FCC RF Test Report

APPLICANT	**:**	**Bullitt Group**
EQUIPMENT	**:**	**Rugged Smart Phone**
BRAND NAME	**:**	**CAT**
MODEL NAME	**:**	**S41**
MARKETING NAME	**:**	**S41**
FCC ID	**:**	**ZL5S41A**
STANDARD	**:**	**FCC Part 15 Subpart E §15.407**
CLASSIFICATION	**:**	**(NII) Unlicensed National Information Infrastructure**

The product was received on Jun. 06, 2017 and testing was completed on Aug. 11, 2017. 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 test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR760506-01E	Rev. 01	Initial issue of report	Aug. 22, 2017

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 15.403(i)	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	-
3.4	15.407(b)	Unwanted Emissions	≤ -17, -27 dBm &15.209(a)	Pass	Under limit 1.15 dB at 5350.320 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.40 dB at 0.150 MHz
3.6	15.407(g)	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Bullitt Group
One Valpy, Valpy Street, Reading, Berkshire, England RG1 1AR

1.2 Manufacturer

Compal Electronics, INC.
No. 385, Yangguang St. Neihu District, Taipei City 11491, Taiwan, R.O.C

1.3 Product Feature of Equipment Under Test

GSM/WCDMA/LTE, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n, FM Receiver, NFC, and GPS

Product Specification subjective to this standard	
Antenna Type	WWAN: PIFA + Coupling type (LDS) Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna GPS / Glonass: PIFA Antenna NFC: Loop Antenna FM: Integral Antenna (Earphone acting as FM antenna deemed as an integral antenna)

<Sample Information>

S41	
Sample 1	Dual SIM
Sample 2	Single SIM
For Dual-SIM or Single-SIM control by SW, the HW difference is SIM holder.	

Remark: All test items were performed with Sample 1.

1.4 Modification of EUT

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

1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan 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.

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH11-HY

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

1.6 Applicable Standards

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

- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.
- ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

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

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5150-5250 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	-	-		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5250-5350 MHz Band 2 (U-NII-2A)	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	-	-		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3 (U-NII-2C)	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	-	-	134*	5670
	108	5540	136	5680
	110*	5550	140	5700

Note: The above Frequency and Channel in "*" were 802.11n HT40.

2.2 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0

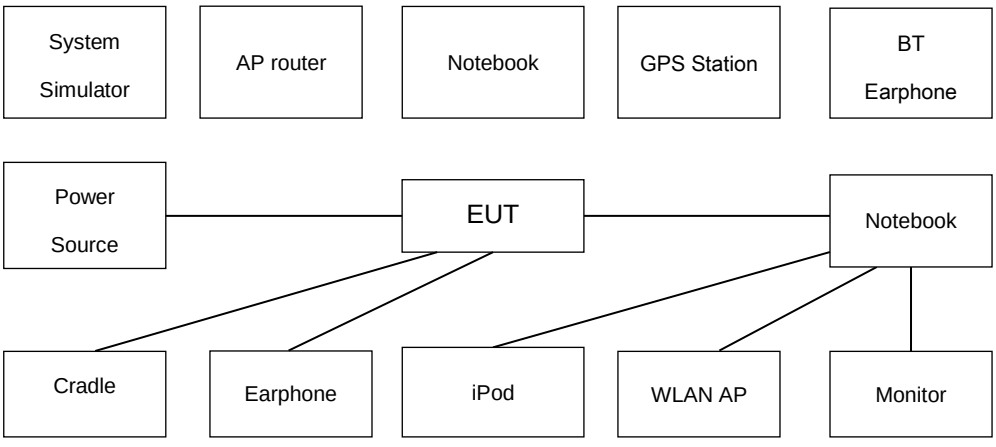
Test Cases	
AC Conducted Emission	Mode 1 LTE Band 7 Idle + Bluetooth Link + WLAN (5GHz) Link + NFC on + FM Rx (98MHz) + Earphone + Battery + USB Cable (Charging from Adapter)

Ch. #		Band I：5150-5250 MHz	Band II：5250-5350 MHz	Band III：5470-5725MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		Band I：5150-5250 MHz	Band II：5250-5350 MHz	Band III：5470-5725MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		Band I：5150-5250 MHz	Band II：5250-5350 MHz	Band III：5470-5725MHz
		802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134

2.3 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

. For detail, please refer to test mode configuration and setup photographs for each test item.

2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	Bluetooth Earphone	SonyErricsson	MW600	PY700A2029	N/A	N/A
3.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded,1.8m
4.	NOTE BOOK	Dell	Latitude E6320	FCC DoC	AC I/P：Unshielded, 1.2m DC O/P：Shielded, 1.8m	Unshielded, 1.8 m
5.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

2.5 EUT Operation Test Setup

For WLAN 5GHz test items, an engineering test program was provided and enabled to make EUT transmitting and receiving 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 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

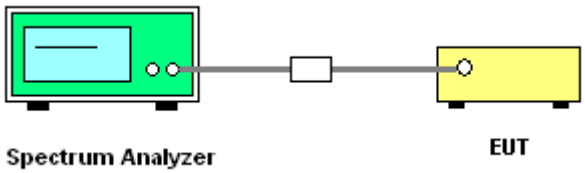
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1MHz and set the Video bandwidth (VBW) ≥ 3 * RBW.
8. Measure and record the results in the test report.

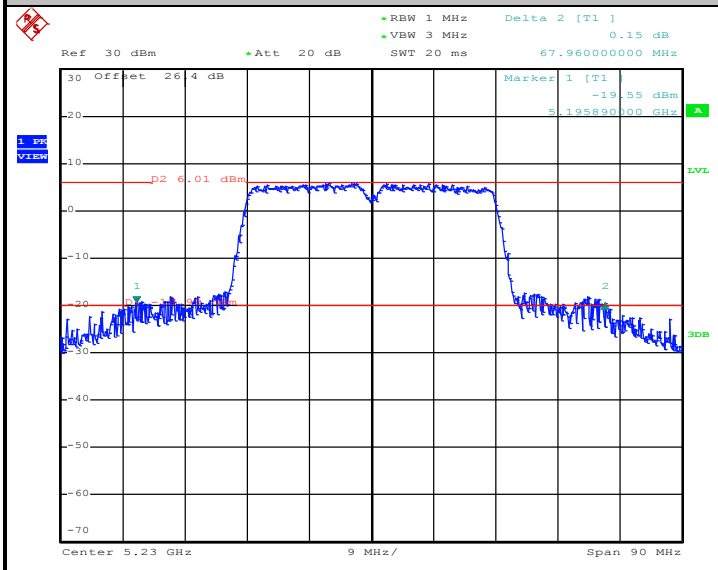
3.1.4 Test Setup



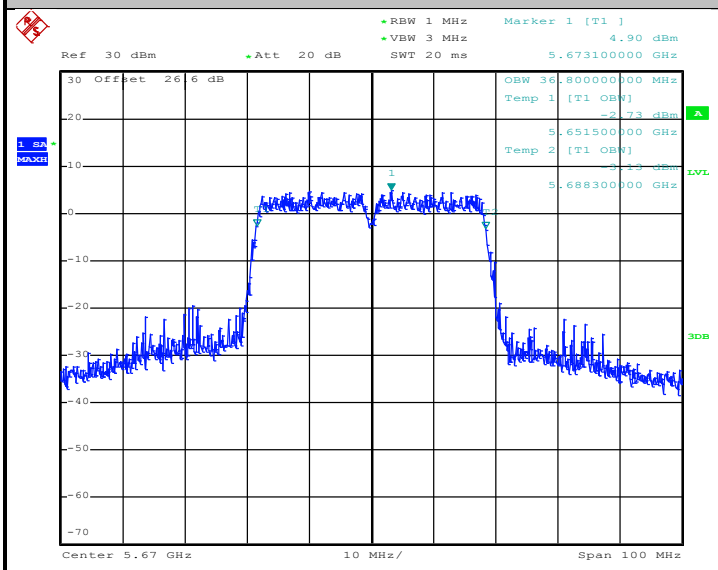
3.1.5 Test Result of 26dB & 99% Occupied Bandwidth Plots

Please refer to Appendix A.

Maximum 26dB Bandwidth



Maximum 99% Occupied Bandwidth



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

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW.

For the 5.25–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

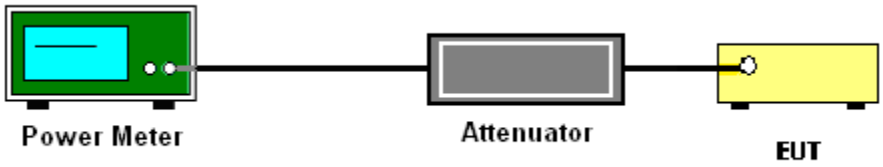
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

For the 5.25–5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

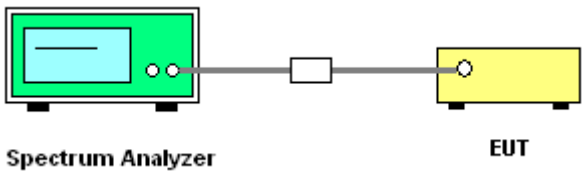
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04. Section F) Maximum power spectral density.

 # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.
   - Measure the duty cycle.
   - Set span to encompass the entire emission bandwidth (EBW) of the signal.
   - Set RBW = 1 MHz.
   - Set VBW ≥ 3 MHz.
   - Number of points in sweep ≥ 2 Span / RBW.
   - Sweep time = auto.
   - Detector = RMS
   - Trace average at least 100 traces in power averaging mode.
   - Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

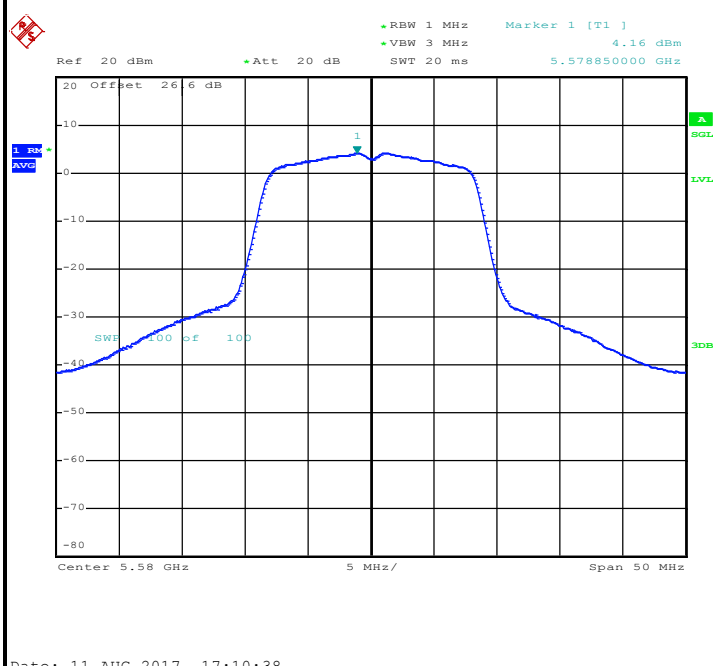
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Spectral Density(dBm/MHz)



Note: Average Power Density (dB) = Measured value+ Duty Factor

3.4 Unwanted Radiated Emission Measurement

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

3.4.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of –27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5725MHz band: all emissions outside of the 5470-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

(2) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

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

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

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

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

(3) KDB789033 D01 v01r04 G)2)c)

(i) Section 15.407(b)(1) to (b)(3) specify the unwanted emission limits for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz.[3]

(ii) Section 15.407(b)(4) specifies the unwanted emission limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are in terms of a Peak detector. An alternative to the band emissions mask is specified in Section 15.407(b)(4)(ii). The alternative limits are based on the highest antenna gain specified in the filing. There are also marketing and importation restrictions for the devices using the alternative limit.[4]

Note 3: An out-of-band emission that complies with both the average and peak limits of Section 15.209 is not required to satisfy the -27 dBm/MHz peak emission limit.

Note 4: Only devices with antenna gains of 10 dBi or less may be approved using the emission limits specified in Section 15.247(d) till March 2, 2018; all other devices operating in this band must use the mask specified in Section 15.407(b)(4)(i).

3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04. Section G) Unwanted emissions measurement.

   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz

   - RBW = 120 kHz
   - VBW = 300 kHz
   - Detector = Peak
   - Trace mode = max hold

   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

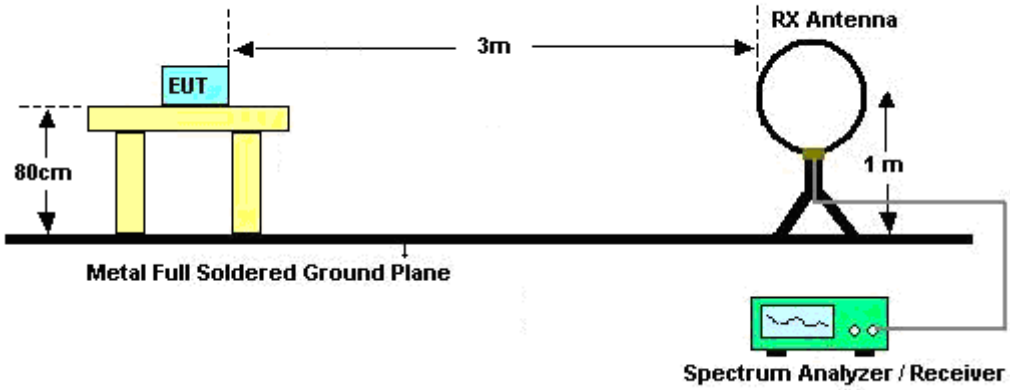
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - RBW = 1 MHz
   - 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.

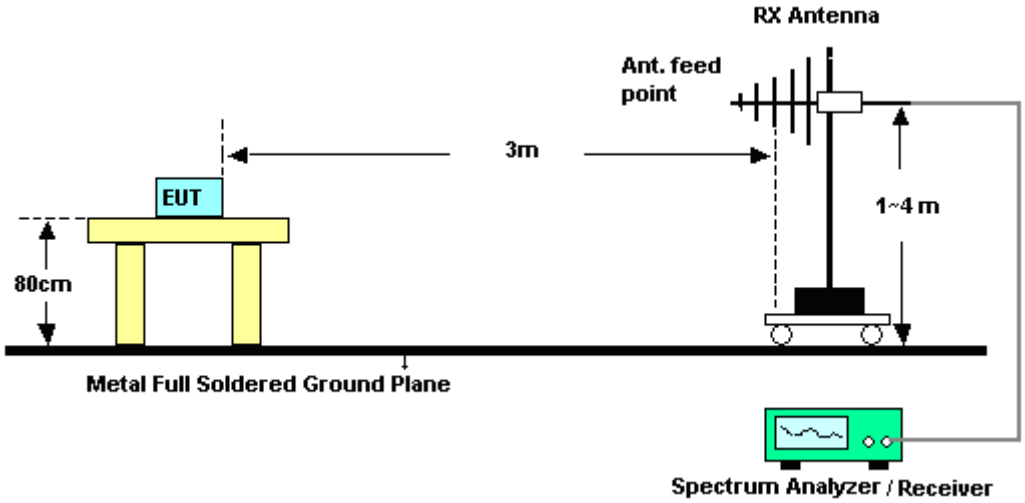
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. 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.

3.4.4 Test Setup

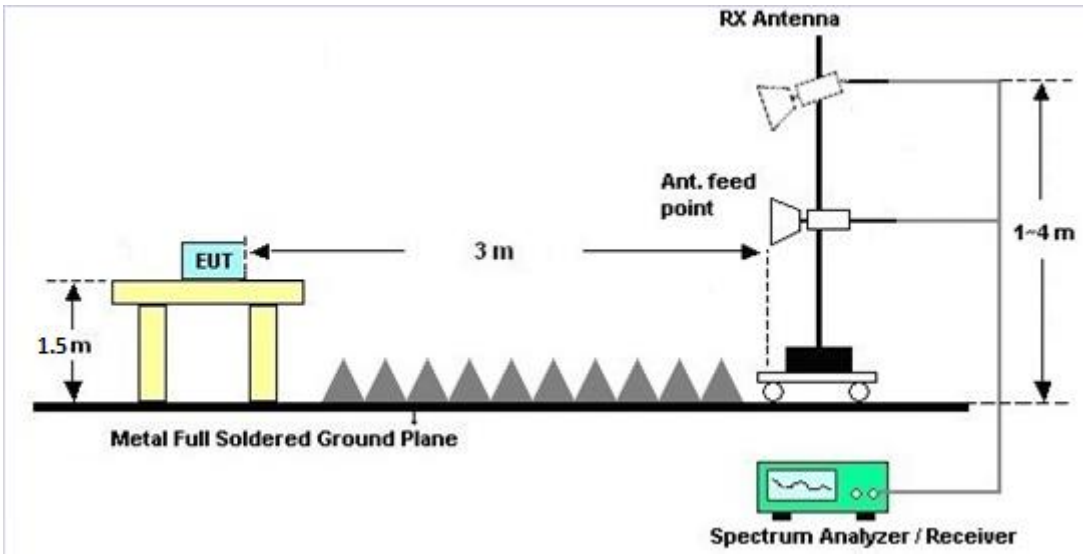
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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.

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.4.7 Duty Cycle

Please refer to Appendix E.

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

Please refer to Appendix C and D.

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

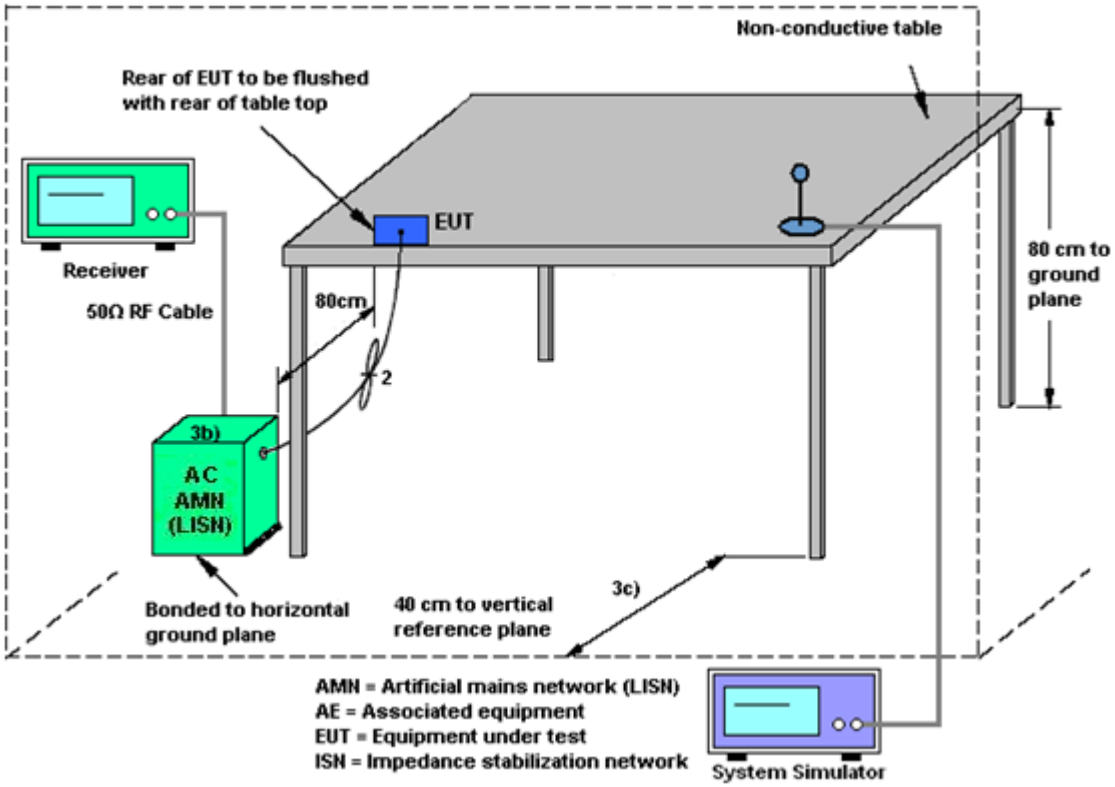
3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.5.4 Test Setup



3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Frequency Stability Measurement

3.6.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

3.6.4 Test Setup

3.6.5 Test Result of Frequency Stability

Please refer to Appendix A.

