FCC RADIO TEST REPORT

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

The product completed on Jul. 13, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

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

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

Eric Shih

TESTING
NVLAP LAB CODE 600156-0

Approved by: Eric Shih / Manager

Sporton International (Shenzhen) Inc.

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City Guangdong Province 518055 China

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History of this test report

Report No.	Version	Description	Issued Date
FR840308-01D	01	Initial issue of report	Aug. 02, 2018

Summary of Test Result

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

Reviewed by: Joseph Lin

Report Producer: Natasha Hsieh

1 General Description

1.1 Product Feature of Equipment Under Test

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

1.2 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz
Number of Channels	40
Carrier Frequency of Each Channel	40 Channel (37 hopping + 3 advertising channel)
Antenna Type / Gain	**Ant. 1:** Fixed Internal Antenna type with gain 2.10 dBi **Ant. 2:** Fixed Internal Antenna type with gain 1.90 dBi
Type of Modulation	Bluetooth LE : GFSK

1.3 Modification of EUT

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

1.4 Testing Location

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

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

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

1.5 Applicable Standards

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

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

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

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	0	2402	21	2444
	1	2404	22	2446
	2	2406	23	2448
	3	2408	24	2450
	4	2410	25	2452
	5	2412	26	2454
	6	2414	27	2456
	7	2416	28	2458
	8	2418	29	2460
	9	2420	30	2462
	10	2422	31	2464
	11	2424	32	2466
	12	2426	33	2468
	13	2428	34	2470
	14	2430	35	2472
	15	2432	36	2474
	16	2434	37	2476
	17	2436	38	2478
	18	2438	39	2480
	19	2440	-	-
	20	2442	-	-

2.2 Test Mode

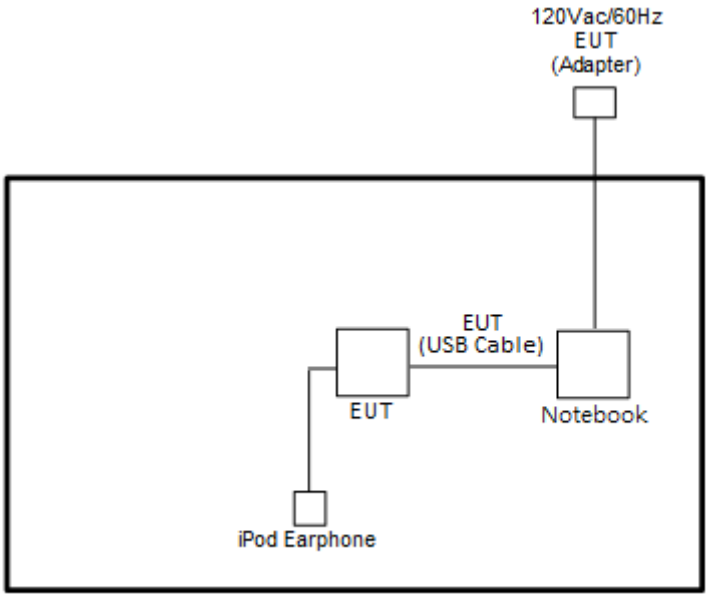
a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is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

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases	
Test Item	**Data Rate / Modulation**
	Bluetooth – LE / GFSK
Radiated Test Cases	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps Mode 4: Bluetooth Tx CH00_2402 MHz_2Mbps Mode 5: Bluetooth Tx CH19_2440 MHz_2Mbps Mode 6: Bluetooth Tx CH39_2480 MHz_2Mbps

2.3 Connection Diagram of Test System

<Bluetooth – LE Tx Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	iPhone Earphone	Apple	A1387	FCC DoC	UnShielded, 1.2m	N/A
2.	Notebook	DELL	Latitude E3340	FCC DoC/ Contains FCC ID: PD97260NGU	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

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

3 Test Result

3.1 Radiated Band Edges and Spurious Emission Measurement

3.1.1 Limit of Radiated Band Edges and Spurious Emission

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

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

3.1.2 Measuring Instruments

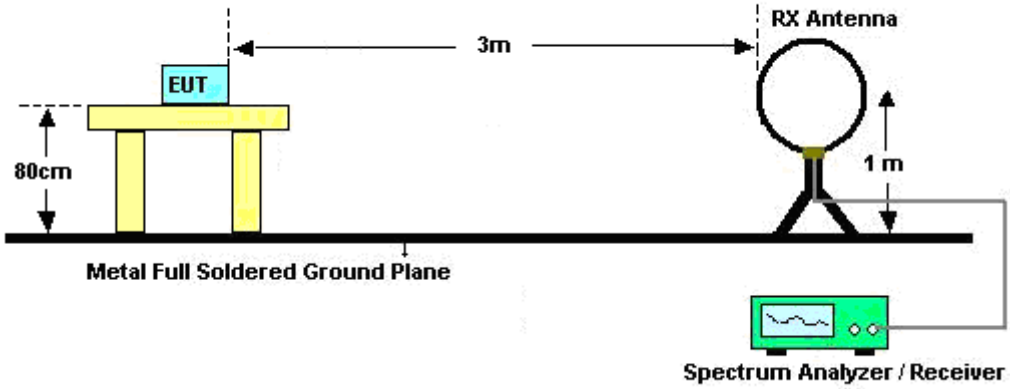
See list of measuring equipment of this test report.

3.1.3 Test Procedures

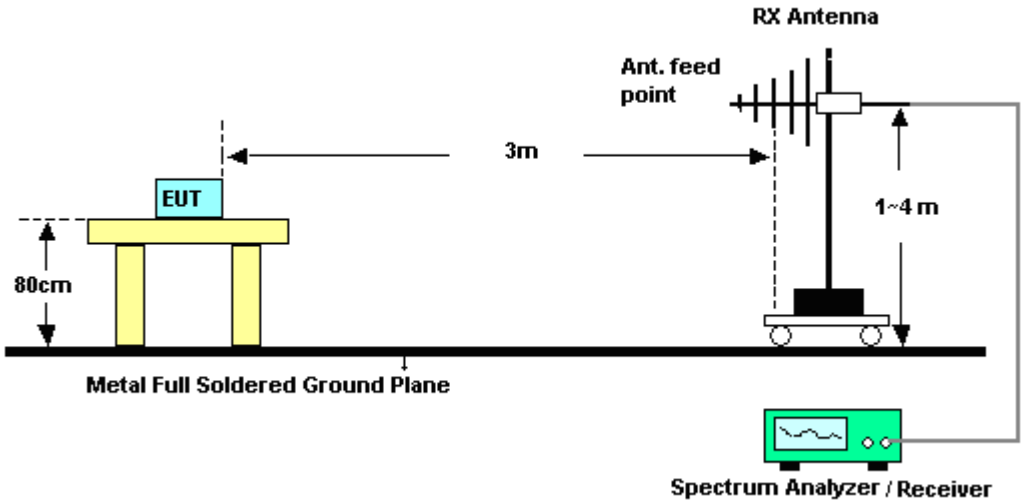
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
8. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.1.4 Test Setup

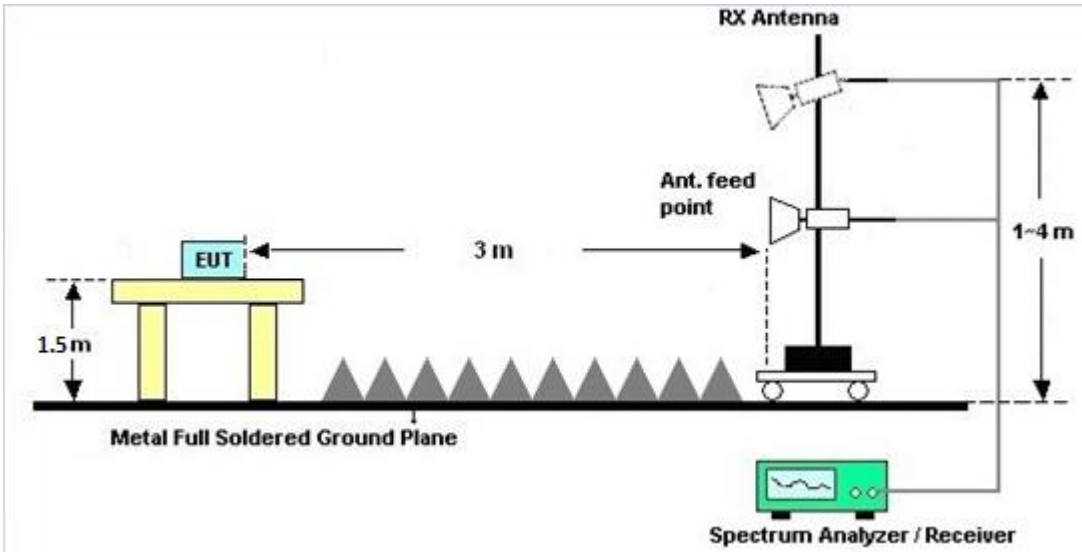
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

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

3.1.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix A and B

3.1.7 Duty Cycle

Please refer to Appendix C.

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

Please refer to Appendix A and B.

3.2 Antenna Requirements

3.2.1 Standard Applicable

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

3.2.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.2.3 Antenna Gain

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

4 List of Measuring Equipment

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

5 Uncertainty of Evaluation

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

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

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

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

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

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

Appendix A. Radiated Spurious Emission

Test Engineer :	Fuquan Wu	Temperature :	22~25℃
		Relative Humidity :	48~52%

<For Ant. 1>

2.4GHz 2400~2483.5MHz

BLE 1Mbps (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2340.135	52.03	-21.97	74	49.16	27.75	4.66	29.54	163	206	P	H
		2343.18	42	-12	54	39.13	27.75	4.66	29.54	163	206	A	H
	*	2402	98.35	-	-	95.43	27.7	4.78	29.56	163	206	P	H
	*	2402	97.97	-	-	95.05	27.7	4.78	29.56	163	206	A	H
		2388.96	42.55	-11.45	54	39.62	27.7	4.78	29.55	367	78	A	V
	*	2402	99.74	-	-	96.82	27.7	4.78	29.56	367	78	P	V
	*	2402	99.2	-	-	96.28	27.7	4.78	29.56	367	78	A	V
BLE CH 19 2440MHz		2337.86	51.54	-22.46	74	48.66	27.75	4.66	29.53	105	207	P	H
		2379.16	42.47	-11.53	54	39.58	27.72	4.72	29.55	105	207	A	H
	*	2440	99.76	-	-	96.85	27.66	4.82	29.57	105	207	P	H
	*	2440	98.42	-	-	95.51	27.66	4.82	29.57	105	207	A	H
		2491.88	51.76	-22.24	74	48.9	27.61	4.85	29.6	105	207	P	H
		2494.4	42.28	-11.72	54	39.42	27.61	4.85	29.6	105	207	A	H
		2343.46	52.42	-21.58	74	49.55	27.75	4.66	29.54	400	76	P	V
		2348.22	42.53	-11.47	54	39.6	27.75	4.72	29.54	400	76	A	V
	*	2440	100.58	-	-	97.67	27.66	4.82	29.57	400	76	P	V
	*	2440	100.11	-	-	97.2	27.66	4.82	29.57	400	76	A	V
		2486.84	52.05	-21.95	74	49.16	27.63	4.85	29.59	400	76	P	V
		2497.76	42.49	-11.51	54	39.63	27.61	4.85	29.6	400	76	A	V

BLE CH 39 2480MHz	*	2480	99.32	-	-	96.43	27.63	4.85	29.59	101	208	P	H
	*	2480	98.87	-	-	95.98	27.63	4.85	29.59	101	208	A	H
		2491.04	52.14	-21.86	74	49.27	27.61	4.85	29.59	101	208	P	H
		2483.52	44.27	-9.73	54	41.38	27.63	4.85	29.59	101	208	A	H
	*	2480	99.47	-	-	96.58	27.63	4.85	29.59	391	73	P	V
	*	2480	99.02	-	-	96.13	27.63	4.85	29.59	391	73	A	V
		2486.16	52.02	-21.98	74	49.13	27.63	4.85	29.59	391	73	P	V
		2483.52	44.36	-9.64	54	41.47	27.63	4.85	29.59	391	73	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BLE 1Mbps (Harmonic @ 3m)

BLE	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 00 2402MHz		4804	39.61	-34.39	74	60.56	31.72	5.55	58.22	178	97	P	H
		4804	39.36	-34.64	74	60.31	31.72	5.55	58.22	151	219	P	V
BLE CH 19 2440MHz		4880	38.43	-35.57	74	59	31.88	5.65	58.1	164	214	P	H
		7320	45.2	-28.8	74	58.87	36.94	7.26	57.87	168	336	P	H
		4880	39.1	-34.9	74	59.67	31.88	5.65	58.1	150	258	P	V
		7320	45.27	-28.73	74	58.94	36.94	7.26	57.87	152	309	P	V
BLE CH 39 2480MHz		4960	37.65	-36.35	74	57.57	32.08	5.96	57.96	120	269	P	H
		7440	45	-29	74	57.92	37.4	7.17	57.49	184	278	P	H
		4960	38.6	-35.4	74	58.52	32.08	5.96	57.96	118	289	P	V
		7440	45.79	-28.21	74	58.71	37.4	7.17	57.49	158	273	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BLE 2Mbps (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
		(MHz)	(dBµV/m)	Limit (dB)	Line (dBµV/m)	Level (dBµV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(H/V)
BLE CH 00 2402MHz		2338.14	52.39	-21.61	74	49.51	27.75	4.66	29.53	183	194	P	H
		2385.915	42.19	-11.81	54	39.26	27.7	4.78	29.55	183	194	A	H
	*	2402	99.85	-	-	96.93	27.7	4.78	29.56	183	194	P	H
	*	2402	99.26	-	-	96.34	27.7	4.78	29.56	183	194	A	H
		2363.55	52.41	-21.59	74	49.49	27.74	4.72	29.54	374	81	P	V
		2346.54	42.14	-11.86	54	39.21	27.75	4.72	29.54	374	81	A	V
	*	2402	98.39	-	-	95.47	27.7	4.78	29.56	374	81	P	V
	*	2402	97.87	-	-	94.95	27.7	4.78	29.56	374	81	A	V
BLE CH 19 2440MHz		2381.54	52.57	-21.43	74	49.68	27.72	4.72	29.55	189	197	P	H
		2348.36	42.11	-11.89	54	39.18	27.75	4.72	29.54	189	197	A	H
	*	2440	101.74	-	-	98.83	27.66	4.82	29.57	189	197	P	H
	*	2440	101.12	-	-	98.21	27.66	4.82	29.57	189	197	A	H
		2491.32	51.88	-22.12	74	49.01	27.61	4.85	29.59	189	197	P	H
		2493	42.23	-11.77	54	39.37	27.61	4.85	29.6	189	197	A	H
		2349.48	52.09	-21.91	74	49.16	27.75	4.72	29.54	371	68	P	V
		2359.42	42.2	-11.8	54	39.28	27.74	4.72	29.54	371	68	A	V
	*	2440	98.68	-	-	95.77	27.66	4.82	29.57	371	68	P	V
	*	2440	98.18	-	-	95.27	27.66	4.82	29.57	371	68	A	V
		2492.3	52.27	-21.73	74	49.41	27.61	4.85	29.6	371	68	P	V
		2499.09	42.11	-11.89	54	39.25	27.61	4.85	29.6	371	68	A	V

BLE CH 39 2480MHz	*	2480	100.67	-	-	97.78	27.63	4.85	29.59	104	195	P	H
	*	2480	99.79	-	-	96.9	27.63	4.85	29.59	104	195	A	H
		2483.56	53.59	-20.41	74	50.7	27.63	4.85	29.59	104	195	P	H
		2483.52	50.16	-3.84	54	47.27	27.63	4.85	29.59	104	195	A	H
	*	2480	98.91	-	-	96.02	27.63	4.85	29.59	400	70	P	V
	*	2480	98.4	-	-	95.51	27.63	4.85	29.59	400	70	A	V
		2484.2	52.43	-21.57	74	49.54	27.63	4.85	29.59	400	70	P	V
		2483.52	48.78	-5.22	54	45.89	27.63	4.85	29.59	400	70	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BLE 2Mbps (Harmonic @ 3m)

BLE	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 00 2402MHz		4804	39.94	-34.06	74	60.89	31.72	5.55	58.22	151	219	P	H
		4804	39.48	-34.52	74	60.43	31.72	5.55	58.22	151	219	P	V
BLE CH 19 2440MHz		4880	38.18	-35.82	74	58.75	31.88	5.65	58.1	151	360	P	H
		7320	45.2	-28.8	74	58.87	36.94	7.26	57.87	151	360	P	H
		4880	39.1	-34.9	74	59.67	31.88	5.65	58.1	151	360	P	V
		7320	44.42	-29.58	74	58.09	36.94	7.26	57.87	151	360	P	V
BLE CH 39 2480MHz		4960	37.43	-36.57	74	57.35	32.08	5.96	57.96	151	360	P	H
		7440	44.91	-29.09	74	57.83	37.4	7.17	57.49	151	360	P	H
		4960	38.02	-35.98	74	57.94	32.08	5.96	57.96	151	360	P	V
		7440	46.24	-27.76	74	59.16	37.4	7.17	57.49	151	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

BLE 2Mbps (LF)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
		(MHz)	(dBµV/m)	Limit (dB)	Line (dBµV/m)	Level (dBµV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(H/V)
2.4GHz BLE LF		30	25.11	-14.89	40	31.93	24.9	0.25	31.97	-	-	P	H
		199.75	28.11	-15.39	43.5	42.53	15.3	1.61	31.33	-	-	P	H
		298.69	32.04	-13.96	46	42.03	19.38	1.85	31.22	-	-	P	H
		374.35	32.25	-13.75	46	40.05	21.27	2.13	31.2	-	-	P	H
		659.53	30.24	-15.76	46	32.31	26.33	2.84	31.24	-	-	P	H
		903	32.38	-13.62	46	30.83	29.33	3.39	31.17	100	360	P	H
		80.44	31.75	-8.25	40	49.14	13.6	0.85	31.84	100	0	P	V
		136.7	27.74	-15.76	43.5	40.52	17.59	1.22	31.59	-	-	P	V
		266.68	22.41	-23.59	46	31.95	19.93	1.76	31.23	-	-	P	V
		516.94	28.21	-17.79	46	32.68	24.3	2.47	31.24	-	-	P	V
		604.24	29.68	-16.32	46	32.41	25.83	2.71	31.27	-	-	P	V
		902.03	33.86	-12.14	46	32.32	29.32	3.39	31.17	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

<For Ant. 2>

2.4GHz 2400~2483.5MHz

BLE 1Mbps (Band Edge @ 3m)

BLE	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 00 2402MHz		2346.435	52.24	-21.76	74	49.31	27.75	4.72	29.54	137	161	P	H
		2385.705	42.45	-11.55	54	39.52	27.7	4.78	29.55	137	161	A	H
	*	2402	100.81	-	-	97.89	27.7	4.78	29.56	137	161	P	H
	*	2402	100.28	-	-	97.36	27.7	4.78	29.56	137	161	A	H
		2328.9	52.32	-21.68	74	49.42	27.77	4.66	29.53	376	294	P	V
		2387.91	42.43	-11.57	54	39.5	27.7	4.78	29.55	376	294	A	V
	*	2402	100.28	-	-	97.36	27.7	4.78	29.56	376	294	P	V
	*	2402	99.82	-	-	96.9	27.7	4.78	29.56	376	294	A	V
BLE CH 19 2440MHz		2356.9	51.69	-22.31	74	48.77	27.74	4.72	29.54	151	146	P	H
		2358.16	42.41	-11.59	54	39.49	27.74	4.72	29.54	151	146	A	H
	*	2440	100.2	-	-	97.29	27.66	4.82	29.57	151	146	P	H
	*	2440	99.83	-	-	96.92	27.66	4.82	29.57	151	146	A	H
		2488.03	53.08	-20.92	74	50.21	27.61	4.85	29.59	151	146	P	H
		2487.26	42.44	-11.56	54	39.55	27.63	4.85	29.59	151	146	A	H
		2382.52	51.75	-22.25	74	48.86	27.72	4.72	29.55	358	289	P	V
		2382.24	42.66	-11.34	54	39.77	27.72	4.72	29.55	358	289	A	V
	*	2440	98.79	-	-	95.88	27.66	4.82	29.57	358	289	P	V
	*	2440	98.28	-	-	95.37	27.66	4.82	29.57	358	289	A	V
		2484.53	52.04	-21.96	74	49.15	27.63	4.85	29.59	358	289	P	V
		2489.85	42.36	-11.64	54	39.49	27.61	4.85	29.59	358	289	A	V

BLE CH 39 2480MHz	*	2480	100.9	-	-	98.01	27.63	4.85	29.59	152	166	P	H
	*	2480	100.41	-	-	97.52	27.63	4.85	29.59	152	166	A	H
		2485.56	52.99	-21.01	74	50.1	27.63	4.85	29.59	152	166	P	H
		2483.52	45.06	-8.94	54	42.17	27.63	4.85	29.59	152	166	A	H
	*	2480	100.36	-	-	97.47	27.63	4.85	29.59	356	291	P	V
	*	2480	99.92	-	-	97.03	27.63	4.85	29.59	356	291	A	V
		2483.72	52.12	-21.88	74	49.23	27.63	4.85	29.59	356	291	P	V
		2483.52	44.89	-9.11	54	42	27.63	4.85	29.59	356	291	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BLE 1Mbps (Harmonic @ 3m)

BLE	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 00 2402MHz		4804	39.49	-34.51	74	60.44	31.72	5.55	58.22	178	97	P	H
		4804	40.44	-33.56	74	61.39	31.72	5.55	58.22	151	219	P	V
BLE CH 19 2440MHz		4880	39.77	-34.23	74	60.34	31.88	5.65	58.1	164	214	P	H
		7320	44.62	-29.38	74	58.29	36.94	7.26	57.87	168	336	P	H
		4880	39.38	-34.62	74	59.95	31.88	5.65	58.1	150	258	P	V
		7320	44.92	-29.08	74	58.59	36.94	7.26	57.87	152	309	P	V
BLE CH 39 2480MHz		4960	39.31	-34.69	74	59.23	32.08	5.96	57.96	120	269	P	H
		7440	46.08	-27.92	74	59	37.4	7.17	57.49	184	278	P	H
		4960	38.56	-35.44	74	58.48	32.08	5.96	57.96	118	289	P	V
		7440	45.91	-28.09	74	58.83	37.4	7.17	57.49	158	273	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BLE 2Mbps (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
		(MHz)	(dBµV/m)	Limit (dB)	Line (dBµV/m)	Level (dBµV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(H/V)
BLE CH 00 2402MHz		2360.61	51.77	-22.23	74	48.85	27.74	4.72	29.54	137	161	P	H
		2389.38	41.9	-12.1	54	38.97	27.7	4.78	29.55	137	161	A	H
	*	2402	100.74	26.74	74	97.82	27.7	4.78	29.56	137	161	P	H
	*	2402	99.2	45.2	54	96.28	27.7	4.78	29.56	137	161	A	H
		2363.13	51.8	-22.2	74	48.88	27.74	4.72	29.54	376	296	P	V
		2388.645	41.92	-12.08	54	38.99	27.7	4.78	29.55	376	296	A	V
	*	2402	100.3	26.3	74	97.38	27.7	4.78	29.56	376	296	P	V
	*	2402	99.61	45.61	54	96.69	27.7	4.78	29.56	376	296	A	V
BLE CH 19 2440MHz		2339.68	52.06	-21.94	74	49.19	27.75	4.66	29.54	192	162	P	H
		2350.04	41.89	-12.11	54	38.96	27.75	4.72	29.54	192	162	A	H
	*	2440	101.34	27.34	74	98.43	27.66	4.82	29.57	192	162	P	H
	*	2440	99.97	45.97	54	97.06	27.66	4.82	29.57	192	162	A	H
		2499.93	51.39	-22.61	74	48.53	27.61	4.85	29.6	192	162	P	H
		2499.37	41.8	-12.2	54	38.94	27.61	4.85	29.6	192	162	A	H
		2367.68	52.15	-21.85	74	49.24	27.74	4.72	29.55	368	298	P	V
		2381.82	41.79	-12.21	54	38.9	27.72	4.72	29.55	368	298	A	V
	*	2440	99.24	25.24	74	96.33	27.66	4.82	29.57	368	298	P	V
	*	2440	98.7	44.7	54	95.79	27.66	4.82	29.57	368	298	A	V
		2492.93	51.94	-22.06	74	49.08	27.61	4.85	29.6	368	298	P	V
		2498.32	41.91	-12.09	54	39.05	27.61	4.85	29.6	368	298	A	V

BLE CH 39 2480MHz	*	2480	100.64	26.64	74	97.75	27.63	4.85	29.59	208	164	P	H
	*	2480	100.13	46.13	54	97.24	27.63	4.85	29.59	208	164	A	H
		2483.52	53.68	-20.32	74	50.79	27.63	4.85	29.59	208	164	P	H
		2483.52	50.53	-3.47	54	47.64	27.63	4.85	29.59	208	164	A	H
	*	2480	100.29	26.29	74	97.4	27.63	4.85	29.59	355	290	P	V
	*	2480	99.81	45.81	54	96.92	27.63	4.85	29.59	355	290	A	V
		2483.6	52.88	-21.12	74	49.99	27.63	4.85	29.59	355	290	P	V
		2483.52	50.3	-3.7	54	47.41	27.63	4.85	29.59	355	290	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BLE 2Mbps (Harmonic @ 3m)

BLE	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 00 2402MHz		4804	39.19	-34.81	74	60.14	31.72	5.55	58.22	149	360	P	H
		4804	39.63	-34.37	74	60.58	31.72	5.55	58.22	149	360	P	V
BLE CH 19 2440MHz		4880	39.77	-34.23	74	60.34	31.88	5.65	58.1	149	360	P	H
		7320	44.39	-29.61	74	58.06	36.94	7.26	57.87	149	360	P	H
		4880	38.75	-35.25	74	59.32	31.88	5.65	58.1	149	360	P	V
		7320	44.58	-29.42	74	58.25	36.94	7.26	57.87	149	360	P	V
BLE CH 39 2480MHz		4960	39.31	-34.69	74	59.23	32.08	5.96	57.96	149	360	P	H
		7440	44.64	-29.36	74	57.56	37.4	7.17	57.49	149	360	P	H
		4960	38.11	-35.89	74	58.03	32.08	5.96	57.96	149	360	P	V
		7440	46.84	-27.16	74	59.76	37.4	7.17	57.49	149	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

BLE 2Mbps (LF)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
		(MHz)	(dBµV/m)	Limit (dB)	Line (dBµV/m)	Level (dBµV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(H/V)
2.4GHz BLE LF		30	24.78	-15.22	40	31.6	24.9	0.25	31.97	-	-	P	H
		199.75	28.47	-15.03	43.5	42.89	15.3	1.61	31.33	-	-	P	H
		232.73	27.9	-18.1	46	40.76	16.73	1.68	31.27	-	-	P	H
		298.69	31.83	-14.17	46	41.82	19.38	1.85	31.22	-	-	P	H
		374.35	32.38	-13.62	46	40.18	21.27	2.13	31.2	100	360	P	H
		699.3	30.03	-15.97	46	31.67	26.69	2.93	31.26	-	-	P	H
		44.55	31.28	-8.72	40	45.14	17.61	0.5	31.97	100	0	P	V
		80.44	31.23	-8.77	40	48.62	13.6	0.85	31.84	-	-	P	V
		136.7	27.22	-16.28	43.5	40	17.59	1.22	31.59	-	-	P	V
		198.78	26.91	-16.59	43.5	41.36	15.28	1.6	31.33	-	-	P	V
		581.93	29.26	-16.74	46	32.4	25.47	2.65	31.26	-	-	P	V
		902.03	32.99	-13.01	46	31.45	29.32	3.39	31.17	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Appendix B. Radiated Spurious Emission Plots

