FCC RF Test Report

APPLICANT	:	Lenovo (Shanghai) Electronics Technology Co., Ltd.
EQUIPMENT	:	802.11a/b/g/n/ac + BT 4.1 M.2 2230 Type Card
BRAND NAME	:	Lenovo
MODEL NAME	:	QCNFA344A
FCC ID	:	O57-QCNFA344AH
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure

The product was installed into Notebook Computer (Brand Name: Lenovo, Model Name: Lenovo YOGA 920-13IKBXXXXXX, 80Y7XXXXXX, Lenovo YOGA 920-13IKB GlassXXXXXX, 80Y8XXXXXX, Lenovo YOGA 6 ProXXXXXX (The"X"in model name can be 0 to 9,A to Z,a to z,"-"or blank), Marketing Name: Lenovo YOGA 920) during test.

The product was received on Jun. 02, 2017 and testing was completed on Jul. 05, 2017. We, Sporton International (KunShan) 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 (KunShan) INC., the test report shall not be reproduced except in full.

James Huang

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR760219E	Rev. 01	Initial issue of report	Jul. 12, 2017

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	6dB, 26dB and 99% Occupied Bandwidth	> 500kHz	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b)(4)(i) ≤ -17, -27 dBm/MHz &15.209(a)	Pass	Under limit 7.39 dB at 31.940 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.07 dB at 4.361 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

Lenovo (Shanghai) Electronics Technology Co., Ltd.
NO.68 BUILDING, 199 FENJU RD, China (Shanghai) Pilot Free Trade Zone, 200131, CHINA

1.2 Product Feature of Equipment Under Test

Product Feature	
Equipment	802.11a/b/g/n/ac + BT 4.1 M.2 2230 Type Card
Brand Name	Lenovo
Model Name	QCNFA344A
FCC ID	O57-QCNFA344AH
EUT supports Radios application	WLAN 2.4GHz 802.11b/g/n/ac HT20/HT40/VHT20/VHT40 WLAN 5GHz 802.11a/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth v3.0+EDR, Bluetooth v4.0 LE, Bluetooth v4.1 LE
EUT Stage	Identical Prototype

Host Product Feature	
Equipment	Notebook Computer
Brand Name	Lenovo
Model Name	Lenovo YOGA 920-13IKBXXXXXX, 80Y7XXXXXX, Lenovo YOGA 920-13IKB GlassXXXXXX, 80Y8XXXXXX, Lenovo YOGA 6 ProXXXXXX (The"X"in model name can be 0 to 9,A to Z,a to z,"-"or blank)
Marketing Name	Lenovo YOGA 920
Applicant	**Lenovo (Shanghai) Electronics Technology Co., Ltd.** NO.68 BUILDING, 199 FENJU RD, China (Shanghai) Pilot Free Trade Zone, Shanghai, 200131 China
Manufacturer	**Lenovo PC HK Limited** 23/F, Lincoln House, Taikoo Place, 979 King's Road, Quarry Bay Hong Kong

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.3 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	5745 MHz ~ 5825 MHz
Maximum (Average) Output Power to antenna	802.11a : 17.45 dBm (0.0556 W 802.11n HT20 : 17.17 dBm (0.0521 W) 802.11n HT40 : 16.42 dBm (0.0439 W) 802.11ac VHT20 : 17.25 dBm (0.0531 W) 802.11ac VHT40 : 16.56 dBm (0.0453 W) 802.11ac VHT80 : 10.60 dBm (0.0115 W)
Antenna Type / Gain	Chain Port 1: PIFA Antenna with gain -0.26 dBi Chain Port 2: PIFA Antenna with gain 2.07 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Antenna Function Description	

	Chain Port 1	Chain Port 2
802.11 a/n/ac SISO	V	V
802.11 a/n/ac MIMO	V	V

Note:

1. MIMO Chain Port 1+2 is a calculated result from sum of the power MIMO Chain Port 1 and MIMO Chain Port 2.
2. For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing has assessed only 802.11ac VHT20 / VHT40 by referring to their maximum conducted power.

1.4 Keypart List

There are five configurations of samples under test, the keypart list is shown in the following table:

	Supplier	Description
CPU	Intel	Intel i7-8550U 1.8G/4C/8M
		Intel i5-8250U 1.6G/4C/6M
RAM	/	DDR4 8/12/16GB
SSD	Samsung	MZVLW256HEHP 256G
	Toshiba	TSB XG4 256G
	Samsung	MZVLW512HMJP 512G
	Toshiba	TSB XG4 512G
	Samsung	MZVLW1T0HMLH-000L2 1TB
LCD	LGD	LP139UD1-SPC1
	AUO	B139HAN03.0
Adapter	Chicony	ADLX65YCC3A 20V3.25A
	Liteon	ADLX65YLC3A 20V3.25A
	Delta	ADLX65YDC3A 20V3.25A
	Acbel	ADLX65YAC3A 20V3.25A
Battery	Simplo	L16M4P60
	Celxpert	L16C4P61
WLAN	Qualcomm Atheros	QCNFA344A
Camera	BISON	BNG119VSN
	Chicony	CKFGH44
	AVC	HAA-8NC302
Active Pen (optional)	Wacom	ESP101Bxxxx，x=0~9,A-Z,a~z, for marketing use only.

1.5 Modification of EUT

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

1.6 Testing Location

Test Site	Sporton International (KunShan) INC.			
Test Site Location	No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958			
Test Site No.	**Sporton Site No.**			**FCC Registration No.**
	TH01-KS	CO01-KS	03CH03-KS	306251

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

1.7 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
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
- 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

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: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4 (U-NII-3)	149	5745	157	5785
	151*	5755	159*	5795
	153	5765	161	5805
	155#	5775	165	5825

Note:

1. The above Frequency and Channel in "*" were 802.11n HT40 and 802.11ac VHT40.
2. The above Frequency and Channel in "#" were 802.11ac VHT80.

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.

MIMO Antenna

Modulation	Data Rate
802.11a	6 Mbps
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

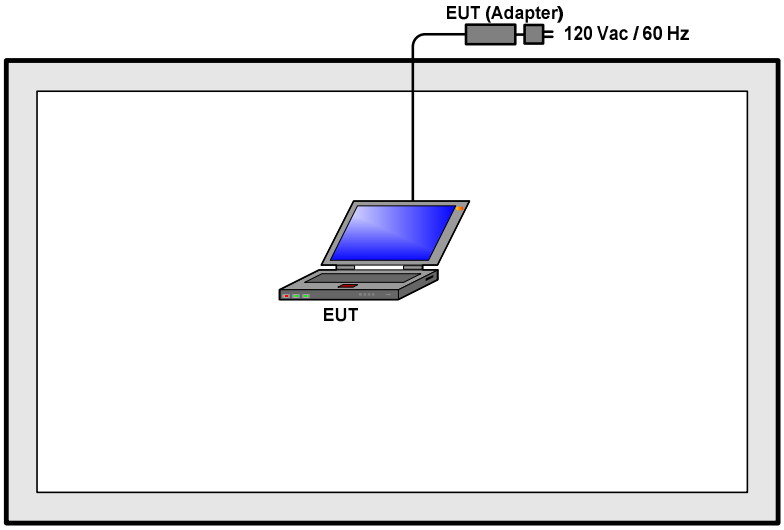
Test Cases	
AC Conducted Emission	Mode 1 :Bluetooth Link + WLAN (5G) Link + Camera + Earphone + Battery 1 + USB Link with U Disk USB Port + Paly H Plane + Adapter 1 With Type C 1 + USB Link with Type C 2 for Sample 1 Mode 2 : Bluetooth Link + WLAN (5G) Link + Camera + Earphone + Battery 1 + USB Link with U Disk USB Port + MPEG4/Color Bar + Adapter 1 With Type C 1 + USB Link with Type C 2 for Sample 1 Mode 3 : **Bluetooth Link + WLAN (5G) Link + Camera + Earphone + Battery 2 + USB Link with U Disk USB Port + Adapter 2 With Type C 1 + USB Link with Type C 2 for Sample 2** Mode 4 : Bluetooth Link + WLAN (5G) Link + Camera + Earphone + Battery 3 + USB Link with U Disk USB Port + Adapter 3 With Type C 1 + USB Link with Type C 2 for Sample 3 Mode 5 : Bluetooth Link + WLAN (5G) Link + Camera + Earphone + Battery 4 + USB Link with U Disk USB Port + Adapter 4 With Type C 1 + USB Link with Type C 2 for Sample 4 Mode 6 : Bluetooth Link + WLAN (5G) Link + Camera + Earphone + Battery 5 + USB Link with U Disk USB Port + Adapter 1 With Type C 1 + USB Link with Type C 2 for Sample 5
Remark: 1. The worst case of conducted emission is mode 3; only the test data of it was reported. 2. Type C 1 is USB charging port, Type C 2 is USB link port.	

Ch. #		Band IV：5725-5850 MHz		
		802.11a	802.11n HT20	802.11n HT40
L	Low	149	149	151
M	Middle	157	157	-
H	High	165	165	159

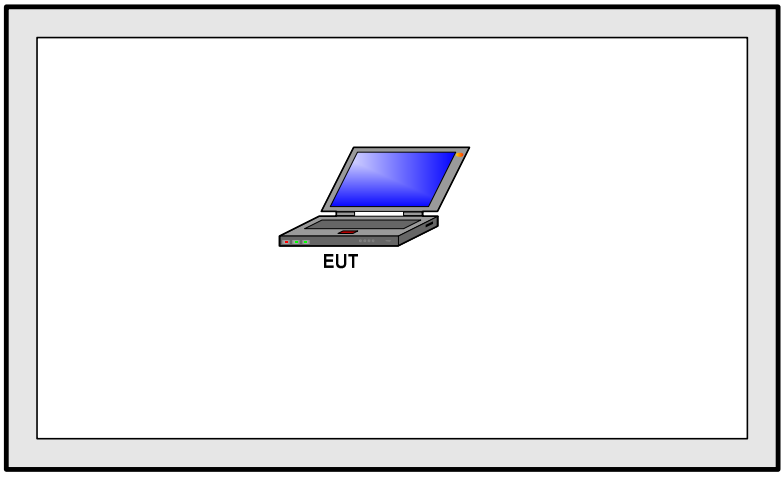
Ch. #		Band IV：5725-5850 MHz		
		802.11ac VHT20	802.11ac VHT40	802.11ac VHT80
L	Low	149	151	-
M	Middle	157	-	155
H	High	165	159	-

2.3 Connection Diagram of Test System

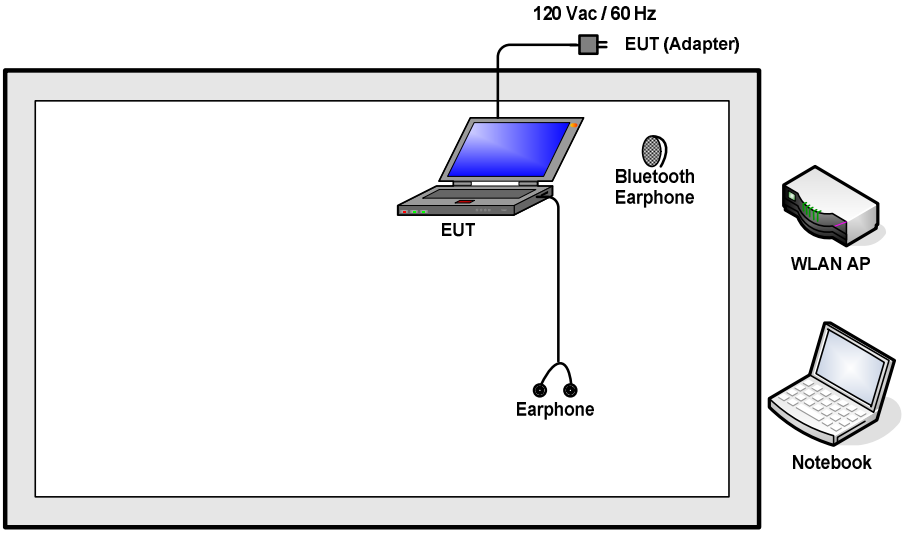
<802.11a/ac VHT40/80 Tx Mode>



<802.11ac VHT20 Tx Mode>



<AC Conducted Emission Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
2.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
3.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

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 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.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 6.8 dB.

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

=6.8 (dB)

3 Test Result

3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

3.1.1 Description of 6dB and 26dB and 99% Occupied Bandwidth

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

26dB and 99% Occupied bandwidth are reporting only.

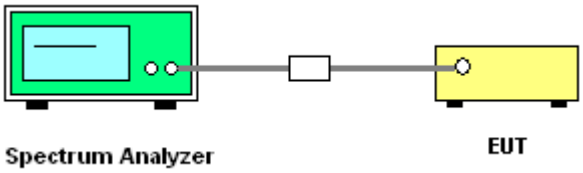
3.1.2 Measuring Instruments

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 for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW ≥ 3 x RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

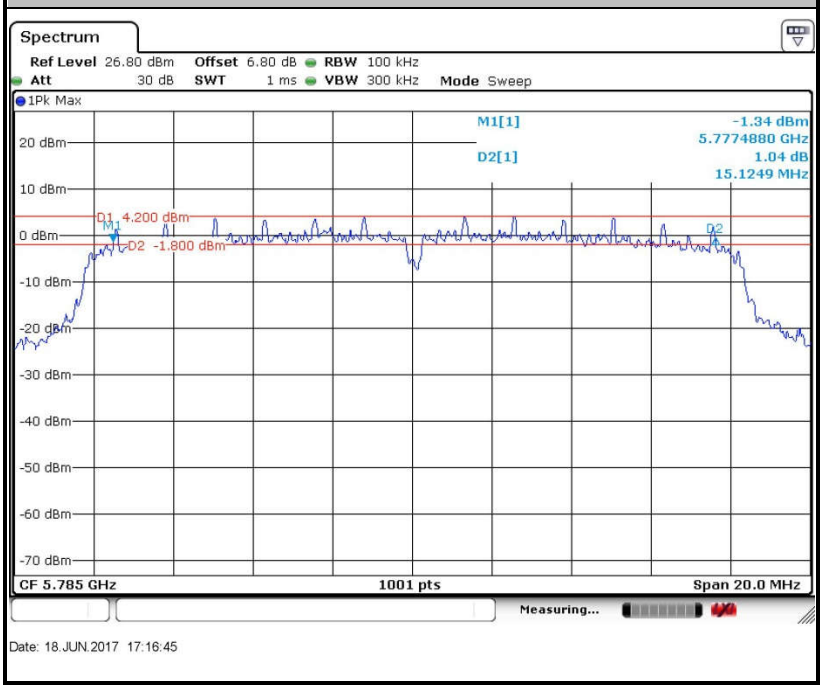
3.1.4 Test Setup



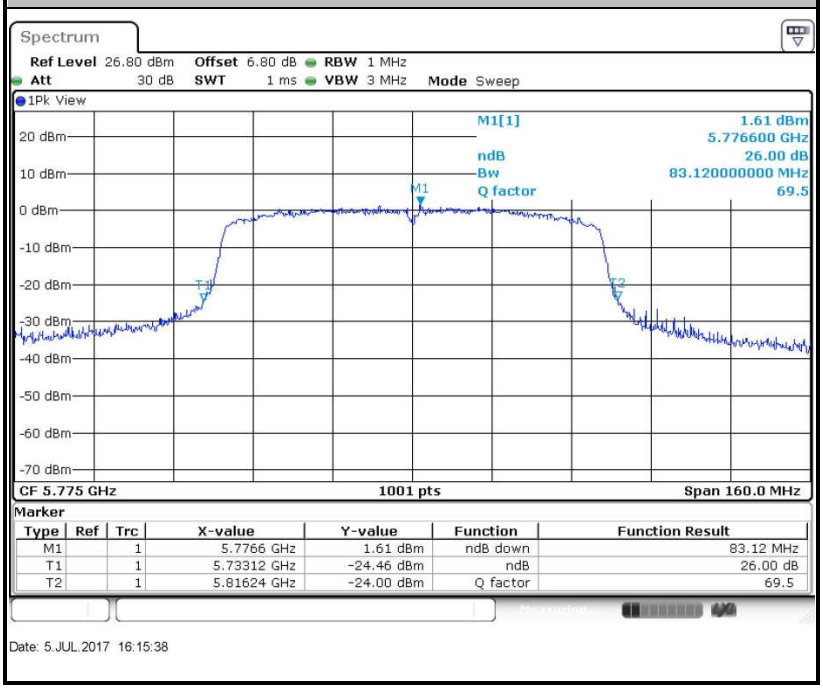
3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

