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 test was 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
FR840308-01B	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 Radiated Spurious Emission	Pass
3.2	15.203 & 15.247(b)	Antenna Requirement	Pass

Reviewed by: Joseph Lin

Report Producer: Nancy Yang

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	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
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 BR (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK

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
- 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)	Channel	Freq. (MHz)
2400-2483.5 MHz	0	2402	27	2429	54	2456
	1	2403	28	2430	55	2457
	2	2404	29	2431	56	2458
	3	2405	30	2432	57	2459
	4	2406	31	2433	58	2460
	5	2407	32	2434	59	2461
	6	2408	33	2435	60	2462
	7	2409	34	2436	61	2463
	8	2410	35	2437	62	2464
	9	2411	36	2438	63	2465
	10	2412	37	2439	64	2466
	11	2413	38	2440	65	2467
	12	2414	39	2441	66	2468
	13	2415	40	2442	67	2469
	14	2416	41	2443	68	2470
	15	2417	42	2444	69	2471
	16	2418	43	2445	70	2472
	17	2419	44	2446	71	2473
	18	2420	45	2447	72	2474
	19	2421	46	2448	73	2475
	20	2422	47	2449	74	2476
	21	2423	48	2450	75	2477
	22	2424	49	2451	76	2478
	23	2425	50	2452	77	2479
	24	2426	51	2453	78	2480
	25	2427	52	2454	-	-
	26	2428	53	2455	-	-

2.2 Test Mode

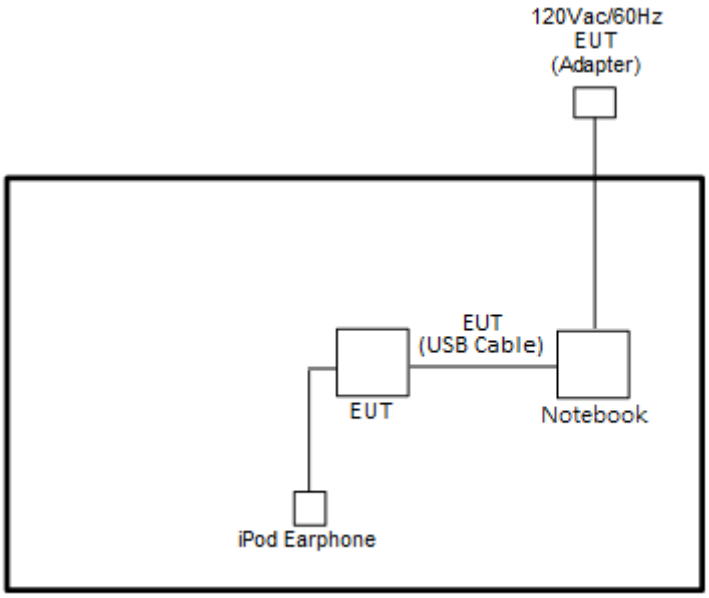
a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower), and the worst mode of radiated spurious emissions is Bluetooth 3Mbps mode, and recorded in this report.

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**
Radiated Test Cases	**Bluetooth EDR 3Mbps 8-DPSK**
	Mode 1: CH00_2402 MHz
	Mode 2: CH39_2441 MHz
	Mode 3: CH78_2480 MHz
Summary table of Test Cases	
Remark:	For radiated test cases, the worst mode data rate 3Mbps was reported only since the highest RF output power in the preliminary tests. The conducted spurious emissions and conducted band edge measurement for other data rates were not worse than 3Mbps, and no other significantly frequencies found in conducted spurious emission.

2.3 Connection Diagram of Test System

<Bluetooth 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 “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.

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. 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.

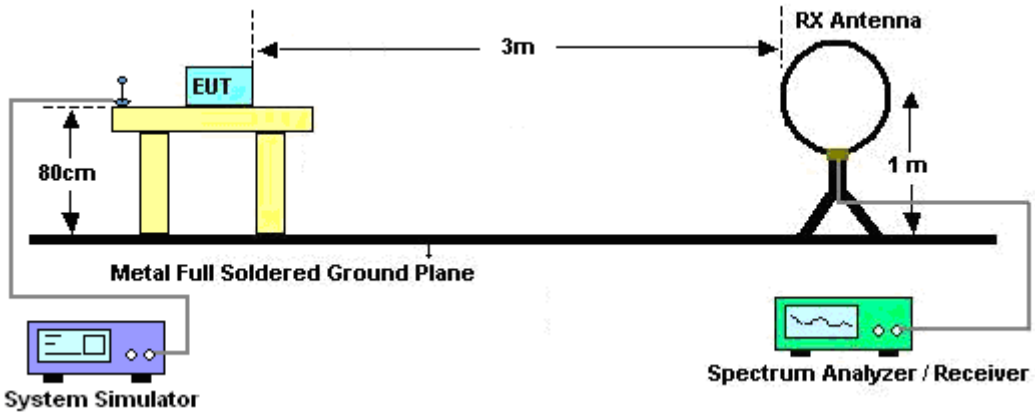
3.1.3 Test Procedures

1. The 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.
1. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
2. For each suspected emission, 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 to comply with the guidelines.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. 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, RBW=1MHz for f>1GHz ; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
   (3) For average measurement: use duty cycle correction factor method per 15.35(c).
   Duty cycle = On time/100 milliseconds
   On time = $N_1*L_1+N_2*L_2+...+N_{n-1}*LN_{n-1}+N_n*L_n$
   Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
   Average Emission Level = Peak Emission Level + 20*log(Duty cycle)
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.

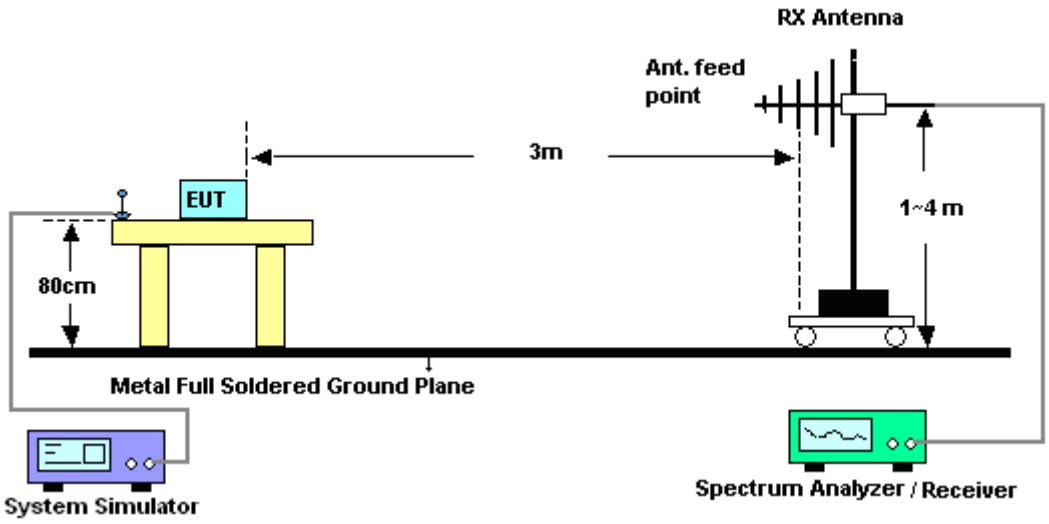
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (-24.79dB) derived from 20log (dwell time/100ms). This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

3.1.4 Test Setup

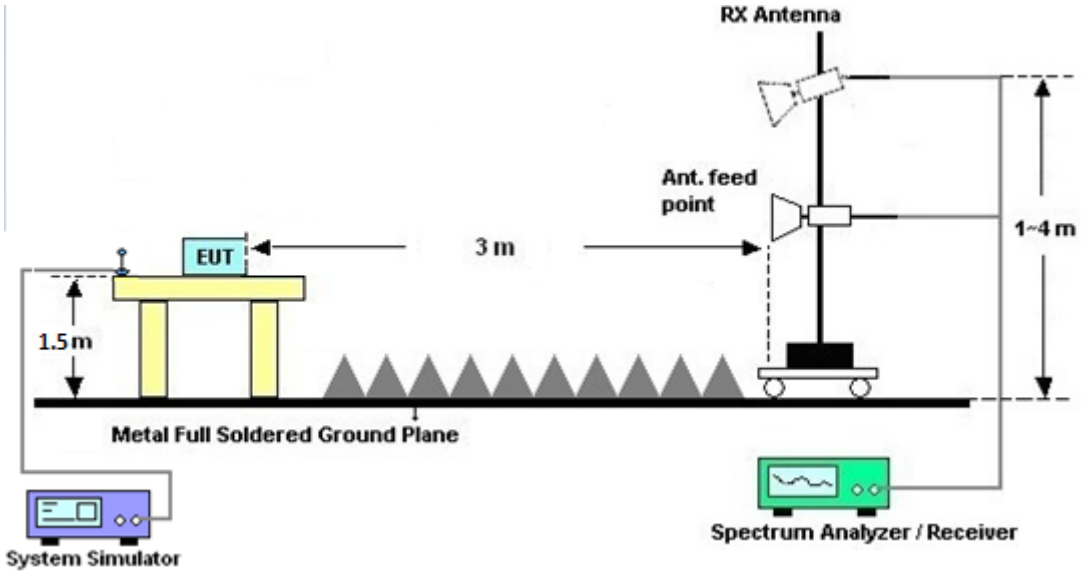
For radiated emissions below 30MHz



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°C
		Relative Humidity :	48~52%

<For Ant. 1>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	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)
BT CH00 2402MHz		2372.265	45.04	-28.96	74	42.15	27.72	4.72	29.55	184	195	P	H
		2372.265	20.25	-33.75	54	-	-	-	-	184	195	A	H
	*	2402	100.19	-	-	97.27	27.7	4.78	29.56	184	195	P	H
	*	2402	75.4	-	-	-	-	-	-	184	195	A	H
		2361.135	45.02	-28.98	74	42.1	27.74	4.72	29.54	342	102	P	V
		2361.135	20.23	-33.77	54	-	-	-	-	342	102	A	V
	*	2402	98.61	-	-	95.69	27.7	4.78	29.56	342	102	P	V
	*	2402	73.82	-	-	-	-	-	-	342	102	A	V
BT CH 39 2441MHz		2327.08	45.84	-28.16	74	42.94	27.77	4.66	29.53	175	344	P	H
		2327.08	21.05	-32.95	54	-	-	-	-	175	344	A	H
	*	2441	101.92	-	-	99.02	27.66	4.82	29.58	175	344	P	H
	*	2441	77.13	-	-	-	-	-	-	175	344	A	H
		2499.72	45.54	-28.46	74	42.68	27.61	4.85	29.6	175	344	P	H
		2499.72	20.75	-33.25	54	-	-	-	-	175	344	A	H
		2355.36	44.94	-29.06	74	42.02	27.74	4.72	29.54	342	102	P	V
		2355.36	20.15	-33.85	54	-	-	-	-	342	102	A	V
	*	2441	99.89	-	-	96.99	27.66	4.82	29.58	342	102	P	V
	*	2441	75.1	-	-	-	-	-	-	342	102	A	V
		2497.55	44.81	-29.19	74	41.95	27.61	4.85	29.6	342	102	P	V
		2497.55	20.02	-33.98	54	-	-	-	-	342	102	A	V

BT CH 78 2480MHz	*	2480	100.21	-	-	97.32	27.63	4.85	29.59	178	343	P	H
	*	2480	75.42	-	-	-	-	-	-	178	343	A	H
		2485.2	47.16	-26.84	74	44.27	27.63	4.85	29.59	178	343	P	H
		2485.2	22.37	-31.63	54	-	-	-	-	178	343	A	H
	*	2480	97.83	-	-	94.94	27.63	4.85	29.59	329	92	P	V
	*	2480	73.04	-	-	-	-	-	-	329	92	A	V
		2484.6	46.91	-27.09	74	44.02	27.63	4.85	29.59	329	92	P	V
		2484.6	22.12	-31.88	54	-	-	-	-	329	92	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	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)
BT CH 00 2402MHz		4804	40.47	-33.53	74	61.42	31.72	5.55	58.22	178	178	P	H
		4804	15.68	-38.32	54	-	-	-	-	178	178	A	H
		4804	39.72	-34.28	74	60.67	31.72	5.55	58.22	185	219	P	V
		4804	14.93	-39.07	54	-	-	-	-	185	219	A	V
BT CH 39 2441MHz		4882	39.01	-34.99	74	59.47	31.88	5.76	58.1	100	211	P	H
		4882	14.22	-39.78	54	-	-	-	-	100	211	A	H
		7323	45.69	-28.31	74	59.36	36.94	7.26	57.87	169	338	P	H
		7323	20.9	-33.1	54	-	-	-	-	169	338	A	H
		4882	38.98	-35.02	74	59.44	31.88	5.76	58.1	150	258	P	V
		4882	14.19	-39.81	54	-	-	-	-	150	258	A	V
		7323	45.18	-28.82	74	58.85	36.94	7.26	57.87	152	309	P	V
		7323	20.39	-33.61	54	-	-	-	-	152	309	A	V
BT CH 78 2480MHz		4960	38.35	-35.65	74	58.27	32.08	5.96	57.96	120	269	P	H
		4960	13.56	-40.44	54	-	-	-	-	120	269	A	H
		7440	46.12	-27.88	74	59.04	37.4	7.17	57.49	184	278	P	H
		7440	21.33	-32.67	54	-	-	-	-	184	278	A	H
		4960	38.16	-35.84	74	58.08	32.08	5.96	57.96	125	289	P	V
		4960	13.37	-40.63	54	-	-	-	-	125	289	A	V
		7440	44.76	-29.24	74	57.68	37.4	7.17	57.49	158	273	P	V
		7440	19.97	-34.03	54	-	-	-	-	158	273	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz BT (LF)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT LF		30	24.97	-15.03	40	31.79	24.9	0.25	31.97	-	-	P	H
		135.73	23.26	-20.24	43.5	36.06	17.58	1.21	31.59	-	-	P	H
		232.73	27.21	-18.79	46	40.07	16.73	1.68	31.27	-	-	P	H
		374.35	34.47	-11.53	46	42.27	21.27	2.13	31.2	166	241	P	H
		659.53	30.76	-15.24	46	32.83	26.33	2.84	31.24	-	-	P	H
		927.25	33.37	-12.63	46	31.57	29.63	3.43	31.26	-	-	P	H
		44.55	31.42	-8.58	40	45.28	17.61	0.5	31.97	211	142	P	V
		136.7	27.79	-15.71	43.5	40.57	17.59	1.22	31.59	-	-	P	V
		266.68	31.63	-14.37	46	41.17	19.93	1.76	31.23	-	-	P	V
		375.32	26.39	-19.61	46	34.17	21.29	2.13	31.2	-	-	P	V
		604.24	29.53	-16.47	46	32.26	25.83	2.71	31.27	-	-	P	V
		902.03	33.66	-12.34	46	32.12	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

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2370.9	44.71	-29.29	74	41.82	27.72	4.72	29.55	180	160	P	H
		2370.9	19.92	-34.08	54	-	-	-	-	180	160	A	H
	*	2402	101.88	-	-	98.96	27.7	4.78	29.56	180	160	P	H
	*	2402	77.09	-	-	-	-	-	-	180	160	A	H
		2377.935	44.8	-29.2	74	41.91	27.72	4.72	29.55	100	113	P	V
		2377.935	20.01	-33.99	54	-	-	-	-	100	113	A	V
	*	2402	95.3	-	-	92.38	27.7	4.78	29.56	100	113	P	V
	*	2402	70.51	-	-	-	-	-	-	100	113	A	V
BT CH 39 2441MHz		2320.5	45.4	-28.6	74	42.5	27.77	4.66	29.53	192	163	P	H
		2320.5	20.61	-33.39	54	-	-	-	-	192	163	A	H
	*	2441	102.4	-	-	99.5	27.66	4.82	29.58	192	163	P	H
	*	2441	77.61	-	-	-	-	-	-	192	163	A	H
		2484.67	44.61	-29.39	74	41.72	27.63	4.85	29.59	192	163	P	H
		2484.67	19.82	-34.18	54	-	-	-	-	192	163	A	H
		2345.28	45.1	-28.9	74	42.23	27.75	4.66	29.54	100	113	P	V
		2345.28	20.31	-33.69	54	-	-	-	-	100	113	A	V
	*	2442	94.88	-	-	91.98	27.66	4.82	29.58	100	113	P	V
	*	2442	70.09	-	-	-	-	-	-	100	113	A	V
		2495.52	45.38	-28.62	74	42.52	27.61	4.85	29.6	100	113	P	V
		2495.52	20.59	-33.41	54	-	-	-	-	100	113	A	V

BT CH 78 2480MHz	*	2480	101.24	-	-	98.35	27.63	4.85	29.59	192	163	P	H
	*	2480	76.45	-	-	-	-	-	-	192	163	A	H
		2484.2	47.74	-26.26	74	44.85	27.63	4.85	29.59	192	163	P	H
		2484.2	22.95	-31.05	54	-	-	-	-	192	163	A	H
	*	2480	94.82	-	-	91.93	27.63	4.85	29.59	100	113	P	V
	*	2480	70.03	-	-	-	-	-	-	100	113	A	V
		2490.24	45.68	-28.32	74	42.81	27.61	4.85	29.59	100	113	P	V
		2490.24	20.89	-33.11	54	-	-	-	-	100	113	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	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)
BT CH 00 2402MHz		4804	40.09	-33.91	74	61.04	31.72	5.55	58.22	178	97	P	H
		4804	15.3	-38.7	54	-	-	-	-	178	97	A	H
		4804	39.48	-34.52	74	60.43	31.72	5.55	58.22	151	219	P	V
		4804	14.69	-39.31	54	-	-	-	-	151	219	A	V
BT CH 39 2441MHz		4882	39.81	-34.19	74	60.27	31.88	5.76	58.1	147	360	P	H
		4882	15.02	-38.98	54	-	-	-	-	147	360	A	H
		7323	43.83	-30.17	74	57.5	36.94	7.26	57.87	152	309	P	H
		7323	19.04	-34.96	54	-	-	-	-	152	309	A	H
		4882	40.08	-33.92	74	60.54	31.88	5.76	58.1	150	258	P	V
		4882	15.29	-38.71	54	-	-	-	-	150	258	A	V
		7323	45.4	-28.6	74	59.07	36.94	7.26	57.87	150	147	P	V
		7323	20.61	-33.39	54	-	-	-	-	150	147	A	V
BT CH 78 2480MHz		4960	37.72	-36.28	74	57.64	32.08	5.96	57.96	118	289	P	H
		4960	12.93	-41.07	54	-	-	-	-	118	289	A	H
		7440	45.14	-28.86	74	58.06	37.4	7.17	57.49	158	273	P	H
		7440	20.35	-33.65	54	-	-	-	-	158	273	A	H
		4960	37.58	-36.42	74	57.5	32.08	5.96	57.96	120	269	P	V
		4960	12.79	-41.21	54	-	-	-	-	120	269	A	V
		7440	45.04	-28.96	74	57.96	37.4	7.17	57.49	184	278	P	V
		7440	20.25	-33.75	54	-	-	-	-	184	278	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz BT (LF)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT LF		30	25.34	-14.66	40	32.16	24.9	0.25	31.97	-	-	P	H
		135.73	23.12	-20.38	43.5	35.92	17.58	1.21	31.59	-	-	P	H
		198.78	28.85	-14.65	43.5	43.3	15.28	1.6	31.33	-	-	P	H
		299.66	29.74	-16.26	46	39.71	19.4	1.85	31.22	-	-	P	H
		374.35	32.31	-13.69	46	40.11	21.27	2.13	31.2	127	165	P	H
		659.53	30.48	-15.52	46	32.55	26.33	2.84	31.24	-	-	P	H
		44.55	31	-9	40	44.86	17.61	0.5	31.97	244	173	P	V
		136.7	27.34	-16.16	43.5	40.12	17.59	1.22	31.59	-	-	P	V
		299.66	28.96	-17.04	46	38.93	19.4	1.85	31.22	-	-	P	V
		375.32	27.38	-18.62	46	35.16	21.29	2.13	31.2	-	-	P	V
		516.94	28.79	-17.21	46	33.26	24.3	2.47	31.24	-	-	P	V
		902.03	33.61	-12.39	46	32.07	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°C
		Relative Humidity :	48~52%

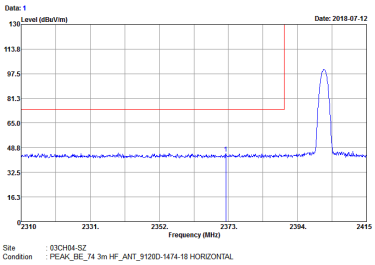
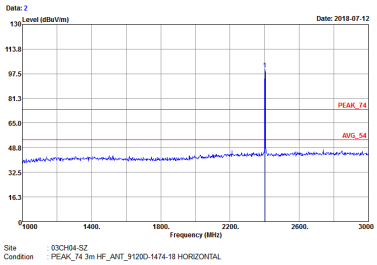
Note symbol

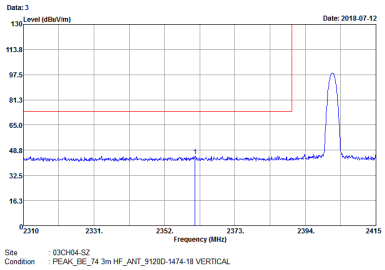
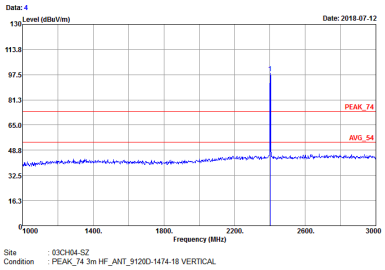
-L	**Low channel location**
-R	**High channel location**

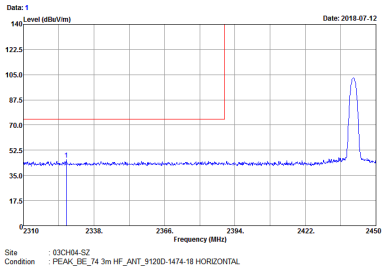
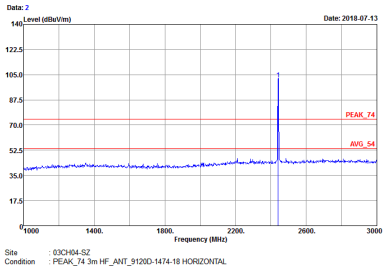
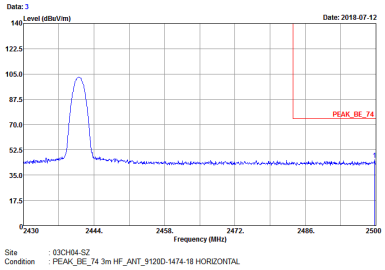
<For Ant. 1>

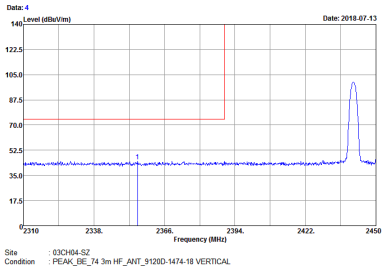
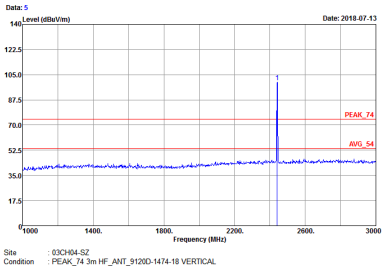
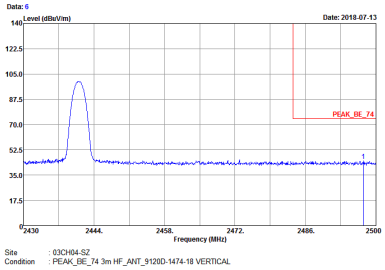
2.4GHz 2400~2483.5MHz

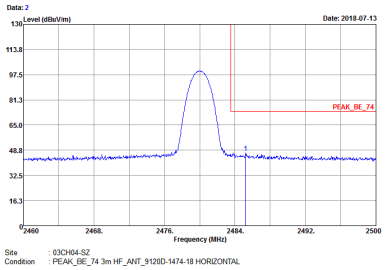
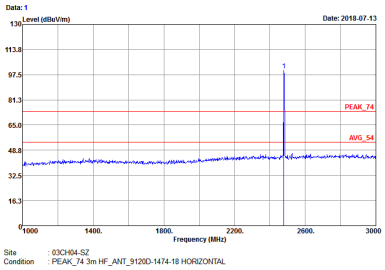
BT (Band Edge @ 3m)

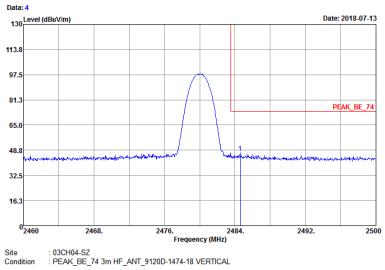
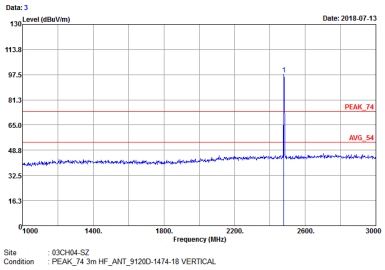
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH00 2402MHz	
	Horizontal	Fundamental
Peak		

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

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH39 2441MHz	
	Horizontal	Fundamental
Peak		
Peak		Left blank

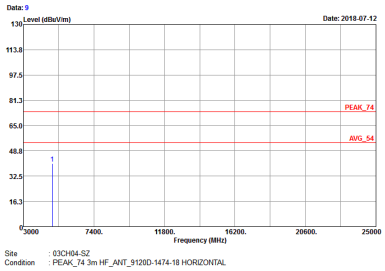
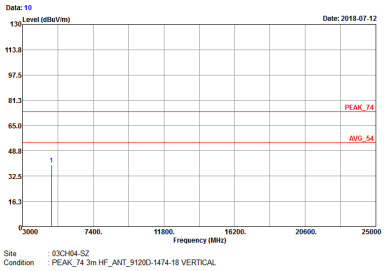
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH39 2441MHz	
	Vertical	Fundamental
Peak		
Peak		Left blank

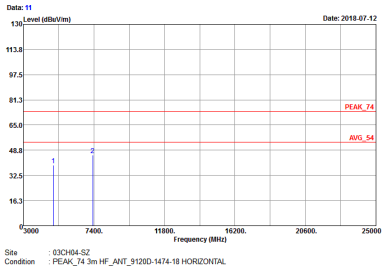
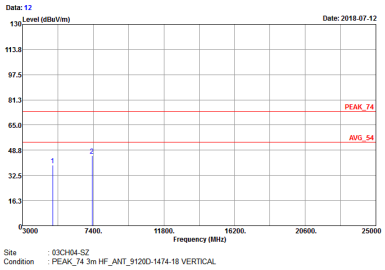
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Horizontal	Fundamental
Peak		

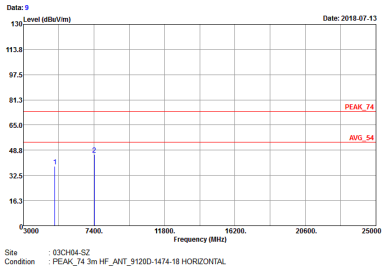
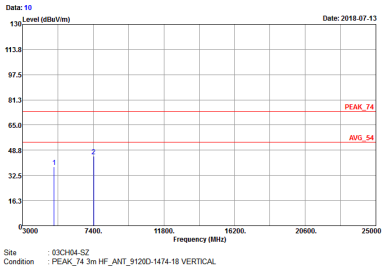
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Vertical	Fundamental
Peak		

2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

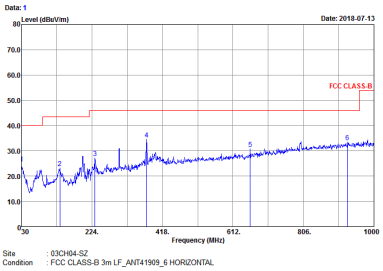
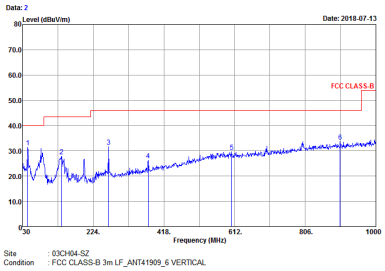
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH00 2402MHz	
	Horizontal	Vertical
Peak		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH39 2441MHz	
	Horizontal	Vertical
Peak		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH78 2480MHz	
	Horizontal	Vertical
Peak		

Emission below 1GHz

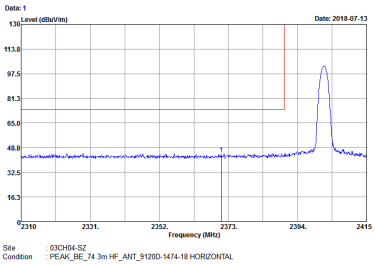
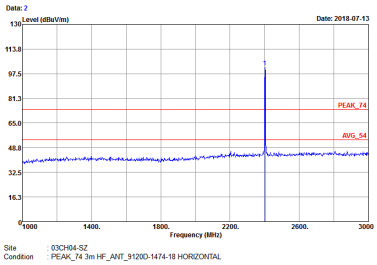
2.4GHz BT (LF)

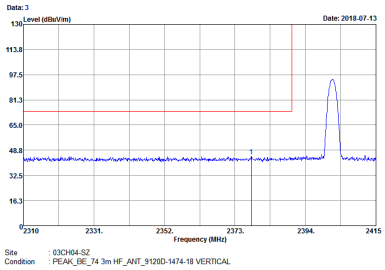
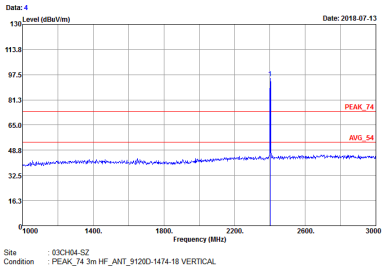
BT	2.4GHz 2400~2483.5MHz	
	BT LF	
	Horizontal	Vertical
QP / Peak		

