

FCC PART 15.247

TEST REPORT

For

Nexpro International Limitada

San Jose-Goicoechea, Guadalupe, Barrio Tournon, Frente Al Hotel Villas Tournon, Oficinas Del Bufete
Facio Y Canas, Costa Rica

FCC ID: ZYPBADGER

Report Type: Original Report	Product Type: Mobile Phone
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* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Nexpro International Limitada*'s product, model number: *Badger* (FCC ID: ZYPBADGER) (the "EUT") in this report was a *Badger*, named as Mobile Phone by BACL corp. which was measured approximately: 11.0 cm (L) x 6.0cm (W) x 1.3cm (H), rated input voltage: DC 3.7V Lithium battery or DC 5.0V from adapter for charging.

Adapter Information:

Model No.: YW50;

Input: AC 100-240V, 50/60 Hz, 120mA

Output: 5.0V, 500mA

** All measurement and test data in this report was gathered from production sample serial number: 120704001 (Assigned by BACL, Dongguan). The EUT was received on 2012-07-04*

Objective

This report is prepared on behalf of *Nexpro International Limitada* 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 compliance of EUT 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)

FCC Part 22H&24E PCE submissions with FCC ID: ZYPBADGER.

FCC Part 15B JBP submissions with FCC ID: ZYPBADGER.

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 ± 1.5 dB, the uncertainty of any radiation on emissions measurement is ± 4.9 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.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

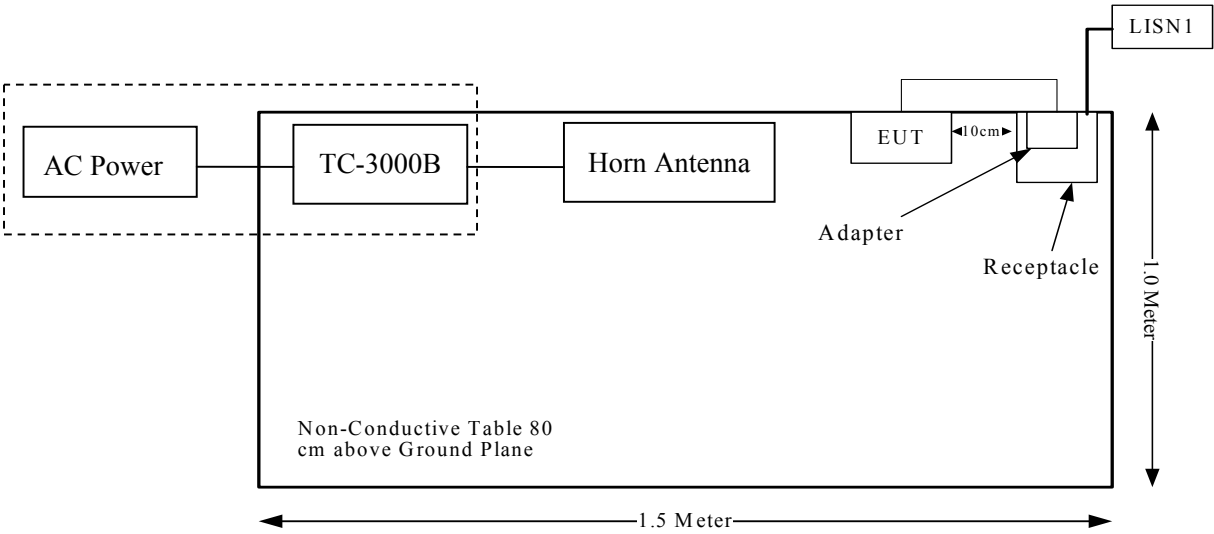
Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
TESCOM	Bluetooth Tester	TC-3000B	3000B650083

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §2.1093	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) AND §2.1093 – RF EXPOSURE

Applicable Standard

According to §15.247 (i) and §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.

Table 2 – Summary of SAR Evaluation Requirements for a Cell Phone with Multiple Transmitters

	Individual Transmitter	Simultaneous Transmission
Licensed Transmitters	<u>Routine evaluation required</u>	SAR not required: <u>Unlicensed only</u>
Unlicensed Transmitters	<p><u>When there is no simultaneous transmission –</u></p> <ul style="list-style-type: none"> output ≤ 60/f: SAR not required output > 60/f: stand-alone SAR required <p><u>When there is simultaneous transmission –</u></p> <p><u>Stand-alone SAR not required when</u></p> <ul style="list-style-type: none"> output $\leq 2 \cdot P_{Ref}$ and antenna is ≥ 5.0 cm from other antennas output $\leq P_{Ref}$ and antenna is ≥ 2.5 cm from other antennas output $\leq P_{Ref}$ and antenna is < 2.5 cm from other antennas, each with either output power $\leq P_{Ref}$ or 1-g SAR < 1.2 W/kg <p><u>Otherwise stand-alone SAR is required</u></p> <p><u>When stand-alone SAR is required</u></p> <ul style="list-style-type: none"> test SAR on highest output channel for each wireless mode and exposure condition if SAR for highest output channel is $> 50\%$ of SAR limit, evaluate all channels according to normal procedures 	<ul style="list-style-type: none"> when stand-alone 1-g SAR is not required and antenna is ≥ 5 cm from other antennas <p><u>Licensed & Unlicensed</u></p> <ul style="list-style-type: none"> when the sum of the 1-g SAR is < 1.6 W/kg for all simultaneous transmitting antennas when SAR to peak location separation ratio of simultaneous transmitting antenna pair is < 0.3 <p>SAR required:</p> <p><u>Licensed & Unlicensed</u></p> <p>antenna pairs with SAR to peak location separation ratio ≥ 0.3; test is only required for the configuration that results in the highest SAR in stand-alone configuration for each wireless mode and exposure condition</p> <p>Note: simultaneous transmission exposure conditions for head and body can be different for different style phones; therefore, different test requirements may apply</p>
Jaw, Mouth and Nose	<p><u>Flat phantom SAR required</u></p> <ul style="list-style-type: none"> when measurement is required in tight regions of SAM and it is not feasible or the results can be questionable due to probe tilt, calibration, positioning and orientation issues position rectangular and clam-shell phones according to flat phantom procedures and conduct SAR measurements for these specific locations 	When simultaneous transmission SAR testing is required, contact the FCC Laboratory for interim guidance.

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval.

- 1) Bluetooth can transmit simultaneously with GSM.
- 2) The distance between BT and GSM is 0.5 cm, the max output power of BT is 11 mw and the sum of 1g SAR of other antenna is <1.2W/kg. Therefore, the stand alone SAR for BT is not required and SUM of 1-g SAR is <1.6 W/kg for all simultaneous transmitting antennas. Simultaneous transmission SAR evaluation is also not required for GSM antenna. Please refer to the following antenna location information in details.
- 3) P_{Ref} is defined as the maximum conducted power available at the antenna according to source-based time-averaging requirements of Section 2.1093(d) (5).

Result: Compliance

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 a internal antenna, which complied with 15.203, the maximum gain is -2 dBi, please refer to the internal photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

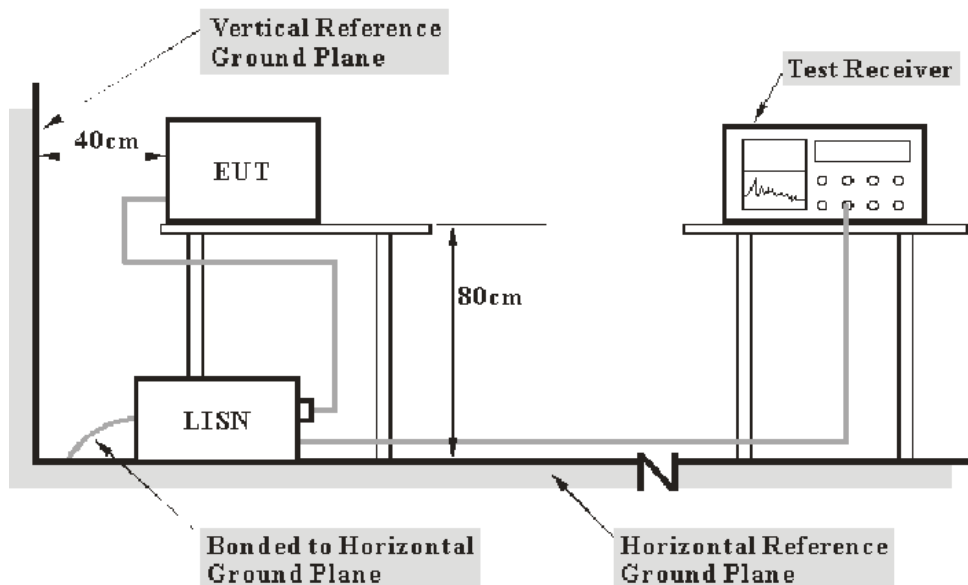
FCC §15.207

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 CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Dongguan) is 1.5 dB.

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

* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the Adapter was connected to the outlet of the 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:

11.14 dB at 0.230 MHz in the Neutral

Test Data

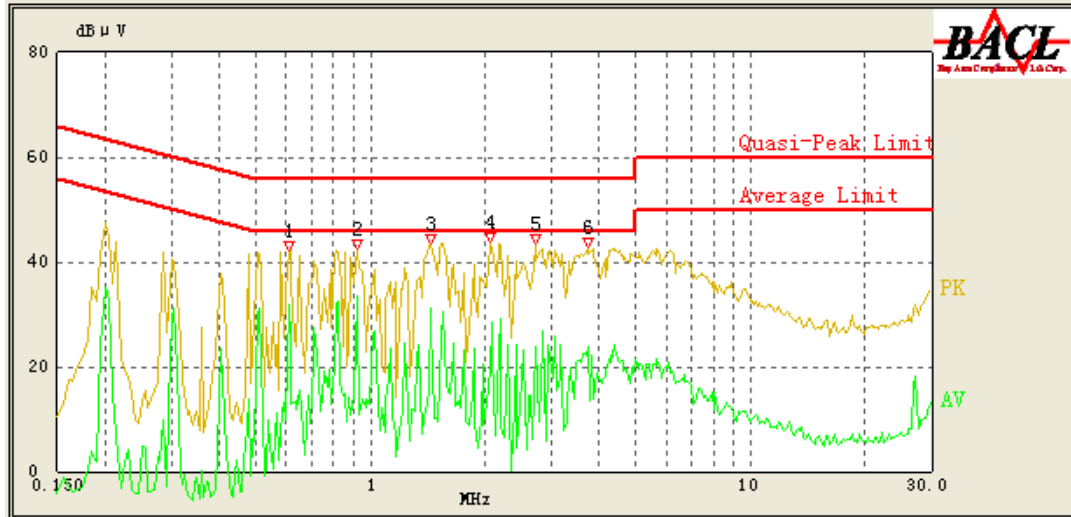
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

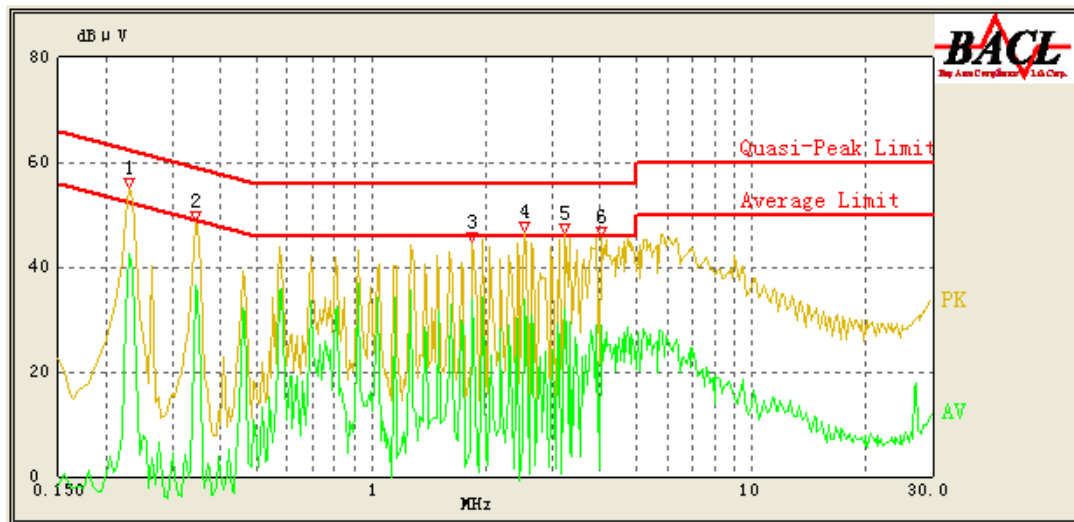
* The testing was performed by Dean Liu on 2012-07-14.

Test Mode: Transmitting

120V, 60 Hz, Line:



Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/QP/Ave.)
0.920	33.37	0.45	46.00	12.63	Ave
0.610	31.68	0.43	46.00	14.32	Ave
2.080	28.65	0.48	46.00	17.35	Ave
1.445	27.82	0.46	46.00	18.18	Ave
0.920	34.88	0.45	56.00	21.12	QP
1.445	34.88	0.46	56.00	21.12	QP
0.610	34.46	0.43	56.00	21.54	QP
3.720	23.97	0.50	46.00	22.03	Ave
2.720	23.95	0.49	46.00	22.05	Ave
2.075	32.70	0.48	56.00	23.30	QP
3.735	31.92	0.50	56.00	24.08	QP
2.715	28.74	0.49	56.00	27.26	QP

120V, 60 Hz, Neutral:

Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/QP/Ave.)
0.230	42.57	0.42	53.71	11.14	Ave
1.845	33.85	0.48	46.00	12.15	Ave
2.535	33.74	0.49	46.00	12.26	Ave
0.345	36.64	0.42	50.43	13.79	Ave
3.225	32.16	0.49	46.00	13.84	Ave
4.025	28.88	0.50	46.00	17.12	Ave
0.230	45.90	0.42	63.71	17.81	QP
4.025	37.61	0.50	56.00	18.39	QP
0.345	40.87	0.42	60.43	19.56	QP
2.535	36.18	0.49	56.00	19.82	QP
1.845	34.83	0.48	56.00	21.17	QP
3.225	33.33	0.49	56.00	22.67	QP

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

Applicable Standard

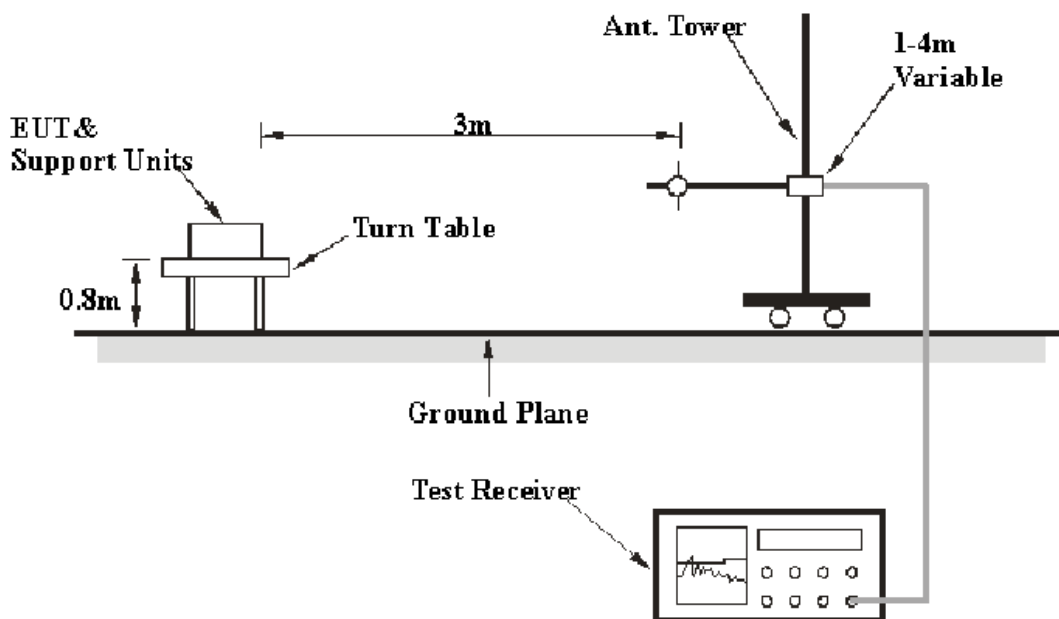
FCC §15.247 (d); §15.209; §15.205;

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 CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement from 30 MHz to 1 GHz at Bay Area Compliance Laboratories Corp. (Dongguan) is 4.9 dB.

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	100224	2012-5-13	2013-5-12
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-9-6	2012-9-5
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	2011-7-30	2013-7-29
mini-circuits	Wideband Amplifier	ZVA-183-S+	96901149	2012-4-24	2013-4-23

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

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:

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

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:

Transmitting (BDR- GFSK) Mode: 4.13 dB at 2483.5 MHz in the Vertical polarization at high channel

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Dean Liu on 2012-07-09.

