

FCC PART 15.247

TEST REPORT

For

Shenzhen Rapoo Technology Co., Ltd.

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Shenzhen, Guangdong, China

FCC ID: PP2A3020

Report Type: Original Report	Product Type: Bluetooth Mini Speaker
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Report Date: <u>2012-09-29</u>	
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Shenzhen Rapoo Technology Co., Ltd.*'s product, model number: A3020 (FCC ID: PP2A3020) or ("EUT") in this report is a Bluetooth Mini Speaker, which was measured approximately: 16.8 cm (L) x 3.3 cm (W) x 5.0 cm (H), rated input voltage: DC 3.7V from Lithium battery or DC 5.0V from USB port of system.

Frequency Range: 2402-2480 MHz

Output Power: 4.29dBm (conducted)

** All measurement and test data in this report was gathered from production sample serial number: 120921005 (Assigned by BACL, Dongguan). The EUT was received on 2012-09-21.*

Objective

This report is prepared on behalf of *Shenzhen Rapoo Technology Co., Ltd.* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine the Bluetooth of EUT compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

The uncertainty of any RF tests which use conducted method measurement is ± 0.96 dB, the uncertainty of any radiation on emissions measurement is ± 4.0 dB

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 02, 2012. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode, which is provided by manufacturer.

EUT Exercise Software

CSR BlueSuite

Equipment Modifications

No modification was made to the EUT tested.

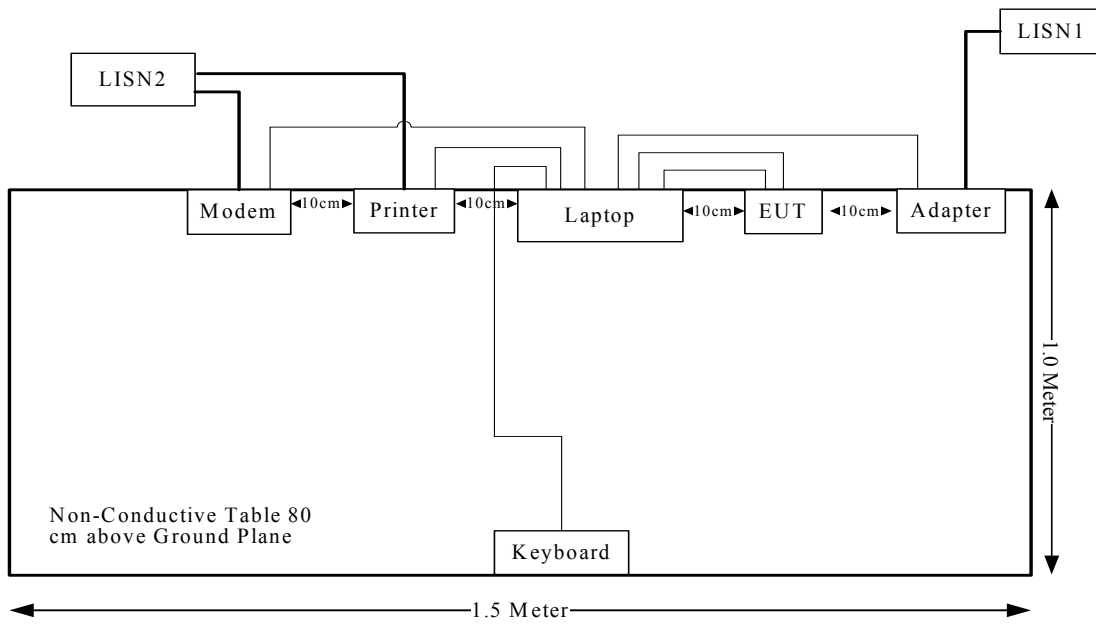
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
HP	Printer	C3941A	JPTVOB2337
SAST	Modem	AEM-2100	0293
DELL	Keyboard	L100	CNORH656658907BL05DC
DELL	Laptop	PP11L	QDS-BRCM1017

External Cable

Cable Description	Length (m)	From Port	To
Shielded Detachable Printer Cable	1.2	Parallel Port of Laptop	Printer
Shielded Detachable Serial Cable	1.2	Serial Port of Laptop	Modem
Shielded Detachable Keyboard Cable	1.5	Keyboard Port of Laptop	Keyboard
USB Cable	1.0	USB Port of Laptop	EUT
Audio Cable	1.5	Audio Port of Laptop	EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §2.1091	RF Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Radiated Emissions	Compliance
§15.247 (a)(1)	20 dB Bandwidth	Compliance
§15.247(a)(1)	Channel Separation Test	Compliance
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliance
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliance
§15.247(b)(1)	Peak Output Power Measurement	Compliance
§15.247(d)	Band Edges	Compliance

FCC §15.247 (i) & §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.407(f) and subpart §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission’s guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz;
 * = Plane-wave equivalent power density;

MPE Calculation

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where: S= power density (in appropriate units, e.g. mW/cm²);
 P = power input to the antenna (in appropriate units, e.g., mW);
 G = Antenna gain;
 R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Frequency (MHz)	Antenna Gain		Peak Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	(numeric)	(dBm)	(mW)			
2480	-0.87	0.82	4.29	2.685	20	0.0004	1.0

Result: The device meets FCC MPE at 20 cm distance

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to FCC §15.203, 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 a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Antenna Connector Construction

The EUT has an internal PCB antenna permanently attached on the the printed circuit boards, which complied with 15.203, the maximum gain is -0.87 dBi, please refer to the internal photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

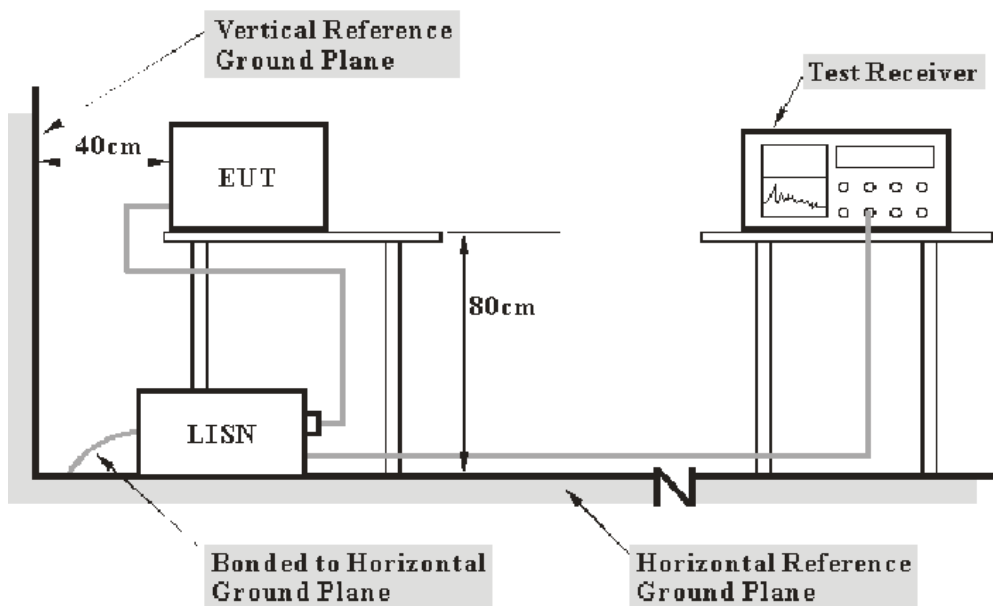
FCC §15.207

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratory Corp. (Dongguan) is 2.4 dB(k=2, 95% level of confidence), and the uncertainty will not be taken into consideration for all the test data recorded in the report.

EUT Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<u>Frequency Range</u>	<u>IF BW</u>
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS 30	830245/006	2011-10-8	2012-10-7
Rohde & Schwarz	LISN	ESH3-Z5	843331/015	2011-10-8	2012-10-7
Rohde & Schwarz	LISN	ESH3-Z5	100113	2011-10-8	2012-10-7

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207, with the worst margin reading of:

4.63 dB at 0.580 MHz in the **Neutral** conducted mode

Test Data

Environmental Conditions

Temperature:	27.8 °C
Relative Humidity:	62 %
ATM Pressure:	100.5 kPa

The testing was performed by Leon Chen on 2012-09-27.

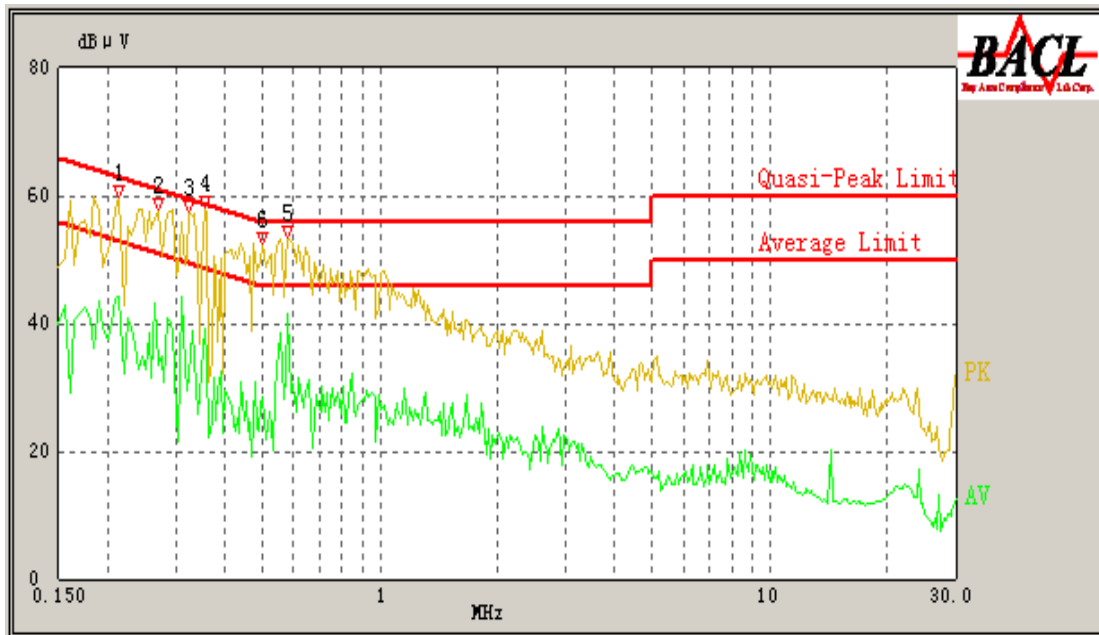
Test Mode: Transmitting

120 V, 60 Hz, Line:



Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/QP/Ave.)
0.280	45.19	0.42	52.29	7.10	Ave.
0.320	42.78	0.42	51.14	8.36	Ave.
0.605	44.64	0.43	56.00	11.36	QP
0.320	49.20	0.42	61.14	11.94	QP
0.250	41.17	0.42	53.14	11.97	Ave.
0.605	32.17	0.43	46.00	13.83	Ave.
0.390	33.80	0.42	49.14	15.34	Ave.
0.280	45.93	0.42	62.29	16.36	QP
0.775	28.15	0.44	46.00	17.85	Ave.
0.775	36.41	0.44	56.00	19.59	QP
0.250	42.61	0.42	63.14	20.53	QP
0.390	37.73	0.42	59.14	21.41	QP

120V, 60 Hz, Neutral:



Frequency (MHz)	Corrected Result (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK /QP/Ave.)
0.580	41.37	0.43	46.00	4.63	Ave.
0.325	53.07	0.42	61.00	7.93	QP
0.270	53.78	0.42	62.57	8.79	QP
0.580	47.00	0.43	56.00	9.00	QP
0.355	50.45	0.42	60.14	9.69	QP
0.215	44.11	0.42	54.14	10.03	Ave.
0.355	39.12	0.42	50.14	11.02	Ave.
0.500	44.57	0.42	56.00	11.43	QP
0.215	52.14	0.42	64.14	12.00	QP
0.500	28.50	0.42	46.00	17.50	Ave.
0.270	33.60	0.42	52.57	18.97	Ave.
0.325	31.72	0.42	51.00	19.28	Ave.

FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

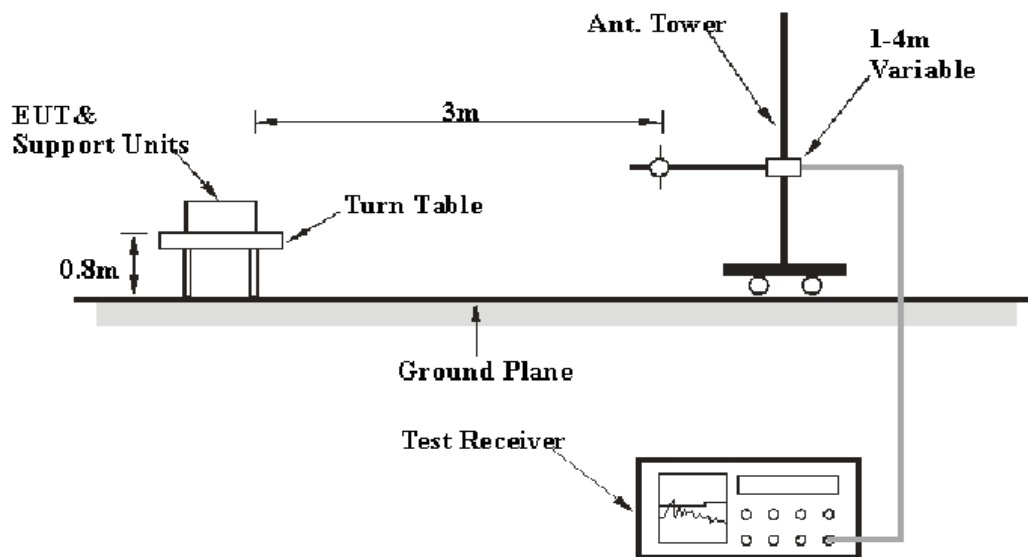
FCC §15.247 (d); §15.209; §15.205;

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Dongguan) is 4.0 dB(k=2, 95% level of confidence), and the uncertainty will not be taken into consideration for all the test data recorded in the report.

EUT Setup



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC 15.209, and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

<i>Frequency Range</i>	<i>RBW</i>	<i>Video BW</i>	<i>Detector</i>
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 25 GHz	1 MHz	3 MHz	PK
1000 MHz – 25 GHz	1 MHz	10 Hz	Ave.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz - 1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	101121	2011-10-8	2012-10-7
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-9-6	2013-9-5
HP	Pre-amplifier	8447E	2434A02181	2011-10-8	2012-10-7
Rohde & Schwarz	Spectrum Analyzer	FSEM	1079 8500	2011-10-9	2012-10-8
Dayang	Horn Antenna	OMCDH10180	10279001B	2010-7-30	2015-7-29
Mini-Circuits	Wideband Amplifier	ZVA-183-S+	96901149	2012-5-13	2013-5-12

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, and section 15.205, 15.209 and 15.247, with the worst margin reading of:

3.12 dB at 4804 MHz in the **Horizontal** polarization (*EDR- $\pi/4$ -DQPSK mode*)

Test Data

Environmental Conditions

Temperature:	26.2 °C
Relative Humidity:	62 %
ATM Pressure:	100.5 kPa

The testing was performed by Ares Liu on 2012-09-27.

Test Mode: Transmitting (BDR- GFSK)

Frequency (MHz)	Receiver/S.A.		Antenna		Cable Loss (dB)	Amplifier Gain (dB)	Cord. Amp. (dBµV/m)	FCC 15.247/209	
	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBµV/m)	Margin (dB)
Low Channel: 2402 MHz									
2402	47.09	AV	H	31.05	3.90	27.79	54.25	N/A	N/A
2402	90.27	PK	H	31.05	3.90	27.79	97.43	N/A	N/A
2402	50.72	AV	V	31.05	3.90	27.79	57.88	N/A	N/A
2402	88.55	PK	V	31.05	3.90	27.79	95.71	N/A	N/A
4804	60.00	PK	H	33.17	4.67	27.34	70.50	74.00	3.50 *
4804	33.67	AV	H	33.17	4.67	27.34	44.17	54.00	9.83
7206	23.89	AV	H	38.67	6.50	26.54	42.52	54.00	11.48
7206	41.01	PK	H	38.67	6.50	26.54	59.64	74.00	14.36
9608	17.84	AV	V	38.52	8.75	26.39	38.71	54.00	15.29
282.26	35.32	QP	H	13.77	2.05	21.51	29.63	46.00	16.37
9608	31.62	PK	V	38.52	8.75	26.39	52.49	74.00	21.51
2390	21.24	AV	V	30.98	3.84	27.83	28.24	54.00	25.76
2390	35.62	PK	V	30.98	3.84	27.83	42.62	74.00	31.38
1362.26	18.06	AV	H	25.36	2.90	27.44	18.88	54.00	35.12
1362.26	32.31	PK	H	25.36	2.90	27.44	33.13	74.00	40.87
Middle Channel: 2441 MHz									
2441	46.25	AV	H	31.27	3.99	27.69	53.82	N/A	N/A
2441	86.49	PK	H	31.27	3.99	27.69	94.06	N/A	N/A
2441	49.92	AV	V	31.27	3.99	27.69	57.49	N/A	N/A
2441	88.24	PK	V	31.27	3.99	27.69	95.81	N/A	N/A
4882	55.1	PK	V	33.34	4.75	27.04	66.15	74.00	7.85
7323	22.35	AV	H	38.88	6.72	26.67	41.29	54.00	12.71
4882	28.32	AV	V	33.34	4.75	27.04	39.37	54.00	14.63
9764	18.32	AV	V	38.83	8.58	26.54	39.18	54.00	14.82
7323	37.52	PK	H	38.88	6.72	26.67	56.46	74.00	17.54
9764	32.21	PK	V	38.83	8.58	26.54	53.07	74.00	20.93
341.62	26.31	QP	H	14.87	2.20	21.62	21.75	46.00	24.25
1758.31	17.71	AV	V	27.20	3.37	27.45	20.83	54.00	33.17
1487.36	17.35	AV	H	25.49	3.01	27.32	18.52	54.00	35.48
1758.31	31.81	PK	V	27.20	3.37	27.45	34.93	74.00	39.07
1487.36	31.26	PK	H	25.49	3.01	27.32	32.43	74.00	41.57
High Channel: 2480 MHz									
2480	45.15	AV	H	31.49	3.82	27.75	52.70	N/A	N/A
2480	85.27	PK	H	31.49	3.82	27.75	92.82	N/A	N/A
2480	46.34	AV	V	31.49	3.82	27.75	53.89	N/A	N/A
2480	88.05	PK	V	31.49	3.82	27.75	95.60	N/A	N/A
4960	56.72	PK	V	33.51	4.70	27.26	67.67	74.00	6.33
4960	30.36	AV	V	33.51	4.70	27.26	41.31	54.00	12.69
9920	18.03	AV	H	39.14	8.41	26.70	38.88	54.00	15.12
2483.5	51.2	PK	V	31.51	3.80	27.76	58.74	74.00	15.26
7440	18.62	AV	H	39.09	6.95	26.79	37.87	54.00	16.13
2483.5	28.31	AV	V	31.51	3.80	27.76	35.85	54.00	18.15
624.57	25.31	QP	V	19.86	3.06	22.28	25.95	46.00	20.05
9920	32.54	PK	H	39.14	8.41	26.70	53.39	74.00	20.61
7440	33.62	PK	H	39.09	6.95	26.79	52.87	74.00	21.13
1347.57	17.61	AV	V	25.35	2.91	27.43	18.44	54.00	35.56
1347.57	31.84	PK	V	25.35	2.91	27.43	32.67	74.00	41.33

Test Mode: Transmitting (EDR- π /4-DQPSK)