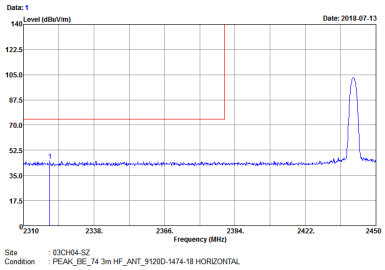
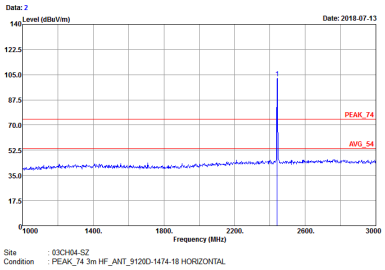
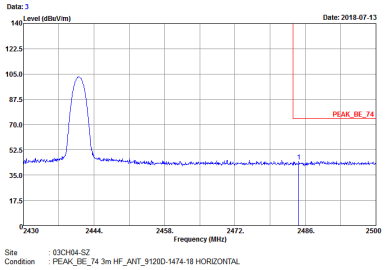
<For Ant. 2>

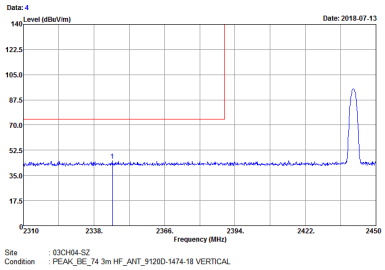
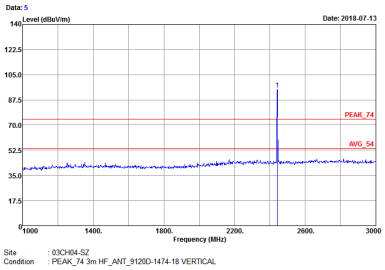
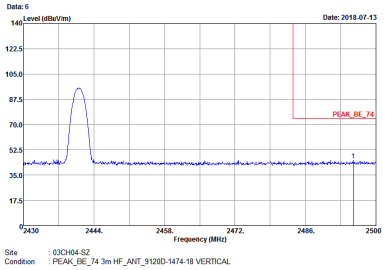
2.4GHz 2400~2483.5MHz

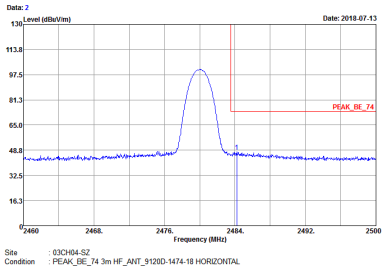
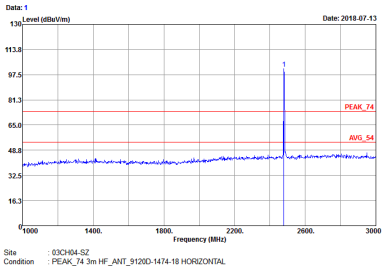
BT (Band Edge @ 3m)

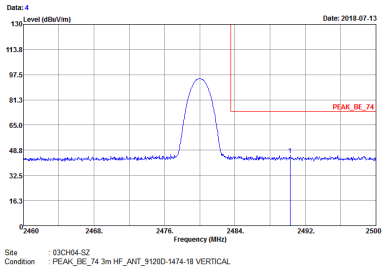
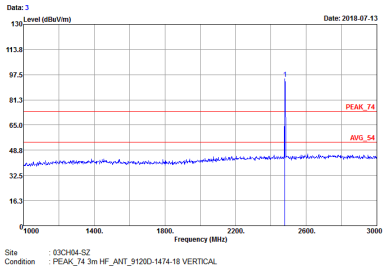
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH00 2402MHz	
	Horizontal	Fundamental
Peak		

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

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH39 2441MHz	
	Horizontal	Fundamental
Peak		
Peak		Left blank

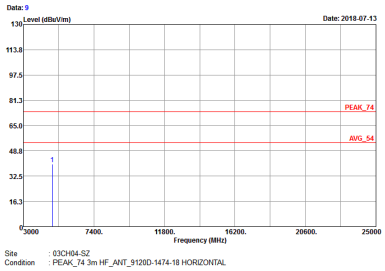
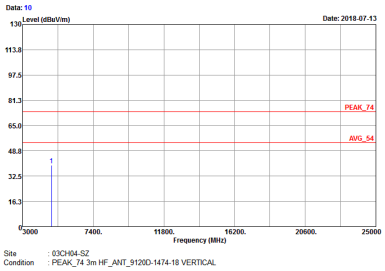
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH39 2441MHz	
	Vertical	Fundamental
Peak		
Peak		Left blank

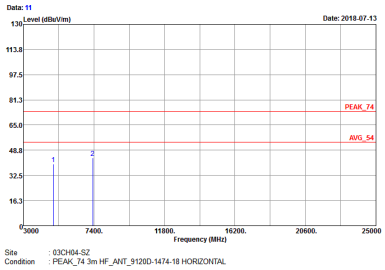
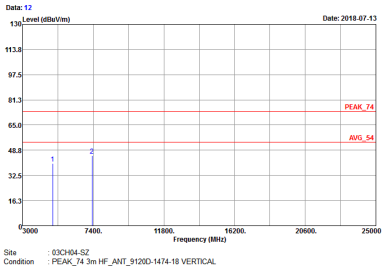
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Horizontal	Fundamental
Peak		

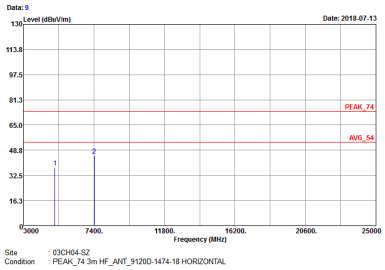
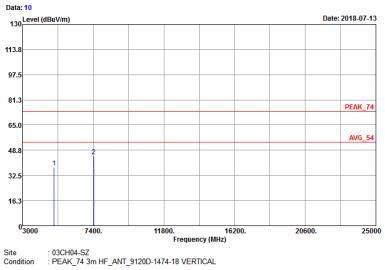
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Vertical	Fundamental
Peak		

2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

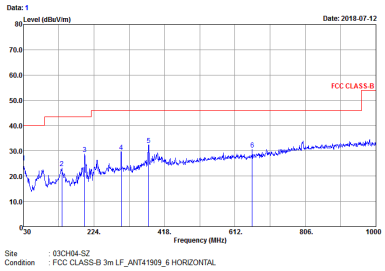
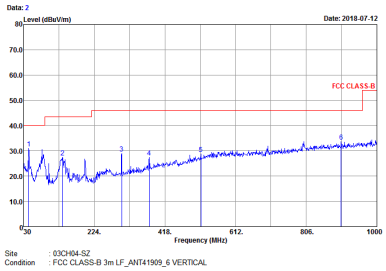
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH00 2402MHz	
	Horizontal	Vertical
Peak		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH39 2441MHz	
	Horizontal	Vertical
Peak		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH78 2480MHz	
	Horizontal	Vertical
Peak		

Emission below 1GHz

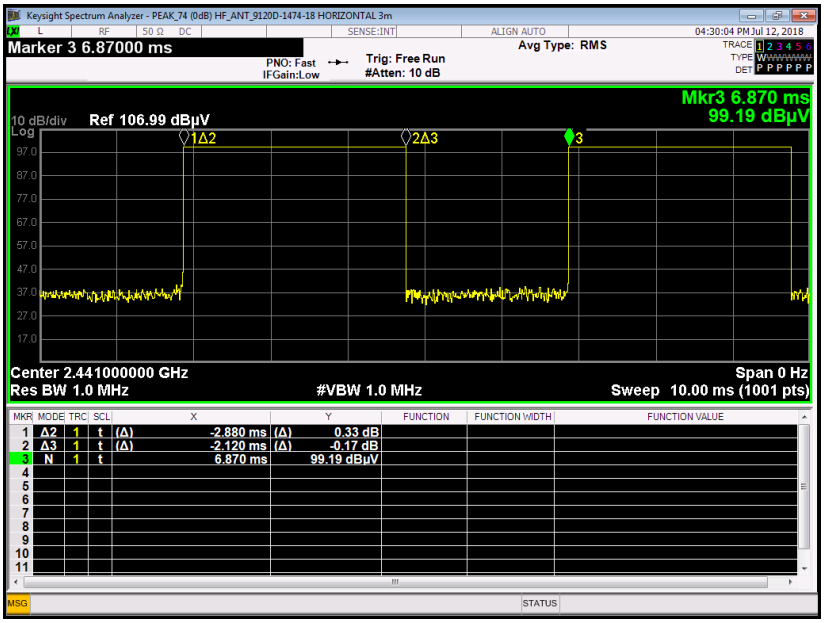
2.4GHz BT (LF)

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

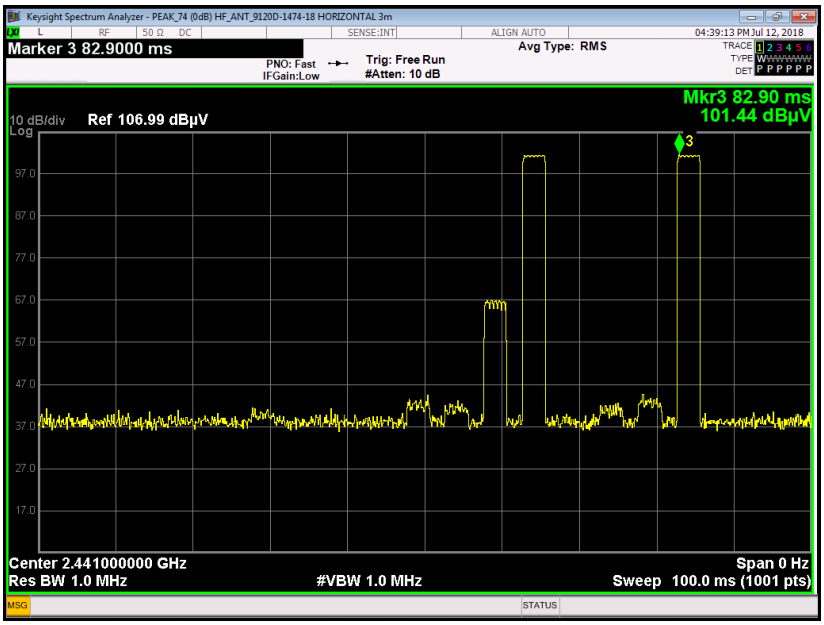
Appendix C. Duty Cycle Plots

<For Ant. 1>

3DH5 on time (One Pulse) Plot on Channel 39



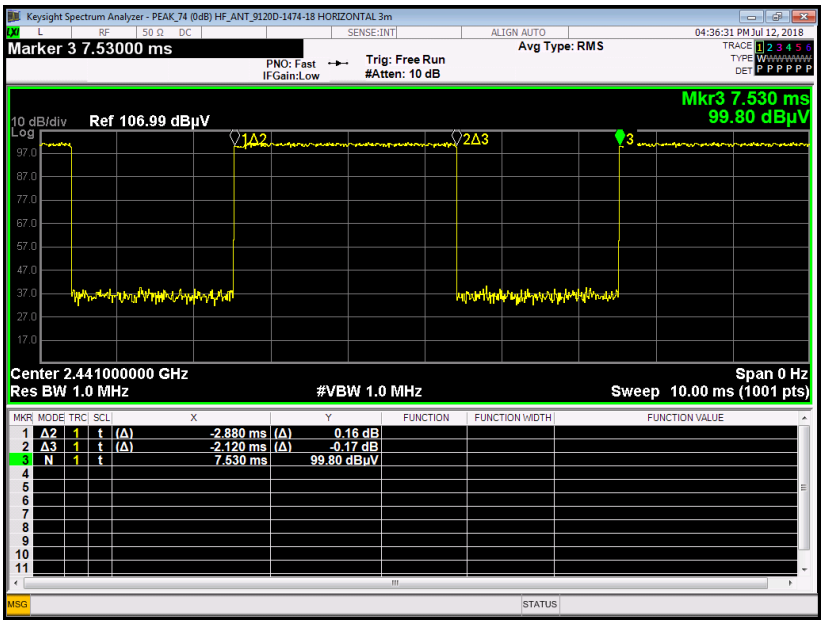
on time (Count Pulses) Plot on Channel 39



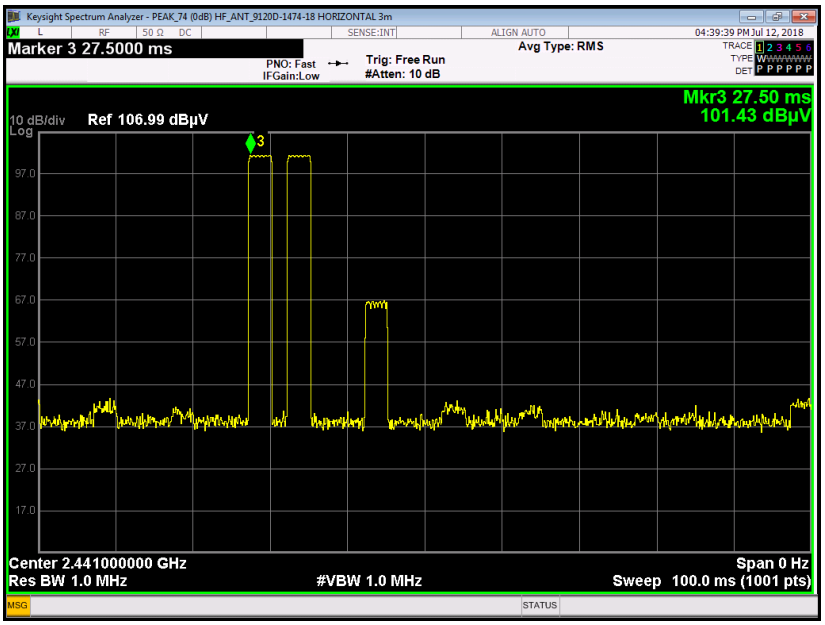
Note:

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

3DH5 on time (One Pulse) Plot on Channel 39



on time (Count Pulses) Plot on Channel 39



Note:

4. Worst case Duty cycle = on time/100 milliseconds = 2 * 2.88 / 100 = 5.76 %
5. Worst case Duty cycle correction factor = 20*log(Duty cycle) = dB
6. **3DH5** has the highest duty cycle worst case and is reported. -24.79

Duty Cycle Correction Factor Consideration for AFH mode:

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

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

2.88 ms x 20 channels = 57.6 ms

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

Thus, the maximum possible ON time:

2.88 ms x 2 = 5.76 ms

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

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

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 test was completed on Jul. 17, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

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

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
FR840308-01A	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)(1)	Number of Channels	Pass
3.2	15.247(a)(1)	Hopping Channel Separation	Pass
3.3	15.247(a)(1)	Dwell Time of Each Channel	Pass
3.4	15.247(a)(1)	20dB Bandwidth	Pass
3.4	2.1049	99% Occupied Bandwidth	Reporting only
3.5	15.247(b)(1)	Peak Output Power	Pass
3.6	15.247(d)	Conducted Band Edges	Pass
3.7	15.247(d)	Conducted Spurious Emission	Pass
3.8	15.207	AC Conducted Emission	Pass
3.9	15.203 & 15.247(b)	Antenna Requirement	Pass

Reviewed by: Joseph Lin

Report Producer: Nancy Yang

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	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Maximum Output Power to Antenna	**<Ant. 1>** Bluetooth BR(1Mbps) : 5.92 dBm (0.0039 W) Bluetooth EDR (2Mbps) : 8.04 dBm (0.0064 W) Bluetooth EDR (3Mbps) : 8.32 dBm (0.0068 W) **<Ant. 2>** Bluetooth BR(1Mbps) : 7.77 dBm (0.0060 W) Bluetooth EDR (2Mbps) : 10.00 dBm (0.0100 W) Bluetooth EDR (3Mbps) : 10.30 dBm (0.0107 W)
99% Occupied Bandwidth	**<Ant. 1>** Bluetooth BR(1Mbps) : 0.832MHz Bluetooth EDR (2Mbps) : 1.164MHz Bluetooth EDR (3Mbps) : 1.164MHz **<Ant. 2>** Bluetooth BR(1Mbps) : 0.828MHz Bluetooth EDR (2Mbps) : 1.164MHz Bluetooth EDR (3Mbps) : 1.164MHz
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 BR (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK

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
- 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)	Channel	Freq. (MHz)
2400-2483.5 MHz	0	2402	27	2429	54	2456
	1	2403	28	2430	55	2457
	2	2404	29	2431	56	2458
	3	2405	30	2432	57	2459
	4	2406	31	2433	58	2460
	5	2407	32	2434	59	2461
	6	2408	33	2435	60	2462
	7	2409	34	2436	61	2463
	8	2410	35	2437	62	2464
	9	2411	36	2438	63	2465
	10	2412	37	2439	64	2466
	11	2413	38	2440	65	2467
	12	2414	39	2441	66	2468
	13	2415	40	2442	67	2469
	14	2416	41	2443	68	2470
	15	2417	42	2444	69	2471
	16	2418	43	2445	70	2472
	17	2419	44	2446	71	2473
	18	2420	45	2447	72	2474
	19	2421	46	2448	73	2475
	20	2422	47	2449	74	2476
	21	2423	48	2450	75	2477
	22	2424	49	2451	76	2478
	23	2425	50	2452	77	2479
	24	2426	51	2453	78	2480
	25	2427	52	2454	-	-
	26	2428	53	2455	-	-

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), and the worst mode of radiated spurious emissions is Bluetooth 3Mbps mode, and recorded in this report.

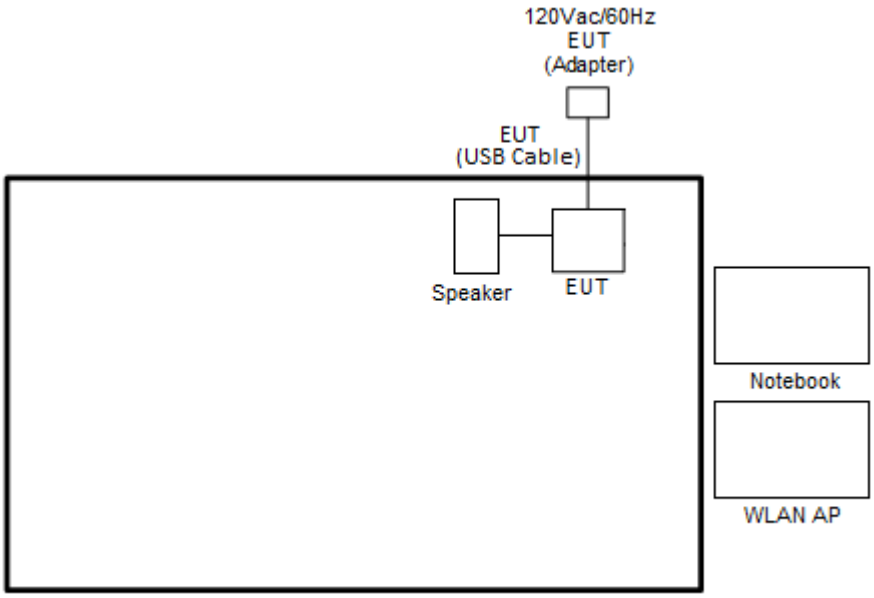
b. AC power line Conducted Emission was tested under maximum output power.

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

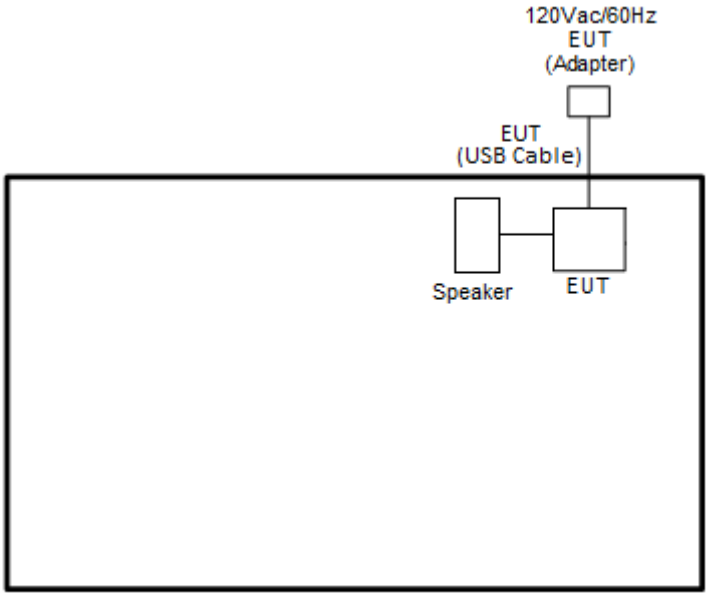
Summary table of Test Cases			
Test Item	**Data Rate / Modulation**		
	Bluetooth BR 1Mbps GFSK	**Bluetooth EDR 2Mbps π/4-DQPSK**	**Bluetooth EDR 3Mbps 8-DPSK**
Conducted Test Cases	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 MHz Mode 8: CH39_2441 MHz Mode 9: CH78_2480 MHz
Test Cases			
AC Conducted Emission	Mode 1 : WLAN (2.4GHz) Link + Play News + External Speaker + USB Cable (Charging from Adapter) Mode 2 Bluetooth Link + Play MP3 + External Speaker + USB Cable (Charging from Adapter)		
Summary table of Test Cases			
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 Number of Channel Measurement

3.1.1 Limits of Number of Hopping Frequency

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

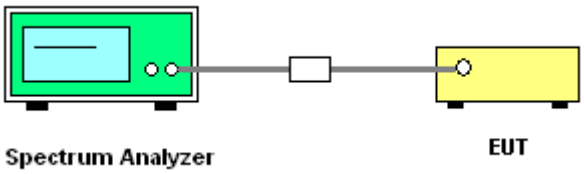
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedure

1. The testing follows ANSI C63.10-2013 clause 7.8.3.
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. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = the frequency band of operation; RBW = 300kHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
6. The number of hopping frequency used is defined as the number of total channel.
7. Record the measurement data derived from spectrum analyzer.

3.1.4 Test Setup

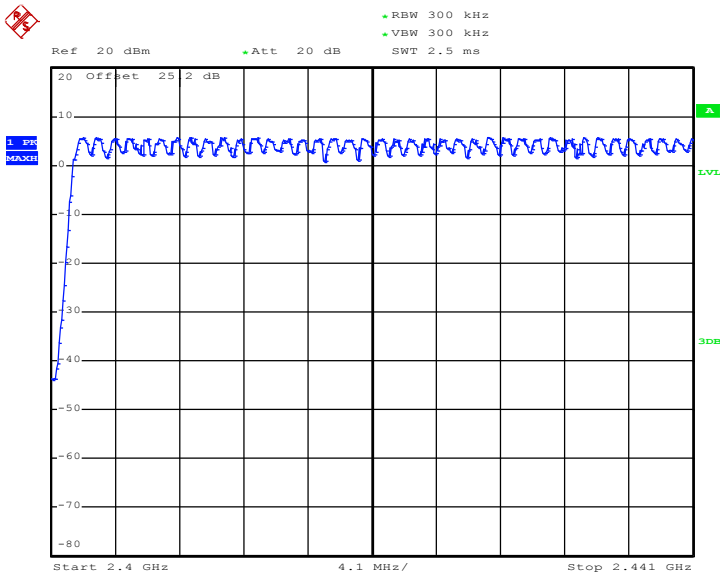


3.1.5 Test Result of Number of Hopping Frequency

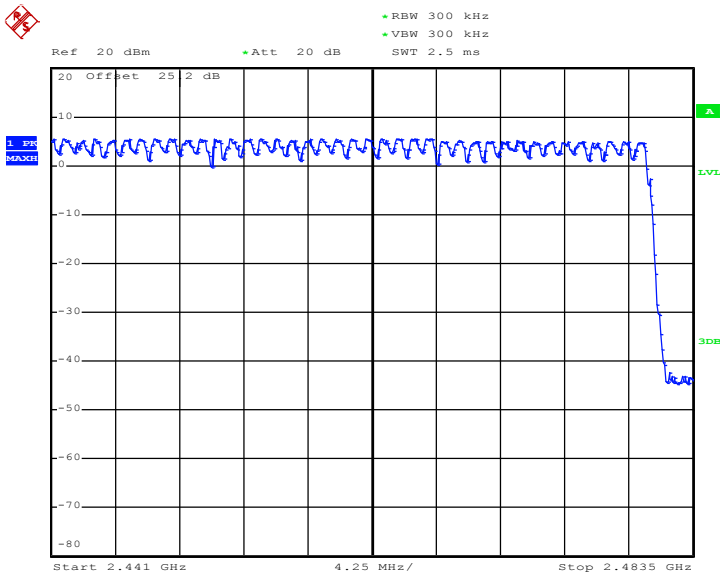
Please refer to Appendix A.

<Ant. 1>

Number of Hopping Channel Plot on Channel 00 - 78



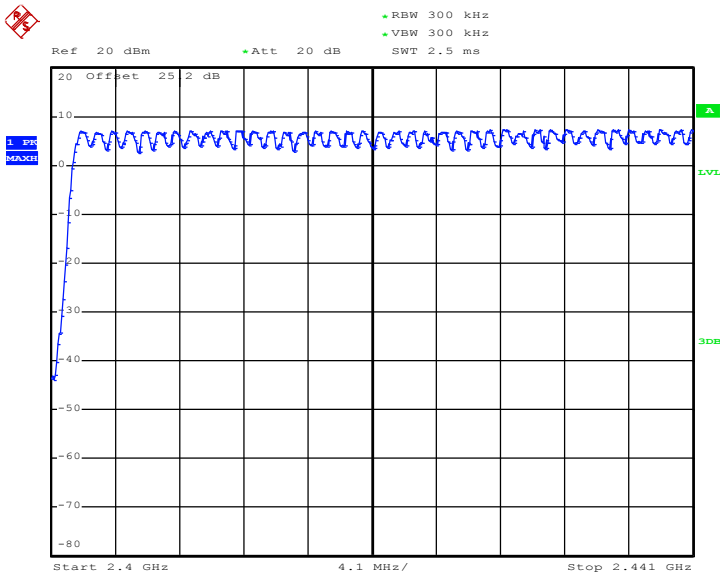
Date: 17.JUL.2018 03:30:02



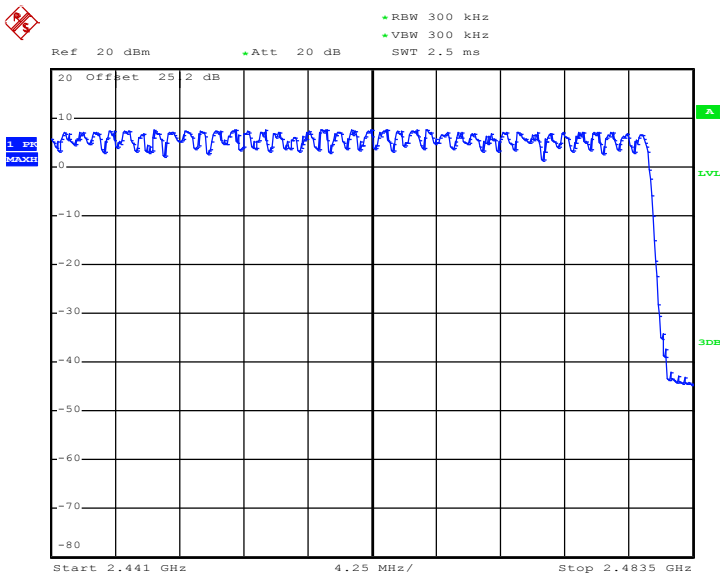
Date: 17.JUL.2018 03:31:41

<Ant. 2>

Number of Hopping Channel Plot on Channel 00 - 78



Date: 17.JUL.2018 05:58:01



Date: 17.JUL.2018 05:59:08

3.2 Hopping Channel Separation Measurement

3.2.1 Limit of Hopping Channel Separation

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

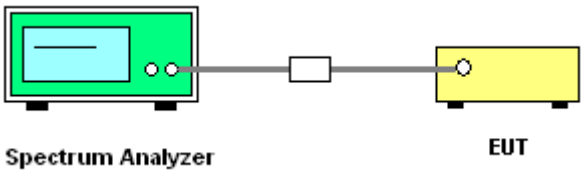
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.2.
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. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels;
   RBW = 300kHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

3.2.4 Test Setup



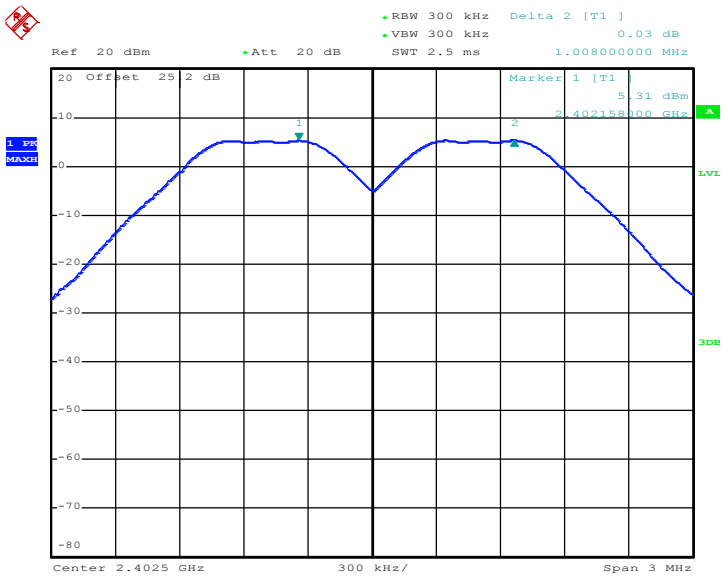
3.2.5 Test Result of Hopping Channel Separation

Please refer to Appendix A.

