FCC RADIO TEST REPORT

FCC ID	:	**2AP64-2872**
Equipment	:	**Digital Media Receiver**
Model Name	:	**C1125P**
Applicant	:	**Gargantuan LLC** **303 North Glenoaks Blvd., Ste 200** **Burbank, CA 91502**
Standard	:	**FCC Part 15 Subpart C §15.247**

The testing was completed on Jul. 31, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of Sporton International (Shenzhen) Inc., the test report shall not be reproduced except in full.

This report contains data that were produced under subcontract by accredited Sporton laboratory located in Taiwan.
Sporton Lab in Taiwan is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No.TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Eric Shih

TESTING
NVLAP LAB CODE 600156-0

Approved by: Eric Shih / Manager

Sporton International (Shenzhen) Inc.
1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City Guangdong Province 518055 China

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Appendix A. Radiated Spurious Emission

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History of this test report

Report No.	Version	Description	Issued Date
FR840308-01F	01	Initial issue of report	Aug. 15, 2018

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)
3.1	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass
3.2	15.203 & 15.247(b)	Antenna Requirement	Pass

Reviewed by: Joseph Lin

Report Producer: Polly Tsai

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Digital Media Receiver
Model Name	C1125P
FCC ID	2AP64-2872
EUT supports Radios application	WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE

1.2 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2472 MHz
Antenna Type / Gain	**Ant. 1:** Fixed Internal Antenna type with gain 2.10 dBi **Ant. 2:** Fixed Internal Antenna type with gain 1.90 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.3 Modification of EUT

No modifications are made to the EUT during all test items.

1.4 Testing Location

Sporton International (Shenzhen) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0) and the FCC designation No are CN5018 and CN5019.

Test Site	Sporton International (Shenzhen) Inc.	
Test Site Location	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan District Shenzhen City Guangdong Province 518055 China TEL: +86-755-3320-2398	
Test Site No.	**Sporton Site No.**	**FCC Test Firm Registration No.**
	03CH04-SZ	577730

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

1.5 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
- ANSI C63.10-2013

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	8	2447
	2	2417	9	2452
	3	2422	10	2457
	4	2427	11	2462
	5	2432	12	2467
	6	2437	13	2472
	7	2442		

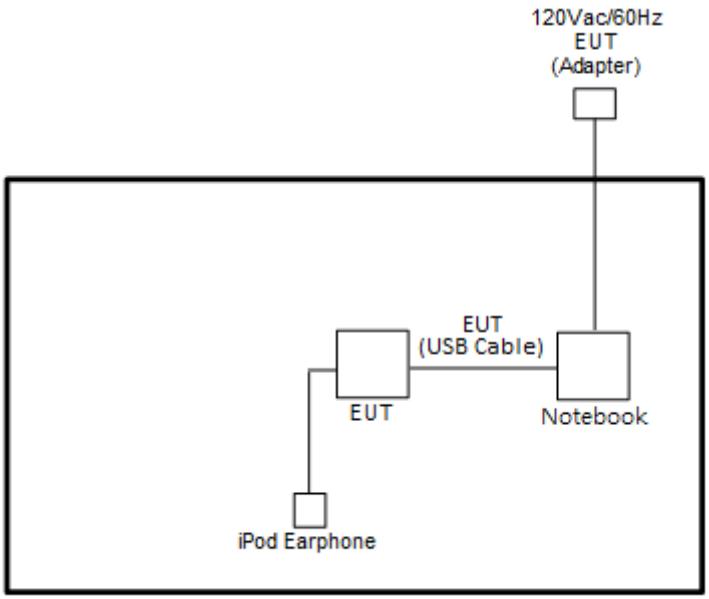
2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

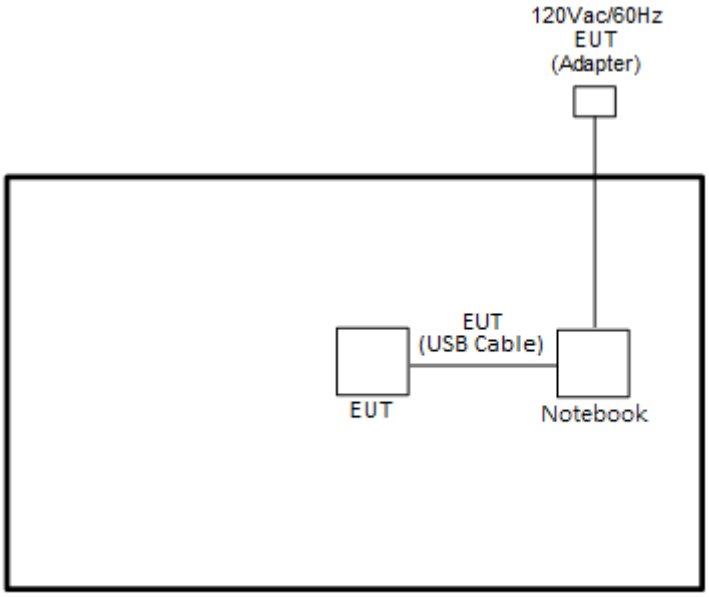
Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0

2.3 Connection Diagram of Test System

<WLAN Tx Mode with Earphone>



<WLAN Tx Mode without Earphone>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A
2.	Notebook	DELL	Latitude E3340	FCC DoC/ Contains FCC ID: PD97260NGU	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

The RF test items, utility “CMD” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

3 Test Result

3.1 Radiated Band Edges and Spurious Emission Measurement

3.1.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.1.2 Measuring Instruments

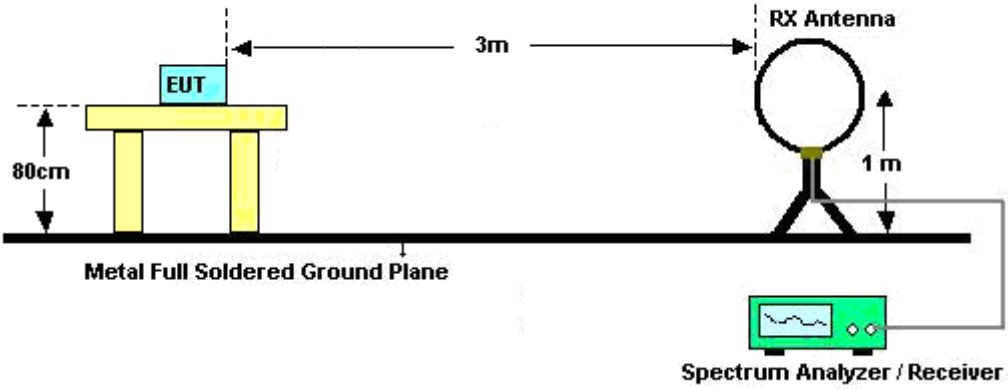
See list of measuring equipment of this test report.

3.1.3 Test Procedures

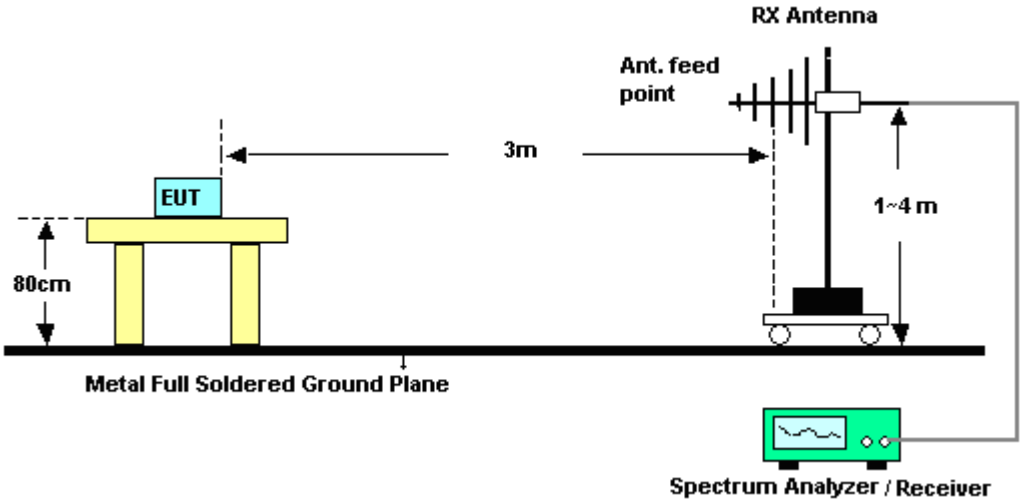
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz 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 1GHz, 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 1GHz, the emission level of the EUT in peak mode was 20dB 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= 3MHz 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.

3.1.4 Test Setup

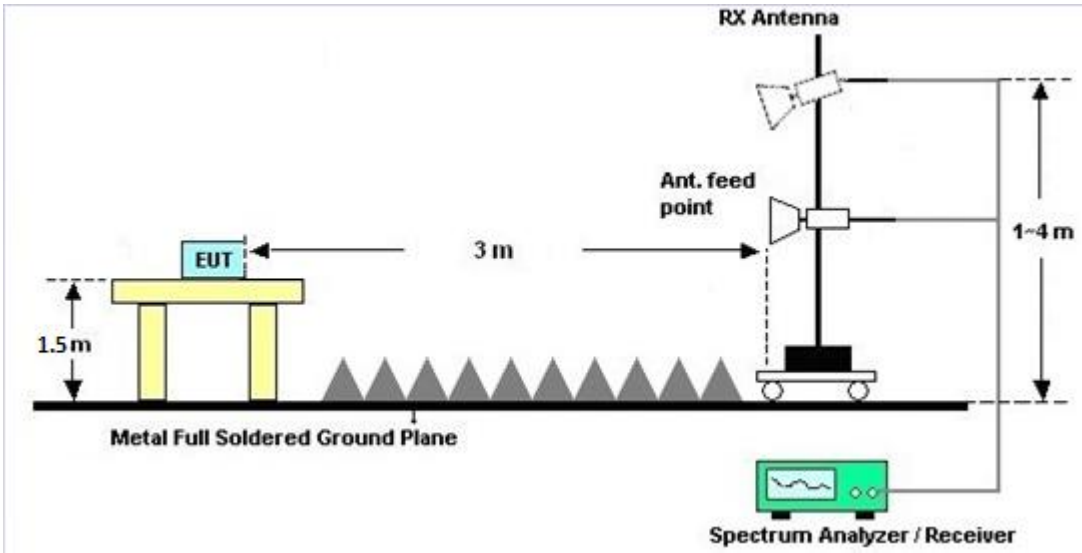
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.1.5 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 a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.1.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix A and B.

3.1.7 Duty Cycle

Please refer to Appendix C.

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

Please refer to Appendix A and B.

3.2 Antenna Requirements

3.2.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.2.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.2.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESR7	101404	9kHz~7GHz	Apr. 19, 2018	Jul. 01, 2018~ Jul. 31, 2018	Apr. 18, 2019	Radiation (03CH04-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Apr. 19, 2018	Jul. 01, 2018~ Jul. 31, 2018	Apr. 18, 2019	Radiation (03CH04-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 14, 2018	Jul. 01, 2018~ Jul. 31, 2018	May 13, 2019	Radiation (03CH04-SZ)
Bilog Antenna	TeseQ	CBL6111D	41909	30MHz~1GHz	Aug. 29, 2017	Jul. 01, 2018~ Jul. 31, 2018	Aug. 28, 2018	Radiation (03CH04-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1285	1GHz~18GHz	Dec. 13, 2017	Jul. 01, 2018~ Jul. 31, 2018	Dec. 12, 2018	Radiation (03CH04-SZ)
Horn Antenna	SCHWARZBECK	BBHA9170	9170#679	15GHz~40GHz	Apr. 20, 2018	Jul. 01, 2018~ Jul. 31, 2018	Apr. 19, 2019	Radiation (03CH04-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct.19, 2017	Jul. 01, 2018~ Jul. 31, 2018	Oct 18, 2018	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1989346	1GHz~18GHz	Jul. 27, 2017	Jul. 01, 2018~ Jul. 31, 2018	Jul. 26, 2018	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1988315	18GHz~40GHz	Jul. 27, 2017	Jul. 01, 2018~ Jul. 31, 2018	Jul. 26, 2018	Radiation (03CH04-SZ
Amplifier	Agilent Technologies	83017A	MY53270156	500MHz~26.5GHz	Apr. 19, 2018	Jul. 01, 2018~ Jul. 31, 2018	Apr. 18, 2019	Radiation (03CH04-SZ)
AC Power Source	Chroma	61601	N/A	N/A	NCR	Jul. 01, 2018~ Jul. 31, 2018	NCR	Radiation (03CH04-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jul. 01, 2018~ Jul. 31, 2018	NCR	Radiation (03CH04-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jul. 01, 2018~ Jul. 31, 2018	NCR	Radiation (03CH04-SZ)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.80**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.10**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.90**

Appendix A. Radiated Spurious Emission

Test Engineer :	Feiyan Zhang	Temperature :	22~25°C
		Relative Humidity :	48~52%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2354.625	53.31	-20.69	74	50.39	27.74	4.72	29.54	373	25	P	H
		2389.275	45.03	-8.97	54	42.1	27.7	4.78	29.55	373	25	A	H
	*	2412	109.58	-	-	106.67	27.69	4.78	29.56	373	25	P	H
	*	2412	106.18	-	-	103.27	27.69	4.78	29.56	373	25	A	H
		2389.905	53.23	-20.77	74	50.31	27.7	4.78	29.56	370	66	P	V
		2389.275	44.18	-9.82	54	41.25	27.7	4.78	29.55	370	66	A	V
	*	2412	108.82	-	-	105.91	27.69	4.78	29.56	370	66	P	V
	*	2412	105.69	-	-	102.78	27.69	4.78	29.56	370	66	A	V
802.11b CH 06 2437MHz		2321.76	51.9	-22.1	74	49	27.77	4.66	29.53	367	25	P	H
		2389.94	41.45	-12.55	54	38.53	27.7	4.78	29.56	367	25	A	H
	*	2437	109.47	-	-	106.56	27.66	4.82	29.57	367	25	P	H
	*	2437	106.39	-	-	103.48	27.66	4.82	29.57	367	25	A	H
		2488.59	51.69	-22.31	74	48.82	27.61	4.85	29.59	367	25	P	H
		2484.74	41.46	-12.54	54	38.57	27.63	4.85	29.59	367	25	A	H
		2329.88	52.41	-21.59	74	49.51	27.77	4.66	29.53	361	61	P	V
		2389.66	41.31	-12.69	54	38.38	27.7	4.78	29.55	361	61	A	V
	*	2437	108.04	-	-	105.13	27.66	4.82	29.57	361	61	P	V
	*	2437	104.91	-	-	102	27.66	4.82	29.57	361	61	A	V
		2485.44	52.1	-21.9	74	49.21	27.63	4.85	29.59	361	61	P	V
		2485.16	41.4	-12.6	54	38.51	27.63	4.85	29.59	361	61	A	V

802.11b CH 11 2462MHz	*	2462	108.89	-	-	106.01	27.64	4.82	29.58	354	25	P	H
	*	2462	105.33	-	-	102.45	27.64	4.82	29.58	354	25	A	H
		2487.2	56.09	-17.91	74	53.2	27.63	4.85	29.59	354	25	P	H
		2487.68	49.58	-4.42	54	46.71	27.61	4.85	29.59	354	25	A	H
	*	2462	107.21	-	-	104.33	27.64	4.82	29.58	353	63	P	V
	*	2462	104.14	-	-	101.26	27.64	4.82	29.58	353	63	A	V
		2488.68	54.79	-19.21	74	51.92	27.61	4.85	29.59	353	63	P	V
		2487.68	47.83	-6.17	54	44.96	27.61	4.85	29.59	353	63	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 12 2467MHz	*	2467	104.35	-	-	101.45	27.64	4.85	29.59	353	26	P	H
	*	2467	101.21	-	-	98.31	27.64	4.85	29.59	353	26	A	H
		2483.52	58.39	-15.61	74	55.5	27.63	4.85	29.59	353	26	P	H
		2483.56	52.7	-1.3	54	49.81	27.63	4.85	29.59	353	26	A	H
	*	2467	102.75	-	-	99.84	27.64	4.85	29.58	354	63	P	V
	*	2467	99.59	-	-	96.68	27.64	4.85	29.58	354	63	A	V
		2483.56	57.3	-16.7	74	54.41	27.63	4.85	29.59	354	63	P	V
		2483.52	50.06	-3.94	54	47.17	27.63	4.85	29.59	354	63	A	V
802.11b CH 13 2472MHz	*	2472	102.39	-	-	99.5	27.63	4.85	29.59	353	25	P	H
	*	2472	99.25	-	-	96.36	27.63	4.85	29.59	353	25	A	H
		2485.16	58.07	-15.93	74	55.18	27.63	4.85	29.59	353	25	P	H
		2487.04	52.98	-1.02	54	50.09	27.63	4.85	29.59	353	25	A	H
	*	2472	100.35	-	-	97.46	27.63	4.85	29.59	355	64	P	V
	*	2472	97.22	-	-	94.33	27.63	4.85	29.59	355	64	A	V
		2485.12	57.41	-16.59	74	54.52	27.63	4.85	29.59	355	64	P	V
		2484.84	51.06	-2.94	54	48.17	27.63	4.85	29.59	355	64	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 802.11b (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	46.8	-27.2	74	67.68	31.76	5.55	58.19	158	320	P	H
		4824	44.74	-29.26	74	65.62	31.76	5.55	58.19	141	214	P	V
802.11b CH 06 2437MHz		4874	46.4	-27.6	74	66.97	31.88	5.65	58.1	114	189	P	H
		7311	45.55	-28.45	74	59.33	36.88	7.26	57.92	189	238	P	H
		4874	42.67	-31.33	74	63.24	31.88	5.65	58.1	217	201	P	V
		7311	44.7	-29.3	74	58.48	36.88	7.26	57.92	100	89	P	V
802.11b CH 11 2462MHz		4924	44.57	-29.43	74	64.73	32	5.86	58.02	185	287	P	H
		7386	46.36	-27.64	74	59.6	37.21	7.2	57.65	189	238	P	H
		4924	41.42	-32.58	74	61.58	32	5.86	58.02	150	269	P	V
		7386	45.5	-28.5	74	58.74	37.21	7.2	57.65	178	238	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 12 2467MHz		4934	41.28	-32.72	74	61.44	32	5.86	58.02	189	178	P	H
		7401	46.42	-27.58	74	59.55	37.27	7.2	57.6	165	221	P	H
		4934	40.7	-33.3	74	60.86	32	5.86	58.02	157	254	P	V
		7401	44.63	-29.37	74	57.76	37.27	7.2	57.6	147	86	P	V
802.11b CH 13 2472MHz		4944	39.61	-34.39	74	59.7	32.04	5.86	57.99	158	189	P	H
		7416	44.79	-29.21	74	57.95	37.27	7.17	57.6	196	225	P	H
		4944	39.34	-34.66	74	59.43	32.04	5.86	57.99	178	29	P	V
		7416	46.02	-27.98	74	59.18	37.27	7.17	57.6	196	178	P	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. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable 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	68.11	-5.89	74	65.19	27.7	4.78	29.56	376	25	P	H
		2390	52.71	-1.29	54	49.79	27.7	4.78	29.56	376	25	A	H
	*	2412	107.08	-	-	104.17	27.69	4.78	29.56	376	25	P	H
	*	2412	99.66	-	-	96.75	27.69	4.78	29.56	376	25	A	H
		2390	66.85	-7.15	74	63.93	27.7	4.78	29.56	368	94	P	V
		2390	50.54	-3.46	54	47.62	27.7	4.78	29.56	368	94	A	V
	*	2412	106.92	-	-	104.01	27.69	4.78	29.56	368	94	P	V
	*	2412	99.36	-	-	96.45	27.69	4.78	29.56	368	94	A	V
802.11g CH 06 2437MHz		2383.64	53.56	-20.44	74	50.67	27.72	4.72	29.55	100	345	P	H
		2389.94	42.31	-11.69	54	39.39	27.7	4.78	29.56	100	345	A	H
	*	2437	111.71	-	-	108.8	27.66	4.82	29.57	100	345	P	H
	*	2437	104.25	-	-	101.34	27.66	4.82	29.57	100	345	A	H
		2484.53	56.36	-17.64	74	53.47	27.63	4.85	29.59	100	345	P	H
		2486.42	42.96	-11.04	54	40.07	27.63	4.85	29.59	100	345	A	H
		2353.4	52.45	-21.55	74	49.53	27.74	4.72	29.54	108	120	P	V
		2383.64	41.93	-12.07	54	39.04	27.72	4.72	29.55	108	120	A	V
	*	2437	105.93	-	-	103.02	27.66	4.82	29.57	108	120	P	V
	*	2437	98.4	-	-	95.49	27.66	4.82	29.57	108	120	A	V
		2491.39	52.52	-21.48	74	49.65	27.61	4.85	29.59	108	120	P	V
		2497.34	41.95	-12.05	54	39.09	27.61	4.85	29.6	108	120	A	V

802.11g CH 11 2462MHz	*	2462	106.33	-	-	103.45	27.64	4.82	29.58	400	29	P	H
	*	2462	98.64	-	-	95.76	27.64	4.82	29.58	400	29	A	H
		2483.84	69.98	-4.02	74	67.09	27.63	4.85	29.59	400	29	P	H
		2483.52	53.08	-0.92	54	50.19	27.63	4.85	29.59	400	29	A	H
	*	2462	105.5	-	-	102.62	27.64	4.82	29.58	399	89	P	V
	*	2462	97.6	-	-	94.72	27.64	4.82	29.58	399	89	A	V
		2483.56	69.62	-4.38	74	66.73	27.63	4.85	29.59	399	89	P	V
		2483.52	52.17	-1.83	54	49.28	27.63	4.85	29.59	399	89	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 12 2467MHz	*	2467	103.28	-	-	100.38	27.64	4.85	29.59	353	24	P	H
	*	2467	95.51	-	-	92.61	27.64	4.85	29.59	353	24	A	H
		2484	69.22	-4.78	74	66.33	27.63	4.85	29.59	353	24	P	H
		2483.52	52.47	-1.53	54	49.58	27.63	4.85	29.59	353	24	A	H
	*	2467	101.73	-	-	98.82	27.64	4.85	29.58	353	63	P	V
	*	2467	93.94	-	-	91.04	27.64	4.85	29.59	353	63	A	V
		2483.64	67.21	-6.79	74	64.32	27.63	4.85	29.59	353	63	P	V
		2483.52	50.14	-3.86	54	47.25	27.63	4.85	29.59	353	63	A	V
802.11g CH 13 2472MHz	*	2472	101.86	-	-	98.97	27.63	4.85	29.59	352	25	P	H
	*	2472	94.11	-	-	91.22	27.63	4.85	29.59	352	25	A	H
		2484	67.77	-6.23	74	64.88	27.63	4.85	29.59	352	25	P	H
		2483.52	53.2	-0.8	54	50.31	27.63	4.85	29.59	352	25	A	H
	*	2472	99.75	-	-	96.86	27.63	4.85	29.59	354	60	P	V
	*	2472	92.08	-	-	89.19	27.63	4.85	29.59	354	60	A	V
		2484.6	66.26	-7.74	74	63.37	27.63	4.85	29.59	354	60	P	V
		2483.52	51.01	-2.99	54	48.12	27.63	4.85	29.59	354	60	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 802.11g (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	40.13	-33.87	74	61.01	31.76	5.55	58.19	141	214	P	H
		4824	40.59	-33.41	74	61.47	31.76	5.55	58.19	158	320	P	V
802.11g CH 06 2437MHz		4874	39.94	-34.06	74	60.51	31.88	5.65	58.1	217	201	P	H
		7311	43.87	-30.13	74	57.65	36.88	7.26	57.92	100	140	P	H
		4874	39.05	-34.95	74	59.62	31.88	5.65	58.1	114	148	P	V
		7311	44.42	-29.58	74	58.2	36.88	7.26	57.92	189	238	P	V
802.11g CH 11 2462MHz		4924	38.28	-35.72	74	58.44	32	5.86	58.02	185	287	P	H
		7386	45	-29	74	58.24	37.21	7.2	57.65	189	238	P	H
		4924	37.48	-36.52	74	57.64	32	5.86	58.02	150	269	P	V
		7386	45.31	-28.69	74	58.55	37.21	7.2	57.65	189	238	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 12 2467MHz		4934	37.13	-36.87	74	57.29	32	5.86	58.02	157	254	P	H
		7401	44.92	-29.08	74	58.05	37.27	7.2	57.6	165	221	P	H
		4934	37.6	-36.4	74	57.76	32	5.86	58.02	186	122	P	V
		7401	45.57	-28.43	74	58.7	37.27	7.2	57.6	130	147	P	V
802.11g CH 13 2472MHz		4944	39.4	-34.6	74	59.49	32.04	5.86	57.99	158	29	P	H
		7416	44.99	-29.01	74	58.15	37.27	7.17	57.6	196	225	P	H
		4944	38.5	-35.5	74	58.59	32.04	5.86	57.99	174	29	P	V
		7416	45.94	-28.06	74	59.1	37.27	7.17	57.6	196	54	P	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. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.59	69	-5	74	66.07	27.7	4.78	29.55	167	119	P	H
		2390	52.49	-1.51	54	49.57	27.7	4.78	29.56	167	119	A	H
	*	2412	106.21	-	-	103.3	27.69	4.78	29.56	167	119	P	H
	*	2412	98.86	-	-	95.95	27.69	4.78	29.56	167	119	A	H
		2389.275	69.11	-4.89	74	66.18	27.7	4.78	29.55	368	94	P	V
		2390	51.69	-2.31	54	48.77	27.7	4.78	29.56	368	94	A	V
	*	2412	105.77	-	-	102.86	27.69	4.78	29.56	368	94	P	V
	*	2412	98.21	-	-	95.3	27.69	4.78	29.56	368	94	A	V
802.11n HT20 CH 06 2437MHz		2374.26	53.2	-20.8	74	50.31	27.72	4.72	29.55	189	360	P	H
		2389.94	42.68	-11.32	54	39.76	27.7	4.78	29.56	189	360	A	H
	*	2437	113.54	-	-	110.63	27.66	4.82	29.57	189	360	P	H
	*	2437	105.76	-	-	102.85	27.66	4.82	29.57	189	360	A	H
		2485.65	56.46	-17.54	74	53.57	27.63	4.85	29.59	189	360	P	H
		2483.62	43.1	-10.9	54	40.21	27.63	4.85	29.59	189	360	A	H
		2373.28	53.18	-20.82	74	50.29	27.72	4.72	29.55	362	265	P	V
		2389.8	42.02	-11.98	54	39.1	27.7	4.78	29.56	362	265	A	V
	*	2437	109.97	-	-	107.06	27.66	4.82	29.57	362	265	P	V
	*	2437	102.24	-	-	99.33	27.66	4.82	29.57	362	265	A	V
		2487.68	52.83	-21.17	74	49.96	27.61	4.85	29.59	362	265	P	V
		2484.74	42.39	-11.61	54	39.5	27.63	4.85	29.59	362	265	A	V

