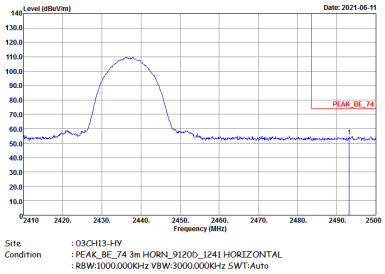
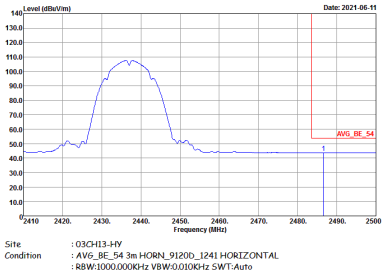
2.4GHz 2400~2483.5MHz

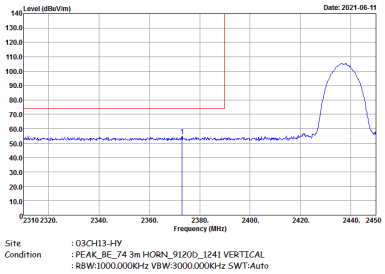
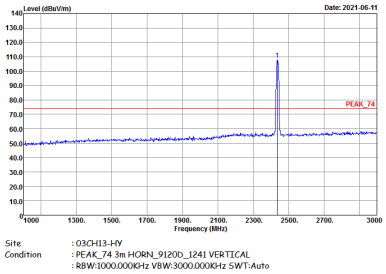
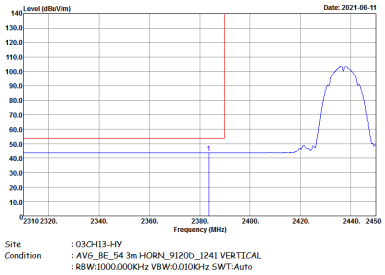
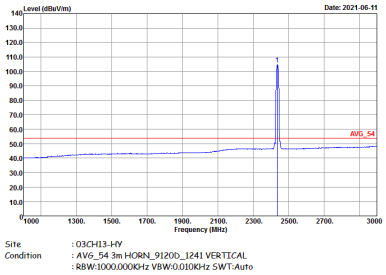
WIFI 802.11b (Band Edge @ 3m)

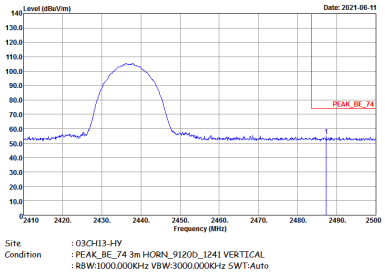
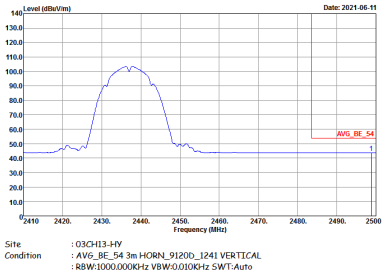
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
4+3	Horizontal	Fundamental
Peak		
Avg.		

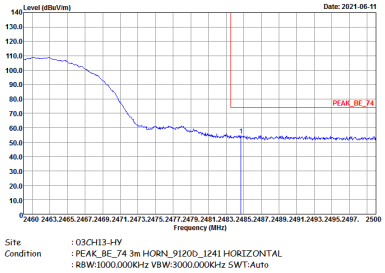
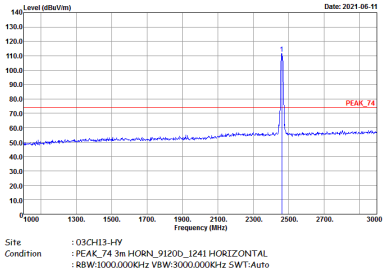
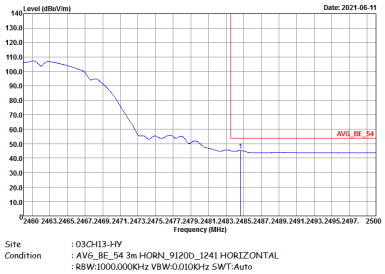
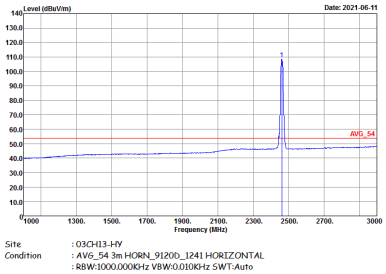
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
4+3	Vertical	Fundamental
Peak		
Avg.		

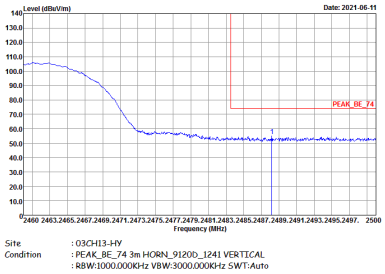
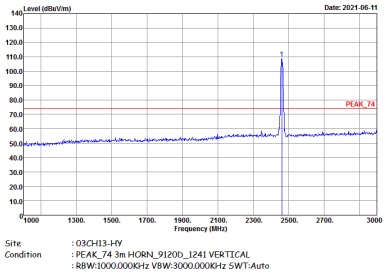
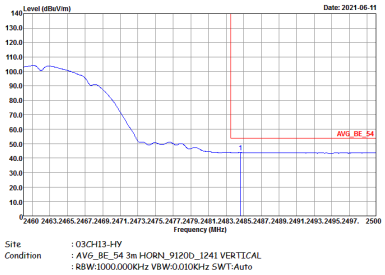
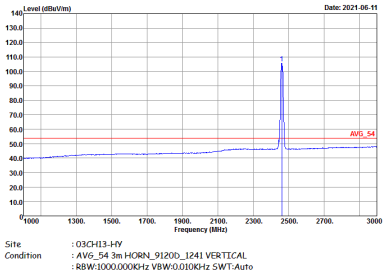
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg.		

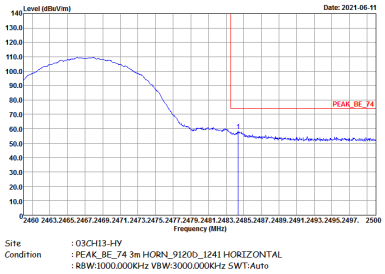
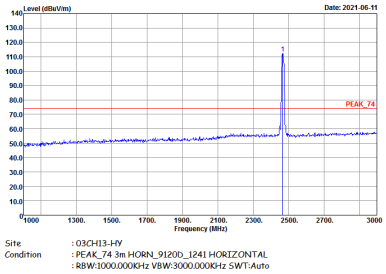
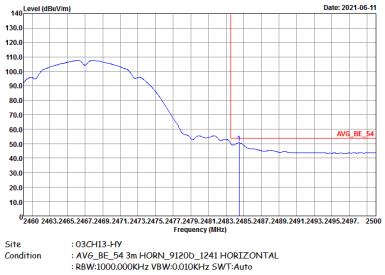
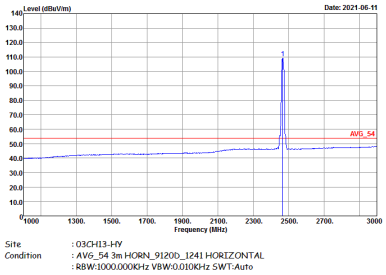
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

