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FCC RADIO TEST REPORT

Applicant's company	**Zebra Technologies, Corp.**
Applicant Address	1 Zebra Plaza Holtsville, NY 11742 USA
FCC ID	**UZ7AP8533I**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308 Taiwan

Product Name	802.11AC MU-MIMO, TRI Radio, INT ANT
Brand Name	ZEBRA
Model Name	AP-8533I
Test Rule	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2402 ~ 2480MHz
Received Date	Oct. 29, 2015
Final Test Date	Dec. 23, 2015
Submission Type	Original Equipment

Statement

Test result included is only for the Bluetooth BR/EDR of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013, DA-00705** and **47 CFR FCC Part 15 Subpart C**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR592302-05AA	Rev. 01	Initial issue of report	Feb. 02, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	802.11AC MU-MIMO, TRI Radio, INT ANT
Brand Name	:	ZEBRA
Model No.	:	AP-8533I
Applicant	:	Zebra Technologies, Corp.
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart C § 15.247

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Oct. 29, 2015 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	6.75 dB
4.2	15.247(b)(1)	Maximum Conducted Output Power	Complies	13.13 dB
4.3	15.247(a)(1)	Hopping Channel Separation	Complies	-
4.4	15.247(b)(1)	Number of Hopping Frequency	Complies	-
4.5	15.247(a)(1)	Dwell Time	Complies	-
4.6	15.247(d)	Radiated Emissions	Complies	3.11 dB
4.7	15.247(d)	Band Edge Emissions	Complies	11.38 dB
4.8	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Power Type	From power adapter or PoE
Modulation	FHSS (GFSK / π/4-DQPSK / 8DPSK)
Data Rate (Mbps)	GFSK: 1 ; π/4-DQPSK: 2 ; 8DPSK: 3
Frequency Range	2402 ~ 2480MHz
Channel Number	79
Channel Band Width (99%)	BR (GFSK) 1 Mbps: 0.8769 MHz EDR (π/4-DQPSK) 2 Mbps: 1.2040 MHz EDR (8DPSK) 3 Mbps: 1.1982 MHz
Maximum Conducted Peak Output Power	BR (GFSK) 1 Mbps: 8.66 dBm EDR (π/4-DQPSK) 2 Mbps: 8.04 dBm EDR (8DPSK) 3 Mbps: 8.21 dBm
Maximum Conducted Average Output Power	BR (GFSK) 1 Mbps: 7.87 dBm EDR (π/4-DQPSK) 2 Mbps: 7.25 dBm EDR (8DPSK) 3 Mbps: 7.42 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3
Note 1: Bluetooth BR uses a combination of GFSK (1Mbps). Note 2: Bluetooth EDR uses a combination of π/4-DQPSK (2Mbps) and 8DPSK (3Mbps). Note 3: This device contains three radio transmitter module, radio 1 (FCC ID: UZ7CDR2G), radio 2 (FCC ID: UZ7CDR5G) and radio 3 (FCC ID: UZ7CDRDB).	

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Set	Brand	Model Name (Part Number)	Antenna Type	Connector	Indoor/ Outdoor	Rmark	EUT/ R(Radio)
1	ZEBRA	CEDAR-INT-ANT	Monopole	U.FL	Indoor	WLAN/BT	R1 ~R4

Note 1:

Set	Antenna Gain (dBi)					
	Radio 1 / 2.4G				Radio 1 / 5G	
	Chain 1	Chain 2	Chain 3	Chain 4	Chain 4	
1	5.2	3.7	3.2	4.5	5.3	

Set	Antenna Gain (dBi)			
	Radio 2 / 5G			
	Chain 1	Chain 2	Chain 3	Chain 4
1	6.8	6.7	6.6	5.9

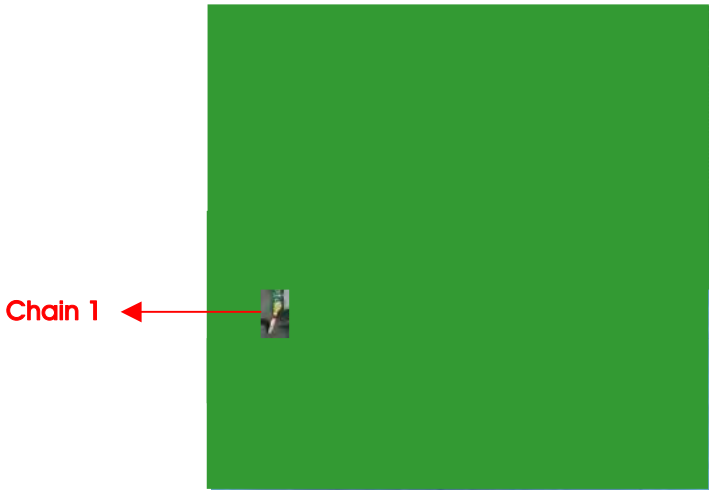
Set	Antenna Gain (dBi)					
	Radio 3 / 2.4G			Radio 3 / 5G		
	Chain 1	Chain 2	Chain 3	Chain 1	Chain 2	Chain 3
1	4.1	4.4	4.4	5.9	5.4	5.9

Set	Antenna Gain (dBi)
	Radio 4 / BT
1	7.7

Note 2:

The EUT has four radios, Radio 1 supports WLAN 2.4GHz TX/RX + 5GHz RX only, Radio 2 supports WLAN 5GHz, Radio 3 supports WLAN 2.4GHz + 5GHz and Radio 4 supports Bluetooth functions.

For Bluetooth Function	
Mode	Chain 1
For 1TX	TX/RX



3.4. Table for Carrier Frequencies

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
2400~2483.5MHz	0	2402 MHz	40	2442 MHz
	1	2403 MHz	:	:
	:	:	77	2479 MHz
	38	2440 MHz	78	2480 MHz
	39	2441 MHz	-	-

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel	Chain
AC Power Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	BR (GFSK)	1 Mbps	0/39/78	1
	EDR (π/4-DQPSK)	2 Mbps	0/39/78	1
	EDR (8DPSK)	3 Mbps	0/39/78	1
Hopping Channel Separation	BR (GFSK)	1 Mbps	0~1 39~40 77~78	1
	EDR (π/4-DQPSK)	2 Mbps	0~1 39~40 77~78	1
	EDR (8DPSK)	3 Mbps	0~1 39~40 77~78	1
Number of Hopping Frequency	EDR (8DPSK)	3 Mbps	0~78	1
Dwell Time	BR (GFSK) (DH1, DH3, DH5)	1 Mbps	0/39/78	1
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	BR (GFSK)	1 Mbps	0/39/78	1
	EDR (8DPSK)	3 Mbps	0/39/78	1
Band Edge Emissions	BR (GFSK)	1 Mbps	0/39/78	1
	EDR (8DPSK)	3 Mbps	0/39/78	1

Note1:

The adapter and PoE are for measurement only, would not be marketed.

The adapter and PoE information as below:

Power	Brand	Model
Adapter	Symbol	PD-9001GR/AT/AC
PoE	PHIHONG	PSAC45W-480

Note2: The power does not affect the test result of RF tests, so only PoE was tested and recorded in this report for Radiated Emission above 1GHz and Radiated Emission Co-location tests.

Note3: All the specification of test configurations and test modes were based on customer's request

The following test modes were performed for all tests:

Conducted Emission test						
Mode	EUT 1	Set 1	LAN GE1	LAN GE2	Adapter	PoE
1	●	● Radio1/2.4G Radio2/5G Radio3/2.4G Radio4/BT	● 1000 Mbps	● 1000 Mbps	●	-
2	●	● Radio1/2.4G Radio2/5G Radio3/5G Radio4/BT	● 1000 Mbps	● 1000 Mbps	●	-
3 Note1	●	● Radio1/2.4G Radio2/5G Radio3/5G Radio4/BT	● 1000 Mbps	● 1000 Mbps	-	●
Note1: Mode 2 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode. All test results were recorded in the report.						

Radiated Emission below 1GHz test					
Mode	EUT 1 in Y axis	EUT 1 in Z axis	Set 1	Adapter	PoE
1	●	-	● Radio1/2.4G Radio2/5G Radio3/2.4G Radio4/BT	●	-
2	-	●	● Radio1/2.4G Radio2/5G Radio3/2.4G Radio4/BT	●	-
3 Note1	-	●	● Radio1/2.4G Radio2/5G Radio3/5G Radio4/BT	●	-
4 Note2	-	●	● Radio1/2.4G Radio2/5G Radio3/2.4G Radio4/BT	-	●
Note1: Mode 2 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode. Note2: Mode 2 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4 will follow this same test mode. All test results were recorded in the report.					

Radiated Emission above 1GHz test				
The EUT was performed at Y axis and Z axis position, and the worst case was found at Y axis. So the measurement will follow this same test configuration.				
Mode	EUT 1 in Y axis	EUT 1 in Z axis	Set 1	PoE
1	●	-	●	●

Radiated Emission Co-location test				
Mode	EUT 1 in Y axis	EUT 1 in Z axis	Set 1	PoE
1	●	-	● Radio1/2.4G Radio2/5G Radio3/2.4G Radio4/BT	●
2	-	●	● Radio1/2.4G Radio2/5G Radio3/2.4G Radio4/BT	●
3 Note1	-	●	● Radio1/2.4G Radio2/5G Radio3/5G Radio4/BT	●
Note1: Mode 2 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode. All test results were recorded in the report.				

For Co-location MPE Test:

The EUT could be applied with Radio 1 (2.4GHz TX/RX+5GHz RX WLAN function FCC ID: UZ7CDR2G) + Radio 2 (5GHz WLAN function FCC ID: UZ7CDR5G) + Radio 3 (2.4/5GHz WLAN function FCC ID: UZ7CDRDB) + Radio 4 (BT function FCC ID: UZ7AP8533I); therefore Co-location Maximum Permissible Exposure (Please refer to FA592302-05).

3.6. Table for Testing Locations

Test Site Location					
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.				
TEL:	886-3-656-9065				
FAX:	886-3-656-9085				
Test Site No.	**Site Category**	**Location**	**FCC Reg. No.**	**IC File No.**	**VCCI Reg. No**
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC).

3.7. Table for Multiple List

There are two SKUs for AP-8533I, please refer to the table below:

Model Name	EUT	SKU	CPU	Antenna Type	WLAN			BT
					Radio 1	Radio 2	Radio 3	Radio 4
AP-8533I	EUT 1	Cedar3I	BCM58525	Internal	Internal	Internal	Internal	Internal
	EUT 2	Cedar3PI	BCM58535	Internal	Internal	Internal	Internal	Internal

From the above models, EUT 1 was selected as representative model for the test and its data was recorded in this report.

3.8. Table for Supporting Units

For Test Site No: 03CH01-CB

For Radiated Emission below 1GHz test

For Adapter mode:

Support Unit	Brand	Model	FCC ID
NB*5	DELL	E6430	DoC
Bluetooth tester	Anritsu	MT8852B	DoC
Adapter	PHIHONG	PSAC45W-480	N/A

For PoE mode:

Support Unit	Brand	Model	FCC ID
NB*5	DELL	E6430	DoC
Bluetooth tester	Anritsu	MT8852B	DoC
PoE	Symbol	PD-9001GR/AT/AC	DoC

For Radiated Emission above1GHz test

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC
PoE	Symbol	PD-9001GR/AT/AC	DoC

For Test Site No: CO01-CB

For Adapter mode:

Support Unit	Brand	Model	FCC ID
NB*5	DELL	E6430	DoC
Bluetooth tester	Anritsu	MT8852B	DoC
Adapter	PHIHONG	PSAC45W-480	N/A

For PoE mode:

Support Unit	Brand	Model	FCC ID
NB*5	DELL	E6430	DoC
Bluetooth tester	Anritsu	MT8852B	DoC
PoE	Symbol	PD-9001GR/AT/AC	DoC

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC
PoE	Symbol	PD-9001GR/AT/AC	DoC

3.9. Table for Parameters of Test Software Setting

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power Parameters of Bluetooth

For BR (GFSK) 1 Mbps:

Test Software Version	DoS		
Frequency	2402 MHz	2441 MHz	2480 MHz
Power Parameters	Default	Default	Default

For EDR (π/4-DQPSK) 2 Mbps:

Test Software Version	DoS		
Frequency	2402 MHz	2441 MHz	2480 MHz
Power Parameters	Default	Default	Default

For EDR (8DPSK) 3 Mbps:

Test Software Version	DoS		
Frequency	2402 MHz	2441 MHz	2480 MHz
Power Parameters	Default	Default	Default

3.10. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

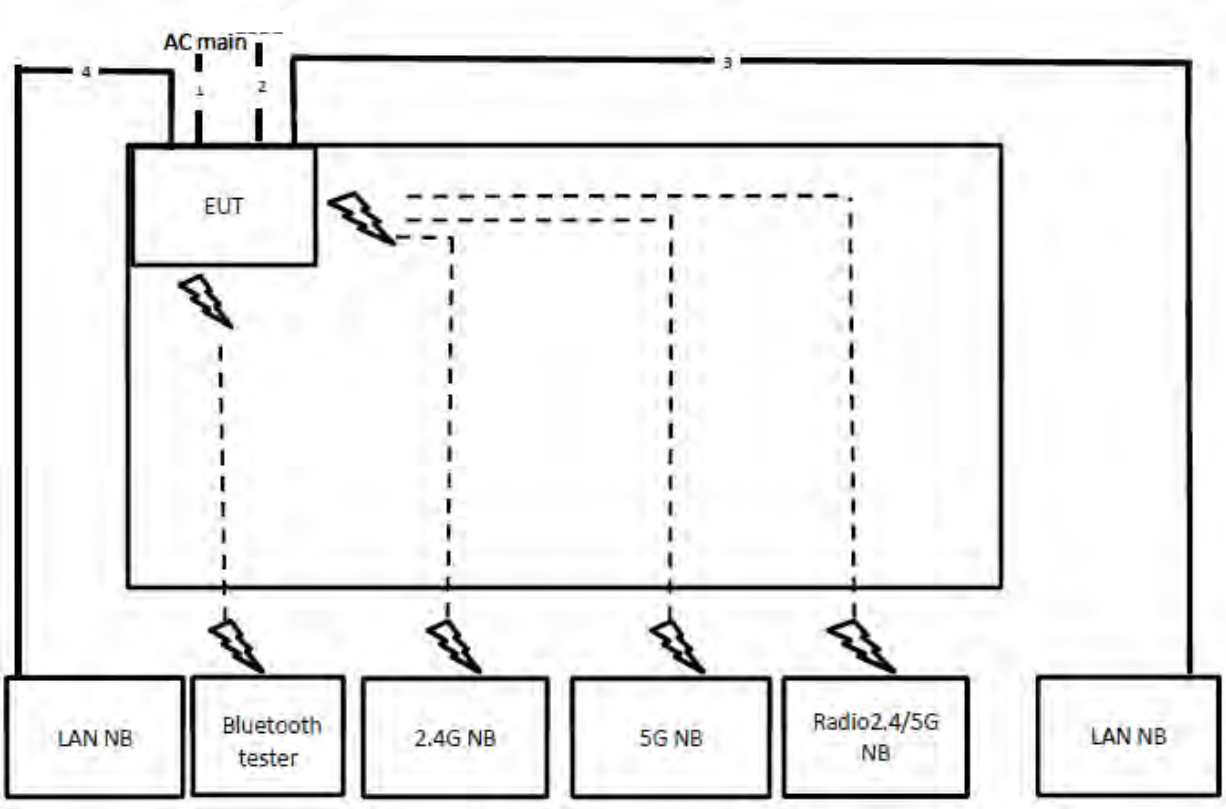
3.11. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
BR (GFSK)	2.884	3.739	77.13%	1.13	0.35
EDR (π/4-DQPSK)	2.884	3.739	77.13%	1.13	0.35
EDR (8DPSK)	2.899	3.739	77.53%	1.11	0.34

3.12. Test Configurations

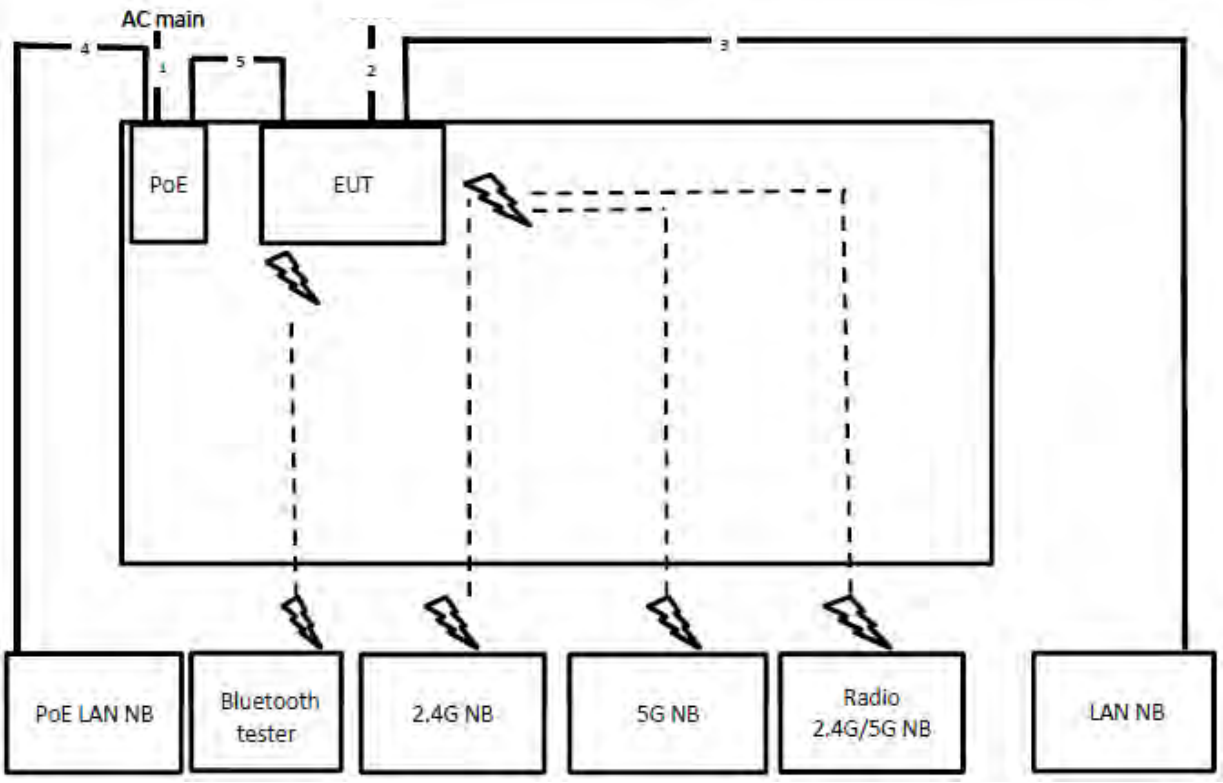
3.12.1. AC Power Line Conduction Emissions Test Configuration

For Adapter Mode:



Item	Connection	Shielded	Length
1	Power cable	No	4.3m
2	Console cable	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m

For PoE Mode:

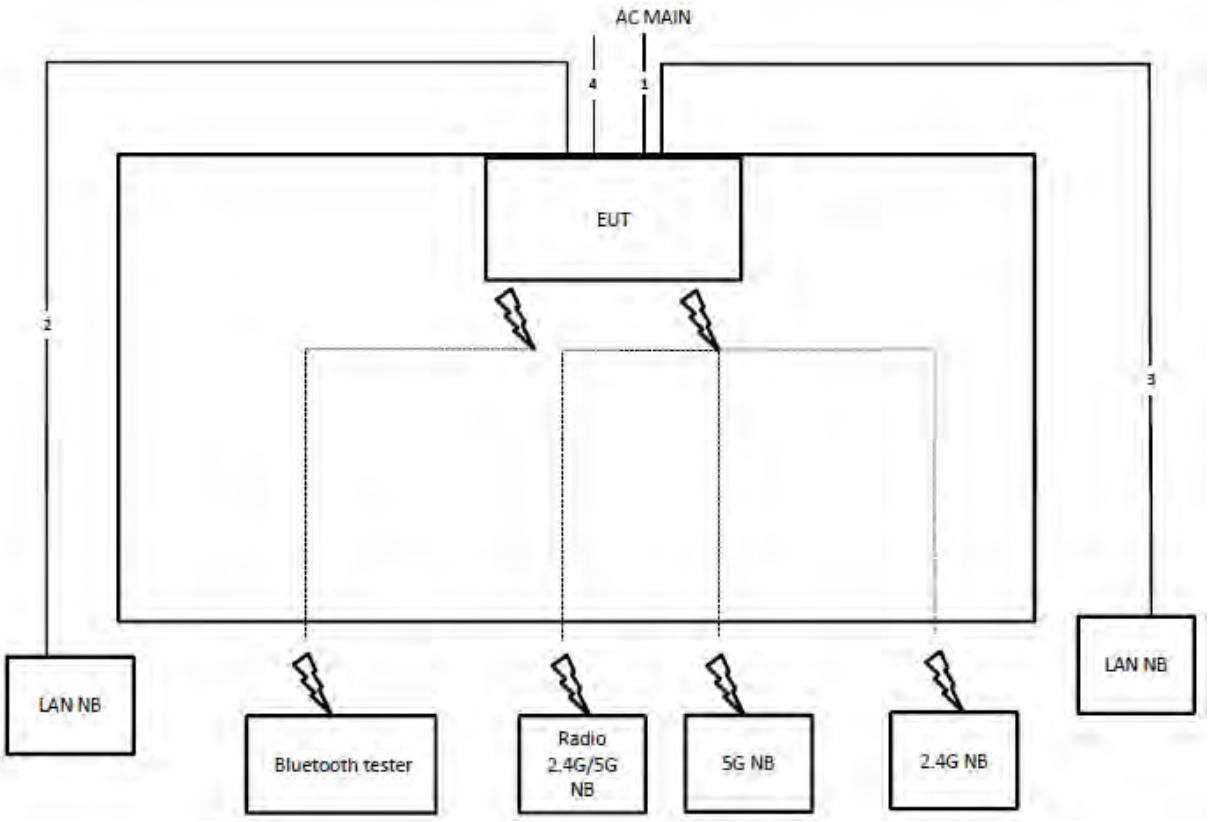


Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	Console cable	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m
5	RJ-45 cable	No	1.5m

3.12.2. Radiation Emissions Test Configuration

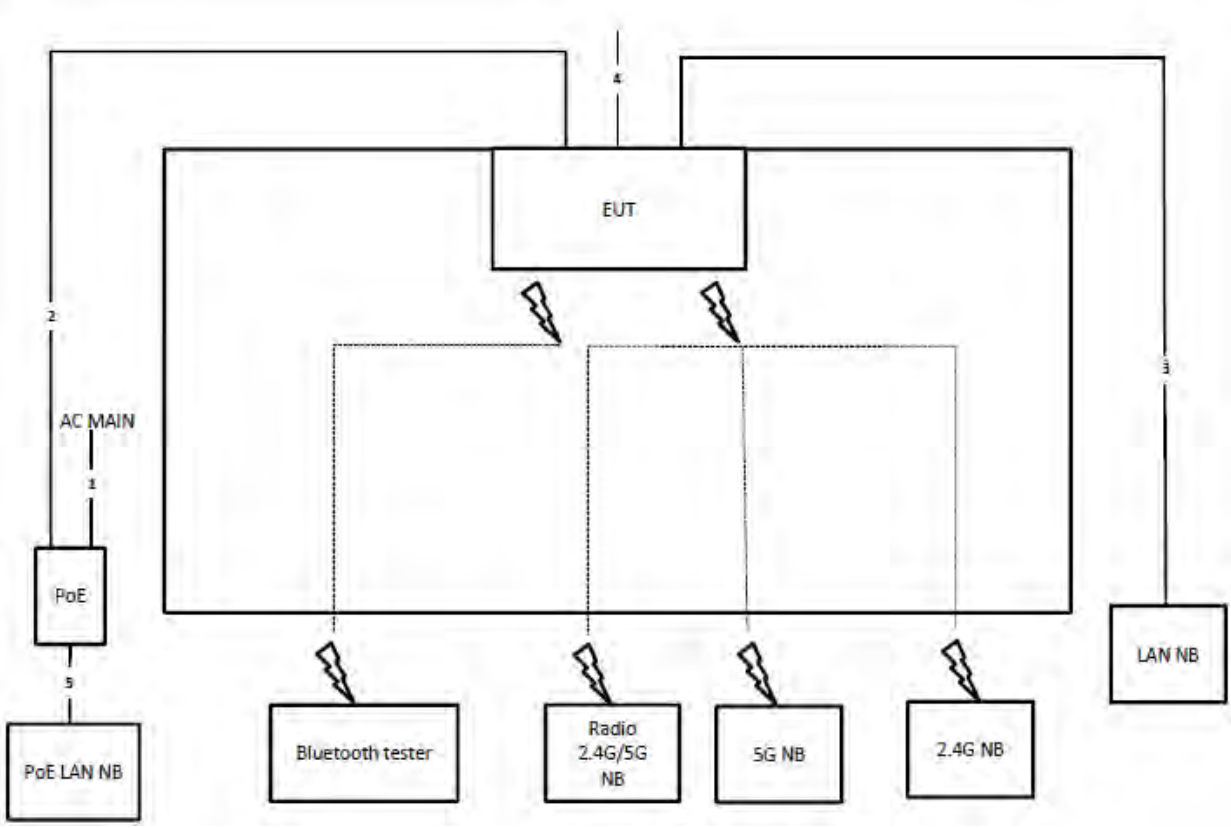
Test Configuration: 30MHz~1GHz

For Adapter Mode:



