FCC CO-LOCATION RADIO TEST REPORT

FCC ID	:	**A4RGXCA6**
Equipment	:	**Wireless Device**
Model Name	:	**GXCA6**
Applicant	:	**Google LLC** **1600 Amphitheatre Parkway,** **Mountain View, California, 94043 USA**
Standard	:	**FCC Part 15 Subpart E §15.407**

The product was received on Apr. 09, 2020 and testing was started from May 05, 2020 and completed on May 11, 2020. We, SPORTON INTERNATIONAL INC., EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Louis Wu

Approved by: Louis Wu

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

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History of this test report

Report No.	Version	Description	Issued Date
FR990608-02F	01	Initial issue of report	May 22, 2020
FR990608-02F	02	Revising the TAF description in cover page.	Jul. 01, 2020

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.407(b)	Unwanted Emissions	Pass	Under limit 1.53 dB at 5149.760 MHz
3.2	15.203 15.407(a)	Antenna Requirement	Pass	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang

Report Producer: Fiona Wu

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Wireless Device
Model Name	GXCA6
FCC ID	A4RGXCA6
EUT supports Radios application	WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE

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

EUT Information List	
S/N	Performed Test Item
01211HFDL015YK	Radiated Spurious Emission

1.2 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz 5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5720 MHz 5745 MHz ~ 5825 MHz
Antenna Type / Gain	**Bluetooth:** **Ant. 1 :** PCB PIFA Antenna type with gain 3.8 dBi **Ant. 2 :** PCB PIFA Antenna type with gain 3.9 dBi **WLAN:** **<2400 MHz ~ 2483.5 MHz>** **Ant. 1 :** PCB PIFA Antenna type with gain 3.8 dBi **Ant. 2 :** PCB PIFA Antenna type with gain 3.9 dBi **<5180 MHz ~ 5240 MHz>** **Ant. 1 :** PCB PIFA Antenna type with gain 7.6 dBi **Ant. 2 :** PCB PIFA Antenna type with gain 7.7 dBi **<5260 MHz ~ 5320 MHz>** **Ant. 1 :** PCB PIFA Antenna type with gain 7.6 dBi **Ant. 2 :** PCB PIFA Antenna type with gain 7.7 dBi **<5500 MHz ~ 5720 MHz >** **Ant. 1 :** PCB PIFA Antenna type with gain 7.3 dBi **Ant. 2 :** PCB PIFA Antenna type with gain 6.6 dBi **<5745 MHz ~ 5825 MHz>** **Ant. 1 :** PCB PIFA Antenna type with gain 7.2 dBi **Ant. 2 :** PCB PIFA Antenna type with gain 6.4 dBi
Type of Modulation	Bluetooth BR (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK Bluetooth LE : GFSK 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a: OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)

1.3 Modification of EUT

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

1.4 Testing Location

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH16-HY

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

FCC designation No.: TW0007

1.5 Applicable Standards

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

- FCC Part 15 Subpart E
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- 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. The TAF code is not including all the FCC KDB listed without accreditation

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: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

2.1 Carrier Frequency and Channel

2400-2483.5 MHz Bluetooth		2400-2483.5 MHz Bluetooth-LE		2400-2483.5 MHz 802.11b	
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
78	2480	39	2480	11	2462

5150-5250 MHz 802.11a		5500-5720 MHz 802.11ac VHT80	
Channel	Freq. (MHz)	Channel	Freq. (MHz)
36	5180	106	5530

2.2 Test Mode

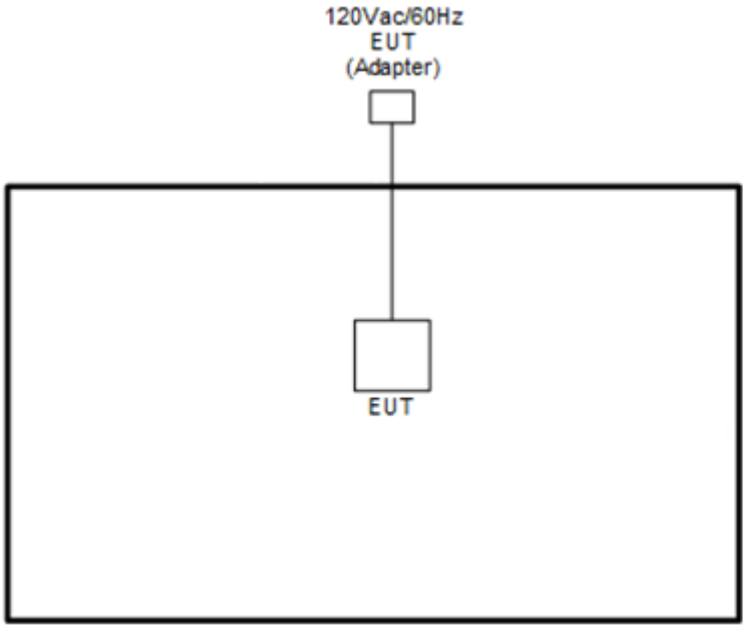
Final test modes are considering the modulation and worse data rates as below table.

<Co-Location>

Modulation	Data Rate
Bluetooth Ant. 1 + 5GHz 802.11a Ant. 2	**1Mbps + 6Mbps**
Bluetooth-LE Ant. 1 + 5GHz 802.11a Ant. 2	**1Mbps + 6Mbps**
Bluetooth Ant. 1 + 2.4GHz 802.11b Ant. 2	**1Mbps + 1Mbps**
Bluetooth-LE Ant. 1 + 2.4GHz 802.11b Ant. 2	**1Mbps + 1Mbps**
Bluetooth Ant. 2 + 5GHz 802.11ac VHT80 Ant. 1	**1Mbps + MCS0**
Bluetooth-LE Ant. 2 + 5GHz 802.11a Ant. 1	**1Mbps + 6Mbps**
Bluetooth Ant. 2 + 2.4GHz 802.11b Ant. 1	**1Mbps + 1Mbps**
Bluetooth-LE Ant. 2 + 2.4GHz 802.11b Ant. 1	**1Mbps + 1Mbps**

Remark: For Radiated Test Cases, the tests were performed with Adapter 1.

2.3 Connection Diagram of Test System



2.4 EUT Operation Test Setup

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

3 Test Result

3.1 Unwanted Emissions Measurement

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

3.1.1 Limit of Unwanted Emissions

(1) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table:

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

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

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

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

(3) KDB789033 D02 v02r01 G)2)c)

(i) Sections 15.407(b)(1-3) specifies the unwanted emissions limit 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.

(ii) Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are based on the use of a peak detector.

3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.

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

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

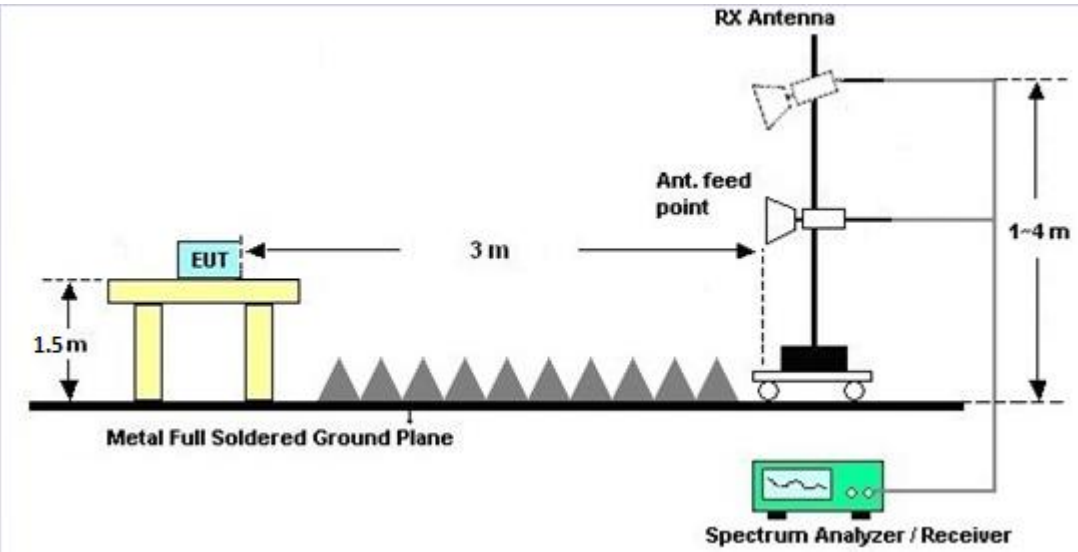
   (2) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - 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 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 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.

3.1.4 Test Setup

For radiated emissions above 1GHz



3.1.5 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix A and B.

3.1.6 Duty Cycle

Please refer to Appendix C.

3.1.7 Test Result of Radiated Spurious Emissions

Please refer to Appendix A and B.

3.2 Antenna Requirements

3.2.1 Standard Applicable

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

3.2.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.2.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Sep. 19, 2019	May 05,.2020~ May 11,.2020	Sep. 18, 2020	Radiation (03CH16-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055007	1GHz~18GHz	Mar. 31, 2020	May 05,.2020~ May 11,.2020	Mar. 30, 2021	Radiation (03CH16-HY)
Preamplifier	EMEC	EMC184045B	980192	18GHz ~40GHz	Jul. 10, 2019	May 05,.2020~ May 11,.2020	Jul. 09, 2020	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 11, 2019	May 05,.2020~ May 11,.2020	Dec. 10, 2020	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY57290111	3Hz~26.5GHz	Dec. 05, 2019	May 05,.2020~ May 11,.2020	Dec. 04, 2020	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11680/4PE	NA	Aug. 30, 2019	May 05,.2020~ May 11,.2020	Aug. 29, 2020	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11688/4PE	NA	Aug. 30, 2019	May 05,.2020~ May 11,.2020	Aug. 29, 2020	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300-5757	NA	Aug. 30, 2019	May 05,.2020~ May 11,.2020	Aug. 29, 2020	Radiation (03CH16-HY)
Hygrometer	TECPEL	DTM-303B	TP161243	N/A	Jun. 17, 2019	May 05,.2020~ May 11,.2020	Jun. 16, 2020	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	May 05,.2020~ May 11,.2020	N/A	Radiation (03CH16-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.7**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.9**

Appendix A. Radiated Spurious Emission

Test Engineer :	Andy Yang and CR Liao	Temperature :	20~25°C
		Relative Humidity :	50~60%

WLAN 5G Band 1 (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11a CH 36 5180 MHz + ANT1 BT CH78 2480 MHz		5149.5	65.39	-8.61	74	50.22	31.7	12.32	28.85	138	11	P	H
		5149.24	50.46	-3.54	54	35.29	31.7	12.32	28.85	138	11	A	H
	*	5180	109.24	-	-	94.17	31.58	12.36	28.87	138	11	P	H
	*	5180	101.26	-	-	86.19	31.58	12.36	28.87	138	11	A	H
													H
													H
		5150	70.22	-3.78	74	55.05	31.7	12.32	28.85	200	24	P	V
		5149.76	52.47	-1.53	54	37.3	31.7	12.32	28.85	200	24	A	V
	*	5180	112.39	-	-	97.32	31.58	12.36	28.87	200	24	P	V
	*	5180	104.47	-	-	89.4	31.58	12.36	28.87	200	24	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BT (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11a CH 36 5180 MHz + ANT1 BT CH78 2480 MHz	*	2480	103.95	-	-	95.94	27.54	75	29.82	185	229	P	H
	*	2480	103.95	-	-	54	-	-	-	-	-	A	H
		2483.6	55.85	-18.15	74	47.85	27.53	75	29.82	185	229	P	H
		2483.6	31.06	-22.94	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	103.49	-	-	95.48	27.54	75	29.82	237	147	P	V
	*	2480	78.7	-	-	-	-	-	-	-	-	A	V
		2484.24	56.37	-17.63	74	48.37	27.53	75	29.82	237	147	P	V
		2484.24	31.58	-22.42	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BT and WLAN 5G Band1 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11a CH 36 5180 MHz + ANT1 BT CH78 2480 MHz		4960	55.53	-18.47	74	39.22	31.26	13.8	28.75	100	0	P	H
		4960	44.32	-9.68	54	28.01	31.26	13.8	28.75	100	0	A	H
		7440	47.83	-26.17	74	53.66	36.58	16.18	58.59	100	0	P	H
		10360	49.48	-18.72	68.2	51.06	39.64	19.17	60.39	100	0	P	H
		15540	48.79	-25.21	74	47.74	37.94	24.38	61.27	100	0	P	H
													H
		4960	55.05	-18.95	74	38.74	31.26	13.8	28.75	100	0	P	V
		4960	44.54	-9.46	54	28.23	31.26	13.8	28.75	100	0	A	V
		7440	46.43	-27.57	74	52.26	36.58	16.18	58.59	100	0	P	V
		10360	49.53	-18.67	68.2	51.11	39.64	19.17	60.39	100	0	P	V
		15540	48.65	-25.35	74	47.6	37.94	24.38	61.27	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WLAN 5G Band 1 (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11a CH 36 5180 MHz + ANT1 BLE CH39 2480 MHz		5150	65.94	-8.06	74	50.77	31.7	12.32	28.85	165	333	P	H
		5150	49.4	-4.6	54	34.23	31.7	12.32	28.85	165	333	A	H
	*	5180	108.97	-	-	93.9	31.58	12.36	28.87	165	333	P	H
	*	5180	101.17	-	-	86.1	31.58	12.36	28.87	165	333	A	H
													H
													H
		5150	69.41	-4.59	74	54.24	31.7	12.32	28.85	259	20	P	V
		5149.5	51.32	-2.68	54	36.15	31.7	12.32	28.85	259	20	A	V
	*	5180	111.61	-	-	96.54	31.58	12.36	28.87	259	20	P	V
	*	5180	103.72	-	-	88.65	31.58	12.36	28.87	259	20	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BLE (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11a CH 36 5180 MHz + ANT1 BLE CH39 2480 MHz	*	2480	103.34	-	-	97.3	27.54	8.32	29.82	215	213	P	H
	*	2480	98.23	-	-	90.06	27.54	10.45	29.82	215	213	A	H
		2484	53.05	-20.95	74	47.02	27.53	8.32	29.82	215	213	P	H
		2487.96	40.76	-13.24	54	32.6	27.52	10.46	29.82	215	213	A	H
													H
													H
	*	2480	101.93	-	-	95.89	27.54	8.32	29.82	246	147	P	V
	*	2480	95.89	-	-	87.72	27.54	10.45	29.82	246	147	A	V
		2483.56	53.38	-20.62	74	47.35	27.53	8.32	29.82	246	147	P	V
		2487.72	40.51	-13.49	54	32.35	27.52	10.46	29.82	246	147	A	V
													V
													V