802.11n HT20 CH 10 2462MHz	*	2457	107.93	-	-	110.11	27.64	4.82	34.64	140	320	P	H
	*	2457	100.02	-	-	102.2	27.64	4.82	34.64	140	320	A	H
		2487	68.14	-5.86	74	70.28	27.63	4.85	34.62	140	320	P	H
		2484.36	50.46	-3.54	54	52.6	27.63	4.85	34.62	140	320	A	H
	*	2457	100.37	-	-	102.55	27.64	4.82	34.64	100	249	P	V
	*	2457	92.88	-	-	95.06	27.64	4.82	34.64	100	249	A	V
		2488.4	60.06	-13.94	74	62.22	27.61	4.85	34.62	100	249	P	V
		2483.52	41.93	-12.07	54	44.07	27.63	4.85	34.62	100	249	A	V
802.11n HT20 CH 11 2462MHz	*	2462	104.87	-	-	101.99	27.64	4.82	29.58	157	118	P	H
	*	2462	97.31	-	-	94.43	27.64	4.82	29.58	157	118	A	H
		2483.96	68.37	-5.63	74	65.48	27.63	4.85	29.59	157	118	P	H
		2483.52	52.32	-1.68	54	49.43	27.63	4.85	29.59	157	118	A	H
	*	2462	103.02	-	-	100.14	27.64	4.82	29.58	352	93	P	V
	*	2462	95.55	-	-	92.67	27.64	4.82	29.58	352	93	A	V
		2483.72	66.59	-7.41	74	63.7	27.63	4.85	29.59	352	93	P	V
		2483.52	50.1	-3.9	54	47.21	27.63	4.85	29.59	352	93	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 12 2467MHz	*	2467	102.79	-	-	99.89	27.64	4.85	29.59	159	118	P	H
	*	2467	95.07	-	-	92.17	27.64	4.85	29.59	159	118	A	H
		2485.08	67.92	-6.08	74	65.03	27.63	4.85	29.59	159	118	P	H
		2483.52	52.63	-1.37	54	49.74	27.63	4.85	29.59	159	118	A	H
	*	2467	100.66	-	-	97.76	27.64	4.85	29.59	353	93	P	V
	*	2467	93.12	-	-	90.22	27.64	4.85	29.59	353	93	A	V
		2483.68	67.27	-6.73	74	64.38	27.63	4.85	29.59	353	93	P	V
		2483.52	50.58	-3.42	54	47.69	27.63	4.85	29.59	353	93	A	V
802.11n HT20 CH 13 2472MHz	*	2472	100.62	-	-	97.73	27.63	4.85	29.59	161	119	P	H
	*	2472	93.17	-	-	90.28	27.63	4.85	29.59	161	119	A	H
		2483.64	67.75	-6.25	74	64.86	27.63	4.85	29.59	161	119	P	H
		2483.52	53.19	-0.81	54	50.3	27.63	4.85	29.59	161	119	A	H
	*	2472	99.46	-	-	96.57	27.63	4.85	29.59	346	92	P	V
	*	2472	91.45	-	-	88.56	27.63	4.85	29.59	346	92	A	V
		2483.84	69.38	-4.62	74	66.49	27.63	4.85	29.59	346	92	P	V
		2483.52	51.92	-2.08	54	49.03	27.63	4.85	29.59	346	92	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 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	40.64	-33.36	74	61.52	31.76	5.55	58.19	141	214	P	H
		4824	41.27	-32.73	74	62.15	31.76	5.55	58.19	158	320	P	V
802.11n HT20 CH 06 2437MHz		4874	39.7	-34.3	74	60.27	31.88	5.65	58.1	217	201	P	H
		7311	44.89	-29.11	74	58.67	36.88	7.26	57.92	100	140	P	H
		4874	38.99	-35.01	74	59.56	31.88	5.65	58.1	114	148	P	V
		7311	45.4	-28.6	74	59.18	36.88	7.26	57.92	189	238	P	V
802.11n HT20 CH 10 2462MHz		4914	38.58	-35.42	74	58.9	31.96	5.76	58.04	163	360	P	H
		7371	44.25	-29.75	74	57.59	37.14	7.23	57.71	163	360	P	H
		4914	38.02	-35.98	74	58.34	31.96	5.76	58.04	163	360	P	V
		7371	43.96	-30.04	74	57.3	37.14	7.23	57.71	163	360	P	V
802.11n HT20 CH 11 2462MHz		4924	37.72	-36.28	74	57.88	32	5.86	58.02	185	287	P	H
		7386	45.24	-28.76	74	58.48	37.21	7.2	57.65	189	238	P	H
		4924	38.15	-35.85	74	58.31	32	5.86	58.02	150	269	P	V
		7386	44.94	-29.06	74	58.18	37.21	7.2	57.65	189	238	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n		4934	37.73	-36.27	74	57.89	32	5.86	58.02	157	254	P	H
HT20		7401	45.76	-28.24	74	58.89	37.27	7.2	57.6	165	221	P	H
CH 12		4934	37.5	-36.5	74	57.66	32	5.86	58.02	114	89	P	V
2467MHz		7401	45.81	-28.19	74	58.94	37.27	7.2	57.6	176	254	P	V
802.11n		4944	39.31	-34.69	74	59.4	32.04	5.86	57.99	158	29	P	H
HT20		7416	45.41	-28.59	74	58.57	37.27	7.17	57.6	196	225	P	H
CH 13		4944	38.17	-35.83	74	58.26	32.04	5.86	57.99	174	29	P	V
2472MHz		7416	45.84	-28.16	74	59	37.27	7.17	57.6	196	54	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11g LF		30	24.94	-15.06	40	31.76	24.9	0.25	31.97	-	-	P	H
		135.73	23.26	-20.24	43.5	36.06	17.58	1.21	31.59	-	-	P	H
		199.75	27.84	-15.66	43.5	42.26	15.3	1.61	31.33	-	-	P	H
		299.66	30.78	-15.22	46	40.75	19.4	1.85	31.22	-	-	P	H
		374.35	33.68	-12.32	46	41.48	21.27	2.13	31.2	100	360	P	H
		659.53	30.4	-15.6	46	32.47	26.33	2.84	31.24	-	-	P	H
		44.55	31.51	-8.49	40	45.37	17.61	0.5	31.97	100	0	P	V
		135.73	29.1	-14.4	43.5	41.9	17.58	1.21	31.59	-	-	P	V
		198.78	27.55	-15.95	43.5	42	15.28	1.6	31.33	-	-	P	V
		299.66	29.74	-16.26	46	39.71	19.4	1.85	31.22	-	-	P	V
		633.34	30.04	-15.96	46	32.4	26.1	2.78	31.24	-	-	P	V
		902.03	34.04	-11.96	46	32.5	29.32	3.39	31.17	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		2385.705	52.71	-21.29	74	49.78	27.7	4.78	29.55	168	163	P	H
		2385.6	42.89	-11.11	54	39.96	27.7	4.78	29.55	168	163	A	H
	*	2412	107.27	-	-	104.36	27.69	4.78	29.56	168	163	P	H
	*	2412	104.11	-	-	101.2	27.69	4.78	29.56	168	163	A	H
		2374.05	52.66	-21.34	74	49.77	27.72	4.72	29.55	377	293	P	V
		2385.6	42.49	-11.51	54	39.56	27.7	4.78	29.55	377	293	A	V
	*	2412	106.1	-	-	103.19	27.69	4.78	29.56	377	293	P	V
	*	2412	103	-	-	100.09	27.69	4.78	29.56	377	293	A	V
802.11b CH 06 2437MHz		2377.9	52.26	-21.74	74	49.37	27.72	4.72	29.55	189	160	P	H
		2388.26	41.52	-12.48	54	38.59	27.7	4.78	29.55	189	160	A	H
	*	2437	106.78	-	-	103.87	27.66	4.82	29.57	189	160	P	H
	*	2437	103.84	-	-	100.93	27.66	4.82	29.57	189	160	A	H
		2485.51	52.43	-21.57	74	49.54	27.63	4.85	29.59	189	160	P	H
		2487.47	41.55	-12.45	54	38.66	27.63	4.85	29.59	189	160	A	H
		2339.96	52.48	-21.52	74	49.61	27.75	4.66	29.54	358	317	P	V
		2389.1	41.43	-12.57	54	38.5	27.7	4.78	29.55	358	317	A	V
	*	2437	105.18	-	-	102.27	27.66	4.82	29.57	358	317	P	V
	*	2437	102.19	-	-	99.28	27.66	4.82	29.57	358	317	A	V
		2486.49	52.3	-21.7	74	49.41	27.63	4.85	29.59	358	317	P	V
		2486.14	41.5	-12.5	54	38.61	27.63	4.85	29.59	358	317	A	V

802.11b CH 11 2462MHz	*	2462	107.5	-	-	104.62	27.64	4.82	29.58	213	172	P	H
	*	2462	104.52	-	-	101.64	27.64	4.82	29.58	213	172	A	H
		2492.6	53.44	-20.56	74	50.58	27.61	4.85	29.6	213	172	P	H
		2483.52	43.65	-10.35	54	40.76	27.63	4.85	29.59	213	172	A	H
	*	2462	106.27	-	-	103.39	27.64	4.82	29.58	351	318	P	V
	*	2462	103.21	-	-	100.33	27.64	4.82	29.58	351	318	A	V
		2487.36	53.89	-20.11	74	51	27.63	4.85	29.59	351	318	P	V
		2483.52	42.95	-11.05	54	40.06	27.63	4.85	29.59	351	318	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 12 2467MHz	*	2467	105.69	-	-	102.79	27.64	4.85	29.59	212	173	P	H
	*	2467	102.51	-	-	99.61	27.64	4.85	29.59	212	173	A	H
		2483.68	59.28	-14.72	74	56.39	27.63	4.85	29.59	212	173	P	H
		2483.52	53.22	-0.78	54	50.33	27.63	4.85	29.59	212	173	A	H
	*	2467	103.44	-	-	100.54	27.64	4.85	29.59	394	276	P	V
	*	2467	100.38	-	-	97.48	27.64	4.85	29.59	394	276	A	V
		2483.84	58.59	-15.41	74	55.7	27.63	4.85	29.59	394	276	P	V
		2483.52	52.03	-1.97	54	49.14	27.63	4.85	29.59	394	276	A	V
802.11b CH 13 2472MHz	*	2472	102.26	-	-	99.37	27.63	4.85	29.59	214	170	P	H
	*	2472	99.2	-	-	96.31	27.63	4.85	29.59	214	170	A	H
		2487.24	58.67	-15.33	74	55.78	27.63	4.85	29.59	214	170	P	H
		2487.04	53.32	-0.68	54	50.43	27.63	4.85	29.59	214	170	A	H
	*	2472	97.61	-	-	94.72	27.63	4.85	29.59	113	105	P	V
	*	2472	94.47	-	-	91.58	27.63	4.85	29.59	113	105	A	V
		2487.08	56.34	-17.66	74	53.45	27.63	4.85	29.59	113	105	P	V
		2487.04	49.58	-4.42	54	46.69	27.63	4.85	29.59	113	105	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 802.11b (Harmonic @ 3m)

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	43.23	-30.77	74	64.11	31.76	5.55	58.19	141	214	P	H
		4824	42.45	-31.55	74	63.33	31.76	5.55	58.19	158	320	P	V
802.11b CH 06 2437MHz		4874	43.55	-30.45	74	64.12	31.88	5.65	58.1	114	148	P	H
		7311	45.45	-28.55	74	59.23	36.88	7.26	57.92	189	238	P	H
		4874	41.36	-32.64	74	61.93	31.88	5.65	58.1	217	201	P	V
		7311	45.09	-28.91	74	58.87	36.88	7.26	57.92	100	140	P	V
802.11b CH 11 2462MHz		4924	42.98	-31.02	74	63.14	32	5.86	58.02	185	287	P	H
		7386	45.47	-28.53	74	58.71	37.21	7.2	57.65	189	238	P	H
		4924	41	-33	74	61.16	32	5.86	58.02	150	269	P	V
		7386	45.98	-28.02	74	59.22	37.21	7.2	57.65	189	238	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 12 2467MHz		4934	42.9	-31.1	74	63.06	32	5.86	58.02	157	254	P	H
		7401	45.29	-28.71	74	58.42	37.27	7.2	57.6	165	221	P	H
		4934	39.84	-34.16	74	60	32	5.86	58.02	187	254	P	V
		7401	44.76	-29.24	74	57.89	37.27	7.2	57.6	165	98	P	V
802.11b CH 13 2472MHz		4944	38.24	-35.76	74	58.33	32.04	5.86	57.99	174	29	P	H
		7416	45.72	-28.28	74	58.88	37.27	7.17	57.6	196	48	P	H
		4944	38.66	-35.34	74	58.75	32.04	5.86	57.99	147	56	P	V
		7416	44.98	-29.02	74	58.14	37.27	7.17	57.6	196	225	P	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. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2390	70.04	-3.96	74	67.12	27.7	4.78	29.56	192	151	P	H
		2390	53.29	-0.71	54	50.37	27.7	4.78	29.56	192	151	A	H
	*	2412	107.89	-	-	104.98	27.69	4.78	29.56	192	151	P	H
	*	2412	100.71	-	-	97.8	27.69	4.78	29.56	192	151	A	H
		2389.695	64.94	-9.06	74	62.01	27.7	4.78	29.55	100	105	P	V
		2390	48.13	-5.87	54	45.21	27.7	4.78	29.56	100	105	A	V
	*	2414	101.97	-	-	99.06	27.69	4.78	29.56	100	105	P	V
	*	2412	94.61	-	-	91.7	27.69	4.78	29.56	100	105	A	V
802.11g CH 06 2437MHz		2373.7	53.53	-20.47	74	50.64	27.72	4.72	29.55	141	139	P	H
		2389.8	43.1	-10.9	54	40.18	27.7	4.78	29.56	141	139	A	H
	*	2437	113.92	39.92	74	111.01	27.66	4.82	29.57	141	139	P	H
	*	2437	106.44	52.44	54	103.53	27.66	4.82	29.57	141	139	A	H
		2488.8	60.84	-13.16	74	57.97	27.61	4.85	29.59	141	139	P	H
		2484.25	43.89	-10.11	54	41	27.63	4.85	29.59	141	139	A	H
		2313.5	53.12	-20.88	74	50.2	27.79	4.66	29.53	125	240	P	V
		2389.66	42.15	-11.85	54	39.22	27.7	4.78	29.55	125	240	A	V
	*	2437	104.46	30.46	74	101.55	27.66	4.82	29.57	125	240	P	V
	*	2437	97.1	43.1	54	94.19	27.66	4.82	29.57	125	240	A	V
		2495.03	52.41	-21.59	74	49.55	27.61	4.85	29.6	125	240	P	V
		2487.19	41.95	-12.05	54	39.06	27.63	4.85	29.59	125	240	A	V

802.11g CH 10 2457MHz	*	2457	112.86	-	-	115.04	27.64	4.82	34.64	224	164	P	H
	*	2457	105.36	-	-	107.54	27.64	4.82	34.64	224	164	A	H
		2485.56	71.77	-2.23	74	73.91	27.63	4.85	34.62	224	164	P	H
		2483.52	52.72	-1.28	54	54.86	27.63	4.85	34.62	224	164	A	H
	*	2457	107.26	-	-	109.44	27.64	4.82	34.64	100	97	P	V
	*	2457	99.66	-	-	101.84	27.64	4.82	34.64	100	97	A	V
		2485.24	66.76	-7.24	74	68.9	27.63	4.85	34.62	100	97	P	V
		2483.52	47.97	-6.03	54	50.11	27.63	4.85	34.62	100	97	A	V
802.11g CH 11 2462MHz	*	2462	108.42	-	-	105.54	27.64	4.82	29.58	185	150	P	H
	*	2462	100.89	-	-	98.01	27.64	4.82	29.58	185	150	A	H
		2483.6	67.92	-6.08	74	65.03	27.63	4.85	29.59	185	150	P	H
		2483.52	52.88	-1.12	54	49.99	27.63	4.85	29.59	185	150	A	H
	*	2462	103.34	-	-	100.46	27.64	4.82	29.58	161	45	P	V
	*	2462	95.95	-	-	93.07	27.64	4.82	29.58	161	45	A	V
		2483.52	64.88	-9.12	74	61.99	27.63	4.85	29.59	161	45	P	V
		2483.52	49.46	-4.54	54	46.57	27.63	4.85	29.59	161	45	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 12 2467MHz	*	2467	104.77	-	-	101.87	27.64	4.85	29.59	161	184	P	H
	*	2467	97.19	-	-	94.29	27.64	4.85	29.59	161	184	A	H
		2484	70.18	-3.82	74	67.29	27.63	4.85	29.59	161	184	P	H
		2483.52	52.76	-1.24	54	49.87	27.63	4.85	29.59	161	184	A	H
	*	2467	100.92	-	-	98.02	27.64	4.85	29.59	150	45	P	V
	*	2467	93.23	-	-	90.33	27.64	4.85	29.59	150	45	A	V
		2483.84	65.82	-8.18	74	62.93	27.63	4.85	29.59	150	45	P	V
		2483.52	49.28	-4.72	54	46.39	27.63	4.85	29.59	150	45	A	V
802.11g CH 13 2472MHz	*	2472	101.97	-	-	99.08	27.63	4.85	29.59	160	184	P	H
	*	2472	94.26	-	-	91.37	27.63	4.85	29.59	160	184	A	H
		2486.8	69.72	-4.28	74	66.83	27.63	4.85	29.59	160	184	P	H
		2483.52	52.54	-1.46	54	49.65	27.63	4.85	29.59	160	184	A	H
	*	2472	97.8	-	-	94.91	27.63	4.85	29.59	160	46	P	V
	*	2472	90.08	-	-	87.19	27.63	4.85	29.59	160	46	A	V
		2486.36	66.97	-7.03	74	64.08	27.63	4.85	29.59	160	46	P	V
		2483.52	49.63	-4.37	54	46.74	27.63	4.85	29.59	160	46	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 802.11g (Harmonic @ 3m)

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	40.67	-33.33	74	61.55	31.76	5.55	58.19	141	214	P	H
		4824	40.26	-33.74	74	61.14	31.76	5.55	58.19	158	320	P	V
802.11g CH 06 2437MHz		4874	39.28	-34.72	74	59.85	31.88	5.65	58.1	217	201	P	H
		7311	44.04	-29.96	74	57.82	36.88	7.26	57.92	100	140	P	H
		4874	39.24	-34.76	74	59.81	31.88	5.65	58.1	114	148	P	V
		7311	45.09	-28.91	74	58.87	36.88	7.26	57.92	189	238	P	V
802.11g CH 10 2457MHz		4914	39.45	-34.55	74	59.77	31.96	5.76	58.04	163	360	P	H
		7371	42.27	-31.73	74	55.61	37.14	7.23	57.71	163	360	P	H
		4914	38.77	-35.23	74	59.09	31.96	5.76	58.04	163	360	P	V
		7371	43.87	-30.13	74	57.21	37.14	7.23	57.71	163	360	P	V
802.11g CH 11 2462MHz		4924	37.62	-36.38	74	57.78	32	5.86	58.02	185	287	P	H
		7386	45.35	-28.65	74	58.59	37.21	7.2	57.65	189	238	P	H
		4924	38.29	-35.71	74	58.45	32	5.86	58.02	150	269	P	V
		7386	45.21	-28.79	74	58.45	37.21	7.2	57.65	189	238	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 12 2467MHz		4934	37.51	-36.49	74	57.67	32	5.86	58.02	134	187	P	H
		7401	45.11	-28.89	74	58.24	37.27	7.2	57.6	224	163	P	H
		4934	38.71	-35.29	74	58.87	32	5.86	58.02	157	254	P	V
		7401	45.21	-28.79	74	58.34	37.27	7.2	57.6	165	221	P	V
802.11g CH 13 2472MHz		4944	38.97	-35.03	74	59.06	32.04	5.86	57.99	158	29	P	H
		7416	46.23	-27.77	74	59.39	37.27	7.17	57.6	196	225	P	H
		4944	38.22	-35.78	74	58.31	32.04	5.86	57.99	174	29	P	V
		7416	45.44	-28.56	74	58.6	37.27	7.17	57.6	196	54	P	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. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2390	67.2	-6.8	74	64.28	27.7	4.78	29.56	214	163	P	H
		2390	52.89	-1.11	54	49.97	27.7	4.78	29.56	214	163	A	H
	*	2412	106.56	-	-	103.65	27.69	4.78	29.56	214	163	P	H
	*	2412	99.02	-	-	96.11	27.69	4.78	29.56	214	163	A	H
		2389.485	67.45	-6.55	74	64.52	27.7	4.78	29.55	328	297	P	V
		2390	50.51	-3.49	54	47.59	27.7	4.78	29.56	328	297	A	V
	*	2412	105.73	-	-	102.82	27.69	4.78	29.56	328	297	P	V
	*	2412	98.23	-	-	95.32	27.69	4.78	29.56	328	297	A	V
802.11n HT20 CH 02 2417MHz		2388.33	69.38	-4.62	74	71.6	27.7	4.78	34.7	261	162	P	H
		2390	50.69	-3.31	54	52.89	27.7	4.78	34.68	261	162	A	H
	*	2417	109.39	-	-	111.58	27.69	4.78	34.66	261	162	P	H
	*	2417	102.42	-	-	104.61	27.69	4.78	34.66	261	162	A	H
		2388.855	65.53	-8.47	74	67.75	27.7	4.78	34.7	100	117	P	V
		2390	45.38	-8.62	54	47.58	27.7	4.78	34.68	100	117	A	V
	*	2417	103.81	-	-	106	27.69	4.78	34.66	100	117	P	V
	*	2417	96.22	-	-	98.41	27.69	4.78	34.66	100	117	A	V
802.11n HT20 CH 06 2437MHz		2383.22	52.89	-21.11	74	50	27.72	4.72	29.55	142	140	P	H
		2389.94	43.03	-10.97	54	40.11	27.7	4.78	29.56	142	140	A	H
	*	2437	113.69	-	-	110.78	27.66	4.82	29.57	142	140	P	H
	*	2437	106.23	-	-	103.32	27.66	4.82	29.57	142	140	A	H
		2484.81	61.18	-12.82	74	58.29	27.63	4.85	29.59	142	140	P	H
		2483.62	44.32	-9.68	54	41.43	27.63	4.85	29.59	142	140	A	H
		2352.98	52.77	-21.23	74	49.85	27.74	4.72	29.54	124	240	P	V
		2387.56	41.79	-12.21	54	38.86	27.7	4.78	29.55	124	240	A	V
	*	2437	104	-	-	101.09	27.66	4.82	29.57	124	240	P	V
	*	2437	96.71	-	-	93.8	27.66	4.82	29.57	124	240	A	V
		2490.2	52.5	-21.5	74	49.63	27.61	4.85	29.59	124	240	P	V
		2496.57	41.87	-12.13	54	39.01	27.61	4.85	29.6	124	240	A	V

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 10 2457MHz	*	2457	109.15	-	-	111.33	27.64	4.82	34.64	100	17	P	H
	*	2457	100.92	-	-	103.1	27.64	4.82	34.64	100	17	A	H
		2487.04	69.36	-4.64	74	71.5	27.63	4.85	34.62	100	17	P	H
		2483.52	50.24	-3.76	54	52.38	27.63	4.85	34.62	100	17	A	H
	*	2457	103.75	-	-	105.93	27.64	4.82	34.64	104	115	P	V
	*	2457	96.08	-	-	98.26	27.64	4.82	34.64	104	115	A	V
		2484.28	61.23	-12.77	74	63.37	27.63	4.85	34.62	104	115	P	V
		2483.52	43.16	-10.84	54	45.3	27.63	4.85	34.62	104	115	A	V
802.11n HT20 CH 11 2462MHz	*	2462	105.86	-	-	102.98	27.64	4.82	29.58	209	164	P	H
	*	2462	98.03	-	-	95.15	27.64	4.82	29.58	209	164	A	H
		2483.6	70.8	-3.2	74	67.91	27.63	4.85	29.59	209	164	P	H
		2483.56	52.55	-1.45	54	49.66	27.63	4.85	29.59	209	164	A	H
	*	2462	104.18	-	-	101.3	27.64	4.82	29.58	400	287	P	V
	*	2462	96.53	-	-	93.65	27.64	4.82	29.58	400	287	A	V
		2483.72	66.19	-7.81	74	63.3	27.63	4.85	29.59	400	287	P	V
		2483.52	50.84	-3.16	54	47.95	27.63	4.85	29.59	400	287	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 12 2467MHz	*	2467	104.4	-	-	101.5	27.64	4.85	29.59	213	166	P	H
	*	2467	96.73	-	-	93.83	27.64	4.85	29.59	213	166	A	H
		2485.44	70.43	-3.57	74	67.54	27.63	4.85	29.59	213	166	P	H
		2483.52	52.56	-1.44	54	49.67	27.63	4.85	29.59	213	166	A	H
	*	2467	101.94	-	-	99.04	27.64	4.85	29.59	400	291	P	V
	*	2468	94.5	-	-	91.6	27.64	4.85	29.59	400	291	A	V
		2483.96	68.56	-5.44	74	65.67	27.63	4.85	29.59	400	291	P	V
		2483.52	51.87	-2.13	54	48.98	27.63	4.85	29.59	400	291	A	V
802.11n HT20 CH 13 2472MHz	*	2472	102.46	-	-	99.57	27.63	4.85	29.59	211	164	P	H
	*	2472	94.41	-	-	91.52	27.63	4.85	29.59	211	164	A	H
		2483.92	68.5	-5.5	74	65.61	27.63	4.85	29.59	211	164	P	H
		2483.52	52.56	-1.44	54	49.67	27.63	4.85	29.59	211	164	A	H
	*	2472	100.13	-	-	97.24	27.63	4.85	29.59	353	294	P	V
	*	2472	92.72	-	-	89.83	27.63	4.85	29.59	353	294	A	V
		2483.56	67.71	-6.29	74	64.82	27.63	4.85	29.59	353	294	P	V
		2483.52	52.28	-1.72	54	49.39	27.63	4.85	29.59	353	294	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 (Harmonic @ 3m)

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	39.99	-34.01	74	60.87	31.76	5.55	58.19	141	214	P	H
		4824	40.44	-33.56	74	61.32	31.76	5.55	58.19	158	320	P	V
802.11n HT20 CH 02 2417MHz		4834	40.64	-33.36	74	61.45	31.8	5.55	58.16	161	360	P	H
		7251	45.16	-28.84	74	59.25	36.68	7.32	58.09	161	360	P	H
		4834	39.07	-34.93	74	59.88	31.8	5.55	58.16	161	360	P	V
		7251	44.36	-29.64	74	58.45	36.68	7.32	58.09	161	360	P	V
802.11n HT20 CH 06 2437MHz		4874	40.27	-33.73	74	60.84	31.88	5.65	58.1	217	201	P	H
		7311	45.25	-28.75	74	59.03	36.88	7.26	57.92	100	140	P	H
		4874	39.87	-34.13	74	60.44	31.88	5.65	58.1	114	148	P	V
		7311	45.04	-28.96	74	58.82	36.88	7.26	57.92	189	238	P	V
802.11n HT20 CH 10 2457MHz		4914	37.9	-36.1	74	58.22	31.96	5.76	58.04	161	360	P	H
		7371	43.8	-30.2	74	57.14	37.14	7.23	57.71	161	360	P	H
		4914	38.33	-35.67	74	58.65	31.96	5.76	58.04	161	360	P	V
		7371	44.32	-29.68	74	57.66	37.14	7.23	57.71	161	360	P	V
802.11n HT20 CH 11 2462MHz		4924	37.96	-36.04	74	58.12	32	5.86	58.02	185	287	P	H
		7386	45.38	-28.62	74	58.62	37.21	7.2	57.65	189	238	P	H
		4924	37.72	-36.28	74	57.88	32	5.86	58.02	150	269	P	V
		7386	45.14	-28.86	74	58.38	37.21	7.2	57.65	189	238	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n		4934	37.43	-36.57	74	57.59	32	5.86	58.02	151	69	P	H
HT20		7401	44.99	-29.01	74	58.12	37.27	7.2	57.6	165	221	P	H
CH 12		4934	36.74	-37.26	74	56.9	32	5.86	58.02	157	254	P	V
2467MHz		7401	45.29	-28.71	74	58.42	37.27	7.2	57.6	182	96	P	V
802.11n		4944	38.36	-35.64	74	58.45	32.04	5.86	57.99	158	29	P	H
HT20		7416	45.53	-28.47	74	58.69	37.27	7.17	57.6	196	225	P	H
CH 13		4944	38.5	-35.5	74	58.59	32.04	5.86	57.99	174	29	P	V
2472MHz		7416	45.91	-28.09	74	59.07	37.27	7.17	57.6	196	54	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11b (LF)