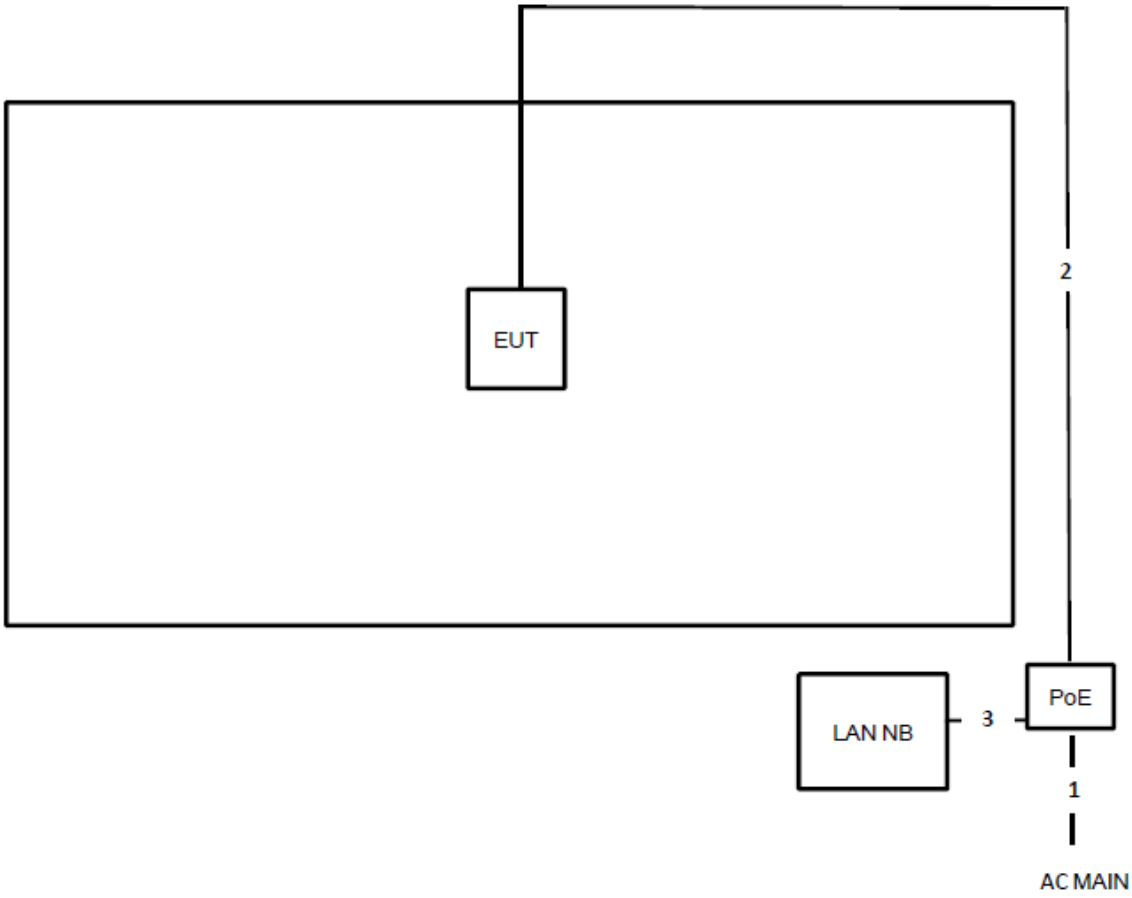
Item	Connection	Shielded	Length
1	Power cable	No	4.3m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	10m
4	Console cable	No	1.5m

For PoE Mode:



Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	10m
4	Console cable	No	1.5m
5	RJ-45 cable	No	1.5m

Test Configuration: above 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1m

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For a Low-power Radio-frequency Device which is designed to be connected to the 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 below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

4.1.2. Measuring Instruments and Setting

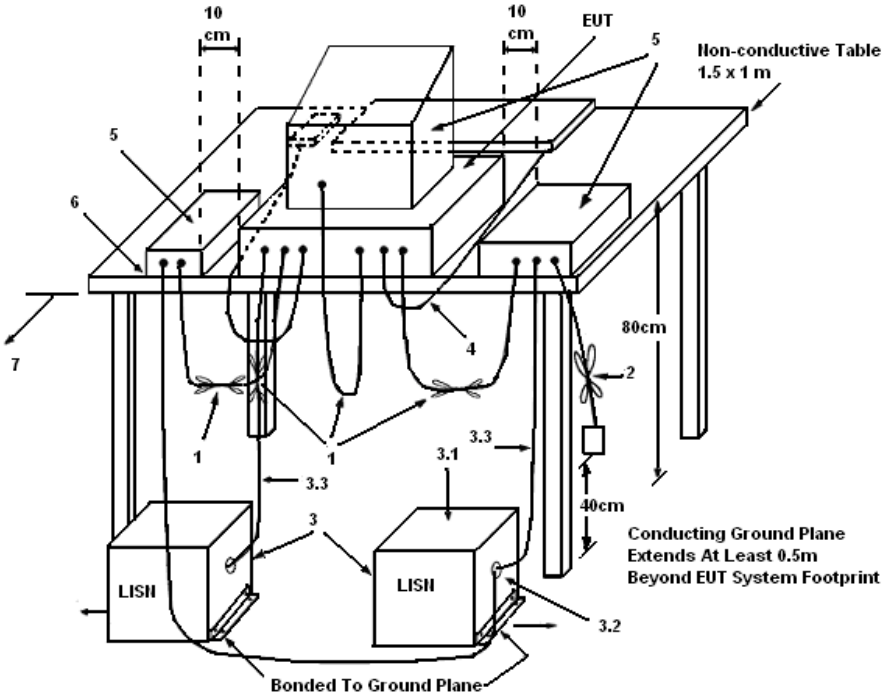
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



LEGEND:

(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.

(3.1) All other equipment powered from additional LISN(s).

(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

(3.3) LISN at least 80 cm from nearest part of EUT chassis.

(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

(5) Non-EUT components of EUT system being tested.

(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

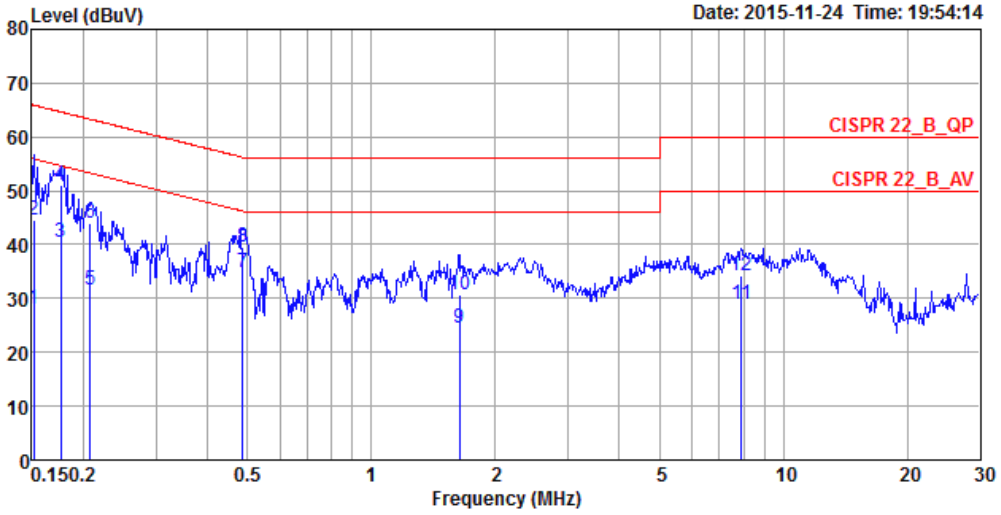
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

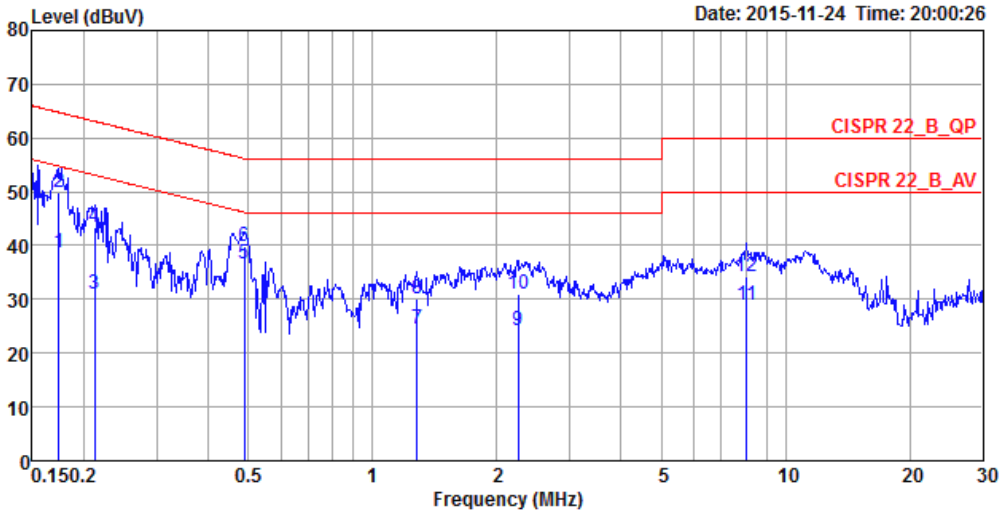
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	23℃	Humidity	59%
Test Engineer	Parody Lin & Da Deng	Phase	Line
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1516	27.94	-27.97	55.91	17.99	9.93	0.02	LINE	Average
2	0.1516	44.60	-21.31	65.91	34.65	9.93	0.02	LINE	QP
3	0.1758	40.41	-14.27	54.68	30.46	9.93	0.02	LINE	Average
4	0.1758	50.93	-13.75	64.68	40.98	9.93	0.02	LINE	QP
5	0.2072	31.68	-21.64	53.32	21.73	9.93	0.02	LINE	Average
6	0.2072	44.03	-19.29	63.32	34.08	9.93	0.02	LINE	QP
7	0.4863	34.79	-11.44	46.23	24.81	9.94	0.04	LINE	Average
8	0.4863	39.54	-16.69	56.23	29.56	9.94	0.04	LINE	QP
9	1.6363	24.42	-21.58	46.00	14.38	9.98	0.06	LINE	Average
10	1.6363	30.62	-25.38	56.00	20.58	9.98	0.06	LINE	QP
11	7.8934	28.87	-21.13	50.00	18.57	10.14	0.16	LINE	Average
12	7.8934	34.28	-25.72	60.00	23.98	10.14	0.16	LINE	QP

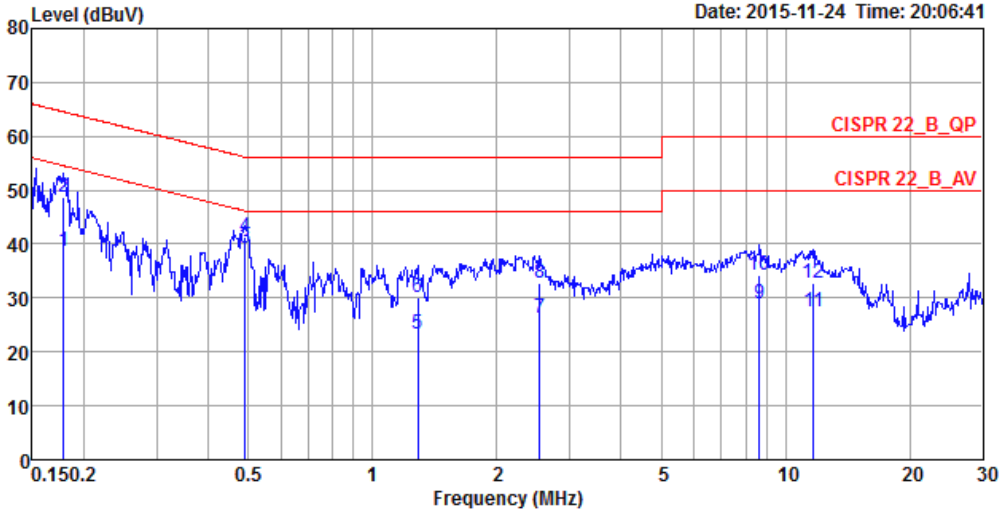
Temperature	23℃	Humidity	59%
Test Engineer	Parody Lin & Da Deng	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1740	38.66	-16.11	54.77	28.85	9.79	0.02	NEUTRAL	Average
2	0.1740	49.91	-14.86	64.77	40.10	9.79	0.02	NEUTRAL	QP
3	0.2128	31.07	-22.03	53.10	21.26	9.79	0.02	NEUTRAL	Average
4	0.2128	43.34	-19.76	63.10	33.53	9.79	0.02	NEUTRAL	QP
5	0.4889	36.55	-9.64	46.19	26.72	9.79	0.04	NEUTRAL	Average
6	0.4889	39.75	-16.44	56.19	29.92	9.79	0.04	NEUTRAL	QP
7	1.2824	24.47	-21.53	46.00	14.60	9.82	0.05	NEUTRAL	Average
8	1.2824	30.09	-25.91	56.00	20.22	9.82	0.05	NEUTRAL	QP
9	2.2486	24.07	-21.93	46.00	14.16	9.85	0.06	NEUTRAL	Average
10	2.2486	30.92	-25.08	56.00	21.01	9.85	0.06	NEUTRAL	QP
11	8.0624	29.03	-20.97	50.00	18.88	9.98	0.17	NEUTRAL	Average
12	8.0624	34.20	-25.80	60.00	24.05	9.98	0.17	NEUTRAL	QP

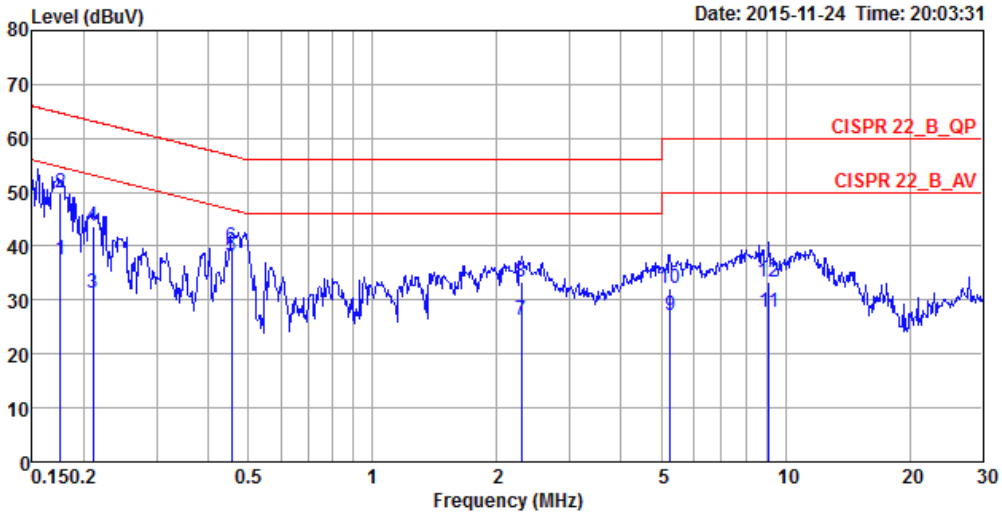
Note: Level = Read Level + LISN Factor + Cable Loss.

Temperature	23°C	Humidity	59%
Test Engineer	Parody Lin & Da Deng	Phase	Line
Configuration	Normal Link	Test Mode	Mode 2



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1787	38.57	-15.98	54.55	28.62	9.93	0.02	LINE	Average
2	0.1787	48.79	-15.76	64.55	38.84	9.93	0.02	LINE	QP
3	0.4915	39.39	-6.75	46.14	29.41	9.94	0.04	LINE	Average
4	0.4915	41.41	-14.73	56.14	31.43	9.94	0.04	LINE	QP
5	1.2892	23.41	-22.59	46.00	13.39	9.97	0.05	LINE	Average
6	1.2892	29.98	-26.02	56.00	19.96	9.97	0.05	LINE	QP
7	2.5400	26.38	-19.62	46.00	16.33	10.00	0.05	LINE	Average
8	2.5400	32.66	-23.34	56.00	22.61	10.00	0.05	LINE	QP
9	8.6373	28.80	-21.20	50.00	18.45	10.15	0.20	LINE	Average
10	8.6373	34.18	-25.82	60.00	23.83	10.15	0.20	LINE	QP
11	11.6826	27.51	-22.49	50.00	17.02	10.24	0.25	LINE	Average
12	11.6826	32.74	-27.26	60.00	22.25	10.24	0.25	LINE	QP

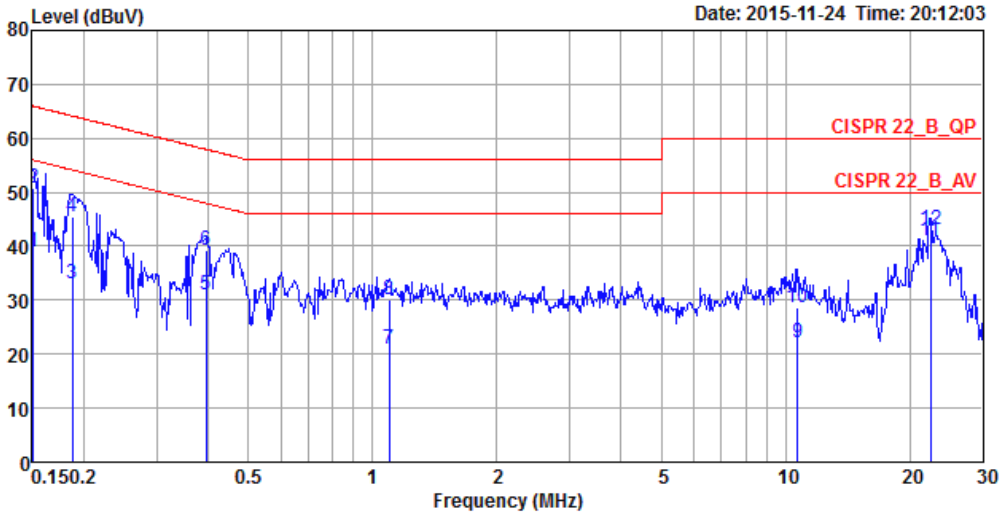
Temperature	23℃	Humidity	59%
Test Engineer	Parody Lin & Da Deng	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 2



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1757	37.46	-17.23	54.69	27.65	9.79	0.02	NEUTRAL	Average
2	0.1757	49.79	-14.90	64.69	39.98	9.79	0.02	NEUTRAL	QP
3	0.2106	31.34	-21.84	53.18	21.53	9.79	0.02	NEUTRAL	Average
4	0.2106	43.59	-19.59	63.18	33.78	9.79	0.02	NEUTRAL	QP
5	0.4564	38.15	-8.61	46.76	28.32	9.79	0.04	NEUTRAL	Average
6	0.4564	39.75	-17.01	56.76	29.92	9.79	0.04	NEUTRAL	QP
7	2.2968	26.27	-19.73	46.00	16.36	9.85	0.06	NEUTRAL	Average
8	2.2968	33.27	-22.73	56.00	23.36	9.85	0.06	NEUTRAL	QP
9	5.2491	27.01	-22.99	50.00	17.00	9.91	0.10	NEUTRAL	Average
10	5.2491	32.04	-27.96	60.00	22.03	9.91	0.10	NEUTRAL	QP
11	9.1073	27.63	-22.37	50.00	17.42	10.00	0.21	NEUTRAL	Average
12	9.1073	33.22	-26.78	60.00	23.01	10.00	0.21	NEUTRAL	QP

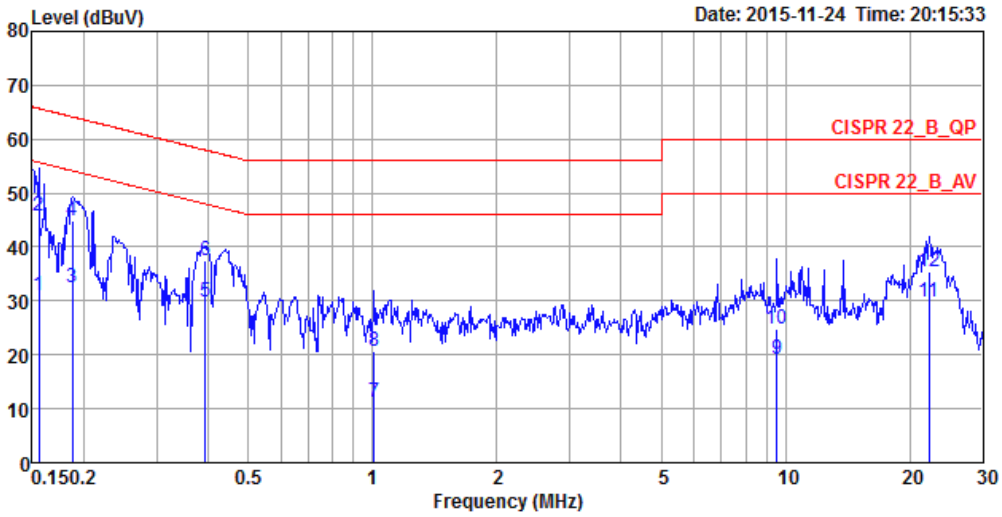
Note: Level = Read Level + LISN Factor + Cable Loss.