Test Mode: Transmitting (BDR- GFSK)

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	(FCC 15.247)	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel:2402MHz									
2390	14.02	AV	H	30.98	3.84	0.00	48.85	54.00	5.15
2390	13.79	AV	V	30.98	3.84	0.00	48.62	54.00	5.38
2390	30.21	PK	H	30.98	3.84	0.00	65.04	74.00	8.96
2390	29.63	PK	V	30.98	3.84	0.00	64.46	74.00	9.54
379	32.34	QP	H	15.76	2.35	21.72	28.73	46.00	17.27
379	31.96	QP	V	15.76	2.35	21.72	28.35	46.00	17.65
4804	20.51	AV	V	33.17	4.67	27.34	31.01	54.00	22.99
4804	40.23	PK	V	33.17	4.67	27.34	50.73	74.00	23.27
4804	39.6	PK	H	33.17	4.67	27.34	50.10	74.00	23.90
4804	19.29	AV	H	33.17	4.67	27.34	29.79	54.00	24.21
9608	15.24	AV	V	38.52	8.75	26.39	36.11	54.00	17.89
9608	14.39	AV	H	38.52	8.75	26.39	35.26	54.00	18.74
7206	15.01	AV	V	38.67	6.5	26.54	33.64	54.00	20.36
9608	32.64	PK	V	38.52	8.75	26.39	53.51	74.00	20.49
7206	14.29	AV	H	38.67	6.5	26.54	32.92	54.00	21.08
9608	31.87	PK	H	38.52	8.75	26.39	52.74	74.00	21.26
7206	33.59	PK	V	38.67	6.5	26.54	52.22	74.00	21.78
7206	32.57	PK	H	38.67	6.5	26.54	51.2	74.00	22.8
2402	69.39	PK	H	31.05	3.90	0.00	104.35	N/A	N/A
2402	31.57	AV	H	31.05	3.90	0.00	66.53	N/A	N/A
2402	69.33	PK	V	31.05	3.90	0.00	104.29	N/A	N/A
2402	32.3	AV	V	31.05	3.90	0.00	67.26	N/A	N/A

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	(FCC 15.247)	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Middle Channel:2441MHz									
511	31.14	QP	V	18.08	2.76	22.05	29.94	46.00	16.06
511	28.79	QP	H	18.08	2.76	22.05	27.59	46.00	18.41
7323	14.72	AV	H	38.88	6.72	26.67	33.66	54.00	20.34
7323	13.86	AV	V	38.88	6.72	26.67	32.80	54.00	21.20
4882	20.53	AV	H	33.34	4.75	27.04	31.58	54.00	22.42
4882	19.24	AV	V	33.34	4.75	27.04	30.29	54.00	23.71
4882	39.15	PK	H	33.34	4.75	27.04	50.20	74.00	23.80
7323	31.21	PK	H	38.88	6.72	26.67	50.15	74.00	23.85
7323	30.54	PK	V	38.88	6.72	26.67	49.48	74.00	24.52
4882	38.4	PK	V	33.34	4.75	27.04	49.45	74.00	24.55
9764	14.34	AV	V	38.83	8.58	26.54	35.2	54.00	18.8
9764	14.01	AV	H	38.83	8.58	26.54	34.87	54.00	19.13
9764	32.11	PK	H	38.83	8.58	26.54	52.97	74.00	21.03
9764	31.96	PK	V	38.83	8.58	26.54	52.82	74.00	21.18
2441	69.24	PK	H	31.27	3.99	0.00	104.50	N/A	N/A
2441	31.3	AV	H	31.27	3.99	0.00	66.56	N/A	N/A
2441	69.48	PK	V	31.27	3.99	0.00	104.74	N/A	N/A
2441	32.52	AV	V	31.27	3.99	0.00	67.78	N/A	N/A

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	(FCC 15.247)	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
High Channel:2480MHz									
2483.5	14.57	AV	V	31.51	3.80	0.00	49.87	54.00	4.13*
2483.5	13.82	AV	H	31.51	3.80	0.00	49.12	54.00	4.88*
2483.5	31.16	PK	V	31.51	3.80	0.00	66.46	74.00	7.54
2483.5	29.87	PK	H	31.51	3.80	0.00	65.17	74.00	8.83
504	30.42	QP	V	18.11	2.74	22.03	29.24	46.00	16.76
504	29.94	QP	H	18.11	2.74	22.03	28.76	46.00	17.24
7440	14.05	AV	H	39.09	6.95	26.79	33.30	54.00	20.70
7440	13.95	AV	V	39.09	6.95	26.79	33.20	54.00	20.80
4960	20.71	AV	V	33.51	4.70	27.26	31.66	54.00	22.34
4960	20.23	AV	H	33.51	4.70	27.26	31.18	54.00	22.82
4960	39.9	PK	V	33.51	4.70	27.26	50.85	74.00	23.15
7440	31.26	PK	H	39.09	6.95	26.79	50.51	74.00	23.49
4960	39.24	PK	H	33.51	4.70	27.26	50.19	74.00	23.81
7440	30.29	PK	V	39.09	6.95	26.79	49.54	74.00	24.46
9920	32.54	PK	H	39.14	8.41	26.70	53.39	74.00	20.61
9920	14.26	AV	H	39.14	8.41	26.70	35.11	54.00	18.89
9920	31.39	PK	V	39.14	8.41	26.70	52.24	74.00	21.76
9920	14.13	AV	V	39.14	8.41	26.70	34.98	54.00	19.02
2480	66.53	PK	H	31.49	3.82	0.00	101.84	N/A	N/A
2480	31.69	AV	H	31.49	3.82	0.00	67.00	N/A	N/A
2480	68.38	PK	V	31.49	3.82	0.00	103.69	N/A	N/A
2480	32.19	AV	V	31.49	3.82	0.00	67.50	N/A	N/A

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

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	(FCC 15.247)	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel:2402MHz									
2390	13.76	AV	H	30.98	3.84	0.00	48.59	54.00	5.41
2390	13.54	AV	V	30.98	3.84	0.00	48.37	54.00	5.63
2390	29.9	PK	H	30.98	3.84	0.00	64.73	74.00	9.27
2390	29.39	PK	V	30.98	3.84	0.00	64.22	74.00	9.78
379	32.19	QP	H	15.76	2.35	21.72	28.58	46.00	17.42
379	31.72	QP	V	15.76	2.35	21.72	28.11	46.00	17.89
9608	15.01	AV	V	38.52	8.75	26.39	35.88	54.00	18.12
9608	14.1	AV	H	38.52	8.75	26.39	34.97	54.00	19.03
7206	14.76	AV	V	38.67	6.5	26.54	33.39	54.00	20.61
9608	32.42	PK	V	38.52	8.75	26.39	53.29	74.00	20.71
7206	14.15	AV	H	38.67	6.5	26.54	32.78	54.00	21.22
9608	31.61	PK	H	38.52	8.75	26.39	52.48	74.00	21.52
7206	33.3	PK	V	38.67	6.5	26.54	51.93	74.00	22.07
7206	32.43	PK	H	38.67	6.5	26.54	51.06	74.00	22.94
4804	20.23	AV	V	33.17	4.67	27.34	30.73	54.00	23.27
4804	39.9	PK	V	33.17	4.67	27.34	50.40	74.00	23.60
4804	39.39	PK	H	33.17	4.67	27.34	49.89	74.00	24.11
4804	19.07	AV	H	33.17	4.67	27.34	29.57	54.00	24.43
2402	69.18	PK	H	31.05	3.90	0.00	104.14	N/A	N/A
2402	31.3	AV	H	31.05	3.90	0.00	66.26	N/A	N/A
2402	69.04	PK	V	31.05	3.90	0.00	104.00	N/A	N/A
2402	32.05	AV	V	31.05	3.90	0.00	67.01	N/A	N/A

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	(FCC 15.247)	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Middle Channel:2441MHz									
511	30.9	QP	V	18.08	2.76	22.05	29.70	46.00	16.30
511	28.55	QP	H	18.08	2.76	22.05	27.35	46.00	18.65
7323	14.47	AV	H	38.88	6.72	26.67	33.41	54.00	20.59
7323	13.63	AV	V	38.88	6.72	26.67	32.57	54.00	21.43
4882	20.19	AV	H	33.34	4.75	27.04	31.24	54.00	22.76
4882	19.19	AV	V	33.34	4.75	27.04	30.24	54.00	23.76
4882	38.98	PK	H	33.34	4.75	27.04	50.03	74.00	23.97
7323	30.91	PK	H	38.88	6.72	26.67	49.85	74.00	24.15
7323	30.38	PK	V	38.88	6.72	26.67	49.32	74.00	24.68
4882	38.06	PK	V	33.34	4.75	27.04	49.11	74.00	24.89
9764	31.89	PK	H	38.83	8.58	26.54	52.75	74.00	21.25
9764	13.76	AV	H	38.83	8.58	26.54	34.62	54.00	19.38
9764	31.62	PK	V	38.83	8.58	26.54	52.48	74.00	21.52
9764	14.13	AV	V	38.83	8.58	26.54	34.99	54.00	19.01
2441	69.1	PK	H	31.27	3.99	0.00	104.36	N/A	N/A
2441	31.09	AV	H	31.27	3.99	0.00	66.35	N/A	N/A
2441	69.25	PK	V	31.27	3.99	0.00	104.51	N/A	N/A
2441	32.26	AV	V	31.27	3.99	0.00	67.52	N/A	N/A

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	(FCC 15.247)	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
High Channel:2480MHz									
2483.5	14.36	AV	V	31.51	3.80	0.00	49.66	54.00	4.34*
2483.5	13.98	AV	H	31.51	3.80	0.00	49.28	54.00	4.72*
2483.5	30.52	PK	V	31.51	3.80	0.00	65.82	74.00	8.18
2483.5	29.73	PK	H	31.51	3.80	0.00	65.03	74.00	8.97
504	30.18	QP	V	18.11	2.74	22.03	29.00	46.00	17.00
504	29.78	QP	H	18.11	2.74	22.03	28.60	46.00	17.40
7440	13.89	AV	H	39.09	6.95	26.79	33.14	54.00	20.86
7440	13.79	AV	V	39.09	6.95	26.79	33.04	54.00	20.96
4960	20.41	AV	V	33.51	4.70	27.26	31.36	54.00	22.64
4960	19.9	AV	H	33.51	4.70	27.26	30.85	54.00	23.15
4960	39.63	PK	V	33.51	4.70	27.26	50.58	74.00	23.42
7440	31.02	PK	H	39.09	6.95	26.79	50.27	74.00	23.73
4960	39.23	PK	H	33.51	4.70	27.26	50.18	74.00	23.82
7440	30.25	PK	V	39.09	6.95	26.79	49.50	74.00	24.50
9920	32.3	PK	H	39.14	8.41	26.70	53.15	74.00	20.85
9920	14.01	AV	H	39.14	8.41	26.70	34.86	54.00	19.14
9920	31.15	PK	V	39.14	8.41	26.70	52.00	74.00	22.00
9920	13.89	AV	V	39.14	8.41	26.70	34.74	54.00	19.26
2480	66.21	PK	H	31.49	3.82	0.00	101.52	N/A	N/A
2480	31.35	AV	H	31.49	3.82	0.00	66.66	N/A	N/A
2480	68.14	PK	V	31.49	3.82	0.00	103.45	N/A	N/A
2480	31.99	AV	V	31.49	3.82	0.00	67.30	N/A	N/A

Test Mode: Transmitting (EDR-8DPSK)

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	(FCC 15.247)	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel:2402MHz									
2390	14.18	AV	H	30.98	3.84	0.00	49.01	54.00	4.99
2390	13.82	AV	V	30.98	3.84	0.00	48.65	54.00	5.35
2390	30.33	PK	H	30.98	3.84	0.00	65.16	74.00	8.84
2390	29.82	PK	V	30.98	3.84	0.00	64.65	74.00	9.35
379	32.44	QP	H	15.76	2.35	21.72	28.83	46.00	17.17
379	32.04	QP	V	15.76	2.35	21.72	28.43	46.00	17.57
9608	15.39	AV	V	38.52	8.75	26.39	36.26	54	17.74
9608	14.47	AV	H	38.52	8.75	26.39	35.34	54	18.66
7206	15.36	AV	V	38.67	6.5	26.54	33.99	54	20.01
9608	32.87	PK	V	38.52	8.75	26.39	53.74	74	20.26
7206	14.38	AV	H	38.67	6.5	26.54	33.01	54	20.99
9608	32.01	PK	H	38.52	8.75	26.39	52.88	74	21.12
7206	33.68	PK	V	38.67	6.5	26.54	52.31	74	21.69
7206	32.7	PK	H	38.67	6.5	26.54	51.33	74	22.67
4804	20.64	AV	V	33.17	4.67	27.34	31.14	54.00	22.86
4804	40.29	PK	V	33.17	4.67	27.34	50.79	74.00	23.21
4804	39.78	PK	H	33.17	4.67	27.34	50.28	74.00	23.72
4804	19.34	AV	H	33.17	4.67	27.34	29.84	54.00	24.16
2402	69.43	PK	H	31.05	3.90	0.00	104.39	N/A	N/A
2402	31.69	AV	H	31.05	3.90	0.00	66.65	N/A	N/A
2402	69.43	PK	V	31.05	3.90	0.00	104.39	N/A	N/A
2402	32.51	AV	V	31.05	3.90	0.00	67.47	N/A	N/A

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	(FCC 15.247)	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Middle Channel:2441MHz									
511	31.27	QP	V	18.08	2.76	22.05	30.07	46.00	15.93
511	28.91	QP	H	18.08	2.76	22.05	27.71	46.00	18.29
7323	14.88	AV	H	38.88	6.72	26.67	33.82	54.00	20.18
7323	14	AV	V	38.88	6.72	26.67	32.94	54.00	21.06
4882	20.65	AV	H	33.34	4.75	27.04	31.70	54.00	22.30
4882	19.33	AV	V	33.34	4.75	27.04	30.38	54.00	23.62
4882	39.26	PK	H	33.34	4.75	27.04	50.31	74.00	23.69
7323	31.33	PK	H	38.88	6.72	26.67	50.27	74.00	23.73
7323	30.69	PK	V	38.88	6.72	26.67	49.63	74.00	24.37
4882	38.57	PK	V	33.34	4.75	27.04	49.62	74.00	24.38
9764	32.28	PK	H	38.83	8.58	26.54	53.14	74.00	20.86
9764	14.22	AV	H	38.83	8.58	26.54	35.08	54.00	18.92
9764	31.79	PK	V	38.83	8.58	26.54	52.65	74.00	21.35
9764	14.47	AV	V	38.83	8.58	26.54	35.33	54.00	18.67
2441	69.33	PK	H	31.27	3.99	0.00	104.59	N/A	N/A
2441	31.46	AV	H	31.27	3.99	0.00	66.72	N/A	N/A
2441	69.53	PK	V	31.27	3.99	0.00	104.79	N/A	N/A
2441	32.69	AV	V	31.27	3.99	0.00	67.95	N/A	N/A

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	(FCC 15.247)	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
High Channel:2480MHz									
2483.5	14.7	AV	V	31.51	3.80	0.00	50.00	54.00	4.00
2483.5	13.95	AV	H	31.51	3.80	0.00	49.25	54.00	4.75*
2483.5	31.29	PK	V	31.51	3.80	0.00	66.59	74.00	7.41
2483.5	30	PK	H	31.51	3.80	0.00	65.30	74.00	8.70
504	30.59	QP	V	18.11	2.74	22.03	29.41	46.00	16.59
504	30.1	QP	H	18.11	2.74	22.03	28.92	46.00	17.08
7440	14.38	AV	H	39.09	6.95	26.79	33.63	54.00	20.37
7440	14.07	AV	V	39.09	6.95	26.79	33.32	54.00	20.68
4960	20.74	AV	V	33.51	4.70	27.26	31.69	54.00	22.31
4960	20.35	AV	H	33.51	4.70	27.26	31.30	54.00	22.70
4960	40.05	PK	V	33.51	4.70	27.26	51.00	74.00	23.00
7440	31.42	PK	H	39.09	6.95	26.79	50.67	74.00	23.33
4960	39.37	PK	H	33.51	4.70	27.26	50.32	74.00	23.68
7440	30.4	PK	V	39.09	6.95	26.79	49.65	74.00	24.35
9920	32.65	PK	H	39.14	8.41	26.70	53.50	74.00	20.50
9920	14.35	AV	H	39.14	8.41	26.70	35.20	54.00	18.80
9920	31.62	PK	V	39.14	8.41	26.70	52.47	74.00	21.53
9920	14.28	AV	V	39.14	8.41	26.70	35.13	54.00	18.87
2480	66.66	PK	H	31.49	3.82	0.00	101.97	N/A	N/A
2480	31.82	AV	H	31.49	3.82	0.00	67.13	N/A	N/A
2480	68.51	PK	V	31.49	3.82	0.00	103.82	N/A	N/A
2480	32.32	AV	V	31.49	3.82	0.00	67.63	N/A	N/A

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	2012-5-13	2013-5-12

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

1. Set the EUT in transmitting mode, spectrum Bandwidth was set at 30 kHz, maxhold the trace.
2. Set the adjacent channel of the EUT maxhold another trace.
3. Measure the channel separation.

Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.9kPa

* The testing was performed by Dean Liu on 2012-07-12.

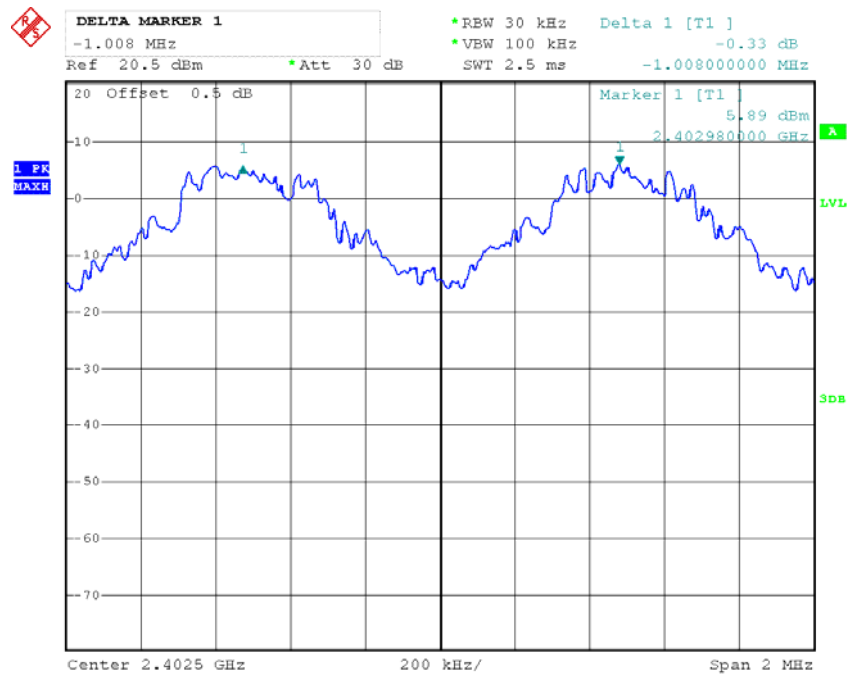
Test Result: Compliance.

