

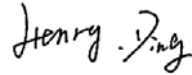

**FCC PART 15.247
TEST REPORT**

For

Imobiile Technology, L.L.C

8227 NW 68 ST., MIAMI, FLORIDA 33166, USA

FCC ID: ZOTII-TOUCH

Report Type: Original Report	Product Type: Mobile Phone
Test Engineer: Henry Ding	
Report Number: RSZ111209002-00BT	
Report Date: 2011-12-26	
Reviewed By: Alvin Huang EMC Engineer	
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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 *Imobiile Technology, L.L.C*'s product, model number: *ii-TOUCH (FCC ID: ZOTII-TOUCH)* or the "EUT" in this report was a *Mobile Phone*, which was measured approximately: 11.0 cm (L) x 5.5 cm (W) x 1.5 cm (H), rated input voltage: DC 3.7 V battery.

** All measurement and test data in this report was gathered from production sample serial number: 1112014 (Assigned by BACL, Shenzhen). The EUT was received on 2011-12-09.*

Objective

This report is prepared on behalf of *Imobiile Technology, L.L.C* 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 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)

FCC Part 22H/24E PCE, Part 15.247 DTS and Part 15B JBP submission with FCC ID: ZOTII-TOUCH

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. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) 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 December 06, 2010. 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.: 382179. 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

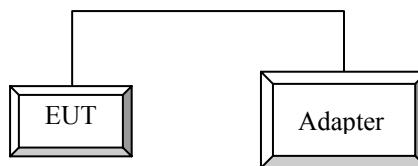
Description of Test Configuration

The system was configured for testing in engineering mode.

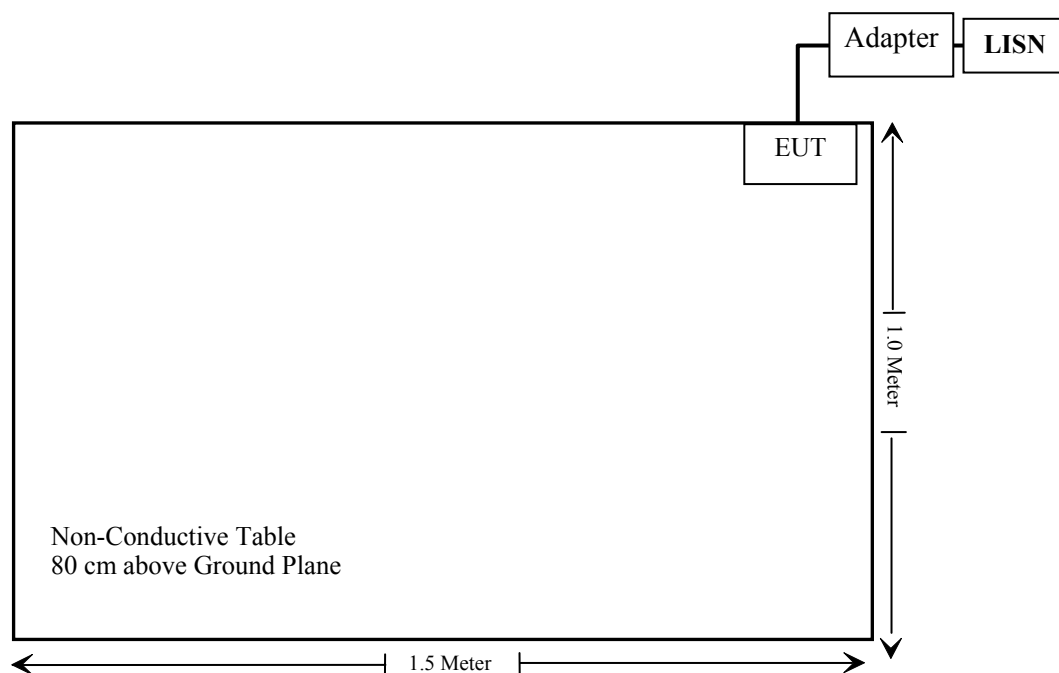
Equipment Modifications

No modification was made to the unit tested.

Configuration of Test Setup



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)	AC Line Conducted Emissions	Compliance
§15.205, §15.209 & §15.247(d)	Radiated Emissions	Compliance
§15.247(a)(1)	20 dB Emission 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) & §2.1093 – 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> <ul style="list-style-type: none"> when stand-alone 1-g SAR is not required and antenna is ≥ 5 cm from other antennas Licensed & Unlicensed <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 SAR required: Licensed & Unlicensed 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 Note: simultaneous transmission exposure conditions for head and body can be different for different style phones; therefore, different test requirements may apply
Unlicensed Transmitters	<p>When there is no simultaneous transmission –</p> <ul style="list-style-type: none"> output ≤ 60 f: SAR not required output > 60 f: stand-alone SAR required <p>When there is simultaneous transmission – <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>When stand-alone SAR is required</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 	
Jaw, Mouth and Nose	<u>Flat phantom SAR required</u> <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.

Three antennas are available for the EUT, (GSM antenna, Bluetooth antenna, Wi-Fi antenna), the distance between BT and GSM antenna is 5.2 cm, BT and Wi-Fi is 6.4cm. The max output power of Bluetooth antenna is $5.5 \text{ mW} < 2P_{\text{Ref}}(24 \text{ mW})$. According to KDB648474, stand-alone SAR is not required for BT antenna. Simultaneous SAR evaluation is not required.

Result:

The SAR measurement is exempt.

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 monopole antenna soldered on PCB, which in accordance to section 15.203, please refer to the internal photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

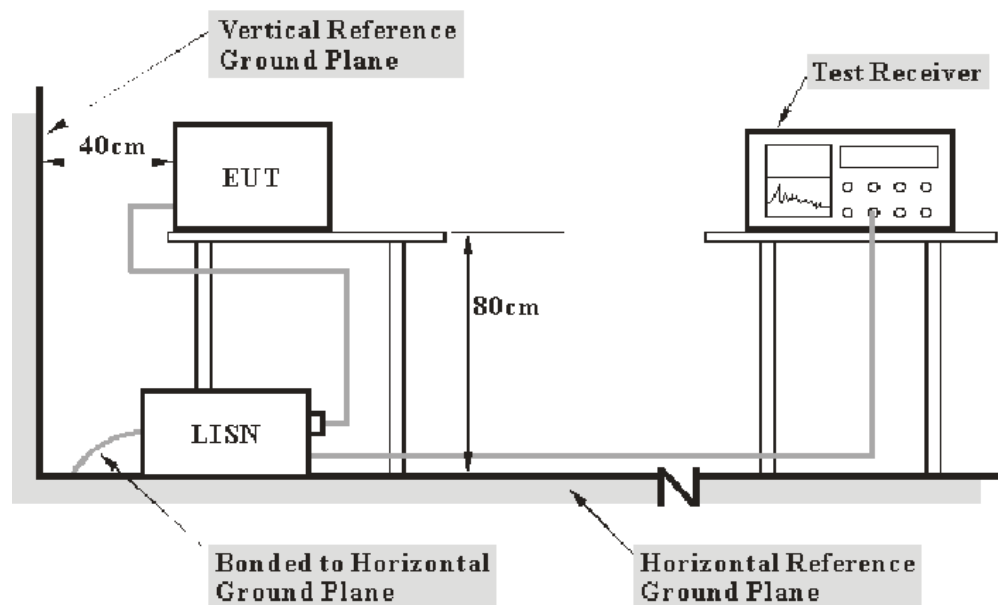
FCC §15.207

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 16-4-4, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratory Corp. (Shenzhen) is 2.4 dB (k=2, 95% level of confidence).

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 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:

<i>Frequency Range</i>	<i>IF B/W</i>
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	ESCS30	830245/006	2011-03-03	2012-03-02
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2011-03-09	2012-03-08

* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) 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 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:

18.78 dB at 27.120 MHz in the **Line** conducted mode

Test Data

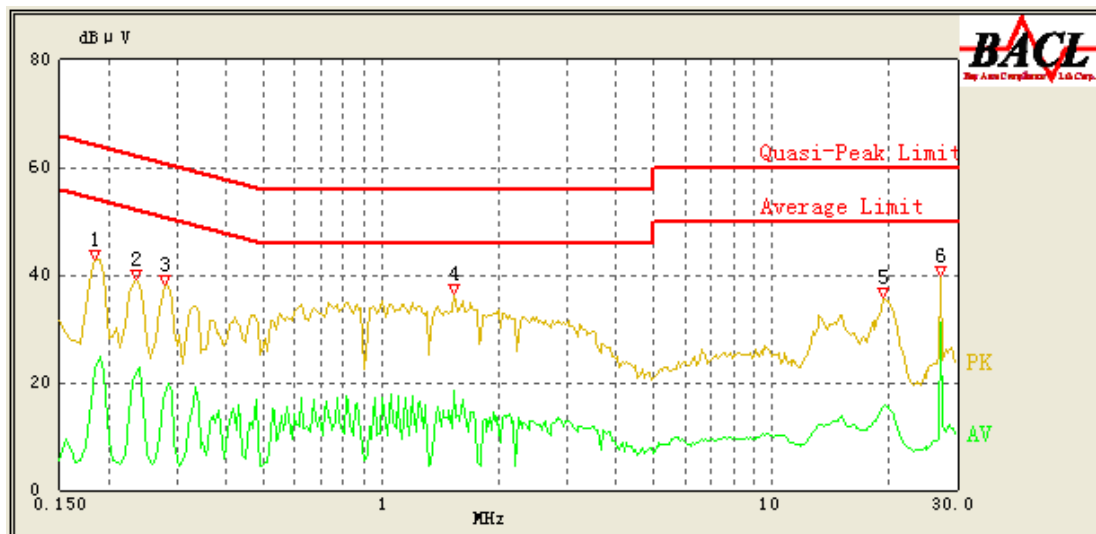
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

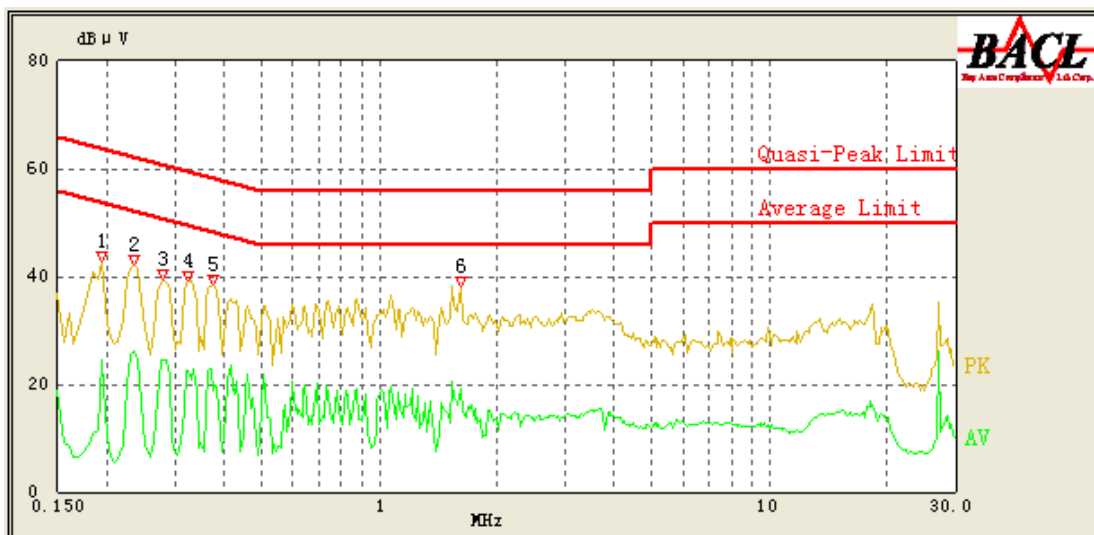
The testing was performed by Henry Ding on 2011-12-21.

Test Mode: Charging & Transmitting

AC 120 V, 60 Hz, Line:



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/Ave./QP)
27.120	31.22	10.10	50.00	18.78	Ave.
27.120	35.10	10.10	60.00	24.90	QP
1.535	30.77	10.10	56.00	25.23	QP
0.185	39.47	10.10	65.00	25.53	QP
1.540	18.35	10.10	46.00	27.65	Ave.
0.235	35.71	10.10	63.57	27.86	QP
0.280	33.59	10.10	62.29	28.70	QP
0.235	21.37	10.10	53.57	32.20	Ave.
0.185	22.55	10.10	55.00	32.45	Ave.
19.375	27.43	10.10	60.00	32.57	QP
19.245	15.52	10.10	50.00	34.48	Ave.
0.280	17.71	10.10	52.29	34.58	Ave.

AC 120V, 60 Hz, Neutral:

Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/Ave./QP)
1.615	31.97	10.10	56.00	24.03	QP
0.195	40.10	10.10	64.71	24.61	QP
0.375	34.11	10.10	59.57	25.46	QP
0.235	38.07	10.10	63.57	25.50	QP
0.325	35.21	10.10	61.00	25.79	QP
0.280	35.48	10.10	62.29	26.81	QP
1.615	19.12	10.10	46.00	26.88	Ave.
0.235	26.27	10.10	53.57	27.30	Ave.
0.280	24.41	10.10	52.29	27.88	Ave.
0.325	22.52	10.10	51.00	28.48	Ave.
0.195	24.40	10.10	54.71	30.31	Ave.
0.375	18.80	10.10	49.57	30.77	Ave.

FCC §15.205, §15.209 & §15.247(d) – RADIATED EMISSIONS

Applicable Standard

FCC §15.205; §15.209; §15.247(d)

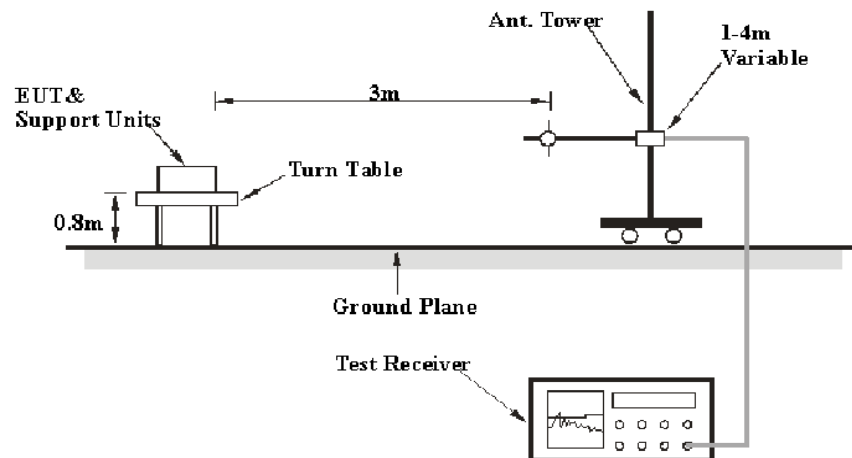
Measurement Uncertainty

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.

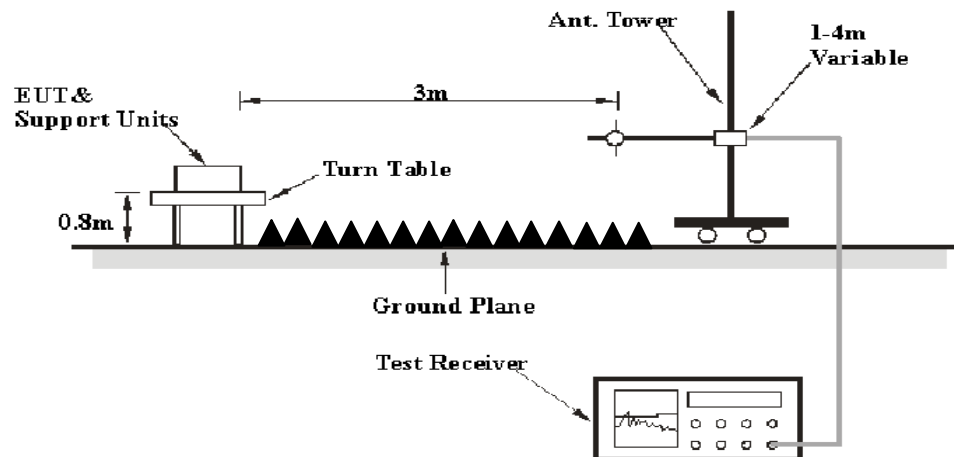
Based on CISPR 16-4-4, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 4.0 dB. ($k=2$, 95% level of confidence).

EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters, 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.

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 B/W</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 and peak and Average detection modes for frequencies above 1 GHz.

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 7 dB means the emission is 7 dB below the maximum limit. The equation for margin calculation is as follows:

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-02
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-08
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07
Agilent	Spectrum Analyzer	8564E	3943A01781	2011-04-12	2012-04-11
the electro-Mechanics Co.	Horn Antenna	3116	9510-2270	2011-05-05	2012-05-04

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

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:

9.61 dB at 4960 MHz in the Horizontal polarization in high channel

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100 kPa

* The testing was performed by Henry Dingn on 2011-12-21.

30 MHz ~25 GHz:*Test mode: Transmitting*

Frequency (MHz)	Receiver Reading (dBμV)	Detector (PK/QP/Ave)	Direction (Degree)	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC Part 15.247/205/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Comment
Low Channel (2402 MHz)												
4804	27.51	Ave.	310	1.6	V	34.8	4.32	26.73	39.9	54	14.10	harmonic
4804	23.24	Ave.	250	2.1	H	35.9	4.32	26.73	36.73	54	17.27	harmonic
2320	28.51	Ave.	190	1.5	V	30.3	2.98	26.84	34.95	54	19.05	spurious
2320	27.52	Ave.	120	1.2	H	30.3	2.98	26.84	33.96	54	20.04	spurious
4804	35.52	PK	310	1.6	V	34.8	4.32	26.73	47.91	74	26.09	harmonic
4804	33.35	PK	250	2.1	H	35.9	4.32	26.73	46.84	74	27.16	harmonic
2320	39.32	PK	120	1.2	H	30.3	2.98	26.84	45.76	74	28.24	spurious
2320	38.52	PK	190	1.9	V	30.3	2.98	26.84	44.96	74	29.04	spurious
Middle Channel (2441 MHz)												
4882	30.4	Ave.	180	1.8	V	35.1	4.36	26.75	43.11	54	10.89	harmonic
4882	28.52	Ave.	170	1.2	H	36.3	4.36	26.75	42.43	54	11.57	harmonic
4882	37.52	PK	180	1.8	V	35.1	4.36	26.75	50.23	74	23.77	harmonic
4882	35.52	PK	170	1.2	H	36.3	4.36	26.75	49.43	74	24.57	harmonic
High Channel (2480 MHz)												
4960	30.23	Ave.	170	2.4	H	36.5	4.41	26.75	44.39	54	9.61	harmonic
2486	30.21	Ave.	250	2.1	H	36.3	4.36	26.75	44.12	54	9.88	spurious
2486	30.24	Ave.	180	1.2	V	35.1	4.36	26.75	42.95	54	11.05	spurious
4960	29.22	Ave.	180	1.6	V	35.3	4.41	26.75	42.18	54	11.82	harmonic
2486	39.23	PK	250	2.1	H	36.3	4.36	26.75	53.14	74	20.86	spurious
4960	38.25	PK	170	2.4	H	36.5	4.41	26.75	52.41	74	21.59	harmonic
2486	38.51	PK	180	1.2	V	35.1	4.36	26.75	51.22	74	22.78	spurious
4960	37.56	PK	180	1.6	V	35.3	4.41	26.75	50.52	74	23.48	harmonic

Note: For the other emissions which below 20 dB to the limit were not recorded.

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 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW.

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 truce
3. Measure the channel separation.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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 kPa

* The testing was performed by Henry Ding on 2011-12-19 and 2011-12-20.

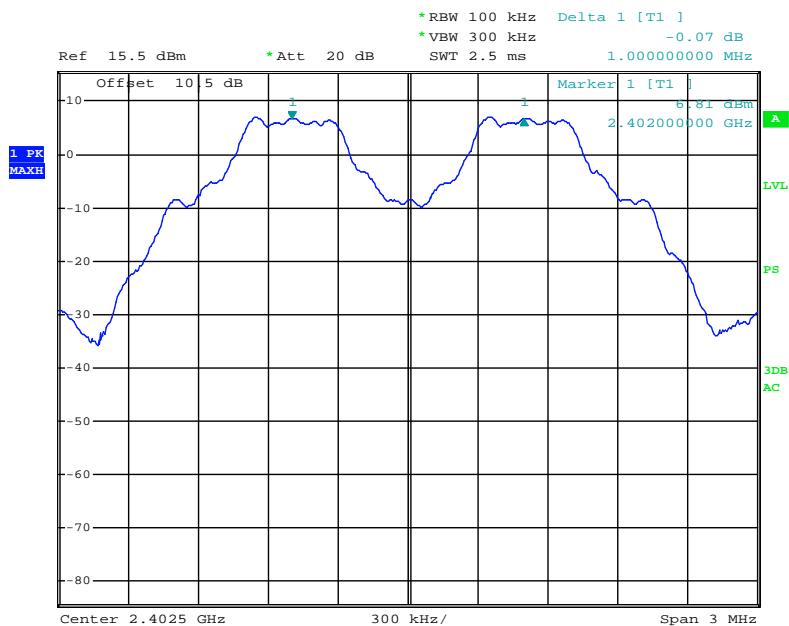
Test Result: Compliance.

Please refer to following tables and plots

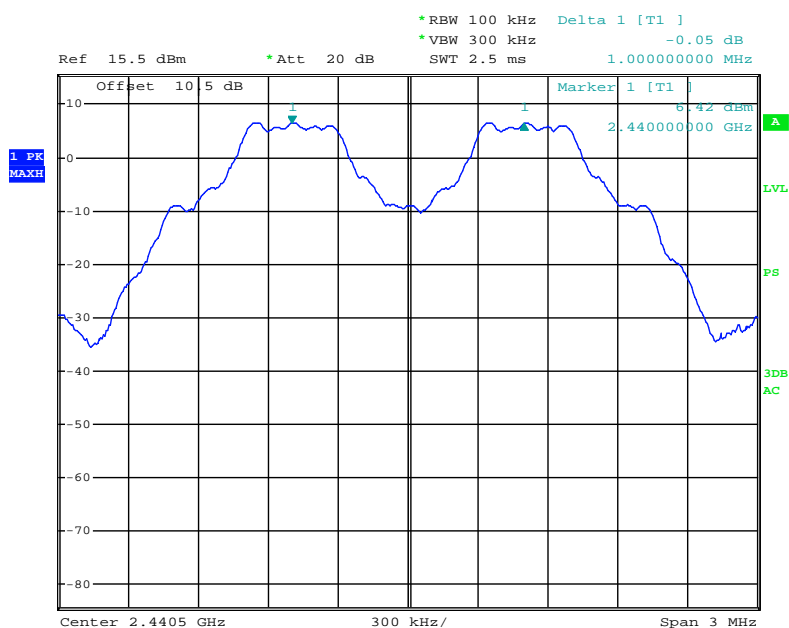
Test Mode: Transmitting

Mode	Channel	Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)	Result
BDR (GFSK)	Low	2402	1.000	0.700	Pass
	Adjacent	2403			
	Middle	2441	1.000	0.700	Pass
	Adjacent	2442			
	High	2480	1.000	0.700	Pass
	Adjacent	2479			
EDR ($\pi/4$-DQPSK)	Low	2402	1.000	0.749	Pass
	Adjacent	2403			
	Middle	2441	1.000	0.747	Pass
	Adjacent	2442			
	High	2480	1.004	0.747	Pass
	Adjacent	2479			
EDR (8DPSK)	Low	2402	1.000	0.808	Pass
	Adjacent	2403			
	Middle	2441	1.000	0.816	Pass
	Adjacent	2442			
	High	2480	1.000	0.811	Pass
	Adjacent	2479			