Temperature	23°C	Humidity	59%
Test Engineer	Parody Lin & Da Deng	Phase	Line
Configuration	Normal Link	Test Mode	Mode 3



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1508	38.93	-17.03	55.96	28.98	9.93	0.02	LINE	Average
2	0.1508	50.84	-15.12	65.96	40.89	9.93	0.02	LINE	QP
3	0.1874	33.16	-20.99	54.15	23.21	9.93	0.02	LINE	Average
4	0.1874	45.41	-18.74	64.15	35.46	9.93	0.02	LINE	QP
5	0.3955	31.02	-16.93	47.95	21.05	9.93	0.04	LINE	Average
6	0.3955	39.17	-18.78	57.95	29.20	9.93	0.04	LINE	QP
7	1.0997	20.97	-25.03	46.00	10.96	9.96	0.05	LINE	Average
8	1.0997	30.02	-25.98	56.00	20.01	9.96	0.05	LINE	QP
9	10.6763	22.21	-27.79	50.00	11.76	10.20	0.25	LINE	Average
10	10.6763	28.52	-31.48	60.00	18.07	10.20	0.25	LINE	QP
11	22.4586	40.95	-9.05	50.00	30.17	10.51	0.27	LINE	Average
12	22.4586	43.01	-16.99	60.00	32.23	10.51	0.27	LINE	QP

Temperature	23℃	Humidity	59%
Test Engineer	Parody Lin & Da Deng	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 3



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1557	30.85	-24.84	55.69	21.05	9.78	0.02	NEUTRAL	Average
2	0.1557	45.67	-20.02	65.69	35.87	9.78	0.02	NEUTRAL	QP
3	0.1874	32.56	-21.59	54.15	22.75	9.79	0.02	NEUTRAL	Average
4	0.1874	44.91	-19.24	64.15	35.10	9.79	0.02	NEUTRAL	QP
5	0.3934	29.90	-18.09	47.99	20.07	9.79	0.04	NEUTRAL	Average
6	0.3934	37.54	-20.45	57.99	27.71	9.79	0.04	NEUTRAL	QP
7	1.0103	11.16	-34.84	46.00	1.30	9.81	0.05	NEUTRAL	Average
8	1.0103	20.59	-35.41	56.00	10.73	9.81	0.05	NEUTRAL	QP
9	9.5521	19.30	-30.70	50.00	9.07	10.00	0.23	NEUTRAL	Average
10	9.5521	24.78	-35.22	60.00	14.55	10.00	0.23	NEUTRAL	QP
11	22.2979	29.77	-20.23	50.00	19.28	10.22	0.27	NEUTRAL	Average
12	22.2979	35.53	-24.47	60.00	25.04	10.22	0.27	NEUTRAL	QP

Note: Level = Read Level + LISN Factor + Cable Loss.

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, the limit for peak output power is 1Watt (30dBm). For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts (21dBm).

4.2.2. Measuring Instruments and Setting

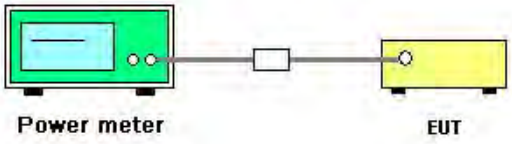
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Bandwidth	50MHz bandwidth is greater than the EUT emission bandwidth
Detector	Peak and Average

4.2.3. Test Procedures

This procedure provides an alternative for determining the RMS output power using a broadband RF average power meter with a thermocouple detector.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Maximum Conducted Output Power

Temperature	25°C	Humidity	46%
Test Engineer	Clemens Fang	Configurations	GFSK, π/4-DQPSK, 8DPSK
Test Date	Nov. 02, 2015		

For BR (GFSK) 1 Mbps:

Channel	Frequency	Conducted Peak Power (dBm)	Conducted Average Power (dBm)	Max. Limit (dBm)	Result
0	2402 MHz	7.94	7.15	21.00	Complies
39	2441 MHz	8.66	7.87	21.00	Complies
78	2480 MHz	7.59	6.80	21.00	Complies

For EDR (π/4-DQPSK) 2 Mbps:

Channel	Frequency	Conducted Peak Power (dBm)	Conducted Average Power (dBm)	Max. Limit (dBm)	Result
0	2402 MHz	7.85	7.06	21.00	Complies
39	2441 MHz	8.04	7.25	21.00	Complies
78	2480 MHz	7.13	6.34	21.00	Complies

For EDR (8DPSK) 3 Mbps:

Channel	Frequency	Conducted Peak Power (dBm)	Conducted Average Power (dBm)	Max. Limit (dBm)	Result
0	2402 MHz	8.02	7.23	21.00	Complies
39	2441 MHz	8.21	7.42	21.00	Complies
78	2480 MHz	7.65	6.86	21.00	Complies

4.3. Hopping Channel Separation Measurement

4.3.1. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, 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.

4.3.2. Measuring Instruments and Setting

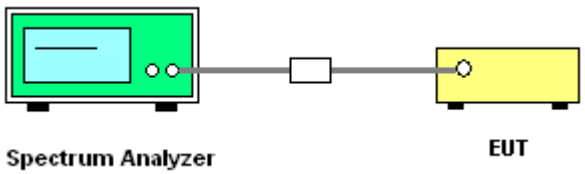
Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RBW	30 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
VBW	100 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilized for 20 dB bandwidth measurement.
3. The resolution bandwidth of 100 kHz and the video bandwidth of 100 kHz were utilized for channel separation measurement.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Hopping Channel Separation

Temperature	25°C	Humidity	46%
Test Engineer	Clemens Fang	Configurations	GFSK, π/4-DQPSK, 8DPSK
Test Date	Nov. 02, 2015		

For BR (GFSK) 1 Mbps:

Frequency	20dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Ch. Separation (MHz)	Two-Thirds of 20dB Bandwidth (MHz)	Result
2402 MHz	0.9407	0.8712	1.00	0.627	Complies
2441 MHz	0.9407	0.8740	1.00	0.627	Complies
2480 MHz	0.9551	0.8769	1.00	0.637	Complies

Ch. Separation Limits: >20dB bandwidth or > Two-Thirds of 20dB bandwidth

For EDR (π/4-DQPSK) 2 Mbps:

Frequency	20dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Ch. Separation (MHz)	Two-Thirds of 20dB Bandwidth (MHz)	Result
2402 MHz	1.3517	1.2010	1.00	0.901	Complies
2441 MHz	1.3488	1.2040	1.00	0.899	Complies
2480 MHz	1.3546	1.2040	1.00	0.903	Complies

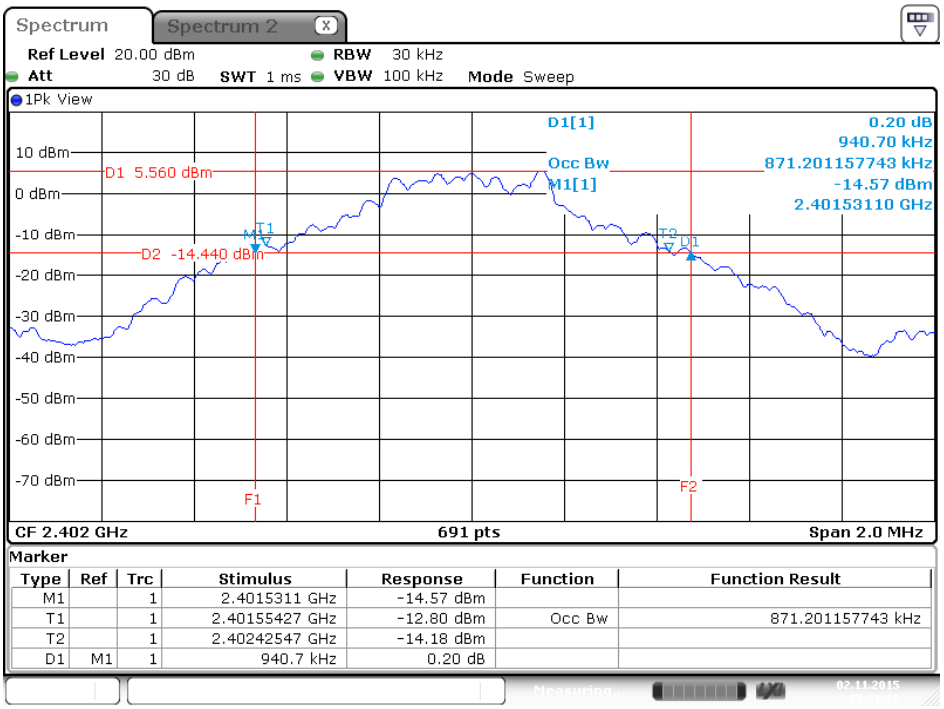
Ch. Separation Limits: >20dB bandwidth or > Two-Thirds of 20dB bandwidth

For EDR (8DPSK) 3 Mbps:

Frequency	20dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Ch. Separation (MHz)	Two-Thirds of 20dB Bandwidth (MHz)	Result
2402 MHz	1.3285	1.1920	1.00	0.886	Complies
2441 MHz	1.3256	1.1950	1.00	0.884	Complies
2480 MHz	1.3256	1.1982	1.00	0.884	Complies

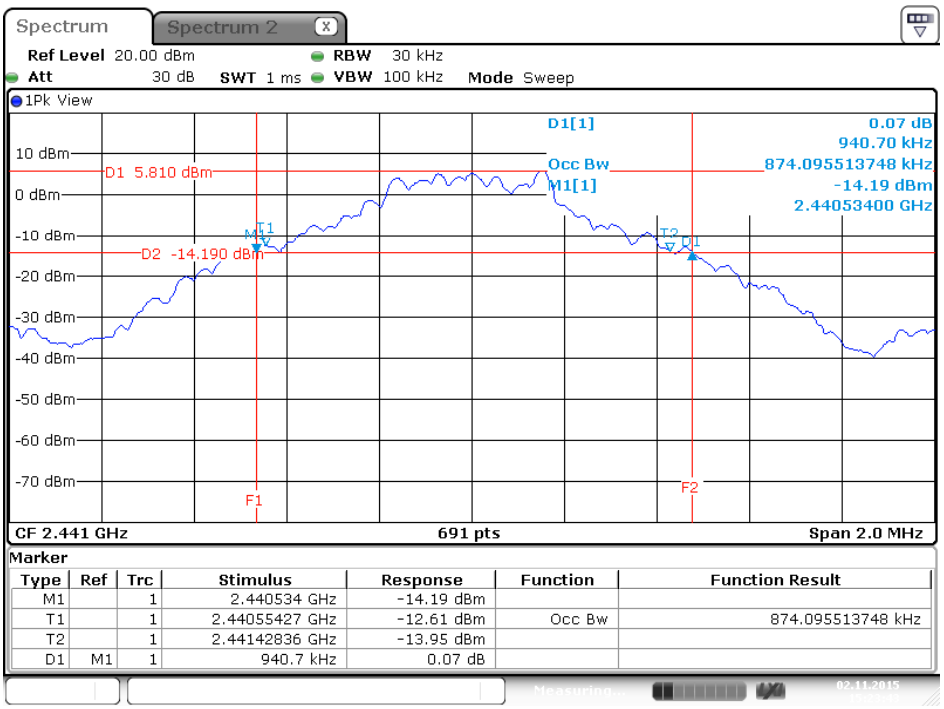
Ch. Separation Limits: >20dB bandwidth or > Two-Thirds of 20dB bandwidth

20 dB Bandwidth Plot on BR (GFSK) 1 Mbps / Channel 0 / 2402 MHz



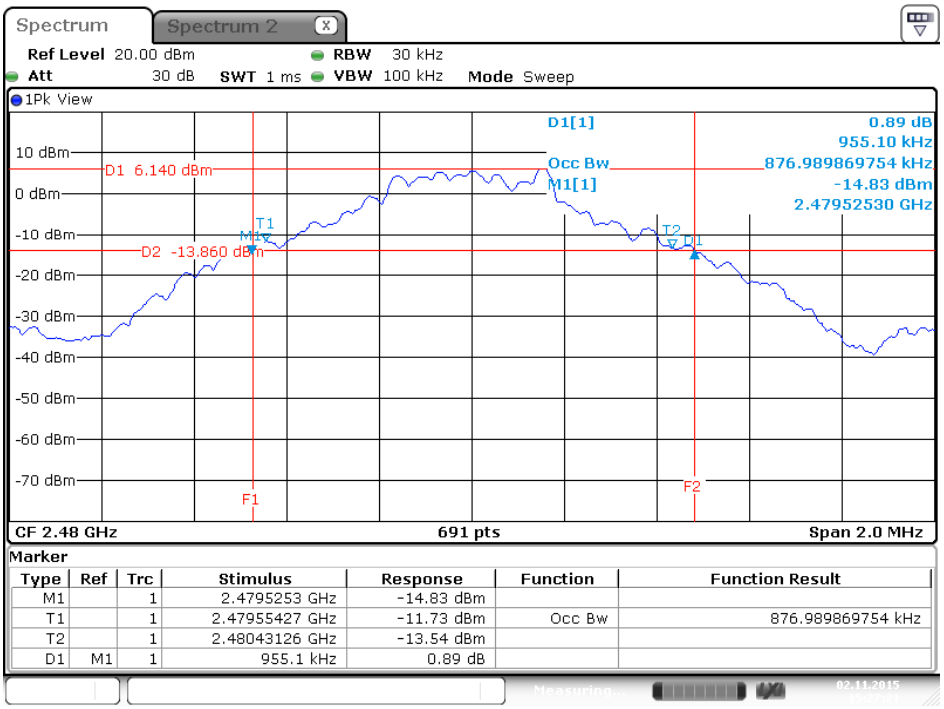
Date: 2.NOV.2015 15:21:21

20 dB Bandwidth Plot on BR (GFSK) 1 Mbps / Channel 39 / 2441 MHz



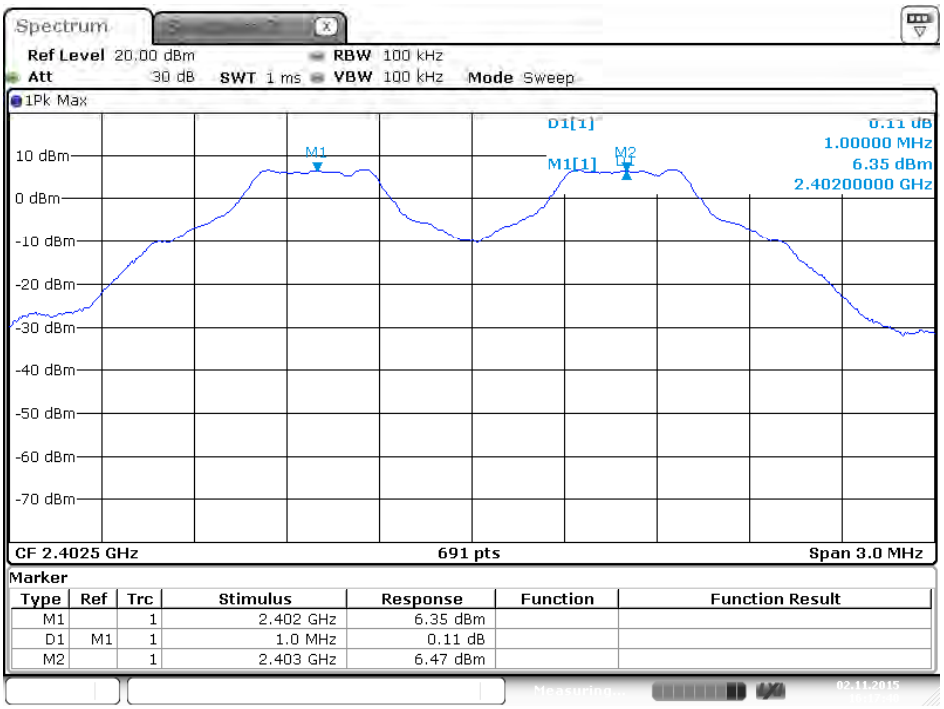
Date: 2.NOV.2015 15:23:44

20 dB Bandwidth Plot on BR (GFSK) 1 Mbps / Channel 78 / 2480 MHz



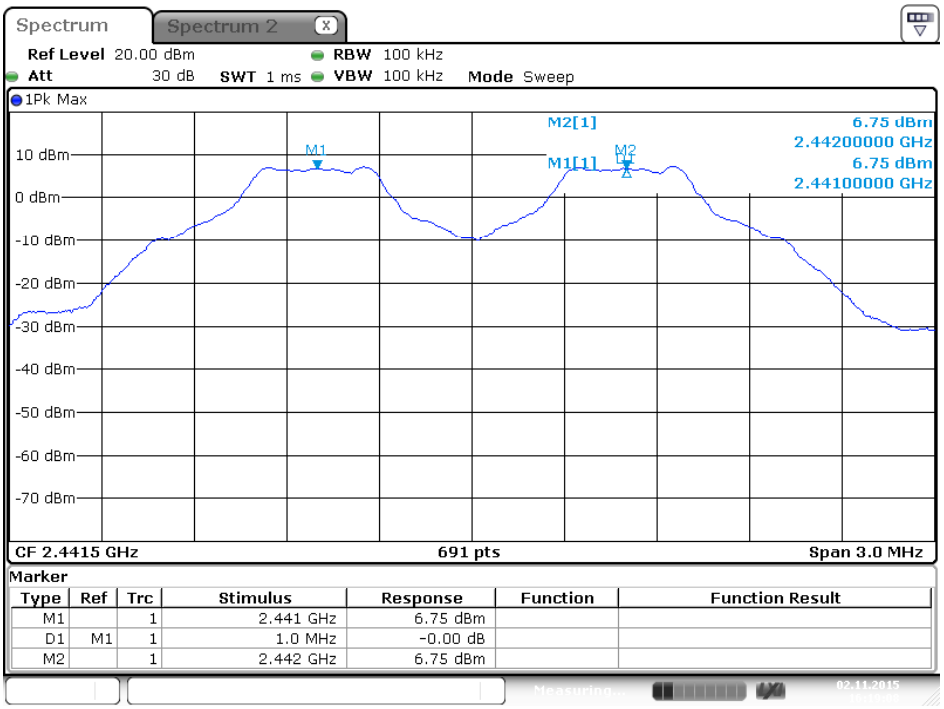
Date: 2.NOV.2015 15:27:21

Channel Separation Plot on BR (GFSK) 1 Mbps / Channel 0~1 / 2402 MHz ~ 2403 MHz



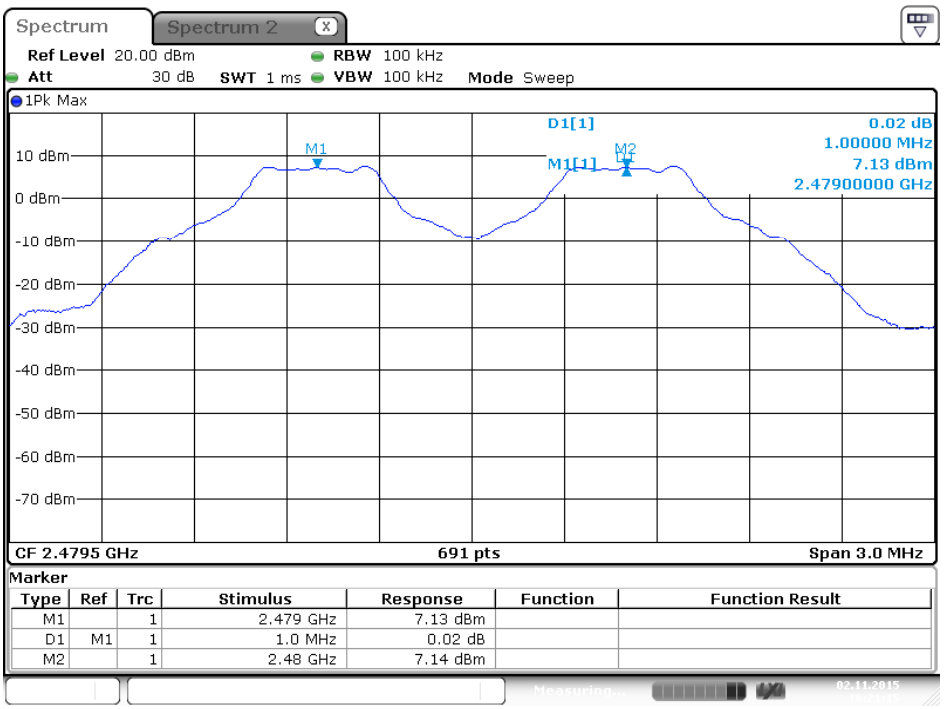
Date: 2.NOV.2015 16:17:40

Channel Separation Plot on BR (GFSK) 1 Mbps / Channel 39~40 / 2441 MHz ~ 2442 MHz



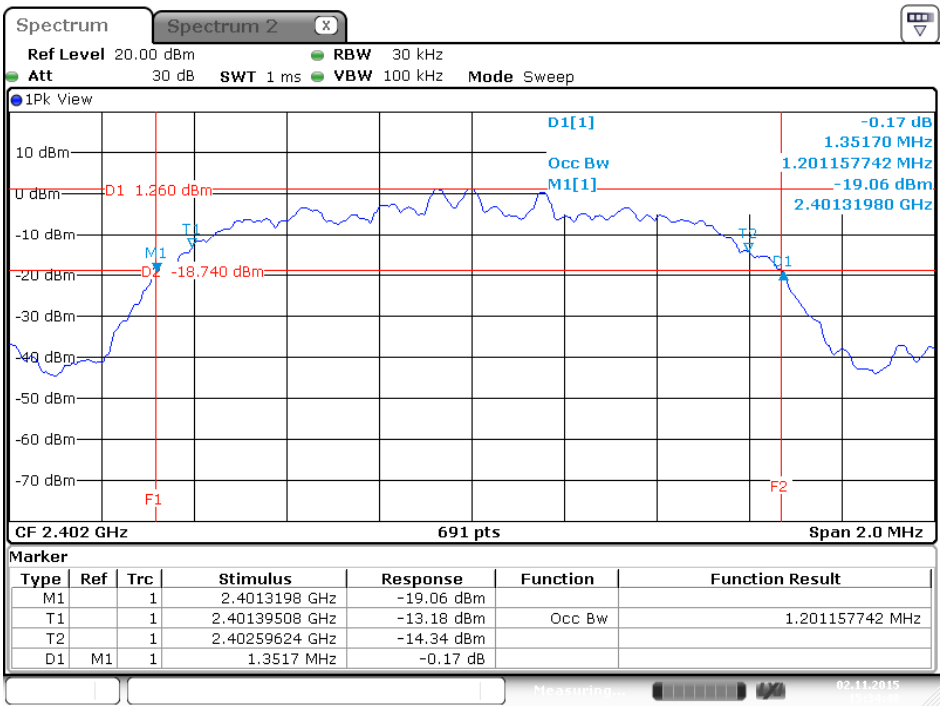
Date: 2.NOV.2015 16:19:08

Channel Separation Plot on BR (GFSK) 1 Mbps / Channel 77~78 / 2479 MHz ~ 2480 MHz