<Ant. 1>

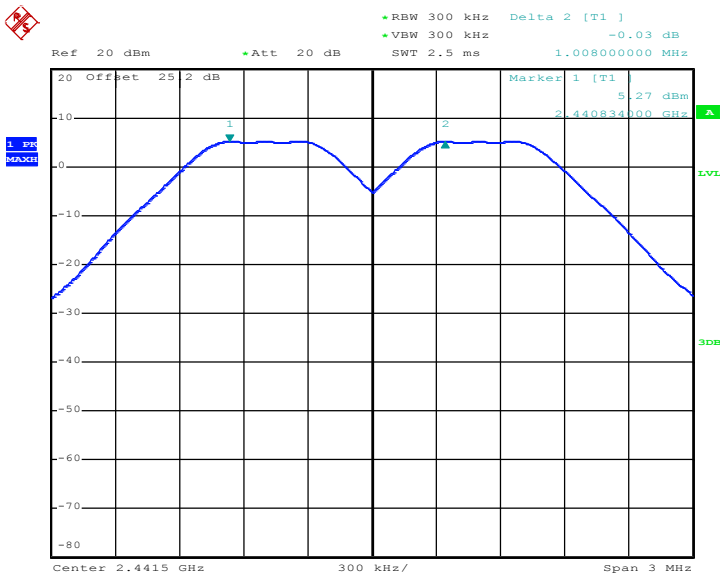
<1Mbps>

Channel Separation Plot on Channel 00 - 01



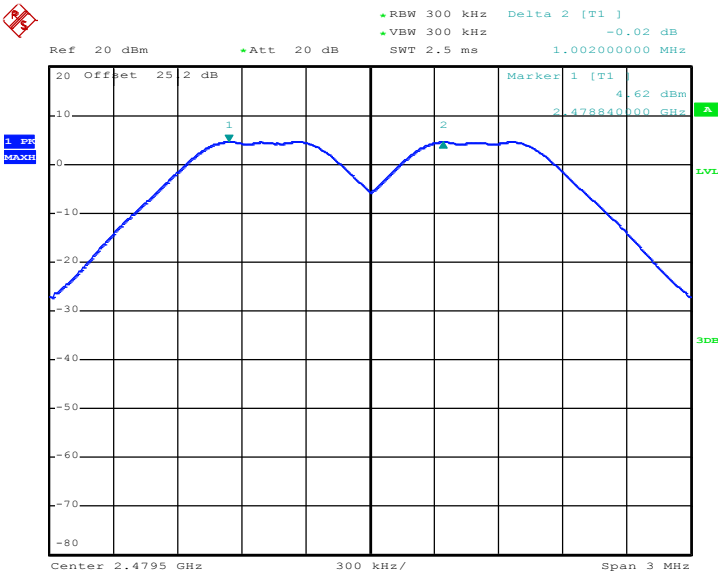
Date: 17.JUL.2018 03:54:01

Channel Separation Plot on Channel 39 - 40



Date: 17.JUL.2018 03:55:37

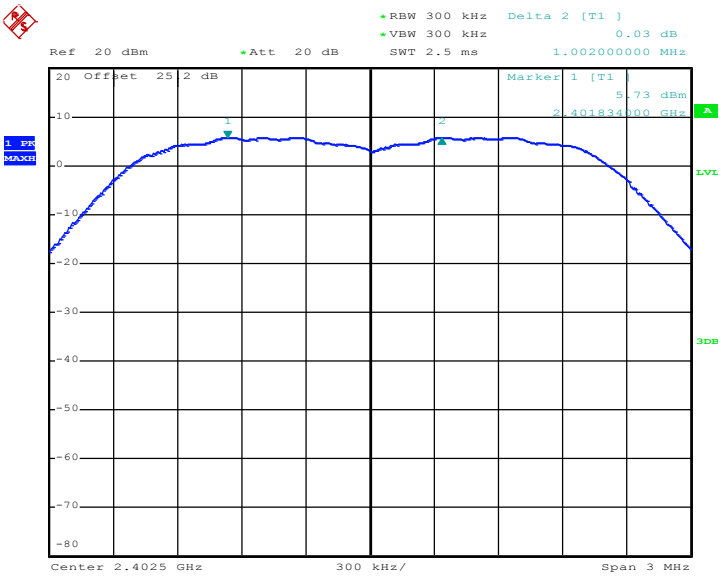
Channel Separation Plot on Channel 77 - 78



Date: 17.JUL.2018 03:58:34

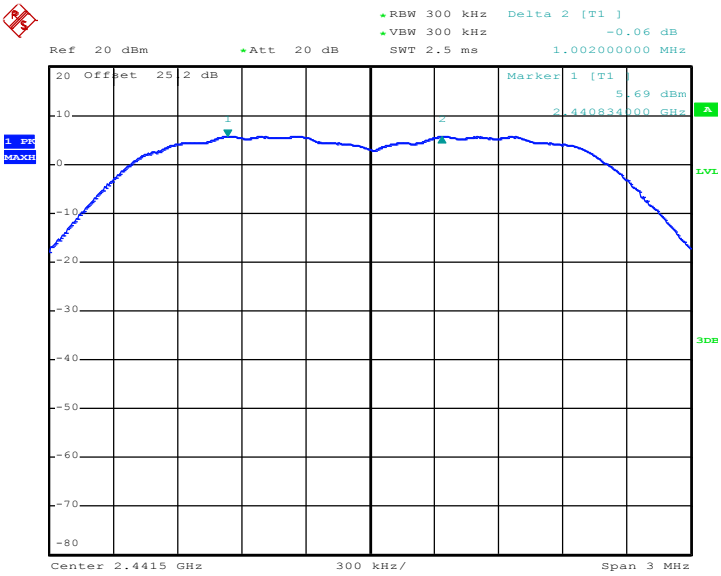
<2Mbps>

Channel Separation Plot on Channel 00 - 01



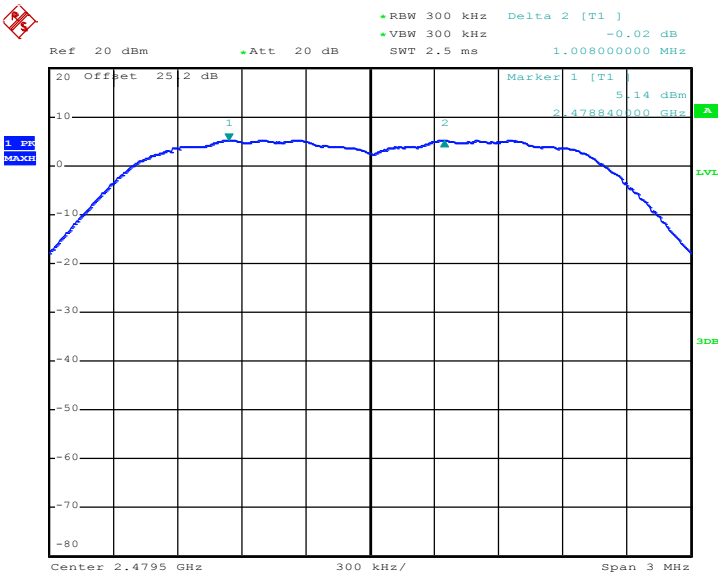
Date: 17.JUL.2018 04:00:34

Channel Separation Plot on Channel 39 - 40



Date: 17.JUL.2018 04:01:36

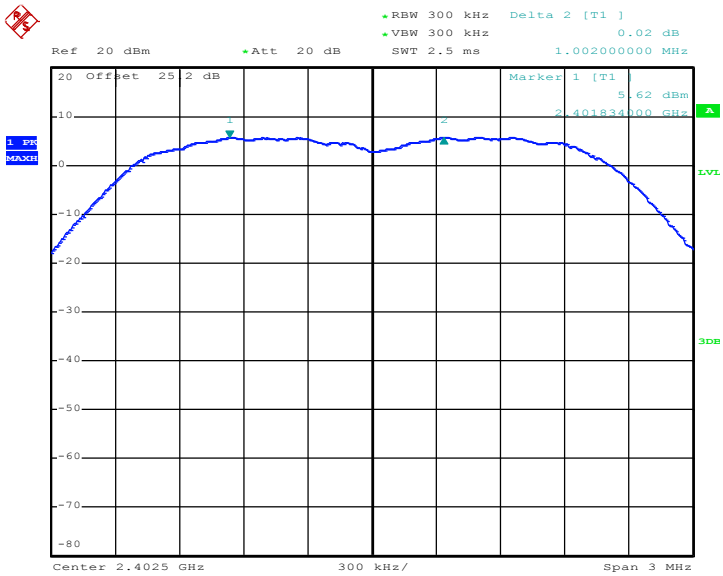
Channel Separation Plot on Channel 77 - 78



Date: 17.JUL.2018 04:02:42

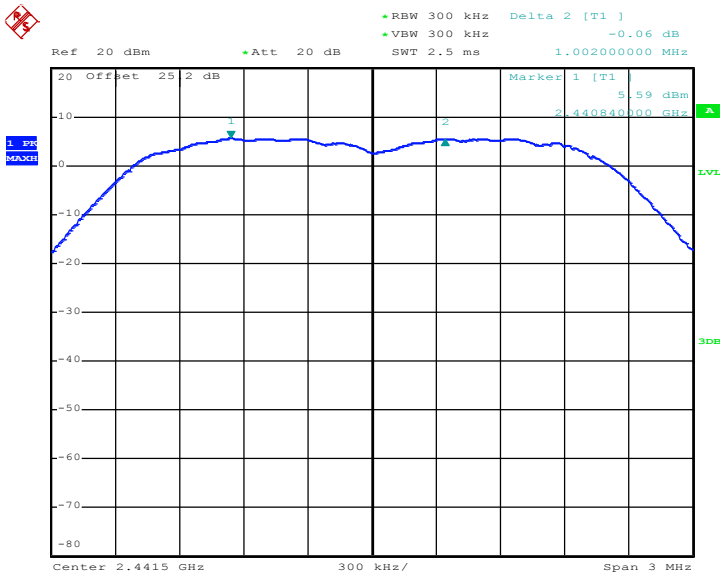
<3Mbps>

Channel Separation Plot on Channel 00 - 01



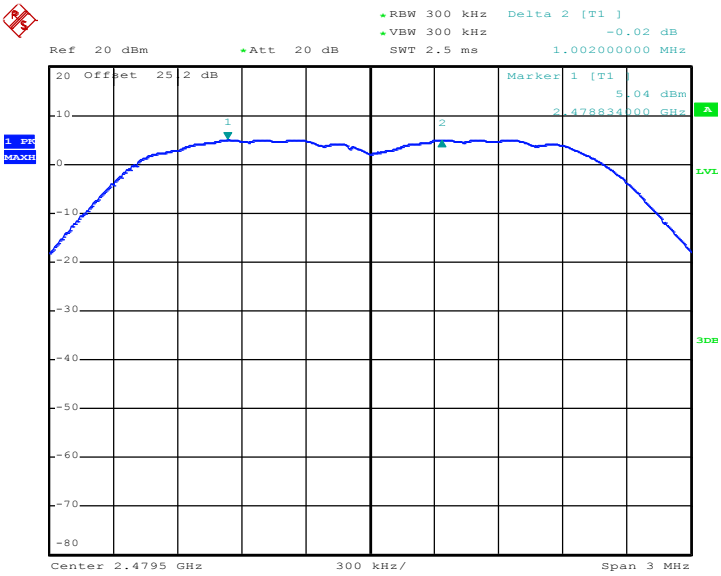
Date: 17.JUL.2018 04:06:08

Channel Separation Plot on Channel 39 - 40



Date: 17.JUL.2018 04:07:15

Channel Separation Plot on Channel 77 - 78

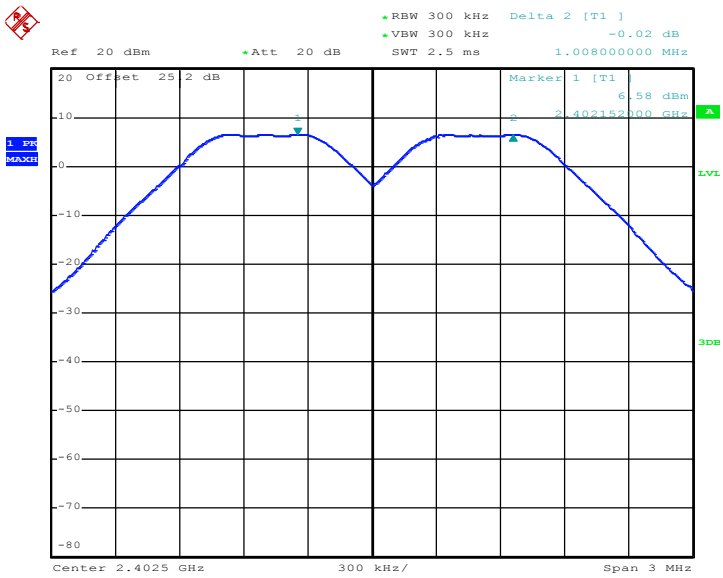


Date: 17.JUL.2018 04:13:41

<Ant. 2>

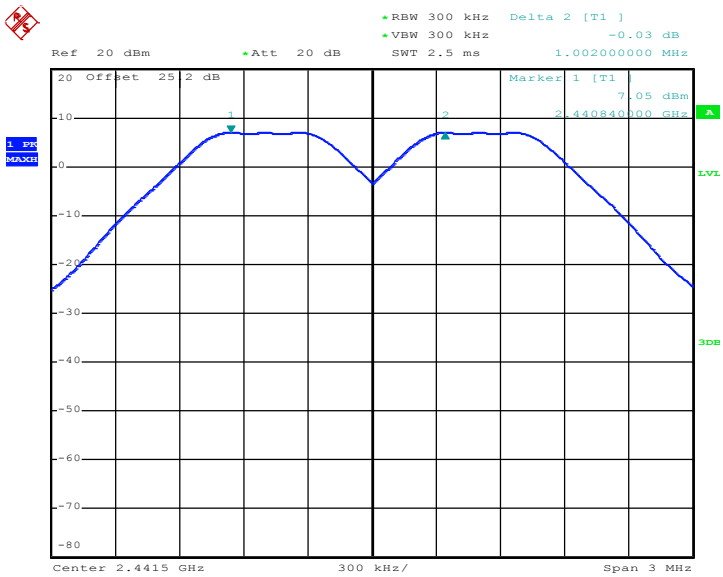
<1Mbps>

Channel Separation Plot on Channel 00 - 01



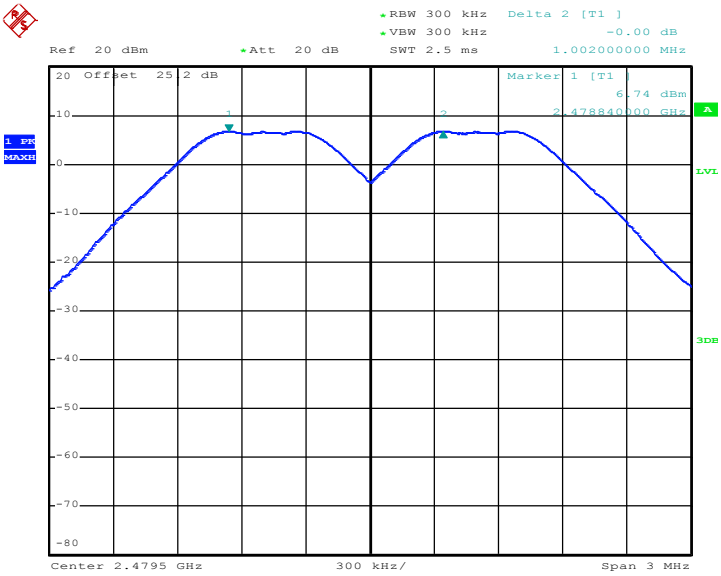
Date: 17.JUL.2018 06:19:43

Channel Separation Plot on Channel 39 - 40



Date: 17.JUL.2018 06:25:50

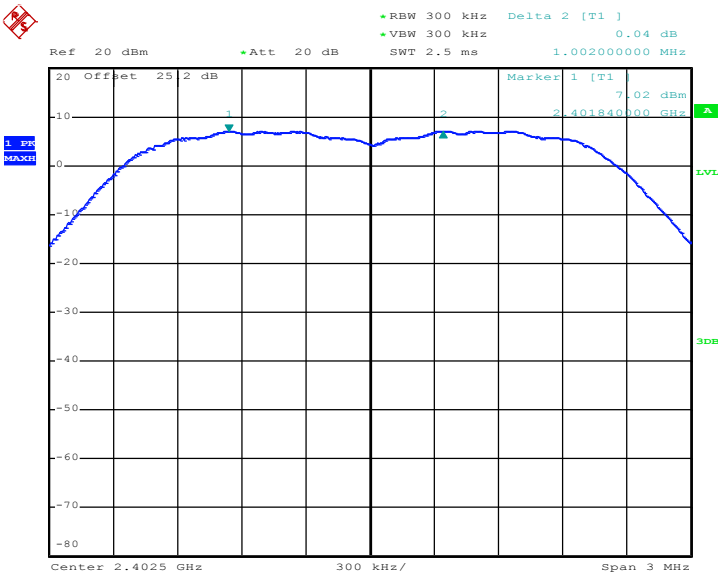
Channel Separation Plot on Channel 77 - 78



Date: 17.JUL.2018 06:27:26

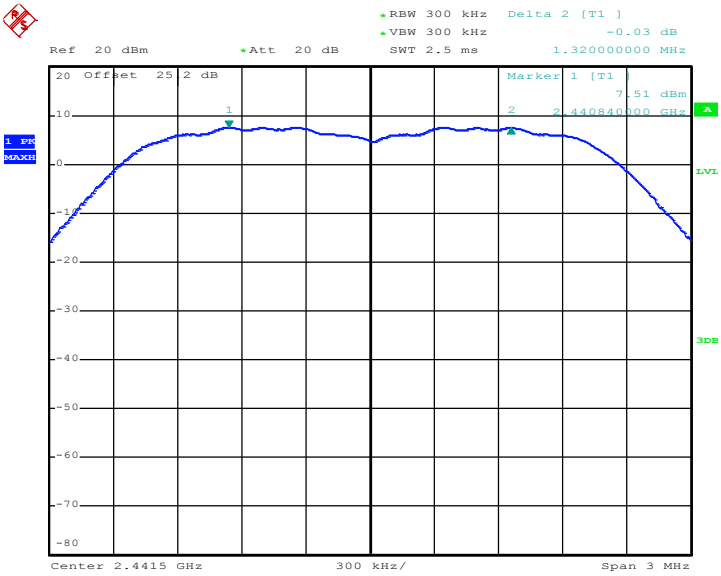
<2Mbps>

Channel Separation Plot on Channel 00 - 01



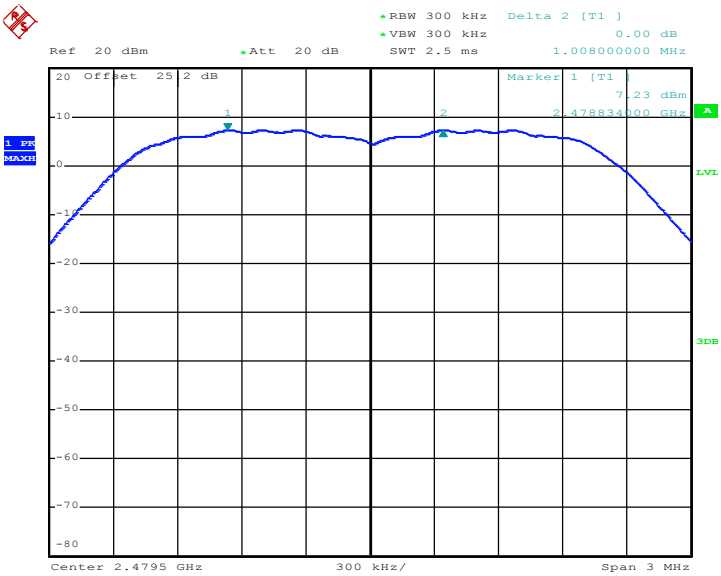
Date: 17.JUL.2018 06:37:47

Channel Separation Plot on Channel 39 - 40



Date: 17.JUL.2018 06:43:50

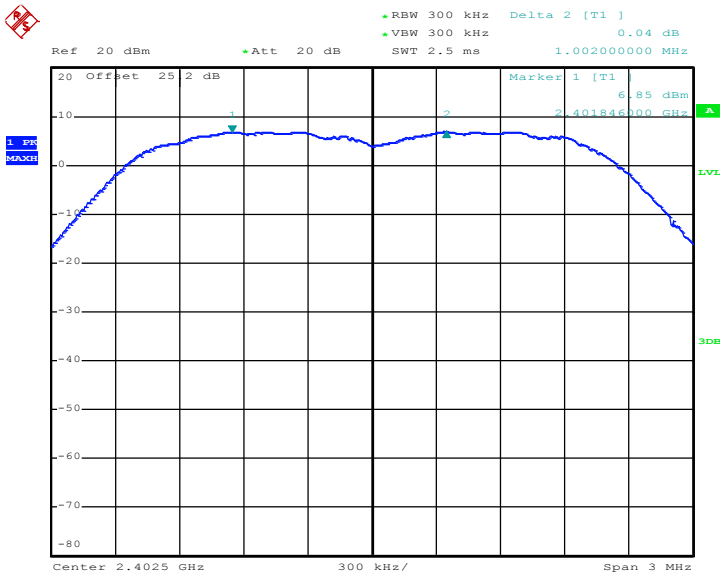
Channel Separation Plot on Channel 77 - 78



Date: 17.JUL.2018 06:46:21

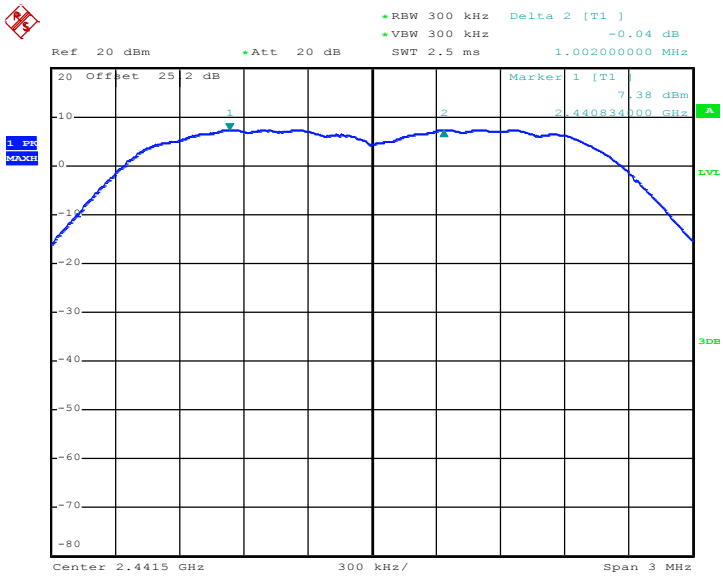
<3Mbps>

Channel Separation Plot on Channel 00 - 01



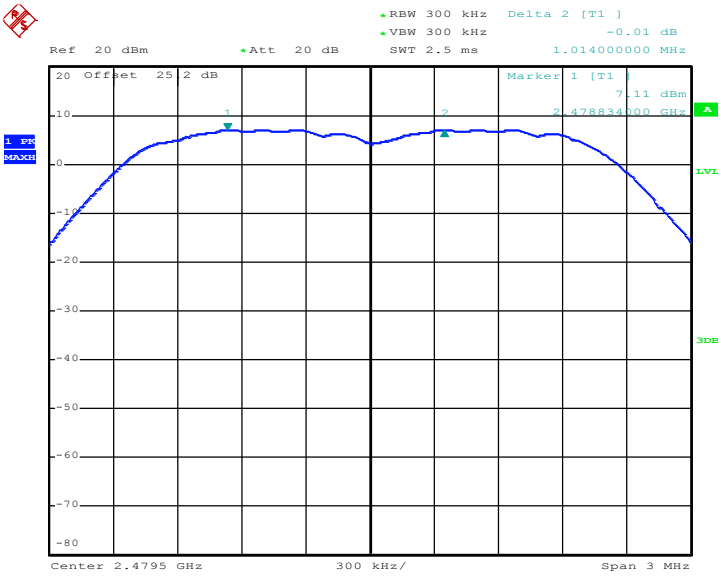
Date: 17.JUL.2018 06:56:39

Channel Separation Plot on Channel 39 - 40



Date: 17.JUL.2018 07:01:41

Channel Separation Plot on Channel 77 - 78



Date: 17.JUL.2018 07:02:45

3.3 Dwell Time Measurement

3.3.1 Limit of Dwell Time

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

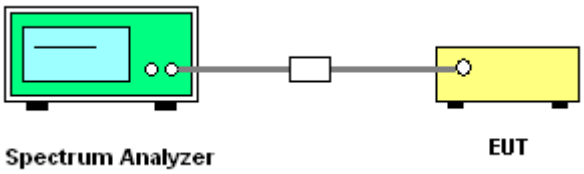
3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.4.
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. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW ≥ RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

3.3.4 Test Setup

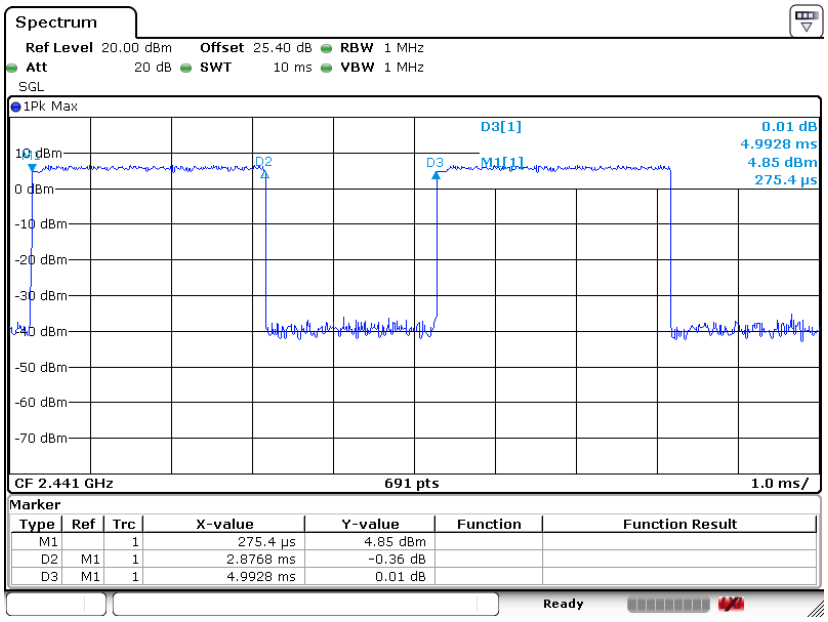


3.3.5 Test Result of Dwell Time

Please refer to Appendix A.

<Ant. 1>

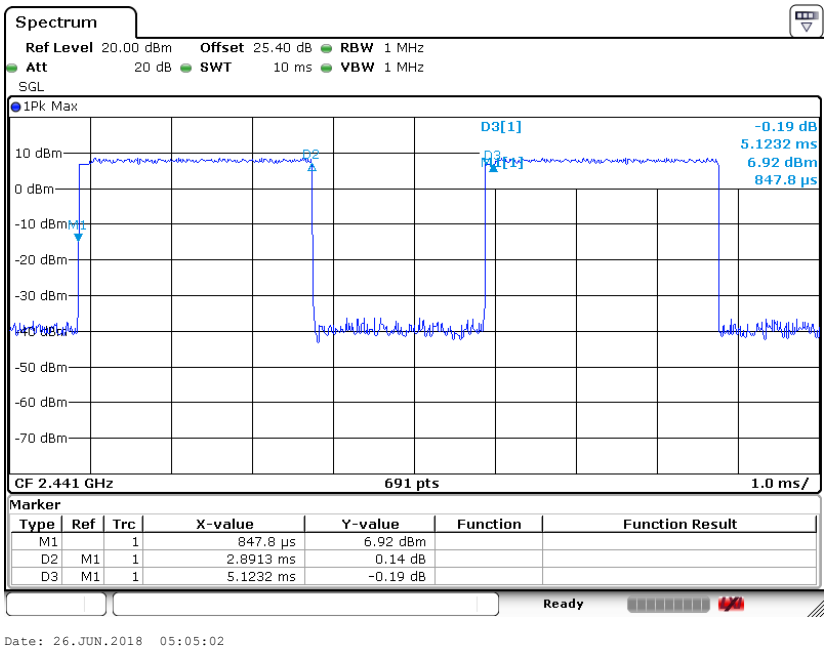
Package Transfer Time Plot



Date: 26.JUN.2018 04:24:35

<Ant. 2>

Package Transfer Time Plot



Date: 26.JUN.2018 05:05:02

Remark:

1. In normal mode, hopping rate is 1600 hops/s with 6 slots in 79 hopping channels. With channel hopping rate (1600 / 6 / 79) in Occupancy Time Limit (0.4 x 79) (s),Hops Over Occupancy Time comes to (1600 / 6 / 79) x (0.4 x 79) = 106.67 hops.

2. In AFH mode, hopping rate is 800 hops/s with 6 slots in 20 hopping channels. With channel hopping rate (800 / 6 / 20) in Occupancy Time Limit (0.4 x 20) (s), Hops Over Occupancy Time comes to (800 / 6 / 20) x (0.4 x 20) = 53.33 hops.

3. Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time

3.4 20dB and 99% Bandwidth Measurement

3.4.1 Limit of 20dB and 99% Bandwidth

Reporting only

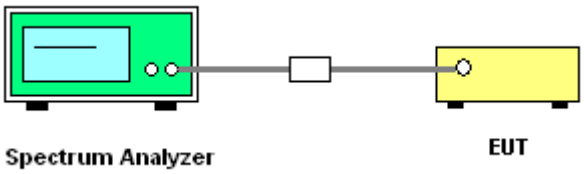
3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 6.9.2 and 6.9.3.
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. Use the following spectrum analyzer settings for 20dB Bandwidth measurement.
   Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel;
   RBW ≥ 1% of the 20 dB bandwidth; VBW ≥ RBW; Sweep = auto; Detector function = peak;
   Trace = max hold.
5. Use the following spectrum analyzer settings for 99 % Bandwidth measurement.
   Span = approximately 1.5 to 5 times the 99% bandwidth, centered on a hopping channel;
   RBW ≥ 1-5% of the 99% bandwidth; VBW ≥ 3 * RBW; Sweep = auto; Detector function = peak;
   Trace = max hold.
6. Measure and record the results in the test report.

3.4.4 Test Setup



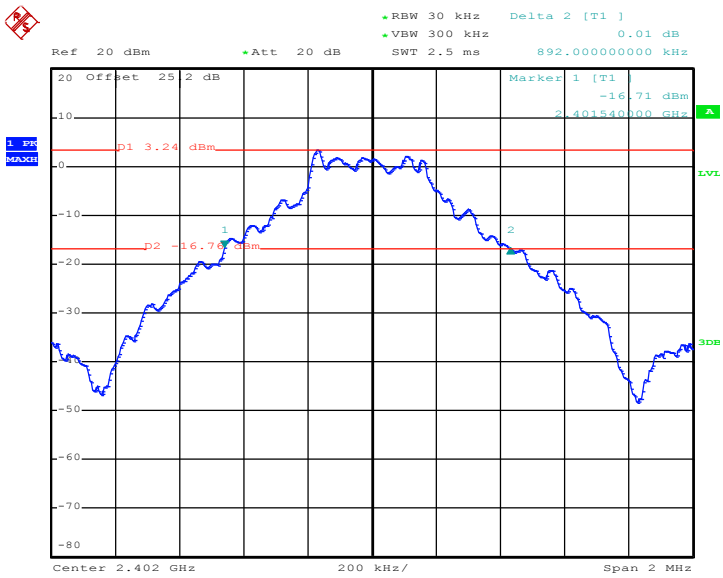
3.4.5 Test Result of 20dB Bandwidth

Please refer to Appendix A.