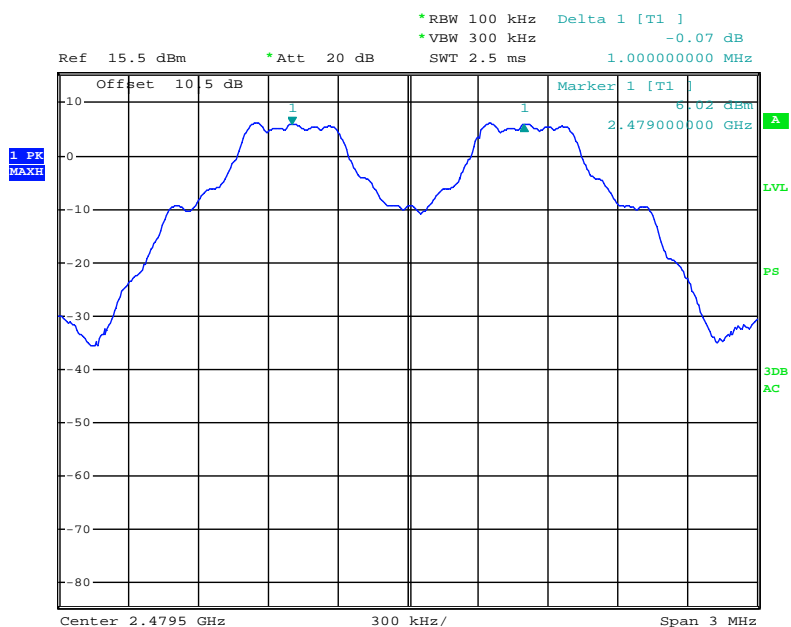
Note: Limit =20 dB bandwidth *2/3

BDR (GFSK): Low Channel

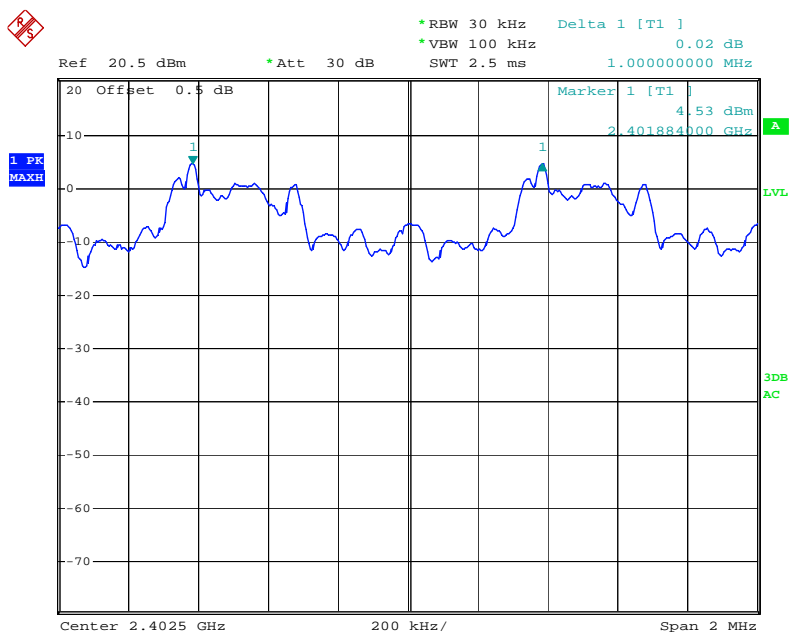
Date: 19.DEC.2011 11:22:10

BDR (GFSK): Middle Channel

Date: 19.DEC.2011 11:21:01

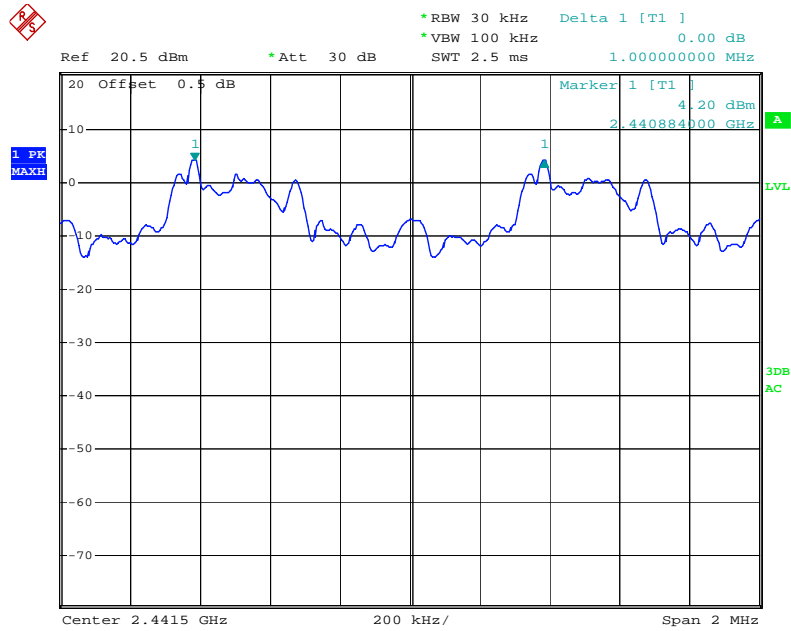
BDR (GFSK): High Channel

Date: 19.DEC.2011 11:19:52

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

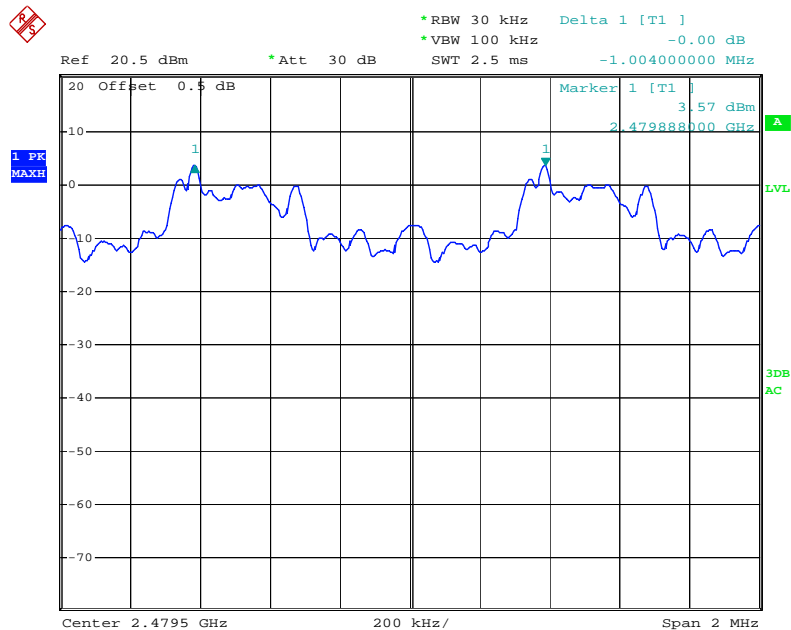
Date: 20.DEC.2011 22:42:42

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



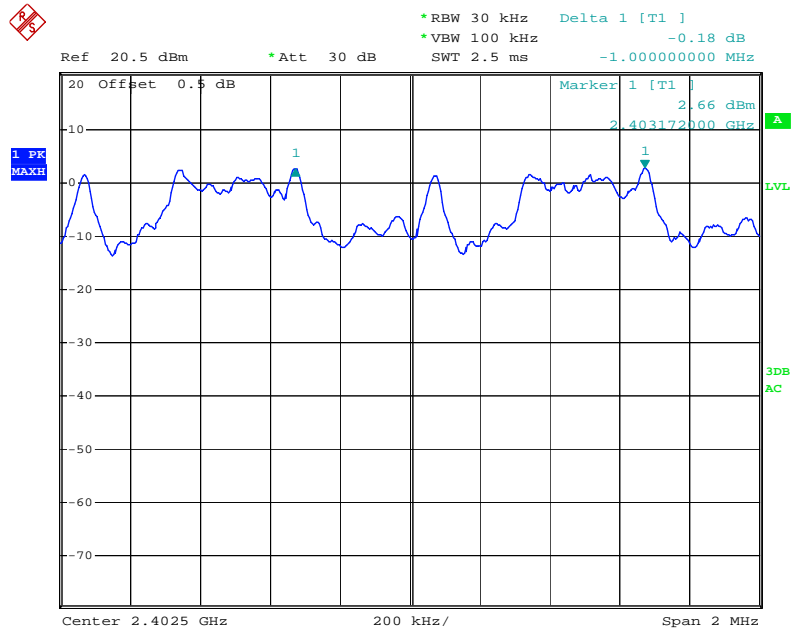
Date: 20.DEC.2011 22:41:53

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



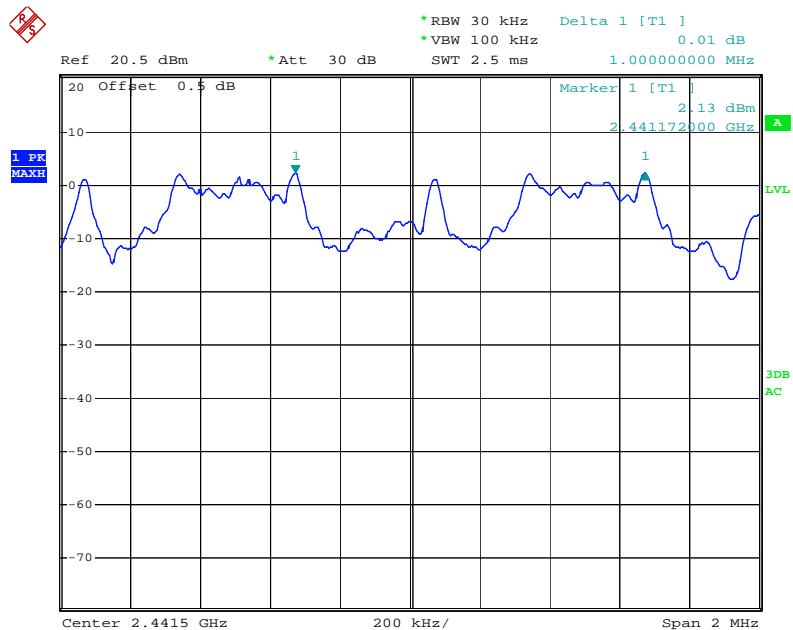
Date: 20.DEC.2011 22:40:59

EDR (8DPSK): Low Channel



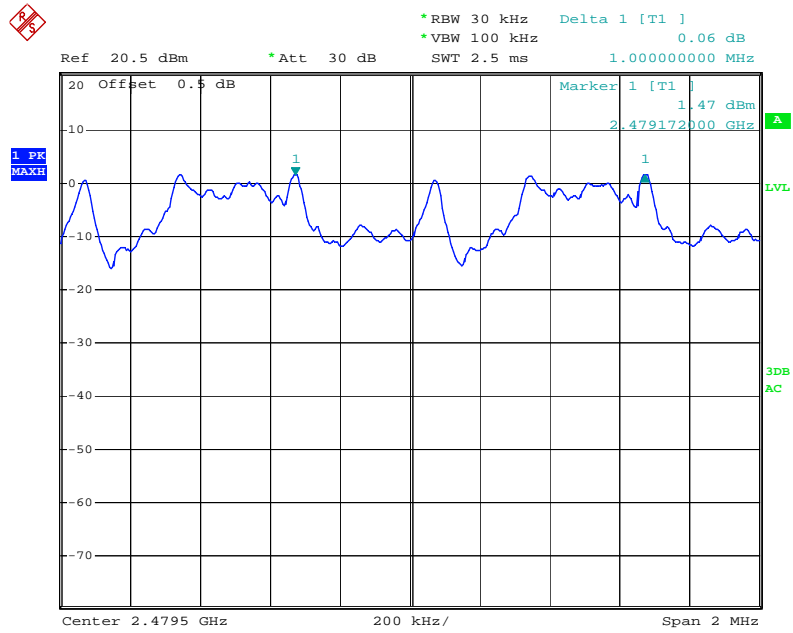
Date: 20.DEC.2011 22:44:08

EDR (8DPSK): Middle Channel



Date: 20.DEC.2011 22:45:25

EDR (8DPSK): High Channel



Date: 20.DEC.2011 22:47:06

FCC §15.247(a) (1) – 20 dB EMISSION 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 without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. 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	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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 kPa

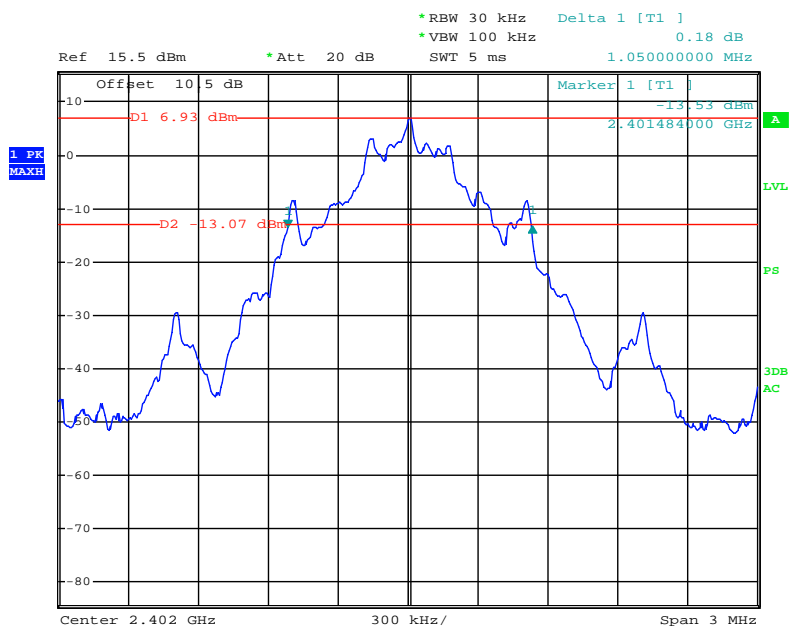
* The testing was performed by Henry Ding on 2011-12-19 and 2011-12-20.

Test Result: Compliance.

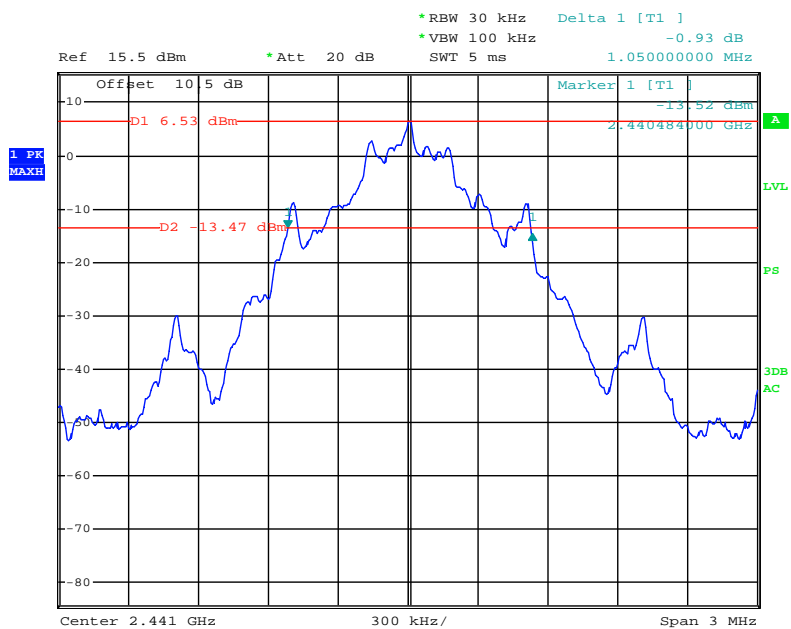
Please refer to following tables and plots

Test Mode: Transmitting

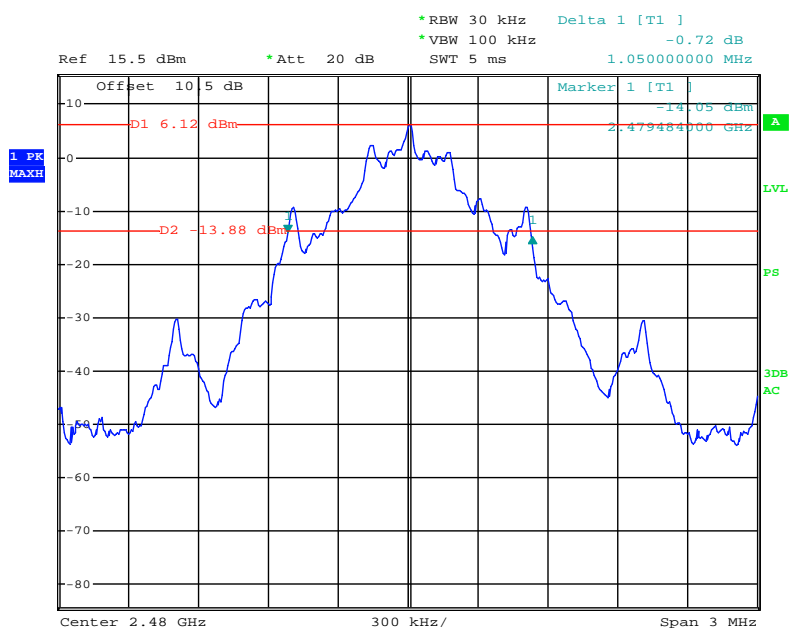
Mode	Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
BDR (GFSK)	Low	2402	1.050
	Middle	2441	1.050
	High	2480	1.050
EDR ($\pi/4$-DQPSK)	Low	2402	1.124
	Middle	2441	1.120
	High	2480	1.120
EDR (8DPSK)	Low	2402	1.212
	Middle	2441	1.224
	High	2480	1.216