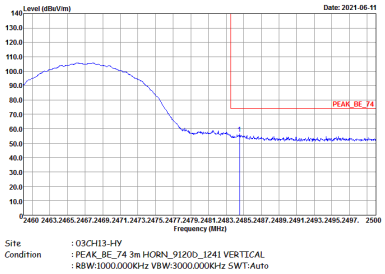
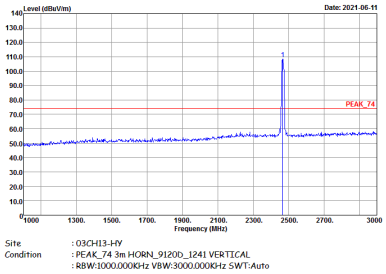
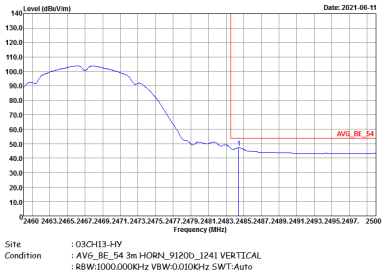
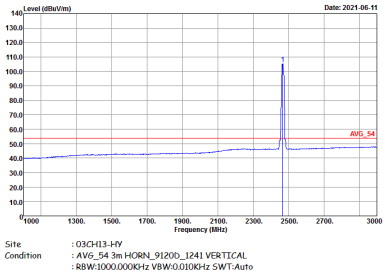
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg.		

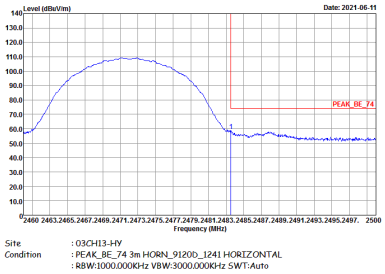
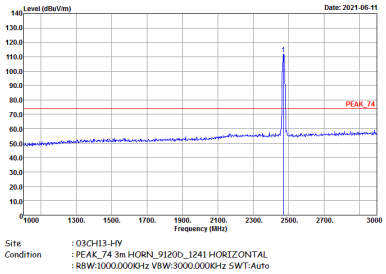
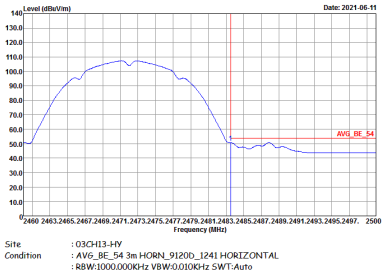
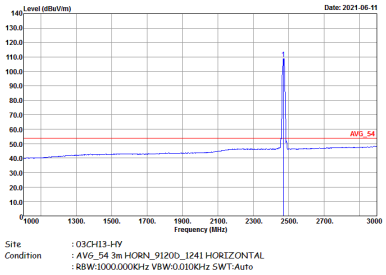
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

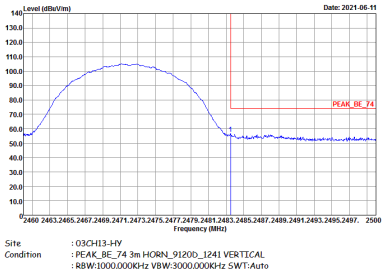
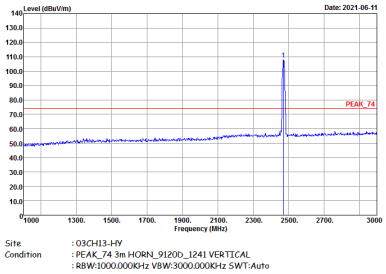
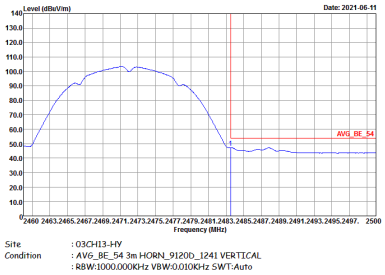
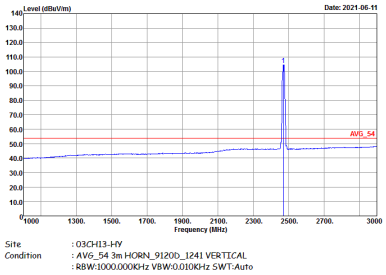
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
4+3	Horizontal	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
4+3	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH12 2467MHz	
4+3	Horizontal	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

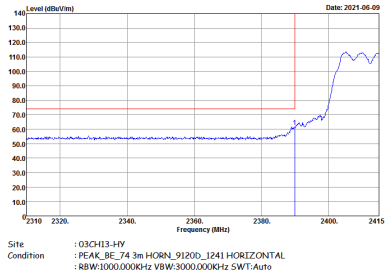
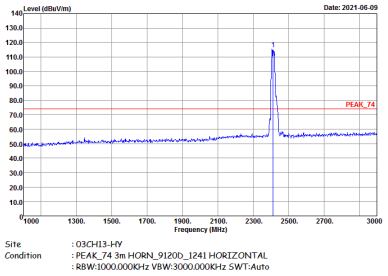
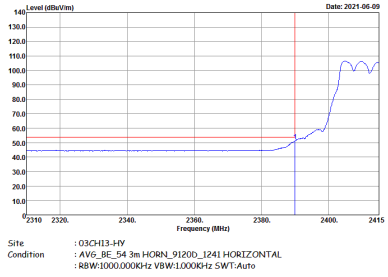
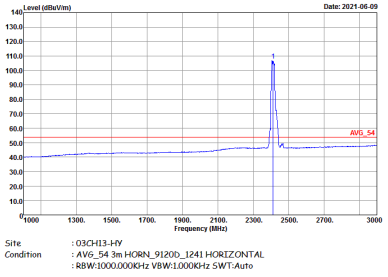
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH12 2467MHz	
4+3	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

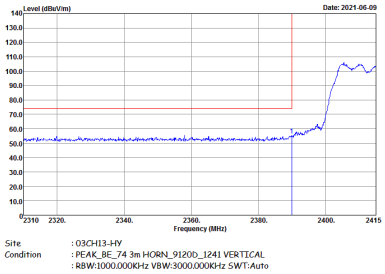
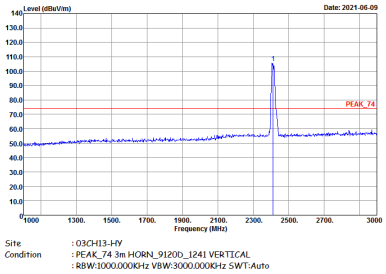
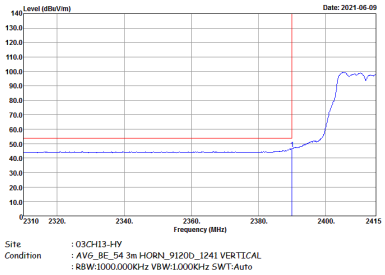
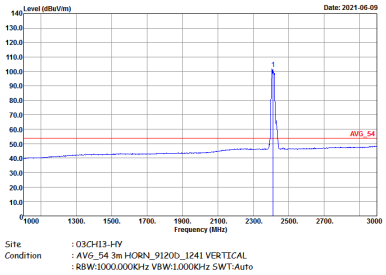
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH13 2472MHz	
4+3	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