3.7 Automatically Discontinue Transmission

3.7.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

3.7.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Result of Automatically Discontinue Transmission

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

3.8 Antenna Requirements

3.8.1 Standard Applicable

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.8.3 Antenna Gain

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

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	0932001	300MHz~40GHz	Sep. 29, 2016	Jul. 26, 2017 ~ Aug. 11, 2017	Sep. 28, 2017	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	0846202	300MHz~40GHz	Sep. 29, 2016	Jul. 26, 2017 ~ Aug. 11, 2017	Sep. 28, 2017	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 25, 2016	Jul. 26, 2017 ~ Aug. 11, 2017	Nov. 24, 2017	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40℃ ~90℃	Sep. 01, 2016	Jul. 26, 2017 ~ Aug. 11, 2017	Aug. 31, 2017	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 11, 2016	Jul. 26, 2017 ~ Aug. 11, 2017	Oct. 10, 2017	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Aug. 03, 2017	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Aug. 03, 2017	Aug. 29, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 29, 2016	Aug. 03, 2017	Nov. 28, 2017	Conduction (CO05-HY)
Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz, VSWR : 2.5:1 max	Jul. 21, 2017	Aug. 01, 2017 ~ Aug. 02, 2017	Jul. 20, 2018	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Nov. 10, 2016	Aug. 01, 2017 ~ Aug. 02, 2017	Nov. 09, 2017	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D&N-6-06	35414&AT-N 0602	30MHz~1GHz	Oct. 15, 2016	Aug. 01, 2017 ~ Aug. 02, 2017	Oct. 14, 2017	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1326	1GHz ~ 18GHz	Oct. 07, 2016	Aug. 01, 2017 ~ Aug. 02, 2017	Oct. 06, 2017	Radiation (03CH11-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Oct. 20, 2016	Aug. 01, 2017 ~ Aug. 02, 2017	Oct. 19, 2018	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 10, 2016	Aug. 01, 2017 ~ Aug. 02, 2017	Nov. 09, 2017	Radiation (03CH11-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1902247	1GHz~18GHz	Jun. 23, 2017	Aug. 01, 2017 ~ Aug. 02, 2017	Jun. 22, 2018	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz ~ 44GHz	Oct. 12, 2016	Aug. 01, 2017 ~ Aug. 02, 2017	Oct. 11, 2017	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Aug. 01, 2017 ~ Aug. 02, 2017	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Aug. 01, 2017 ~ Aug. 02, 2017	N/A	Radiation (03CH11-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz to 26.5GHz	Jan. 12, 2017	Aug. 01, 2017 ~ Aug. 02, 2017	Jan. 11, 2018	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 08, 2016	Aug. 01, 2017 ~ Aug. 02, 2017	Nov. 07, 2017	Radiation (03CH11-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.70**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.20**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.50**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.20**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Derek Hsu /Allen Lin	Temperature:	21~25	°C
Test Date:	2017/7/26~2017/8/11	Relative Humidity:	51~54	%

TEST RESULTS DATA
26dB and 99% OBW

Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)		
11a	6Mbps	1	36	5180	17.60	33.90	-	22.46		
11a	6Mbps	1	44	5220	17.55	27.00	-	22.44		
11a	6Mbps	1	48	5240	17.80	29.40	-	22.50		
HT20	MCS0	1	36	5180	18.65	35.90	-	22.71		
HT20	MCS0	1	44	5220	18.65	36.15	-	22.71		
HT20	MCS0	1	48	5240	18.60	33.00	-	22.70		
HT40	MCS0	1	38	5190	36.60	44.97	-	23.01		
HT40	MCS0	1	46	5230	36.70	67.96	-	23.01		

TEST RESULTS DATA
Average Power Table

FCC Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6Mbps	1	36	5180	0.12	13.81	24.00	-1.90		Pass
11a	6Mbps	1	44	5220	0.12	13.97	24.00	-1.90		Pass
11a	6Mbps	1	48	5240	0.12	13.63	24.00	-1.90		Pass
HT20	MCS0	1	36	5180	0.16	12.96	24.00	-1.90		Pass
HT20	MCS0	1	44	5220	0.16	12.93	24.00	-1.90		Pass
HT20	MCS0	1	48	5240	0.16	12.91	24.00	-1.90		Pass
HT40	MCS0	1	38	5190	0.26	9.97	24.00	-1.90		Pass
HT40	MCS0	1	46	5230	0.26	12.72	24.00	-1.90		Pass

TEST RESULTS DATA
Power Spectral Density

FCC Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)	-	Pass/Fail
11a	6Mbps	1	36	5180	0.12	3.02	11.00	-1.90		Pass
11a	6Mbps	1	44	5220	0.12	2.61	11.00	-1.90		Pass
11a	6Mbps	1	48	5240	0.12	2.71	11.00	-1.90		Pass
HT20	MCS0	1	36	5180	0.16	0.26	11.00	-1.90		Pass
HT20	MCS0	1	44	5220	0.16	0.28	11.00	-1.90		Pass
HT20	MCS0	1	48	5240	0.16	0.37	11.00	-1.90		Pass
HT40	MCS0	1	38	5190	0.26	-5.40	11.00	-1.90		Pass
HT40	MCS0	1	46	5230	0.26	-2.87	11.00	-1.90		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)	Note
11a	6M bps	1	52	5260	17.65	30.75	23.47	29.47	23.98	
11a	6M bps	1	60	5300	17.60	27.70	23.46	29.46	23.98	
11a	6M bps	1	64	5320	17.40	30.45	23.41	29.41	23.98	
HT20	MCS 0	1	52	5260	18.50	29.30	23.67	29.67	23.98	
HT20	MCS 0	1	60	5300	18.30	27.10	23.62	29.62	23.98	
HT20	MCS 0	1	64	5320	18.25	29.45	23.61	29.61	23.98	
HT40	MCS 0	1	54	5270	36.70	54.36	23.98	30.00	23.98	
HT40	MCS 0	1	62	5310	36.70	41.30	23.98	30.00	23.98	

TEST RESULTS DATA
Average Power Table

FCC Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	52	5260	0.12	13.72	23.98	0.11	26.99	Pass
11a	6M bps	1	60	5300	0.12	13.97	23.98	0.11	26.99	Pass
11a	6M bps	1	64	5320	0.12	13.52	23.98	0.11	26.99	Pass
HT20	MCS 0	1	52	5260	0.16	12.90	23.98	0.11	26.99	Pass
HT20	MCS 0	1	60	5300	0.16	12.98	23.98	0.11	26.99	Pass
HT20	MCS 0	1	64	5320	0.16	12.99	23.98	0.11	26.99	Pass
HT40	MCS 0	1	54	5270	0.26	12.73	23.98	0.11	26.99	Pass
HT40	MCS 0	1	62	5310	0.26	9.70	23.98	0.11	26.99	Pass

TEST RESULTS DATA
Power Spectral Density

Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)		Pass/Fail
11a	6M bps	1	52	5260	0.12	2.97	11.00	0.11		Pass
11a	6M bps	1	60	5300	0.12	3.00	11.00	0.11		Pass
11a	6M bps	1	64	5320	0.12	2.50	11.00	0.11		Pass
HT20	MCS 0	1	52	5260	0.16	1.98	11.00	0.11		Pass
HT20	MCS 0	1	60	5300	0.16	1.70	11.00	0.11		Pass
HT20	MCS 0	1	64	5320	0.16	1.92	11.00	0.11		Pass
HT40	MCS 0	1	54	5270	0.26	-2.39	11.00	0.11		Pass
HT40	MCS 0	1	62	5310	0.26	-5.55	11.00	0.11		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)	Note
11a	6M bps	1	100	5500	17.50	26.70	23.43	29.43	23.98	
11a	6M bps	1	116	5580	17.35	26.05	23.39	29.39	23.98	
11a	6M bps	1	140	5700	17.50	27.35	23.43	29.43	23.98	
HT20	MCS 0	1	100	5500	18.65	28.10	23.71	29.71	23.98	
HT20	MCS 0	1	116	5580	18.50	25.50	23.67	29.67	23.98	
HT20	MCS 0	1	140	5700	18.65	24.70	23.71	29.71	23.98	
HT40	MCS 0	1	102	5510	36.60	41.11	23.98	30.00	23.98	
HT40	MCS 0	1	110	5550	36.60	54.56	23.98	30.00	23.98	
HT40	MCS 0	1	134	5670	36.80	49.57	23.98	30.00	23.98	

TEST RESULTS DATA
Average Power Table

FCC Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	100	5500	0.12	13.70	23.98	0.44	26.99	Pass
11a	6M bps	1	116	5580	0.12	13.82	23.98	0.44	26.99	Pass
11a	6M bps	1	140	5700	0.12	13.69	23.98	0.44	26.99	Pass
HT20	MCS 0	1	100	5500	0.16	12.78	23.98	0.44	26.99	Pass
HT20	MCS 0	1	116	5580	0.16	12.56	23.98	0.44	26.99	Pass
HT20	MCS 0	1	140	5700	0.16	12.76	23.98	0.44	26.99	Pass
HT40	MCS 0	1	102	5510	0.26	9.86	23.98	0.44	26.99	Pass
HT40	MCS 0	1	110	5550	0.26	12.60	23.98	0.44	26.99	Pass
HT40	MCS 0	1	134	5670	0.26	12.76	23.98	0.44	26.99	Pass

TEST RESULTS DATA
Power Spectral Density

Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)		Pass/Fail
11a	6M bps	1	100	5500	0.12	4.21	11.00	0.44		Pass
11a	6M bps	1	116	5580	0.12	4.28	11.00	0.44		Pass
11a	6M bps	1	140	5700	0.12	2.85	11.00	0.44		Pass
HT20	MCS 0	1	100	5500	0.16	0.86	11.00	0.44		Pass
HT20	MCS 0	1	116	5580	0.16	1.31	11.00	0.44		Pass
HT20	MCS 0	1	140	5700	0.16	0.14	11.00	0.44		Pass
HT40	MCS 0	1	102	5510	0.26	-4.13	11.00	0.44		Pass
HT40	MCS 0	1	110	5550	0.26	-1.61	11.00	0.44		Pass
HT40	MCS 0	1	134	5670	0.26	-3.10	11.00	0.44		Pass

TEST RESULTS DATA
Frequency Stability

Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stablility (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	50	4	
11a	6Mbps	1	36	5180	5180.000	0.000	0.00	-30	4	
11a	6Mbps	1	36	5180	5180.000	0.000	0.00	20	4.4	
11a	6Mbps	1	36	5180	5180.000	0.000	0.00	20	3.6	
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	20	4	

Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stablility (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	64	5320	5320.000	0.000	0.00	50	4	
11a	6Mbps	1	64	5320	5320.000	0.000	0.00	-30	4	
11a	6Mbps	1	64	5320	5320.000	0.000	0.00	20	4.4	
11a	6Mbps	1	64	5320	5320.000	0.000	0.00	20	3.6	
11a	6Mbps	1	64	5320	5320.000	0.000	0.00	20	4	

Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stablility (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	50	4	
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	-30	4	
11a	6Mbps	1	100	5500	5500.000	0.000	0.00	20	4.4	
11a	6Mbps	1	100	5500	5500.000	0.000	0.00	20	3.6	
11a	6Mbps	1	100	5500	5499.950	-0.050	-9.09	20	4	

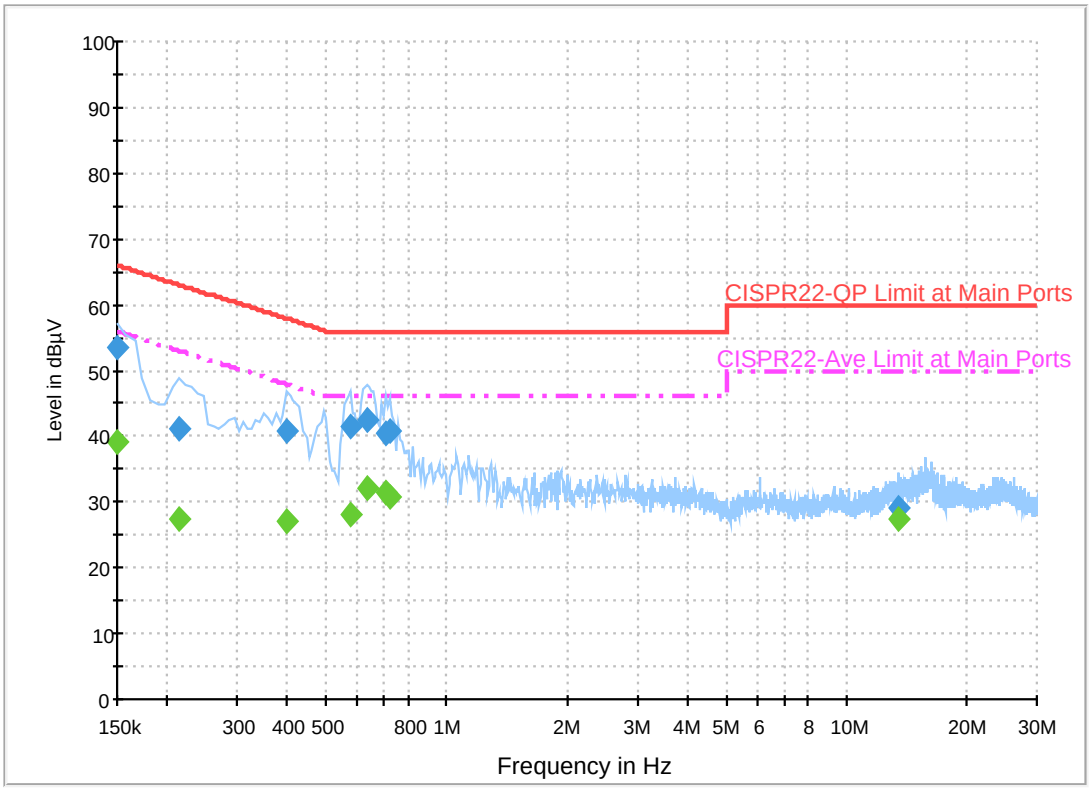
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Shareef Yu	**Temperature :**	26~27℃
		Relative Humidity :	50~56%

EUT Information

Report NO :	760506-01
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

ENV216 Auto Test FCC Power Bar - L



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	53.6	Off	L1	19.6	12.4	66.0
0.214000	41.2	Off	L1	19.6	21.8	63.0
0.398000	40.7	Off	L1	19.6	17.2	57.9
0.574000	41.5	Off	L1	19.6	14.5	56.0
0.630000	42.5	Off	L1	19.6	13.5	56.0
0.702000	40.3	Off	L1	19.6	15.7	56.0
0.718000	40.8	Off	L1	19.6	15.2	56.0
13.558000	29.0	Off	L1	20.2	31.0	60.0

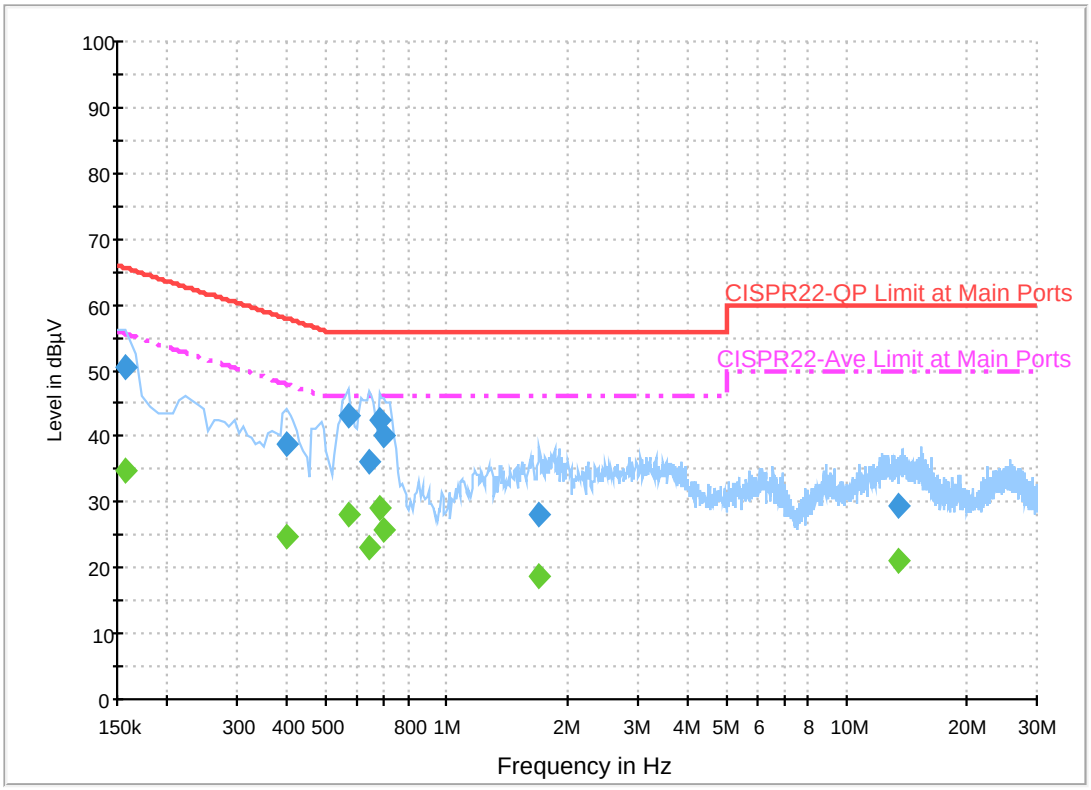
Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	39.1	Off	L1	19.6	16.9	56.0
0.214000	27.4	Off	L1	19.6	25.6	53.0
0.398000	27.0	Off	L1	19.6	20.9	47.9
0.574000	28.1	Off	L1	19.6	17.9	46.0
0.630000	32.3	Off	L1	19.6	13.7	46.0
0.702000	31.4	Off	L1	19.6	14.6	46.0
0.718000	30.8	Off	L1	19.6	15.2	46.0
13.558000	27.4	Off	L1	20.2	22.6	50.0

EUT Information

Report NO :	760506-01
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral

ENV216 Auto Test FCC Power Bar - N



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	50.6	Off	N	19.5	15.0	65.6
0.398000	38.9	Off	N	19.5	19.0	57.9
0.566000	43.0	Off	N	19.5	13.0	56.0
0.638000	36.2	Off	N	19.5	19.8	56.0
0.678000	42.5	Off	N	19.5	13.5	56.0
0.694000	40.2	Off	N	19.5	15.8	56.0
1.710000	28.0	Off	N	19.6	28.0	56.0
13.558000	29.5	Off	N	20.2	30.5	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	34.8	Off	N	19.5	20.8	55.6
0.398000	24.8	Off	N	19.5	23.1	47.9
0.566000	28.0	Off	N	19.5	18.0	46.0
0.638000	23.2	Off	N	19.5	22.8	46.0
0.678000	29.0	Off	N	19.5	17.0	46.0
0.694000	25.8	Off	N	19.5	20.2	46.0
1.710000	18.8	Off	N	19.6	27.2	46.0
13.558000	21.0	Off	N	20.2	29.0	50.0

Appendix C. Radiated Spurious Emission

Test Engineer :	J.C. Liang, Jacky Huang and Ken Wu	Temperature :	24~26℃
		Relative Humidity :	50~55%

Band 1 - 5150~5250MHz

WIFI 802.11a (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)
802.11a CH 36 5180MHz		5149.24	54.55	-19.45	74	46.48	32.05	9.05	33.03	294	341	P	H
		5149.5	46.31	-7.69	54	38.24	32.05	9.05	33.03	294	341	A	H
	*	5180	107.12	-	-	99	32.08	9.07	33.03	294	341	P	H
	*	5180	100.33	-	-	92.21	32.08	9.07	33.03	294	341	A	H
													H
													H
		5142.48	52.76	-21.24	74	44.69	32.05	9.05	33.03	297	32	P	V
		5150	45.38	-8.62	54	37.31	32.05	9.05	33.03	297	32	A	V
	*	5180	107.53	-	-	99.41	32.08	9.07	33.03	297	32	P	V
	*	5180	100.67	-	-	92.55	32.08	9.07	33.03	297	32	A	V
													V
													V
802.11a CH 44 5220MHz		5147.94	50.44	-23.56	74	42.37	32.05	9.05	33.03	340	310	P	H
		5139.88	42.8	-11.2	54	34.73	32.05	9.05	33.03	340	310	A	H
	*	5220	105.37	-	-	97.17	32.12	9.11	33.03	340	310	P	H
	*	5220	97.32	-	-	89.12	32.12	9.11	33.03	340	310	A	H
		5426.88	49.7	-24.3	74	41.14	32.32	9.26	33.02	340	310	P	H
		5372.64	40.55	-13.45	54	32.11	32.27	9.2	33.03	340	310	A	H
		5136.24	51.35	-22.65	74	43.3	32.03	9.05	33.03	287	32	P	V
		5148.46	43.49	-10.51	54	35.42	32.05	9.05	33.03	287	32	A	V
	*	5220	107.98	-	-	99.78	32.12	9.11	33.03	287	32	P	V
	*	5220	100.24	-	-	92.04	32.12	9.11	33.03	287	32	A	V
		5417.52	49.83	-24.17	74	41.31	32.32	9.22	33.02	287	32	P	V
		5372.4	42.65	-11.35	54	34.21	32.27	9.2	33.03	287	32	A	V

802.11a CH 48 5240MHz		5088.74	50.07	-23.93	74	42.1	32	9.01	33.04	289	342	P	H
		5149.94	42.22	-11.78	54	34.15	32.05	9.05	33.03	289	342	A	H
	*	5240	105.86	-	-	97.64	32.13	9.12	33.03	289	342	P	H
	*	5240	98.44	-	-	90.22	32.13	9.12	33.03	289	342	A	H
		5391.84	49.32	-24.68	74	40.86	32.28	9.2	33.02	289	342	P	H
		5352	40.63	-13.37	54	32.22	32.25	9.19	33.03	289	342	A	H
		5027.2	50.52	-23.48	74	42.68	31.93	8.95	33.04	304	33	P	V
		5148.58	42.13	-11.87	54	34.06	32.05	9.05	33.03	304	33	A	V
	*	5240	107.4	-	-	99.18	32.13	9.12	33.03	304	33	P	V
	*	5240	100.26	-	-	92.04	32.13	9.12	33.03	304	33	A	V
		5394.96	50.93	-23.07	74	42.43	32.3	9.22	33.02	304	33	P	V
		5350.08	42.44	-11.56	54	34.03	32.25	9.19	33.03	304	33	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