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
2.4GHz 802.11b LF		30	24.44	-15.56	40	31.26	24.9	0.25	31.97	-	-	P	H
		135.73	22.39	-21.11	43.5	35.19	17s.58	1.21	31.59	-	-	P	H
		200.72	27.59	-15.91	43.5	42.01	15.3	1.61	31.33	-	-	P	H
		374.35	32.12	-13.88	46	39.92	21.27	2.13	31.2	100	360	P	H
		579.99	28.71	-17.29	46	31.9	25.43	2.64	31.26	-	-	P	H
		659.53	31.16	-14.84	46	33.23	26.33	2.84	31.24	-	-	P	H
		44.55	30.84	-9.16	40	44.7	17.61	0.5	31.97	100	0	P	V
		134.76	28.24	-15.26	43.5	41.05	17.58	1.21	31.6	-	-	P	V
		322.94	28.98	-17.02	46	38.25	19.98	1.97	31.22	-	-	P	V
		486.87	31.34	-14.66	46	36.47	23.72	2.39	31.24	-	-	P	V
		604.24	29.91	-16.09	46	32.64	25.83	2.71	31.27	-	-	P	V
		902.03	32.97	-13.03	46	31.43	29.32	3.39	31.17	-	-	P	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.	
1		(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 B. Radiated Spurious Emission Plots

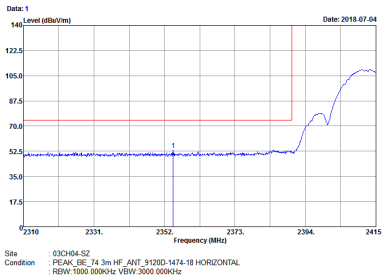
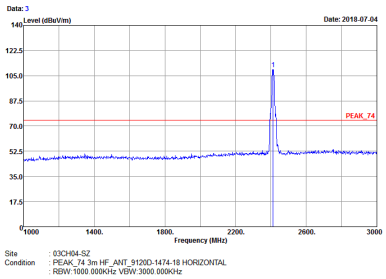
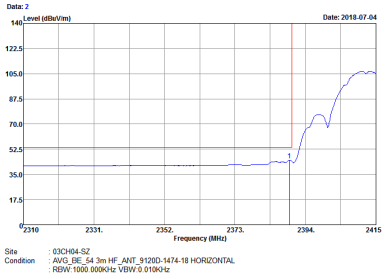
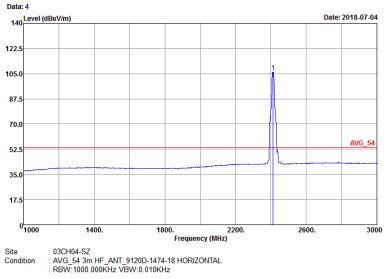
Test Engineer :	Feiyan Zhang	**Temperature :**	22~25°C
		Relative Humidity :	48~52%

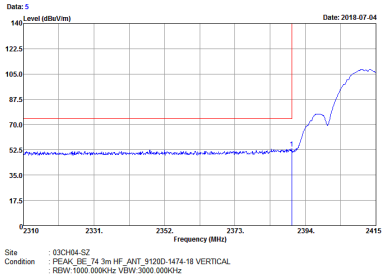
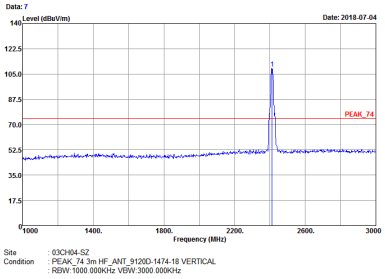
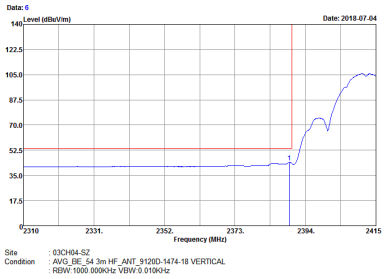
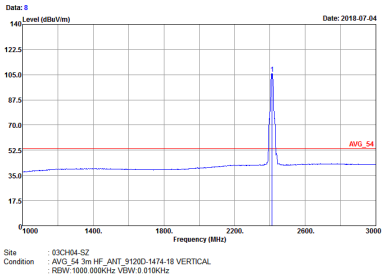
Note symbol

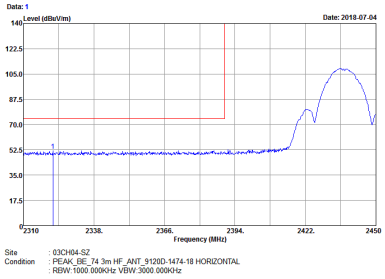
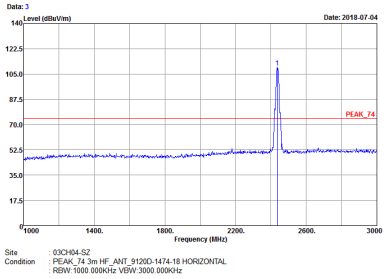
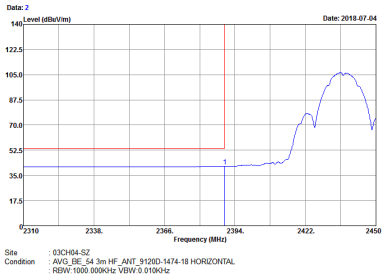
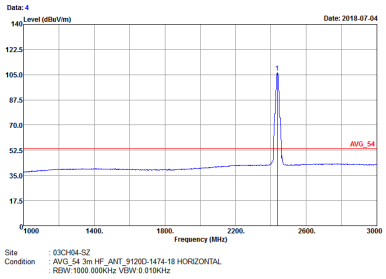
-L	**Low channel location**
-R	**High channel location**

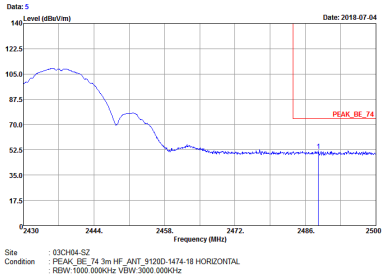
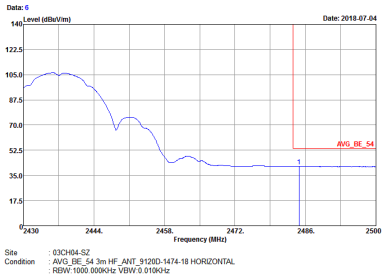
2.4GHz 2400~2483.5MHz

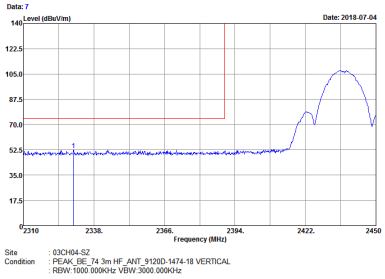
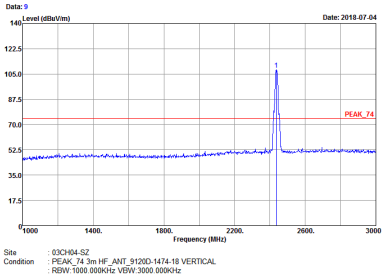
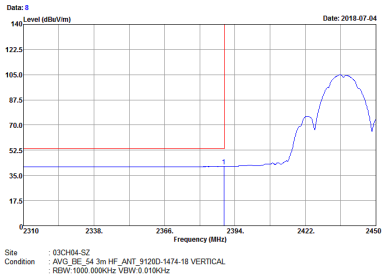
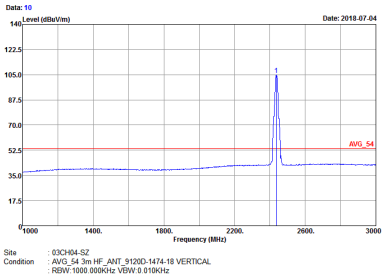
WIFI 802.11b (Band Edge @ 3m)

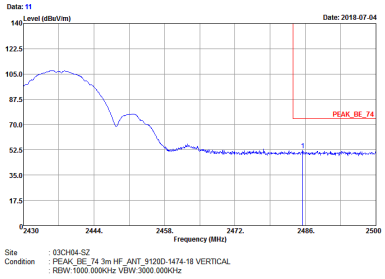
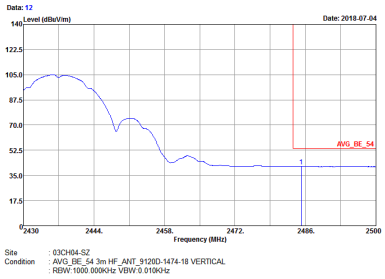
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

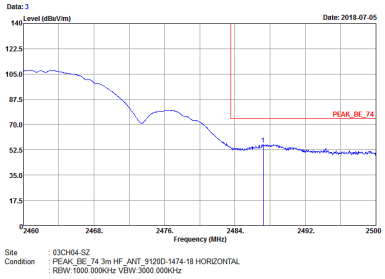
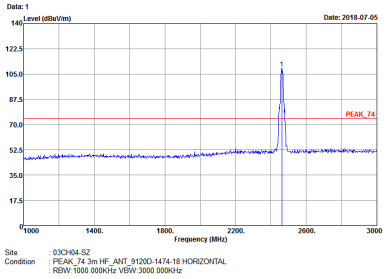
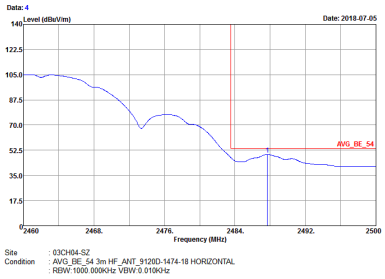
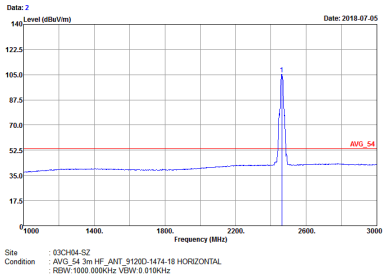
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

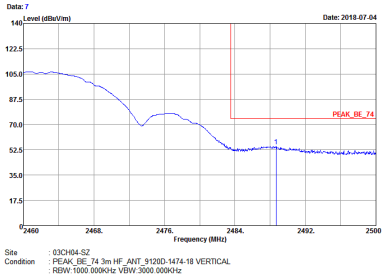
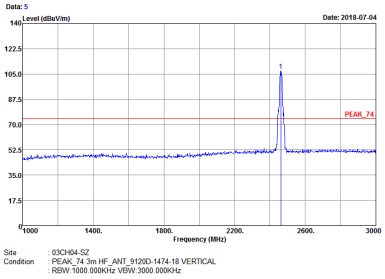
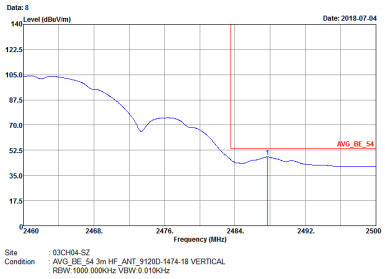
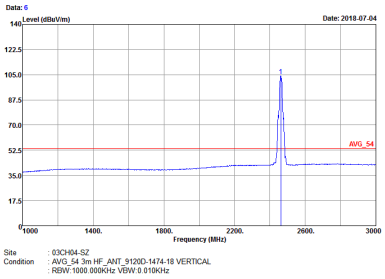
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

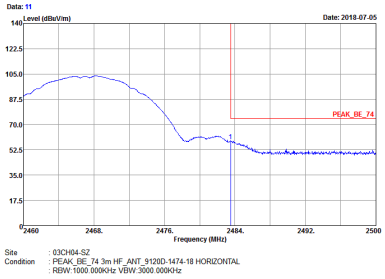
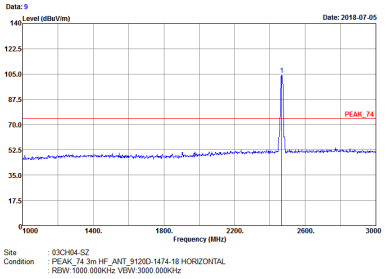
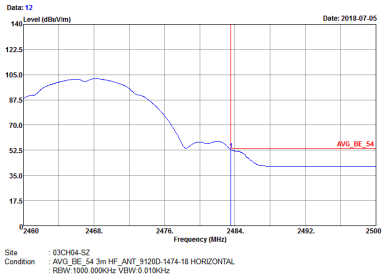
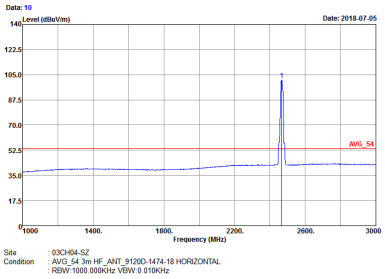
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

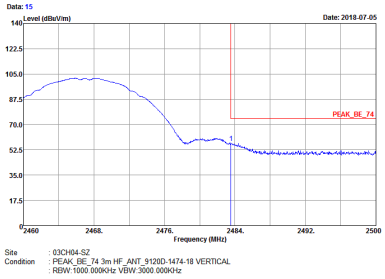
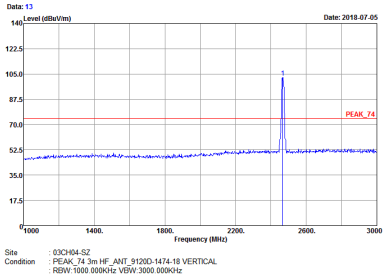
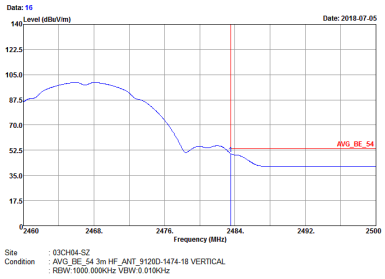
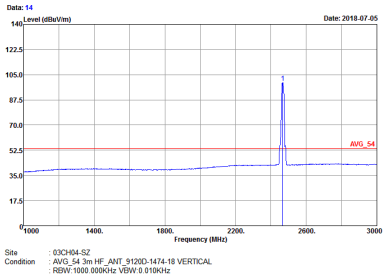
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

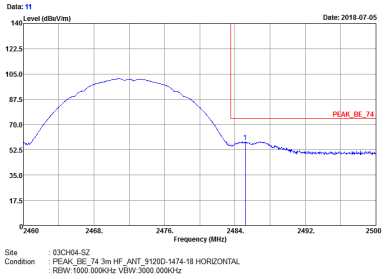
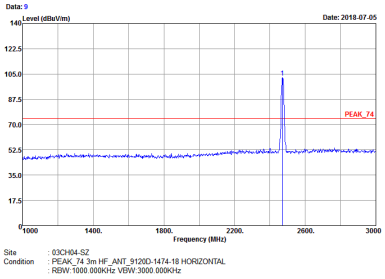
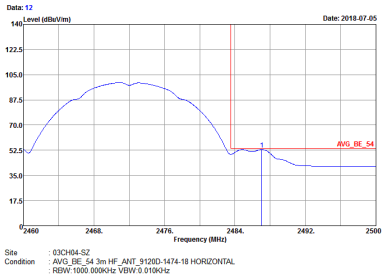
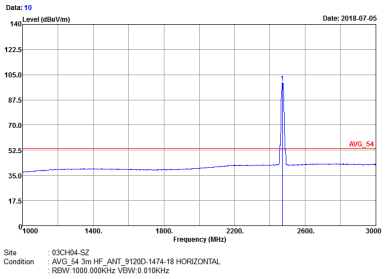
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

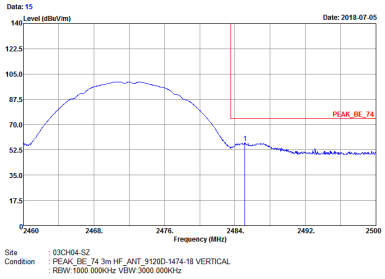
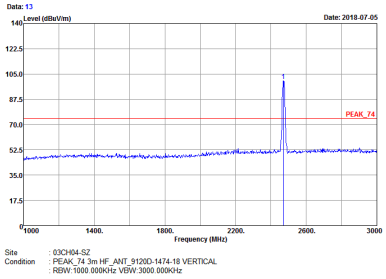
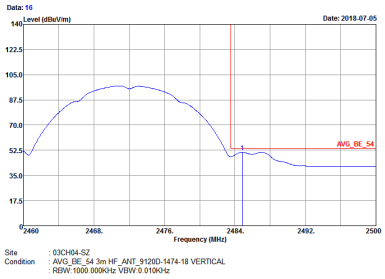
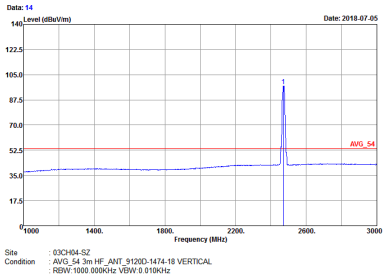
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

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

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH12 2467MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

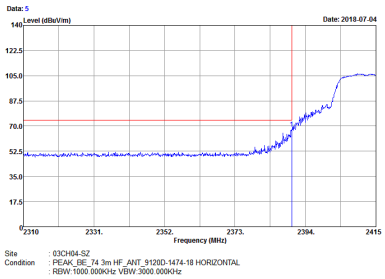
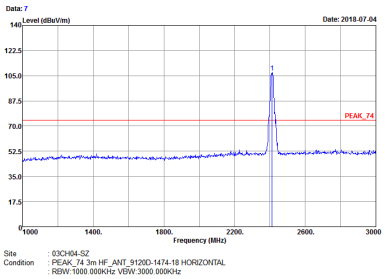
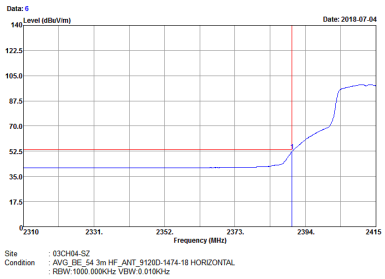
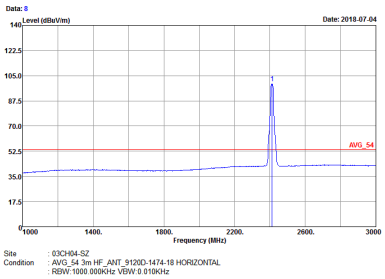
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH12 2467MHz	
1	Vertical	Fundamental
Peak		
Avg.		

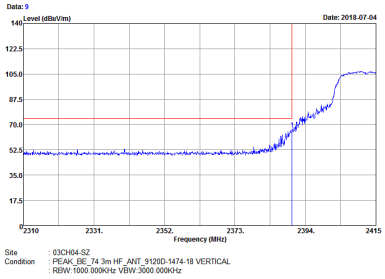
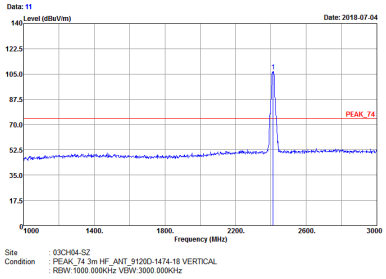
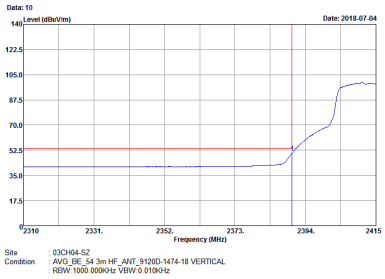
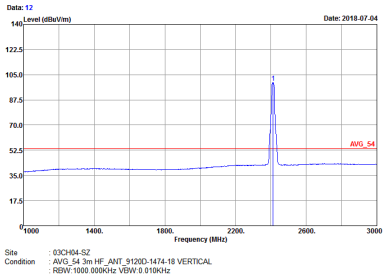
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH13 2472MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

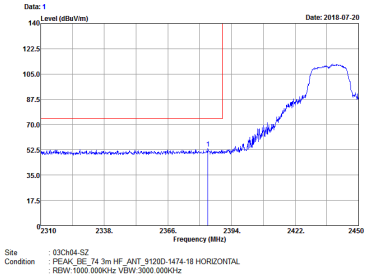
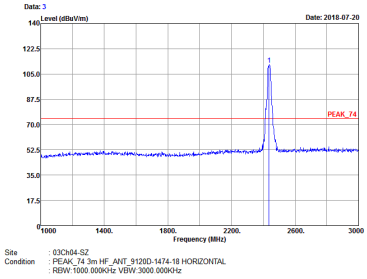
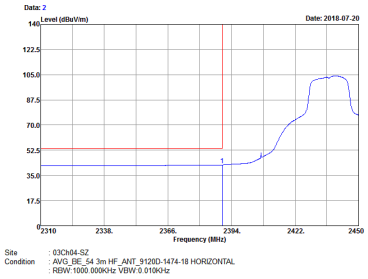
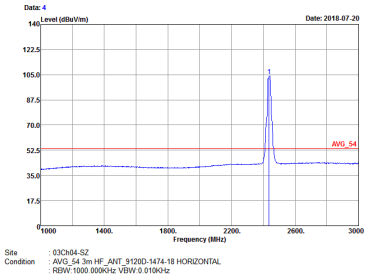
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH13 2472MHz	
1	Vertical	Fundamental
Peak		
Avg.		

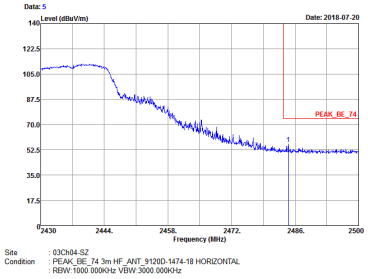
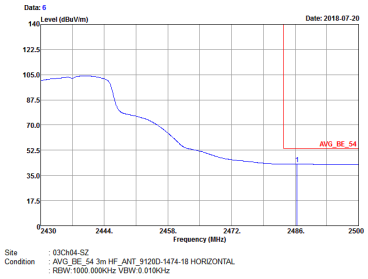
2.4GHz 2400~2483.5MHz

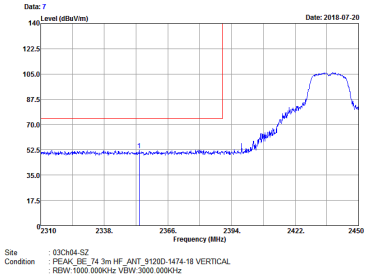
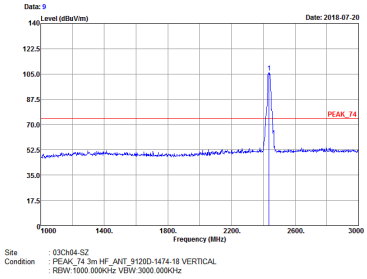
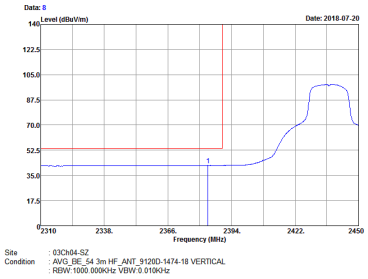
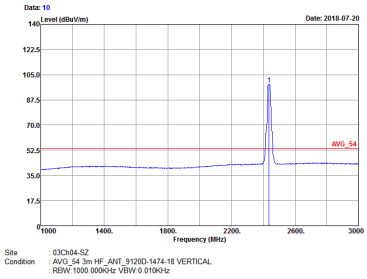
WIFI 802.11g (Band Edge @ 3m)

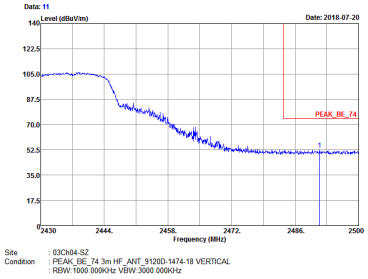
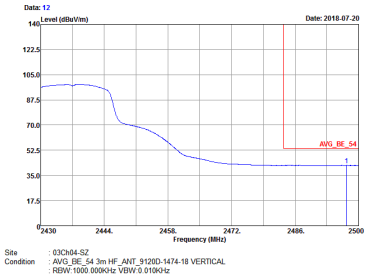
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

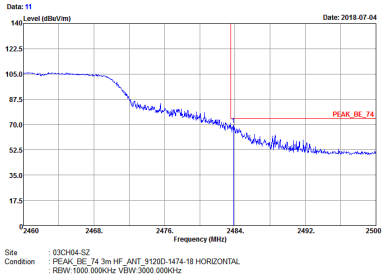
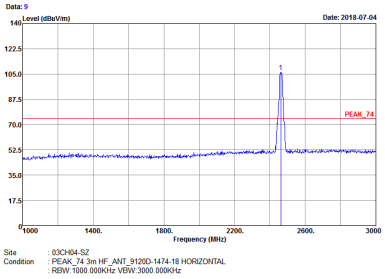
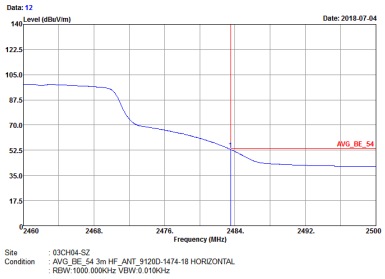
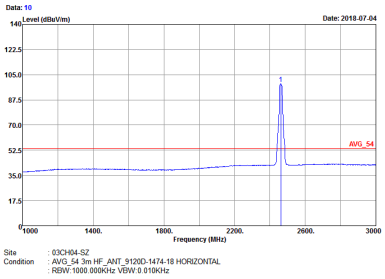
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

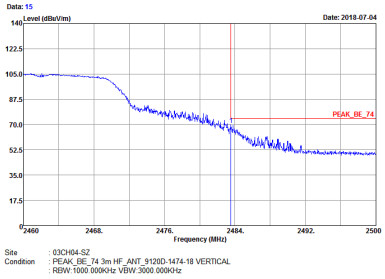
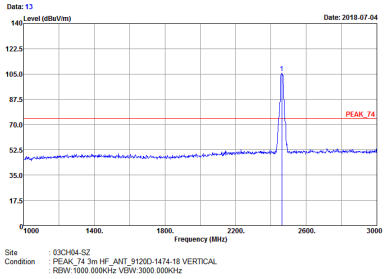
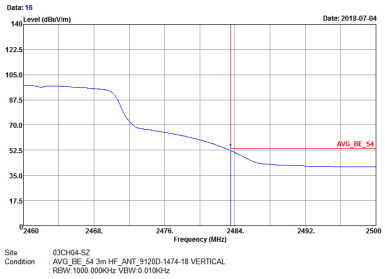
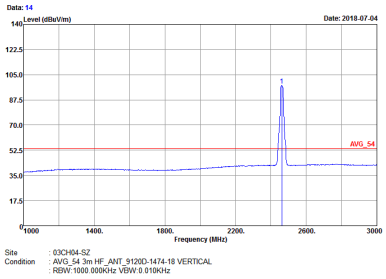
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

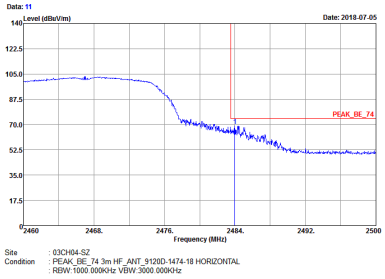
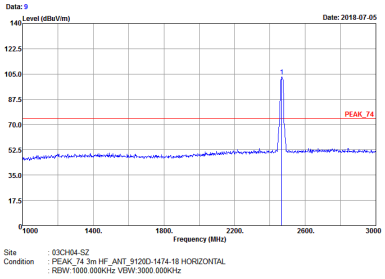
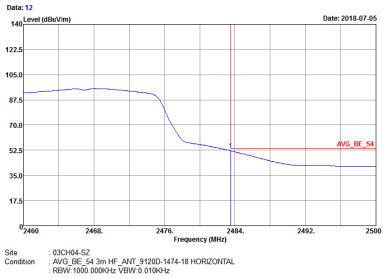
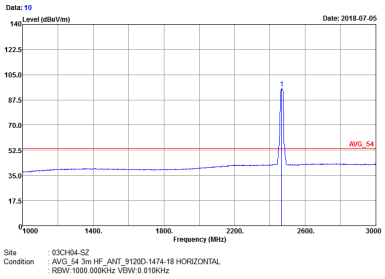
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