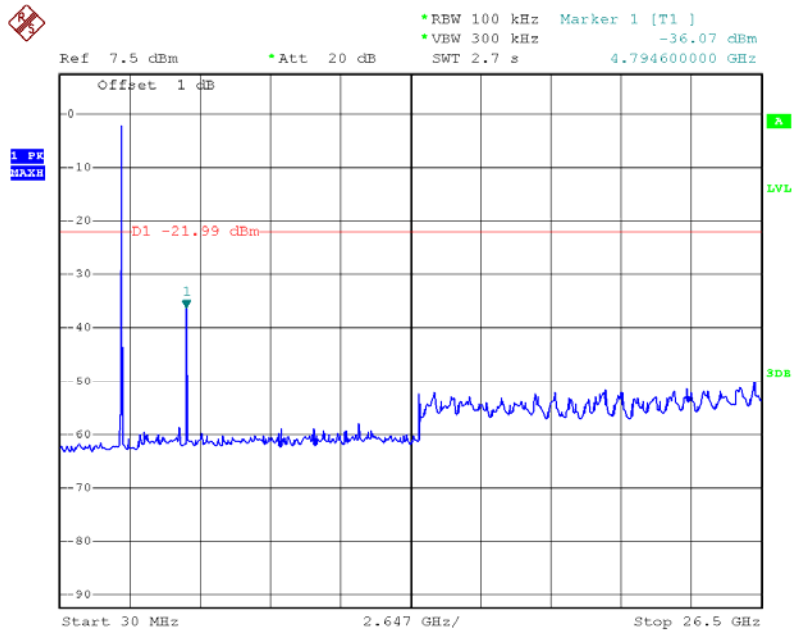
Frequency (MHz)	Receiver/S.A.		Antenna		Cable Loss (dB)	Amplifier Gain (dB)	Cord. Amp. (dB μ V/m)	FCC 15.247/209	
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dB μ V/m)	Margin (dB)
Low Channel: 2402 MHz									
2402	47.82	AV	H	31.05	3.90	27.79	54.98	N/A	N/A
2402	87.85	PK	H	31.05	3.90	27.79	95.01	N/A	N/A
2402	50.12	AV	V	31.05	3.90	27.79	57.28	N/A	N/A
2402	87.92	PK	V	31.05	3.90	27.79	95.08	N/A	N/A
4804	60.38	PK	H	33.17	4.67	27.34	70.88	74.00	3.12 *
4804	32.7	AV	V	33.17	4.67	27.34	43.20	54.00	10.80
7206	23.92	AV	H	38.67	6.50	26.54	42.55	54.00	11.45
7206	40.34	PK	H	38.67	6.50	26.54	58.97	74.00	15.03
9608	17.62	AV	V	38.52	8.75	26.39	38.49	54.00	15.51
384.69	31.24	QP	H	15.82	2.38	21.73	27.70	46.00	18.30
9608	31.68	PK	V	38.52	8.75	26.39	52.55	74.00	21.45
2390	20.72	AV	V	30.98	3.84	27.83	27.72	54.00	26.28
2390	34.66	PK	V	30.98	3.84	27.83	41.66	74.00	32.34
1536.24	17.32	AV	H	25.74	3.04	27.44	18.65	54.00	35.35
1536.24	31.48	PK	H	25.74	3.04	27.44	32.81	74.00	41.19
Middle Channel: 2441 MHz									
2441	46.57	AV	H	31.27	3.99	27.69	54.14	N/A	N/A
2441	86.11	PK	H	31.27	3.99	27.69	93.68	N/A	N/A
2441	45.85	AV	V	31.27	3.99	27.69	53.42	N/A	N/A
2441	86.17	PK	V	31.27	3.99	27.69	93.74	N/A	N/A
4882	58.15	PK	H	33.34	4.75	27.04	69.20	74.00	4.80
4882	31.34	AV	H	33.34	4.75	27.04	42.39	54.00	11.61
9764	17.32	AV	V	38.83	8.58	26.54	38.18	54.00	15.82
7323	19.05	AV	V	38.88	6.72	26.67	37.99	54.00	16.01
7323	35.32	PK	V	38.88	6.72	26.67	54.26	74.00	19.74
9764	30.95	PK	V	38.83	8.58	26.54	51.81	74.00	22.19
326.84	25.74	QP	H	14.63	2.16	21.59	20.94	46.00	25.06
1865.14	17.42	AV	V	27.91	3.57	27.45	21.44	54.00	32.56
1195.32	17.58	AV	H	25.20	2.63	27.36	18.05	54.00	35.95
1865.14	32.05	PK	V	27.91	3.57	27.45	36.07	74.00	37.93
1195.32	32.57	PK	H	25.20	2.63	27.36	33.04	74.00	40.96
High Channel: 2480 MHz									
2480	46.21	AV	H	31.49	3.82	27.75	53.76	N/A	N/A
2480	86.36	PK	H	31.49	3.82	27.75	93.91	N/A	N/A
2480	46.56	AV	V	31.49	3.82	27.75	54.11	N/A	N/A
2480	86.56	PK	V	31.49	3.82	27.75	94.11	N/A	N/A
4960	58.14	PK	V	33.51	4.70	27.26	69.09	74.00	4.91
2483.5	56.45	PK	H	31.51	3.80	27.76	63.99	74.00	10.01
4960	30.18	AV	V	33.51	4.70	27.26	41.13	54.00	12.87
9920	18.12	AV	H	39.14	8.41	26.70	38.97	54.00	15.03
7440	18.62	AV	H	39.09	6.95	26.79	37.87	54.00	16.13
2483.5	30.23	AV	H	31.51	3.80	27.76	37.77	54.00	16.23
526.54	26.84	QP	H	18.33	2.79	22.09	25.88	46.00	20.12
9920	32.85	PK	H	39.14	8.41	26.70	53.70	74.00	20.30
7440	33.62	PK	H	39.09	6.95	26.79	52.87	74.00	21.13
1458.67	17.61	AV	V	25.46	2.90	27.27	18.70	54.00	35.30
1458.67	31.84	PK	V	25.46	2.90	27.27	32.93	74.00	41.07

Test Mode: Transmitting (EDR-8DPSK)

Frequency (MHz)	Receiver/S.A.		Antenna		Cable Loss (dB)	Amplifier Gain (dB)	Cord. Amp. (dBµV/m)	FCC 15.247/209	
	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBµV/m)	Margin (dB)
Low Channel: 2402 MHz									
2402	46.37	AV	H	31.05	3.90	27.79	53.53	N/A	N/A
2402	87.52	PK	H	31.05	3.90	27.79	94.68	N/A	N/A
2402	49.89	AV	V	31.05	3.90	27.79	57.05	N/A	N/A
2402	87.46	PK	V	31.05	3.90	27.79	94.62	N/A	N/A
4804	60.32	PK	H	33.17	4.67	27.34	70.82	74.00	3.18 *
7206	25.13	AV	V	38.67	6.50	26.54	43.76	54.00	10.24
4804	32.01	AV	H	33.17	4.67	27.34	42.51	54.00	11.49
7206	43.01	PK	V	38.67	6.50	26.54	61.64	74.00	12.36
9608	18.04	AV	V	38.52	8.75	26.39	38.91	54.00	15.09
426.87	30.54	QP	H	16.73	2.49	21.84	27.92	46.00	18.08
9608	32.08	PK	V	38.52	8.75	26.39	52.95	74.00	21.05
2390	20.13	AV	V	30.98	3.84	27.83	27.13	54.00	26.87
2390	35.02	PK	V	30.98	3.84	27.83	42.02	74.00	31.98
1635.41	17.63	AV	H	26.39	3.17	27.26	19.94	54.00	34.06
1635.41	31.84	PK	H	26.39	3.17	27.26	34.15	74.00	39.85
Middle Channel: 2441 MHz									
2441	47.31	AV	H	31.27	3.99	27.69	54.88	N/A	N/A
2441	87.23	PK	H	31.27	3.99	27.69	94.80	N/A	N/A
2441	44.62	AV	V	31.27	3.99	27.69	52.19	N/A	N/A
2441	85.84	PK	V	31.27	3.99	27.69	93.41	N/A	N/A
4882	57.62	PK	H	33.34	4.75	27.04	68.67	74.00	5.33
4882	32.74	AV	H	33.34	4.75	27.04	43.79	54.00	10.21
7323	21.54	AV	V	38.88	6.72	26.67	40.48	54.00	13.52
9764	18.57	AV	V	38.83	8.58	26.54	39.43	54.00	14.57
7323	36.21	PK	V	38.88	6.72	26.67	55.15	74.00	18.85
9764	31.96	PK	V	38.83	8.58	26.54	52.82	74.00	21.18
287.68	26.38	QP	H	13.88	2.04	21.51	20.79	46.00	25.21
1684.14	18.04	AV	V	26.72	3.18	27.38	20.55	54.00	33.45
1347.65	17.64	AV	H	25.35	2.91	27.43	18.47	54.00	35.53
1684.14	32.47	PK	V	26.72	3.18	27.38	34.98	74.00	39.02
1347.65	31.95	PK	H	25.35	2.91	27.43	32.78	74.00	41.22
High Channel: 2480 MHz									
2480	47.36	AV	H	31.49	3.82	27.75	54.91	N/A	N/A
2480	88.06	PK	H	31.49	3.82	27.75	95.61	N/A	N/A
2480	45.32	AV	V	31.49	3.82	27.75	52.87	N/A	N/A
2480	87.05	PK	V	31.49	3.82	27.75	94.60	N/A	N/A
4960	57.93	PK	V	33.51	4.70	27.26	68.88	74.00	5.12
2483.5	57.51	PK	H	31.51	3.80	27.76	65.05	74.00	8.95
4960	31.62	AV	V	33.51	4.70	27.26	42.57	54.00	11.43
2483.5	32.51	AV	H	31.51	3.80	27.76	40.05	54.00	13.95
9920	17.97	AV	H	39.14	8.41	26.70	38.82	54.00	15.18
7440	19.24	AV	H	39.09	6.95	26.79	38.49	54.00	15.51
635.41	25.87	QP	H	20.09	3.08	22.28	26.76	46.00	19.24
7440	34.67	PK	H	39.09	6.95	26.79	53.92	74.00	20.08
9920	31.42	PK	H	39.14	8.41	26.70	52.27	74.00	21.73
1532.48	17.65	AV	V	25.71	3.04	27.43	18.97	54.00	35.03
1532.48	32.03	PK	V	25.71	3.04	27.43	33.35	74.00	40.65

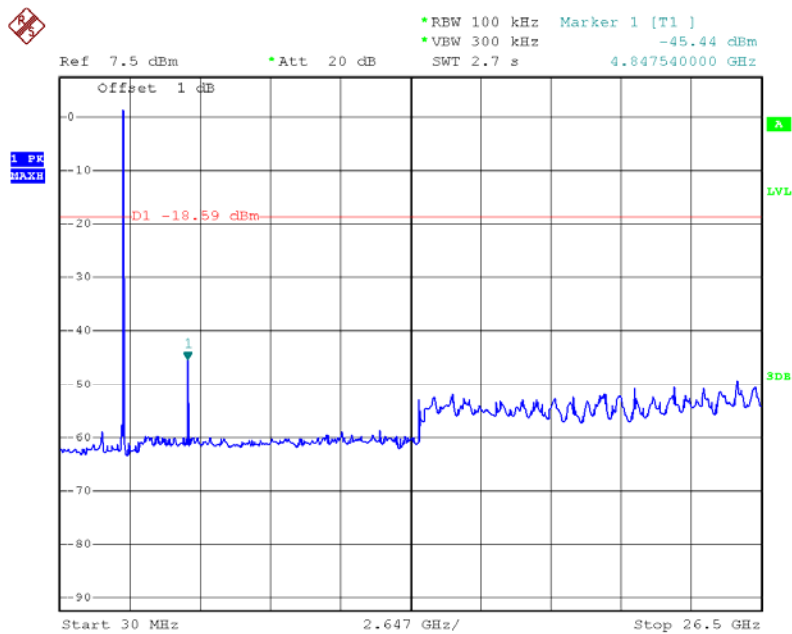
Conducted Spurious Emissions at Antenna Port