Remark

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

BLE and WLAN 5G Band1 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11a CH 36 5180 MHz + ANT1 BLE CH39 2480 MHz		4960	57.51	-16.49	74	41.2	31.26	13.8	28.75	400	25	P	H
		4960	46.98	-7.02	54	30.67	31.26	13.8	28.75	400	25	A	H
		7440	44.81	-29.19	74	50.64	36.58	16.18	58.59	100	0	P	H
		10360	48.14	-20.06	68.2	49.72	39.64	19.17	60.39	100	0	P	H
		15540	49.06	-24.94	74	48.01	37.94	24.38	61.27	100	0	P	H
													H
		4960	57.61	-16.39	74	41.3	31.26	13.8	28.75	217	61	P	V
		4960	46.93	-7.07	54	30.62	31.26	13.8	28.75	217	61	A	V
		7440	44.97	-29.03	74	50.8	36.58	16.18	58.59	100	0	P	V
		10360	48.69	-19.51	68.2	50.27	39.64	19.17	60.39	100	0	P	V
		15540	47.94	-26.06	74	46.89	37.94	24.38	61.27	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WLAN 2.4G (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11b CH11 2462 MHz + ANT1 BLE CH39 2480 MHz	*	2462	107.83	-	-	101.77	27.58	8.29	29.81	298	311	P	H
	*	2462	103.71	-	-	97.65	27.58	8.29	29.81	298	311	A	H
		2496.8	59.9	-14.1	74	53.88	27.51	8.34	29.83	298	311	P	H
		2496.76	44.86	-9.14	54	38.84	27.51	8.34	29.83	298	311	A	H
												P	H
												A	H
	*	2462	107.65	-	-	101.59	27.58	8.29	29.81	312	215	P	V
	*	2462	103.54	-	-	97.48	27.58	8.29	29.81	312	215	A	V
		2495.8	57.83	-16.17	74	51.81	27.51	8.34	29.83	312	215	P	V
		2496.4	44.34	-9.66	54	38.32	27.51	8.34	29.83	312	215	A	V
												P	V
												A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BLE (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11b CH11 2462 MHz + ANT1 BLE CH39 2480 MHz	*	2480	103.6	-	-	97.56	27.54	8.32	29.82	206	217	P	H
	*	2480	98.1	-	-	89.93	27.54	10.45	29.82	206	217	A	H
		2498.52	64.91	-9.09	74	58.89	27.5	8.35	29.83	206	217	P	H
		2495.6	51.86	-2.14	54	43.71	27.51	10.47	29.83	206	217	A	H
													H
													H
	*	2480	101.89	-	-	95.85	27.54	8.32	29.82	248	144	P	V
	*	2480	96.13	-	-	87.96	27.54	10.45	29.82	248	144	A	V
		2494.56	60.96	-13.04	74	54.94	27.51	8.34	29.83	248	144	P	V
		2495.16	49.55	-4.45	54	41.4	27.51	8.34	10.47	248	144	A	V
													V
													V

Remark

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

IMD (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11b CH11 2462 MHz + ANT1 BLE CH39 2480 MHz	*	2462	87.03	-	-	80.97	27.58	8.29	29.81	298	230	P	H
	*	2480	102.29	-	-	96.25	27.54	8.32	29.82	298	230	P	H
	*	2462	85.58	-	-	77.55	27.58	10.26	29.81	298	230	A	H
	*	2480	96.36	-	-	88.35	27.54	10.29	29.82	298	230	A	H
		2496.6	63.95	-10.05	74	57.93	27.51	8.34	29.83	298	230	P	H
		2496.52	52.15	-1.85	54	44.16	27.51	10.31	29.83	298	230	A	H
													H
	*	2462	99.53	-	-	93.47	27.58	8.29	29.81	299	117	P	V
	*	2480	100.87	-	-	94.83	27.54	8.32	29.82	299	117	P	V
	*	2462	97.65	-	-	89.62	27.58	10.26	29.81	299	117	A	V
	*	2480	94.84	-	-	86.83	27.54	10.29	29.82	299	117	A	V
		2496.68	63.23	-10.77	74	57.21	27.51	8.34	29.83	299	117	P	V
		2496.6	50.53	-3.47	54	42.54	27.51	10.31	29.83	299	117	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BLE and WLAN 2.4G (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		4924	47.39	-26.61	74	62.04	31.1	12.52	58.27	100	0	P	H
		4960	39.3	-34.7	74	53.74	31.26	12.56	58.26	100	0	P	H
ANT2		7386	45.59	-28.41	74	51.96	36.53	15.66	58.56	100	0	P	H
802.11b		7440	45.17	-28.83	74	51.4	36.58	15.78	58.59	100	0	P	H
CH11		4924	47.39	-26.61	74	62.04	31.1	12.52	58.27	100	0	P	H
2462 MHz													H
+		4924	46.39	-27.61	74	61.04	31.1	12.52	58.27	100	0	P	V
ANT1		4960	40.14	-33.86	74	54.58	31.26	12.56	58.26	100	0	P	V
BLE		7386	45.14	-28.86	74	51.51	36.53	15.66	58.56	100	0	P	V
CH39		7440	45.42	-28.58	74	51.65	36.58	15.78	58.59	100	0	P	V
2480 MHz		12315	52.15	-21.85	74	54.15	38.47	21.32	61.79	100	344	P	V
		12315	45.17	-8.83	54	47.17	38.47	21.32	61.79	100	344	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WLAN 2.4G (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11b CH11 2462 MHz + ANT1 BT CH78 2480 MHz	*	2462	107.41	-	-	101.35	27.58	8.29	29.81	295	322	P	H
	*	2462	104.35	-	-	98.29	27.58	8.29	29.81	295	322	A	H
		2495.28	56.96	-17.04	74	50.94	27.51	8.34	29.83	295	322	P	H
		2486.56	47.28	-6.72	54	41.24	27.53	8.33	29.82	295	322	A	H
													H
													H
	*	2462	107.16	-	-	101.1	27.58	8.29	29.81	300	215	P	V
	*	2462	104.01	-	-	97.95	27.58	8.29	29.81	300	215	A	V
		2496.88	55.52	-18.48	74	49.49	27.51	8.35	29.83	300	215	P	V
		2486.64	46.75	-7.25	54	40.71	27.53	8.33	29.82	300	215	A	V
													V
													V

Remark

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

BT (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11b CH11 2462 MHz + ANT1 BT CH78 2480 MHz	*	2480	102.09	-	-	96.05	27.54	8.32	29.82	266	240	P	H
	*	2480	77.3	-	-	-	-	-	-	-	-	A	H
		2498	62.83	-11.17	74	56.81	27.5	8.35	29.83	266	240	P	H
		2498	38.04	-15.96	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	101	-	-	94.96	27.54	8.32	29.82	239	143	P	V
	*	2480	76.21	-	-	-	-	-	-	-	-	A	V
		2496.64	60.83	-13.17	74	54.81	27.51	8.34	29.83	239	143	P	V
		2496.64	36.04	-17.96	54	-	-	-	-	-	-	A	V
													V
													V

Remark

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

IMD (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11b CH11 2462 MHz + ANT1 BT CH78 2480 MHz	*	2462	101.1	-	-	95.04	27.58	8.29	29.81	205	248	P	H
	*	2480	101.17	-	-	95.13	27.54	8.32	29.82	205	248	P	H
	*	2462	98.1	-	-	90.9	27.58	9.43	29.81	205	248	A	H
	*	2480	93.43	-	-	86.25	27.54	9.46	29.82	205	248	A	H
		2499.4	62.63	-11.37	74	56.61	27.5	8.35	29.83	205	248	P	H
		2496.52	51.44	-2.56	54	44.28	27.51	9.48	29.83	205	248	A	H
													H
	*	2462	102.49	-	-	96.43	27.58	8.29	29.81	400	353	P	V
	*	2480	99.4	-	-	93.36	27.54	8.32	29.82	400	353	P	V
	*	2460	99.56	-	-	92.36	27.58	9.43	29.81	400	353	A	V
	*	2480	91.79	-	-	84.61	27.54	9.46	29.82	400	353	A	V
		2499.28	61.72	-12.28	74	55.7	27.5	8.35	29.83	400	353	P	V
		2493.88	49.65	-4.35	54	42.49	27.51	9.48	29.83	400	353	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BT and WLAN 2.4G (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT2 802.11b CH11 2462 MHz + ANT1 BT CH78 2480 MHz		3690	42.35	-31.65	74	61.72	29.18	9.49	59.78	100	0	P	H
		4095	40.59	-33.41	74	58.37	29.69	10.31	59.06	100	0	P	H
		4924	45.06	-28.94	74	59.71	31.1	11.54	58.27	100	0	P	H
		4960	38.74	-35.26	74	53.18	31.26	11.58	58.26	100	0	P	H
		7386	43.85	-30.15	74	50.22	36.53	14.96	58.56	100	0	P	H
													H
		3690	40.26	-33.74	74	59.63	29.18	9.49	59.78	100	0	P	V
		4095	39.52	-34.48	74	57.3	29.69	10.31	59.06	100	0	P	V
		4924	45.83	-28.17	74	60.48	31.1	11.54	58.27	100	0	P	V
		4960	38.37	-35.63	74	52.81	31.26	11.58	58.26	100	0	P	V
		7386	44.65	-29.35	74	51.02	36.53	14.96	58.56	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WLAN 5G Band 3 (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		5458.48	58.95	-15.05	74	43.69	31.62	12.69	29.05	258	348	P	H
ANT1		5467.84	59.5	-8.7	68.2	44.21	31.64	12.71	29.06	258	348	P	H
802.11ac		5458.72	48.25	-5.75	54	32.99	31.62	12.69	29.05	258	348	P	H
VHT80	*	5530	97.62	-	-	82.1	31.76	12.83	29.07	258	348	P	H
CH 106	*	5530	89.42	-	-	73.9	31.76	12.83	29.07	258	348	A	H
5530 MHz		5764.685	54.53	-13.67	68.2	38.3	32.03	13.22	29.02	258	348	P	H
+		5448.16	62.72	-11.28	74	47.51	31.59	12.67	29.05	136	352	P	V
ANT2		5466.88	62.05	-6.15	68.2	46.77	31.63	12.71	29.06	136	352	P	V
BT		5459.2	51.98	-2.02	54	36.72	31.62	12.69	29.05	136	352	P	V
CH78	*	5530	100.66	-	-	85.14	31.76	12.83	29.07	136	352	P	V
2480 MHz	*	5530	92.73	-	-	77.21	31.76	12.83	29.07	136	352	A	V
		5763.74	54.67	-13.53	68.2	38.44	32.03	13.22	29.02	136	352	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BT (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
	*	2480	103.01	-	-	96.97	27.54	8.32	29.82	290	123	P	H
ANT1	*	2480	103.01	-	-	54	-	-	-	-	-	A	H
802.11ac		2484.2	54.89	-19.11	74	48.86	27.53	8.32	29.82	290	123	P	H
VHT80		2484.2	30.13	-23.87	54	-	-	-	-	-	-	A	H
CH 106													H
5530 MHz													H
+	*	2480	102.19	-	-	96.15	27.54	8.32	29.82	292	209	P	V
ANT2	*	2480	77.43	-	-	-	-	-	-	-	-	A	V
BT		2483.6	54.07	-19.93	74	48.04	27.53	8.32	29.82	292	209	P	V
CH78		2483.6	29.31	-24.69	54	-	-	-	-	-	-	A	V
2480 MHz													V
													V

Remark

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

BT and WLAN 5G Band3 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11ac VHT80 CH 106 5530 MHz + ANT2 BT CH78 2480 MHz		4960	55.54	-18.46	74	39.04	31.26	13.99	28.75	100	0	P	H
		4960	44.46	-9.54	54	27.96	31.26	13.99	28.75	100	0	A	H
		7440	46.45	-27.55	74	52.28	36.58	16.18	58.59	100	0	P	H
		11060	51.07	-22.93	74	51.86	40.22	20.2	61.21	100	0	P	H
		16590	49.51	-18.69	68.2	44.02	39.25	25.37	59.13	100	0	P	H
													H
		4960	55.58	-18.42	74	39.08	31.26	13.99	28.75	100	0	P	V
		4960	44.58	-9.42	54	28.08	31.26	13.99	28.75	100	0	A	V
		7440	46.41	-27.59	74	52.24	36.58	16.18	58.59	100	0	P	V
		11060	49.78	-24.22	74	50.57	40.22	20.2	61.21	100	0	P	V
		16590	50.55	-17.65	68.2	45.06	39.25	25.37	59.13	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WLAN 5G Band 1 (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11a CH36 5180 MHz + ANT2 BLE CH39 2480 MHz		5148.46	63.97	-10.03	74	48.8	31.7	12.32	28.85	166	0	P	H
		5149.5	48.13	-5.87	54	32.96	31.7	12.32	28.85	166	0	A	H
	*	5180	107.34	-	-	92.27	31.58	12.36	28.87	166	0	P	H
	*	5180	99.32	-	-	84.25	31.58	12.36	28.87	166	0	A	H
												P	H
												A	H
		5148.2	67.93	-6.07	74	52.76	31.7	12.32	28.85	258	336	P	V
		5149.5	51.87	-2.13	54	36.7	31.7	12.32	28.85	258	336	A	V
	*	5180	110.99	-	-	95.92	31.58	12.36	28.87	258	336	P	V
	*	5180	103.05	-	-	87.98	31.58	12.36	28.87	258	336	A	V
												P	V
												A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BLE (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11a CH36 5180 MHz + ANT2 BLE CH39 2480 MHz	*	2480	103.34	-	-	97.3	27.54	8.32	29.82	294	319	P	H
	*	2480	97.7	-	-	89.58	27.54	10.4	29.82	294	319	A	H
		2483.88	52.04	-21.96	74	46.01	27.53	8.32	29.82	294	319	P	H
		2487.56	41.52	-12.48	54	33.41	27.52	10.41	29.82	294	319	A	H
													H
													H
	*	2480	104.38	-	-	98.34	27.54	8.32	29.82	235	212	P	V
	*	2480	98.31	-	-	90.19	27.54	10.4	29.82	235	212	A	V
		2483.56	54.57	-19.43	74	48.54	27.53	8.32	29.82	235	212	P	V
		2487.64	42.49	-11.51	54	34.38	27.52	10.41	29.82	235	212	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BLE and WLAN 5G Band1 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11a CH36 5180 MHz + ANT2 BLE CH39 2480 MHz		4960	57.46	-16.54	74	41.15	31.26	13.8	28.75	300	0	P	H
		4960	46.48	-7.52	54	30.17	31.26	13.8	28.75	300	0	A	H
		7440	44.83	-29.17	74	50.66	36.58	16.18	58.59	100	0	P	H
		10360	47.69	-20.51	68.2	49.27	39.64	19.17	60.39	100	0	P	H
		15540	48.5	-25.5	74	47.45	37.94	24.38	61.27	100	0	P	H
													H
		4960	58.5	-15.5	74	42.19	31.26	13.8	28.75	165	309	P	V
		4960	47.33	-6.67	54	31.02	31.26	13.8	28.75	165	309	A	V
		7440	44.51	-29.49	74	50.34	36.58	16.18	58.59	100	0	P	V
		10360	47.98	-20.22	68.2	49.56	39.64	19.17	60.39	100	0	P	V
		15540	48.2	-25.8	74	47.15	37.94	24.38	61.27	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WLAN 2.4G (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11b CH 11 2462 MHz + ANT2 BLE CH39 2480 MHz	*	2462	107.39	-	-	101.33	27.58	8.29	29.81	302	246	P	H
	*	2462	103.27	-	-	97.21	27.58	8.29	29.81	302	246	A	H
		2496.64	55.93	-18.07	74	49.91	27.51	8.34	29.83	302	246	P	H
		2488.2	44.73	-9.27	54	38.71	27.52	8.33	29.83	302	246	A	H
													H
													H
	*	2462	107.35	-	-	101.29	27.58	8.29	29.81	243	144	P	V
	*	2462	103.2	-	-	97.14	27.58	8.29	29.81	243	144	A	V
		2499.68	58.92	-15.08	74	52.9	27.5	8.35	29.83	243	144	P	V
		2488.2	45.05	-8.95	54	39.03	27.52	8.33	29.83	243	144	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BLE (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11b CH 11 2462 MHz + ANT2 BLE CH39 2480 MHz	*	2480	103.96	-	-	97.92	27.54	8.32	29.82	196	141	P	H
	*	2480	97.98	-	-	89.81	27.54	10.45	29.82	196	141	A	H
		2498.36	64.04	-9.96	74	58.02	27.5	8.35	29.83	196	141	P	H
		2497.16	50.66	-3.34	54	42.5	27.51	10.48	29.83	196	141	A	H
													H
													H
	*	2480	103.56	-	-	97.52	27.54	8.32	29.82	236	217	P	V
	*	2480	97.76	-	-	89.59	27.54	10.45	29.82	236	217	A	V
		2498.24	63.2	-10.8	74	57.18	27.5	8.35	29.83	236	217	P	V
		2495.36	49.98	-4.02	54	41.83	27.51	10.47	29.83	236	217	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