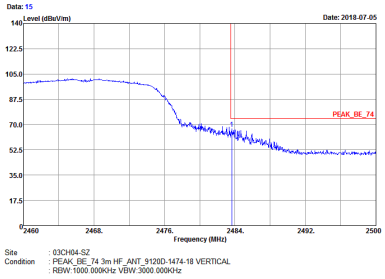
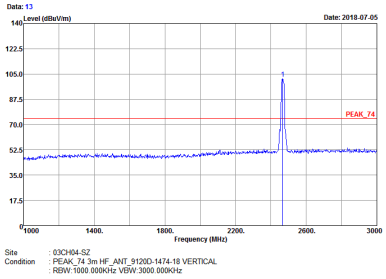
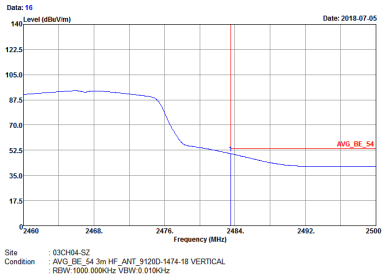
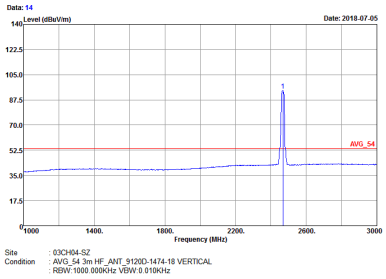
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

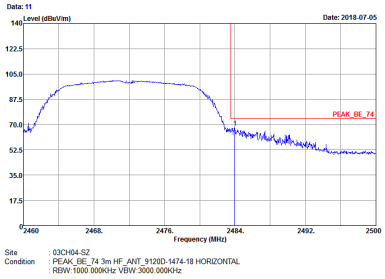
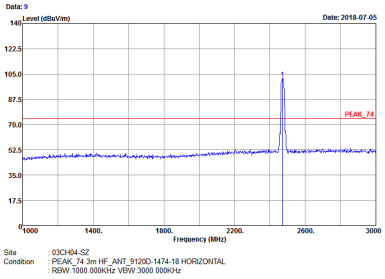
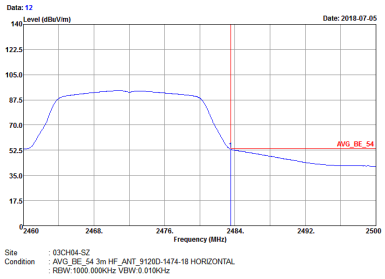
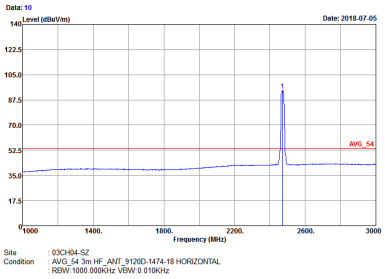
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

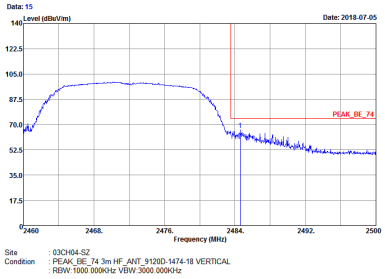
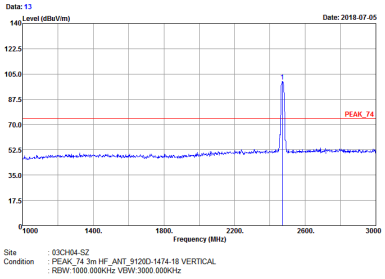
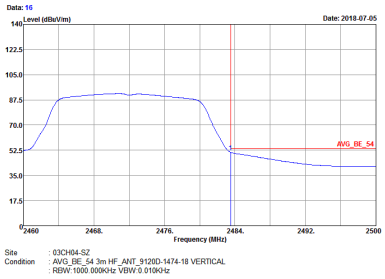
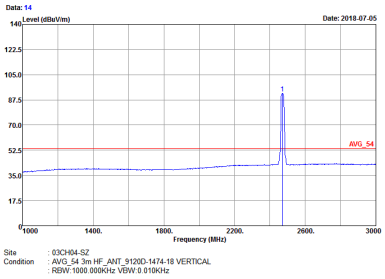
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

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

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH12 2467MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

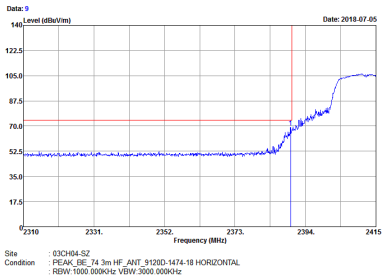
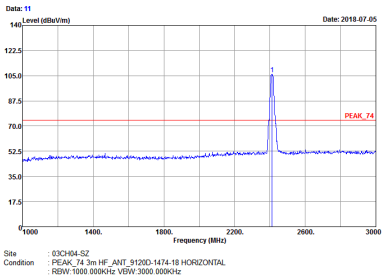
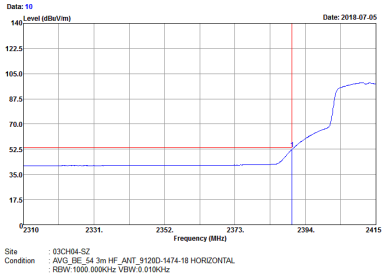
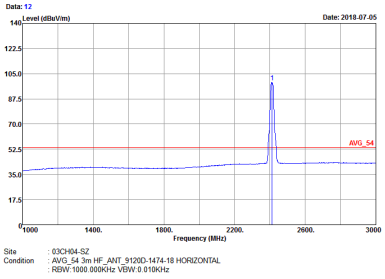
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH12 2467MHz	
1	Vertical	Fundamental
Peak		
Avg.		

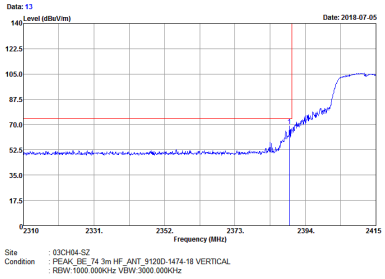
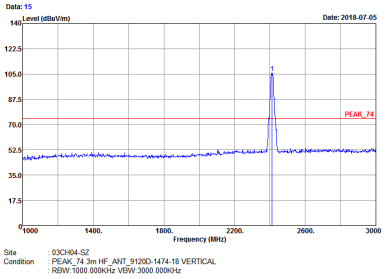
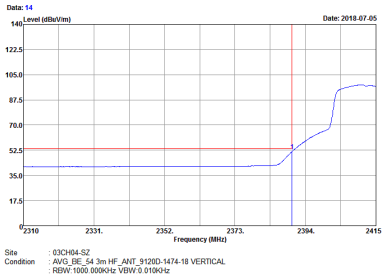
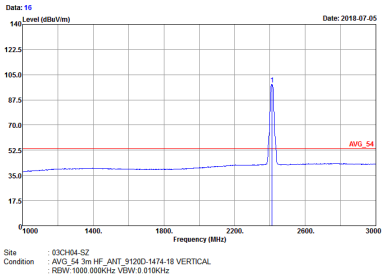
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH13 2472MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH13 2472MHz	
1	Vertical	Fundamental
Peak		
Avg.		

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	
1	Horizontal	Fundamental
Peak		
Avg.		

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

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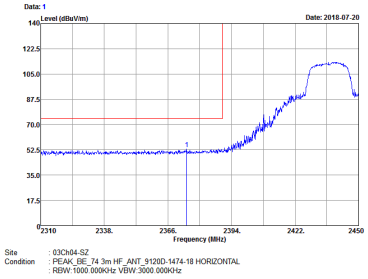
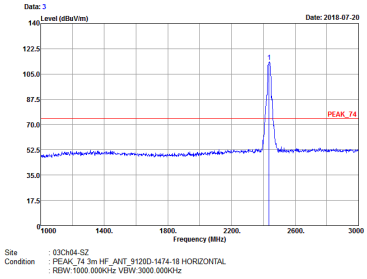
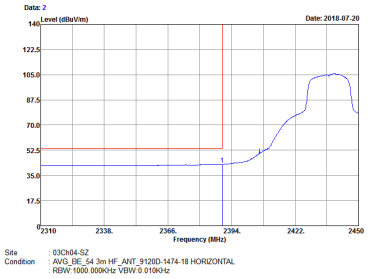
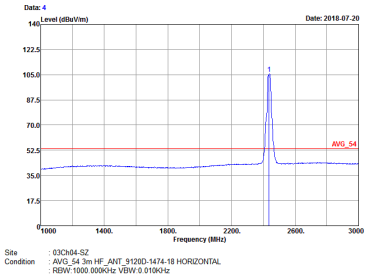
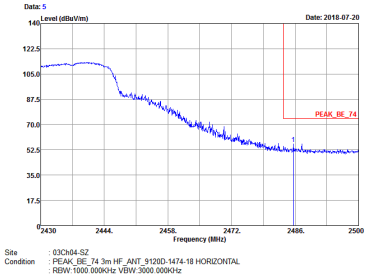
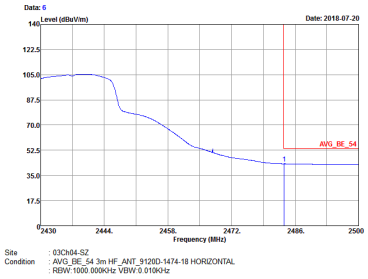
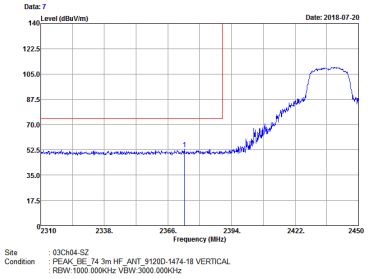
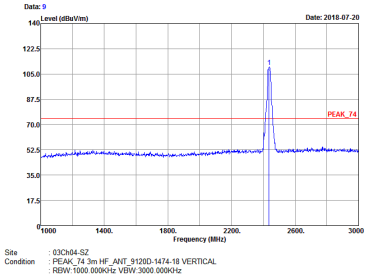
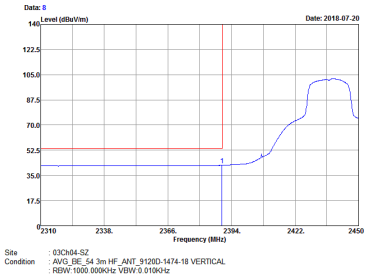
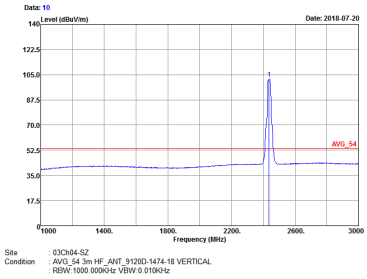
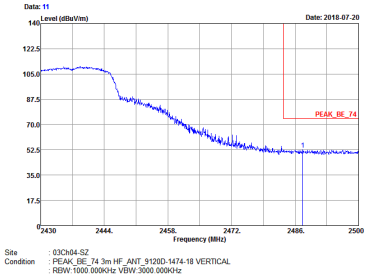
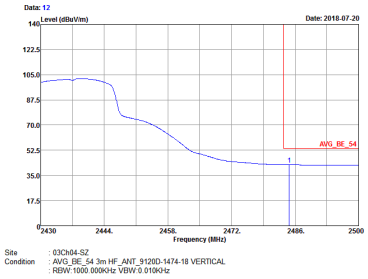
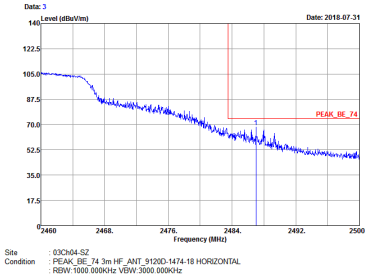
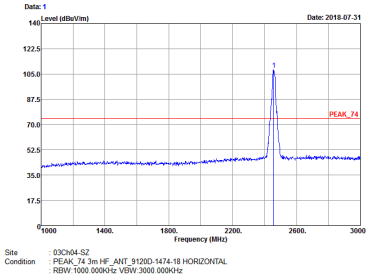
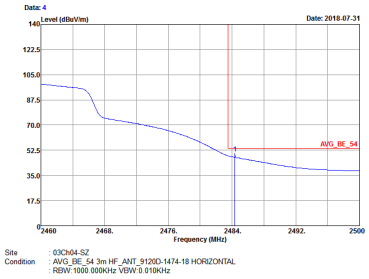
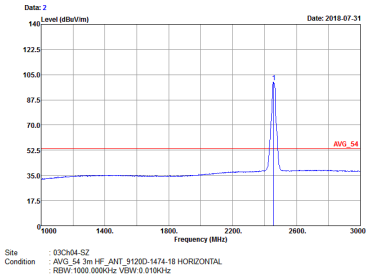
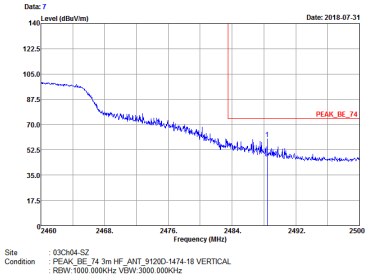
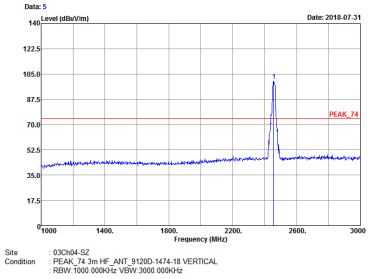
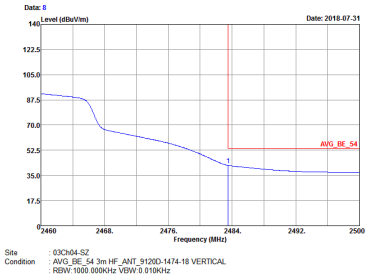
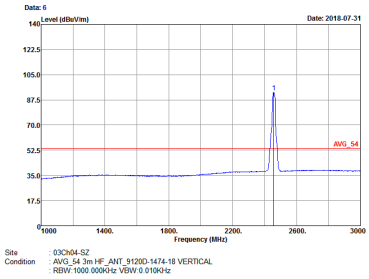
ANT	802.11n HT20 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

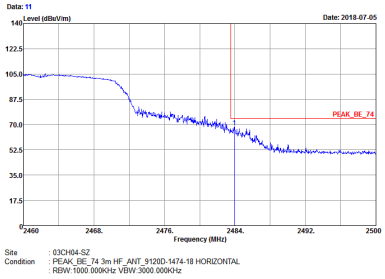
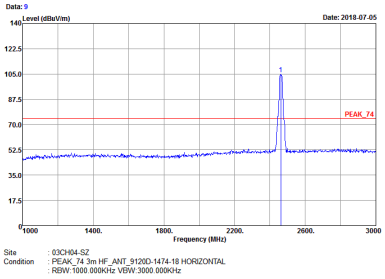
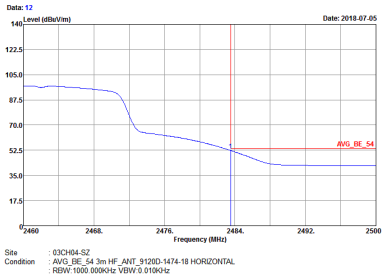
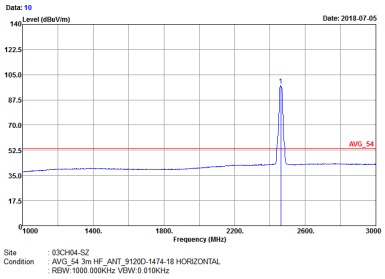
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

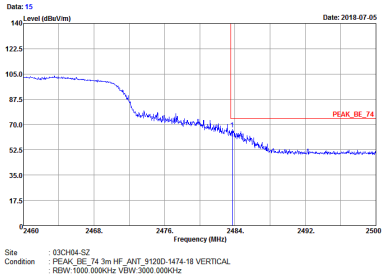
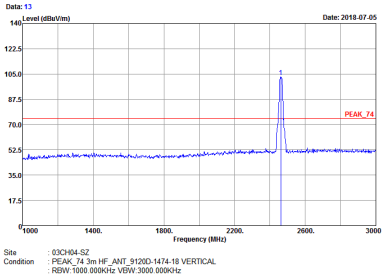
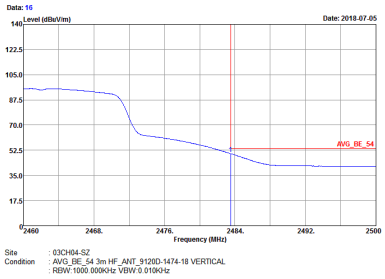
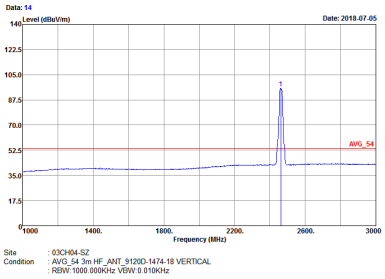
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

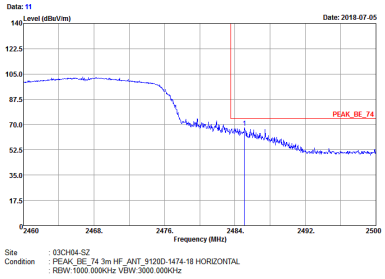
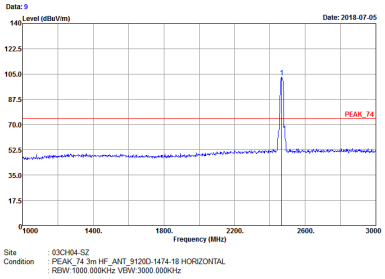
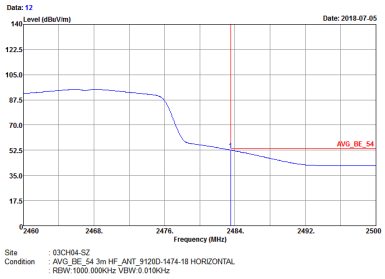
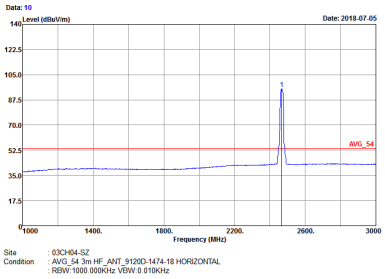
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

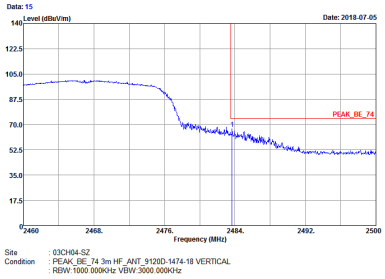
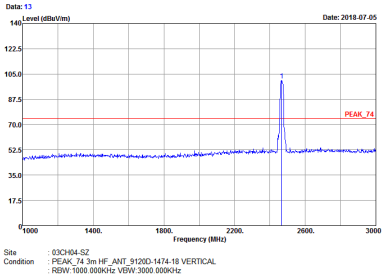
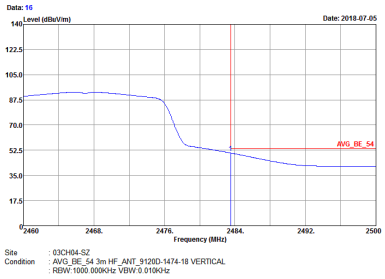
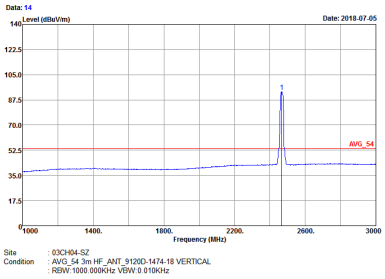
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH10 2457MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

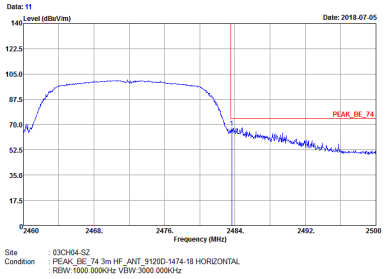
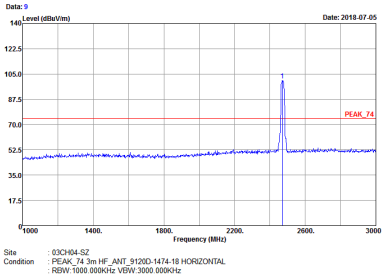
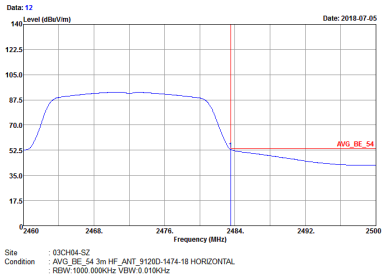
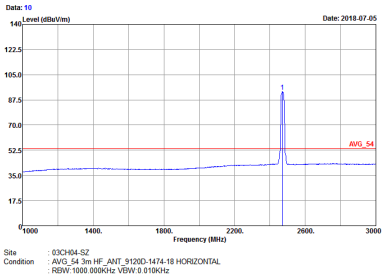
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH10 2457MHz	
1	Vertical	Fundamental
Peak		
Avg.		

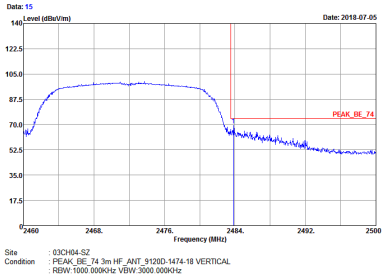
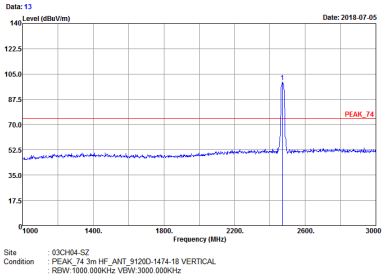
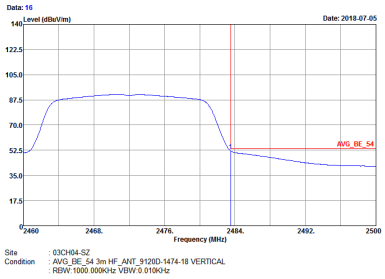
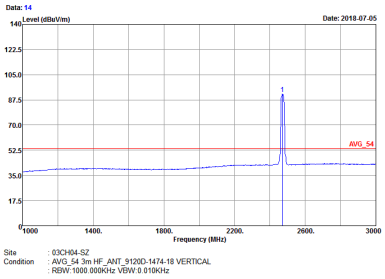
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH12 2467MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

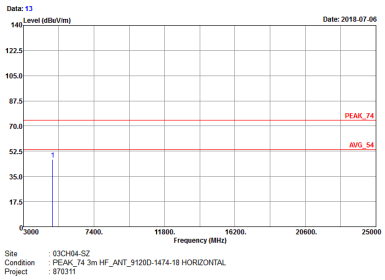
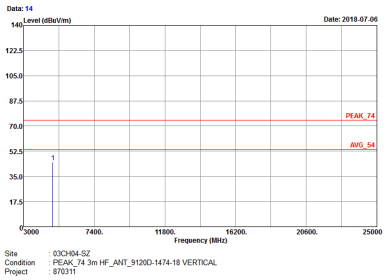
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH12 2467MHz	
1	Vertical	Fundamental
Peak		
Avg.		

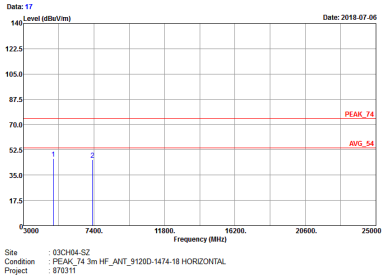
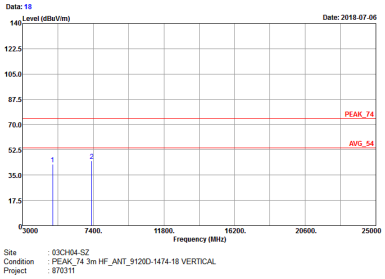
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH13 2472MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

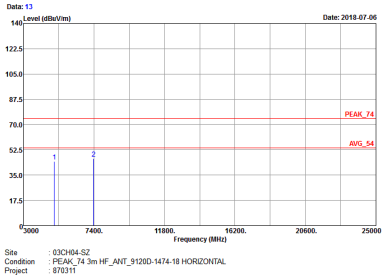
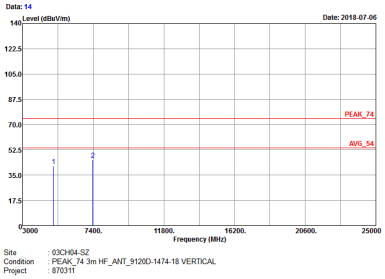
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH13 2472MHz	
1	Vertical	Fundamental
Peak		
Avg.		