BDR (GFSK): Low Channel

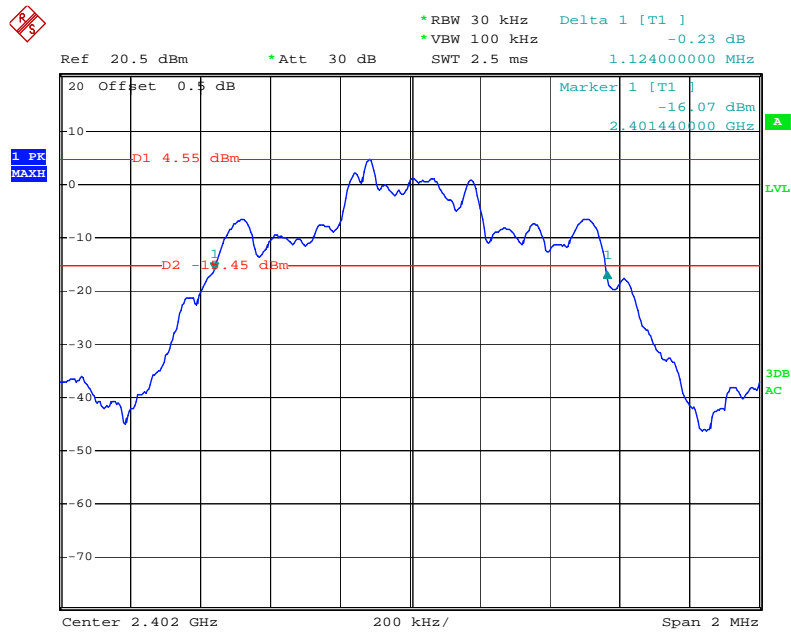
Date: 19.DEC.2011 11:12:39

BDR (GFSK): Middle Channel

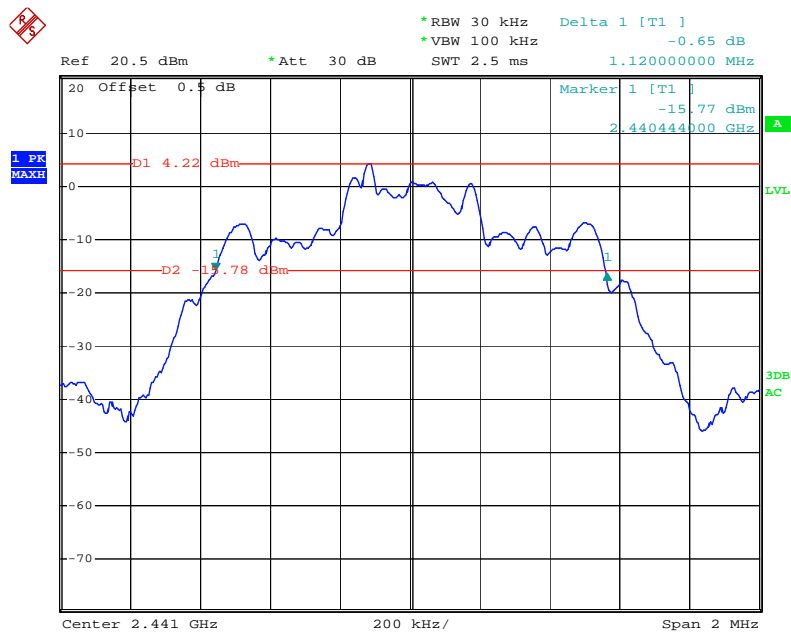
Date: 19.DEC.2011 11:13:55

BDR (GFSK): High Channel

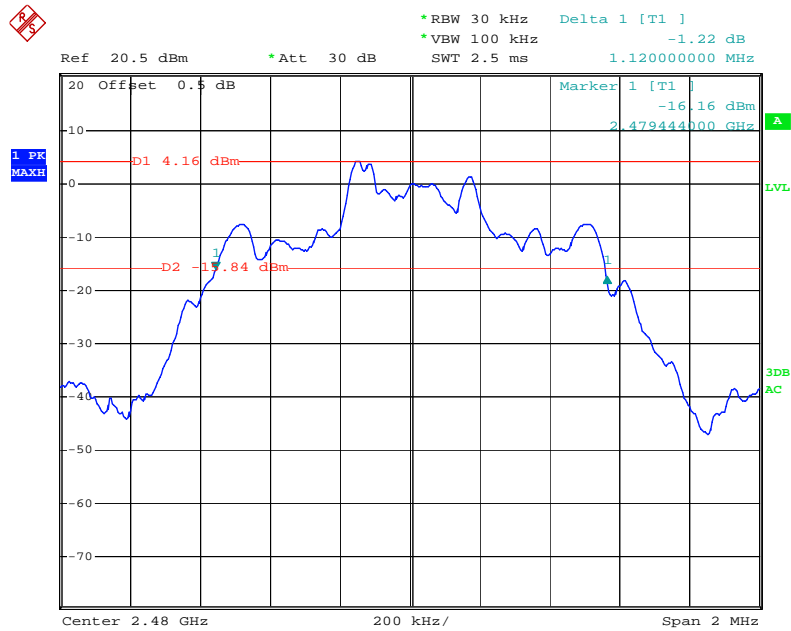
Date: 19.DEC.2011 11:14:52

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

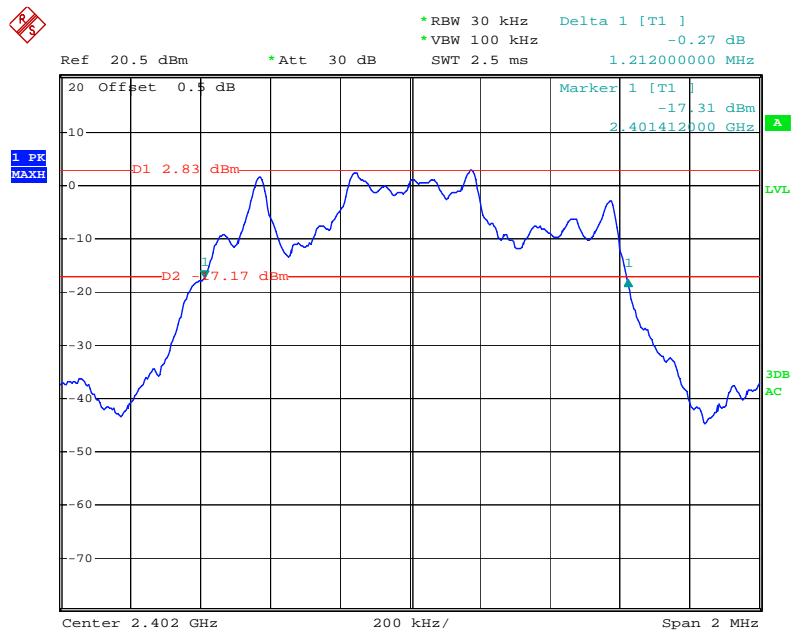
Date: 20.DEC.2011 22:14:24

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

Date: 20.DEC.2011 22:13:00

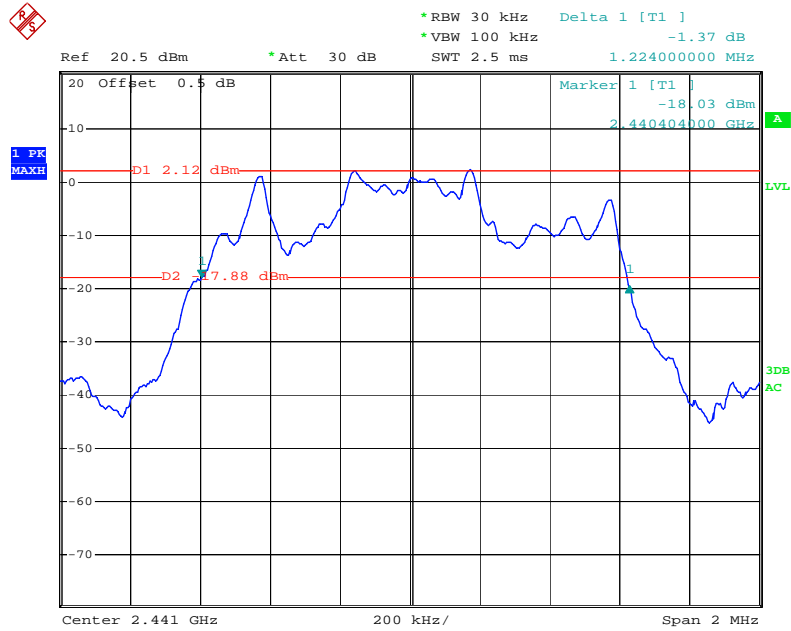
EDR ($\pi/4$ -DQPSK): High Channel

Date: 20.DEC.2011 22:11:38

EDR (8DPSK): Low Channel

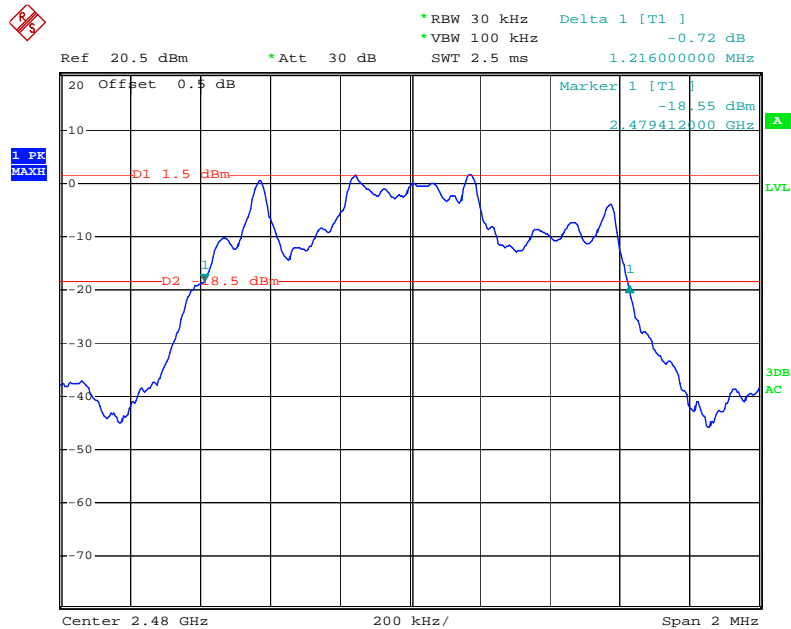
Date: 20.DEC.2011 22:17:02

EDR (8DPSK): Middle Channel



Date: 20.DEC.2011 22:18:37

EDR (8DPSK): High Channel



Date: 20.DEC.2011 22:20:21

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	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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 kPa

The testing was performed by Henry Ding on 2011-12-19 and 2011-12-21.

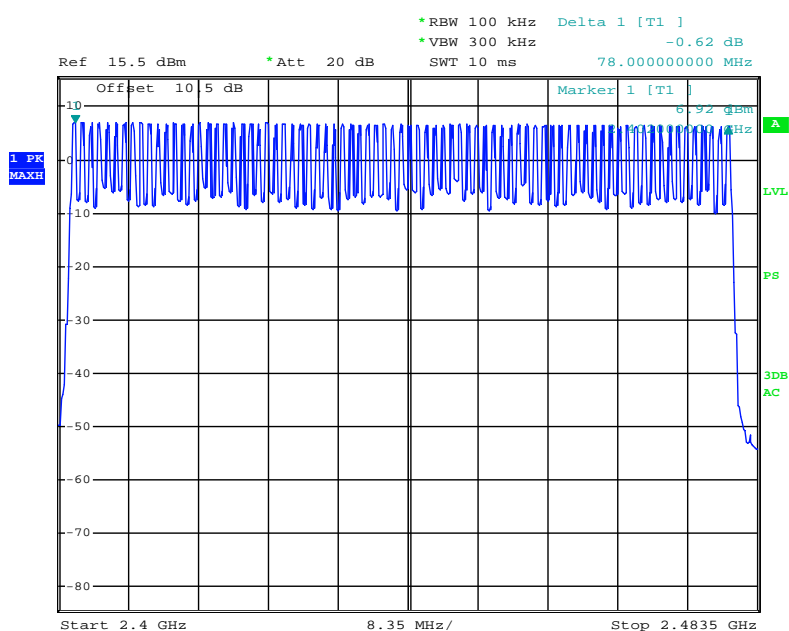
Test Result: Compliance.

Please refer to following table and plots

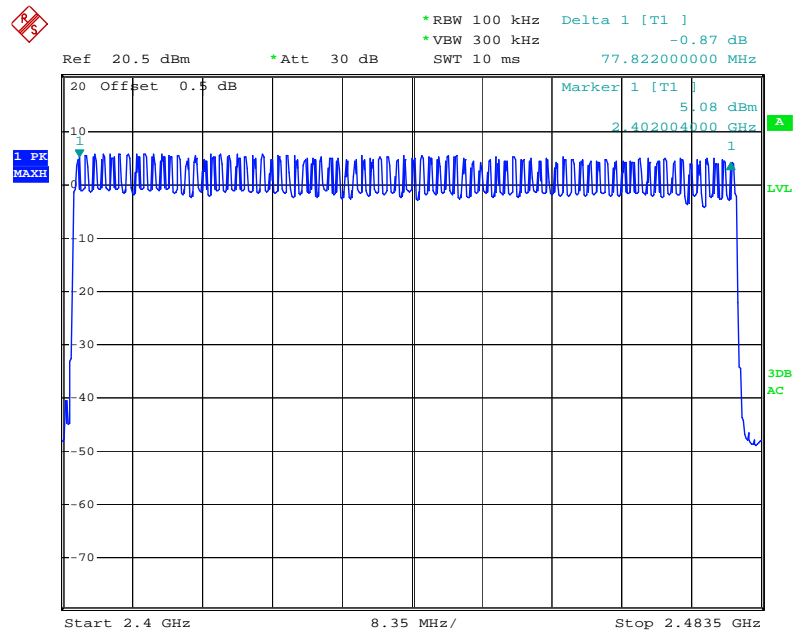
Test Mode: Transmitting

Mode	Frequency Range (MHz)	Number of Hopping Channel (CH)	Limit (CH)
BDR (GFSK)	2402-2480	79	≥15
EDR (π/4-DQPSK)	2402-2480	79	≥15
EDR (8DPSK)	2402-2480	79	≥15

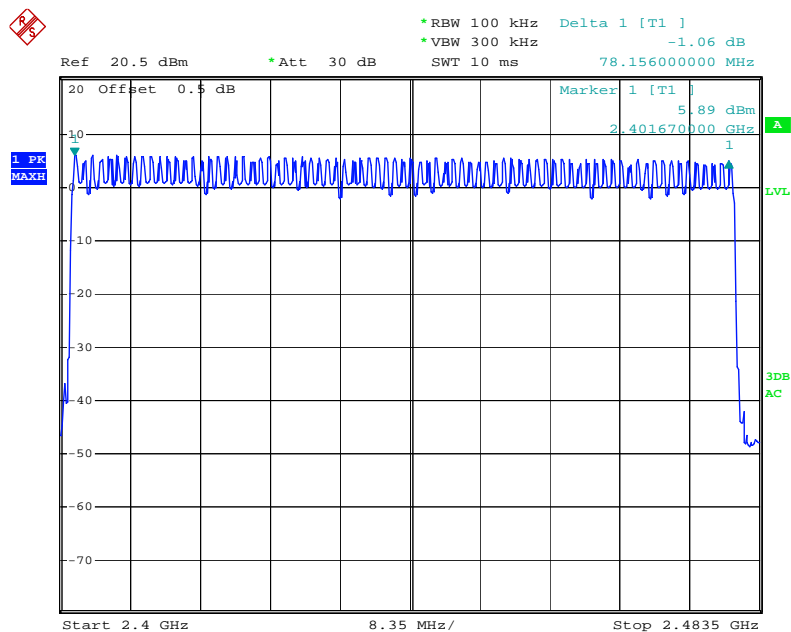
BDR (GFSK): Number of Hopping Channels



Date: 19.DEC.2011 11:30:59

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

Date: 21.DEC.2011 14:19:41

EDR (8DPSK): Number of Hopping Channels

Date: 21.DEC.2011 14:09:28

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 X channel no. (s), the quantity of pulse was get from single sweep. In addition, the time of single pulses was tested.

Dwell time = Pulse time*hop 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	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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:	101 kPa

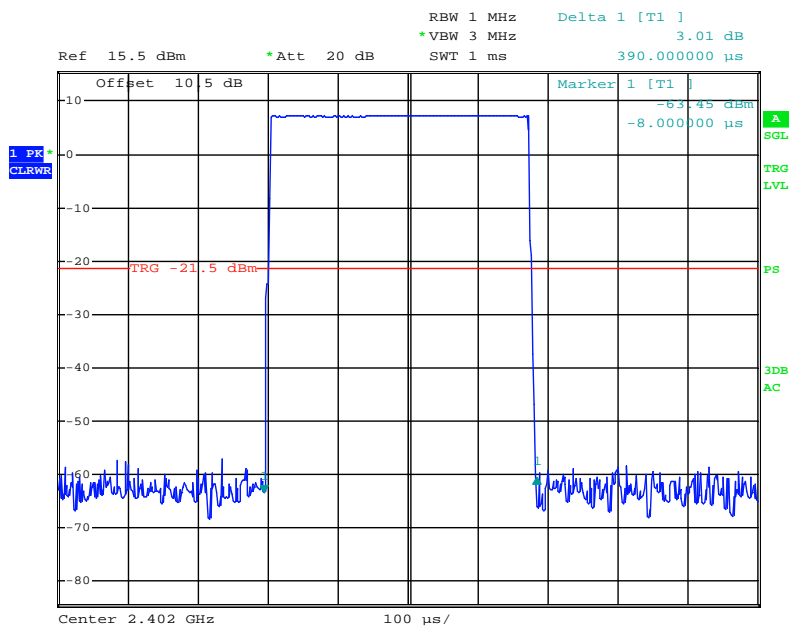
* The testing was performed by Henry Ding on 2011-12-19 and 2011-12-20.

Test Result: Compliance.

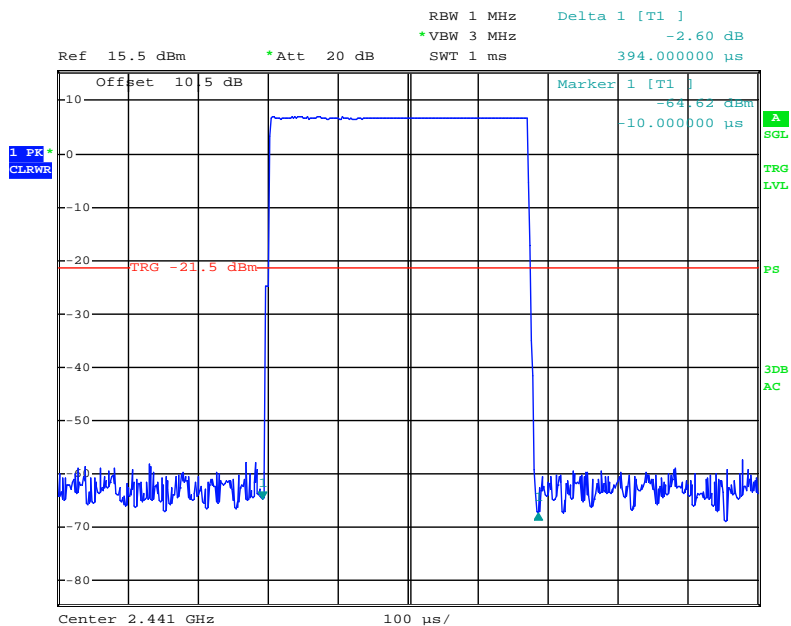
Please refer to following table and plots

Test Mode: Transmitting

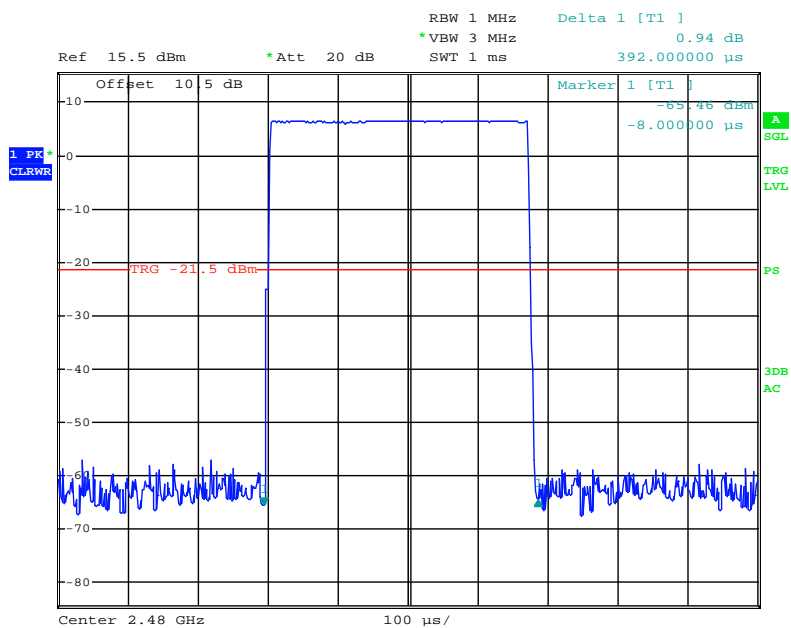
Mode		Channel	Pulse Width (ms)	Dwell Time (S)	Limit (S)	Result
BDR (GFSK)	DH 1	Low	0.390	0.1248	0.4	Pass
		Middle	0.394	0.1261	0.4	Pass
		High	0.392	0.1254	0.4	Pass
		Note: DH1:Dwell time = Pulse time*(1600/2/79)*31.6S				
	DH 3	Low	1.668	0.2669	0.4	Pass
		Middle	1.668	0.2669	0.4	Pass
		High	1.668	0.2669	0.4	Pass
		Note: DH1:Dwell time = Pulse time*(1600/4/79)*31.6S				
	DH 5	Low	2.918	0.3113	0.4	Pass
		Middle	2.918	0.3113	0.4	Pass
		High	2.918	0.3113	0.4	Pass
		Note: DH1:Dwell time = Pulse time*(1600/6/79)*31.6S				
EDR ($\pi/4$ -DQPSK)	DH 1	Low	0.400	0.1280	0.4	Pass
		Middle	0.404	0.1293	0.4	Pass
		High	0.400	0.1280	0.4	Pass
		Note: DH1:Dwell time = Pulse time*(1600/2/79)*31.6S				
	DH 3	Low	1.666	0.2666	0.4	Pass
		Middle	1.666	0.2666	0.4	Pass
		High	1.666	0.2666	0.4	Pass
		Note: DH1:Dwell time = Pulse time*(1600/4/79)*31.6S				
	DH 5	Low	2.946	0.3142	0.4	Pass
		Middle	2.946	0.3142	0.4	Pass
		High	2.946	0.3142	0.4	Pass
		Note: DH1:Dwell time = Pulse time*(1600/6/79)*31.6S				
EDR (8DPSK)	DH 1	Low	0.400	0.1280	0.4	Pass
		Middle	0.404	0.1293	0.4	Pass
		High	0.404	0.1293	0.4	Pass
		Note: DH1:Dwell time = Pulse time*(1600/2/79)*31.6S				
	DH 3	Low	1.666	0.2666	0.4	Pass
		Middle	1.666	0.2666	0.4	Pass
		High	1.666	0.2666	0.4	Pass
		Note: DH1:Dwell time = Pulse time*(1600/4/79)*31.6S				
	DH 5	Low	2.946	0.3142	0.4	Pass
		Middle	2.946	0.3142	0.4	Pass
		High	2.930	0.3125	0.4	Pass
		Note: DH1:Dwell time = Pulse time*(1600/6/79)*31.6S				