WIFI 802.11a (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)
802.11a CH 36 5180MHz		10360	45.58	-28.42	74	56.3	38.41	14.63	64.07	100	0	P	H
		15540	54.2	-19.8	74	60.65	37.58	17.95	62.37	215	239	P	H
		15540	43.62	-10.38	54	50.07	37.58	17.95	62.37	215	239	A	H
													H
		10360	45.7	-28.3	74	56.42	38.41	14.63	64.07	100	0	P	V
		15540	49.82	-24.18	74	56.27	37.58	17.95	62.37	100	0	P	V
													V
													V
802.11a CH 44 5220MHz		10440	46.05	-27.95	74	56.64	38.51	14.68	64.09	100	0	P	H
		15660	58.19	-15.81	74	64.55	37.14	18.06	61.91	212	250	P	H
		15660	47.71	-6.29	54	54.07	37.14	18.06	61.91	212	250	A	H
													H
		10440	46.32	-27.68	74	56.91	38.51	14.68	64.09	100	0	P	V
		15660	53.47	-20.53	74	59.83	37.14	18.06	61.91	100	268	P	V
		15660	43.63	-10.37	54	49.99	37.14	18.06	61.91	100	268	A	V
													V
802.11a CH 48 5240MHz		10480	45.91	-28.09	74	56.4	38.58	14.72	64.1	100	0	P	H
		15720	58.71	-15.29	74	65.04	36.89	18.1	61.65	214	258	P	H
		15720	47.61	-6.39	54	53.94	36.89	18.1	61.65	214	258	A	H
													H
		10480	46.18	-27.82	74	56.67	38.58	14.72	64.1	100	0	P	V
		15720	53.43	-20.57	74	59.76	36.89	18.1	61.65	100	267	P	V
		15720	43.68	-10.32	54	50.01	36.89	18.1	61.65	100	267	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

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)
		5129.22	52.3	-21.7	74	44.27	32.03	9.03	33.03	295	341	P	H
		5149.76	45.11	-8.89	54	37.04	32.05	9.05	33.03	295	341	A	H
	*	5180	104.5	-	-	96.38	32.08	9.07	33.03	295	341	P	H
	*	5180	97.1	-	-	88.98	32.08	9.07	33.03	295	341	A	H
802.11n													H
HT20													H
CH 36		5139.62	52.26	-21.74	74	44.19	32.05	9.05	33.03	296	32	P	V
5180MHz		5149.24	44.14	-9.86	54	36.07	32.05	9.05	33.03	296	32	A	V
	*	5180	105.55	-	-	97.43	32.08	9.07	33.03	296	32	P	V
	*	5180	97.34	-	-	89.22	32.08	9.07	33.03	296	32	A	V
													V
													V
		5146.9	50.24	-23.76	74	42.17	32.05	9.05	33.03	310	341	P	H
		5139.88	43.16	-10.84	54	35.09	32.05	9.05	33.03	310	341	A	H
	*	5220	103.72	-	-	95.52	32.12	9.11	33.03	310	341	P	H
	*	5220	95.37	-	-	87.17	32.12	9.11	33.03	310	341	A	H
802.11n		5454.24	48.69	-25.31	74	40.07	32.35	9.29	33.02	310	341	P	H
HT20		5372.4	40.44	-13.56	54	32	32.27	9.2	33.03	310	341	A	H
CH 44		5132.86	49.57	-24.43	74	41.54	32.03	9.03	33.03	289	30	P	V
5220MHz		5140.14	42.8	-11.2	54	34.73	32.05	9.05	33.03	289	30	A	V
	*	5220	105.44	-	-	97.24	32.12	9.11	33.03	289	30	P	V
	*	5220	97.91	-	-	89.71	32.12	9.11	33.03	289	30	A	V
		5402.16	50.06	-23.94	74	41.56	32.3	9.22	33.02	289	30	P	V
		5371.68	42.6	-11.4	54	34.16	32.27	9.2	33.03	289	30	A	V

		5146.54	51.42	-22.58	74	43.35	32.05	9.05	33.03	283	347	P	H
		5144.16	41.81	-12.19	54	33.74	32.05	9.05	33.03	283	347	A	H
	*	5240	103.52	-	-	95.3	32.13	9.12	33.03	283	347	P	H
	*	5240	95.64	-	-	87.42	32.13	9.12	33.03	283	347	A	H
802.11n		5359.2	48.6	-25.4	74	40.19	32.25	9.19	33.03	283	347	P	H
HT20		5391.6	40.7	-13.3	54	32.24	32.28	9.2	33.02	283	347	A	H
CH 48		5106.42	49.3	-24.7	74	41.31	32.02	9.01	33.04	283	30	P	V
5240MHz		5146.2	41.91	-12.09	54	33.84	32.05	9.05	33.03	283	30	A	V
	*	5240	105.07	-	-	96.85	32.13	9.12	33.03	283	30	P	V
	*	5240	96.74	-	-	88.52	32.13	9.12	33.03	283	30	A	V
		5350.32	51.03	-22.97	74	42.62	32.25	9.19	33.03	283	30	P	V
		5392.32	42.31	-11.69	54	33.85	32.28	9.2	33.02	283	30	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

WIFI 802.11n HT40 (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 HT40 CH 38 5190MHz		5150	60.12	-13.88	74	52.05	32.05	9.05	33.03	288	347	P	H
		5149.5	51.9	-2.1	54	43.83	32.05	9.05	33.03	288	347	A	H
	*	5190	100.24	-	-	92.1	32.08	9.09	33.03	288	347	P	H
	*	5190	91.34	-	-	83.2	32.08	9.09	33.03	288	347	A	H
		5452.16	49.2	-24.8	74	40.58	32.35	9.29	33.02	288	347	P	H
		5403.16	40.88	-13.12	54	32.38	32.3	9.22	33.02	288	347	A	H
		5148.46	64.42	-9.58	74	56.35	32.05	9.05	33.03	282	30	P	V
		5150	52.32	-1.68	54	44.25	32.05	9.05	33.03	282	30	A	V
	*	5190	100.23	-	-	92.09	32.08	9.09	33.03	282	30	P	V
	*	5190	92.21	-	-	84.07	32.08	9.09	33.03	282	30	A	V
		5417.72	50.68	-23.32	74	42.16	32.32	9.22	33.02	282	30	P	V
		5366.2	41.79	-12.21	54	33.36	32.27	9.19	33.03	282	30	A	V
802.11n HT40 CH 46 5230MHz		5148.72	50.54	-23.46	74	42.47	32.05	9.05	33.03	274	346	P	H
		5147.42	42.9	-11.1	54	34.83	32.05	9.05	33.03	274	346	A	H
	*	5230	100.93	-	-	92.72	32.13	9.11	33.03	274	346	P	H
	*	5230	92.7	-	-	84.49	32.13	9.11	33.03	274	346	A	H
		5411.28	48.63	-25.37	74	40.13	32.3	9.22	33.02	274	346	P	H
		5379.64	41.17	-12.83	54	32.71	32.28	9.2	33.02	274	346	A	H
		5140.66	50.11	-23.89	74	42.04	32.05	9.05	33.03	274	29	P	V
		5132.86	42.77	-11.23	54	34.74	32.03	9.03	33.03	274	29	A	V
	*	5230	102.6	-	-	94.39	32.13	9.11	33.03	274	29	P	V
	*	5230	93.99	-	-	85.78	32.13	9.11	33.03	274	29	A	V
		5359.48	50.51	-23.49	74	42.1	32.25	9.19	33.03	274	29	P	V
		5376.56	43.26	-10.74	54	34.81	32.27	9.2	33.02	274	29	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 2 - 5250~5350MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	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)
802.11a CH 52 5260MHz		5128.18	50.1	-23.9	74	42.07	32.03	9.03	33.03	287	348	P	H
		5146.88	41.64	-12.36	54	33.57	32.05	9.05	33.03	287	348	A	H
	*	5260	106.87	-	-	98.61	32.17	9.12	33.03	287	348	P	H
	*	5260	98.81	-	-	90.55	32.17	9.12	33.03	287	348	A	H
		5358.96	50.67	-23.33	74	42.26	32.25	9.19	33.03	287	348	P	H
		5350.32	42.45	-11.55	54	34.04	32.25	9.19	33.03	287	348	A	H
		5137.02	50.15	-23.85	74	42.1	32.03	9.05	33.03	286	30	P	V
		5143.14	41.38	-12.62	54	33.31	32.05	9.05	33.03	286	30	A	V
	*	5260	108.37	-	-	100.11	32.17	9.12	33.03	286	30	P	V
	*	5260	101.22	-	-	92.96	32.17	9.12	33.03	286	30	A	V
		5356.08	52.82	-21.18	74	44.41	32.25	9.19	33.03	286	30	P	V
		5350.8	44.25	-9.75	54	35.84	32.25	9.19	33.03	286	30	A	V
802.11a CH 60 5300MHz		5049.98	49.56	-24.44	74	41.68	31.95	8.97	33.04	280	348	P	H
		5146.54	41.37	-12.63	54	33.3	32.05	9.05	33.03	280	348	A	H
	*	5300	105.47	-	-	97.14	32.2	9.16	33.03	280	348	P	H
	*	5300	98.74	-	-	90.41	32.2	9.16	33.03	280	348	A	H
		5350.8	53.49	-20.51	74	45.08	32.25	9.19	33.03	280	348	P	H
		5352.48	44.74	-9.26	54	36.33	32.25	9.19	33.03	280	348	A	H
		5130.22	49.95	-24.05	74	41.92	32.03	9.03	33.03	279	31	P	V
		5147.22	41.6	-12.4	54	33.53	32.05	9.05	33.03	279	31	A	V
	*	5300	108.85	-	-	100.52	32.2	9.16	33.03	279	31	P	V
	*	5300	101.55	-	-	93.22	32.2	9.16	33.03	279	31	A	V
		5359.44	54.89	-19.11	74	46.48	32.25	9.19	33.03	279	31	P	V
		5351.76	47.83	-6.17	54	39.42	32.25	9.19	33.03	279	31	A	V

802.11a CH 64 5320MHz	*	5320	106.63	-	-	98.27	32.22	9.17	33.03	296	348	P	H
	*	5320	98.81	-	-	90.45	32.22	9.17	33.03	296	348	A	H
		5362.88	54.63	-19.37	74	46.2	32.27	9.19	33.03	296	348	P	H
		5350.08	46.05	-7.95	54	37.64	32.25	9.19	33.03	296	348	A	H
													H
													H
	*	5320	110.02	-	-	101.66	32.22	9.17	33.03	295	32	P	V
	*	5320	101.79	-	-	93.43	32.22	9.17	33.03	295	32	A	V
		5352.64	56.26	-17.74	74	47.85	32.25	9.19	33.03	295	32	P	V
		5350.08	48.54	-5.46	54	40.13	32.25	9.19	33.03	295	32	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 2 5250~5350MHz

WIFI 802.11a (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)
802.11a CH 52 5260MHz		10520	45.97	-28.03	74	56.4	38.62	14.74	64.1	100	0	P	H
		15780	57.56	-16.44	74	63.84	36.71	18.15	61.45	223	225	P	H
		15780	47.39	-6.61	54	53.67	36.71	18.15	61.45	223	225	A	H
													H
		10520	45.25	-28.75	74	55.99	38.62	14.74	64.1	100	0	P	V
		15780	55.65	-18.35	74	61.93	36.71	18.15	61.45	100	252	P	V
		15780	45.38	-8.62	54	51.66	36.71	18.15	61.45	100	252	A	V
													V
802.11a CH 60 5300MHz		10600	44.6	-29.4	74	54.85	38.72	14.8	64.08	100	0	P	H
		15900	56.94	-17.06	74	63.13	36.27	18.25	60.99	217	228	P	H
		15900	46.36	-7.64	54	52.55	36.27	18.25	60.99	217	228	A	H
													H
		10600	44.33	-29.67	74	54.89	38.72	14.8	64.08	100	0	P	V
		15900	55.29	-18.71	74	61.76	36.27	18.25	60.99	100	258	P	V
		15900	44.97	-9.03	54	51.44	36.27	18.25	60.99	100	258	A	V
													V
802.11a CH 64 5320MHz		10640	45.72	-28.28	74	55.9	38.77	14.82	64.07	100	0	P	H
		15960	56.92	-17.08	74	63.07	36.02	18.3	60.73	213	230	P	H
		15960	46.76	-7.24	54	52.91	36.02	18.3	60.73	213	230	A	H
													H
		10640	45	-29	74	55.48	38.77	14.82	64.07	100	0	P	V
		15960	56.66	-17.34	74	63.07	36.02	18.3	60.73	100	257	P	V
		15960	45.62	-8.38	54	52.03	36.02	18.3	60.73	100	257	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 2 5250~5350MHz

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)
		5085.34	50.26	-23.74	74	42.31	31.98	9.01	33.04	291	347	P	H
		5108.12	41.75	-12.25	54	33.74	32.02	9.03	33.04	291	347	A	H
	*	5260	105.18	-	-	96.92	32.17	9.12	33.03	291	347	P	H
	*	5260	97.05	-	-	88.79	32.17	9.12	33.03	291	347	A	H
802.11n		5455.44	49.61	-24.39	74	40.99	32.35	9.29	33.02	291	347	P	H
HT20		5351.28	41.66	-12.34	54	33.25	32.25	9.19	33.03	291	347	A	H
CH 52		5035.36	50.65	-23.35	74	42.79	31.93	8.97	33.04	286	30	P	V
5260MHz		5107.44	41.27	-12.73	54	33.26	32.02	9.03	33.04	286	30	A	V
	*	5260	107.28	-	-	99.02	32.17	9.12	33.03	286	30	P	V
	*	5260	99.39	-	-	91.13	32.17	9.12	33.03	286	30	A	V
		5351.52	50.89	-23.11	74	42.48	32.25	9.19	33.03	286	30	P	V
		5350.08	43.87	-10.13	54	35.46	32.25	9.19	33.03	286	30	A	V
		5074.8	49.31	-24.69	74	41.38	31.98	8.99	33.04	249	315	P	H
		5054.06	41.22	-12.78	54	33.34	31.95	8.97	33.04	249	315	A	H
	*	5300	104.21	-	-	95.88	32.2	9.16	33.03	249	315	P	H
	*	5300	96.85	-	-	88.52	32.2	9.16	33.03	249	315	A	H
802.11n		5354.16	50.92	-23.08	74	42.51	32.25	9.19	33.03	249	315	P	H
HT20		5350.8	43.41	-10.59	54	35	32.25	9.19	33.03	249	315	A	H
CH 60		5070.72	49.64	-24.36	74	41.72	31.97	8.99	33.04	277	31	P	V
5300MHz		5148.58	41.33	-12.67	54	33.26	32.05	9.05	33.03	277	31	A	V
	*	5300	106.83	-	-	98.5	32.2	9.16	33.03	277	31	P	V
	*	5300	99.51	-	-	91.18	32.2	9.16	33.03	277	31	A	V
		5351.52	54.44	-19.56	74	46.03	32.25	9.19	33.03	277	31	P	V
		5358.48	46.76	-7.24	54	38.35	32.25	9.19	33.03	277	31	A	V

	*	5320	103.34	-	-	94.98	32.22	9.17	33.03	275	317	P	H
	*	5320	96.38	-	-	88.02	32.22	9.17	33.03	275	317	A	H
		5353.76	53.6	-20.4	74	45.19	32.25	9.19	33.03	275	317	P	H
		5350.72	44.94	-9.06	54	36.53	32.25	9.19	33.03	275	317	A	H
802.11n													H
HT20													H
CH 64	*	5320	107.96	-	-	99.6	32.22	9.17	33.03	297	32	P	V
5320MHz	*	5320	99.6	-	-	91.24	32.22	9.17	33.03	297	32	A	V
		5364.16	54.95	-19.05	74	46.52	32.27	9.19	33.03	297	32	P	V
		5350.24	47.39	-6.61	54	38.98	32.25	9.19	33.03	297	32	A	V
													V
													V

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

Band 2 5250~5350MHz

WIFI 802.11n HT40 (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 HT40 CH 54 5270MHz		5124.1	50.4	-23.6	74	42.37	32.03	9.03	33.03	299	347	P	H
		5120.36	42.65	-11.35	54	34.63	32.02	9.03	33.03	299	347	A	H
	*	5270	100.9	-	-	92.62	32.17	9.14	33.03	299	347	P	H
	*	5270	92.49	-	-	84.21	32.17	9.14	33.03	299	347	A	H
		5451.36	49.07	-24.93	74	40.45	32.35	9.29	33.02	299	347	P	H
		5352	42.27	-11.73	54	33.86	32.25	9.19	33.03	299	347	A	H
		5101.32	50.45	-23.55	74	42.48	32	9.01	33.04	287	32	P	V
		5122.4	42.05	-11.95	54	34.03	32.02	9.03	33.03	287	32	A	V
	*	5270	103.71	-	-	95.43	32.17	9.14	33.03	287	32	P	V
	*	5270	95.14	-	-	86.86	32.17	9.14	33.03	287	32	A	V
		5354.64	52.73	-21.27	74	44.32	32.25	9.19	33.03	287	32	P	V
		5351.28	44.94	-9.06	54	36.53	32.25	9.19	33.03	287	32	A	V
802.11n HT40 CH 62 5310MHz		5084.66	50.18	-23.82	74	42.23	31.98	9.01	33.04	298	350	P	H
		5076.5	41.71	-12.29	54	33.78	31.98	8.99	33.04	298	350	A	H
	*	5310	99.44	-	-	91.09	32.22	9.16	33.03	298	350	P	H
	*	5310	91.34	-	-	82.99	32.22	9.16	33.03	298	350	A	H
		5350.8	55.05	-18.95	74	46.64	32.25	9.19	33.03	298	350	P	H
		5351.04	49.17	-4.83	54	40.76	32.25	9.19	33.03	298	350	A	H
		5086.02	50.12	-23.88	74	42.17	31.98	9.01	33.04	287	31	P	V
		5082.28	41.68	-12.32	54	33.73	31.98	9.01	33.04	287	31	A	V
	*	5310	102.16	-	-	93.81	32.22	9.16	33.03	287	31	P	V
	*	5310	95.26	-	-	86.91	32.22	9.16	33.03	287	31	A	V
		5350.8	64.35	-9.65	74	55.94	32.25	9.19	33.03	287	31	P	V
		5350.32	52.85	-1.15	54	44.44	32.25	9.19	33.03	287	31	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - 5470~5725MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	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)
802.11a CH 100 5500MHz		5454.16	52.43	-21.57	74	43.81	32.35	9.29	33.02	281	320	P	H
		5465.52	52.01	-16.19	68.2	43.37	32.37	9.29	33.02	281	320	P	H
		5455.6	44.12	-9.88	54	35.5	32.35	9.29	33.02	281	320	P	H
	*	5500	104.09	-	-	95.34	32.4	9.37	33.02	281	320	P	H
	*	5500	97.45	-	-	88.7	32.4	9.37	33.02	281	320	A	H
													H
		5454.16	55.26	-18.74	74	46.64	32.35	9.29	33.02	286	9	P	V
		5464.88	56.35	-11.85	68.2	47.71	32.37	9.29	33.02	286	9	P	V
		5459.92	47.32	-6.68	54	38.7	32.35	9.29	33.02	286	9	P	V
	*	5500	109.48	-	-	100.73	32.4	9.37	33.02	286	9	P	V
	*	5500	101.94	-	-	93.19	32.4	9.37	33.02	286	9	A	V
													V
802.11a CH 116 5580MHz		5450.8	49.6	-24.4	74	40.98	32.35	9.29	33.02	375	318	P	H
		5464	49.1	-19.1	68.2	40.46	32.37	9.29	33.02	375	318	P	H
		5425.36	41.13	-12.87	54	32.57	32.32	9.26	33.02	375	318	A	H
	*	5580	103.73	-	-	94.75	32.57	9.48	33.07	375	318	P	H
	*	5580	96.13	-	-	87.15	32.57	9.48	33.07	375	318	A	H
		5748.31	49.46	-18.74	68.2	39.75	32.98	9.88	33.15	375	318	P	H
		5428.24	50.5	-23.5	74	41.94	32.32	9.26	33.02	300	35	P	V
		5469.28	50.86	-17.34	68.2	42.22	32.37	9.29	33.02	300	35	P	V
		5427.52	42.47	-11.53	54	33.91	32.32	9.26	33.02	300	35	P	V
	*	5580	109.72	-	-	100.74	32.57	9.48	33.07	300	35	P	V
	*	5580	102.22	-	-	93.24	32.57	9.48	33.07	300	35	A	V
		5753.98	51.1	-17.1	68.2	41.35	33.02	9.88	33.15	300	35	P	V

802.11a CH 140 5700MHz	*	5700	104.01	-	-	94.52	32.86	9.75	33.12	300	110	P	H
	*	5700	96.08	-	-	86.59	32.86	9.75	33.12	300	110	A	H
		5725	54.57	-13.63	68.2	44.95	32.94	9.81	33.13	300	110	P	H
													H
													H
													H
	*	5700	109.3	-	-	99.81	32.86	9.75	33.12	278	34	P	V
	*	5700	101.53	-	-	92.04	32.86	9.75	33.12	278	34	A	V
		5725.64	59.23	-8.97	68.2	49.61	32.94	9.81	33.13	278	34	P	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - 5470~5725MHz

WIFI 802.11a (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)
802.11a CH 100 5500MHz		11000	48.1	-25.9	74	57.52	39.2	15.08	64	100	0	P	H
		16500	58.38	-9.82	68.2	64.94	37.1	18.74	62.7	100	0	P	H
													H
													H
		11000	47.41	-26.59	74	56.83	39.2	15.08	64	100	0	P	V
		16500	57.09	-11.11	68.2	63.65	37.1	18.74	62.7	100	0	P	V
													V
													V
802.11a CH 116 5580MHz		11160	47.69	-26.31	74	56.9	38.97	15.2	63.67	100	0	P	H
		16740	60.81	-7.39	68.2	65.33	38.93	18.93	62.7	100	0	P	H
													H
													H
		11160	49.51	-24.49	74	58.72	38.97	15.2	63.67	100	0	P	V
		16740	60.44	-7.76	68.2	64.96	38.93	18.93	62.7	100	0	P	V
													V
													V
802.11a CH 140 5700MHz		11400	46	-28	74	54.9	38.64	15.38	63.2	100	0	P	H
		17100	61.67	-6.53	68.2	63.3	40.84	19.18	62	100	0	P	H
													H
													H
		11400	46.99	-27.01	74	55.89	38.64	15.38	63.2	100	0	P	V
		17100	61.94	-6.26	68.2	63.57	40.84	19.18	62	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - 5470~5725MHz