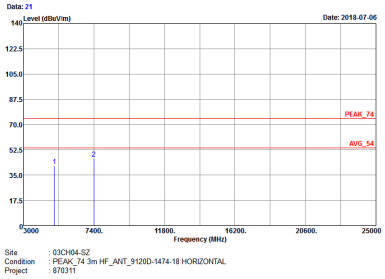
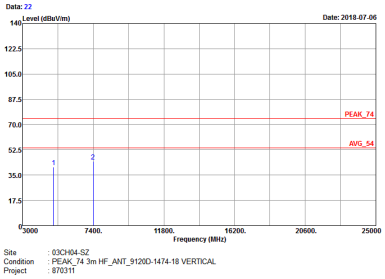
2.4GHz 2400~2483.5MHz

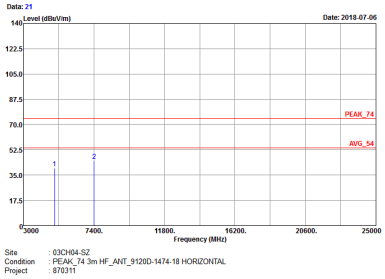
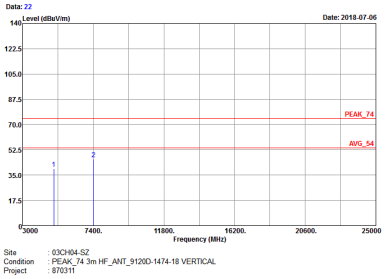
WIFI 802.11b (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak		

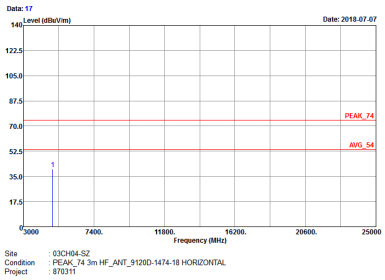
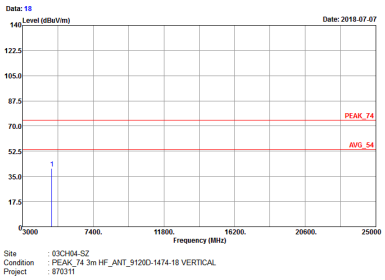
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak		

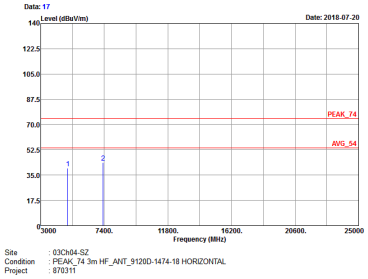
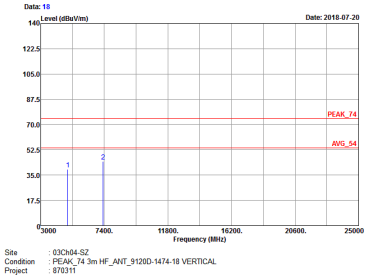
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH12 2467MHz	
1	Horizontal	Vertical
Peak		

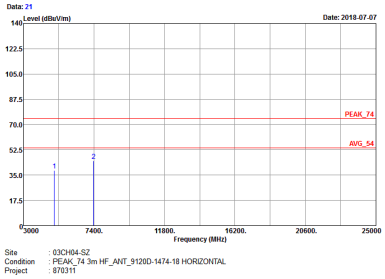
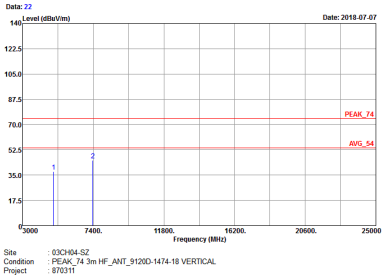
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH13 2472MHz	
1	Horizontal	Vertical
Peak		

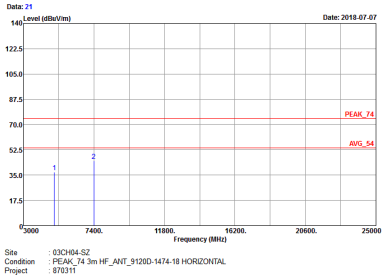
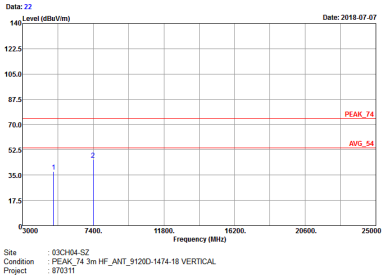
2.4GHz 2400~2483.5MHz

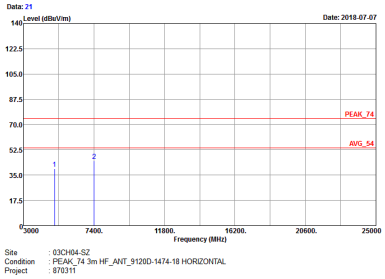
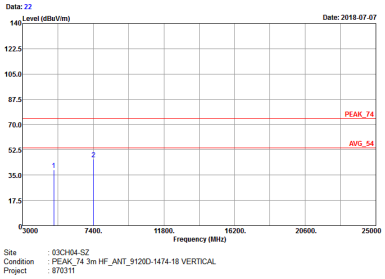
WIFI 802.11g (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak		

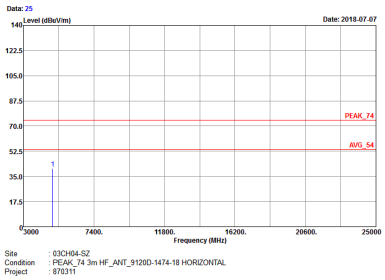
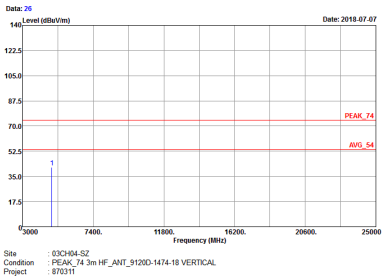
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak		

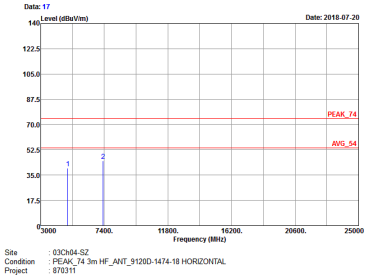
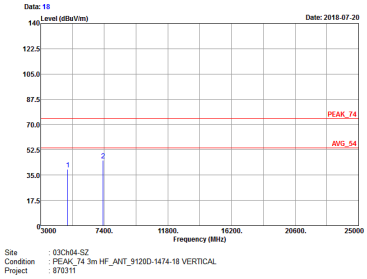
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH12 2467MHz	
1	Horizontal	Vertical
Peak		

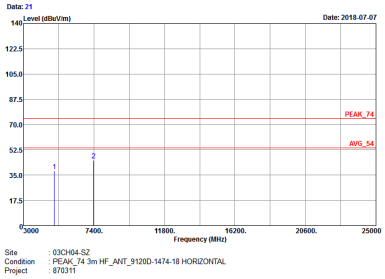
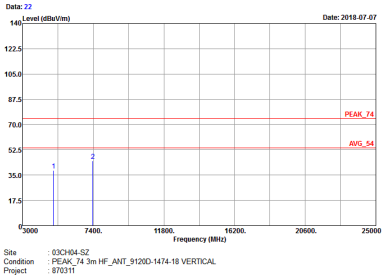
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH13 2472MHz	
1	Horizontal	Vertical
Peak		

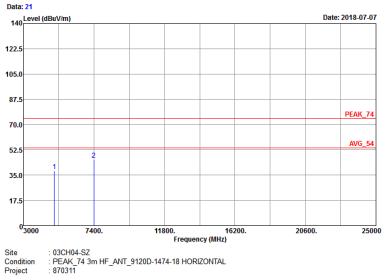
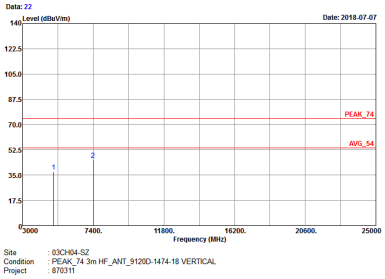
2.4GHz 2400~2483.5MHz

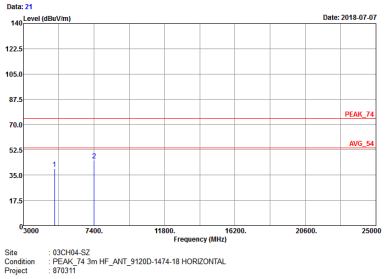
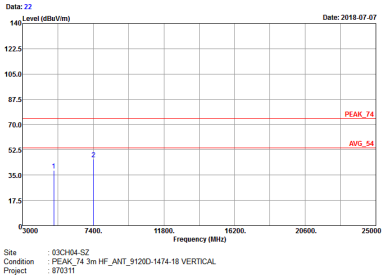
WIFI 802.11n HT20 (Harmonic @ 3m)

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

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

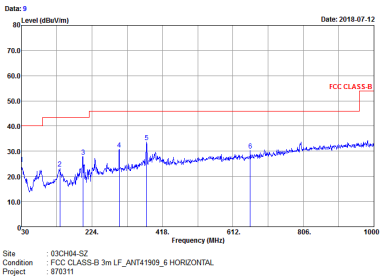
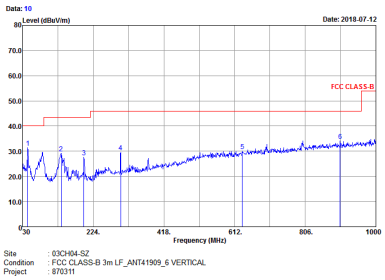
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Vertical
Peak		

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

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

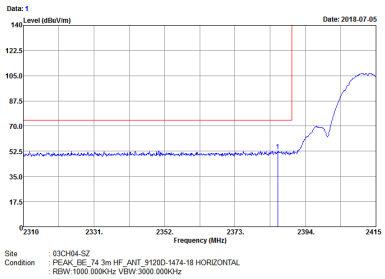
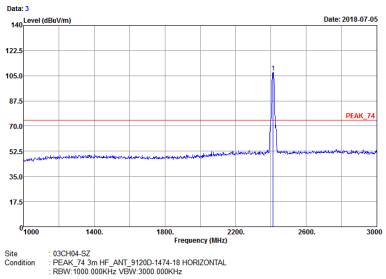
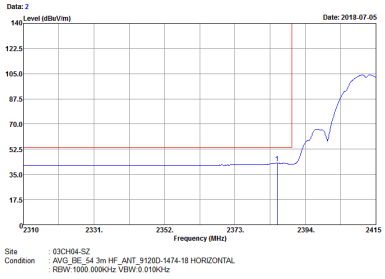
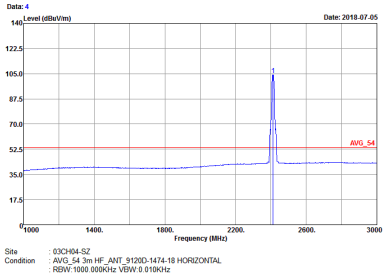
Emission below 1GHz

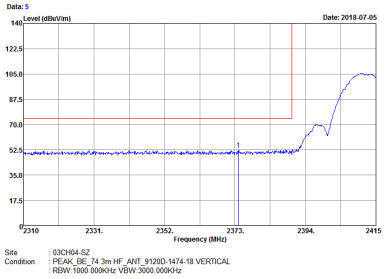
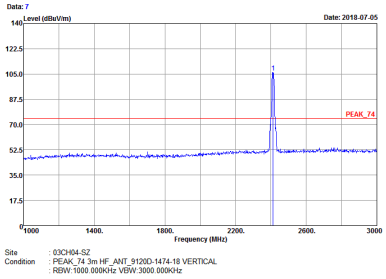
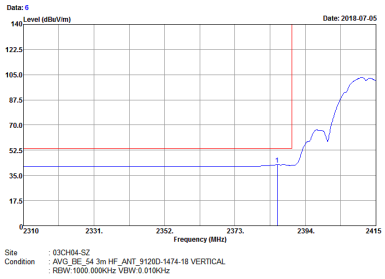
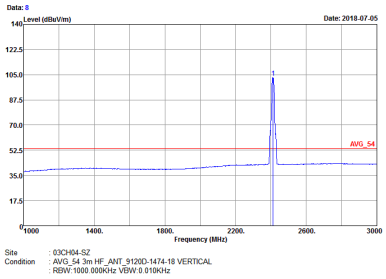
2.4GHz WIFI 802.11g (LF)

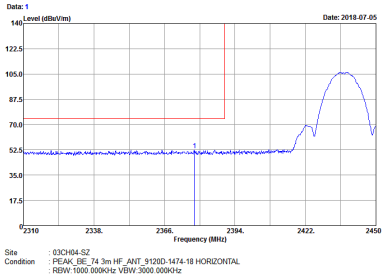
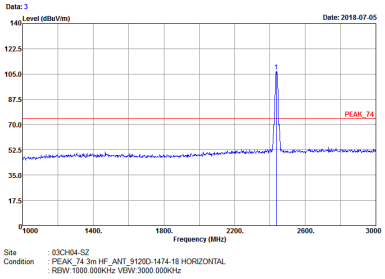
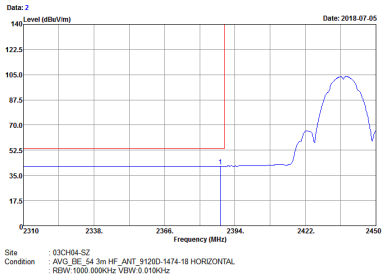
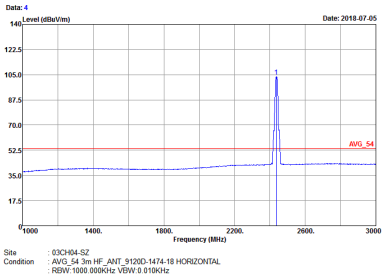
WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11g LF	
1	Horizontal	Vertical
QP / Peak		

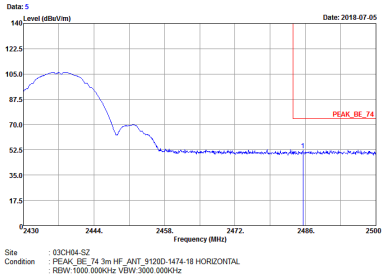
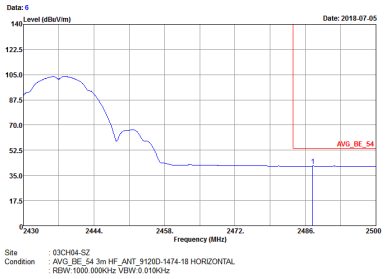
2.4GHz 2400~2483.5MHz

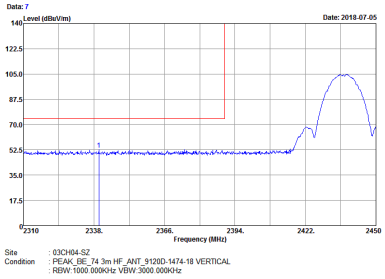
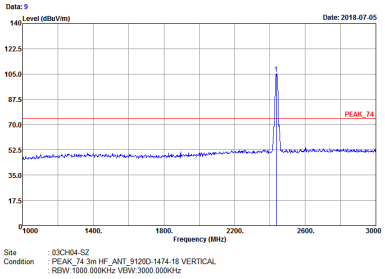
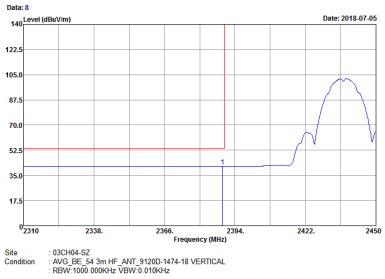
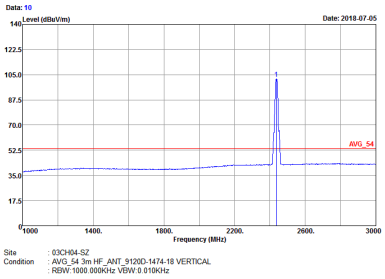
WIFI 802.11b (Band Edge @ 3m)

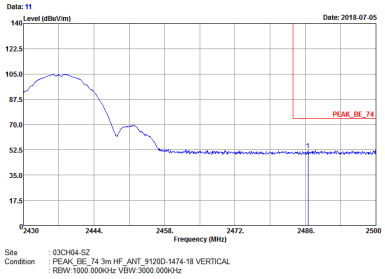
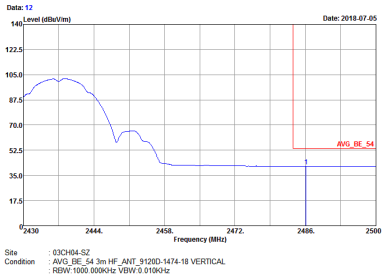
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

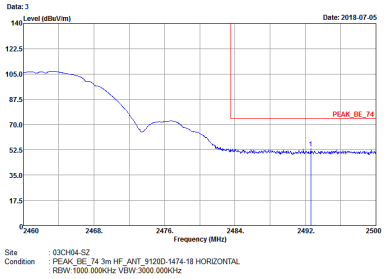
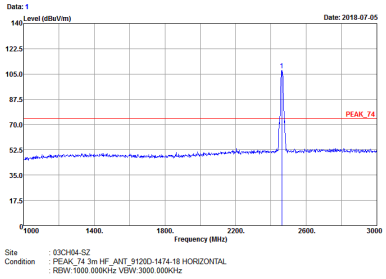
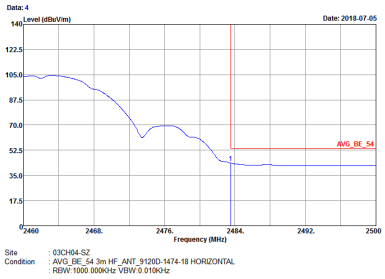
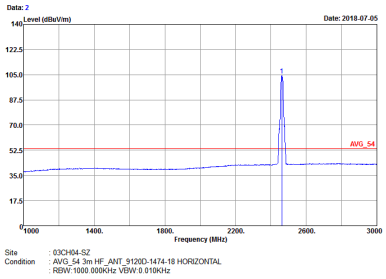
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
2	Vertical	Fundamental
Peak		
Avg.		

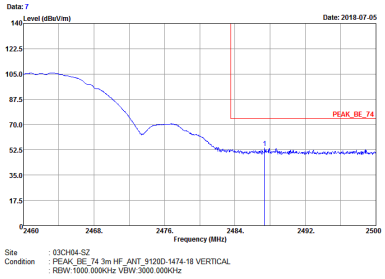
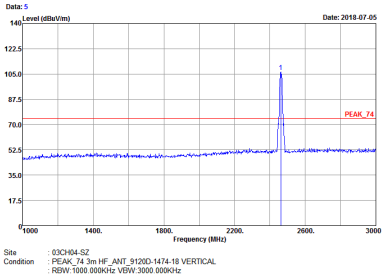
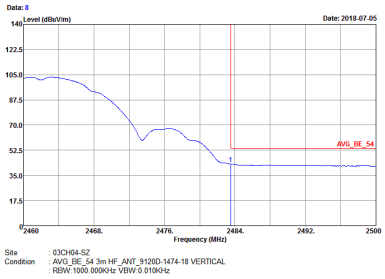
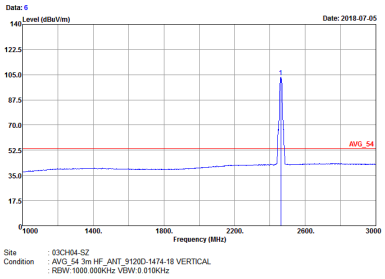
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
2	Horizontal	Fundamental
Peak		
Avg.		

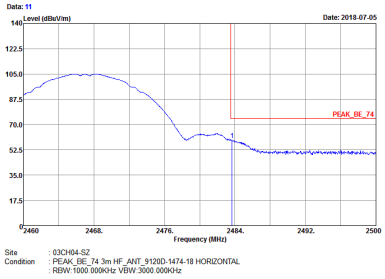
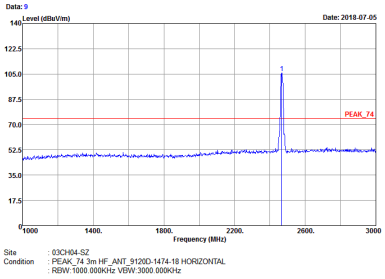
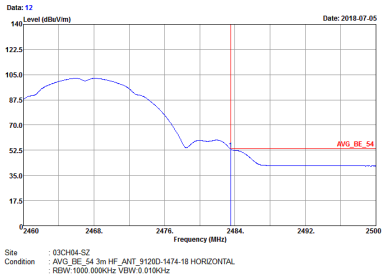
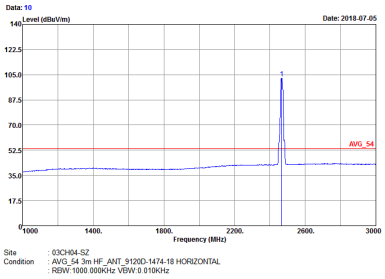
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

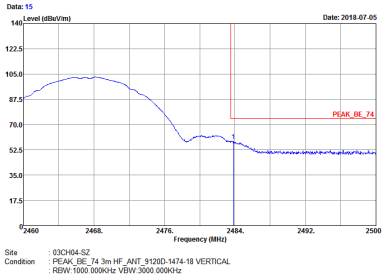
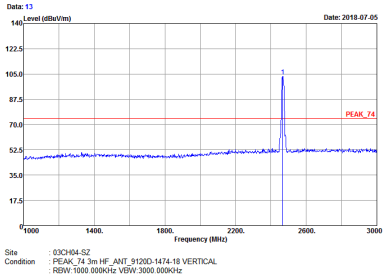
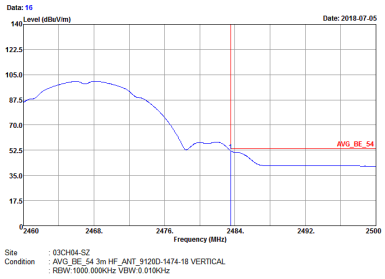
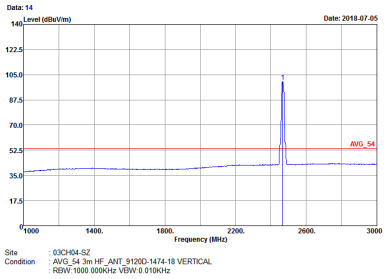
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
2	Vertical	Fundamental
Peak		
Avg.		

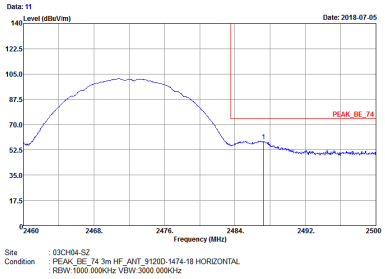
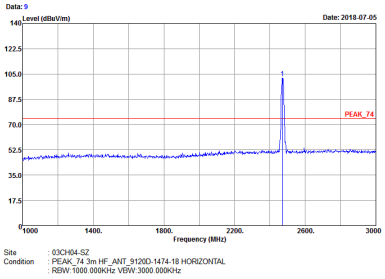
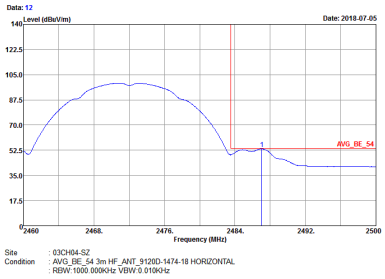
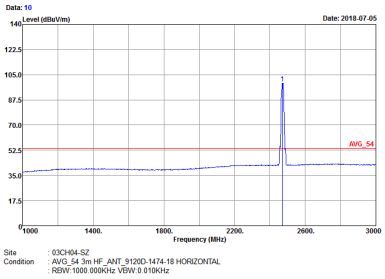
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
2	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

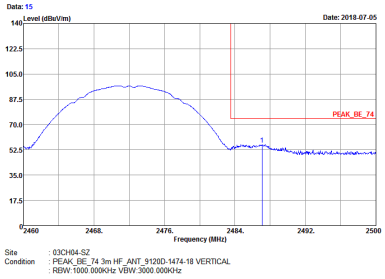
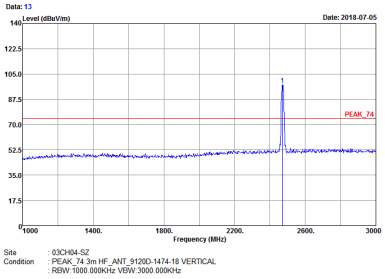
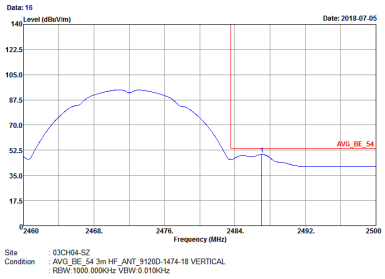
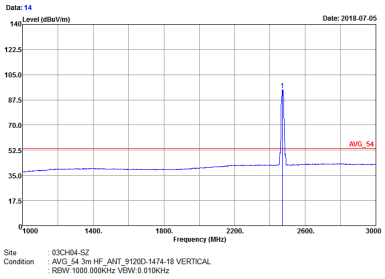
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

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

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH12 2467MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

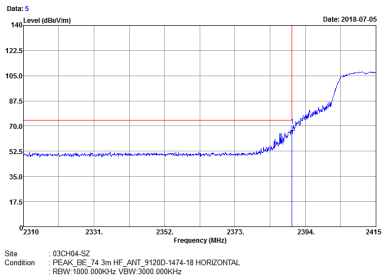
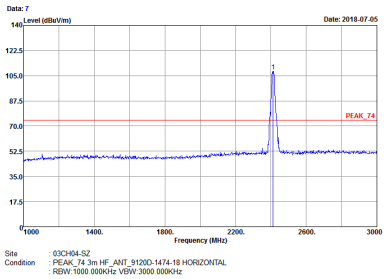
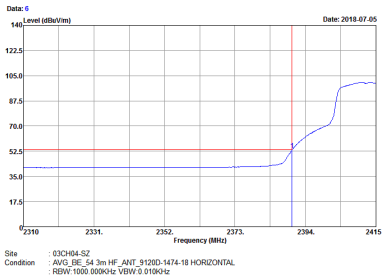
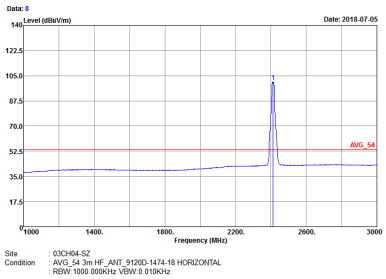
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH12 2467MHz	
2	Vertical	Fundamental
Peak		
Avg.		

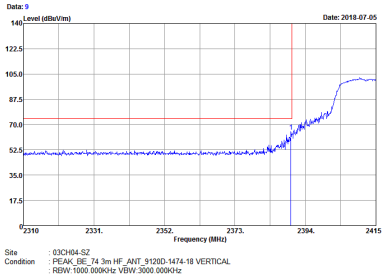
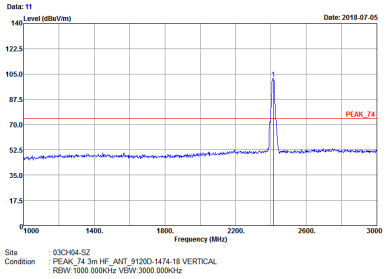
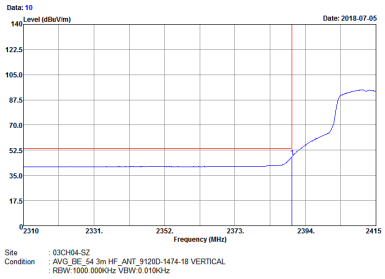
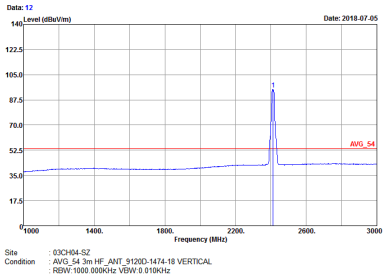
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH13 2472MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

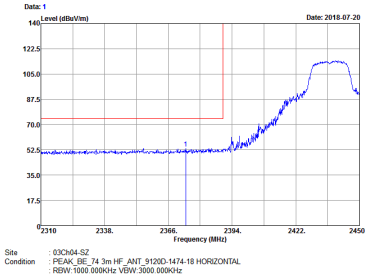
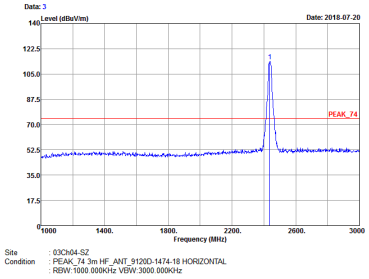
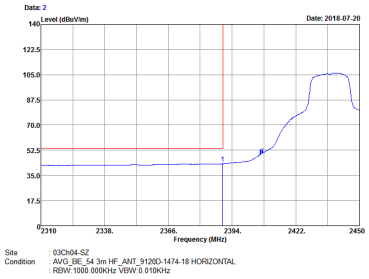
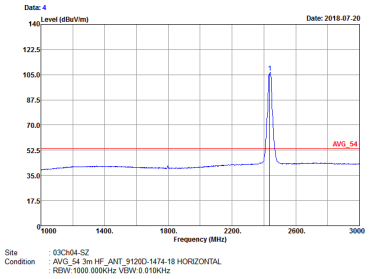
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH13 2472MHz	
2	Vertical	Fundamental
Peak		
Avg.		