Test Engineer :	Fuquan Wu	**Temperature :**	22~25℃
		Relative Humidity :	48~52%

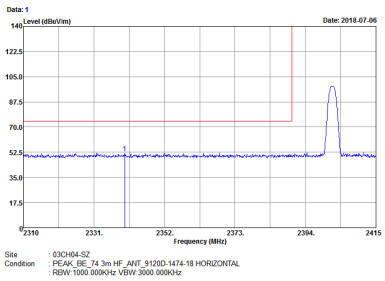
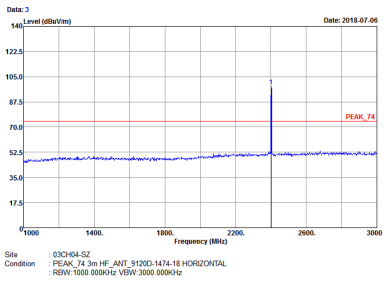
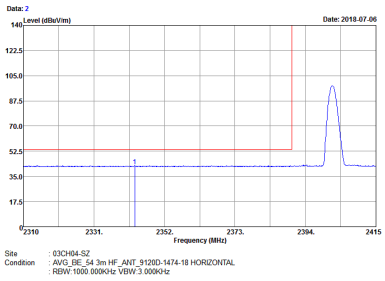
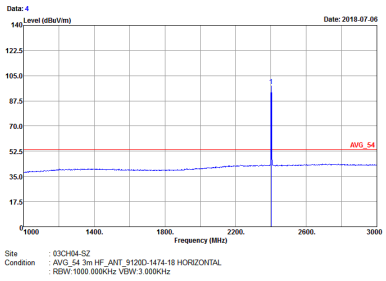
Note symbol

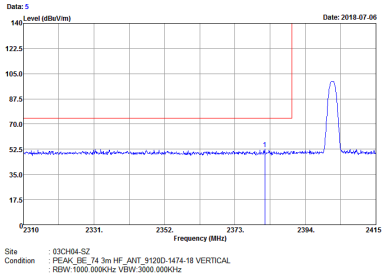
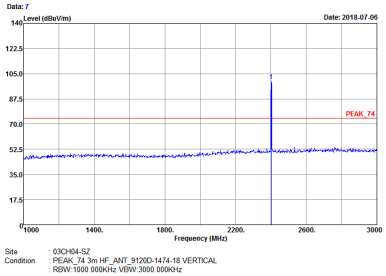
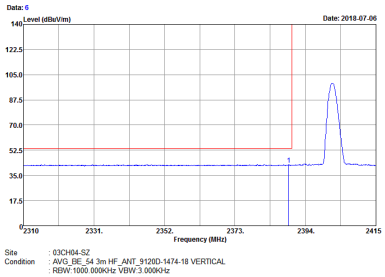
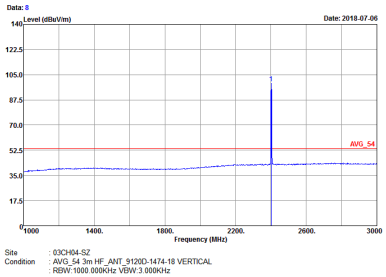
-L	**Low channel location**
-R	**High channel location**

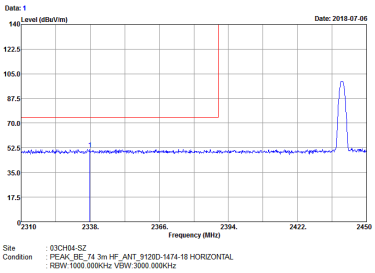
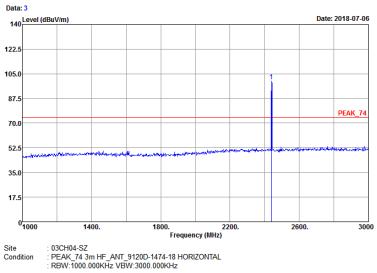
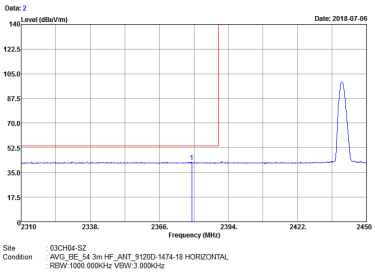
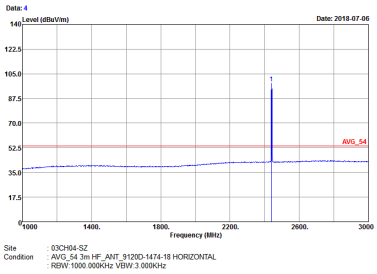
<For Ant. 1>

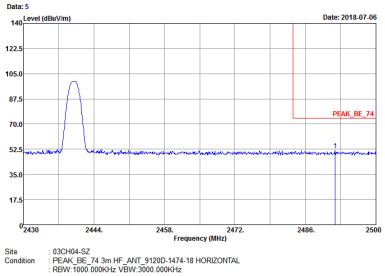
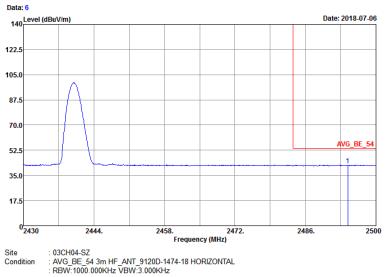
2.4GHz 2400~2483.5MHz

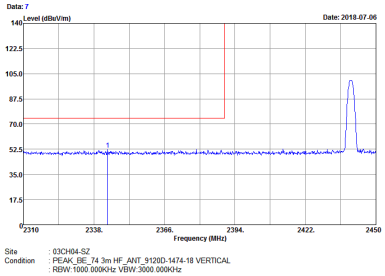
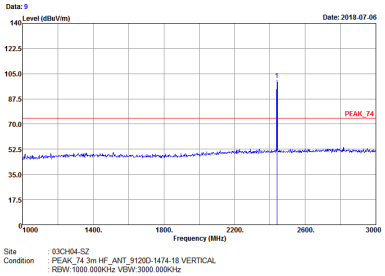
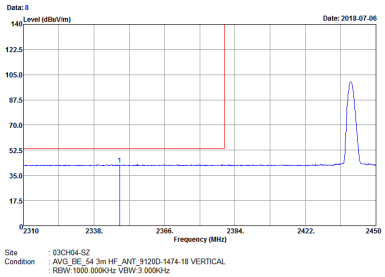
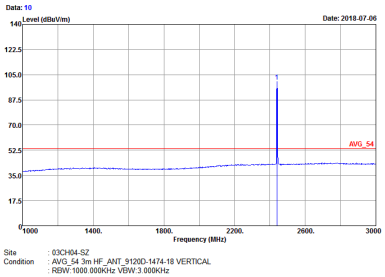
BLE 1Mbps (Band Edge @ 3m)

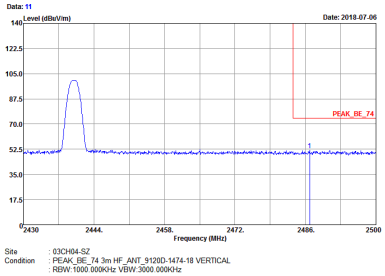
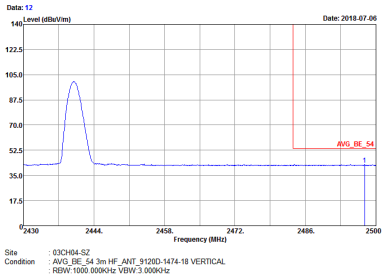
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Fundamental
Peak		
Avg.		

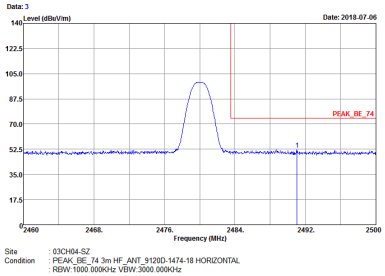
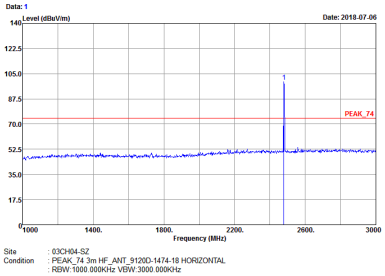
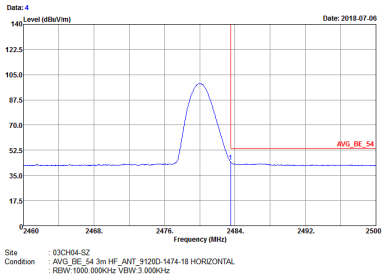
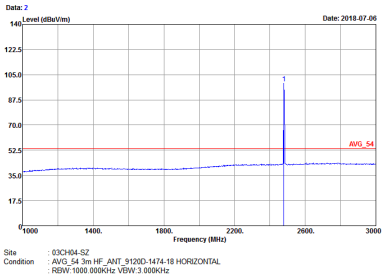
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Vertical	Fundamental
Peak		
Avg		

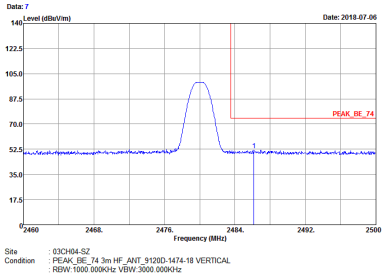
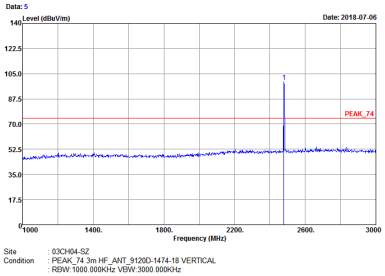
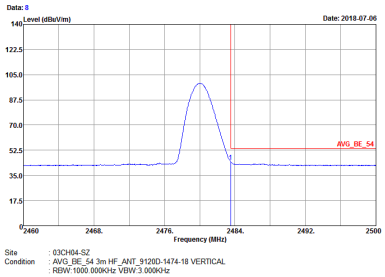
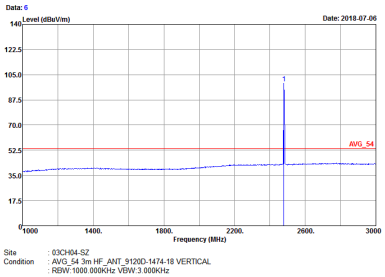
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

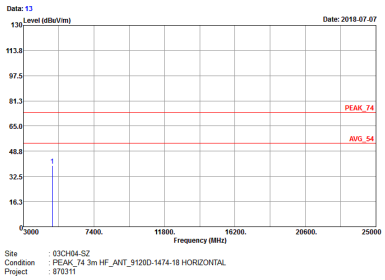
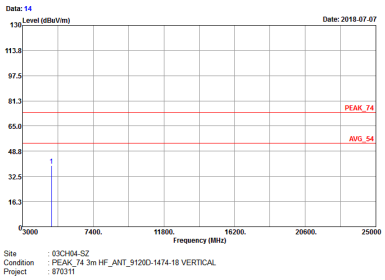
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

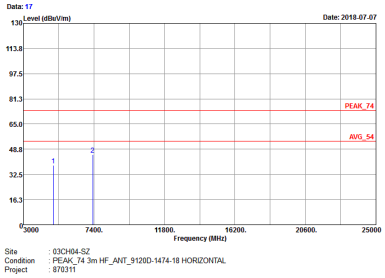
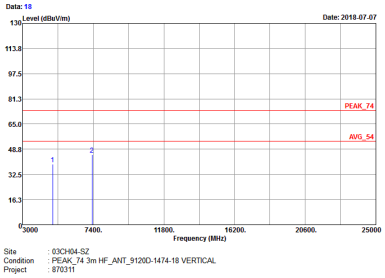
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Fundamental
Peak		
Avg.		

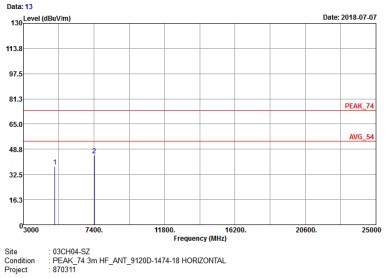
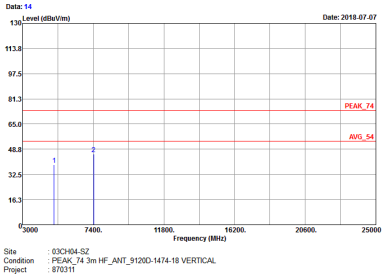
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Vertical	Fundamental
Peak		
Avg.		

2.4GHz 2400~2483.5MHz

BLE 1Mbps (Harmonic @ 3m)

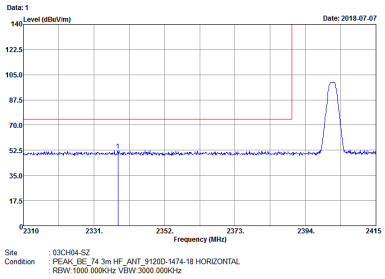
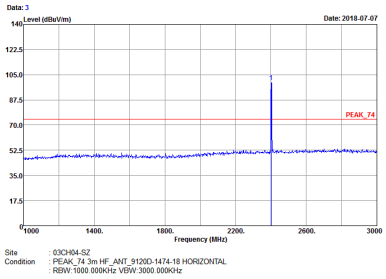
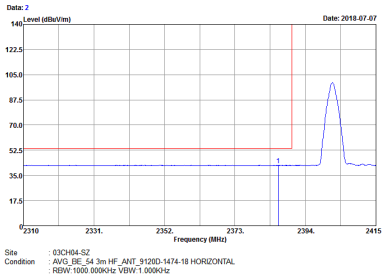
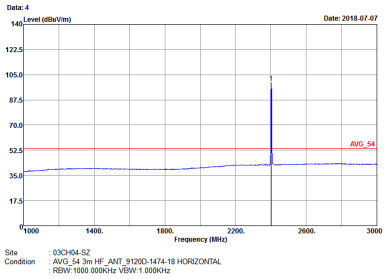
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Vertical
Peak		

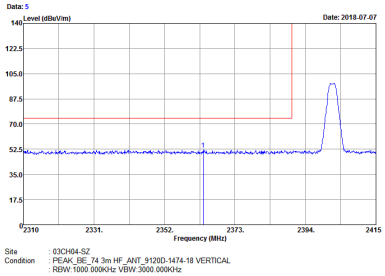
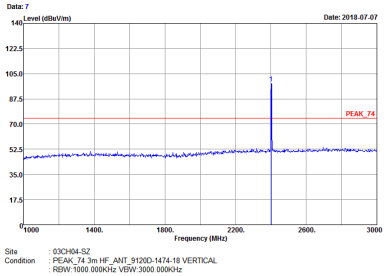
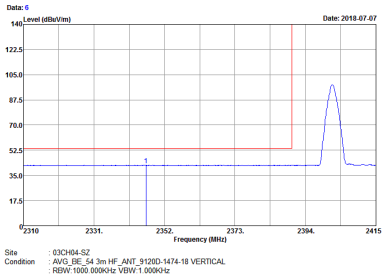
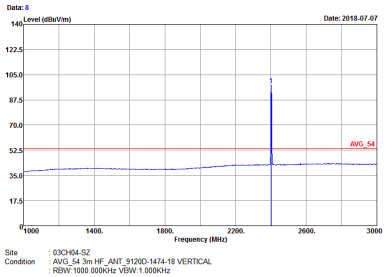
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH19 2440MHz	
	Horizontal	Vertical
Peak		

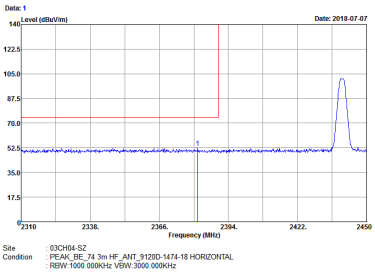
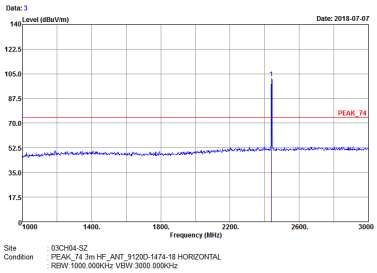
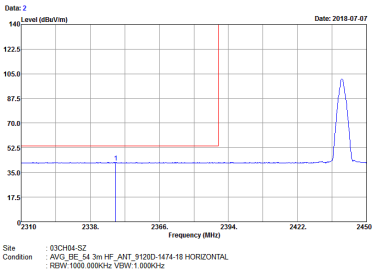
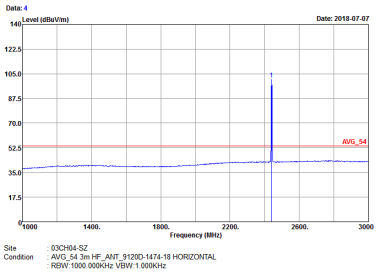
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Vertical
Peak		

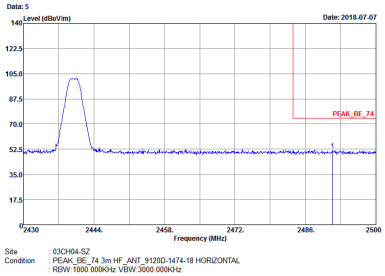
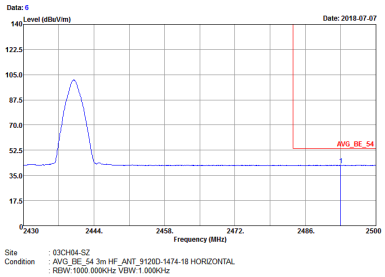
2.4GHz 2400~2483.5MHz

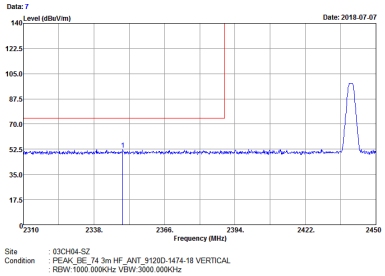
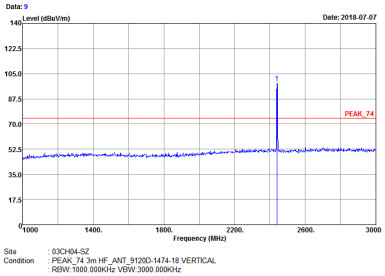
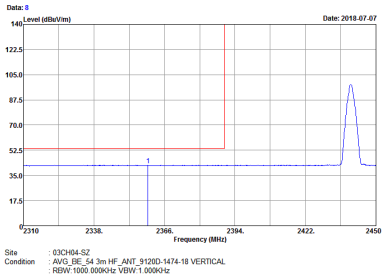
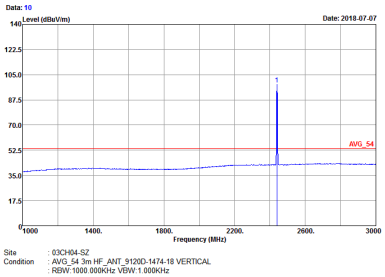
BLE 2Mbps (Band Edge @ 3m)

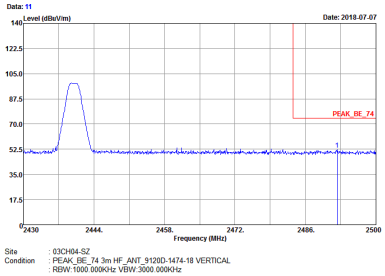
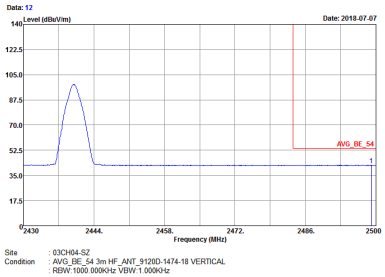
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Fundamental
Peak		
Avg.		

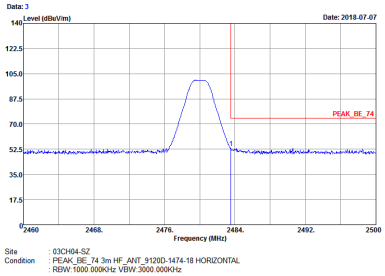
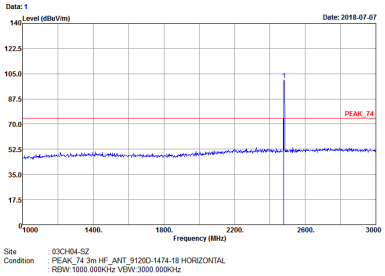
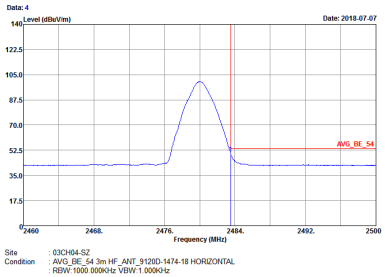
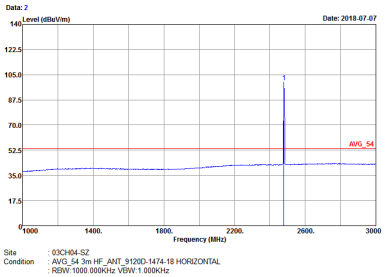
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Vertical	Fundamental
Peak		
Avg		

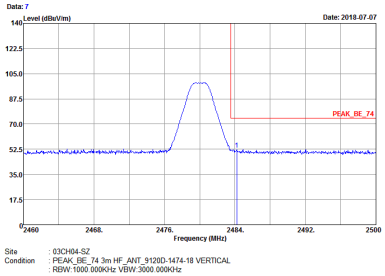
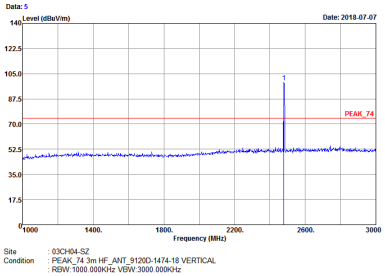
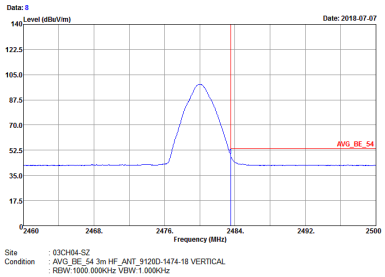
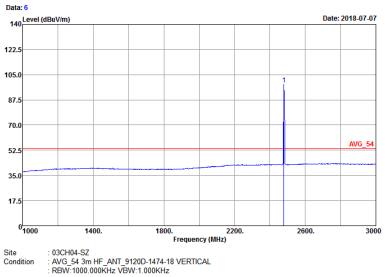
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

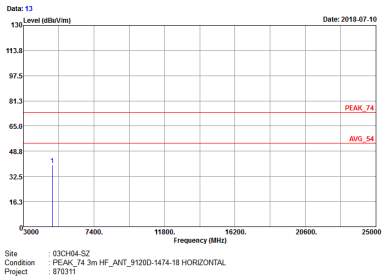
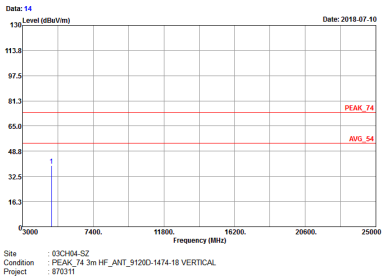
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

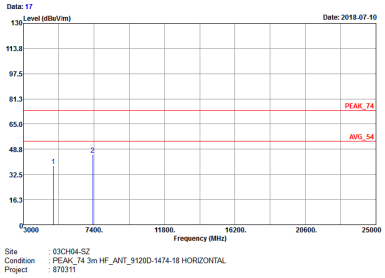
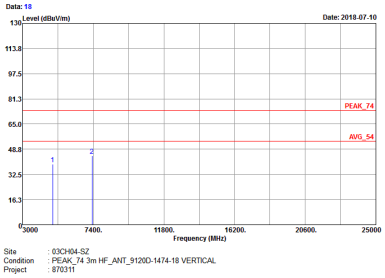
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Fundamental
Peak		
Avg.		

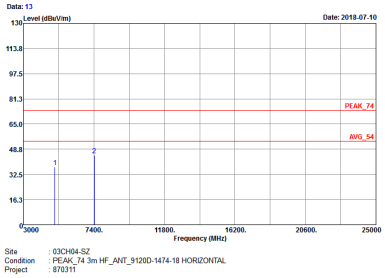
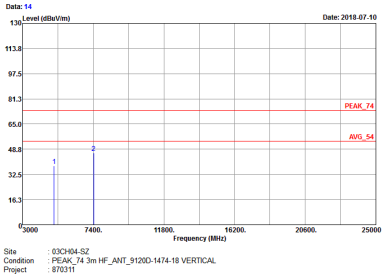
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Vertical	Fundamental
Peak		
Avg.		