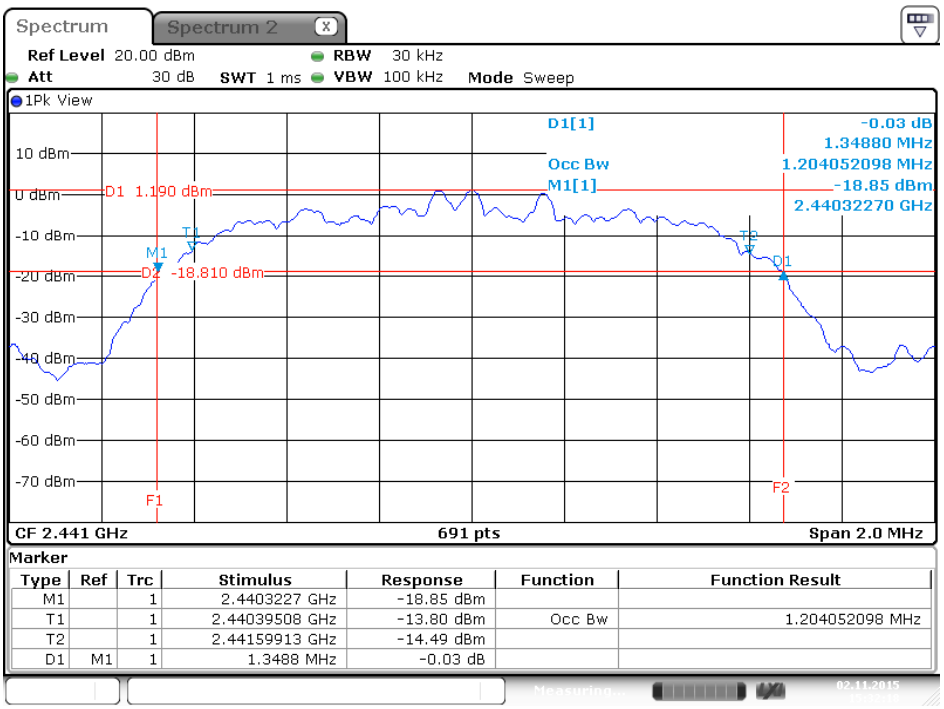
Date: 2.NOV.2015 16:21:16

20 dB Bandwidth Plot on EDR (π/4-DQPSK) 2 Mbps / Channel 0 / 2402 MHz



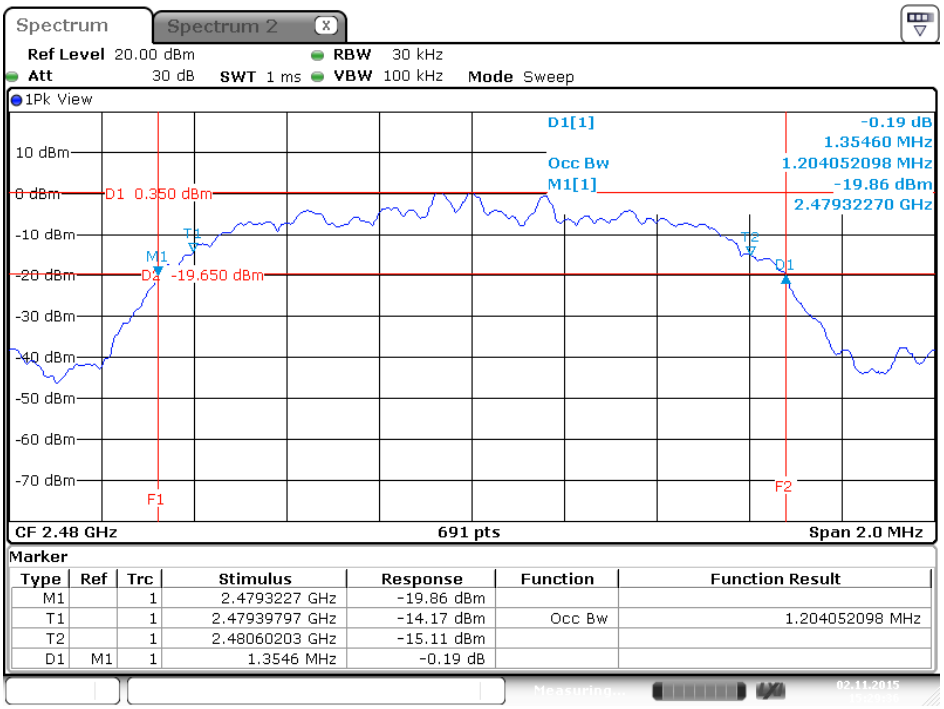
Date: 2.NOV.2015 15:34:48

20 dB Bandwidth Plot on EDR (π/4-DQPSK) 2 Mbps / Channel 39 / 2441 MHz



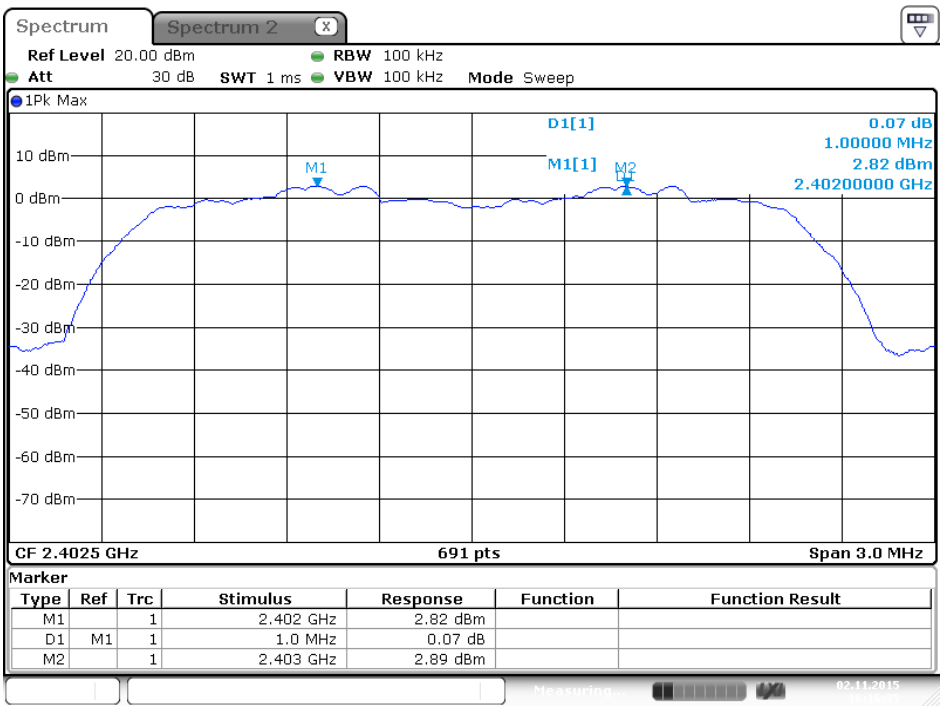
Date: 2.NOV.2015 15:32:19

20 dB Bandwidth Plot on EDR (π/4-DQPSK) 2 Mbps / Channel 78 / 2480 MHz



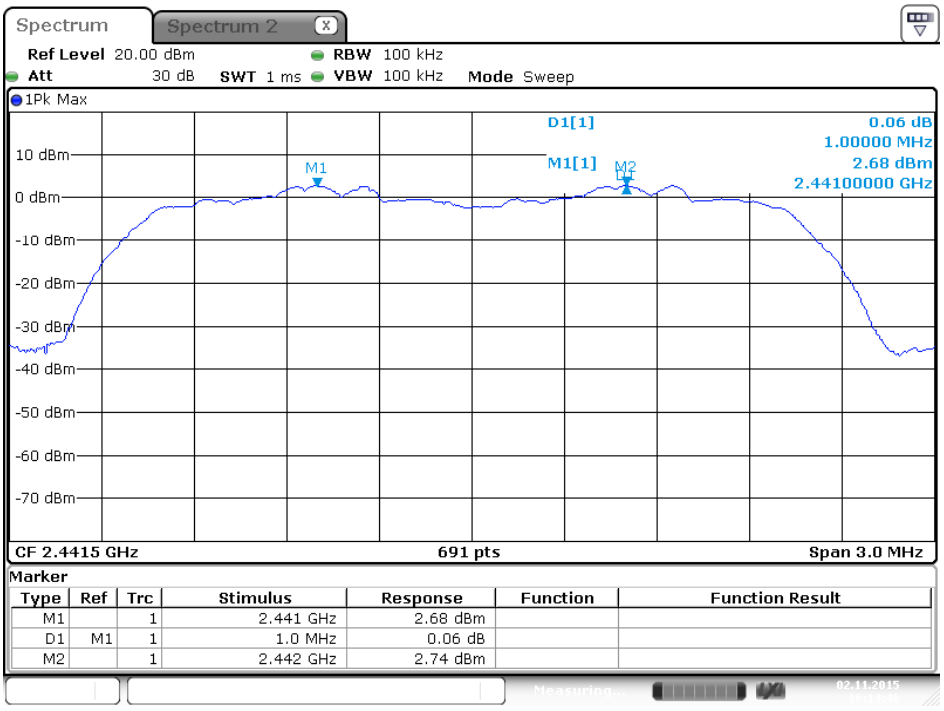
Date: 2.NOV.2015 15:29:37

Channel Separation Plot on EDR (π/4-DQPSK) 2 Mbps / Channel 0~1 / 2402 MHz ~ 2403 MHz



Date: 2.NOV.2015 16:16:36

Channel Separation Plot on EDR (π/4-DQPSK) 2 Mbps / Channel 39~40 / 2441 MHz ~ 2442 MHz



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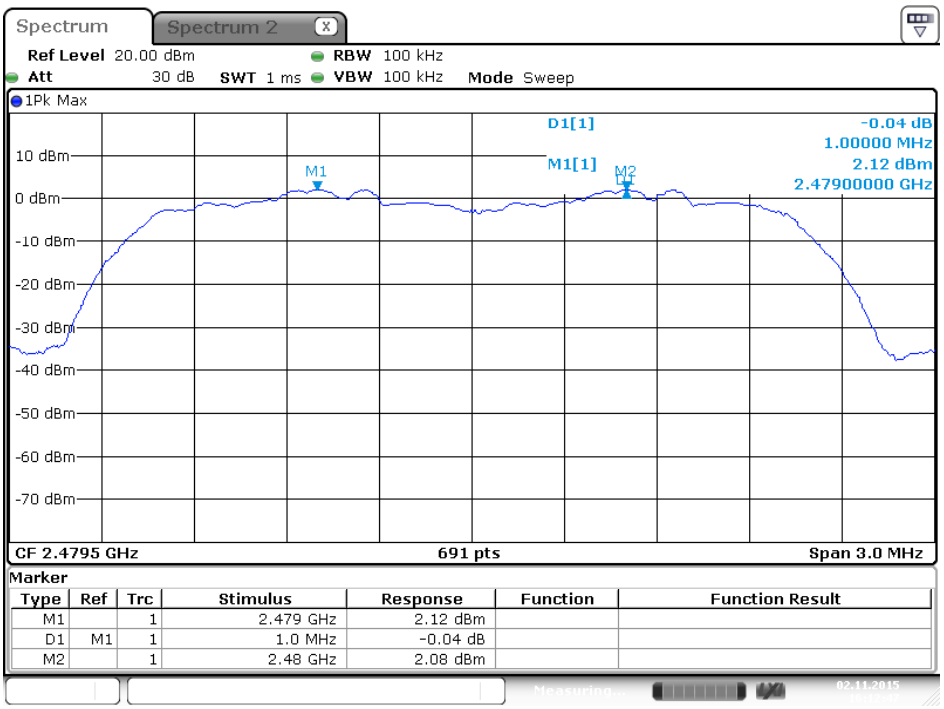
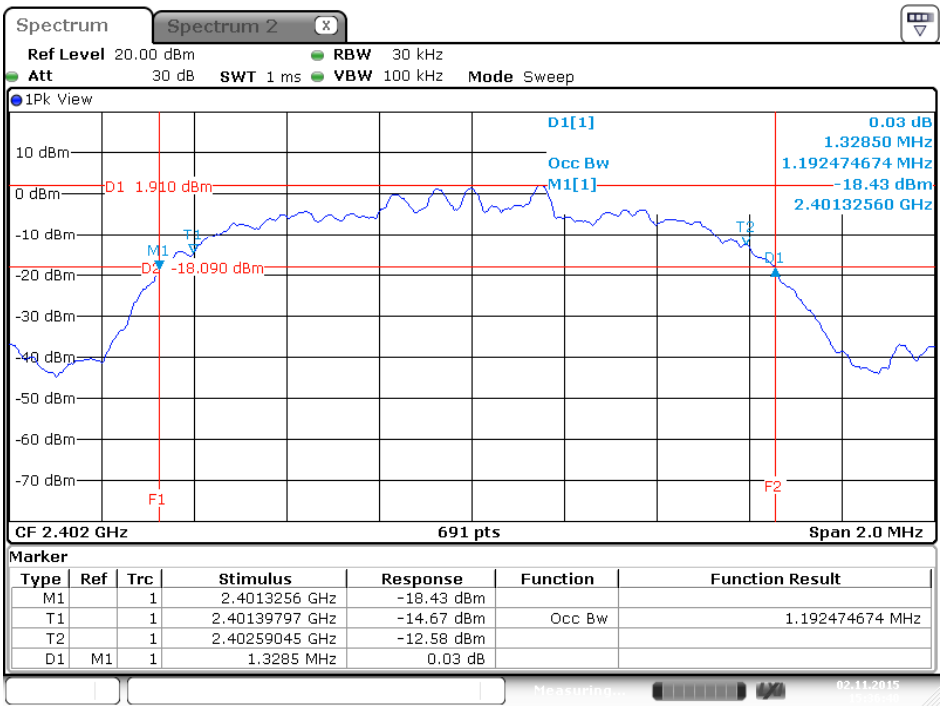
Channel Separation Plot on EDR (π/4-DQPSK) 2 Mbps / Channel 77~78 / 2479 MHz ~ 2480 MHz



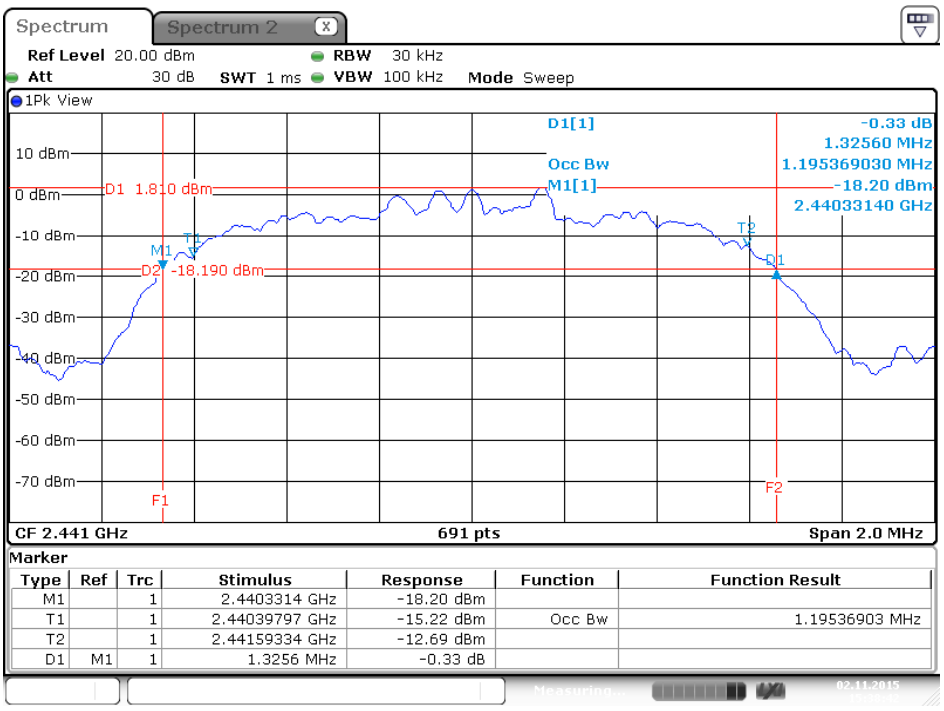
Date: 2.NOV.2015 16:12:48

20 dB Bandwidth Plot on EDR (8DPSK) 3 Mbps / Channel 0 / 2402 MHz



Date: 2.NOV.2015 15:36:40

20 dB Bandwidth Plot on EDR (8DPSK) 3 Mbps / Channel 39 / 2441 MHz



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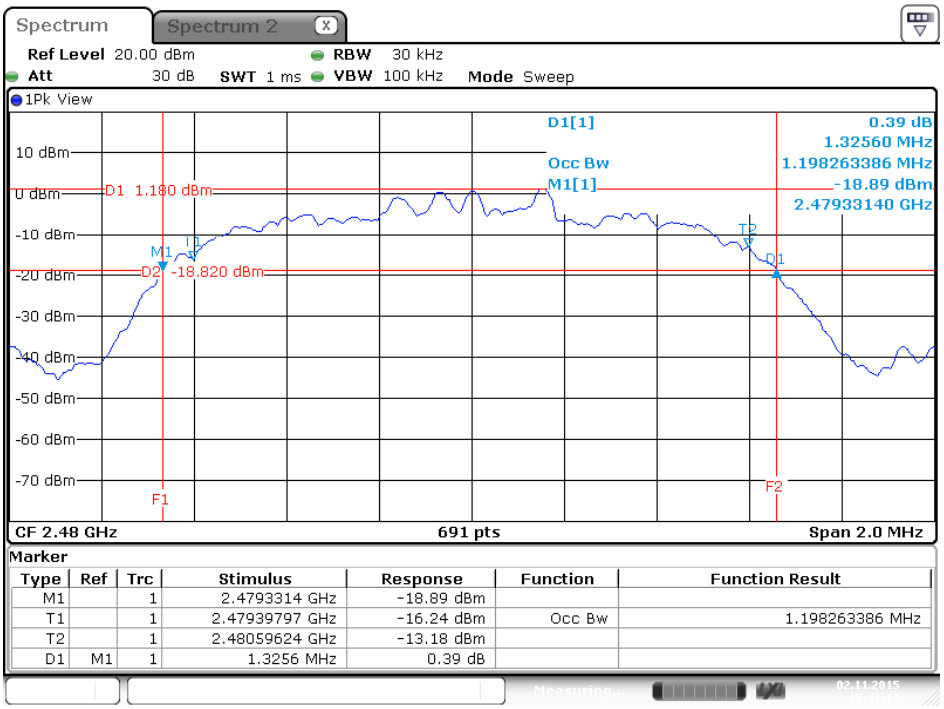
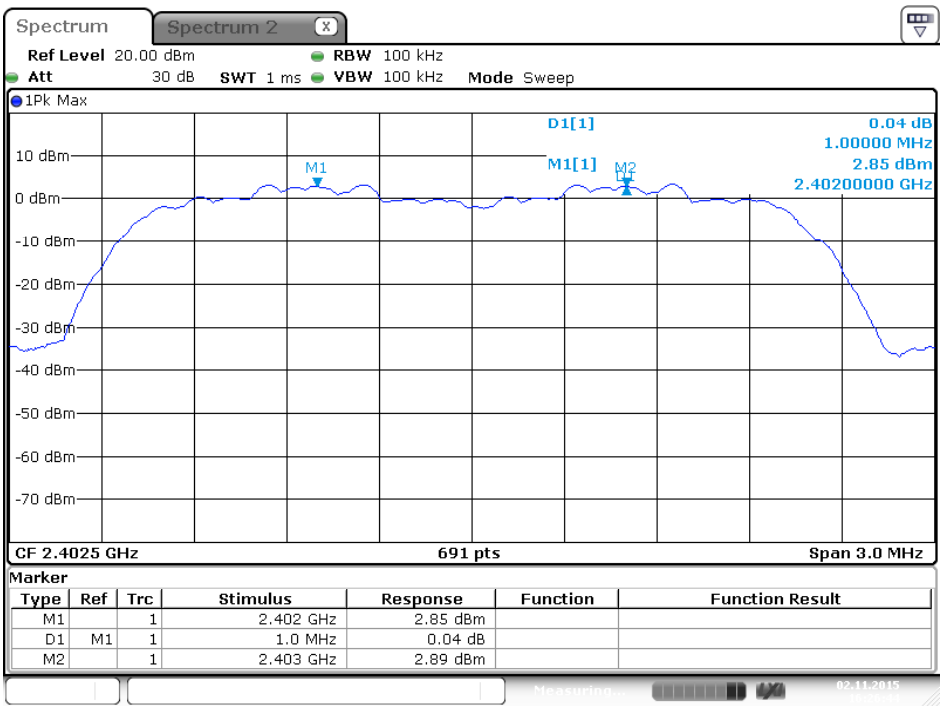
20 dB Bandwidth Plot on EDR (8DPSK) 3 Mbps / Channel 78 / 2480 MHz



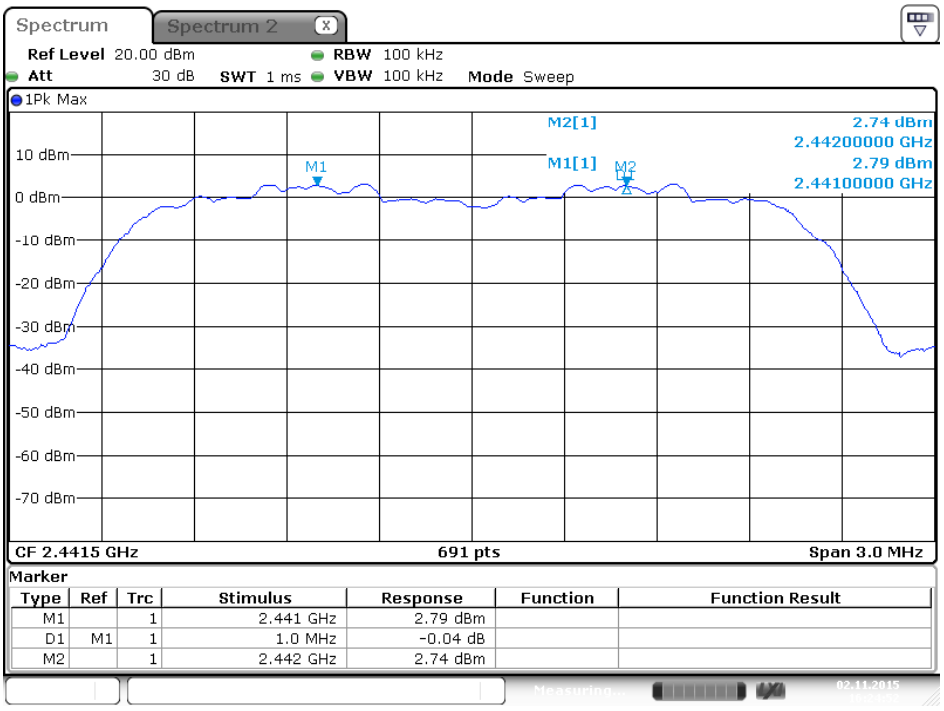
Date: 2.NOV.2015 15:41:18

Channel Separation Plot on EDR (8DPSK) 3 Mbps / Channel 0~1 / 2402 MHz ~ 2403 MHz



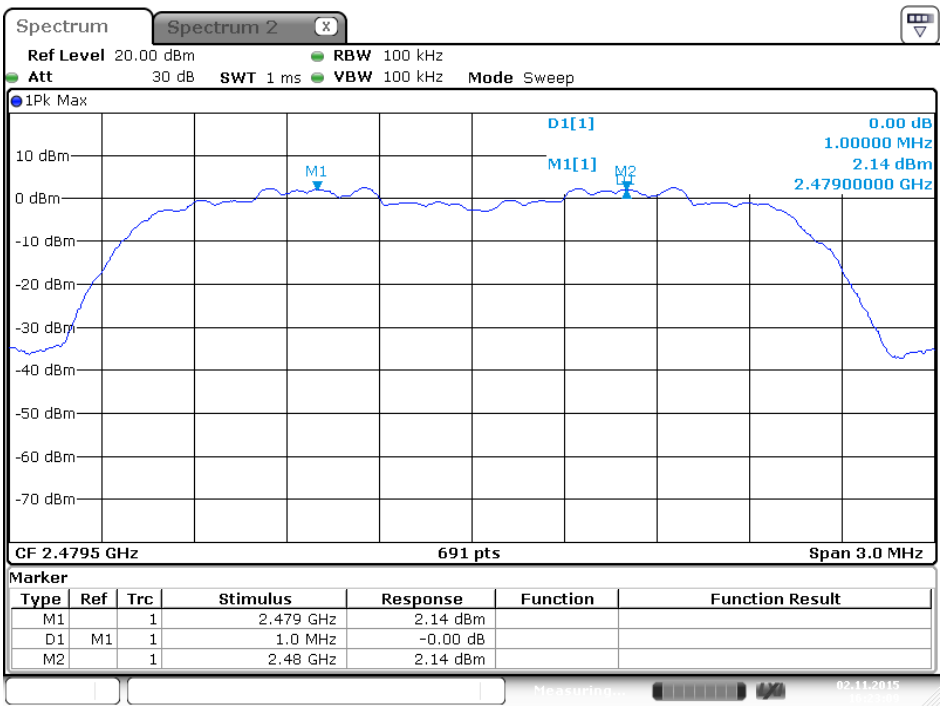
Date: 2.NOV.2015 16:26:45

Channel Separation Plot on EDR (8DPSK) 3 Mbps / Channel 39~40 / 2441 MHz ~ 2442 MHz



Date: 2.NOV.2015 16:24:53

Channel Separation Plot on EDR (8DPSK) 3 Mbps / Channel 77~78 / 2479 MHz ~ 2480 MHz



Date: 2.NOV.2015 16:23:09

4.4. Number of Hopping Frequency Measurement

4.4.1. Limit

At least 15 hopping frequencies, and should be equally spaced.

4.4.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RBW	1000 kHz
VBW	1000 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 1000 kHz and the video bandwidth of 1000 kHz were utilized.
3. Observe frequency hopping in 2400MHz~2483.5MHz, there are at least 75 non-overlapping channels.