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)
		5470	51.52	-22.48	74	42.88	32.37	9.29	33.02	367	319	P	H
		5468.72	43.44	-10.56	54	34.8	32.37	9.29	33.02	367	319	A	H
	*	5500	101.58	-	-	92.83	32.4	9.37	33.02	367	319	P	H
	*	5500	94.02	-	-	85.27	32.4	9.37	33.02	367	319	A	H
802.11n													H
HT20													H
CH 100		5469.36	54.96	-19.04	74	46.32	32.37	9.29	33.02	304	33	P	V
5500MHz		5470	46.35	-7.65	54	37.71	32.37	9.29	33.02	304	33	A	V
	*	5500	106.4	-	-	97.65	32.4	9.37	33.02	304	33	P	V
	*	5500	99.17	-	-	90.42	32.4	9.37	33.02	304	33	A	V
													V
													V
		5430.64	50.31	-23.69	74	41.74	32.33	9.26	33.02	357	318	P	H
		5428.48	41.07	-12.93	54	32.51	32.32	9.26	33.02	357	318	A	H
	*	5580	100.44	-	-	91.46	32.57	9.48	33.07	357	318	P	H
	*	5580	92.25	-	-	83.27	32.57	9.48	33.07	357	318	A	H
802.11n		5745.79	49.87	-24.13	74	40.16	32.98	9.88	33.15	357	318	P	H
HT20		5748.94	41.59	-12.41	54	31.88	32.98	9.88	33.15	357	318	A	H
CH 116		5428.72	50.87	-23.13	74	42.3	32.33	9.26	33.02	300	34	P	V
5580MHz		5428.48	42.52	-11.48	54	33.96	32.32	9.26	33.02	300	34	A	V
	*	5580	106.61	-	-	97.63	32.57	9.48	33.07	300	34	P	V
	*	5580	98.62	-	-	89.64	32.57	9.48	33.07	300	34	A	V
		5760.59	50.65	-23.35	74	40.84	33.02	9.95	33.16	300	34	P	V
		5731.93	43.68	-10.32	54	34.01	32.94	9.88	33.15	300	34	A	V

	*	5700	100.27	-	-	90.78	32.86	9.75	33.12	300	110	P	H
	*	5700	92.68	-	-	83.19	32.86	9.75	33.12	300	110	A	H
		5725	55.75	-18.25	74	46.13	32.94	9.81	33.13	300	110	P	H
		5725	46.18	-7.82	54	36.56	32.94	9.81	33.13	300	110	A	H
802.11n													H
HT20													H
CH 140	*	5700	107.29	-	-	97.8	32.86	9.75	33.12	278	33	P	V
5700MHz	*	5700	98.6	-	-	89.11	32.86	9.75	33.12	278	33	A	V
		5725.32	57.94	-16.06	74	48.32	32.94	9.81	33.13	278	33	P	V
		5725	49.98	-4.02	54	40.36	32.94	9.81	33.13	278	33	A	V
													V
													V

Remark

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

Band 3 - 5470~5725MHz

WIFI 802.11n HT40 (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)
		5459.92	53.2	-20.8	74	44.58	32.35	9.29	33.02	276	325	P	H
		5469.28	58.85	-9.35	68.2	50.21	32.37	9.29	33.02	276	325	P	H
		5459.68	45.58	-8.42	54	36.96	32.35	9.29	33.02	276	325	A	H
	*	5510	98.19	-	-	89.45	32.4	9.37	33.03	276	325	P	H
802.11n	*	5510	90.28	-	-	81.54	32.4	9.37	33.03	276	325	A	H
HT40		5754.92	49.68	-18.52	68.2	39.93	33.02	9.88	33.15	276	325	P	H
CH 102		5459.44	55.1	-18.9	74	46.48	32.35	9.29	33.02	282	31	P	V
5510MHz		5466.64	64.15	-4.05	68.2	55.51	32.37	9.29	33.02	282	31	P	V
		5459.92	49.78	-4.22	54	41.16	32.35	9.29	33.02	282	31	A	V
	*	5510	103.91	-	-	95.17	32.4	9.37	33.03	282	31	P	V
	*	5510	96.35	-	-	87.61	32.4	9.37	33.03	282	31	A	V
		5739.17	50.73	-17.47	68.2	41.02	32.98	9.88	33.15	282	31	P	V
		5461.36	50.31	-23.69	74	41.69	32.35	9.29	33.02	302	325	P	H
		5468.32	41.91	-12.09	54	33.27	32.37	9.29	33.02	302	325	A	H
	*	5550	98.07	-	-	89.16	32.52	9.44	33.05	302	325	P	H
	*	5550	90.45	-	-	81.54	32.52	9.44	33.05	302	325	A	H
802.11n		5763.74	49.87	-24.13	74	40.06	33.02	9.95	33.16	302	325	P	H
HT40		5725.94	42.35	-11.65	54	32.73	32.94	9.81	33.13	302	325	A	H
CH 110		5468.8	51.09	-22.91	74	42.45	32.37	9.29	33.02	279	32	P	V
5550MHz		5466.64	44.35	-9.65	54	35.71	32.37	9.29	33.02	279	32	A	V
	*	5550	104.21	-	-	95.3	32.52	9.44	33.05	279	32	P	V
	*	5550	96.55	-	-	87.64	32.52	9.44	33.05	279	32	A	V
		5728.15	50.86	-23.14	74	41.24	32.94	9.81	33.13	279	32	P	V
		5754.61	43.22	-10.78	54	33.47	33.02	9.88	33.15	279	32	A	V

		5438.9	48.61	-25.39	74	40.04	32.33	9.26	33.02	295	327	P	H
		5468.65	41.05	-12.95	54	32.41	32.37	9.29	33.02	295	327	A	H
	*	5670	97.7	-	-	88.32	32.81	9.68	33.11	295	327	P	H
	*	5670	90.25	-	-	80.87	32.81	9.68	33.11	295	327	A	H
802.11n		5727.2	52.07	-21.93	74	42.45	32.94	9.81	33.13	295	327	P	H
HT40		5728.43	43.64	-10.36	54	34.02	32.94	9.81	33.13	295	327	A	H
CH 134		5453.6	50.29	-23.71	74	41.67	32.35	9.29	33.02	285	33	P	V
5670MHz		5425.6	41.72	-12.28	54	33.16	32.32	9.26	33.02	285	33	A	V
	*	5670	104.11	-	-	94.73	32.81	9.68	33.11	285	33	P	V
	*	5670	96.28	-	-	86.9	32.81	9.68	33.11	285	33	A	V
		5725	57.39	-16.61	74	47.77	32.94	9.81	33.13	285	33	P	V
		5725	47.67	-6.33	54	38.05	32.94	9.81	33.13	285	33	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

WIFI 802.11n HT40 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	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)
802.11n HT40 LF		63.75	26.37	-13.63	40	46.02	11.81	1.02	32.49	-	-	P	H
		165.54	29.01	-14.49	43.5	43.84	15.88	1.61	32.42	-	-	P	H
		202.26	27.34	-16.16	43.5	42.97	14.98	1.72	32.39	-	-	P	H
		311.2	25.95	-20.05	46	36.56	19.36	2.31	32.37	-	-	P	H
		568.1	28.03	-17.97	46	31.3	26.04	3.03	32.43	-	-	P	H
		941.9	33.21	-12.79	46	30.04	30.45	3.82	31.27	100	0	P	H
													H
													H
													H
													H
													H
													H
		45.66	32.89	-7.11	40	48.13	16.23	1.02	32.49	100	0	P	V
		62.67	29.38	-10.62	40	49.06	11.78	1.02	32.49	-	-	P	V
		165.54	29.12	-14.38	43.5	43.95	15.88	1.61	32.42	-	-	P	V
		717.9	29.7	-16.3	46	31.5	27.14	3.35	32.42	-	-	P	V
		883.8	32.54	-13.46	46	31.18	29.21	3.73	31.74	-	-	P	V
		951.7	34.1	-11.9	46	30.43	30.86	3.82	31.18	-	-	P	V
													V
													V
													V
													V
													V
													V

Remark

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

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	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. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable 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) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

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

Appendix D. Radiated Spurious Emission

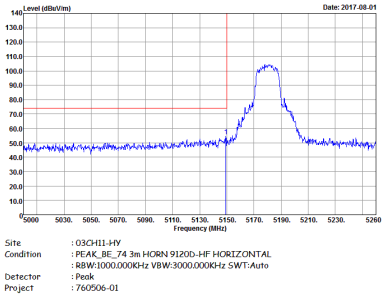
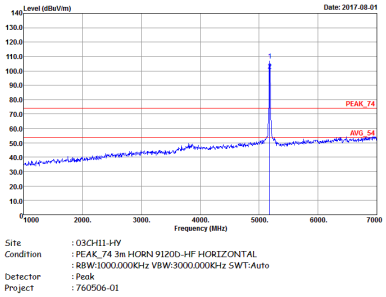
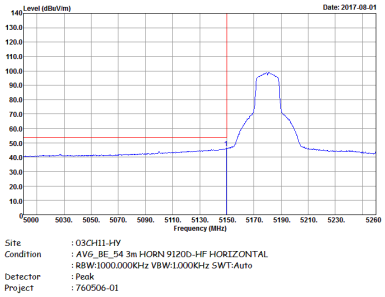
Test Engineer :	J.C. Liang, Jacky Huang and Ken Wu	**Temperature :**	24~26℃
		Relative Humidity :	50~55%

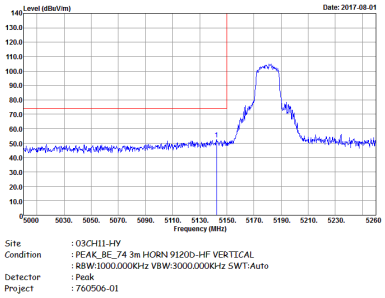
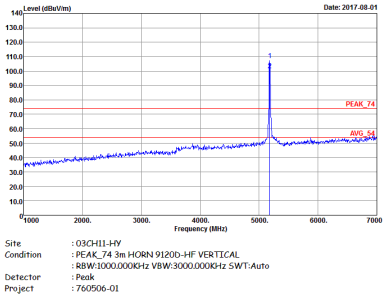
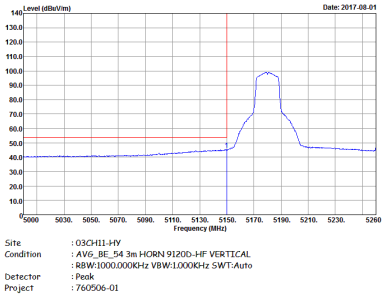
Note symbol

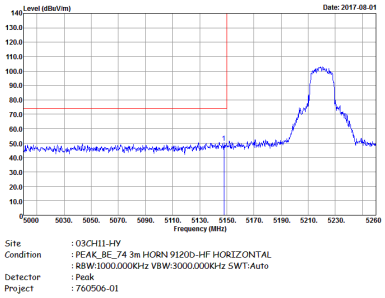
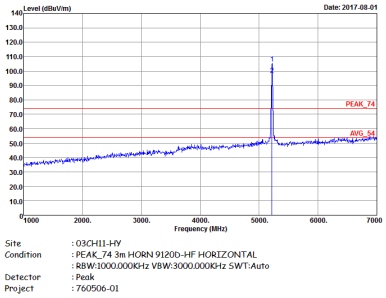
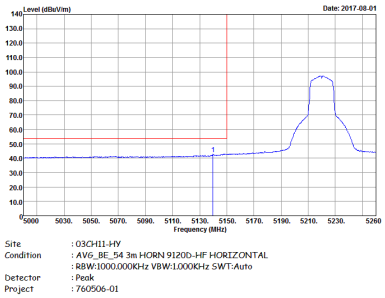
-L	**Low channel location**
-R	**High channel location**

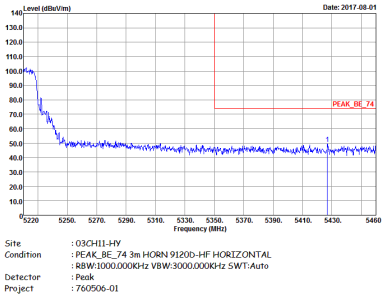
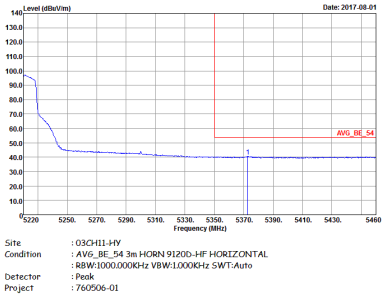
Band 1 - 5150~5250MHz

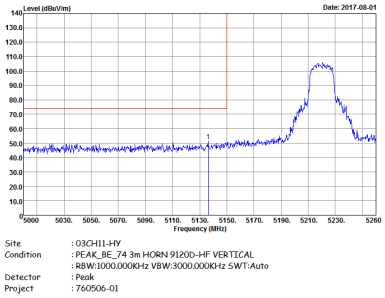
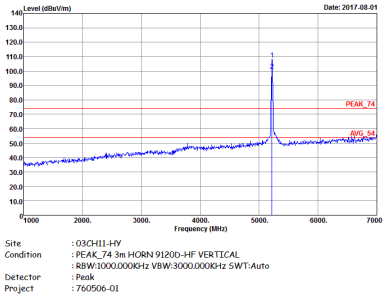
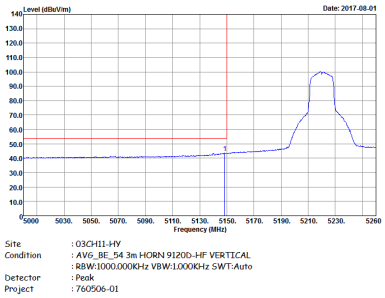
WIFI 802.11a (Band Edge @ 3m)

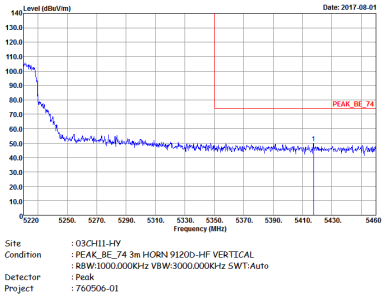
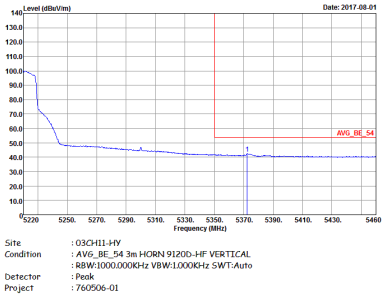
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH36 5180MHz	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

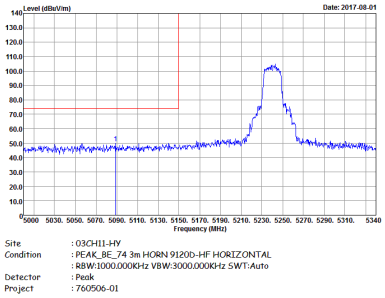
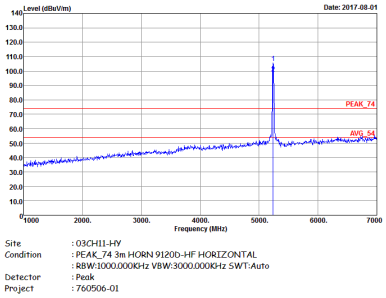
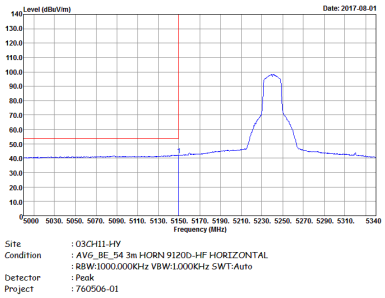
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH36 5180MHz	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

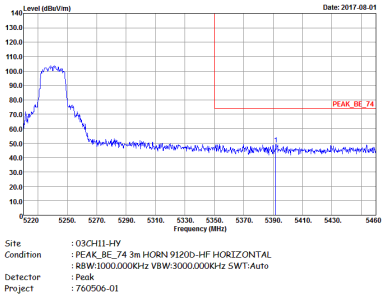
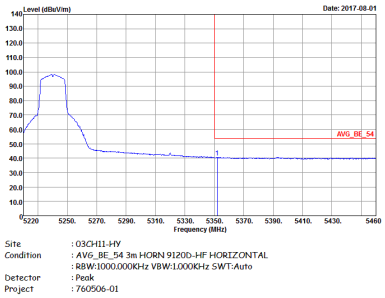
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH44 5220MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

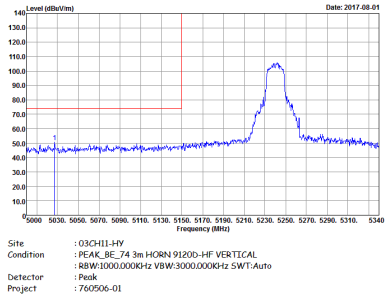
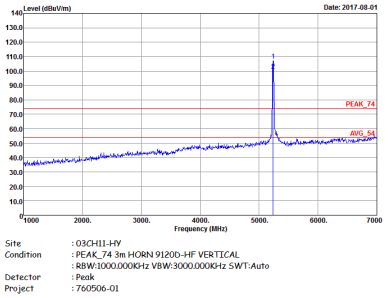
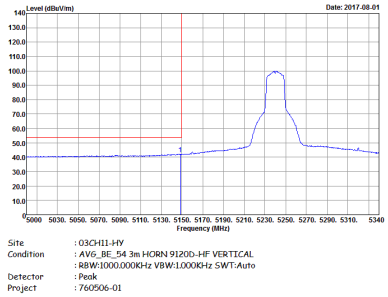
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH44 5220MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

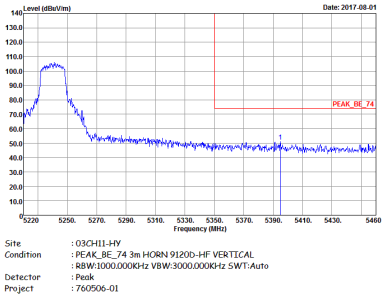
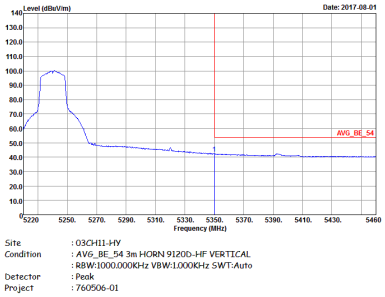
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH44 5220MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH44 5220MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

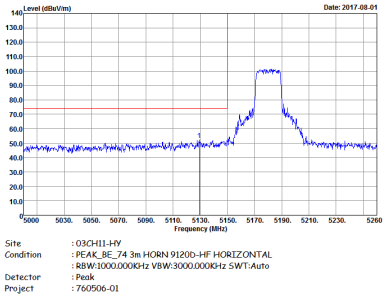
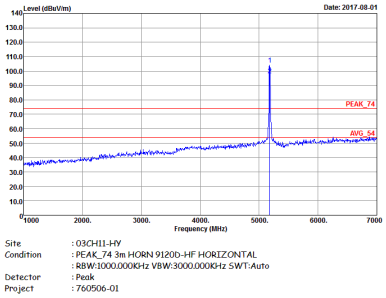
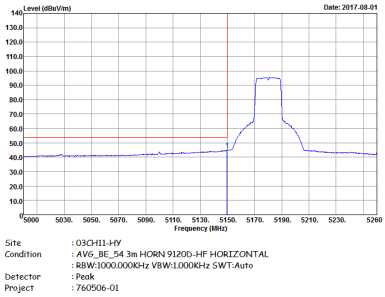
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH48 5240MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

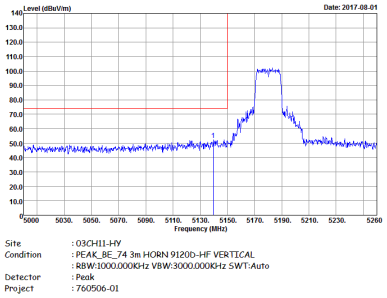
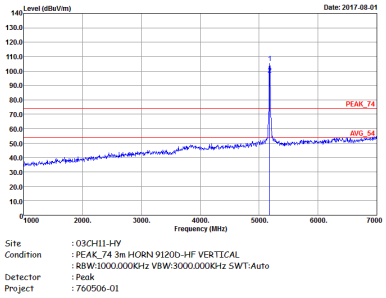
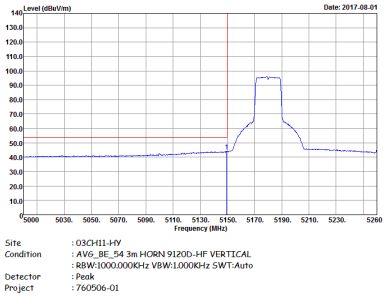
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH48 5240MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