Please refer to following tables and plots

Test Mode: Transmitting

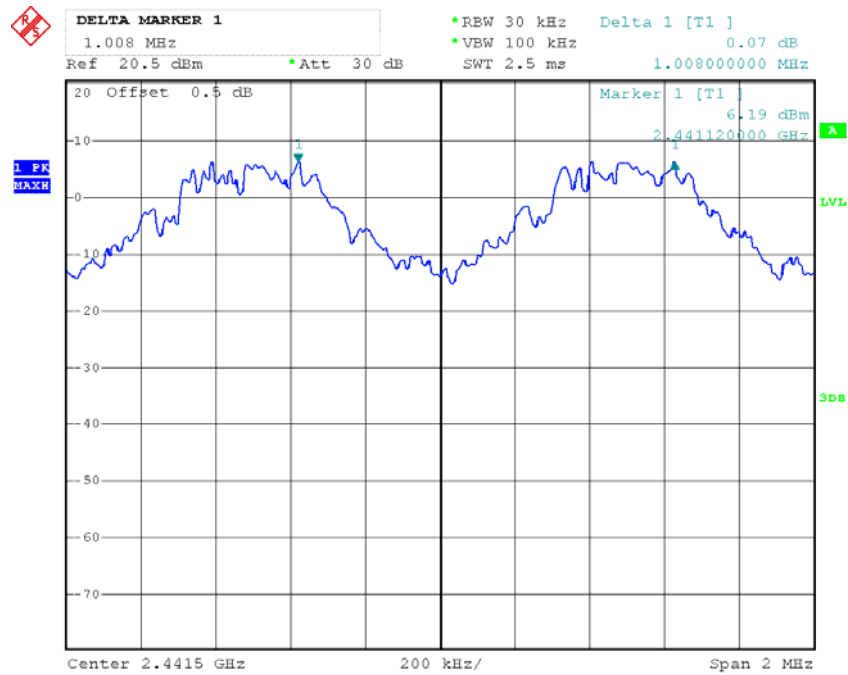
Mode	Channel	Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)	Result
<i>BDR Mode (GFSK)</i>	Low	2402	1.008	0.664	Pass
	Adjacent	2403			
	Middle	2441	1.008	0.661	Pass
	Adjacent	2442			
	High	2480	1.000	0.659	Pass
	Adjacent	2479			
<i>EDR Mode ($\pi/4$-QPSK)</i>	Low	2402	1.004	0.835	Pass
	Adjacent	2403			
	Middle	2441	1.000	0.883	Pass
	Adjacent	2442			
	High	2480	1.004	0.880	Pass
	Adjacent	2479			
<i>EDR Mode (8DPSK)</i>	Low	2402	1.000	0.845	Pass
	Adjacent	2403			
	Middle	2441	1.000	0.851	Pass
	Adjacent	2442			
	High	2480	1.000	0.845	Pass
	Adjacent	2479			

BDR - Low Channel



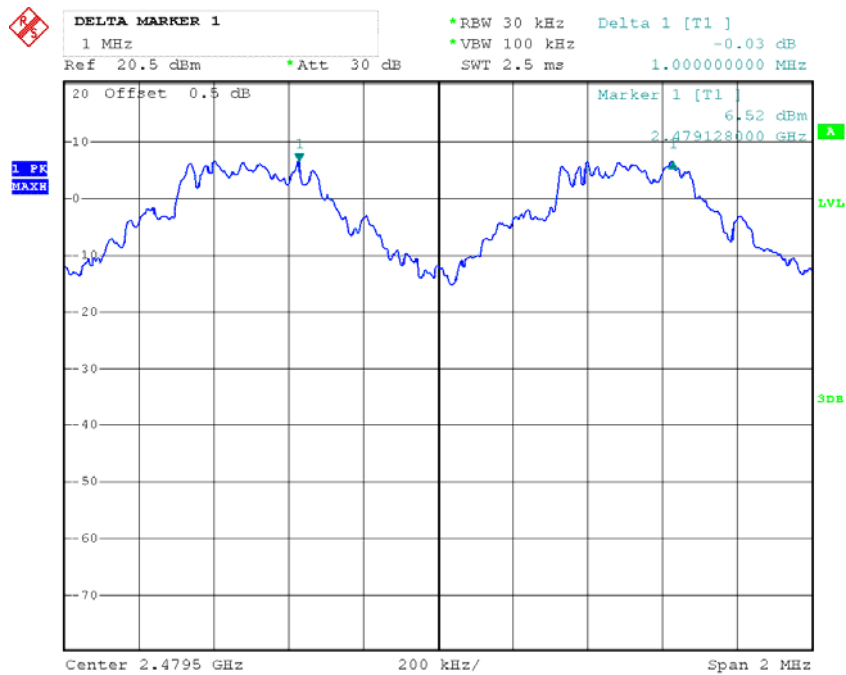
Date: 12.JUL.2012 16:49:47

BDR - Middle Channel



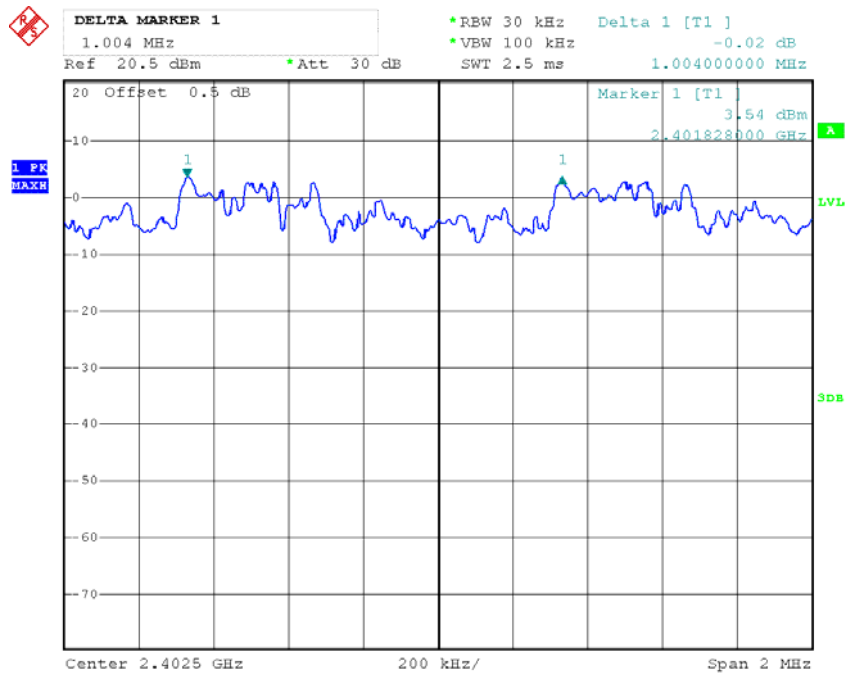
Date: 12.JUL.2012 16:52:31

BDR - High Channel



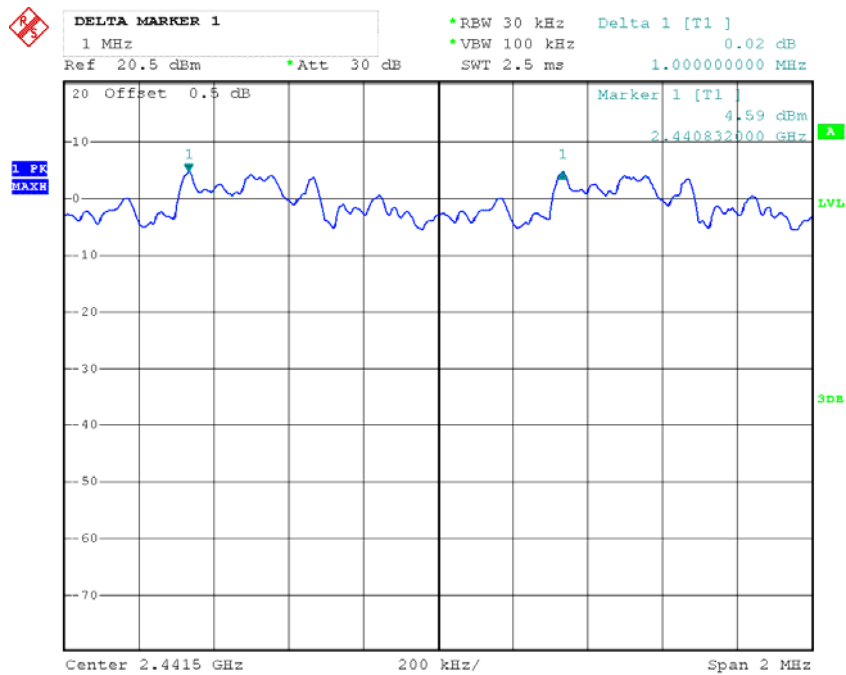
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EDR ($\pi/4$ -QPSK) - Low Channel



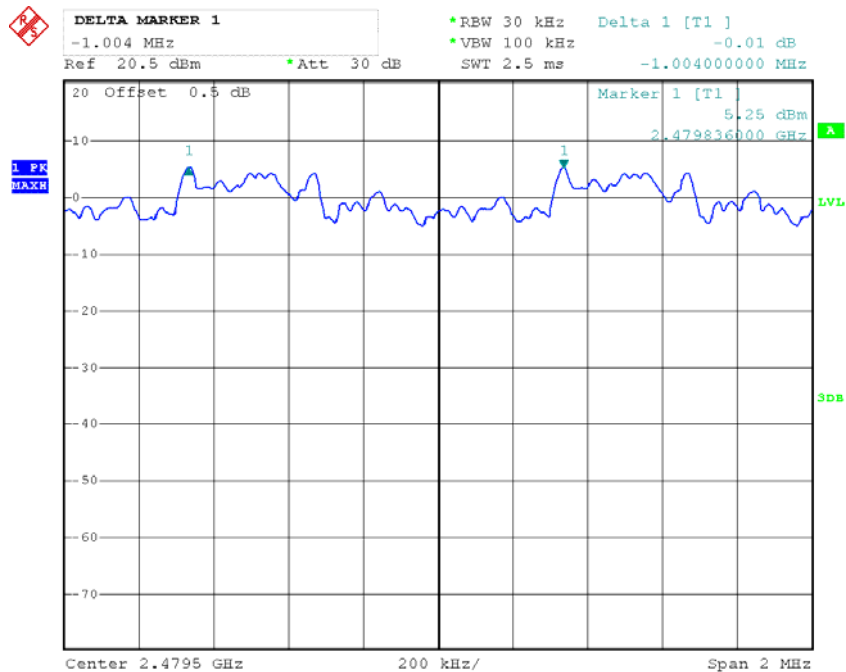
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EDR ($\pi/4$ -QPSK) - Middle Channel



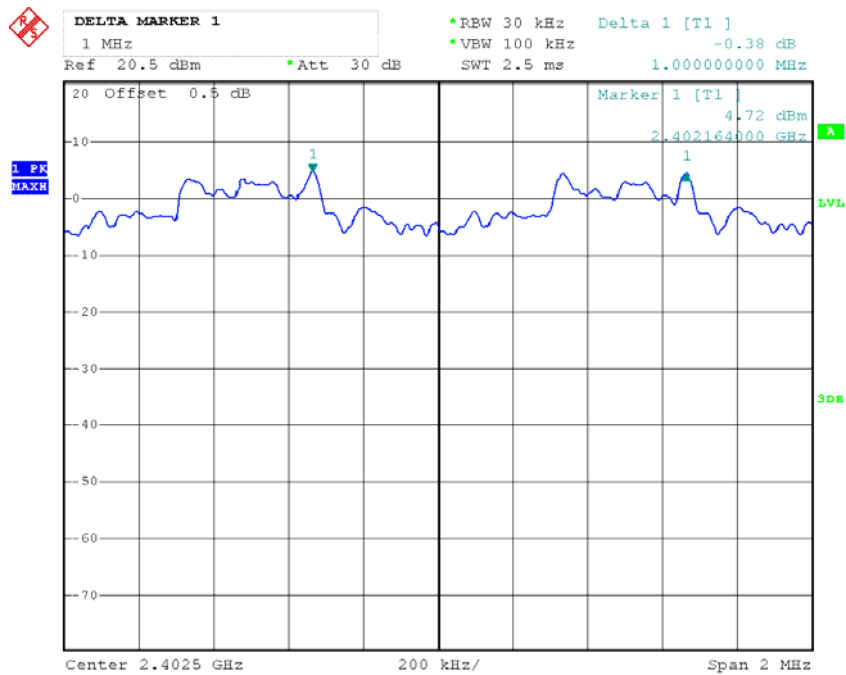
Date: 12.JUL.2012 17:00:22

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



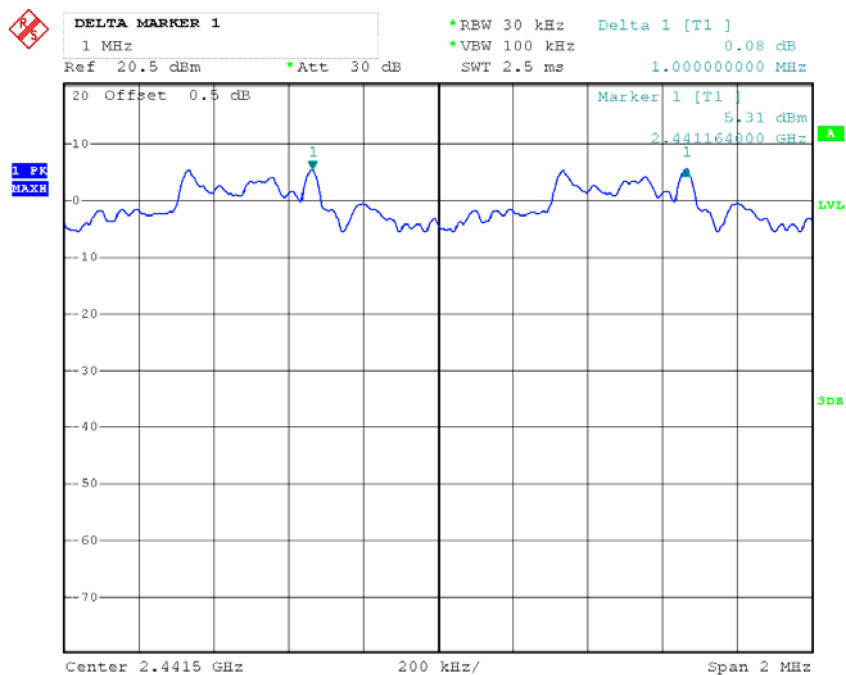
Date: 12.JUL.2012 16:58:30

EDR (8DPSK) - Low Channel



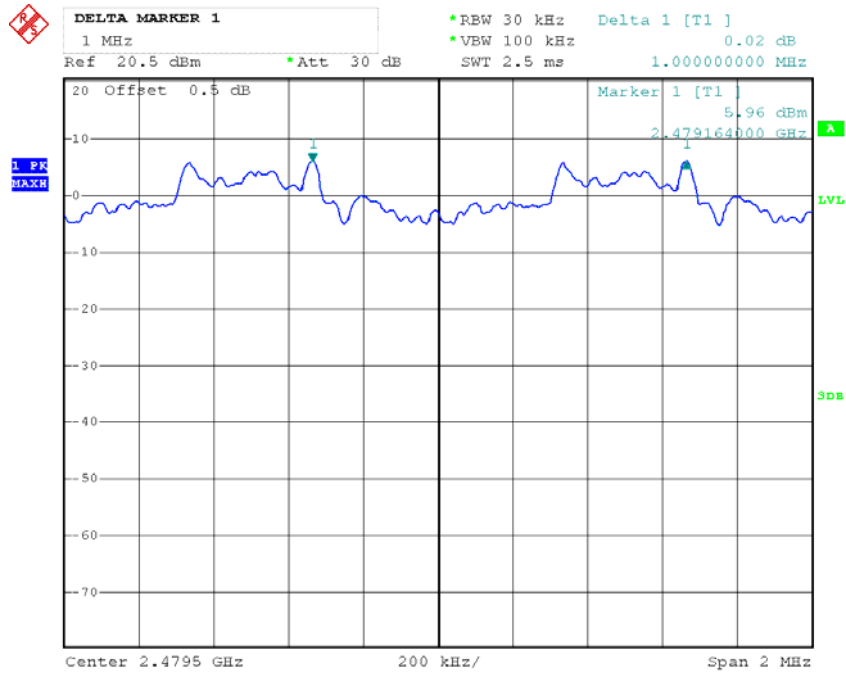
Date: 12.JUL.2012 17:12:52

EDR (8DPSK) - Middle Channel



Date: 12.JUL.2012 17:16:35

EDR (8DPSK) - High Channel



Date: 12.JUL.2012 17:18:22

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	2012-5-13	2013-5-12

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.9kPa

* The testing was performed by Dean Liu on 2012-07-12.

Test Result: Compliance.

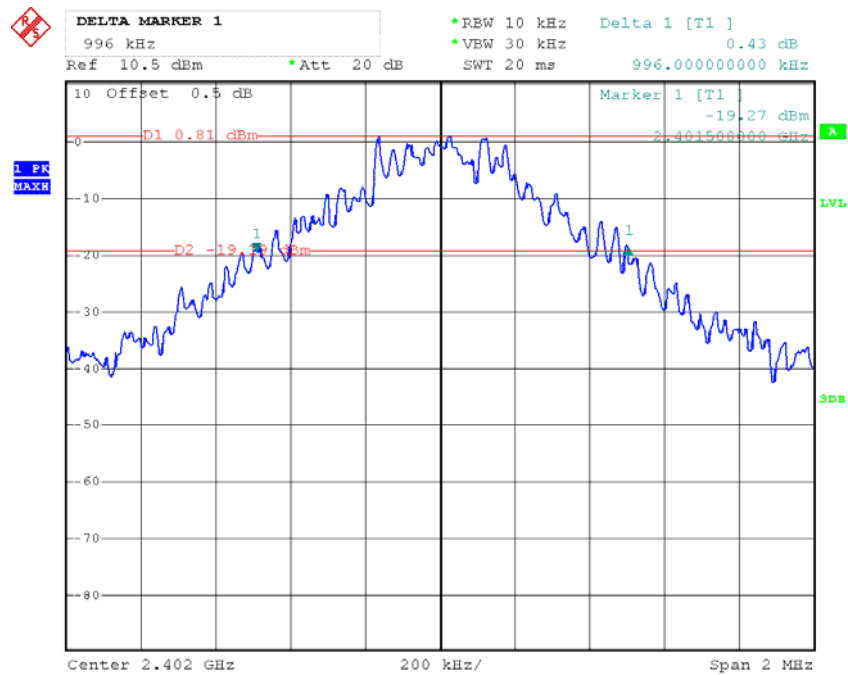
Please refer to following tables and plots

Test Mode: Transmitting

	Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
<i>BDR Mode (GFSK)</i>	Low	2402	0.996
	Middle	2441	0.992
	High	2480	0.988
<i>EDR Mode ($\pi/4$-QPSK)</i>	Low	2402	1.252
	Middle	2441	1.324
	High	2480	1.320
<i>EDR Mode (8DPSK)</i>	Low	2402	1.268
	Middle	2441	1.276
	High	2480	1.268

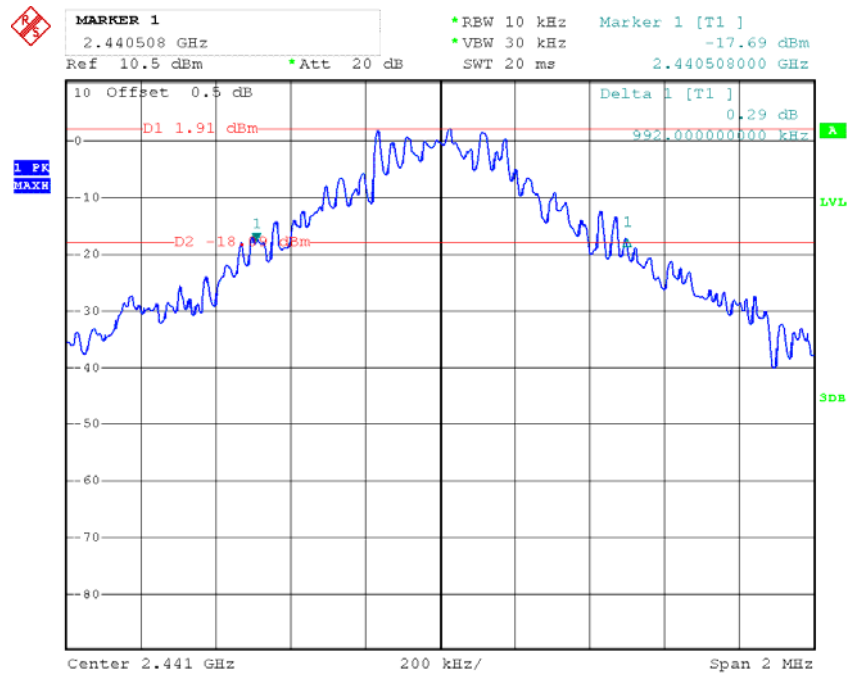
Please refer to the following plots.