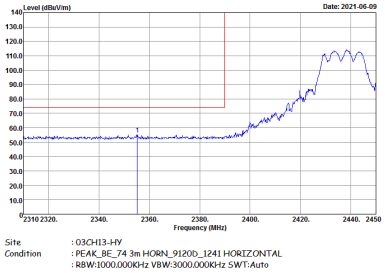
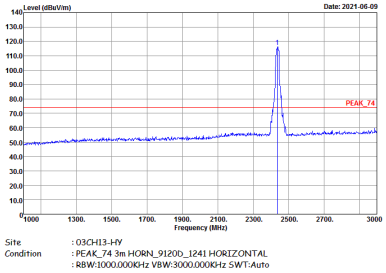
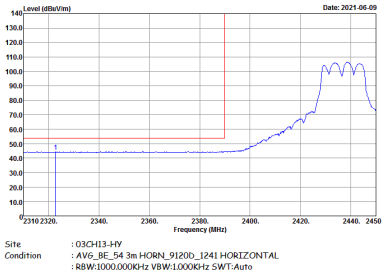
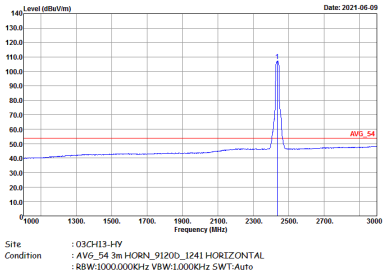
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH13 2472MHz	
4+3	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

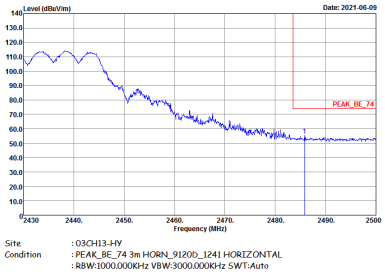
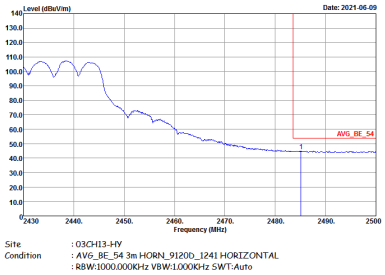
2.4GHz 2400~2483.5MHz

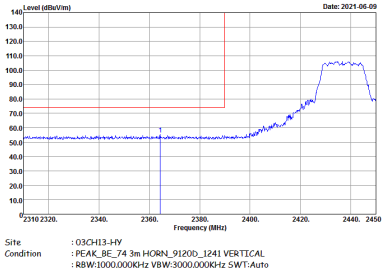
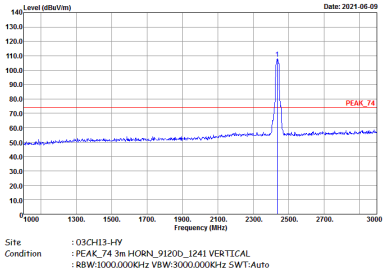
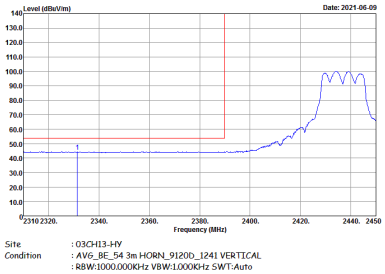
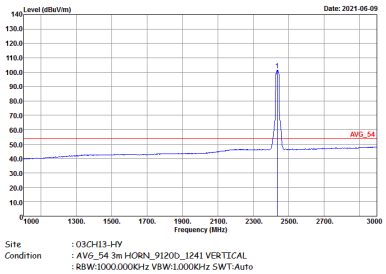
WIFI 802.11g (Band Edge @ 3m)

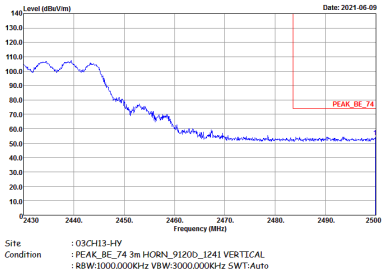
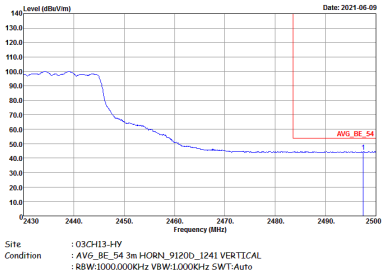
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
4+3	Horizontal	Fundamental
Peak		
Avg.		

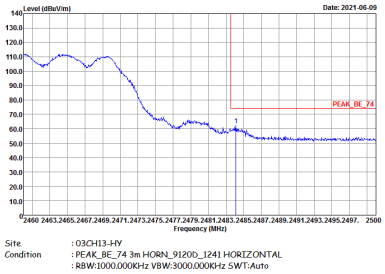
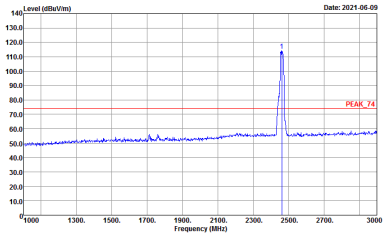
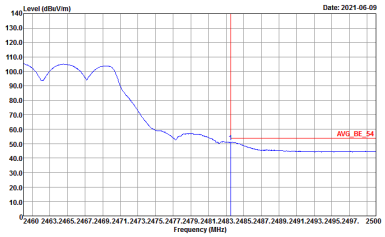
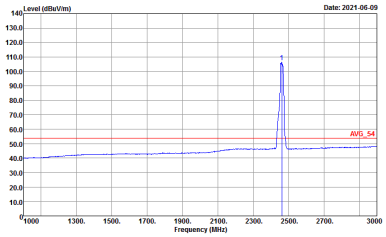
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
4+3	Vertical	Fundamental
Peak		
Avg.		

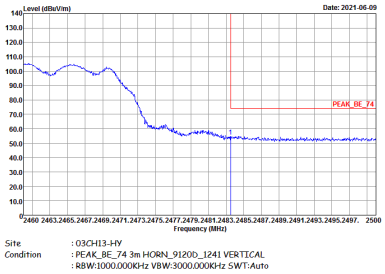
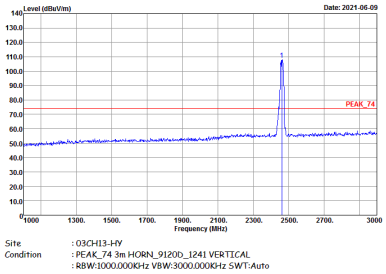
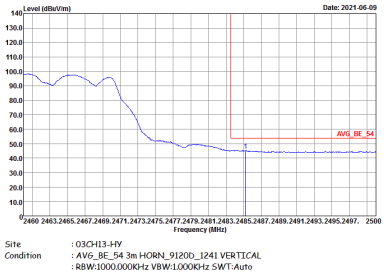
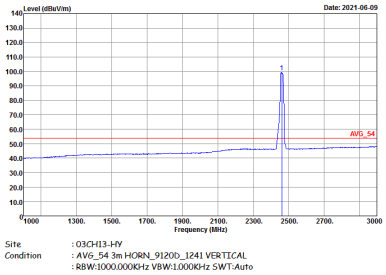
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg.		