2.4GHz 2400~2483.5MHz

BLE 2Mbps (Harmonic @ 3m)

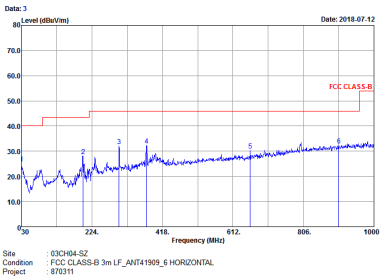
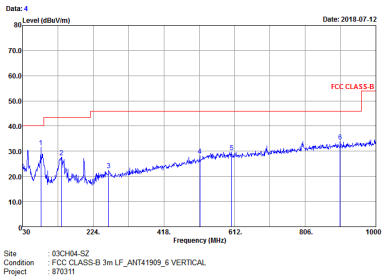
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Vertical
Peak		

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH19 2440MHz	
	Horizontal	Vertical
Peak		

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Vertical
Peak		

Emission below 1GHz

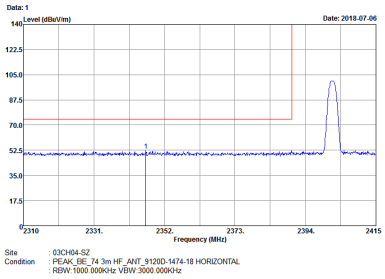
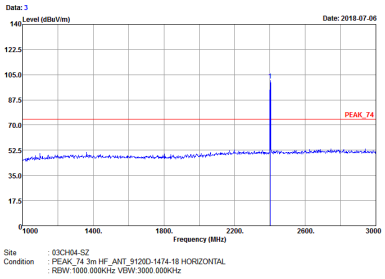
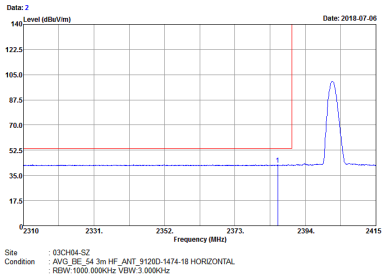
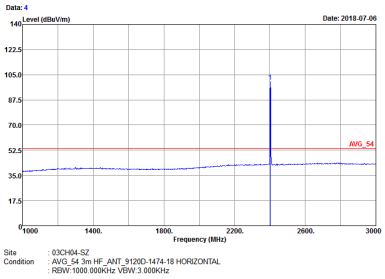
BLE 2Mbps (LF)

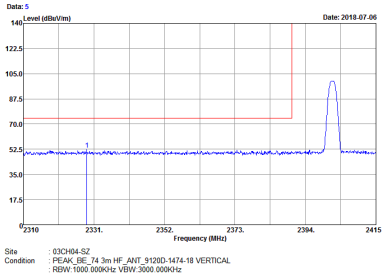
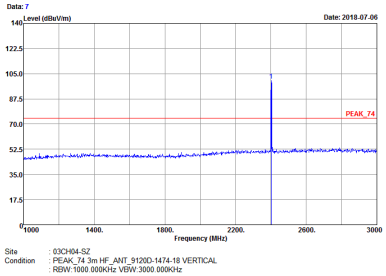
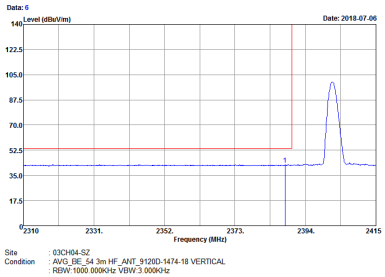
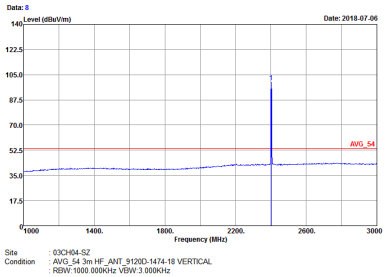
BLE	2.4GHz 2400~2483.5MHz	
	BLE LF	
	Horizontal	Vertical
QP / Peak		

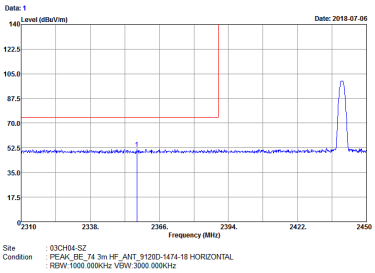
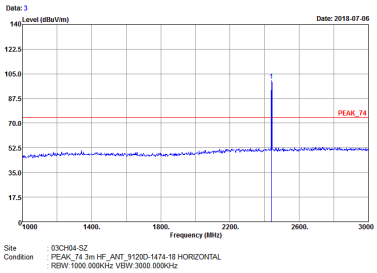
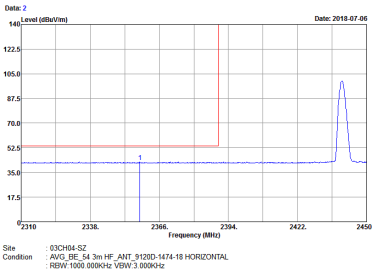
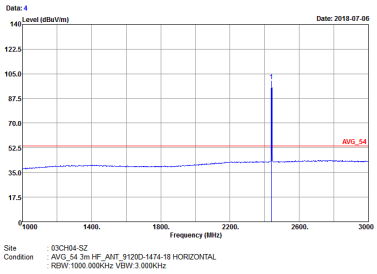
<For Ant. 2>

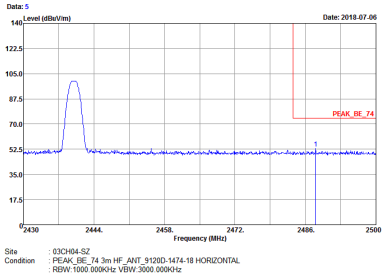
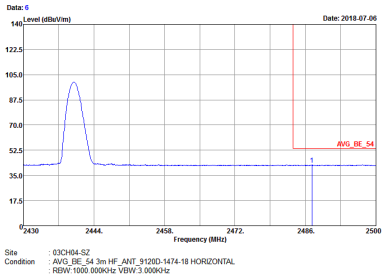
2.4GHz 2400~2483.5MHz

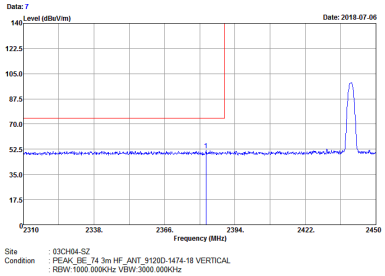
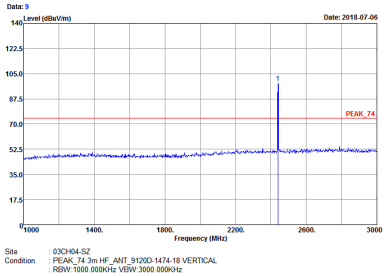
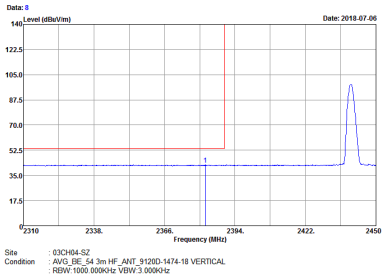
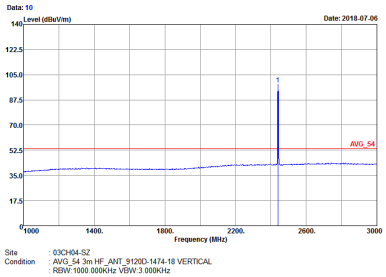
BLE 1Mbps (Band Edge @ 3m)

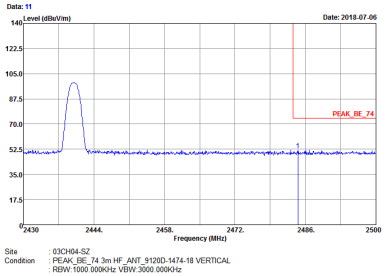
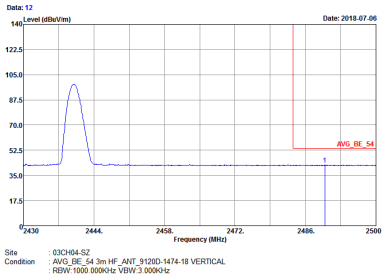
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Fundamental
Peak		
Avg.		

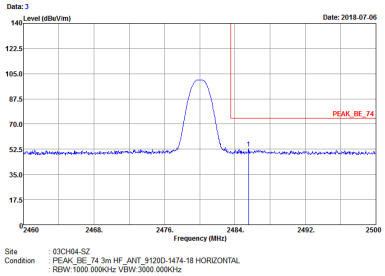
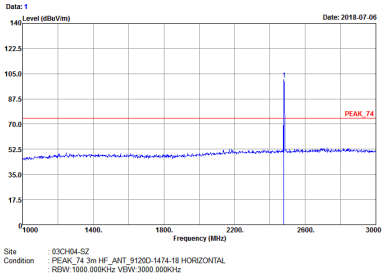
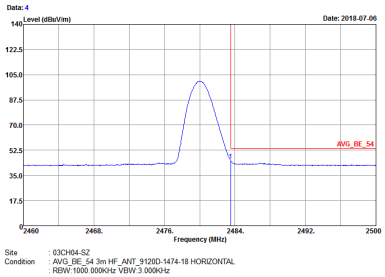
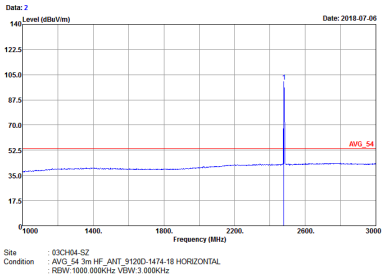
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Vertical	Fundamental
Peak		
Avg		

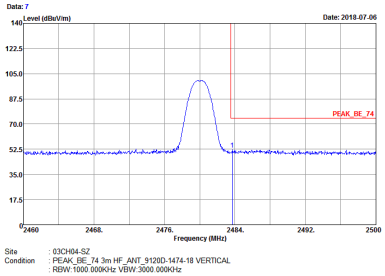
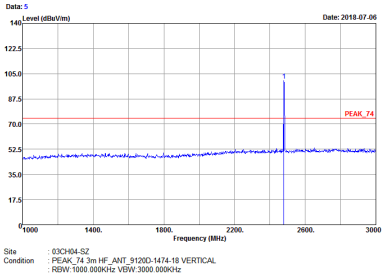
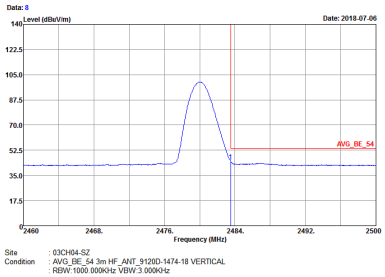
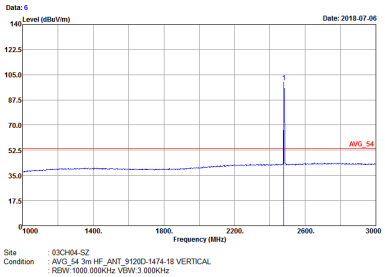
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

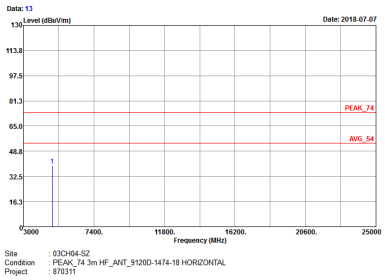
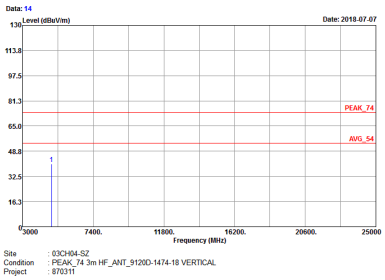
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

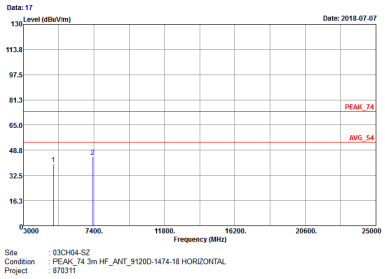
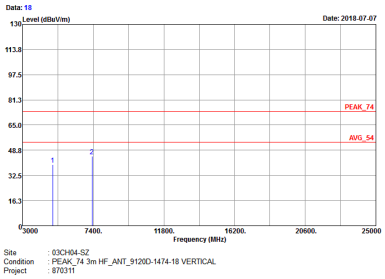
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Fundamental
Peak		
Avg.		

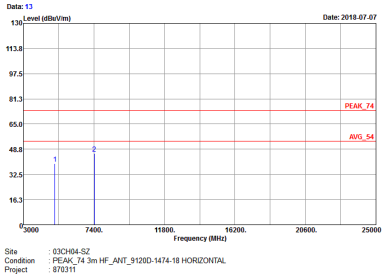
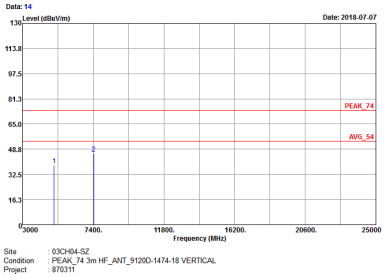
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Vertical	Fundamental
Peak		
Avg.		

2.4GHz 2400~2483.5MHz

BLE 1Mbps (Harmonic @ 3m)

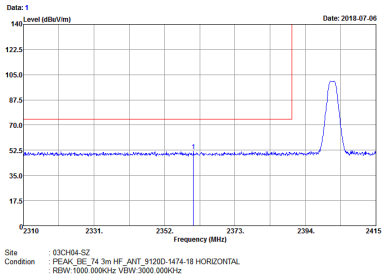
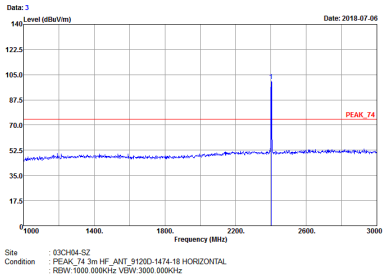
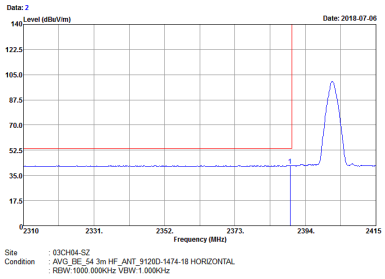
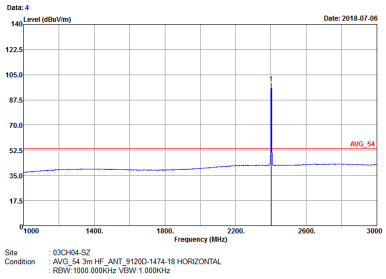
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Vertical
Peak		

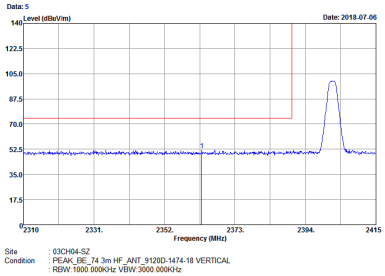
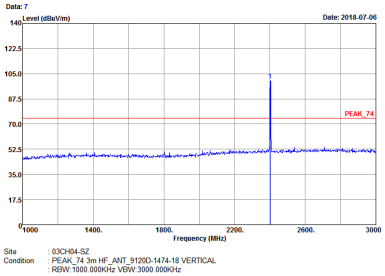
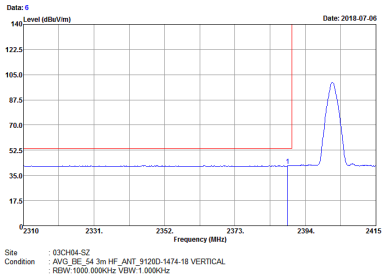
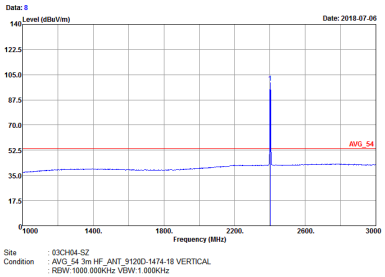
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH19 2440MHz	
	Horizontal	Vertical
Peak		

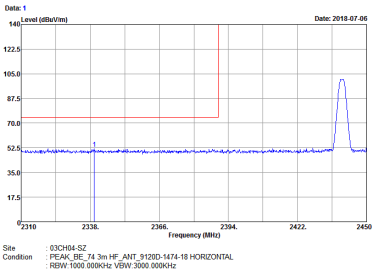
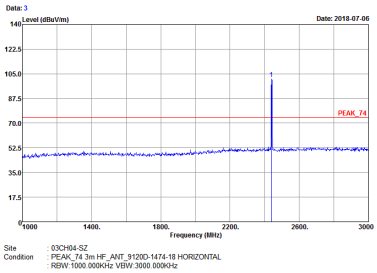
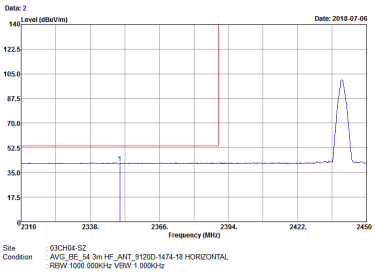
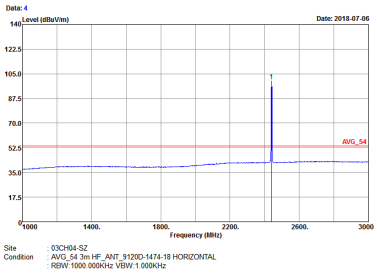
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Vertical
Peak		

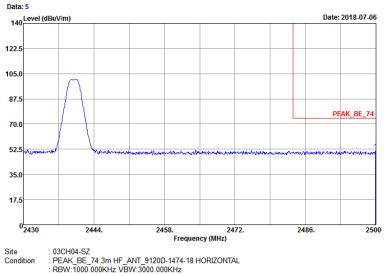
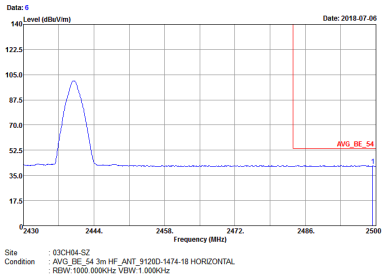
2.4GHz 2400~2483.5MHz

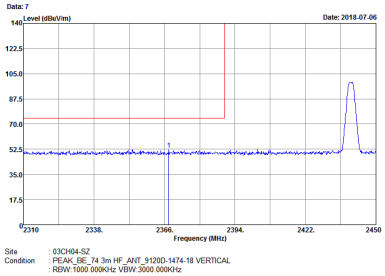
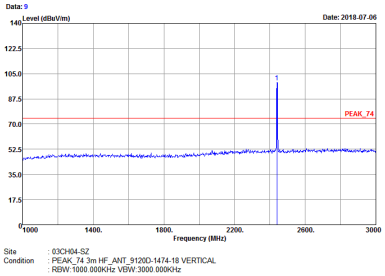
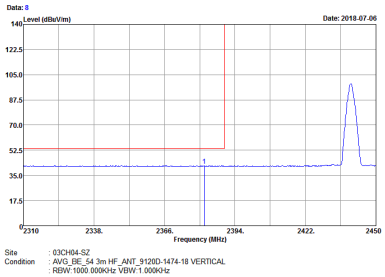
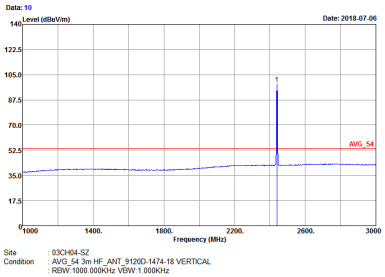
BLE 2Mbps (Band Edge @ 3m)

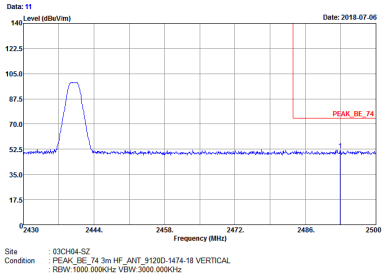
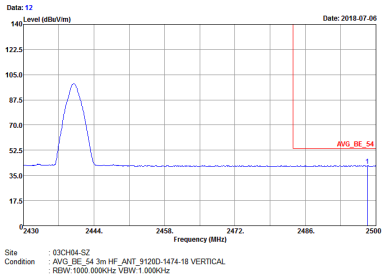
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Fundamental
Peak		
Avg.		

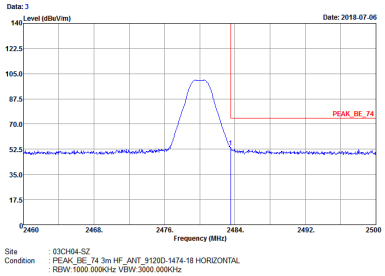
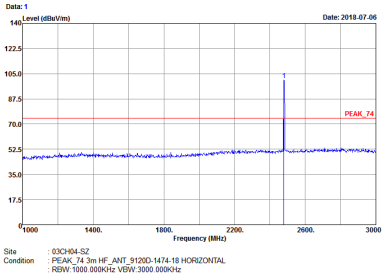
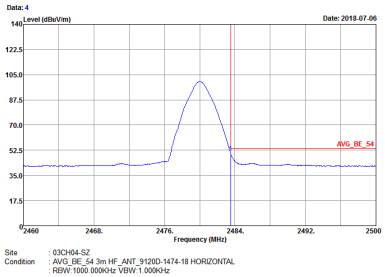
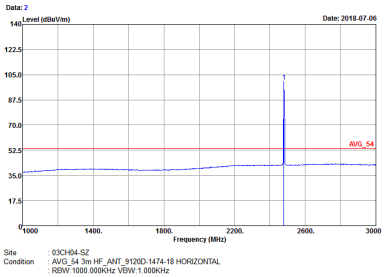
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Vertical	Fundamental
Peak		
Avg		

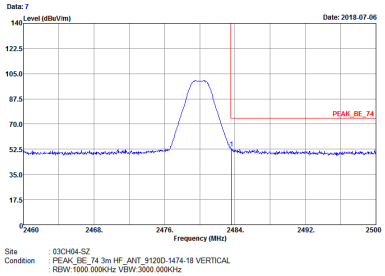
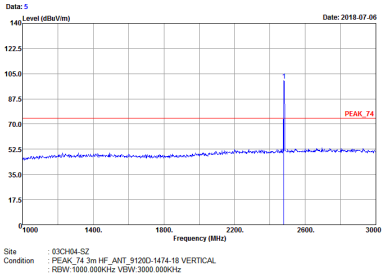
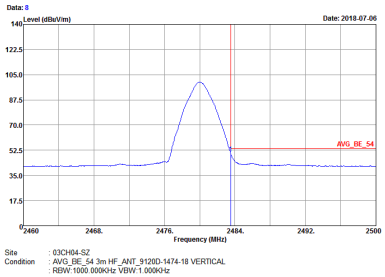
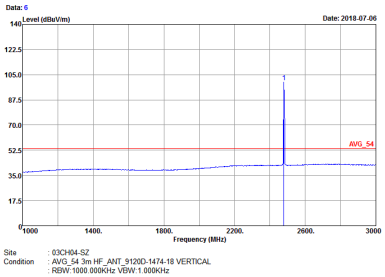
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

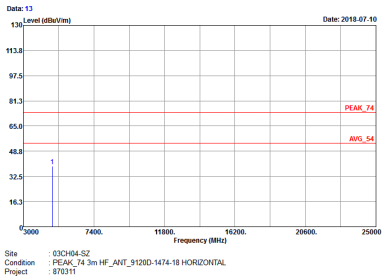
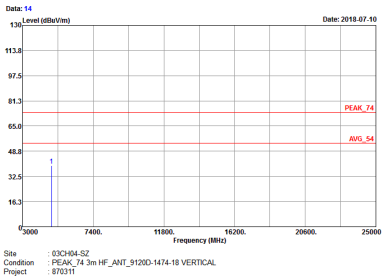
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

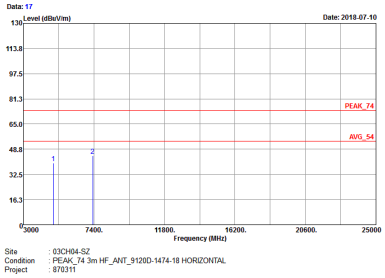
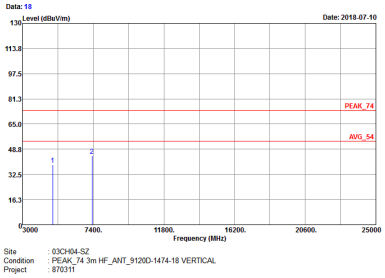
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Fundamental
Peak		
Avg.		

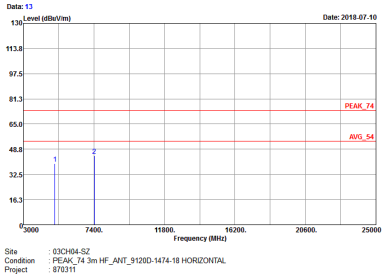
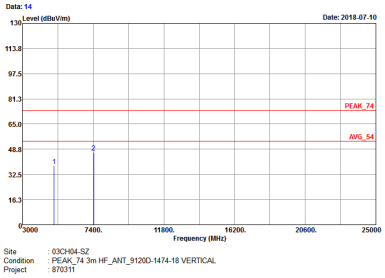
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Vertical	Fundamental
Peak		
Avg.		

2.4GHz 2400~2483.5MHz

BLE 2Mbps (Harmonic @ 3m)

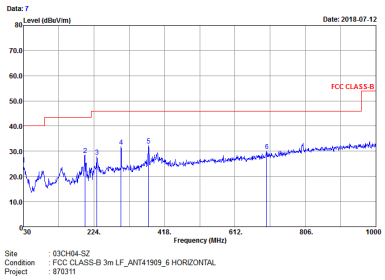
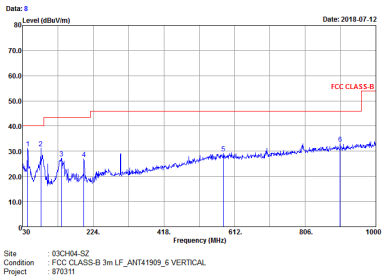
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Vertical
Peak		

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH19 2440MHz	
	Horizontal	Vertical
Peak		

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Vertical
Peak		

Emission below 1GHz

BLE 2Mbps (LF)

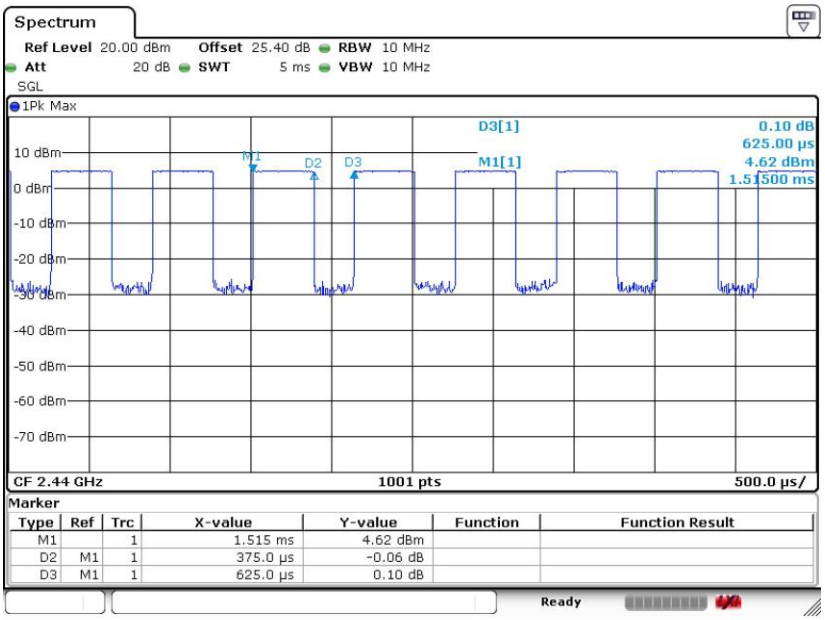
BLE	2.4GHz 2400~2483.5MHz	
	BLE LF	
	Horizontal	Vertical
QP / Peak		

Appendix C. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
1	Bluetooth LE for 1 Mbps	60.00	375.00	2.67	3kHz	2.22
1	Bluetooth LE for 2 Mbps	56.80	1065.00	0.94	1kHz	2.46
2	Bluetooth LE for 1 Mbps	60.80	380.00	2.63	3kHz	2.16
2	Bluetooth LE for 2 Mbps	56.80	1065.00	0.94	1kHz	2.46

<Ant. 1>

<1 Mbps>



Date: 26.JUN.2018 03:38:05

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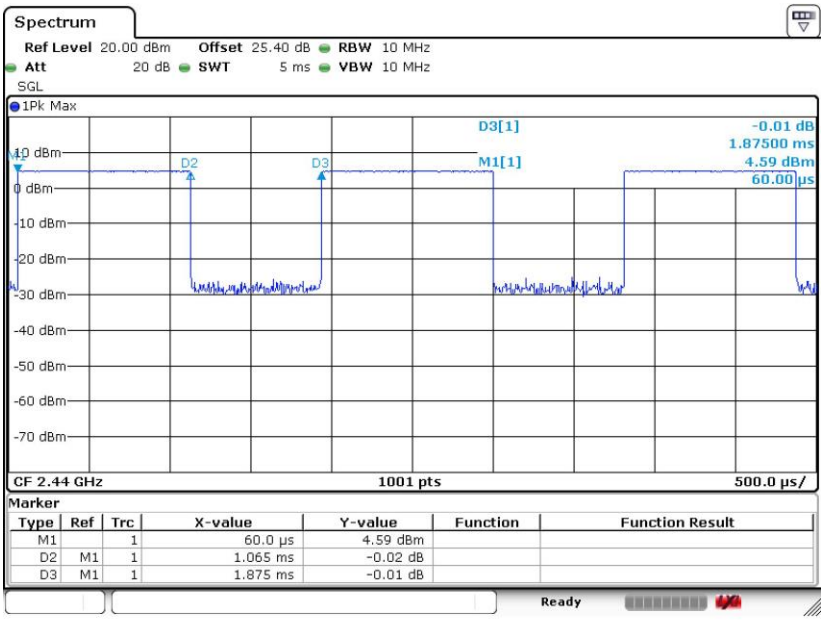