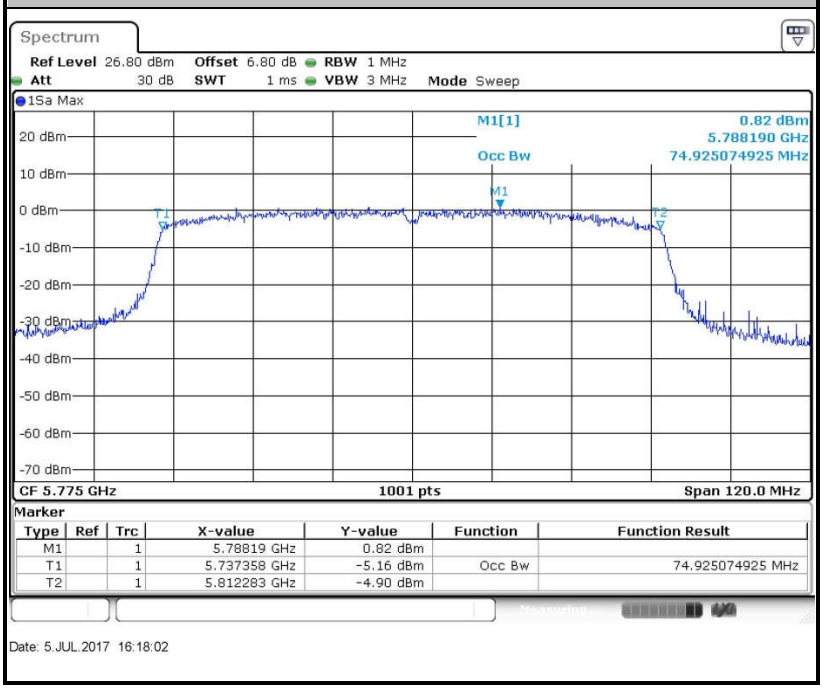
Minimum 6dB Bandwidth



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

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

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.

3.2.2 Measuring Instruments

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

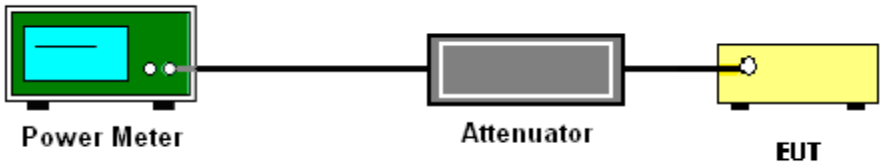
3.2.3 Test Procedures

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

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz 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).

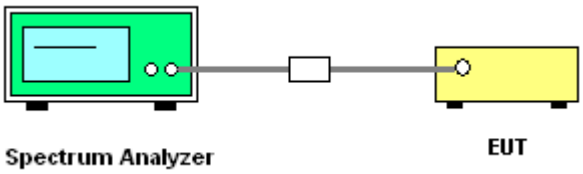
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz.
- Set VBW ≥ 1 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add 10 log(500kHz/RBW) to the test result.
- 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.

1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

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

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

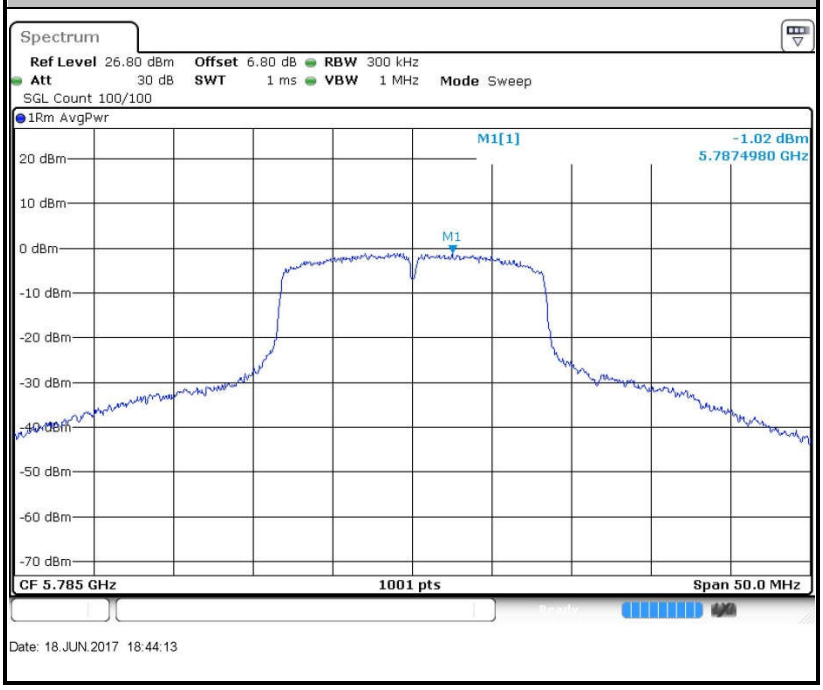
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/300kHz)



3.4 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part15.205.

3.4.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5.725-5.85 GHz band:

15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(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)
-17	78.3
- 27	68.3

(3) KDB789033 D02 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

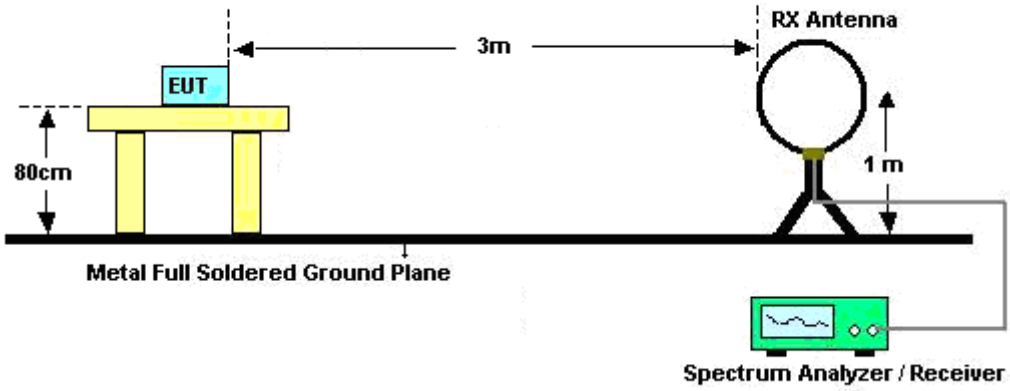
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - 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.

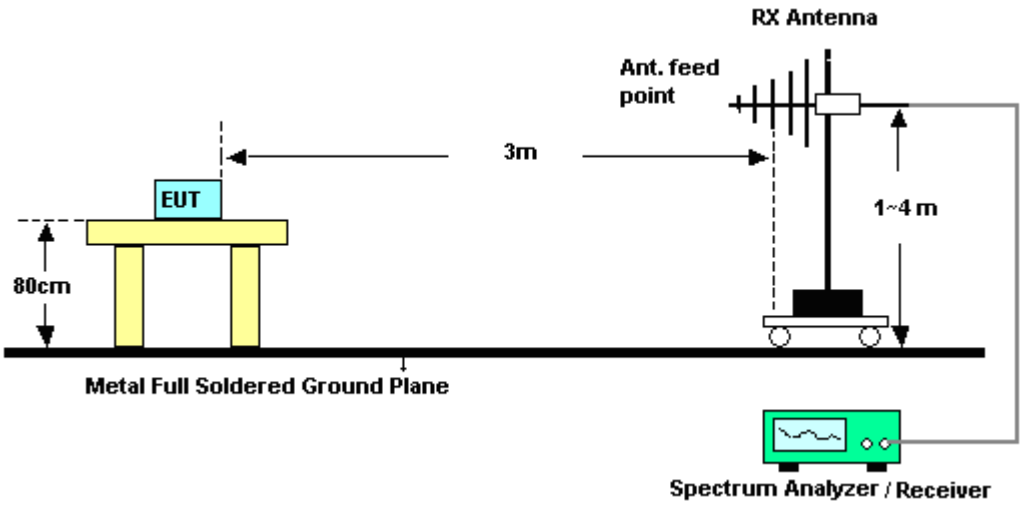
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband 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

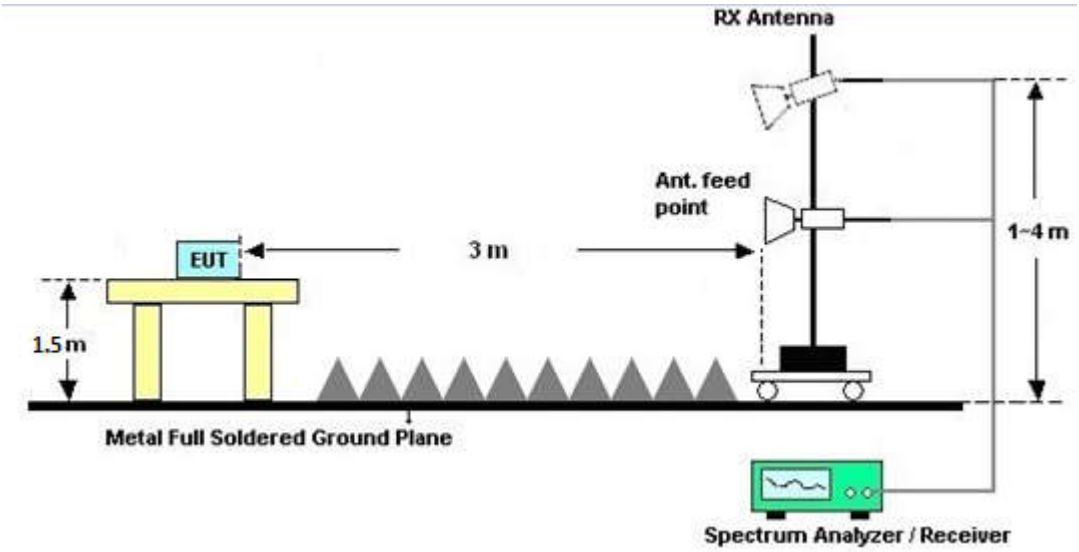
For radiated emissions below 30MHz



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 per 15.31(o) was not reported.

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B and C.

3.4.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix B and C.

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.

For terminal test result, the testing follows FCC KDB 174176.

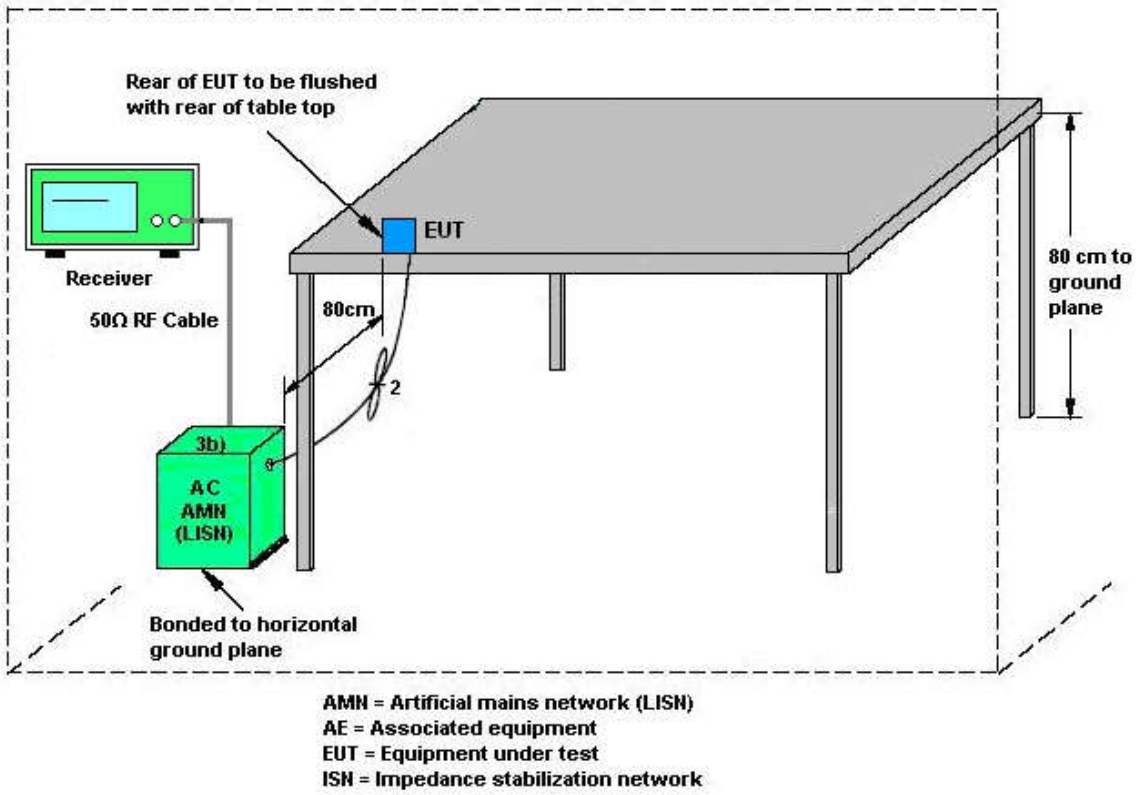
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