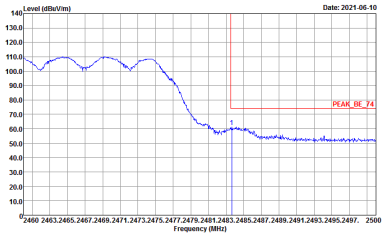
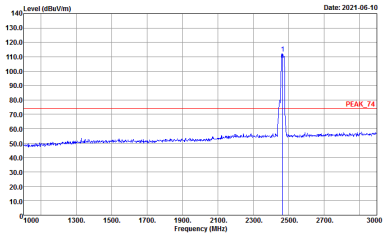
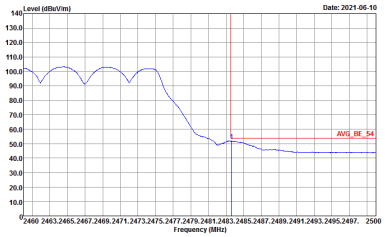
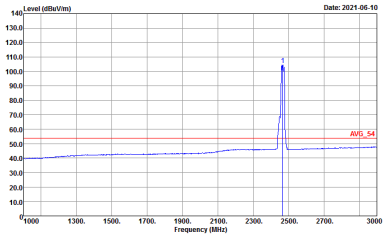
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

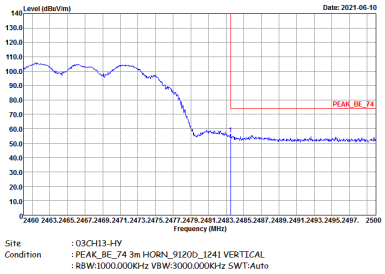
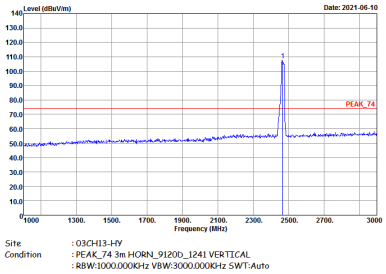
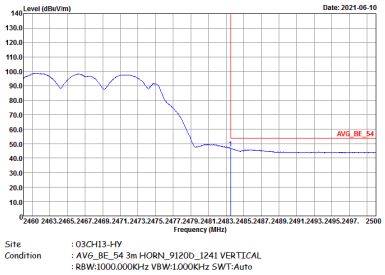
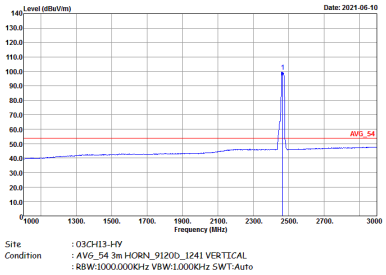
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg.		

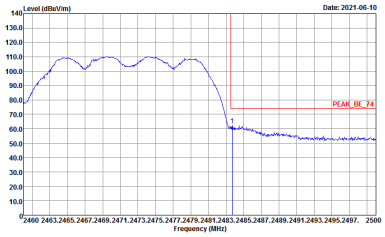
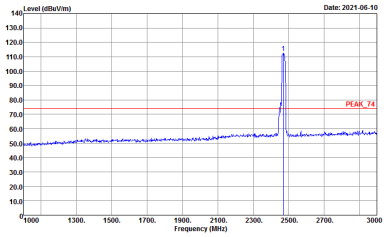
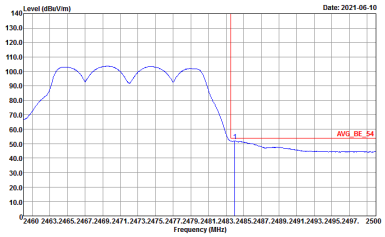
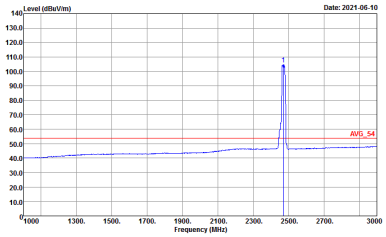
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
4+3	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

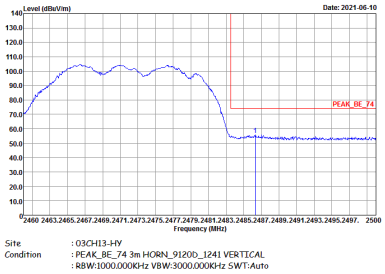
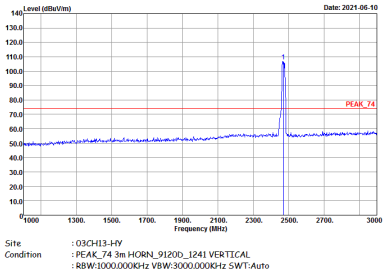
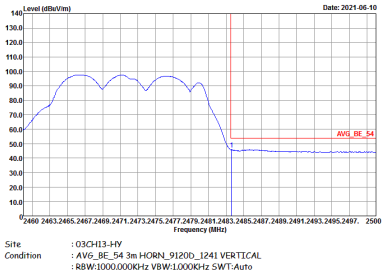
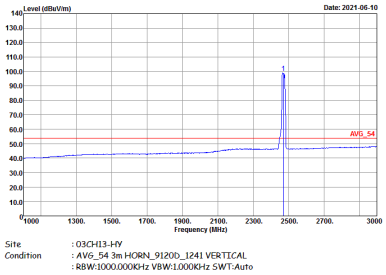
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
4+3	Horizontal	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
4+3	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH12 2467MHz	
4+3	Horizontal	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

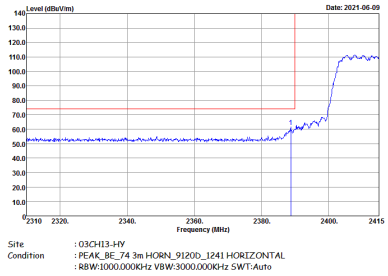
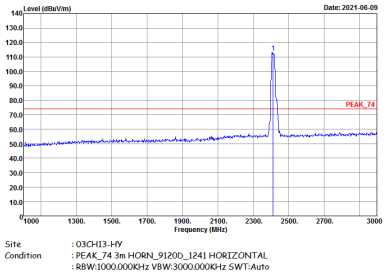
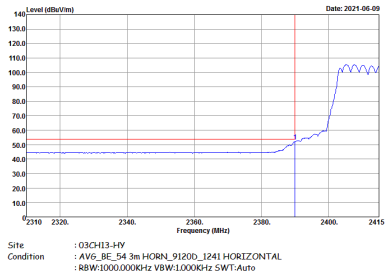
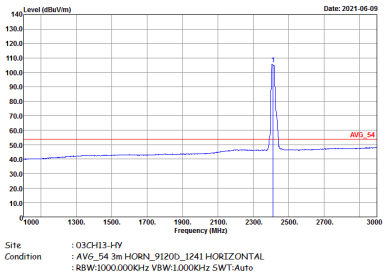
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH12 2467MHz	
4+3	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

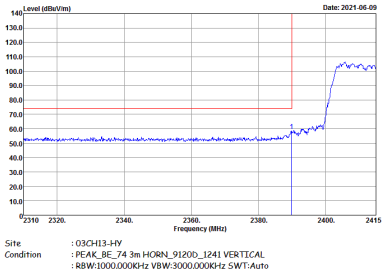
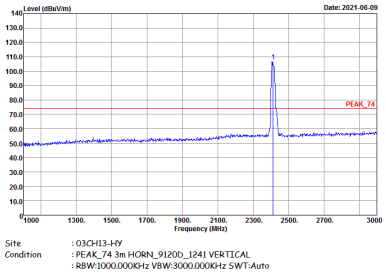
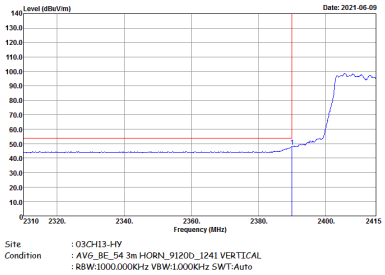
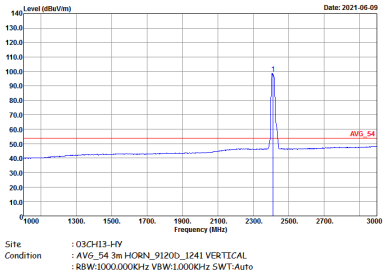
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH13 2472MHz	
4+3	Horizontal	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