IMD (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11b CH 11 2462 MHz + ANT2 BLE CH39 2480 MHz	*	2462	91.9	-	-	85.84	27.58	8.29	29.81	201	138	P	H
	*	2480	103.68	-	-	97.64	27.54	8.32	29.82	201	138	P	H
	*	2462	89.84	-	-	81.79	27.58	10.28	29.81	201	138	A	H
	*	2480	97.55	-	-	89.52	27.54	10.31	29.82	201	138	A	H
		2496.6	63.98	-10.02	74	57.96	27.51	8.34	29.83	201	138	P	H
		2495.72	51.68	-2.32	54	43.67	27.51	10.33	29.83	201	138	A	H
													H
	*	2462	101.44	-	-	95.38	27.58	8.29	29.81	400	8	P	V
	*	2480	101.51	-	-	95.47	27.54	8.32	29.82	400	8	P	V
	*	2462	99.36	-	-	91.31	27.58	10.28	29.81	400	8	A	V
	*	2480	94.84	-	-	86.81	27.54	10.31	29.82	400	8	A	V
		2496.88	62.09	-11.91	74	56.06	27.51	8.35	29.83	400	8	P	V
		2496.52	49.61	-4.39	54	41.6	27.51	10.33	29.83	400	8	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BLE and WLAN 2.4G (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11b CH 11 2462 MHz + ANT2 BLE CH39 2480 MHz		4924	46.26	-27.74	74	60.91	31.1	12.52	58.27	100	0	P	H
		4960	39.9	-34.1	74	54.34	31.26	12.56	58.26	100	0	P	H
		7386	44.23	-29.77	74	50.6	36.53	15.66	58.56	100	0	P	H
		7440	44.77	-29.23	74	51	36.58	15.78	58.59	100	0	P	H
													H
													H
		4924	47.73	-26.27	74	62.38	31.1	12.52	58.27	100	0	P	V
		4960	39.26	-34.74	74	53.7	31.26	12.56	58.26	100	0	P	V
		7386	44.2	-29.8	74	50.57	36.53	15.66	58.56	100	0	P	V
		7440	46.09	-27.91	74	52.32	36.58	15.78	58.59	100	0	P	V
		12315	52.08	-21.92	74	54.08	38.47	21.32	61.79	100	338	P	V
		12315	44.48	-9.52	54	46.48	38.47	21.32	61.79	100	338	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WLAN 2.4G (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11b CH 11 2462 MHz + ANT2 BT CH78 2480 MHz	*	2462	107.43	-	-	101.37	27.58	8.29	29.81	211	236	P	H
	*	2462	103.98	-	-	97.92	27.58	8.29	29.81	211	236	A	H
		2495.4	56.12	-17.88	74	50.1	27.51	8.34	29.83	211	236	P	H
		2486.72	46.93	-7.07	54	40.89	27.53	8.33	29.82	211	236	A	H
													H
													H
	*	2462	106.48	-	-	100.42	27.58	8.29	29.81	243	132	P	V
	*	2462	102.88	-	-	96.82	27.58	8.29	29.81	243	132	A	V
		2498.72	58.91	-15.09	74	52.89	27.5	8.35	29.83	243	132	P	V
		2496.8	47.23	-6.77	54	41.21	27.51	8.34	29.83	243	132	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BT (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11b CH 11 2462 MHz + ANT2 BT CH78 2480 MHz	*	2480	101.89	-	-	95.85	27.54	8.32	29.82	290	307	P	H
	*	2480	77.13	-	-	54	-	-	-	-	-	A	H
		2498.36	61.78	-12.22	74	55.76	27.5	8.35	29.83	290	307	P	H
		2498.36	37.02	-16.98	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	102.43	-	-	96.39	27.54	8.32	29.82	266	218	P	V
	*	2480	77.67	-	-	-	-	-	-	-	-	A	V
		2495.12	62.11	-11.89	74	56.09	27.51	8.34	29.83	266	218	P	V
		2495.12	37.35	-16.65	54	-	-	-	-	-	-	A	V
													V
													V

Remark

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

IMD (Band edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11b CH 11 2462 MHz + ANT2 BT CH78 2480 MHz	*	2462	99.33	-	-	93.27	27.58	8.29	29.81	399	116	P	H
	*	2480	99.23	-	-	93.19	27.54	8.32	29.82	399	116	P	H
	*	2462	96.19	-	-	88.99	27.58	9.43	29.81	399	116	A	H
	*	2480	91.34	-	-	84.16	27.54	9.46	29.82	399	116	A	H
		2496.92	61.14	-12.86	74	55.11	27.51	8.35	29.83	399	116	P	H
		2496.56	50.13	-3.87	54	42.97	27.51	9.48	29.83	399	116	A	H
													H
	*	2462	102.12	-	-	96.06	27.58	8.29	29.81	400	360	P	V
	*	2480	99.64	-	-	93.6	27.54	8.32	29.82	400	360	P	V
	*	2462	99.26	-	-	92.06	27.58	9.43	29.81	400	360	A	V
	*	2480	91.74	-	-	84.56	27.54	9.46	29.82	400	360	A	V
		2498.2	61.54	-12.46	74	55.52	27.5	8.35	29.83	400	360	P	V
		2493.84	49.29	-4.71	54	42.13	27.51	9.48	29.83	400	360	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

BT and WLAN 2.4G (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
Simultaneously		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
ANT1 802.11b CH 11 2462 MHz + ANT2 BT CH78 2480 MHz		3285	45.35	-28.65	74	66.23	28.29	10.84	60.01	100	0	P	H
		4110	43.74	-30.26	74	61.47	29.7	11.6	59.03	100	0	P	H
		4924	46.21	-27.79	74	60.86	31.1	12.52	58.27	100	0	P	H
		4960	39.33	-34.67	74	53.77	31.26	12.56	58.26	100	0	P	H
		7386	44.27	-29.73	74	50.64	36.53	15.66	58.56	100	0	P	H
		7440	45.03	-28.97	74	51.26	36.58	15.78	58.59	100	0	P	H
													H
		3285	44.8	-29.2	74	65.68	28.29	10.84	60.01	100	0	P	V
		4095	44.09	-29.91	74	61.87	29.69	11.59	59.06	100	0	P	V
		4924	47.71	-26.29	74	62.36	31.1	12.52	58.27	100	0	P	V
		4960	38.15	-35.85	74	52.59	31.26	12.56	58.26	100	0	P	V
		7386	44.57	-29.43	74	50.94	36.53	15.66	58.56	100	0	P	V
		7440	44.83	-29.17	74	51.06	36.58	15.78	58.59	100	0	P	V
		3285	44.8	-29.2	74	65.68	28.29	10.84	60.01	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average 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.
-	The signal is **Unintentional Radiators**.
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 Ant. Simultaneously	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 43.54 (dBμV/m)

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

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

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

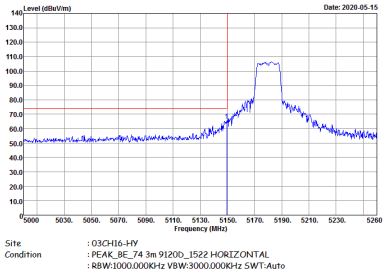
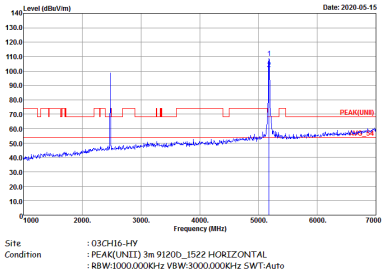
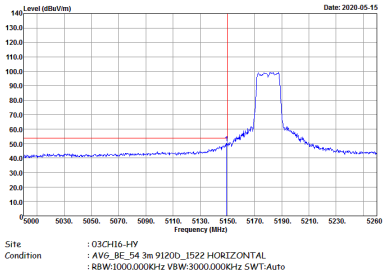
Appendix B. Radiated Spurious Emission

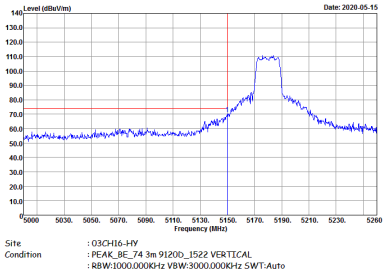
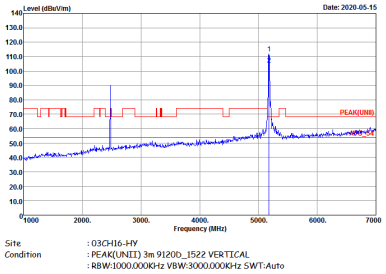
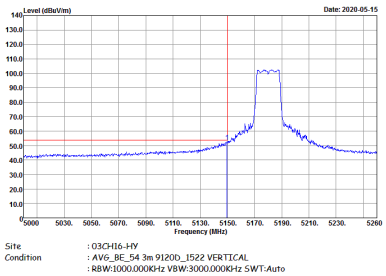
Test Engineer :	Andy Yang and CR Liao	**Temperature :**	20~25°C
		Relative Humidity :	50~60%

Note symbol

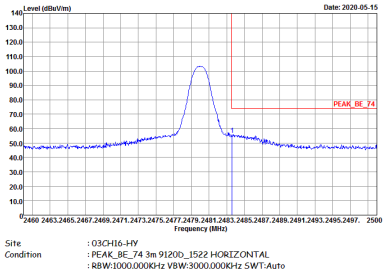
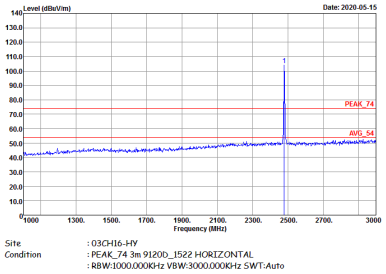
-L	**Low channel location**
-R	**High channel location**

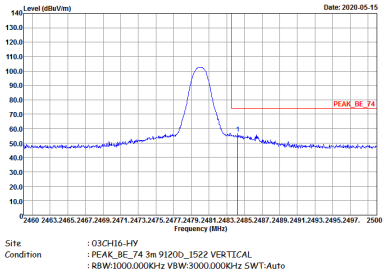
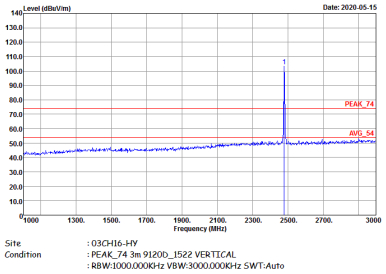
WLAN 5G Band 1 (Band Edge @ 3m)

ANT	Ant 2_802.11a CH36 5180 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		Left blank

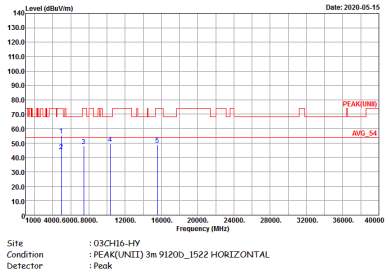
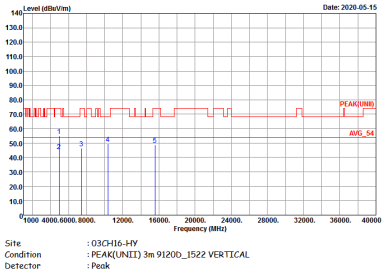
ANT	Ant 2_802.11a CH36 5180 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		Left blank

BT (Band Edge @ 3m)