Date: 26.JUN.2018 03:40:41

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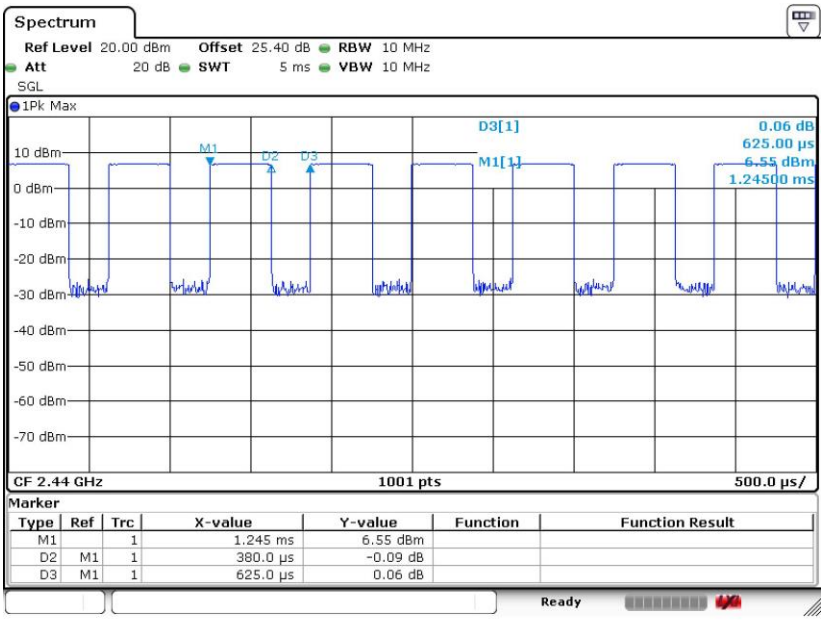
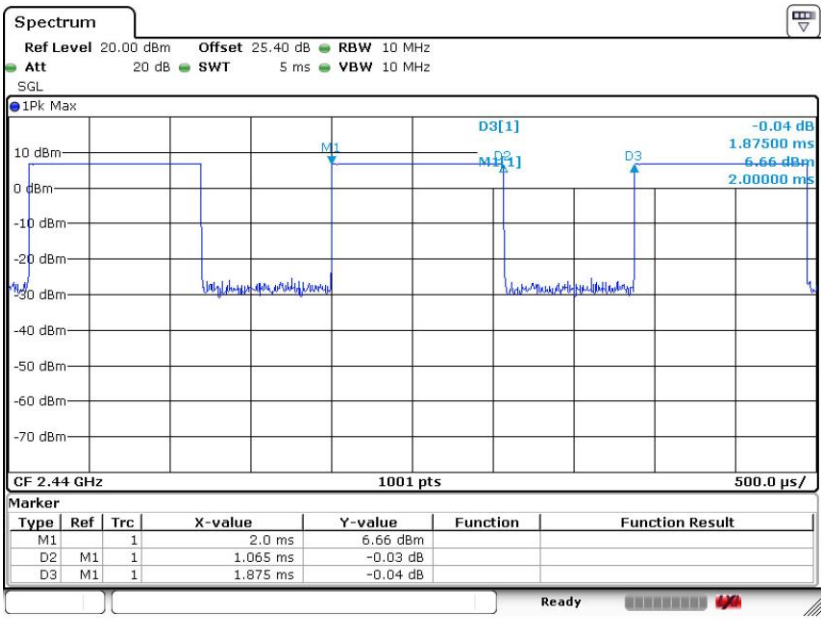


Date: 26.JUN.2018 03:52:10

<2 Mbps>



Date: 26.JUN.2018 03:54:28

Appendix D. External Subcontractors to Perform Testing Data

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

FCC RADIO TEST REPORT

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

The product completed on Jul. 13, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

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

Approved by: Jones Tsai

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

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Appendix A. Conducted Test Results
Appendix B. AC Conducted Emission Test Result

History of this test report

Report No.	Version	Description	Issued Date
FR840308-01C	01	Initial issue of report	Aug. 02, 2018

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)
3.1	15.247(a)(2)	6dB Bandwidth	Pass
3.1	2.1049	99% Occupied Bandwidth	Reporting only
3.2	15.247(b)(3)	Peak Output Power	Pass
3.3	15.247(e)	Power Spectral Density	Pass
3.4	15.247(d)	Conducted Band Edges and Spurious Emission	Pass
3.5	15.207	AC Conducted Emission	Pass
3.6	15.203 & 15.247(b)	Antenna Requirement	Pass

Reviewed by: Joseph Lin

Report Producer: Natasha Hsieh

1 General Description

1.1 Product Feature of Equipment Under Test

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

1.2 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz
Number of Channels	40
Carrier Frequency of Each Channel	40 Channel (37 hopping + 3 advertising channel)
Maximum Output Power to Antenna	**<Ant. 1>** **1Mbps:** 5.87 dBm (0.0039 W) **2Mbps:** 5.91 dBm (0.0039 W) **<Ant. 2>** **1Mbps:** 7.72 dBm (0.0059 W) **2Mbps:** 7.72 dBm (0.0059 W)
99% Occupied Bandwidth	**<Ant. 1>** **1Mbps:** 1.030 MHz **2Mbps:** 2.068 MHz **<Ant. 2>** **1Mbps:** 1.032 MHz **2Mbps:** 2.076 MHz
Antenna Type / Gain	**Ant. 1:** Fixed Internal Antenna type with gain 2.10 dBi **Ant. 2:** Fixed Internal Antenna type with gain 1.90 dBi
Type of Modulation	Bluetooth LE : GFSK

1.3 Modification of EUT

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

1.4 Testing Location

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

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

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

1.5 Applicable Standards

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

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

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

.

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	0	2402	21	2444
	1	2404	22	2446
	2	2406	23	2448
	3	2408	24	2450
	4	2410	25	2452
	5	2412	26	2454
	6	2414	27	2456
	7	2416	28	2458
	8	2418	29	2460
	9	2420	30	2462
	10	2422	31	2464
	11	2424	32	2466
	12	2426	33	2468
	13	2428	34	2470
	14	2430	35	2472
	15	2432	36	2474
	16	2434	37	2476
	17	2436	38	2478
	18	2438	39	2480
	19	2440	-	-
	20	2442	-	-

2.2 Test Mode

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

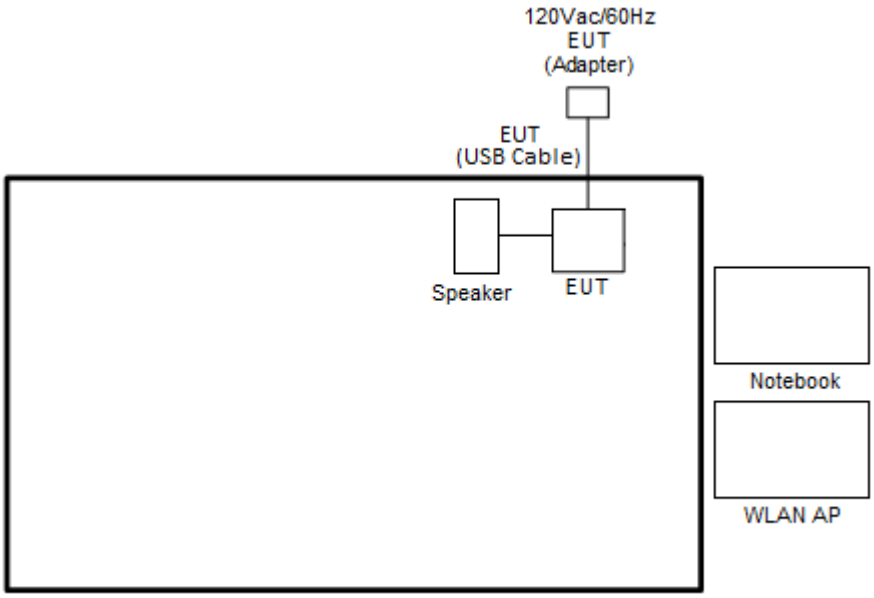
b. AC power line Conducted Emission was tested under maximum output power.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

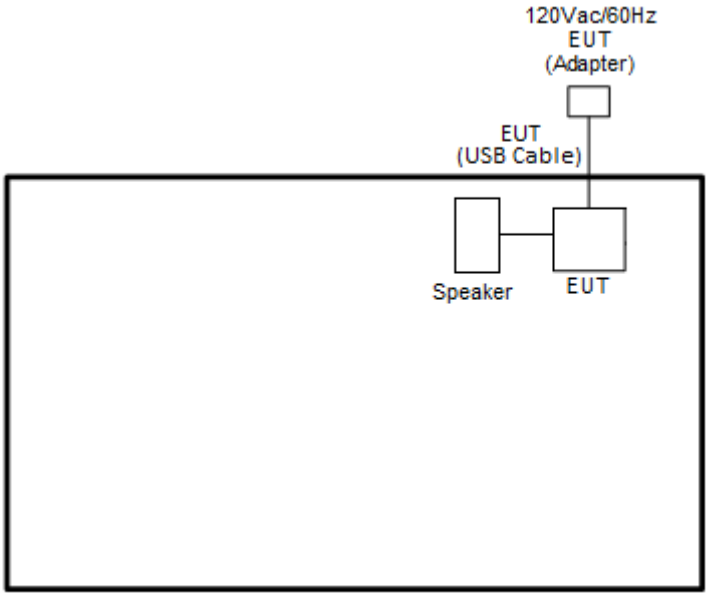
Summary table of Test Cases	
Test Item	**Data Rate / Modulation**
	Bluetooth – LE / GFSK
Conducted Test Cases	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps
AC Conducted Emission	Mode 1 :WLAN (2.4GHz) Link + Play News + External Speaker + USB Cable (Charging from Adapter) Mode 2 :Bluetooth Link + Play MP3 + External Speaker + USB Cable (Charging from Adapter)
Remark: The worst case of conducted emission is mode 1; only the test data of it was reported.	

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode for Play News>



<AC Conducted Emission Mode for Play MP3>



2.4 Support Unit used in test configuration and system

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

2.5 EUT Operation Test Setup

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

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

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

Offset = RF cable loss + attenuator factor.

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

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

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

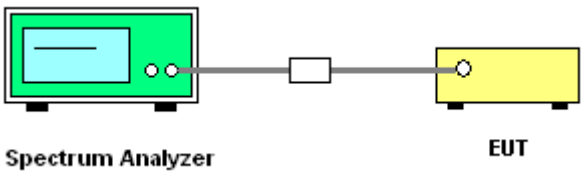
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup



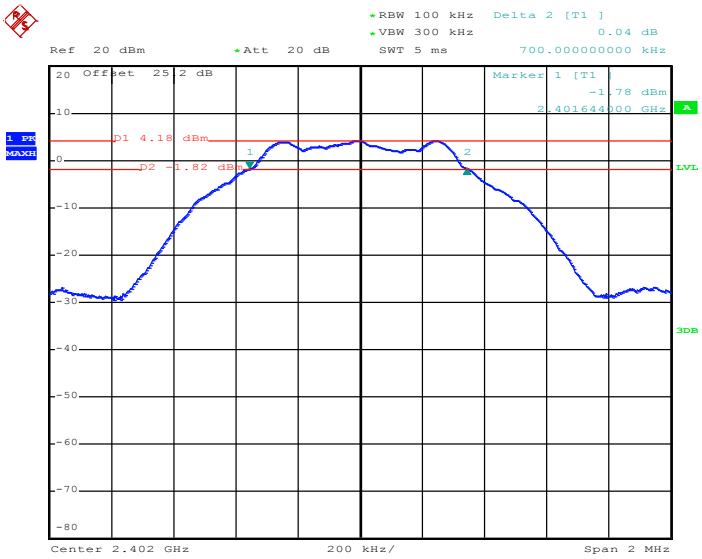
3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

<Ant. 1>

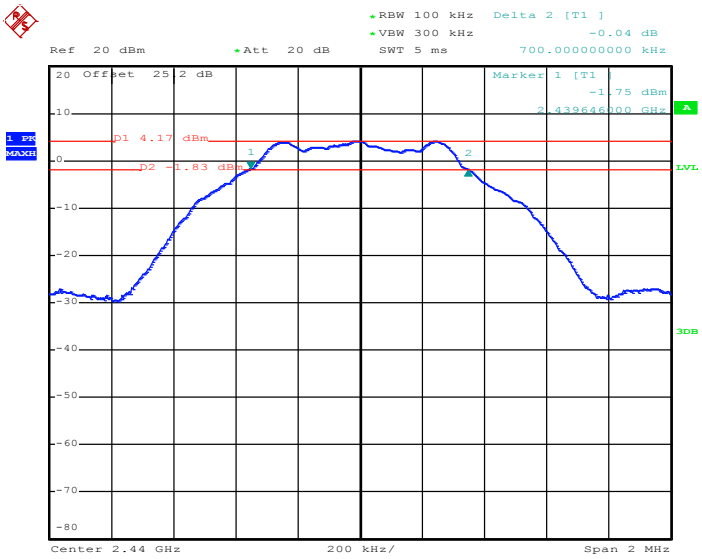
1Mbps

6 dB Bandwidth Plot on Channel 00



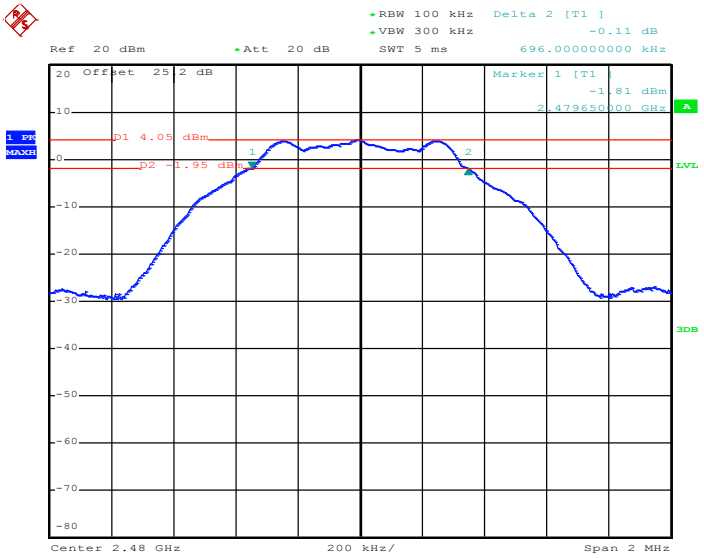
Date: 17.JUL.2018 07:45:24

6 dB Bandwidth Plot on Channel 19



Date: 17.JUL.2018 07:49:53

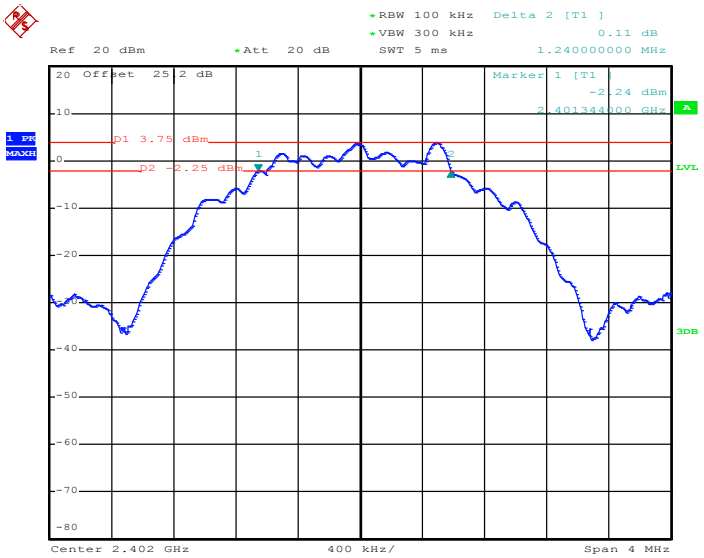
6 dB Bandwidth Plot on Channel 39



Date: 17.JUL.2018 07:53:55

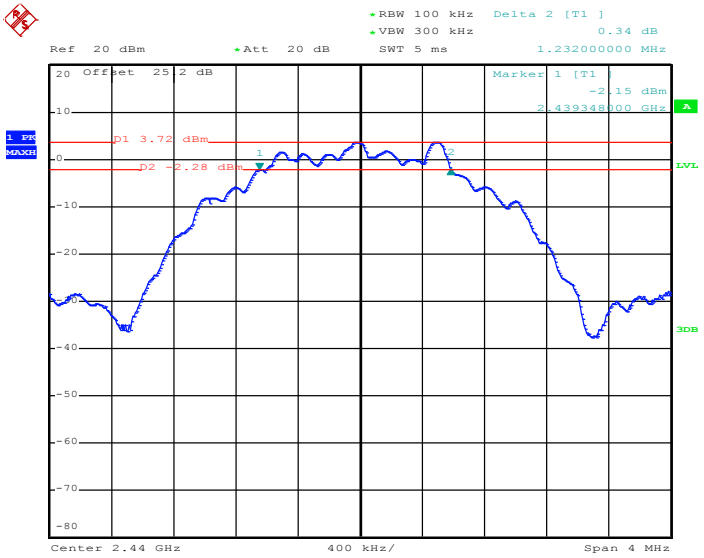
2Mbps

6 dB Bandwidth Plot on Channel 00



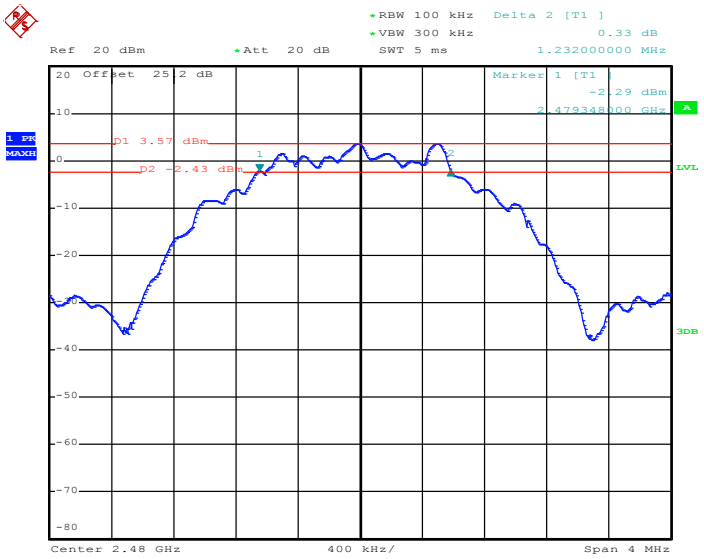
Date: 17.JUL.2018 07:59:58

6 dB Bandwidth Plot on Channel 19



Date: 17.JUL.2018 08:05:14

6 dB Bandwidth Plot on Channel 39

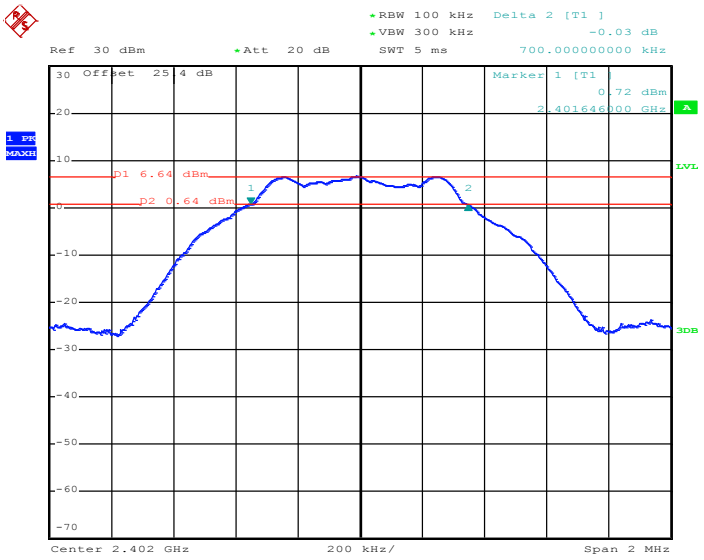


Date: 17.JUL.2018 08:10:04

<Ant. 2>

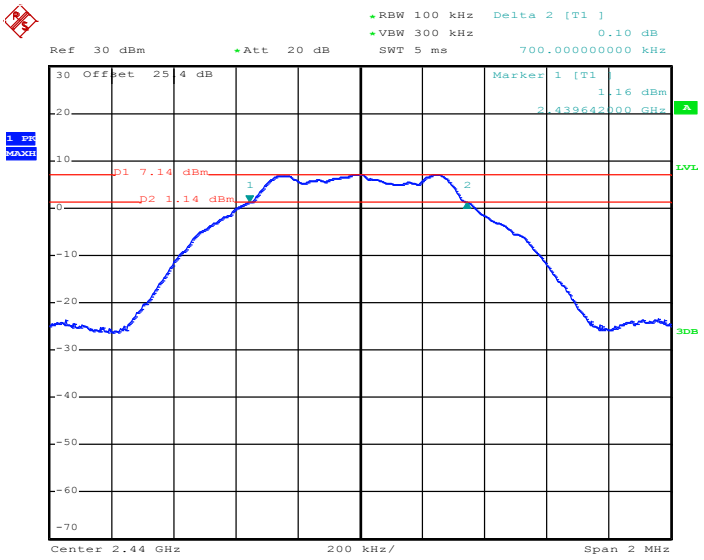
1Mbps

6 dB Bandwidth Plot on Channel 00



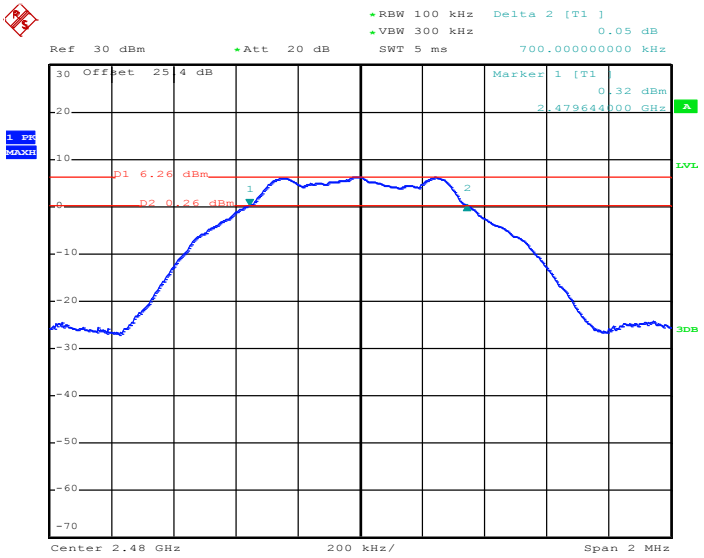
Date: 17.JUL.2018 14:04:36

6 dB Bandwidth Plot on Channel 19



Date: 17.JUL.2018 14:18:52

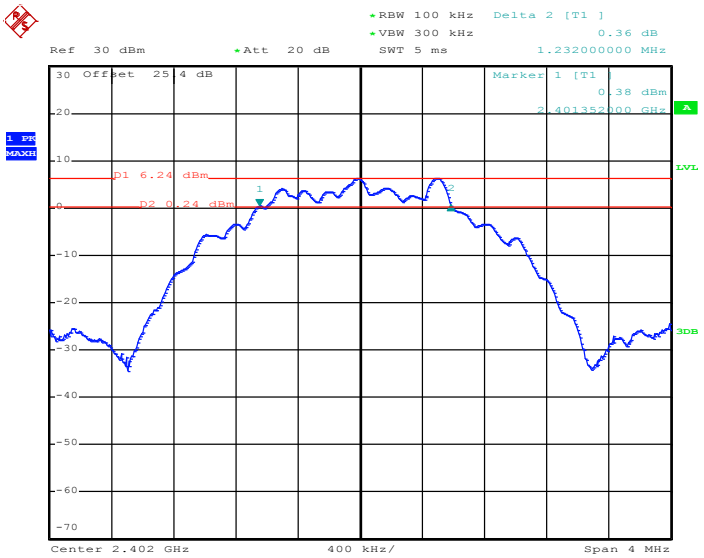
6 dB Bandwidth Plot on Channel 39



Date: 17.JUL.2018 14:23:05

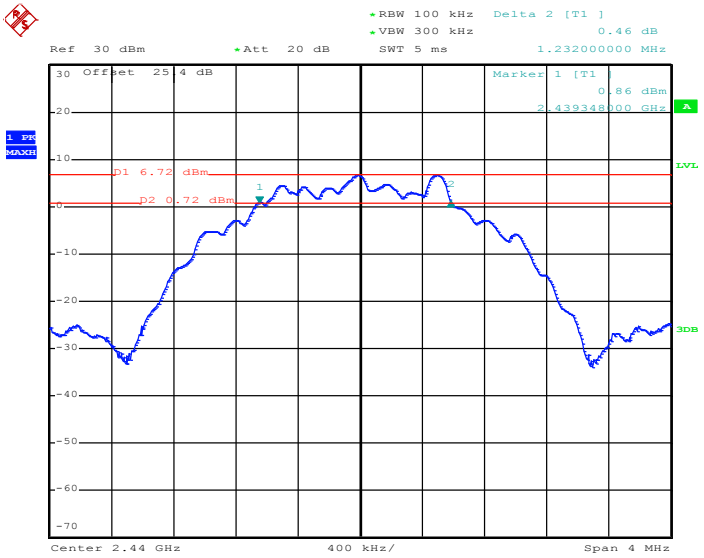
2Mbps

6 dB Bandwidth Plot on Channel 00



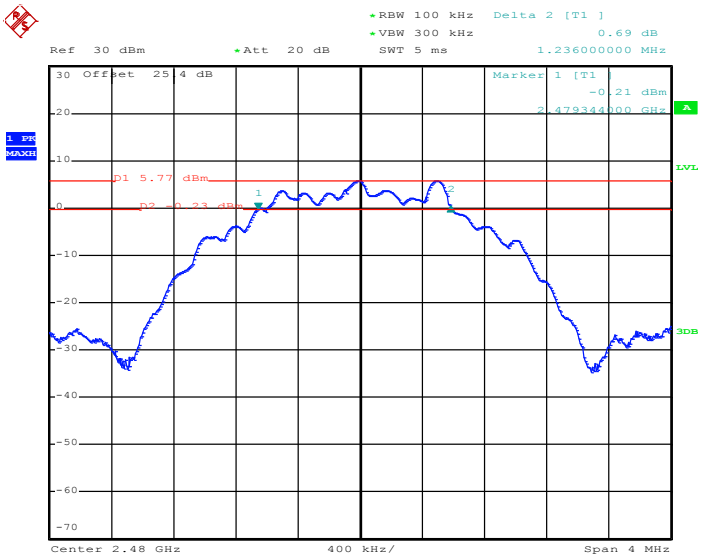
Date: 17.JUL.2018 14:30:44

6 dB Bandwidth Plot on Channel 19



Date: 17.JUL.2018 14:36:58

6 dB Bandwidth Plot on Channel 39



Date: 17.JUL.2018 14:40:15

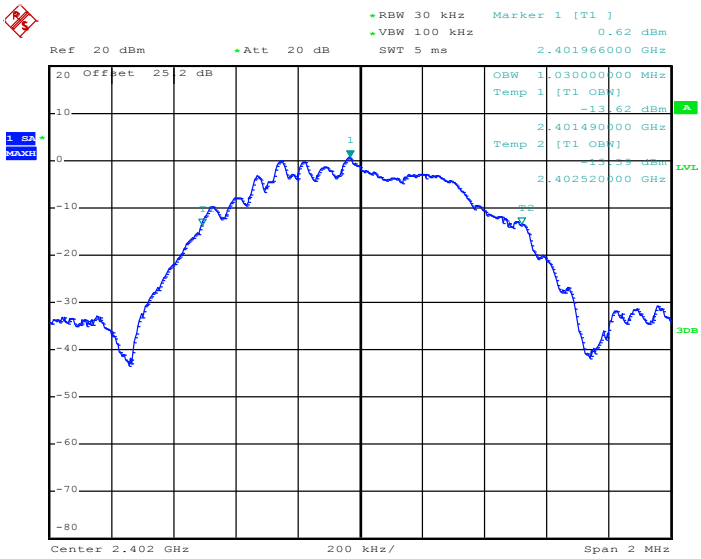
3.1.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