<Ant. 1>

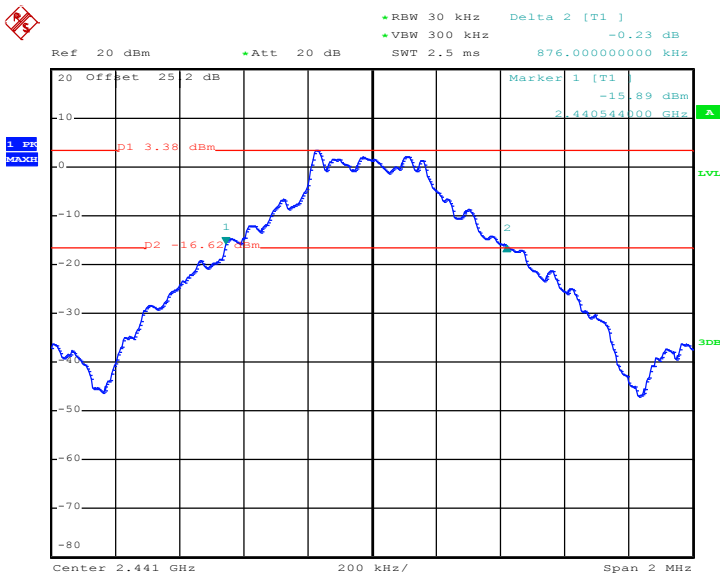
<1Mbps>

20 dB Bandwidth Plot on Channel 00



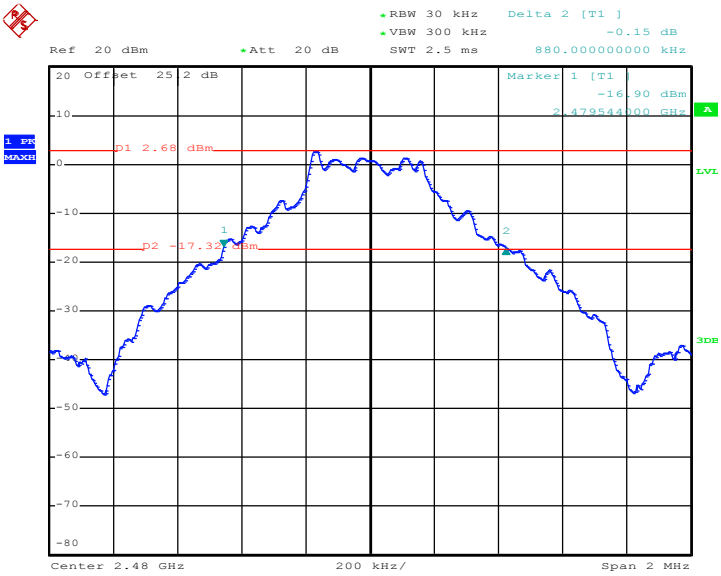
Date: 17.JUL.2018 04:23:18

20 dB Bandwidth Plot on Channel 39



Date: 17.JUL.2018 04:37:02

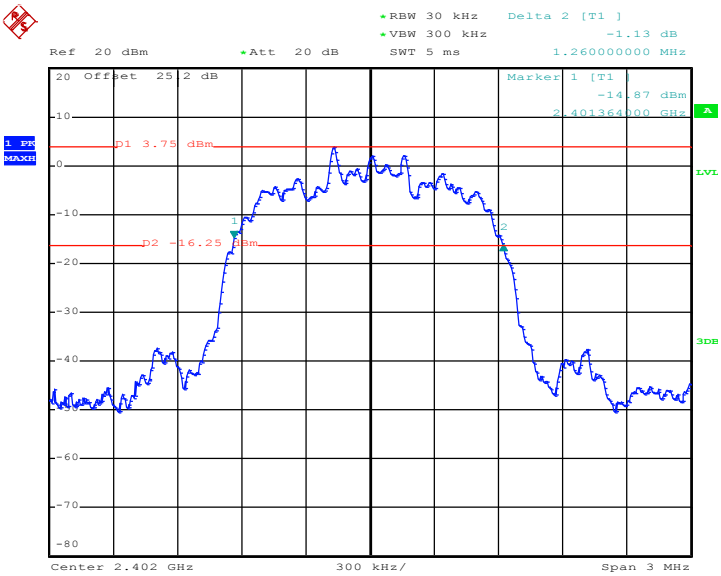
20 dB Bandwidth Plot on Channel 78



Date: 17.JUL.2018 04:42:35

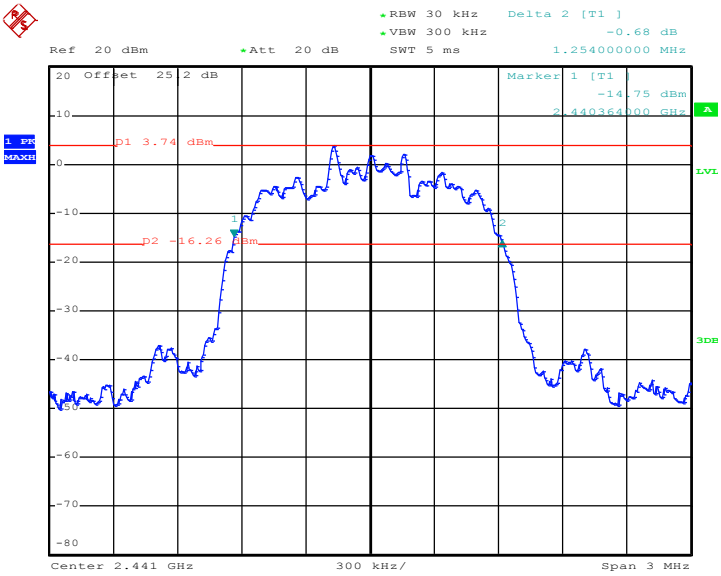
<2Mbps>

20 dB Bandwidth Plot on Channel 00



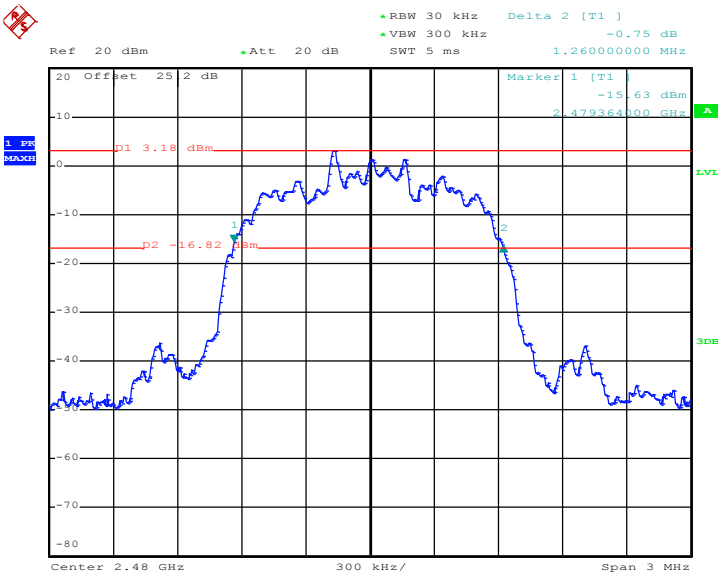
Date: 17.JUL.2018 04:50:34

20 dB Bandwidth Plot on Channel 39



Date: 17.JUL.2018 04:58:11

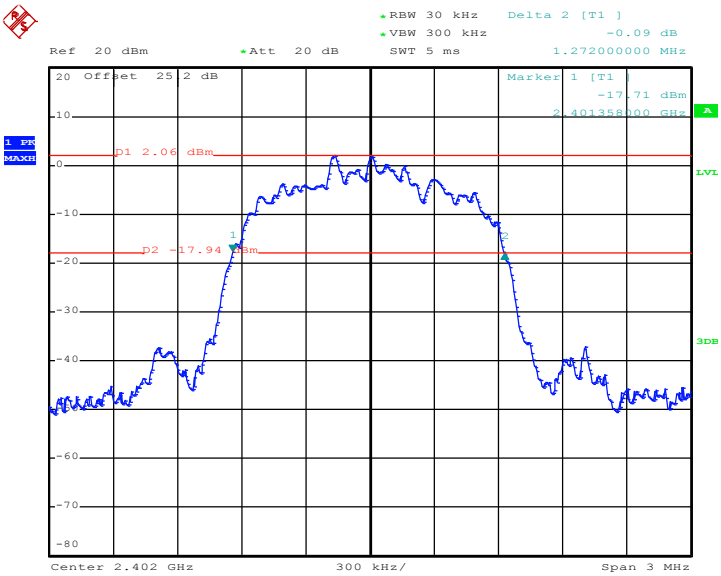
20 dB Bandwidth Plot on Channel 78



Date: 17.JUL.2018 05:03:17

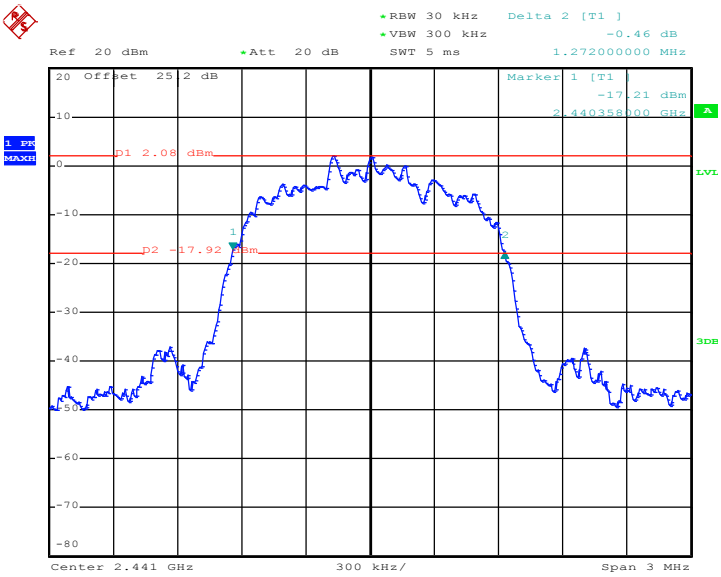
<3Mbps>

20 dB Bandwidth Plot on Channel 00



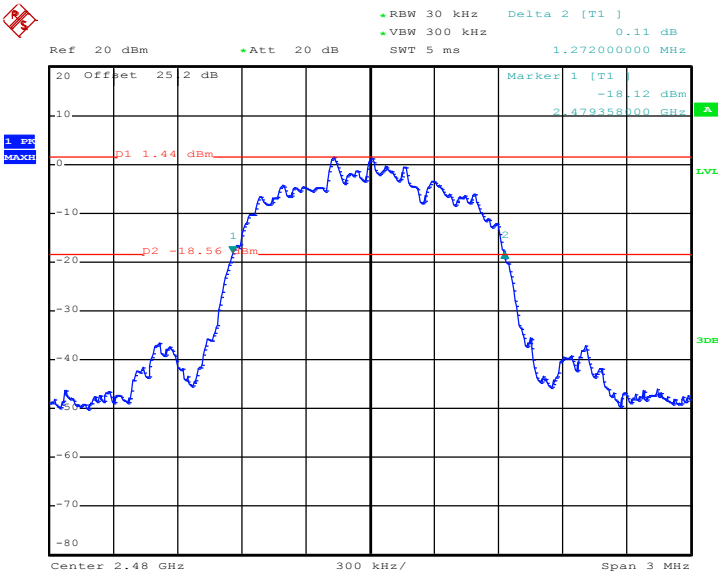
Date: 17.JUL.2018 05:08:27

20 dB Bandwidth Plot on Channel 39



Date: 17.JUL.2018 05:15:08

20 dB Bandwidth Plot on Channel 78

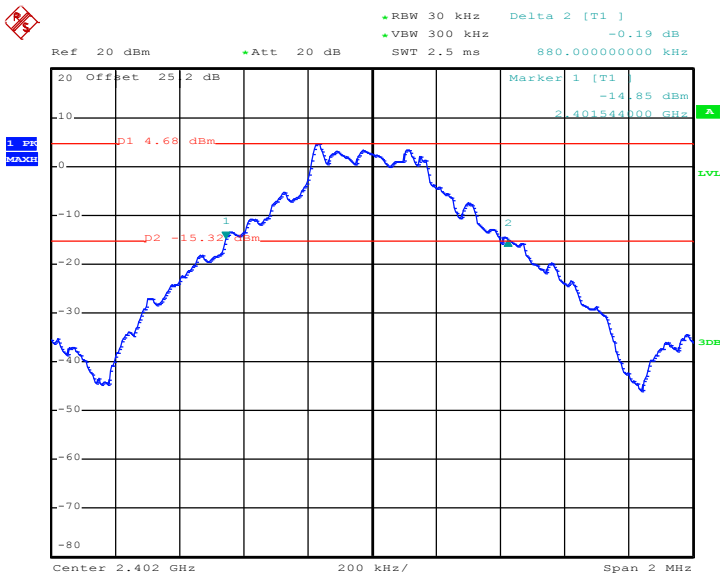


Date: 17.JUL.2018 05:22:38

<Ant. 2>

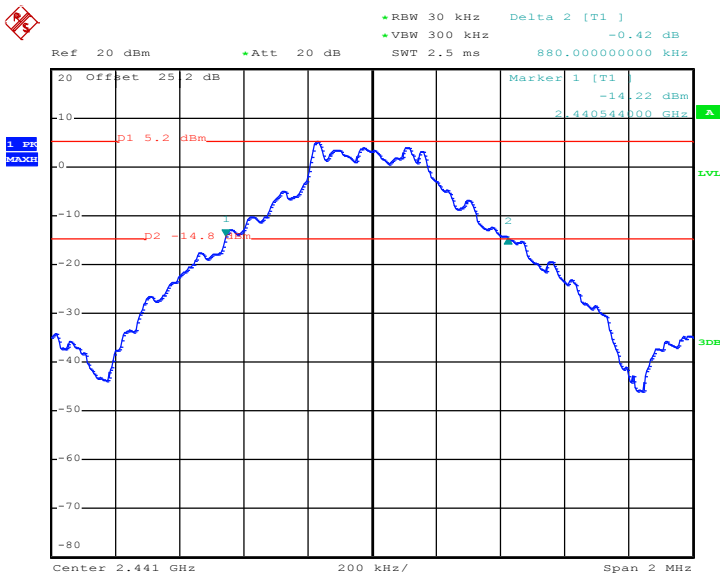
<1Mbps>

20 dB Bandwidth Plot on Channel 00



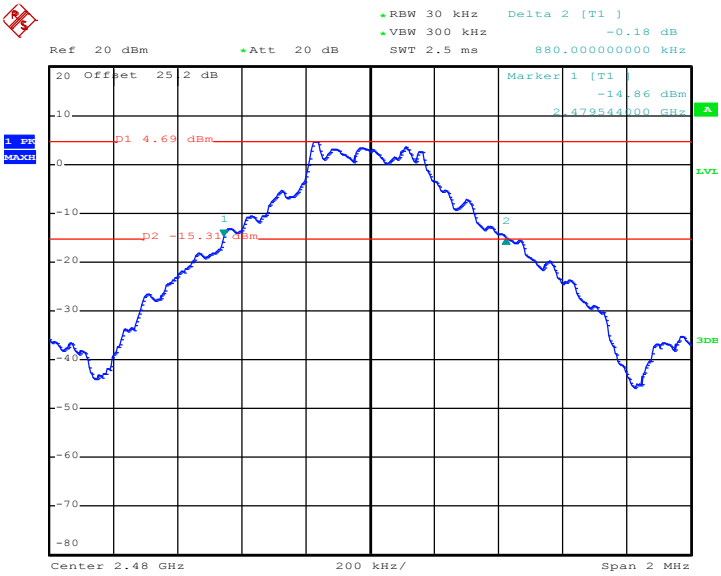
Date: 17.JUL.2018 06:18:08

20 dB Bandwidth Plot on Channel 39



Date: 17.JUL.2018 06:23:58

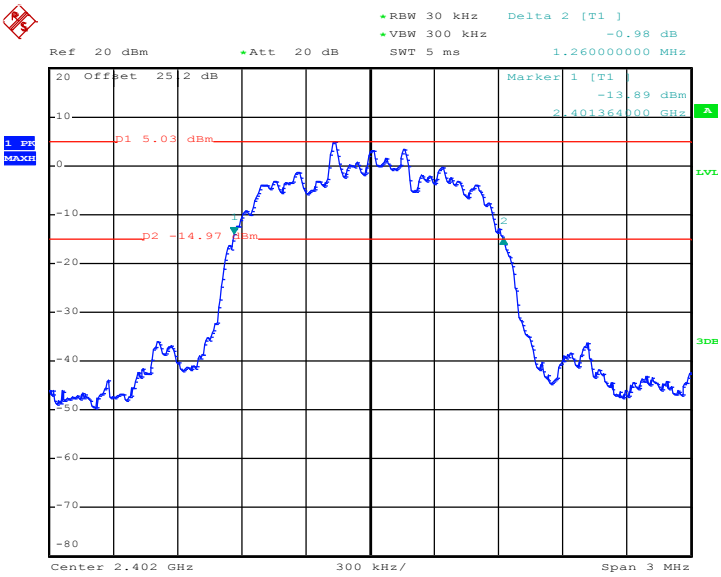
20 dB Bandwidth Plot on Channel 78



Date: 17.JUL.2018 06:32:15

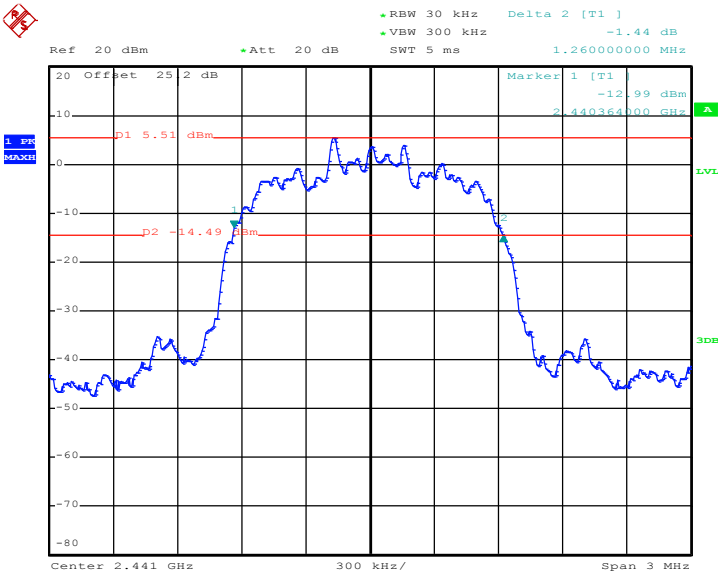
<2Mbps>

20 dB Bandwidth Plot on Channel 00



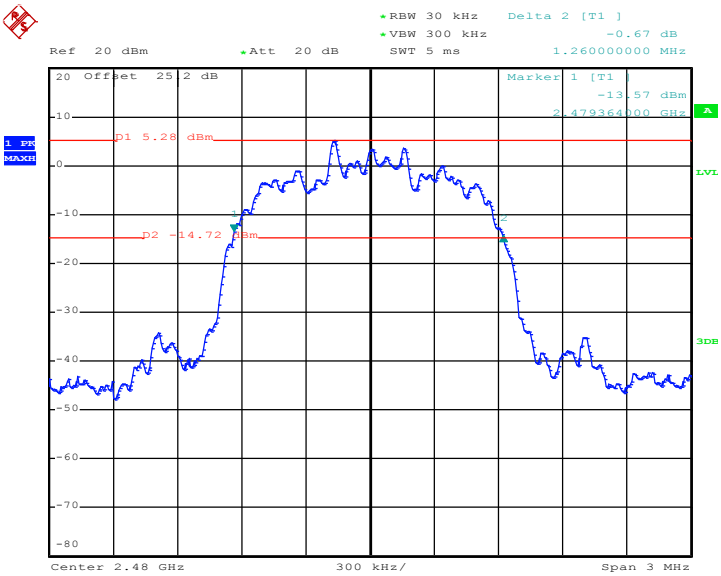
Date: 17.JUL.2018 06:36:53

20 dB Bandwidth Plot on Channel 39



Date: 17.JUL.2018 06:42:52

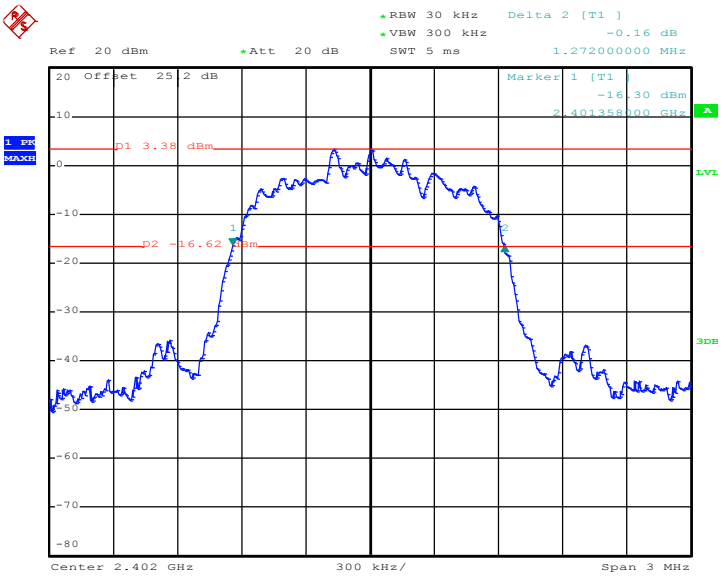
20 dB Bandwidth Plot on Channel 78



Date: 17.JUL.2018 06:50:57

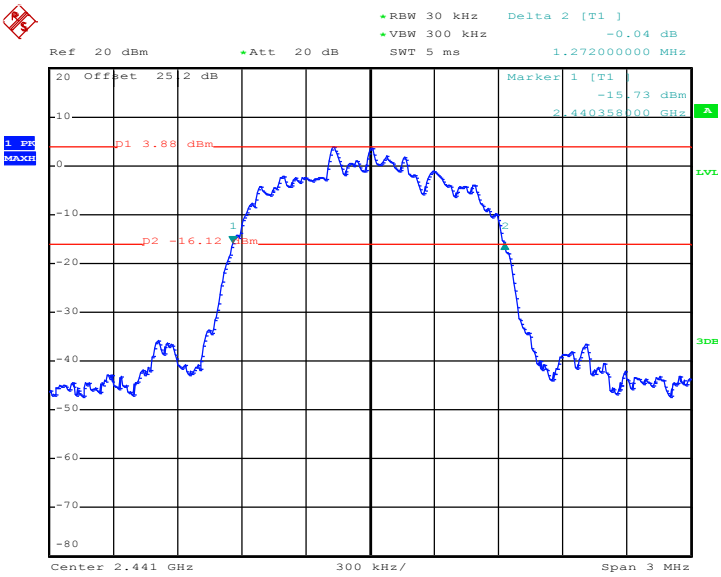
<3Mbps>

20 dB Bandwidth Plot on Channel 00



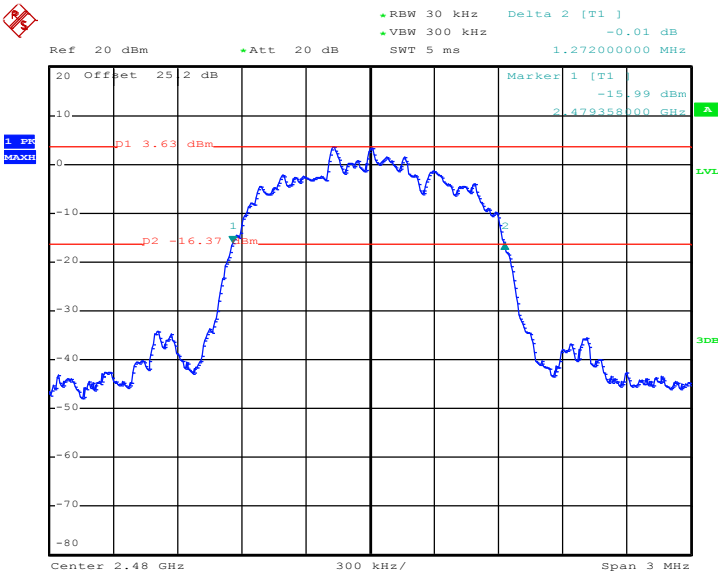
Date: 17.JUL.2018 06:55:46

20 dB Bandwidth Plot on Channel 39



Date: 17.JUL.2018 07:00:39

20 dB Bandwidth Plot on Channel 78



Date: 17.JUL.2018 07:03:34

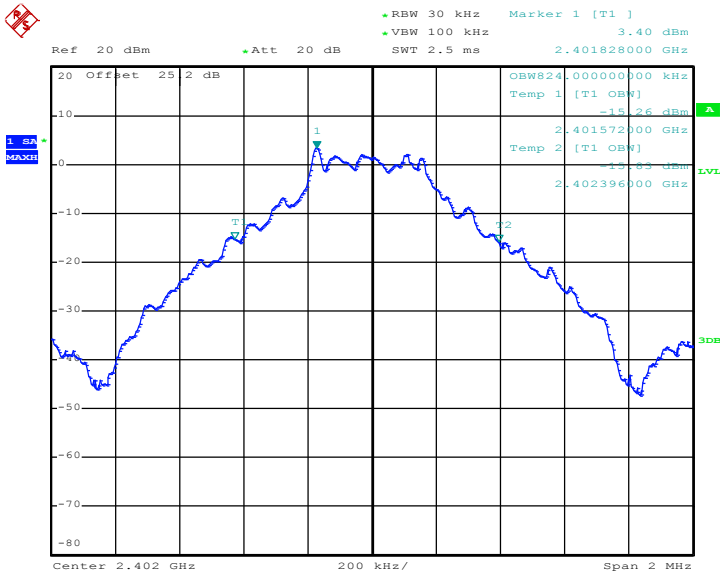
3.4.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

<Ant. 1>

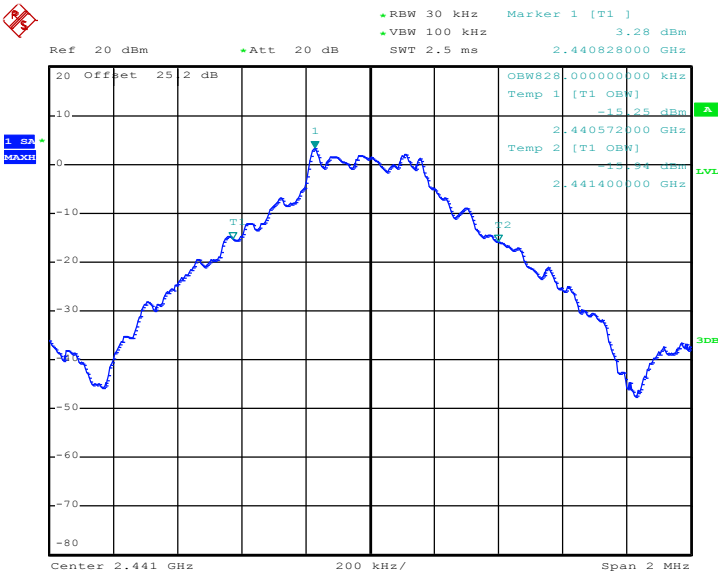
<1Mbps>

99% Occupied Bandwidth Plot on Channel 00



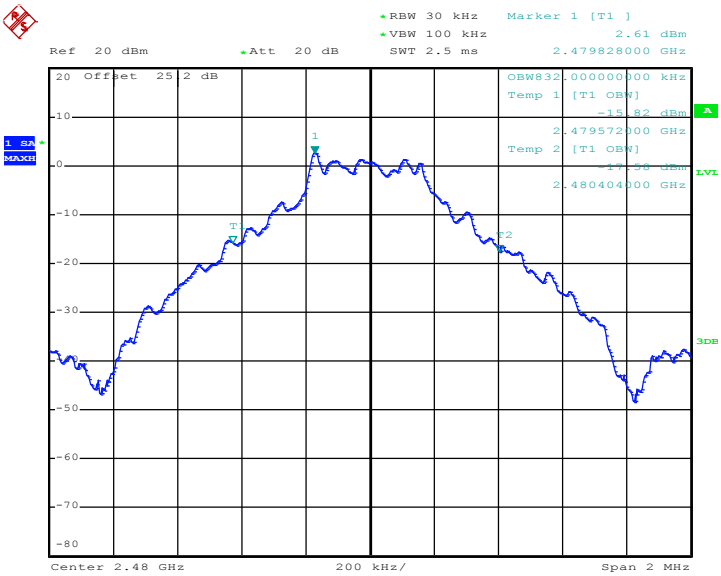
Date: 17.JUL.2018 04:20:15

99% Occupied Bandwidth Plot on Channel 39



Date: 17.JUL.2018 04:36:09

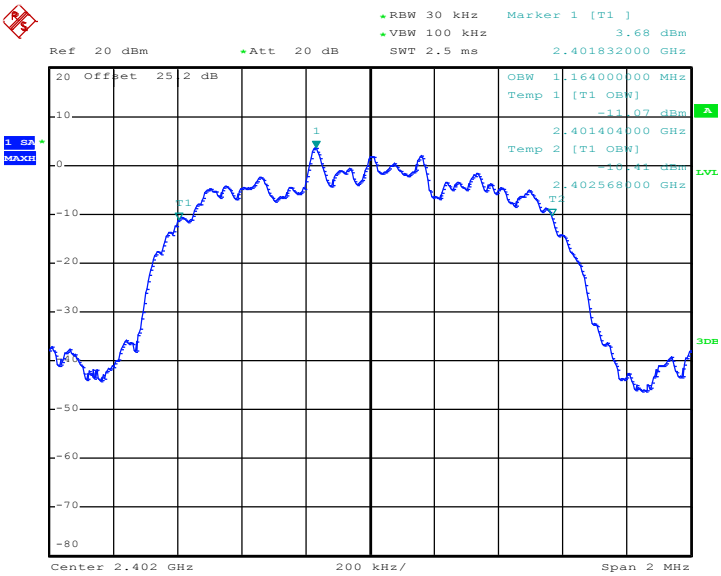
99% Occupied Bandwidth Plot on Channel 78