BDR-GFSK Low Channel



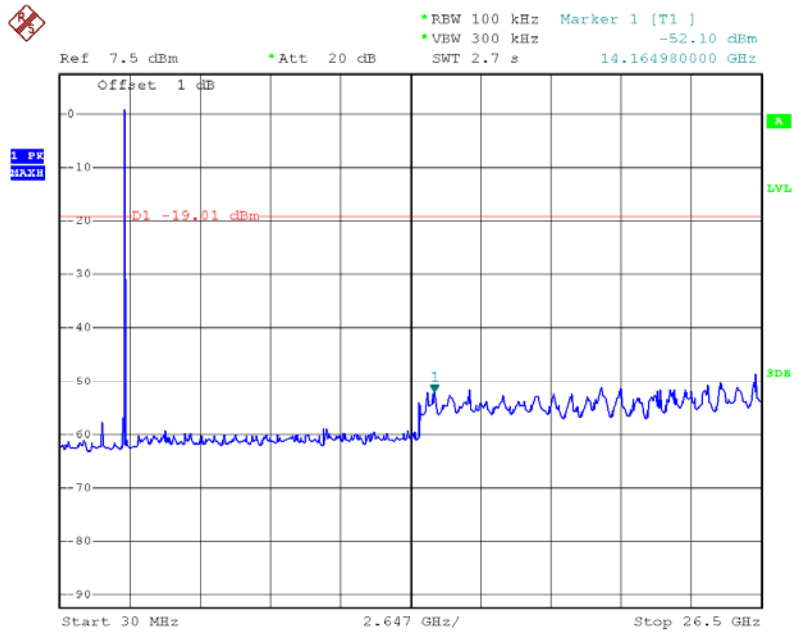
Date: 27.SEP.2012 21:12:54

BDR-GFSK Middle Channel



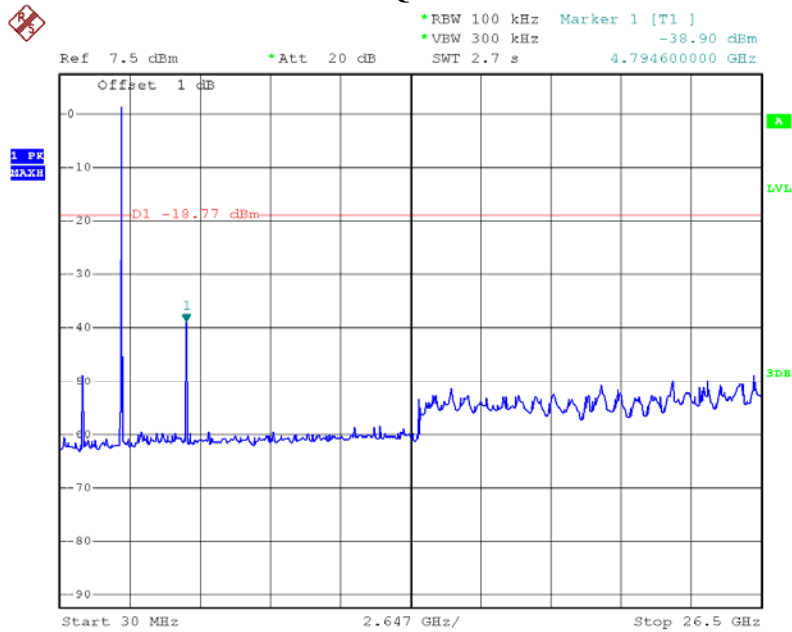
Date: 27.SEP.2012 21:11:37

BDR-GFSK High Channel



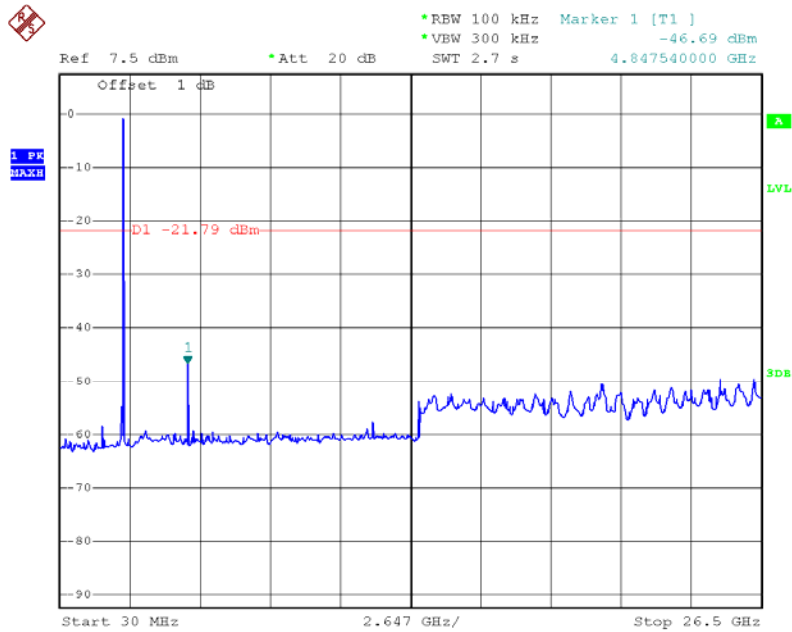
Date: 27.SEP.2012 21:10:08

EDR- $\pi/4$ -QPSK Low Channel



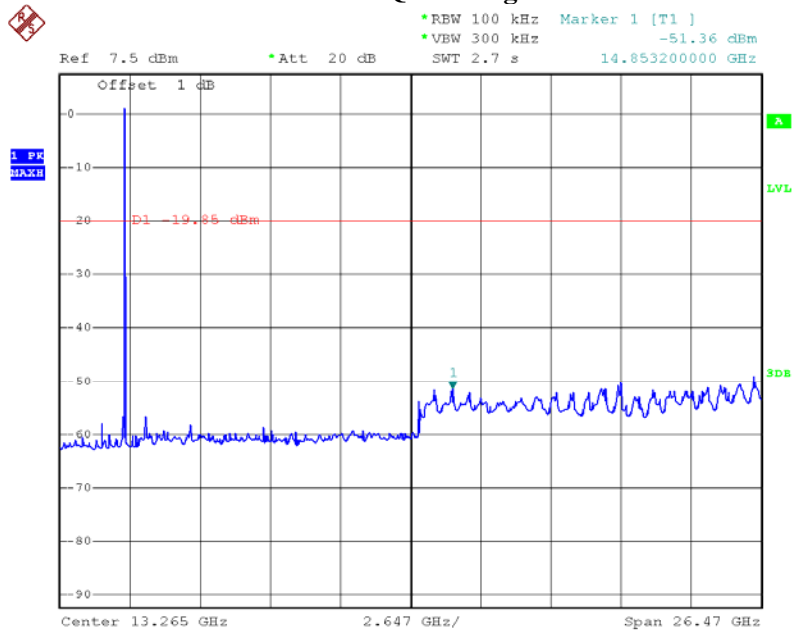
Date: 27.SEP.2012 21:14:26

EDR- $\pi/4$ -QPSK Middle Channel



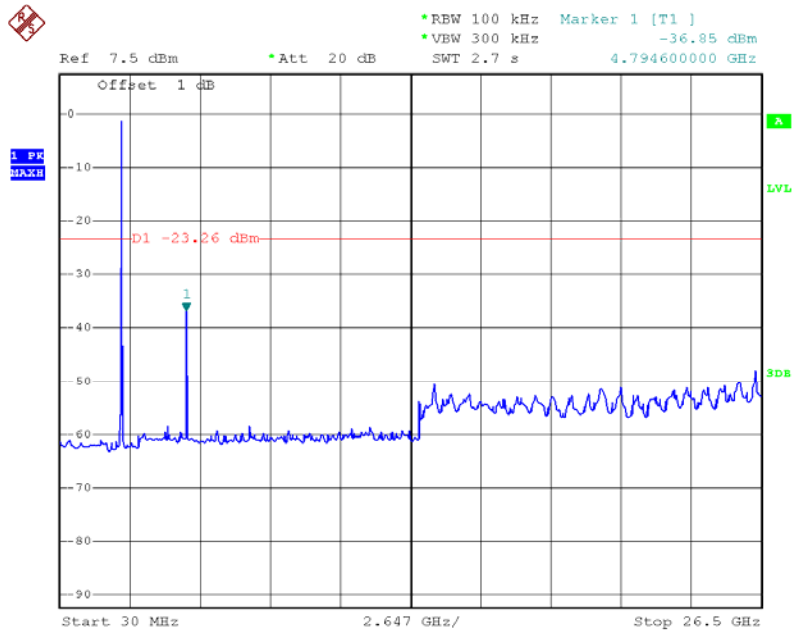
Date: 27.SEP.2012 21:15:36

EDR- $\pi/4$ -QPSK High Channel



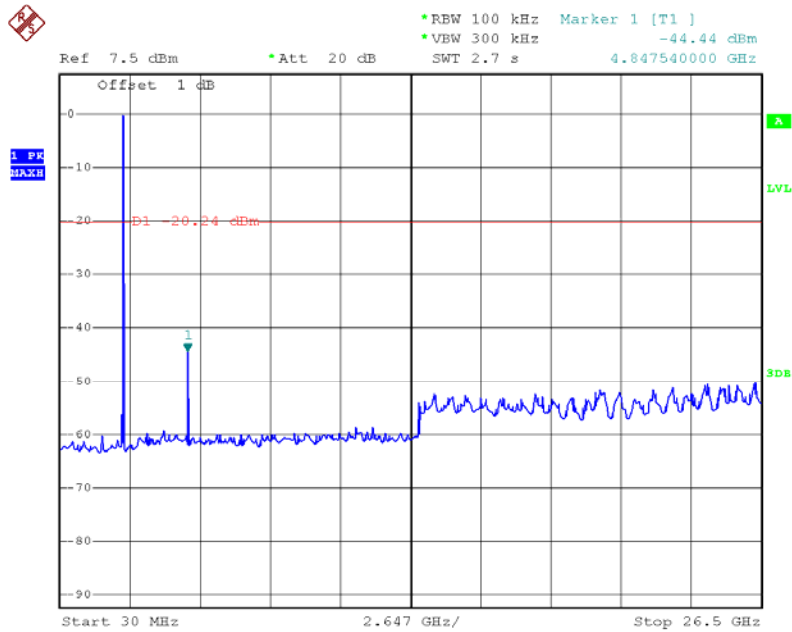
Date: 27.SEP.2012 21:16:42

EDR-8DPSK Low Channel



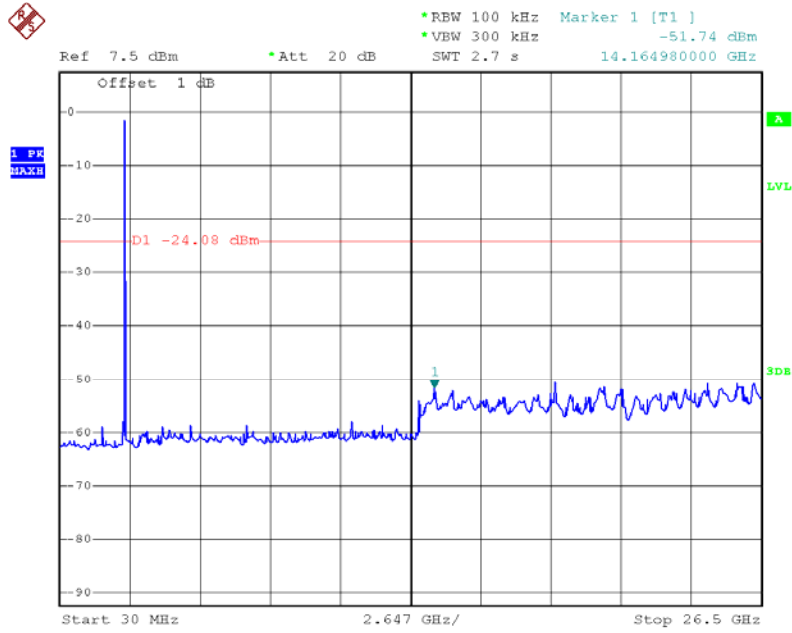
Date: 27.SEP.2012 21:05:21

EDR-8DPSK Middle Channel



Date: 27.SEP.2012 21:06:30

EDR-8DPSK High Channel



Date: 27.SEP.2012 21:07:25

FCC §15.247(a) (1) - CHANNEL SEPARATION TEST

Applicable Standard

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.50 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Procedure

1. Set the EUT in transmitting mode, spectrum Bandwidth was set at 100 kHz, maxhold the channel.
2. Set the adjacent channel of the EUT maxhold another trace
3. Measure the channel separation.

Test Data

Environmental Conditions

Temperature:	27.1 °C
Relative Humidity:	63 %
ATM Pressure:	100.5kPa

* The testing was performed by Leon Chen on 2012-09-27.

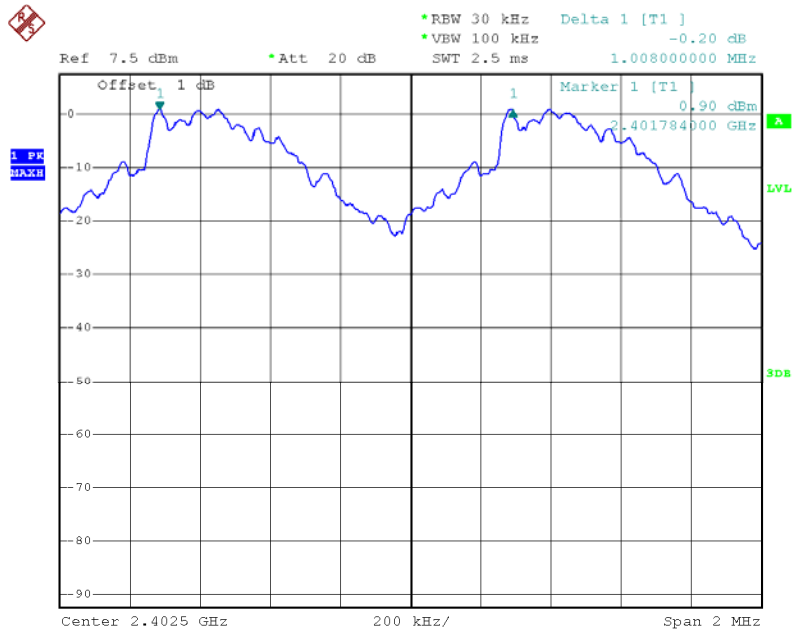
Test Result: Compliance.

Please refer to following tables and plots

Test Mode: Transmitting

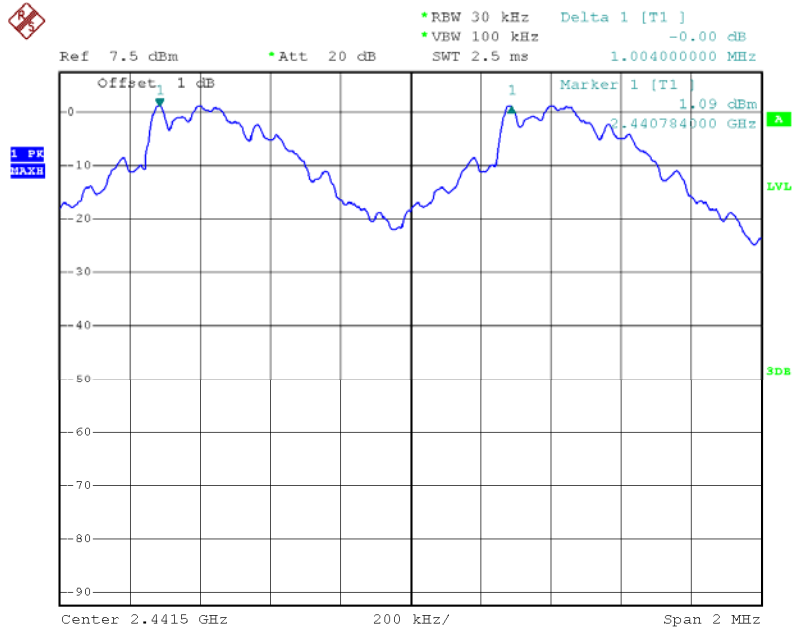
Mode	Channel	Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)	Result
BDR Mode (GFSK)	Low	2402	1.008	0.63	Pass
	Adjacent	2403			
	Middle	2441	1.004	0.63	Pass
	Adjacent	2442			
	High	2480	1.004	0.63	Pass
	Adjacent	2479			
EDR Mode ($\pi/4$ -DQPSK)	Low	2402	1.004	0.81	Pass
	Adjacent	2403			
	Middle	2441	1.008	0.81	Pass
	Adjacent	2442			
	High	2480	1.012	0.81	Pass
	Adjacent	2479			
EDR Mode (8DPSK)	Low	2402	1.008	0.81	Pass
	Adjacent	2403			
	Middle	2441	1.008	0.85	Pass
	Adjacent	2442			
	High	2480	1.004	0.81	Pass
	Adjacent	2479			

BDR - Low Channel



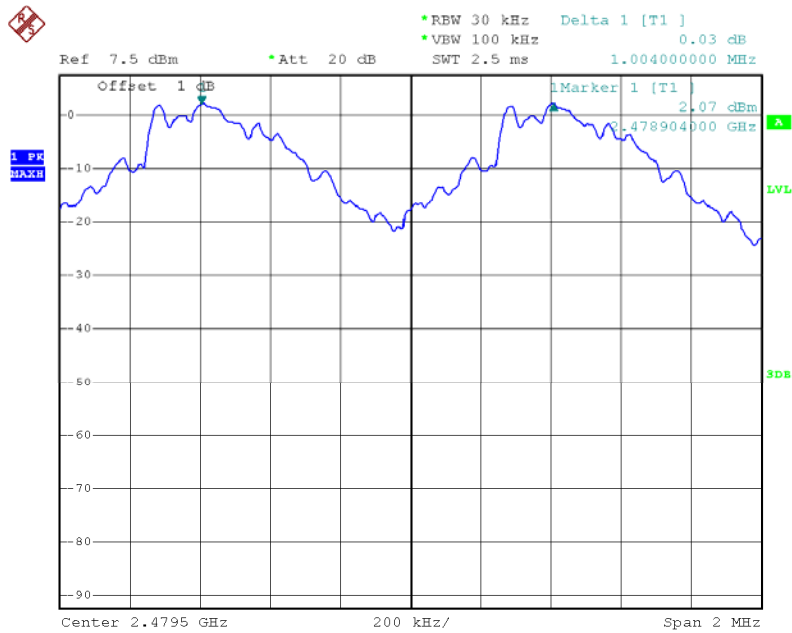
Date: 27.SEP.2012 18:57:02

BDR - Middle Channel



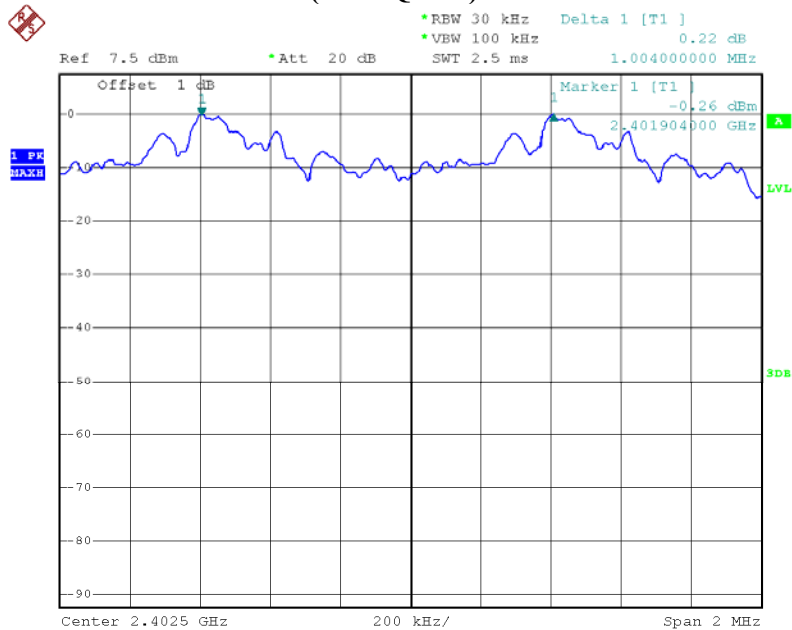
Date: 27.SEP.2012 18:54:47

BDR - High Channel



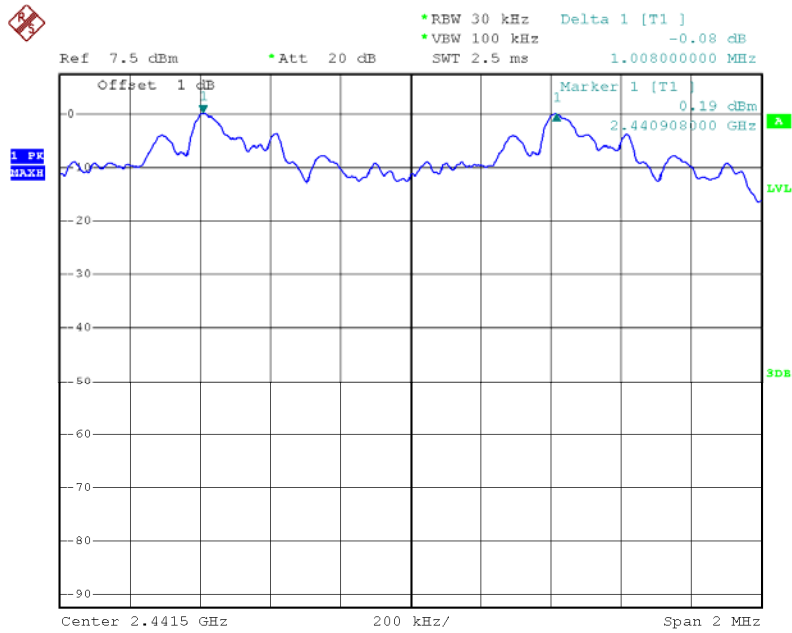
Date: 27.SEP.2012 18:53:07

EDR ($\pi/4$ -DQPSK) - Low Channel



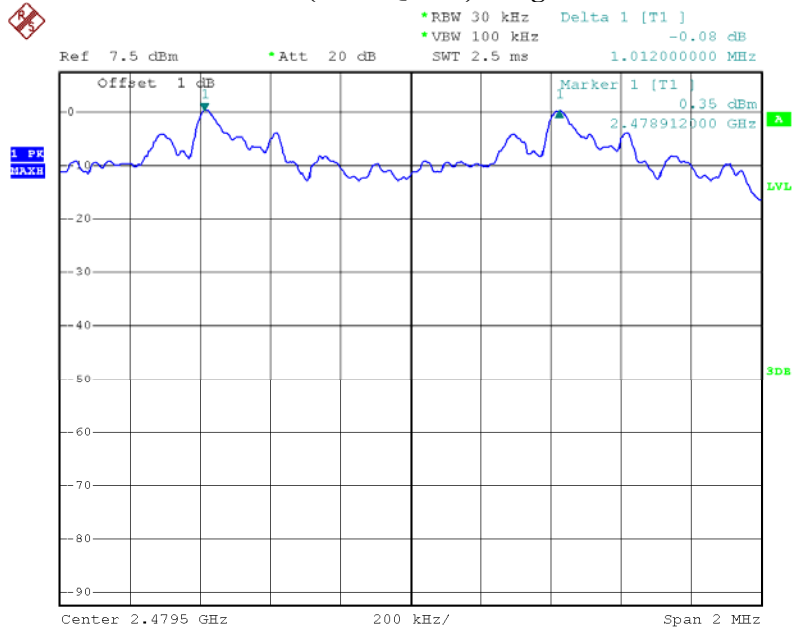
Date: 27.SEP.2012 21:29:06

EDR ($\pi/4$ -DQPSK) - Middle Channel



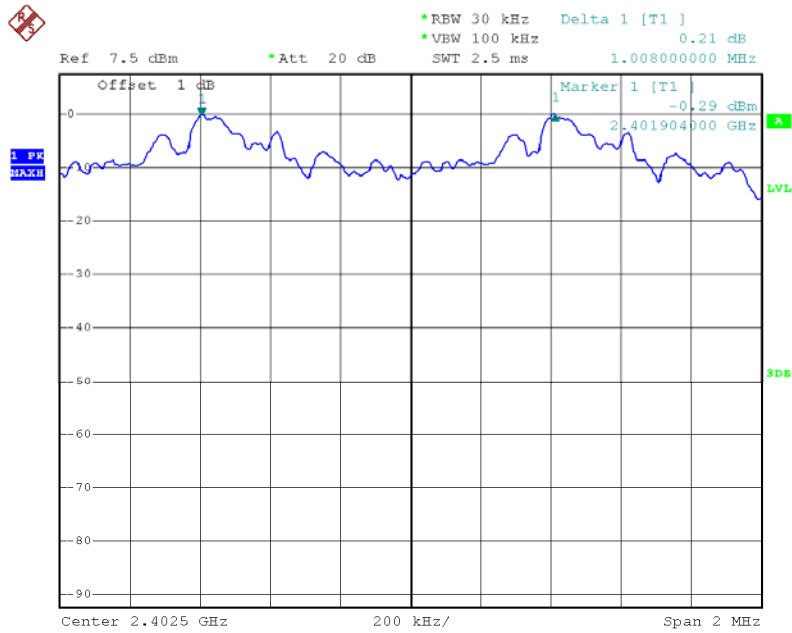
Date: 27.SEP.2012 21:27:56

EDR ($\pi/4$ -DQPSK) - High Channel



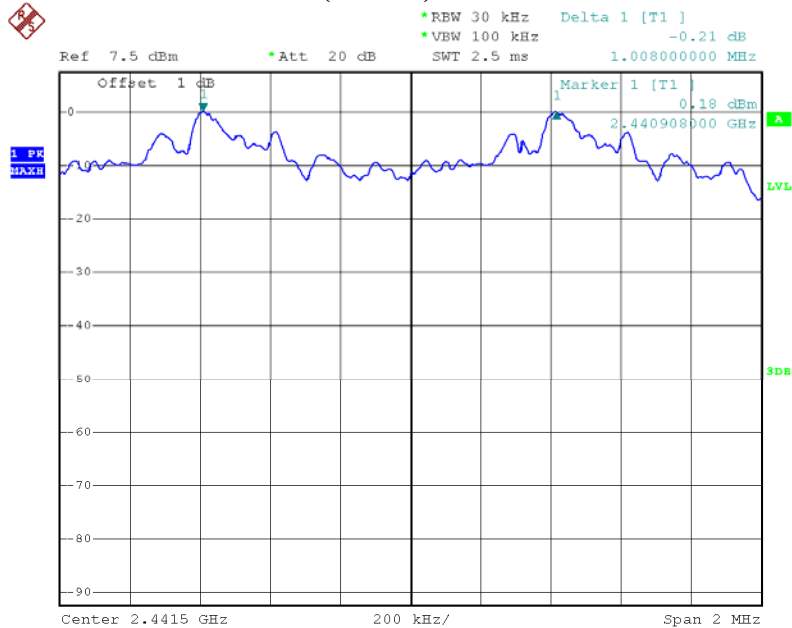
Date: 27.SEP.2012 21:26:51

EDR (8DPSK) - Low Channel



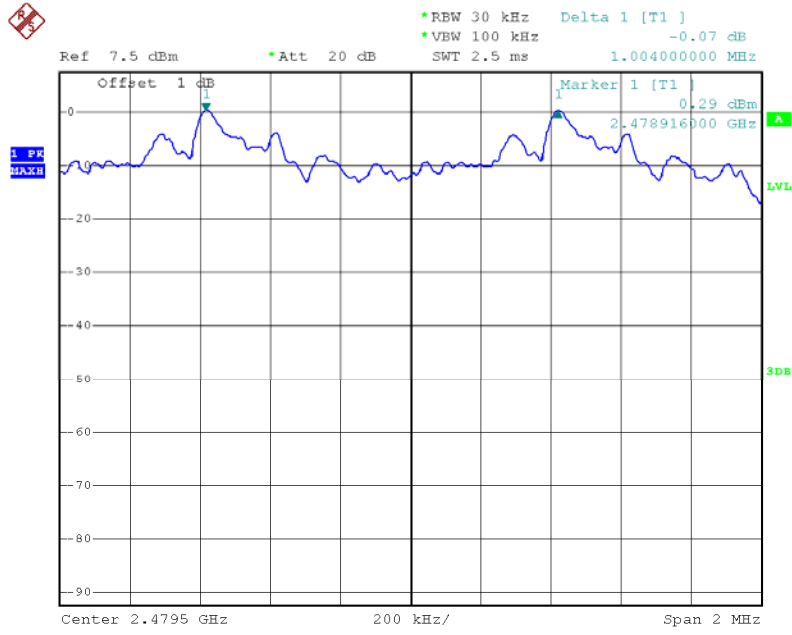
Date: 27.SEP.2012 20:42:49

EDR (8DPSK) - Middle Channel



Date: 27.SEP.2012 20:43:45

EDR (8DPSK) - High Channel



Date: 27.SEP.2012 20:44:36

FCC §15.247(a) (1) – 20 dB BANDWIDTH TESTING

Applicable Standard

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, provided the systems operate with an output power no greater than 125 mW.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT on the test table without connection to measurement instrument. Turn on the EUT. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

Temperature:	27.1 °C
Relative Humidity:	63 %
ATM Pressure:	100.5kPa

* The testing was performed by Leon Chen on 2012-09-27.