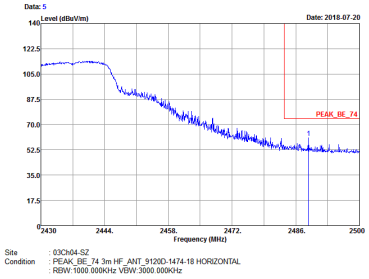
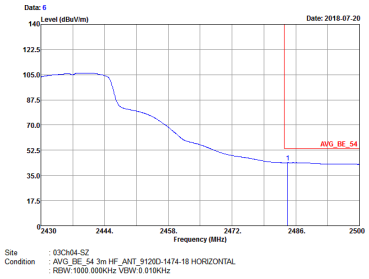
2.4GHz 2400~2483.5MHz

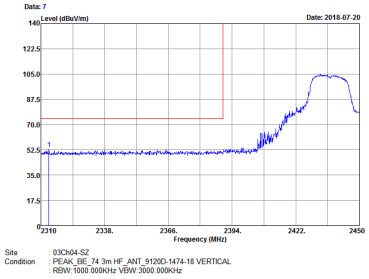
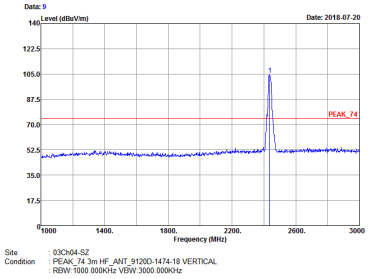
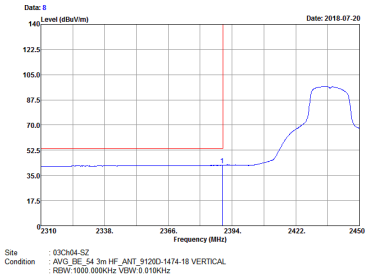
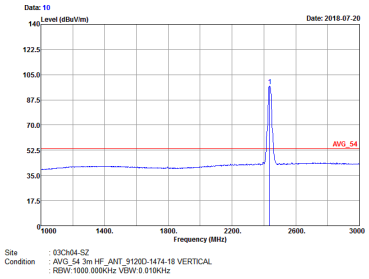
WIFI 802.11g (Band Edge @ 3m)

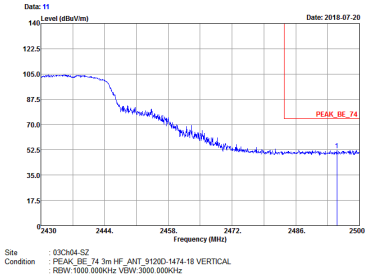
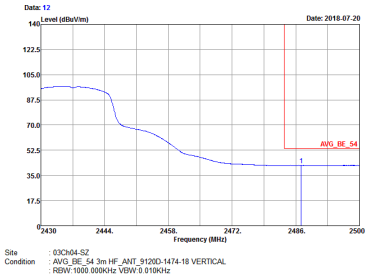
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

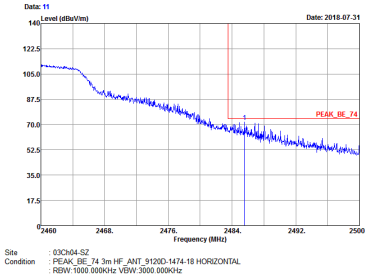
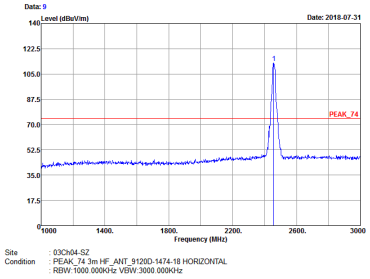
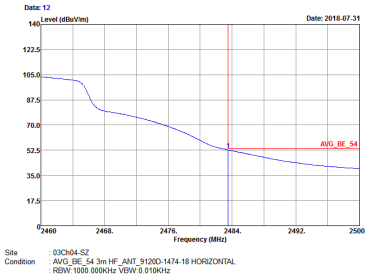
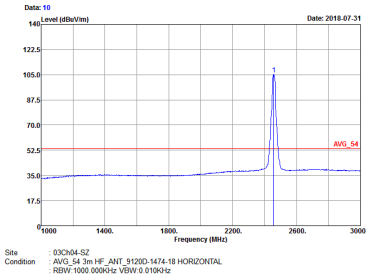
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
2	Vertical	Fundamental
Peak		
Avg.		

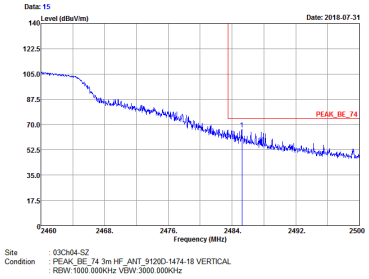
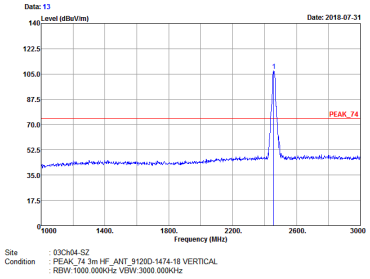
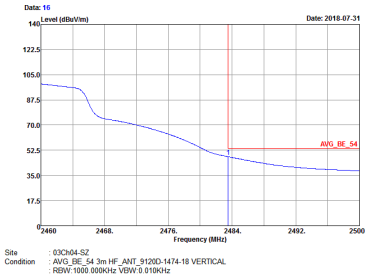
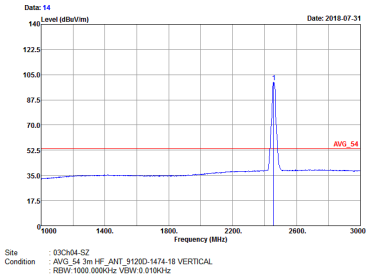
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
2	Horizontal	Fundamental
Peak		
Avg.		

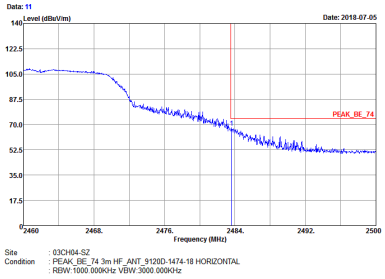
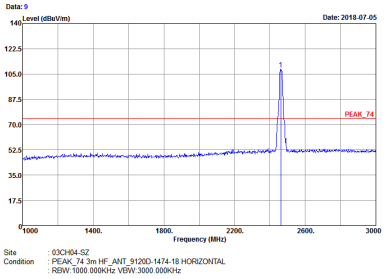
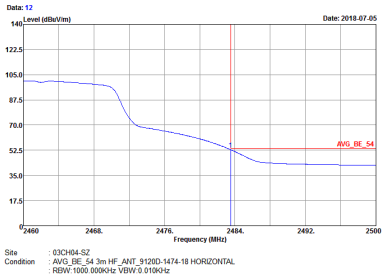
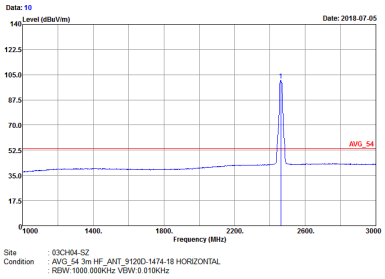
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

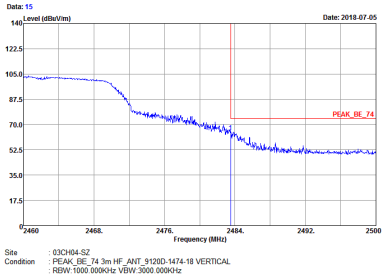
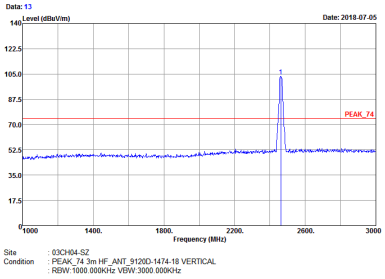
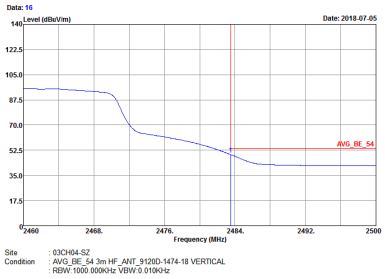
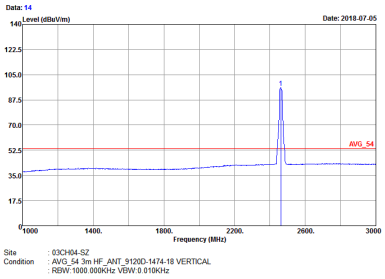
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
2	Vertical	Fundamental
Peak		
Avg.		

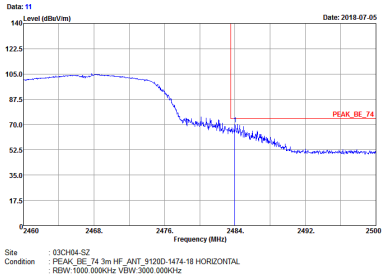
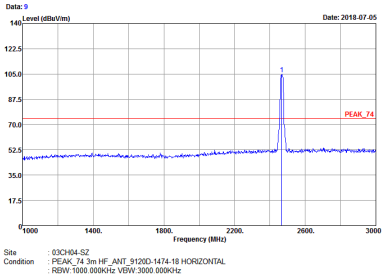
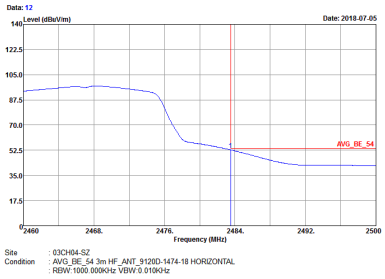
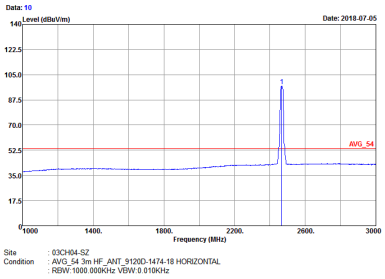
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
2	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

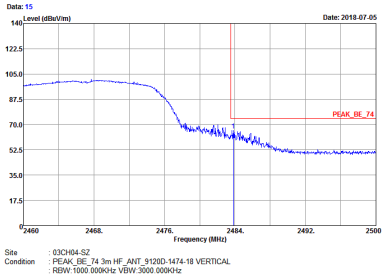
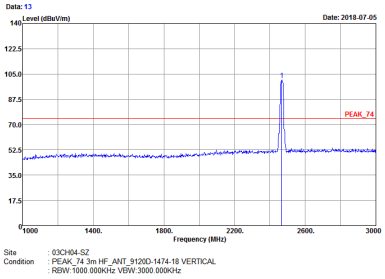
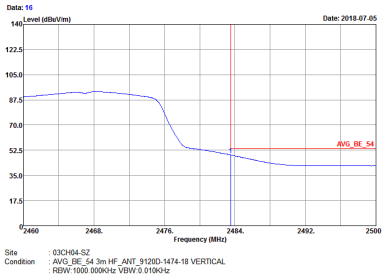
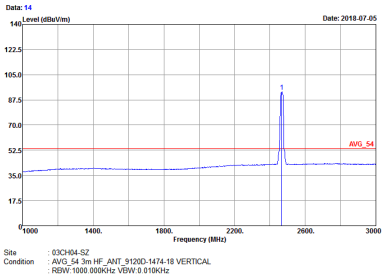
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH10 2457MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

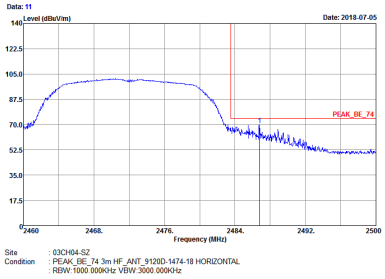
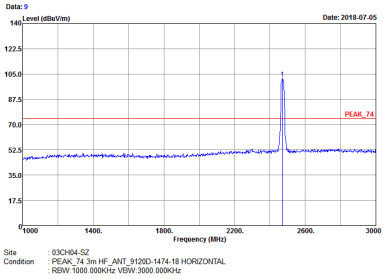
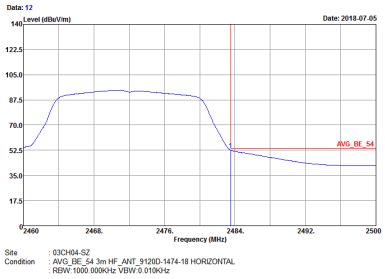
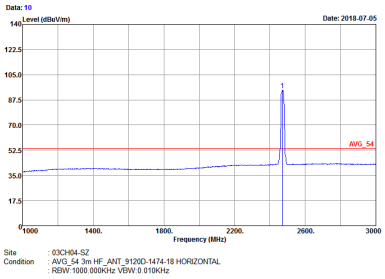
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH10 2457MHz	
2	Vertical	Fundamental
Peak		
Avg.		

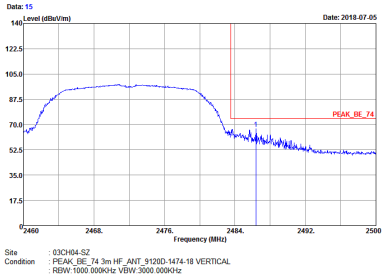
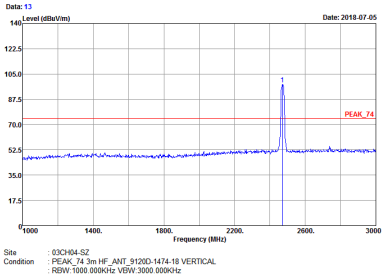
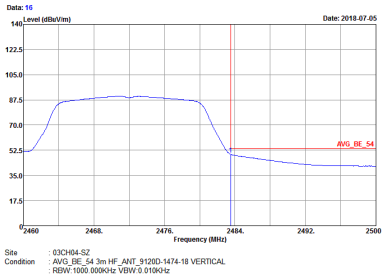
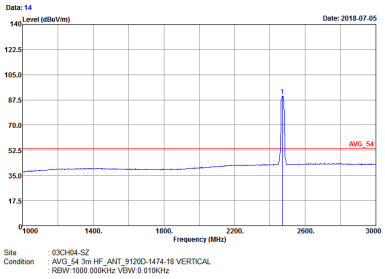
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

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

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH12 2467MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

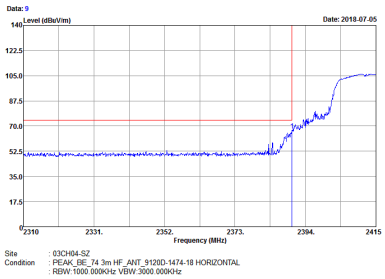
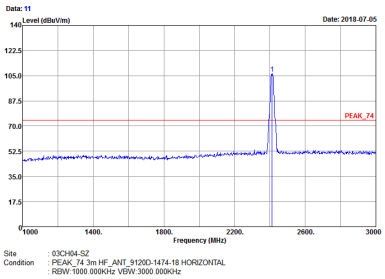
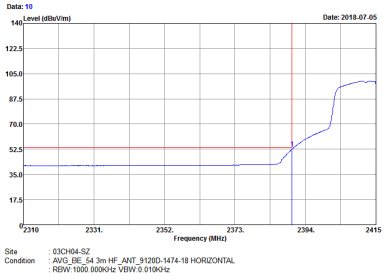
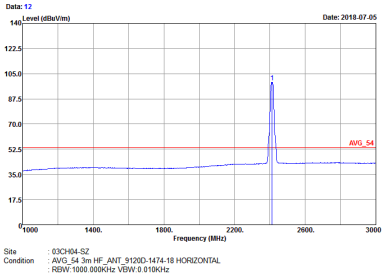
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH12 2467MHz	
2	Vertical	Fundamental
Peak		
Avg.		

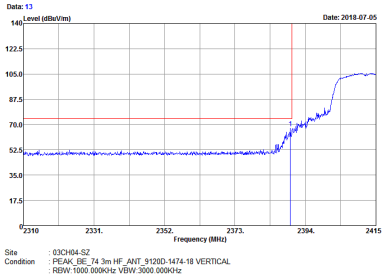
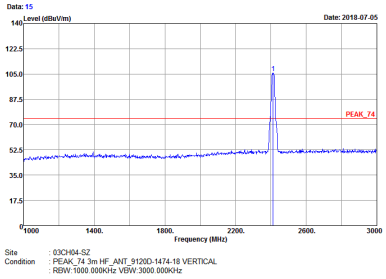
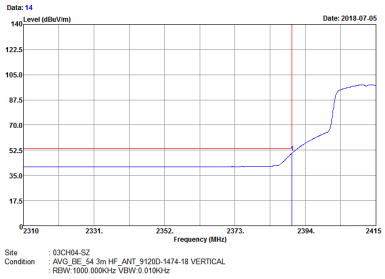
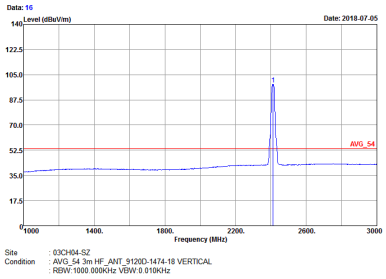
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH13 2472MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

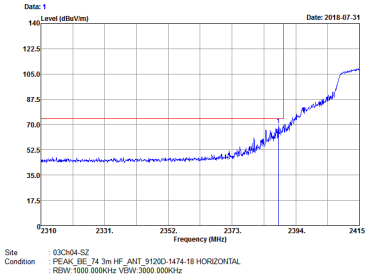
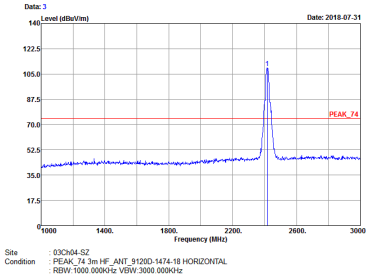
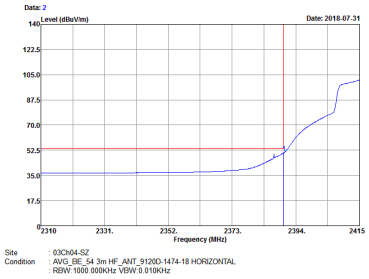
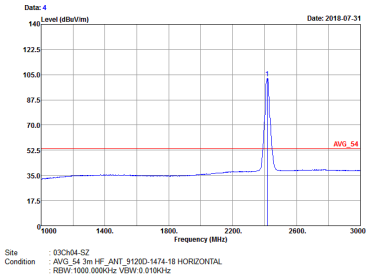
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH13 2472MHz	
2	Vertical	Fundamental
Peak		
Avg.		

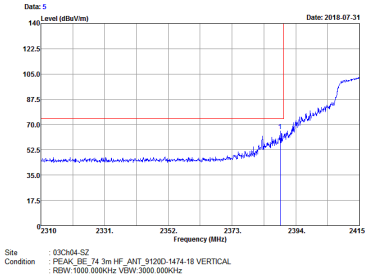
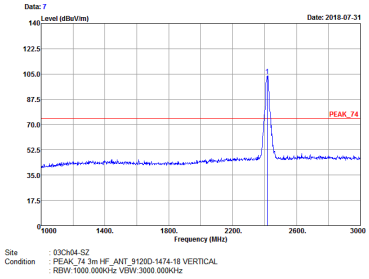
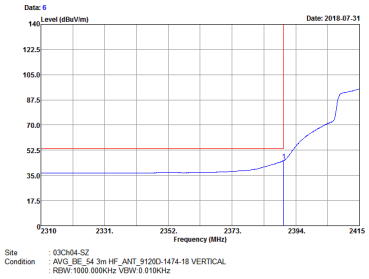
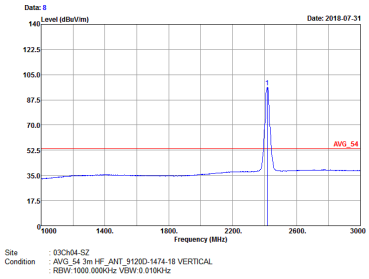
2.4GHz 2400~2483.5MHz

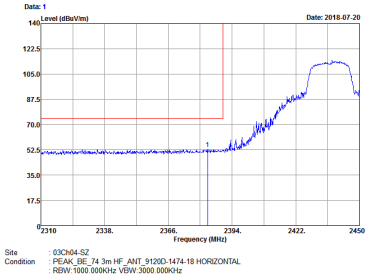
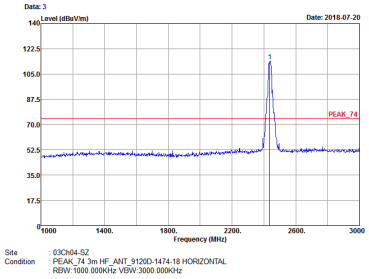
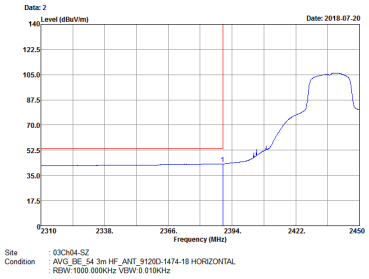
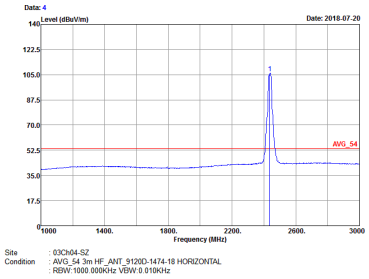
WIFI 802.11n HT20 (Band Edge @ 3m)

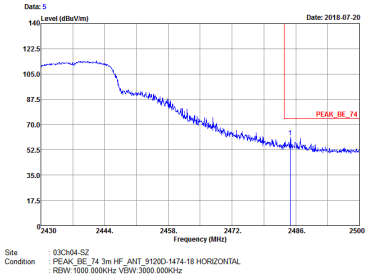
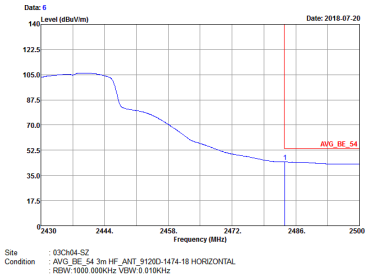
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

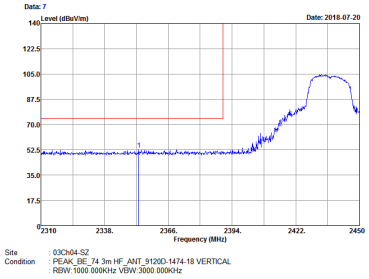
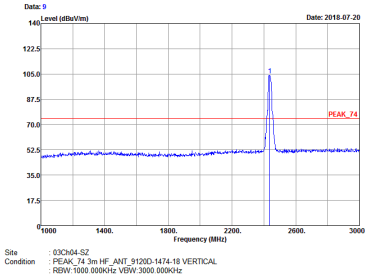
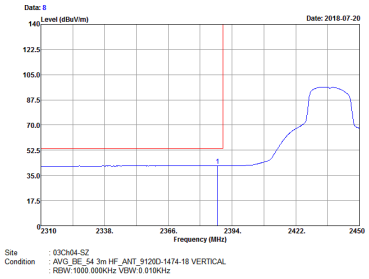
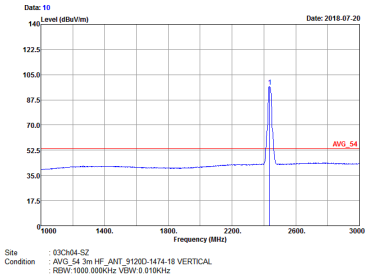
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
2	Vertical	Fundamental
Peak		
Avg.		

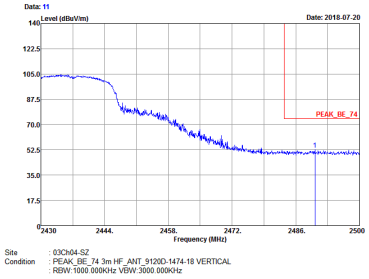
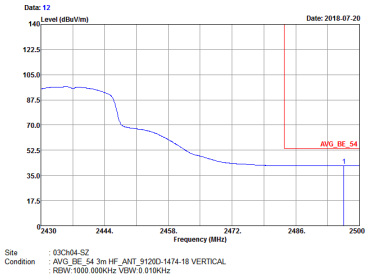
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH02 2417MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

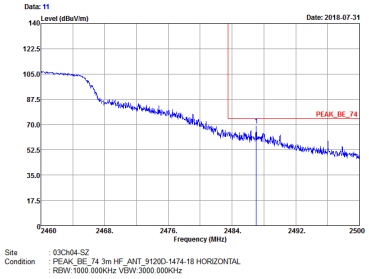
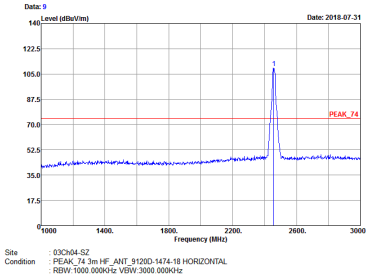
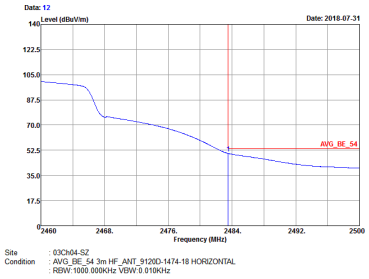
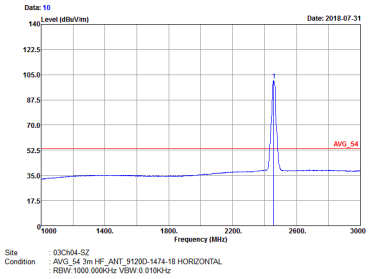
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH02 2417MHz	
2	Vertical	Fundamental
Peak		
Avg.		

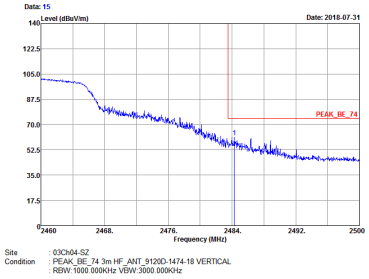
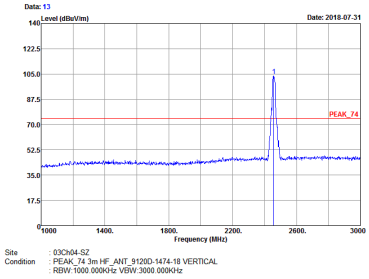
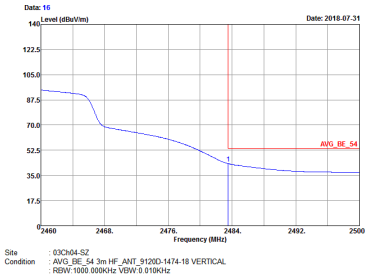
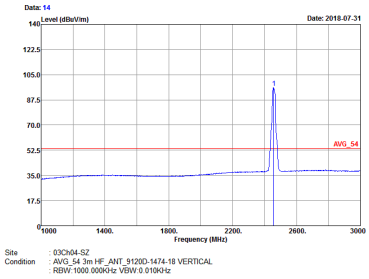
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
2	Horizontal	Fundamental
Peak		
Avg.		

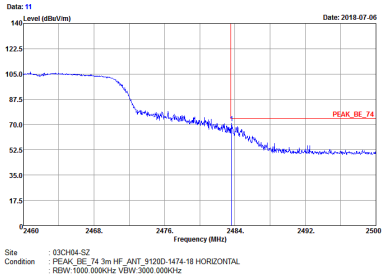
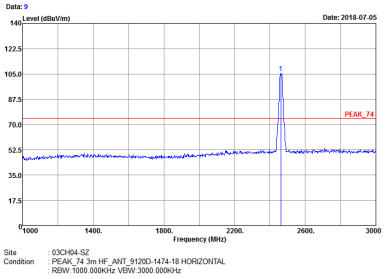
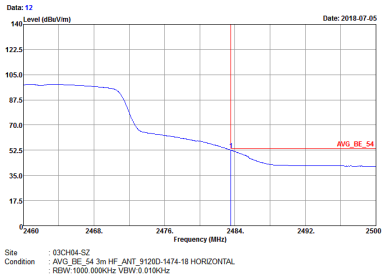
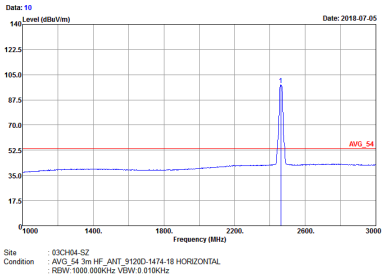
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

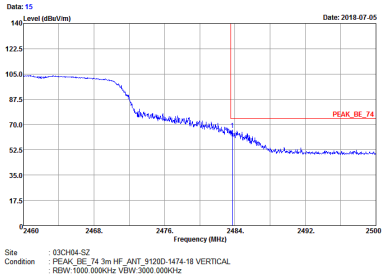
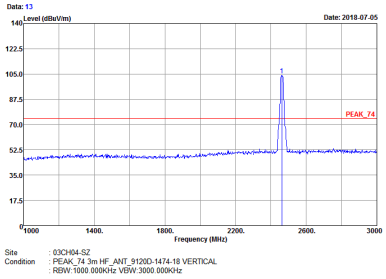
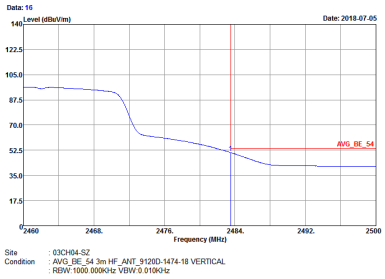
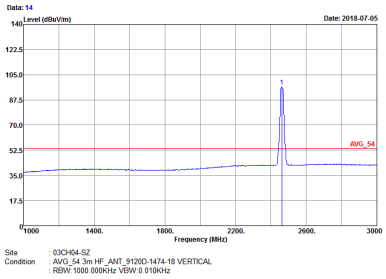
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
2	Vertical	Fundamental
Peak		
Avg.		