<Ant. 1>

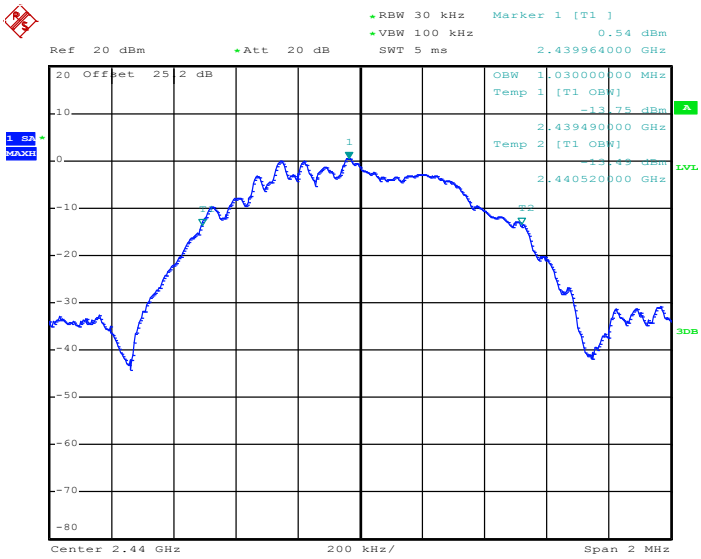
1Mbps

99% Bandwidth Plot on Channel 00



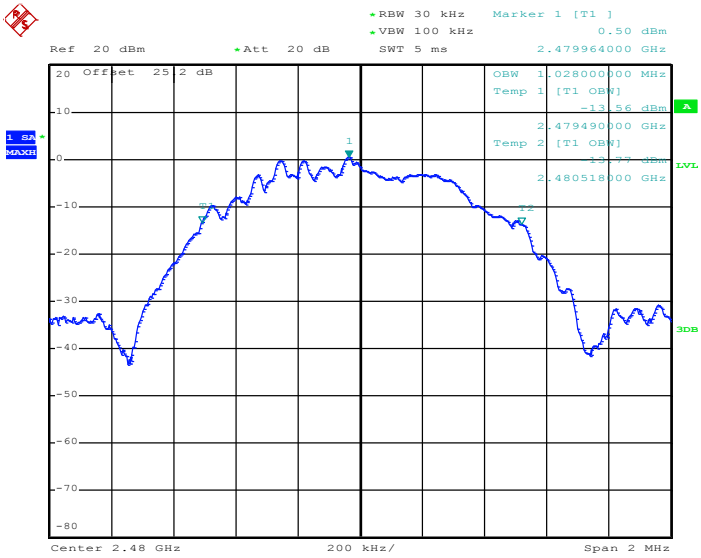
Date: 17.JUL.2018 07:47:30

99% Occupied Bandwidth Plot on Channel 19



Date: 17.JUL.2018 07:51:17

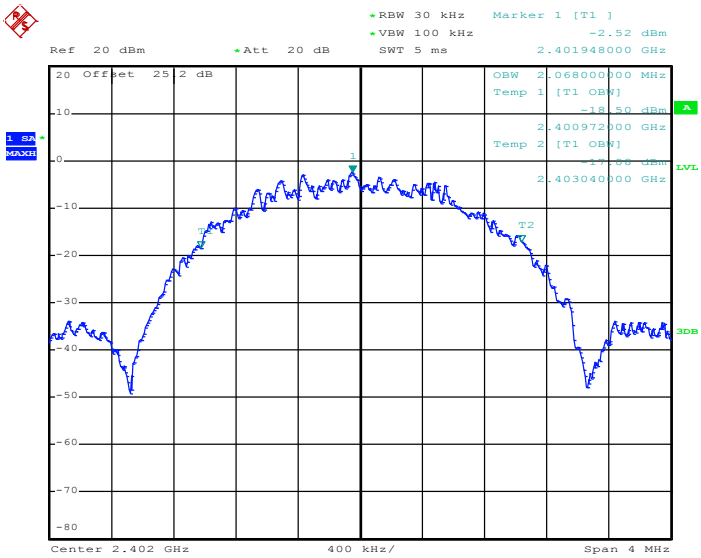
99% Occupied Bandwidth Plot on Channel 39



Date: 17.JUL.2018 07:55:38

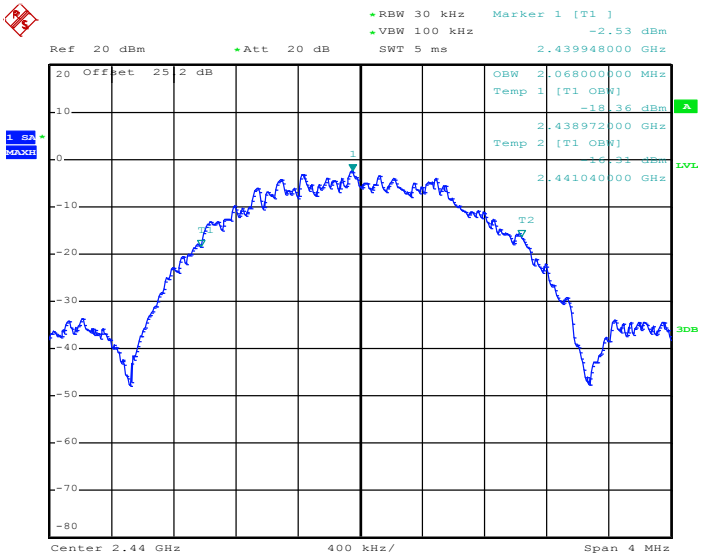
2Mbps

99% Bandwidth Plot on Channel 00



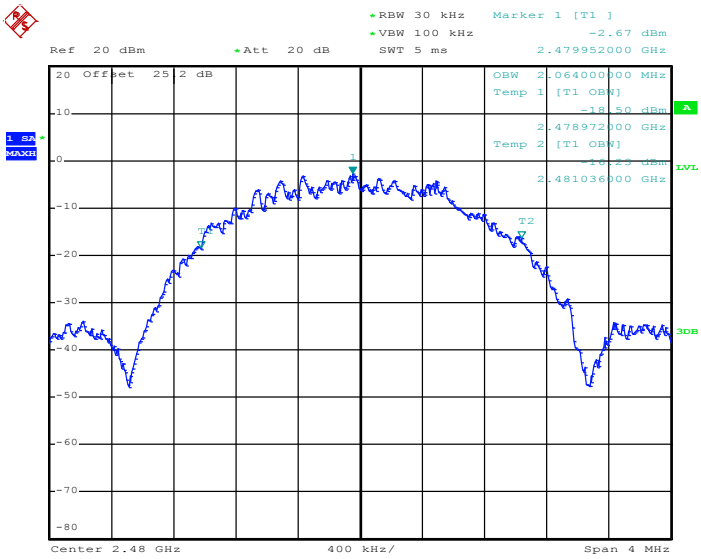
Date: 17.JUL.2018 08:02:26

99% Occupied Bandwidth Plot on Channel 19



Date: 17.JUL.2018 08:07:12

99% Occupied Bandwidth Plot on Channel 39

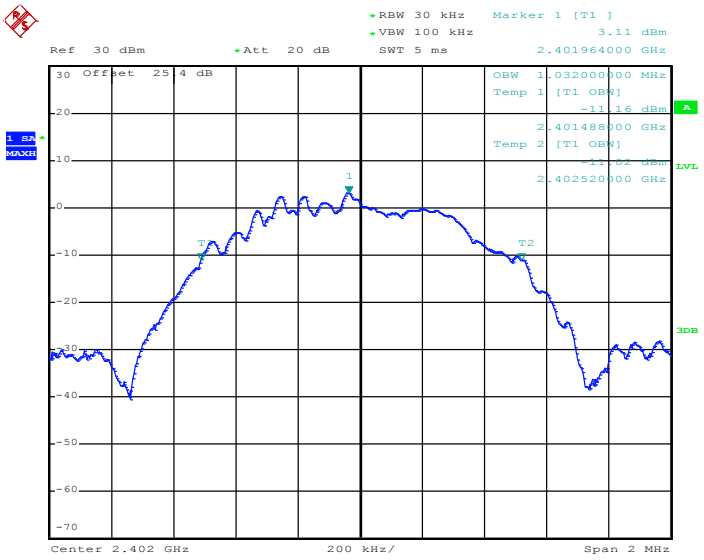


Date: 17.JUL.2018 08:12:36

<Ant. 2>

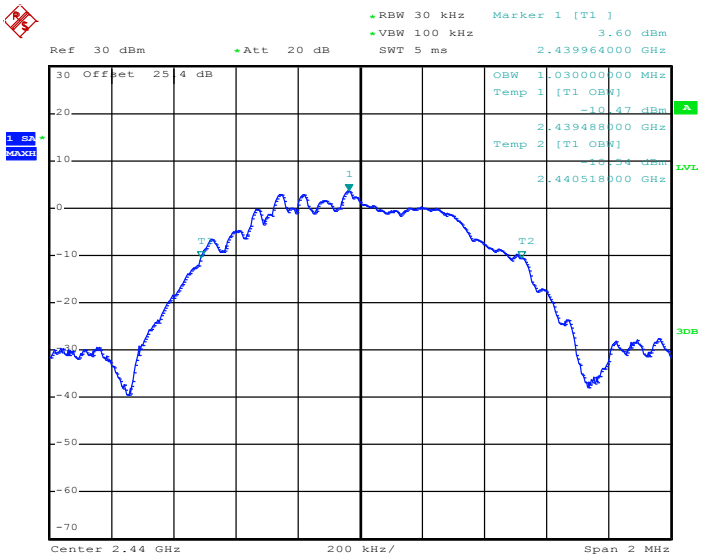
1Mbps

99% Bandwidth Plot on Channel 00



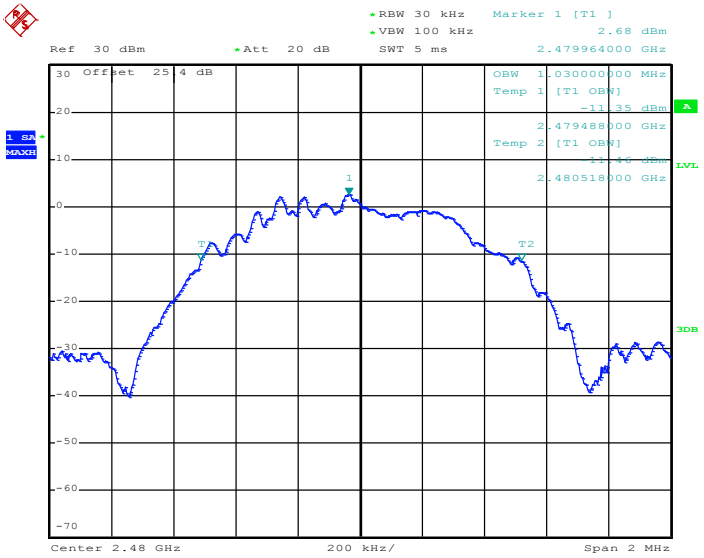
Date: 17.JUL.2018 14:16:16

99% Occupied Bandwidth Plot on Channel 19



Date: 17.JUL.2018 14:18:02

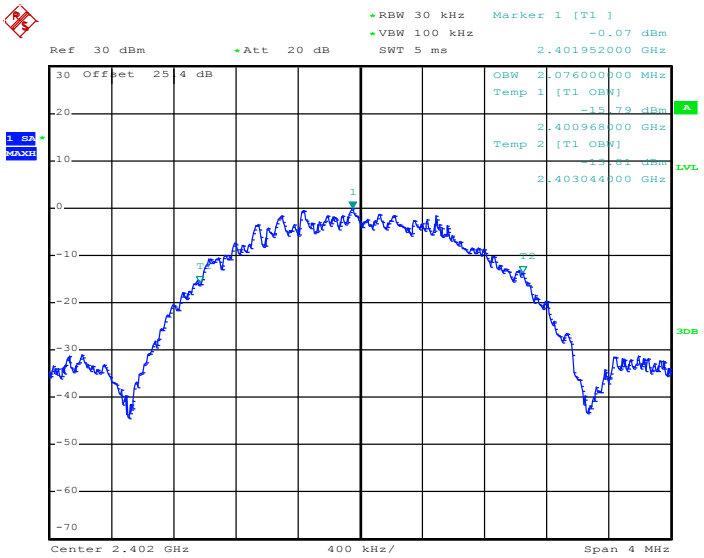
99% Occupied Bandwidth Plot on Channel 39



Date: 17.JUL.2018 14:25:19

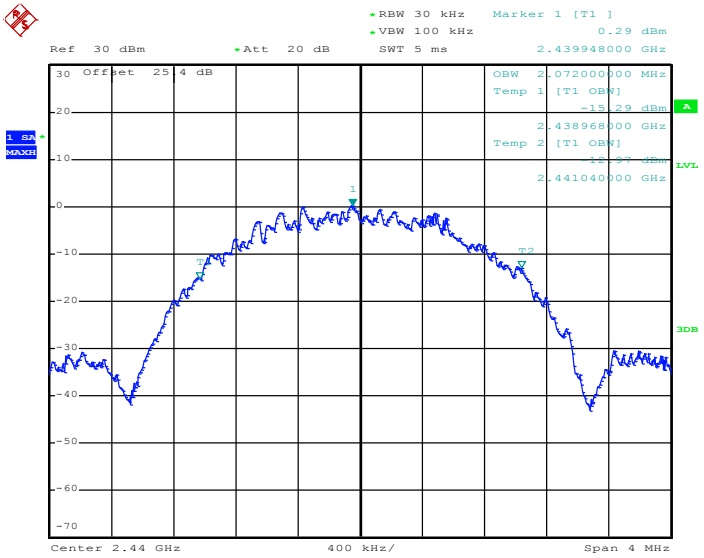
2Mbps

99% Bandwidth Plot on Channel 00



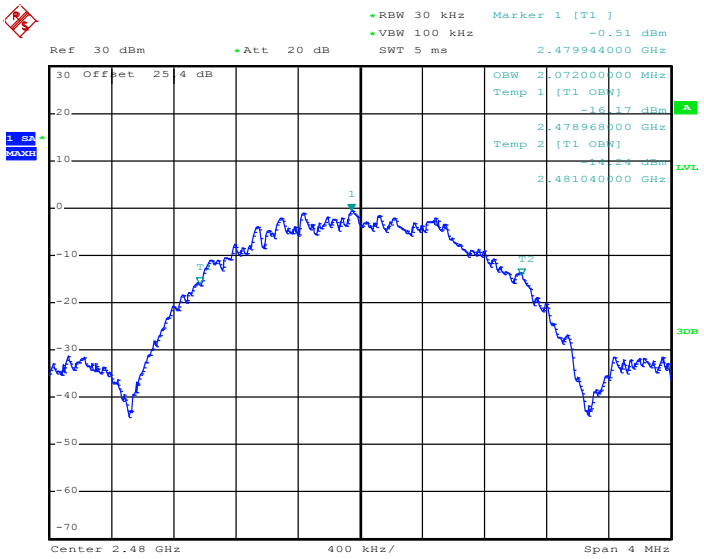
Date: 17.JUL.2018 14:34:57

99% Occupied Bandwidth Plot on Channel 19



Date: 17.JUL.2018 14:39:00

99% Occupied Bandwidth Plot on Channel 39



Date: 17.JUL.2018 14:43:59

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

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

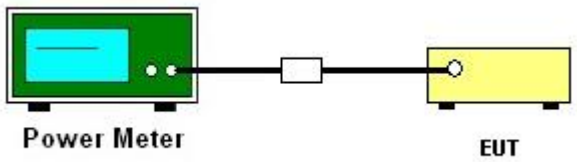
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.2.6 Test Result of Average Output Power (Reporting Only)

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

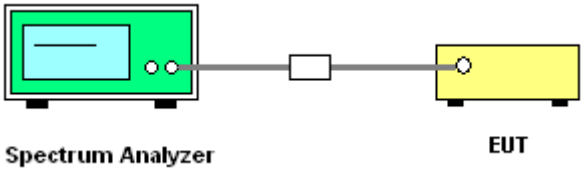
3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. The Measured power density (dBm)/ 100kHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

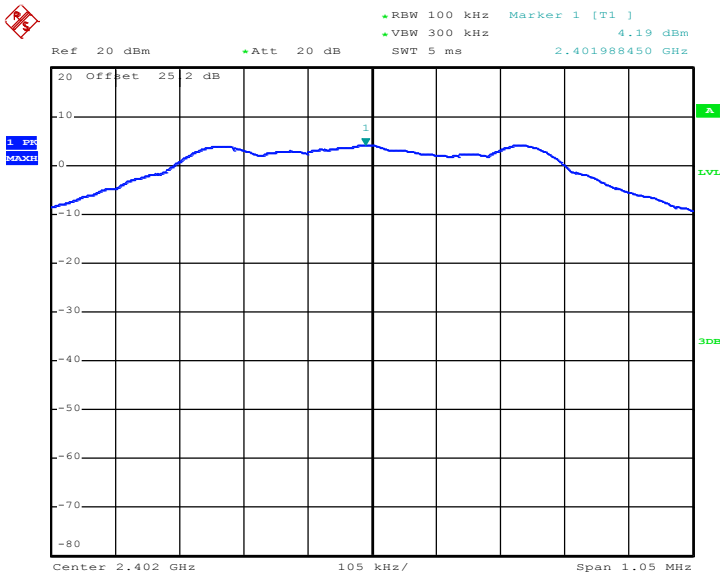
Please refer to Appendix A.