BDR (GFSK):**Pulse time, Low Channel, DH1**

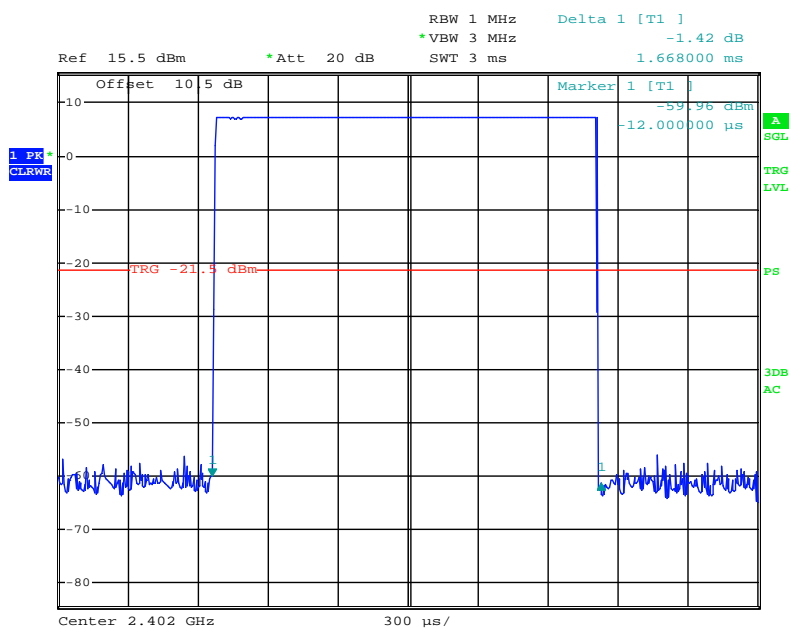
Date: 19.DEC.2011 11:52:30

Pulse time, Middle Channel, DH1

Date: 19.DEC.2011 11:53:06

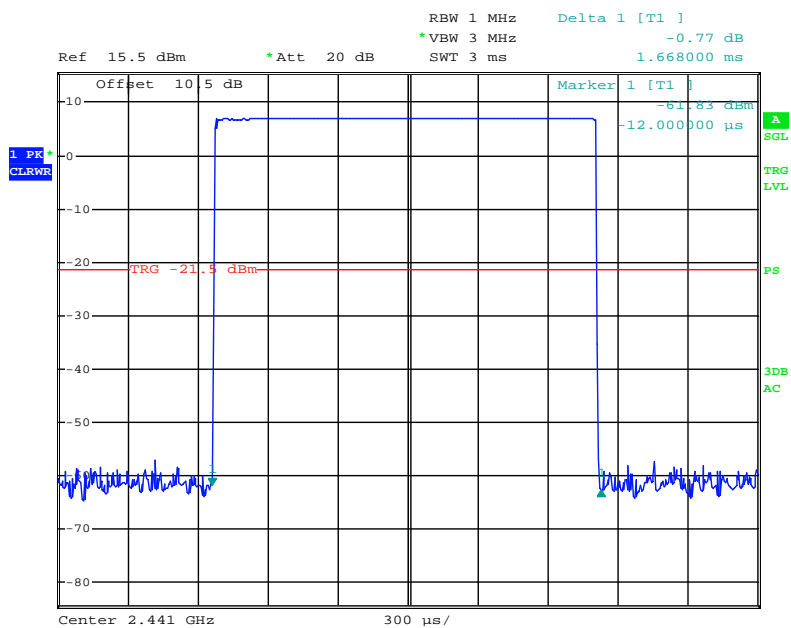
Pulse time, High Channel, DH1

Date: 19.DEC.2011 11:53:42

Pulse time, Low Channel, DH3

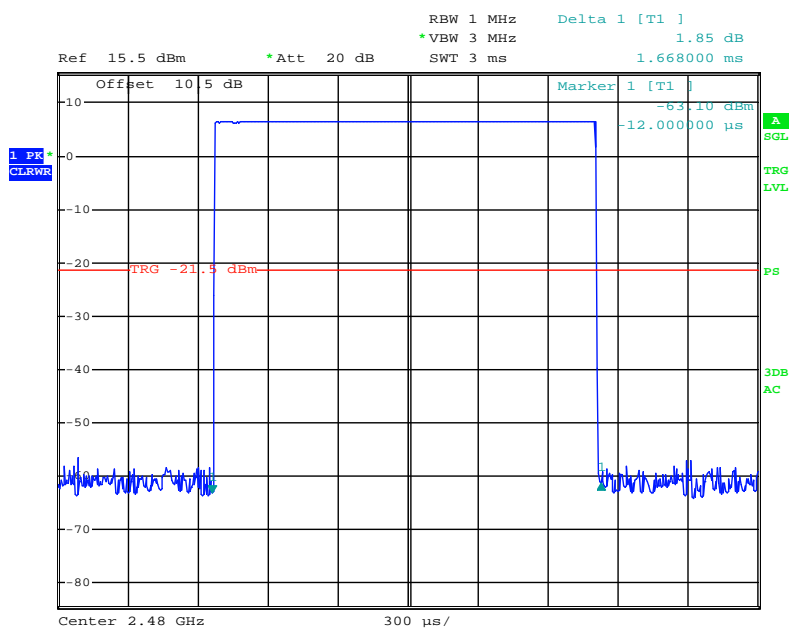
Date: 19.DEC.2011 11:56:42

Pulse time, Middle Channel, DH3



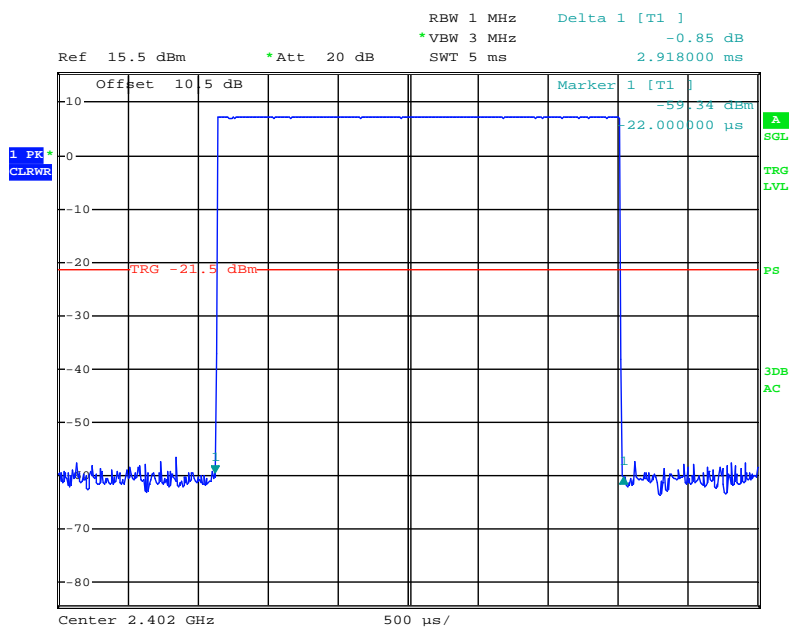
Date: 19.DEC.2011 11:56:15

Pulse time, High Channel, DH3



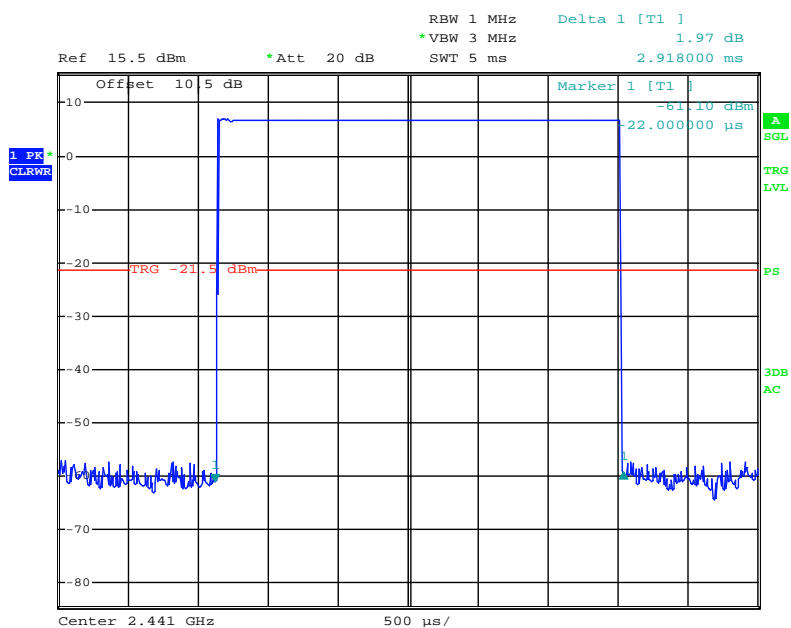
Date: 19.DEC.2011 11:55:29

Pulse time, Low Channel, DH5

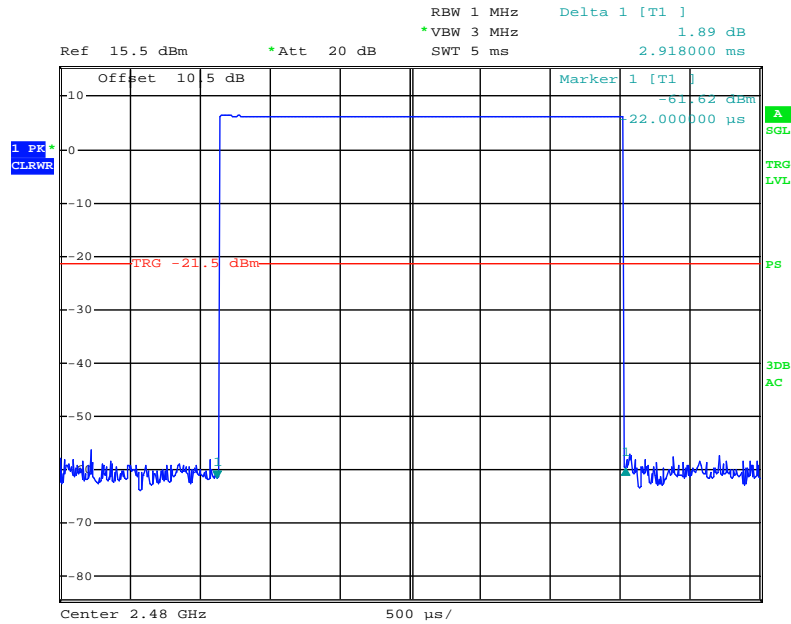


Date: 19.DEC.2011 11:57:44

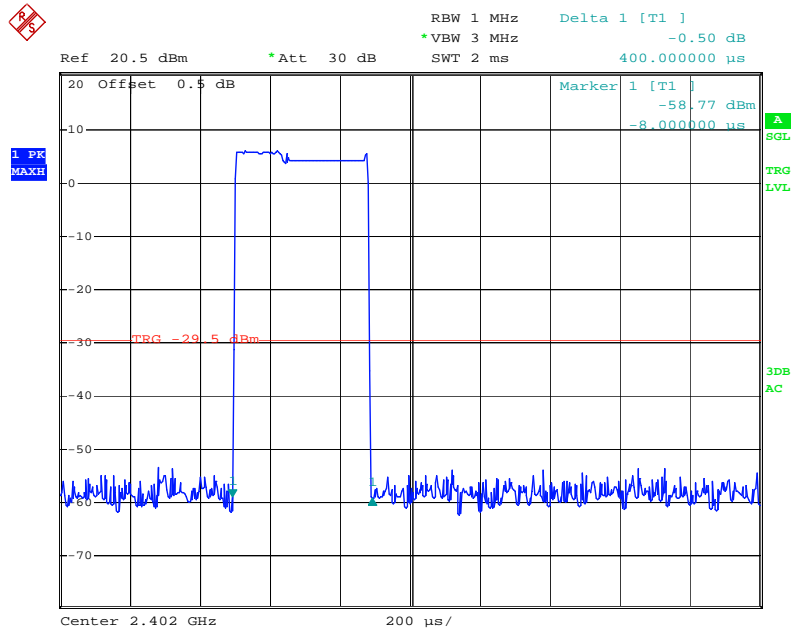
Pulse time, Middle Channel, DH5



Date: 19.DEC.2011 11:58:33

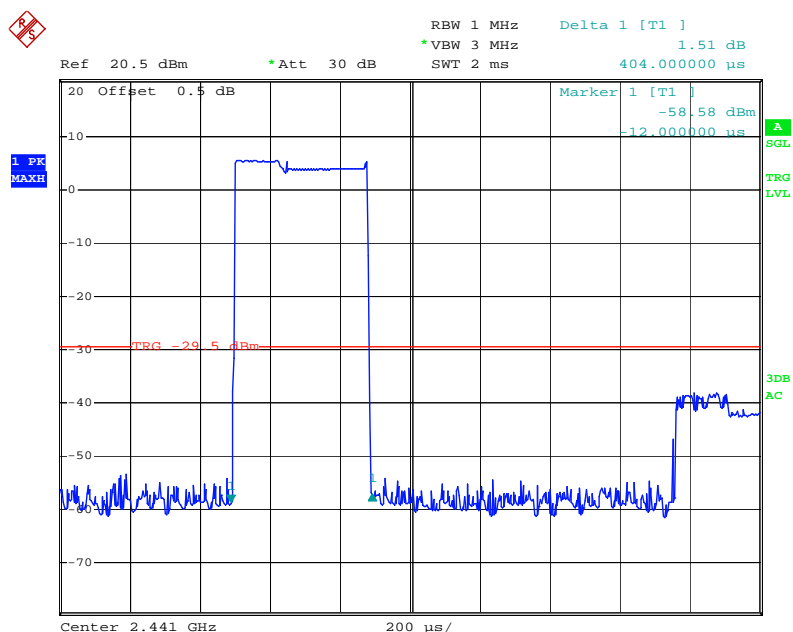
Pulse time, High Channel, DH5

Date: 19.DEC.2011 11:59:37

EDR ($\pi/4$ -DQPSK):**Pulse time, Low Channel, DH1**