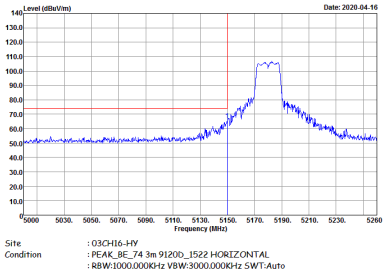
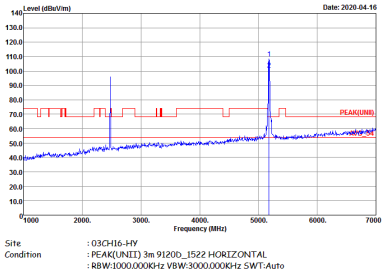
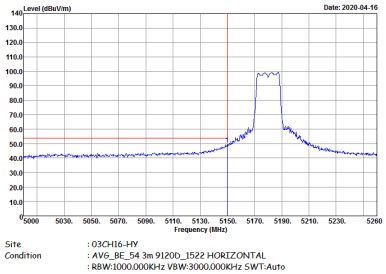
ANT	Ant 2_802.11a CH36 5180 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		

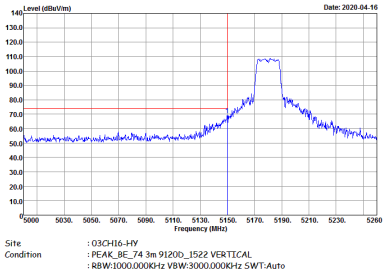
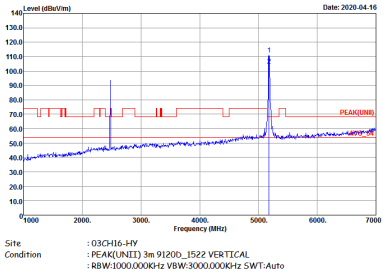
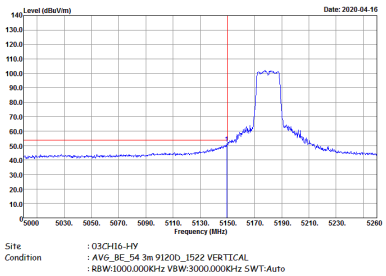
ANT	Ant 2_802.11a CH36 5180 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		

BT and WLAN 5G Band 1 (Harmonic @ 3m)

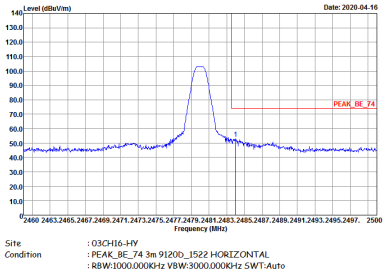
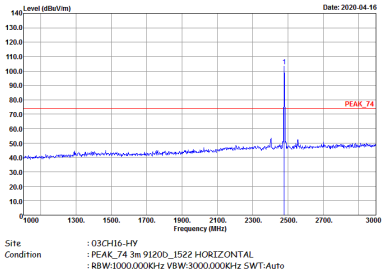
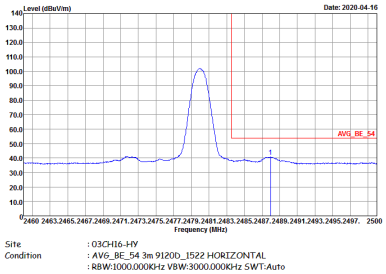
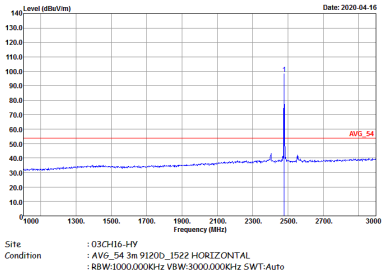
ANT	Ant 2_802.11a CH36 5180 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Vertical
Peak Avg.		

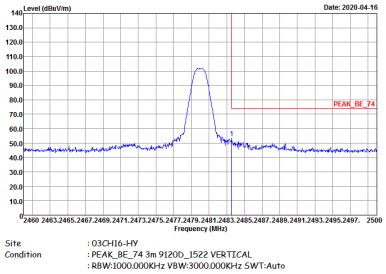
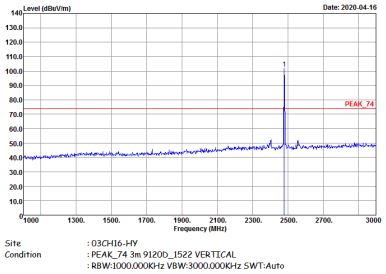
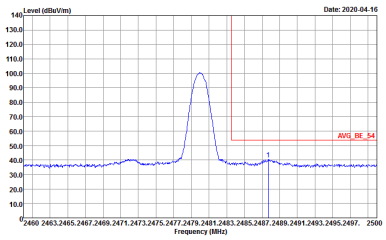
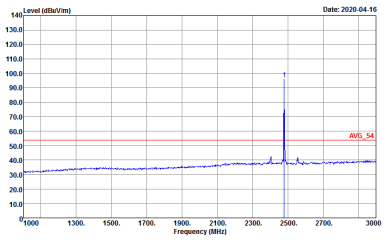
WLAN 5G Band 1 (Band Edge @ 3m)

ANT	Ant 2_802.11a CH36 5180 MHz + Ant 1_BLE Ch39 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		Left blank

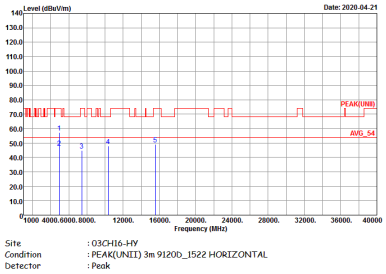
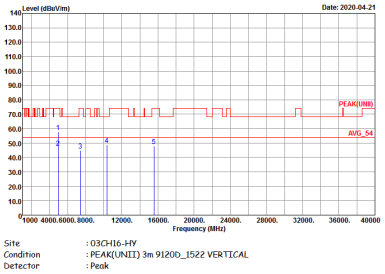
ANT	Ant 2_802.11a CH36 5180 MHz + Ant 1_BLE Ch39 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		Left blank

BLE (Band Edge @ 3m)

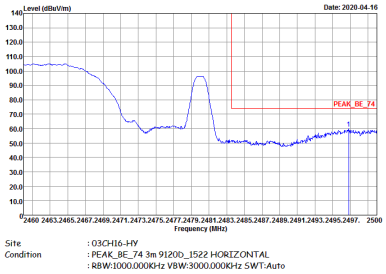
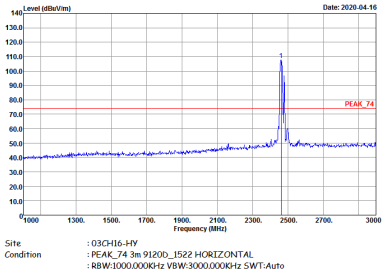
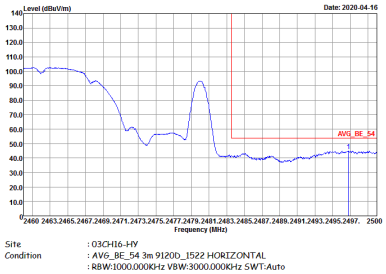
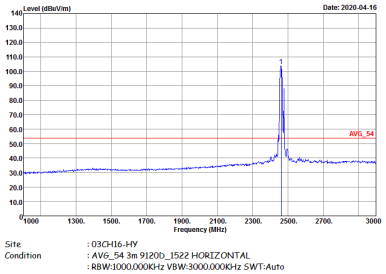
ANT	Ant 2_802.11a CH36 5180 MHz + Ant 1_BLE Ch39 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

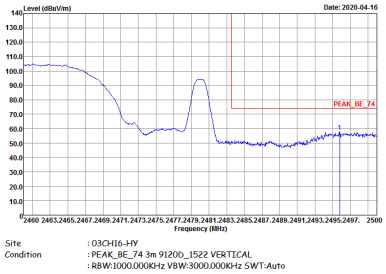
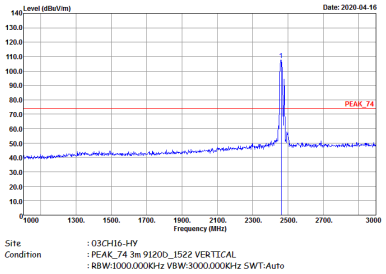
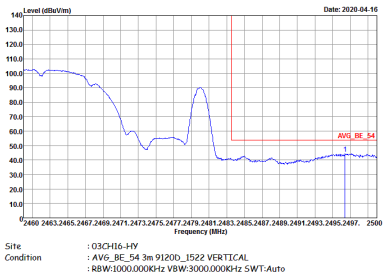
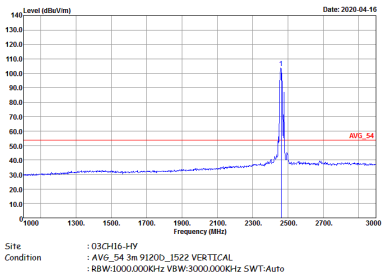
ANT	Ant 2_802.11a CH36 5180 MHz + Ant 1_BLE Ch39 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

BLE and WLAN 5G Band 1 (Harmonic @ 3m)

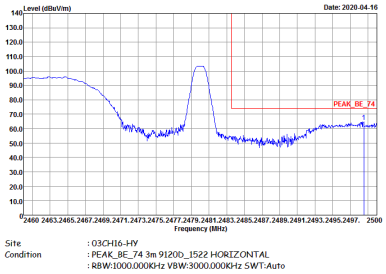
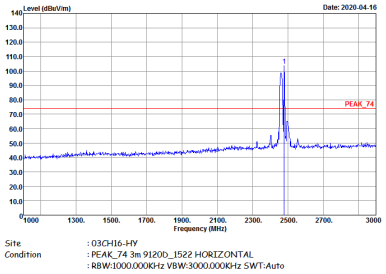
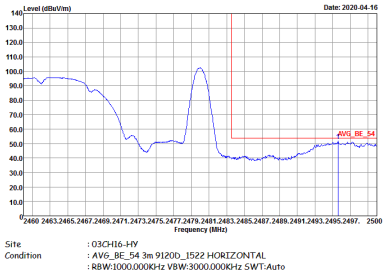
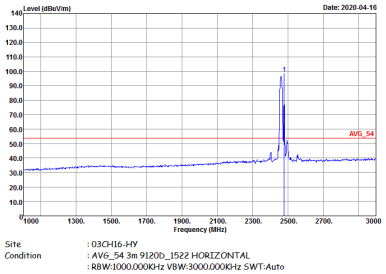
ANT	Ant 2_802.11a CH36 5180 MHz + Ant 1_BLE Ch39 2480 MHz	
Simultaneously	Horizontal	Vertical
Peak Avg.		

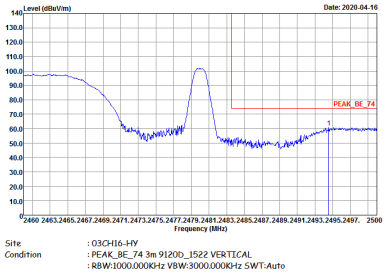
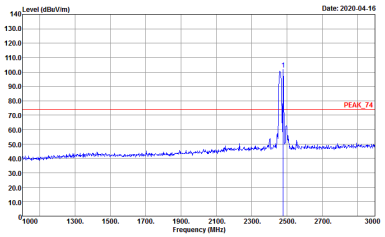
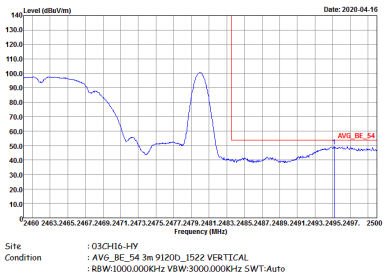
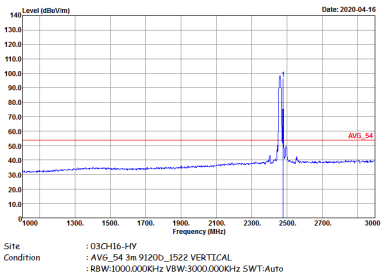
WLAN 2.4G (Band Edge @ 3m)

ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BLE CH39 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

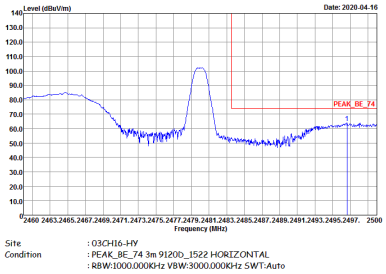
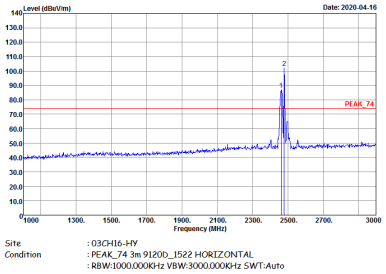
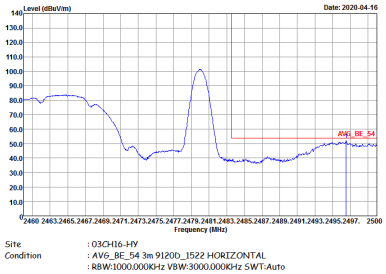
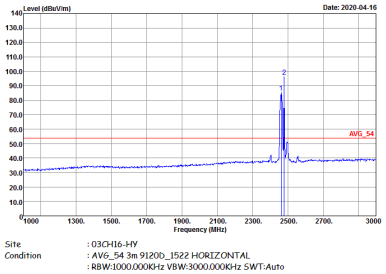
ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BLE CH39 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		

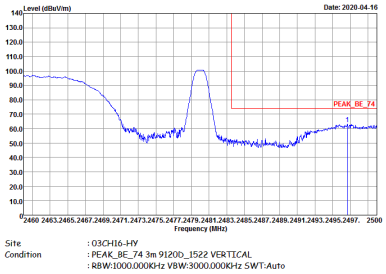
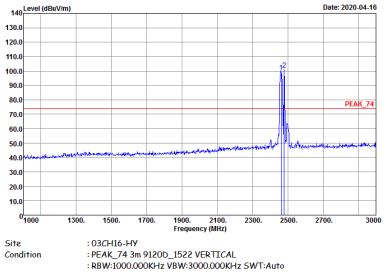
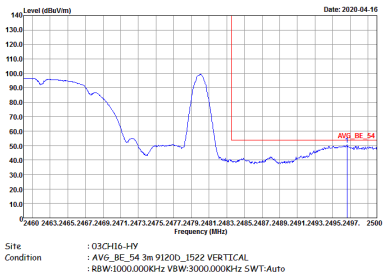
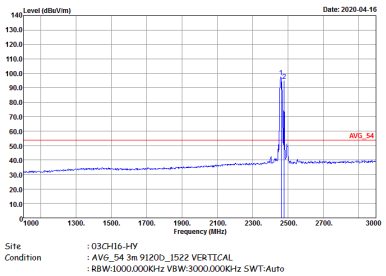
BLE (Band Edge @ 3m)

ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BLE CH39 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

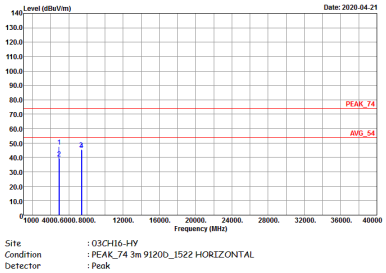
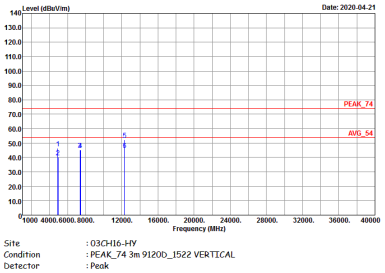
ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BLE CH39 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		Left blank 
Avg.		