Test Result: Compliance.

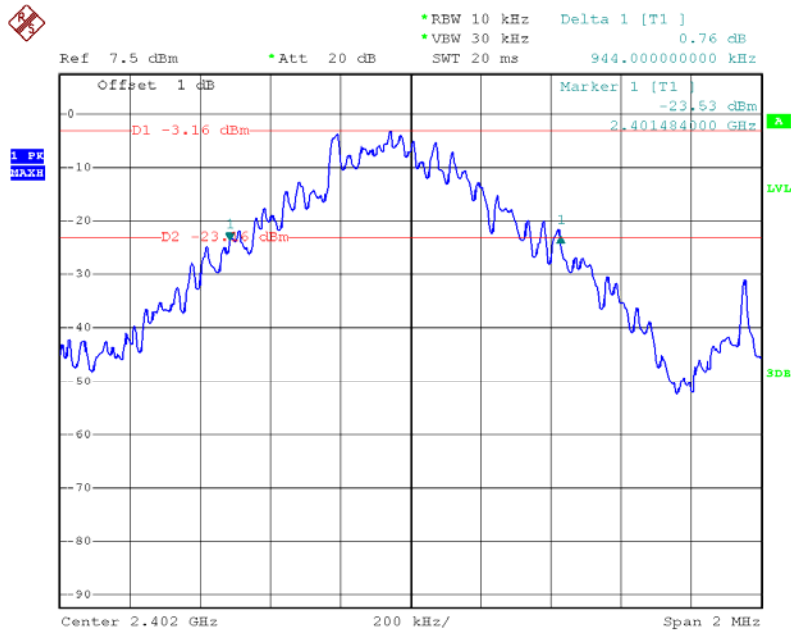
Please refer to following tables and plots

Test Mode: Transmitting

Mode	Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
BDR Mode (GFSK)	Low	2402	0.944
	Middle	2441	0.948
	High	2480	0.944
EDR Mode ($\pi/4$ -DQPSK)	Low	2402	1.220
	Middle	2441	1.220
	High	2480	1.216
EDR Mode (8DPSK)	Low	2402	1.220
	Middle	2441	1.268
	High	2480	1.212

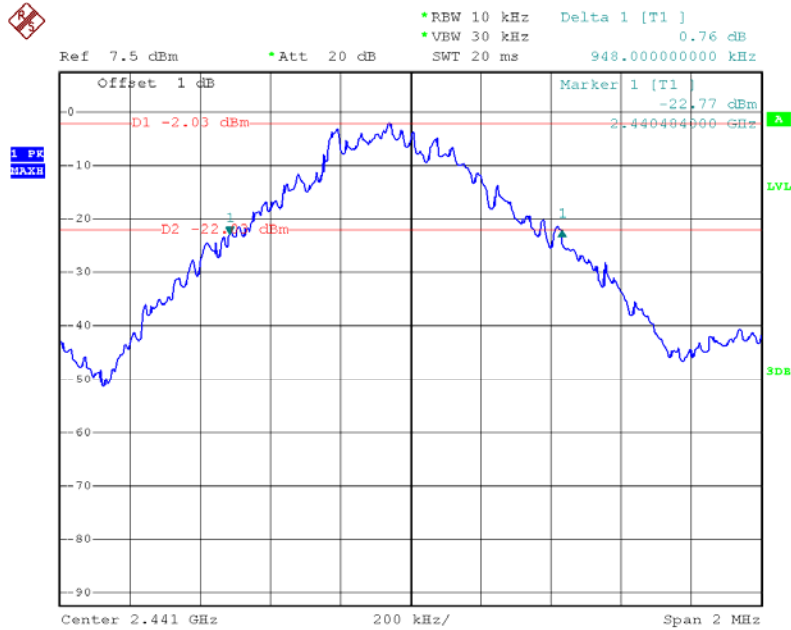
Please refer to the following plots.

BDR - Low Channel



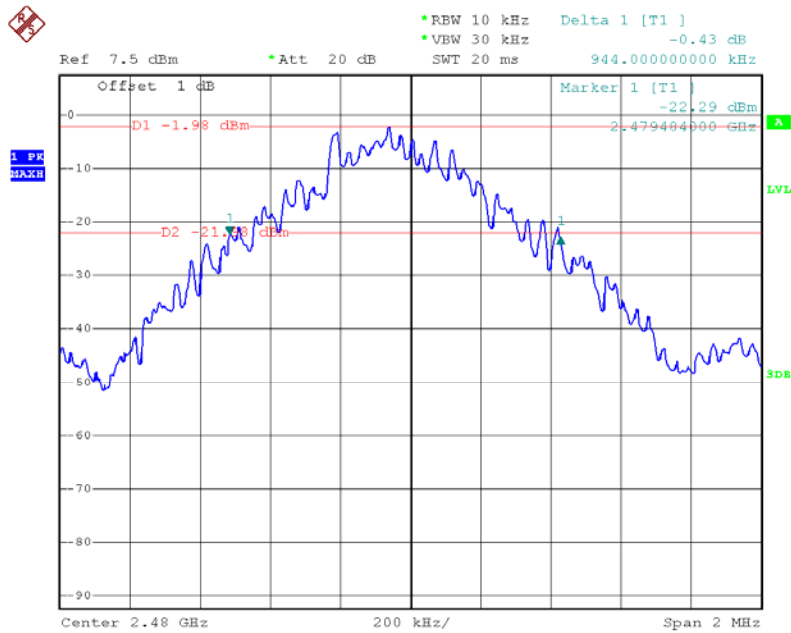
Date: 27.SEP.2012 17:46:09

BDR - Middle Channel



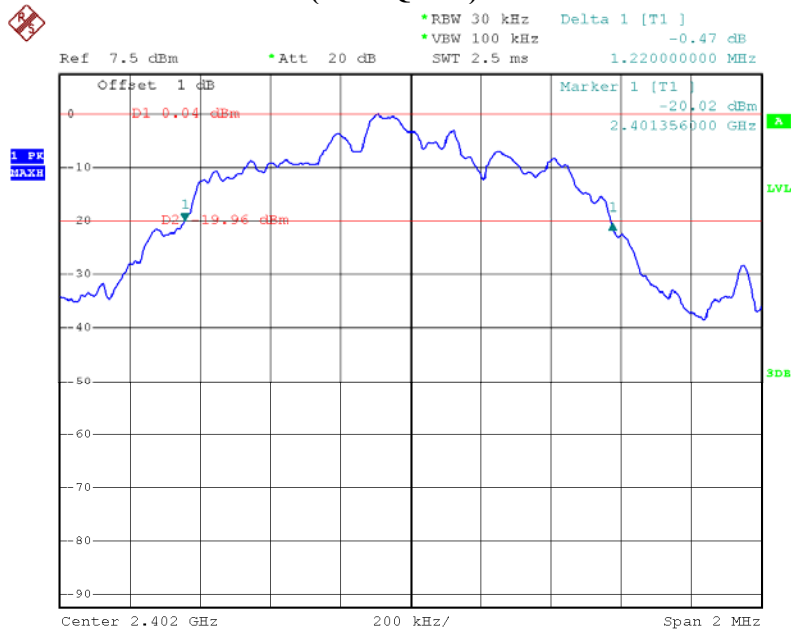
Date: 27.SEP.2012 17:57:25

BDR - High Channel



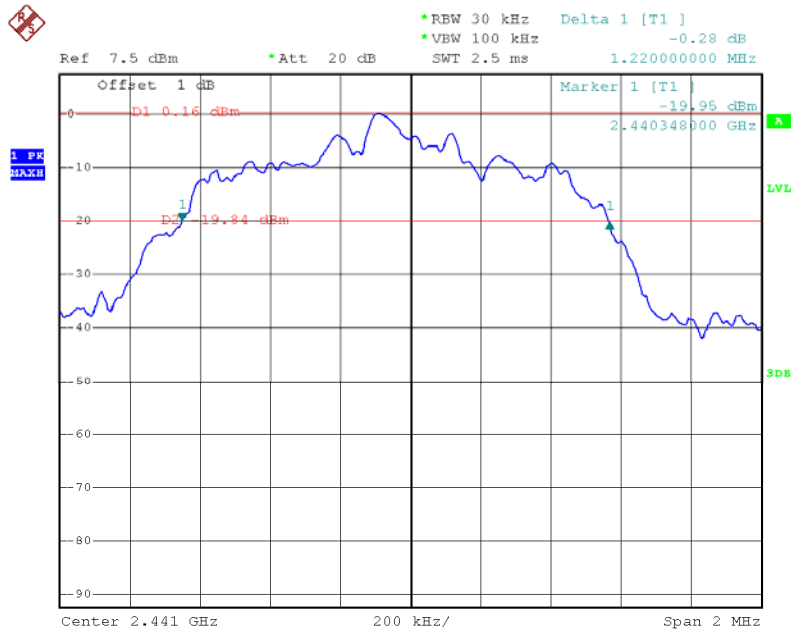
Date: 27.SEP.2012 18:01:42

EDR ($\pi/4$ -DQPSK) - Low Channel



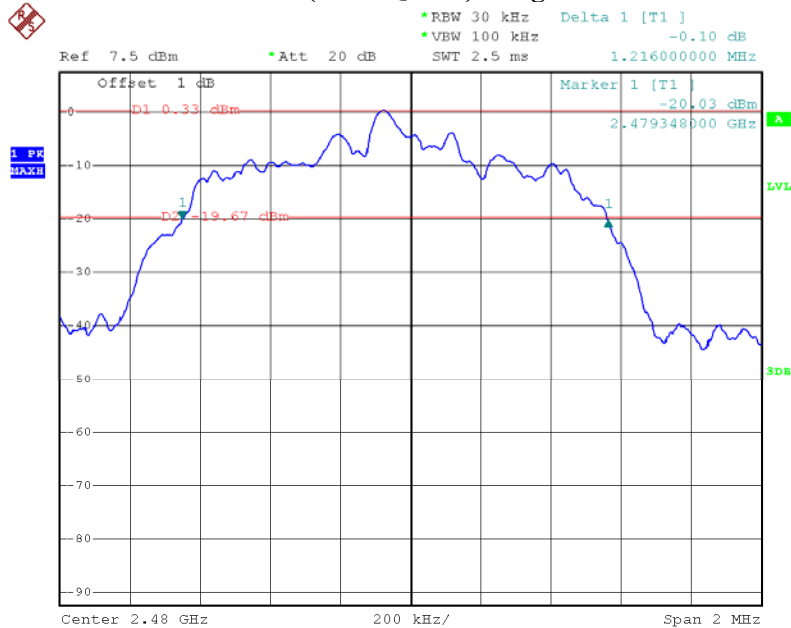
Date: 27.SEP.2012 21:20:33

EDR ($\pi/4$ -DQPSK) - Middle Channel



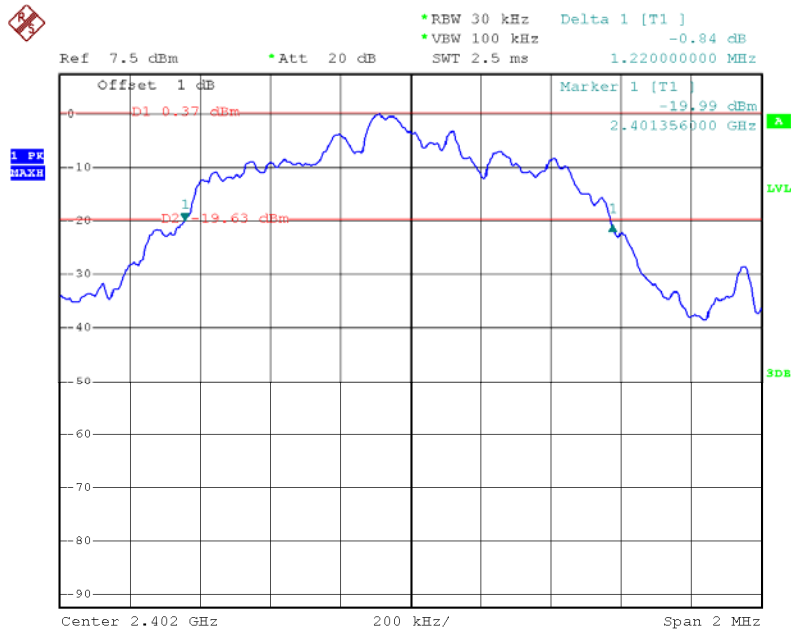
Date: 27.SEP.2012 21:23:07

EDR ($\pi/4$ -DQPSK) - High Channel



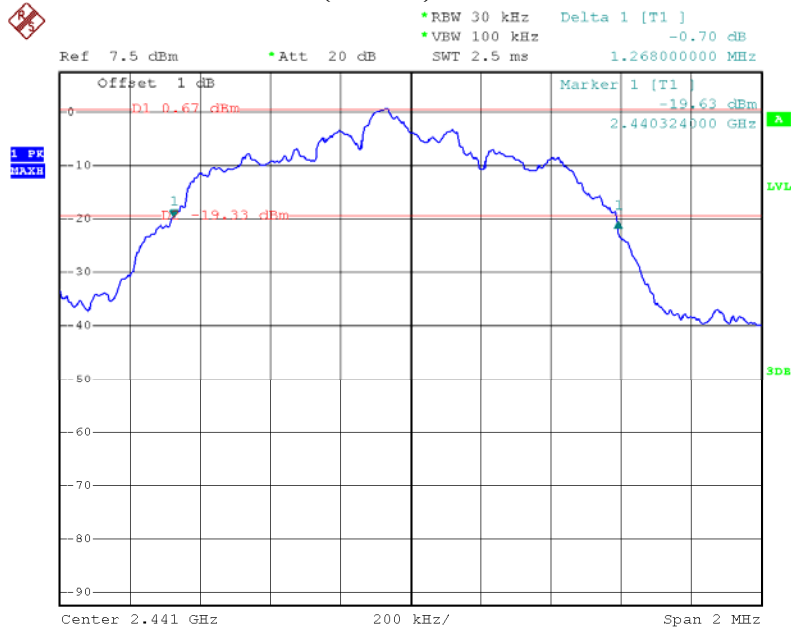
Date: 27.SEP.2012 21:25:03

EDR (8DPSK) - Low Channel



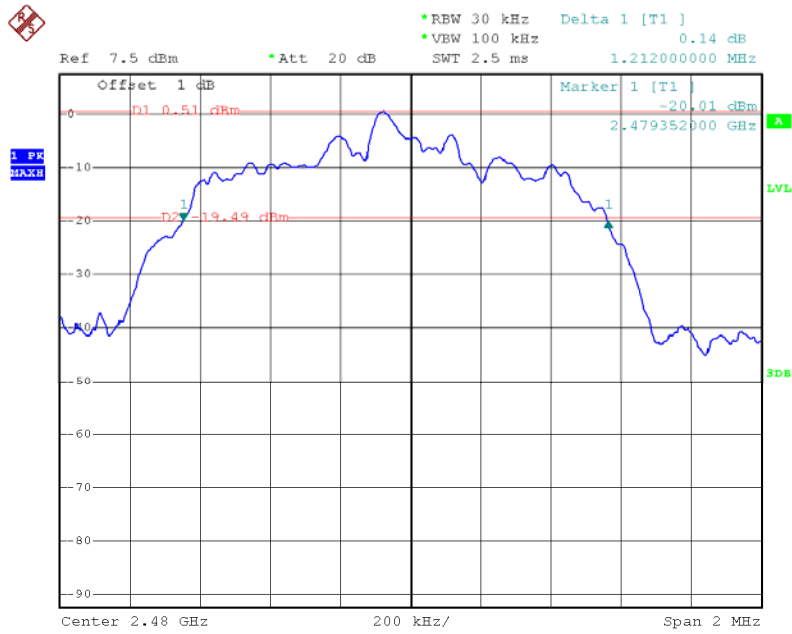
Date: 27.SEP.2012 21:03:34

EDR (8DPSK) - Middle Channel



Date: 27.SEP.2012 21:00:34

EDR (8DPSK) - High Channel



Date: 27.SEP.2012 20:56:53

FCC §15.247(a) (1) (iii) - QUANTITY OF HOPPING CHANNEL TEST

Applicable Standard

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. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Set the EUT in hopping mode from first channel to last.
3. By using the Max-Hold function record the Quantity of the channel.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

Temperature:	27.1 °C
Relative Humidity:	63 %
ATM Pressure:	100.5kPa

The testing was performed by Leon Chen on 2012-09-27.

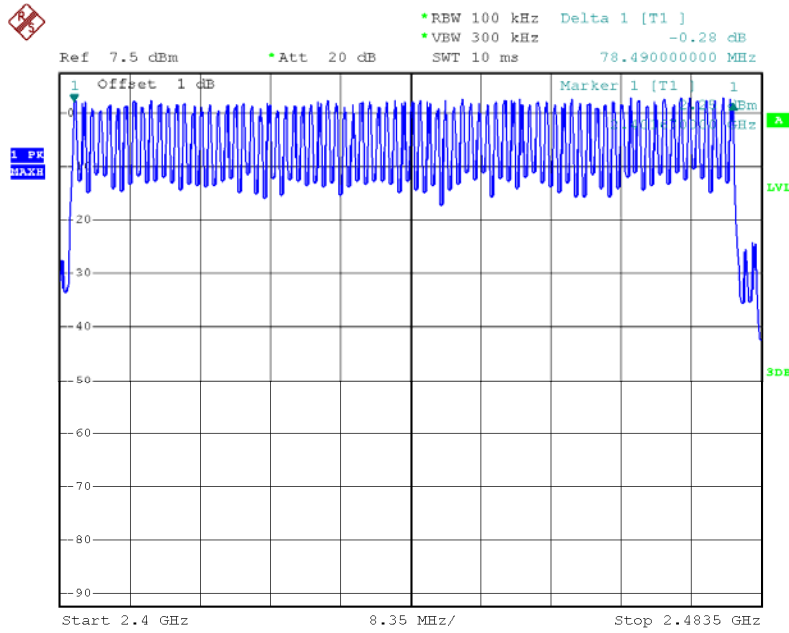
Test Result: Compliance.