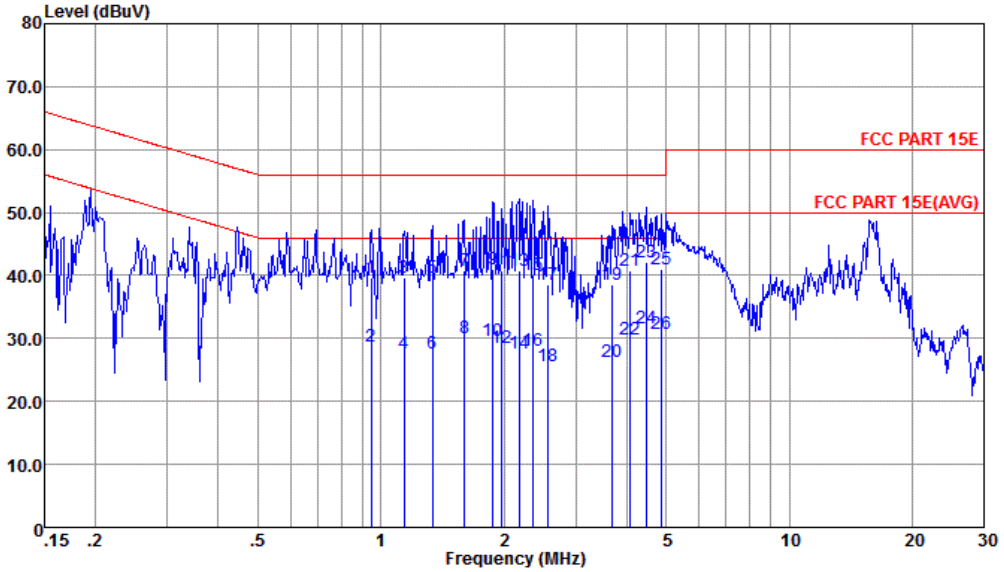
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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

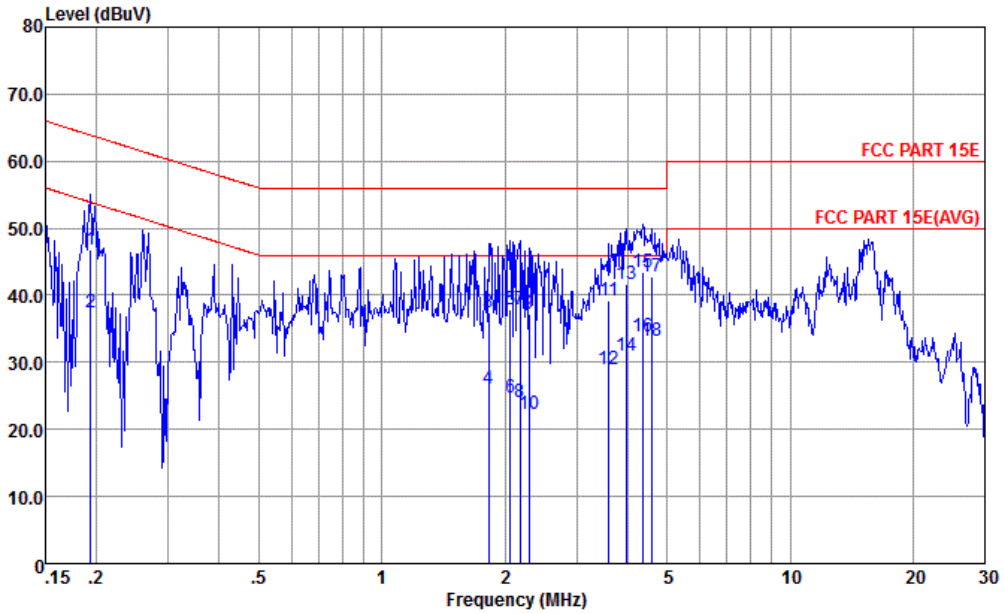
Test Mode :	Mode 3	**Temperature :**	22~24℃
Test Engineer :	Amos Zhang	**Relative Humidity :**	42~46%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	Bluetooth Link + WLAN (5G) Link + Camera + Earphone + Battery 2 + USB Link with U Disk USB Port + Adapter 2 With Type C 1 + USB Link with Type C 2 for Sample 2		



Site : CO01-KS
Condition : FCC PART 15E LISN-L-161017-060103 LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.948	39.64	-16.36	56.00	29.19	0.26	10.19	QP
2	0.948	28.74	-17.26	46.00	18.29	0.26	10.19	Average
3	1.141	39.64	-16.36	56.00	29.20	0.25	10.19	QP
4	1.141	27.64	-18.36	46.00	17.20	0.25	10.19	Average
5	1.338	39.73	-16.27	56.00	29.30	0.24	10.19	QP
6	1.338	27.63	-18.37	46.00	17.20	0.24	10.19	Average
7	1.602	40.71	-15.29	56.00	30.29	0.23	10.19	QP
8	1.602	30.01	-15.99	46.00	19.59	0.23	10.19	Average
9	1.878	41.00	-15.00	56.00	30.60	0.21	10.19	QP
10	1.878	29.60	-16.40	46.00	19.20	0.21	10.19	Average
11	1.980	40.70	-15.30	56.00	30.30	0.21	10.19	QP
12	1.980	28.50	-17.50	46.00	18.10	0.21	10.19	Average
13	2.178	40.70	-15.30	56.00	30.30	0.21	10.19	QP
14	2.178	27.60	-18.40	46.00	17.20	0.21	10.19	Average
15	2.358	40.21	-15.79	56.00	29.80	0.21	10.20	QP
16	2.358	28.01	-17.99	46.00	17.60	0.21	10.20	Average
17	2.554	38.62	-17.38	56.00	28.20	0.21	10.21	QP
18	2.554	25.62	-20.38	46.00	15.20	0.21	10.21	Average
19	3.681	38.64	-17.36	56.00	28.20	0.21	10.23	QP
20	3.681	26.34	-19.66	46.00	15.90	0.21	10.23	Average
21	4.092	40.75	-15.25	56.00	30.30	0.21	10.24	QP
22	4.092	29.95	-16.05	46.00	19.50	0.21	10.24	Average
23 *	4.454	42.05	-13.95	56.00	31.60	0.21	10.24	QP
24	4.454	31.55	-14.45	46.00	21.10	0.21	10.24	Average
25	4.874	41.05	-14.95	56.00	30.60	0.21	10.24	QP
26	4.874	30.65	-15.35	46.00	20.20	0.21	10.24	Average

Test Mode :	Mode 3	**Temperature :**	22~24℃
Test Engineer :	Amos Zhang	**Relative Humidity :**	42~46%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	Bluetooth Link + WLAN (5G) Link + Camera + Earphone + Battery 2 + USB Link with U Disk USB Port + Adapter 2 With Type C 1 + USB Link with Type C 2 for Sample 2		



Site : CO01-KS
Condition : FCC PART 15E LISN-N-161017-060103 NEUTRAL

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.193	46.87	-17.02	63.89	36.20	0.33	10.34	QP
2	0.193	37.47	-16.42	53.89	26.80	0.33	10.34	Average
3	1.829	37.40	-18.60	56.00	26.80	0.41	10.19	QP
4	1.829	26.10	-19.90	46.00	15.50	0.41	10.19	Average
5	2.066	37.90	-18.10	56.00	27.30	0.41	10.19	QP
6	2.066	24.70	-21.30	46.00	14.10	0.41	10.19	Average
7	2.178	37.80	-18.20	56.00	27.20	0.41	10.19	QP
8	2.178	24.10	-21.90	46.00	13.50	0.41	10.19	Average
9	2.297	37.20	-18.80	56.00	26.59	0.41	10.20	QP
10	2.297	22.20	-23.80	46.00	11.59	0.41	10.20	Average
11	3.603	39.12	-16.88	56.00	28.50	0.39	10.23	QP
12	3.603	28.92	-17.08	46.00	18.30	0.39	10.23	Average
13	3.964	41.73	-14.27	56.00	31.10	0.39	10.24	QP
14	3.964	30.93	-15.07	46.00	20.30	0.39	10.24	Average
15	4.361	43.53	-12.47	56.00	32.91	0.38	10.24	QP
16 *	4.361	33.93	-12.07	46.00	23.31	0.38	10.24	Average
17	4.574	42.83	-13.17	56.00	32.21	0.38	10.24	QP
18	4.574	33.23	-12.77	46.00	22.61	0.38	10.24	Average

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.

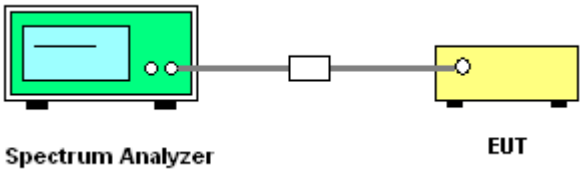
3.6.2 Measuring Instruments

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

According to FCC 47 CFR Section 15.407(a)(1)(2) ,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

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

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

For power measurements on IEEE 802.11 devices,

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

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

The EUT supports CDD mode.

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

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

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

The directional gain "DG" is calculated as following table.

	Ant 1 (dBi)	Ant 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
Band IV	-0.26	2.07	2.07	3.99	0.00	0.00

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

PSD limit reduction = Composite gain + PSD Array gain – 6dBi, (min = 0)

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 09, 2016	Jun. 18, 2017~ Jul. 05, 2017	Aug. 08, 2017	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 19, 2017	Jun. 18, 2017~ Jul. 05, 2017	Jan. 18, 2018	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 19, 2017	Jun. 18, 2017~ Jul. 05, 2017	Jan. 18, 2018	Conducted (TH01-KS)
Thermal Chamber	Hongzhan	LP-150U	HZ014011440	-40~+150°C 20%~95%RH	Apr.18, 2017	Jun. 18, 2017~ Jul. 05, 2017	Apr. 17, 2018	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Aug. 09, 2016	Jun. 15, 2017	Aug. 08, 2017	Radiation (03CH03-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44GHz	Apr. 18, 2017	Jun. 15, 2017	Apr. 17, 2018	Radiation (03CH03-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 23, 2016	Jun. 15, 2017	Nov. 22, 2017	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz~2GHz	Apr. 22, 2017	Jun. 15, 2017	Apr. 21, 2018	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Apr. 22, 2017	Jun. 15, 2017	Apr. 21, 2018	Radiation (03CH03-KS)
SHF-EHF Horn	com-power	AH-840	101070	18GHz ~40GHz	Oct. 19, 2016	Jun. 15, 2017	Oct. 18, 2017	Radiation (03CH03-KS)
Amplifier	com-power	PA-103A	161069	1MHz ~1000MHz / 32 dB	Apr. 18, 2017	Jun. 15, 2017	Apr. 17, 2018	Radiation (03CH03-KS)
High Gain Amplifier	MITEQ	AMF-7D-00101 800-30-10P	2025788	1GHz~18GHz	Apr. 18, 2017	Jun. 15, 2017	Apr. 17, 2018	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 13, 2016	Jun. 15, 2017	Oct. 12, 2017	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35-H G	1887435	18GHz~40GHz	Oct. 13, 2016	Jun. 15, 2017	Oct. 12, 2017	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jun. 15, 2017	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jun. 15, 2017	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jun. 15, 2017	NCR	Radiation (03CH03-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Apr. 20, 2017	Jul. 04, 2017	Apr. 19, 2018	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2016	Jul. 04, 2017	Oct. 12, 2017	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2016	Jul. 04, 2017	Oct. 12, 2017	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000081 1	AC 0V~300V, 45Hz~1000Hz	Oct. 13, 2016	Jul. 04, 2017	Oct. 12, 2017	Conduction (CO01-KS)

5 Uncertainty of Evaluation

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

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

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

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

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

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

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.7dB

Appendix A. Conducted Test Results

Report Number : FR760219E

Test Engineer:	Ocean Pei	Temperature:	21~25	°C
Test Date:	Jun. 18, 2017~Jul. 05, 2017	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 26dB EBW and 99% OBW

Band IV														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	16.83	17.18	20.73	22.83	15.32	15.15	0.5		Pass
11a	6Mbps	2	157	5785	16.93	17.23	21.53	21.98	15.12	15.13	0.5		Pass
11a	6Mbps	2	165	5825	16.88	17.03	20.93	20.88	15.32	15.17	0.5		Pass
VHT20	MCS0	2	149	5745	18.38	17.88	22.58	21.68	15.90	15.15	0.5		Pass
VHT20	MCS0	2	157	5785	17.93	17.98	22.83	22.83	15.17	15.15	0.5		Pass
VHT20	MCS0	2	165	5825	17.83	18.43	21.83	26.62	15.13	15.13	0.5		Pass
VHT40	MCS0	2	151	5755	36.16	35.96	42.62	41.90	35.09	35.09	0.5		Pass
VHT40	MCS0	2	159	5795	36.16	36.16	42.71	41.63	35.09	35.09	0.5		Pass
VHT80	MCS0	2	155	5775	74.93	74.81	83.12	82.00	75.05	75.05	0.5		Pass

Report Number : FR760219E

TEST RESULTS DATA
Average Power Table

Band IV															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)			Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	149	5745	0.24	0.23	12.76	13.31	16.06	30.00		2.07			Pass
11a	6Mbps	2	157	5785	0.24	0.23	14.40	14.36	17.39	30.00		2.07			Pass
11a	6Mbps	2	165	5825	0.24	0.23	14.43	14.44	17.45	30.00		2.07			Pass
HT20	MCS0	2	149	5745	0.26	0.25	11.68	12.13	14.92	30.00		2.07			Pass
HT20	MCS0	2	157	5785	0.26	0.25	13.99	13.93	16.97	30.00		2.07			Pass
HT20	MCS0	2	165	5825	0.26	0.25	14.07	14.24	17.17	30.00		2.07			Pass
HT40	MCS0	2	151	5755	0.42	0.43	8.63	9.28	11.98	30.00		2.07			Pass
HT40	MCS0	2	159	5795	0.42	0.43	13.48	13.34	16.42	30.00		2.07			Pass
VHT20	MCS0	2	149	5745	0.25	0.28	11.70	12.20	14.97	30.00		2.07			Pass
VHT20	MCS0	2	157	5785	0.25	0.28	14.10	14.23	17.18	30.00		2.07			Pass
VHT20	MCS0	2	165	5825	0.25	0.28	14.10	14.36	17.25	30.00		2.07			Pass
VHT40	MCS0	2	151	5755	0.42	0.46	8.66	9.31	12.01	30.00		2.07			Pass
VHT40	MCS0	2	159	5795	0.42	0.46	13.68	13.41	16.56	30.00		2.07			Pass
VHT80	MCS0	2	155	5775	0.58	0.59	7.13	8.01	10.60	30.00		2.07			Pass

Report Number : FR760219E

TEST RESULTS DATA
Power Spectral Density

Band IV																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		10log (500kHz /RBW) Factor (dB)		Average Power Density (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	0.24	0.23	2.22				4.38	30.00		3.99		Pass
11a	6Mbps	2	157	5785	0.24	0.23	2.22				4.44	30.00		3.99		Pass
11a	6Mbps	2	165	5825	0.24	0.23	2.22				4.02	30.00		3.99		Pass
VHT20	MCS0	2	149	5745	0.25	0.28	2.22				3.38	30.00		3.99		Pass
VHT20	MCS0	2	157	5785	0.25	0.28	2.22				4.10	30.00		3.99		Pass
VHT20	MCS0	2	165	5825	0.25	0.28	2.22				4.00	30.00		3.99		Pass
VHT40	MCS0	2	151	5755	0.42	0.46	2.22				-2.08	30.00		3.99		Pass
VHT40	MCS0	2	159	5795	0.42	0.46	2.22				0.18	30.00		3.99		Pass
VHT80	MCS0	2	155	5775	0.58	0.59	2.22				-6.65	30.00		3.99		Pass