IMD (Band Edge @ 3m)

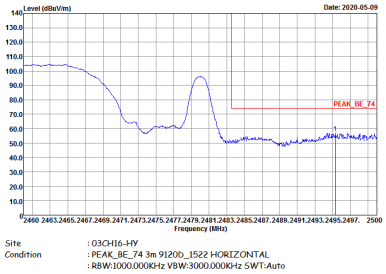
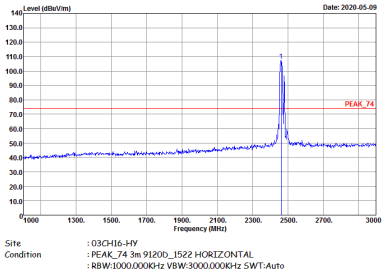
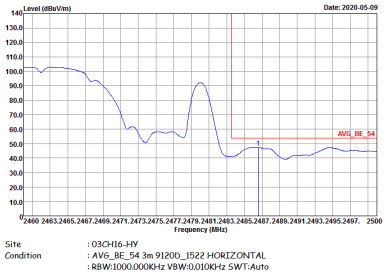
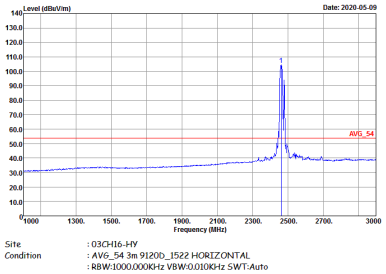
ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BLE CH39 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

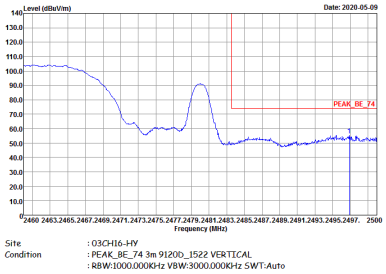
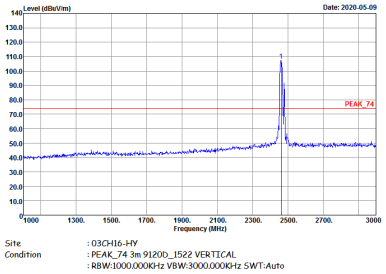
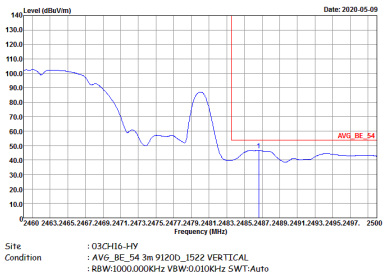
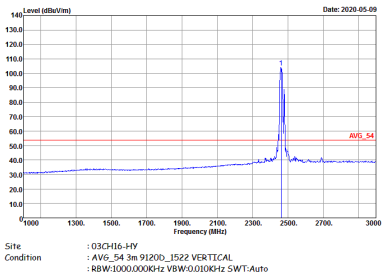
ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BLE CH39 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		

BLE and WLAN 2.4G (Harmonic @ 3m)

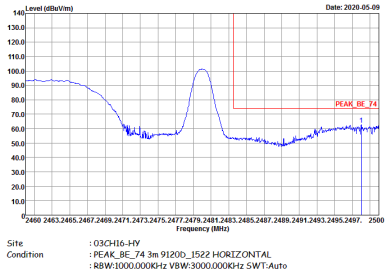
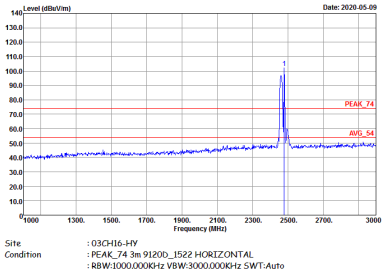
ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BLE CH39 2480 MHz	
Simultaneously	Horizontal	Vertical
Peak Avg.		

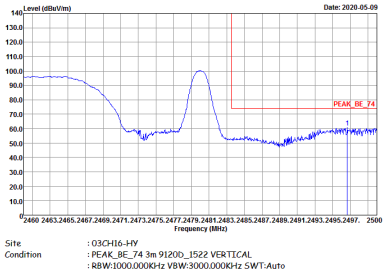
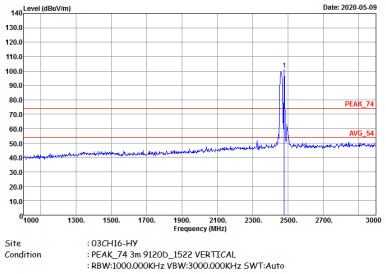
WLAN 2.4G (Band Edge @ 3m)

ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

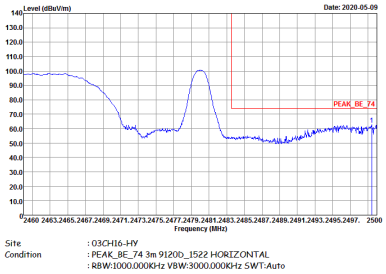
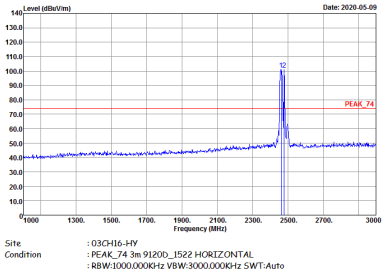
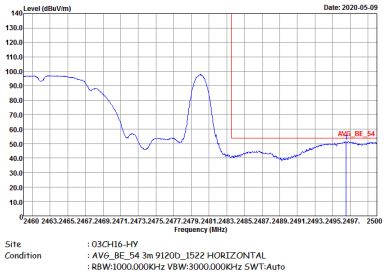
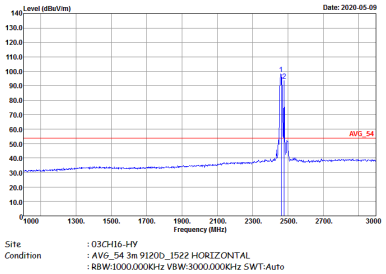
ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		

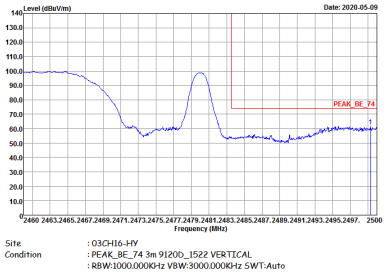
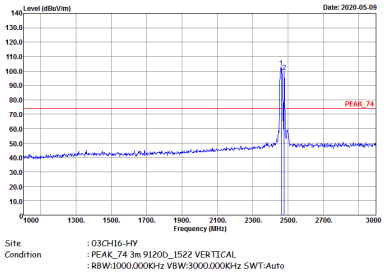
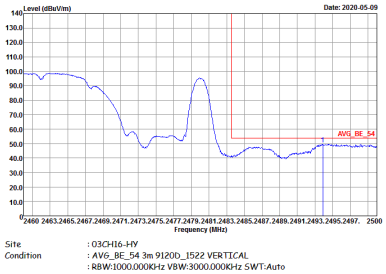
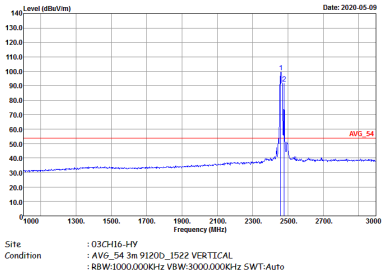
BT (Band Edge @ 3m)

ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		

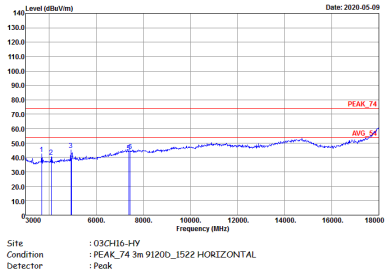
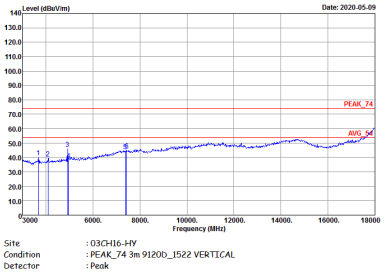
ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		

IMD (Band Edge @ 3m)

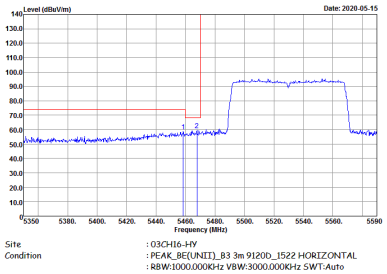
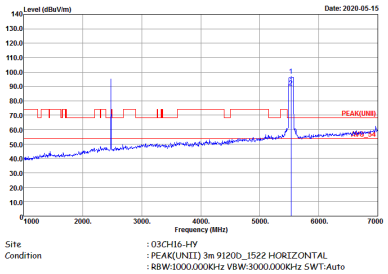
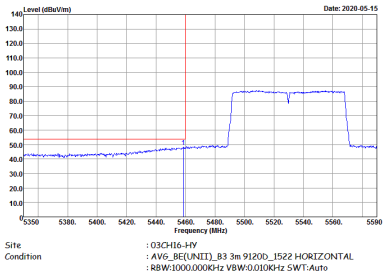
ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

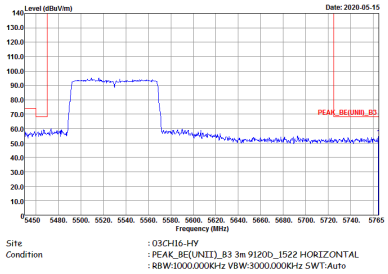
ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

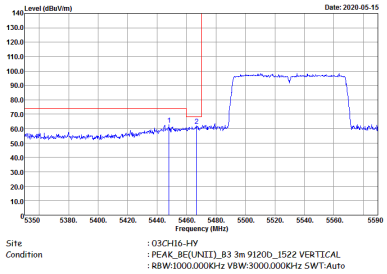
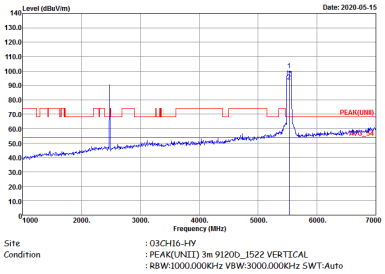
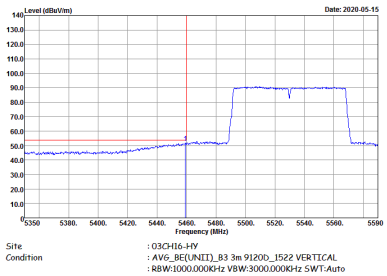
BT and WLAN 2.4G (Harmonic @ 3m)

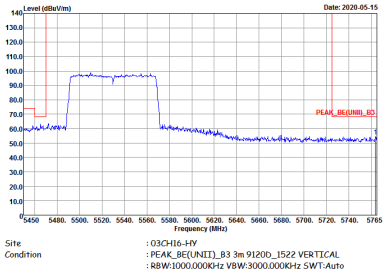
ANT	Ant 2_802.11b CH11 2462 MHz + Ant 1_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Vertical
Peak Avg.		

WLAN 5G Band 3 (Band Edge @ 3m)

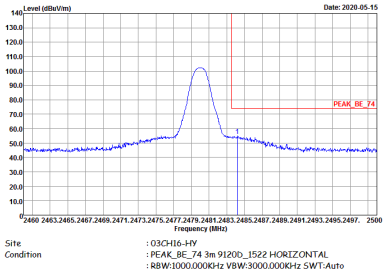
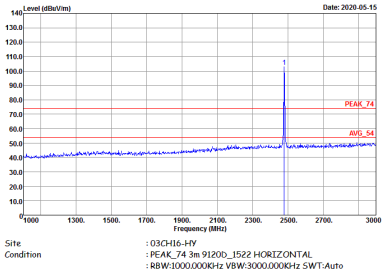
ANT	Ant 1_802.11ac VHT80 CH106 5530 MHz + Ant 2_BT Ch78 2480 MHz - L	
Simultaneously	**Horizontal**	**Fundamental**
Peak		
Avg.		Left blank

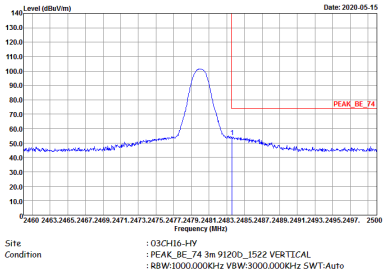
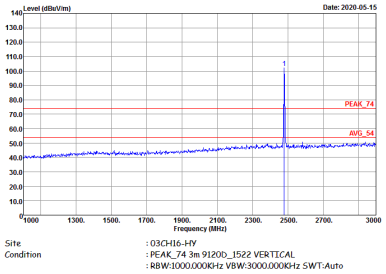
ANT	Ant 1_802.11ac VHT80 CH106 5530 MHz + Ant 2_BT Ch78 2480 MHz - R	
Simultaneously	**Horizontal**	**Fundamental**
Peak		Left blank

ANT	Ant 1_802.11ac VHT80 CH106 5530 MHz + Ant 2_BT Ch78 2480 MHz - L	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		Left blank

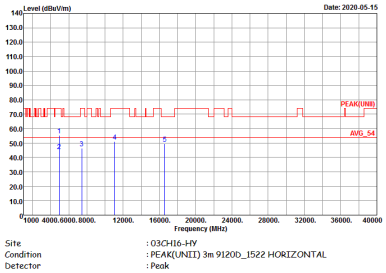
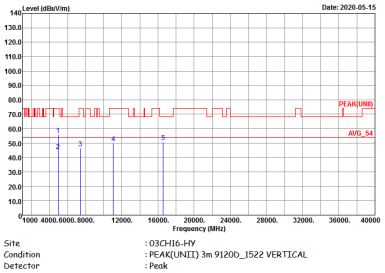
ANT	Ant 1_802.11ac VHT80 CH106 5530 MHz + Ant 2_BT Ch78 2480 MHz - R	
Simultaneously	**Vertical**	**Fundamental**
Peak		Left blank