Date: 17.JUL.2018 04:40:30

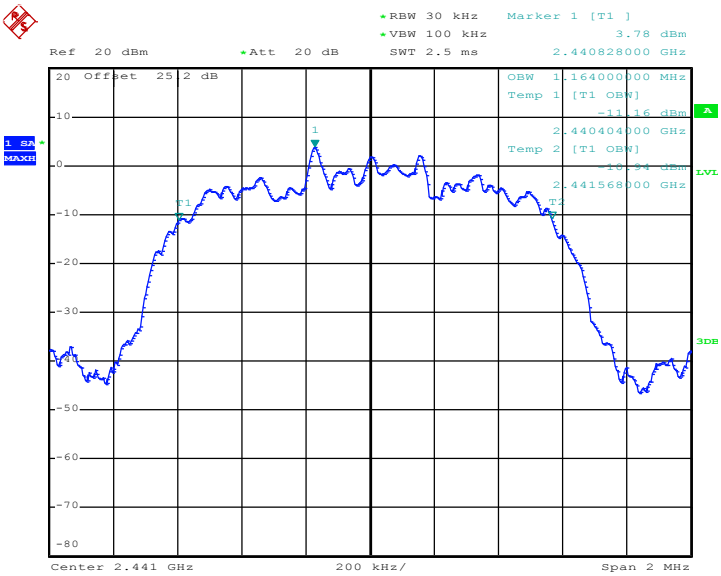
<2Mbps>

99% Occupied Bandwidth Plot on Channel 00



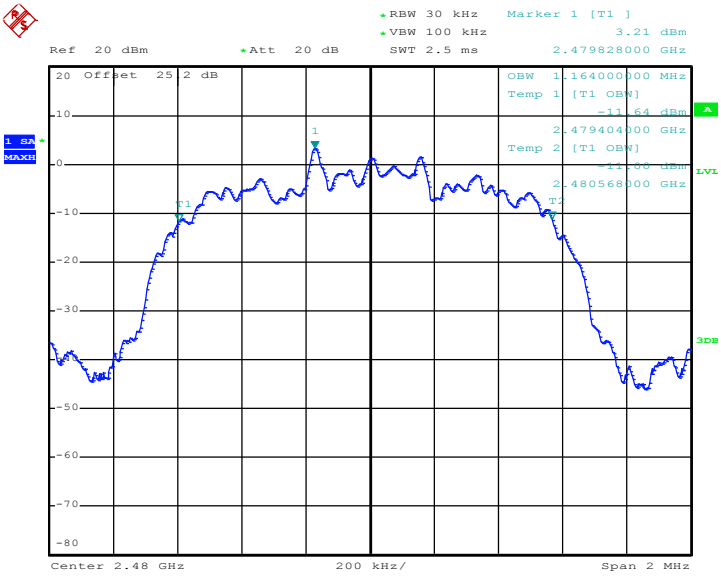
Date: 17.JUL.2018 04:49:17

99% Occupied Bandwidth Plot on Channel 39



Date: 17.JUL.2018 04:56:43

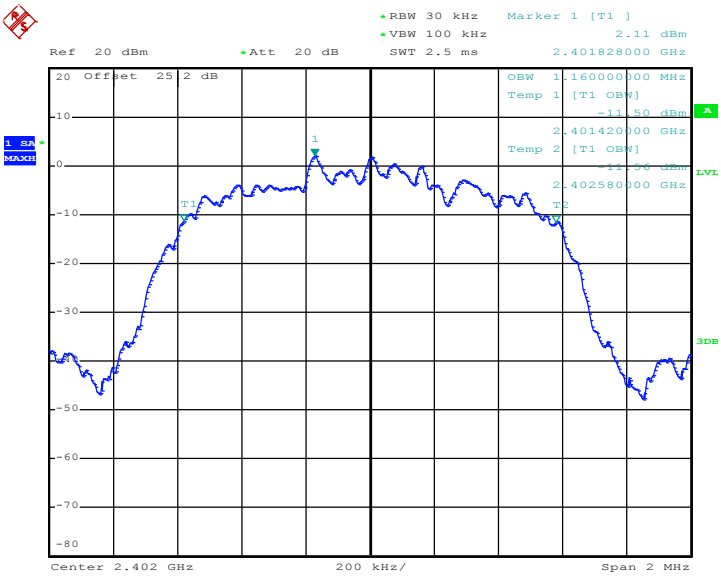
99% Occupied Bandwidth Plot on Channel 78



Date: 17.JUL.2018 05:01:39

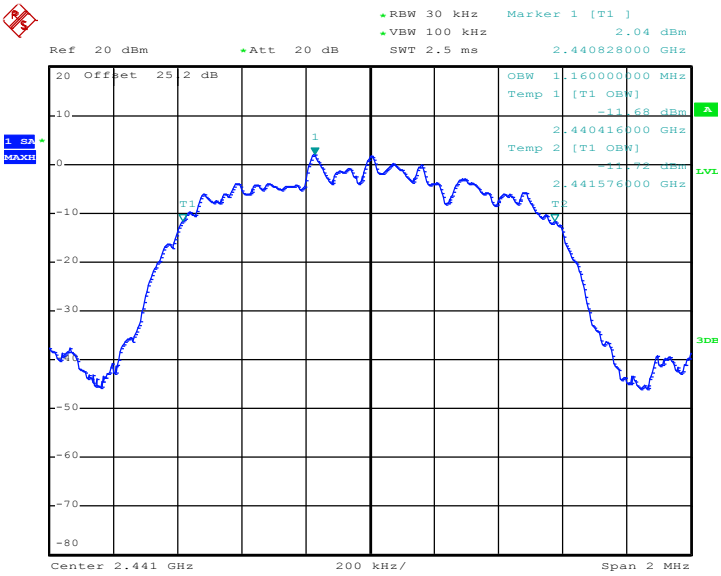
<3Mbps>

99% Occupied Bandwidth Plot on Channel 00



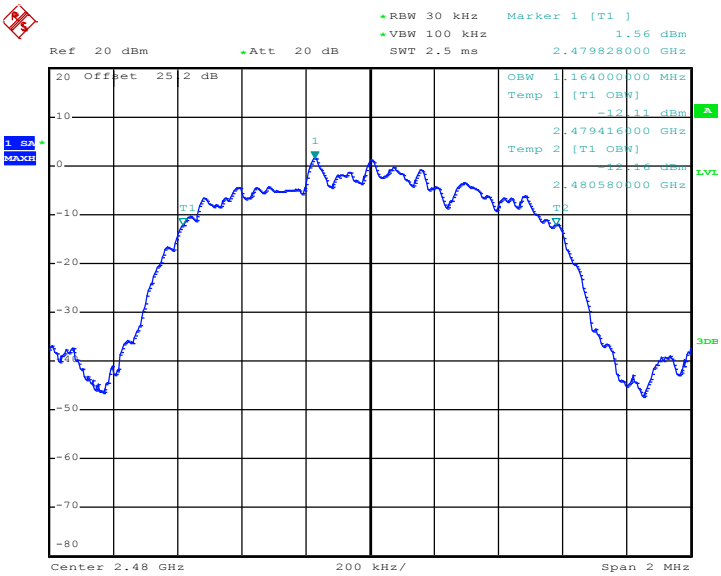
Date: 17.JUL.2018 05:06:51

99% Occupied Bandwidth Plot on Channel 39



Date: 17.JUL.2018 05:12:39

99% Occupied Bandwidth Plot on Channel 78

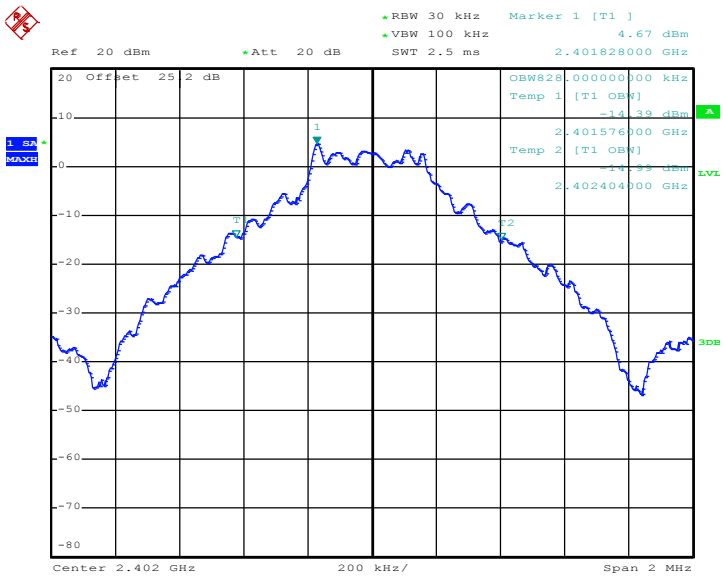


Date: 17.JUL.2018 05:19:55

<Ant. 2>

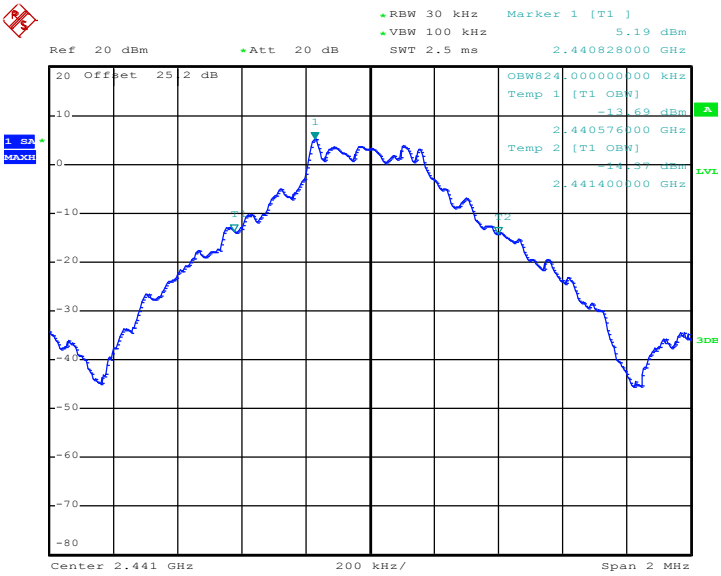
<1Mbps>

99% Occupied Bandwidth Plot on Channel 00



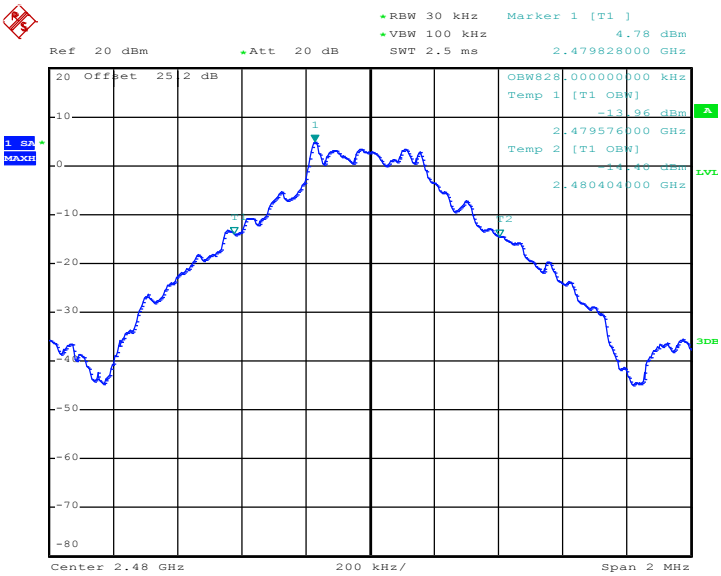
Date: 17.JUL.2018 06:16:24

99% Occupied Bandwidth Plot on Channel 39



Date: 17.JUL.2018 06:23:01

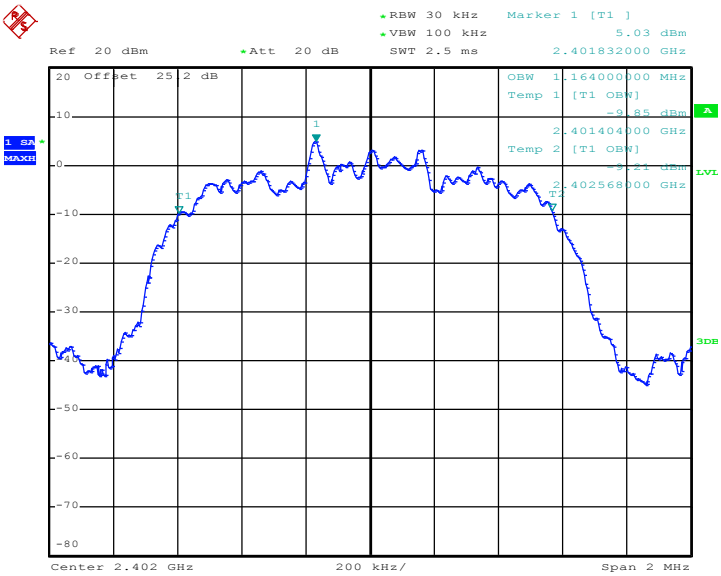
99% Occupied Bandwidth Plot on Channel 78



Date: 17.JUL.2018 06:30:49

<2Mbps>

99% Occupied Bandwidth Plot on Channel 00



Date: 17.JUL.2018 06:35:20

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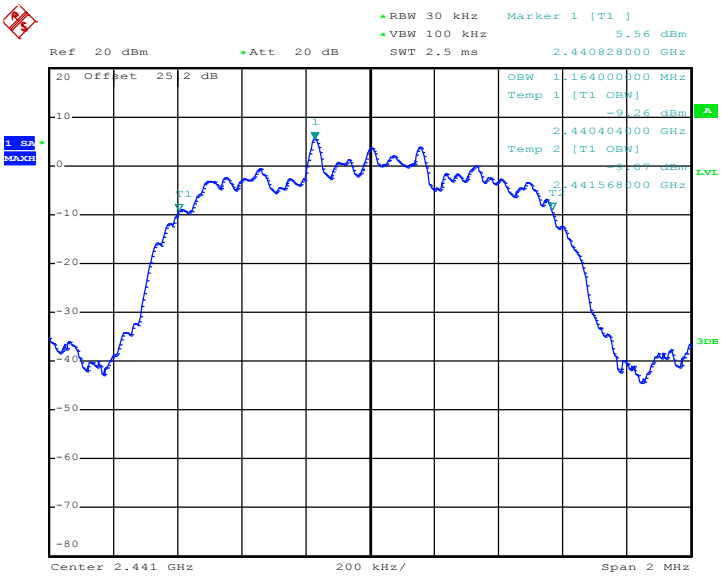
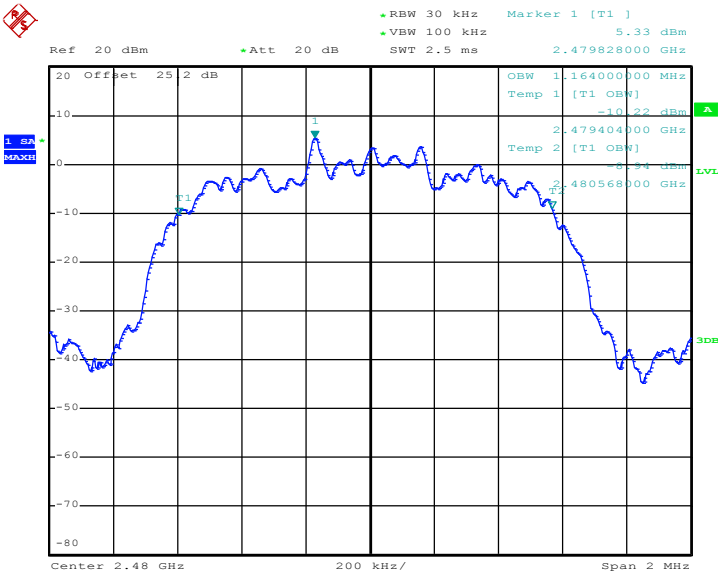


Date: 17.JUL.2018 06:41:44

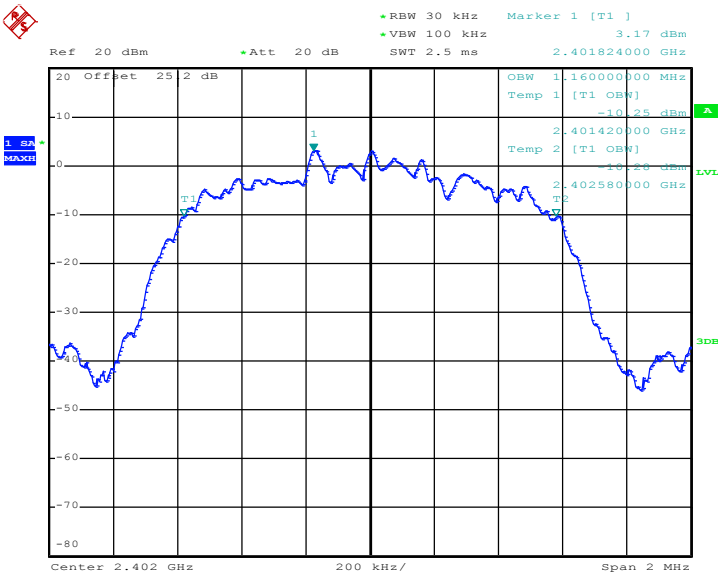
99% Occupied Bandwidth Plot on Channel 78



Date: 17.JUL.2018 06:49:20

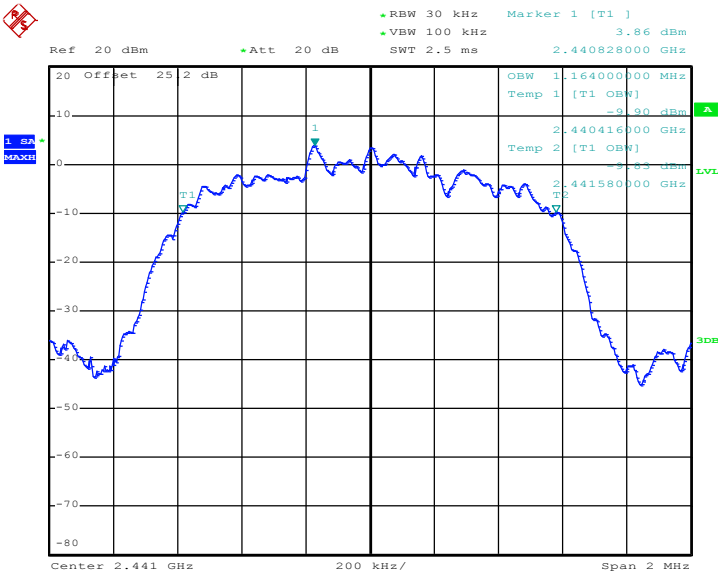
<3Mbps>

99% Occupied Bandwidth Plot on Channel 00



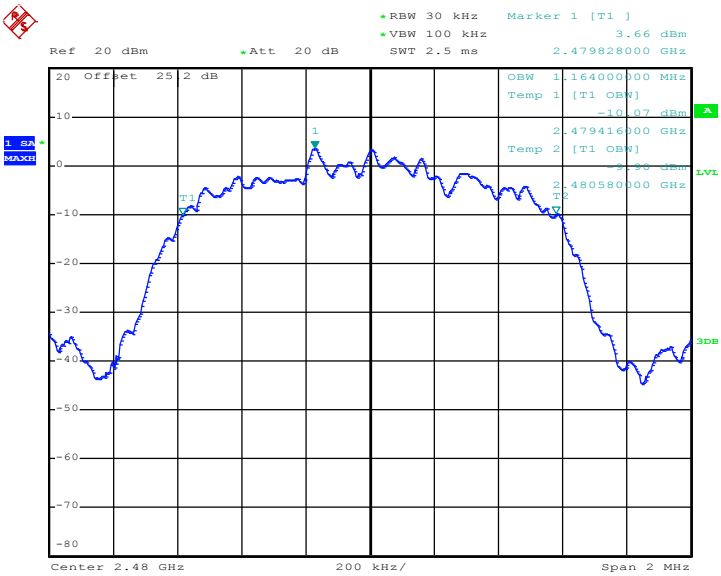
Date: 17.JUL.2018 06:54:21

99% Occupied Bandwidth Plot on Channel 39



Date: 17.JUL.2018 06:59:45

99% Occupied Bandwidth Plot on Channel 78



Date: 17.JUL.2018 07:04:43

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

3.5 Output Power Measurement

3.5.1 Limit of Output Power

The maximum peak conducted output power of the intentional radiator shall not exceed the following: (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts. The power limit for 1Mbps, 2Mbps, 3Mbps and AFH modes are 0.125 watts.

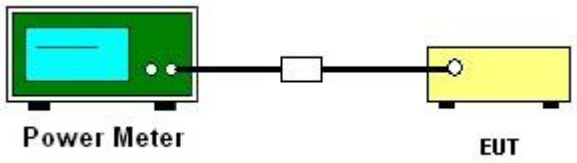
3.5.2 Measuring Instruments

See list of measuring equipment of this test report.

3.5.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.5.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power with cable loss and record the results in the test report.
5. Measure and record the results in the test report.

3.5.4 Test Setup



3.5.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.5.6 Test Result of Average Output Power (Reporting Only)

Please refer to Appendix A.

3.6 Conducted Band Edges Measurement

3.6.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

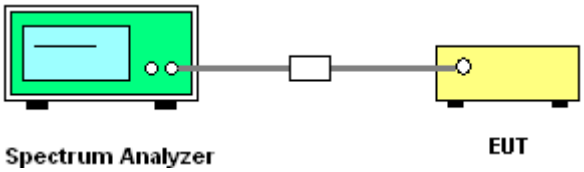
3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.6.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set RBW = 100kHz, VBW = 300kHz. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.
4. Enable hopping function of the EUT and then repeat step 2. and 3.
5. Measure and record the results in the test report.