Please refer to following tables and plots

Test Mode: Transmitting

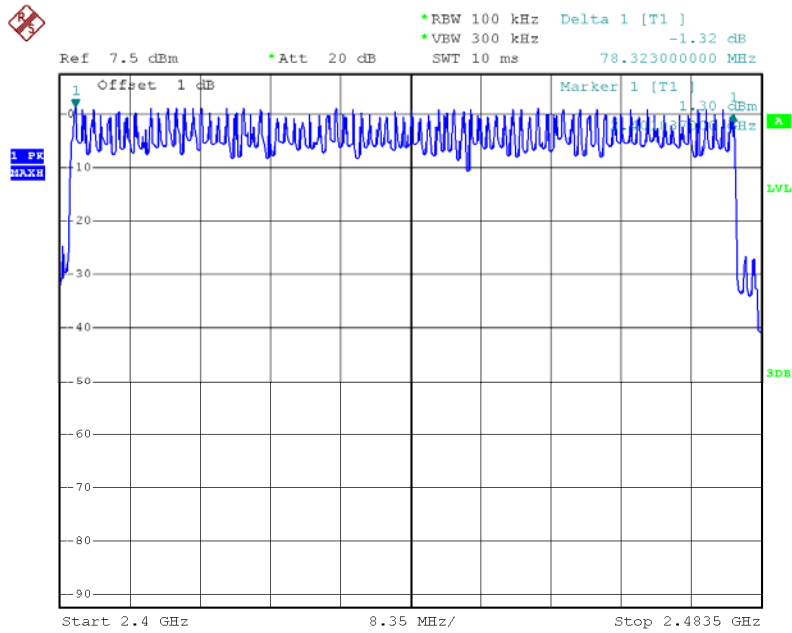
Mode	Frequency Range (MHz)	Number of Hopping Channel	Limit
BDR	2400-2483.5	79	≥15
EDR (π/4-DQPSK)	2400-2483.5	79	≥15
EDR (8DPSK)	2400-2483.5	79	≥15

BDR - Number of Hopping Channels



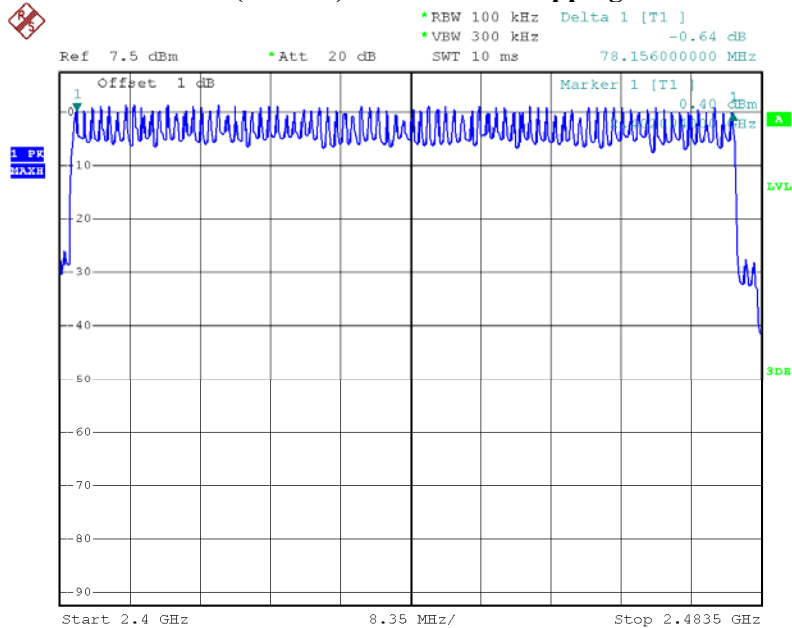
Date: 27.SEP.2012 19:49:12

EDR ($\pi/4$ -DQPSK) - Number of Hopping Channels



Date: 27.SEP.2012 20:40:13

EDR (8DPSK) - Number of Hopping Channels



Date: 27.SEP.2012 20:38:35

FCC §15.247(a) (1) (iii) - TIME OF OCCUPANCY (DWELL TIME)

Applicable Standard

Frequency hopping systems in the 2400-2483.5 MHz 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. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Procedure

The EUT was worked in channel hopping; Spectrum SPAN was set as 0. Sweep was set as 0.4 * channel no. (s), the quantity of pulse was get from single sweep. In addition, the time of single pulses was tested.

Dwell Time= time slot length * hope rate/ number of hopping channels * 31.6s
Hop rate=1600/s

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

Temperature:	27.1 °C
Relative Humidity:	63 %
ATM Pressure:	100.5kPa

** The testing was performed by Leon Chen on 2012-09-27.*

Test Result: Compliance.

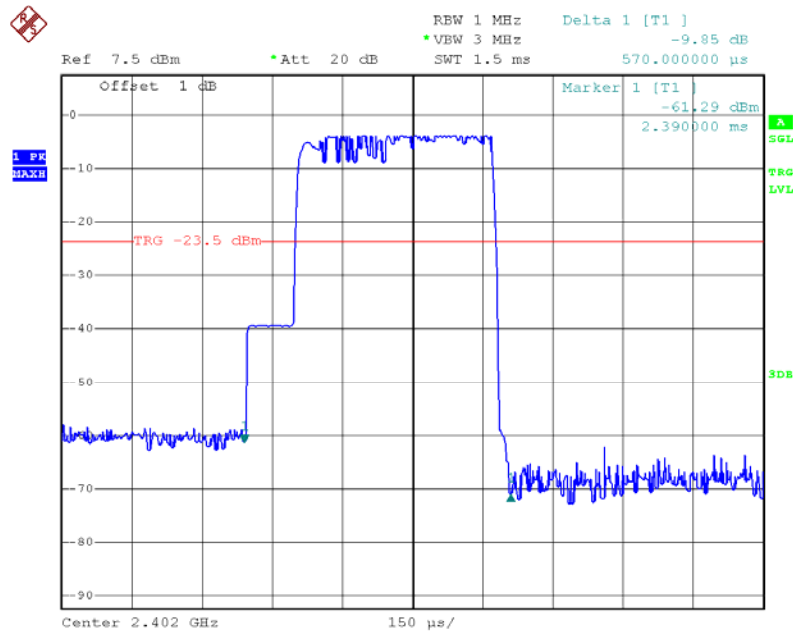
Please refer to following tables and plots

DHI:

Test Mode: Transmitting

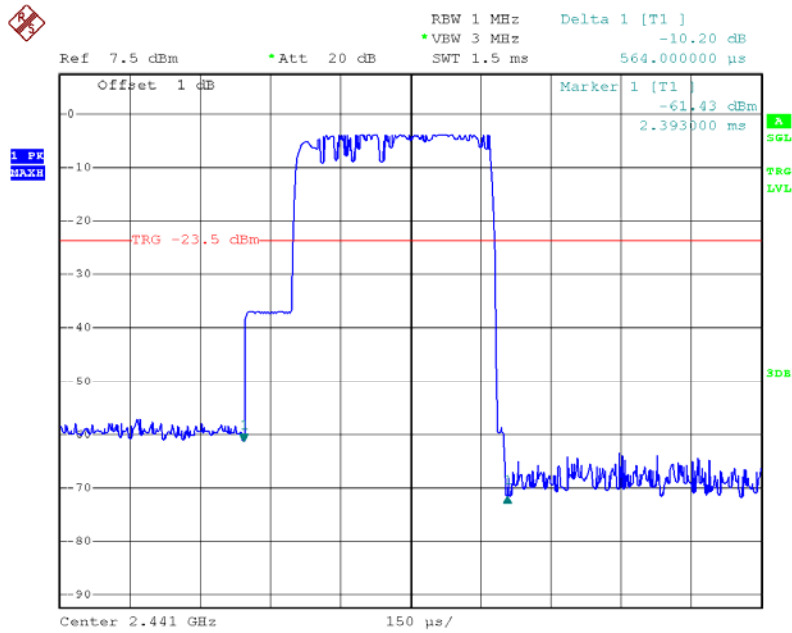
Mode	Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
BDR Mode (GFSK)	Low	0.570	0.182	0.4	Pass
	Middle	0.564	0.180	0.4	Pass
	High	0.549	0.176	0.4	Pass
	Note: Dwell time = Pulse time*(1600/2/79)*31.6S				
EDR Mode ($\pi/4$ -DQPSK)	Low	0.561	0.180	0.4	Pass
	Middle	0.564	0.180	0.4	Pass
	High	0.564	0.180	0.4	Pass
	Note: Dwell time = Pulse time*(1600/2/79)*31.6S				
EDR Mode (8DPSK)	Low	0.573	0.183	0.4	Pass
	Middle	0.576	0.184	0.4	Pass
	High	0.567	0.181	0.4	Pass
	Note: Dwell time = Pulse time*(1600/2/79)*31.6S				

BDR - Low Channel



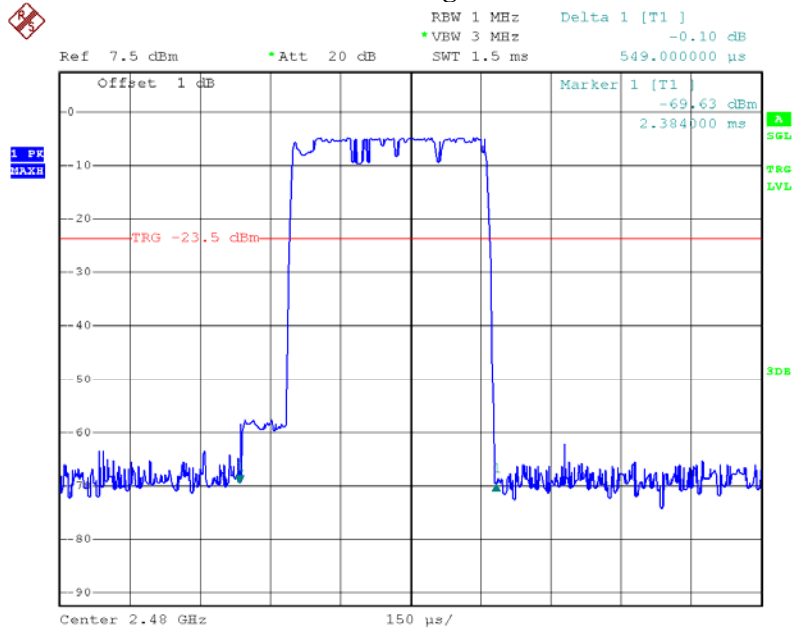
Date: 27.SEP.2012 20:02:04

BDR - Middle Channel



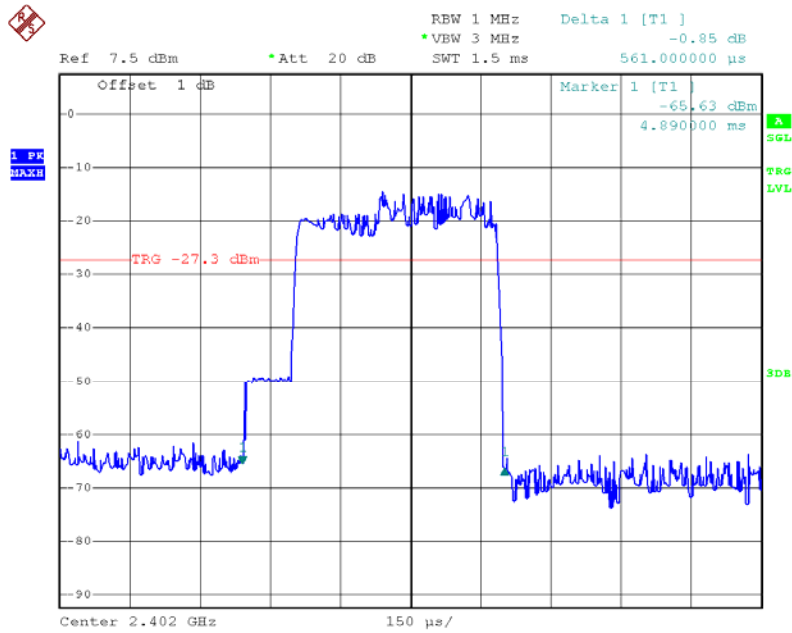
Date: 27.SEP.2012 20:03:41

BDR - High Channel



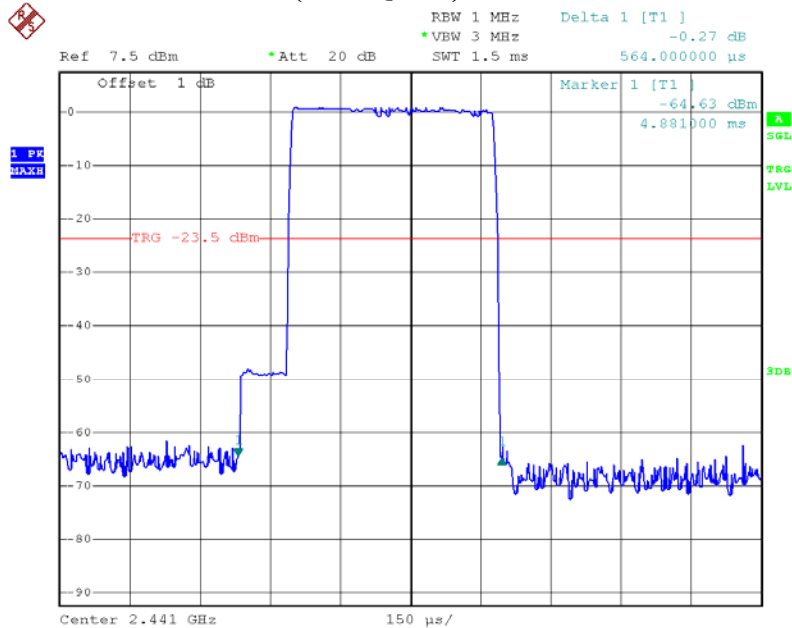
Date: 27.SEP.2012 20:05:10

EDR ($\pi/4$ -DQPSK) - Low Channel



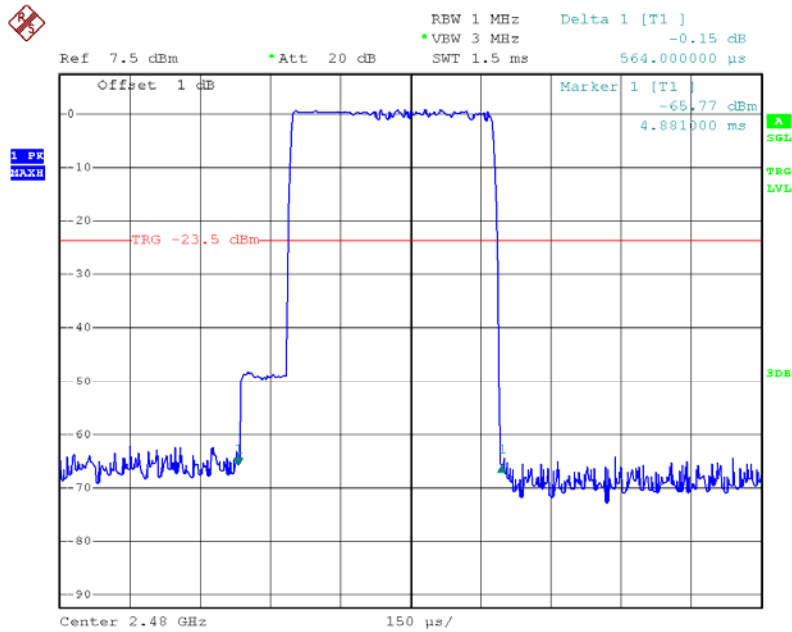
Date: 27.SEP.2012 20:33:42

EDR ($\pi/4$ -DQPSK) - Middle Channel



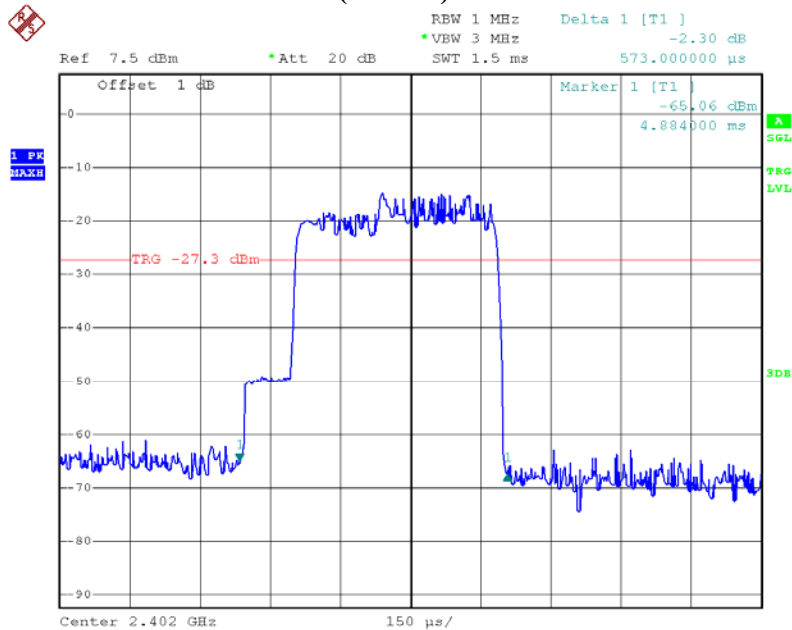
Date: 27.SEP.2012 20:31:42

EDR ($\pi/4$ -DQPSK) - High Channel



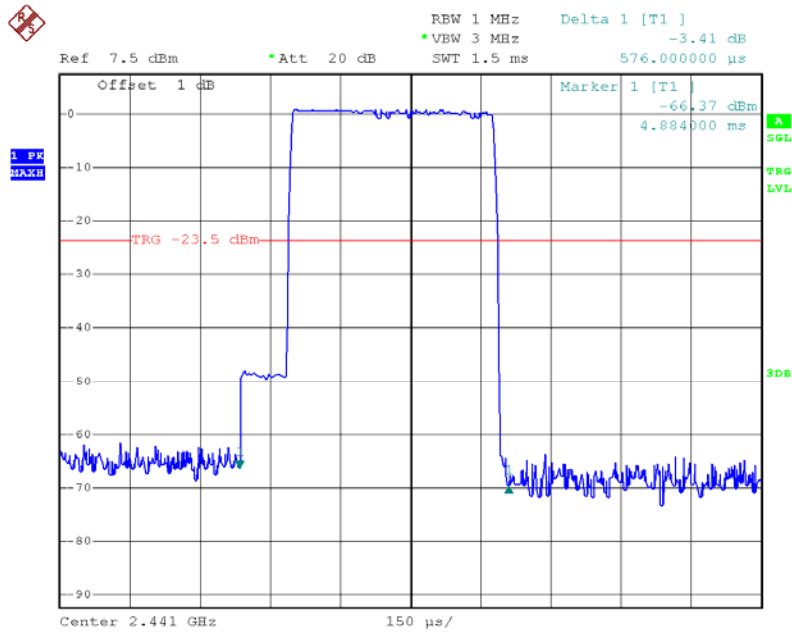
Date: 27.SEP.2012 20:30:32

EDR (8DPSK) - Low Channel



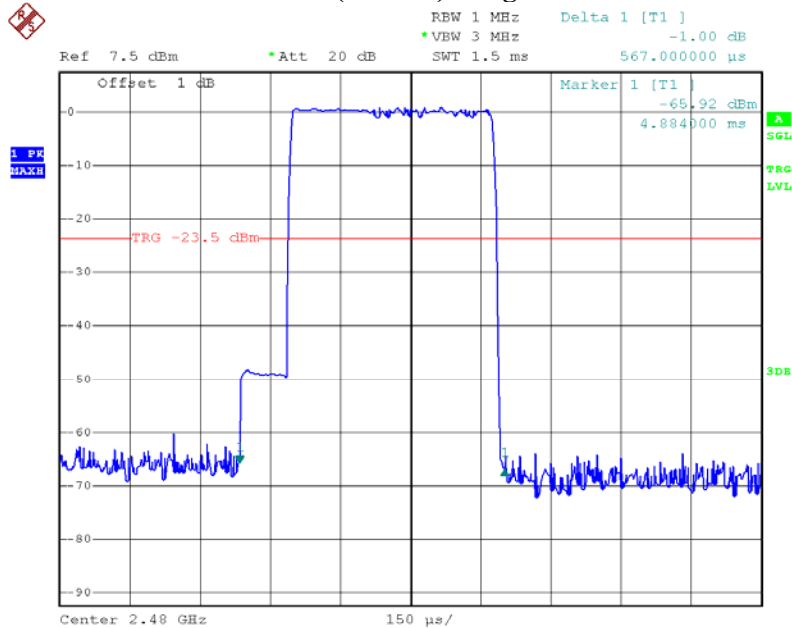
Date: 27.SEP.2012 20:34:01

EDR (8DPSK) - Middle Channel



Date: 27.SEP.2012 20:32:07

EDR (8DPSK) - High Channel



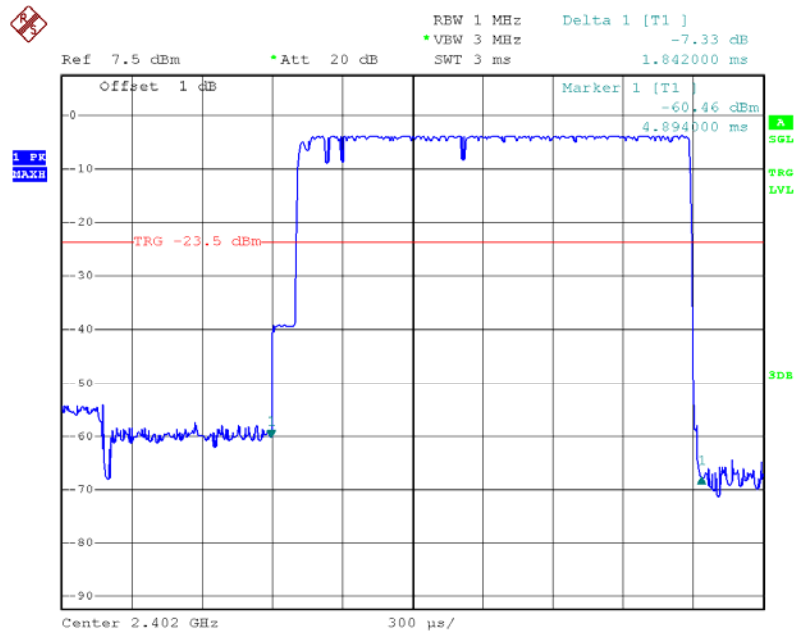
Date: 27.SEP.2012 20:30:56

DH3:

Test Mode: Transmitting

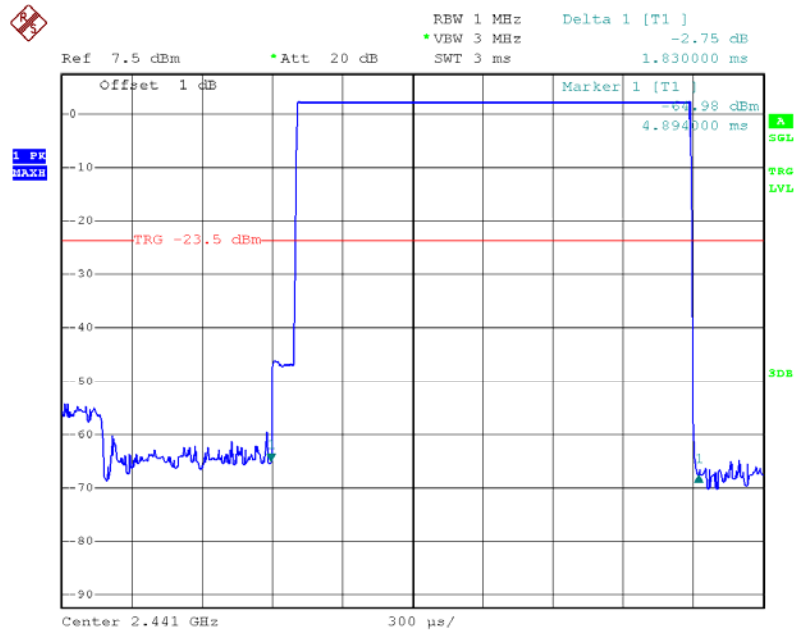
Mode	Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
BDR Mode (GFSK)	Low	1.842	0.295	0.4	Pass
	Middle	1.830	0.293	0.4	Pass
	High	1.848	0.296	0.4	Pass
<i>Note: Dwell time = Pulse time*(1600/4/79)*31.6S</i>					
EDR Mode ($\pi/4$ -DQPSK)	Low	1.848	0.296	0.4	Pass
	Middle	1.854	0.297	0.4	Pass
	High	1.836	0.294	0.4	Pass
<i>Note: Dwell time = Pulse time*(1600/4/79)*31.6S</i>					
EDR Mode (8DPSK)	Low	1.854	0.297	0.4	Pass
	Middle	1.854	0.297	0.4	Pass
	High	1.842	0.295	0.4	Pass
<i>Note: Dwell time = Pulse time*(1600/4/79)*31.6S</i>					

BDR - Low Channel



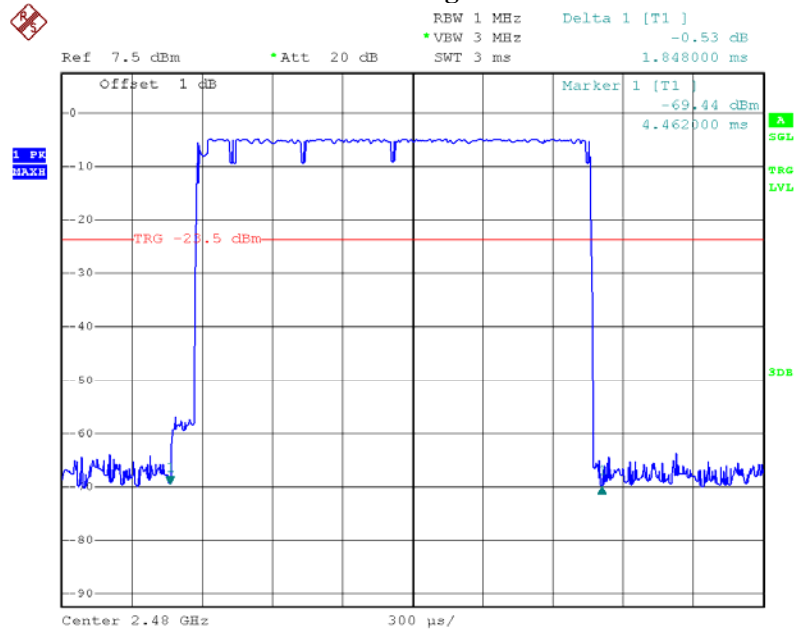
Date: 27.SEP.2012 20:10:55

BDR - Middle Channel



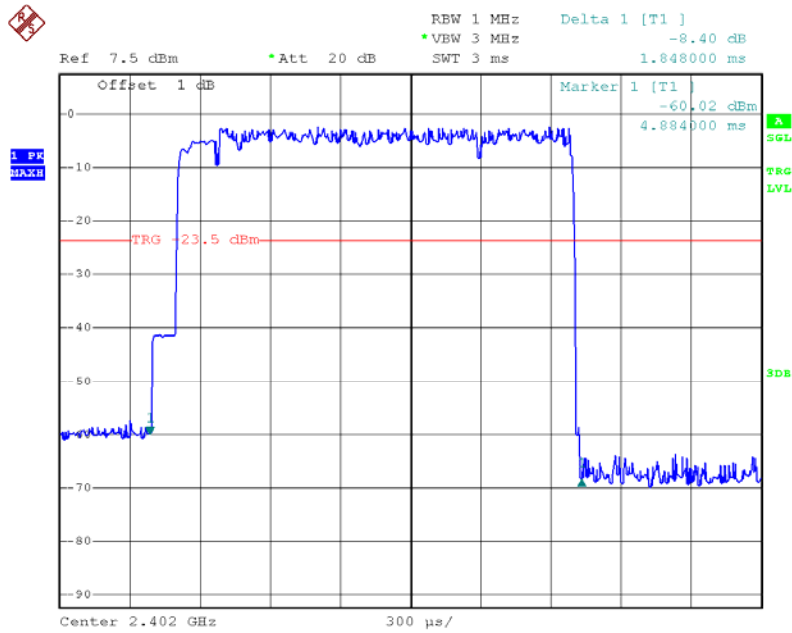
Date: 27.SEP.2012 20:10:27

BDR - High Channel



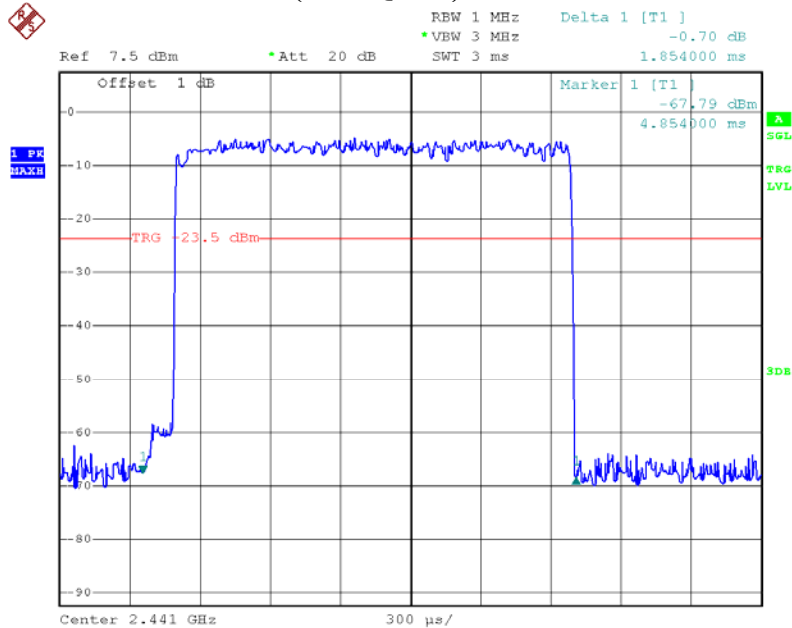
Date: 27.SEP.2012 20:09:33

EDR ($\pi/4$ -DQPSK) - Low Channel



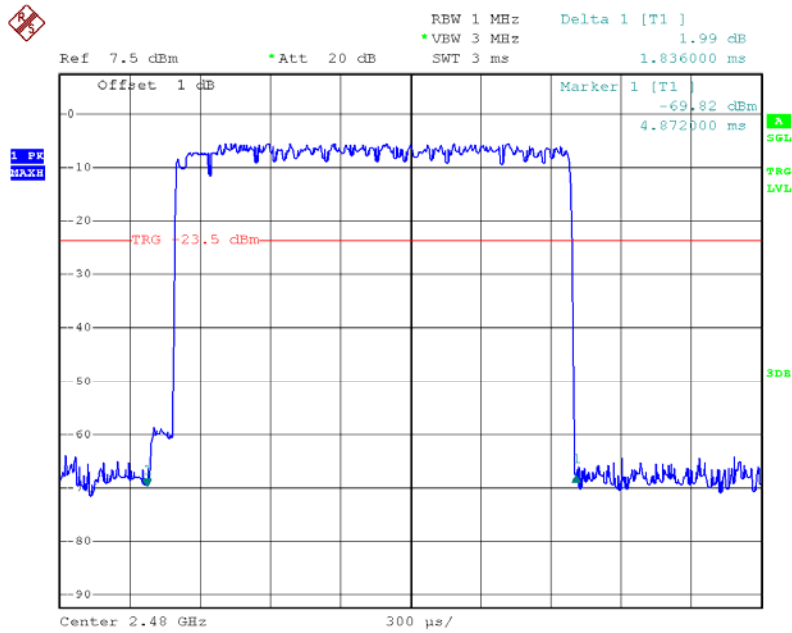
Date: 27.SEP.2012 20:23:38

EDR ($\pi/4$ -DQPSK) - Middle Channel



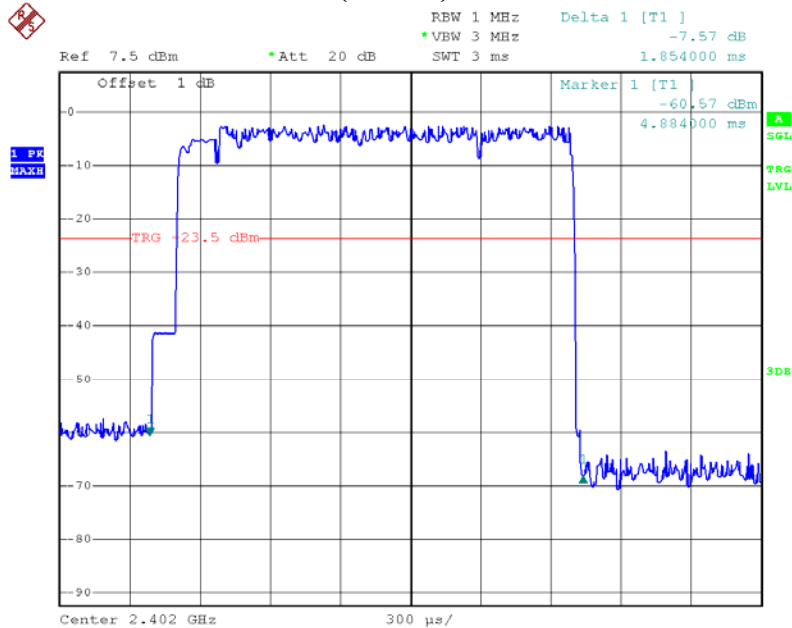
Date: 27.SEP.2012 20:24:34

EDR ($\pi/4$ -DQPSK) - High Channel



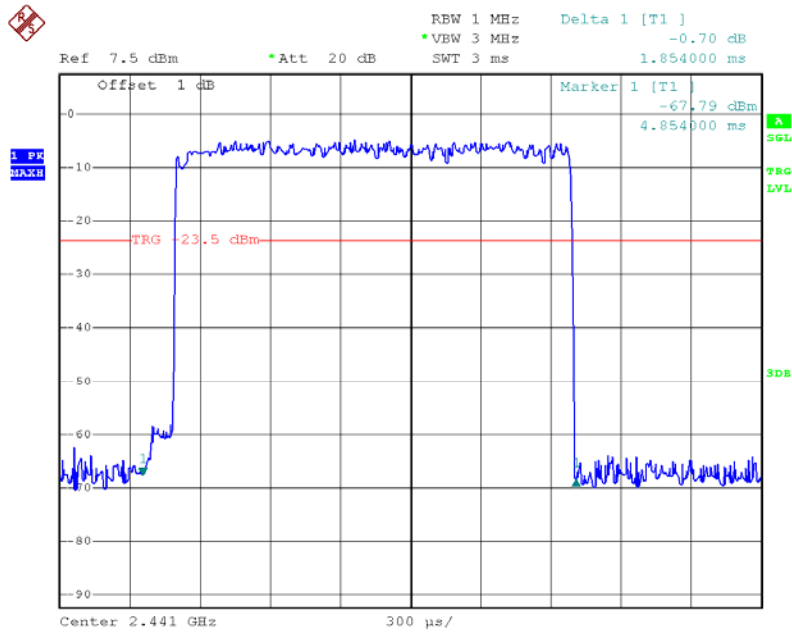
Date: 27.SEP.2012 20:26:36

EDR (8DPSK) - Low Channel



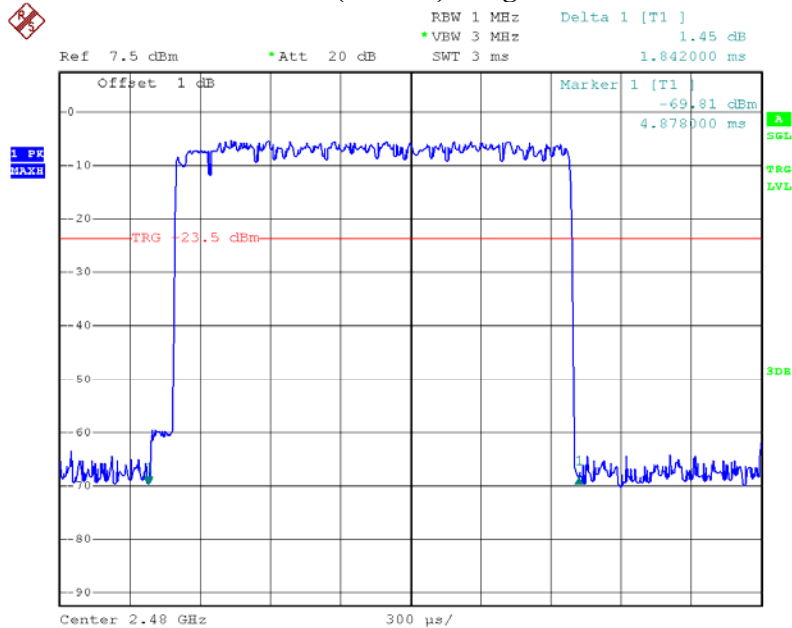
Date: 27.SEP.2012 20:23:59

EDR (8DPSK) - Middle Channel



Date: 27.SEP.2012 20:25:54

EDR (8DPSK) - High Channel



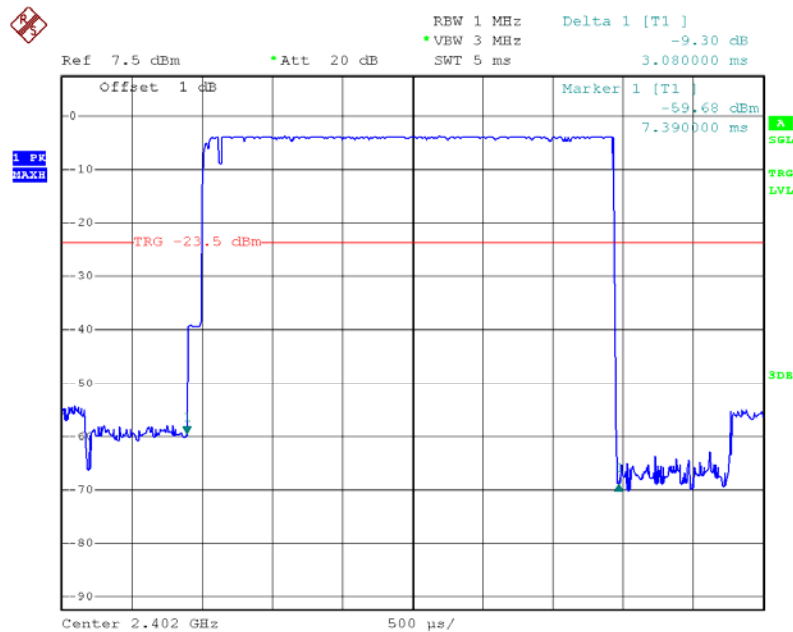
Date: 27.SEP.2012 20:29:07

DH5:

Test Mode: Transmitting

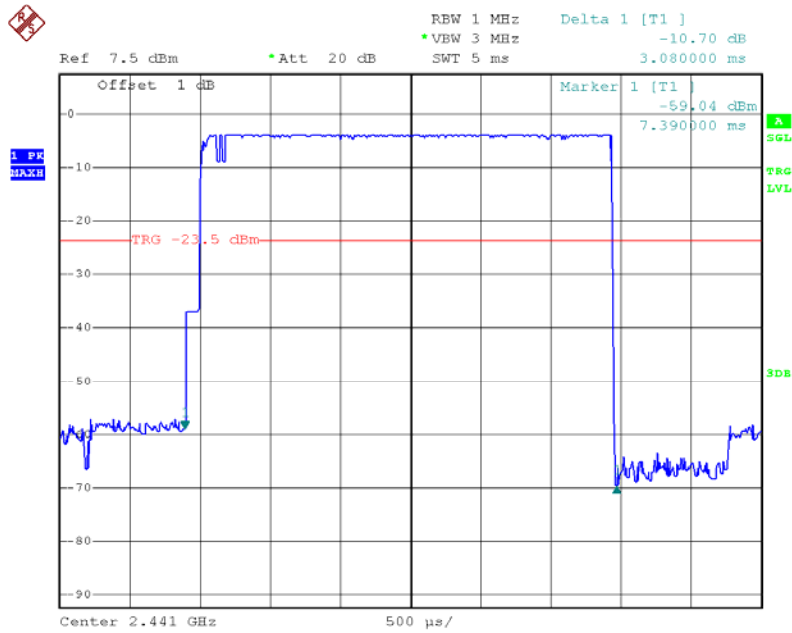
Mode	Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
BDR Mode (GFSK)	Low	3.080	0.329	0.4	Pass
	Middle	3.080	0.329	0.4	Pass
	High	3.070	0.327	0.4	Pass
	<i>Note: Dwell time = Pulse time*(1600/6/79)*31.6S</i>				
EDR Mode ($\pi/4$ -DQPSK)	Low	3.100	0.331	0.4	Pass
	Middle	3.120	0.333	0.4	Pass
	High	3.080	0.329	0.4	Pass
	<i>Note: Dwell time = Pulse time*(1600/6/79)*31.6S</i>				
EDR Mode (8DPSK)	Low	3.120	0.333	0.4	Pass
	Middle	3.100	0.331	0.4	Pass
	High	3.110	0.332	0.4	Pass
	<i>Note: Dwell time = Pulse time*(1600/6/79)*31.6S</i>				