4.4.4. Test Setup Layout

4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

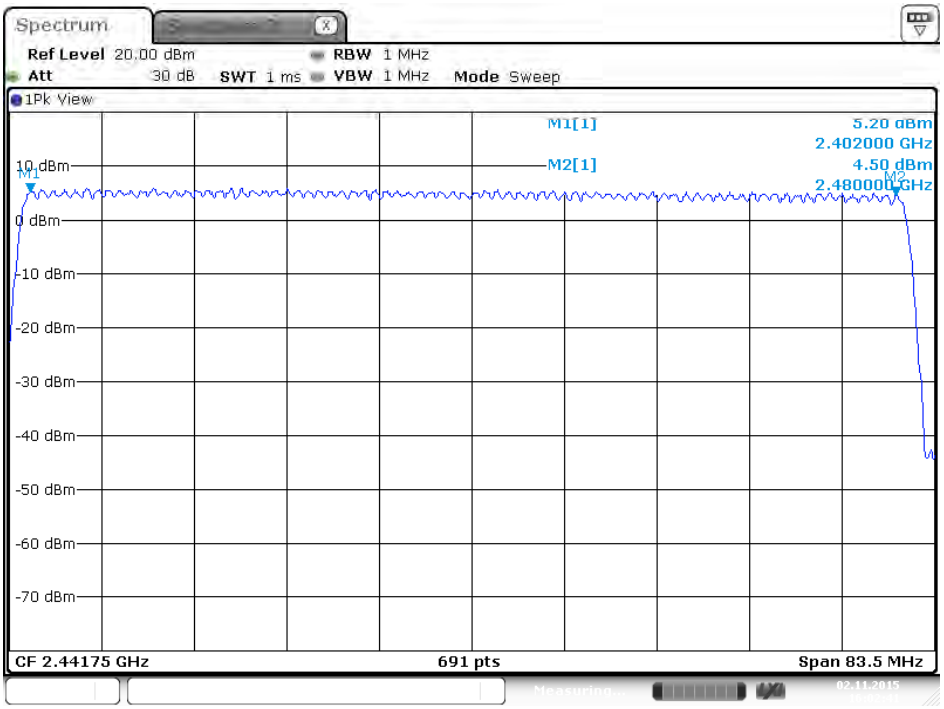
The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Number of Hopping Frequency

Temperature	25°C	Humidity	46%
Test Engineer	Clemens Fang	Configurations	EDR (8DPSK)

Modulation Type	Channel No.	Frequency (MHz)	Hopping Ch. (Channels)	Min. Limit (Channels)	Test Result
EDR (8DPSK)	0 ~ 78	2402 ~ 2480MHz	79	15	Complies

Number of Hopping Channel Plot on EDR (8DPSK) / Channel 0~78 / 2402 MHz ~ 2480 MHz



Date: 2.NOV.2015 16:02:41

4.5. Dwell Time Measurement

4.5.1. Limit

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

4.5.2. Measuring Instruments and Setting

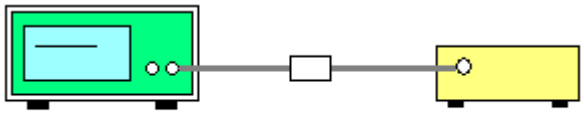
Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	0 MHz
RBW	1000 kHz
VBW	1000 kHz
Detector	Peak
Trace	Single Trigger

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer
2. Set RBW of spectrum analyzer to 1000kHz and VBW to 1000kHz.
3. Use a video trigger with the trigger level set to enable triggering only on full pulses.
4. Sweep Time is more than once pulse time.
5. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
6. Measure the maximum time duration of one single pulse.
7. Set the EUT for DH1, DH3, DH5 packet transmitting.
8. Measure the maximum time duration of one single pulse.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Dwell Time

Temperature	25°C	Humidity	46%
Test Engineer	Clemens Fang	Configurations	BR (GFSK) / DH1, DH3, DH5

Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)	Test Result
DH1	2402 MHz	0.3913	0.1252	0.4000	Complies
DH3	2402 MHz	1.6380	0.2621	0.4000	Complies
DH5	2402 MHz	2.8990	0.3092	0.4000	Complies
DH1	2441 MHz	0.3841	0.1229	0.4000	Complies
DH3	2441 MHz	1.6450	0.2632	0.4000	Complies
DH5	2441 MHz	2.8840	0.3076	0.4000	Complies
DH1	2480 MHz	0.3913	0.1252	0.4000	Complies
DH3	2480 MHz	1.6450	0.2632	0.4000	Complies
DH5	2480 MHz	2.8700	0.3061	0.4000	Complies

Note: Pulse Duration * Number of Pulses*(Dwell time / measure time)

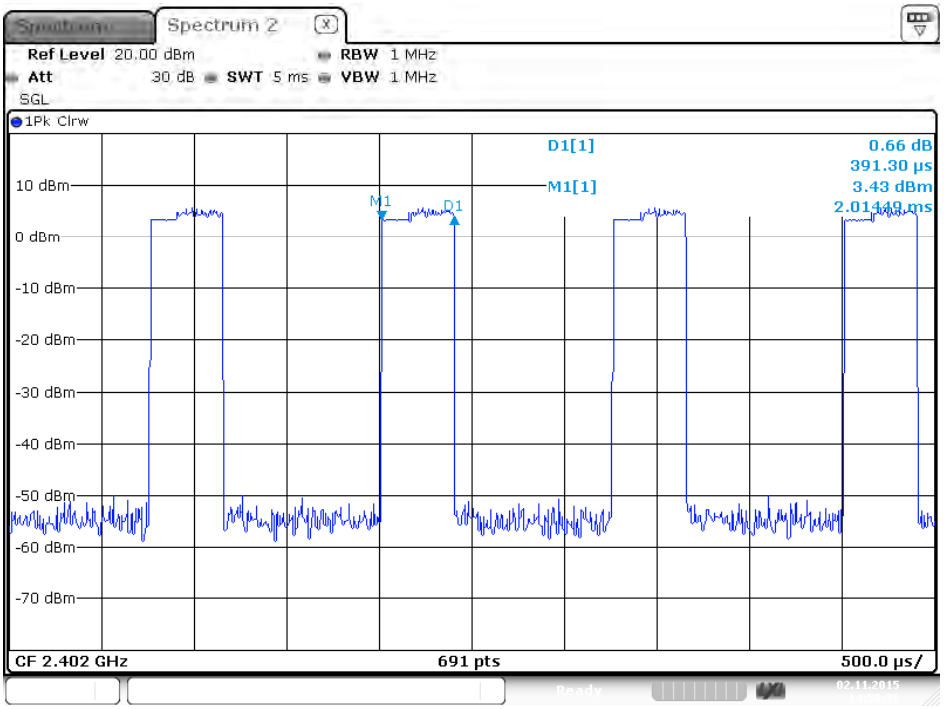
Remark:

Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time (us)

79 channels come from the Hopping Channel number.

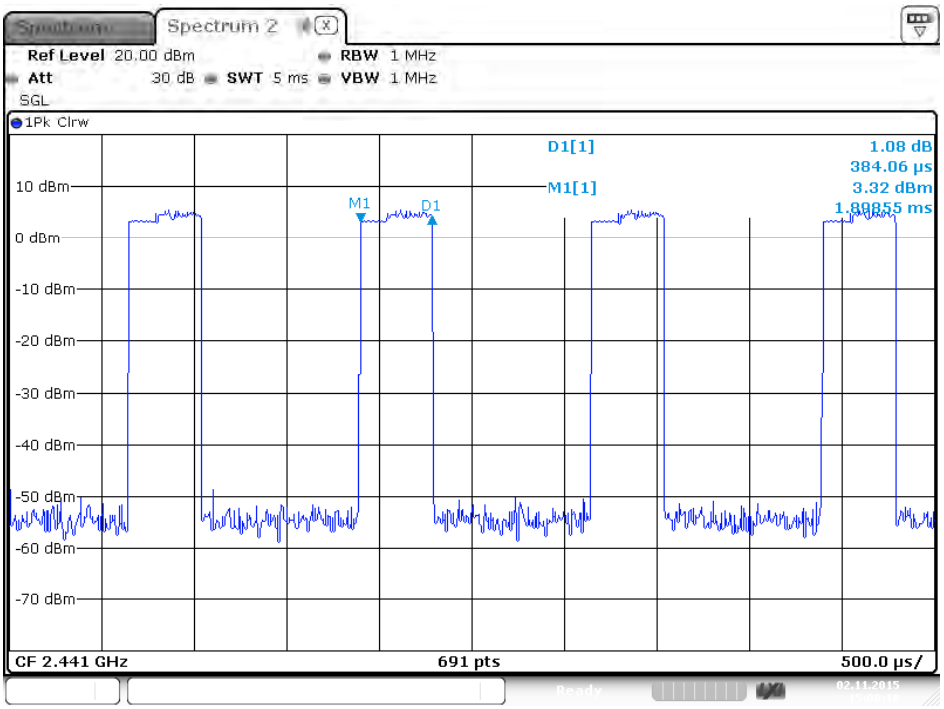
Average Hopping Channel = hops / sweep time

Dwell Time Plot on BR (GFSK) / Channel 0 / DH1 / 2402 MHz



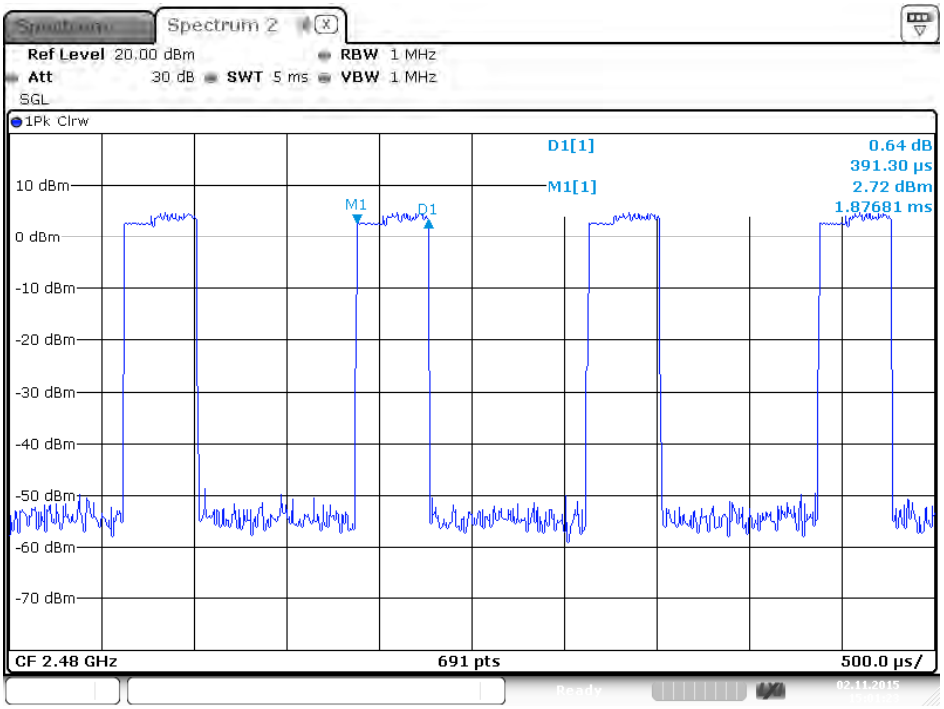
Date: 2.NOV.2015 14:58:36

Dwell Time Plot on BR (GFSK) / Channel 39 / DH1 / 2441 MHz



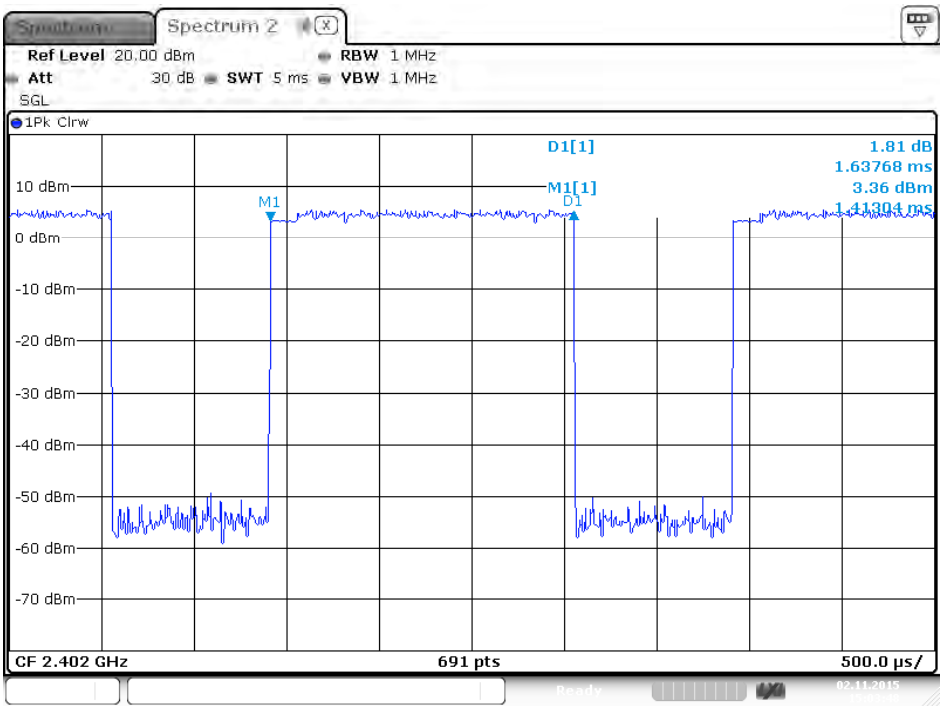
Date: 2.NOV.2015 15:00:19

Dwell Time Plot on BR (GFSK) / Channel 78 / DH1 / 2480 MHz



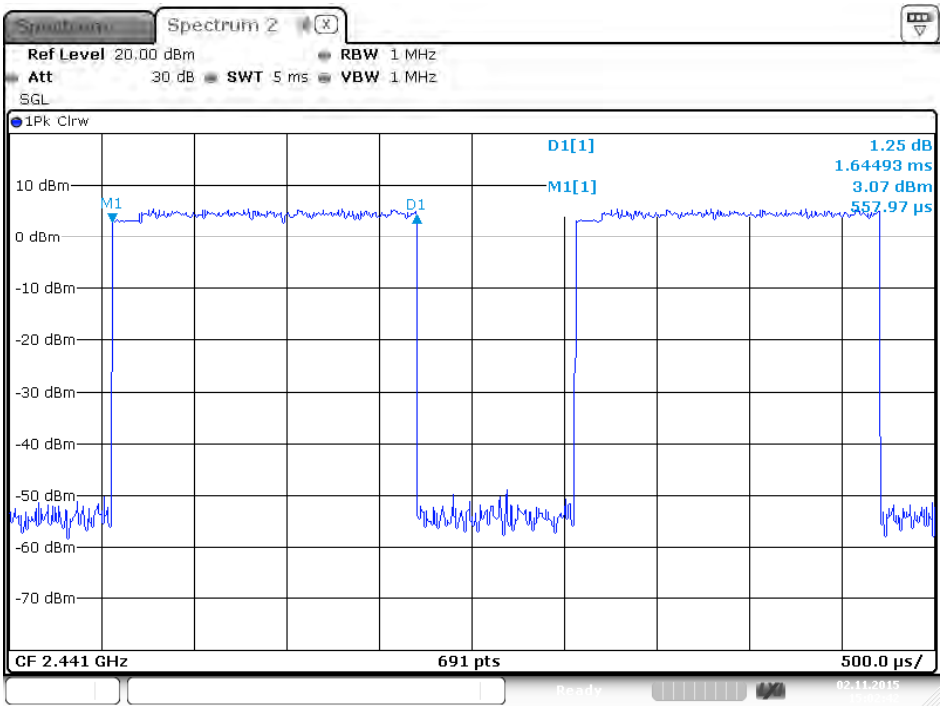
Date: 2.NOV.2015 15:01:23

Dwell Time Plot on BR (GFSK) / Channel 0 / DH3 / 2402 MHz



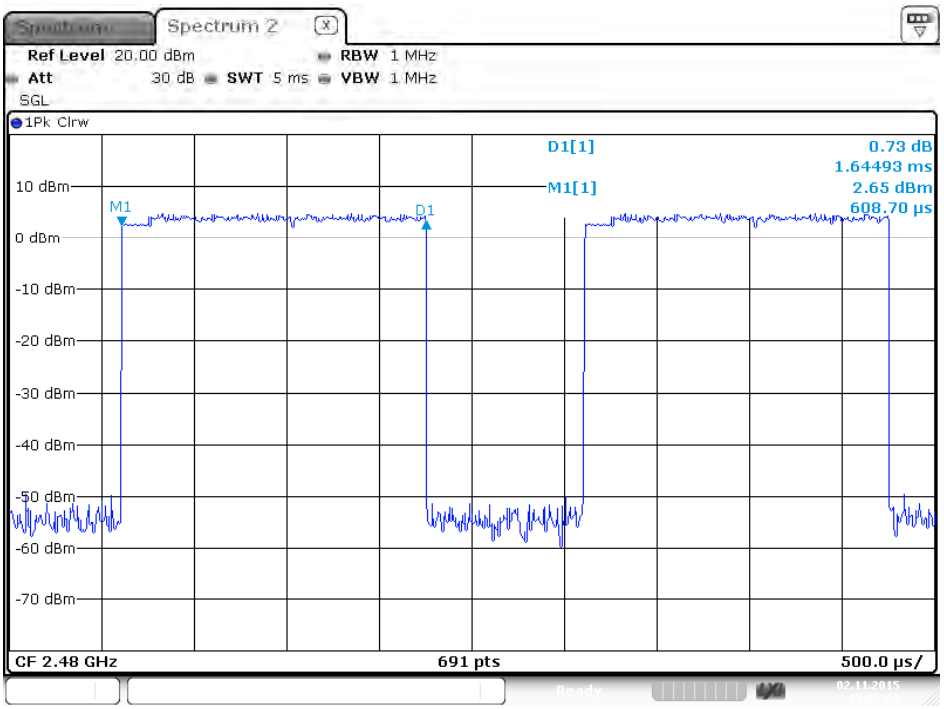
Date: 2.NOV.2015 15:03:49

Dwell Time Plot on BR (GFSK) / Channel 39 / DH3 / 2441 MHz



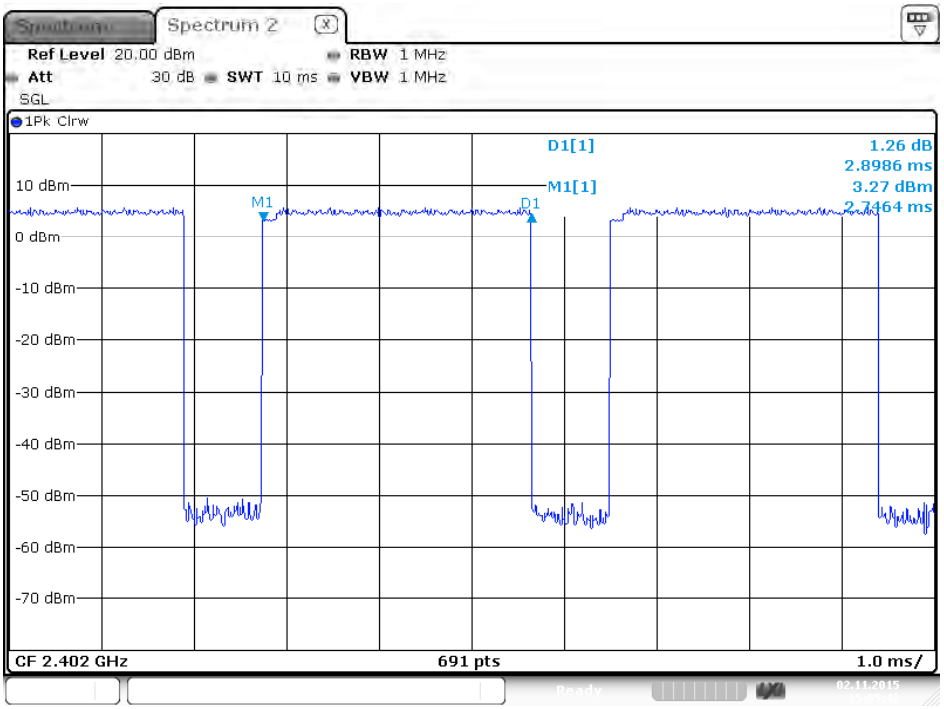
Date: 2.NOV.2015 15:02:42

Dwell Time Plot on BR (GFSK) / Channel 78 / DH3 / 2480 MHz



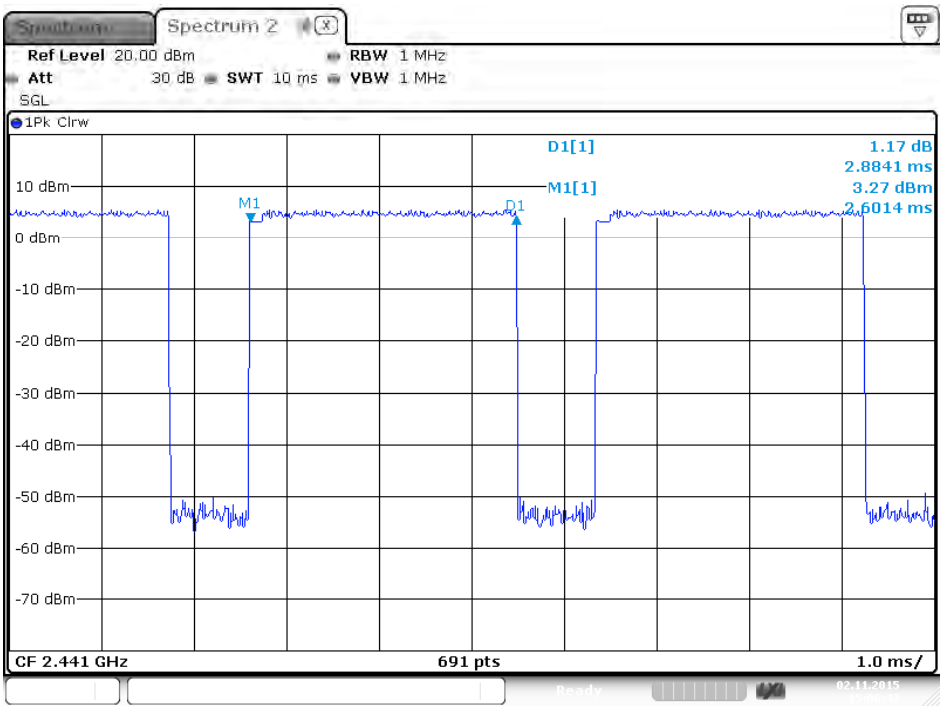
Date: 2.NOV.2015 15:02:08

Dwell Time Plot on BR (GFSK) / Channel 0 / DH5 / 2402 MHz



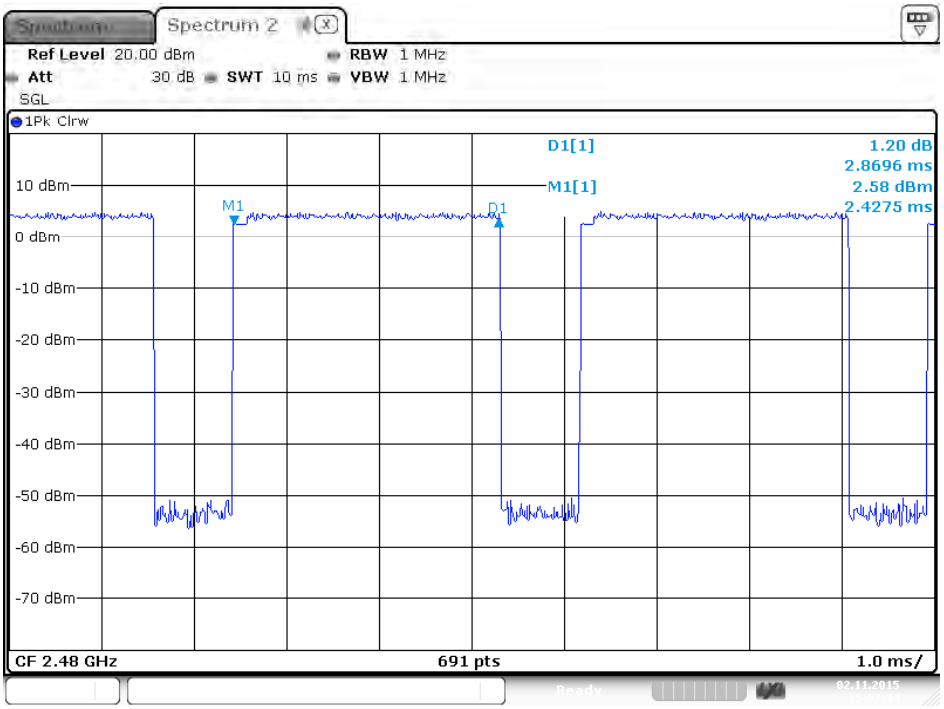
Date: 2.NOV.2015 15:05:42

Dwell Time Plot on BR (GFSK) / Channel 39 / DH5 / 2441 MHz



Date: 2.NOV.2015 15:06:42

Dwell Time Plot on BR (GFSK) / Channel 78 / DH5 / 2480 MHz



Date: 2.NOV.2015 15:07:44

4.6. Radiated Emissions Measurement

4.6.1. Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

4.6.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	100kHz, 300kHz for peak