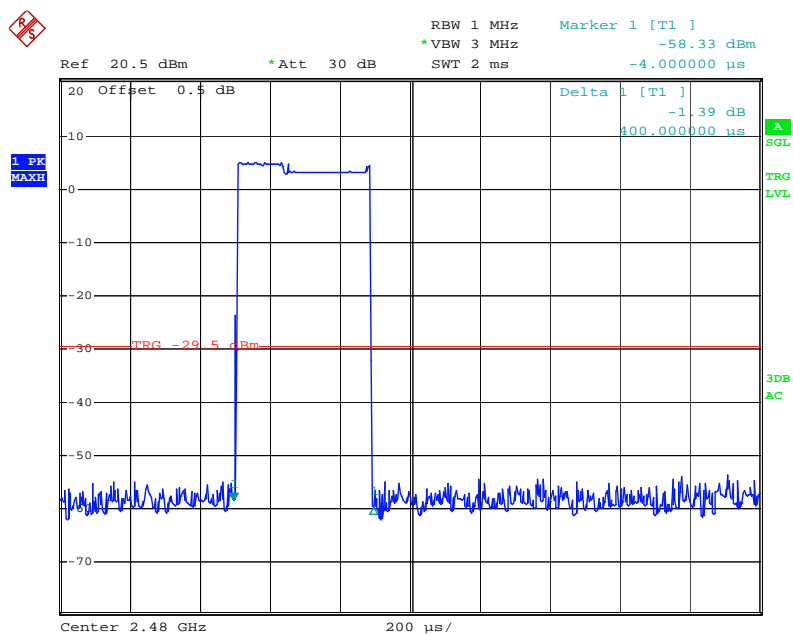
Date: 20.DEC.2011 23:04:35

Pulse time, Middle Channel, DH1



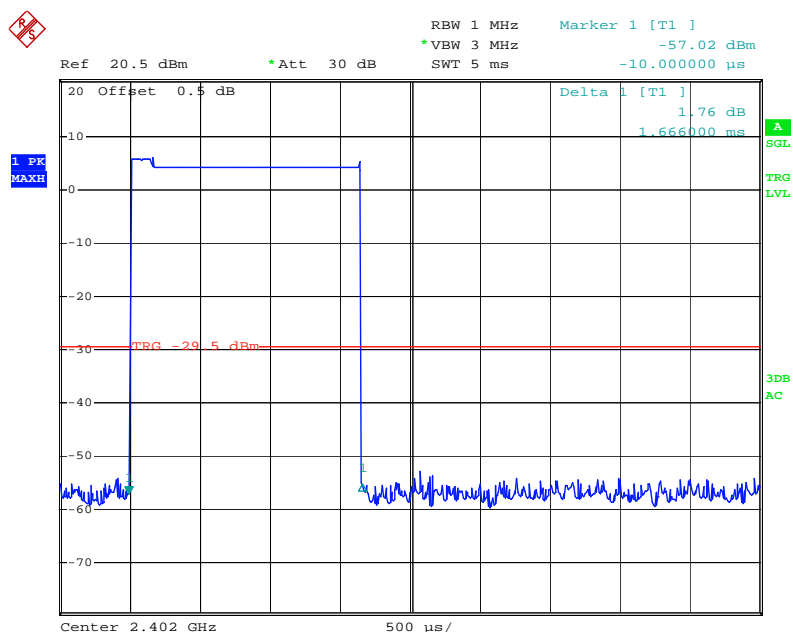
Date: 20.DEC.2011 23:02:48

Pulse time, High Channel, DH1



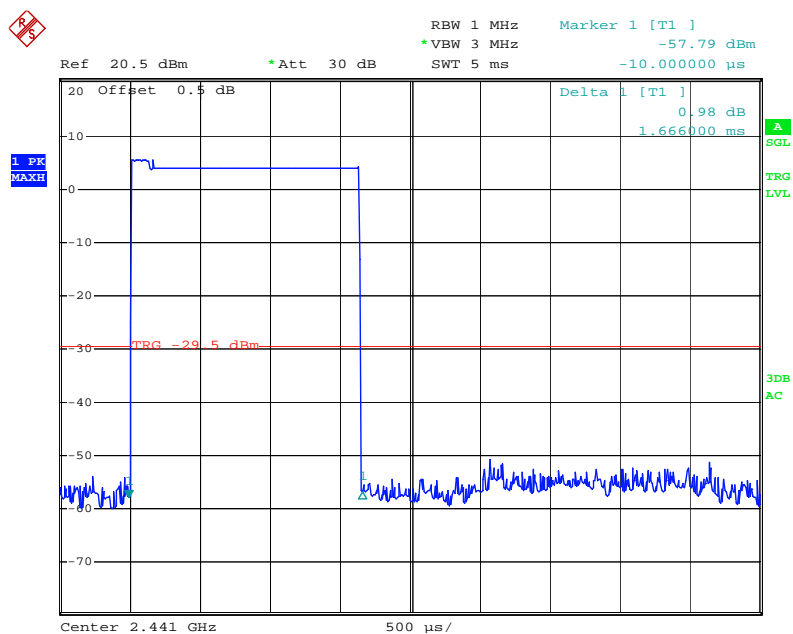
Date: 20.DEC.2011 23:01:17

Pulse time, Low Channel, DH3



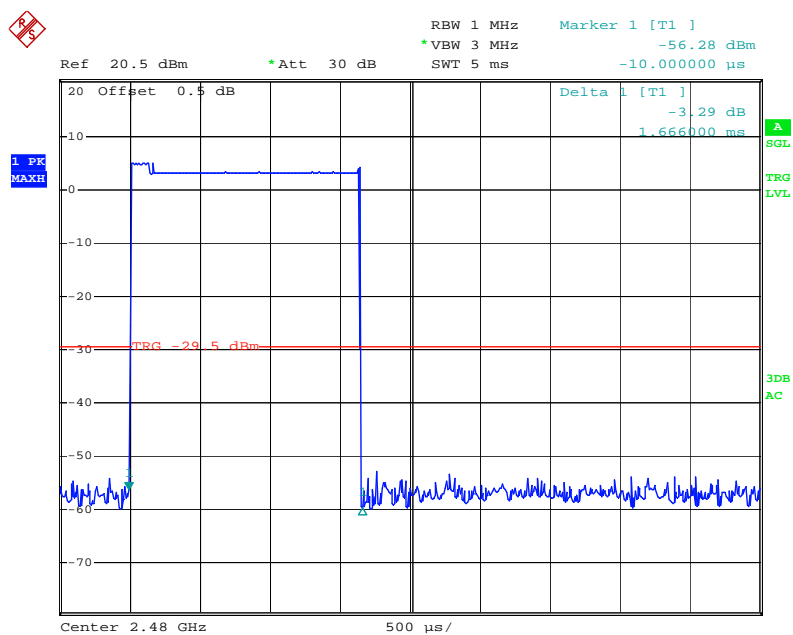
Date: 20.DEC.2011 23:12:03

Pulse time, Middle Channel, DH3



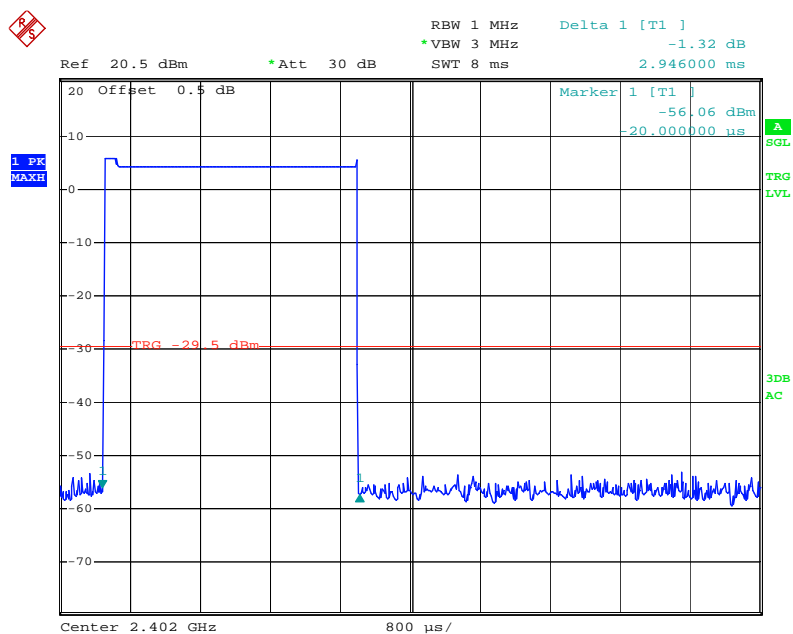
Date: 20.DEC.2011 23:12:57

Pulse time, High Channel, DH3



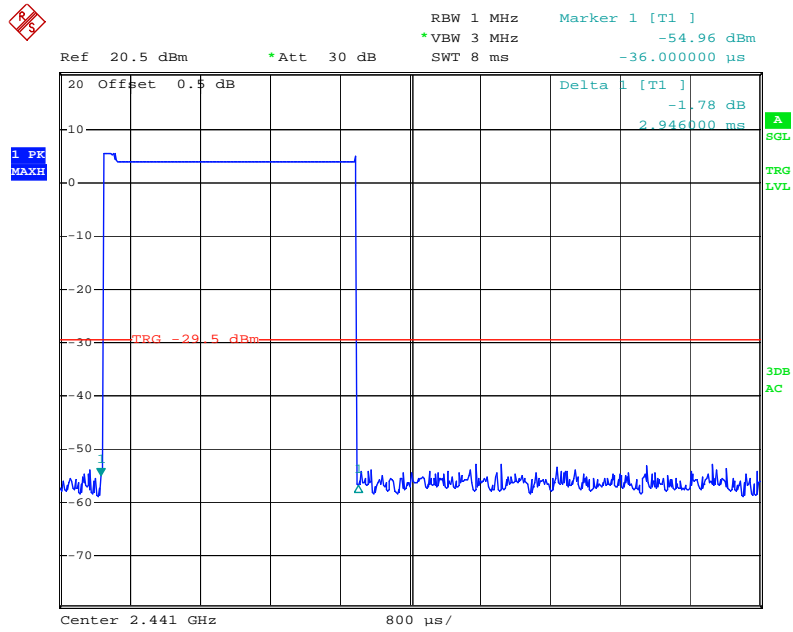
Date: 20.DEC.2011 23:13:29

Pulse time, Low Channel, DH5



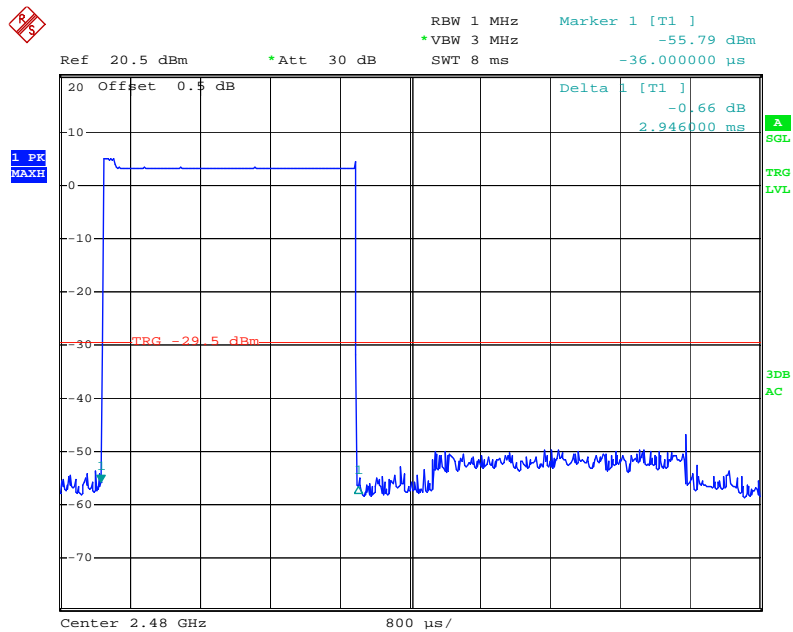
Date: 20.DEC.2011 23:19:21

Pulse time, Middle Channel, DH5



Date: 20.DEC.2011 23:18:57

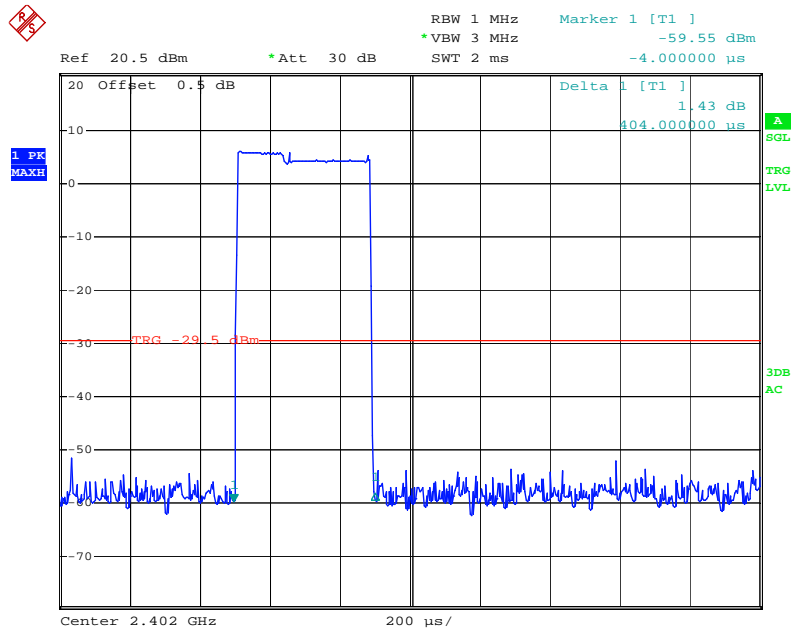
Pulse time, High Channel, DH5



Date: 20.DEC.2011 23:18:16

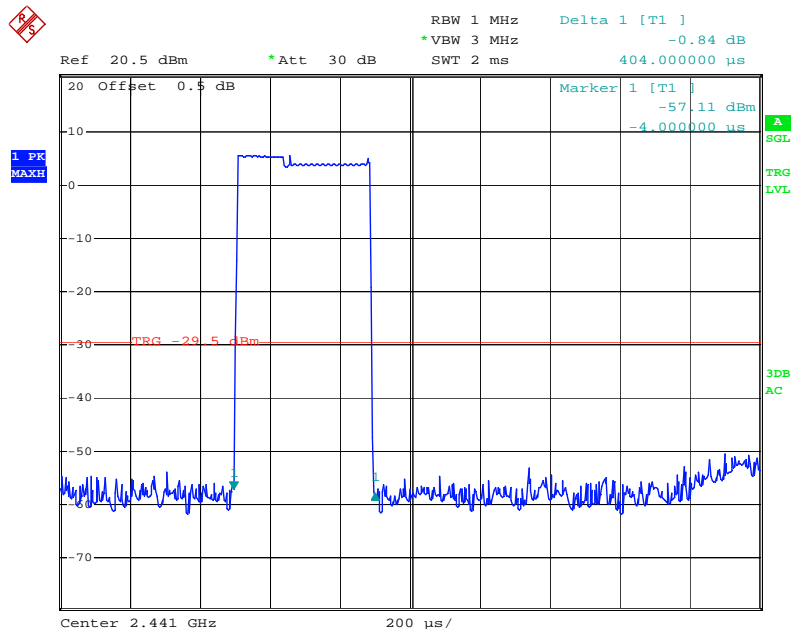
EDR (8DPSK):