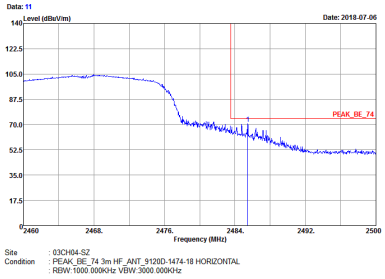
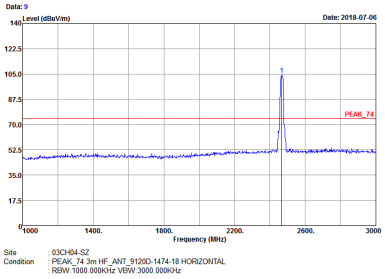
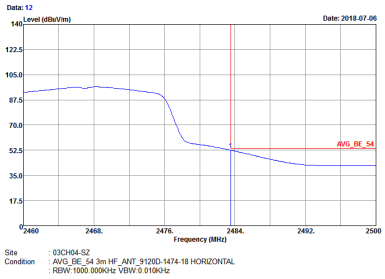
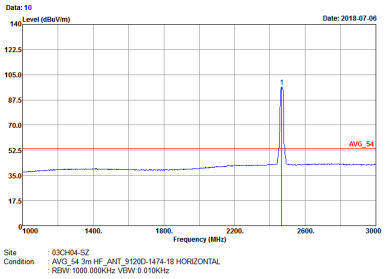
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
2	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

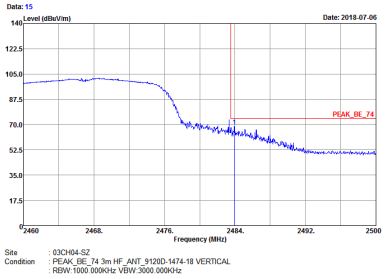
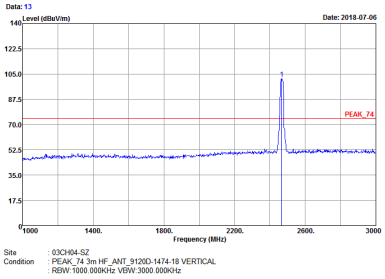
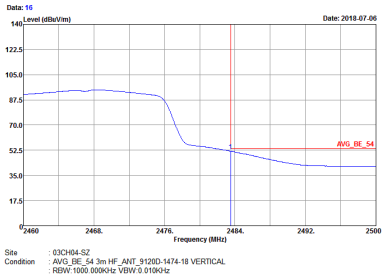
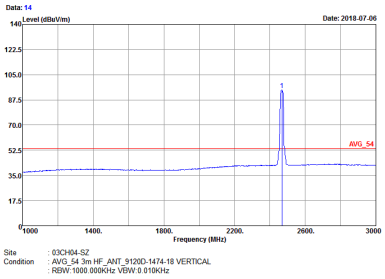
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH10 2457MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

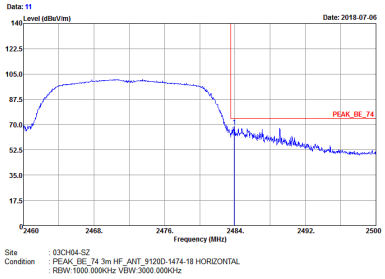
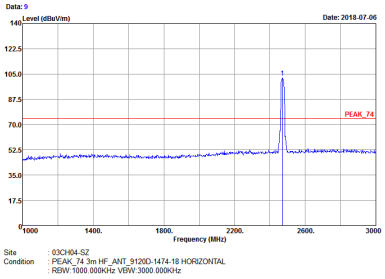
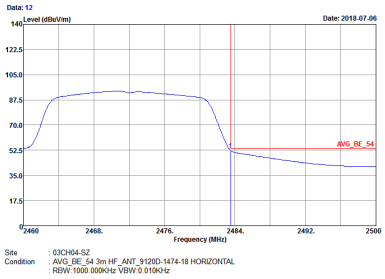
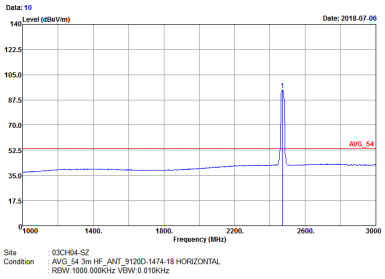
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH10 2457MHz	
2	Vertical	Fundamental
Peak		
Avg.		

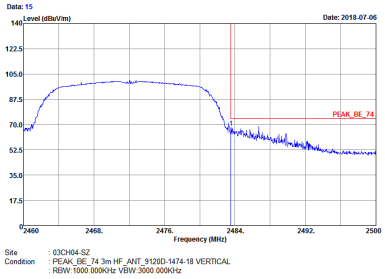
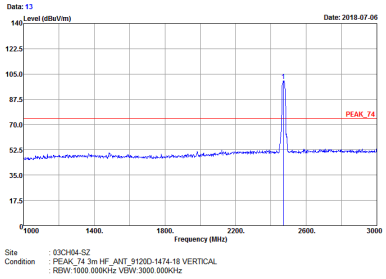
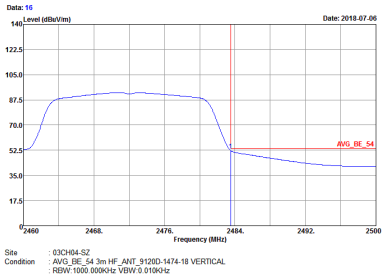
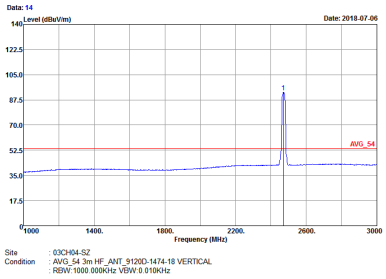
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
2	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH12 2467MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

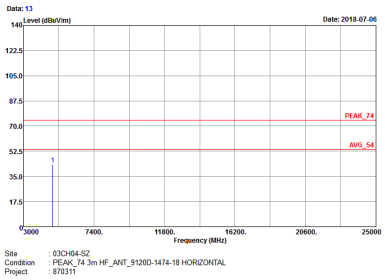
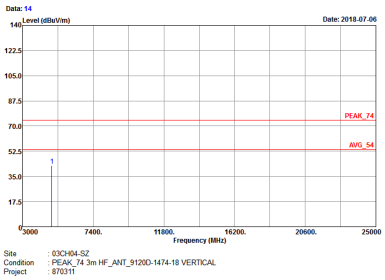
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH12 2467MHz	
2	Vertical	Fundamental
Peak		
Avg.		

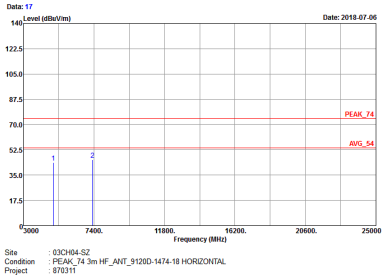
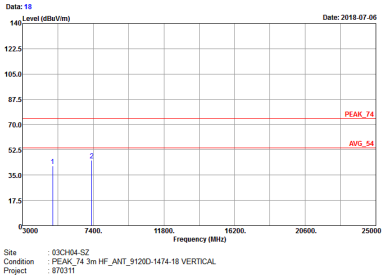
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH13 2472MHz	
2	Horizontal	Fundamental
Peak		
Avg.		

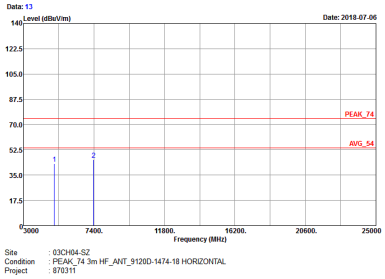
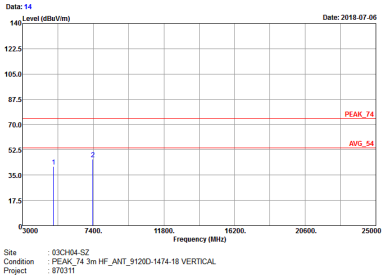
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH13 2472MHz	
2	Vertical	Fundamental
Peak		
Avg.		

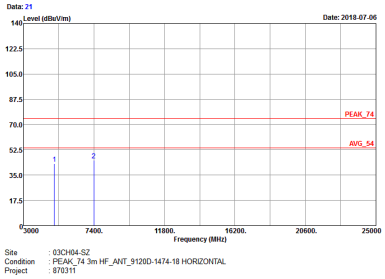
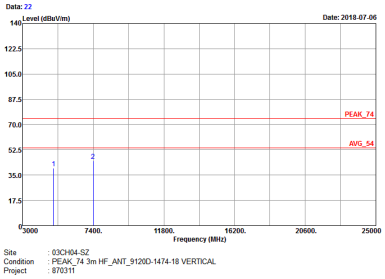
2.4GHz 2400~2483.5MHz

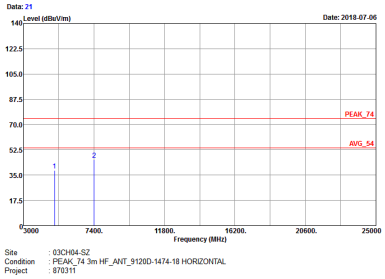
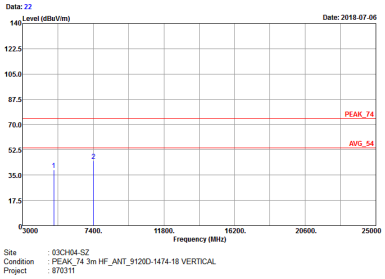
WIFI 802.11b (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
2	Horizontal	Vertical
Peak		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
2	Horizontal	Vertical
Peak		

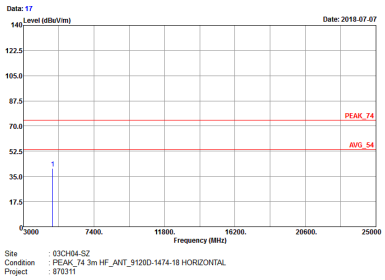
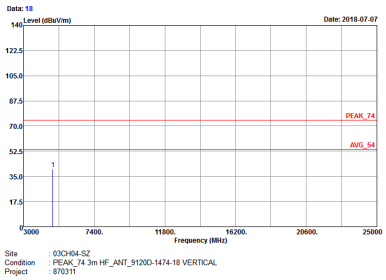
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
2	Horizontal	Vertical
Peak		

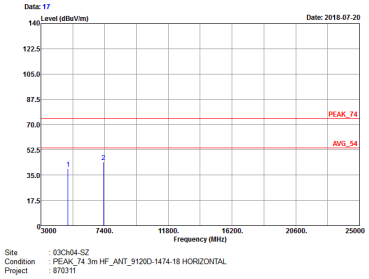
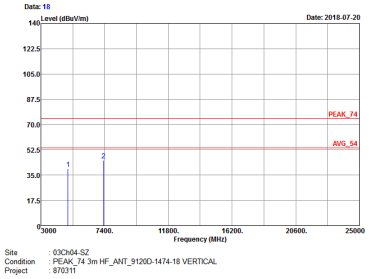
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH12 2467MHz	
2	Horizontal	Vertical
Peak		

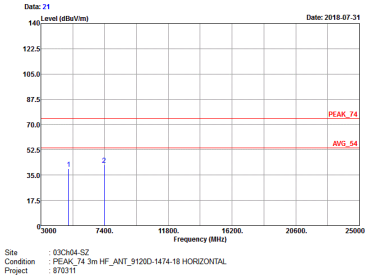
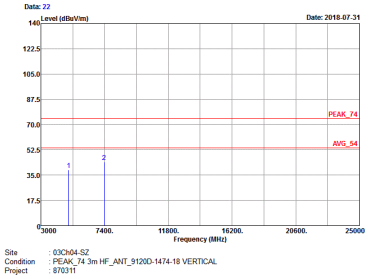
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH13 2472MHz	
2	Horizontal	Vertical
Peak		

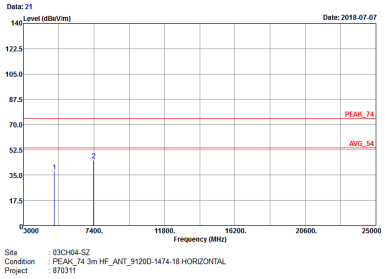
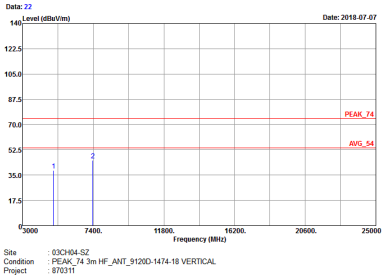
2.4GHz 2400~2483.5MHz

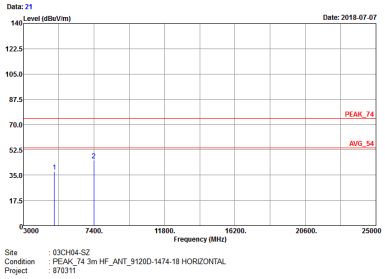
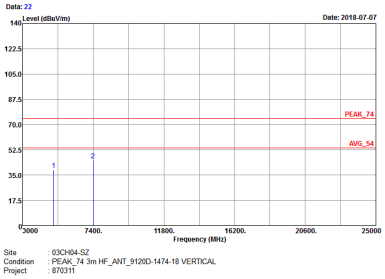
WIFI 802.11g (Harmonic @ 3m)

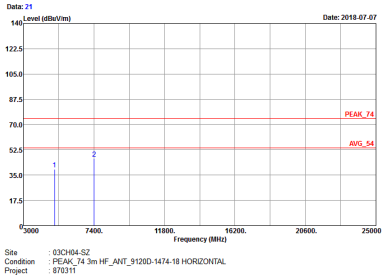
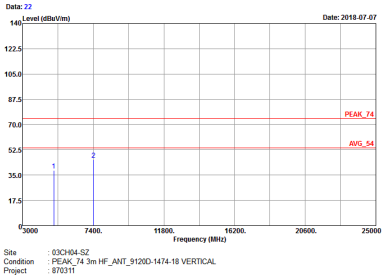
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
2	Horizontal	Vertical
Peak		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
2	Horizontal	Vertical
Peak		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH10 2457MHz	
2	Horizontal	Vertical
Peak		

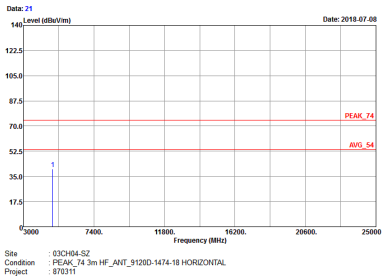
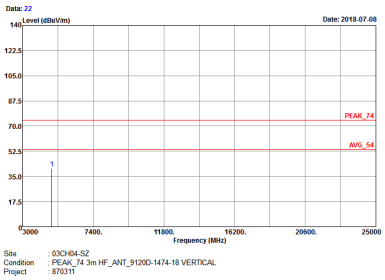
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
2	Horizontal	Vertical
Peak		

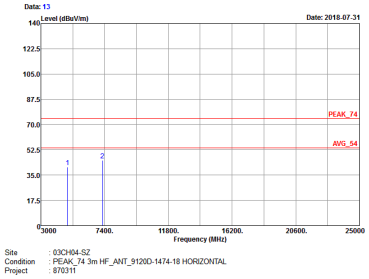
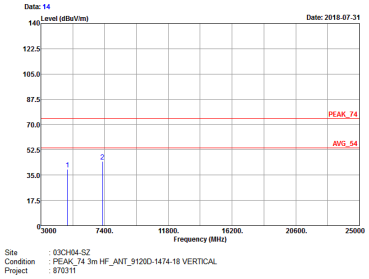
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH12 2467MHz	
2	Horizontal	Vertical
Peak		

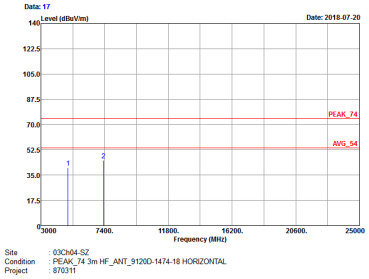
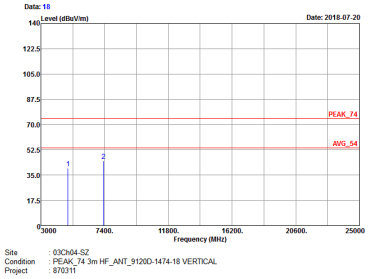
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH13 2472MHz	
2	Horizontal	Vertical
Peak		

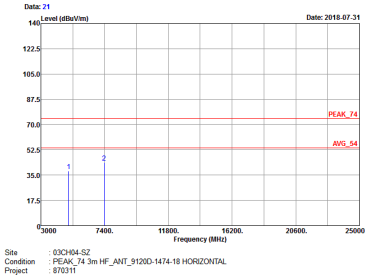
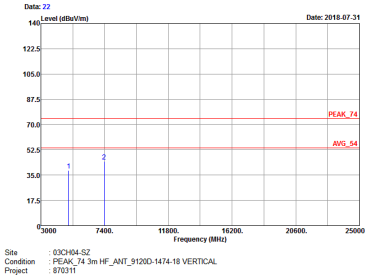
2.4GHz 2400~2483.5MHz

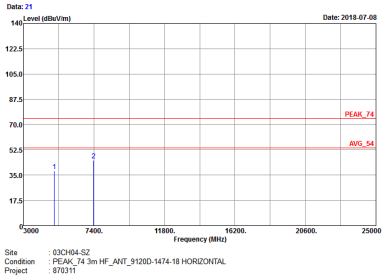
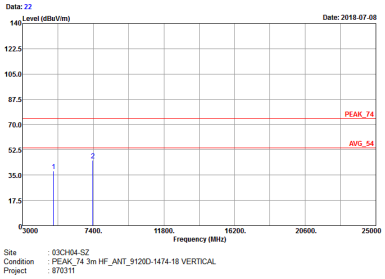
WIFI 802.11n HT20 (Harmonic @ 3m)

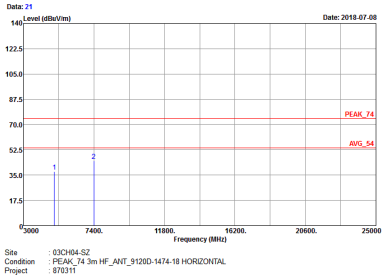
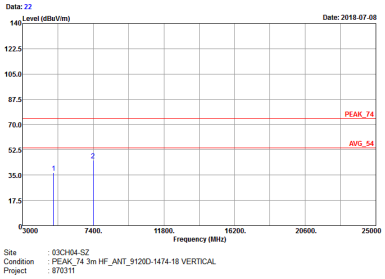
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
2	Horizontal	Vertical
Peak		

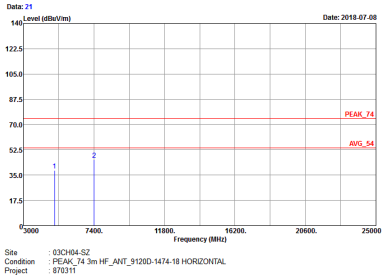
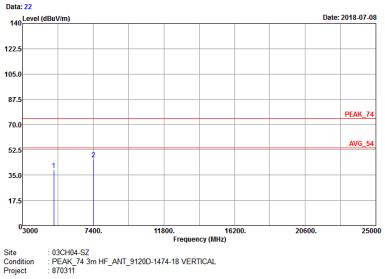
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH02 2417MHz	
2	Horizontal	Vertical
Peak		

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

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH10 2457MHz	
2	Horizontal	Vertical
Peak		

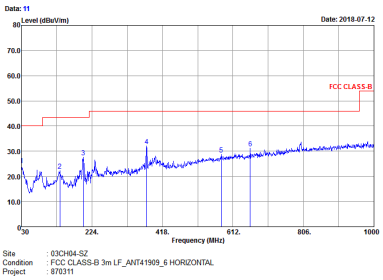
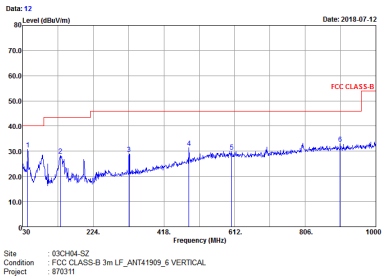
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
2	Horizontal	Vertical
Peak		

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

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

Emission below 1GHz

2.4GHz WIFI 802.11b (LF)

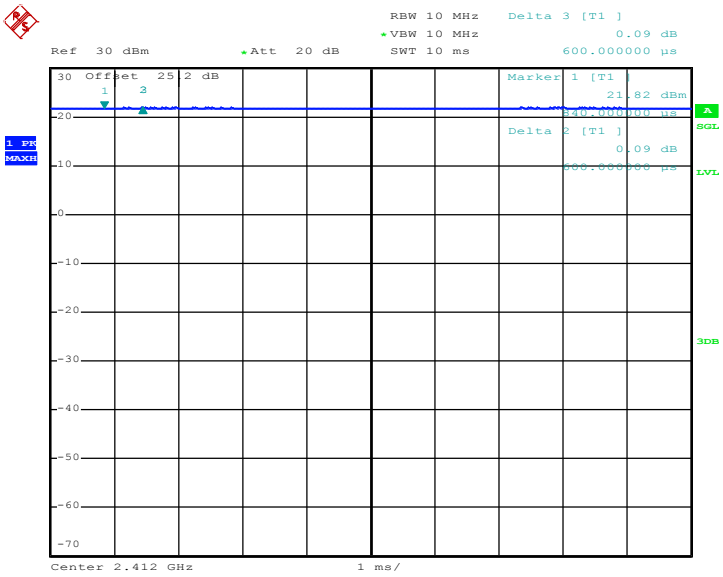
WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11b LF	
2	Horizontal	Vertical
QP / Peak		

Appendix C. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
1	802.11b	100.00	-	-	10Hz	0.00
2	802.11b	100.00	-	-	10Hz	0.00
1	802.11g	100.00	-	-	10Hz	0.00
2	802.11g	100.00	-	-	10Hz	0.00
1	2.4GHz 802.11n HT20	100.00	-	-	10Hz	0.00
2	2.4GHz 802.11n HT20	100.00	-	-	10Hz	0.00

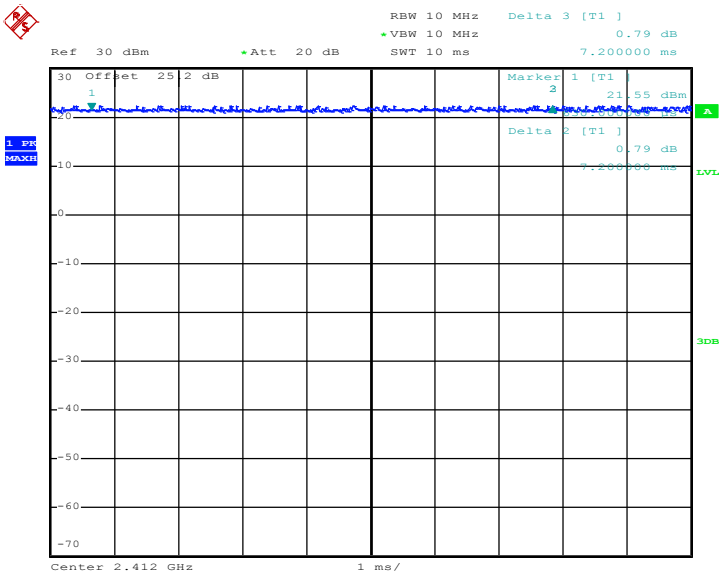
<Ant. 1>

802.11b



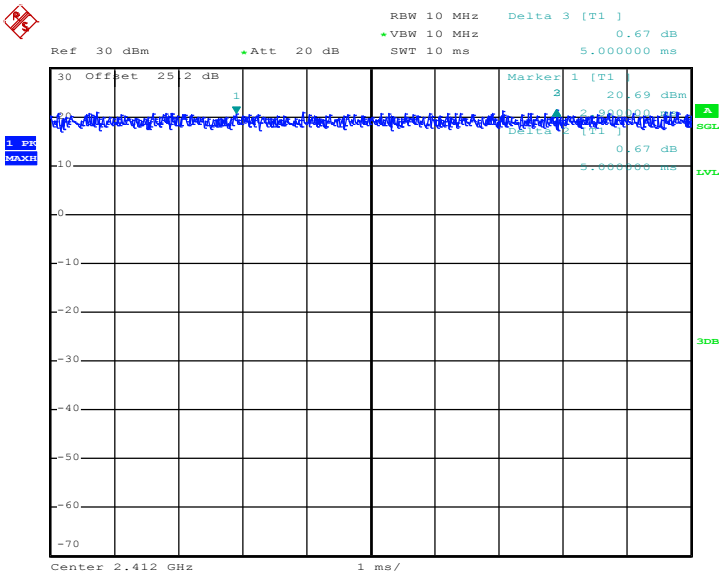
Date: 4.JUL.2018 00:56:14

802.11g



Date: 4.JUL.2018 01:28:45

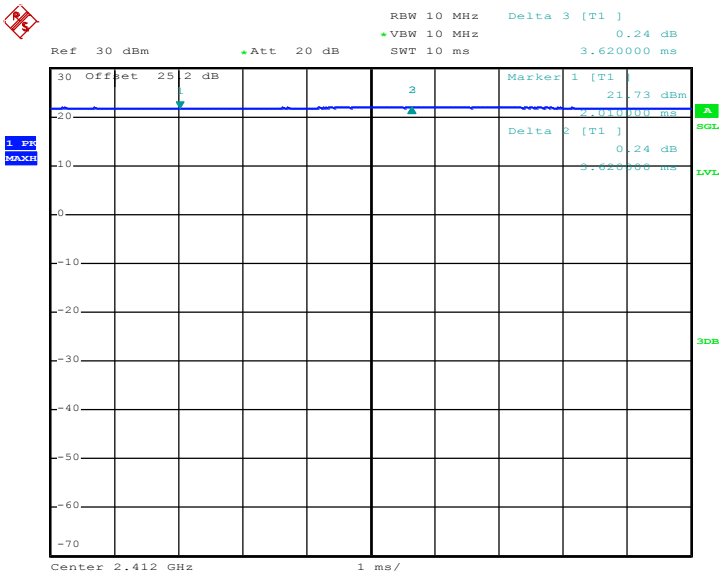
802.11n HT20



Date: 4.JUL.2018 01:43:28

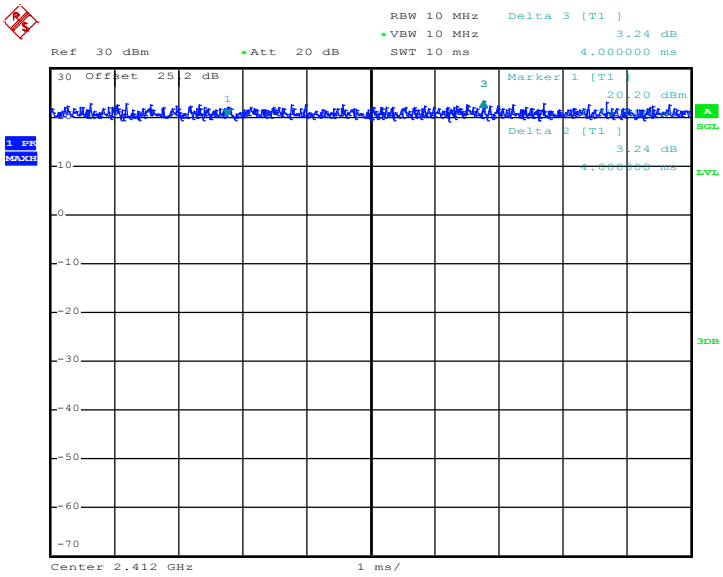
<Ant. 2>

802.11b



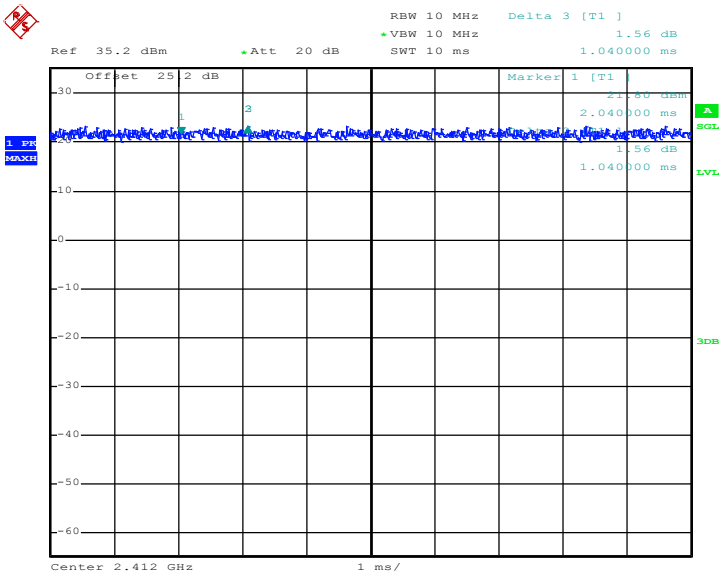
Date: 4.JUL.2018 01:20:29

802.11g



Date: 4.JUL.2018 01:39:09

802.11n HT20



Date: 4.JUL.2018 02:13:30

Appendix D. External Subcontractors to Perform Testing Data

The test report as below presents all the conducted test item and conduction emission test data performed by the subcontracted Sporton laboratory located in Taiwan.