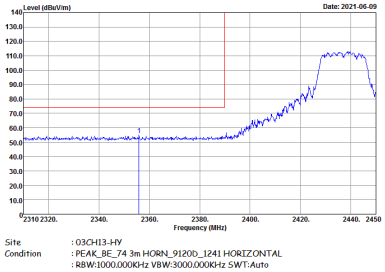
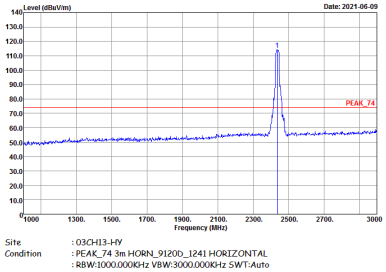
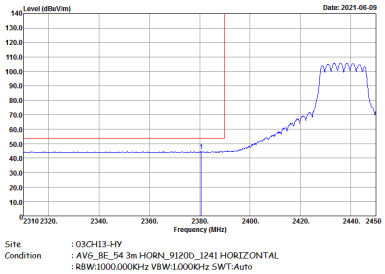
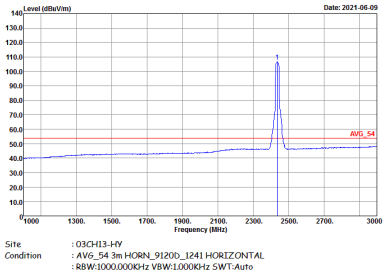
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH13 2472MHz	
4+3	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

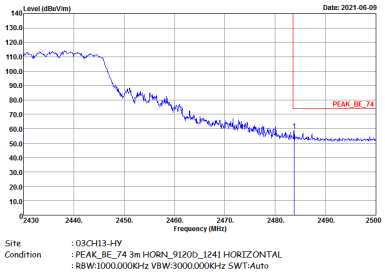
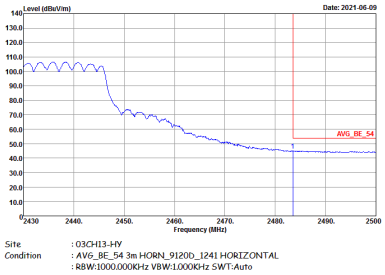
2.4GHz 2400~2483.5MHz

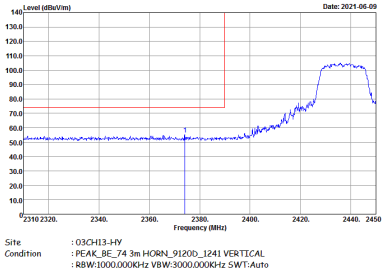
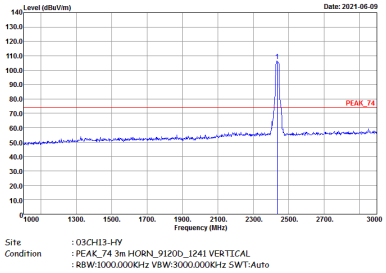
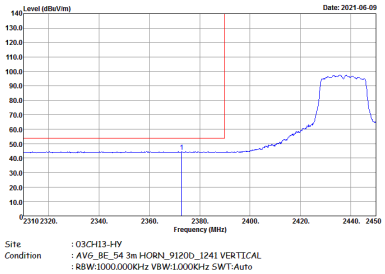
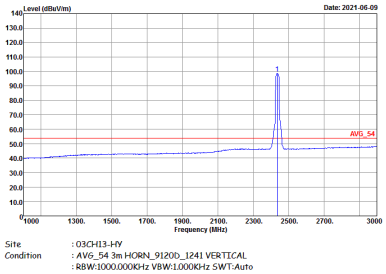
WIFI 802.11n HT20 (Band Edge @ 3m)

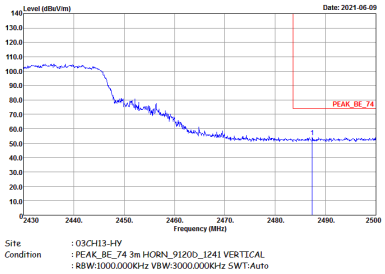
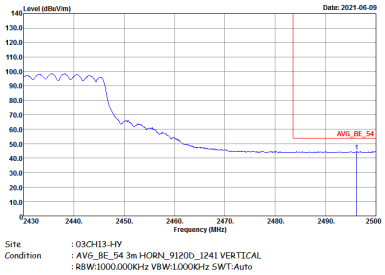
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
4+3	Horizontal	Fundamental
Peak		
Avg.		

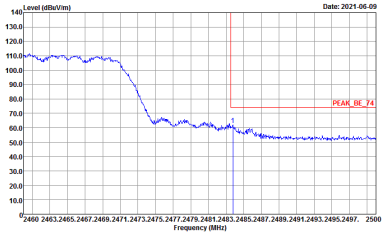
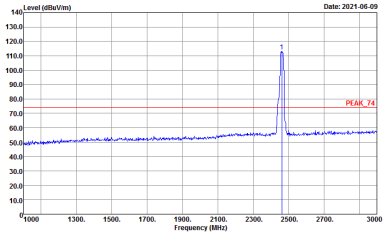
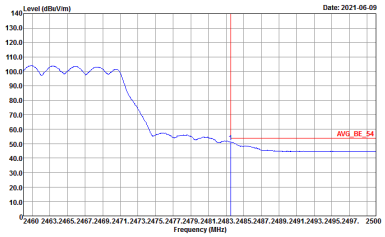
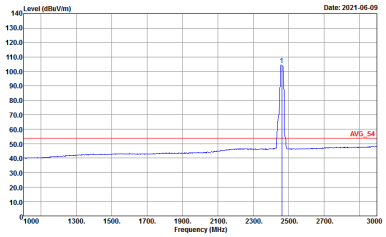
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
4+3	Vertical	Fundamental
Peak		
Avg.		

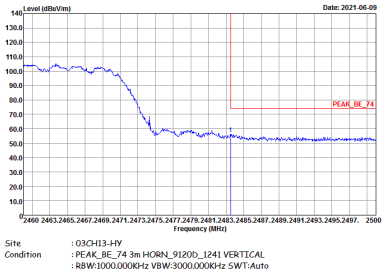
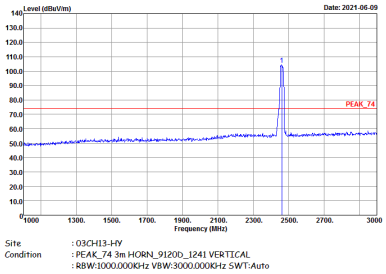
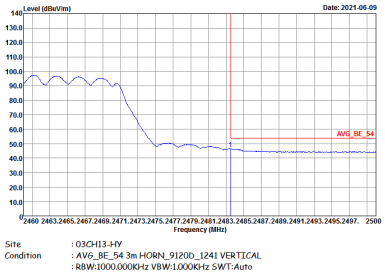
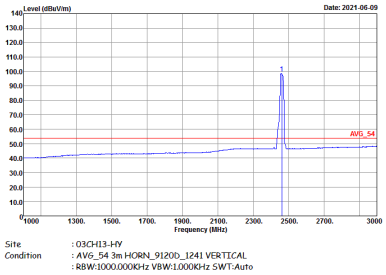
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg.		