BDR - Low Channel



Date: 12.JUL.2012 16:06:21

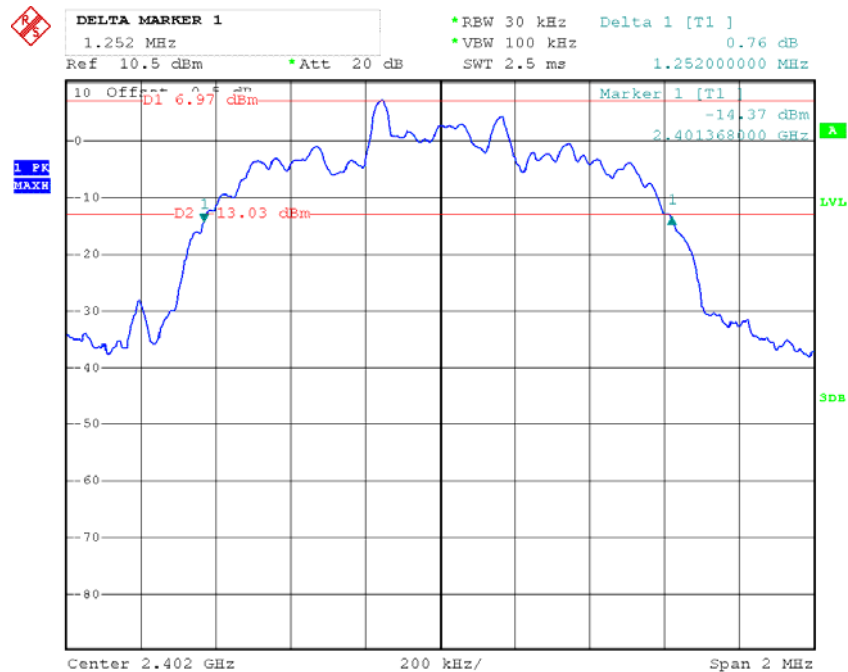
BDR - Middle Channel



Date: 12.JUL.2012 16:11:22

BDR - High Channel

Date: 12.JUL.2012 16:13:21

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

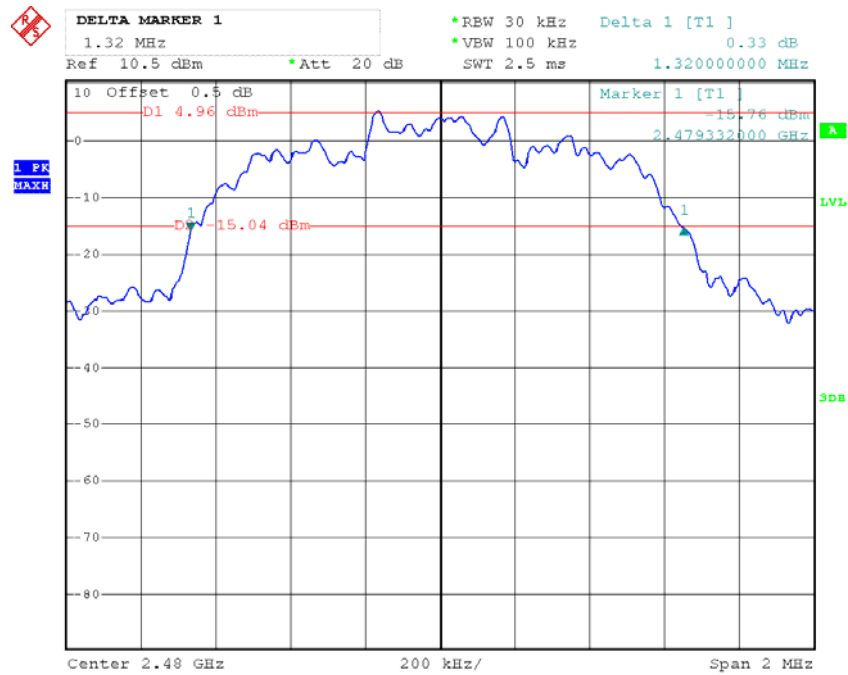
Date: 12.JUL.2012 16:24:19

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



Date: 12.JUL.2012 16:22:29

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



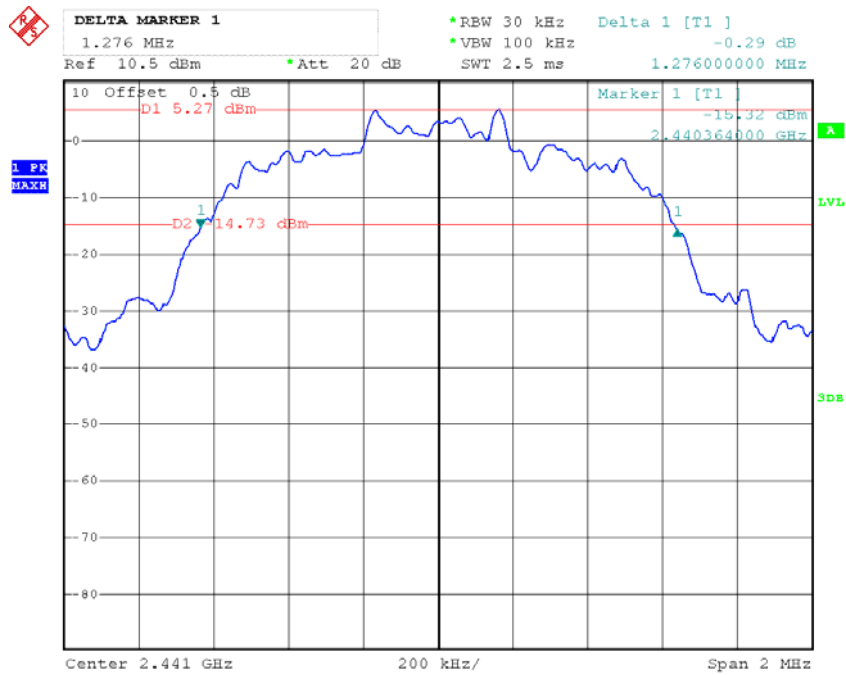
Date: 12.JUL.2012 16:20:07

EDR (8DPSK) - Low Channel



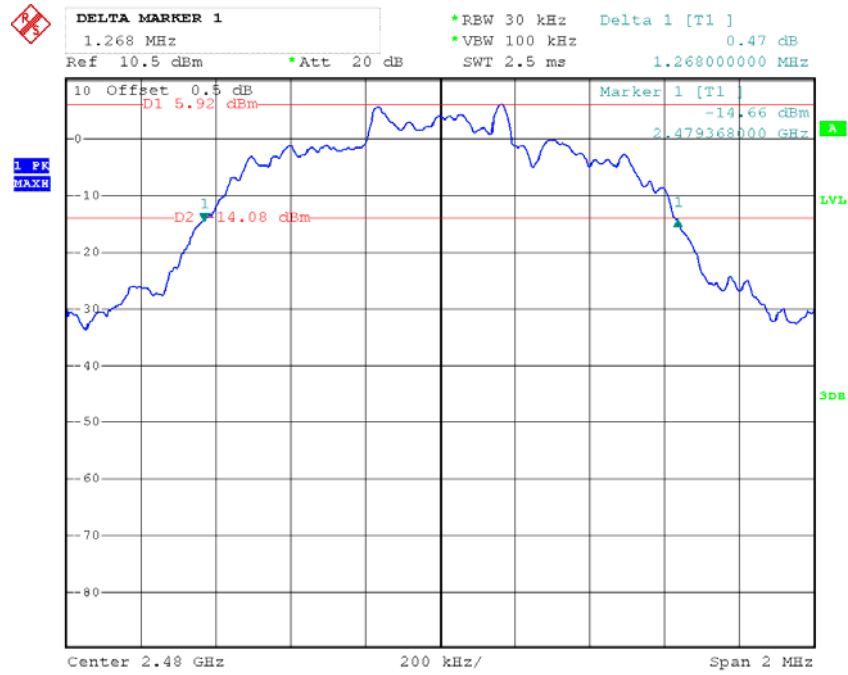
Date: 12.JUL.2012 16:26:32

EDR (8DPSK) - Middle Channel



Date: 12.JUL.2012 16:28:16

EDR (8DPSK) - High Channel



Date: 12.JUL.2012 16:29:57

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	2012-5-13	2013-5-12

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.9kPa

The testing was performed by Dean Liu on 2012-07-12.

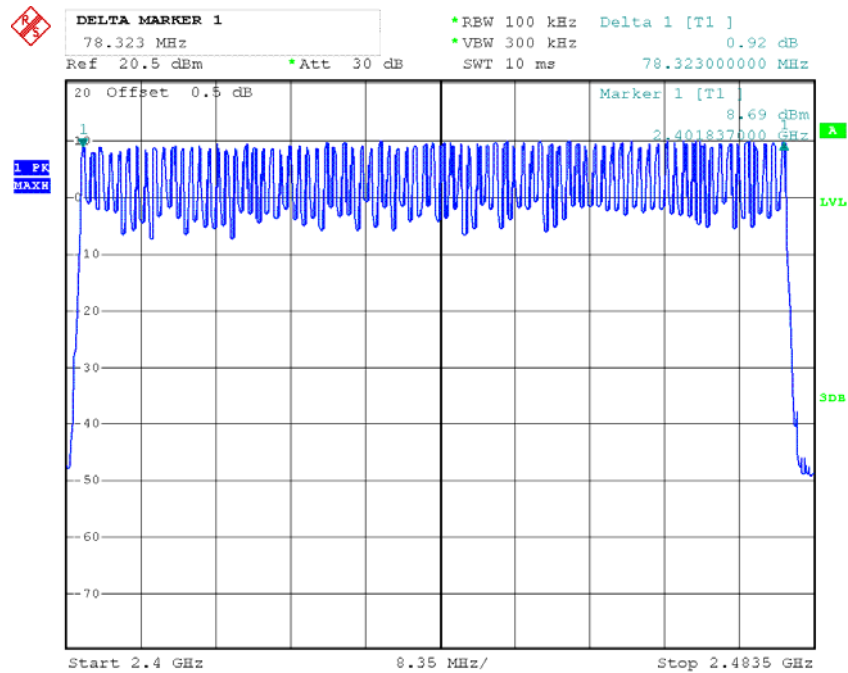
Test Result: Compliance.

Please refer to following tables and plots

Test Mode: Transmitting (BDR & EDR)

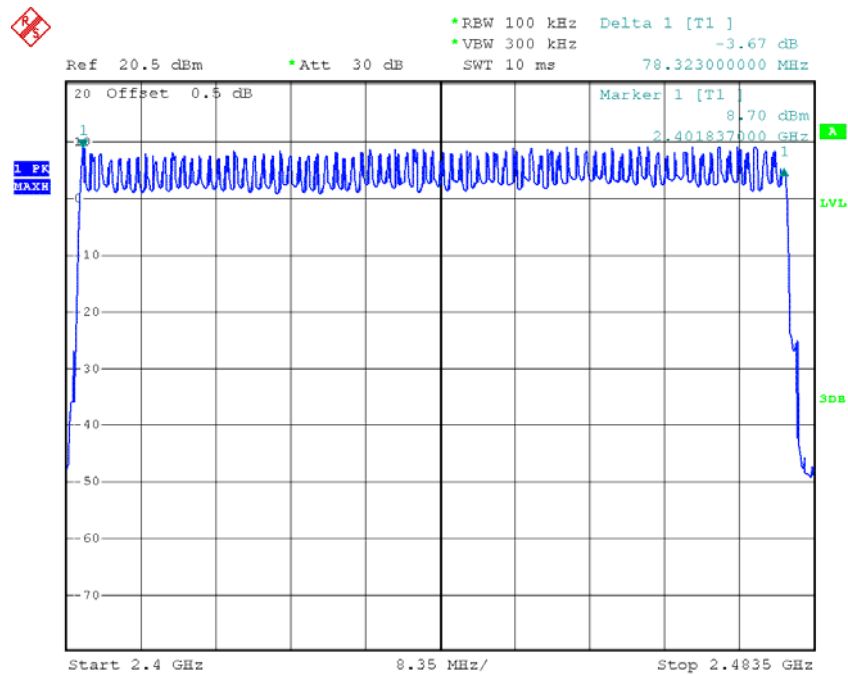
	Frequency Range (MHz)	Number of Hopping Channel	Limit
BDR	2400-2483.5	79	≥ 15
EDR ($\pi/4$ -QPSK)	2400-2483.5	79	≥ 15
EDR (8DPSK)	2400-2483.5	79	≥ 15

BDR - Number of Hopping Channels



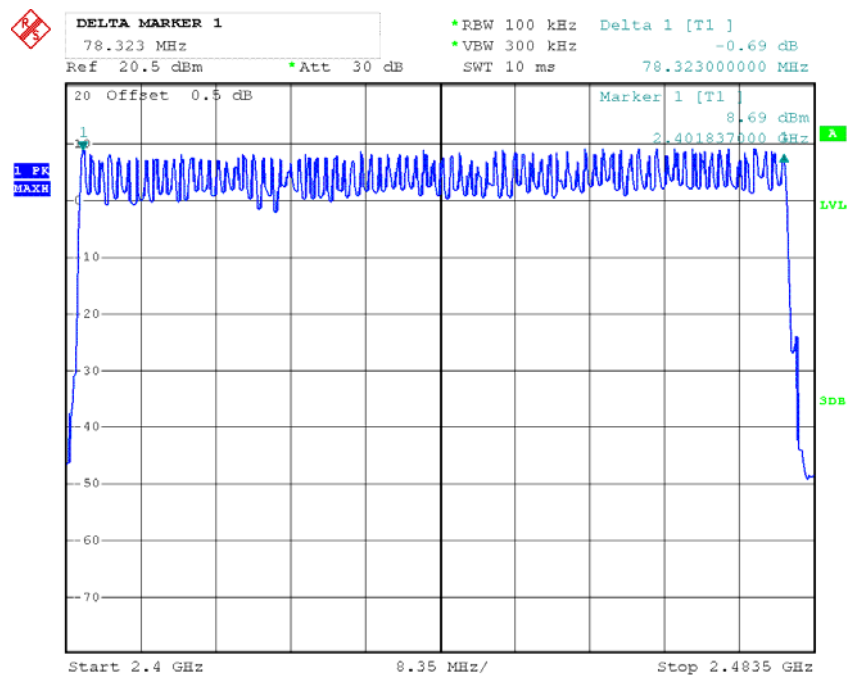
Date: 12.JUL.2012 17:40:29

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



Date: 12.JUL.2012 17:38:01

EDR (8DPSK) - Number of Hopping Channels



Date: 12.JUL.2012 17:34:23

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 $0.4 \times \text{channel no. (s)}$, the quantity of pulse was get from single sweep. In addition, the time of single pulses was tested.

Dwell Time= Pulse idth * hop rate/ number of hopping channels * number of hopping channels * 0.4s
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	2012-5-13	2013-5-12

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

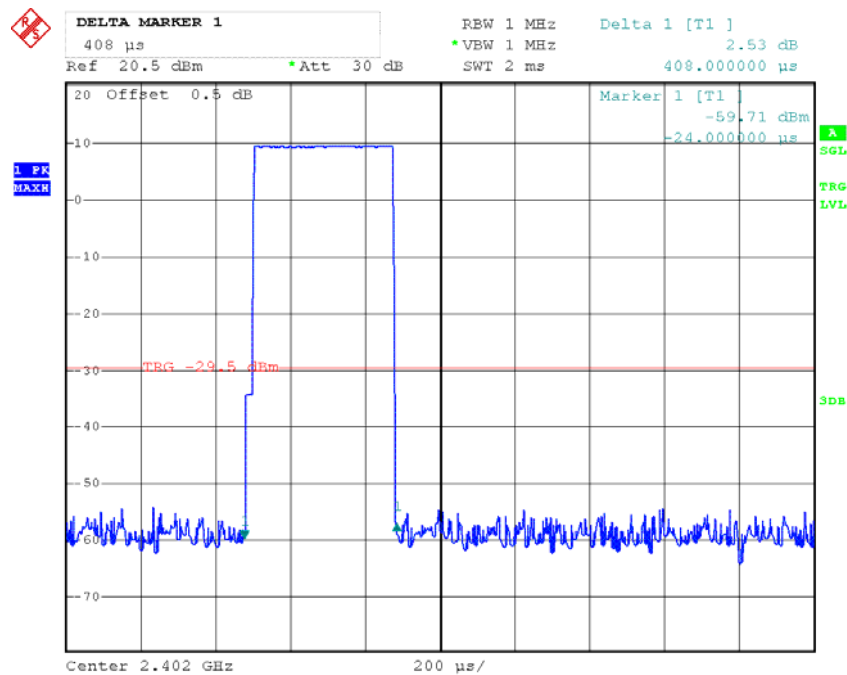
* The testing was performed by Dean Liu on 2012-07-12.

Test Result: Compliance.

Please refer to following tables and plots

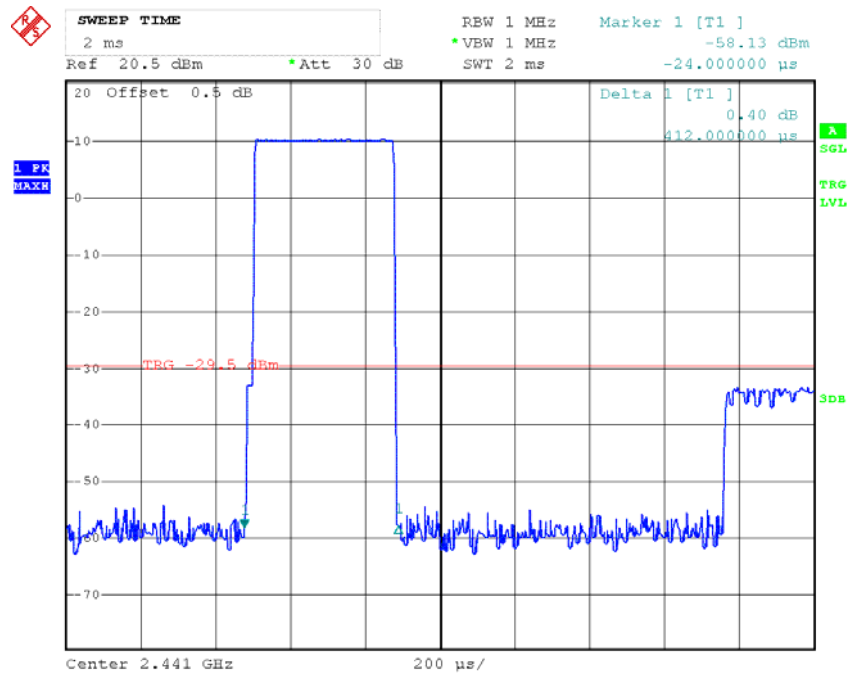
DH1:*Test Mode: Transmitting*

	Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
BDR Mode (GFSK)	Low	0.408	0.132	0.4	Pass
	Middle	0.412	0.131	0.4	Pass
	High	0.412	0.132	0.4	Pass
	Note: Dwell time = Pulse time*(1600/2/79)*31.6S				
EDR Mode ($\pi/4$ -QPSK)	Low	0.416	0.133	0.4	Pass
	Middle	0.416	0.133	0.4	Pass
	High	0.416	0.133	0.4	Pass
	Note: Dwell time = Pulse time*(1600/2/79)*31.6S				
EDR Mode (8DPSK)	Low	0.416	0.133	0.4	Pass
	Middle	0.416	0.133	0.4	Pass
	High	0.416	0.133	0.4	Pass
	Note: Dwell time = Pulse time*(1600/2/79)*31.6S				