BT (Band Edge @ 3m)

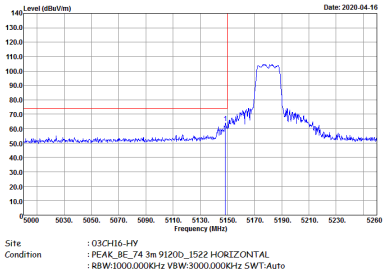
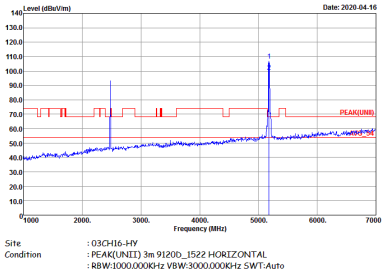
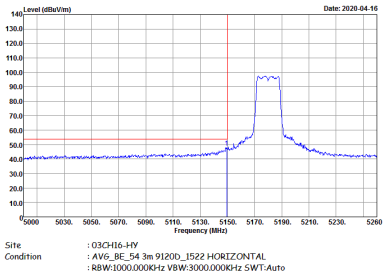
ANT	Ant 1_802.11ac VHT80 CH106 5530 MHz + Ant 2_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		

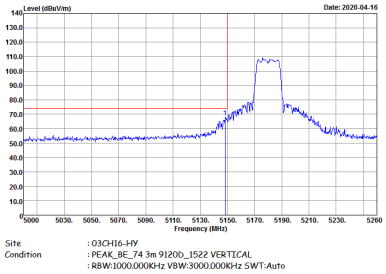
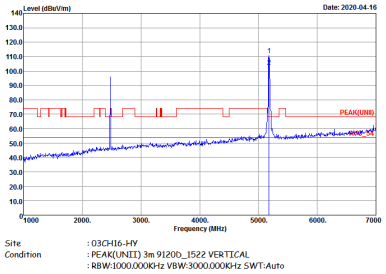
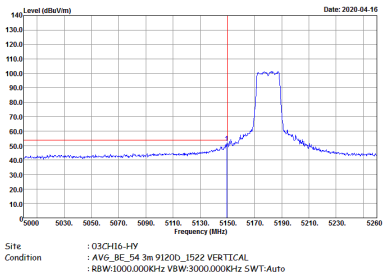
ANT	Ant 1_802.11ac VHT80 CH106 5530 MHz + Ant 2_BT Ch78 2480 MHz	
Simultaneously	Vertical	Fundamental
Peak		

BT and WLAN 5G Band3 (Harmonic @ 3m)

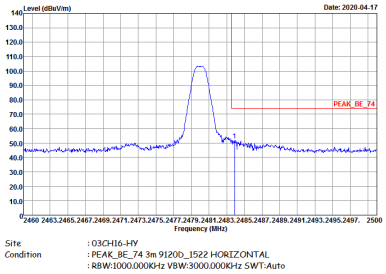
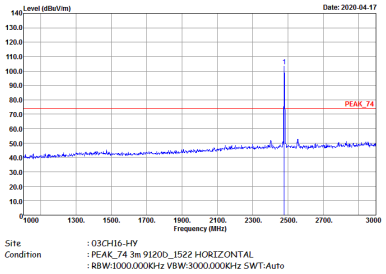
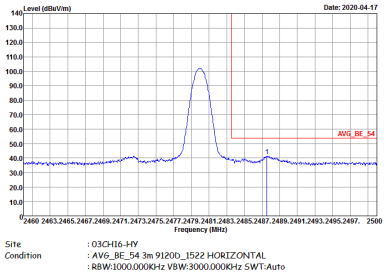
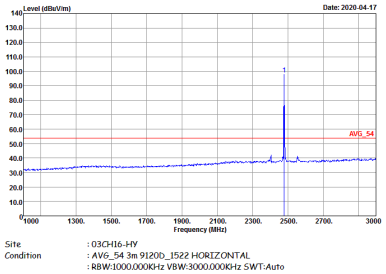
ANT	Ant 1_802.11ac VHT80 CH106 5530 MHz + Ant 2_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Vertical
Peak Avg.		

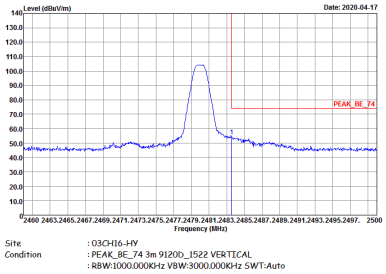
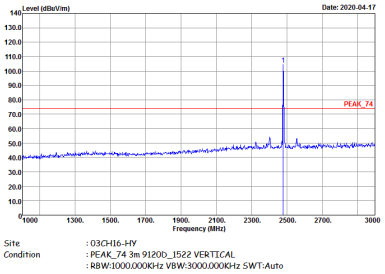
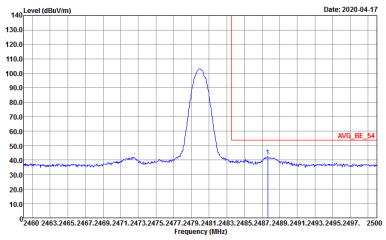
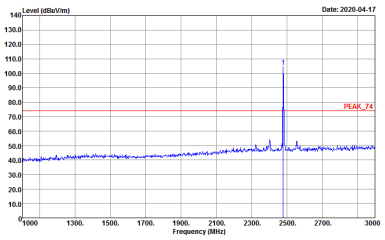
WLAN 5G Band 1 (Band Edge @ 3m)

ANT	Ant 1_802.11a CH36 5180 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		Left blank

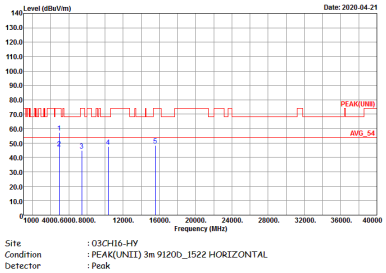
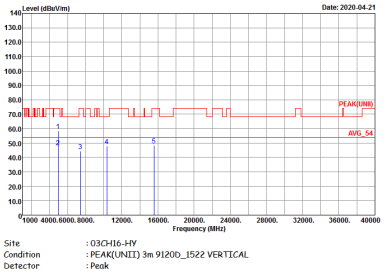
ANT	Ant 1_802.11a CH36 5180 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		Left blank

BLE (Band Edge @ 3m)

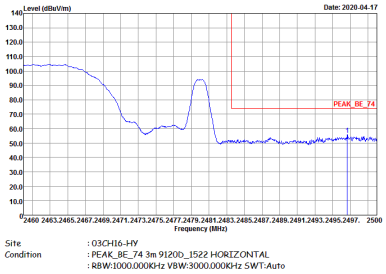
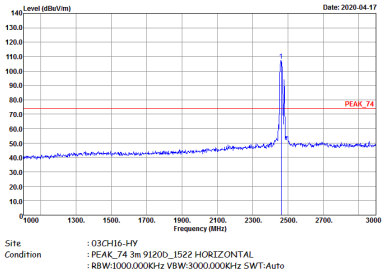
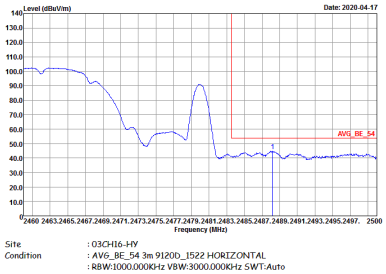
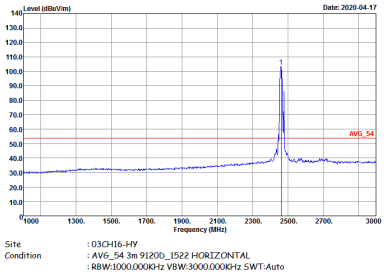
ANT	Ant 1_802.11a CH36 5180 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

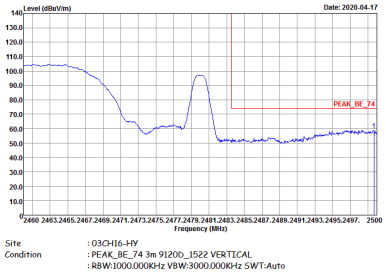
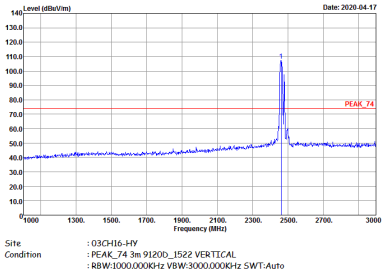
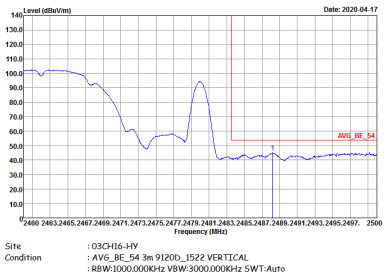
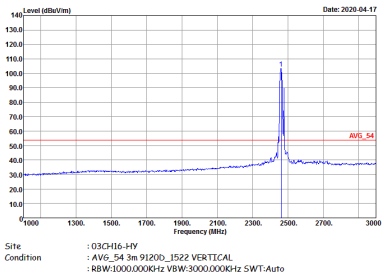
ANT	Ant 1_802.11a CH36 5180 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

BLE and WLAN 5G Band1 (Harmonic @ 3m)

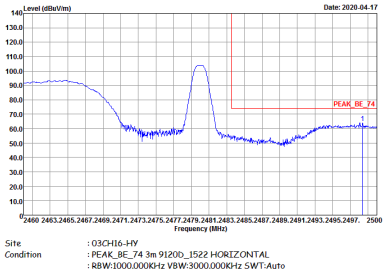
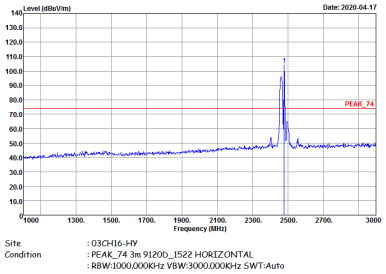
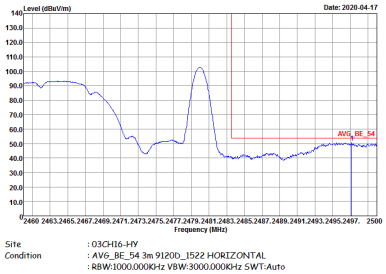
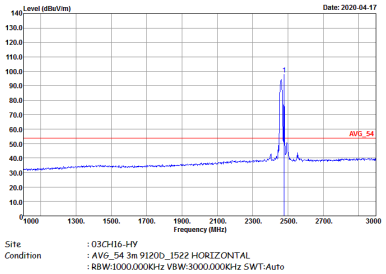
ANT	Ant 1_802.11a CH36 5180 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	Horizontal	Vertical
Peak Avg.		

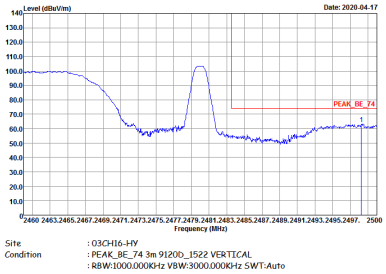
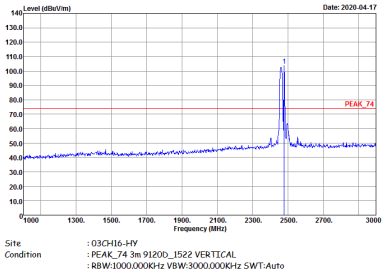
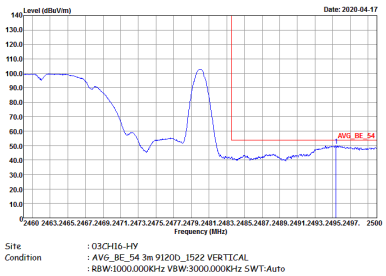
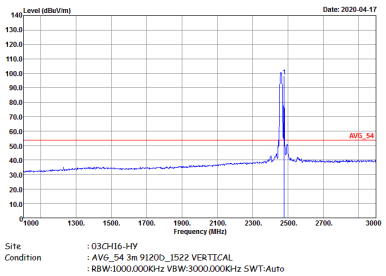
WLAN 2.4G (Band Edge @ 3m)

ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

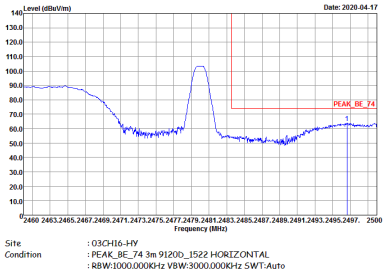
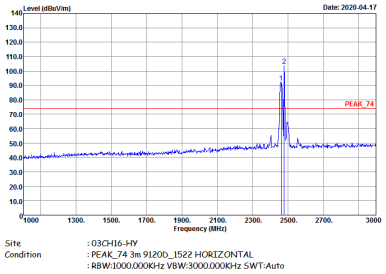
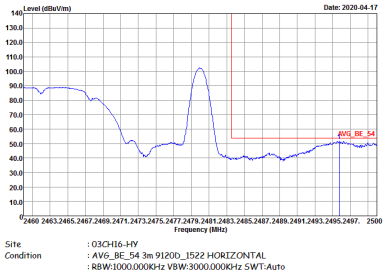
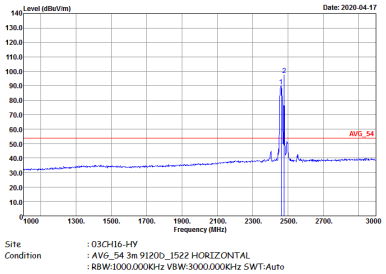
ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		