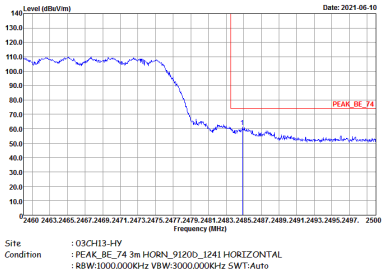
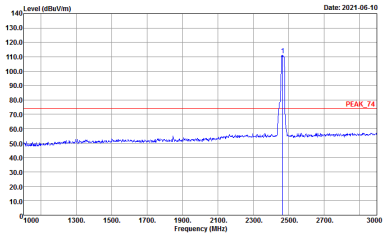
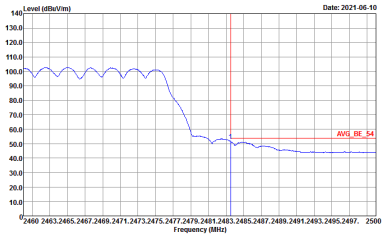
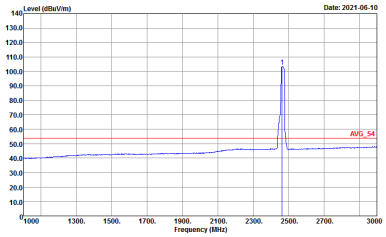
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

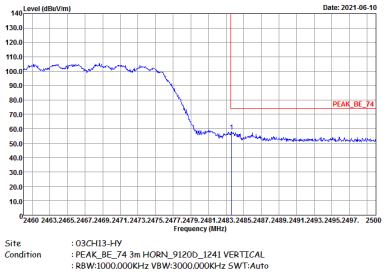
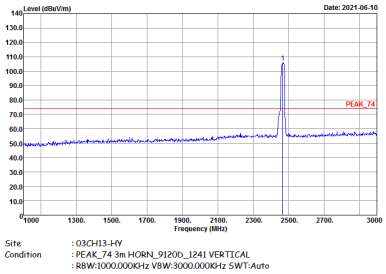
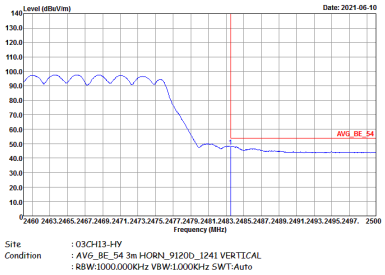
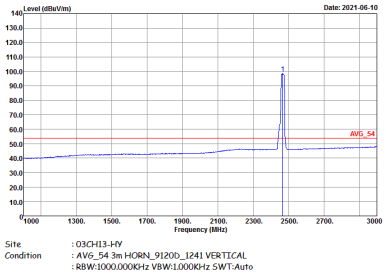
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg.		

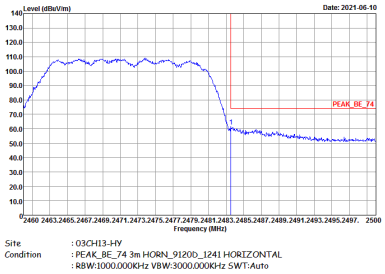
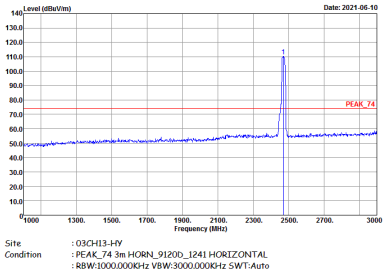
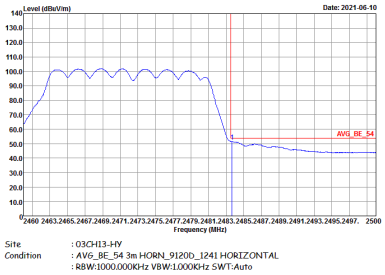
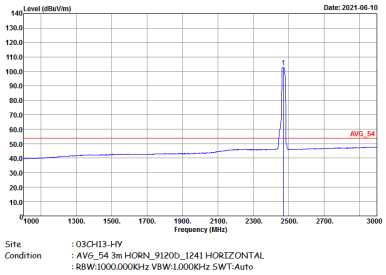
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
4+3	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

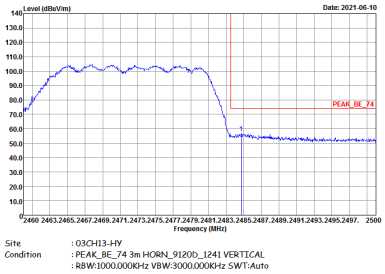
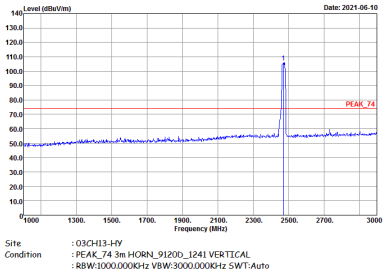
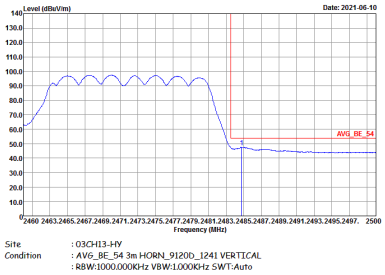
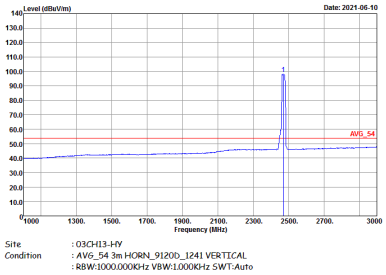
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
4+3	Horizontal	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
4+3	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH12 2467MHz	
4+3	Horizontal	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

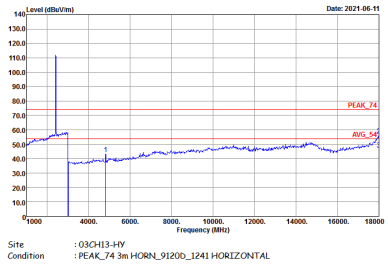
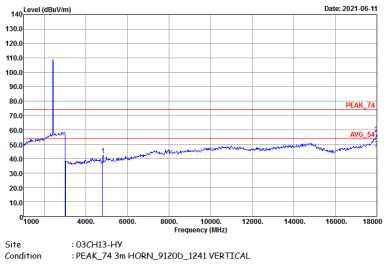
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH12 2467MHz	
4+3	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

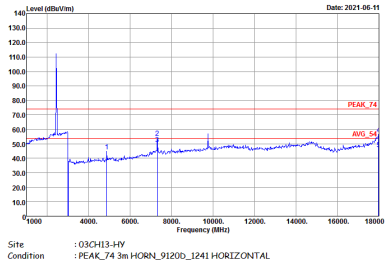
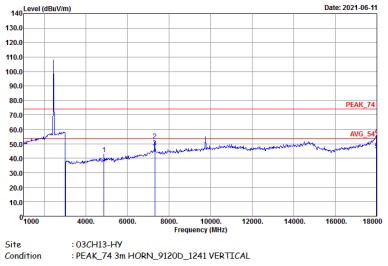
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH13 2472MHz	
4+3	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

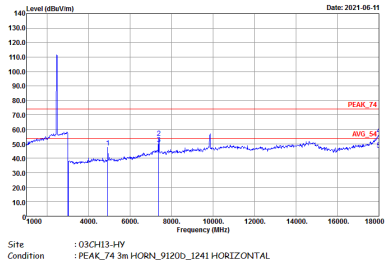
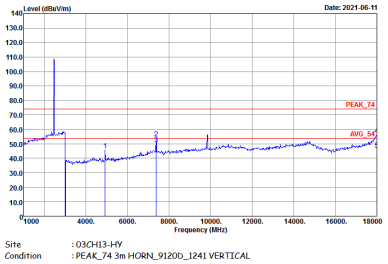
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH13 2472MHz	
4+3	Vertical	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