BDR - Low Channel

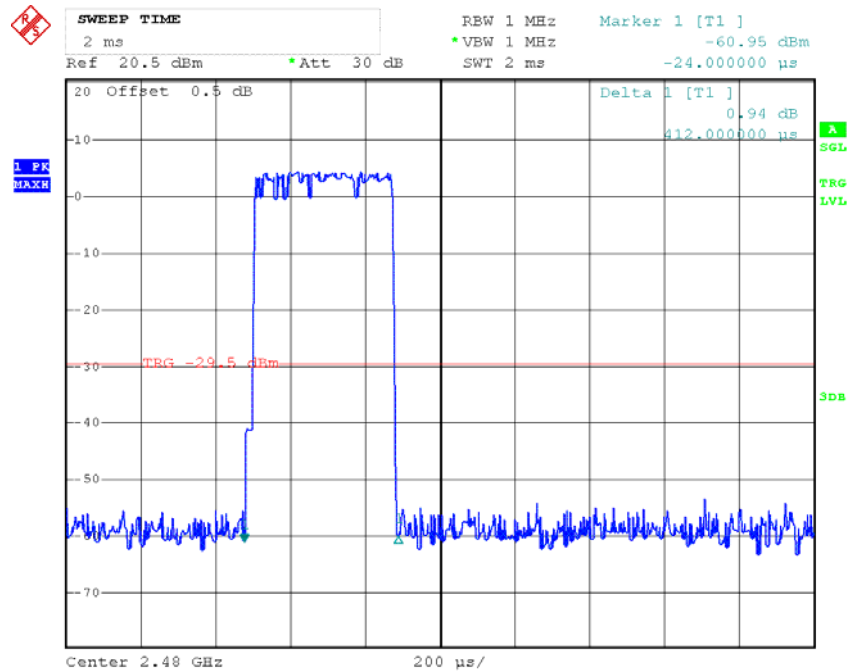
Date: 12.JUL.2012 17:42:00

BDR - Middle Channel



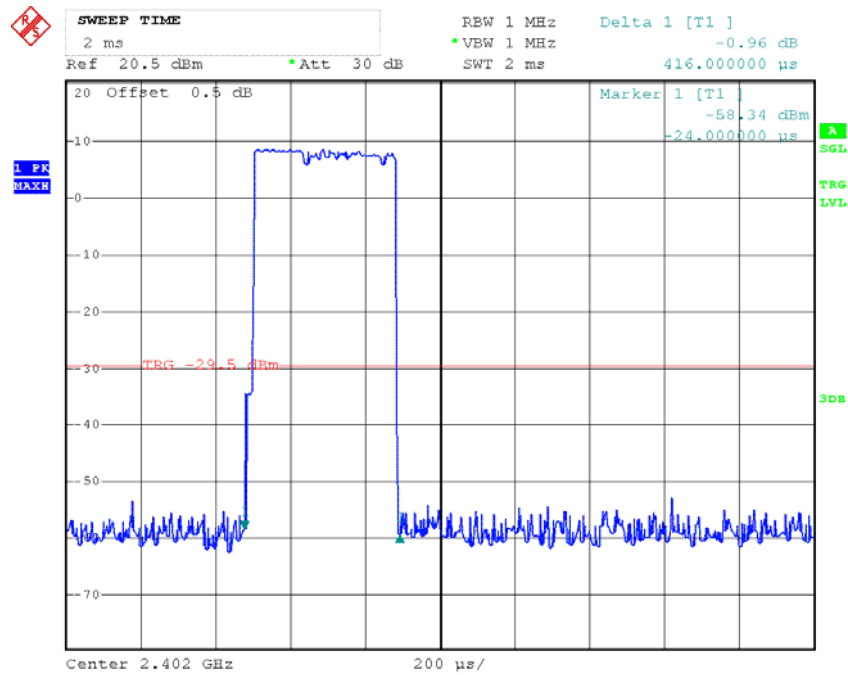
Date: 12.JUL.2012 17:42:56

BDR - High Channel



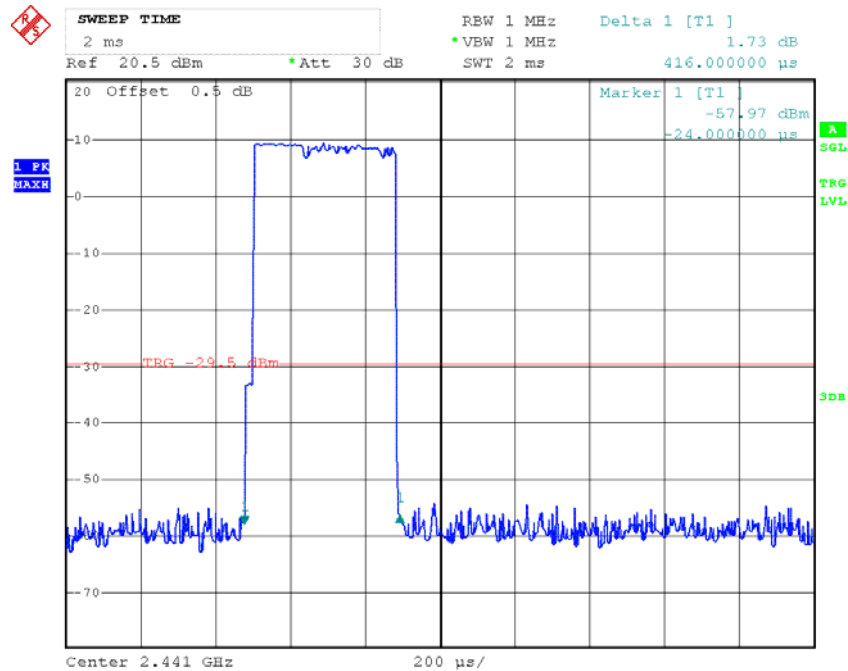
Date: 12.JUL.2012 17:43:32

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

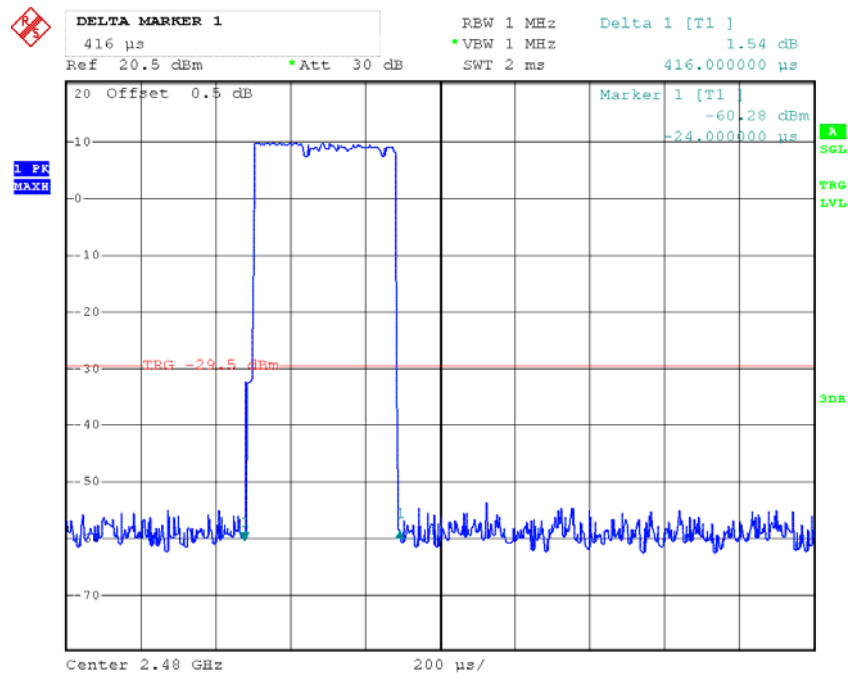


Date: 12.JUL.2012 17:45:46

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

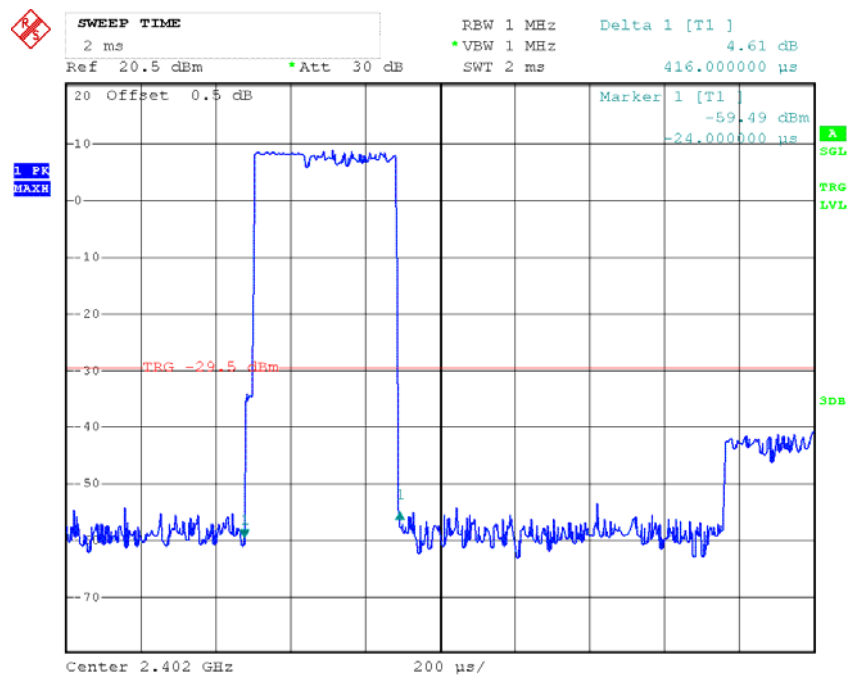


Date: 12.JUL.2012 17:45:07

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

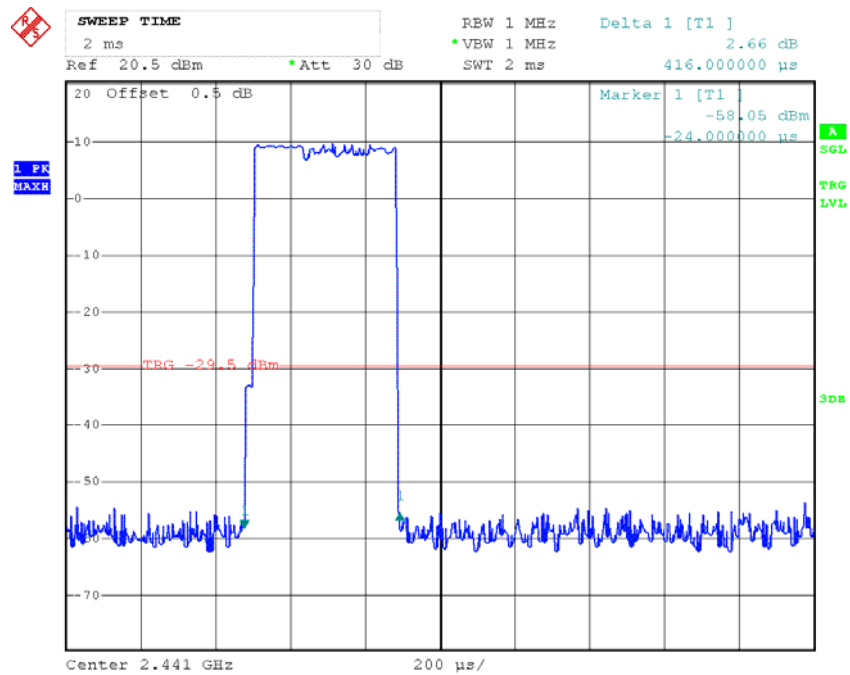
Date: 12.JUL.2012 17:44:40

EDR (8DPSK) - Low Channel



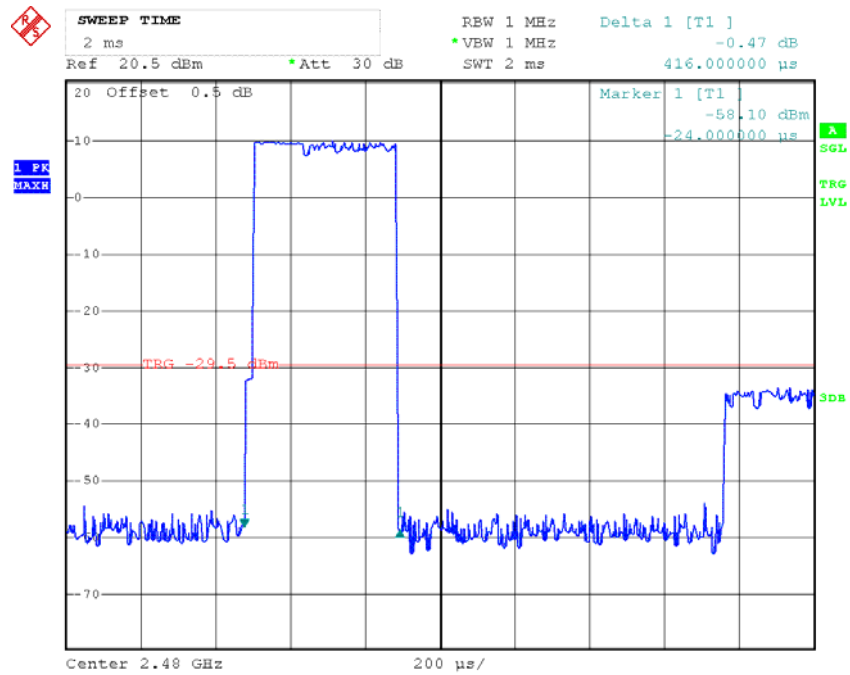
Date: 12.JUL.2012 17:46:31

EDR (8DPSK) - Middle Channel



Date: 12.JUL.2012 17:46:55

EDR (8DPSK) - High Channel

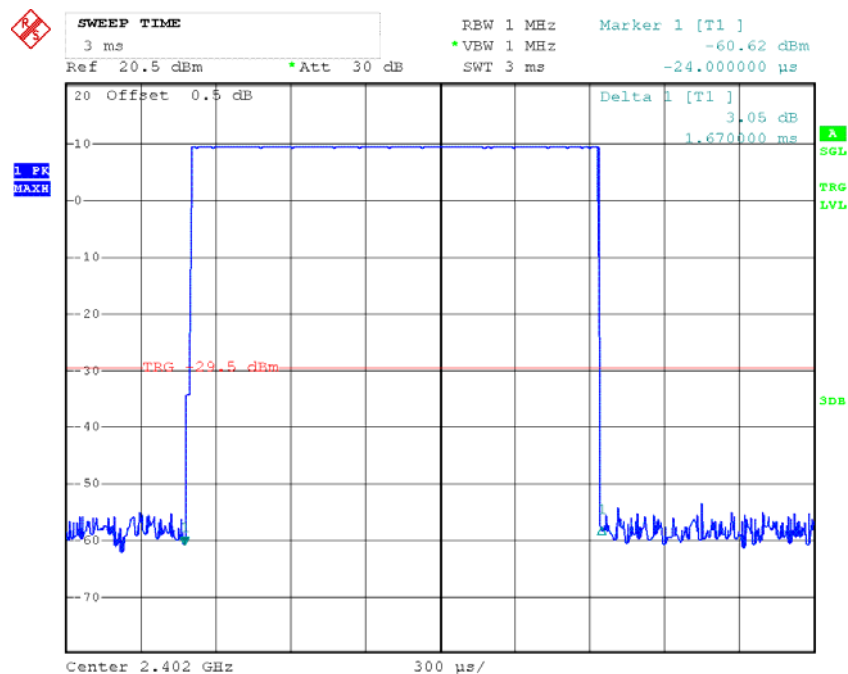


Date: 12.JUL.2012 17:47:36

DH3:

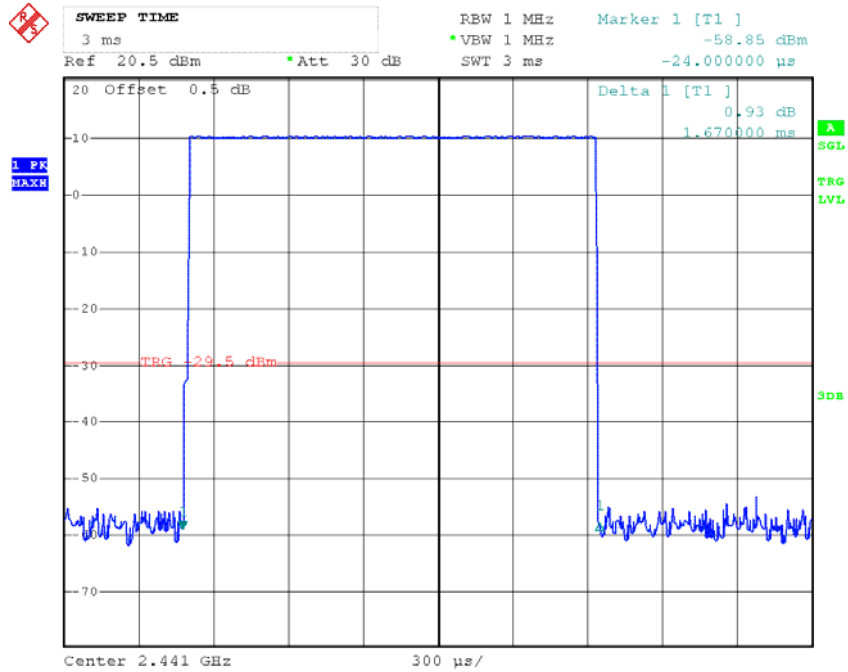
Test Mode: Transmitting

	Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
BDR Mode (GFSK)	Low	1.670	0.267	0.4	Pass
	Middle	1.670	0.267	0.4	Pass
	High	1.670	0.267	0.4	Pass
	Note: Dwell time = Pulse time*(1600/4/79)*31.6S				
EDR Mode ($\pi/4$ -QPSK)	Low	1.676	0.268	0.4	Pass
	Middle	1.676	0.268	0.4	Pass
	High	1.676	0.268	0.4	Pass
	Note: Dwell time = Pulse time*(1600/4/79)*31.6S				
EDR Mode (8DPSK)	Low	1.676	0.268	0.4	Pass
	Middle	1.676	0.268	0.4	Pass
	High	1.676	0.268	0.4	Pass
	Note: Dwell time = Pulse time*(1600/4/79)*31.6S				