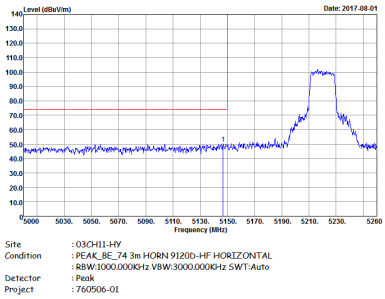
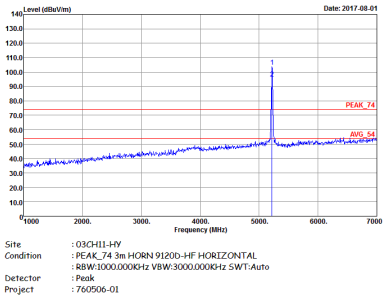
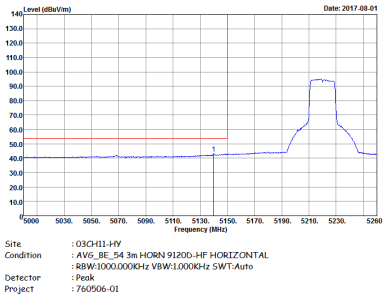
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH48 5240MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

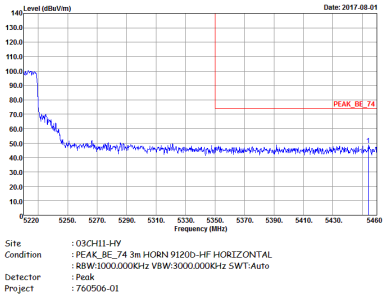
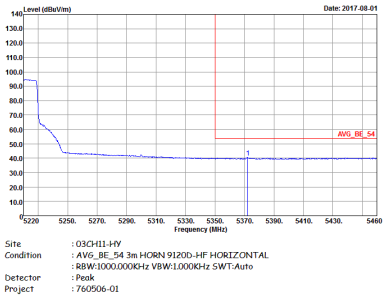
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH48 5240MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

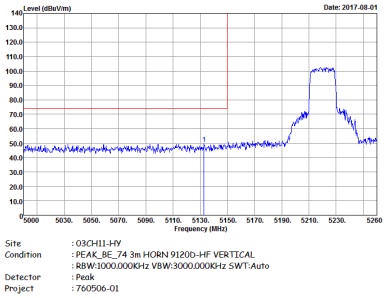
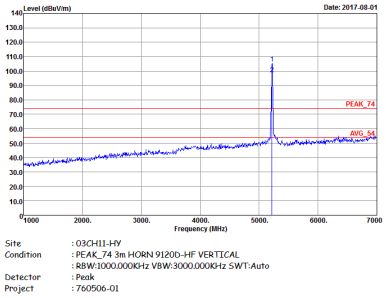
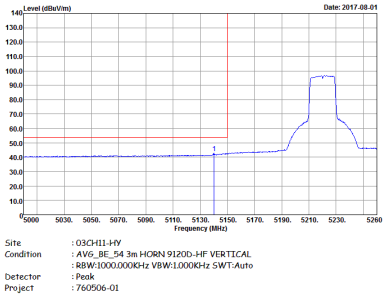
Band 1 5150~5250MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

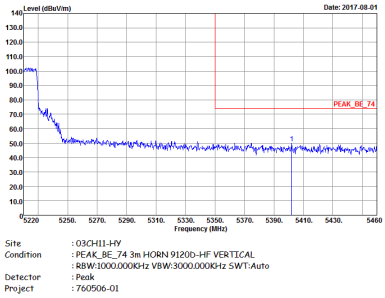
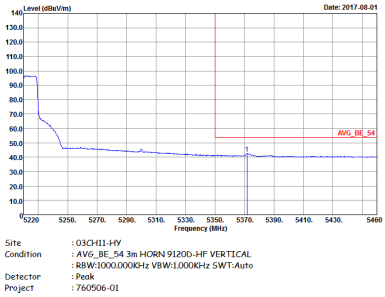
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH36 5180MHz	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

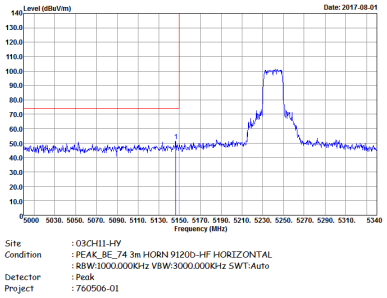
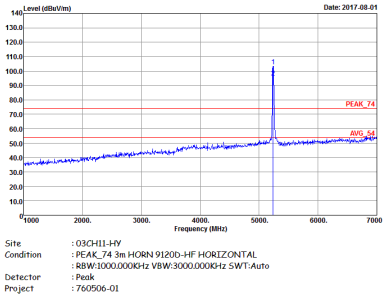
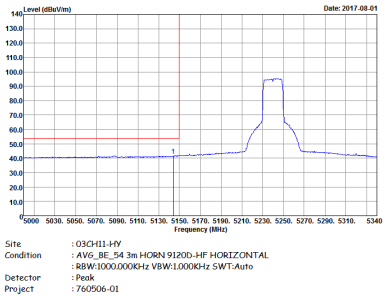
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH36 5180MHz	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

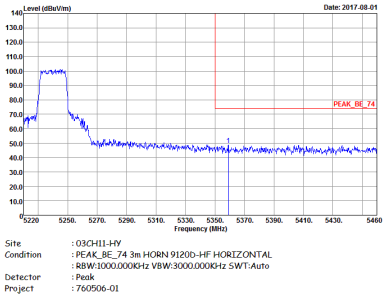
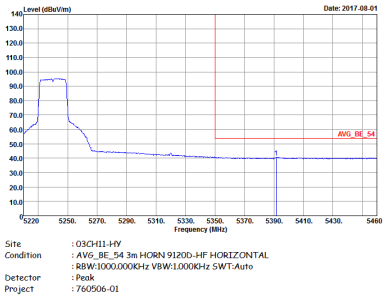
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH44 5220MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

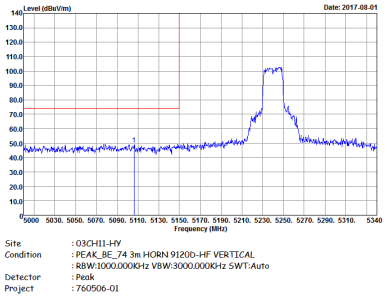
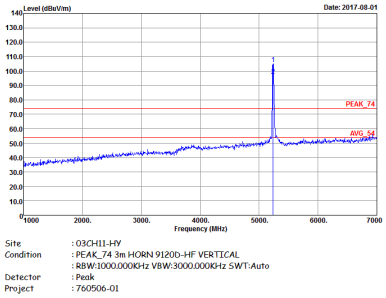
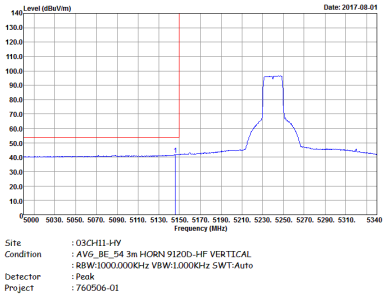
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH44 5220MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

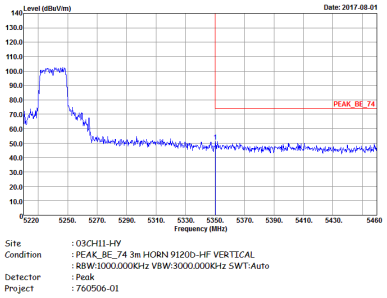
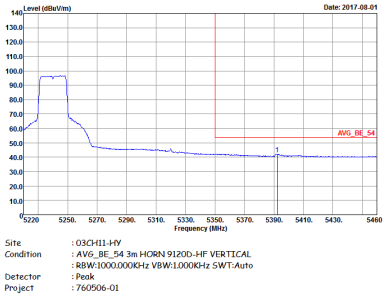
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH44 5220MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH44 5220MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

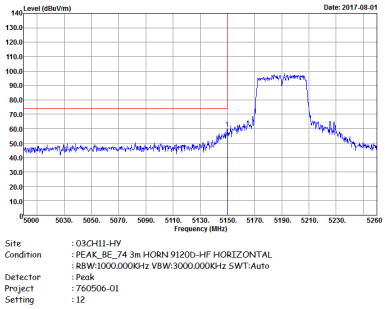
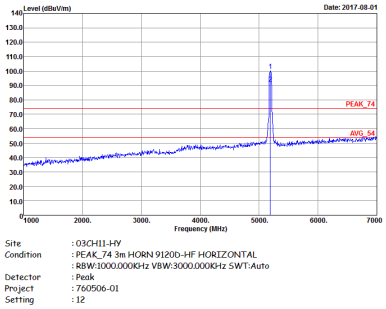
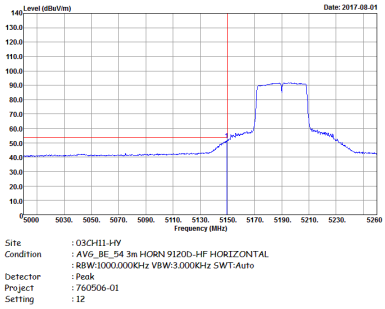
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH48 5240MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

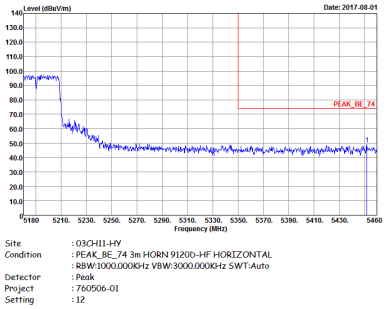
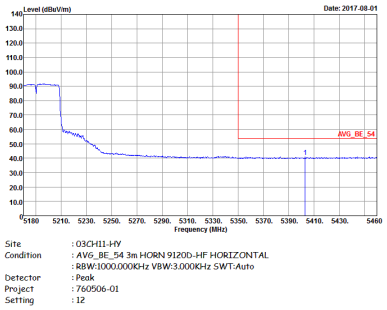
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH48 5240MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

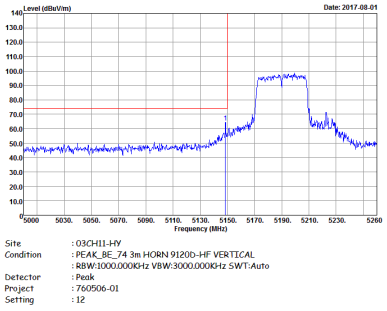
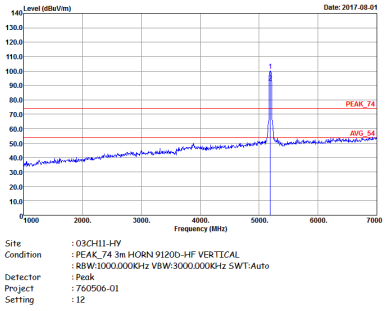
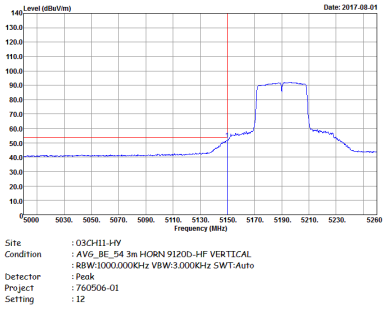
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH48 5240MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

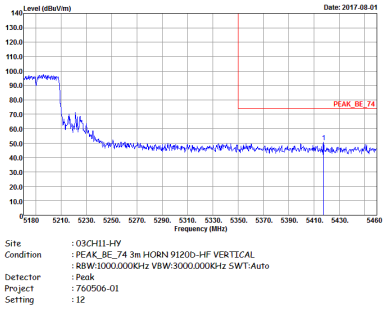
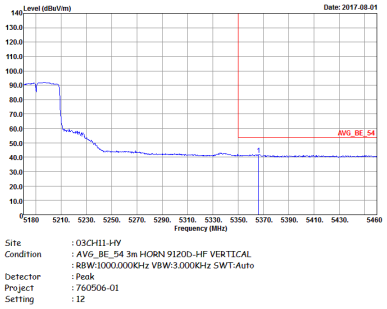
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH48 5240MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

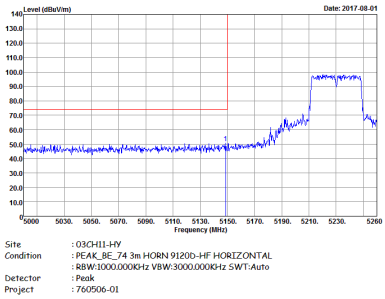
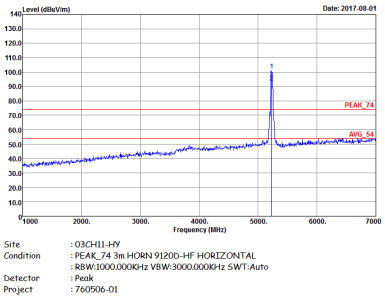
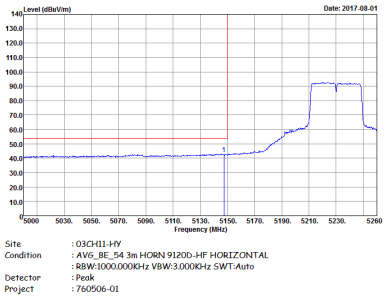
Band 1 5150~5250MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

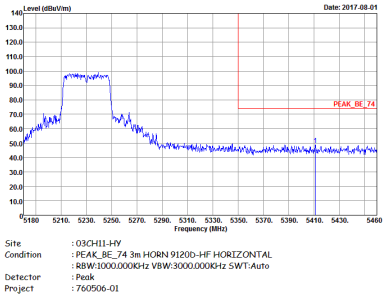
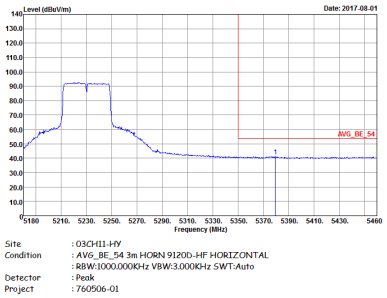
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH38 5190MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

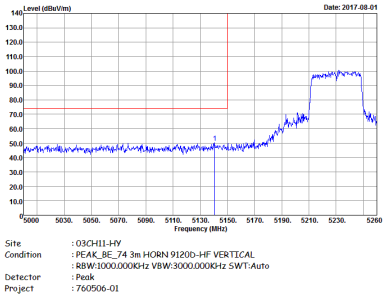
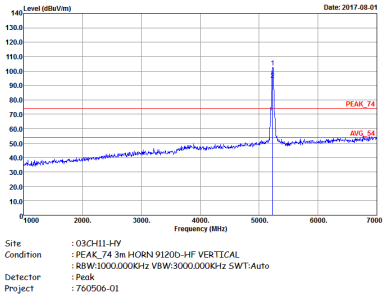
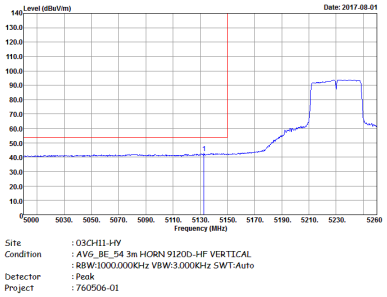
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH38 5190MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

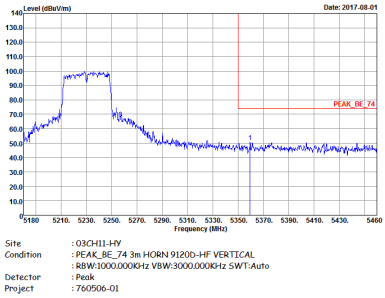
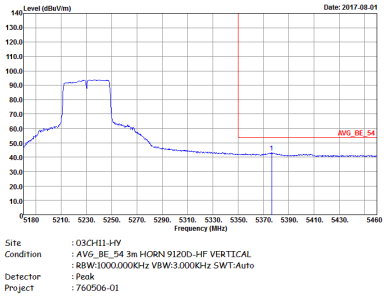
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH38 5190MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 760506-01 Setting : 12	 Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 760506-01 Setting : 12
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 760506-01 Setting : 12	Left blank

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH38 5190MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH46 5230MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

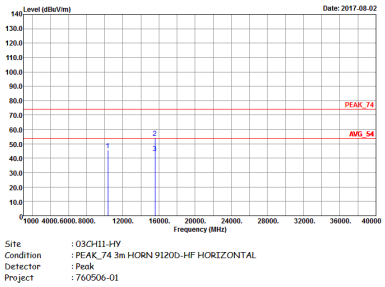
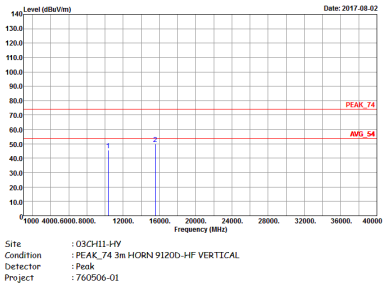
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH46 5230MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

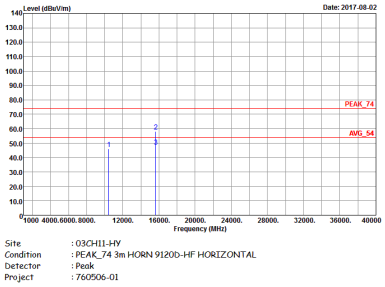
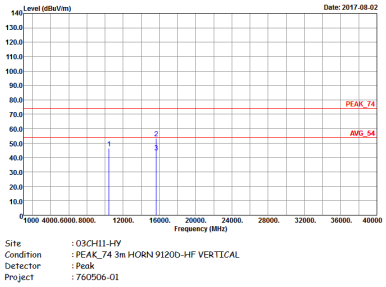
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH46 5230MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

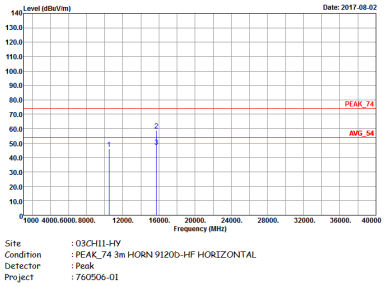
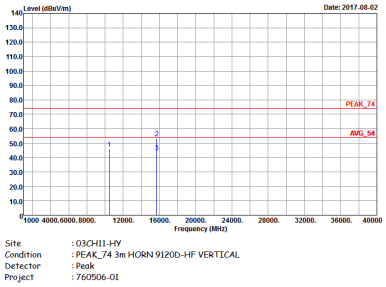
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH46 5230MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

Band 1 - 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

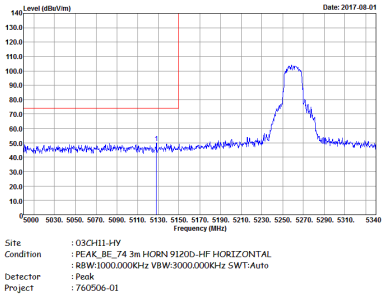
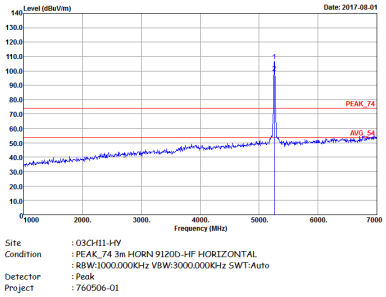
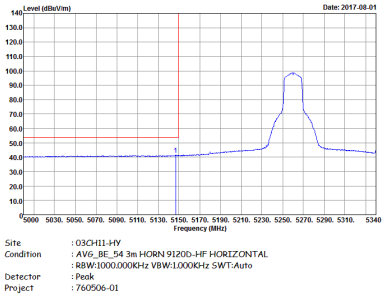
WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11a CH36 5180MHz	
1	Horizontal	Vertical
Peak Avg.		

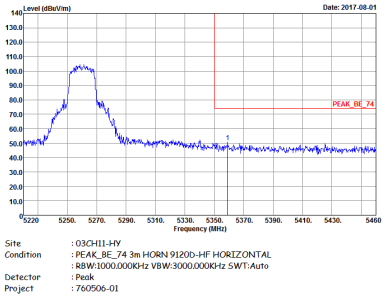
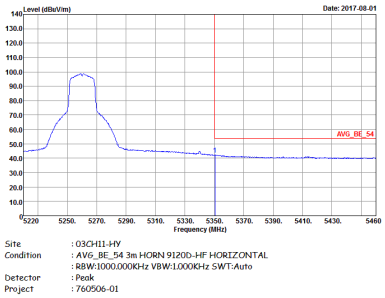
WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11a CH44 5220MHz	
1	Horizontal	Vertical
Peak Avg.		

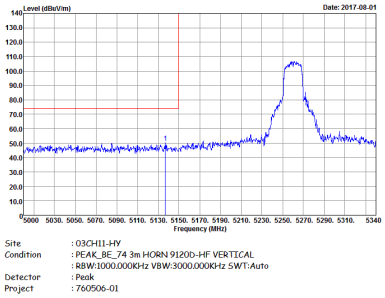
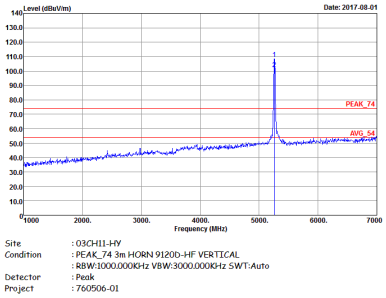
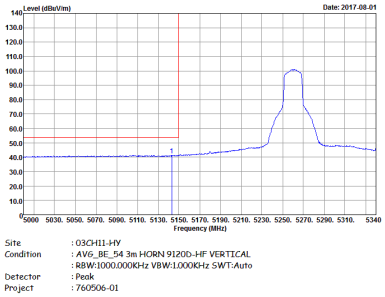
WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11a CH48 5240MHz	
1	Horizontal	Vertical
Peak Avg.		