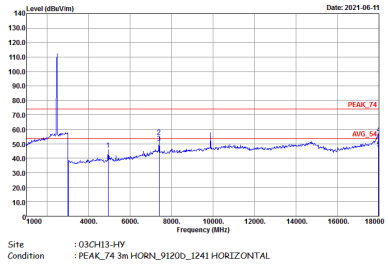
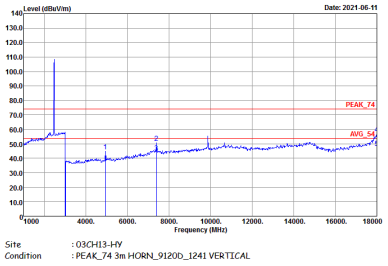
2.4GHz 2400~2483.5MHz

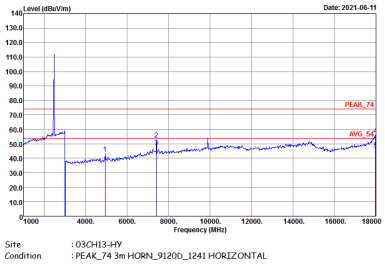
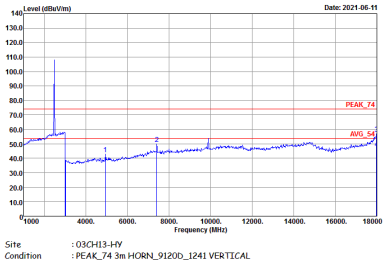
WIFI 802.11b (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
4+3	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
4+3	Horizontal	Vertical
Peak Avg.		

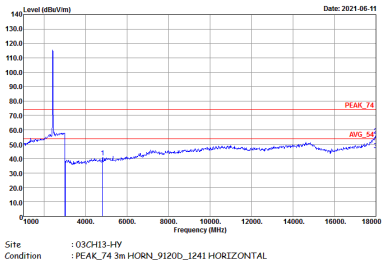
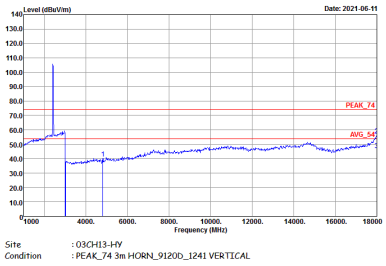
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
4+3	Horizontal	Vertical
Peak Avg.		

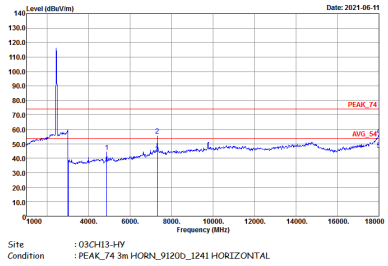
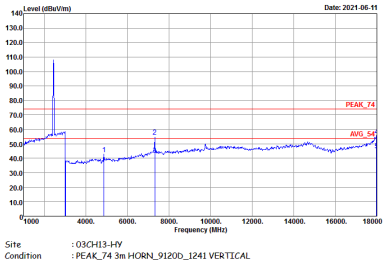
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH12 2467MHz	
4+3	Horizontal	Vertical
Peak Avg.		

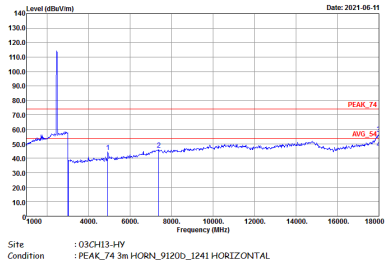
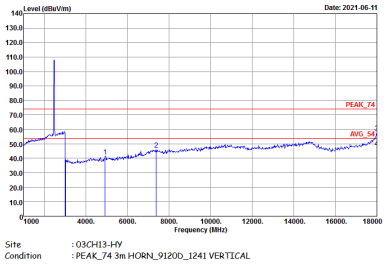
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH13 2472MHz	
4+3	Horizontal	Vertical
Peak Avg.		

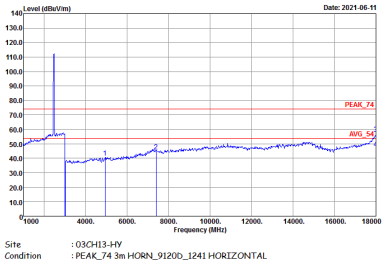
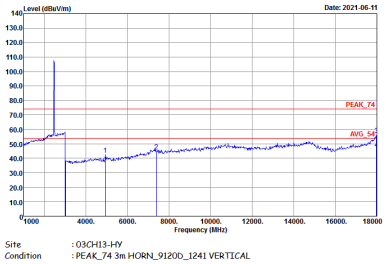
2.4GHz 2400~2483.5MHz

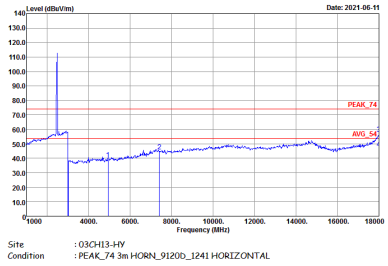
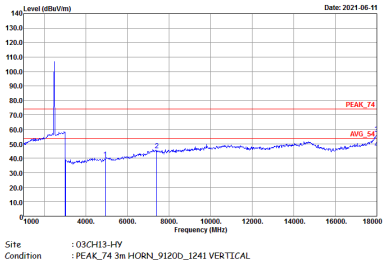
WIFI 802.11g (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
4+3	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
4+3	Horizontal	Vertical
Peak Avg.		

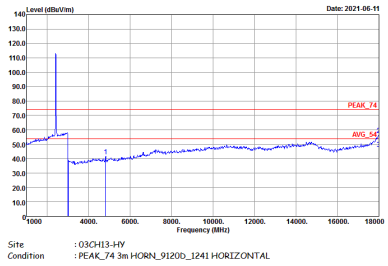
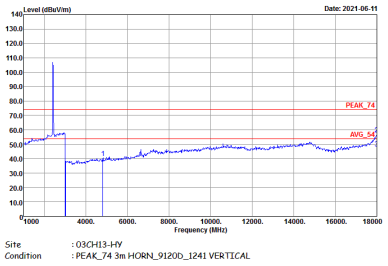
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
4+3	Horizontal	Vertical
Peak Avg.		

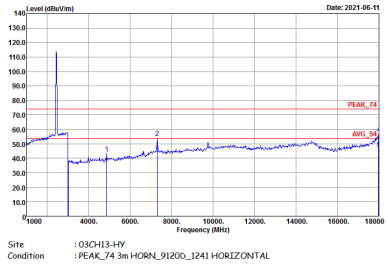
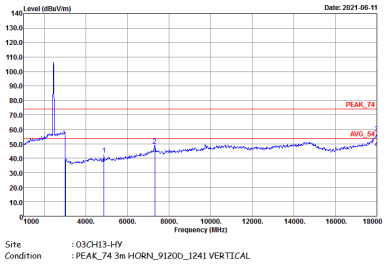
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH12 2467MHz	
4+3	Horizontal	Vertical
Peak Avg.		