Report Number : FR760219E

TEST RESULTS DATA
Frequency Stability

Band IV										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stablility (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	149	5745	5745.125	0.125	21.76	50	120	
11a	6Mbps	1	149	5745	5744.950	-0.050	-8.70	-30	120	
11a	6Mbps	1	149	5745	5745.075	0.075	13.05	20	132	
11a	6Mbps	1	149	5745	5745.050	0.050	8.70	20	108	
11a	6Mbps	1	149	5745	5745.025	0.025	4.35	20	120	

Appendix B. Radiated Spurious Emission

Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 149 5745MHz		5634.4	45.98	-22.32	68.3	43.41	30.7	8.16	36.29	300	153	P	H
		5694.4	54.02	-47.15	101.17	50.99	31.07	8.25	36.29	300	153	P	H
		5716	68.62	-41.16	109.78	65.43	31.19	8.28	36.28	300	153	P	H
		5723.6	72.19	-46.92	119.11	68.84	31.32	8.31	36.28	300	153	P	H
	*	5740	107.42	---	---	103.92	31.44	8.34	36.28	300	153	P	H
	*	5740	100.89	---	---	97.39	31.44	8.34	36.28	300	153	A	H
		5636	45.62	-22.68	68.3	43.05	30.7	8.16	36.29	300	291	P	V
		5698.4	50.37	-53.75	104.12	47.34	31.07	8.25	36.29	300	291	P	V
		5716.4	62.39	-47.5	109.89	59.2	31.19	8.28	36.28	300	291	P	V
		5722.8	69.25	-48.03	117.28	65.9	31.32	8.31	36.28	300	291	P	V
	*	5746	105.08	---	---	101.58	31.44	8.34	36.28	300	291	P	V
	*	5746	96.76	---	---	93.26	31.44	8.34	36.28	300	291	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 157 5785MHz		5628.4	44.68	-23.62	68.3	42.13	30.72	8.13	36.3	300	158	P	H
		5688.8	45.14	-51.9	97.04	42.11	31.07	8.25	36.29	300	158	P	H
		5716.4	46.87	-63.02	109.89	43.68	31.19	8.28	36.28	300	158	P	H
		5722	47.25	-68.21	115.46	43.9	31.32	8.31	36.28	300	158	P	H
	*	5786	109.23	---	---	105.27	31.81	8.43	36.28	300	158	P	H
	*	5786	102.49	---	---	98.53	31.81	8.43	36.28	300	158	A	H
		5850.8	47.91	-72.57	120.48	43.51	32.18	8.49	36.27	300	158	P	H
		5856.8	47.22	-63.18	110.4	42.68	32.3	8.51	36.27	300	158	P	H
		5881.2	49.04	-51.65	100.69	44.44	32.35	8.53	36.28	300	158	P	H
		5964.8	45.62	-22.68	68.3	40.7	32.62	8.63	36.33	300	158	P	H
		5610.8	45.29	-23.01	68.3	42.77	30.73	8.1	36.31	302	292	P	V
		5678.4	45.56	-43.8	89.36	42.68	30.95	8.22	36.29	302	292	P	V
		5720	46.84	-64.06	110.9	43.49	31.32	8.31	36.28	302	292	P	V
		5724	45.85	-74.17	120.02	42.5	31.32	8.31	36.28	302	292	P	V
	*	5782	106.95	---	---	103.15	31.68	8.4	36.28	302	292	P	V
	*	5782	99.71	---	---	95.91	31.68	8.4	36.28	302	292	A	V
		5850.4	45.08	-76.31	121.39	40.68	32.18	8.49	36.27	302	292	P	V
		5858	47.62	-62.44	110.06	43.08	32.3	8.51	36.27	302	292	P	V
		5919.2	46.26	-26.32	72.58	41.53	32.46	8.57	36.3	302	292	P	V
		5974	45.9	-22.4	68.3	40.92	32.67	8.65	36.34	302	292	P	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 165 5825MHz	*	5822	108.51	---	---	104.26	32.05	8.47	36.27	300	153	P	H
	*	5822	101.55	---	---	97.3	32.05	8.47	36.27	300	153	A	H
		5850	58.95	-63.35	122.3	54.55	32.18	8.49	36.27	300	153	P	H
		5859.2	63.54	-46.18	109.72	59	32.3	8.51	36.27	300	153	P	H
		5876.01	49.43	-55.12	104.55	44.83	32.35	8.53	36.28	300	153	P	H
		5989.2	47.19	-21.11	68.3	42.21	32.67	8.65	36.34	300	153	P	H
	*	5824	104.72	---	---	100.47	32.05	8.47	36.27	300	65	P	V
	*	5824	97.42	---	---	93.17	32.05	8.47	36.27	300	65	A	V
		5851.2	51.87	-67.69	119.56	47.47	32.18	8.49	36.27	300	65	P	V
		5856.8	60.88	-49.52	110.4	56.34	32.3	8.51	36.27	300	65	P	V
		5882.4	48.52	-51.28	99.8	43.92	32.35	8.53	36.28	300	65	P	V
		5925.2	47.13	-21.17	68.3	42.34	32.51	8.59	36.31	300	65	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 149 5745MHz		11490	41.14	-32.86	74	55.34	38.58	12.57	65.35	100	360	P	H
		11490	44.02	-29.98	74	58.22	38.58	12.57	65.35	100	360	P	V
802.11a CH 157 5785MHz		11570	40.45	-33.55	74	54.83	38.43	12.63	65.44	100	360	P	H
		11570	44.27	-29.73	74	58.65	38.43	12.63	65.44	100	360	P	V
802.11a CH 165 5825MHz		11650	41.64	-32.36	74	56.24	38.27	12.67	65.54	100	360	P	H
		11650	42.84	-31.16	74	57.44	38.27	12.67	65.54	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 149 5745MHz		5649.2	46.54	-21.76	68.3	43.97	30.7	8.16	36.29	100	157	P	H
		5700	51.4	-53.9	105.3	48.37	31.07	8.25	36.29	100	157	P	H
		5720	58.3	-52.6	110.9	54.95	31.32	8.31	36.28	100	157	P	H
		5724.8	68.56	-53.28	121.84	65.21	31.32	8.31	36.28	100	157	P	H
	*	5746	106.97	---	---	103.47	31.44	8.34	36.28	100	157	P	H
	*	5746	100.18	---	---	96.68	31.44	8.34	36.28	100	157	A	H
		5641.2	45.93	-22.37	68.3	43.36	30.7	8.16	36.29	304	286	P	V
		5697.2	51.97	-51.27	103.24	48.94	31.07	8.25	36.29	304	286	P	V
		5720	58.95	-51.95	110.9	55.6	31.32	8.31	36.28	304	286	P	V
		5723.2	66.9	-51.3	118.2	63.55	31.32	8.31	36.28	304	286	P	V
	*	5748	106.12	---	---	102.62	31.44	8.34	36.28	304	286	P	V
	*	5748	97.61	---	---	94.11	31.44	8.34	36.28	304	286	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 157 5785MHz		5642.8	45.86	-22.44	68.3	43.29	30.7	8.16	36.29	100	155	P	H
		5666.4	47.18	-33.29	80.47	44.46	30.82	8.19	36.29	100	155	P	H
		5719.2	47.75	-62.93	110.68	44.4	31.32	8.31	36.28	100	155	P	H
		5721.6	47.6	-66.95	114.55	44.25	31.32	8.31	36.28	100	155	P	H
	*	5784	108.92	---	---	105.12	31.68	8.4	36.28	100	155	P	H
	*	5784	102.05	---	---	98.25	31.68	8.4	36.28	100	155	A	H
		5852	47.89	-69.85	117.74	43.49	32.18	8.49	36.27	100	155	P	H
		5860.4	47.08	-62.31	109.39	42.54	32.3	8.51	36.27	100	155	P	H
		5890.4	47.35	-46.52	93.87	42.68	32.41	8.55	36.29	100	155	P	H
		5984.8	47.7	-20.6	68.3	42.72	32.67	8.65	36.34	100	155	P	H
		5635.2	44.92	-23.38	68.3	42.35	30.7	8.16	36.29	300	294	P	V
		5654.8	45.99	-25.88	71.87	43.27	30.82	8.19	36.29	300	294	P	V
		5718.8	47.02	-63.54	110.56	43.67	31.32	8.31	36.28	300	294	P	V
		5723.2	46.92	-71.28	118.2	43.57	31.32	8.31	36.28	300	294	P	V
	*	5786	107.83	---	---	103.87	31.81	8.43	36.28	300	294	P	V
	*	5786	100.53	---	---	96.57	31.81	8.43	36.28	300	294	A	V
		5852	46.89	-70.85	117.74	42.49	32.18	8.49	36.27	300	294	P	V
		5864.8	47.57	-60.58	108.15	43.03	32.3	8.51	36.27	300	294	P	V
		5880.8	46.67	-54.32	100.99	42.07	32.35	8.53	36.28	300	294	P	V
		5986	47.27	-21.03	68.3	42.29	32.67	8.65	36.34	300	294	P	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 165 5825MHz	*	5824	109.28	---	---	105.03	32.05	8.47	36.27	100	157	P	H
	*	5824	101.91	---	---	97.66	32.05	8.47	36.27	100	157	A	H
		5852.4	62.13	-54.7	116.83	57.73	32.18	8.49	36.27	100	157	P	H
		5857.6	56.34	-53.83	110.17	51.8	32.3	8.51	36.27	100	157	P	H
		5881.2	55.02	-45.67	100.69	50.42	32.35	8.53	36.28	100	157	P	H
		5946.8	46.93	-21.37	68.3	42.07	32.57	8.61	36.32	100	157	P	H
	*	5824	107.62	---	---	103.37	32.05	8.47	36.27	301	290	P	V
	*	5824	99.95	---	---	95.7	32.05	8.47	36.27	301	290	A	V
		5850	59.11	-63.19	122.3	54.71	32.18	8.49	36.27	301	290	P	V
		5855.2	52.54	-58.3	110.84	48	32.3	8.51	36.27	301	290	P	V
		5878.8	49.3	-53.18	102.48	44.7	32.35	8.53	36.28	301	290	P	V
		5932.8	48.2	-20.1	68.3	43.41	32.51	8.59	36.31	301	290	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 149 5745MHz		11490	43.39	-30.61	74	57.59	38.58	12.57	65.35	300	360	P	H
		11490	42.63	-31.37	74	56.83	38.58	12.57	65.35	100	360	P	V
802.11ac VHT20 CH 157 5785MHz		11570	42.78	-31.22	74	57.16	38.43	12.63	65.44	300	0	P	H
		11570	43.76	-30.24	74	58.14	38.43	12.63	65.44	100	360	P	V
802.11ac VHT20 CH 165 5825MHz		11650	41.87	-32.13	74	56.47	38.27	12.67	65.54	100	0	P	H
		11650	44.87	-29.13	74	59.47	38.27	12.67	65.54	300	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 151 5755MHz		5638.8	54.41	-13.89	68.3	51.84	30.7	8.16	36.29	100	153	P	H
		5699.2	61.15	-43.56	104.71	58.12	31.07	8.25	36.29	100	153	P	H
		5719.2	72.28	-38.4	110.68	68.93	31.32	8.31	36.28	100	153	P	H
		5724.8	75.77	-46.07	121.84	72.42	31.32	8.31	36.28	100	153	P	H
	*	5764	105.83	---	---	102.18	31.56	8.37	36.28	100	153	P	H
	*	5764	98.89	---	---	95.24	31.56	8.37	36.28	100	153	A	H
		5850.8	47.23	-73.25	120.48	42.83	32.18	8.49	36.27	100	153	P	H
		5865.6	48.77	-59.16	107.93	44.23	32.3	8.51	36.27	100	153	P	H
		5876	57.87	-46.69	104.56	53.27	32.35	8.53	36.28	100	153	P	H
		5946.4	51.19	-17.11	68.3	46.33	32.57	8.61	36.32	100	153	P	H
		5648.8	56.22	-12.08	68.3	53.65	30.7	8.16	36.29	300	288	P	V
		5685.2	57.32	-37.06	94.38	54.29	31.07	8.25	36.29	300	288	P	V
		5719.6	71.23	-39.56	110.79	67.88	31.32	8.31	36.28	300	288	P	V
		5721.6	72.43	-42.12	114.55	69.08	31.32	8.31	36.28	300	288	P	V
	*	5744	104.16	---	---	100.66	31.44	8.34	36.28	300	288	P	V
	*	5744	97.17	---	---	93.67	31.44	8.34	36.28	300	288	A	V
		5854	46.78	-66.4	113.18	42.24	32.3	8.51	36.27	300	288	P	V
		5862.8	46.86	-61.85	108.71	42.32	32.3	8.51	36.27	300	288	P	V
		5882.4	48.66	-51.14	99.8	44.06	32.35	8.53	36.28	300	288	P	V
		5947.6	48.67	-19.63	68.3	43.81	32.57	8.61	36.32	300	288	P	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 159 5795MHz		5606.4	45.05	-23.25	68.3	42.53	30.73	8.1	36.31	100	159	P	H
		5660.4	55.41	-20.61	76.02	52.69	30.82	8.19	36.29	100	159	P	H
		5719.6	58.3	-52.49	110.79	54.95	31.32	8.31	36.28	100	159	P	H
		5720.8	60.29	-52.43	112.72	56.94	31.32	8.31	36.28	100	159	P	H
	*	5796	105.97	---	---	102.01	31.81	8.43	36.28	100	159	P	H
	*	5796	98.27	---	---	94.31	31.81	8.43	36.28	100	159	A	H
		5850.8	55.75	-64.73	120.48	51.35	32.18	8.49	36.27	100	159	P	H
		5870.4	58.45	-48.14	106.59	53.91	32.3	8.51	36.27	100	159	P	H
		5877.6	50.18	-53.19	103.37	45.58	32.35	8.53	36.28	100	159	P	H
		5975.6	51.68	-16.62	68.3	46.7	32.67	8.65	36.34	100	159	P	H
		5616.8	49.11	-19.19	68.3	46.56	30.72	8.13	36.3	300	292	P	V
		5672.8	47.96	-37.25	85.21	45.08	30.95	8.22	36.29	300	292	P	V
		5717.2	54.91	-55.21	110.12	51.72	31.19	8.28	36.28	300	292	P	V
		5722	56.65	-58.81	115.46	53.3	31.32	8.31	36.28	300	292	P	V
	*	5792	103.83	---	---	99.87	31.81	8.43	36.28	300	292	P	V
	*	5792	96.93	---	---	92.97	31.81	8.43	36.28	300	292	A	V
		5850	56.82	-65.48	122.3	52.42	32.18	8.49	36.27	300	292	P	V
		5861.6	60.07	-48.98	109.05	55.53	32.3	8.51	36.27	300	292	P	V
		5900.8	53.11	-33.06	86.17	48.44	32.41	8.55	36.29	300	292	P	V
		5935.2	48.82	-19.48	68.3	44.03	32.51	8.59	36.31	300	292	P	V