Pulse time, Low Channel, DH1



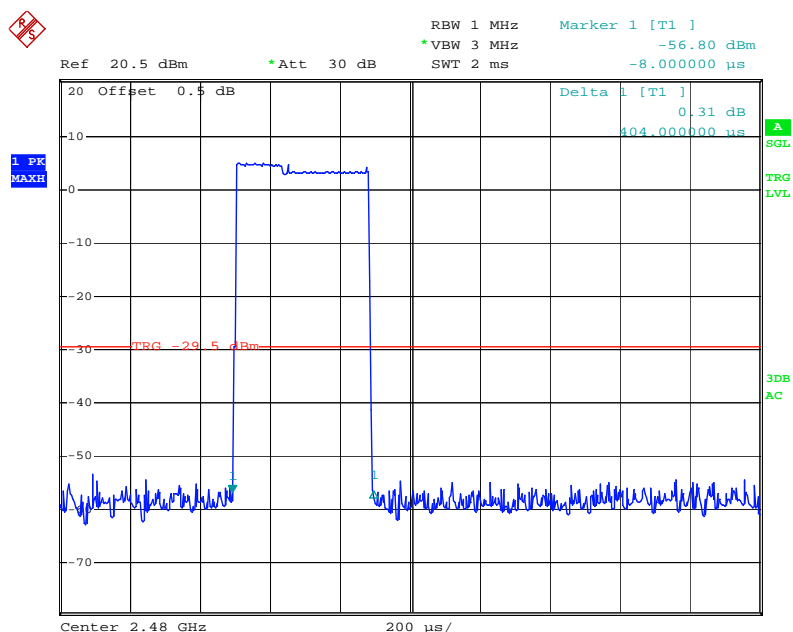
Date: 20.DEC.2011 23:05:35

Pulse time, Middle Channel, DH1



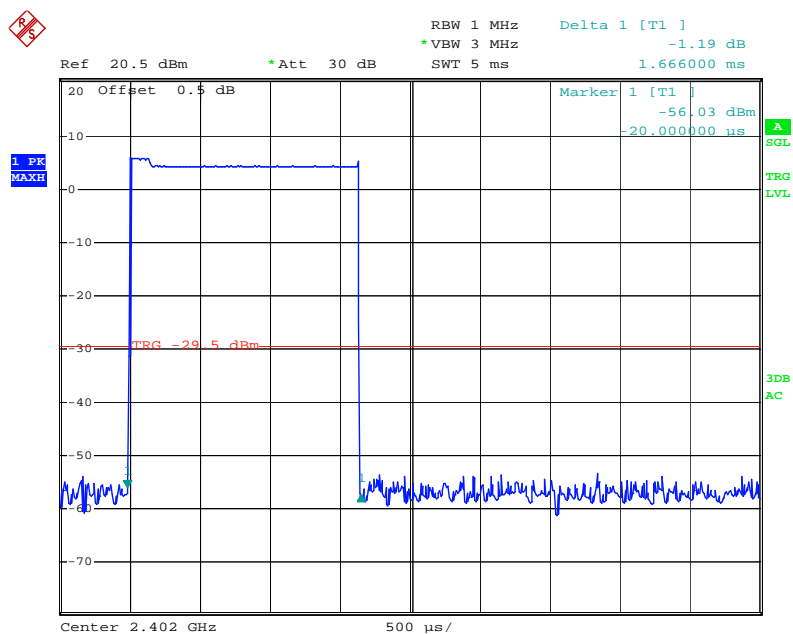
Date: 20.DEC.2011 23:06:29

Pulse time, High Channel, DH1



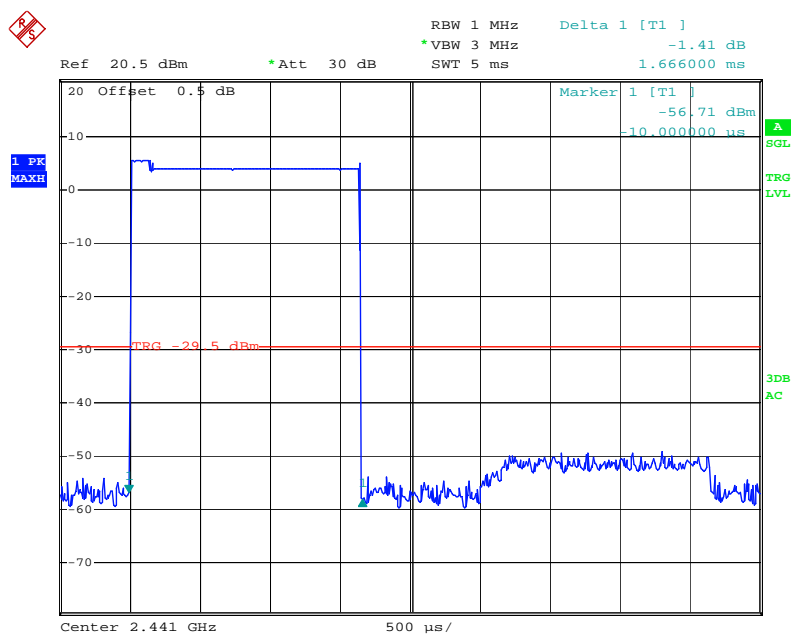
Date: 20.DEC.2011 23:07:42

Pulse time, Low Channel, DH3



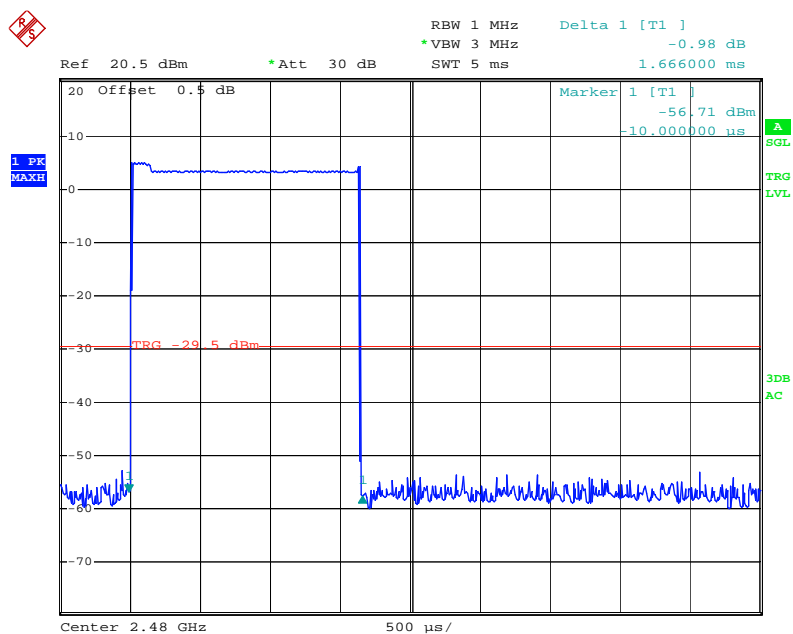
Date: 20.DEC.2011 23:15:12

Pulse time, Middle Channel, DH3



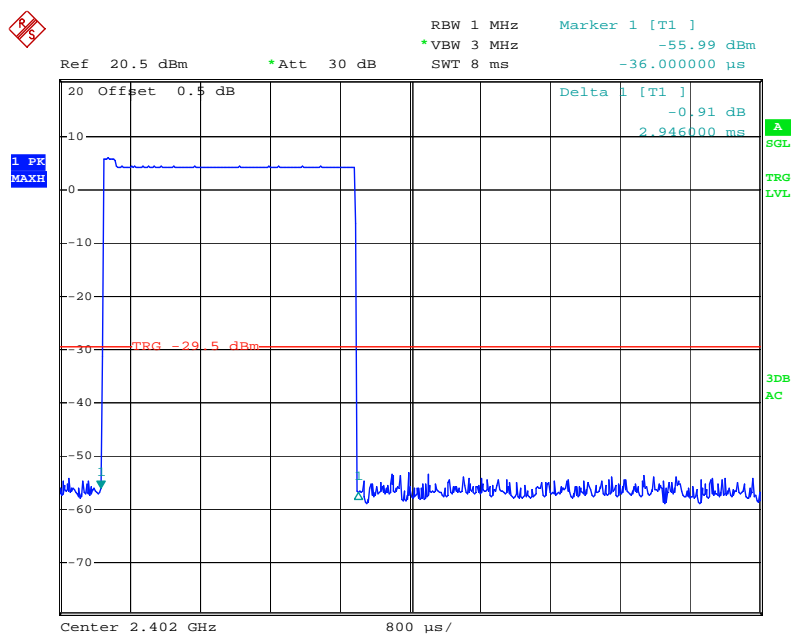
Date: 20.DEC.2011 23:14:34

Pulse time, High Channel, DH3



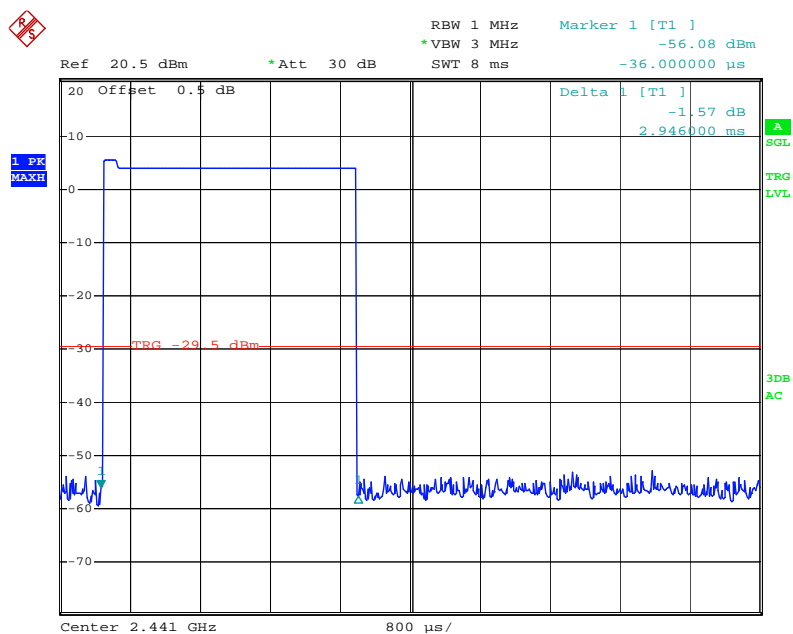
Date: 20.DEC.2011 23:14:09

Pulse time, Low Channel, DH5



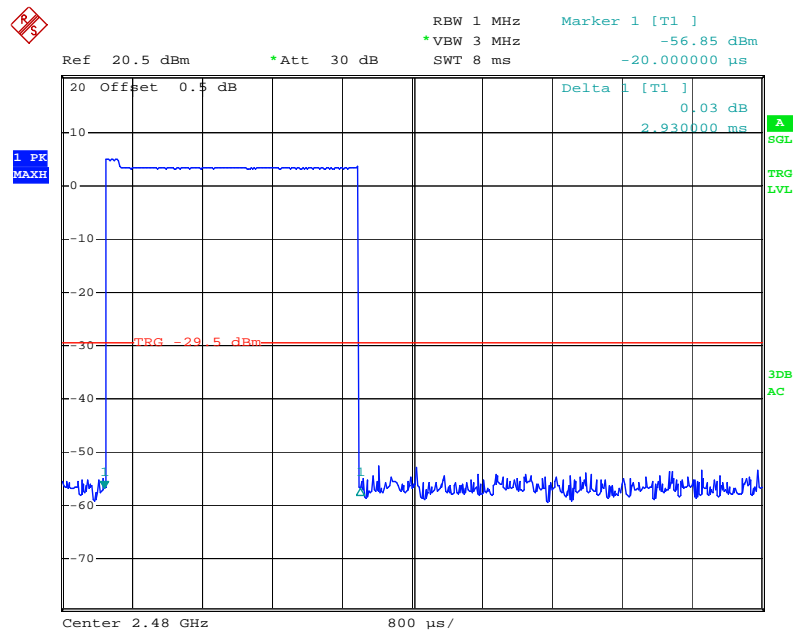
Date: 20.DEC.2011 23:19:56

Pulse time, Middle Channel, DH5



Date: 20.DEC.2011 23:20:24

Pulse time, High Channel, DH5



Date: 20.DEC.2011 23:20:51

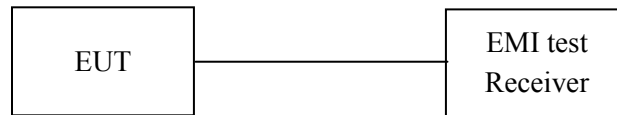
FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

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. And 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	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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:	101 kPa

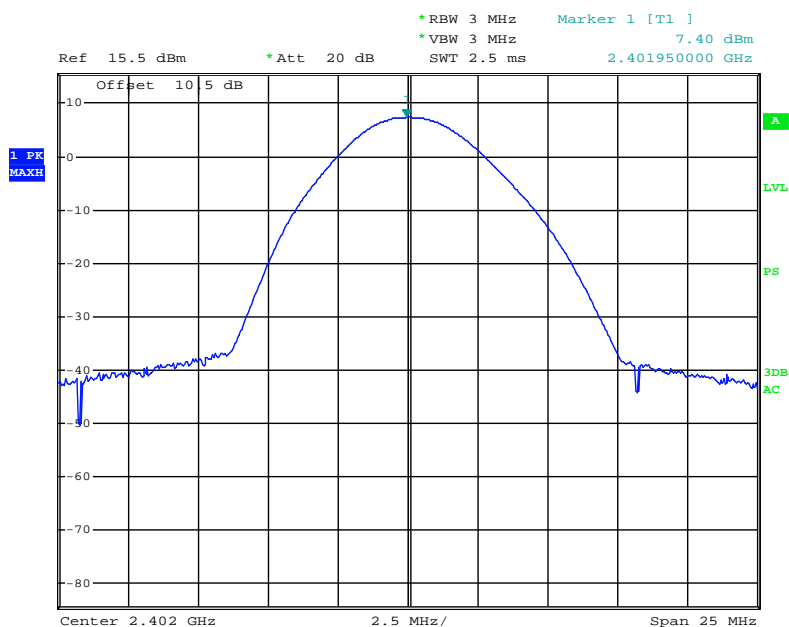
* The testing was performed by Henry Ding on 2011-12-19 and 2011-12-20.

Test Result: Compliance.

Please refer to following table and plots

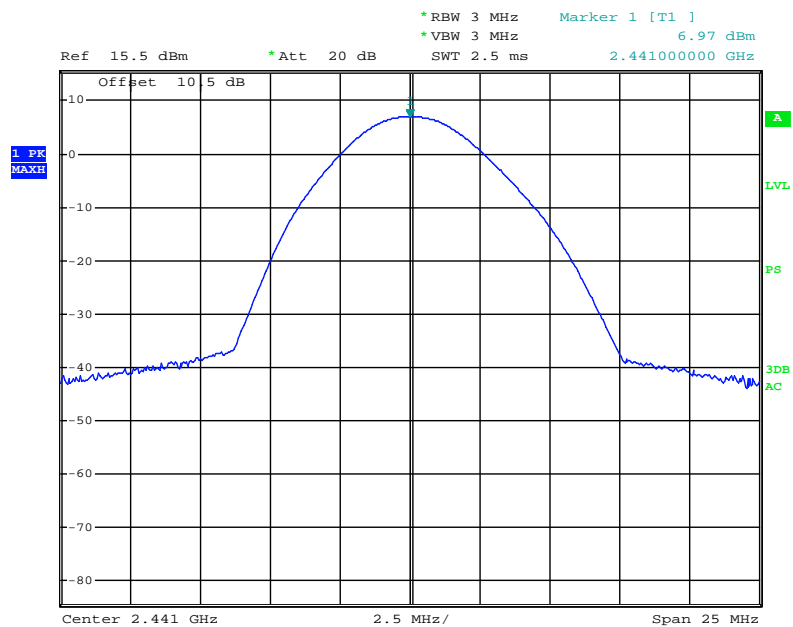
Test Mode: Transmitting

Mode	Channel	Frequency (MHz)	Conducted Output Power		Limit (mW)
			(dBm)	(mW)	
BDR (GFSK)	Low	2402	7.40	5.50	1000
	Middle	2441	6.97	4.98	1000
	High	2480	6.58	4.55	1000
EDR ($\pi/4$-DQPSK)	Low	2402	6.34	4.31	1000
	Middle	2441	5.97	3.95	1000
	High	2480	5.39	3.46	1000
EDR (8DPSK)	Low	2402	6.40	4.37	1000
	Middle	2441	6.09	4.06	1000
	High	2480	5.42	3.48	1000