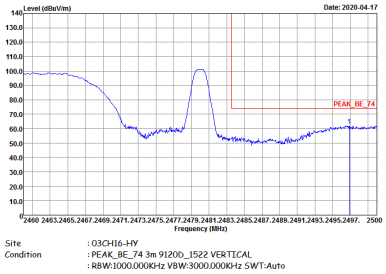
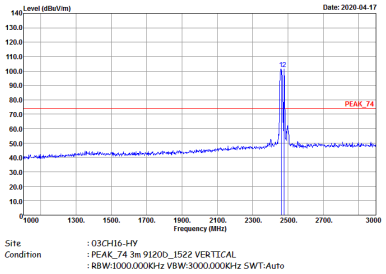
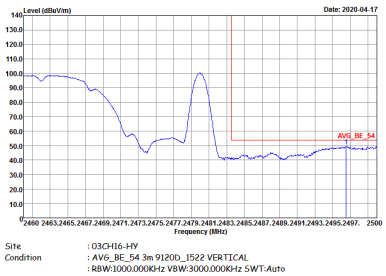
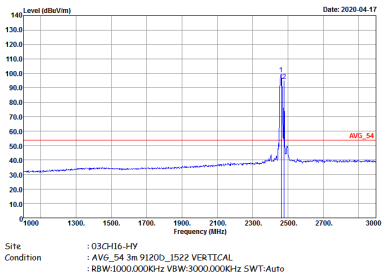
BLE (Band Edge @ 3m)

ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

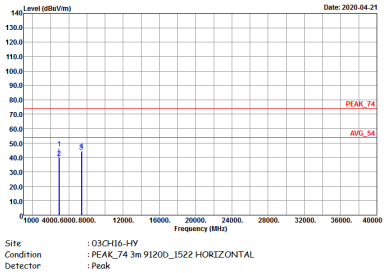
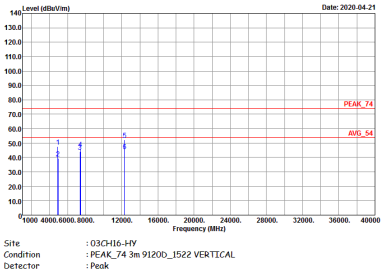
ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		

IMD (Band Edge @ 3m)

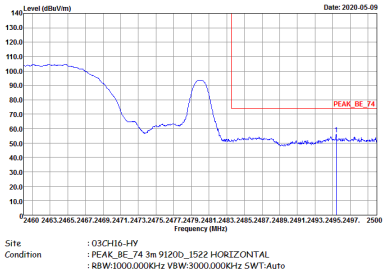
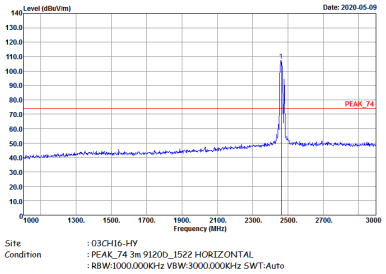
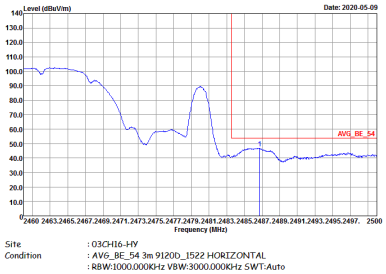
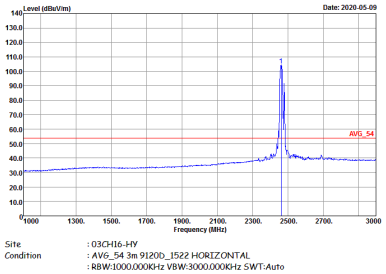
ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

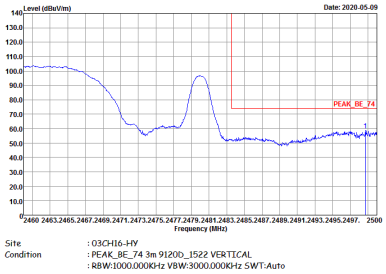
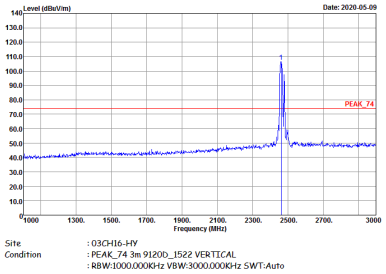
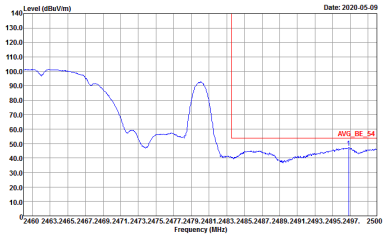
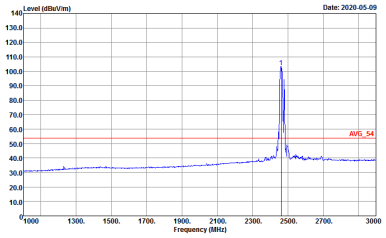
ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BLE Ch39 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		

BLE and WLAN 2.4G (Harmonic @ 3m)

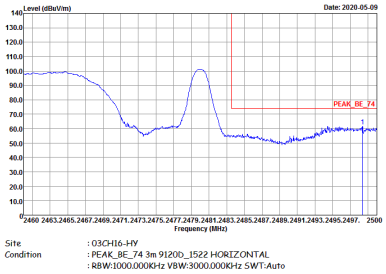
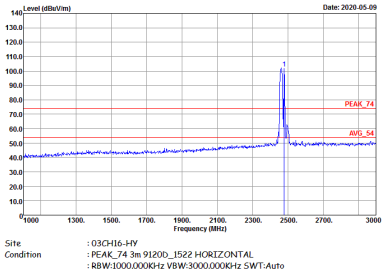
ANT	BLE_Tx_Ch39 + 11b_Tx_Ch11	
Simultaneously	Horizontal	Vertical
Peak Avg.		

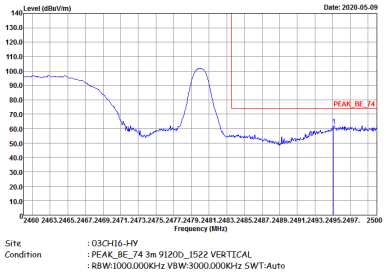
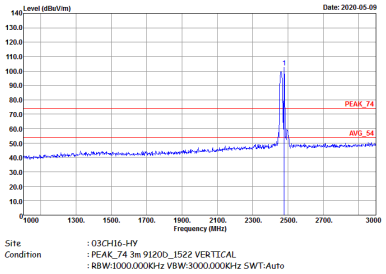
WLAN 2.4G (Band Edge @ 3m)

ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

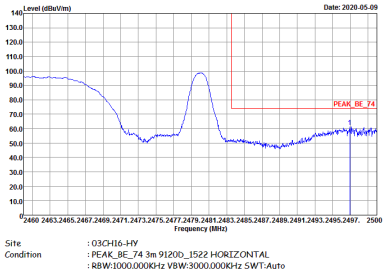
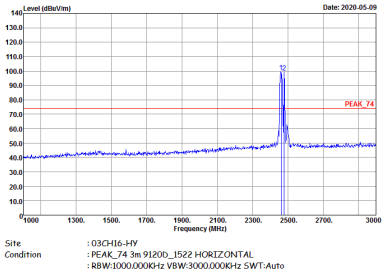
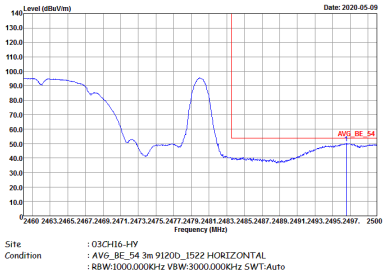
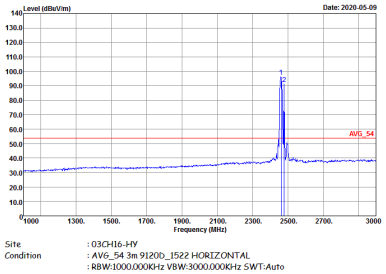
ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BT Ch78 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

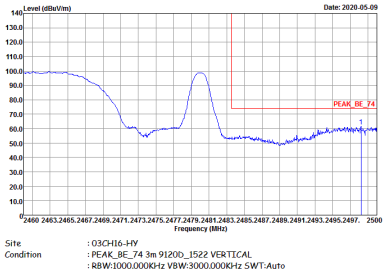
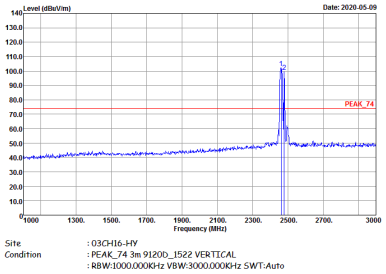
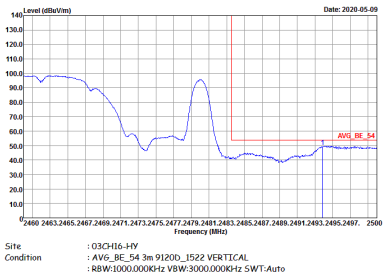
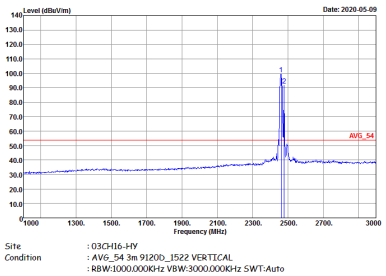
BT (Band Edge @ 3m)

ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		

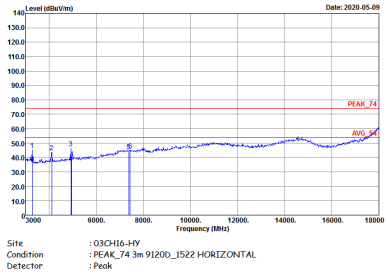
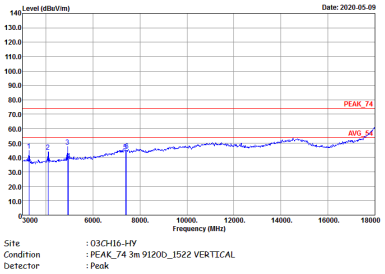
ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BT Ch78 2480 MHz	
Simultaneously	Vertical	Fundamental
Peak		

IMD (Band Edge @ 3m)

ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Fundamental
Peak		
Avg.		

ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BT Ch78 2480 MHz	
Simultaneously	**Vertical**	**Fundamental**
Peak		
Avg.		

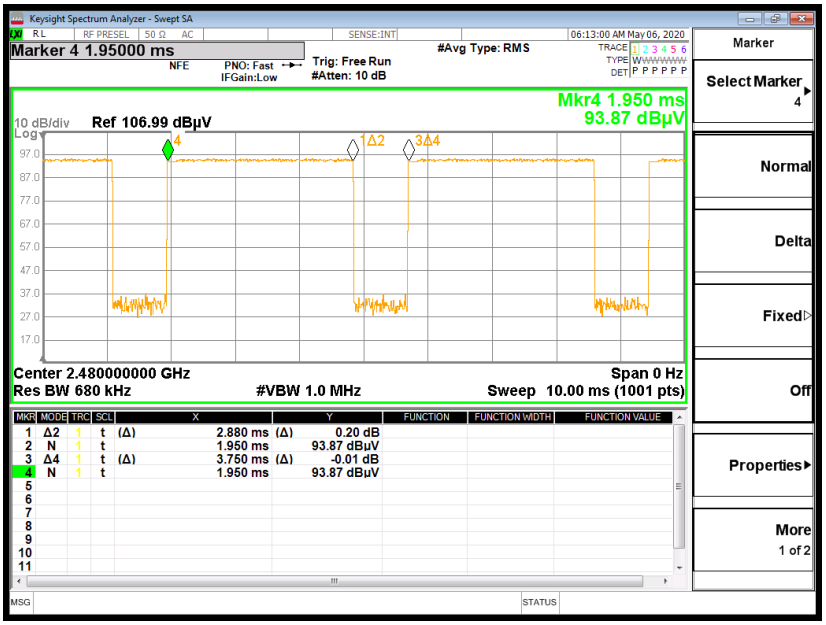
BT and WLAN 2.4G (Harmonic @ 3m)

ANT	Ant 1_802.11b CH11 2462 MHz + Ant 2_BT Ch78 2480 MHz	
Simultaneously	Horizontal	Vertical
Peak Avg.		

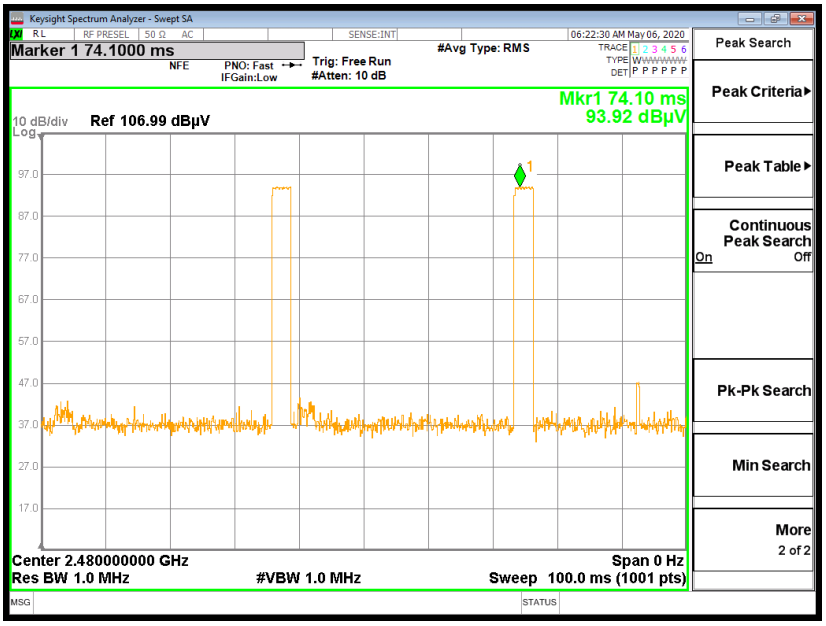
Appendix C. Duty Cycle Plots

<Ant. 1>

3DH5 on time (One Pulse) Plot on Channel 78



on time (Count Pulses) Plot on Channel 78

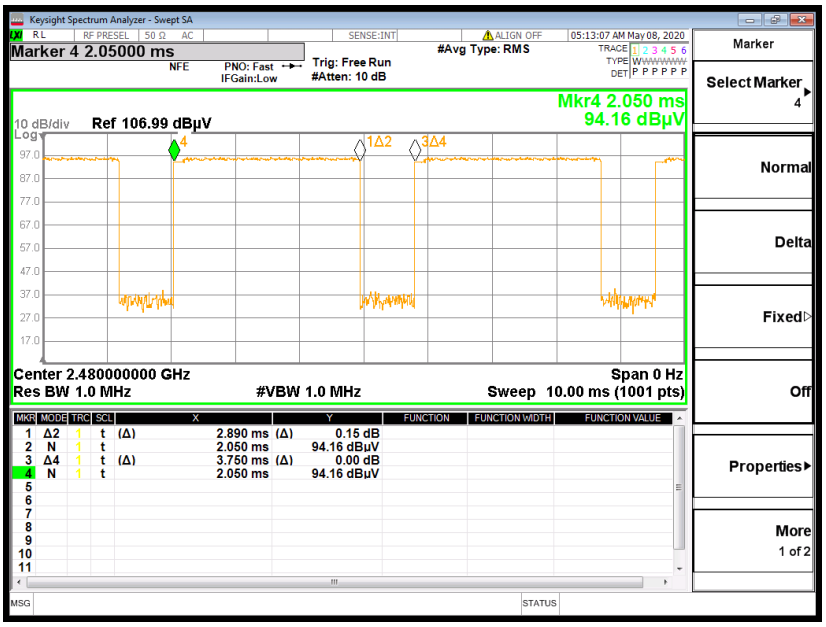


Note:

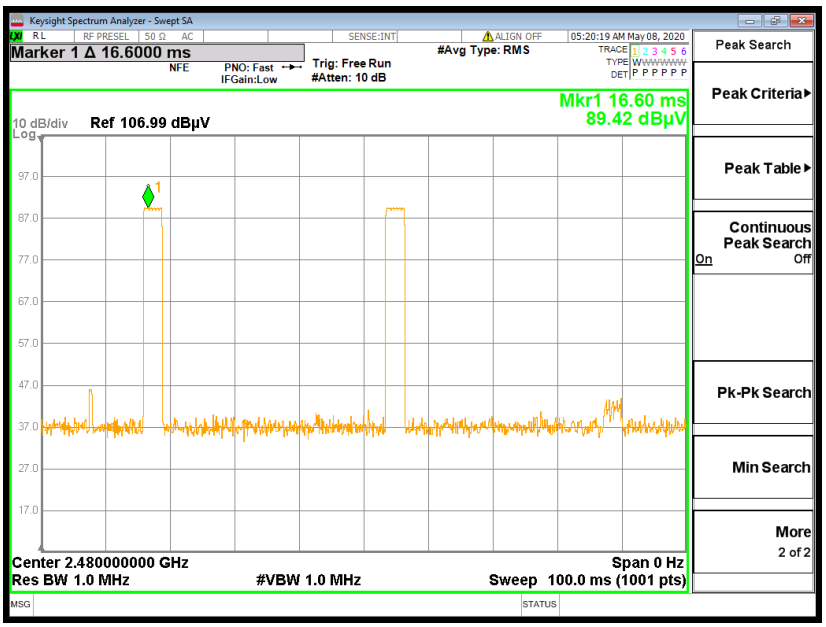
1. Worst case Duty cycle = on time/100 milliseconds = 2 * 2.88 / 100 = 5.76 %
2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -24.79 dB
3. 3DH5 has the highest duty cycle worst case and is reported.

<Ant. 2>

3DH5 on time (One Pulse) Plot on Channel 78



on time (Count Pulses) Plot on Channel 78



Note:

1. Worst case Duty cycle = on time/100 milliseconds = 2 * 2.89 / 100 = 5.76 %
2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -24.76 dB
3. 3DH5 has the highest duty cycle worst case and is reported.

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the period to have DH5 packet completing one hopping sequence is

2.88 ms x 20 channels = 57.6 ms

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. [100ms / 57.6ms] = 2 hops

Thus, the maximum possible ON time:

2.88 ms x 2 = 5.76 ms

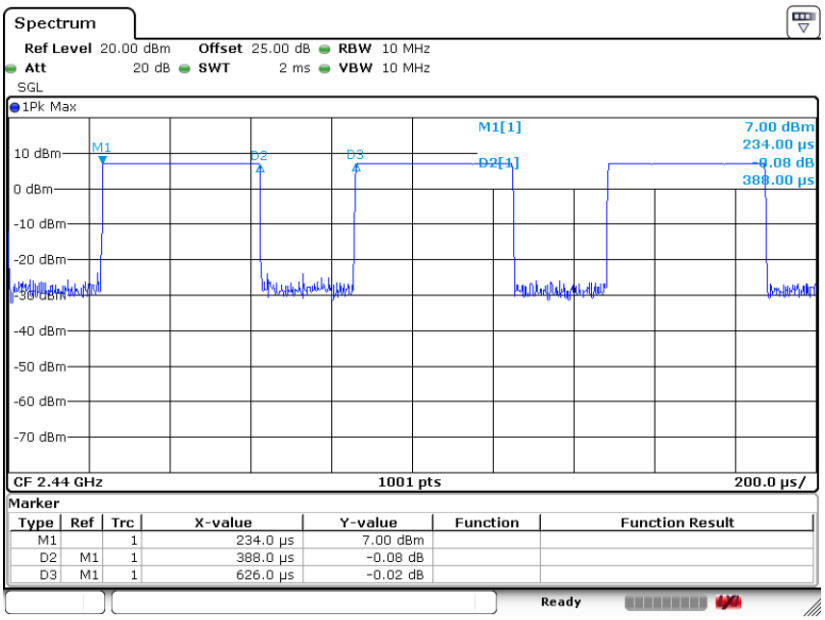
Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

20 x log(5.76 ms/100ms) = -24.79 dB

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
1	Bluetooth -LE	61.98	388	2.58	3kHz	2.08
2	Bluetooth -LE	61.98	388	2.58	3kHz	2.08
1	802.11b	100.00	-	-	10Hz	0.00
2	802.11b	100.00	-	-	10Hz	0.00
1	802.11a	100.00	-	-	10Hz	0.00
2	802.11a	100.00	-	-	10Hz	0.00
1	5GHz 802.11ac VHT80	100.00	-	-	10Hz	0.00

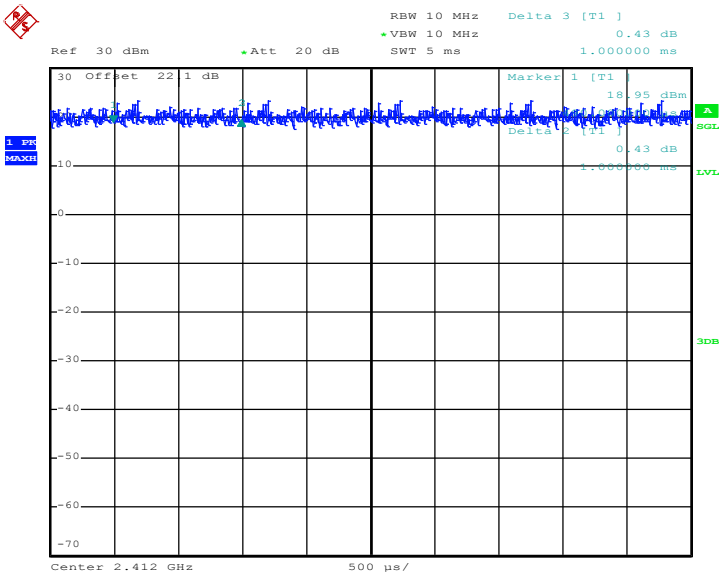
<Ant. 1>

Bluetooth – LE



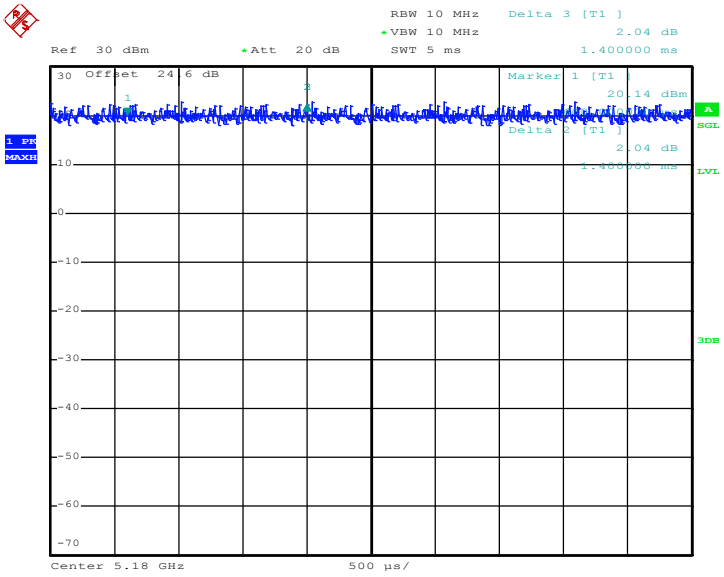
Date: 29.APR.2020 12:00:10

802.11b



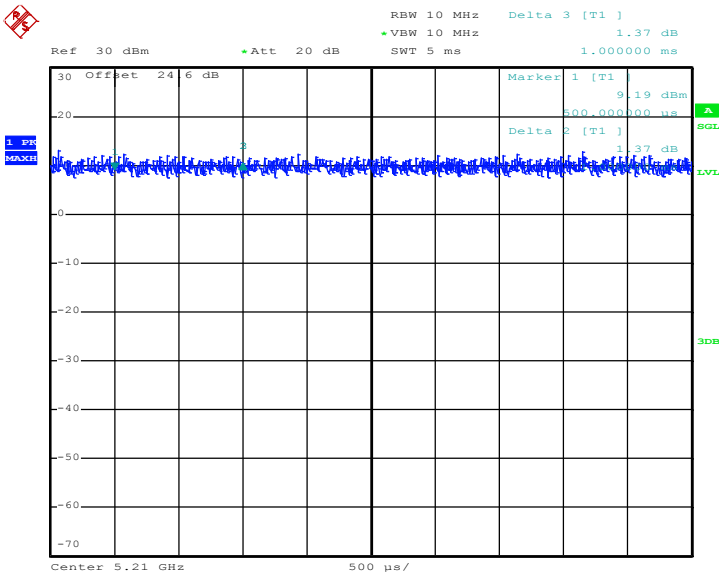
Date: 15.FEB.2020 00:04:00

802.11a



Date: 18.FEB.2020 01:01:32

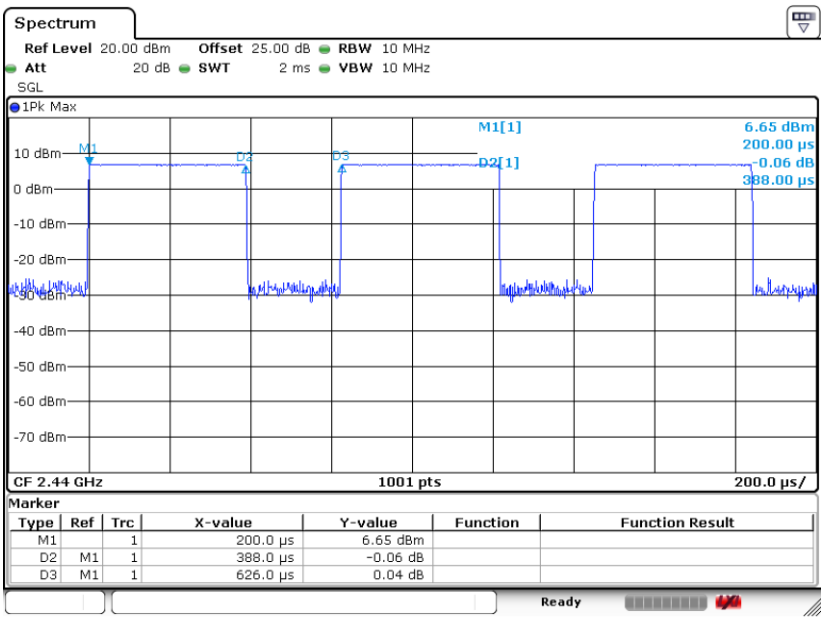
802.11ac VHT80



Date: 18.FEB.2020 02:11:14

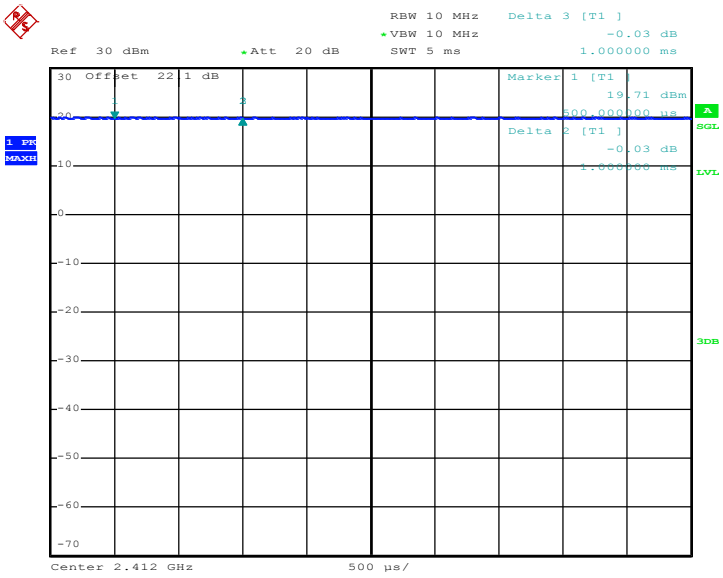
<Ant. 2>

Bluetooth – LE



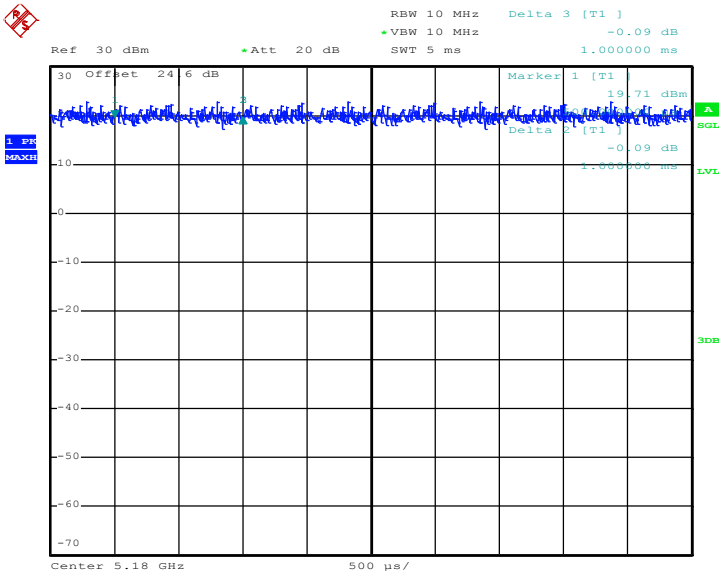
Date: 29.APR.2020 13:25:54

802.11b



Date: 15.FEB.2020 00:25:55

802.11a



Date: 18.FEB.2020 02:21:46

THE END