BDR - Low Channel

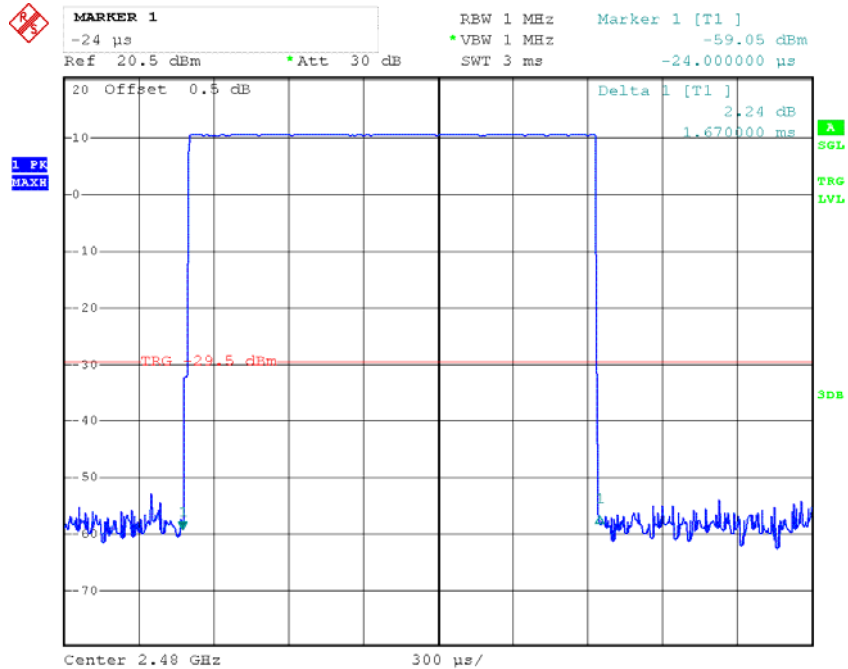
Date: 12.JUL.2012 17:55:08

BDR - Middle Channel



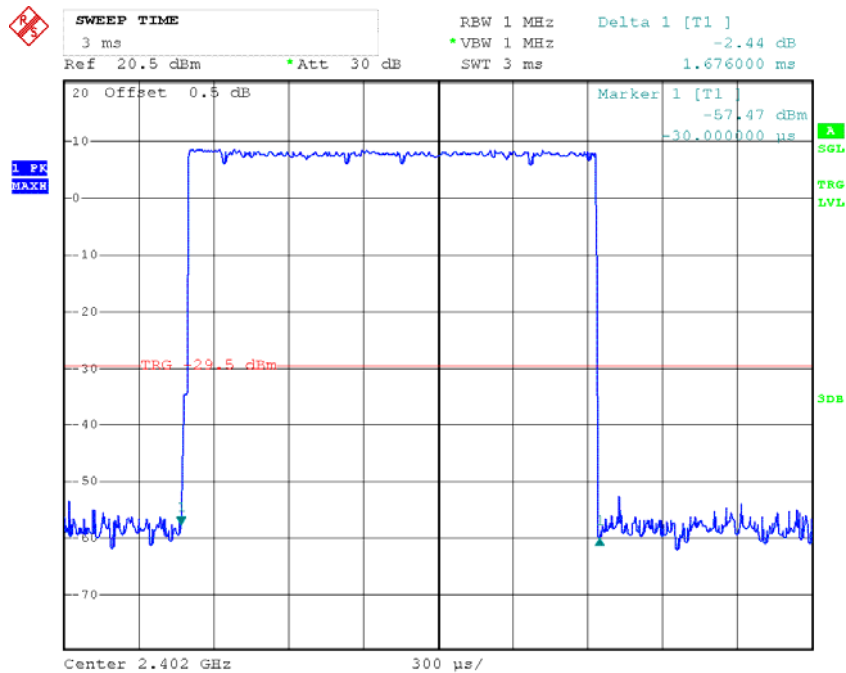
Date: 12.JUL.2012 17:54:33

BDR - High Channel



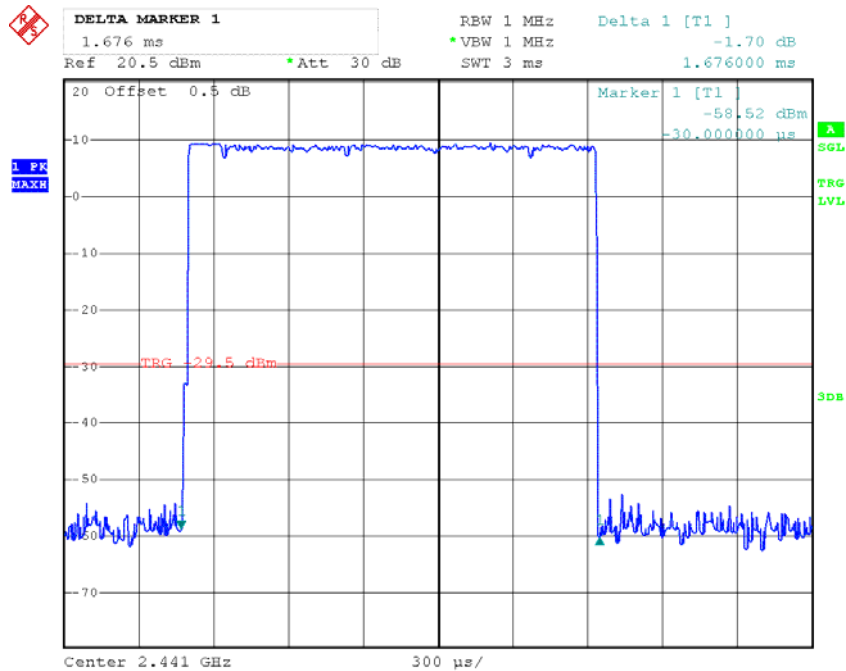
Date: 12.JUL.2012 17:53:41

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

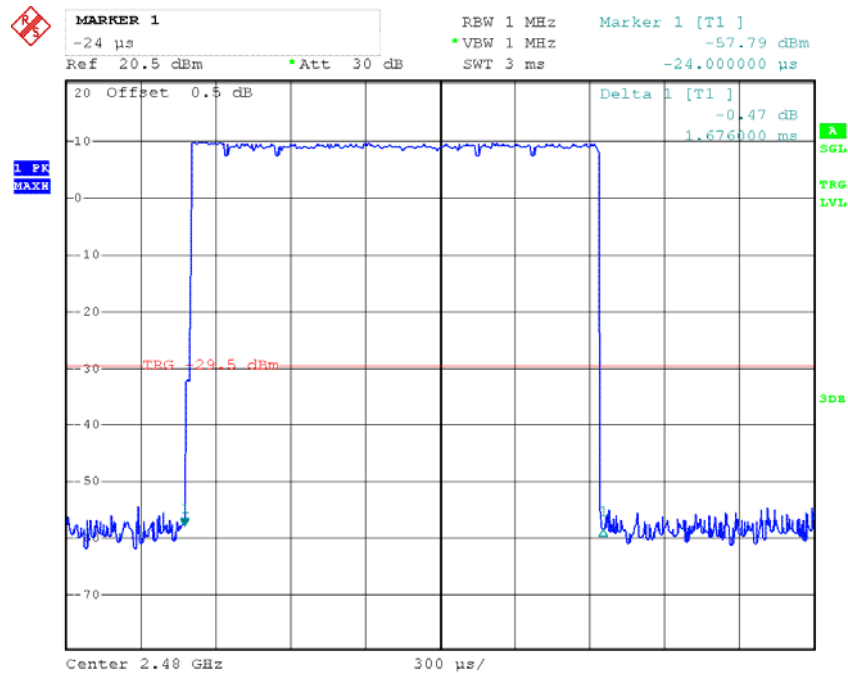


Date: 12.JUL.2012 17:50:26

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

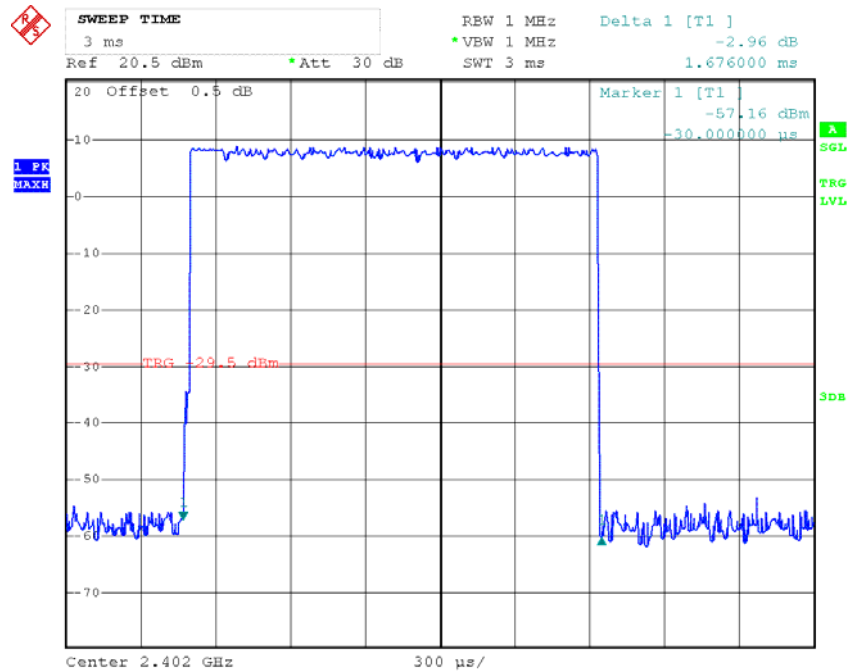


Date: 12.JUL.2012 17:49:35

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

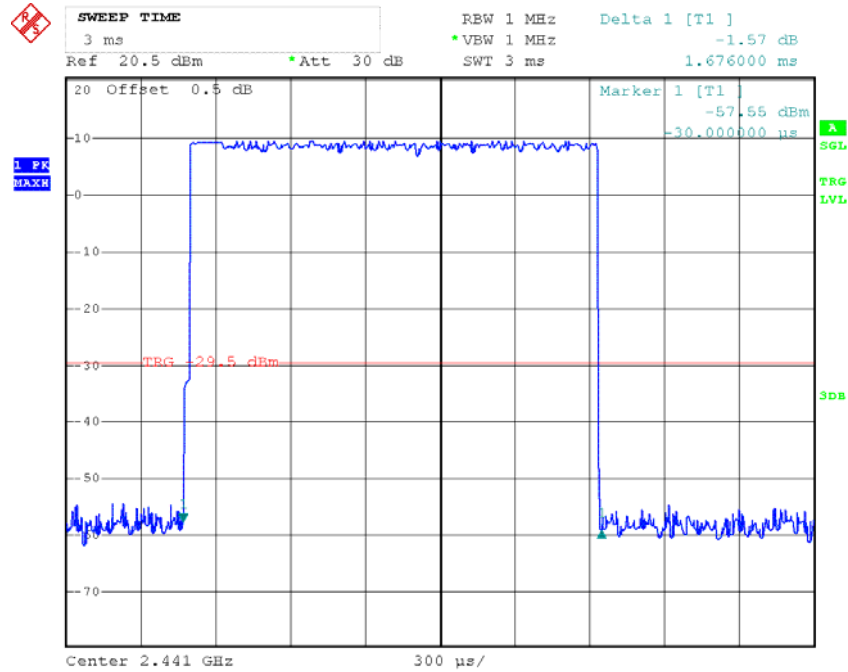
Date: 12.JUL.2012 17:48:50

EDR (8DPSK) - Low Channel



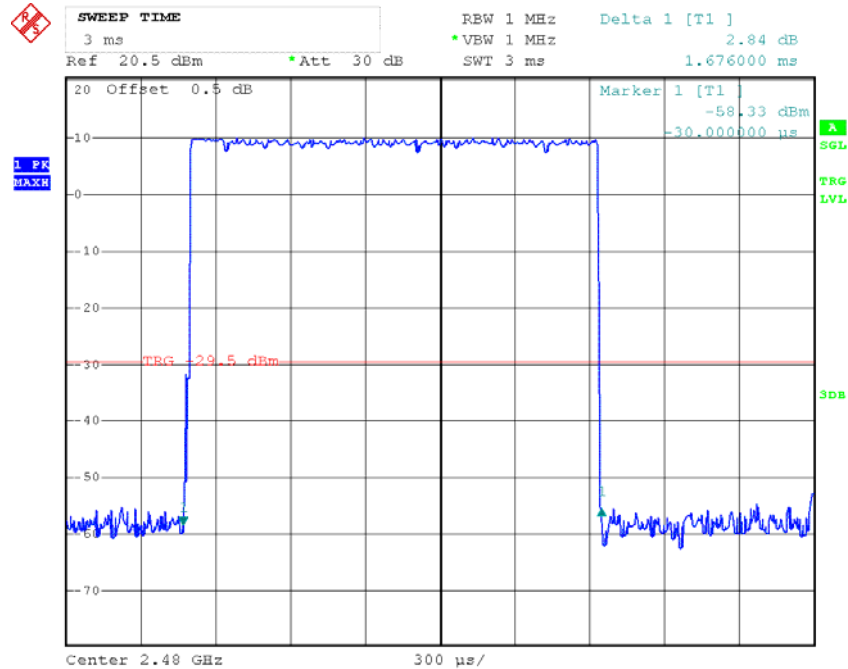
Date: 12.JUL.2012 17:51:30

EDR (8DPSK) - Middle Channel



Date: 12.JUL.2012 17:51:53

EDR (8DPSK) - High Channel

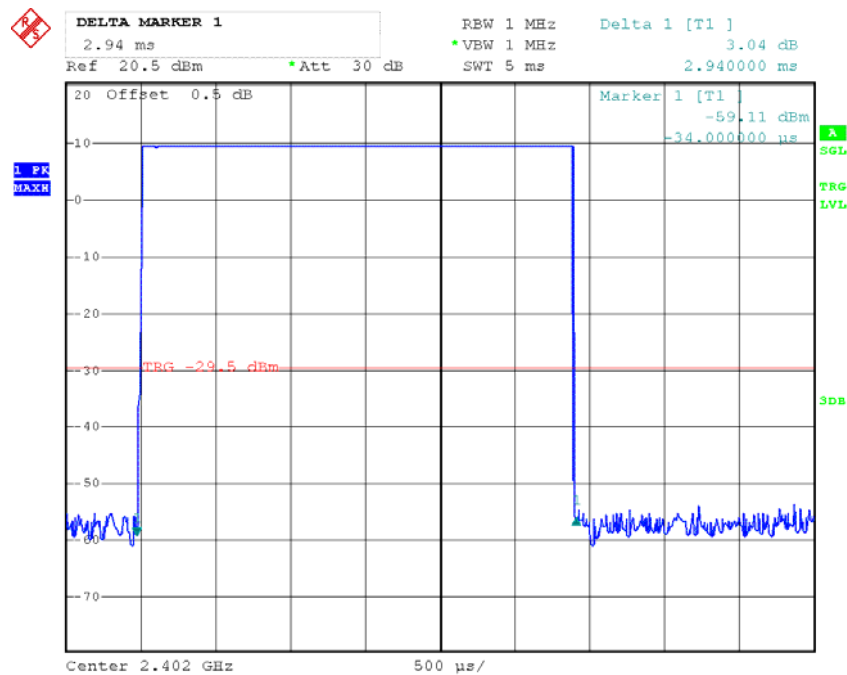


Date: 12.JUL.2012 17:52:25

DH5:

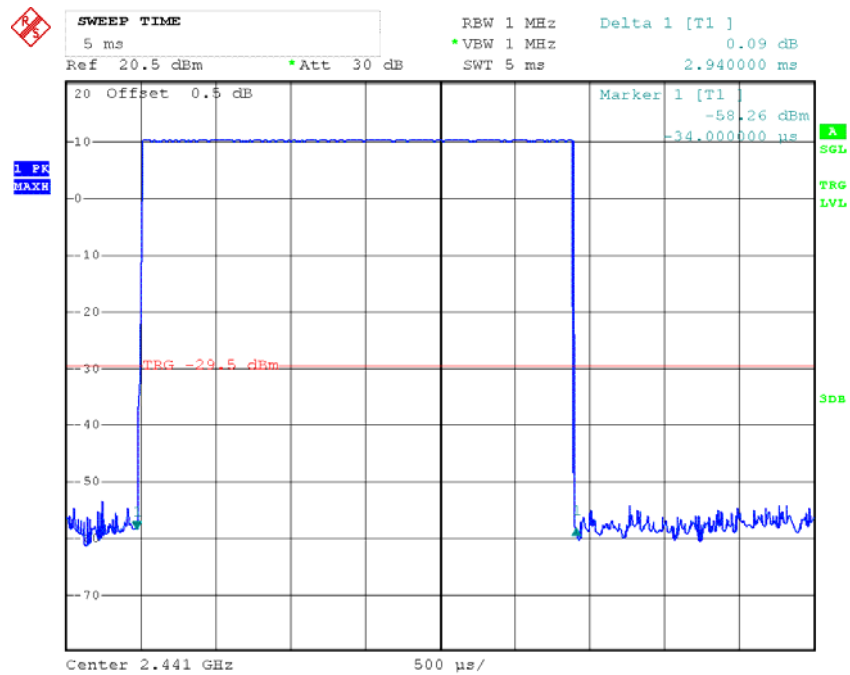
Test Mode: Transmitting

	Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
BDR Mode (GFSK)	Low	2.940	0.314	0.4	Pass
	Middle	2.940	0.314	0.4	Pass
	High	2.940	0.314	0.4	Pass
	Note: Dwell time = Pulse time*(1600/6/79)*31.6S				
EDR Mode ($\pi/4$ -QPSK)	Low	2.940	0.314	0.4	Pass
	Middle	2.940	0.314	0.4	Pass
	High	2.940	0.314	0.4	Pass
	Note: Dwell time = Pulse time*(1600/6/79)*31.6S				
EDR Mode (8DPSK)	Low	2.940	0.314	0.4	Pass
	Middle	2.940	0.314	0.4	Pass
	High	2.940	0.314	0.4	Pass
	Note: Dwell time = Pulse time*(1600/6/79)*31.6S				