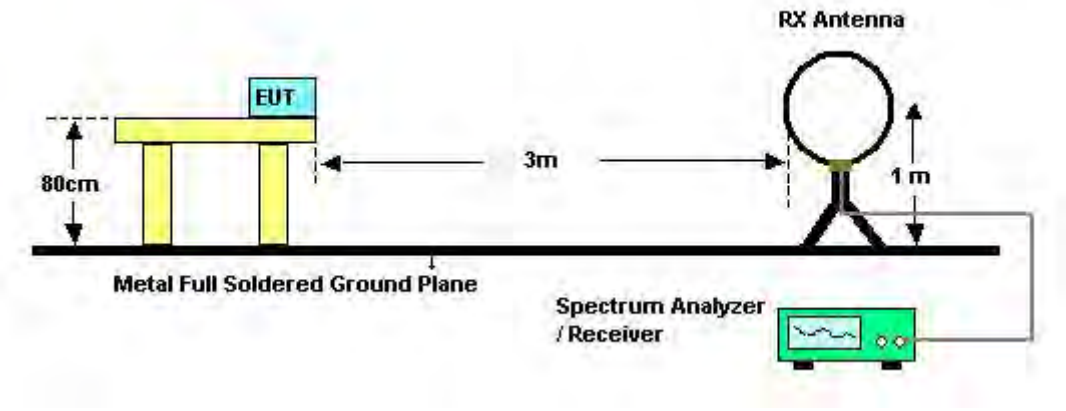
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz, RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz, RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz, RBW 120kHz for QP

4.6.3. Test Procedures

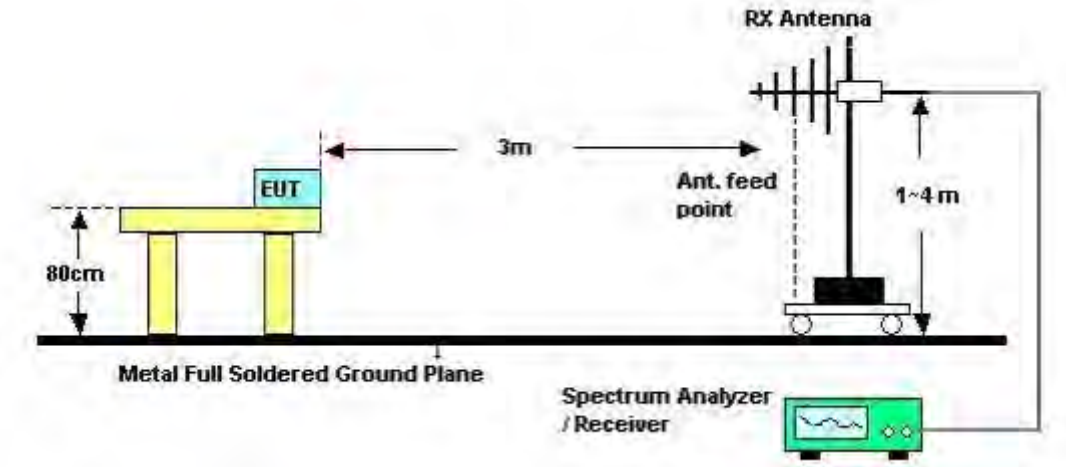
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 1/T VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.6.4. Test Setup Layout

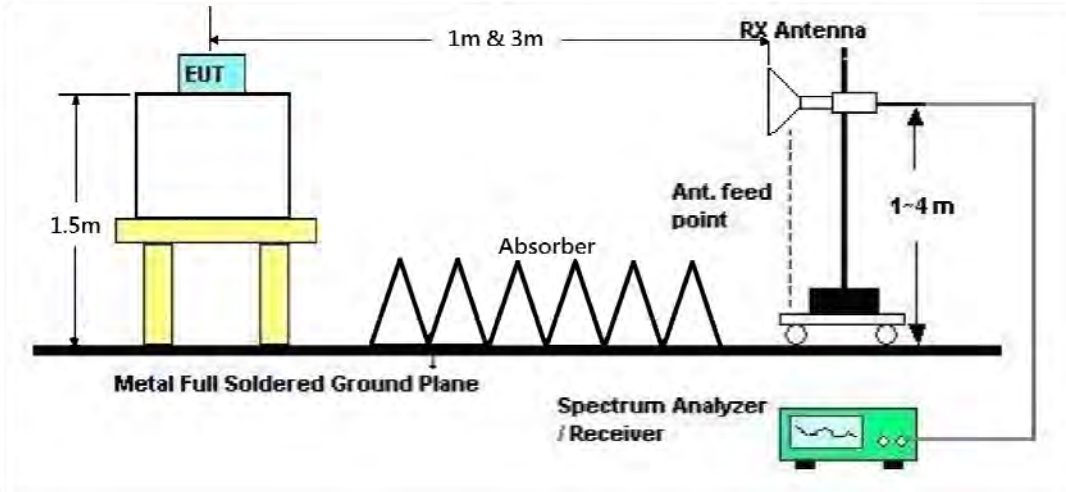
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Results of Radiated Emissions (9kHz~30MHz)

Temperature	24°C	Humidity	65%
Test Engineer	Mars Lin	Test Date	Nov. 05, 2015 ~ Dec. 23, 2015
Configurations	Normal Link		

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

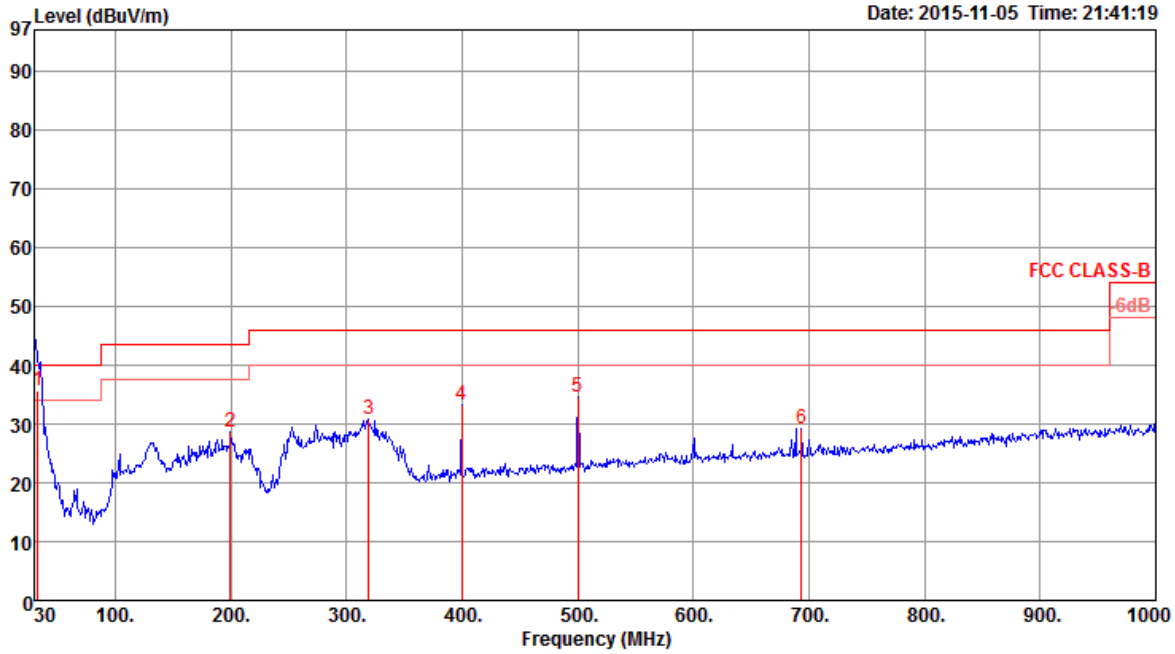
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

4.6.8. Results of Radiated Emissions (30MHz~1GHz)

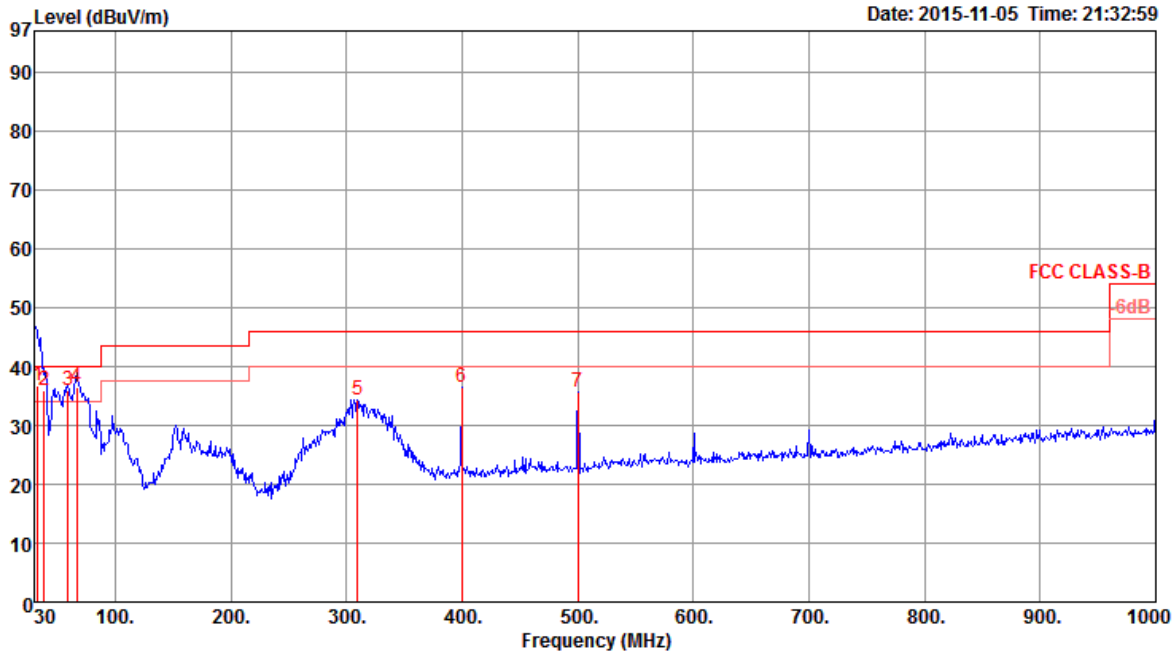
Temperature	24°C	Humidity	65%
Test Engineer	Mars Lin	Configurations	Normal Link
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	32.97	35.59	40.00	-4.41	43.81	0.66	18.36	27.24	QP	100	256	HORIZONTAL
2	199.75	28.68	43.50	-14.82	44.54	1.66	10.20	27.72	Peak	100	0	HORIZONTAL
3	319.06	30.91	46.00	-15.09	42.07	2.06	14.40	27.62	Peak	100	0	HORIZONTAL
4	399.57	33.30	46.00	-12.70	42.72	2.30	16.50	28.22	Peak	100	0	HORIZONTAL
5	500.45	34.65	46.00	-11.35	42.86	2.67	17.80	28.68	Peak	100	0	HORIZONTAL
6	693.48	29.26	46.00	-16.74	35.11	3.09	19.67	28.61	Peak	100	0	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	32.97	36.67	40.00	-3.33	44.89	0.66	18.36	27.24	QP	100	235	VERTICAL
2	38.73	35.84	40.00	-4.16	47.91	0.67	14.88	27.62	QP	100	67	VERTICAL
3	59.10	35.93	40.00	-4.07	56.34	0.90	7.13	28.44	QP	100	265	VERTICAL
4	66.86	36.40	40.00	-3.60	57.02	0.96	6.83	28.41	QP	100	245	VERTICAL
5	309.36	34.44	46.00	-11.56	45.80	2.04	14.15	27.55	Peak	400	0	VERTICAL
6	399.57	36.54	46.00	-9.46	45.96	2.30	16.50	28.22	Peak	400	0	VERTICAL
7	500.45	35.79	46.00	-10.21	44.00	2.67	17.80	28.68	Peak	400	0	VERTICAL

Note:

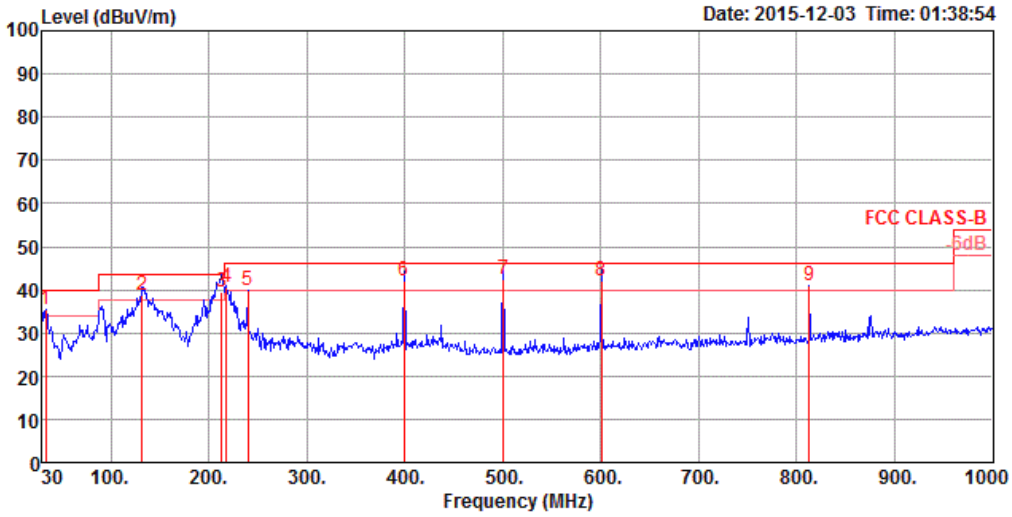
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

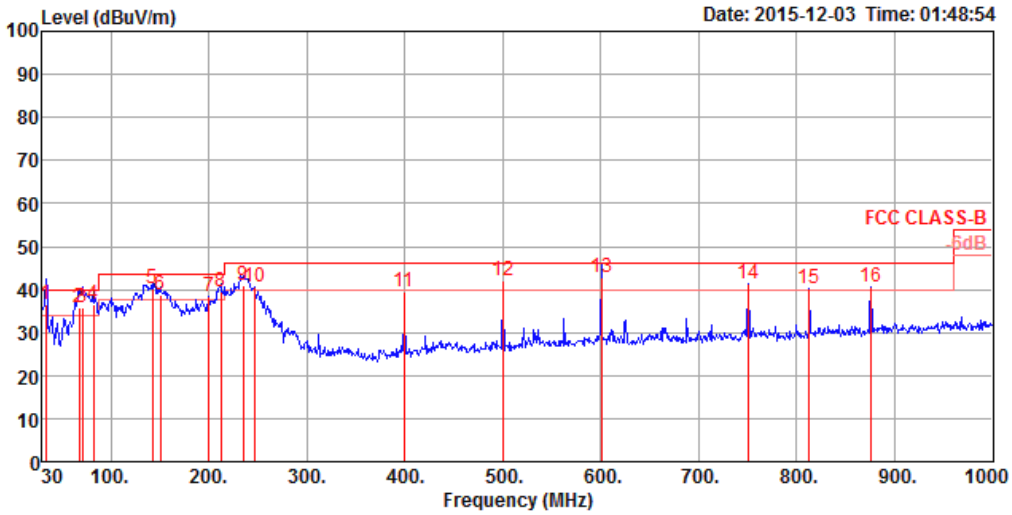
Temperature	24°C	Humidity	65%
Test Engineer	Mars Lin	Configurations	Normal Link
Test Mode	Mode 2		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	33.88	35.54	40.00	-4.46	49.72	0.51	17.71	32.40	100	324	Peak	HORIZONTAL
2	131.85	38.67	43.50	-4.83	57.46	0.99	12.59	32.37	100	220	QP	HORIZONTAL
3	213.33	39.40	43.50	-4.10	59.80	1.25	10.67	32.32	100	203	QP	HORIZONTAL
4	218.18	40.62	46.00	-5.38	61.05	1.27	10.62	32.32	100	226	Peak	HORIZONTAL
5	239.52	40.03	46.00	-5.97	58.80	1.32	12.22	32.31	100	194	Peak	HORIZONTAL
6	399.57	42.12	46.00	-3.88	56.06	1.73	16.66	32.33	100	353	QP	HORIZONTAL
7	500.45	42.31	46.00	-3.69	54.60	1.94	18.12	32.35	100	8	QP	HORIZONTAL
8	600.36	42.15	46.00	-3.85	53.24	2.12	19.20	32.41	100	167	QP	HORIZONTAL
9	812.79	41.07	46.00	-4.93	49.83	2.48	20.94	32.18	100	215	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	33.88	36.36	40.00	-3.64	50.54	0.51	17.71	32.40	100	79	QP	VERTICAL
2	67.83	35.93	40.00	-4.07	60.90	0.71	6.72	32.40	100	217	QP	VERTICAL
3	70.74	35.70	40.00	-4.30	60.61	0.72	6.77	32.40	100	209	QP	VERTICAL
4	82.38	36.42	40.00	-3.58	59.99	0.79	8.04	32.40	100	314	QP	VERTICAL
5	142.52	40.39	43.50	-3.11	59.83	1.02	11.90	32.36	100	314	QP	VERTICAL
6	150.28	38.65	43.50	-4.85	58.69	1.05	11.27	32.36	100	242	QP	VERTICAL
7	199.75	38.30	43.50	-5.20	58.81	1.22	10.60	32.33	100	260	Peak	VERTICAL
8	212.36	39.39	43.50	-4.11	59.78	1.25	10.68	32.32	100	171	QP	VERTICAL
9	234.67	41.05	46.00	-4.95	60.25	1.31	11.80	32.31	100	355	QP	VERTICAL
10	246.31	40.67	46.00	-5.33	58.93	1.33	12.71	32.30	100	10	Peak	VERTICAL
11	399.57	39.61	46.00	-6.39	53.55	1.73	16.66	32.33	100	254	Peak	VERTICAL
12	500.45	41.96	46.00	-4.04	54.25	1.94	18.12	32.35	100	236	Peak	VERTICAL
13	600.36	42.87	46.00	-3.13	53.96	2.12	19.20	32.41	100	173	QP	VERTICAL
14	750.71	41.40	46.00	-4.60	50.93	2.37	20.40	32.30	100	158	Peak	VERTICAL
15	812.79	40.22	46.00	-5.78	48.98	2.48	20.94	32.18	100	0	Peak	VERTICAL
16	875.84	40.66	46.00	-5.34	48.52	2.55	21.45	31.86	100	71	Peak	VERTICAL

Note:

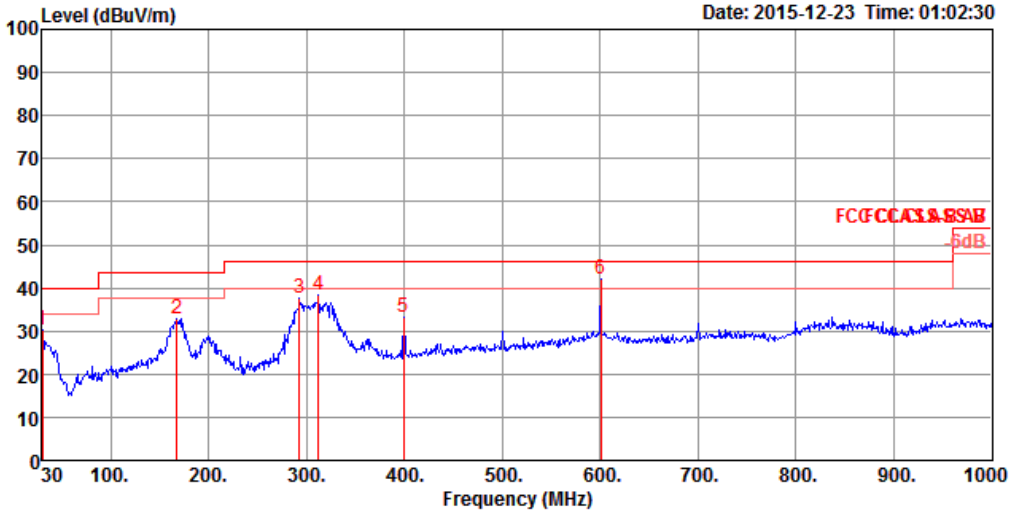
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

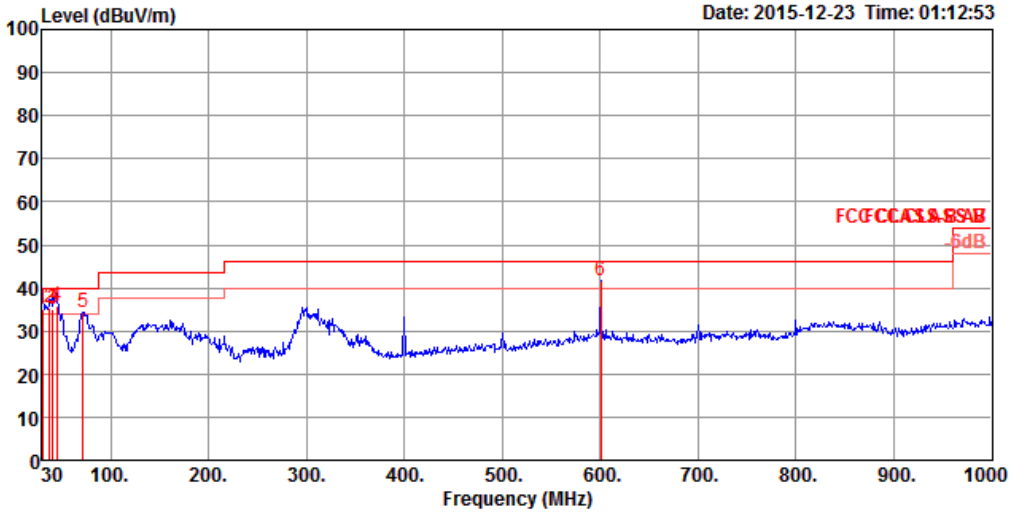
Temperature	24°C	Humidity	65%
Test Engineer	Mars Lin	Configurations	Normal Link
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.00	30.35	40.00	-9.65	42.16	0.49	20.10	32.40	100	3	Peak	HORIZONTAL
2	167.74	32.89	43.50	-10.61	53.72	1.11	10.41	32.35	150	82	Peak	HORIZONTAL
3	292.87	37.82	46.00	-8.18	54.88	1.46	13.76	32.28	100	228	Peak	HORIZONTAL
4	312.27	38.23	46.00	-7.77	54.76	1.51	14.25	32.29	125	106	Peak	HORIZONTAL
5	399.57	33.03	46.00	-12.97	46.97	1.73	16.66	32.33	100	261	Peak	HORIZONTAL
6	600.36	42.05	46.00	-3.95	53.14	2.12	19.20	32.41	150	251	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.00	35.20	40.00	-4.80	47.01	0.49	20.10	32.40	125	242	QP	VERTICAL
2	37.76	35.39	40.00	-4.61	51.90	0.53	15.36	32.40	100	241	QP	VERTICAL
3	40.67	35.21	40.00	-4.79	53.38	0.55	13.69	32.41	100	257	QP	VERTICAL
4	44.55	35.95	40.00	-4.05	56.22	0.59	11.55	32.41	100	314	QP	VERTICAL
5	71.71	34.28	40.00	-5.72	59.08	0.73	6.87	32.40	150	215	Peak	VERTICAL
6	600.36	41.63	46.00	-4.37	52.72	2.12	19.20	32.41	100	179	Peak	VERTICAL