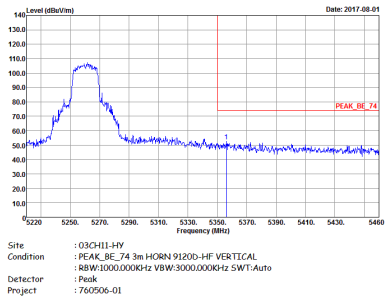
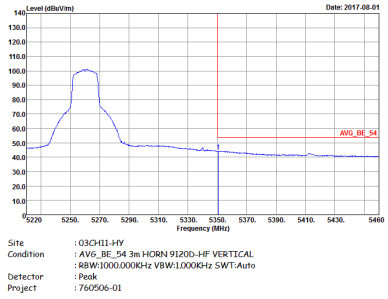
Band 2 - 5250~5350MHz

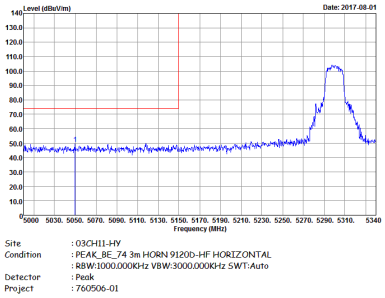
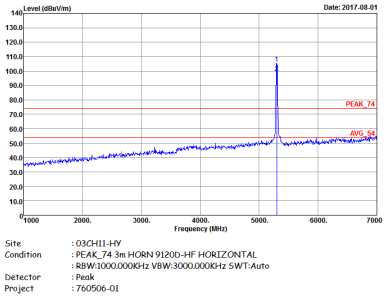
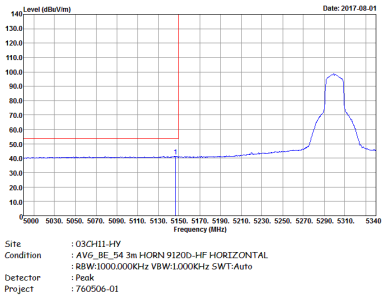
WIFI 802.11a (Band Edge @ 3m)

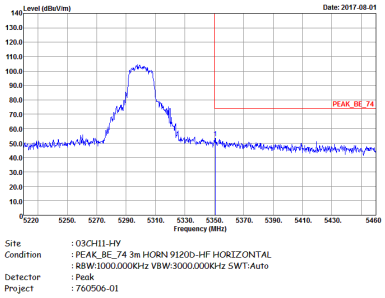
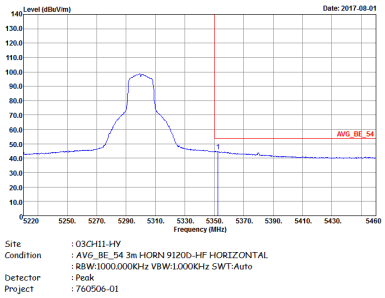
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11a CH52 5260MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

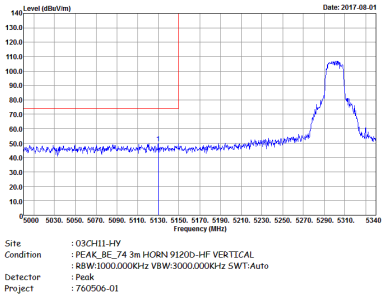
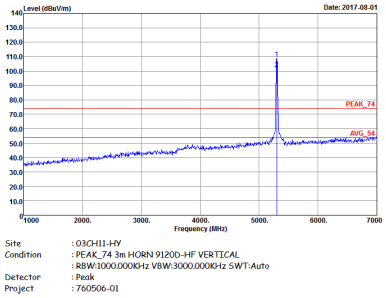
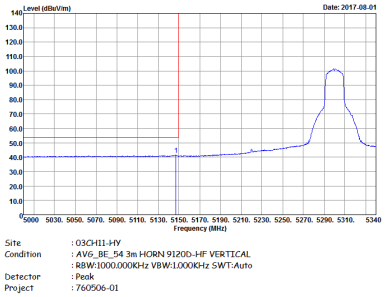
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11a CH52 5260MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

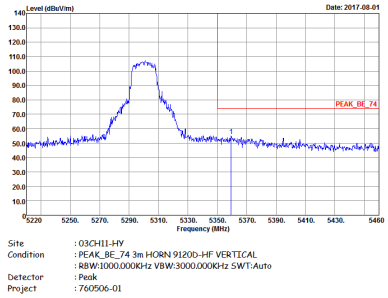
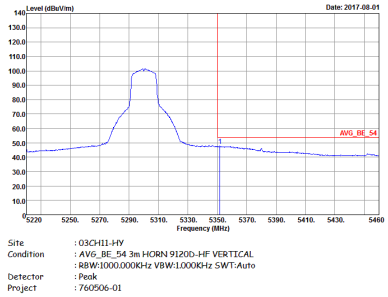
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11a CH52 5260MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

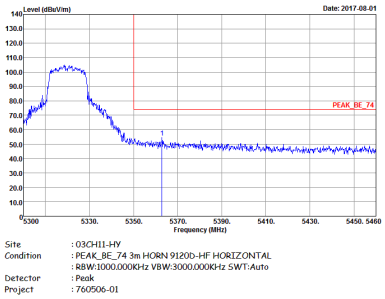
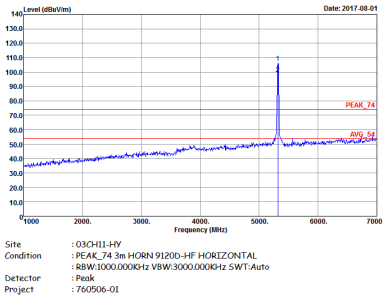
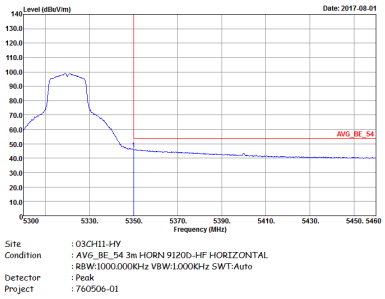
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11a CH52 5260MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

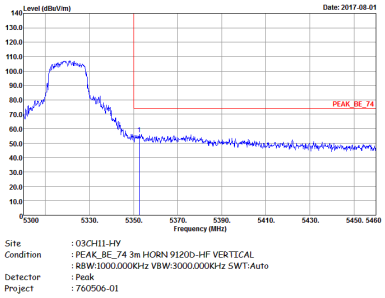
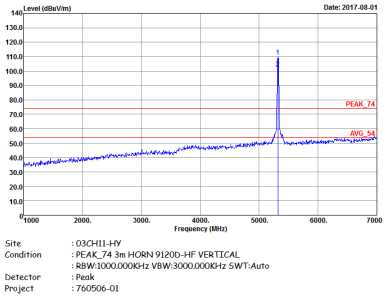
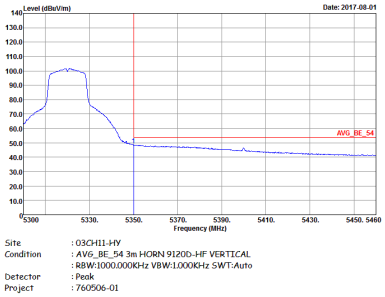
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11a CH60 5300MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11a CH60 5300MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11a CH60 5300MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

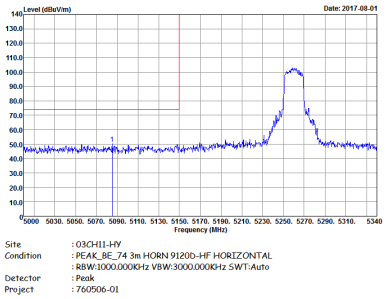
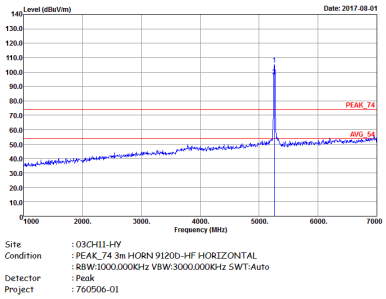
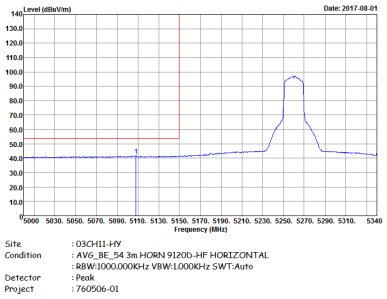
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11a CH60 5300MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

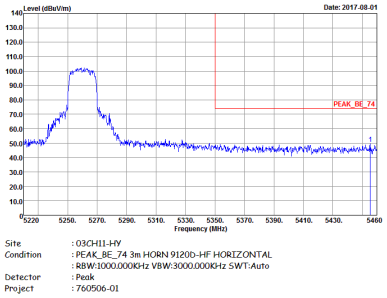
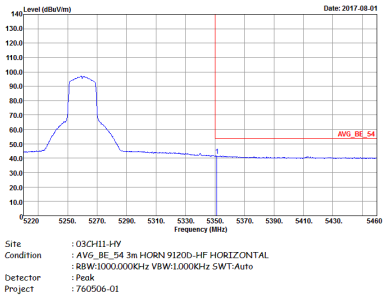
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11a CH64 5320MHz	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

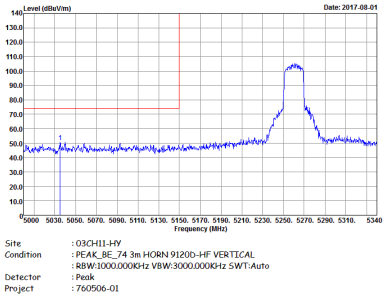
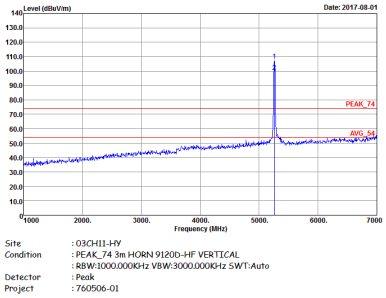
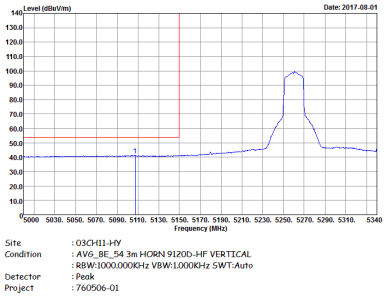
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11a CH64 5320MHz	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

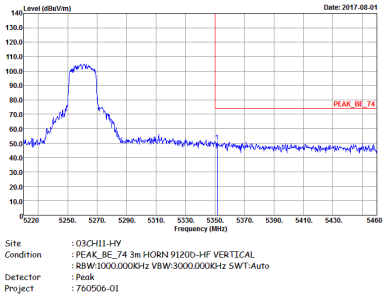
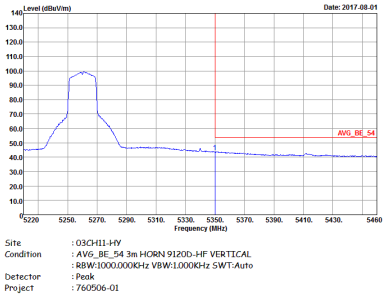
Band 2 5250~5350MHz

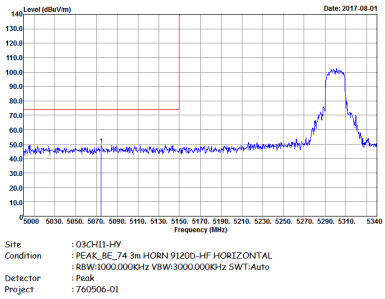
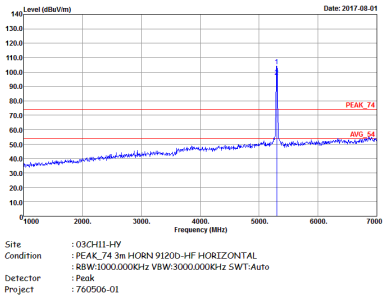
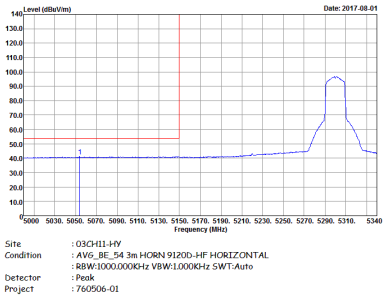
WIFI 802.11n HT20 (Band Edge @ 3m)

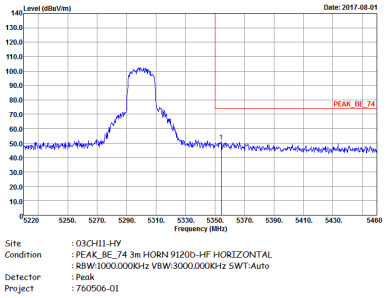
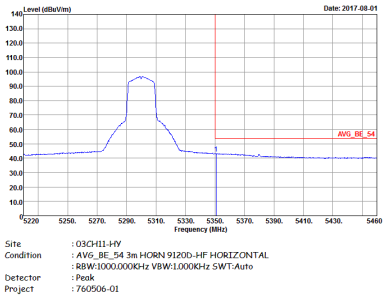
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH52 5260MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

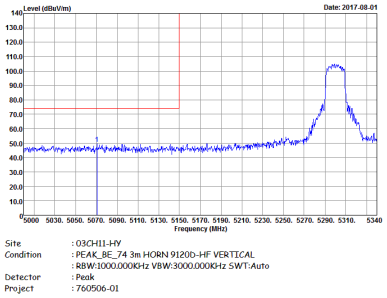
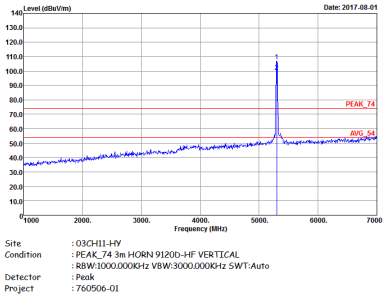
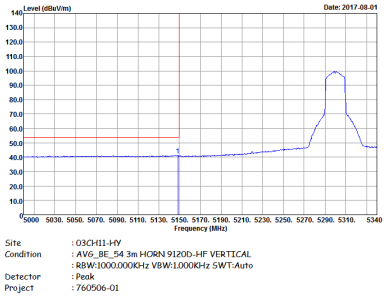
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH52 5260MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

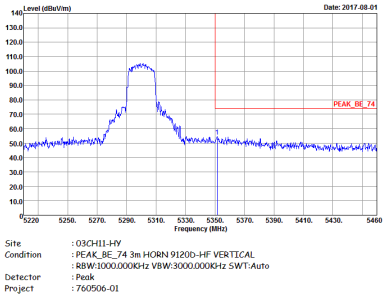
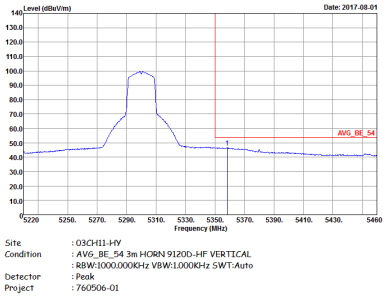
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH52 5260MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

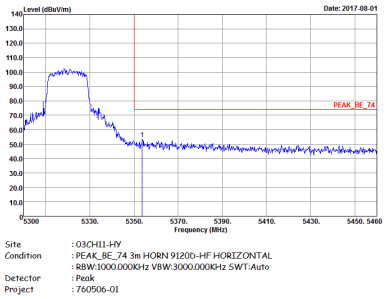
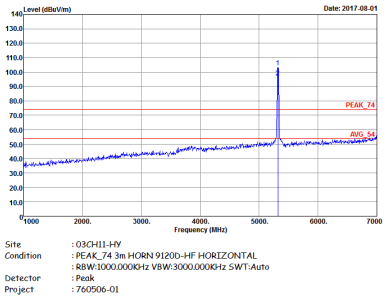
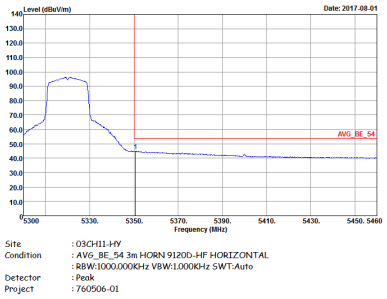
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH52 5260MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

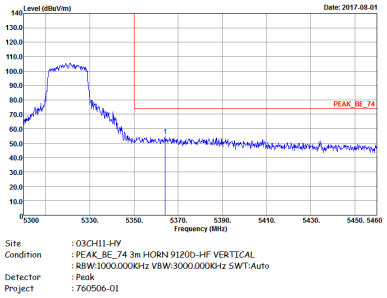
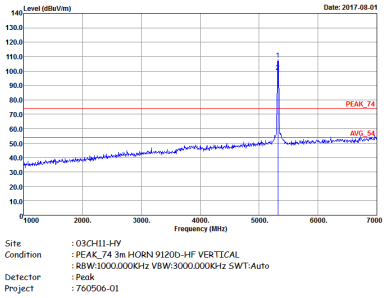
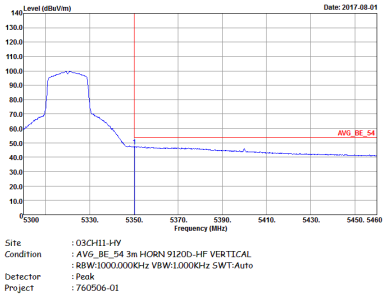
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH60 5300MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH60 5300MHz - R	
1	Horizontal	Vertical
Peak		Left blank
Avg.		Left blank

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH60 5300MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

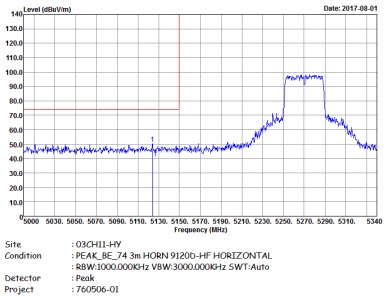
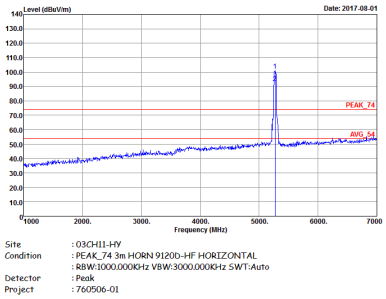
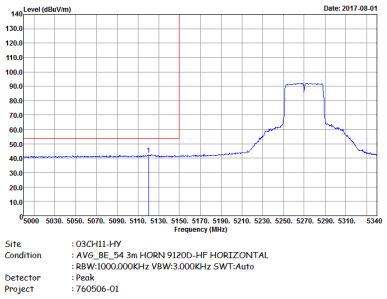
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH60 5300MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

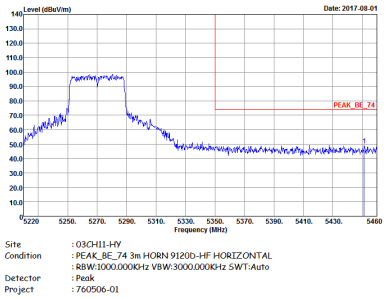
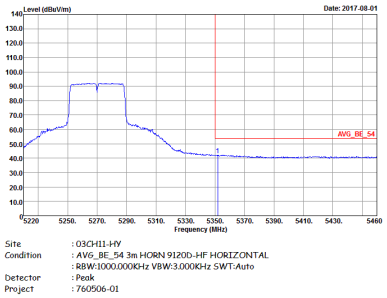
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

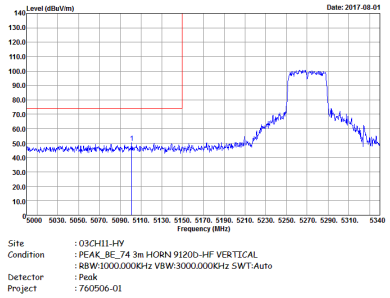
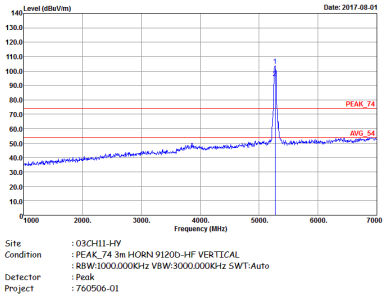
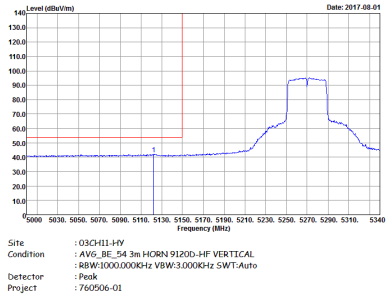
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

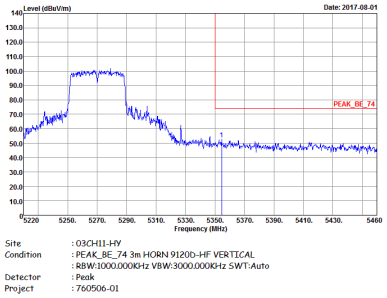
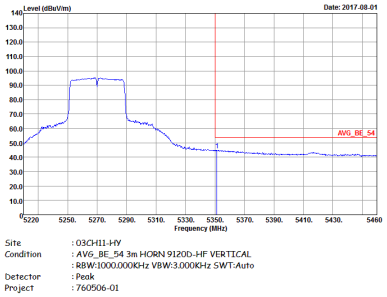
Band 2 5250~5350MHz