3.6.4 Test Setup

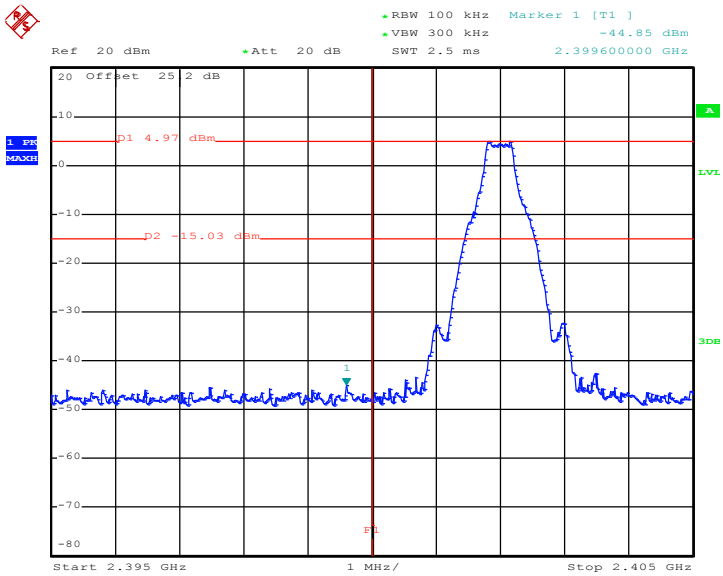


3.6.5 Test Result of Conducted Band Edges

<Ant. 1>

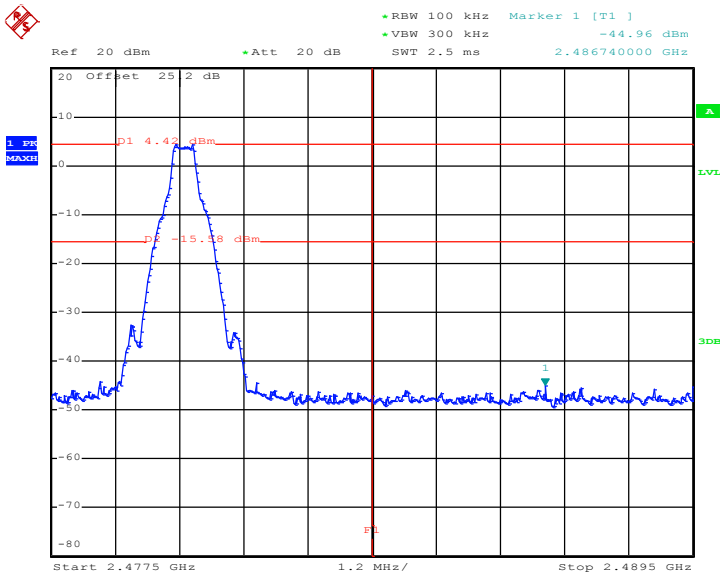
<1Mbps>

Low Band Edge Plot on Channel 00



Date: 17.JUL.2018 04:20:38

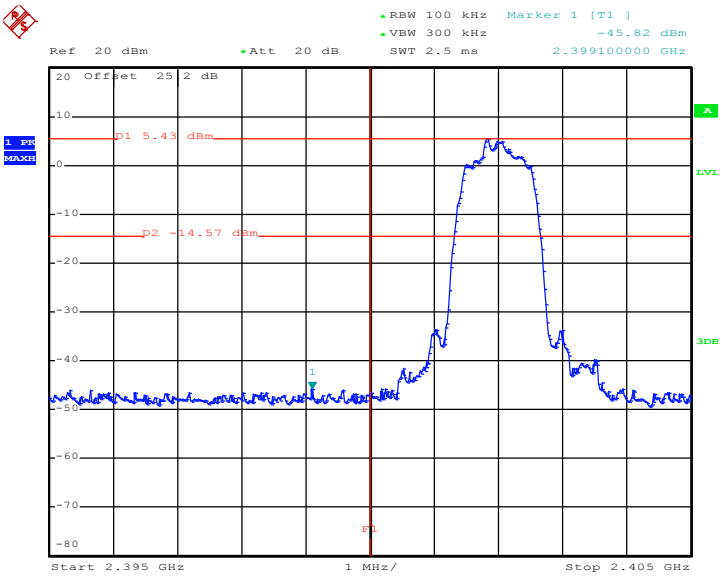
High Band Edge Plot on Channel 78



Date: 17.JUL.2018 04:40:54

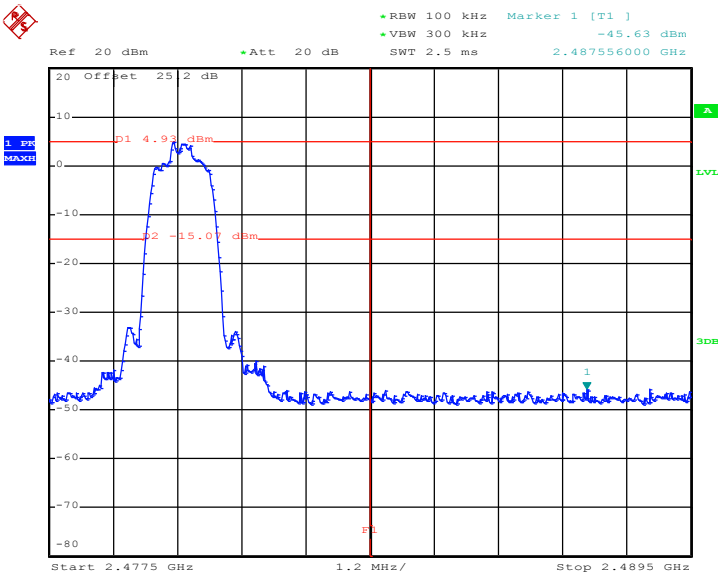
<2Mbps>

Low Band Edge Plot on Channel 00



Date: 17.JUL.2018 04:51:03

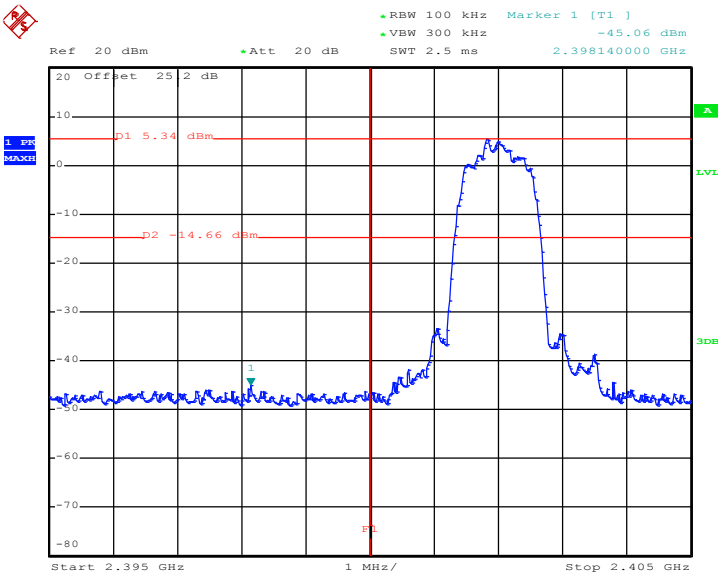
High Band Edge Plot on Channel 78



Date: 17.JUL.2018 05:02:14

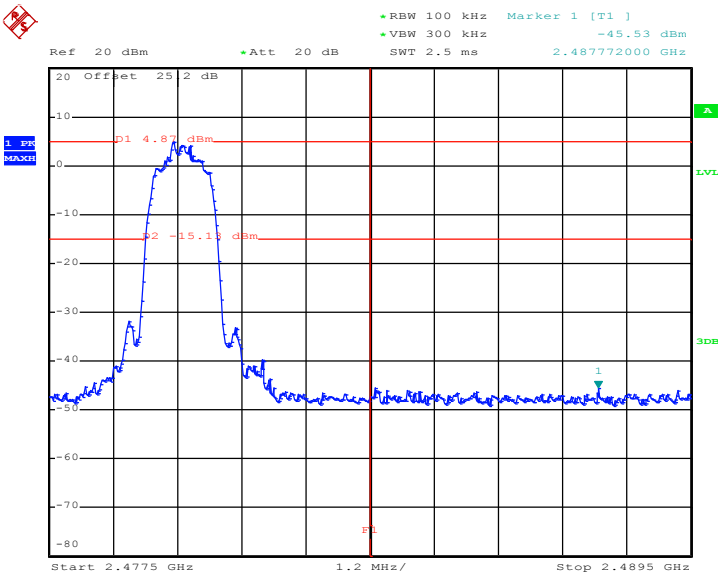
<3Mbps>

Low Band Edge Plot on Channel 00



Date: 17.JUL.2018 05:07:21

High Band Edge Plot on Channel 78

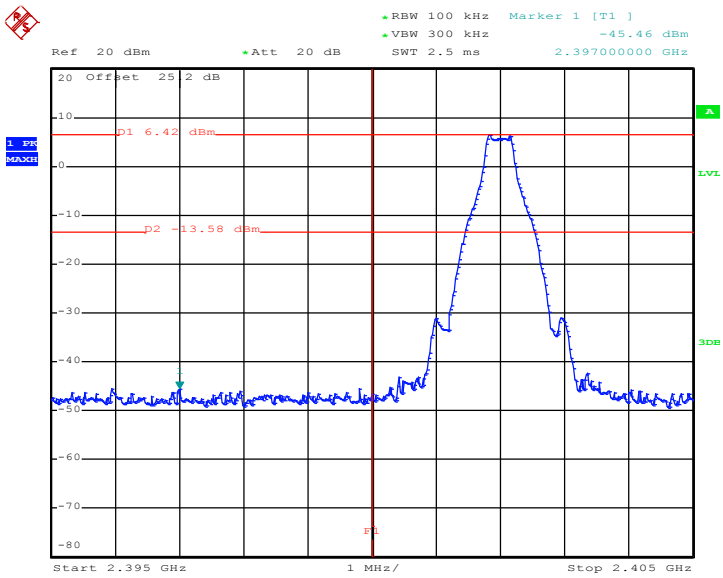


Date: 17.JUL.2018 05:20:38

<Ant. 2>

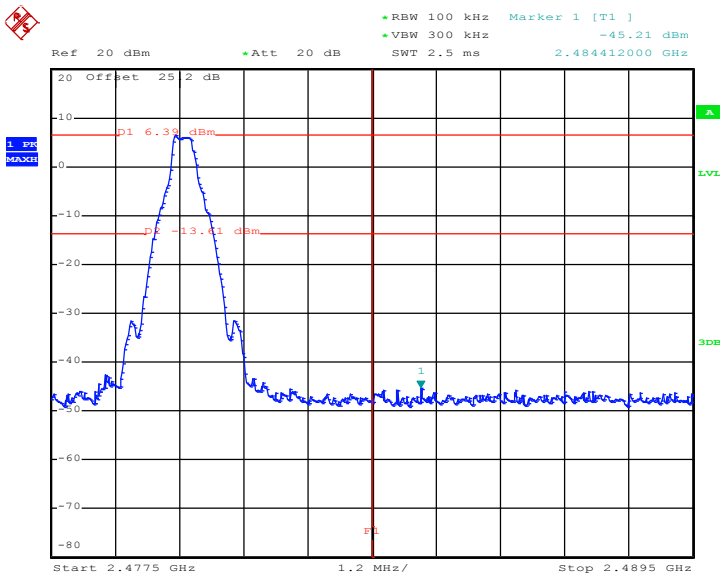
<1Mbps>

Low Band Edge Plot on Channel 00



Date: 17.JUL.2018 06:16:57

High Band Edge Plot on Channel 78



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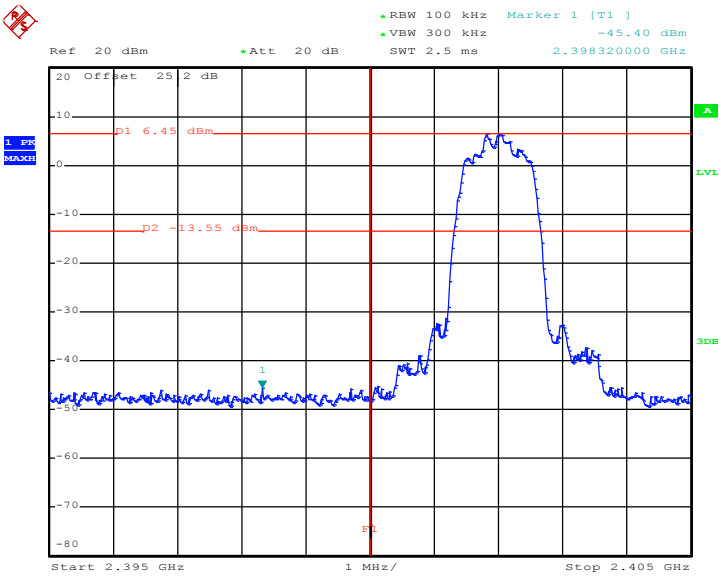
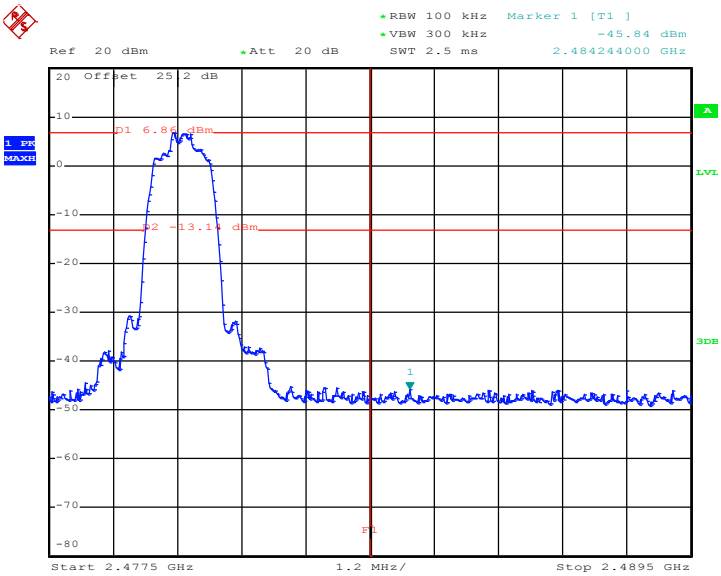
<2Mbps>

Low Band Edge Plot on Channel 00 **720510**



Date: 17.JUL.2018 06:35:43

High Band Edge Plot on Channel 78



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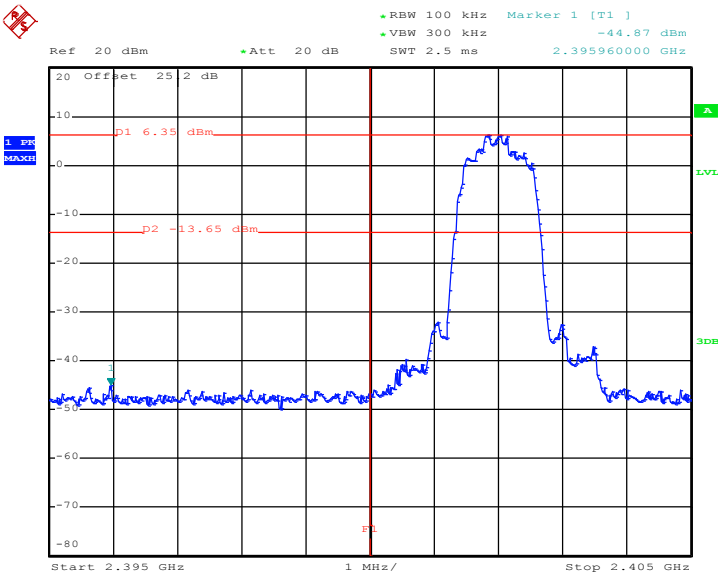
<3Mbps>

Low Band Edge Plot on Channel 00



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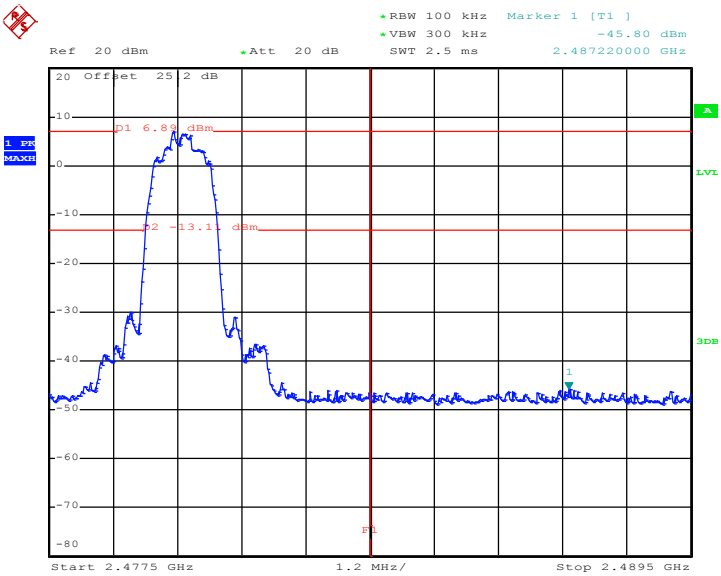
High Band Edge Plot on Channel 78



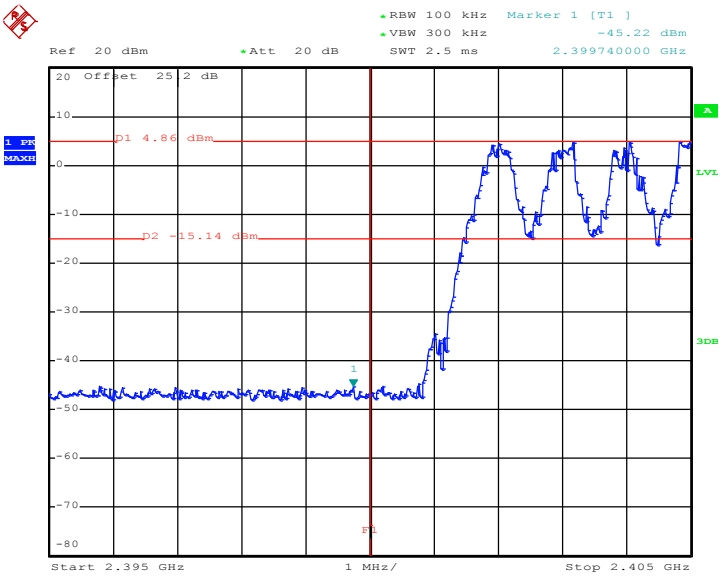
Date: 17.JUL.2018 07:04:07

3.6.6 Test Result of Conducted Hopping Mode Band Edges

<Ant. 1>

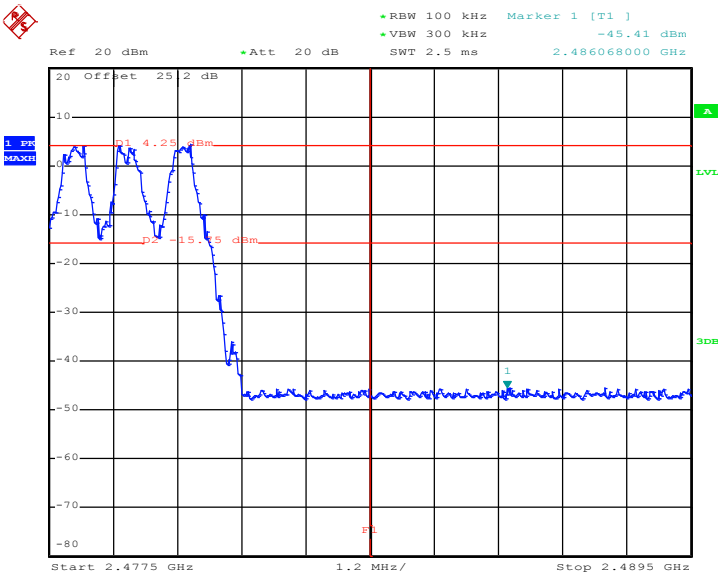
<1Mbps>

Hopping Mode Low Band Edge Plot



Date: 17.JUL.2018 03:48:20

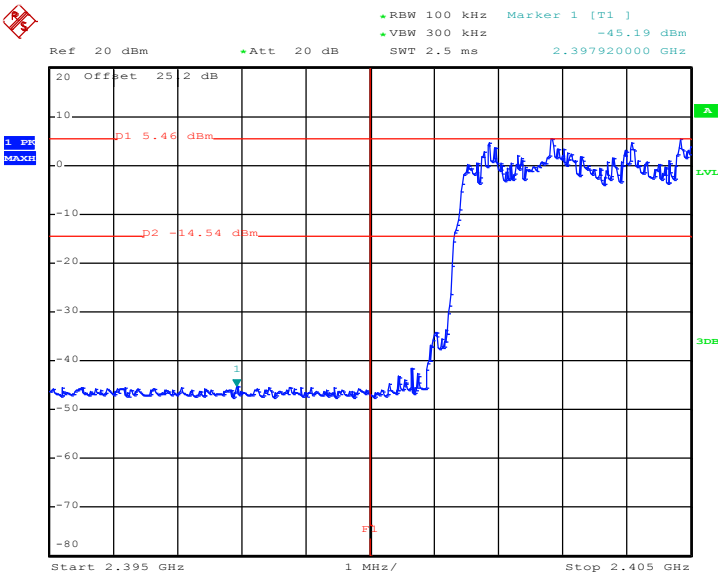
Hopping Mode High Band Edge Plot



Date: 17.JUL.2018 03:46:07

<2Mbps>

Hopping Mode Low Band Edge Plot



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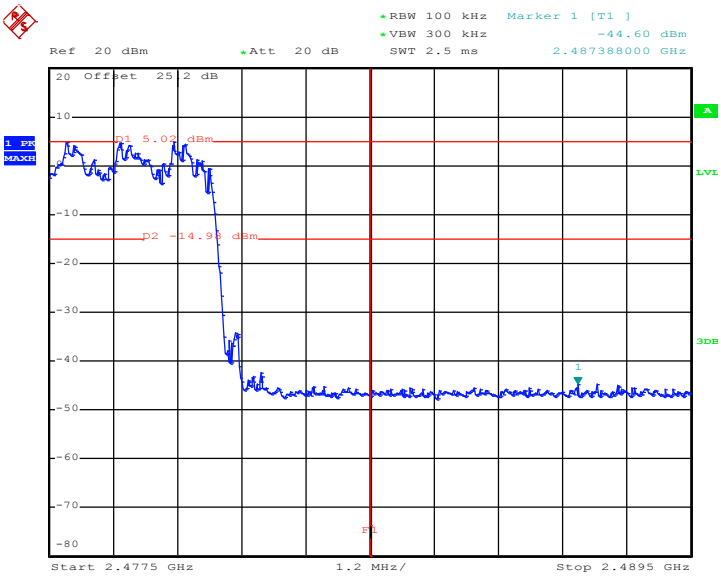
Hopping Mode High Band Edge Plot



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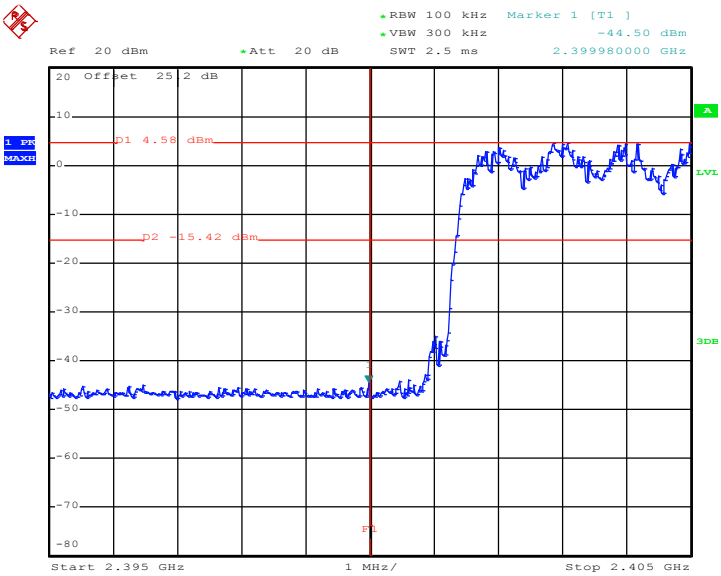
Hopping Mode Low Band Edge Plot



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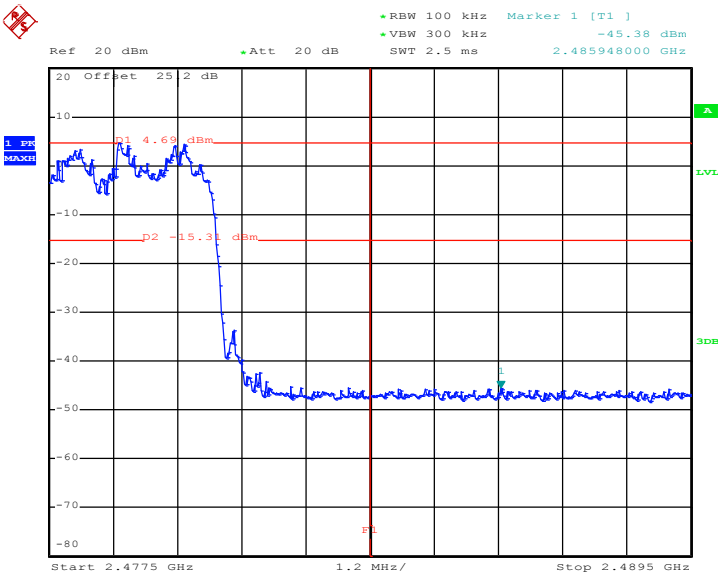
Hopping Mode High Band Edge Plot

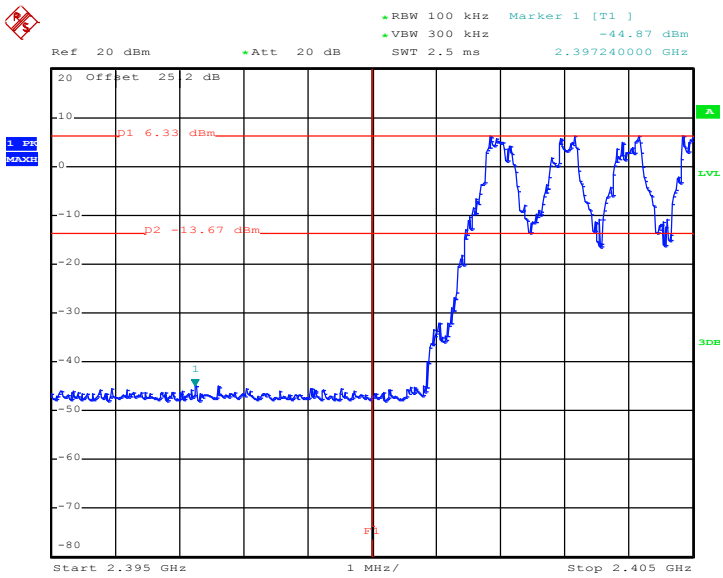


Date: 17.JUL.2018 03:35:57

<Ant. 2>

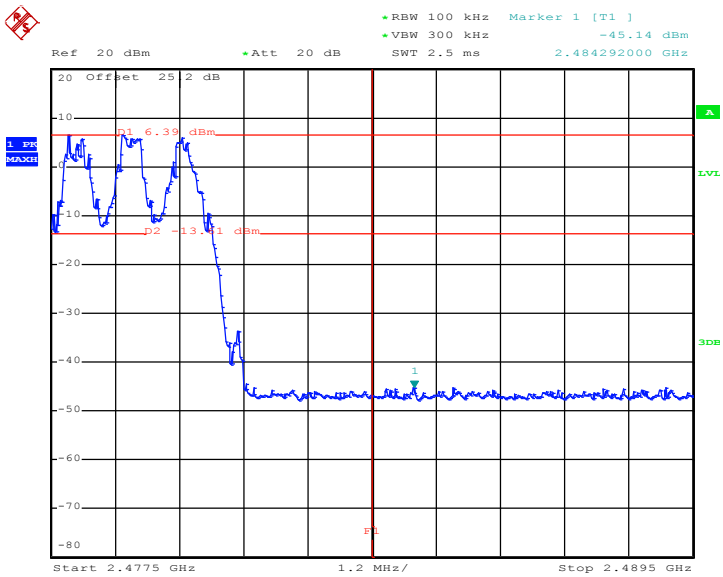
<1Mbps>

Hopping Mode Low Band Edge Plot



Date: 17.JUL.2018 06:11:52

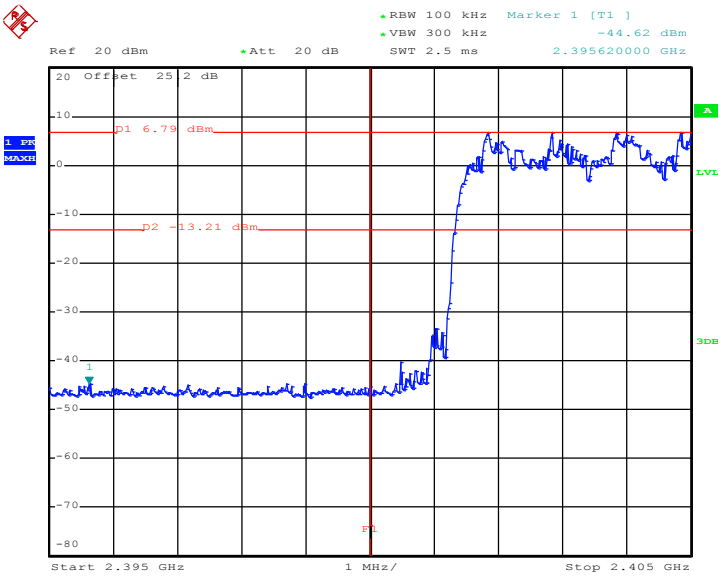
Hopping Mode High Band Edge Plot



Date: 17.JUL.2018 06:13:20

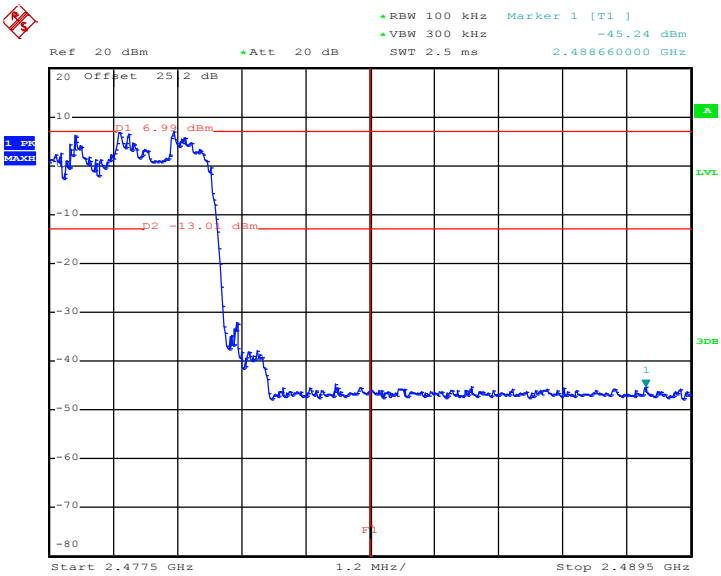
<2Mbps>

Hopping Mode Low Band Edge Plot



Date: 17.JUL.2018 06:07:20

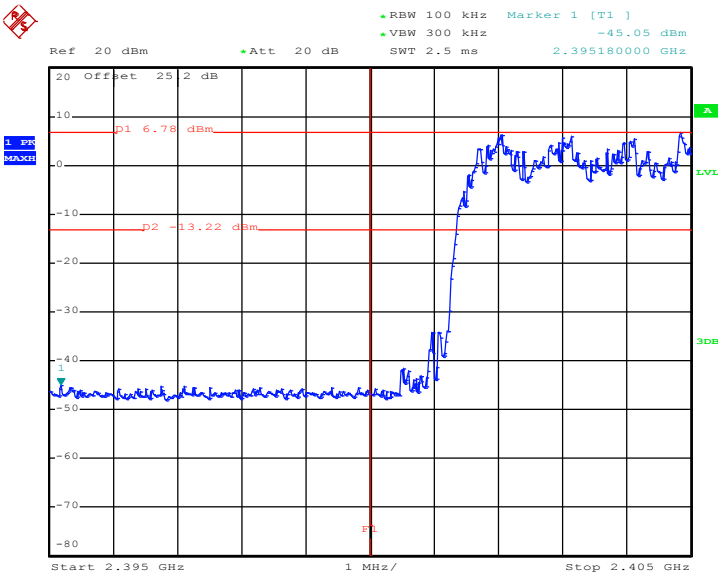
Hopping Mode High Band Edge Plot



Date: 17.JUL.2018 06:09:39

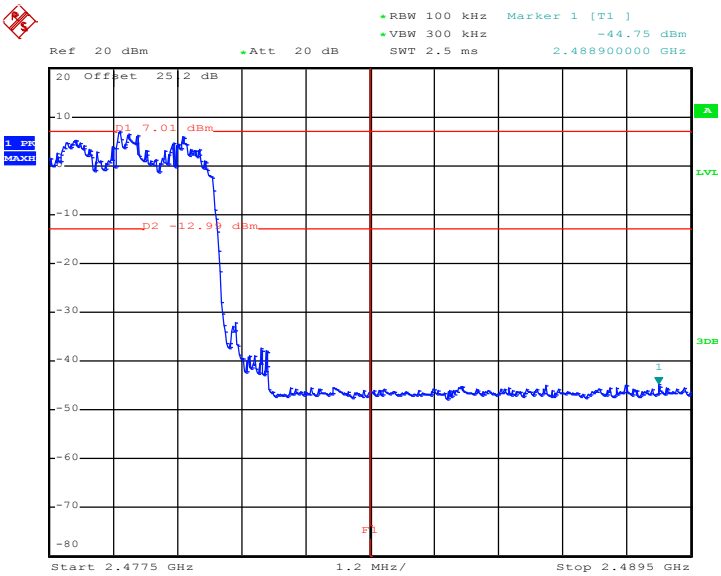
<3Mbps>

Hopping Mode Low Band Edge Plot



Date: 17.JUL.2018 06:01:06

Hopping Mode High Band Edge Plot



Date: 17.JUL.2018 06:03:48

3.7 Conducted Spurious Emission Measurement

3.7.1 Limit of Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

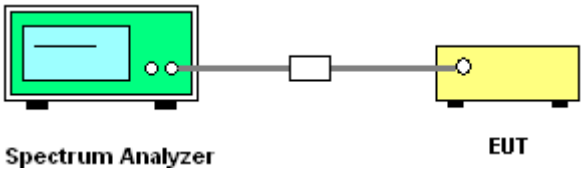
3.7.2 Measuring Instruments

See list of measuring equipment of this test report.

3.7.3 Test Procedure

1. The testing follows ANSI C63.10-2013 clause 7.8.8.
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 = 300kHz, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
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.

3.7.4 Test Setup

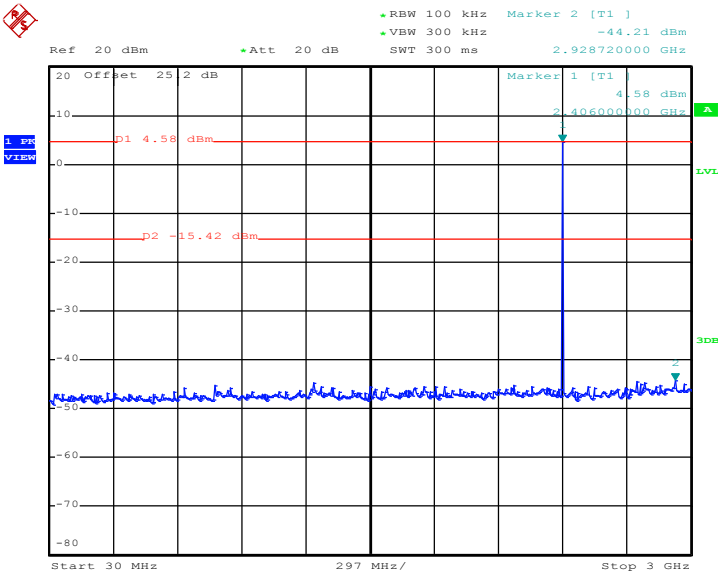


3.7.5 Test Result of Conducted Spurious Emission

<Ant. 1>

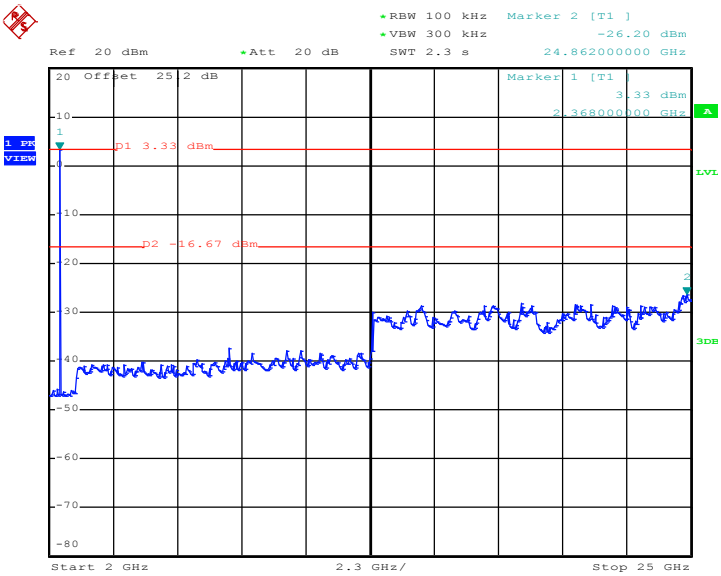
<1Mbps>

CSE Plot on Ch 00 between 30MHz ~ 3 GHz



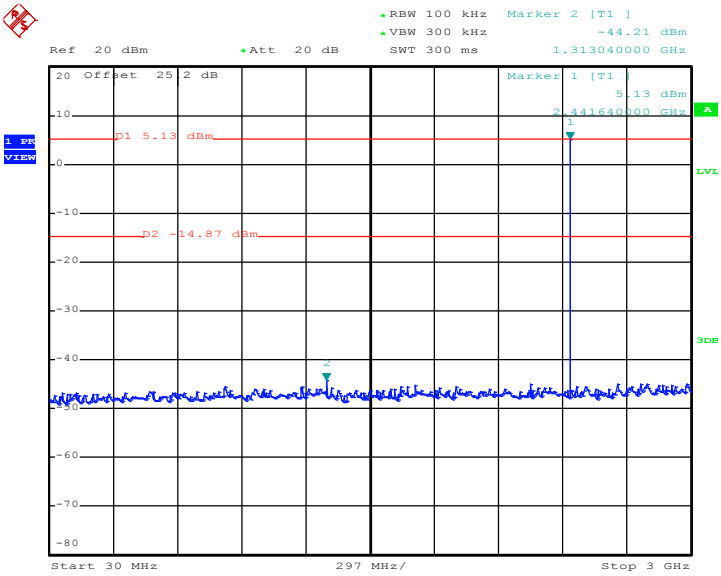
Date: 17.JUL.2018 04:17:21

1Mbps CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



Date: 17.JUL.2018 04:18:51

CSE Plot on Ch 39 between 30MHz ~ 3 GHz



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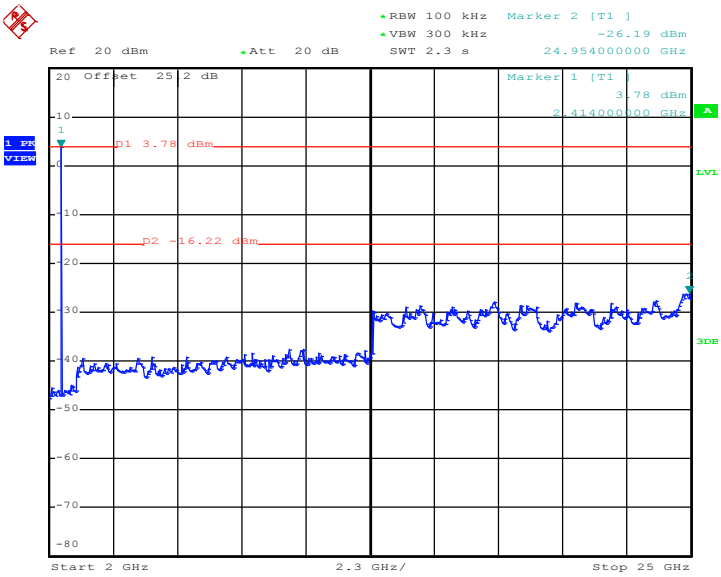
CSE Plot on Ch 39 between 2 GHz ~ 25 GHz