Remark

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

Band 4 5725~5850MHz

WIFI 802.11ac VHT40 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 151 5755MHz		11510	42.88	-31.12	74	57.04	38.6	12.58	65.34	100	360	P	H
		11510	43.38	-30.62	74	57.54	38.6	12.58	65.34	100	360	P	V
802.11ac VHT40 CH 159 5795MHz		11590	42.77	-31.23	74	57.21	38.39	12.64	65.47	100	360	P	H
		11590	42.25	-31.75	74	56.69	38.39	12.64	65.47	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 155 5775MHz		5611.2	54.46	-13.84	68.3	51.94	30.73	8.1	36.31	100	154	P	H
		5696.4	68.62	-34.03	102.65	65.59	31.07	8.25	36.29	100	154	P	H
		5715.2	70.73	-38.83	109.56	67.54	31.19	8.28	36.28	100	154	P	H
		5724	71.73	-48.29	120.02	68.38	31.32	8.31	36.28	100	154	P	H
	*	5772	102.5	---	---	98.7	31.68	8.4	36.28	100	154	P	H
	*	5772	95.33	---	---	91.53	31.68	8.4	36.28	100	154	A	H
		5851.2	63.92	-55.64	119.56	59.52	32.18	8.49	36.27	100	154	P	H
		5863.2	61.57	-47.03	108.6	57.03	32.3	8.51	36.27	100	154	P	H
		5874.8	57.16	-48.2	105.36	52.56	32.35	8.53	36.28	100	154	P	H
		5956	52.18	-16.12	68.3	47.26	32.62	8.63	36.33	100	154	P	H
		5646.4	55.55	-12.75	68.3	52.98	30.7	8.16	36.29	300	293	P	V
		5696	64.23	-38.12	102.35	61.2	31.07	8.25	36.29	300	293	P	V
		5716.4	66.7	-43.19	109.89	63.51	31.19	8.28	36.28	300	293	P	V
		5724.4	69.41	-51.52	120.93	66.06	31.32	8.31	36.28	300	293	P	V
	*	5772	100.14	---	---	96.34	31.68	8.4	36.28	300	293	P	V
	*	5772	93.18	---	---	89.38	31.68	8.4	36.28	300	293	A	V
		5850.8	62.27	-58.21	120.48	57.87	32.18	8.49	36.27	300	293	P	V
		5861.6	59.54	-49.51	109.05	55	32.3	8.51	36.27	300	293	P	V
		5876.8	56.49	-47.47	103.96	51.89	32.35	8.53	36.28	300	293	P	V
		5926	52.52	-15.78	68.3	47.73	32.51	8.59	36.31	300	293	P	V

Remark

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

Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 155 5775MHz		11550	43.17	-30.83	74	57.49	38.48	12.62	65.42	300	360	P	H
		11550	42.36	-31.64	74	56.68	38.48	12.62	65.42	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

WIFI 802.11ac VHT40 (LF @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 LF		32.91	28.87	-11.13	40	34.3	26.18	0.69	32.3	-	-	P	H
		153.19	30.88	-12.62	43.5	43.88	17.78	1.5	32.28	-	-	P	H
		211.39	34.14	-9.36	43.5	48.53	16.1	1.73	32.22	100	230	P	H
		312.27	28.26	-17.74	46	38.57	19.59	2.18	32.08	-	-	P	H
		559.62	28.72	-17.28	46	32.77	24.74	2.96	31.75	-	-	P	H
		788.54	30.14	-15.86	46	30.43	27.76	3.56	31.61	-	-	P	H
		31.94	32.61	-7.39	40	37.7	26.52	0.68	32.29	100	20	P	V
		45.52	30.48	-9.52	40	42.96	18.9	0.83	32.21	-	-	P	V
		62.98	27.57	-12.43	40	45.68	13.18	0.95	32.24	-	-	P	V
		97.9	34.32	-9.18	43.5	46.64	18.74	1.2	32.26	-	-	P	V
		323.91	26.89	-19.11	46	36.63	20.13	2.21	32.08	-	-	P	V
		559.62	29.52	-16.48	46	33.57	24.74	2.96	31.75	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

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

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(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)

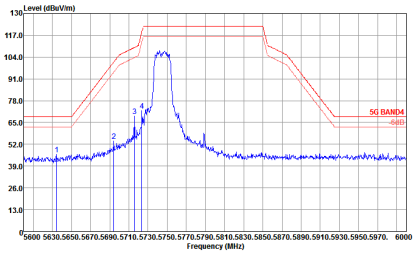
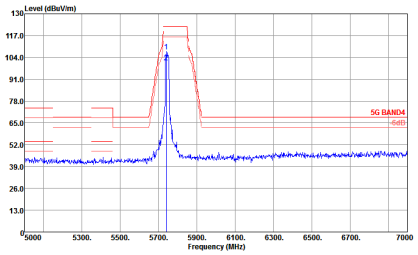
= -10.46(dB)

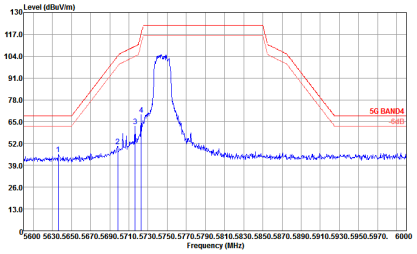
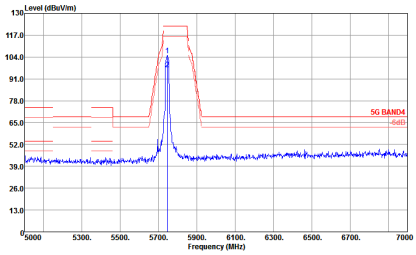
Both peak and average measured complies with the limit line, so test result is “PASS”.

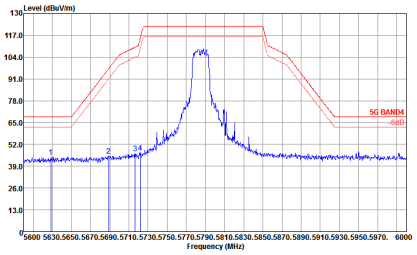
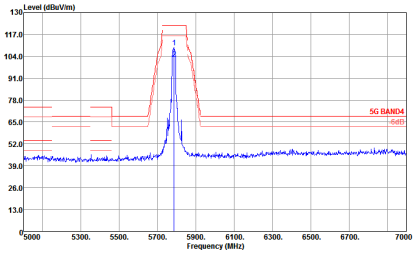
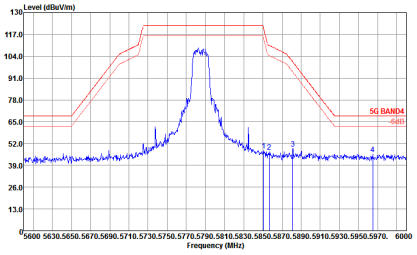
Appendix C. Radiated Spurious Emission Plots

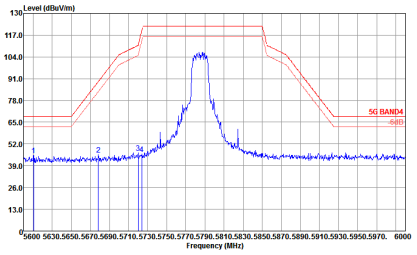
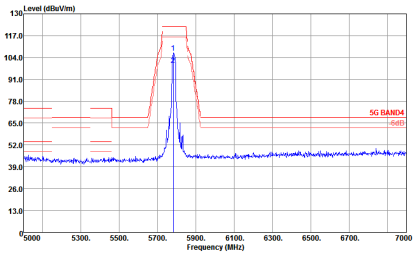
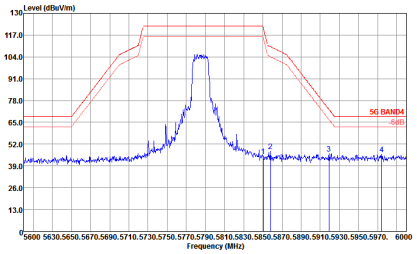
Band 4 - 5725~5850MHz

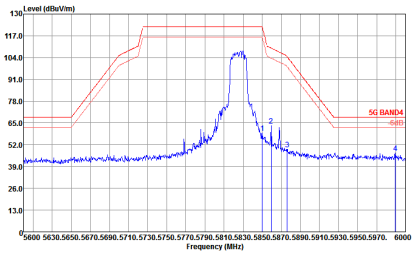
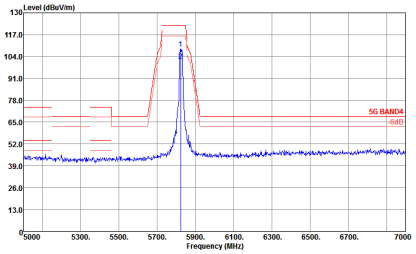
WIFI 802.11a (Band Edge @ 3m)

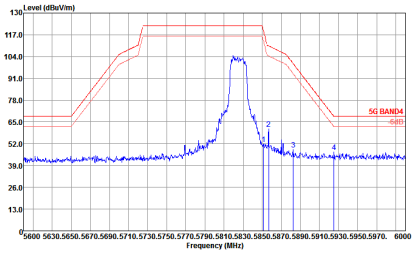
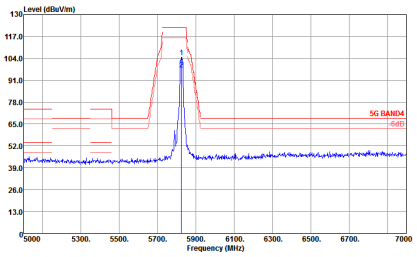
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 30 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 12.5 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5634.40 45.98 -22.32 68.30 43.41 30.70 8.16 36.29 300 153 Peak HORIZONT 2 5694.40 54.02 -47.15 101.17 50.99 31.07 8.25 36.29 300 153 Peak HORIZONT 3 5716.00 68.62 -41.16 109.78 65.43 31.19 8.28 36.28 300 153 Peak HORIZONT 4 5723.60 72.19 -46.92 119.11 68.84 31.32 8.31 36.28 300 153 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 30 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 12.5 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5740.00 107.42 -14.88 122.30 103.92 31.44 8.34 36.28 300 153 Peak HORIZONT 2 5740.00 100.89 ------ ------ 97.39 31.44 8.34 36.28 300 153 Average HORIZONT

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 30 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 12.5 Freq Level Over Limit Limit ReadAntenna Level Cable Loss Preamp Factor Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5636.00 45.62 -22.68 68.30 43.05 30.70 8.16 36.29 300 291 Peak VERTICAL 2 5698.40 50.37 -53.75 104.12 47.34 31.07 8.25 36.29 300 291 Peak VERTICAL 3 5716.40 62.39 -47.50 109.89 59.20 31.19 8.28 36.28 300 291 Peak VERTICAL 4 5722.80 69.25 -48.03 117.28 65.90 31.32 8.31 36.28 300 291 Peak VERTICAL	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 30 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 12.5 Freq Level Over Limit Limit ReadAntenna Level Cable Loss Preamp Factor Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5746.00 105.08 -17.22 122.30 101.58 31.44 8.34 36.28 300 291 Peak VERTICAL 2 5746.00 96.76 ------ ------ 93.26 31.44 8.34 36.28 300 291 Average VERTICAL

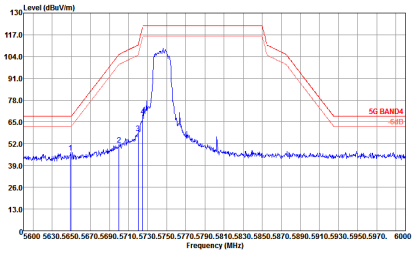
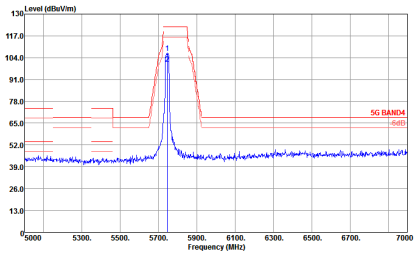
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 31 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13.5 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5628.40 44.68 -23.62 68.30 42.13 30.72 8.13 36.30 300 158 Peak HORIZONT 2 5688.80 45.14 -51.90 97.04 42.11 31.07 8.25 36.29 300 158 Peak HORIZONT 3 5716.40 46.87 -63.02 109.89 43.68 31.19 8.28 36.28 300 158 Peak HORIZONT 4 5722.00 47.25 -68.21 115.46 43.90 31.32 8.31 36.28 300 158 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 31 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13.5 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5786.00 109.23 -13.07 122.30 105.27 31.81 8.43 36.28 300 158 Peak HORIZONT 2 5786.00 102.49 ------ ------ 98.53 31.81 8.43 36.28 300 158 Average HORIZONT
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 31 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13.5 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5850.00 47.91 -72.57 120.48 43.51 32.18 8.49 36.27 300 158 Peak HORIZONT 2 5856.80 47.22 -63.18 110.40 42.68 32.30 8.51 36.27 300 158 Peak HORIZONT 3 5881.20 49.04 -51.65 100.69 44.44 32.35 8.53 36.28 300 158 Peak HORIZONT 4 5964.80 45.62 -22.68 68.30 40.70 32.62 8.63 36.33 300 158 Peak HORIZONT	

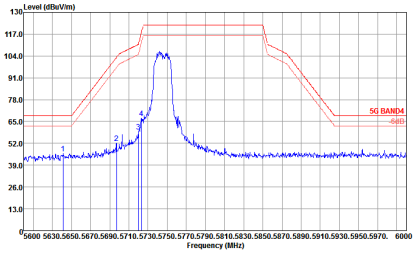
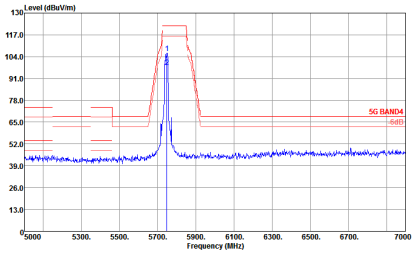
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 31 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5610.00 45.29 -23.01 68.30 42.77 30.73 8.10 36.31 302 292 Peak VERTICAL 2 5678.40 45.56 -43.80 89.36 42.68 30.95 8.22 36.29 302 292 Peak VERTICAL 3 5720.00 46.84 -64.06 110.90 43.49 31.32 8.31 36.28 302 292 Peak VERTICAL 4 5724.00 45.85 -74.17 120.02 42.50 31.32 8.31 36.28 302 292 Peak VERTICAL	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 31 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5782.00 106.95 -15.35 122.30 103.15 31.68 8.40 36.28 302 292 Peak VERTICAL 2 5782.00 99.71 ------ ------ 95.91 31.68 8.40 36.28 302 292 Average VERTICAL
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 31 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5850.40 45.08 -76.31 121.39 40.68 32.18 8.49 36.27 302 292 Peak VERTICAL 2 5858.00 47.62 -62.44 110.06 43.08 32.30 8.51 36.27 302 292 Peak VERTICAL 3 5919.20 46.26 -26.32 72.58 41.53 32.46 8.57 36.30 302 292 Peak VERTICAL 4 5974.00 45.90 -22.40 68.30 40.92 32.67 8.65 36.34 302 292 Peak VERTICAL	