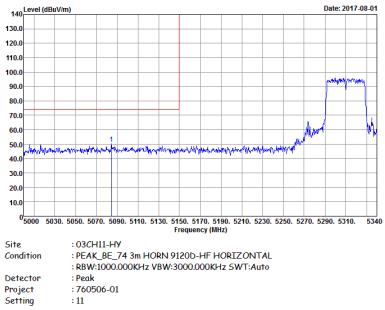
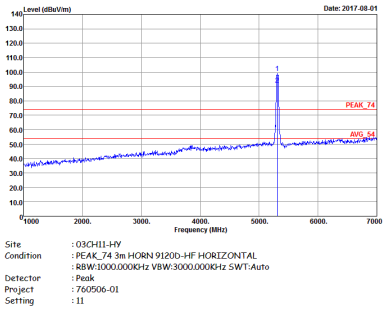
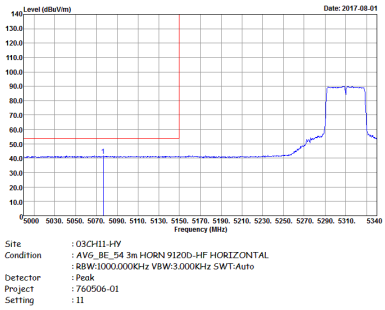
WIFI 802.11n HT40 (Band Edge @ 3m)

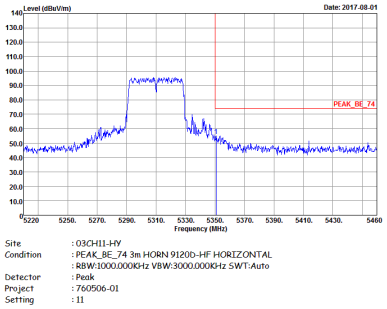
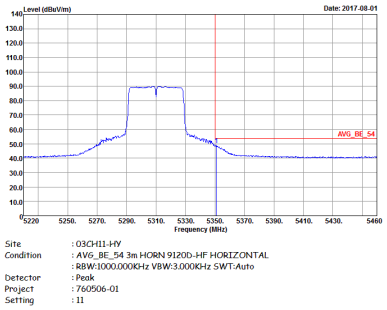
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT40 CH54 5270 - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

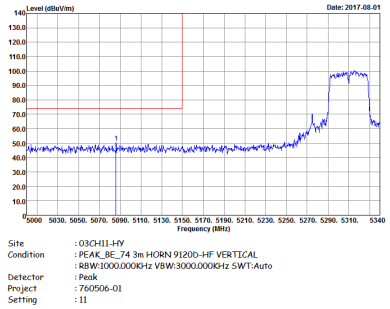
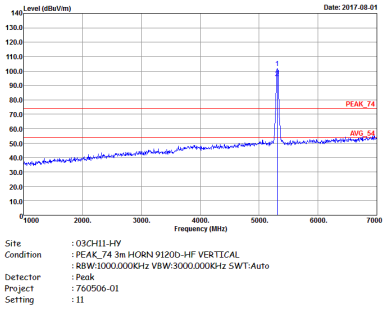
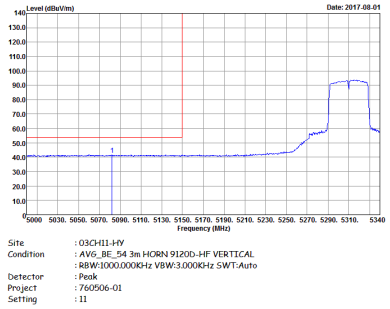
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT40 CH54 5270 - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

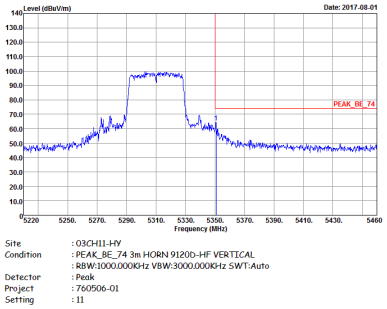
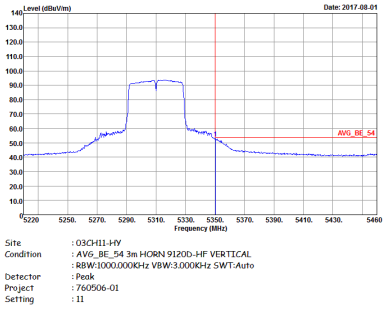
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT40 CH54 5270 - L	
1	Vertical	Vertical
Peak		
Avg.		Left blank

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT40 CH54 5270 - R	
1	Vertical	Vertical
Peak		Left blank
Avg.		Left blank

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT40 CH62 5310 - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

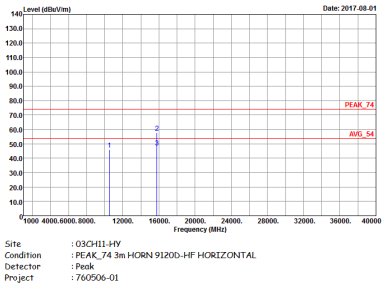
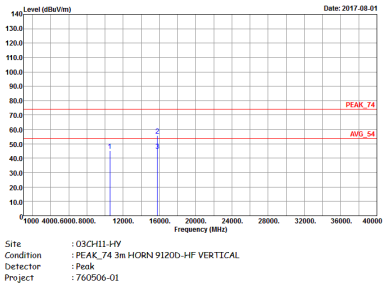
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT40 CH62 5310 - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

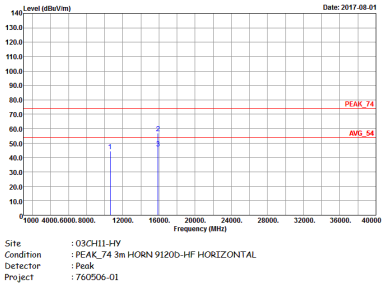
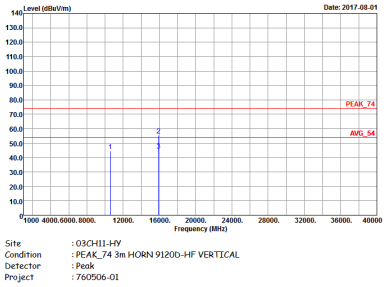
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT40 CH62 5310 - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

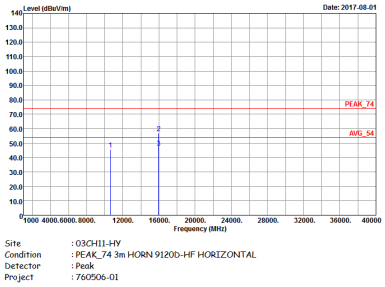
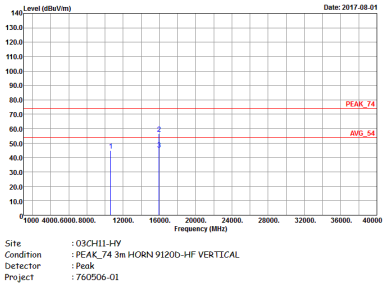
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT40 CH62 5310 - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

Band 2 - 5250~5350MHz

WIFI 802.11a (Harmonic @ 3m)

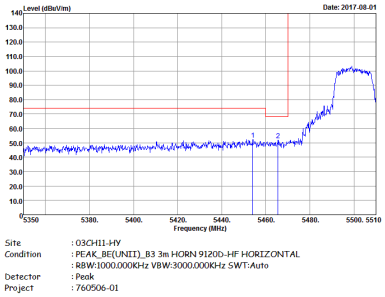
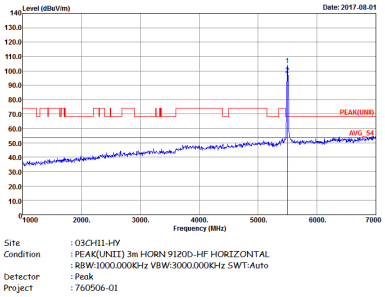
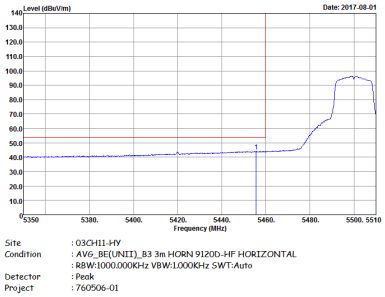
WIFI	Band 2 5250~5350MHz Harmonic @ 3m	
ANT	802.11a CH52 5260MHz	
1	Horizontal	Vertical
Peak Avg.		

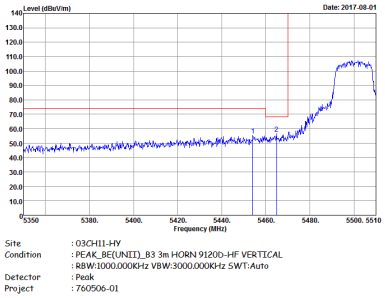
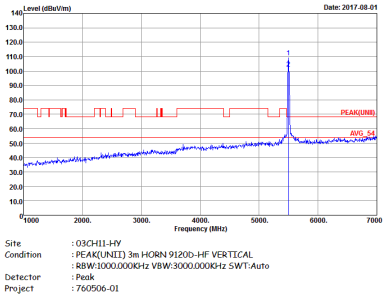
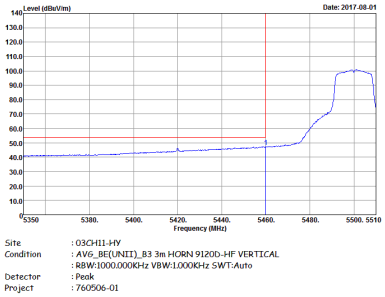
WIFI	Band 2 5250~5350MHz Harmonic @ 3m	
ANT	802.11a CH60 5300MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HV Condition : PEAK_74 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 760506-01	 Site : 03CH11-HV Condition : PEAK_74 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 760506-01

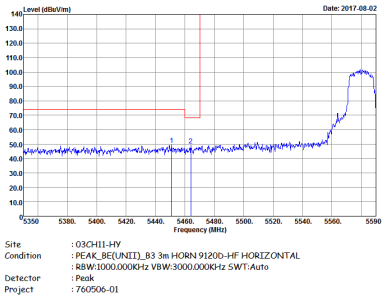
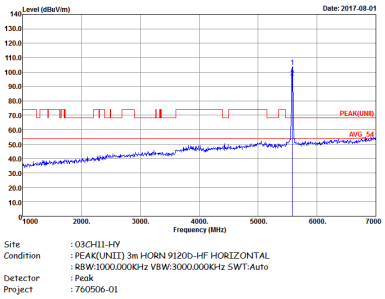
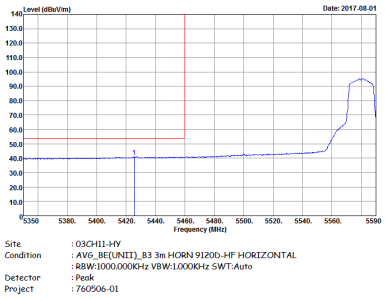
WIFI	Band 2 5250~5350MHz Harmonic @ 3m	
ANT	802.11a CH64 5320MHz	
1	Horizontal	Vertical
Peak Avg.		

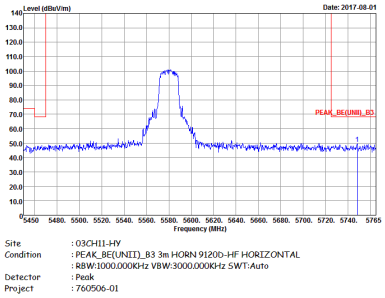
Band 3 - 5470~5725MHz

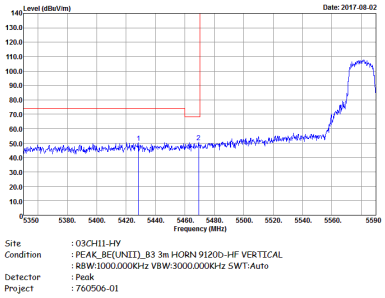
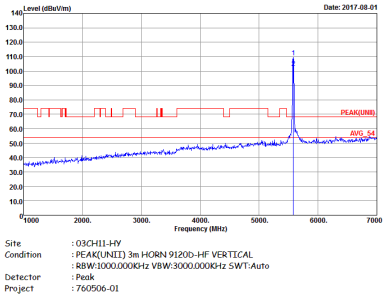
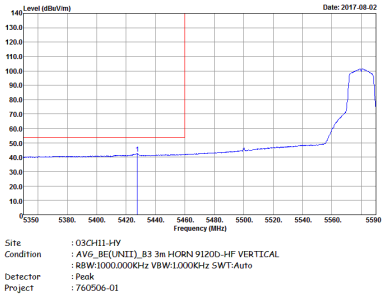
WIFI 802.11a (Band Edge @ 3m)

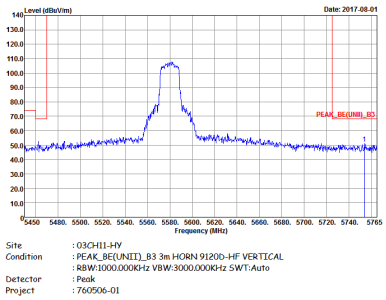
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11a CH100 5500MHz	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

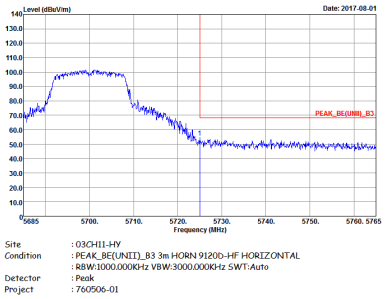
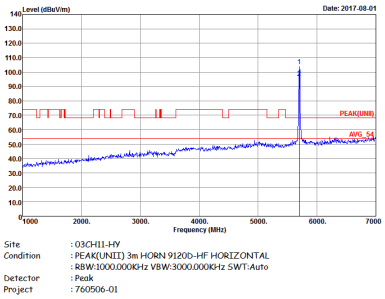
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11a CH100 5500MHz	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

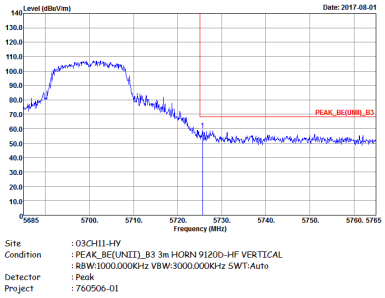
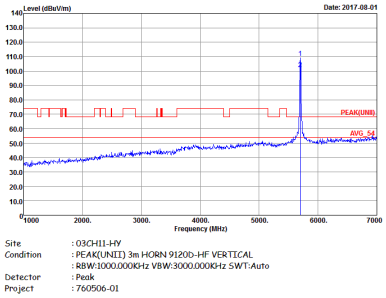
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11a CH116 5580MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11a CH116 5580MHz - R	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HV Condition : PEAK_BE(UNII)_B3 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 760506-01	Left blank

WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11a CH116 5580MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

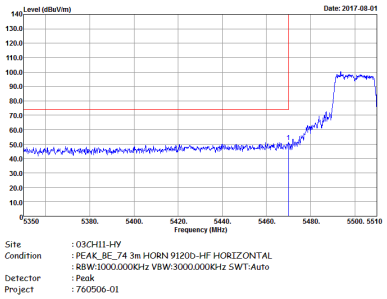
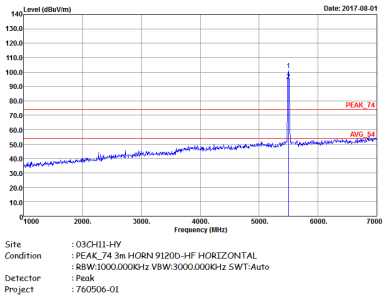
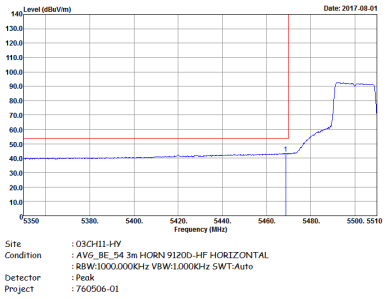
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11a CH116 5580MHz - R	
1	Vertical	Fundamental
Peak		Left blank

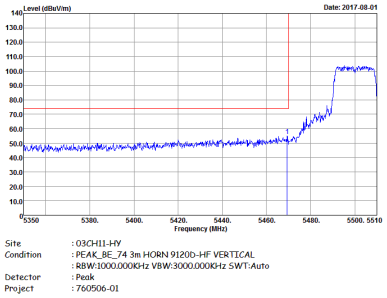
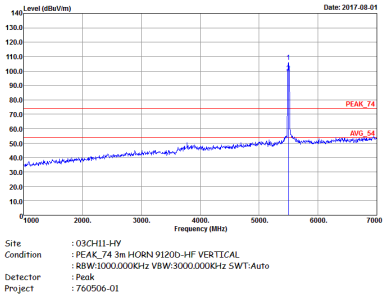
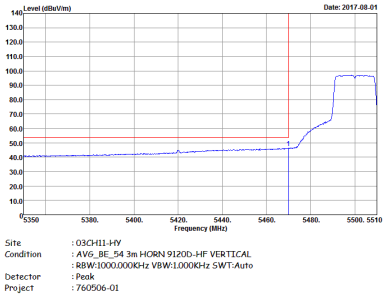
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11a CH140 5700MHz	
1	Horizontal	Fundamental
Peak		

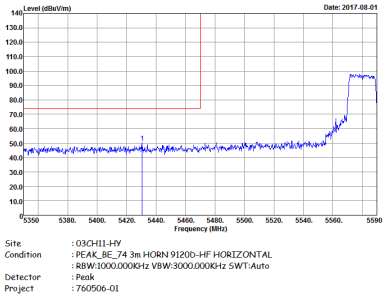
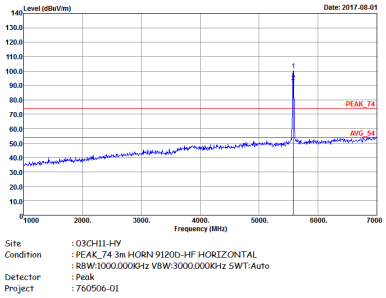
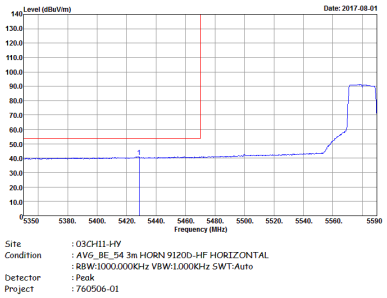
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11a CH140 5700MHz	
1	Vertical	Fundamental
Peak		

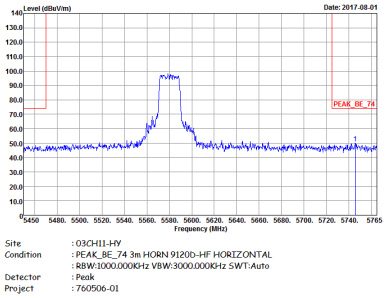
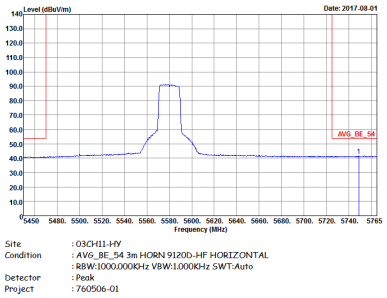
Band 3 5470~5725MHz

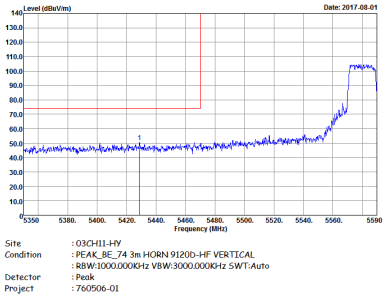
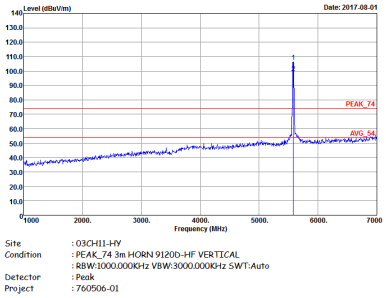
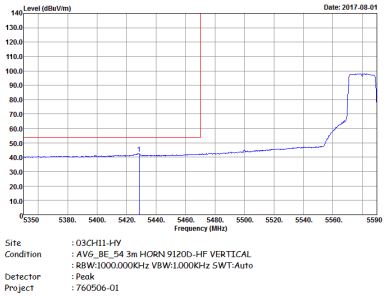
WIFI 802.11n HT20 (Band Edge @ 3m)

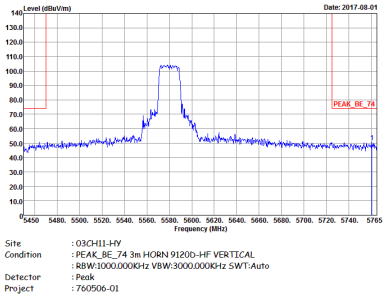
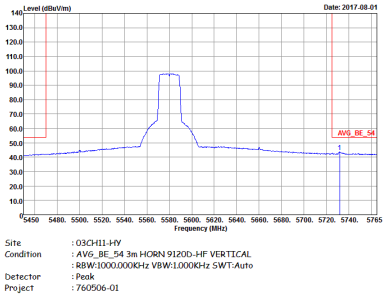
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT20 CH100 5500MHz	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

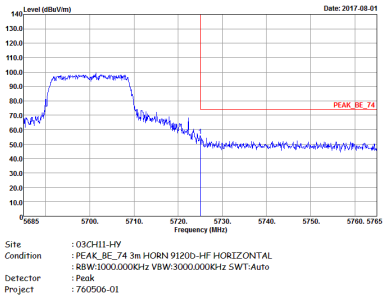
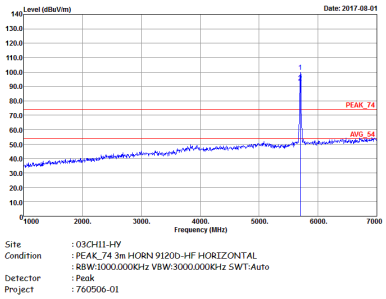
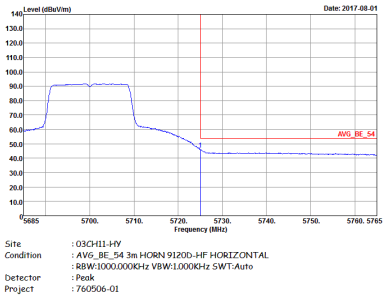
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT20 CH100 5500MHz	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