3.3.6 Test Result of Power Spectral Density Plots (100kHz)

<Ant. 1>

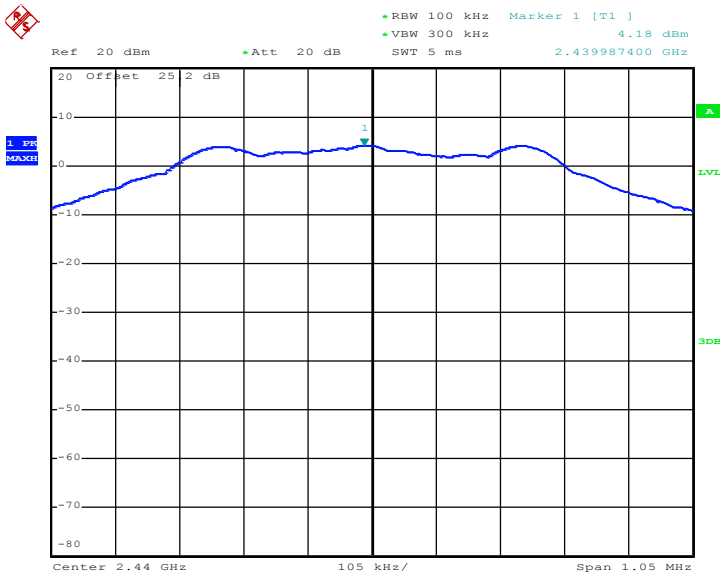
1Mpbs

PSD 100kHz Plot on Channel 00



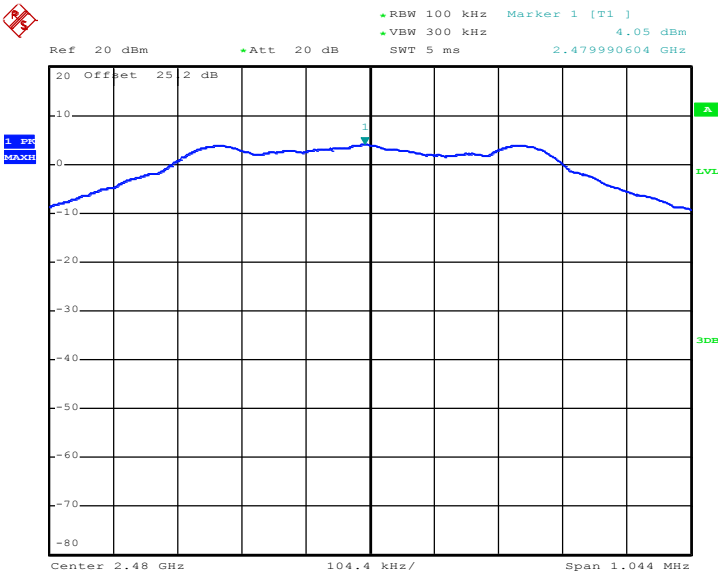
Date: 17.JUL.2018 07:46:08

PSD 100kHz Plot on Channel 19



Date: 17.JUL.2018 07:50:22

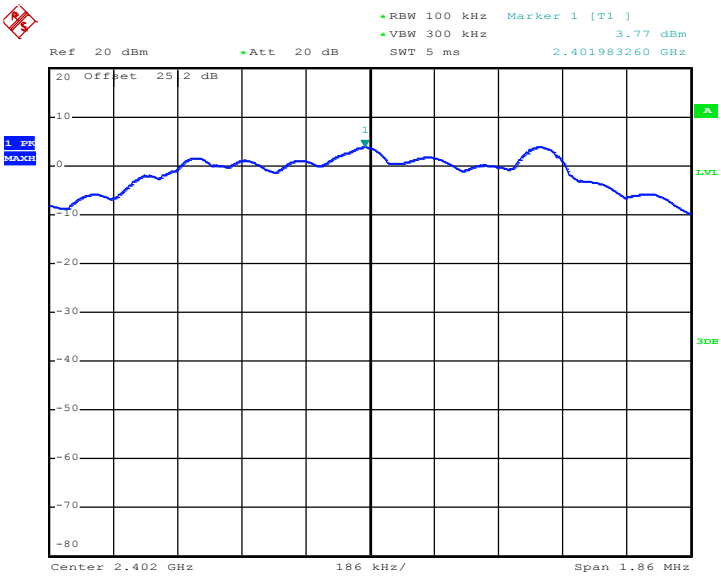
PSD 100kHz Plot on Channel 39



Date: 17.JUL.2018 07:54:28

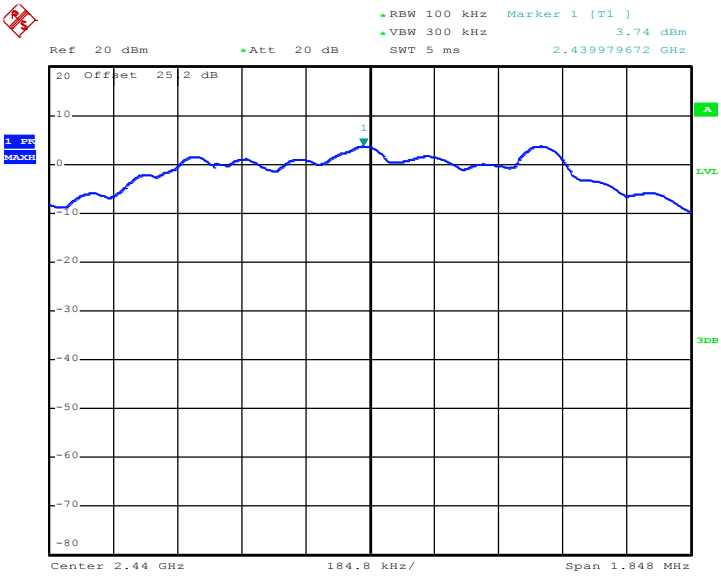
2Mpbs

PSD 100kHz Plot on Channel 00



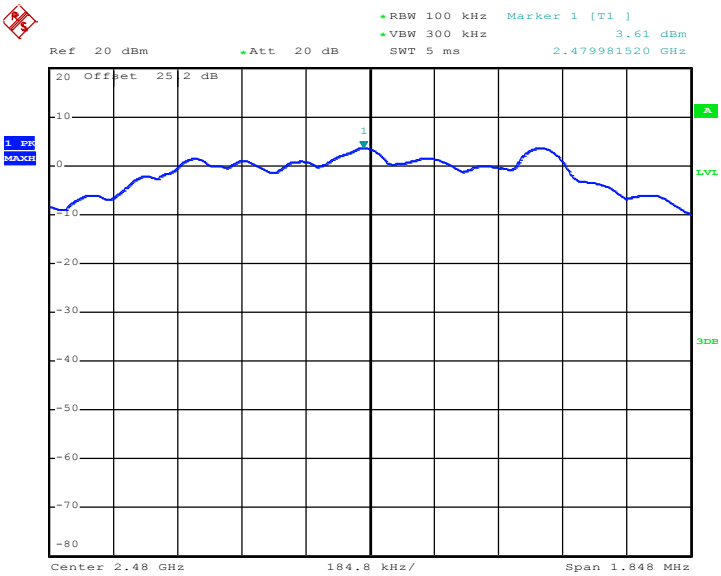
Date: 17.JUL.2018 08:01:02

PSD 100kHz Plot on Channel 19



Date: 17.JUL.2018 08:06:03

PSD 100kHz Plot on Channel 39

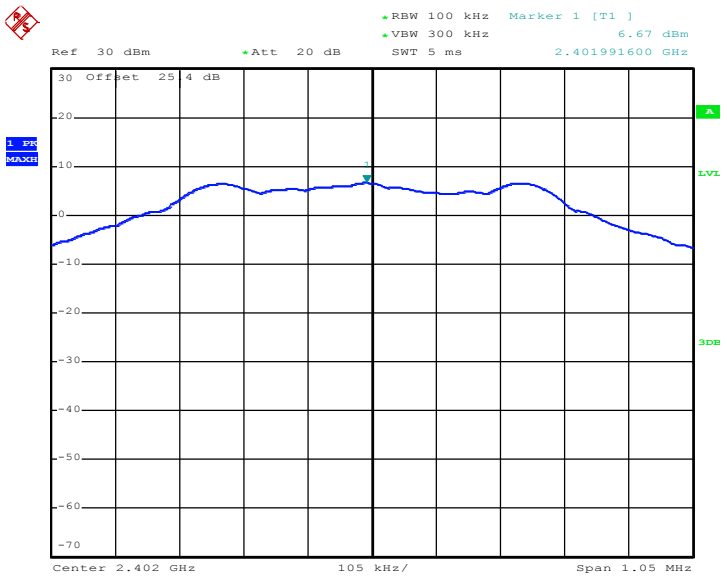


Date: 17.JUL.2018 08:11:33

<Ant. 2>

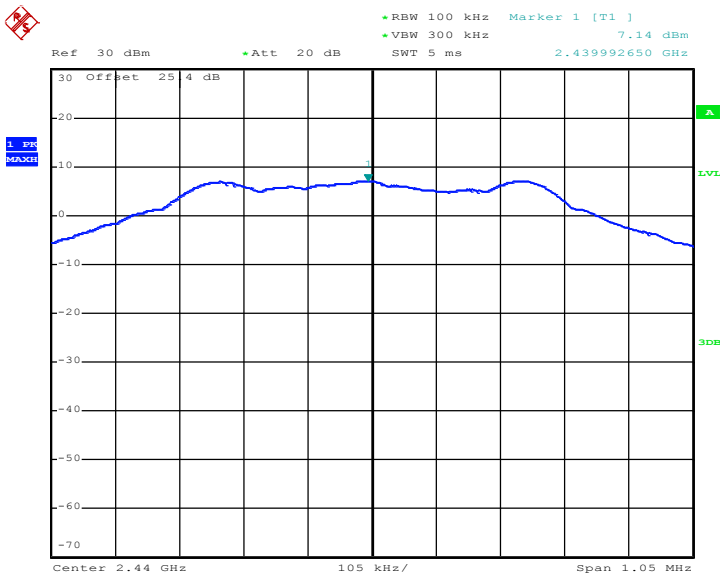
1Mpbs

PSD 100kHz Plot on Channel 00



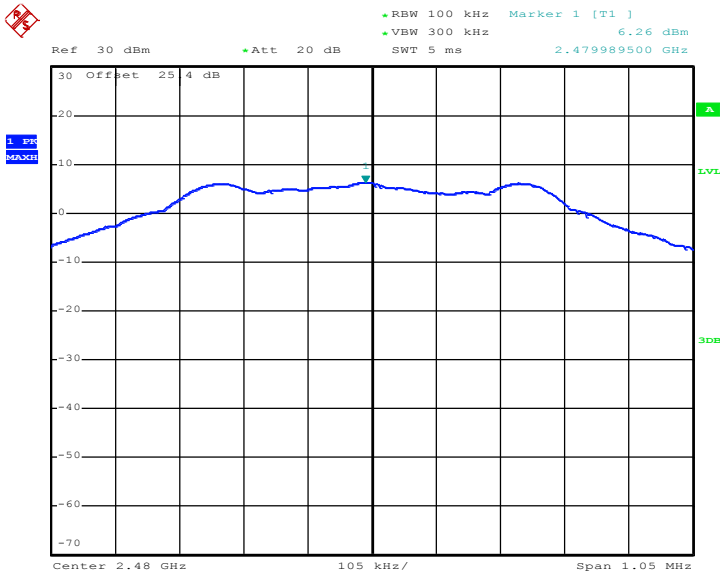
Date: 17.JUL.2018 14:05:51

PSD 100kHz Plot on Channel 19



Date: 17.JUL.2018 14:19:49

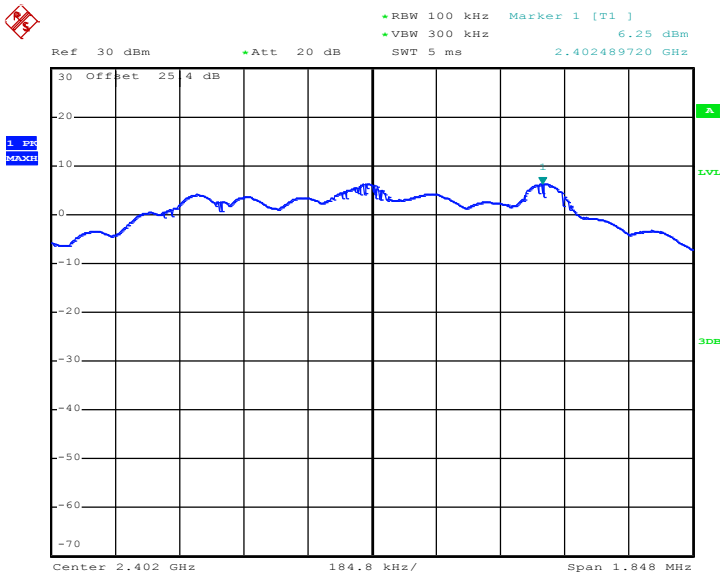
PSD 100kHz Plot on Channel 39



Date: 17.JUL.2018 14:23:40

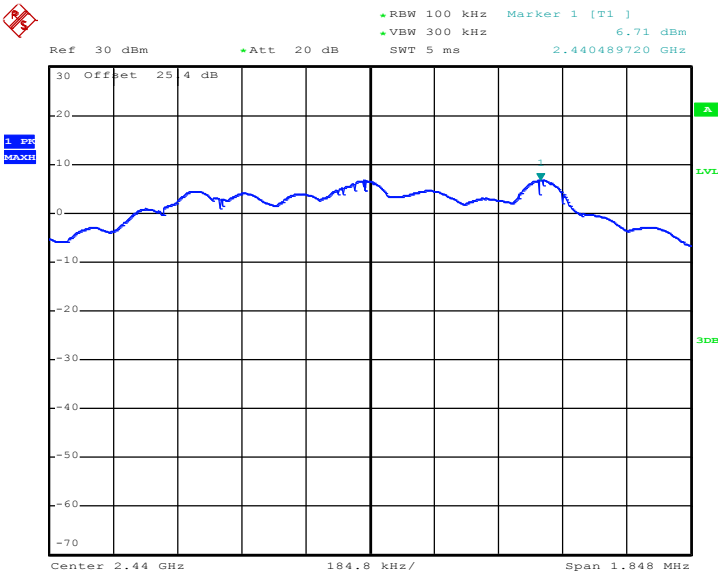
2Mpbs

PSD 100kHz Plot on Channel 00



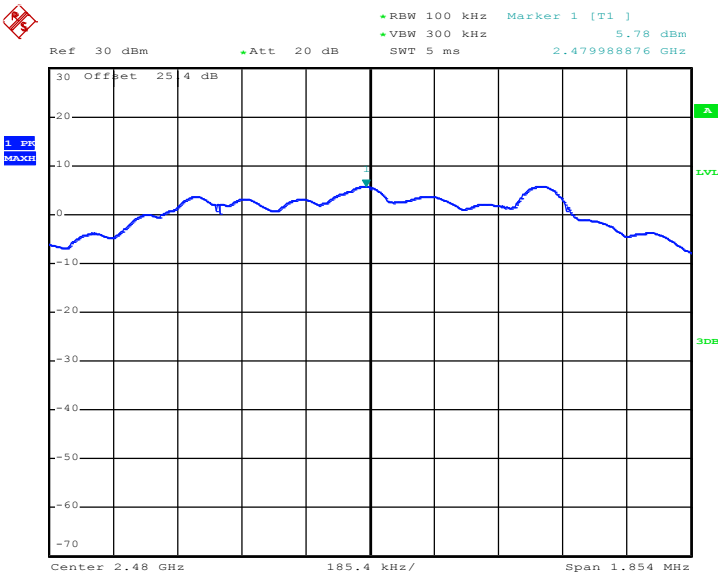
Date: 17.JUL.2018 14:32:22

PSD 100kHz Plot on Channel 19



Date: 17.JUL.2018 14:37:57

PSD 100kHz Plot on Channel 39



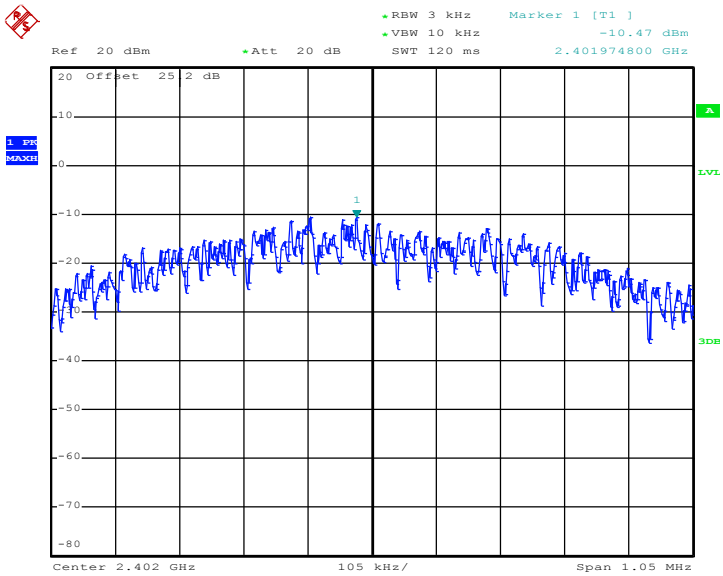
Date: 17.JUL.2018 14:41:48

3.3.7 Test Result of Power Spectral Density Plots (3kHz)

<Ant. 1>

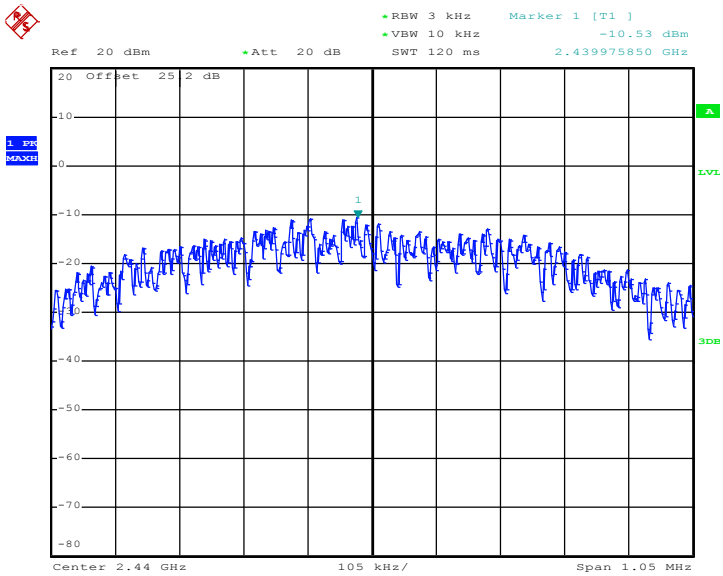
1Mbps

PSD 3kHz Plot on Channel 00



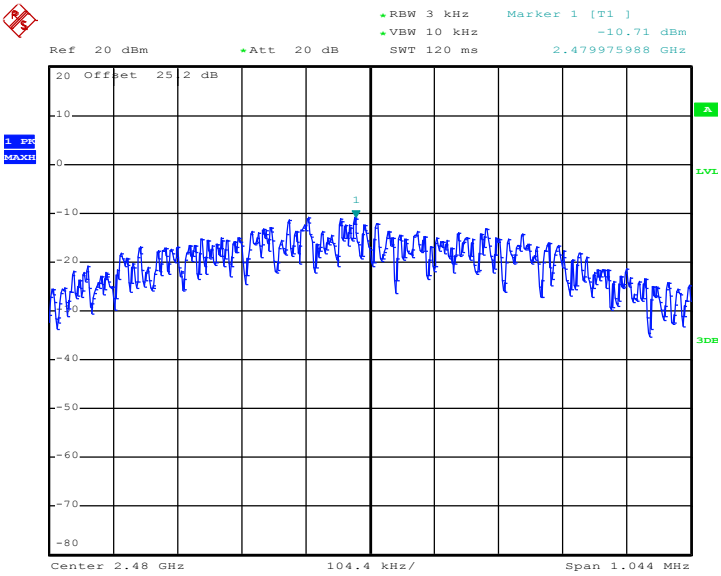
Date: 17.JUL.2018 07:45:48

PSD 3kHz Plot on Channel 19



Date: 17.JUL.2018 07:50:09

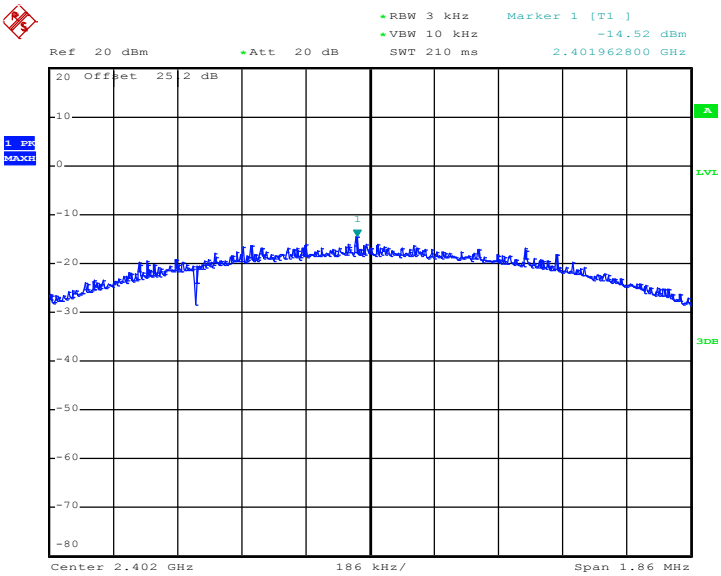
PSD 3kHz Plot on Channel 39



Date: 17.JUL.2018 07:54:11

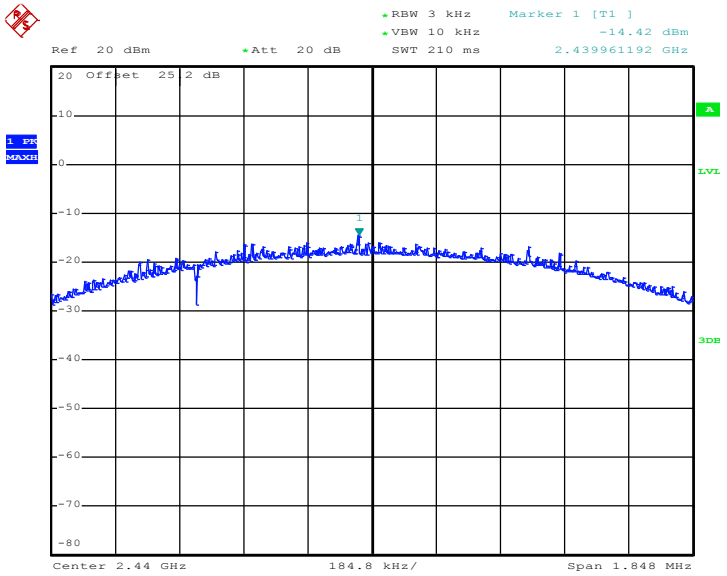
2Mbps

PSD 3kHz Plot on Channel 00



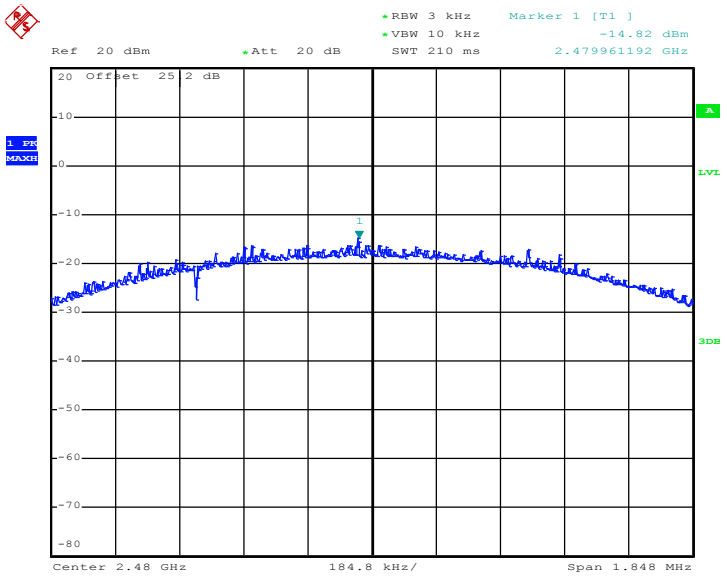
Date: 17.JUL.2018 08:00:21

PSD 3kHz Plot on Channel 19



Date: 17.JUL.2018 08:05:30

PSD 3kHz Plot on Channel 39

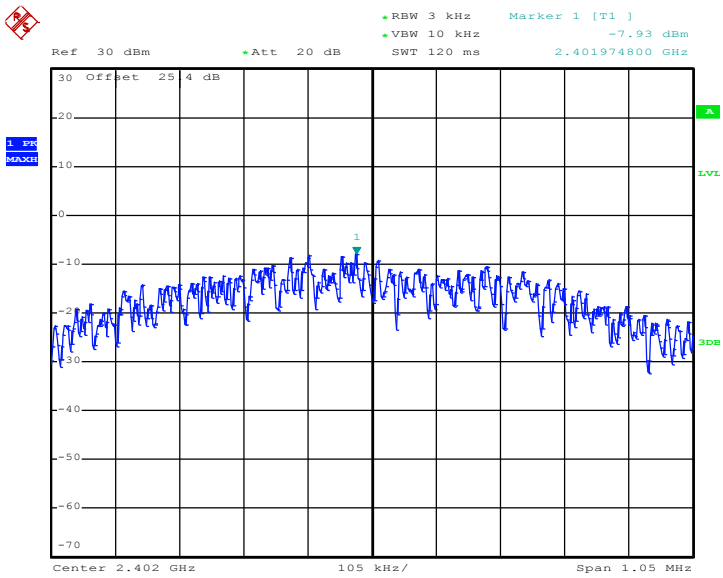


Date: 17.JUL.2018 08:10:32

<Ant. 2>

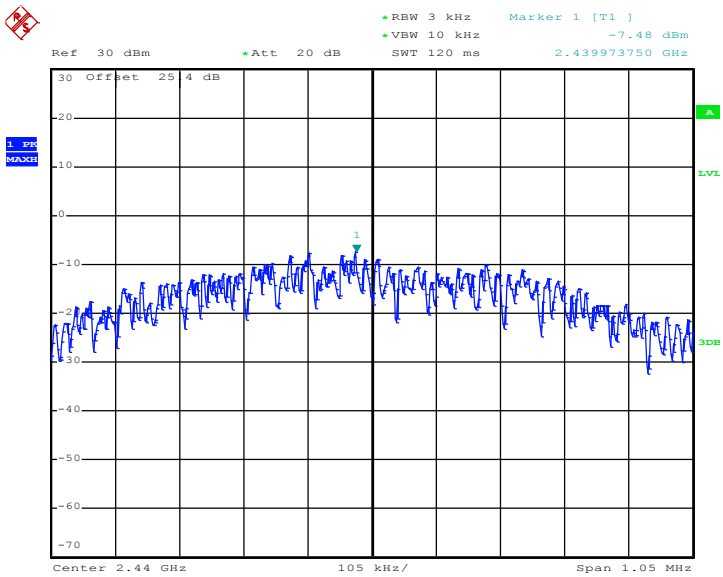
1Mbps

PSD 3kHz Plot on Channel 00



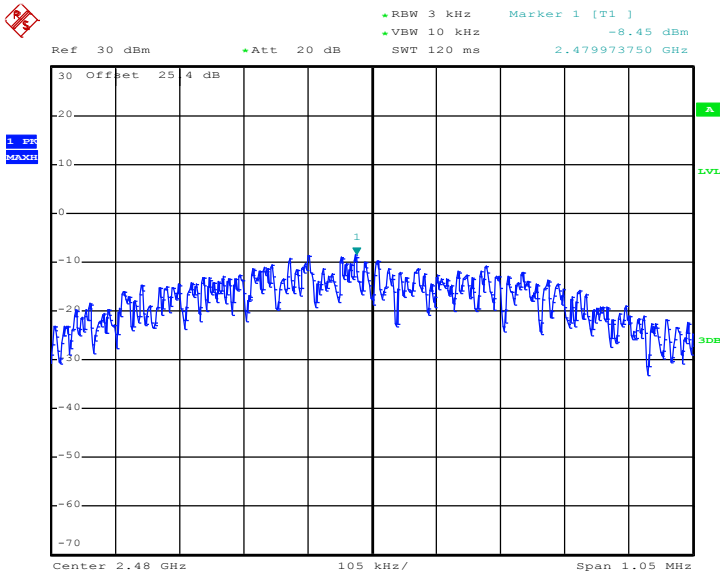
Date: 17.JUL.2018 14:05:05

PSD 3kHz Plot on Channel 19



Date: 17.JUL.2018 14:19:20

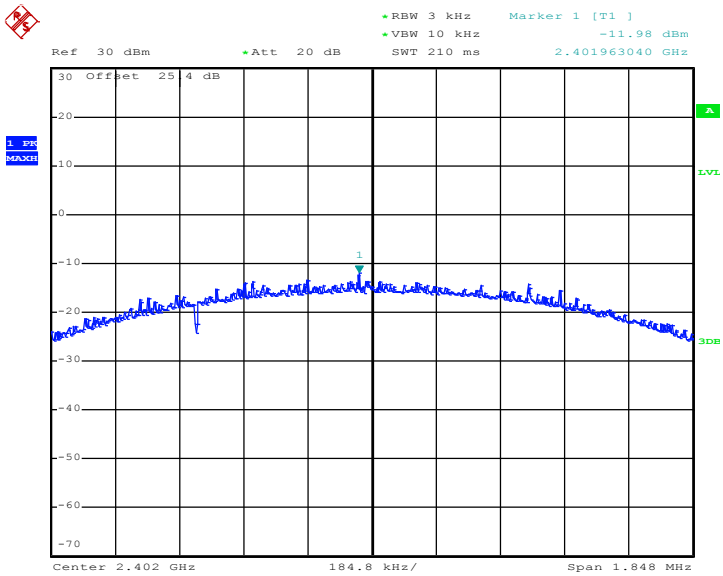
PSD 3kHz Plot on Channel 39



Date: 17.JUL.2018 14:23:26

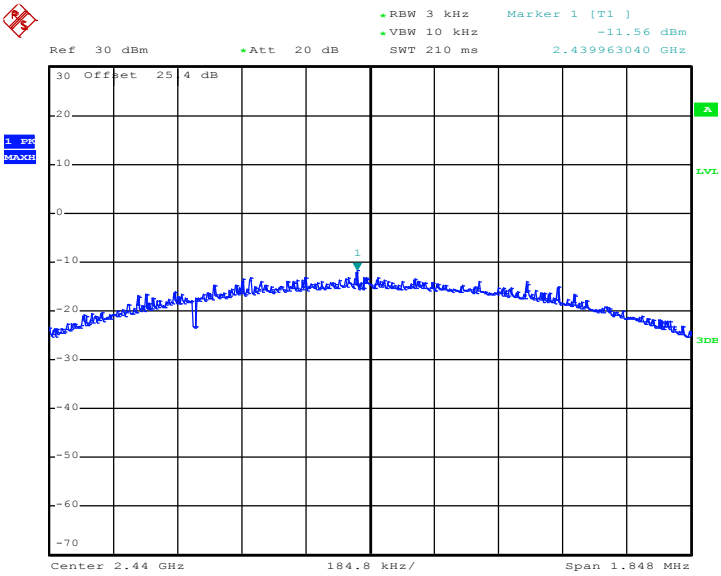
2Mbps

PSD 3kHz Plot on Channel 00



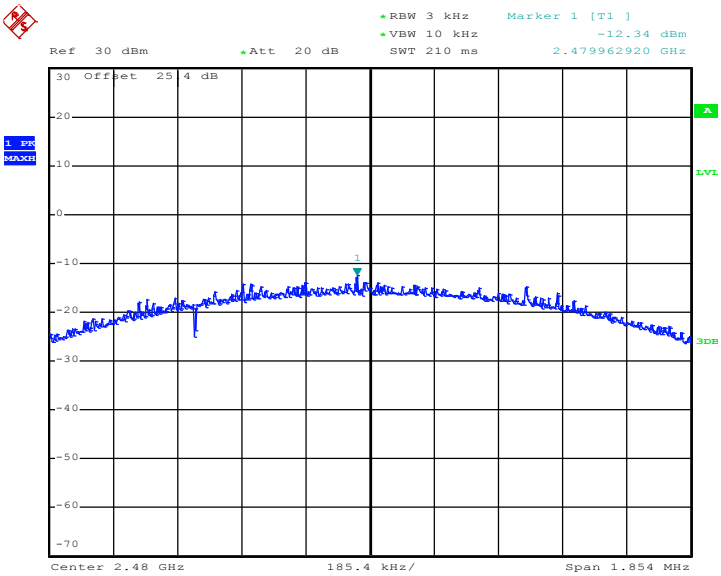
Date: 17.JUL.2018 14:32:00

PSD 3kHz Plot on Channel 19



Date: 17.JUL.2018 14:37:35

PSD 3kHz Plot on Channel 39



Date: 17.JUL.2018 14:40:56

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

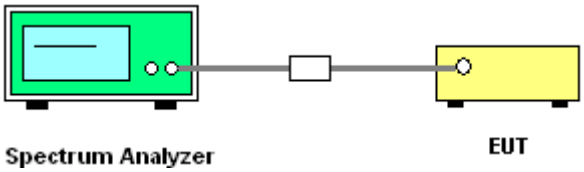
3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedure

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

3.4.4 Test Setup

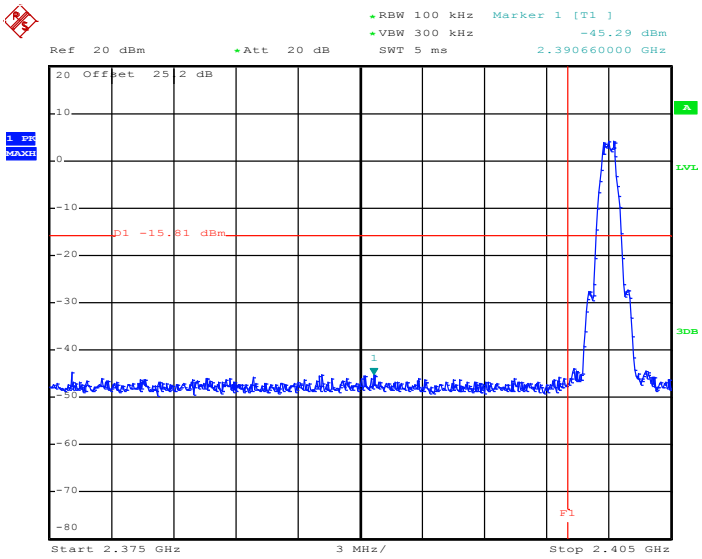


3.4.5 Test Result of Conducted Band Edges Plots

<Ant. 1>

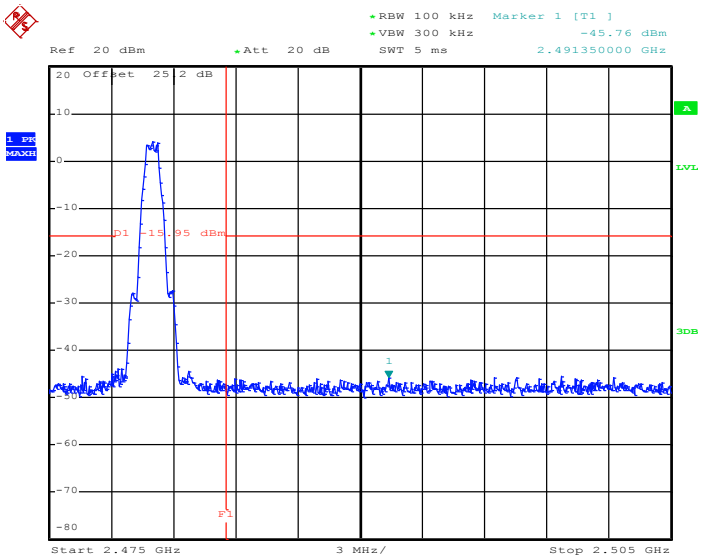
1Mbps

Low Band Edge Plot on Channel 00



Date: 17.JUL.2018 07:46:28

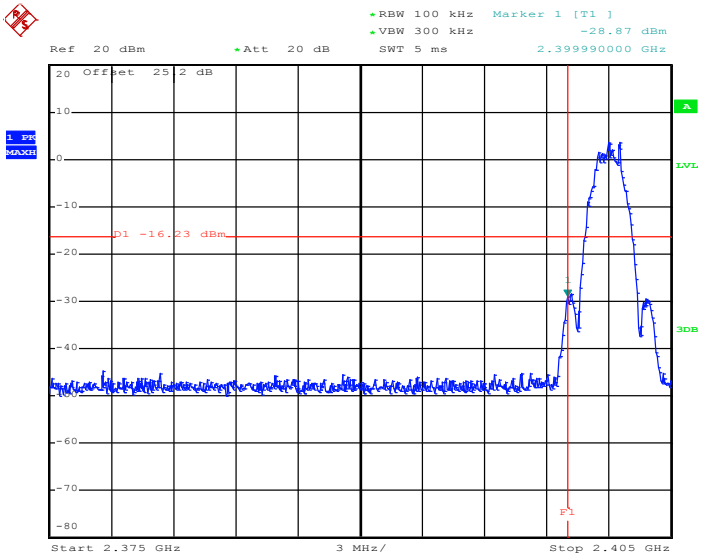
High Band Edge Plot on Channel 39



Date: 17.JUL.2018 07:54:47

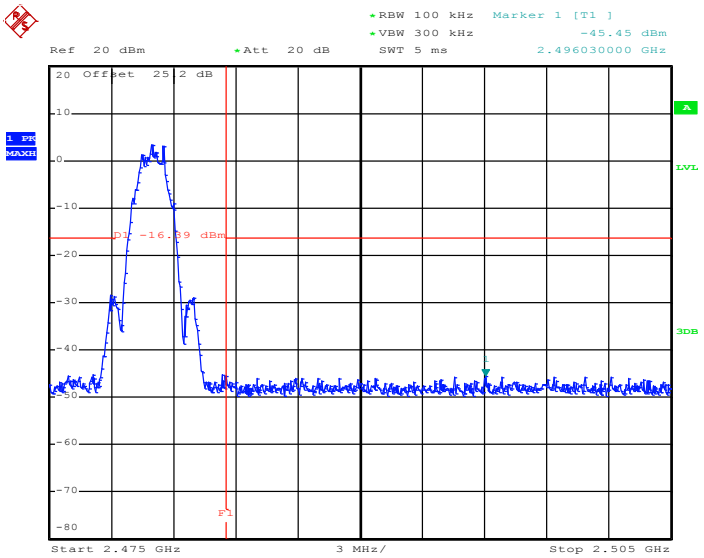
2Mbps

Low Band Edge Plot on Channel 00



Date: 17.JUL.2018 08:01:18

High Band Edge Plot on Channel 39

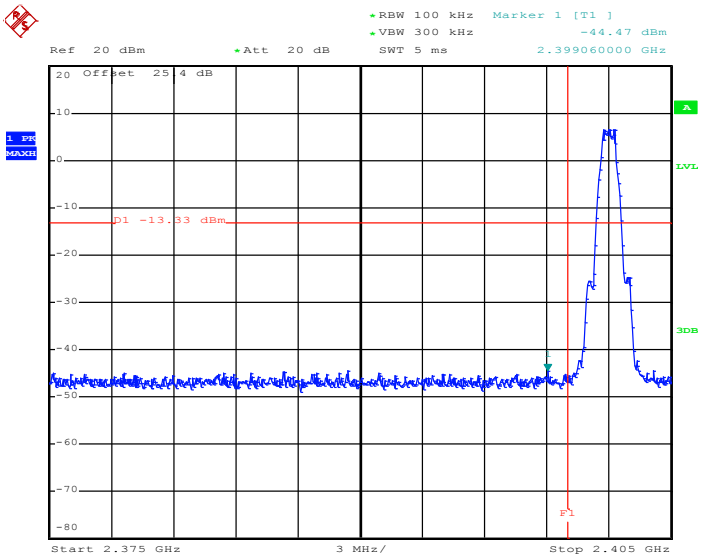


Date: 17.JUL.2018 08:11:50

<Ant. 2>

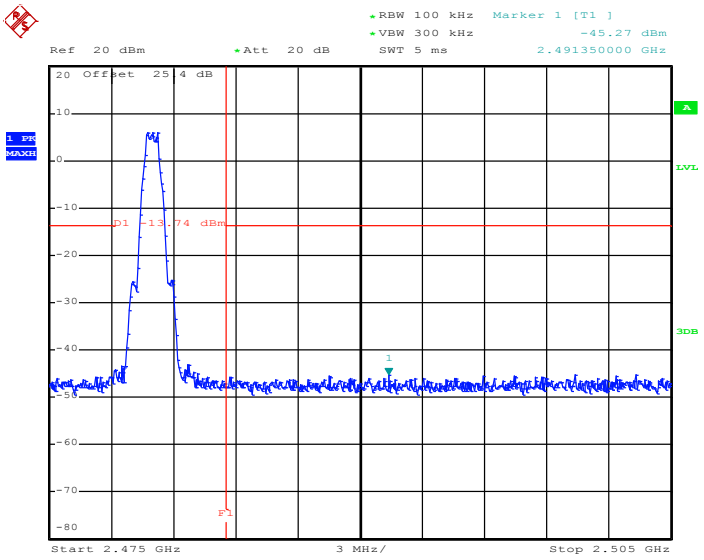
1Mbps

Low Band Edge Plot on Channel 00



Date: 17.JUL.2018 14:07:12

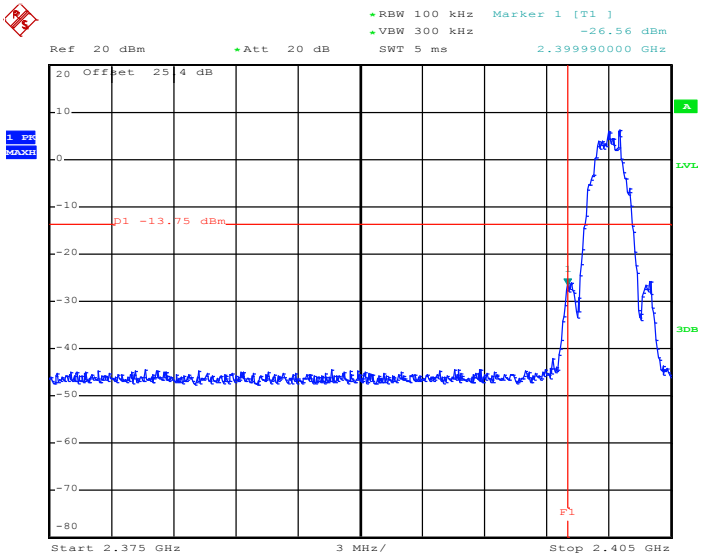
High Band Edge Plot on Channel 39



Date: 17.JUL.2018 14:24:00

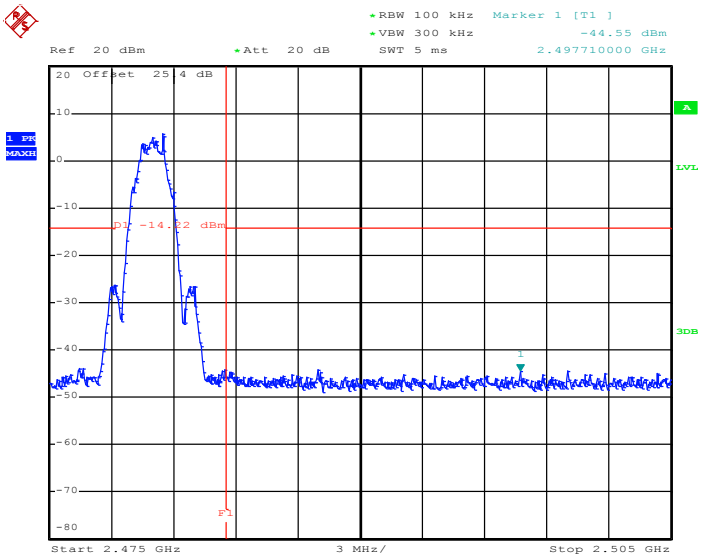
2Mbps

Low Band Edge Plot on Channel 00



Date: 17.JUL.2018 14:33:36

High Band Edge Plot on Channel 39



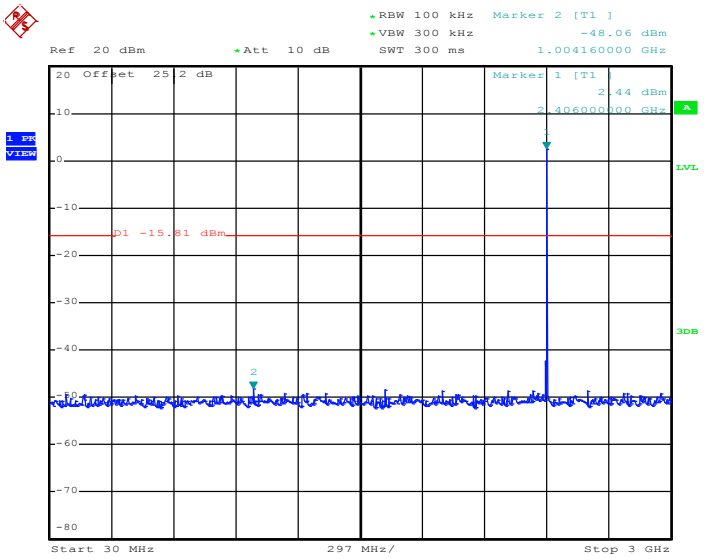
Date: 17.JUL.2018 14:42:42

3.4.6 Test Result of Conducted Spurious Emission Plots

<Ant. 1>

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

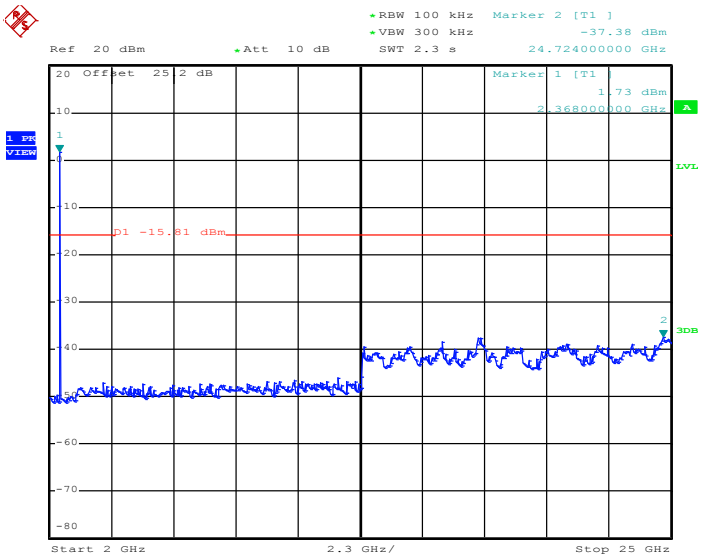
GFSK Channel 00



Date: 17.JUL.2018 07:46:50

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

GFSK Channel 00



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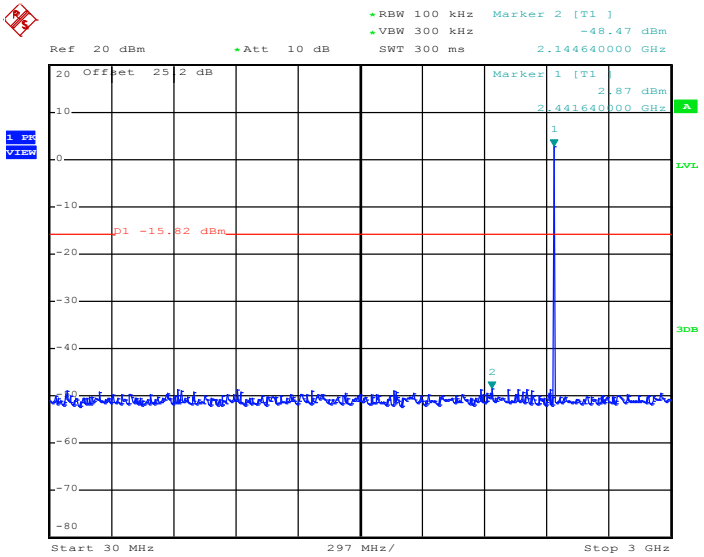
Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

GFSK Channel 19



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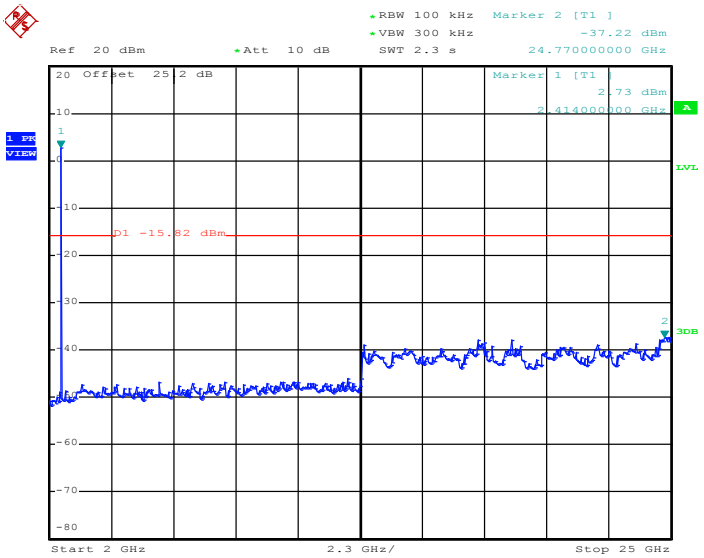
Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

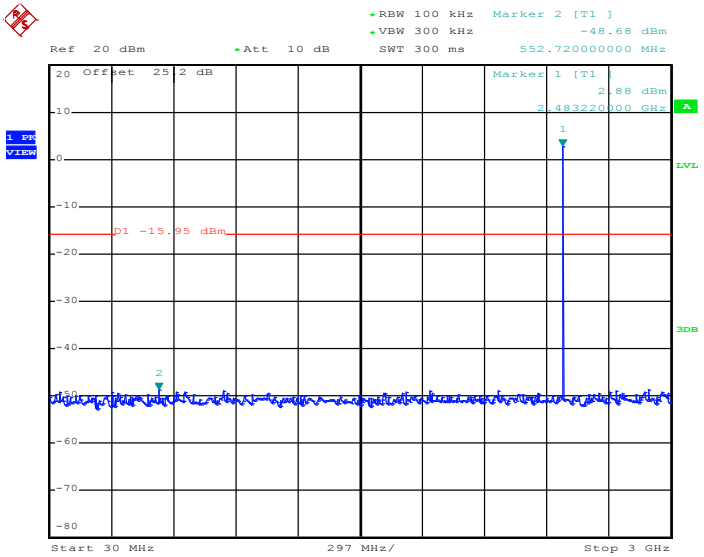
GFSK Channel 19



Date: 17.JUL.2018 07:51:03

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

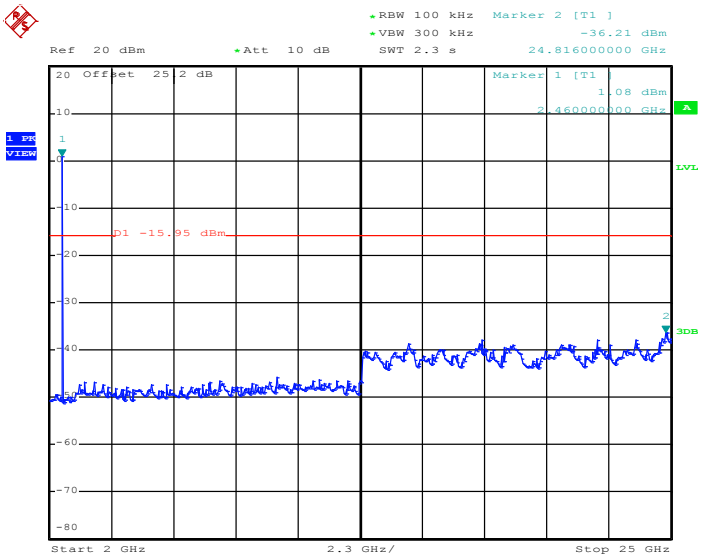
GFSK Channel 39



Date: 17.JUL.2018 07:55:06

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

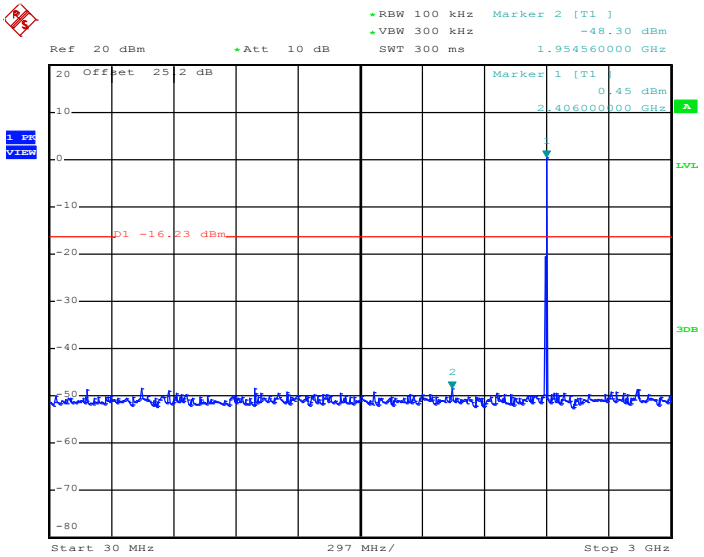
GFSK Channel 39



Date: 17.JUL.2018 07:55:22

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

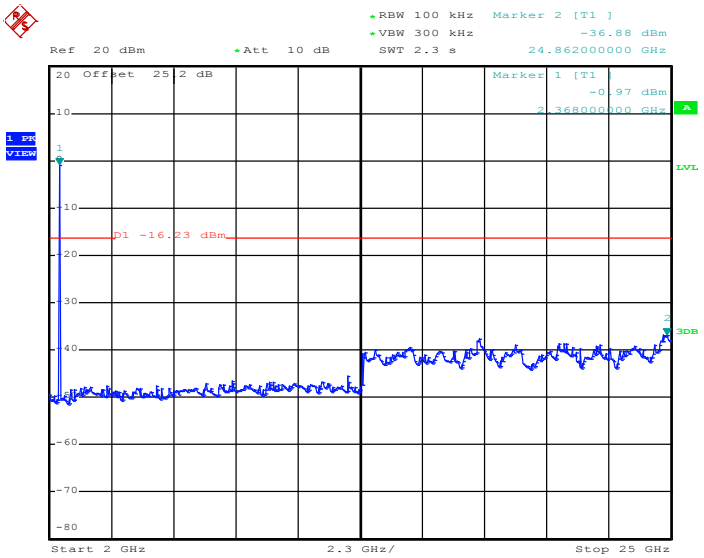
GFSK Channel 00



Date: 17.JUL.2018 08:01:56

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

GFSK Channel 00



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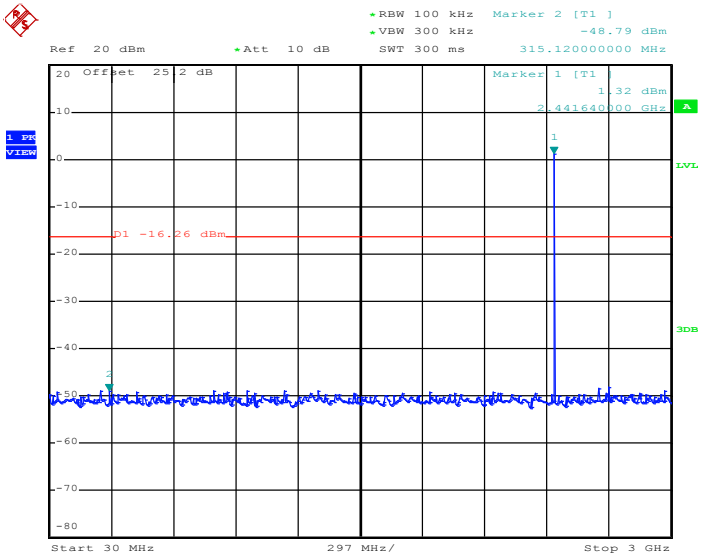
Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

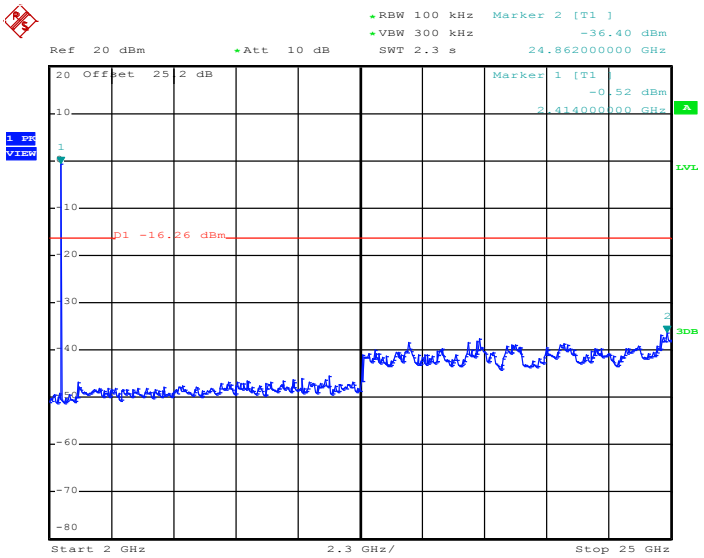
GFSK Channel 19



Date: 17.JUL.2018 08:06:25

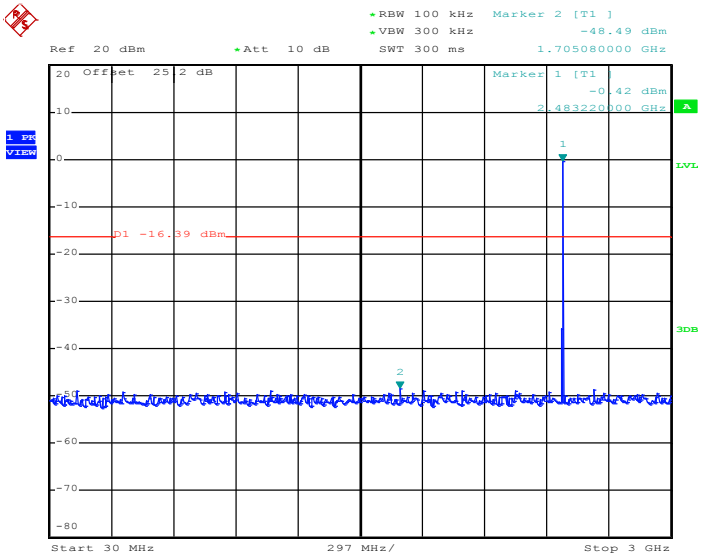
Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

GFSK Channel 19



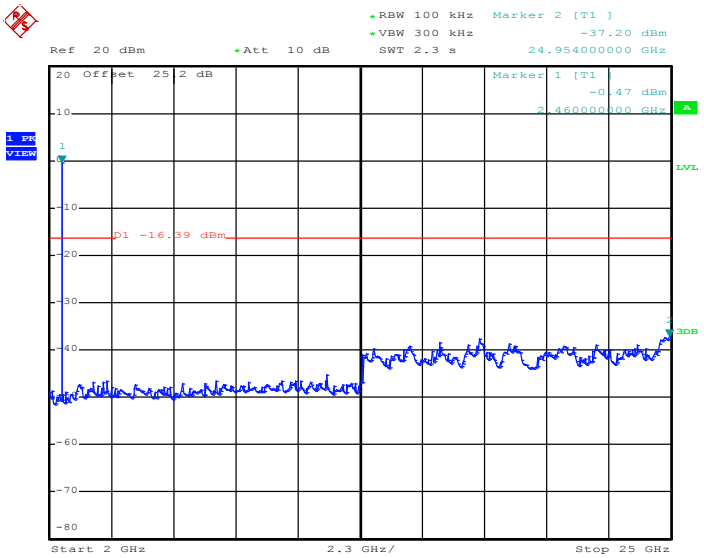
Date: 17.JUL.2018 08:06:41

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps GFSK Channel 39



Date: 17.JUL.2018 08:12:07

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps GFSK Channel 39



Date: 17.JUL.2018 08:12:21

<Ant. 2>

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

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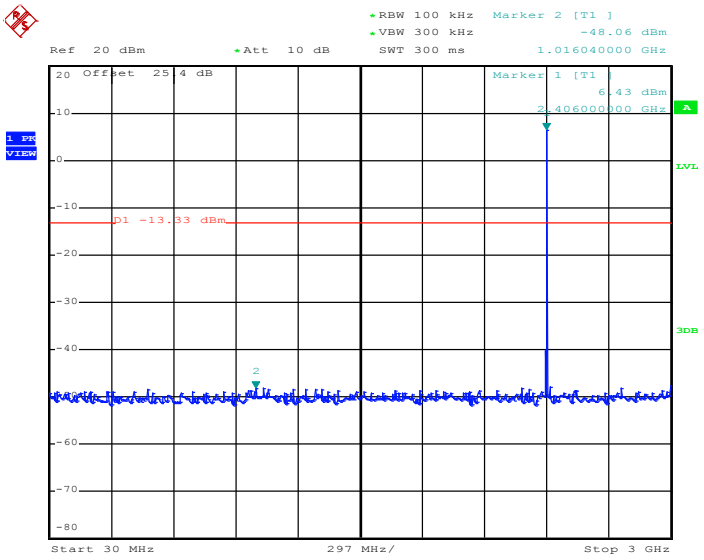
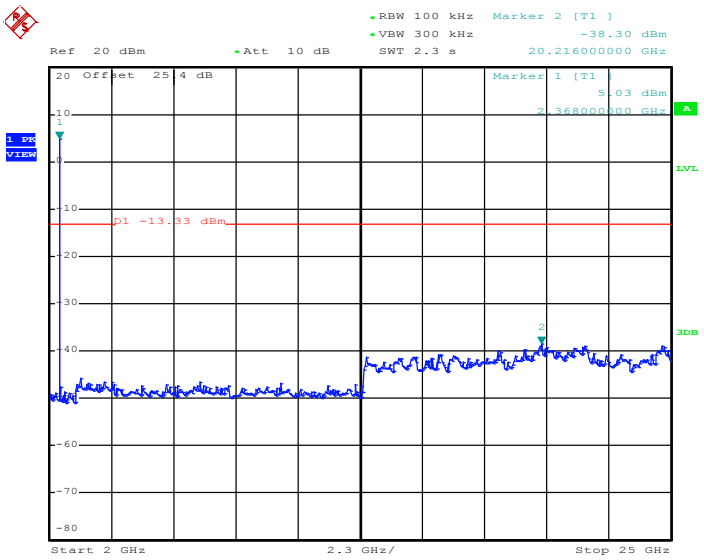


Date: 17.JUL.2018 14:14:29

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

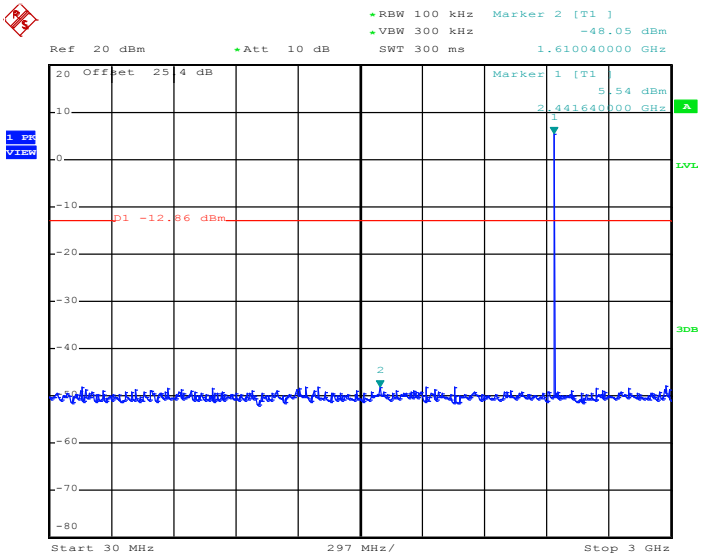
GFSK Channel 00



Date: 17.JUL.2018 14:15:45

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

GFSK Channel 19



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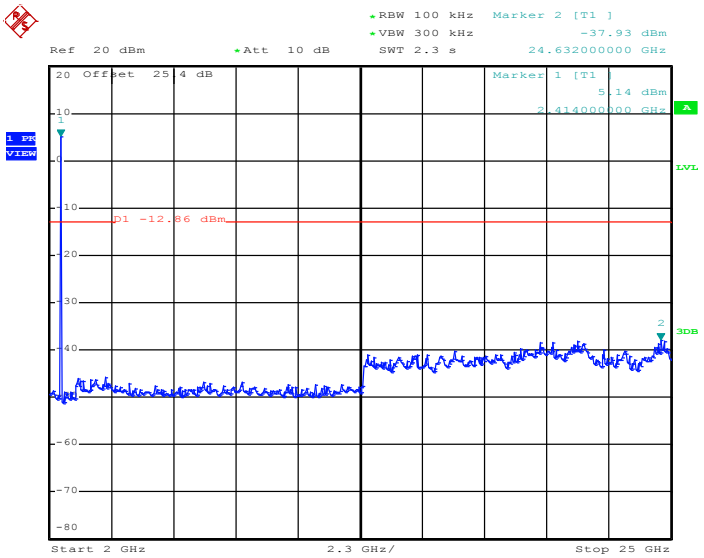
Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