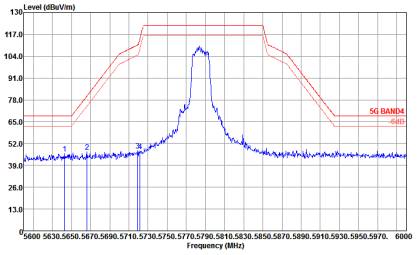
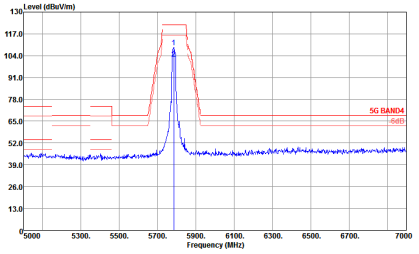
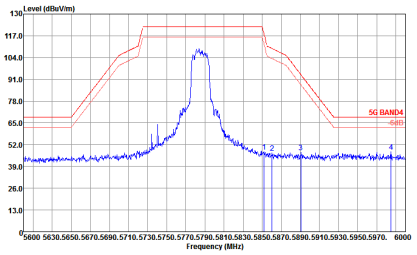
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 32 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5850.00 58.95 -63.35 122.30 54.55 32.18 8.49 36.27 300 153 Peak HORIZONT 2 5859.20 63.54 -46.18 109.72 59.00 32.30 8.51 36.27 300 153 Peak HORIZONT 3 5876.01 49.43 -55.12 104.55 44.83 32.35 8.53 36.28 300 153 Peak HORIZONT 4 5989.28 47.19 -21.11 68.30 42.21 32.67 8.65 36.34 300 153 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 32 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5822.00 108.51 -13.79 122.30 104.26 32.05 8.47 36.27 300 153 Peak HORIZONT 2 5822.00 101.55 ------ ------ 97.30 32.05 8.47 36.27 300 153 Average HORIZONT

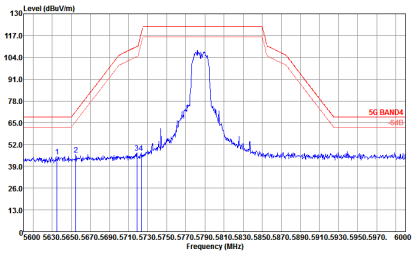
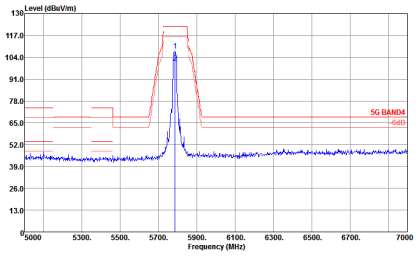
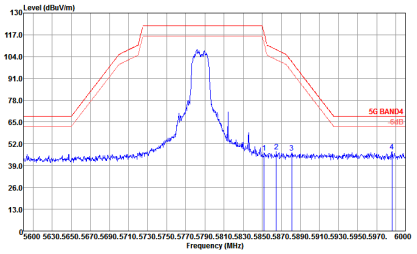
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 32 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5851.20 51.87 -67.69 119.56 47.47 32.18 8.49 36.27 300 65 Peak VERTICAL 2 5856.80 60.88 -49.52 110.40 56.34 32.30 8.51 36.27 300 65 Peak VERTICAL 3 5882.40 48.52 -51.28 99.80 43.92 32.35 8.53 36.28 300 65 Peak VERTICAL 4 5925.20 47.13 -21.17 68.30 42.34 32.51 8.59 36.31 300 65 Peak VERTICAL	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 32 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5824.00 104.72 -17.58 122.30 100.47 32.05 8.47 36.27 300 65 Peak VERTICAL 2 5824.00 97.42 ------ ------ 93.17 32.05 8.47 36.27 300 65 Average VERTICAL

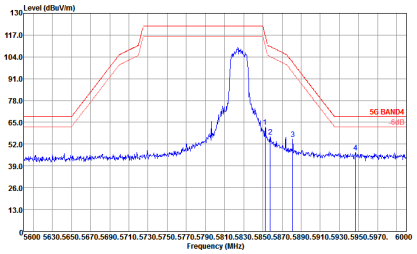
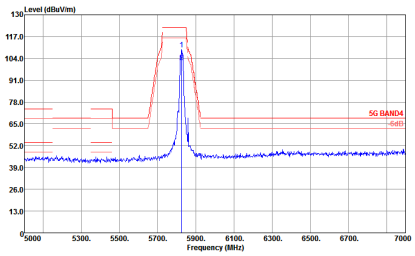
Band 4 5725~5850MHz
WIFI 802.11ac VHT20 (Band Edge @ 3m)

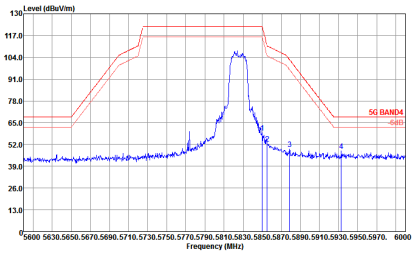
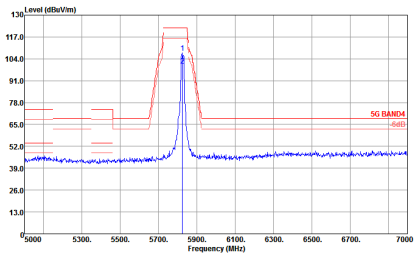
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 33 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 12.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5649.20 46.54 -21.76 68.30 43.97 30.70 8.16 36.29 100 157 Peak HORIZONT 2 5700.00 51.40 -53.90 105.30 48.37 31.07 8.25 36.29 100 157 Peak HORIZONT 3 5720.00 58.30 -52.60 110.90 54.95 31.32 8.31 36.28 100 157 Peak HORIZONT 4 5724.80 68.56 -53.28 121.84 65.21 31.52 8.31 36.28 100 157 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 33 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 12.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5746.00 106.97 -15.33 122.30 103.47 31.44 8.34 36.28 100 157 Peak HORIZONT 2 5746.00 100.18 ------ ------ 96.68 31.44 8.34 36.28 100 157 Average HORIZONT

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
1+2	Vertical	Fundamental
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 33 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 12.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5641.20 45.93 -22.37 68.30 43.36 30.70 8.16 36.29 304 286 Peak VERTICAL 2 5697.20 51.97 -51.27 103.24 48.94 31.07 8.25 36.29 304 286 Peak VERTICAL 3 5720.00 58.95 -51.05 110.00 55.60 31.32 8.31 36.28 304 286 Peak VERTICAL 4 5723.20 66.90 -51.30 118.20 63.55 31.32 8.31 36.28 304 286 Peak VERTICAL	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 33 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 12.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5748.00 106.12 -16.18 122.30 102.62 31.44 8.34 36.28 304 286 Peak VERTICAL 2 5748.00 97.61 ------ ------ 94.11 31.44 8.34 36.28 304 286 Average VERTICAL

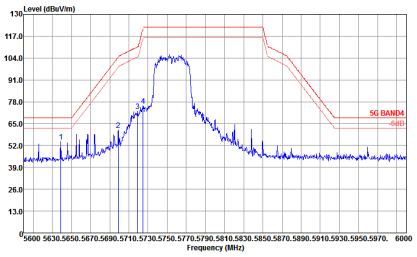
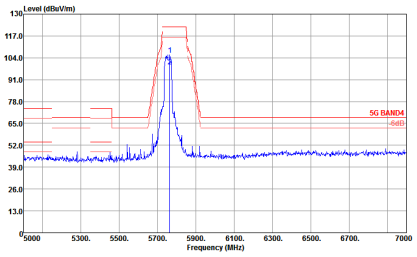
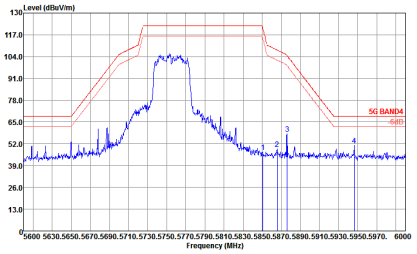
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 34 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5642.80 45.86 -22.44 68.30 43.29 30.70 8.16 36.29 100 155 Peak HORIZONT 2 5666.40 47.18 -33.29 80.47 44.46 30.82 8.19 36.29 100 155 Peak HORIZONT 3 5719.20 47.75 -62.93 110.68 44.40 31.32 8.31 36.28 100 155 Peak HORIZONT 4 5721.60 47.60 -66.95 114.55 44.25 31.32 8.31 36.28 100 155 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 34 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5784.00 108.92 -13.38 122.30 105.12 31.68 8.40 36.28 100 155 Peak HORIZONT 2 5784.00 102.05 ------ ------ 98.25 31.68 8.40 36.28 100 155 Average HORIZONT
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 34 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5852.00 47.80 -69.85 117.74 43.49 32.18 8.49 36.27 100 155 Peak HORIZONT 2 5860.40 47.08 -62.31 109.39 42.54 32.30 8.51 36.27 100 155 Peak HORIZONT 3 5890.40 47.35 -46.52 93.87 42.68 32.41 8.55 36.29 100 155 Peak HORIZONT 4 5984.80 47.70 -20.60 68.30 42.72 32.67 8.65 36.34 100 155 Peak HORIZONT	

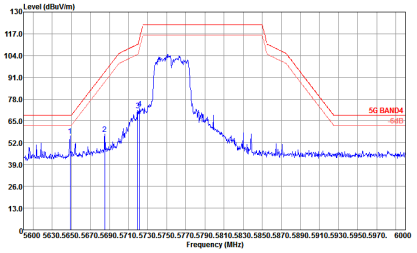
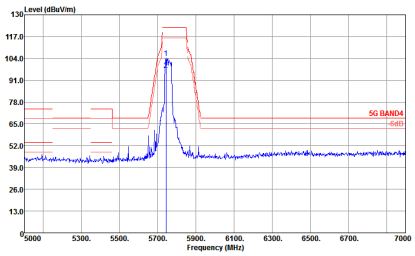
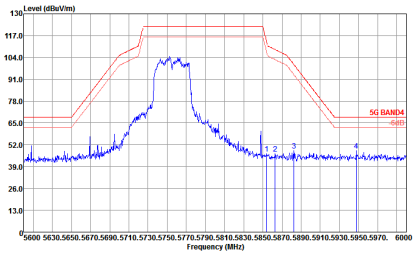
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 34 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5635.20 44.92 -23.38 68.30 42.35 30.70 8.16 36.29 300 294 Peak VERTICAL 2 5654.80 45.99 -25.88 71.87 43.27 30.82 8.19 36.29 300 294 Peak VERTICAL 3 5718.80 47.02 -63.54 110.56 43.67 31.32 8.31 36.28 300 294 Peak VERTICAL 4 5723.20 46.92 -71.28 118.20 43.57 31.32 8.31 36.28 300 294 Peak VERTICAL	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 34 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5786.00 107.83 -14.47 122.30 103.87 31.81 8.43 36.28 300 294 Peak VERTICAL 2 5786.00 100.53 ------ ------ 96.57 31.81 8.43 36.28 300 294 Average VERTICAL
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 34 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5852.00 46.89 -70.85 117.74 42.49 32.18 8.49 36.27 300 294 Peak VERTICAL 2 5864.80 47.57 -60.58 108.15 43.03 32.30 8.51 36.27 300 294 Peak VERTICAL 3 5880.80 46.67 -54.32 100.99 42.87 32.35 8.53 36.28 300 294 Peak VERTICAL 4 5986.00 47.27 -21.03 68.30 42.29 32.67 8.65 36.34 300 294 Peak VERTICAL	

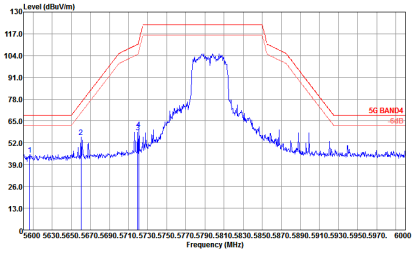
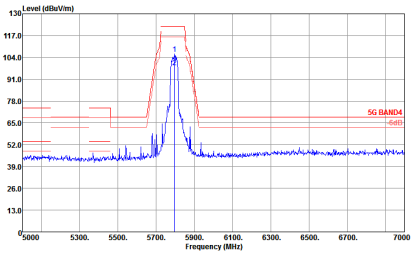
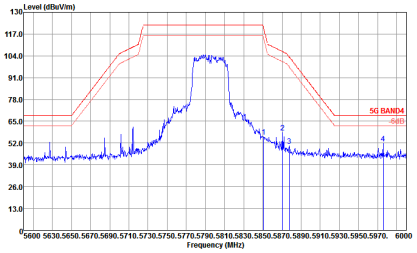
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 35 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5852.40 62.13 -54.70 116.83 57.73 32.18 8.49 36.27 100 157 Peak HORIZONT 2 5857.60 56.34 -53.83 110.17 51.80 32.30 8.51 36.27 100 157 Peak HORIZONT 3 5881.20 55.02 -45.67 100.69 50.42 32.35 8.53 36.28 100 157 Peak HORIZONT 4 5946.80 46.93 -21.37 68.30 42.07 32.57 8.61 36.32 100 157 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 35 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5824.00 109.28 -13.02 122.30 105.03 32.05 8.47 36.27 100 157 Peak HORIZONT 2 5824.00 101.91 ------ ------ 97.66 32.05 8.47 36.27 100 157 Average HORIZONT