BDR - Low Channel



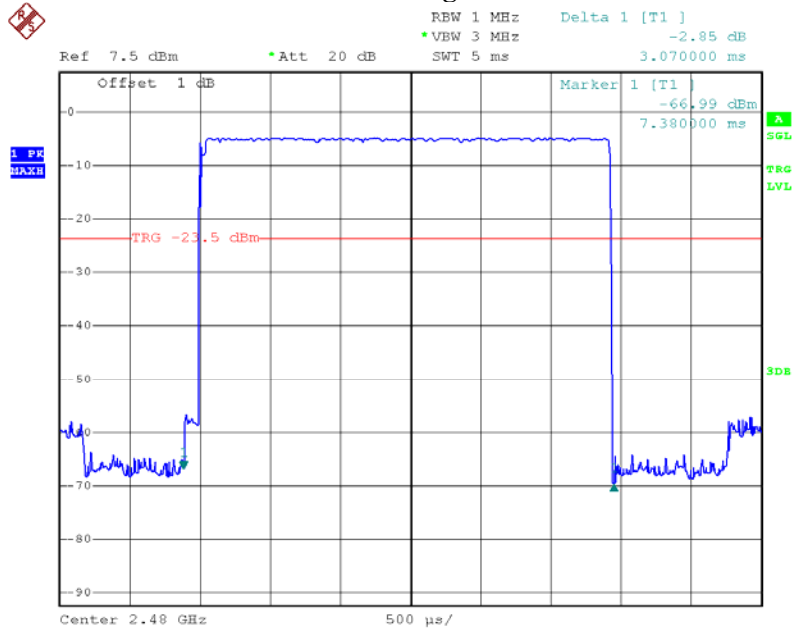
Date: 27.SEP.2012 20:12:18

BDR - Middle Channel



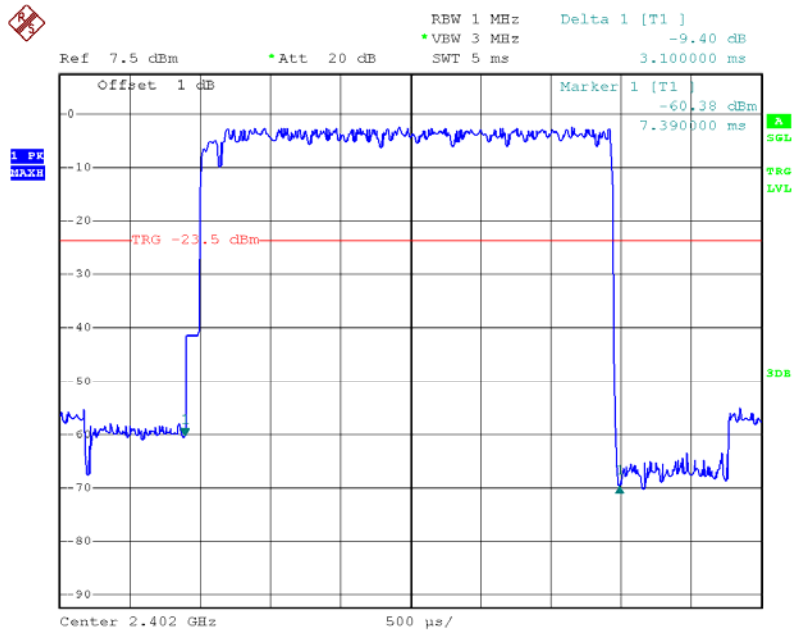
Date: 27.SEP.2012 20:13:56

BDR - High Channel



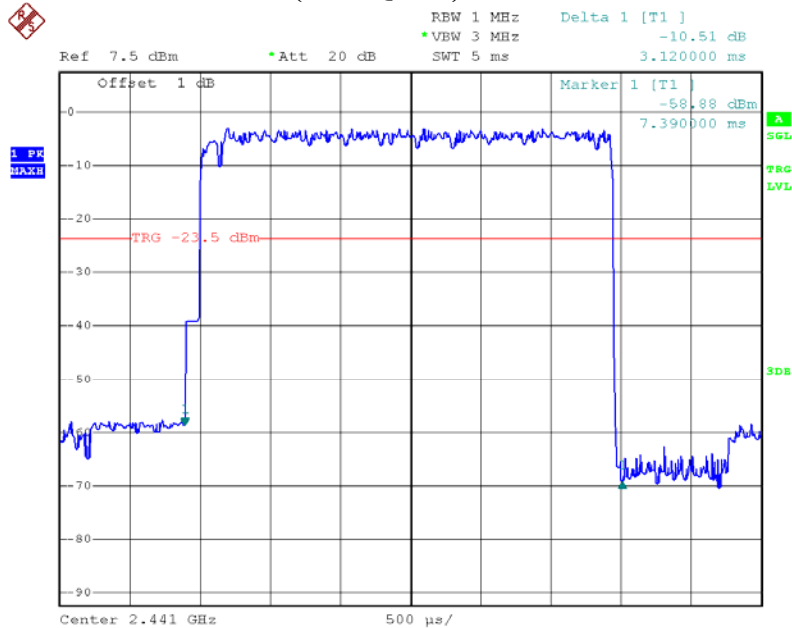
Date: 27.SEP.2012 20:14:51

EDR ($\pi/4$ -DQPSK) - Low Channel



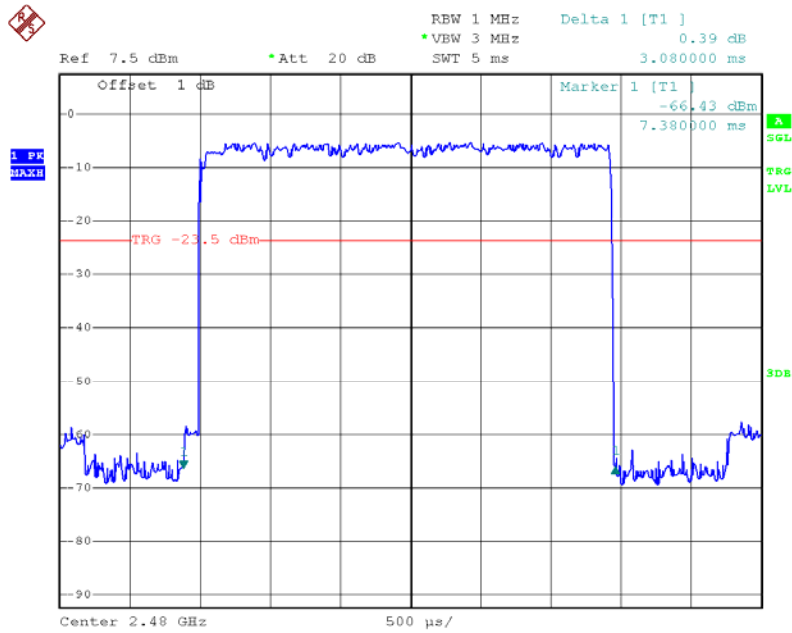
Date: 27.SEP.2012 20:20:05

EDR ($\pi/4$ -DQPSK) - Middle Channel



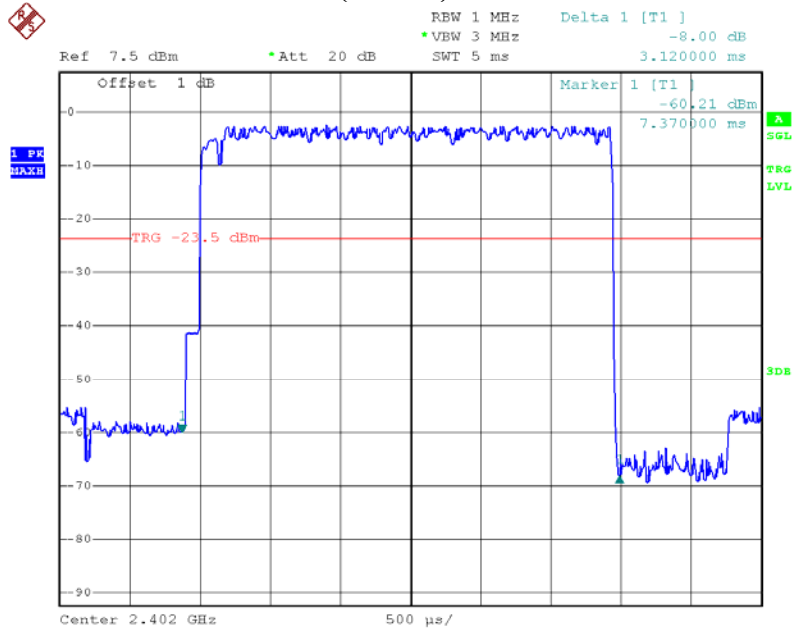
Date: 27.SEP.2012 20:19:09

EDR ($\pi/4$ -DQPSK) - High Channel



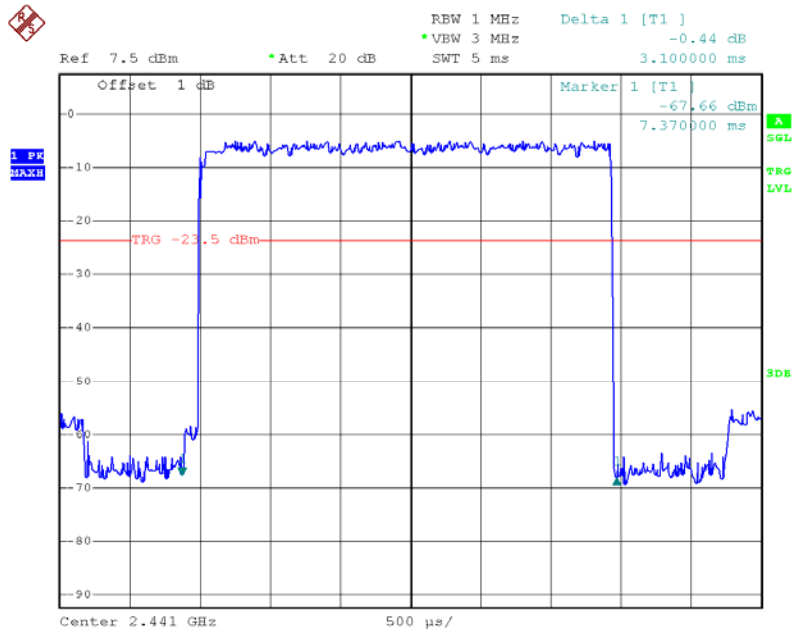
Date: 27.SEP.2012 20:17:27

EDR (8DPSK) - Low Channel



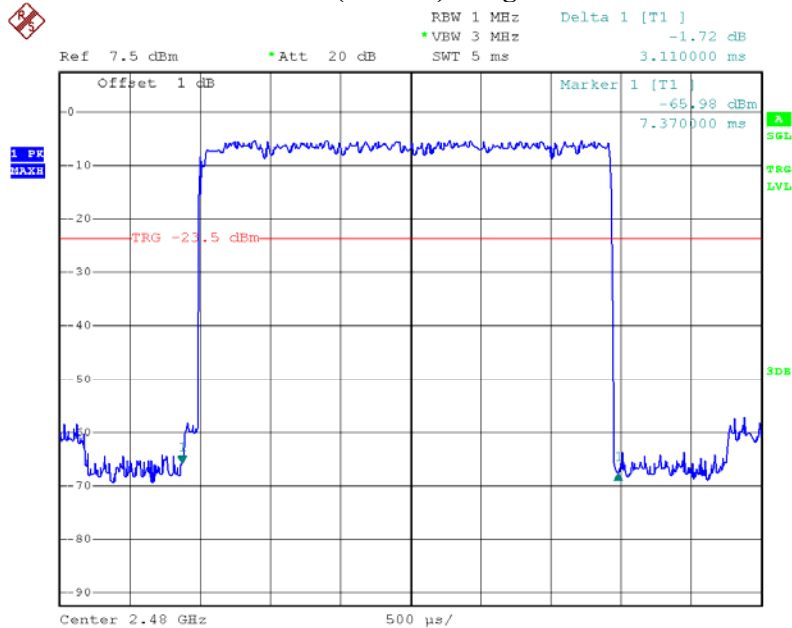
Date: 27.SEP.2012 20:20:26

EDR (8DPSK) - Middle Channel



Date: 27.SEP.2012 20:19:37

EDR (8DPSK) - High Channel



Date: 27.SEP.2012 20:18:25

FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

Applicable Standard

According to §15.247(b) (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

Test Procedure

1. Place the EUT on a bench and set in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an EMI test receiver.
3. Add a correction factor to the display.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

Temperature:	27.1 °C
Relative Humidity:	63 %
ATM Pressure:	100.5kPa

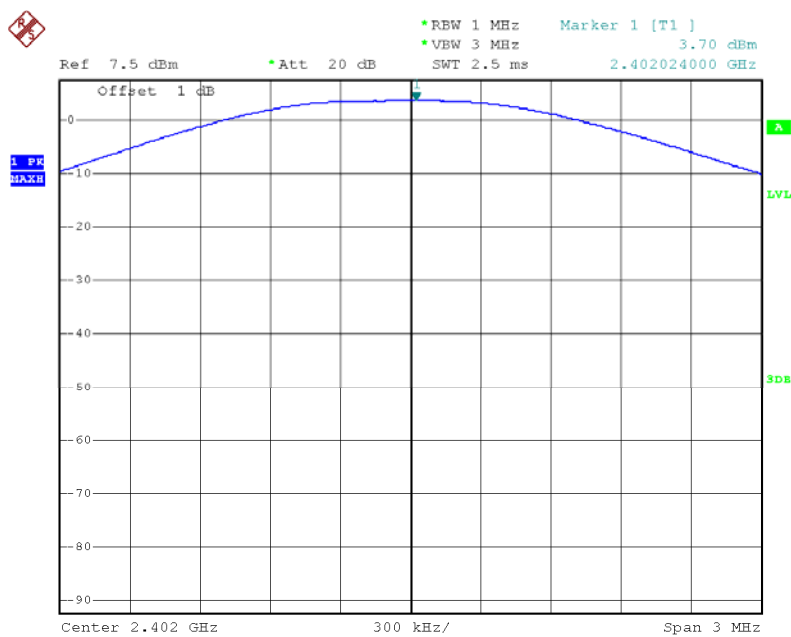
* The testing was performed by Leon Chen on 2012-09-27.

Test Result: Compliance.

Test Mode: Transmitting

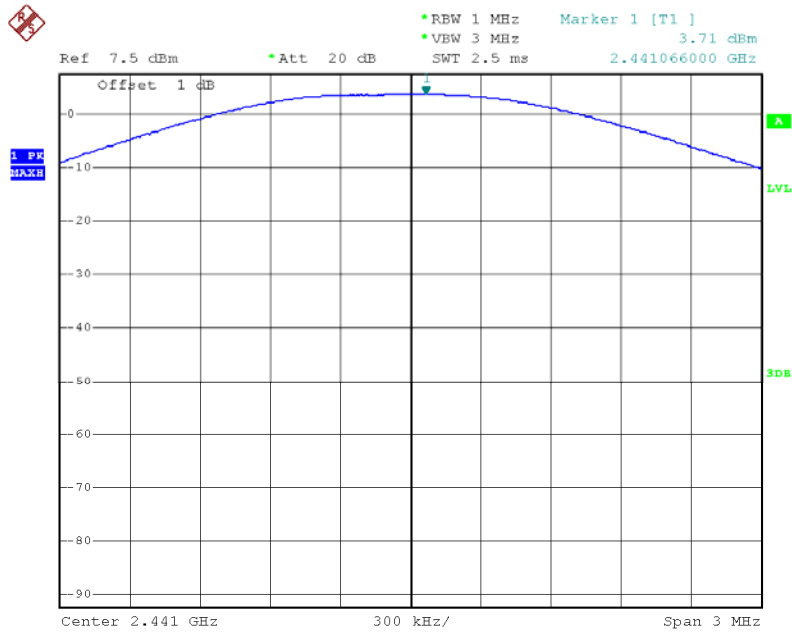
Mode	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
BDR Mode (GFSK)	Low	2402	3.70	30
	Middle	2441	3.71	30
	High	2480	4.29	30
EDR Mode ($\pi/4$ -DQPSK)	Low	2402	2.16	30
	Middle	2441	2.07	30
	High	2480	2.40	30
EDR Mode (8DPSK)	Low	2402	2.10	30
	Middle	2441	1.91	30
	High	2480	2.16	30