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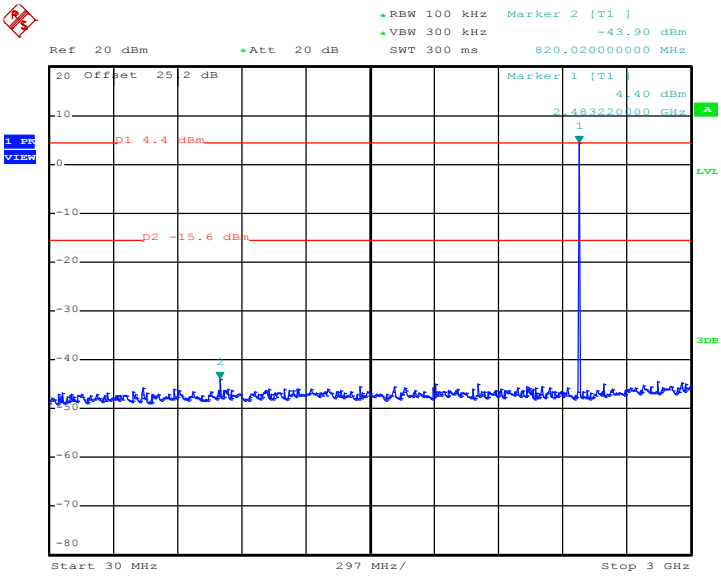
CSE Plot on Ch 78 between 30MHz ~ 3 GHz



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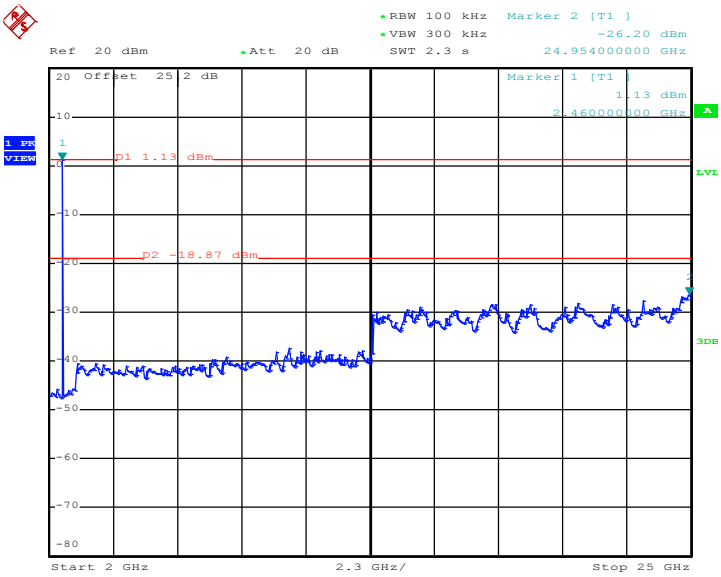
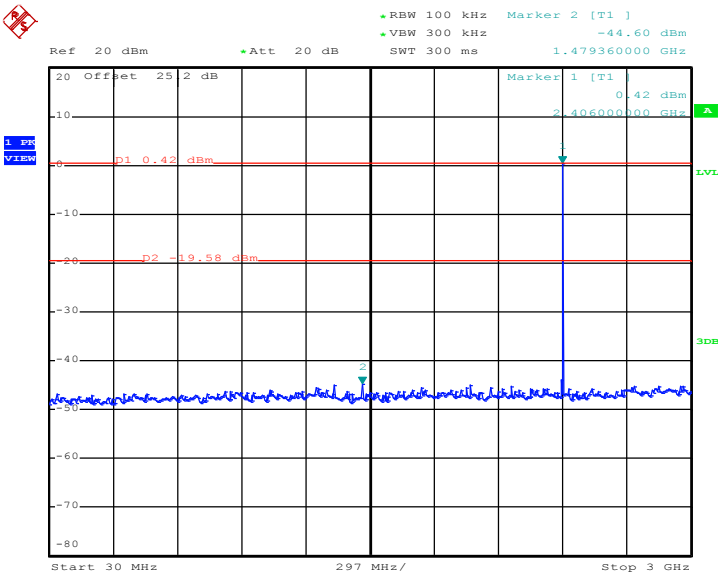
CSE Plot on Ch 78 between 2 GHz ~ 25 GHz



Date: 17.JUL.2018 04:39:49

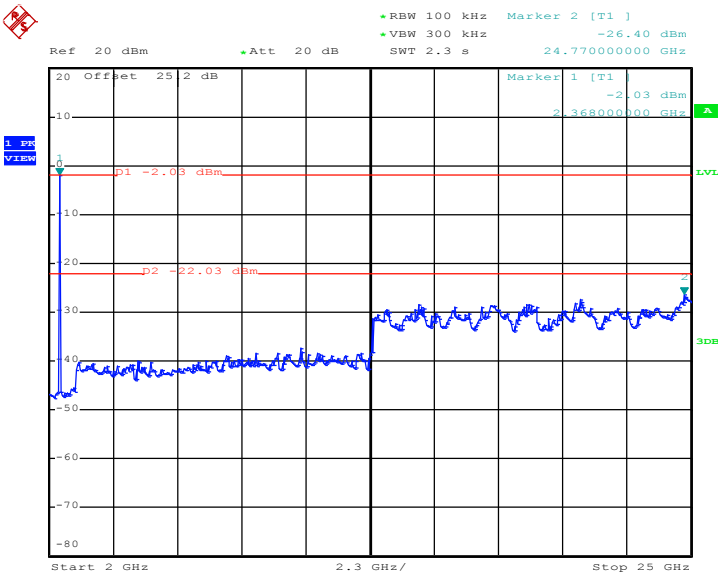
<2Mbps>

CSE Plot on Ch 00 between 30MHz ~ 3 GHz



Date: 17.JUL.2018 04:48:01

CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



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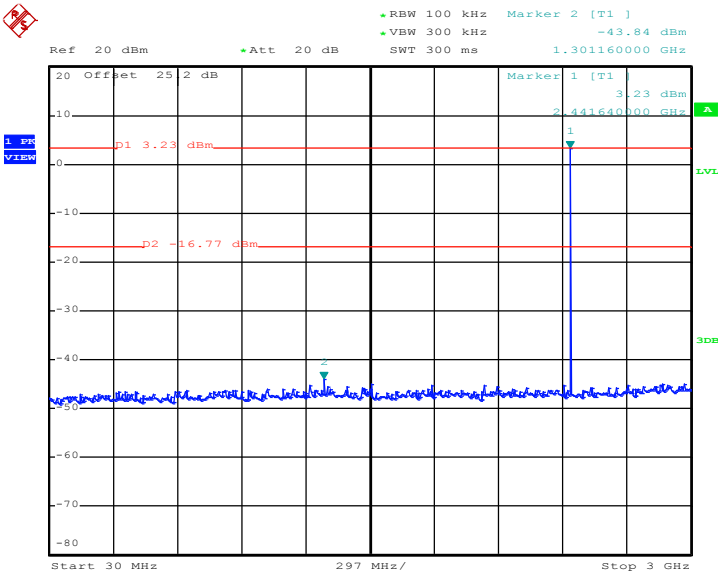
CSE Plot on Ch 39 between 30MHz ~ 3 GHz



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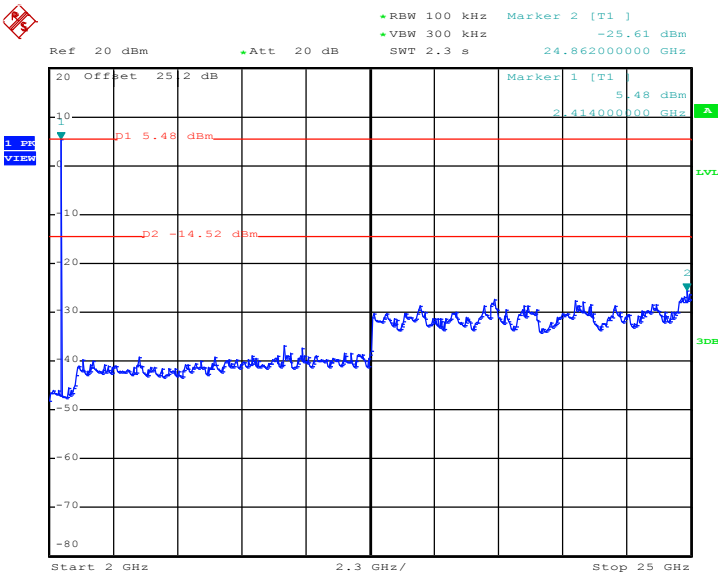
CSE Plot on Ch 39 between 2 GHz ~ 25 GHz



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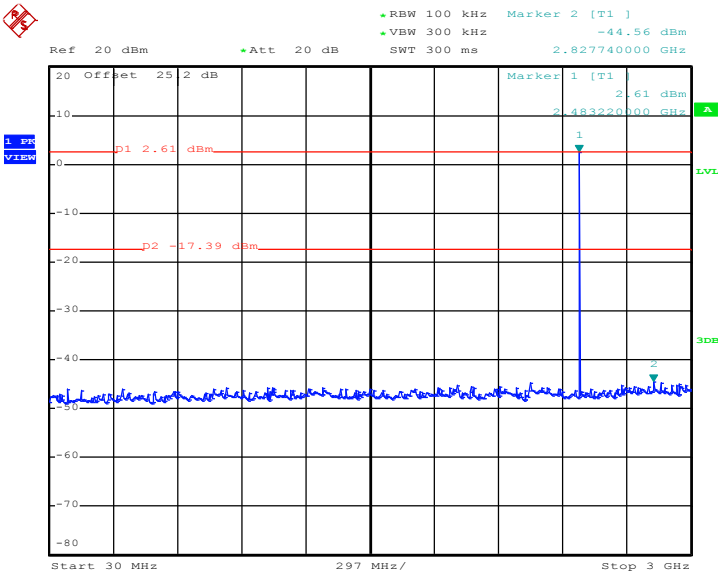
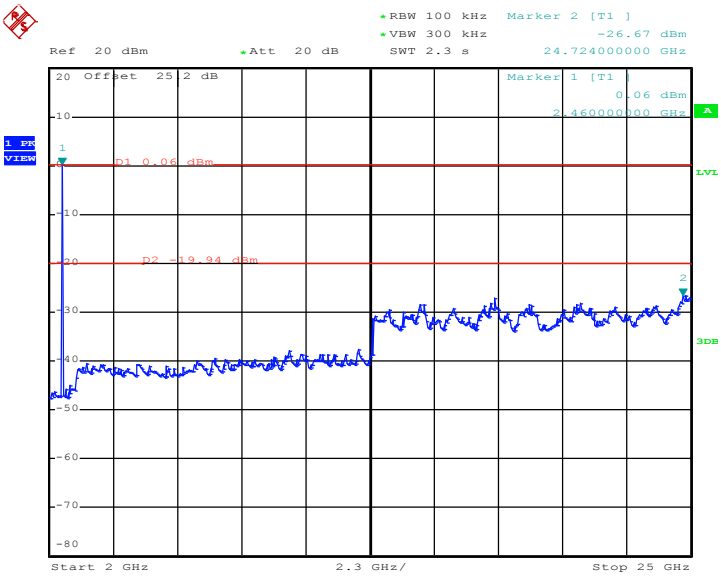
CSE Plot on Ch 78 between 30MHz ~ 3 GHz



Date: 17.JUL.2018 05:00:35

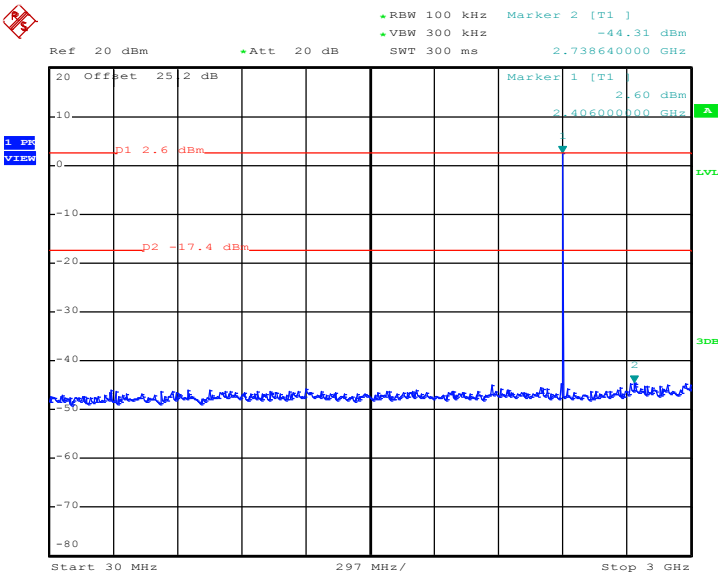
CSE Plot on Ch 78 between 2 GHz ~ 25 GHz



Date: 17.JUL.2018 05:01:03

<3Mbps>

CSE Plot on Ch 00 between 30MHz ~ 3 GHz



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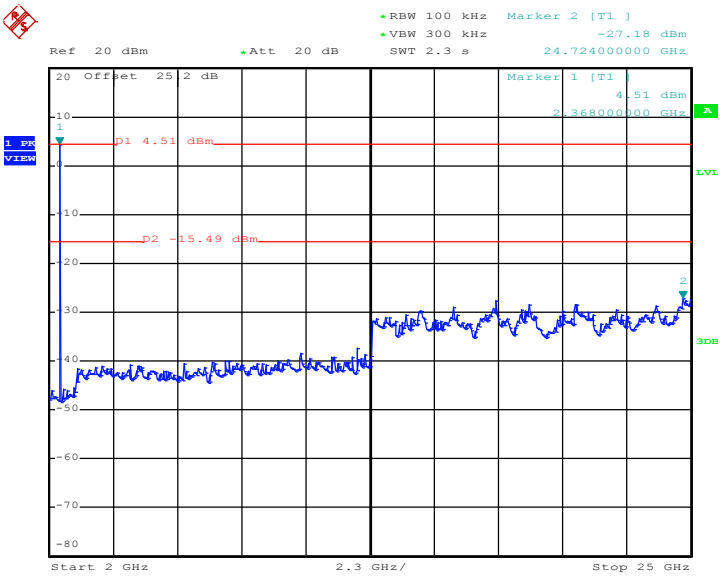
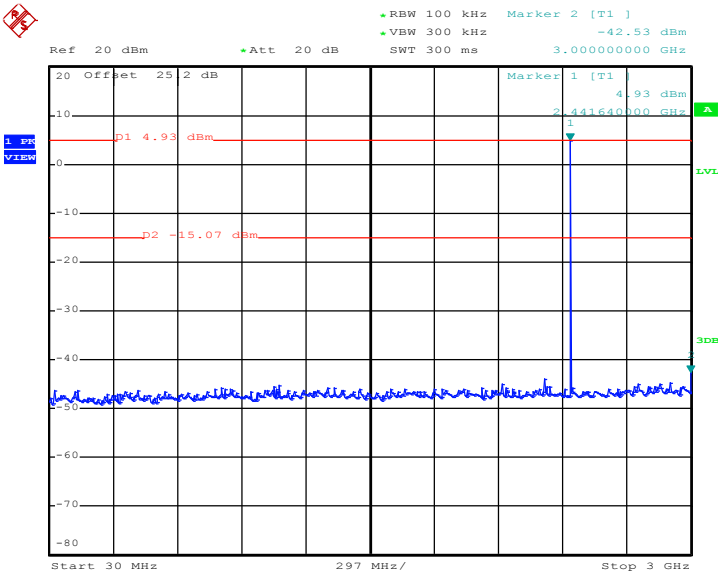
CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



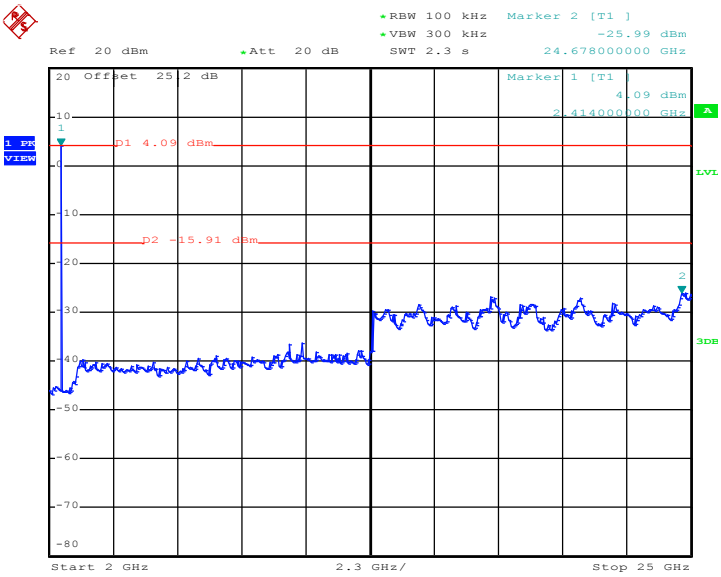
Date: 17.JUL.2018 05:06:12

CSE Plot on Ch 39 between 30MHz ~ 3 GHz



Date: 17.JUL.2018 05:09:19

CSE Plot on Ch 39 between 2 GHz ~ 25 GHz



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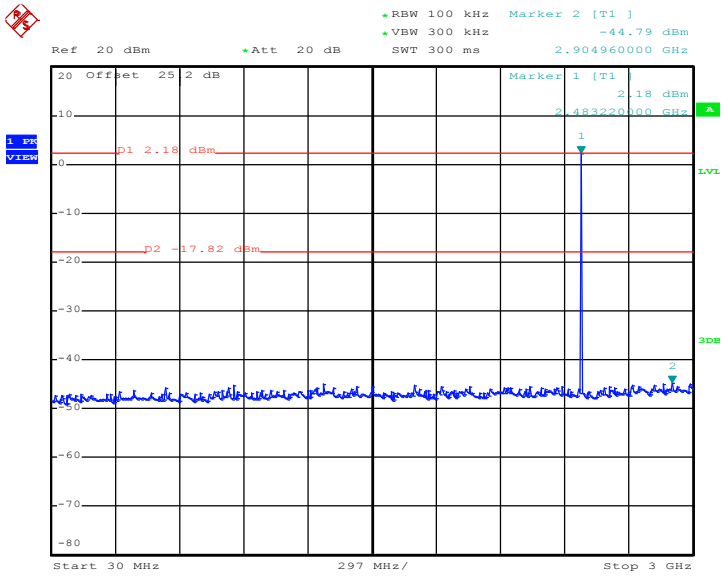
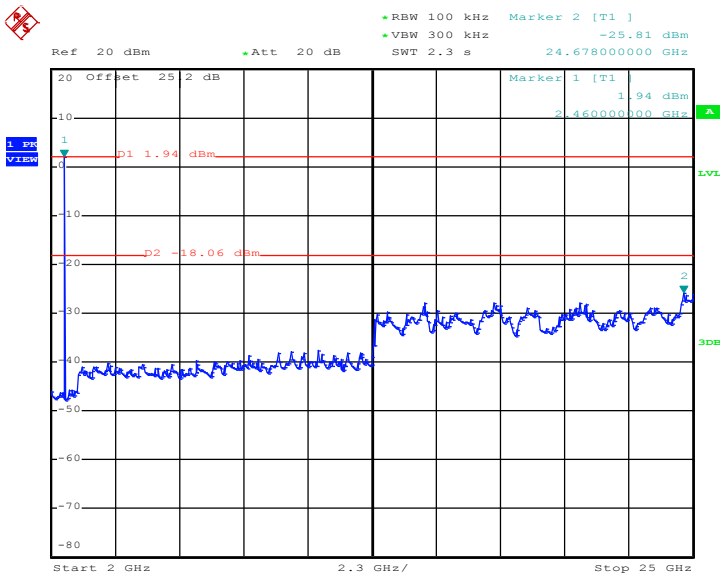
CSE Plot on Ch 78 between 30MHz ~ 3 GHz



Date: 17.JUL.2018 05:16:20

CSE Plot on Ch 78 between 2 GHz ~ 25 GHz

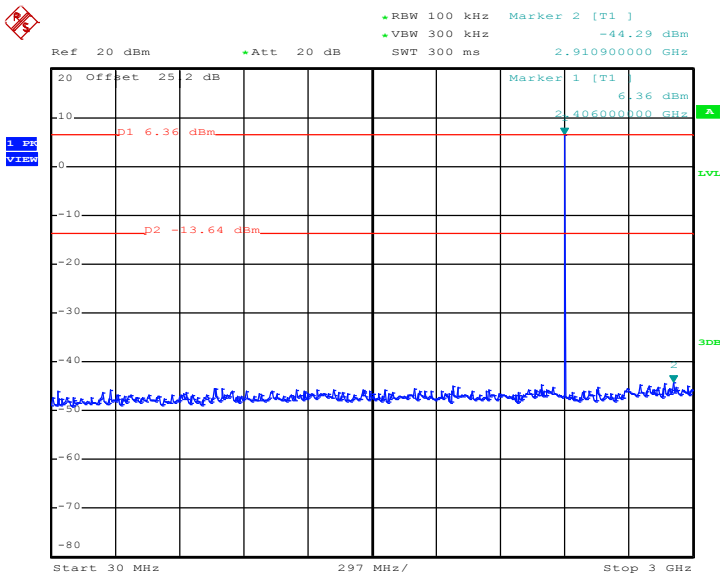


Date: 17.JUL.2018 05:18:07

<Ant. 2>

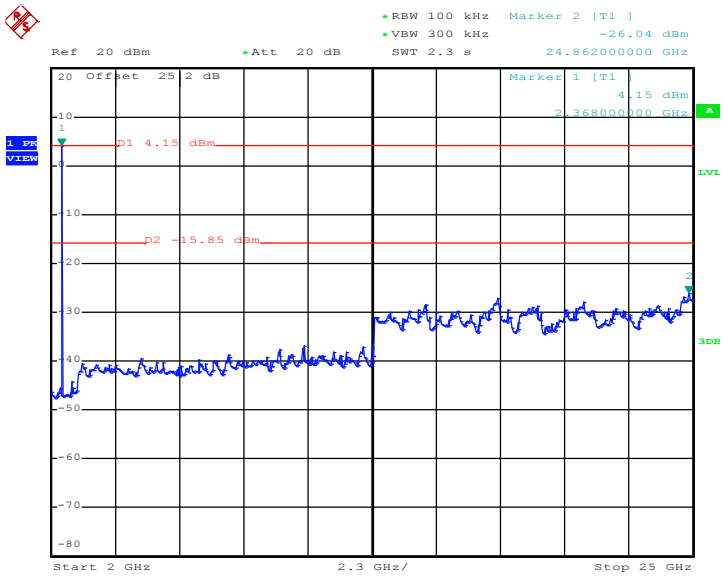
<1Mbps>

CSE Plot on Ch 00 between 30MHz ~ 3 GHz



Date: 17.JUL.2018 06:14:40

1Mbps CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



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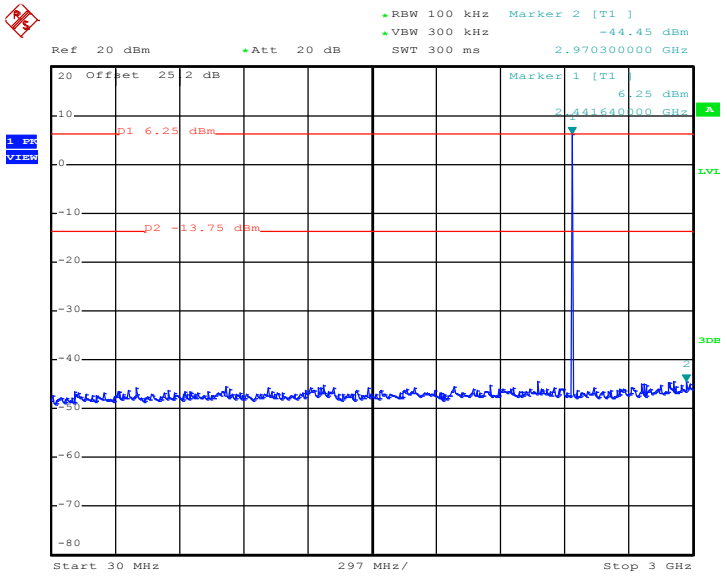
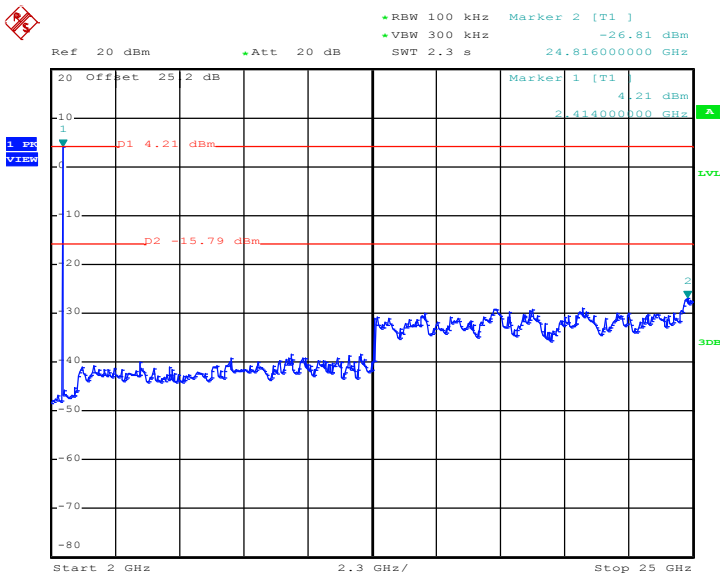
CSE Plot on Ch 39 between 30MHz ~ 3 GHz



Date: 17.JUL.2018 06:20:59

CSE Plot on Ch 39 between 2 GHz ~ 25 GHz



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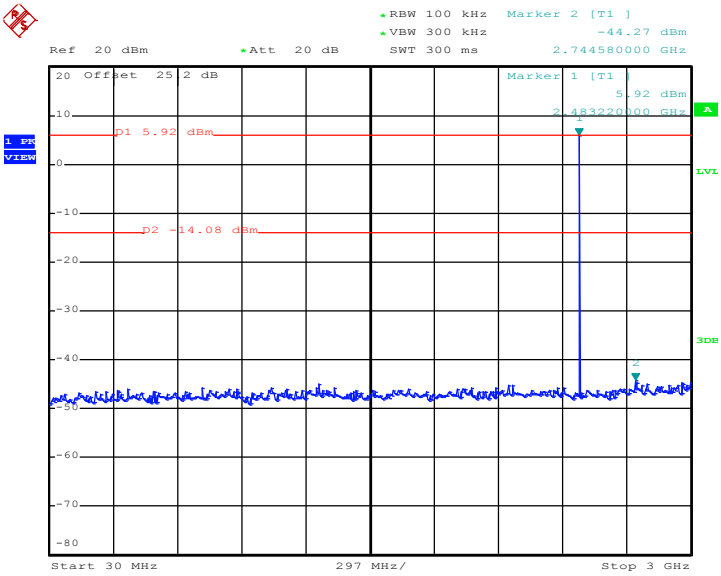
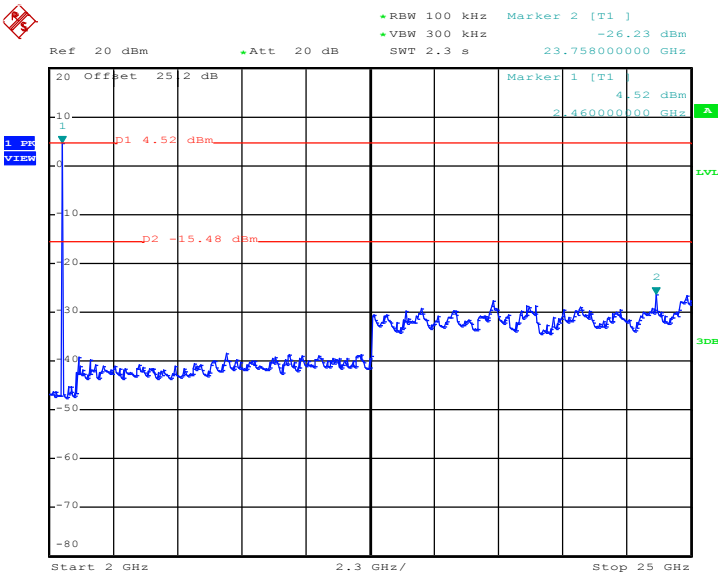
CSE Plot on Ch 78 between 30MHz ~ 3 GHz



Date: 17.JUL.2018 06:28:27

CSE Plot on Ch 78 between 2 GHz ~ 25 GHz



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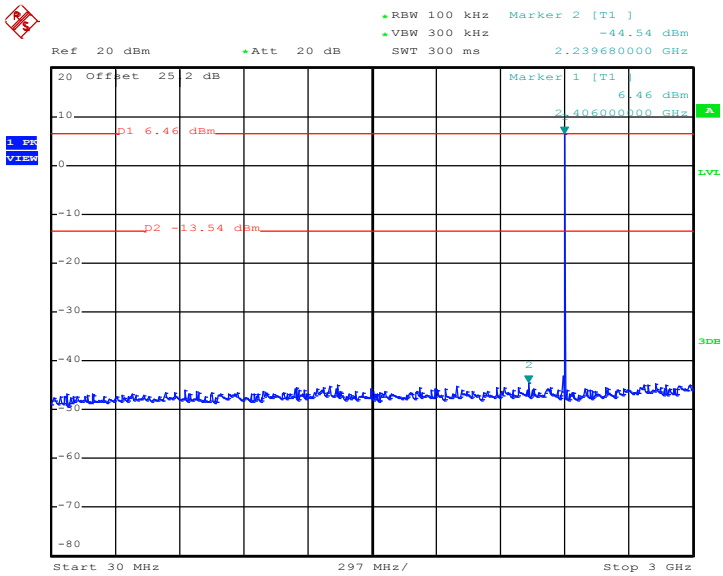
<2Mbps>