Note:

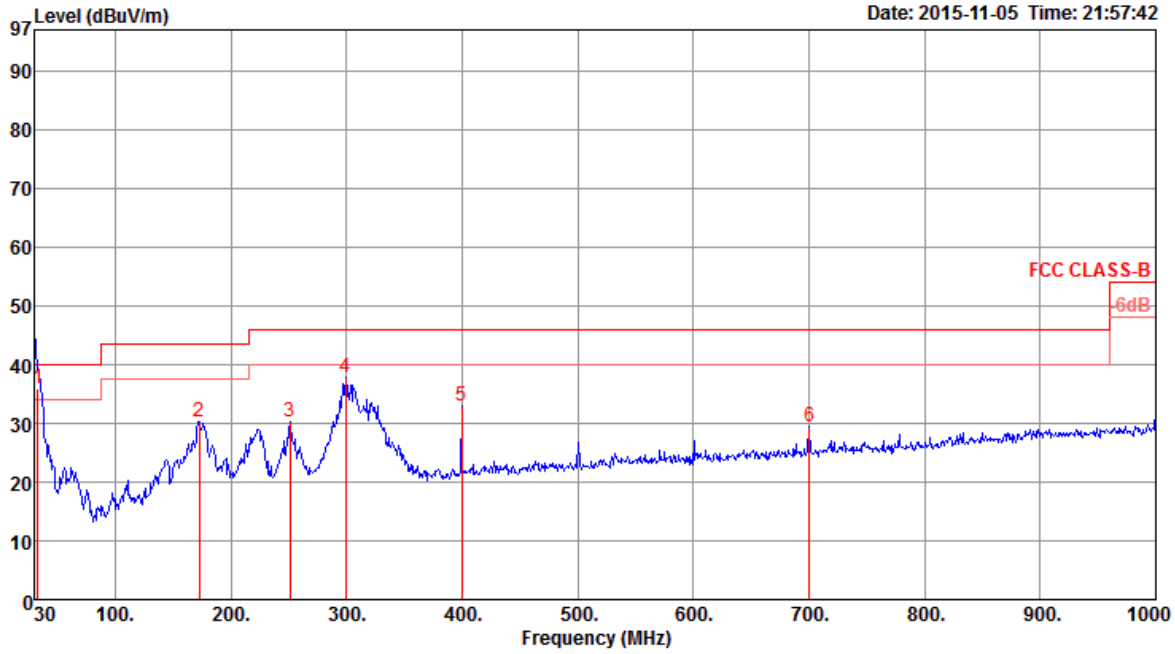
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

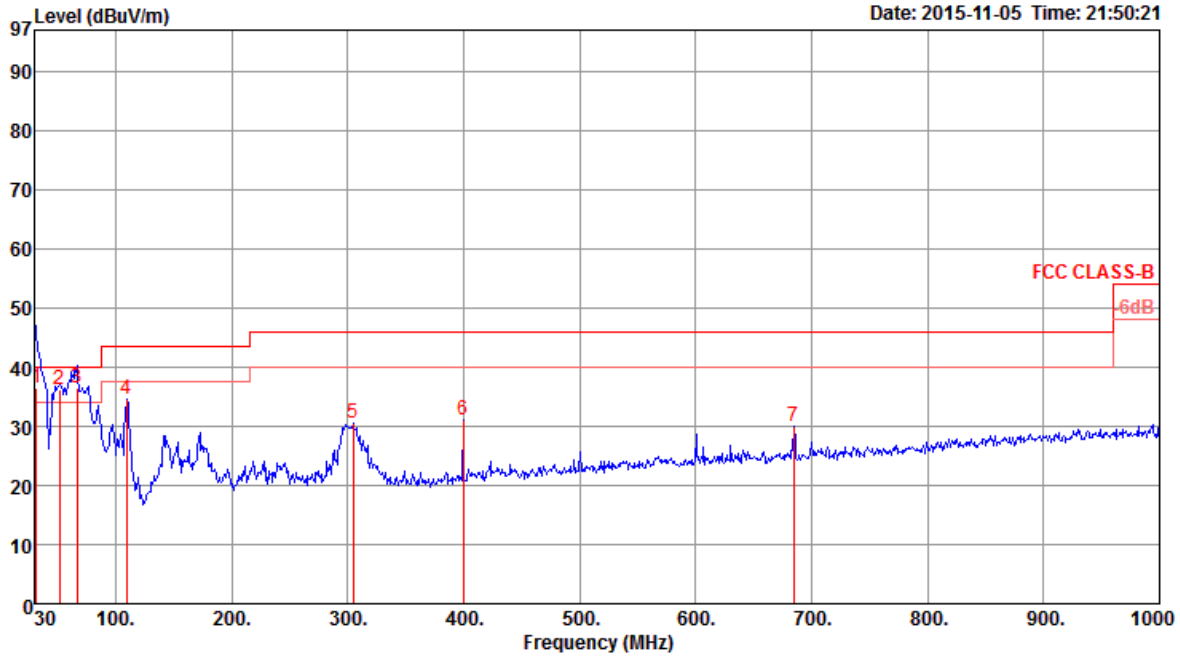
Temperature	24°C	Humidity	65%
Test Engineer	Mars Lin	Configurations	Normal Link
Test Mode	Mode 4		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	32.97	35.96	40.00	-4.04	44.18	0.66	18.36	27.24	QP	100	56	HORIZONTAL
2	172.59	30.40	43.50	-13.10	46.73	1.51	10.04	27.88	Peak	100	0	HORIZONTAL
3	251.16	30.15	46.00	-15.85	42.77	1.78	13.20	27.60	Peak	100	0	HORIZONTAL
4	299.66	37.84	46.00	-8.16	49.39	2.03	13.90	27.48	Peak	100	0	HORIZONTAL
5	399.57	33.04	46.00	-12.96	42.46	2.30	16.50	28.22	Peak	100	0	HORIZONTAL
6	700.27	29.36	46.00	-16.64	35.16	3.10	19.70	28.60	Peak	100	0	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	31.97	36.42	40.00	-3.58	43.98	0.65	18.94	27.15	QP	100	246	VERTICAL
2	51.34	36.14	40.00	-3.86	54.78	0.86	8.97	28.47	QP	100	78	VERTICAL
3	66.86	36.37	40.00	-3.63	56.99	0.96	6.83	28.41	QP	100	74	VERTICAL
4	109.54	34.63	43.50	-8.87	49.34	1.23	12.30	28.24	Peak	400	0	VERTICAL
5	304.51	30.66	46.00	-15.34	42.11	2.04	14.02	27.51	Peak	400	0	VERTICAL
6	399.57	30.99	46.00	-15.01	40.41	2.30	16.50	28.22	Peak	400	0	VERTICAL
7	684.75	29.99	46.00	-16.01	35.90	3.07	19.64	28.62	Peak	400	0	VERTICAL

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.6.9. Results for Radiated Emissions (1GHz~10th Harmonic)

Temperature	24°C	Humidity	65%
Test Date	Oct. 30, 2015	Configurations	BR (GFSK) / Channel 0
Test Engineer	Peter Wu		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4804.08	4.07	54.00	-49.93	-2.05	6.13	33.08	33.09	191	171	Average	HORIZONTAL
2	4804.08	46.45	74.00	-27.55	40.33	6.13	33.08	33.09	191	171	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4804.51	3.77	54.00	-50.23	-2.35	6.13	33.08	33.09	187	168	Average	VERTICAL
2	4804.51	46.15	74.00	-27.85	40.03	6.13	33.08	33.09	187	168	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Date	Oct. 30, 2015	Configurations	BR (GFSK) / Channel 39
Test Engineer	Peter Wu		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4881.10	3.96	54.00	-50.04	-2.27	6.08	33.23	33.08	180	192	Average	HORIZONTAL
2	4881.10	46.34	74.00	-27.66	40.11	6.08	33.23	33.08	180	192	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4881.18	4.25	54.00	-49.75	-1.98	6.08	33.23	33.08	194	187	Average	VERTICAL
2	4881.18	46.63	74.00	-27.37	40.40	6.08	33.23	33.08	194	187	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Date	Oct. 30, 2015	Configurations	BR (GFSK) / Channel 78
Test Engineer	Peter Wu		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4960.23	4.14	54.00	-49.86	-2.26	6.04	33.42	33.06	183	206	Average	HORIZONTAL
2	4960.23	46.52	74.00	-27.48	40.12	6.04	33.42	33.06	183	206	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4959.99	3.97	54.00	-50.03	-2.43	6.04	33.42	33.06	177	201	Average	VERTICAL
2	4959.99	46.35	74.00	-27.65	39.95	6.04	33.42	33.06	177	201	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Date	Oct. 30, 2015	Configurations	EDR (8DPSK) / Channel 0
Test Engineer	Peter Wu		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4804.28	21.53	54.00	-32.47	15.41	6.13	33.08	33.09	185	157	Average	HORIZONTAL
2	4804.28	46.26	74.00	-27.74	40.14	6.13	33.08	33.09	185	157	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4803.75	22.32	54.00	-31.68	16.20	6.13	33.08	33.09	183	148	Average	VERTICAL
2	4803.75	47.05	74.00	-26.95	40.93	6.13	33.08	33.09	183	148	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Date	Oct. 30, 2015	Configurations	EDR (8DPSK) / Channel 39
Test Engineer	Peter Wu		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4882.11	21.73	54.00	-32.27	15.50	6.08	33.23	33.08	178	133	Average	HORIZONTAL
2	4882.11	46.46	74.00	-27.54	40.23	6.08	33.23	33.08	178	133	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4881.70	21.46	54.00	-32.54	15.23	6.08	33.23	33.08	184	124	Average	VERTICAL
2	4881.70	46.19	74.00	-27.81	39.96	6.08	33.23	33.08	184	124	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Date	Oct. 30, 2015	Configurations	EDR (8DPSK) / Channel 78
Test Engineer	Peter Wu		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4960.96	21.78	54.00	-32.22	15.38	6.04	33.42	33.06	186	118	Average	HORIZONTAL
2	4960.96	46.51	74.00	-27.49	40.11	6.04	33.42	33.06	186	118	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4959.99	22.63	54.00	-31.37	16.23	6.04	33.42	33.06	183	112	Average	VERTICAL
2	4959.99	47.36	74.00	-26.64	40.96	6.04	33.42	33.06	183	112	Peak	VERTICAL

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level.

4.7. Emissions Measurement

4.7.1. Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

4.7.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (20dBc in any 100 kHz bandwidth emission)	100 kHz /100 kHz for Peak

4.7.3. Test Procedures

For Radiated band edges Measurement:

1. The test procedure is the same as section 4.6.3.

For Radiated Out of Band Emission Measurement:

1. The test procedure is follow 15.247(d).

4.7.4. Test Setup Layout

For Radiated band edges Measurement:

This test setup layout is the same as that shown in section 4.6.4.

For Radiated Out of Band Emission Measurement:

This test setup layout is the same as that shown in section 4.6.4.

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

Temperature	24°C	Humidity	65%
Test Date	Oct. 30, 2015	Configurations	BR (GFSK) / Channel 0, 39, 78
Test Engineer	Peter Wu		

Channel 0

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2381.80	17.93	54.00	-36.07	-14.72	4.37	28.28	0.00	222	338	Average	VERTICAL
2	2381.80	60.31	74.00	-13.69	27.66	4.37	28.28	0.00	222	338	Peak	VERTICAL
3	2402.20	64.72			32.00	4.41	28.31	0.00	222	338	Average	VERTICAL
4	2402.20	107.10			74.38	4.41	28.31	0.00	222	338	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2402 MHz.

Channel 39

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	14.36	54.00	-39.64	-18.36	4.41	28.31	0.00	226	360	Average	VERTICAL
2	2390.00	56.74	74.00	-17.26	24.02	4.41	28.31	0.00	226	360	Peak	VERTICAL
3	2441.40	65.89			33.00	4.48	28.41	0.00	226	360	Average	VERTICAL
4	2441.40	108.27			75.38	4.48	28.41	0.00	226	360	Peak	VERTICAL
5	2499.00	14.64	54.00	-39.36	-18.41	4.55	28.50	0.00	226	360	Average	VERTICAL
6	2499.00	57.02	74.00	-16.98	23.97	4.55	28.50	0.00	226	360	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2441 MHz.

Channel 78

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2480.20	65.90			32.92	4.51	28.47	0.00	229	0	Average	HORIZONTAL
2	2480.20	108.28			75.30	4.51	28.47	0.00	229	0	Peak	HORIZONTAL
3	2483.50	15.62	54.00	-38.38	-17.36	4.51	28.47	0.00	229	0	Average	HORIZONTAL
4	2483.50	58.00	74.00	-16.00	25.02	4.51	28.47	0.00	229	0	Peak	HORIZONTAL
5	2500.00	20.24	54.00	-33.76	-12.81	4.55	28.50	0.00	229	0	Average	HORIZONTAL
6	2500.00	62.62	74.00	-11.38	29.57	4.55	28.50	0.00	229	0	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2480 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Temperature	24℃	Humidity	65%
Test Date	Oct. 30, 2015	Configurations	EDR (8DPSK) / Channel 0, 39, 78
Test Engineer	Peter Wu		

Channel 0

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2381.80	35.40	54.00	-18.60	2.75	4.37	28.28	0.00	227	354	Average	VERTICAL
2	2381.80	60.13	74.00	-13.87	27.48	4.37	28.28	0.00	227	354	Peak	VERTICAL
3	2401.80	80.64			47.92	4.41	28.31	0.00	227	354	Average	VERTICAL
4	2401.80	105.37			72.65	4.41	28.31	0.00	227	354	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2402 MHz.

Channel 39

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	31.34	54.00	-22.66	-1.38	4.41	28.31	0.00	228	0	Average	VERTICAL
2	2390.00	56.07	74.00	-17.93	23.35	4.41	28.31	0.00	228	0	Peak	VERTICAL
3	2441.00	81.06			48.17	4.48	28.41	0.00	228	0	Average	VERTICAL
4	2441.00	105.79			72.90	4.48	28.41	0.00	228	0	Peak	VERTICAL
5	2494.30	33.31	54.00	-20.69	0.26	4.55	28.50	0.00	228	0	Average	VERTICAL
6	2494.30	58.04	74.00	-15.96	24.99	4.55	28.50	0.00	228	0	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2441 MHz.

Channel 78

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2479.80	81.15			48.17	4.51	28.47	0.00	228	0	Average	HORIZONTAL
2	2479.80	105.88			72.90	4.51	28.47	0.00	228	0	Peak	HORIZONTAL
3	2483.50	34.06	54.00	-19.94	1.08	4.51	28.47	0.00	228	0	Average	HORIZONTAL
4	2483.50	58.79	74.00	-15.21	25.81	4.51	28.47	0.00	228	0	Peak	HORIZONTAL
5	2500.00	35.80	54.00	-18.20	2.75	4.55	28.50	0.00	228	0	Average	HORIZONTAL
6	2500.00	60.53	74.00	-13.47	27.48	4.55	28.50	0.00	228	0	Peak	HORIZONTAL

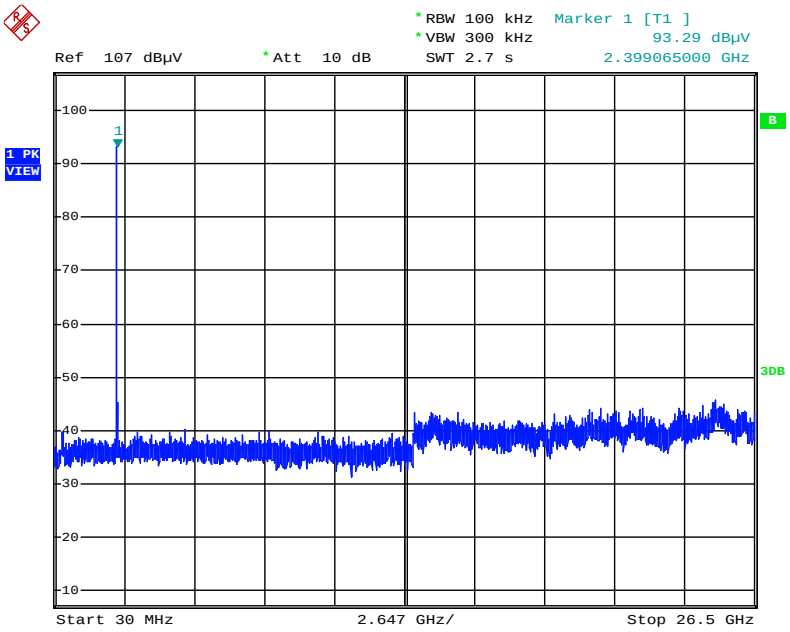
Item 1, 2 are the fundamental frequency at 2480 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

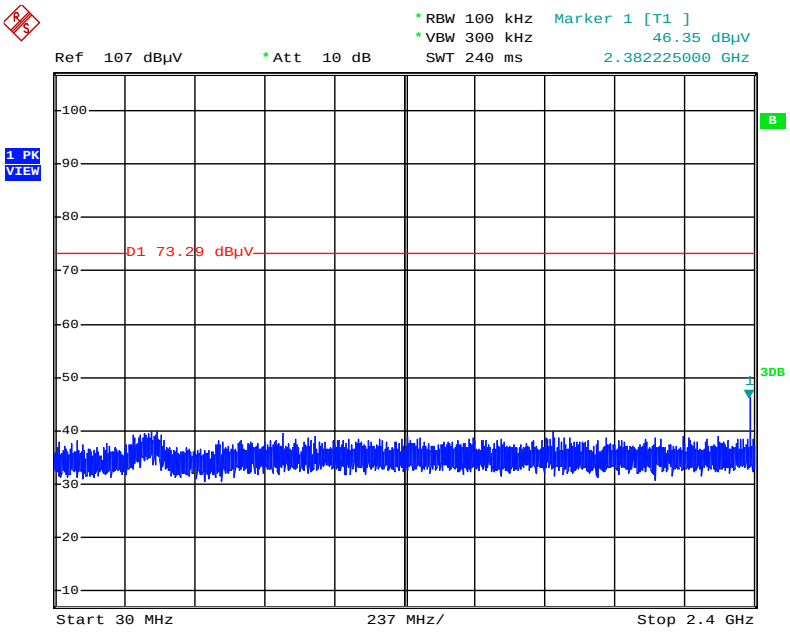
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Plot on Configuration For BR (GFSK) / Channel 0 / Reference Level



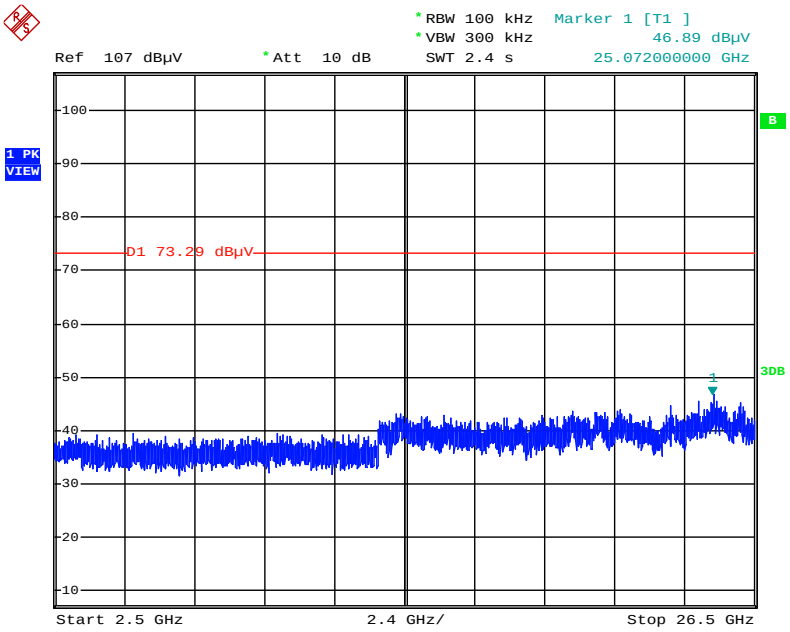
Date: 30.OCT.2015 02:11:08

Plot on Configuration For BR (GFSK) / Channel 0 / 30MHz~2400MHz (down 20dBc)



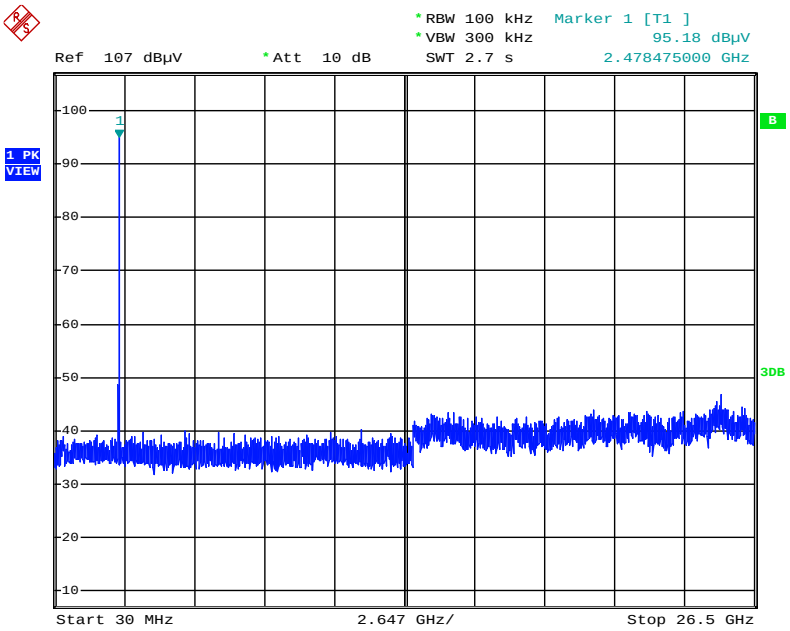
Date: 30.OCT.2015 02:11:43

Plot on Configuration For BR (GFSK) / Channel 0 / 2500MHz~26500MHz (down 20dBc)