BDR: Output Power, Low



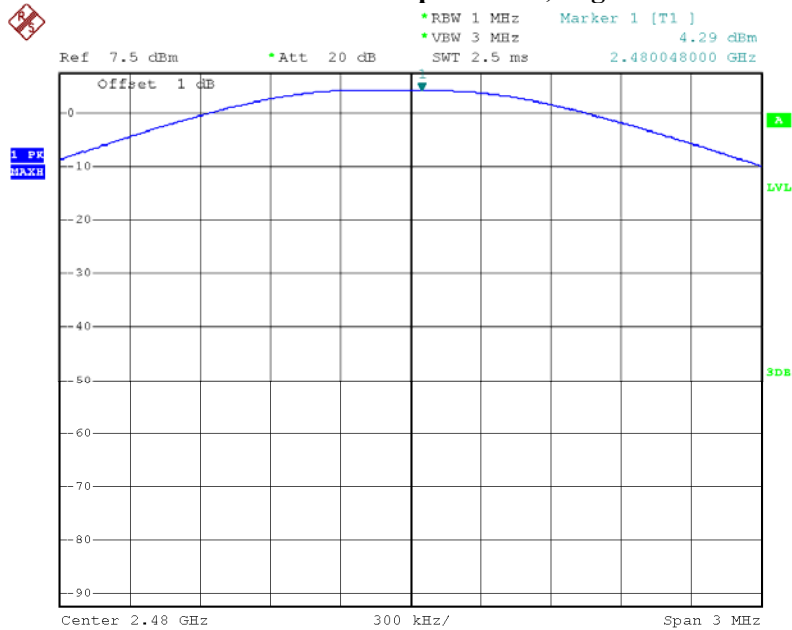
Date: 27.SEP.2012 17:43:48

BDR: Output Power, Middle



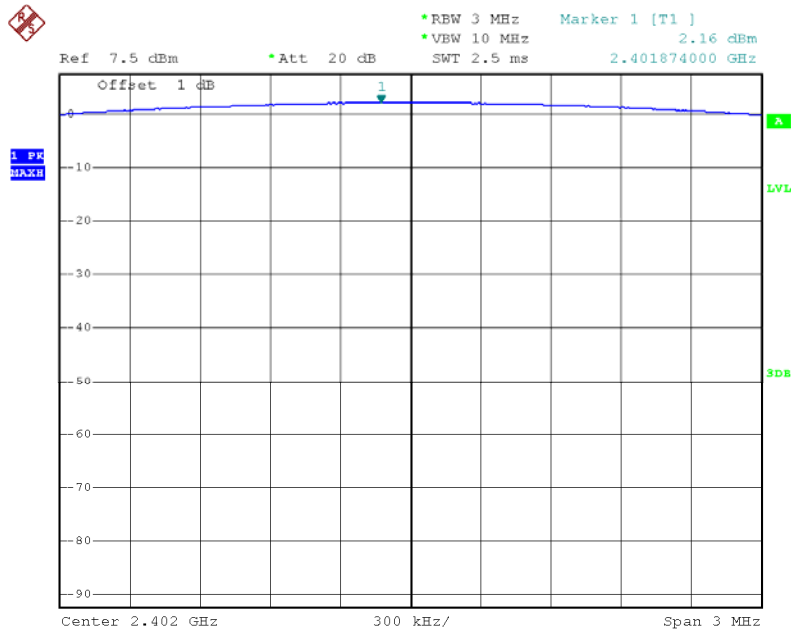
Date: 27.SEP.2012 17:56:06

BDR: Output Power, High



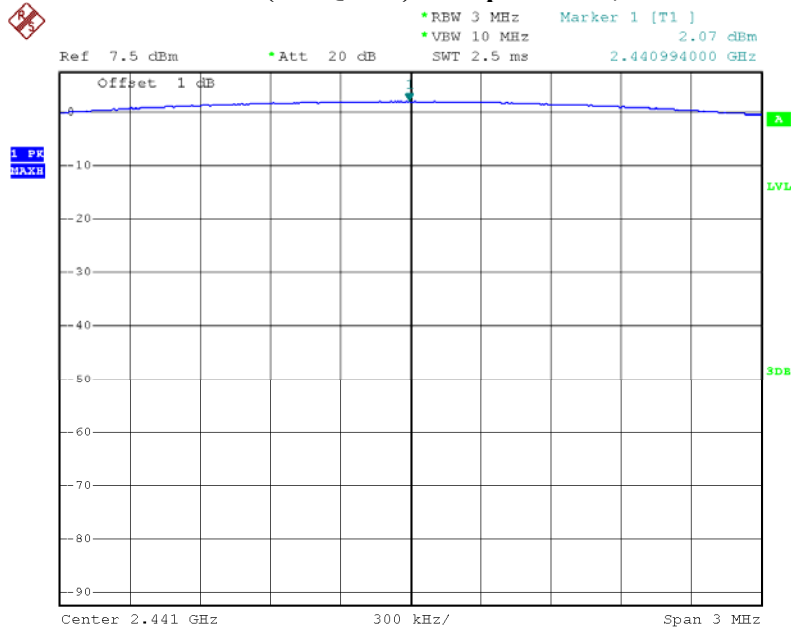
Date: 27.SEP.2012 18:02:17

EDR ($\pi/4$ -QPSK) : Output Power, Low



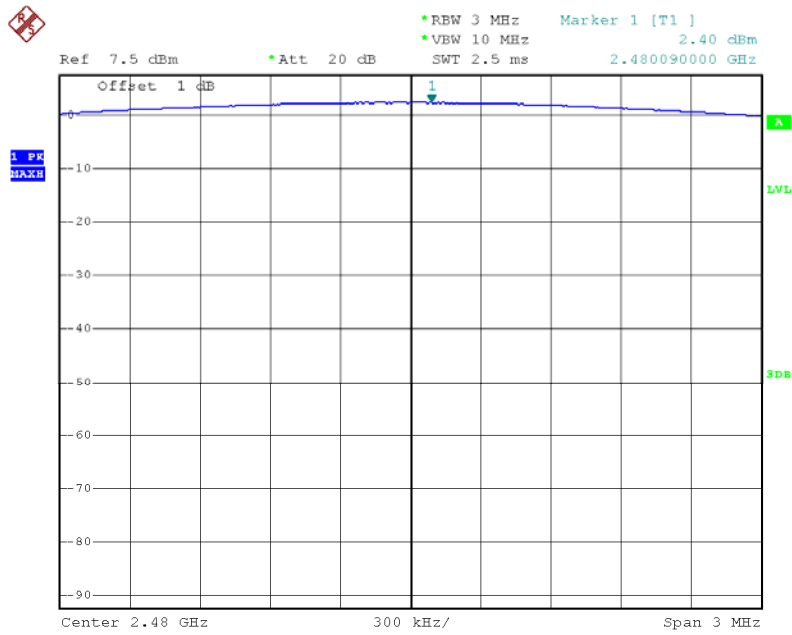
Date: 27.SEP.2012 21:19:43

EDR ($\pi/4$ -QPSK) : Output Power, Middle



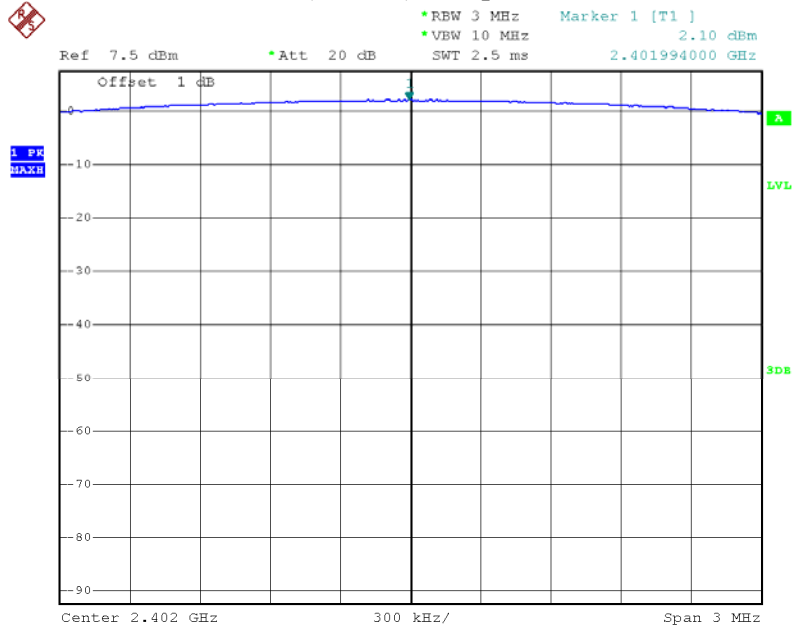
Date: 27.SEP.2012 21:19:05

EDR ($\pi/4$ -QPSK) : Output Power, High



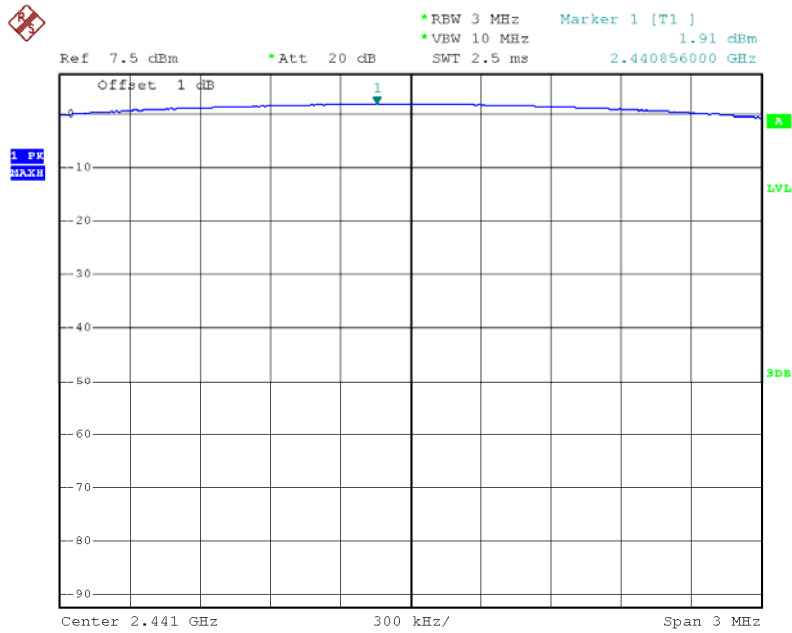
Date: 27.SEP.2012 21:18:37

EDR (8DPSK): Output Power, Low



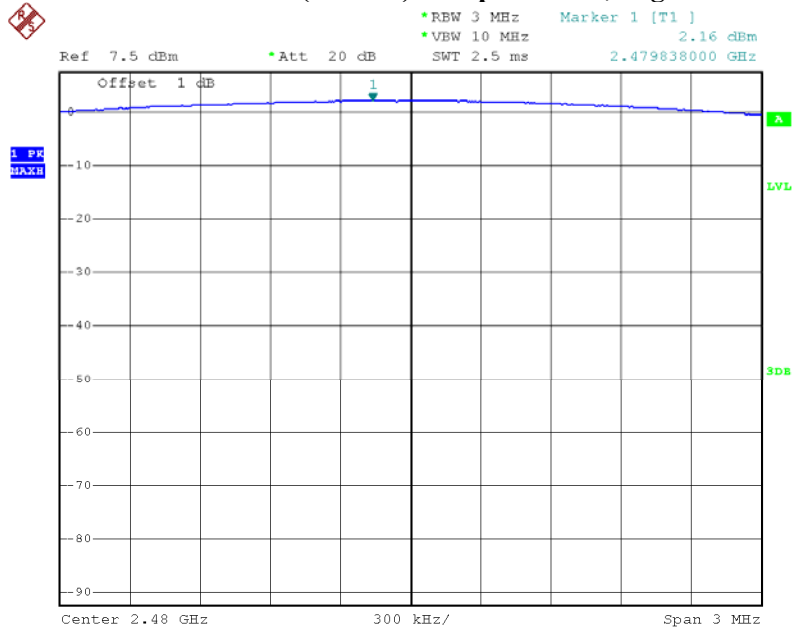
Date: 27.SEP.2012 20:47:06

EDR (8DPSK): Output Power, Middle



Date: 27.SEP.2012 20:46:49

EDR (8DPSK): Output Power, High



Date: 27.SEP.2012 20:46:13

FCC §15.247(d) - BAND EDGES TESTING

Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

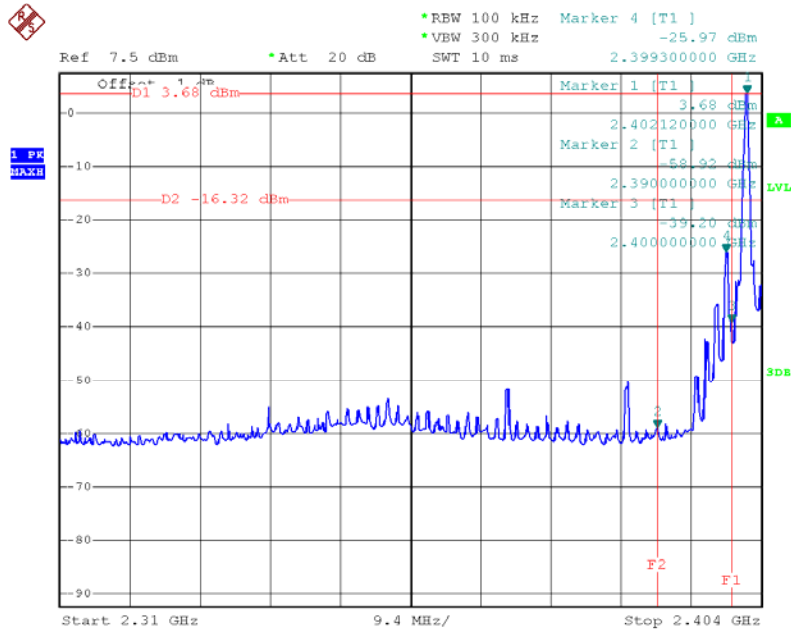
Environmental Conditions

Temperature:	27.1 °C
Relative Humidity:	63 %
ATM Pressure:	100.5kPa

**The testing was performed by Leon Chen on 2012-09-27.*

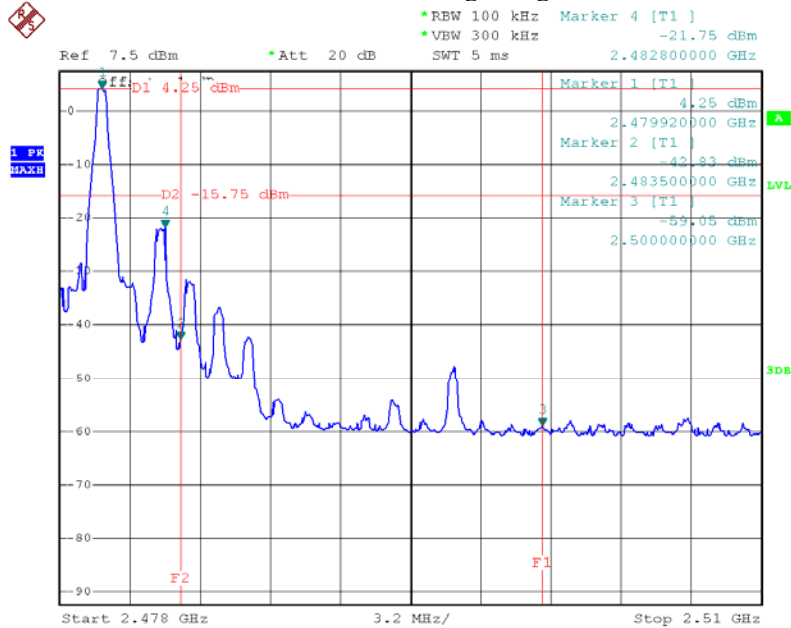
Test Result: Compliance

BDR: Band Edge, Left Side



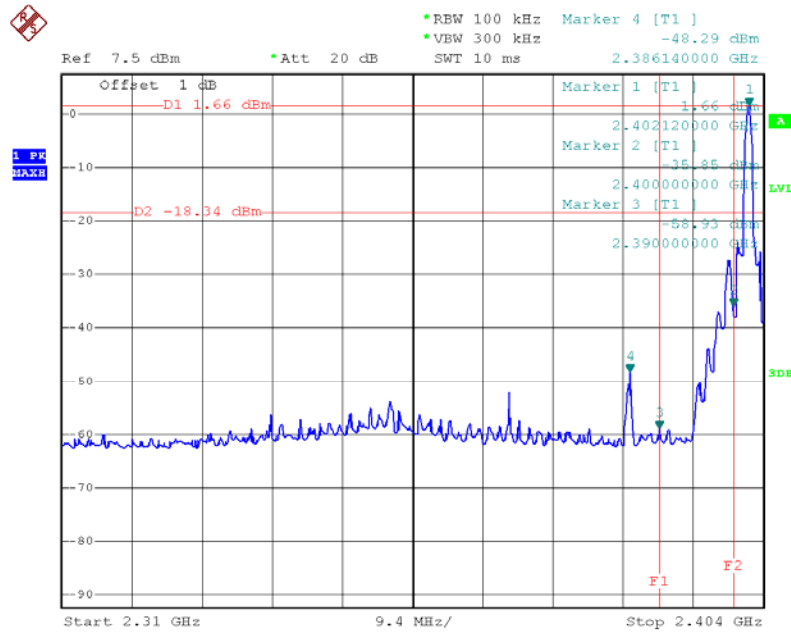
Date: 27.SEP.2012 17:53:41

BDR: Band Edge, Right Side



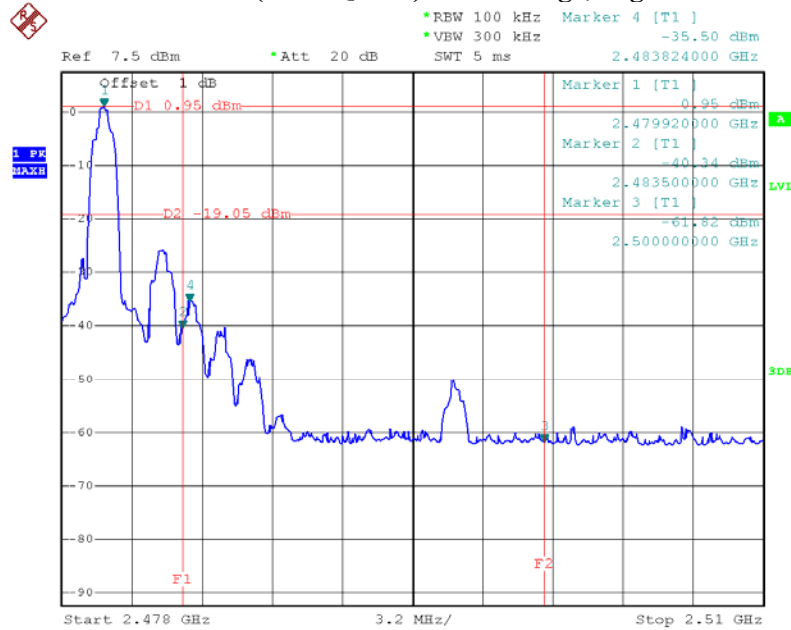
Date: 27.SEP.2012 18:50:30

EDR ($\pi/4$ -DQPSK) : Band Edge, Left Side



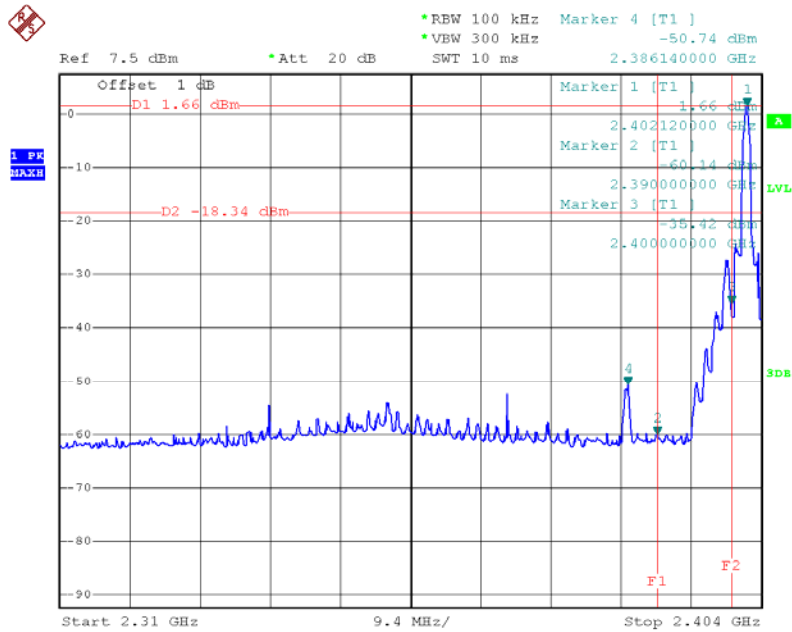
Date: 27.SEP.2012 21:34:11

EDR ($\pi/4$ -DQPSK) : Band Edge, Right Side



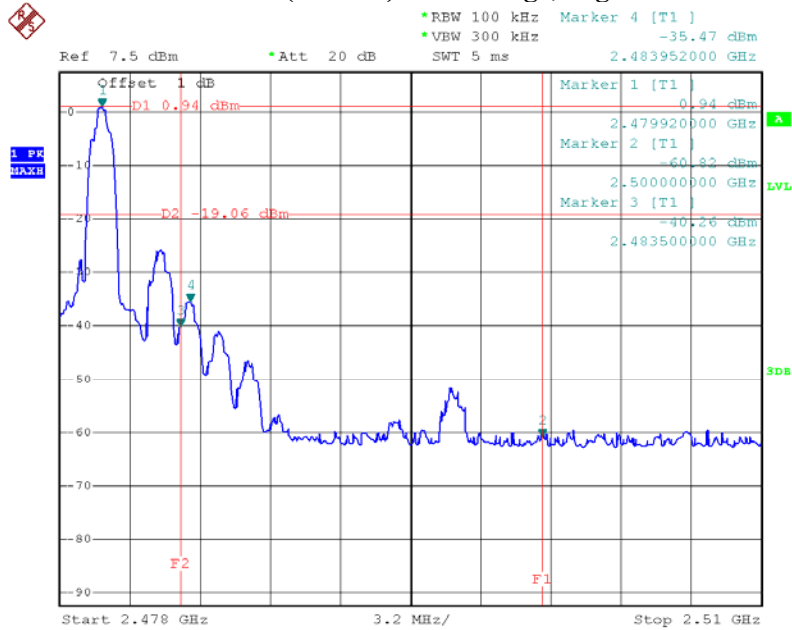
Date: 27.SEP.2012 21:36:49

EDR (8DPSK): Band Edge, Left Side



Date: 27.SEP.2012 20:53:29

EDR (8DPSK): Band Edge, Right Side



Date: 27.SEP.2012 20:55:13

***** END OF REPORT *****