CSE Plot on Ch 00 between 30MHz ~ 3 GHz



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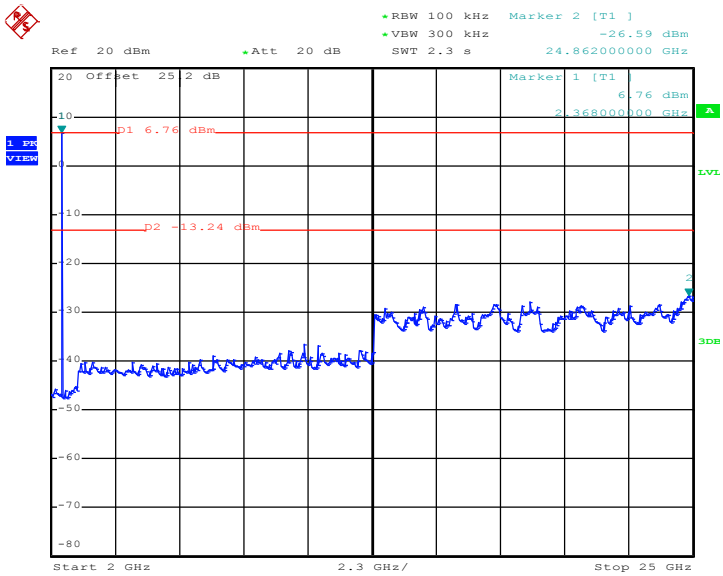
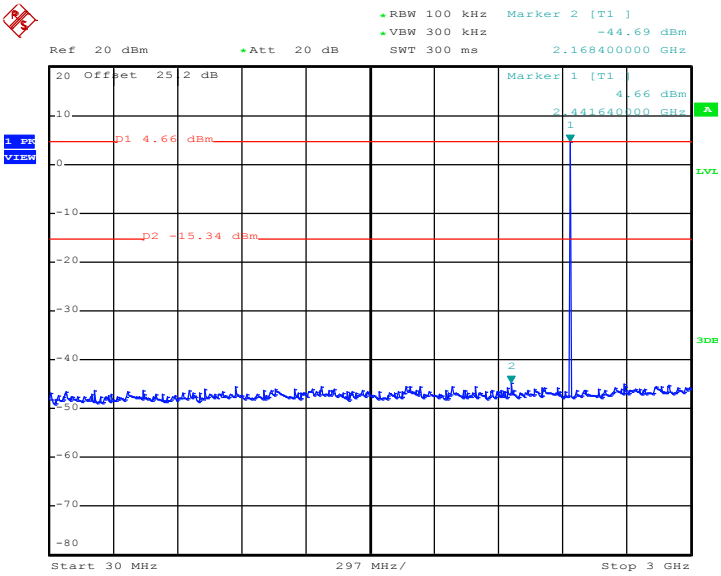
CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



Date: 17.JUL.2018 06:34:43

CSE Plot on Ch 39 between 30MHz ~ 3 GHz



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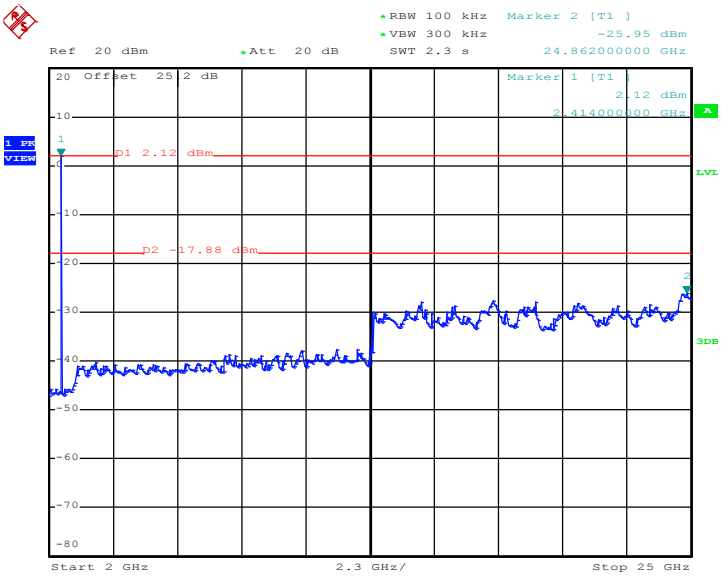
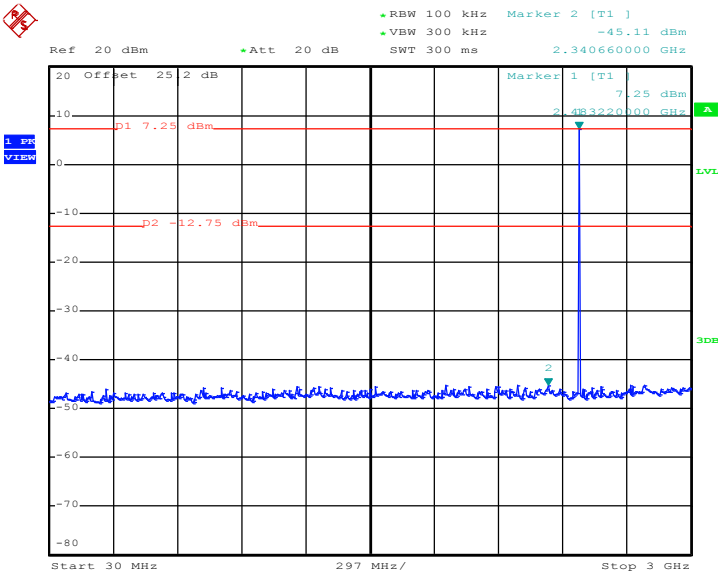
CSE Plot on Ch 39 between 2 GHz ~ 25 GHz



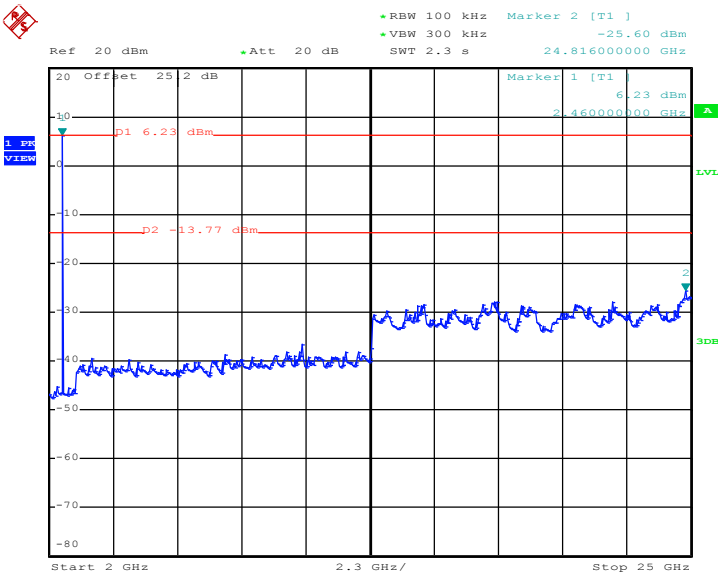
Date: 17.JUL.2018 06:41:09

CSE Plot on Ch 78 between 30MHz ~ 3 GHz



Date: 17.JUL.2018 06:48:08

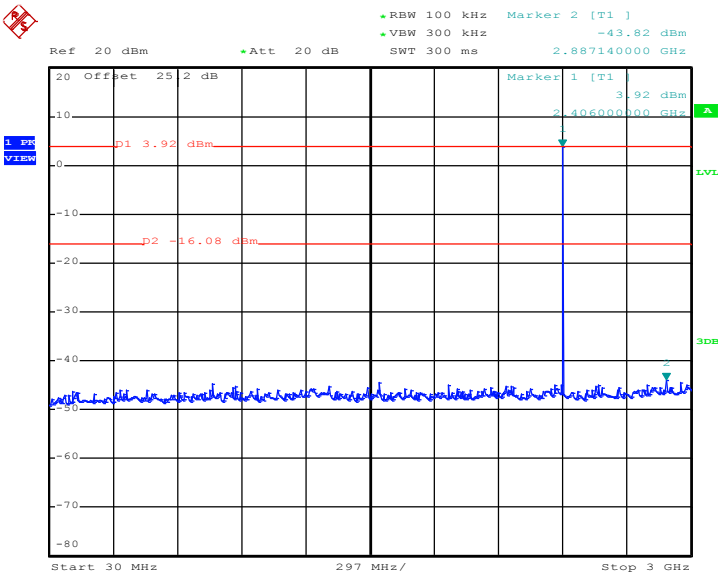
CSE Plot on Ch 78 between 2 GHz ~ 25 GHz



Date: 17.JUL.2018 06:48:43

<3Mbps>

CSE Plot on Ch 00 between 30MHz ~ 3 GHz



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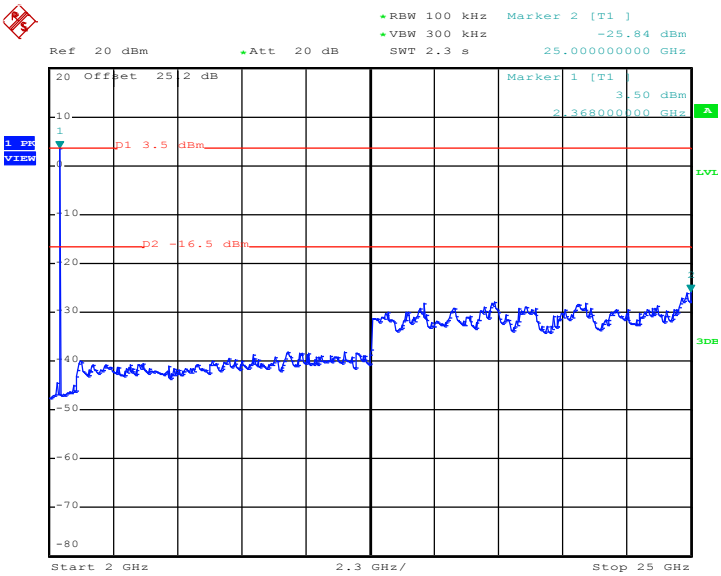
CSE Plot on Ch 00 between 2 GHz ~ 25 GHz



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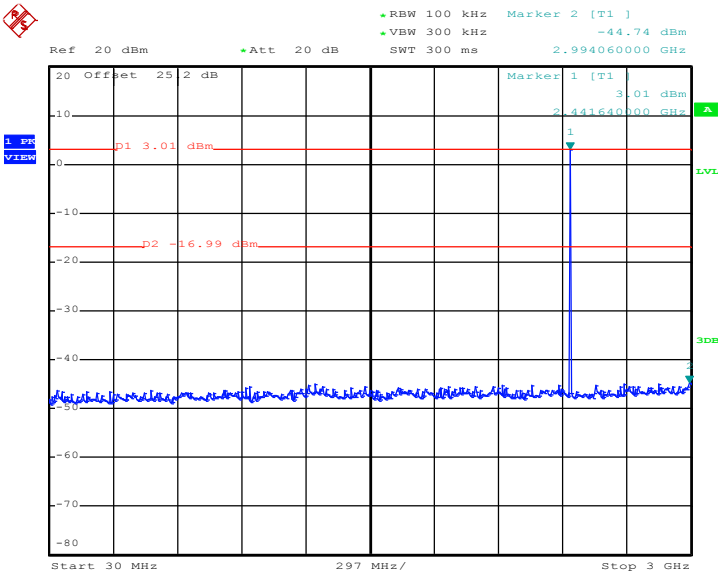
CSE Plot on Ch 39 between 30MHz ~ 3 GHz



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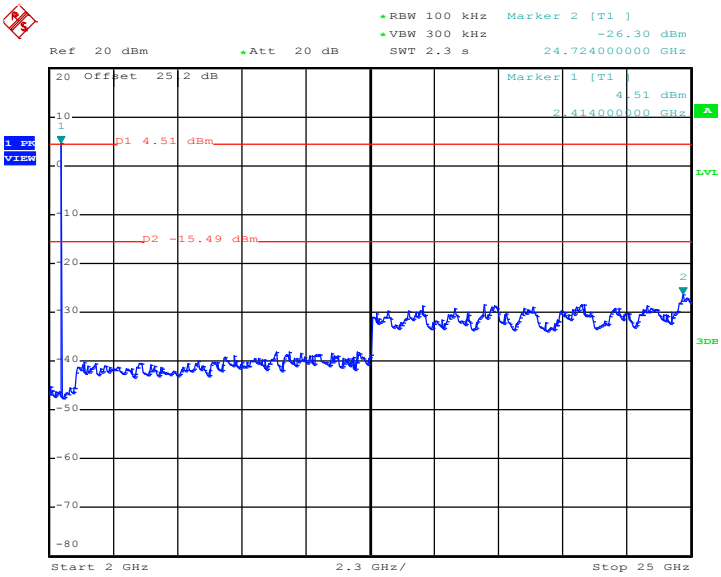
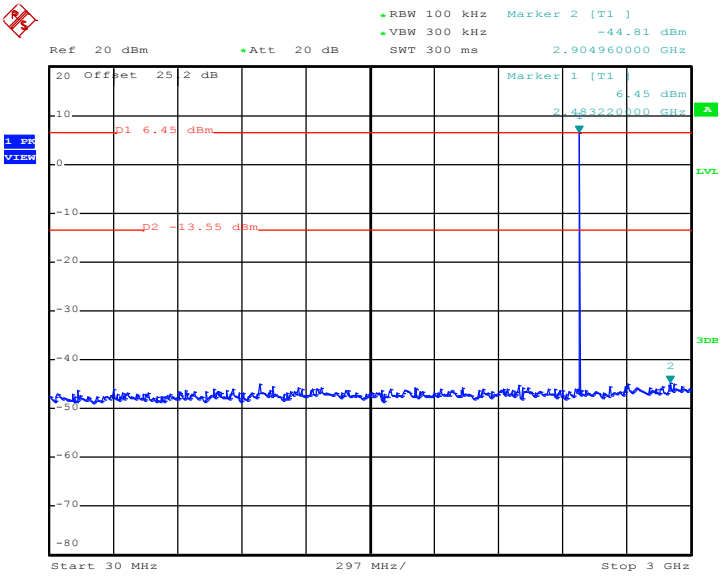
CSE Plot on Ch 39 between 2 GHz ~ 25 GHz



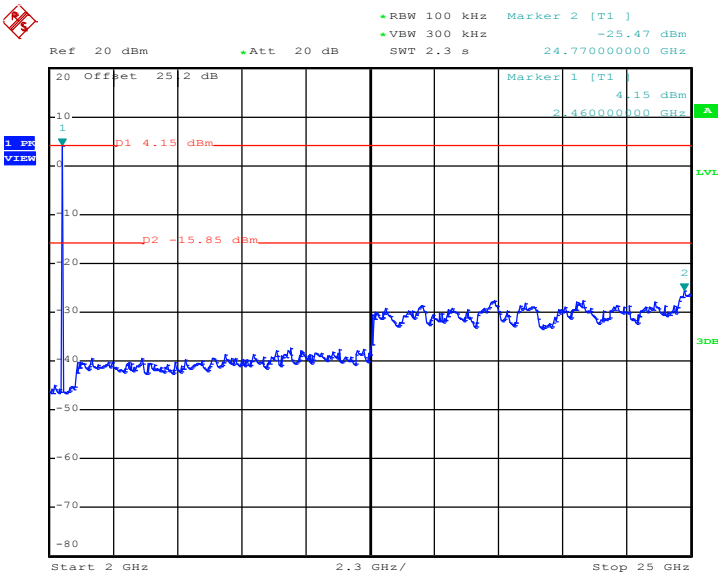
Date: 17.JUL.2018 06:59:08

CSE Plot on Ch 78 between 30MHz ~ 3 GHz



Date: 17.JUL.2018 07:05:39

CSE Plot on Ch 78 between 2 GHz ~ 25 GHz



Date: 17.JUL.2018 07:08:59

3.8 AC Conducted Emission Measurement

3.8.1 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.

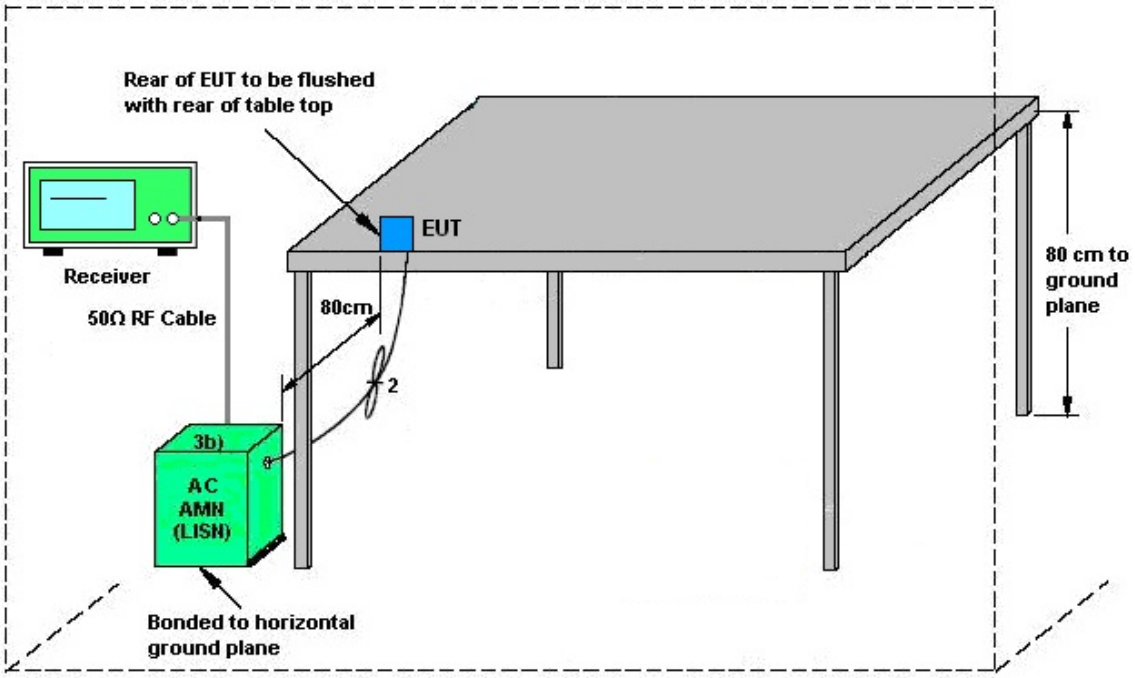
3.8.2 Measuring Instruments

See list of measuring equipment of this test report.

3.8.3 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.

3.8.4 Test Setup



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

3.8.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.9 Antenna Requirements

3.9.1 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.

3.9.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.9.3 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	608-H1	34893241	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	FSP30	101067	9kHz ~ 30GHz	Nov. 13, 2017	Jun. 26, 2018~ Jul. 17, 2018	Nov. 12, 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)
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 (150kHz ~ 30MHz)

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

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Kai Liao /Luffy Lin	Temperature:	21~25	°C
Test Date:	2018/6/26 ~ 2018/07/17	Relative Humidity:	51~54	%

<For Ant. 1>

TEST RESULTS DATA
20dB and 99% Occupied Bandwidth and Hopping Channel Separation

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
DH	1Mbps	1	0	2402	0.892	0.824	1.008	0.5947	Pass
DH	1Mbps	1	39	2441	0.876	0.828	1.008	0.5840	Pass
DH	1Mbps	1	78	2480	0.880	0.832	1.002	0.5867	Pass
2DH	2Mbps	1	0	2402	1.260	1.164	1.002	0.8400	Pass
2DH	2Mbps	1	39	2441	1.254	1.164	1.002	0.8360	Pass
2DH	2Mbps	1	78	2480	1.260	1.164	1.008	0.8400	Pass
3DH	3Mbps	1	0	2402	1.272	1.160	1.002	0.8480	Pass
3DH	3Mbps	1	39	2441	1.272	1.160	1.002	0.8480	Pass
3DH	3Mbps	1	78	2480	1.272	1.164	1.002	0.8480	Pass

TEST RESULTS DATA
Dwell Time

Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Nomal	79	106.67	2.89	0.31	0.4	Pass
AFH	20	53.33	2.89	0.15	0.4	Pass

TEST RESULTS DATA
Peak Power Table

DH	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
DH1	0	1	5.92	20.97	Pass
	39	1	5.88	20.97	Pass
	78	1	5.22	20.97	Pass
2DH1	0	1	8.04	20.97	Pass
	39	1	7.99	20.97	Pass
	78	1	7.42	20.97	Pass
3DH1	0	1	8.32	20.97	Pass
	39	1	8.30	20.97	Pass
	78	1	7.74	20.97	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
DH1	0	1	5.22	8.22
	39	1	5.12	8.22
	78	1	4.42	8.22
2DH1	0	1	5.30	8.22
	39	1	5.26	8.22
	78	1	4.61	8.22
3DH1	0	1	5.31	8.22
	39	1	5.27	8.22
	78	1	4.62	8.22

TEST RESULTS DATA
Number of Hopping Frequency

Number of Hopping (Channel)	Adaptive Frequency Hopping (Channel)	Limits (Channel)	Pass/Fail
79	20	> 15	Pass

Report Number : FR840308-01A

Test Engineer:	Kai Liao / Luffy Lin	Temperature:	21~25	°C
Test Date:	2018/6/26 ~ 2018/07/17	Relative Humidity:	51~54	%

<For Ant. 2>

TEST RESULTS DATA
20dB and 99% Occupied Bandwidth and Hopping Channel Separation

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	20db BW (MHz)	99% Bandwidth (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
DH	1Mbps	1	0	2402	0.880	0.828	1.008	0.5867	Pass
DH	1Mbps	1	39	2441	0.880	0.824	1.002	0.5867	Pass
DH	1Mbps	1	78	2480	0.880	0.828	1.002	0.5867	Pass
2DH	2Mbps	1	0	2402	1.260	1.164	1.002	0.8400	Pass
2DH	2Mbps	1	39	2441	1.260	1.164	1.320	0.8400	Pass
2DH	2Mbps	1	78	2480	1.260	1.164	1.008	0.8400	Pass
3DH	3Mbps	1	0	2402	1.272	1.160	1.002	0.8480	Pass
3DH	3Mbps	1	39	2441	1.272	1.164	1.002	0.8480	Pass
3DH	3Mbps	1	78	2480	1.272	1.164	1.014	0.8480	Pass

TEST RESULTS DATA
Dwell Time

Mod.	Hopping Channel Number Rate	Hops Over Occupancy Time(hops)	Package Transfer Time (msec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
Nomal	79	106.67	2.89	0.31	0.4	Pass
AFH	20	53.33	2.89	0.15	0.4	Pass

TEST RESULTS DATA
Peak Power Table

DH	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
DH1	0	1	7.28	20.97	Pass
	39	1	7.77	20.97	Pass
	78	1	7.31	20.97	Pass
2DH1	0	1	9.59	20.97	Pass
	39	1	10.00	20.97	Pass
	78	1	9.71	20.97	Pass
3DH1	0	1	9.86	20.97	Pass
	39	1	10.30	20.97	Pass
	78	1	9.99	20.97	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)
DH1	0	1	6.67	8.22
	39	1	7.20	8.22
	78	1	6.70	8.22
2DH1	0	1	6.70	8.14
	39	1	7.27	8.14
	78	1	6.87	8.14
3DH1	0	1	6.72	8.14
	39	1	7.28	8.14
	78	1	6.88	8.14

TEST RESULTS DATA
Number of Hopping Frequency

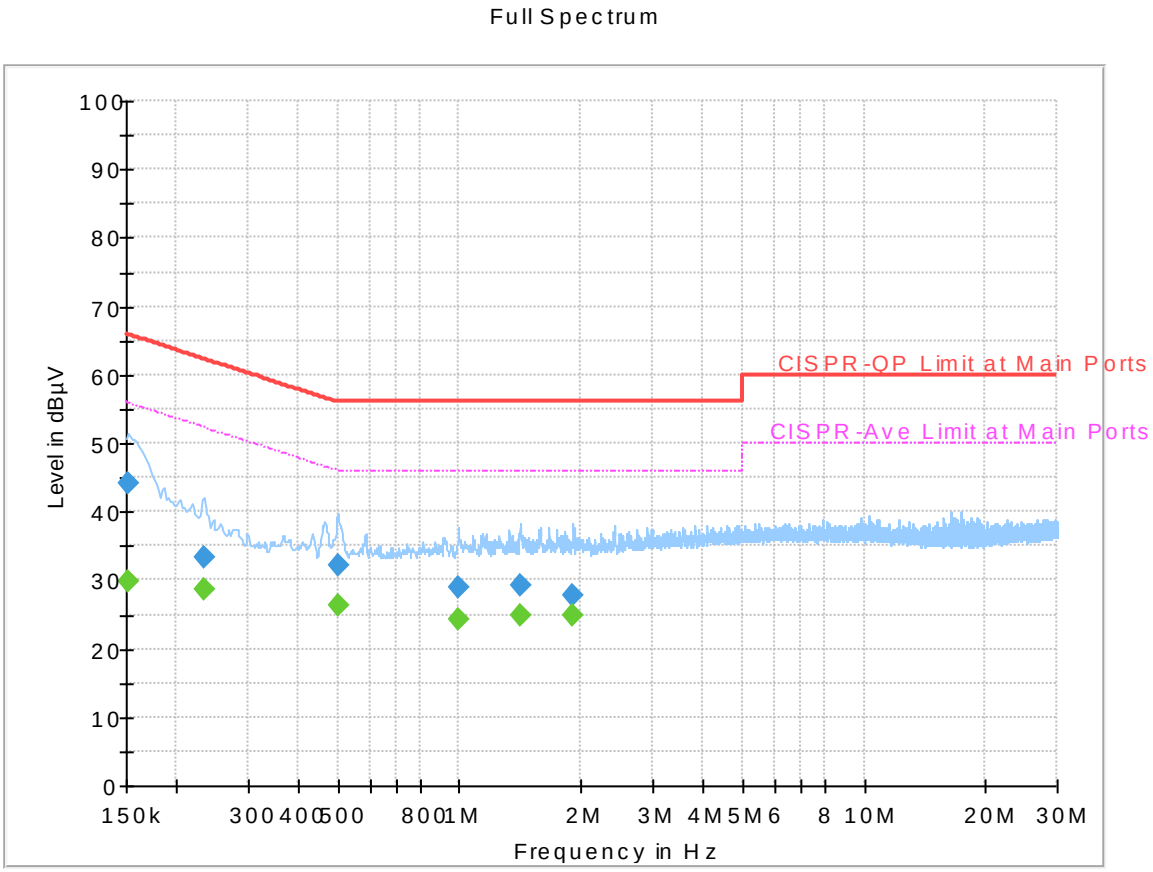
Number of Hopping (Channel)	Adaptive Frequency Hopping (Channel)	Limits (Channel)	Pass/Fail
79	20	> 15	Pass

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

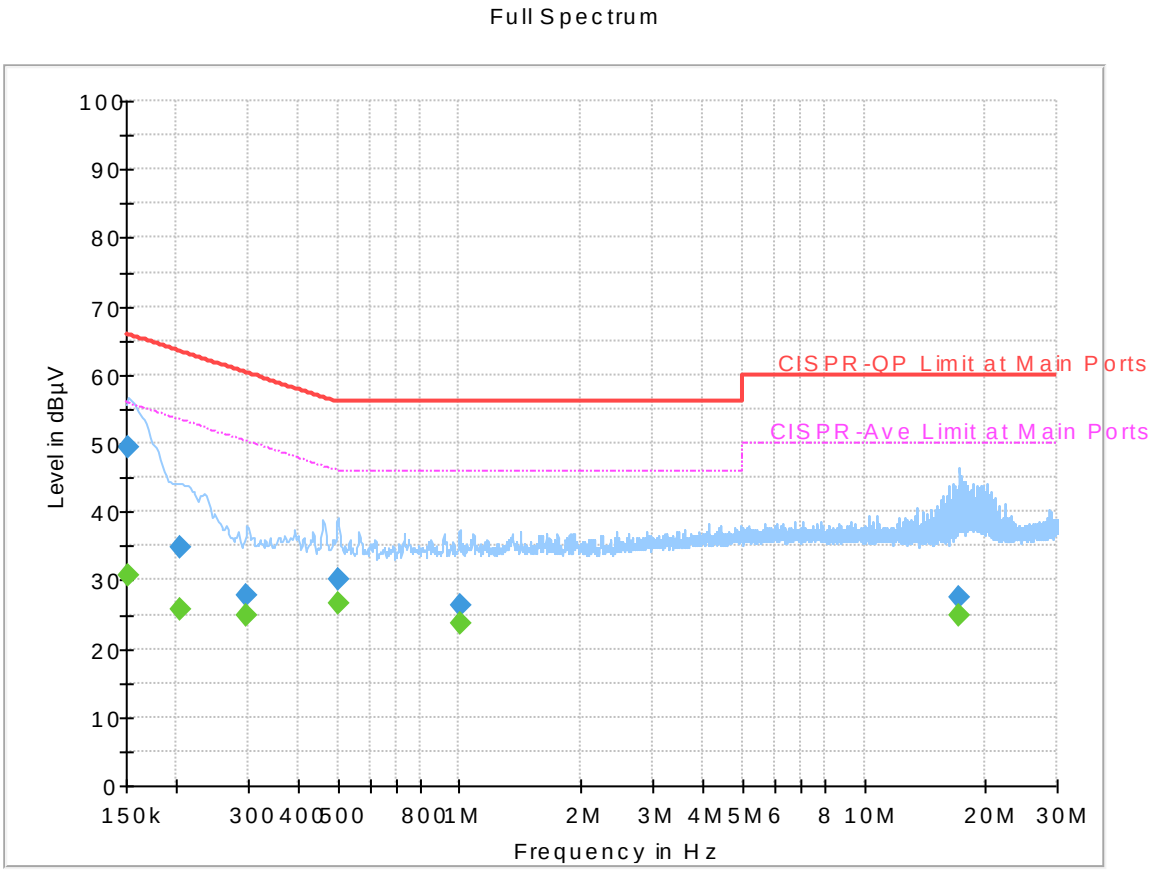


Final_Result

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