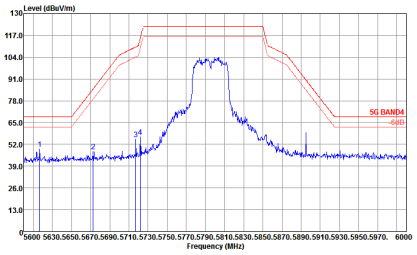
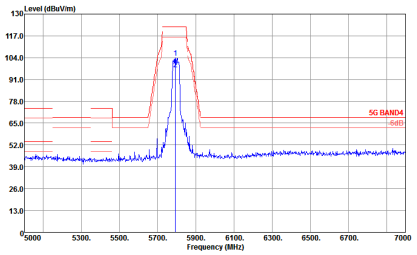
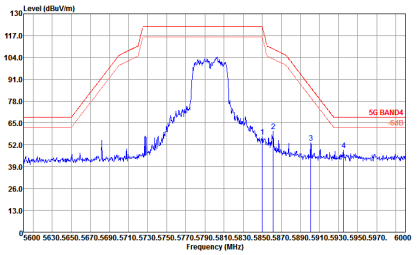
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
1+2	Vertical	Fundamental
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 35 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5850.00 59.11 -63.19 122.30 54.71 32.18 8.49 36.27 301 290 Peak VERTICAL 2 5855.20 52.54 -58.30 110.84 48.00 32.30 8.51 36.27 301 290 Peak VERTICAL 3 5878.80 49.30 -53.18 102.48 44.70 32.35 8.53 36.28 301 290 Peak VERTICAL 4 5932.80 46.20 -20.10 66.30 43.41 32.51 8.59 36.31 301 290 Peak VERTICAL	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 35 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5824.00 107.62 -14.68 122.30 103.37 32.05 8.47 36.27 301 290 Peak VERTICAL 2 5824.00 99.95 ------ ------ 95.70 32.05 8.47 36.27 301 290 Average VERTICAL

Band 4 5725~5850MHz
WIFI 802.11ac VHT40 (Band Edge @ 3m)

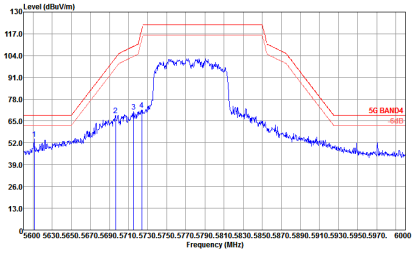
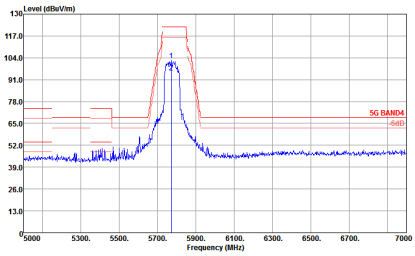
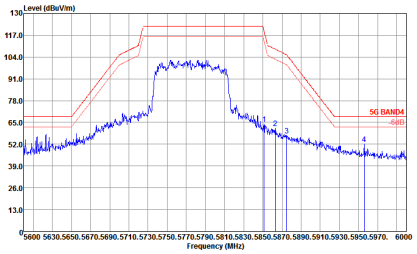
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 36 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5638.80 54.41 -13.89 68.30 51.84 30.70 8.16 36.29 100 153 Peak HORIZONT 2 5699.20 61.15 -43.56 104.71 58.12 31.07 8.25 36.29 100 153 Peak HORIZONT 3 5719.20 72.28 -38.40 110.68 68.93 31.32 8.31 36.28 100 153 Peak HORIZONT 4 5724.80 75.77 -46.07 121.84 72.42 31.32 8.31 36.28 100 153 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 36 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5764.00 105.83 -16.47 122.30 102.18 31.56 8.37 36.28 100 153 Peak HORIZONT 2 5764.00 98.89 ------ ------ 95.24 31.56 8.37 36.28 100 153 Average HORIZONT
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 36 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5850.80 47.23 -73.25 120.48 42.83 32.18 8.49 36.27 100 153 Peak HORIZONT 2 5865.60 48.77 -59.16 107.93 44.23 32.30 8.51 36.27 100 153 Peak HORIZONT 3 5876.00 57.87 -46.69 104.56 53.27 32.35 8.53 36.28 100 153 Peak HORIZONT 4 5946.40 51.19 -17.11 68.30 46.33 32.57 8.61 36.32 100 153 Peak HORIZONT	

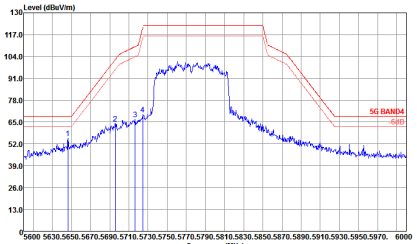
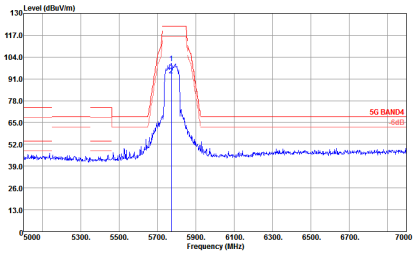
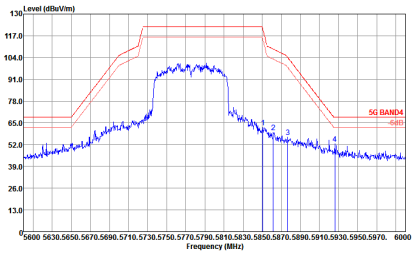
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 36 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5648.80 56.22 -12.08 68.30 53.65 30.70 8.16 36.29 300 288 Peak VERTICAL 2 5685.20 57.32 -37.06 94.38 54.29 31.07 8.25 36.29 300 288 Peak VERTICAL 3 5719.60 71.23 -39.56 110.79 67.88 31.32 8.31 36.28 300 288 Peak VERTICAL 4 5721.60 72.43 -42.12 114.55 69.08 31.32 8.31 36.28 300 288 Peak VERTICAL	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 36 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5744.00 104.16 -18.14 122.30 100.66 31.44 8.34 36.28 300 288 Peak VERTICAL 2 5744.00 97.17 ------ ------ 93.67 31.44 8.34 36.28 300 288 Average VERTICAL
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 36 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5854.00 46.78 -66.40 113.18 42.24 32.30 8.51 36.27 300 288 Peak VERTICAL 2 5862.80 46.86 -61.85 108.71 42.32 32.30 8.51 36.27 300 288 Peak VERTICAL 3 5882.40 48.66 -51.14 99.80 44.06 32.35 8.53 36.28 300 288 Peak VERTICAL 4 5947.60 48.67 -19.63 68.30 43.81 32.57 8.61 36.32 300 288 Peak VERTICAL	

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 37 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5606.40 45.05 -23.25 68.30 42.53 30.73 8.10 36.31 100 159 Peak HORIZONT 2 5660.40 55.41 -20.61 76.02 52.69 30.82 8.19 36.29 100 159 Peak HORIZONT 3 5719.60 58.30 -52.49 110.79 54.95 31.32 8.31 36.28 100 159 Peak HORIZONT 4 5720.80 60.29 -52.43 112.72 56.94 31.32 8.31 36.28 100 159 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 37 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5796.00 105.97 -16.33 122.30 102.01 31.81 8.43 36.28 100 159 Peak HORIZONT 2 5796.00 98.27 ------ ------ 94.31 31.81 8.43 36.28 100 159 Average HORIZONT
	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 37 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5850.80 55.75 -64.73 120.48 51.35 32.18 8.49 36.27 100 159 Peak HORIZONT 2 5870.40 58.45 -48.14 106.59 53.91 32.30 8.51 36.27 100 159 Peak HORIZONT 3 5877.60 50.18 -53.19 103.37 45.58 32.35 8.53 36.28 100 159 Peak HORIZONT 4 5975.60 51.68 -16.62 68.30 46.70 32.67 8.65 36.34 100 159 Peak HORIZONT	

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 37 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5616.80 49.11 -19.19 68.30 46.56 30.72 8.13 36.30 300 292 Peak VERTICAL 2 5672.80 47.96 -37.25 85.21 45.00 30.95 8.22 36.29 300 292 Peak VERTICAL 3 5717.20 54.91 -55.21 110.12 51.72 31.19 8.28 36.28 300 292 Peak VERTICAL 4 5722.00 56.65 -58.81 115.46 53.30 31.32 8.31 36.28 300 292 Peak VERTICAL	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 37 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5792.00 103.83 -18.47 122.30 99.87 31.81 8.43 36.28 300 292 Peak VERTICAL 2 5792.00 96.93 ------ ------ 92.97 31.81 8.43 36.28 300 292 Average VERTICAL
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 37 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5850.00 56.82 -65.48 122.30 52.42 32.18 8.49 36.27 300 292 Peak VERTICAL 2 5861.60 60.07 -48.98 109.05 55.53 32.30 8.51 36.27 300 292 Peak VERTICAL 3 5900.80 53.11 -33.06 86.17 48.44 32.41 8.55 36.29 300 292 Peak VERTICAL 4 5935.20 48.82 -19.48 68.30 44.03 32.51 8.59 36.31 300 292 Peak VERTICAL	

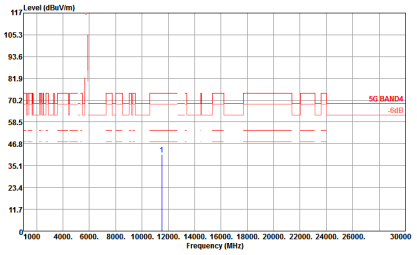
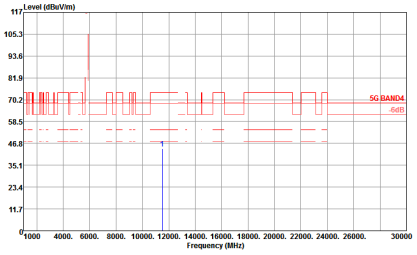
Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

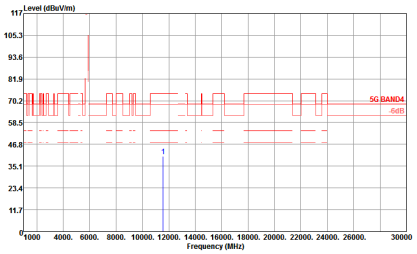
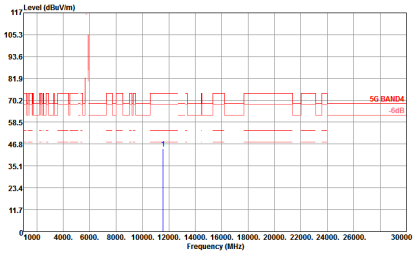
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 38 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5611.20 54.46 -13.84 68.30 51.94 30.73 8.10 36.31 100 154 Peak HORIZONT 2 5696.40 68.62 -34.03 102.65 65.59 31.07 8.25 36.29 100 154 Peak HORIZONT 3 5715.20 70.73 -38.03 109.56 67.54 31.19 8.28 36.28 100 154 Peak HORIZONT 4 5724.00 71.73 -48.29 120.02 68.38 31.32 8.31 36.28 100 154 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 38 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5772.00 102.50 -19.80 122.30 98.70 31.68 8.40 36.28 100 154 Peak HORIZONT 2 5772.00 95.33 ------ ------ 91.53 31.68 8.40 36.28 100 154 Average HORIZONT
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 38 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5851.20 63.92 -55.64 119.56 59.52 32.18 8.49 36.27 100 154 Peak HORIZONT 2 5863.20 61.57 -47.03 108.60 57.03 32.30 8.51 36.27 100 154 Peak HORIZONT 3 5874.80 57.16 -48.20 105.36 52.56 32.35 8.53 36.28 100 154 Peak HORIZONT 4 5956.00 52.18 -16.12 68.30 47.26 32.62 8.63 36.33 100 154 Peak HORIZONT	

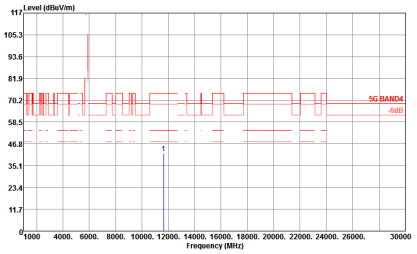
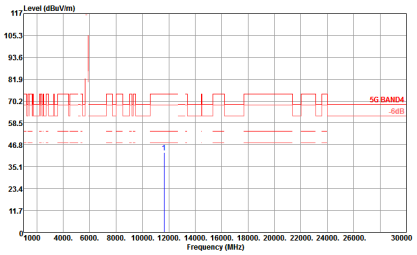
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 38 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5646.40 55.55 -12.75 68.30 52.98 30.70 8.16 36.29 300 293 Peak VERTICAL 2 5696.00 64.23 -38.12 102.35 61.20 31.07 8.25 36.29 300 293 Peak VERTICAL 3 5716.40 66.70 -43.19 109.89 63.51 31.19 8.28 36.28 300 293 Peak VERTICAL 4 5724.40 69.41 -51.52 120.93 66.06 31.32 8.31 36.28 300 293 Peak VERTICAL	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 38 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5772.00 100.14 -22.16 122.30 96.34 31.68 8.40 36.28 300 293 Peak VERTICAL 2 5772.00 93.18 ------ ------ 89.38 31.68 8.40 36.28 300 293 Average VERTICAL
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 38 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 5850.80 62.27 -58.21 120.48 57.87 32.18 8.49 36.27 300 293 Peak VERTICAL 2 5861.60 59.54 -49.51 109.05 55.00 32.30 8.51 36.27 300 293 Peak VERTICAL 3 5876.80 56.49 -47.47 103.96 51.89 32.35 8.53 36.28 300 293 Peak VERTICAL 4 5926.00 52.52 -15.78 68.30 47.73 32.51 8.59 36.31 300 293 Peak VERTICAL	

Band 4 - 5725~5850MHz

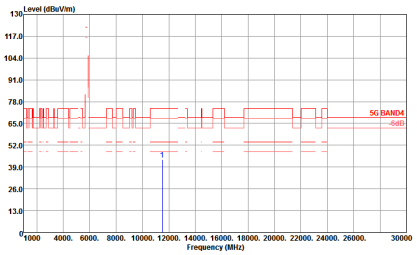
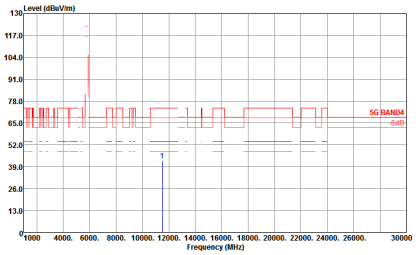
WIFI 802.11a (Harmonic @ 3m)

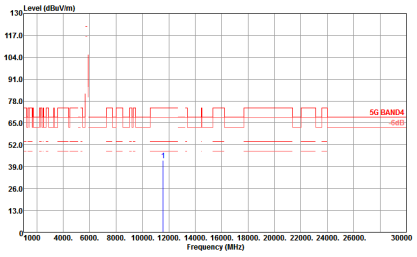
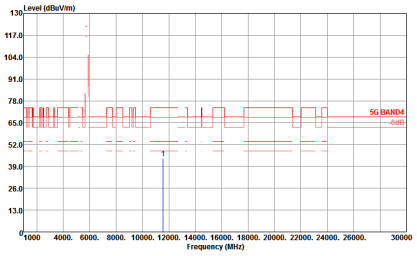
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 30 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 12.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11490.00 41.14 -32.86 74.00 55.34 38.58 12.57 65.35 100 360 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 30 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 12.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11490.00 44.02 -29.98 74.00 58.22 38.58 12.57 65.35 100 360 Peak VERTICAL