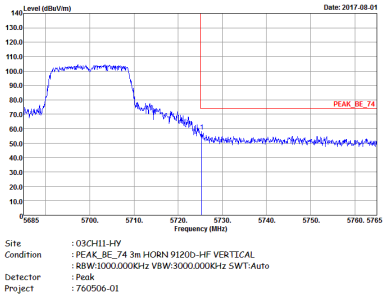
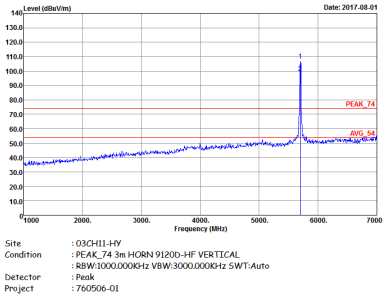
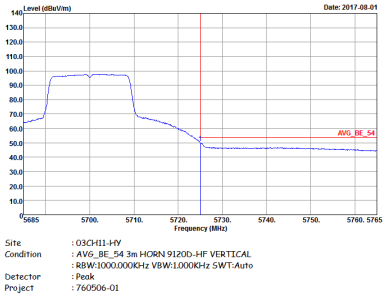
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT20 CH116 5580MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT20 CH116 5580MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT20 CH116 5580MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

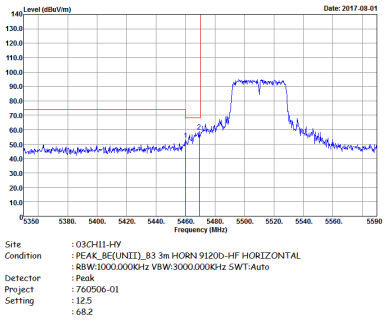
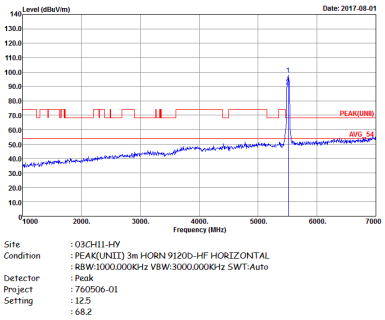
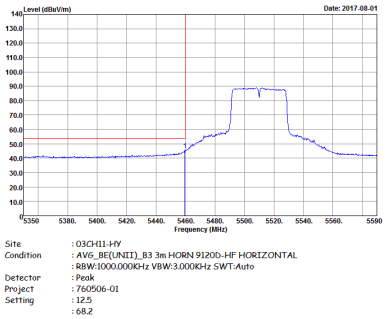
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT20 CH116 5580MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

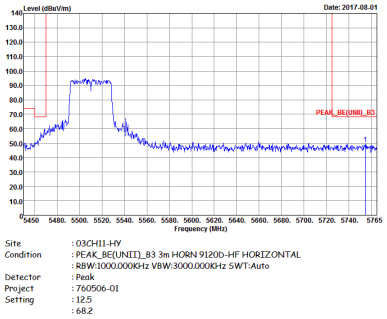
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT20 CH140 5700MHz	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

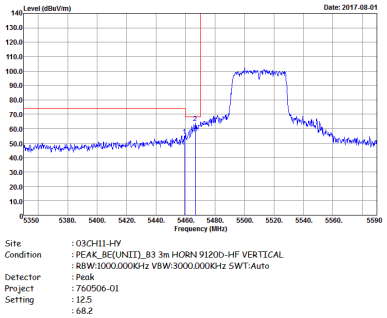
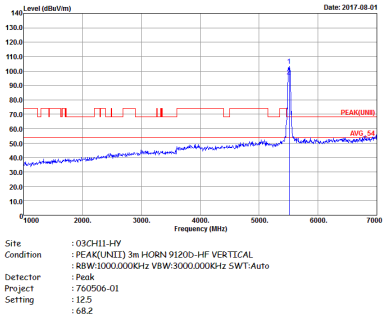
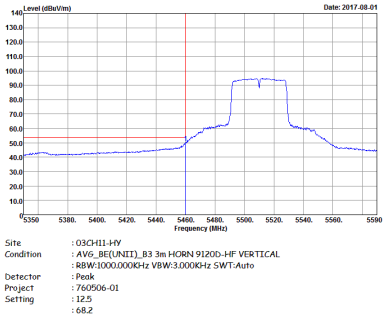
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT20 CH140 5700MHz	
1	Vertical	Fundamental
Peak.		
Avg.		Left blank

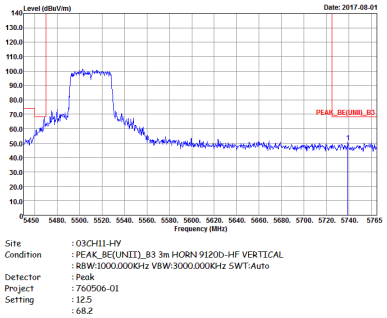
Band 3 5470~5725MHz

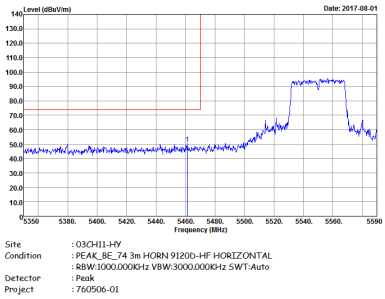
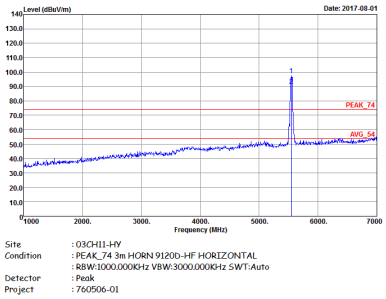
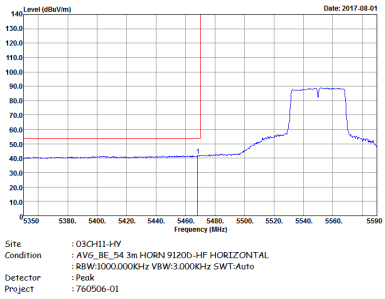
WIFI 802.11n HT40 (Band Edge @ 3m)

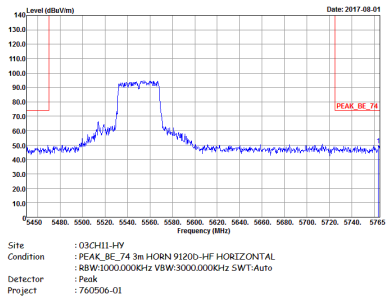
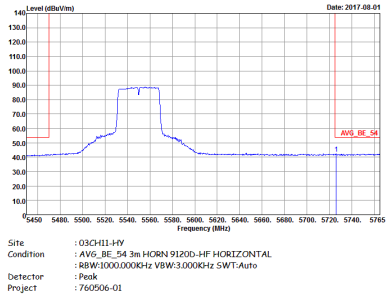
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH102 5510MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

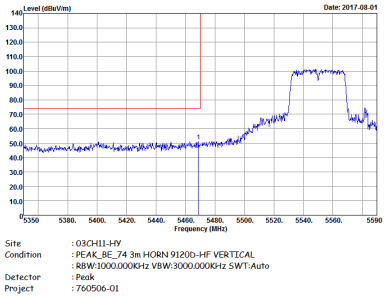
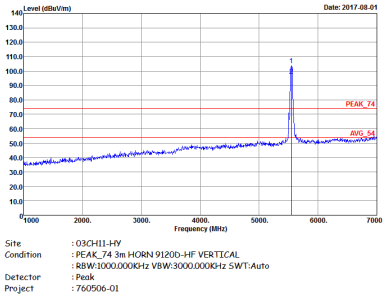
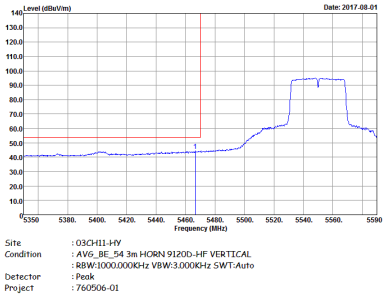
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH102 5510MHz - R	
1	Horizontal	Fundamental
Peak		Left blank

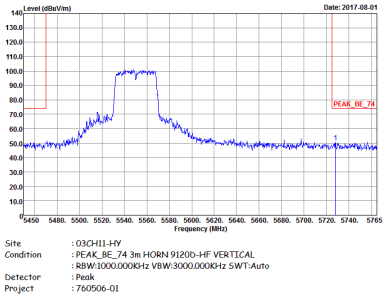
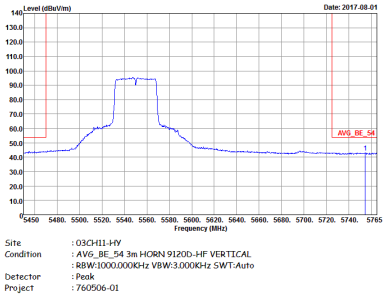
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH102 5510MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

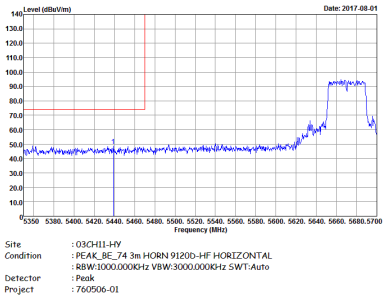
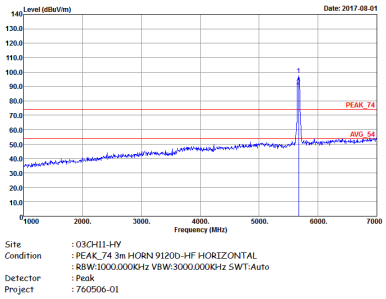
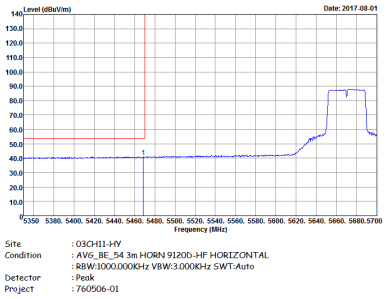
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH102 5510MHz - R	
1	Vertical	Fundamental
Peak		Left blank

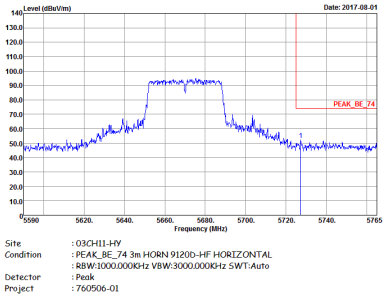
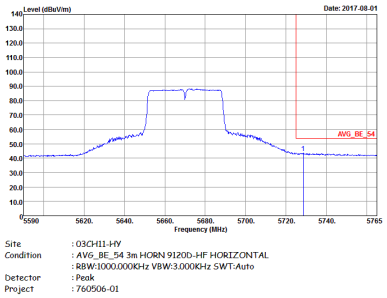
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH110 5550MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

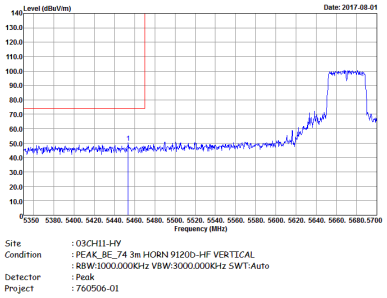
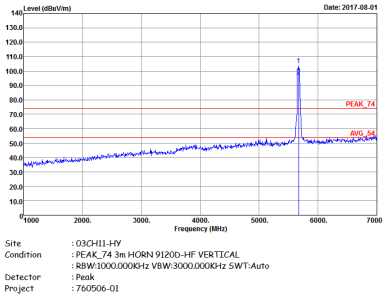
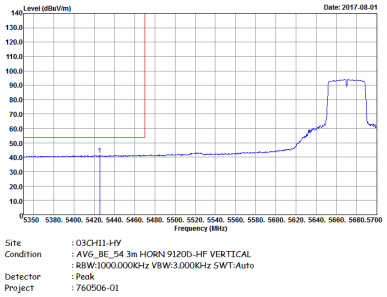
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH110 5550MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

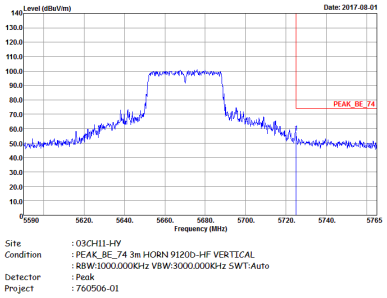
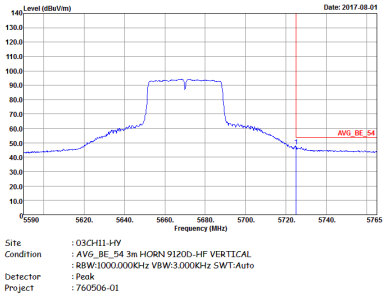
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH110 5550MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH110 5550MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH134 5670MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		Left blank

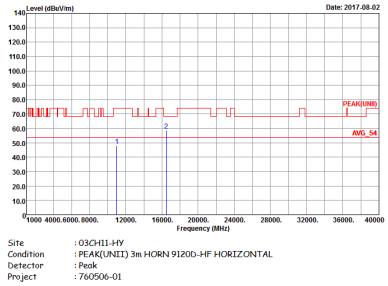
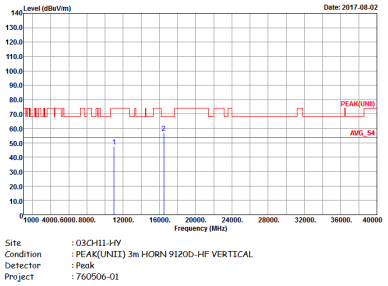
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH134 5670MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

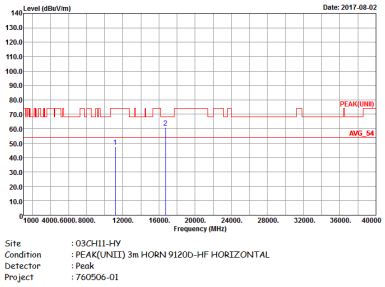
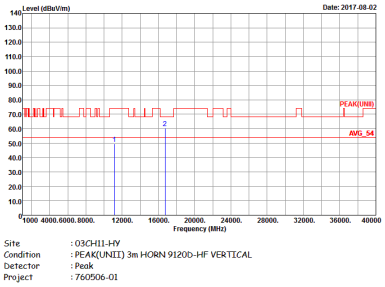
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH134 5670MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		Left blank

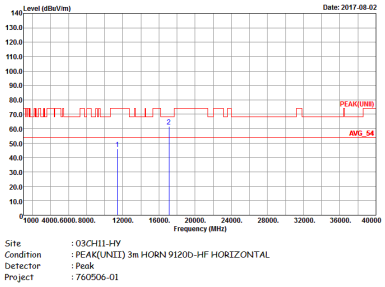
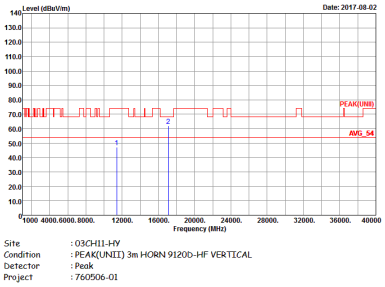
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11n HT40 CH134 5670MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

Band 3 - 5470~5725MHz

WIFI 802.11a (Harmonic @ 3m)

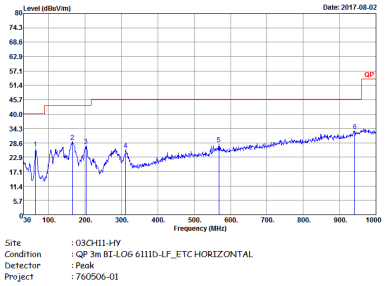
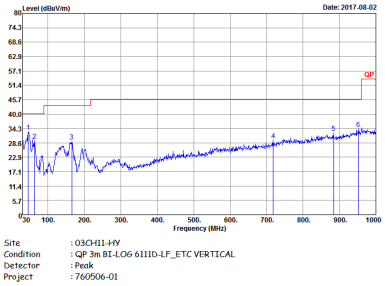
WIFI	Band 3 5470~5725MHz Harmonic @ 3m	
ANT	802.11a CH100 5500MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	Band 3 5470~5725MHz Harmonic @ 3m	
ANT	802.11a CH116 5580MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HV Condition : PEAK(UNII) 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 760506-01	 Site : 03CH11-HV Condition : PEAK(UNII) 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 760506-01

WIFI	Band 3 5470~5725MHz Harmonic @ 3m	
ANT	802.11a CH140 5700MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HV Condition : PEAK(UNII) 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 760506-01	 Site : 03CH11-HV Condition : PEAK(UNII) 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 760506-01

Emission below 1GHz

5GHz WIFI 802.11n HT40 (LF)

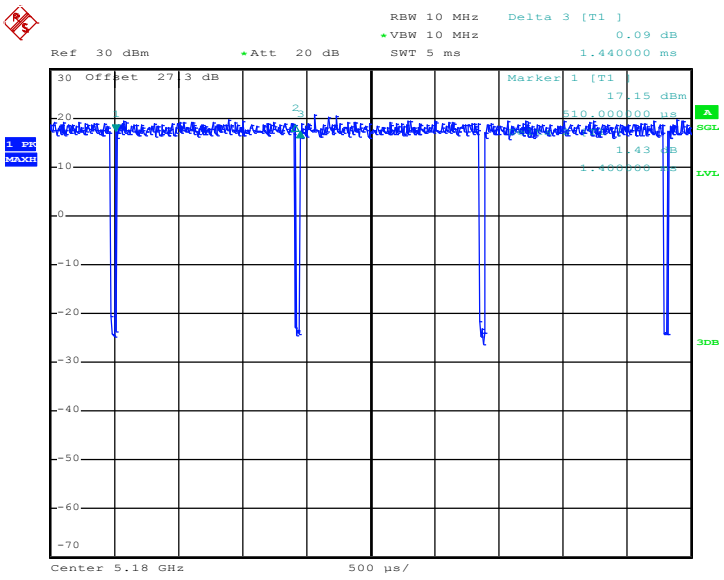
WIFI	5GHz WIFI	
ANT	802.11n HT40 LF	
1	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

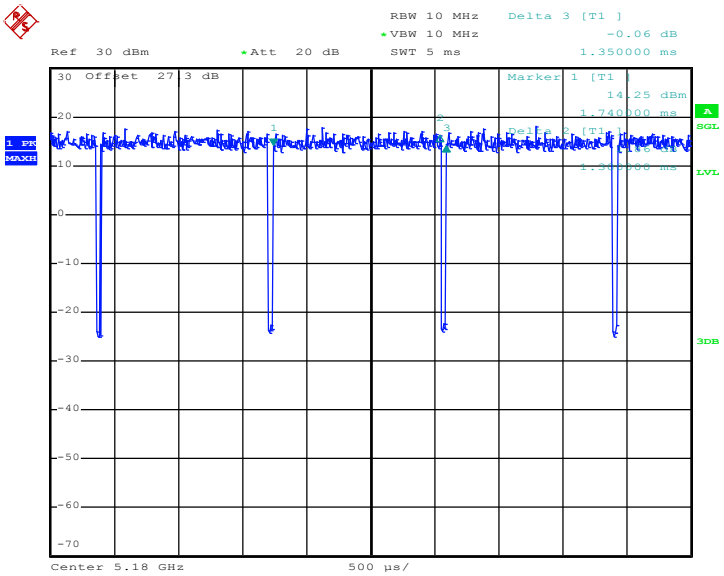
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1	802.11a	97.22	1400	0.71	1kHz
1	5GHz 802.11n HT20	96.3	1300	0.77	1kHz
1	5GHz 802.11n HT40	94.2	650	1.54	3kHz

<Ant. 1>

802.11a



802.11n HT20



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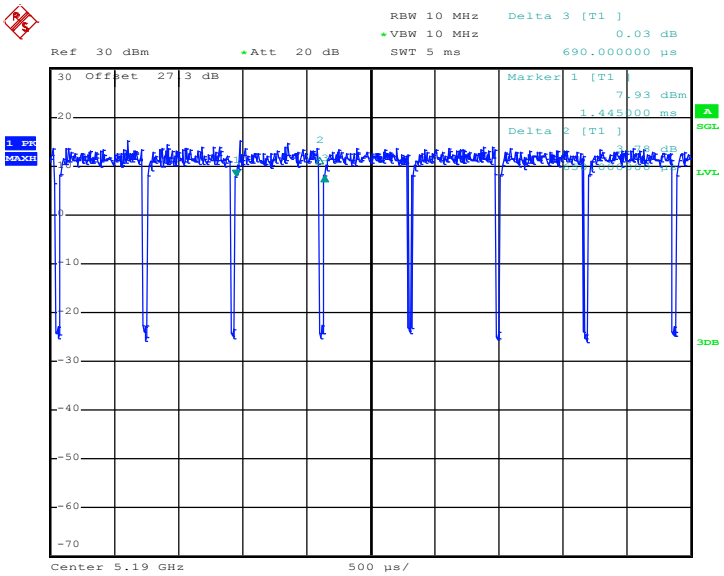
802.11n HT40



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