FCC RADIO TEST REPORT

FCC ID	:	**2AP64-2872**
Equipment	:	**Digital Media Receiver**
Model Name	:	**C1125P**
Applicant	:	**Gargantuan LLC** **303 North Glenoaks Blvd., Ste 200** **Burbank, CA 91502**
Standard	:	**FCC Part 15 Subpart C §15.247**

The testing was completed on Aug. 03, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Jones Tsai

Approved by: Jones Tsai

SPORTON INTERTIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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Appendix A. Conducted Test Results

Appendix B. AC Conducted Emission Test Result

History of this test report

Report No.	Version	Description	Issued Date
FR840308-01E	01	Initial issue of report	Aug. 15, 2018

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)
3.1	15.247(a)(2)	6dB Bandwidth	Pass
3.1	2.1049	99% Occupied Bandwidth	Reporting only
3.2	15.247(b)	Power Output Measurement	Pass
3.3	15.247(e)	Power Spectral Density	Pass
3.4	15.247(d)	Conducted Band Edges	Pass
		Conducted Spurious Emission	Pass
3.5	15.207	AC Conducted Emission	Pass
3.6	15.203 & 15.247(b)	Antenna Requirement	Pass

Reviewed by: Joseph Lin

Report Producer: Polly Tsai

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Digital Media Receiver
Model Name	C1125P
FCC ID	2AP64-2872
EUT supports Radios application	WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE

1.2 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2472 MHz
Maximum (Peak) Output Power to antenna	**<Ant. 1>** 802.11b : 21.60 dBm (0.1445 W) 802.11g : 22.54 dBm (0.1795 W) 802.11n HT20 : 22.45 dBm (0.1758 W) **<Ant. 2>** 802.11b : 21.46 dBm (0.1400 W) 802.11g : 23.62 dBm (0.2301 W) 802.11n HT20 : 23.57 dBm (0.2275 W)
99% Occupied Bandwidth	**<Ant. 1>** 802.11b : 15.05 MHz 802.11g : 17.50 MHz 802.11n HT20 : 18.65 MHz **<Ant. 2>** 802.11b : 14.20 MHz 802.11g : 17.35 MHz 802.11n HT20 : 18.50 MHz
Antenna Type / Gain	**Ant. 1:** Fixed Internal Antenna type with gain 2.10 dBi **Ant. 2:** Fixed Internal Antenna type with gain 1.90 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.3 Modification of EUT

No modifications are made to the EUT during all test items.

1.4 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	
	TH05-HY	CO05-HY

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

1.5 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
- ANSI C63.10-2013

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz).

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

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	8	2447
	2	2417	9	2452
	3	2422	10	2457
	4	2427	11	2462
	5	2432	12	2467
	6	2437	13	2472
	7	2442		

2.2 Test Mode

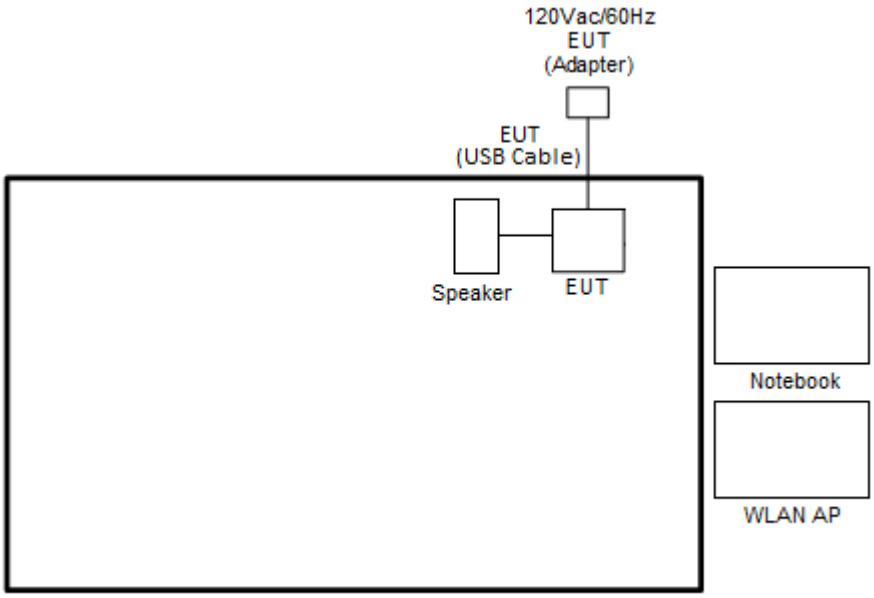
Final test modes are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0

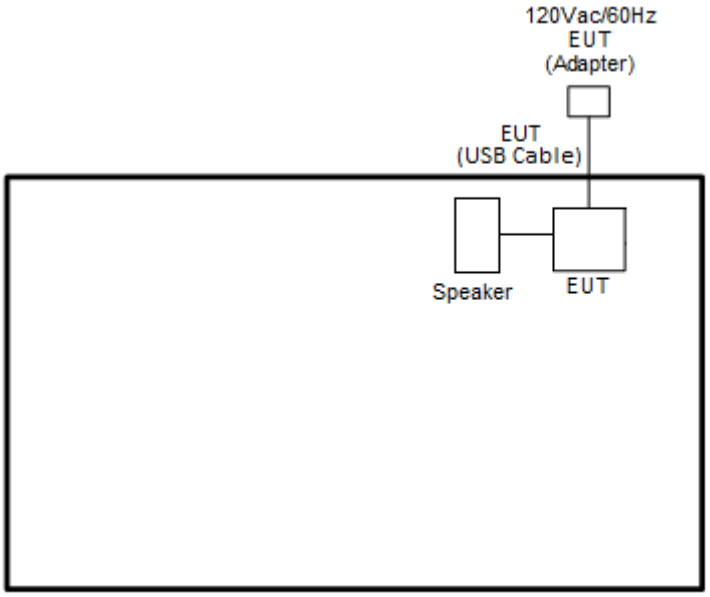
Test Cases	
AC Conducted Emission	Mode 1 :WLAN (2.4GHz) Link + Play News + External Speaker + USB Cable (Charging from Adapter) Mode 2 :Bluetooth Link + Play MP3 + External Speaker + USB Cable (Charging from Adapter)
Remark: The worst case of conducted emission is mode 1; only the test data of it was reported.	

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode for Play News>



<AC Conducted Emission Mode for Play MP3>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Speaker	JAWBONE	JAMBOX	V3J-JBE	Shielded, 0.5 m	N/A
4.	Smart Phone	Taiwan Mobile	Amazing A4S	N/A	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “Compliance.exe” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to contact with base station to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

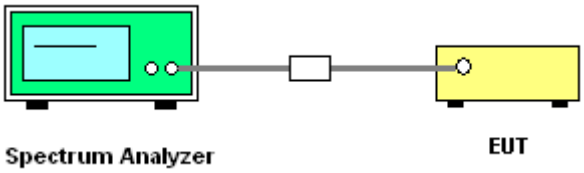
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

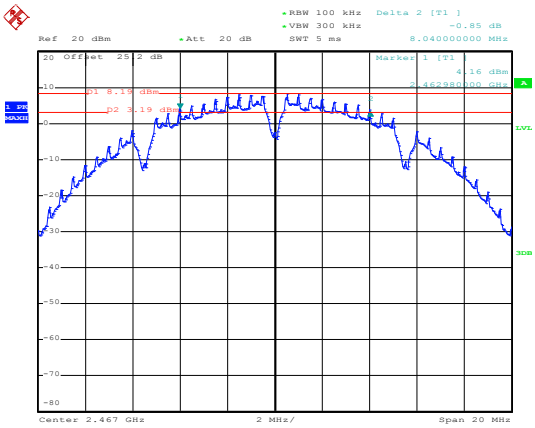
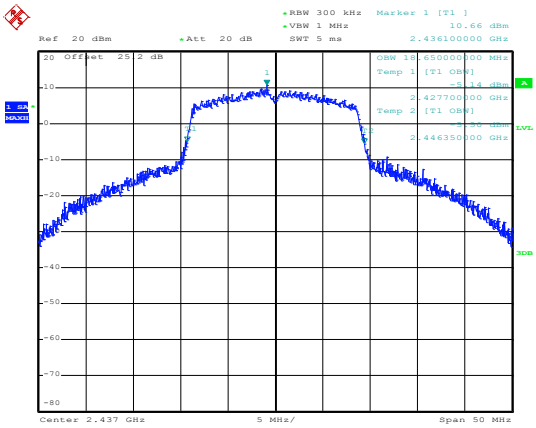
1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v04.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) ≥ 3 * RBW.
6. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	

Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

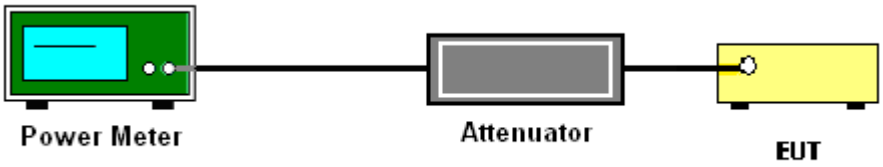
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

1. For Peak Power, the testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v04 section 9.1.3 PKPM1 Peak power meter method.
2. For Average Power, the testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v04 section 9.2.3.1 Method AVGPM.
3. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.2.6 Test Result of Average output Power (Reporting Only)

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

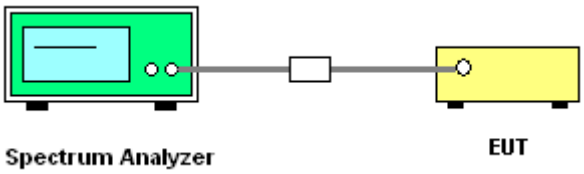
3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

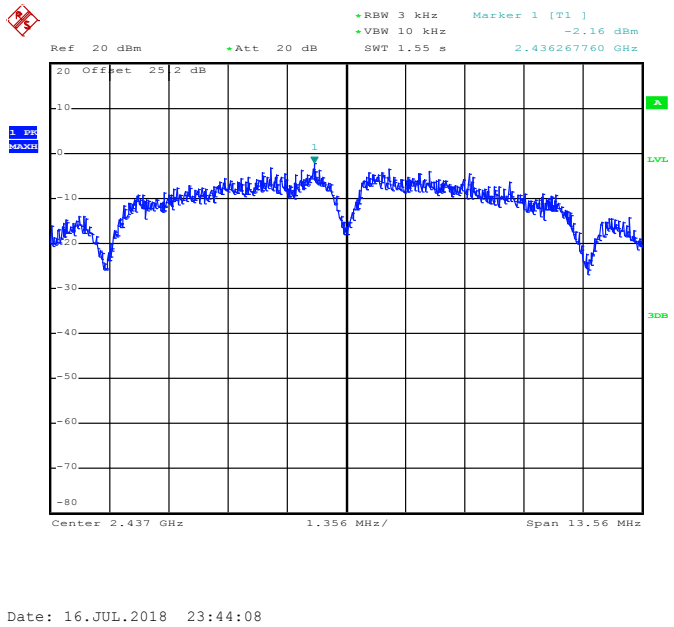
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/3kHz)



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

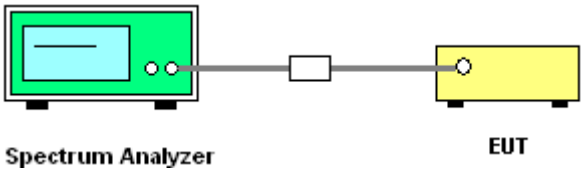
3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup



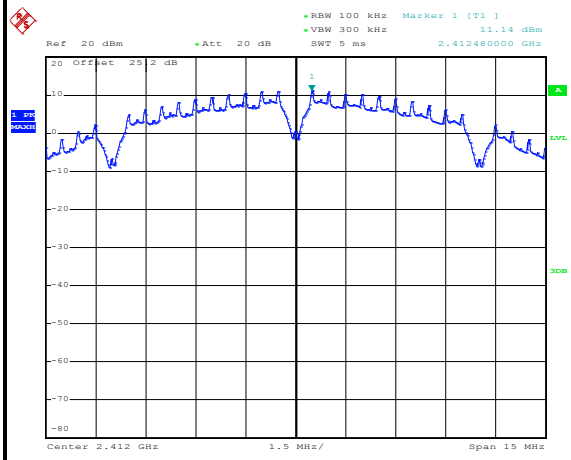
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Engineer :	Luffy Lin	**Temperature :**	21~25℃
		Relative Humidity :	51~54%

Number of TX = 1, Ant. 1 (Measured)

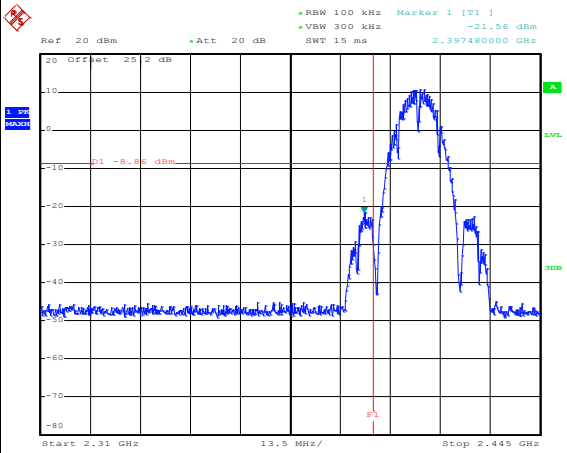
Test Mode :	802.11b	**Test Channel :**	01

100kHz PSD reference Level



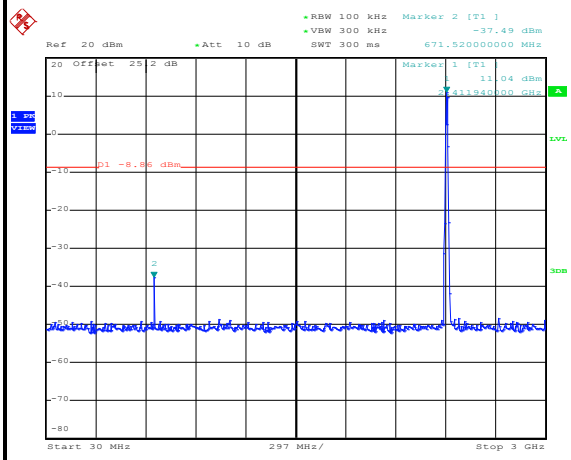
Date: 16.JUL.2018 22:51:53

Channel Plot



Date: 16.JUL.2018 22:52:14

Spurious Emission 30MHz~3GHz



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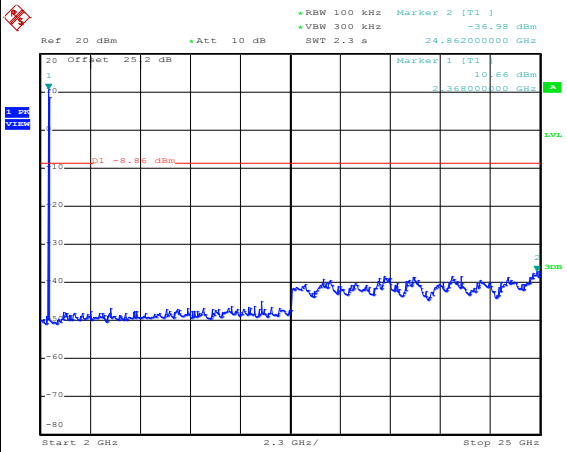
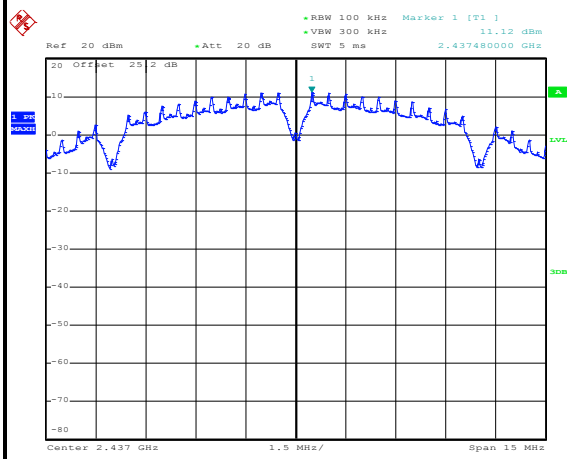
Spurious Emission 2GHz~25GHz

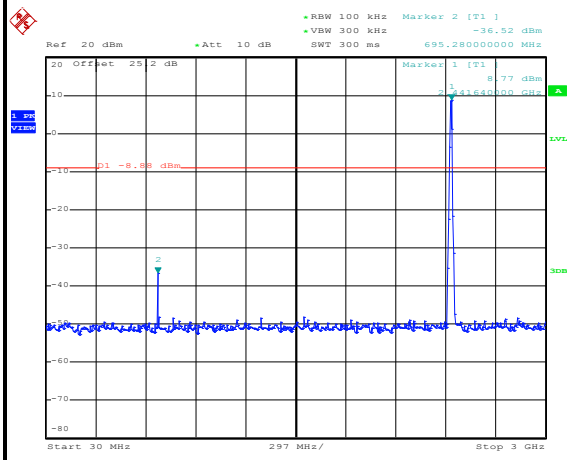
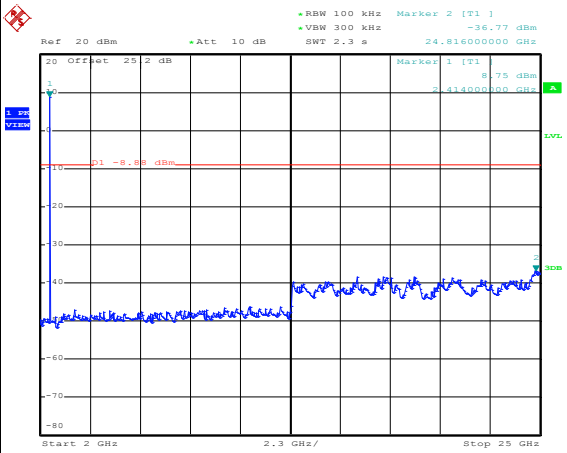


Date: 16.JUL.2018 22:54:19

Test Mode :	802.11b	Test Channel :	06

100kHz PSD reference Level	Channel Plot
	

Date: 16.JUL.2018 22:57:47

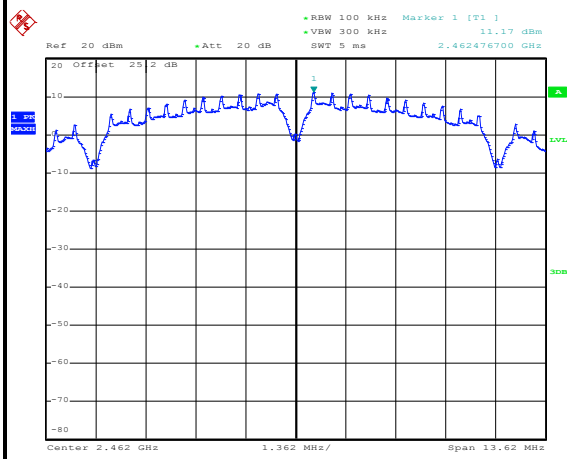
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Date: 16.JUL.2018 22:58:28

Date: 16.JUL.2018 22:58:48

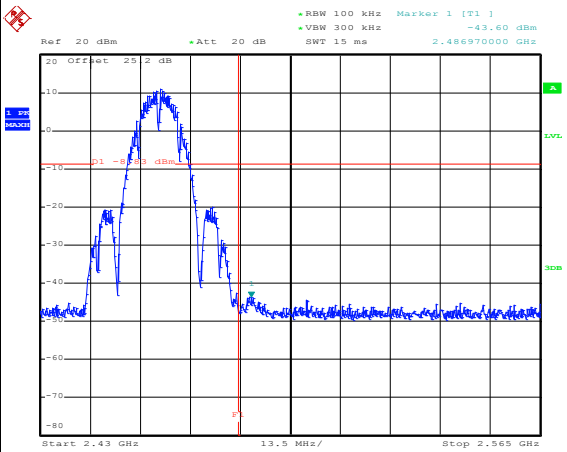
Test Mode :	802.11b	Test Channel :	11

100kHz PSD reference Level



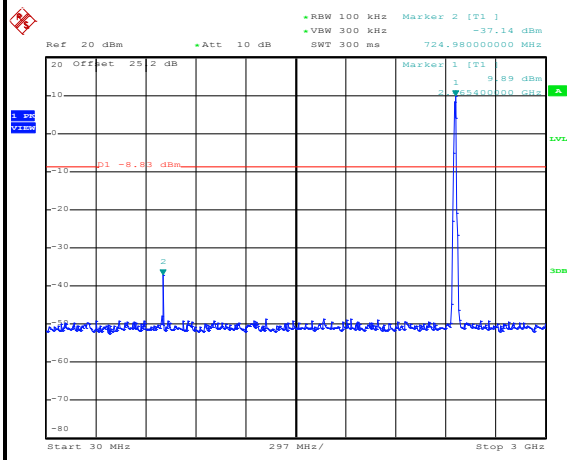
Date: 16.JUL.2018 23:21:01

Channel Plot



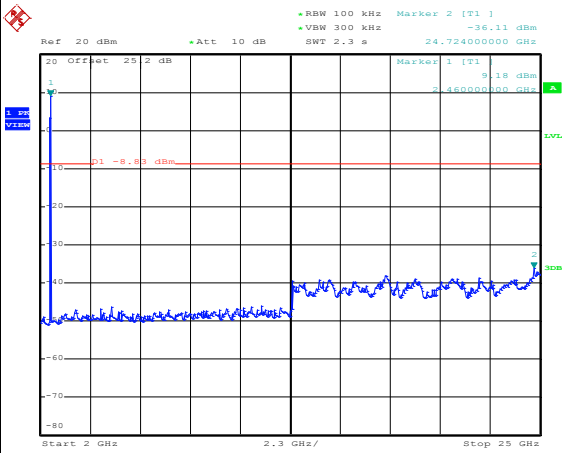
Date: 16.JUL.2018 23:21:26

Spurious Emission 30MHz~3GHz



Date: 16.JUL.2018 23:21:48

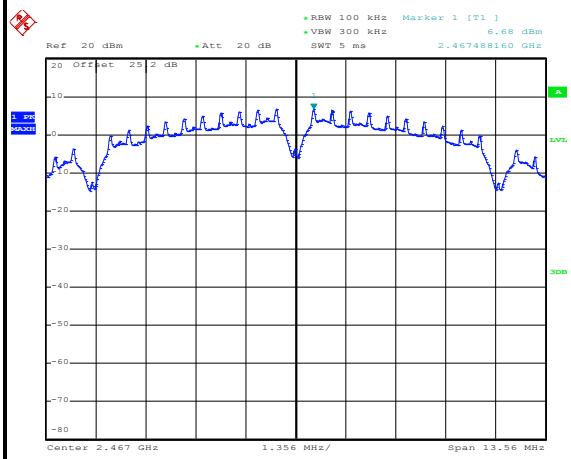
Spurious Emission 2GHz~25GHz



Date: 16.JUL.2018 23:22:34

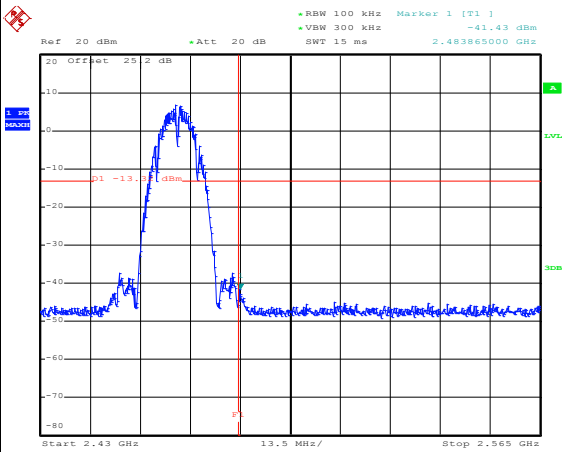
Test Mode :	802.11b	Test Channel :	12

100kHz PSD reference Level



Date: 16.JUL.2018 23:26:56

Channel Plot



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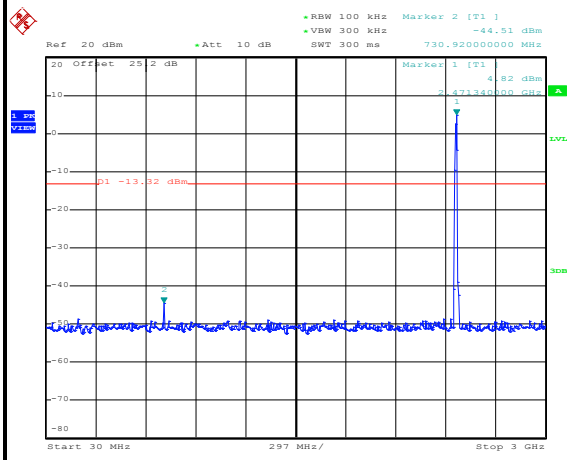
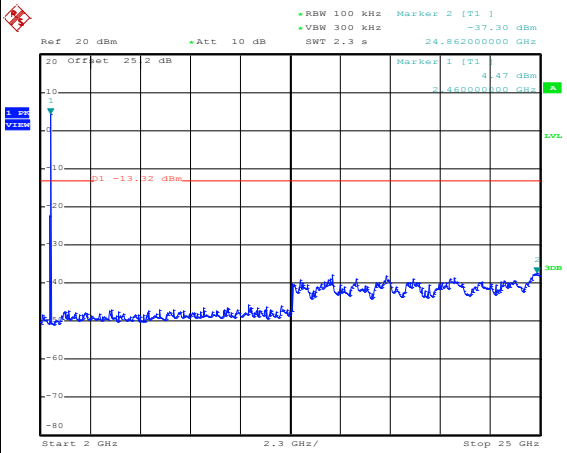
Spurious Emission 30MHz~3GHz



Date: 16.JUL.2018 23:27:13

Spurious Emission 2GHz~25GHz



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