BDR - Low Channel

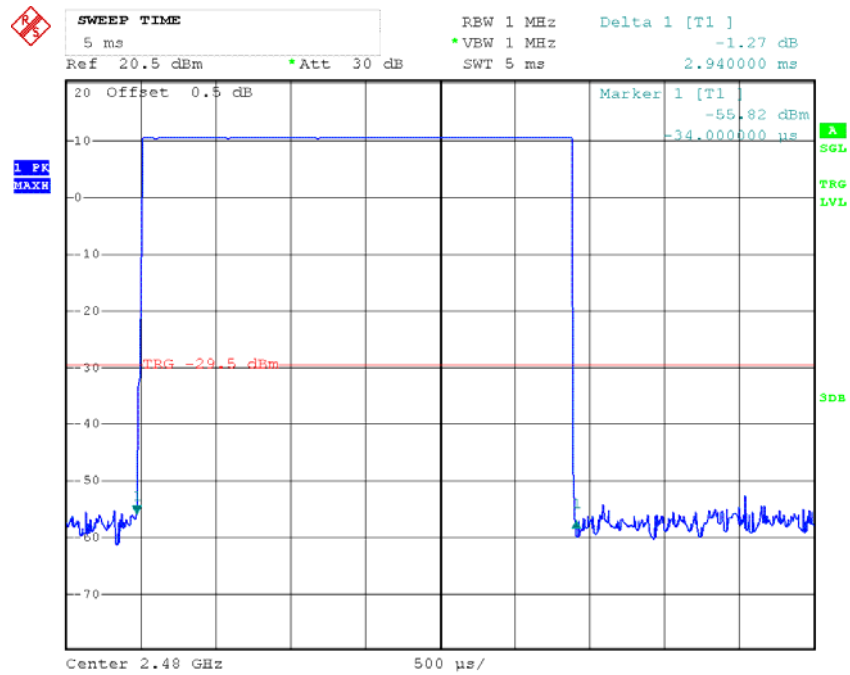
Date: 12.JUL.2012 17:56:07

BDR - Middle Channel



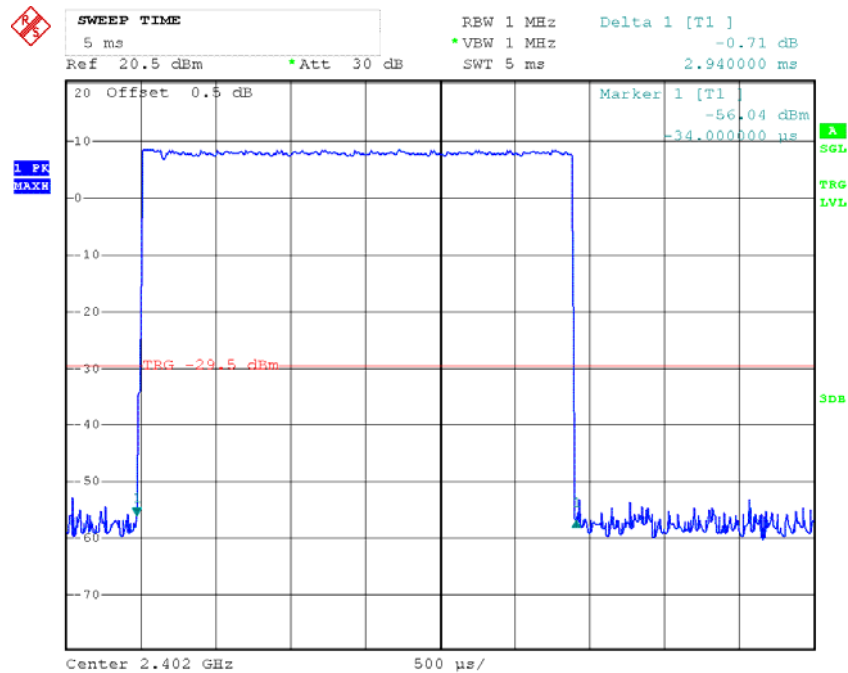
Date: 12.JUL.2012 17:56:34

BDR - High Channel



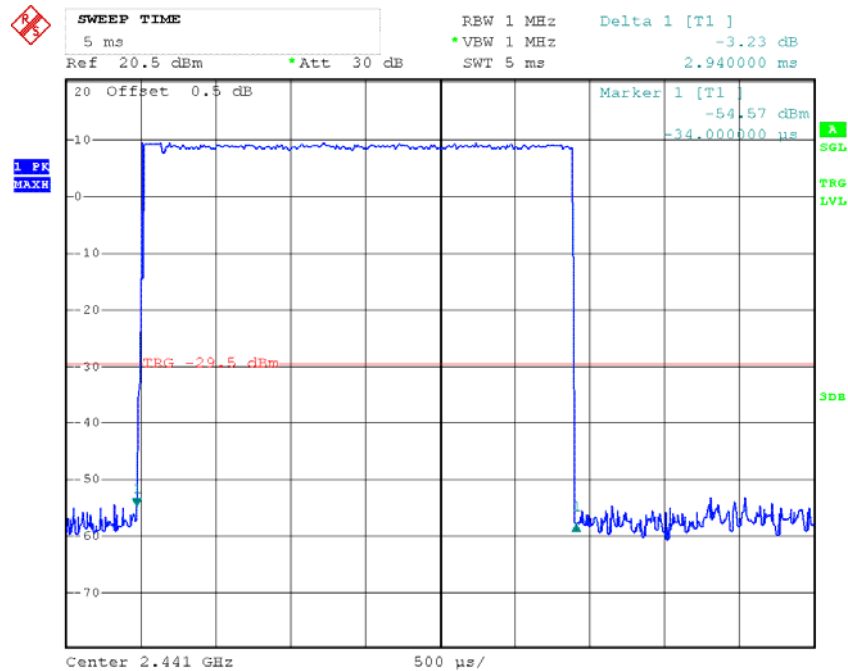
Date: 12.JUL.2012 17:57:01

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



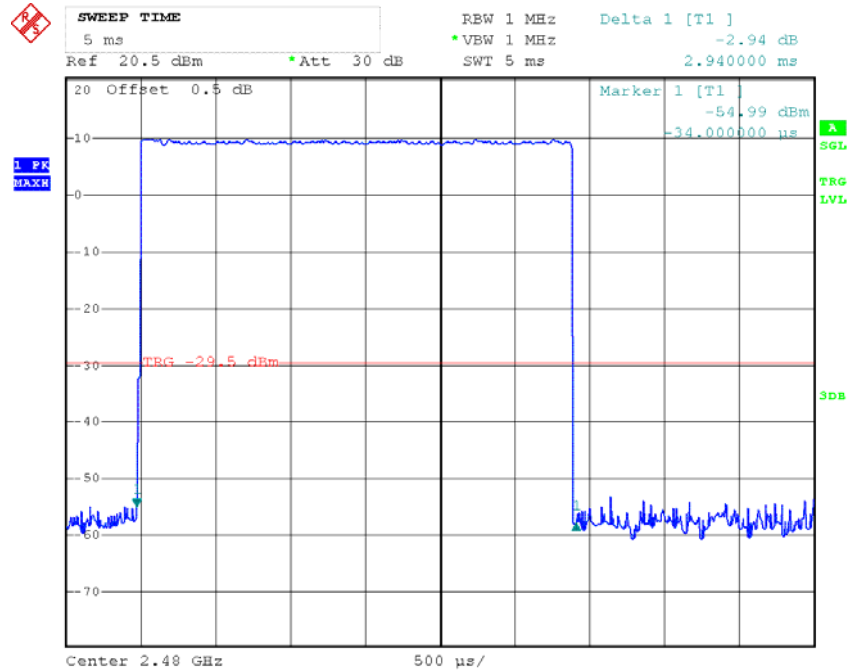
Date: 12.JUL.2012 17:58:51

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



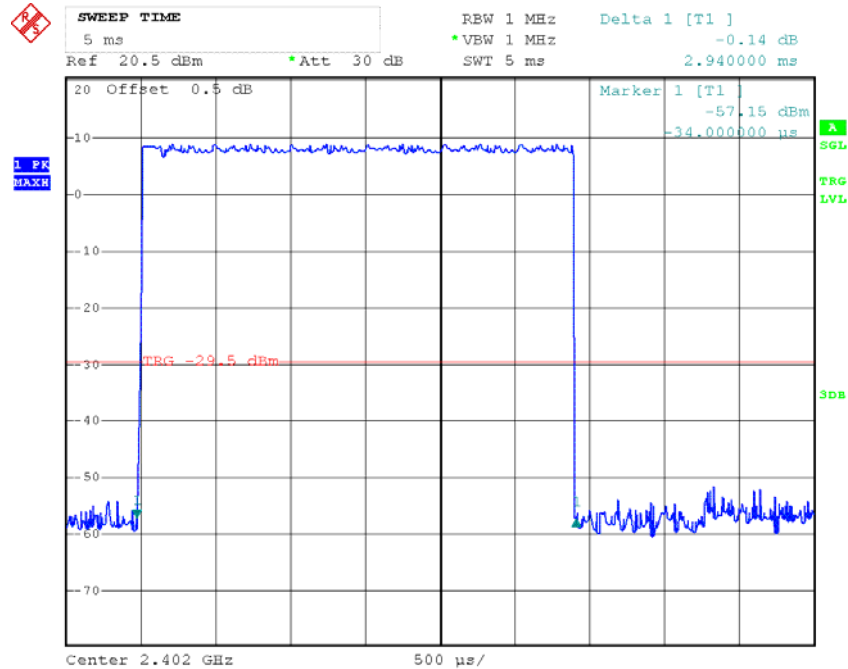
Date: 12.JUL.2012 17:58:17

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



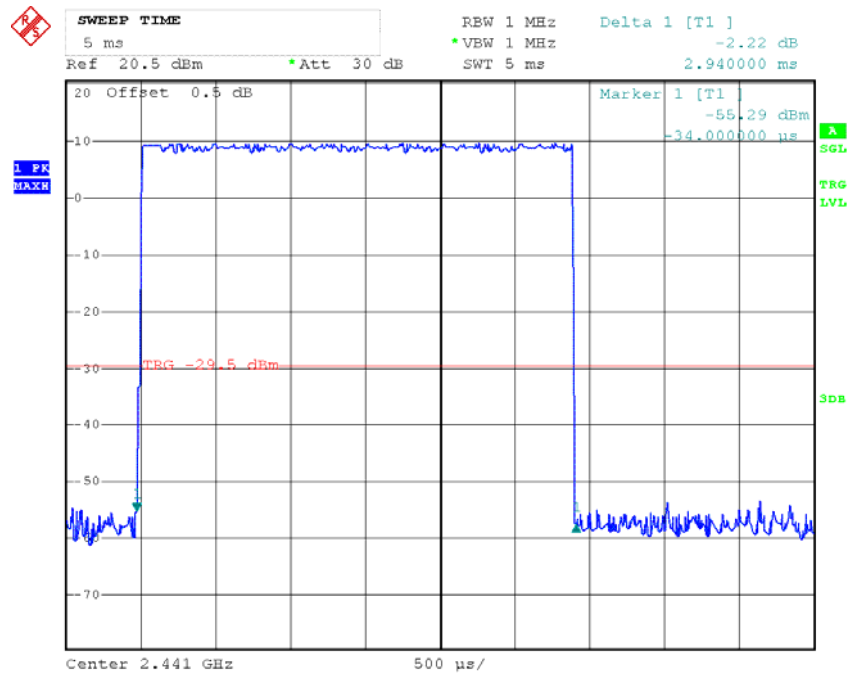
Date: 12.JUL.2012 17:57:52

EDR (8DPSK) - Low Channel



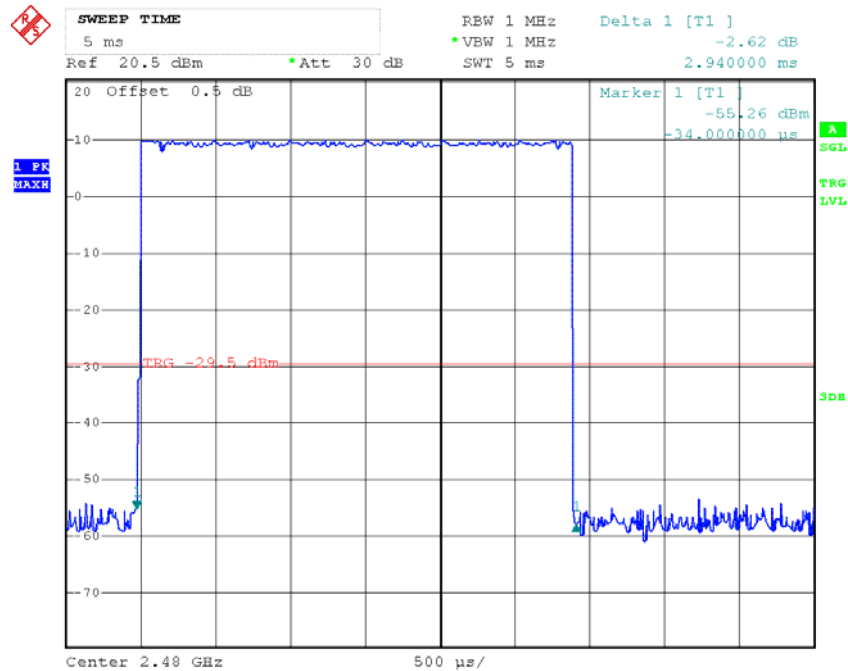
Date: 12.JUL.2012 17:59:45

EDR (8DPSK) - Middle Channel



Date: 12.JUL.2012 18:00:18

EDR (8DPSK) - High Channel



Date: 12.JUL.2012 18:00:44

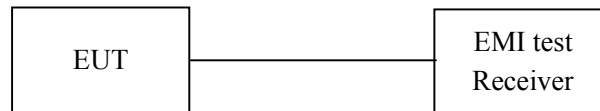
FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

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	2012-5-13	2013-5-12

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.9kPa

* The testing was performed by Dean Liu on 2012-07-12.

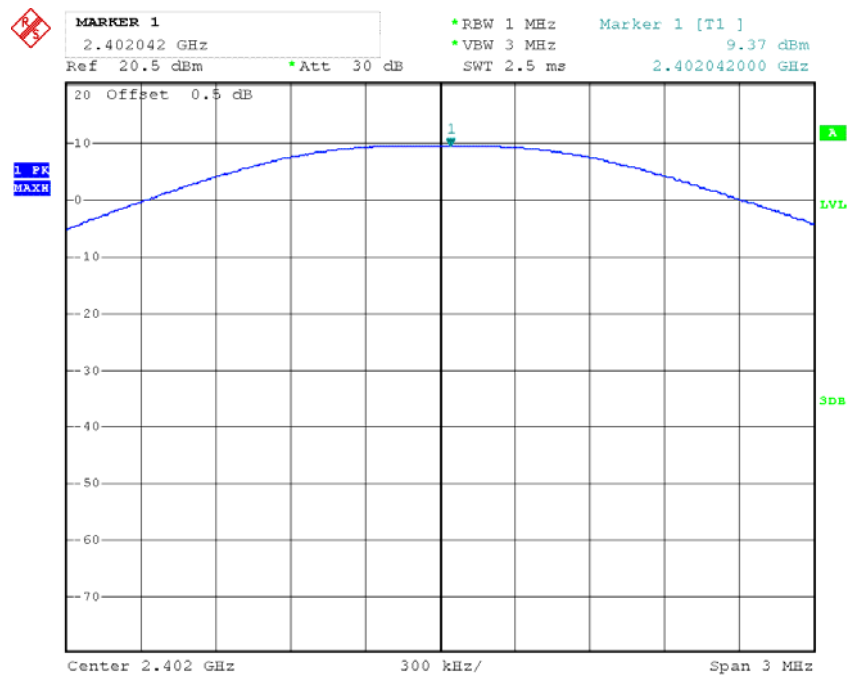
Test Result: Compliance.

Test Mode: Transmitting

	Channel	Frequency (MHz)	Output power (dBm)	Limit (dBm)
BDR Mode (GFSK)	Low	2402	9.37	30
	Middle	2441	10.02	30
	High	2480	10.34	30
EDR Mode ($\pi/4$ -QPSK)	Low	2402	9.21	30
	Middle	2441	9.94	30
	High	2480	10.21	30
EDR Mode (8DPSK)	Low	2402	9.48	30
	Middle	2441	10.18	30
	High	2480	10.43	30

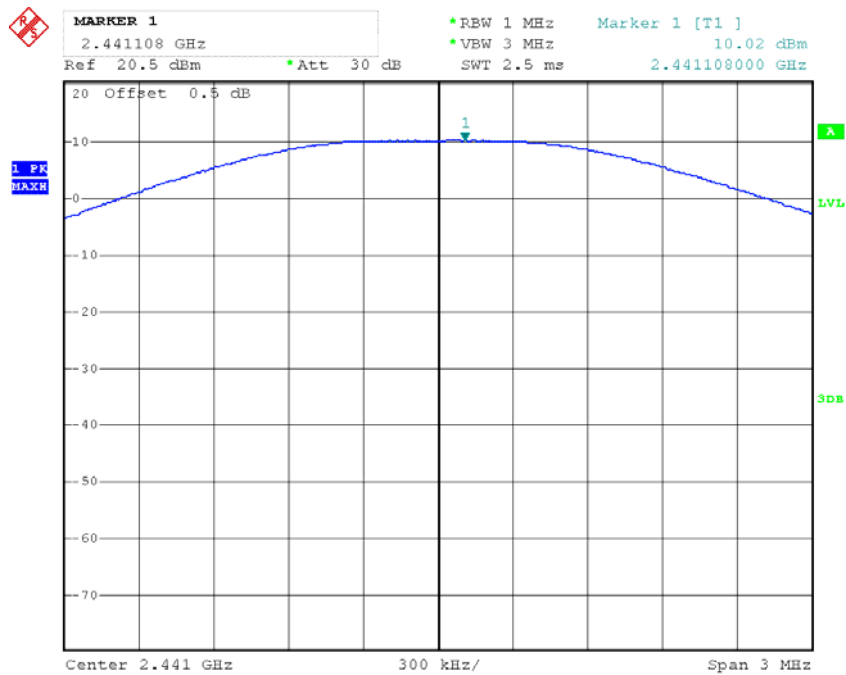
Note: The data above was tested in conducted mode.