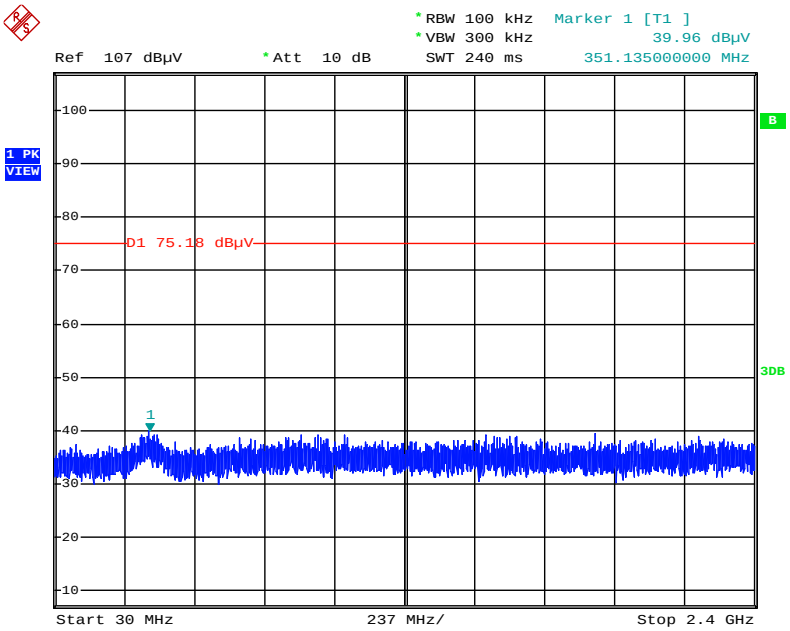
Date: 30.OCT.2015 02:12:07

Plot on Configuration For BR (GFSK) / Channel 78 / Reference Level



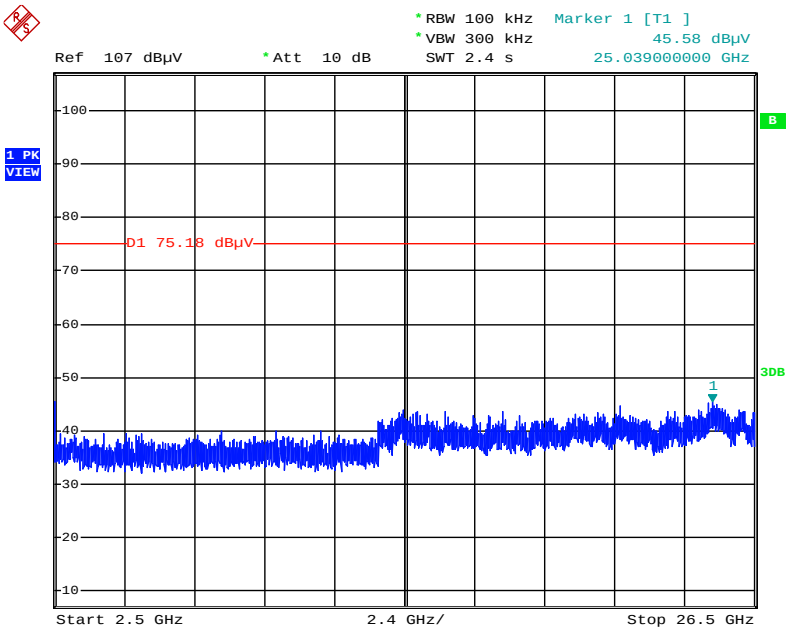
Date: 30.OCT.2015 02:09:06

Plot on Configuration For BR (GFSK) / Channel 78 / 30MHz~2400MHz (down 20dBc)



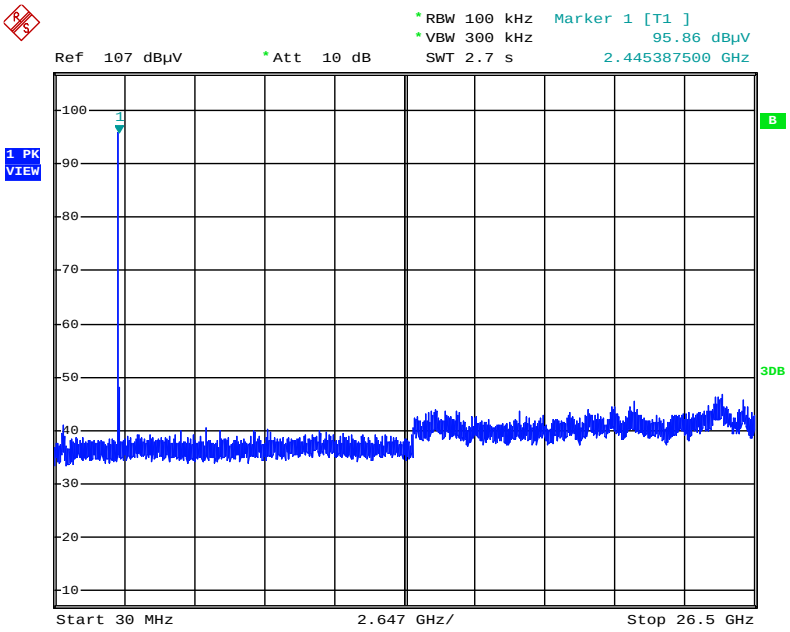
Date: 30.OCT.2015 02:09:43

Plot on Configuration For BR (GFSK) / Channel 78 / 2500MHz~26500MHz (down 20dBc)



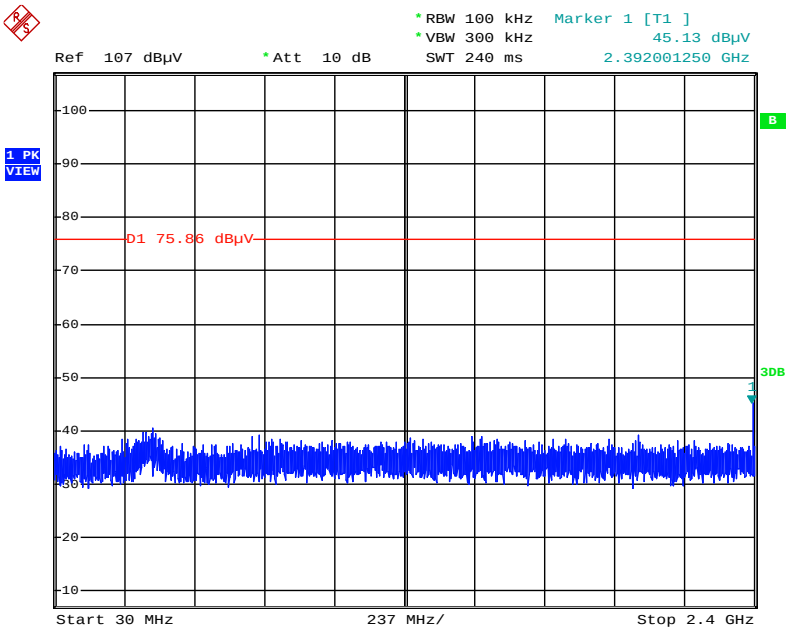
Date: 30.OCT.2015 02:10:14

Plot on Configuration For BR (GFSK) / Hopping / Reference Level



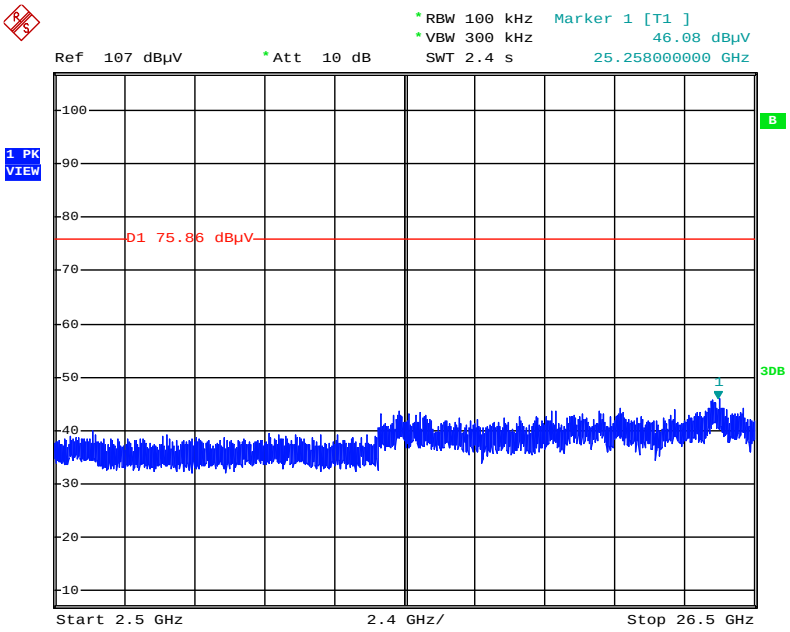
Date: 30.OCT.2015 02:17:39

Plot on Configuration For BR (GFSK) / Hopping / 30MHz~2400MHz (down 20dBc)



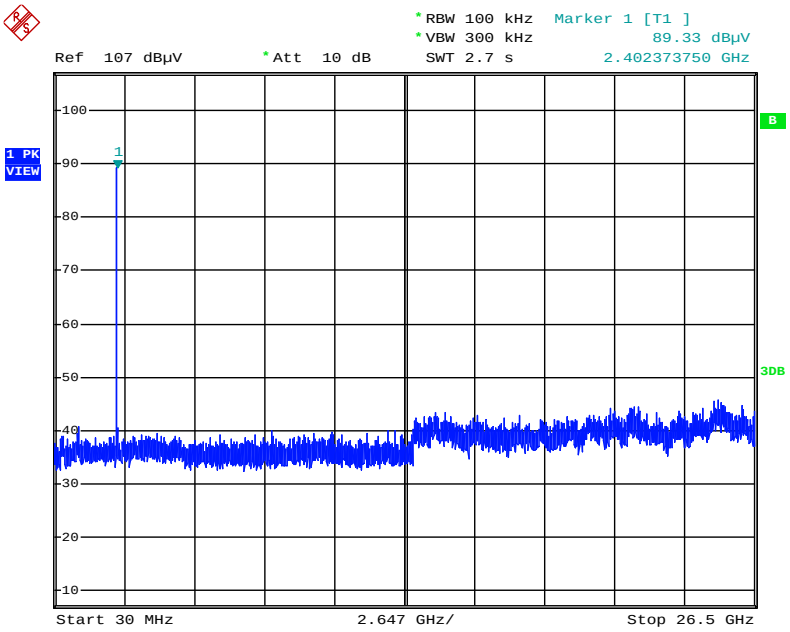
Date: 30.OCT.2015 02:18:12

Plot on Configuration For BR (GFSK) / Hopping / 2500MHz~26500MHz (down 20dBc)



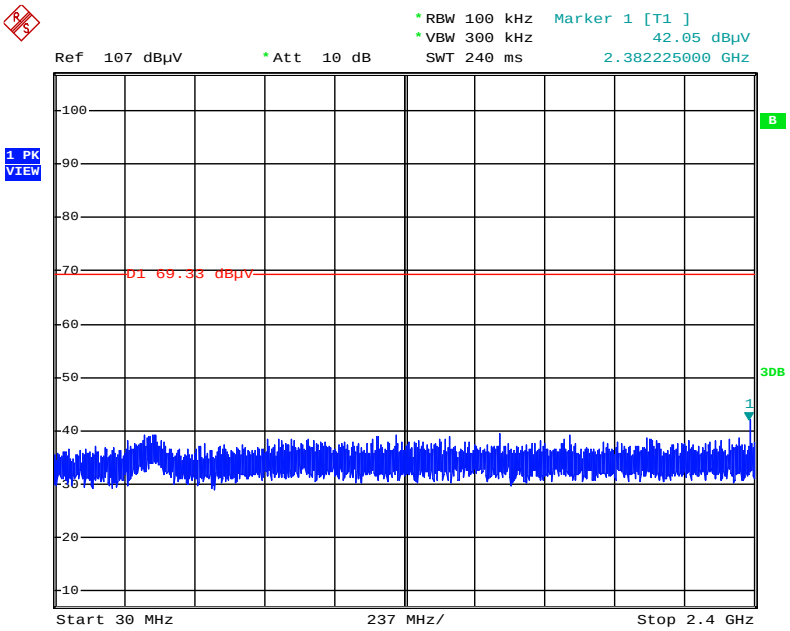
Date: 30.OCT.2015 02:18:32

Plot on Configuration For EDR (8DPSK) / Channel 0 / Reference Level



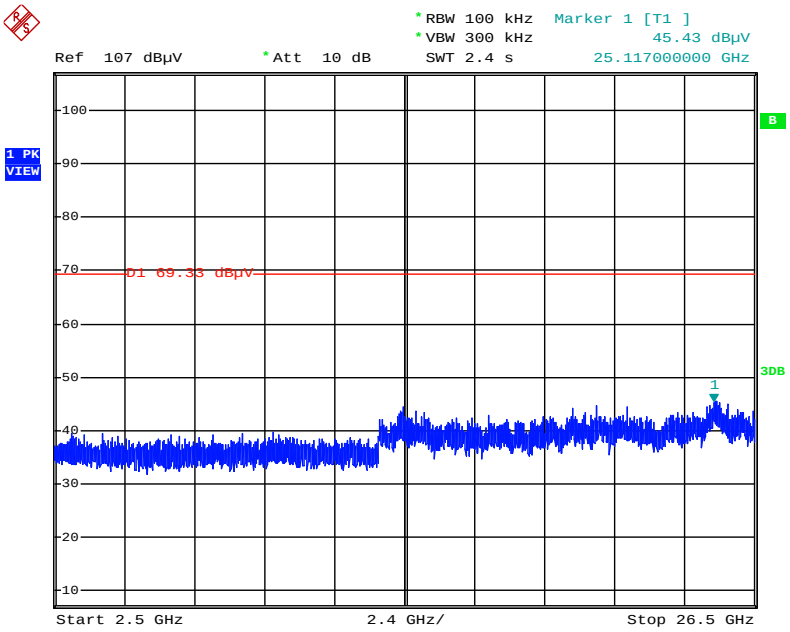
Date: 30.OCT.2015 02:13:25

Plot on Configuration For EDR (8DPSK) / Channel 0 / 30MHz~2400MHz (down 20dBc)



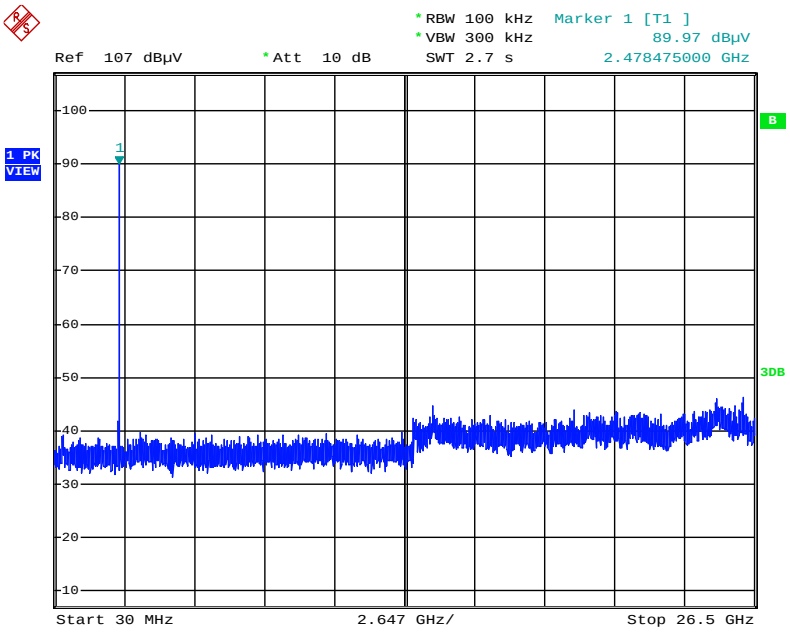
Date: 30.OCT.2015 02:13:55

Plot on Configuration For EDR (8DPSK) / Channel 0 / 2500MHz~26500MHz (down 20dBc)



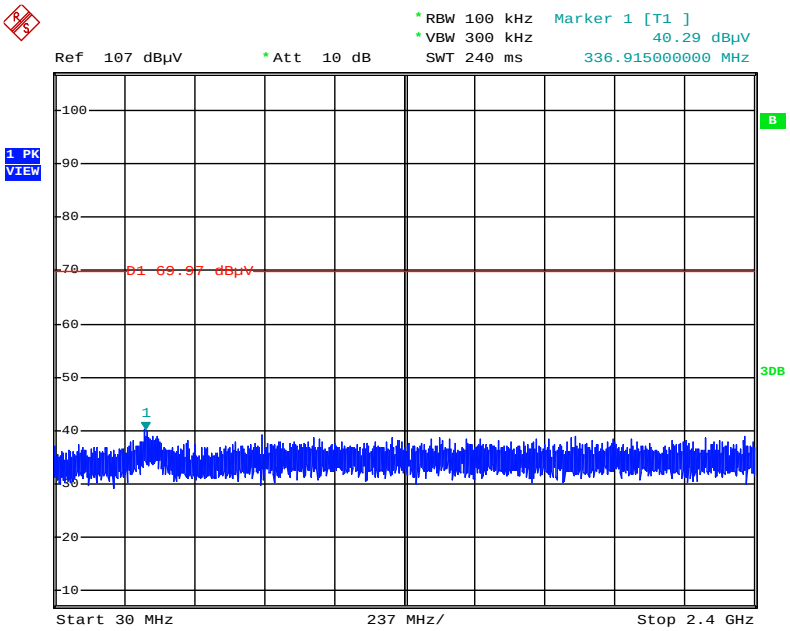
Date: 30.OCT.2015 02:14:16

Plot on Configuration For EDR (8DPSK) / Channel 78 / Reference Level



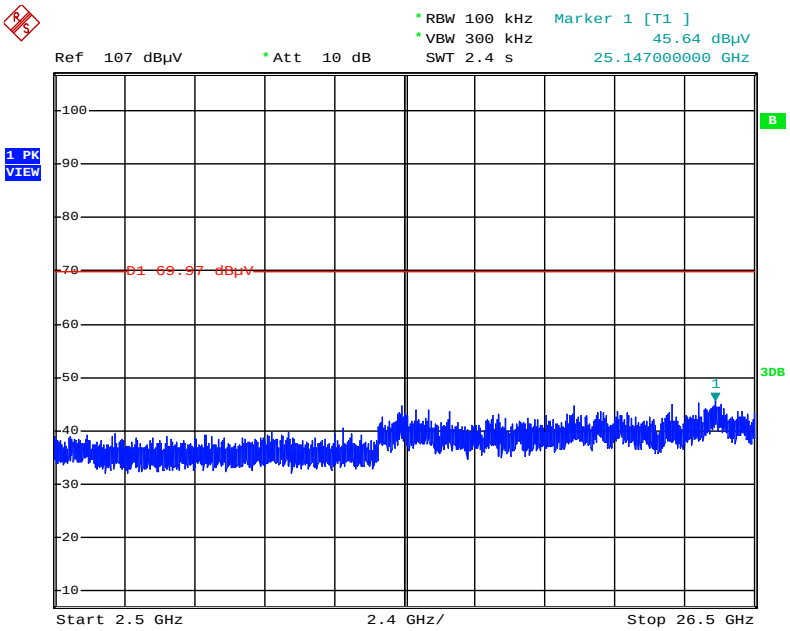
Date: 30.OCT.2015 02:15:18

Plot on Configuration For EDR (8DPSK) / Channel 78 / 30MHz~2400MHz (down 20dBc)



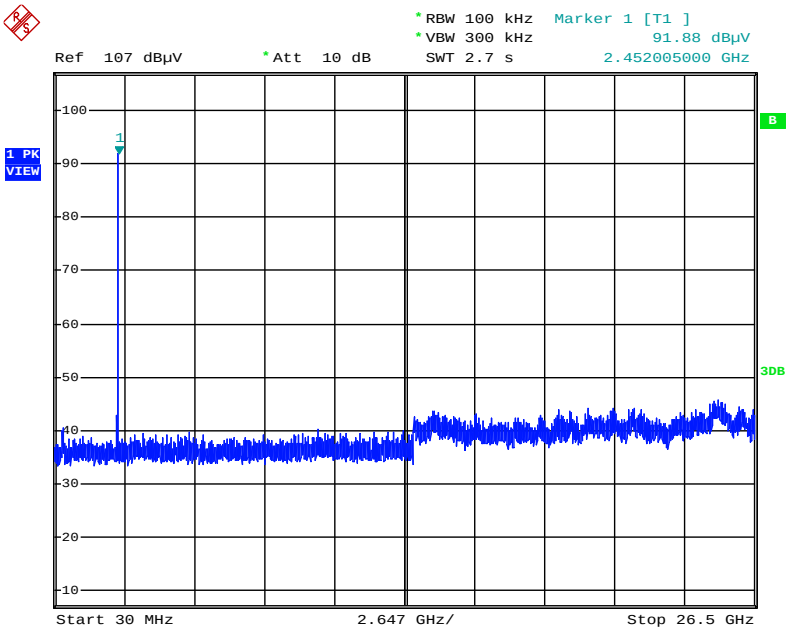
Date: 30.OCT.2015 02:15:59

Plot on Configuration For EDR (8DPSK) / Channel 78 / 2500MHz~26500MHz (down 20dBc)



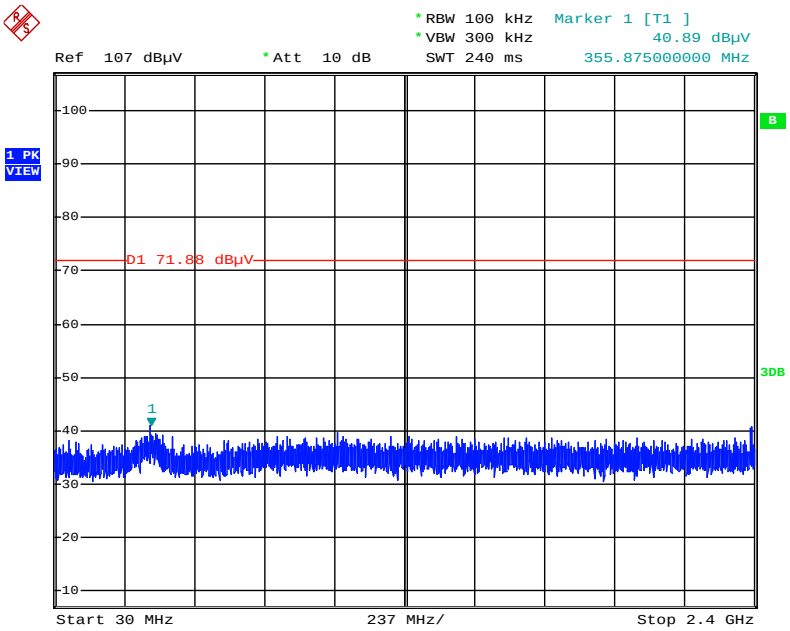
Date: 30.OCT.2015 02:16:21

Plot on Configuration For EDR (8DPSK) / Hopping / Reference Level



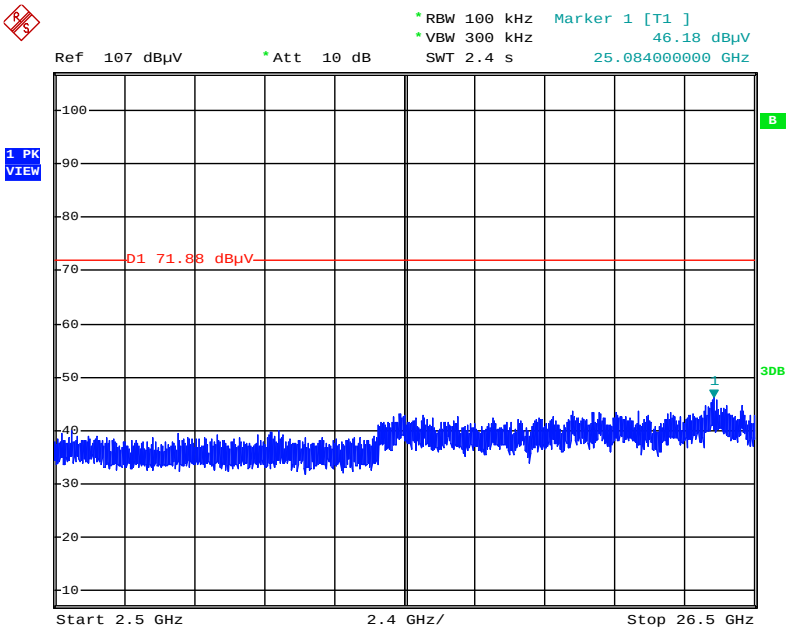
Date: 30.OCT.2015 02:19:52

Plot on Configuration For EDR (8DPSK) / Hopping / 30MHz~2400MHz (down 20dBc)



Date: 30.OCT.2015 02:20:32

Plot on Configuration For EDR (8DPSK) / Hopping / 2500MHz~26500MHz (down 20dBc)



Date: 30.OCT.2015 02:20:50

4.8. Antenna Requirements

4.8.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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 provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

4.8.2. Antenna Connector Construction

Please refer to section 3.3 in this test report, antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100355	9kHz ~ 2.75GHz	Apr. 22, 2015	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 02, 2014	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 02, 2014	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	Dec. 03, 2014	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	37880	20MHz ~ 2GHz	Sep. 03, 2015	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Feb. 24, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 12, 2015	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Feb.10, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
EMI Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8.4GHz	Jan. 21, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 12, 2015*	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 12, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)

RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 03, 2014	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.

* Calibration Interval of instruments listed above is two years.

N.C.R. means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%