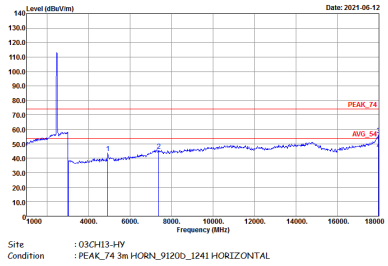
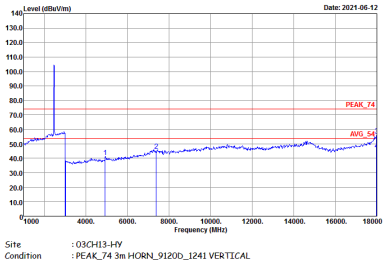
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH13 2472MHz	
4+3	Horizontal	Vertical
Peak Avg.		

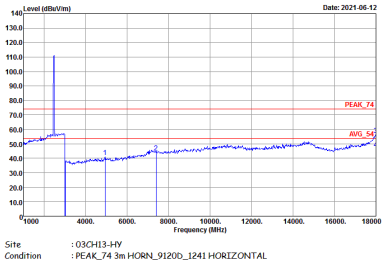
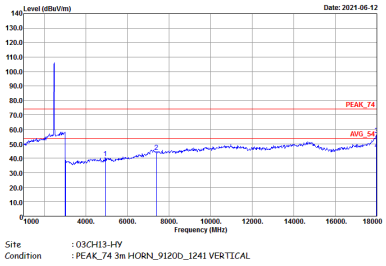
2.4GHz 2400~2483.5MHz

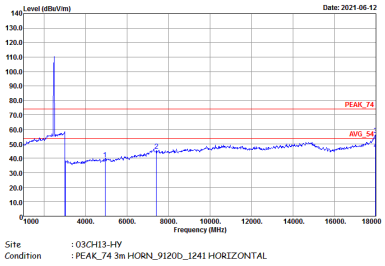
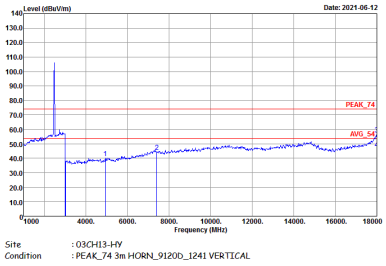
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
4+3	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
4+3	Horizontal	Vertical
Peak Avg.		

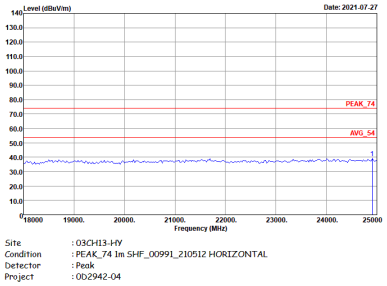
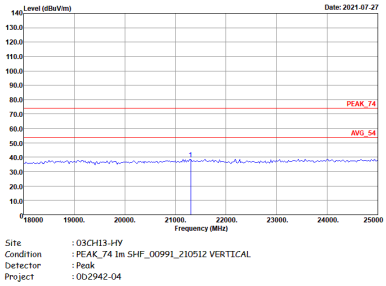
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
4+3	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH12 2462MHz	
4+3	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH13 2472MHz	
4+3	Horizontal	Vertical
Peak Avg.		

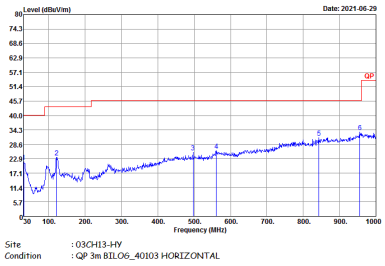
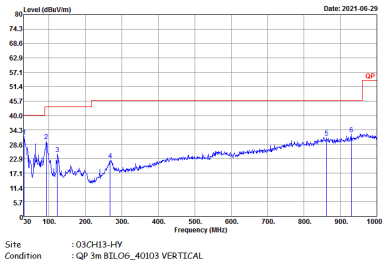
Emission above 18GHz

2.4GHz WIFI 802.11n HT20 (SHF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT20 SHF	
3+4	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

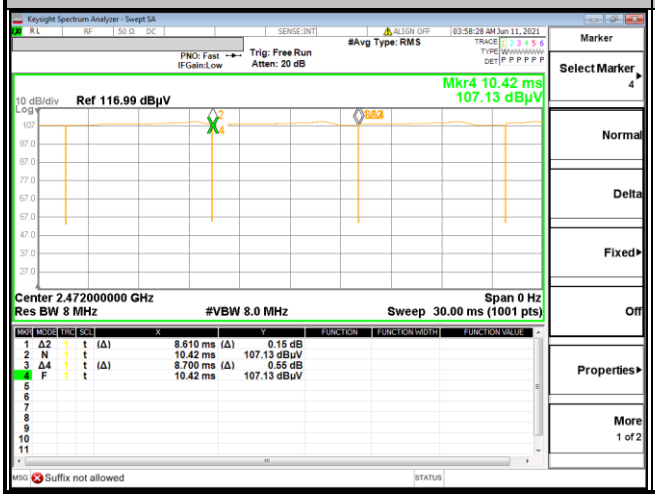
WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT20 LF	
4+3	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

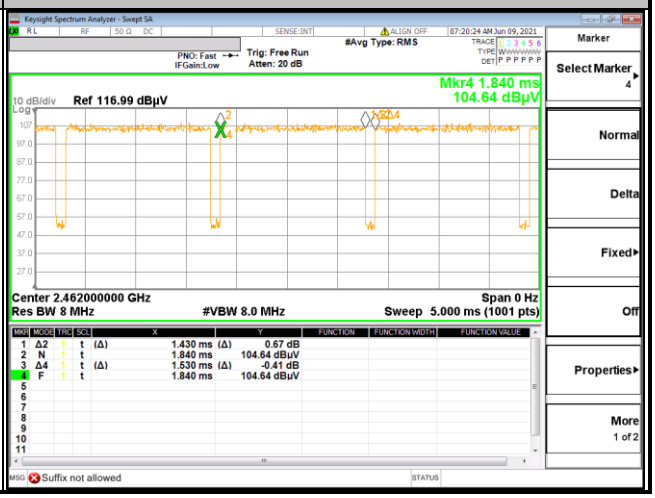
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
4+3	802.11b	98.97	-	-	10Hz
4+3	802.11g	93.46	1430	0.70	1kHz
4+3	2.4GHz 802.11n HT20	93.03	1335	0.75	1kHz

MIMO <Ant. 4+3>

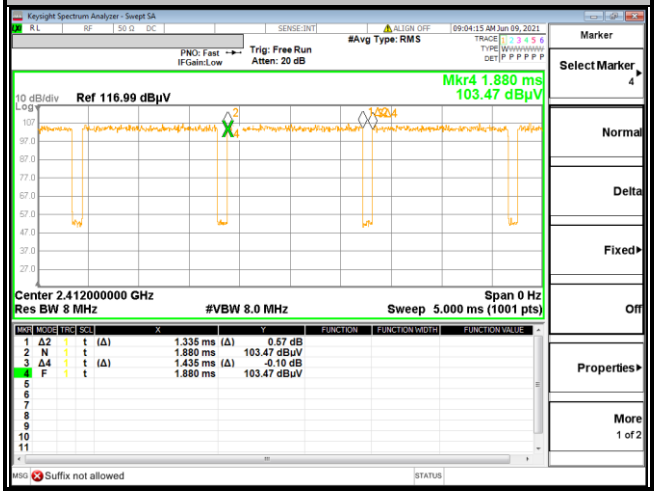
802.11b



802.11g



802.11n HT20



———THE END———