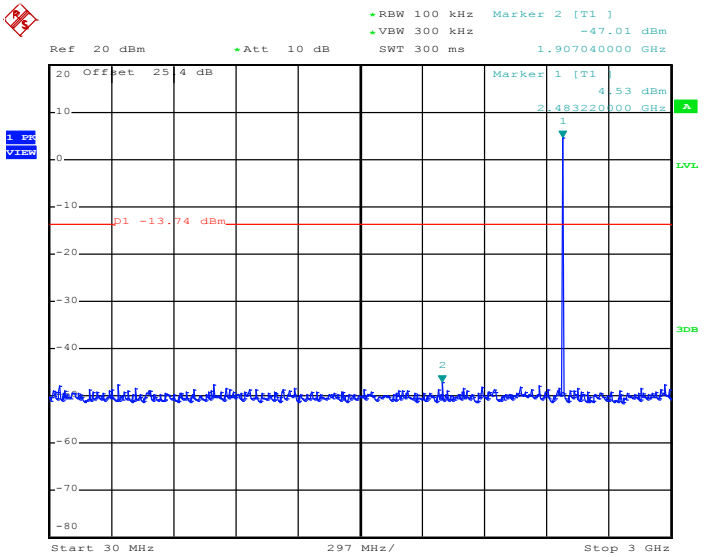
GFSK Channel 19



Date: 17.JUL.2018 14:21:18

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

GFSK Channel 39



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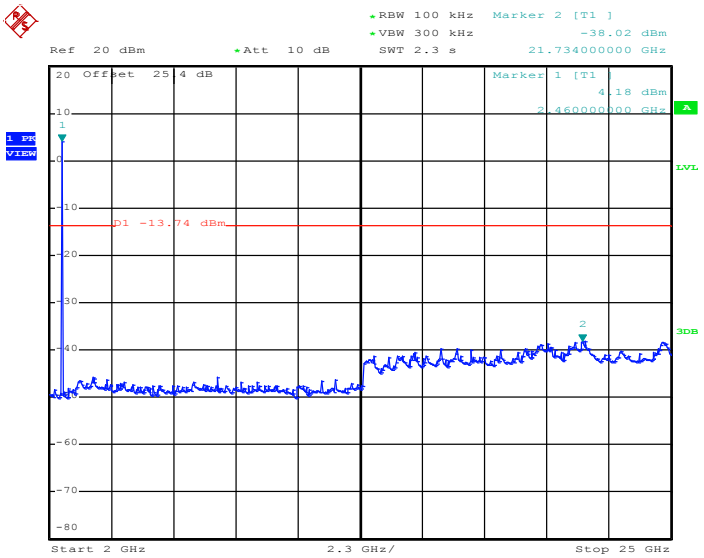
Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

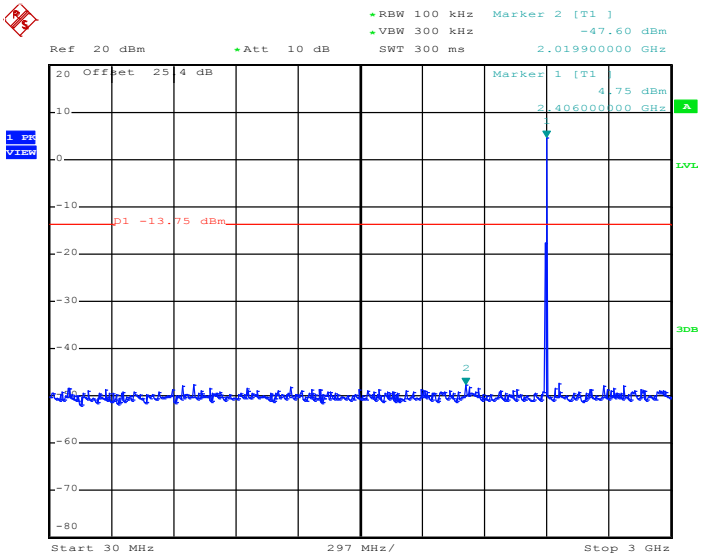
GFSK Channel 39



Date: 17.JUL.2018 14:25:02

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

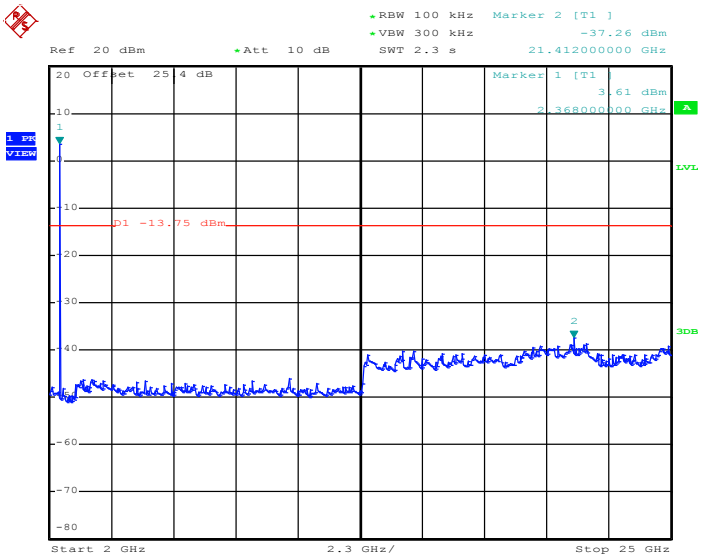
GFSK Channel 00



Date: 17.JUL.2018 14:34:21

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

GFSK Channel 00



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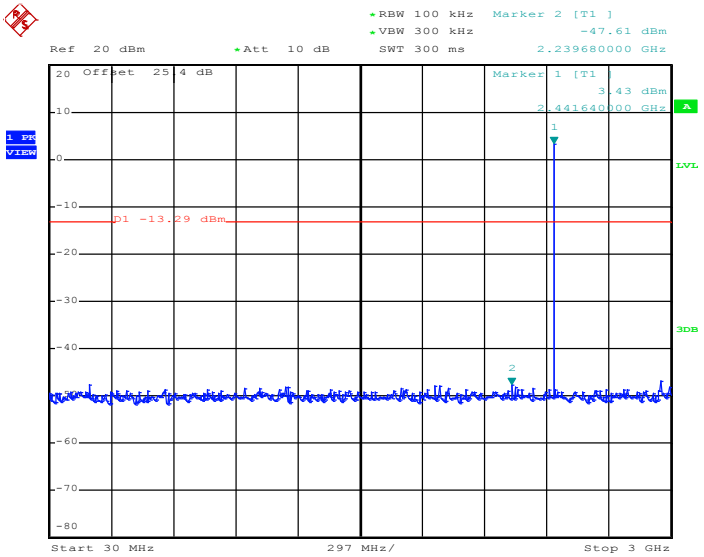
Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

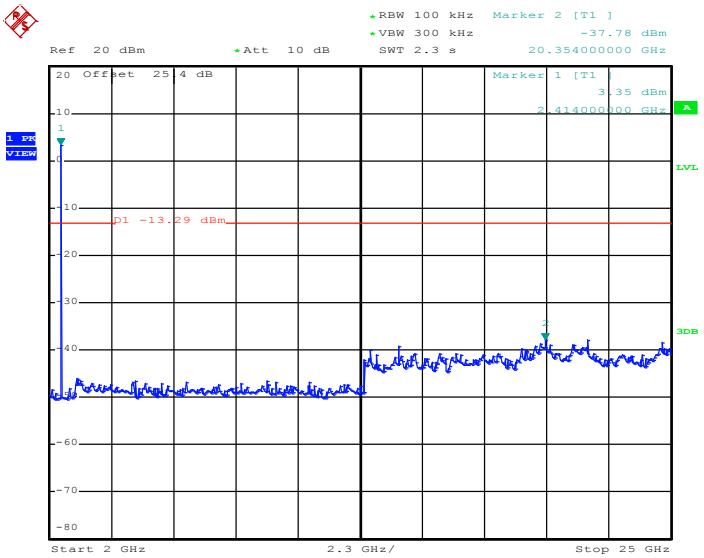
GFSK Channel 19



Date: 17.JUL.2018 14:38:25

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

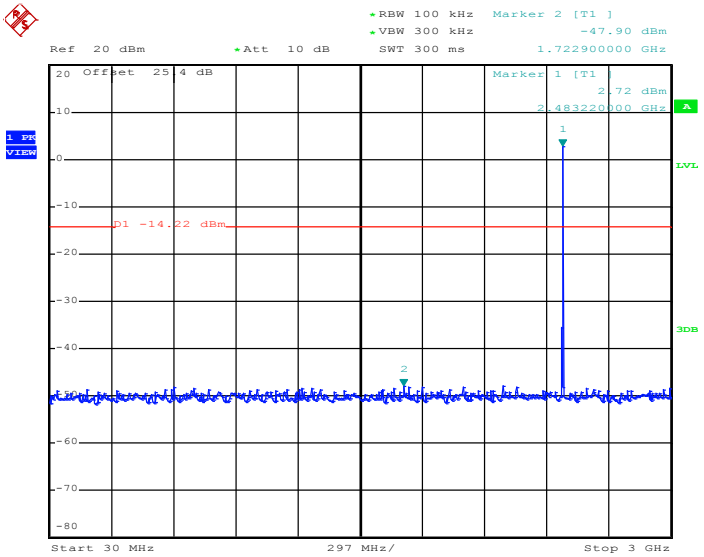
GFSK Channel 19



Date: 17.JUL.2018 14:38:41

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

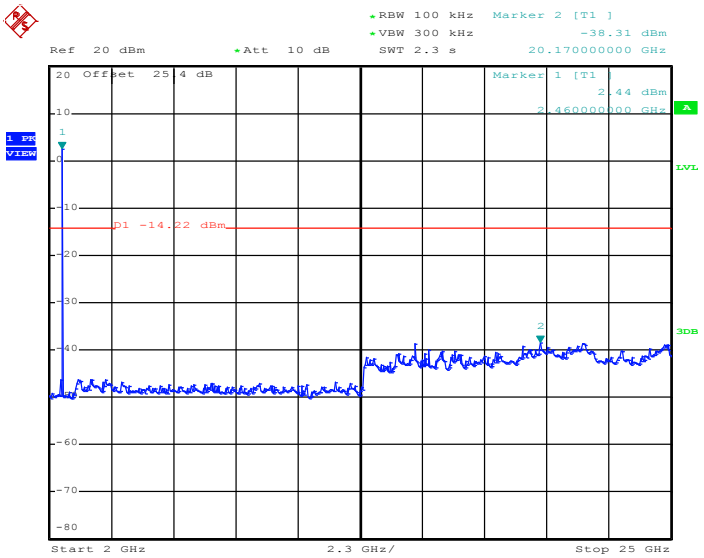
GFSK Channel 39



Date: 17.JUL.2018 14:43:02

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

GFSK Channel 39



Date: 17.JUL.2018 14:43:33

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

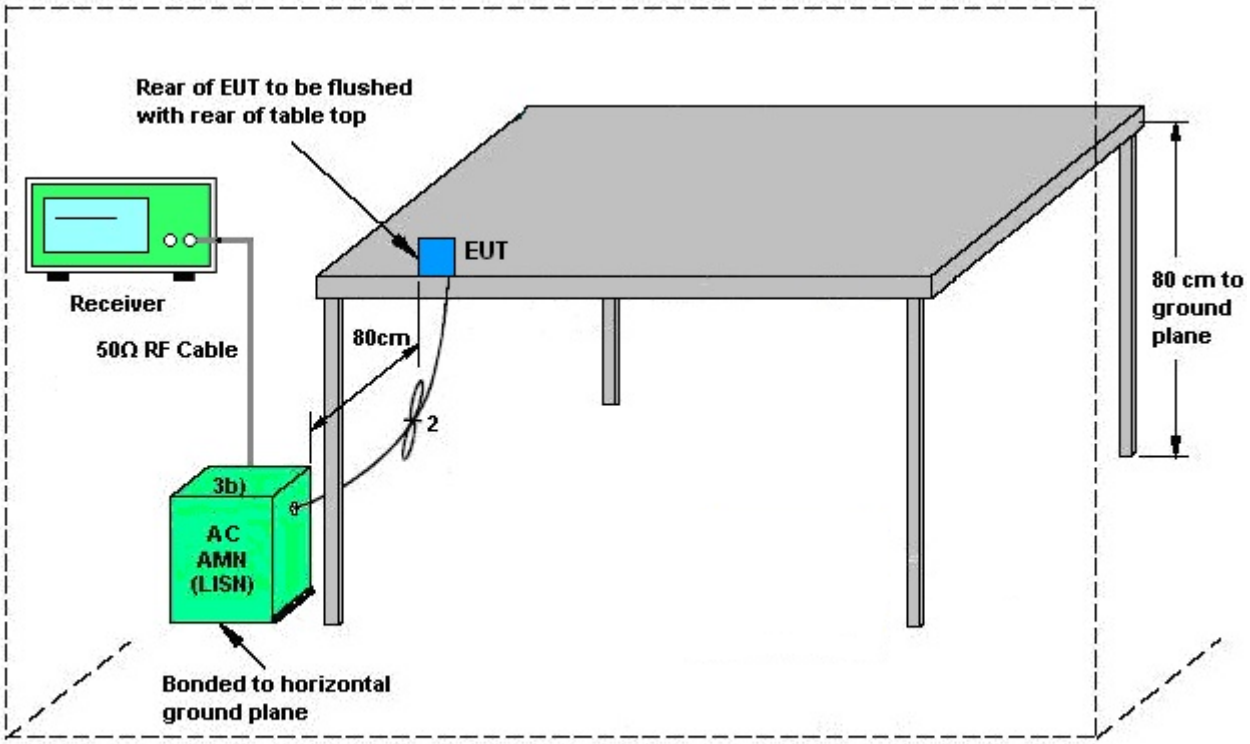
3.5.2 Measuring Instruments

See list of measuring equipment of this test report.

3.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.5.4 Test Setup



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

3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1 Standard Applicable

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

3.6.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.6.3 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
Hygrometer	Testo	DTM-303A	TP157075	N/A	Mar. 06, 2018	Jun. 26,2018~ Jul. 17,2018,	Mar. 05, 2019	Conducted (TH05-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Dec. 20, 2017	Jun. 26,2018~ Jul. 17,2018,	Dec. 19, 2018	Conducted (TH05-HY)
Power Sensor	Agilent	E9327A	US40441548	50MHz~18GHz	Dec. 20, 2017	Jun. 26,2018~ Jul. 17,2018,	Dec. 19, 2018	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 21, 2017	Jun. 26,2018~ Jul. 17,2018,	Nov. 20, 2018	Conducted (TH05-HY)
Switch Box & RF Cable	Burgeon	ETF-058	EC1300484	N/A	Mar. 01, 2018	Jun. 26,2018~ Jul. 17,2018,	Feb. 28, 2019	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 09, 2017	Jun. 26,2018~ Jul. 17,2018,	Nov. 08, 2018	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jun. 25, 2018	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	3.6GHz	Dec. 08, 2017	Jun. 25, 2018	Dec. 07, 2018	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 30, 2017	Jun. 25, 2018	Nov. 29, 2018	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Jun. 25, 2018	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 03, 2018	Jun. 25, 2018	Jan. 02, 2019	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 03, 2018	Jun. 25, 2018	Jan. 02, 2019	Conduction (CO05-HY)

5 Uncertainty of Evaluation

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

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

Appendix A. Test Result of Conducted Test Items

<For Ant. 1>

Test Engineer:	Kai Liao	Temperature:	21~25	°C
Test Date:	2018/6/26 ~ 2018/7/17	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	NTx	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE	1Mbps	1	0	2402	1.030	0.700	0.50	Pass
BLE	1Mbps	1	19	2440	1.030	0.700	0.50	Pass
BLE	1Mbps	1	39	2480	1.028	0.696	0.50	Pass

TEST RESULTS DATA
Peak Power Table

Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE	1Mbps	1	0	2402	5.87	30.00	2.10	7.97	36.00	Pass
BLE	1Mbps	1	19	2440	5.84	30.00	2.10	7.94	36.00	Pass
BLE	1Mbps	1	39	2480	5.25	30.00	2.10	7.35	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
BLE	1Mbps	1	0	2402	2.22	5.24
BLE	1Mbps	1	19	2440	2.22	5.22
BLE	1Mbps	1	39	2480	2.22	4.43

TEST RESULTS DATA
Peak Power Density

Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE	1Mbps	1	0	2402	4.19	-10.47	2.10	8.00	Pass
BLE	1Mbps	1	19	2440	4.18	-10.53	2.10	8.00	Pass
BLE	1Mbps	1	39	2480	4.05	-10.71	2.10	8.00	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 20dBc limit.

Report Number : FR840308-01C

Test Engineer:	Kai Liao	Temperature:	21~25	°C
Test Date:	2018/6/26 ~ 2018/7/17	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE5.0	2Mbps	1	0	2402	2.068	1.240	0.50	Pass
BLE5.0	2Mbps	1	19	2440	2.068	1.232	0.50	Pass
BLE5.0	2Mbps	1	39	2480	2.064	1.232	0.50	Pass

TEST RESULTS DATA
Peak Power Table

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE5.0	2Mbps	1	0	2402	5.91	30.00	2.10	8.01	36.00	Pass
BLE5.0	2Mbps	1	19	2440	5.86	30.00	2.10	7.96	36.00	Pass
BLE5.0	2Mbps	1	39	2480	5.23	30.00	2.10	7.33	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
BLE5.0	2Mbps	1	0	2402	2.46	5.25
BLE5.0	2Mbps	1	19	2440	2.46	5.21
BLE5.0	2Mbps	1	39	2480	2.46	4.44

TEST RESULTS DATA
Peak Power Density

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE5.0	2Mbps	1	0	2402	3.77	-14.52	2.10	8.00	Pass
BLE5.0	2Mbps	1	19	2440	3.74	-14.42	2.10	8.00	Pass
BLE5.0	2Mbps	1	39	2480	3.61	-14.82	2.10	8.00	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 20dBc limit.

Report Number : FR840308-01C

<For Ant. 2>

Test Engineer:	Kai Liao / Rebecca Li	Temperature:	21~25	°C
Test Date:	2018/6/26 ~ 2018/7/17	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE	1Mbps	1	0	2402	1.032	0.700	0.50	Pass
BLE	1Mbps	1	19	2440	1.030	0.700	0.50	Pass
BLE	1Mbps	1	39	2480	1.030	0.700	0.50	Pass

TEST RESULTS DATA
Peak Power Table

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE	1Mbps	1	0	2402	7.18	30.00	1.90	9.08	36.00	Pass
BLE	1Mbps	1	19	2440	7.72	30.00	1.90	9.62	36.00	Pass
BLE	1Mbps	1	39	2480	7.31	30.00	1.90	9.21	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
BLE	1Mbps	1	0	2402	2.16	6.68
BLE	1Mbps	1	19	2440	2.16	7.21
BLE	1Mbps	1	39	2480	2.16	6.70

TEST RESULTS DATA
Peak Power Density

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE	1Mbps	1	0	2402	6.67	-7.93	1.90	8.00	Pass
BLE	1Mbps	1	19	2440	7.14	-7.48	1.90	8.00	Pass
BLE	1Mbps	1	39	2480	6.26	-8.45	1.90	8.00	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 20dBc limit.

Report Number : FR840308-01C

Test Engineer:	Kai Liao / Rebecca Li	Temperature:	21~25	°C
Test Date:	2018/6/26 ~ 2018/7/17	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE5.0	2Mbps	1	0	2402	2.076	1.232	0.50	Pass
BLE5.0	2Mbps	1	19	2440	2.072	1.232	0.50	Pass
BLE5.0	2Mbps	1	39	2480	2.072	1.236	0.50	Pass

TEST RESULTS DATA
Peak Power Table

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE5.0	2Mbps	1	0	2402	7.23	30.00	1.90	9.13	36.00	Pass
BLE5.0	2Mbps	1	19	2440	7.72	30.00	1.90	9.62	36.00	Pass
BLE5.0	2Mbps	1	39	2480	7.26	30.00	1.90	9.16	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
BLE5.0	2Mbps	1	0	2402	2.46	6.74
BLE5.0	2Mbps	1	19	2440	2.46	7.26
BLE5.0	2Mbps	1	39	2480	2.46	6.76

TEST RESULTS DATA
Peak Power Density

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE5.0	2Mbps	1	0	2402	6.25	-11.98	1.90	8.00	Pass
BLE5.0	2Mbps	1	19	2440	6.71	-11.56	1.90	8.00	Pass
BLE5.0	2Mbps	1	39	2480	5.78	-12.34	1.90	8.00	Pass

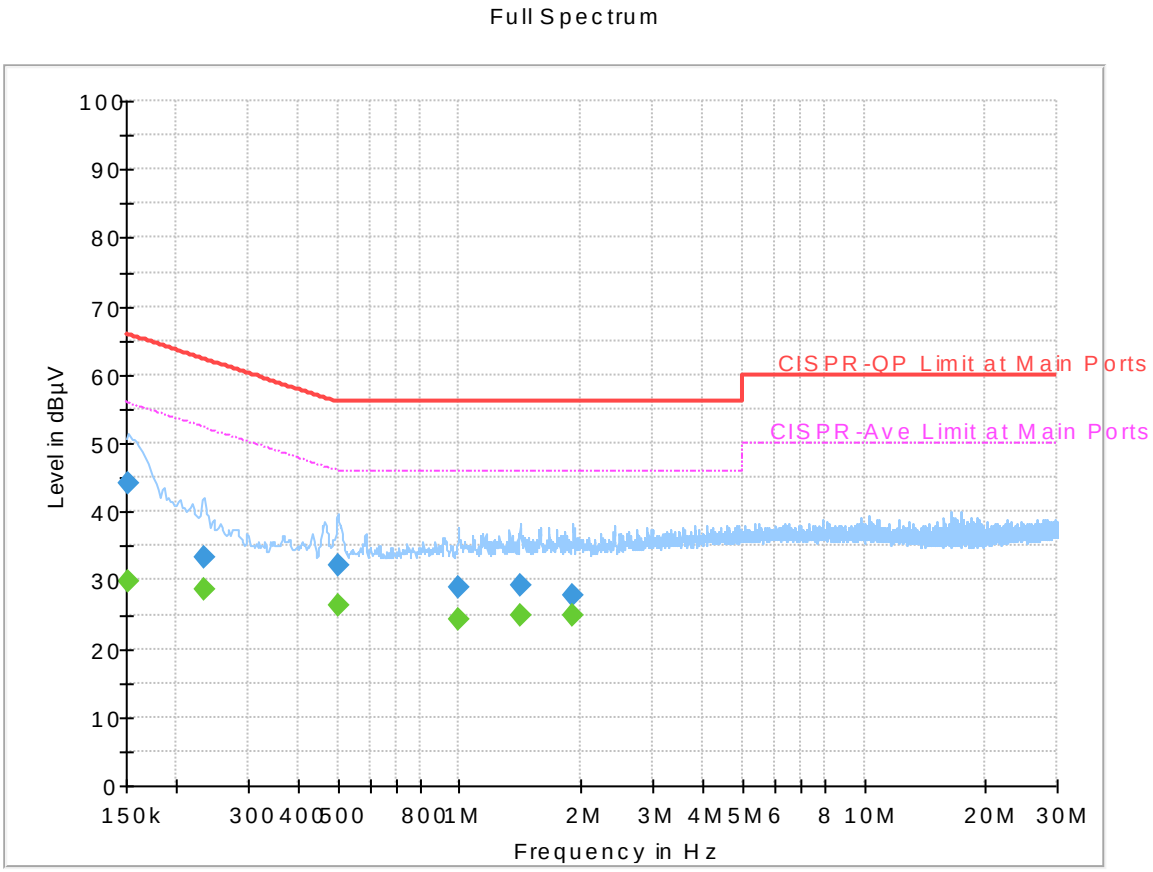
Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 20dBc limit.

Appendix B. AC Conducted Emission Test Results

Test Engineer :	Kai-Chun Chu	**Temperature :**	25~27℃
		Relative Humidity :	50~52%

EUT Information

Report NO :	840308-01
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

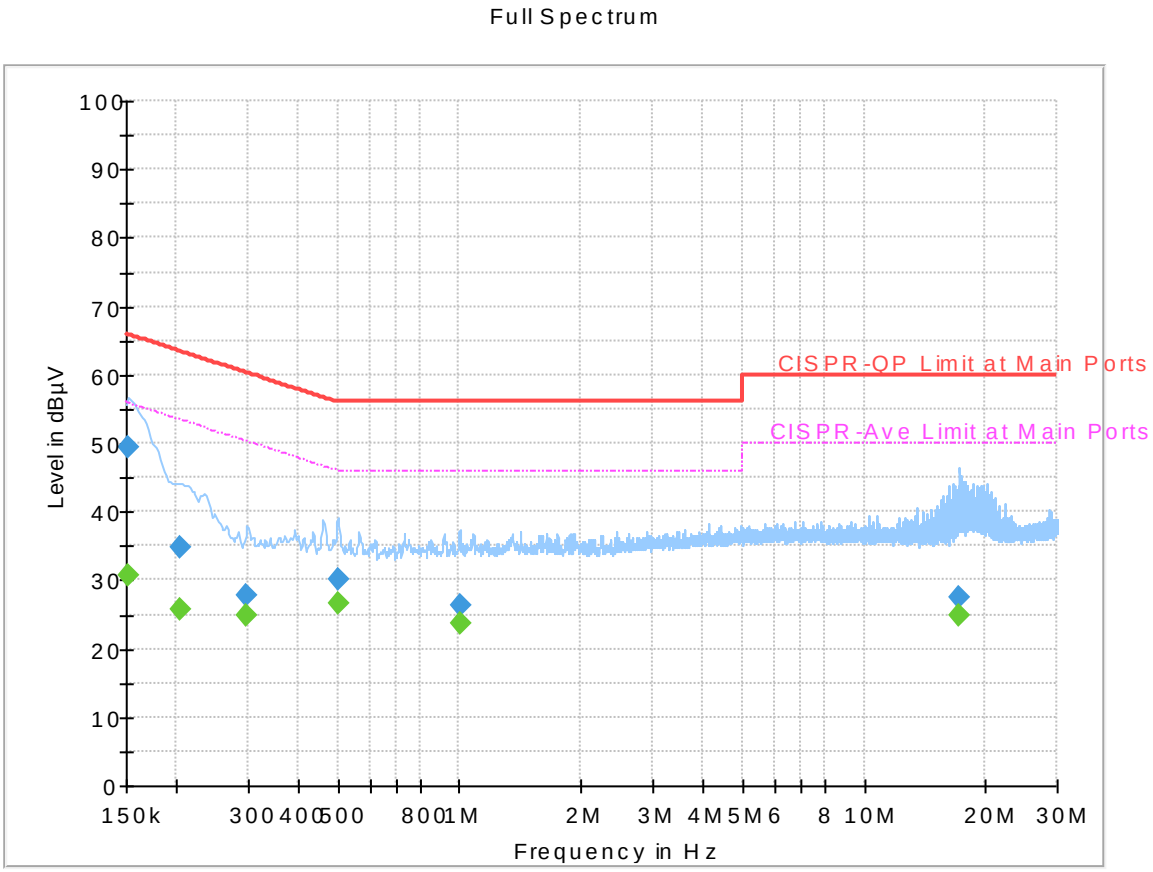


Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	29.77	55.88	26.11	L1	OFF	19.5
0.152250	44.10	---	65.88	21.78	L1	OFF	19.5
0.233250	---	28.51	52.33	23.82	L1	OFF	19.5
0.233250	33.27	---	62.33	29.06	L1	OFF	19.5
0.501000	---	26.42	46.00	19.58	L1	OFF	19.5
0.501000	32.06	---	56.00	23.94	L1	OFF	19.5
0.996000	---	24.38	46.00	21.62	L1	OFF	19.6
0.996000	28.84	---	56.00	27.16	L1	OFF	19.6
1.410000	---	24.78	46.00	21.22	L1	OFF	19.6
1.410000	29.17	---	56.00	26.83	L1	OFF	19.6
1.909500	---	24.87	46.00	21.13	L1	OFF	19.6
1.909500	27.76	---	56.00	28.24	L1	OFF	19.6

EUT Information

Report NO :	840308-01
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	30.56	55.88	25.32	N	OFF	19.5
0.152250	49.55	---	65.88	16.33	N	OFF	19.5
0.204000	---	25.73	53.45	27.72	N	OFF	19.5
0.204000	34.67	---	63.45	28.78	N	OFF	19.5
0.298500	---	24.95	50.28	25.33	N	OFF	19.5
0.298500	27.76	---	60.28	32.52	N	OFF	19.5
0.501000	---	26.64	46.00	19.36	N	OFF	19.5
0.501000	30.13	---	56.00	25.87	N	OFF	19.5
1.000500	---	23.59	46.00	22.41	N	OFF	19.6
1.000500	26.29	---	56.00	29.71	N	OFF	19.6
17.259000	---	24.78	50.00	25.22	N	OFF	20.2
17.259000	27.47	---	60.00	32.53	N	OFF	20.2