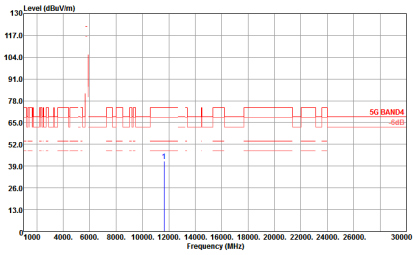
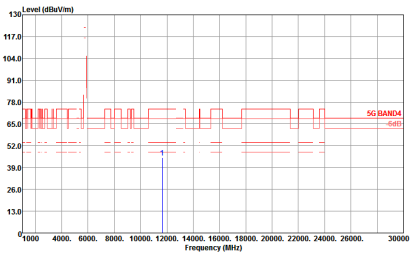
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 31 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit ReadAntenna Level Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11570.00 40.45 -33.55 74.00 54.83 38.43 12.63 65.44 100 360 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 31 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit ReadAntenna Level Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11570.00 44.27 -29.73 74.00 58.65 38.43 12.63 65.44 100 360 Peak VERTICAL

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 32 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11650.00 41.64 -32.36 74.00 56.24 38.27 12.67 65.54 100 360 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 32 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11650.00 42.84 -31.16 74.00 57.44 38.27 12.67 65.54 100 360 Peak VERTICAL

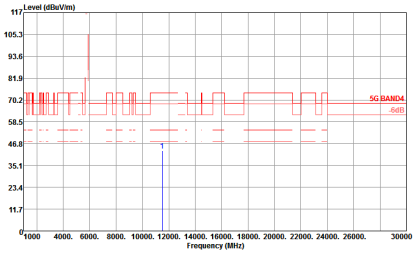
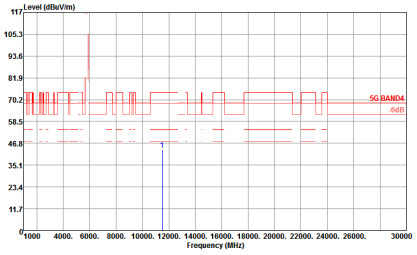
Band 4 5725~5850MHz
WIFI 802.11ac VHT20 (Harmonic @ 3m)

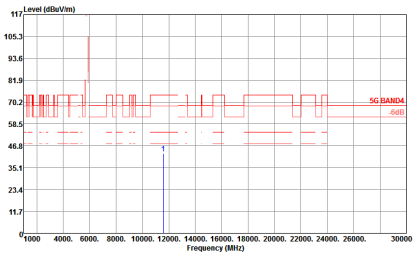
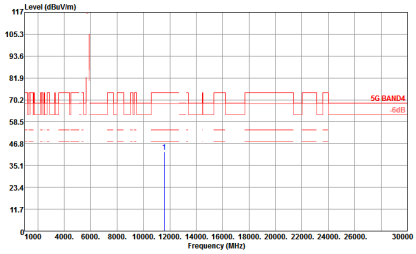
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 33 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 12.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11490.00 43.39 -30.61 74.00 57.59 38.58 12.57 65.35 300 360 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 33 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 12.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11490.00 42.63 -31.37 74.00 56.83 38.58 12.57 65.35 100 360 Peak VERTICAL

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 34 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11570.00 42.78 -31.22 74.00 57.16 38.43 12.63 65.44 300 0 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 34 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11570.00 43.76 -30.24 74.00 58.14 38.43 12.63 65.44 100 360 Peak VERTICAL

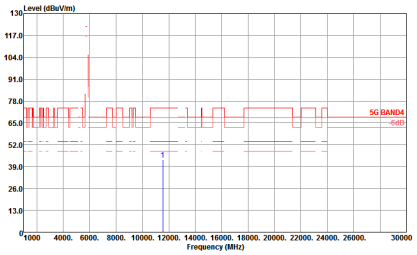
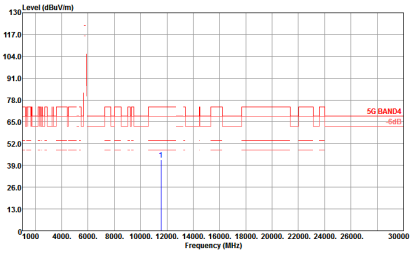
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 35 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11650.00 41.87 -32.13 74.00 56.47 38.27 12.67 65.54 100 0 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 35 Plane : Pad+X : Single-directivity IMEI : #4 Powersettig : 13.5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11650.00 44.87 -29.13 74.00 59.47 38.27 12.67 65.54 300 0 Peak VERTICAL

Band 4 5725~5850MHz
WIFI 802.11ac VHT40 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 36 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11510.00 42.88 -31.12 74.00 57.04 38.60 12.58 65.34 100 360 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 36 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11510.00 43.38 -30.62 74.00 57.54 38.60 12.58 65.34 100 360 Peak VERTICAL

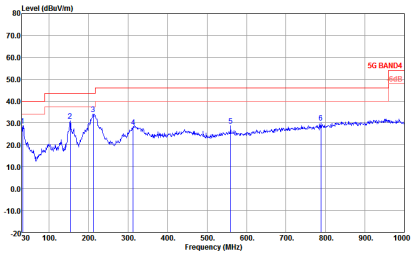
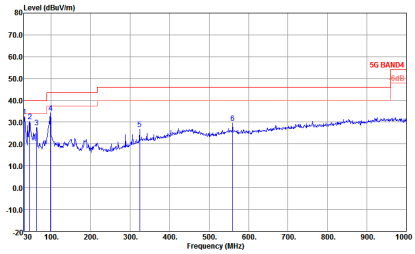
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 37 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11590.00 42.77 -31.23 74.00 57.21 38.39 12.64 65.47 100 360 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 37 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11590.00 42.25 -31.75 74.00 56.69 38.39 12.64 65.47 100 360 Peak VERTICAL

Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 38 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11550.00 43.17 -30.83 74.00 57.49 38.48 12.62 65.42 300 360 Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-201704-9120D VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 38 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 11550.00 42.36 -31.64 74.00 56.68 38.48 12.62 65.42 100 0 Peak VERTICAL

Emission below 1GHz

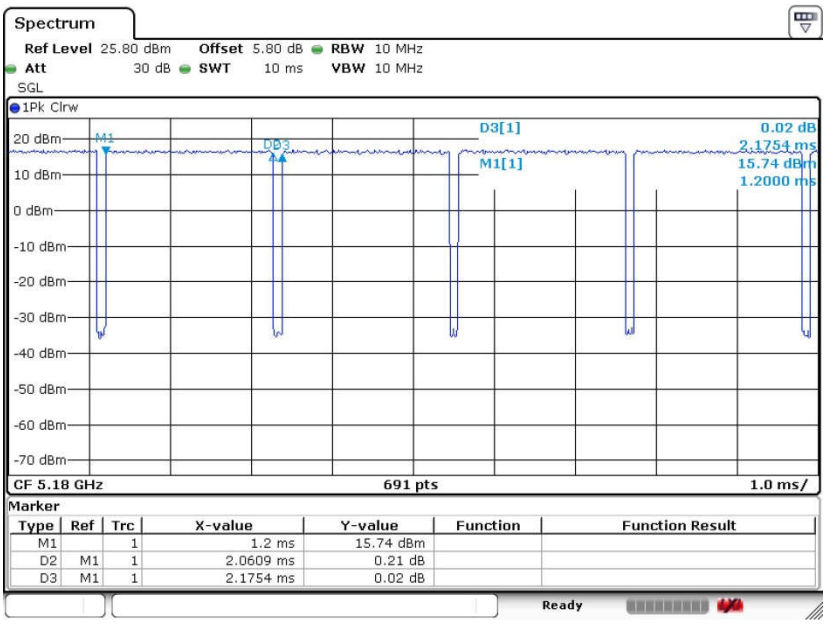
5GHz WIFI 802.11ac VHT40 (LF)

WIFI	5GHz 5725~5850MHz	
ANT	802.11ac VHT40 LF	
1+2	Horizontal	Vertical
QP / Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m LF ANT 6DB HORIZONTAL : SWT:Auto Project : (FR) 760219 Mode : 36 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 32.91 28.87 -11.13 40.00 34.30 26.18 0.69 32.30 --- --- Peak HORIZONT 2 153.19 30.88 -12.62 43.50 43.88 17.78 1.50 32.28 --- --- Peak HORIZONT 3 211.39 34.14 -9.36 43.50 48.53 16.10 1.73 32.22 100 230 Peak HORIZONT 4 312.27 28.26 -17.74 46.00 38.57 19.59 2.18 32.08 --- --- Peak HORIZONT 5 559.62 28.72 -17.28 46.00 32.77 24.74 2.96 31.75 --- --- Peak HORIZONT 6 788.54 30.14 -15.86 46.00 30.43 27.76 3.56 31.61 --- --- Peak HORIZONT	 Site : 03CH03-KS Condition : 5G BAND4 3m LF ANT 6DB VERTICAL : SWT:Auto Project : (FR) 760219 Mode : 36 Plane : Pad+X : Full-directivity IMEI : #4 Powersettig : 13 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 31.94 32.61 -7.39 40.00 37.70 26.52 0.68 32.29 100 20 Peak VERTICAL 2 45.52 30.48 -9.52 40.00 42.96 18.90 0.83 32.21 --- --- Peak VERTICAL 3 62.98 27.57 -12.43 40.00 45.68 13.18 0.95 32.24 --- --- Peak VERTICAL 4 97.90 34.32 -9.18 43.50 46.64 18.74 1.20 32.26 --- --- Peak VERTICAL 5 323.91 26.89 -19.11 46.00 36.63 20.13 2.21 32.08 --- --- Peak VERTICAL 6 559.62 29.52 -16.48 46.00 33.57 24.74 2.96 31.75 --- --- Peak VERTICAL

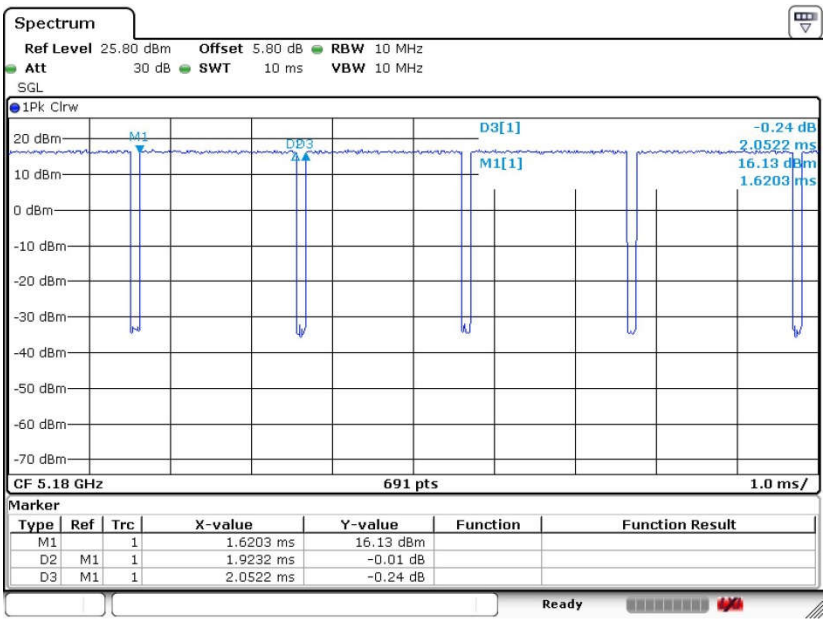
Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1+2	802.11a	94.74	2.061	0.485	1kHz
1+2	802.11ac VHT20	93.71	1.923	0.520	1kHz
1+2	802.11ac VHT40	89.95	0.959	1.042	3kHz
1+2	802.11ac VHT80	87.59	0.736	1.358	3kHz

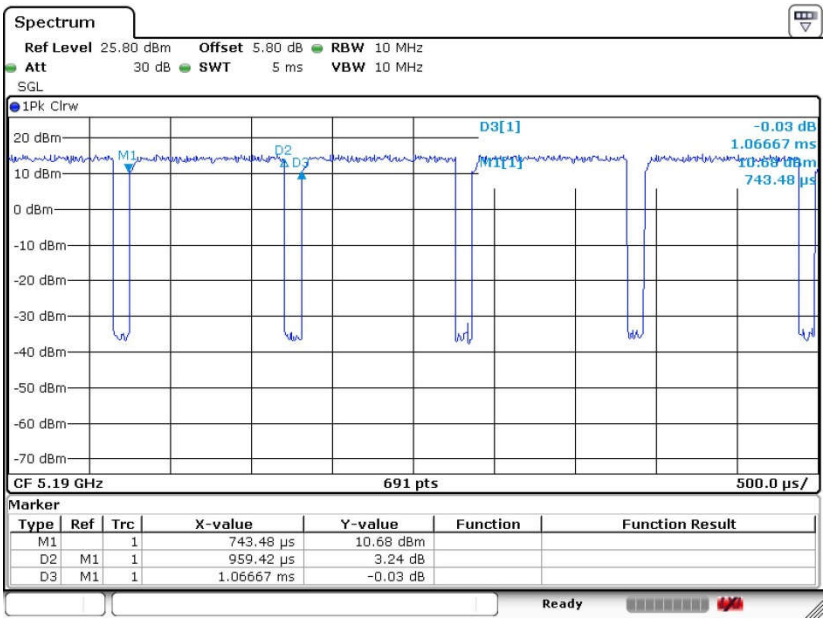
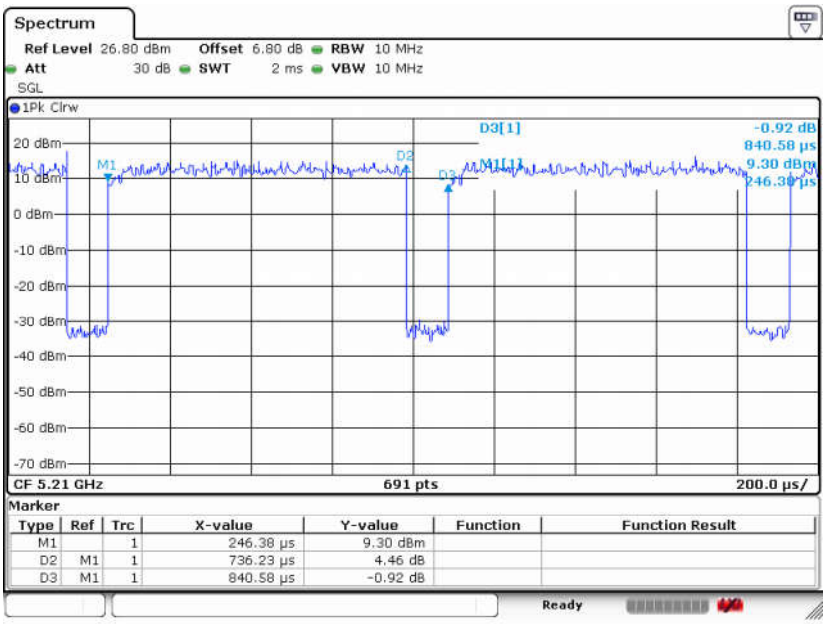
802.11a



802.11ac VHT20



802.11ac VHT40



802.11ac VHT80