BDR: Output Power, Low



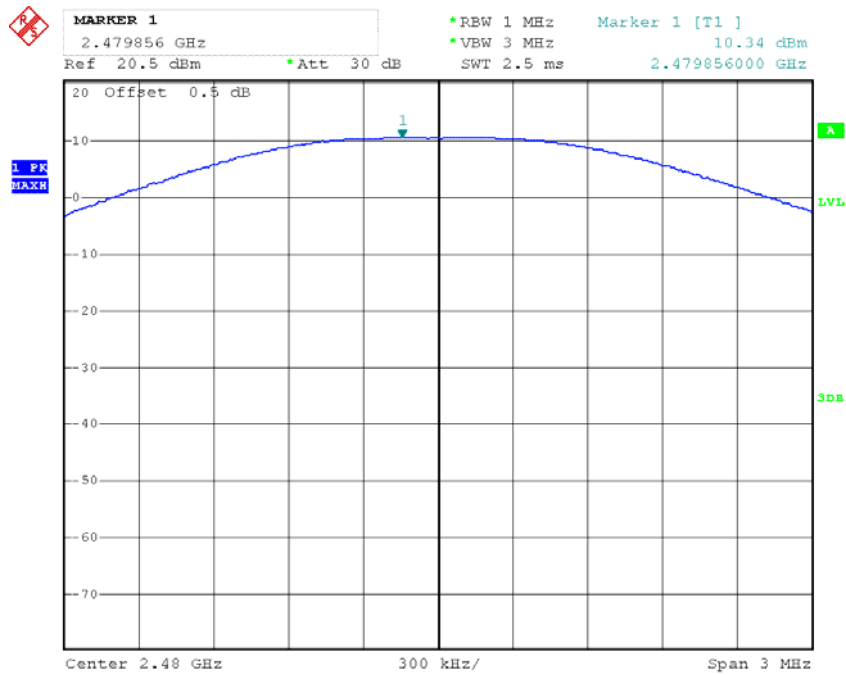
Date: 12.JUL.2012 16:44:38

BDR: Output Power, Middle



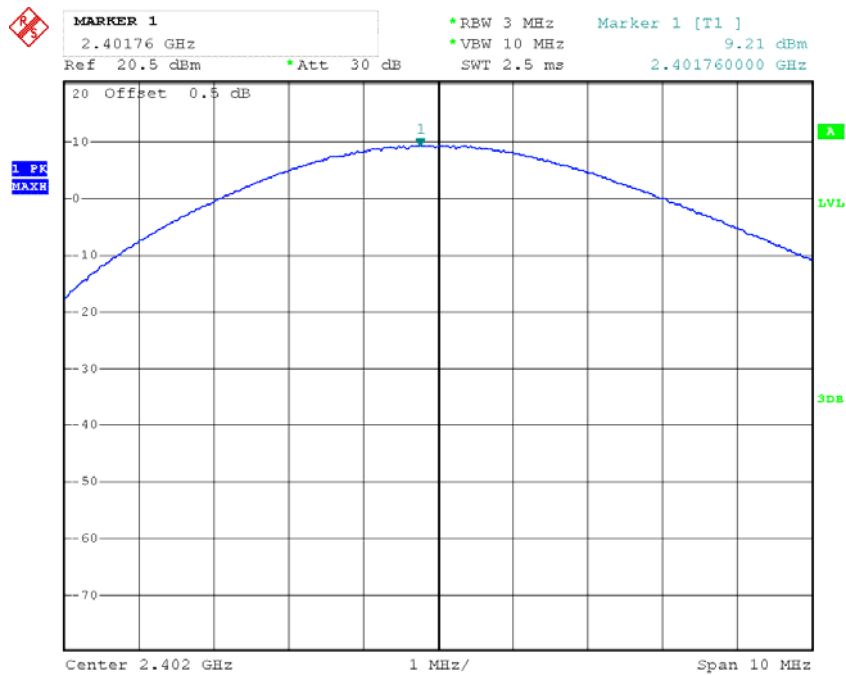
Date: 12.JUL.2012 16:43:32

BDR: Output Power, High



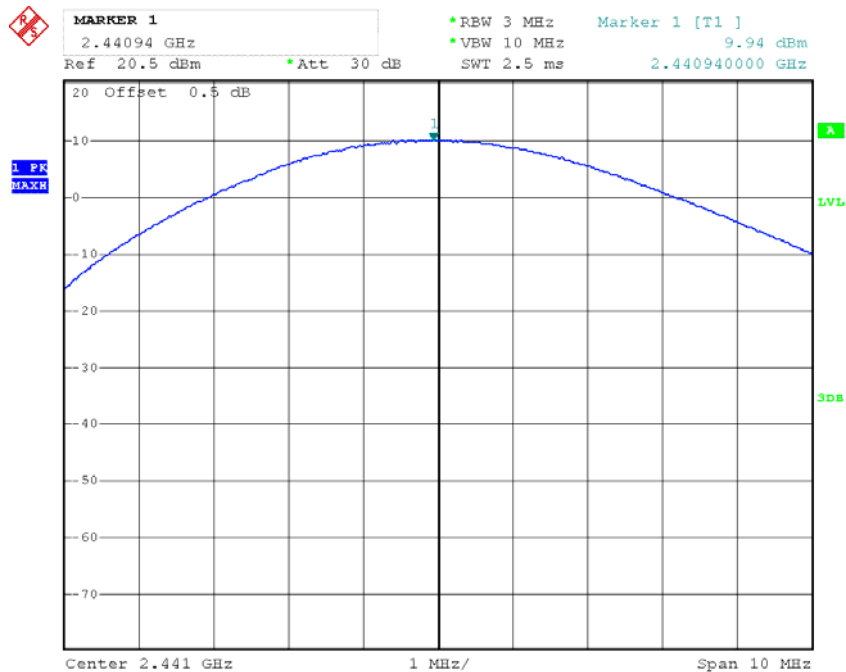
Date: 12.JUL.2012 16:42:46

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



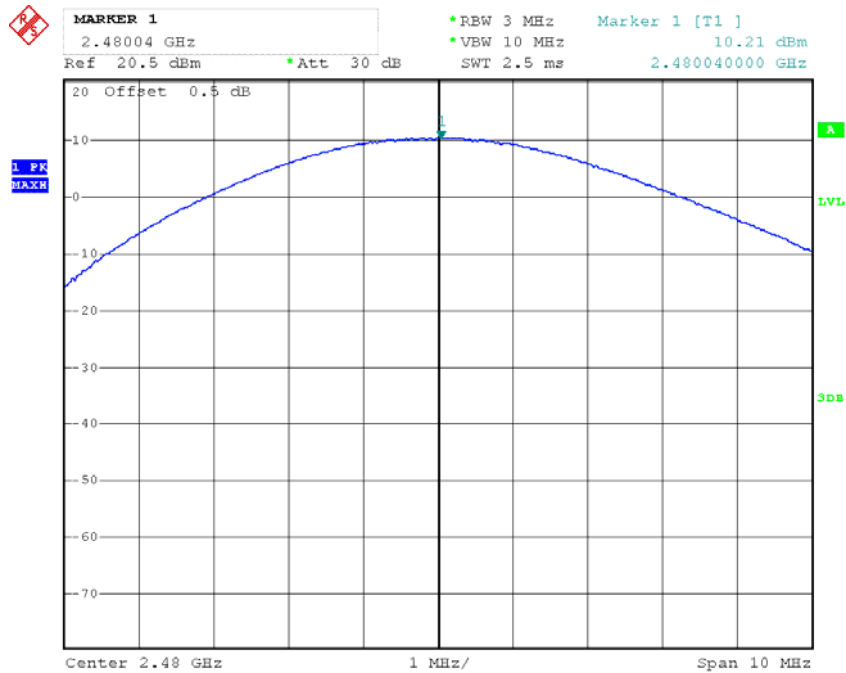
Date: 12.JUL.2012 16:36:36

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



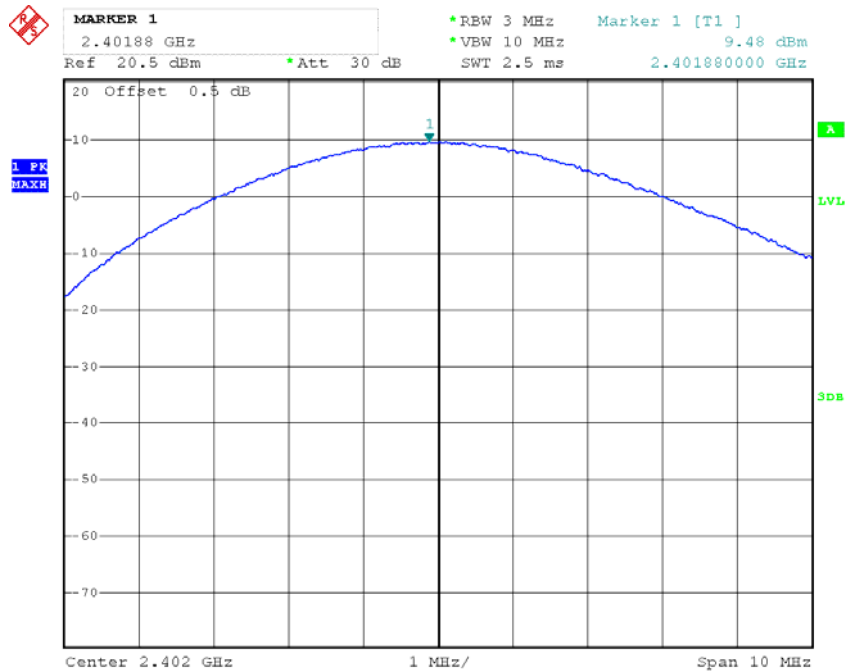
Date: 12.JUL.2012 16:38:08

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



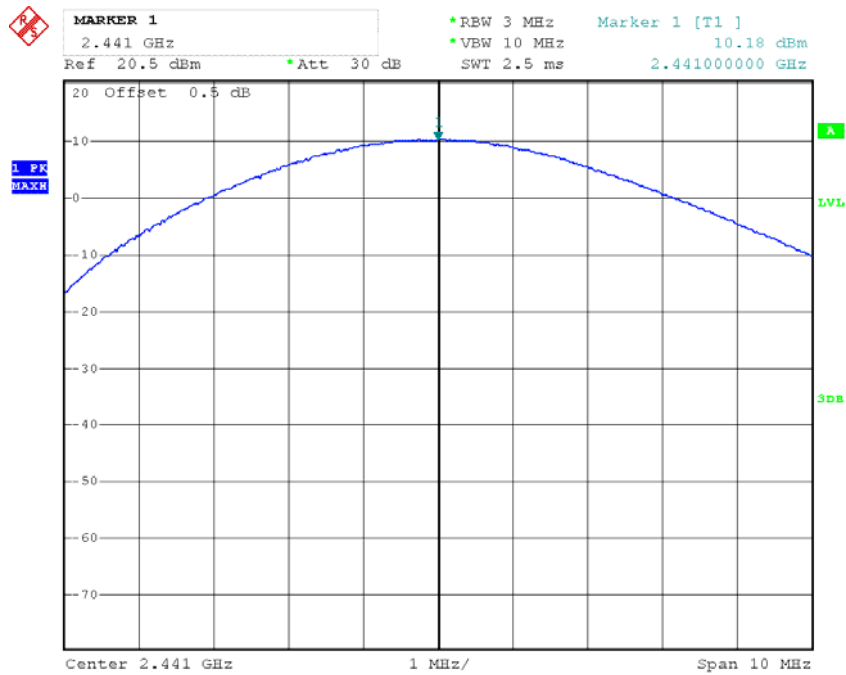
Date: 12.JUL.2012 16:40:02

EDR (8DPSK): Output Power, Low



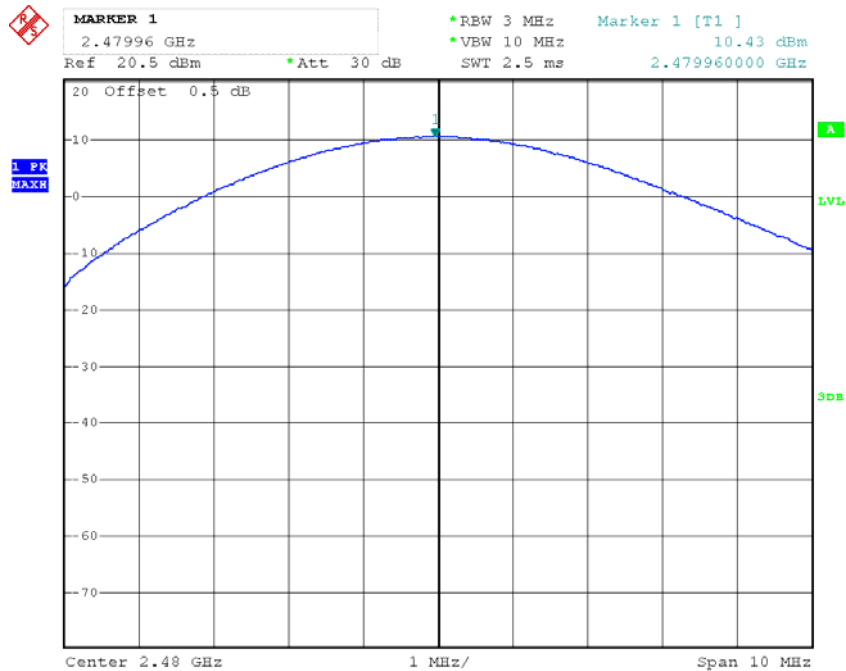
Date: 12.JUL.2012 16:35:51

EDR (8DPSK): Output Power, Middle



Date: 12.JUL.2012 16:35:06

EDR (8DPSK): Output Power, High



Date: 12.JUL.2012 16:34:01

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 RBW and VBW of spectrum analyzer to 100 kHz/300 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	EMI Test Receiver	ESCI	101122	2011-11-17	2012-11-16

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

Temperature:	26 °C
Relative Humidity:	56 %
ATM Pressure:	100.9 kPa

**The testing was performed by Dean Liu on 2012-07-12.*

Test Result: Compliance

MARKER 4
 2.392532 GHz
 *RBW 100 kHz
 *VBW 300 kHz
 -47.47 dBm
 Ref 20.5 dBm
 *Att 30 dB
 SWT 10 ms
 2.392532000 GHz

20 Offset 0.5 dB
 -10 D1 9.14 dBm
 0
 -10 D2 -10.86 dBm
 -20
 -30
 -40
 -50
 -60
 -70

Marker 1 [T1]
 9.14 dBm
 2.402308000 GHz
 Marker 2 [T1]
 -48.67 dBm
 2.390000000 GHz
 Marker 3 [T1]
 -46.05 dBm
 2.400000000 GHz

1 PK
 MAX

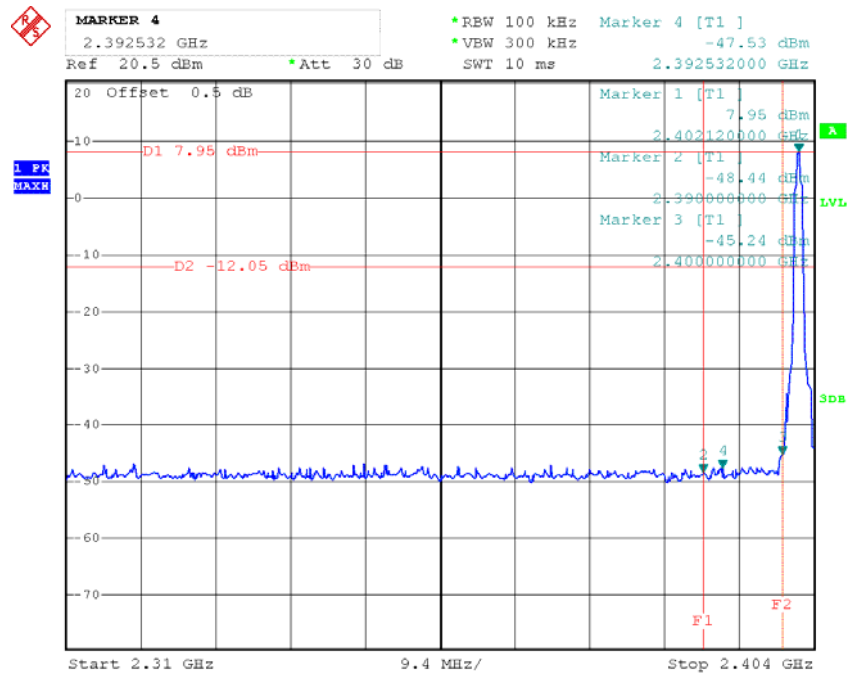
F1 F2

Start 2.31 GHz
 9.4 MHz/
 Stop 2.404 GHz

BDR: Band Edge, Right Side

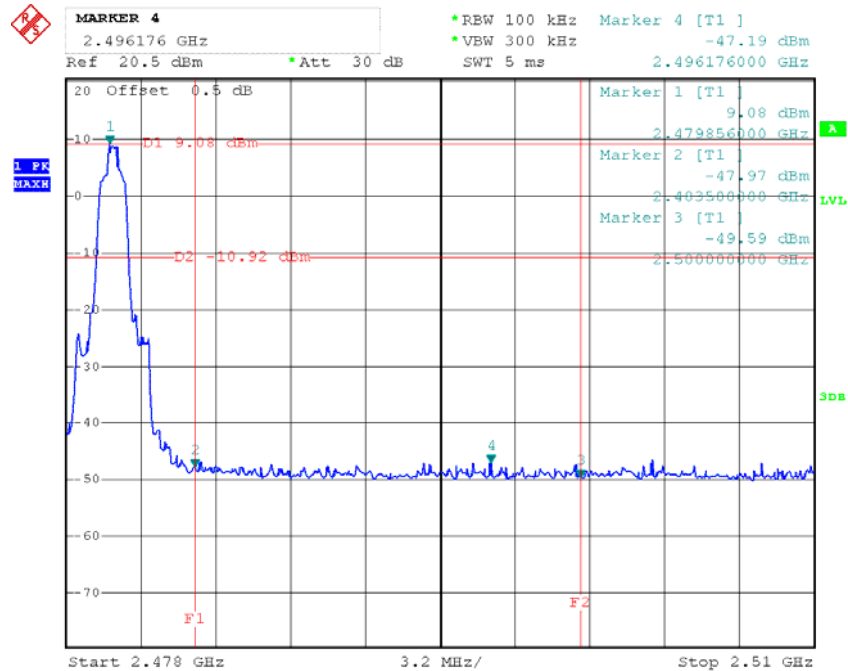


EDR ($\pi/4$ -QPSK) : Band Edge, Left Side



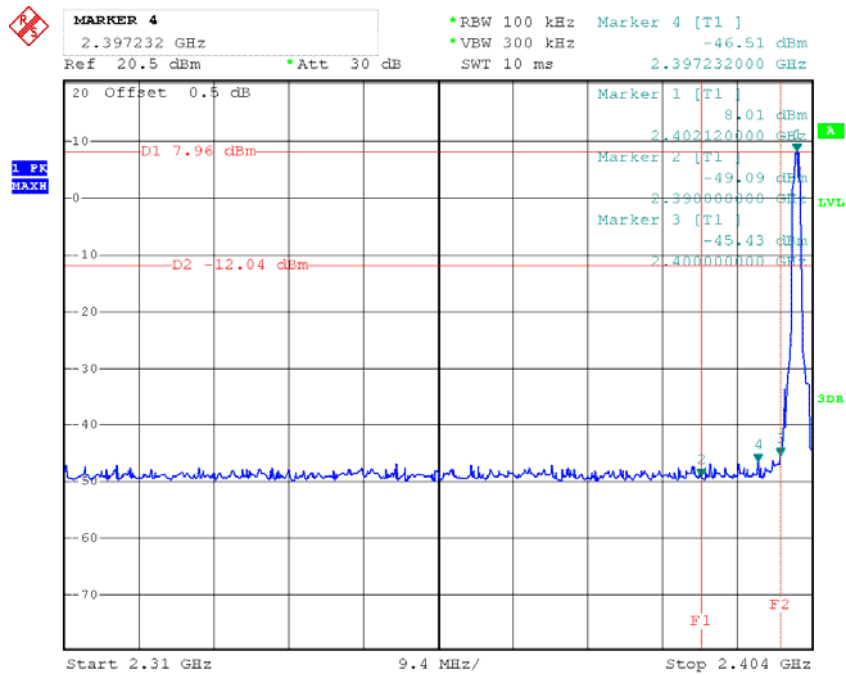
Date: 12.JUL.2012 17:29:26

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



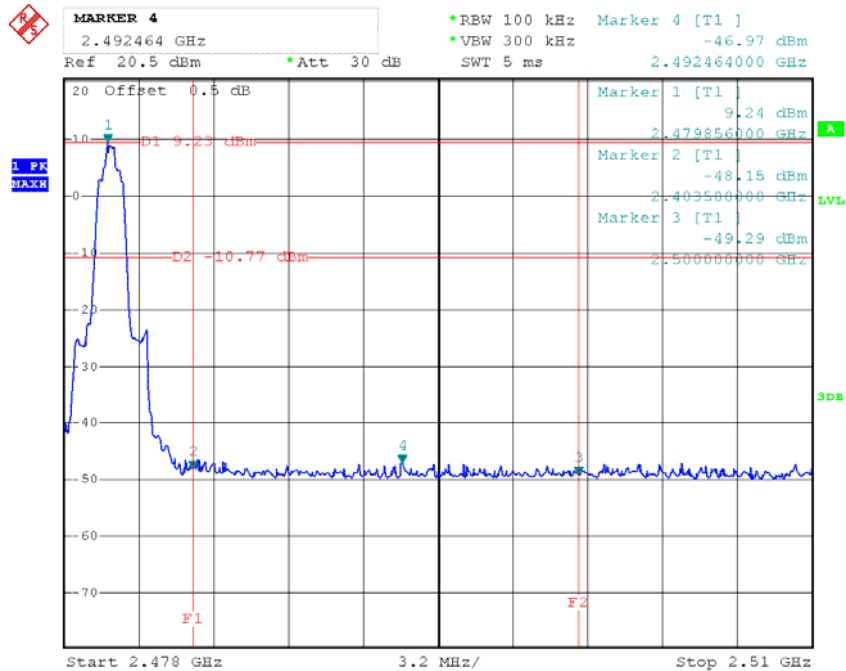
Date: 12.JUL.2012 17:23:38

EDR (8DPSK): Band Edge, Left Side



Date: 12.JUL.2012 17:31:10

EDR (8DPSK): Band Edge, Right Side



Date: 12.JUL.2012 17:21:50

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