BDR (GFSK): Low Channel

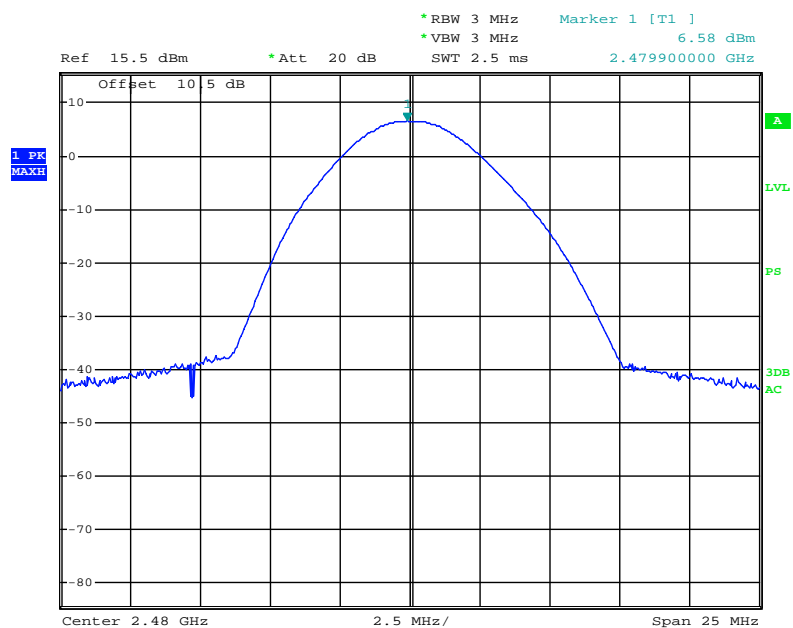
Date: 19.DEC.2011 11:47:45

BDR (GFSK): Middle Channel



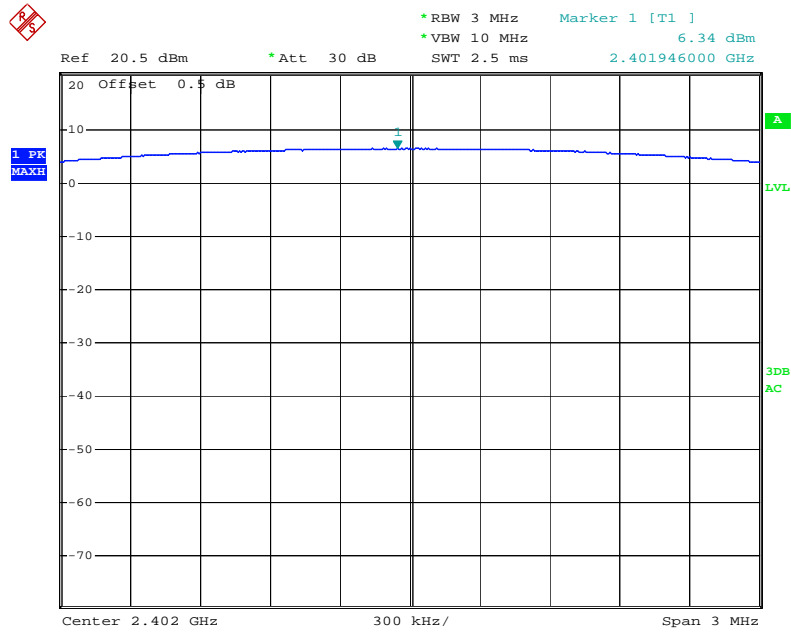
Date: 19.DEC.2011 11:47:14

BDR (GFSK): High Chanel



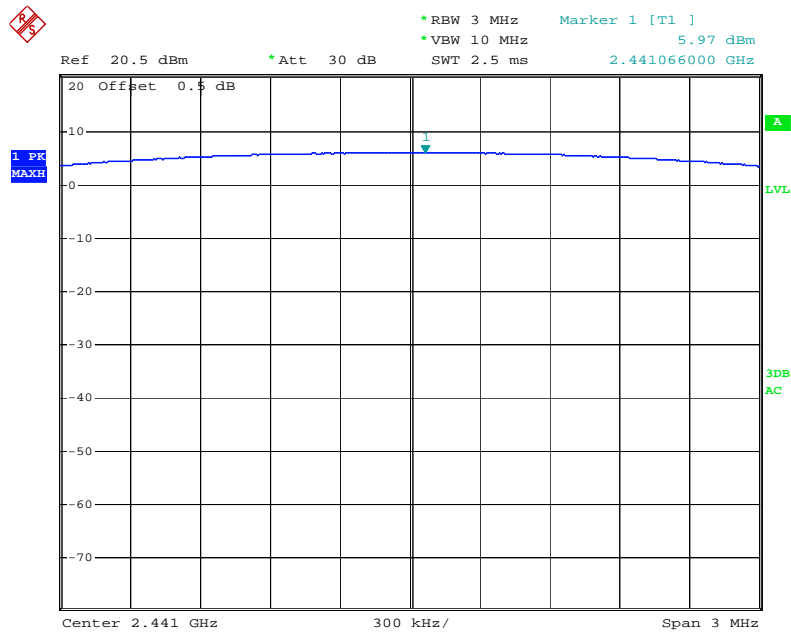
Date: 19.DEC.2011 11:46:36

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



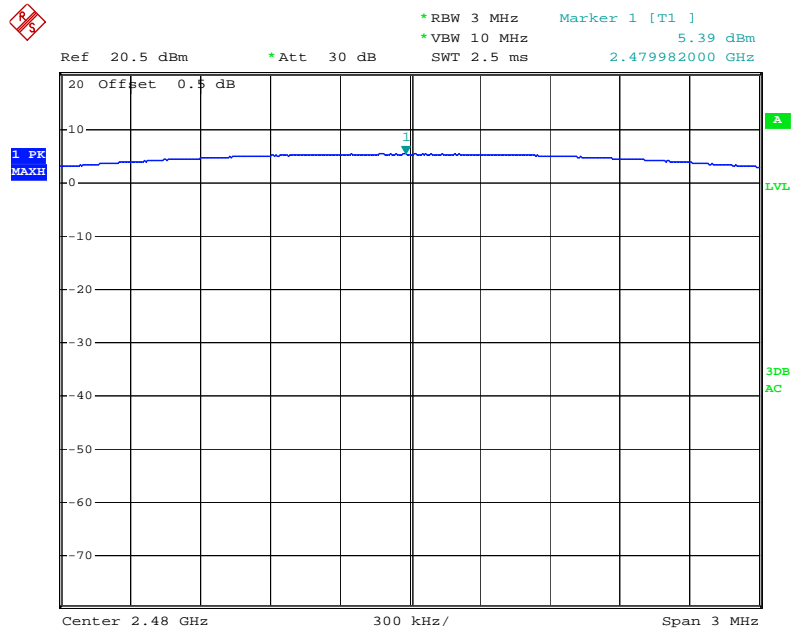
Date: 20.DEC.2011 22:51:34

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



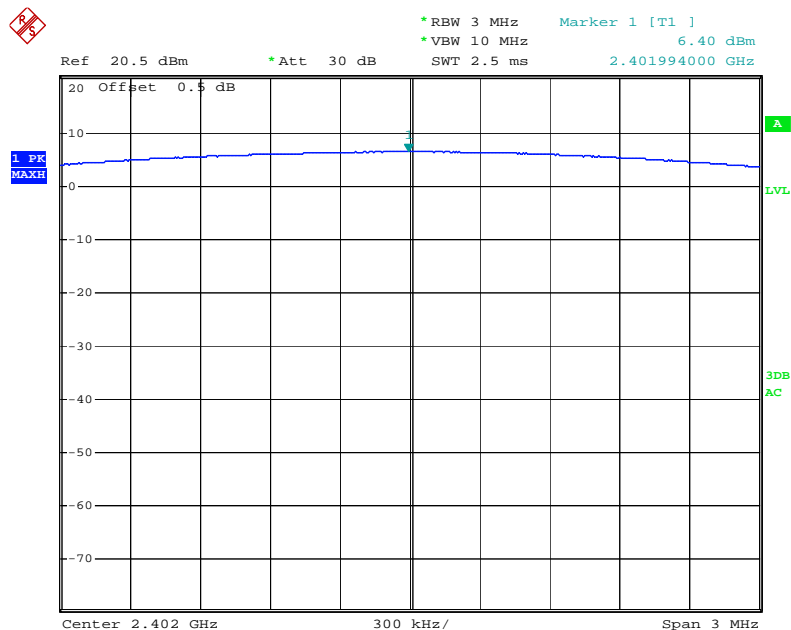
Date: 20.DEC.2011 22:52:15

EDR($\pi/4$ -DQPSK): High Chanel



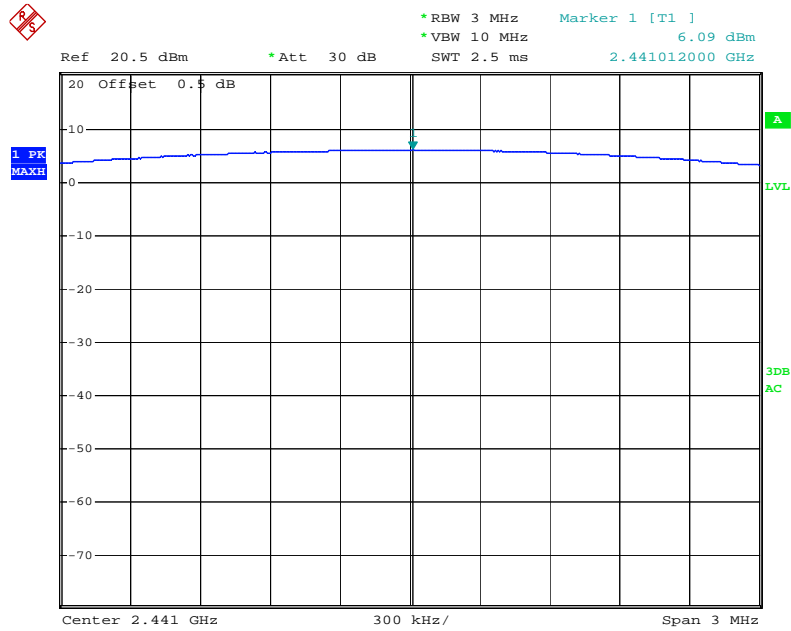
Date: 20.DEC.2011 22:53:03

EDR(8DPSK): Low Channel



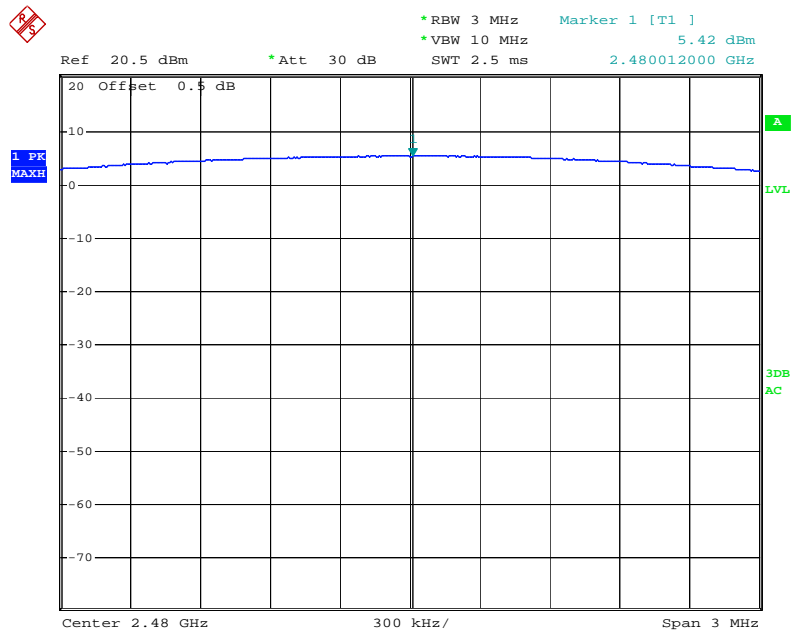
Date: 20.DEC.2011 22:55:05

EDR(8DPSK): Middle Channel



Date: 20.DEC.2011 22:54:26

EDR(8DPSK): High Chanel



Date: 20.DEC.2011 22:53:33

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, for Radiated emissions restricted band RBW=1 MHz, VBW=3 MHz.
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	100035	2011-11-11	2012-11-10

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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:	101 kPa

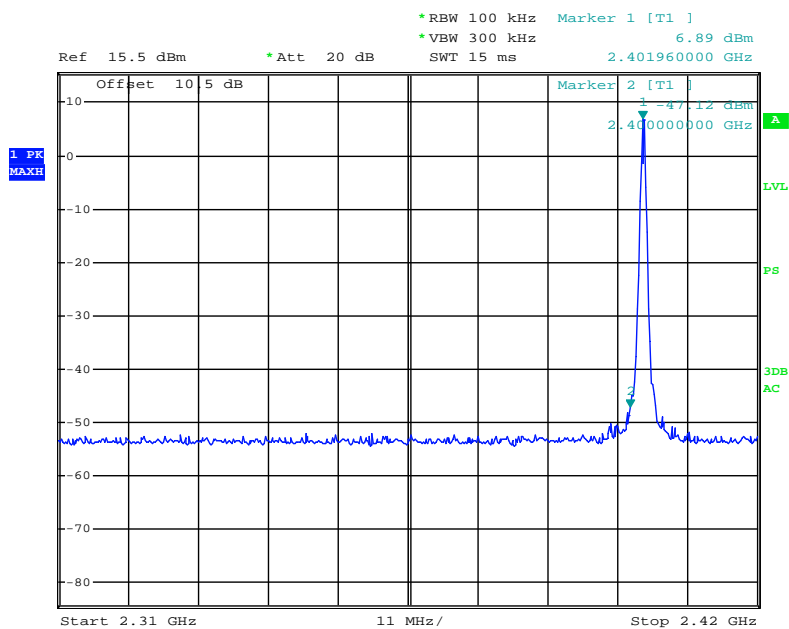
**The testing was performed by Henry Ding on 2011-12-20.*

Test Result: Compliance

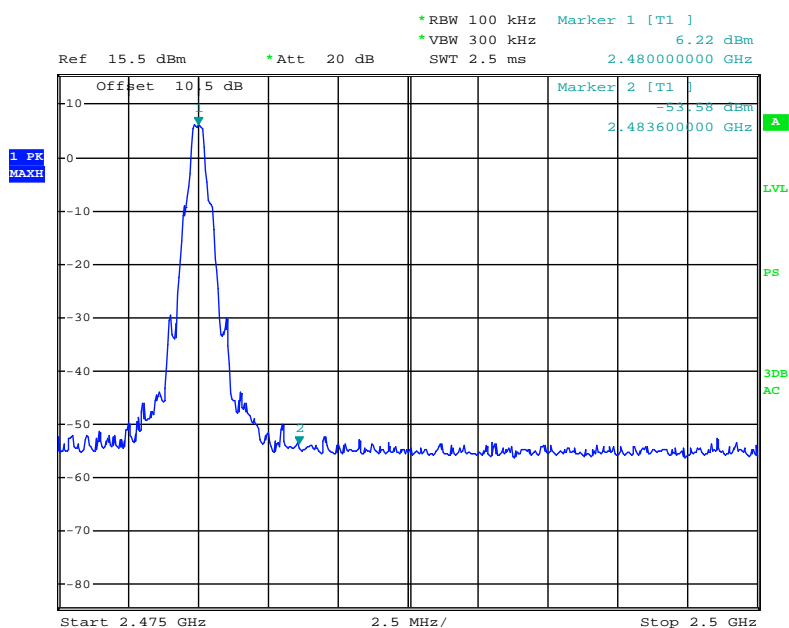
Please refer to the following table and plots.

Test Mode: Transmitting

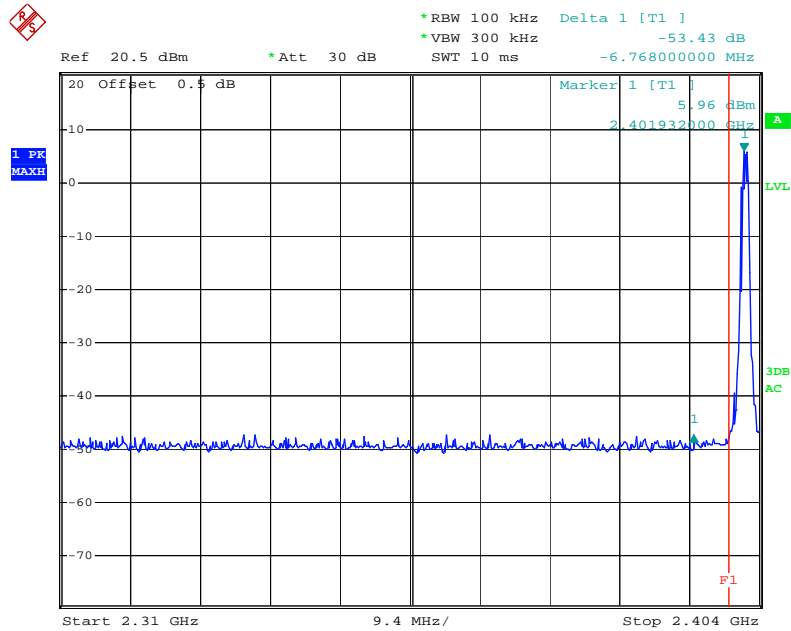
Mode	Frequency (MHz)	Delta Peak to Band Emission (dBc)	≥Limit (dBc)
BDR (GFSK)	2400.000	54.01	20
	2483.600	59.80	20
EDR ($\pi/4$-DQPSK)	2395.164	53.43	20
	2484.336	52.33	20
EDR (8DPSK)	2395.728	53.10	20
	2485.368	51.50	20

BDR (GFSK): Band Edge-Left Side

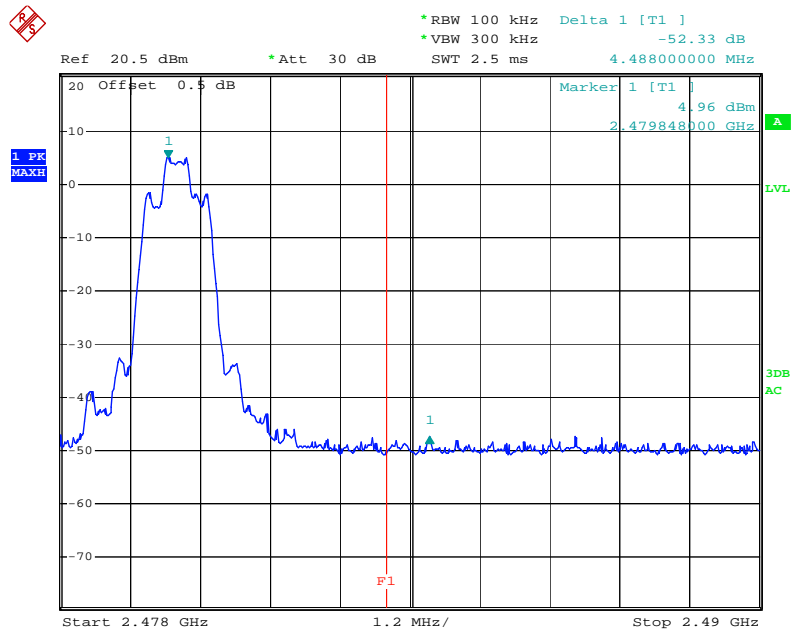
Date: 19.DEC.2011 11:42:29

BDR (GFSK): Band Edge-Right Side

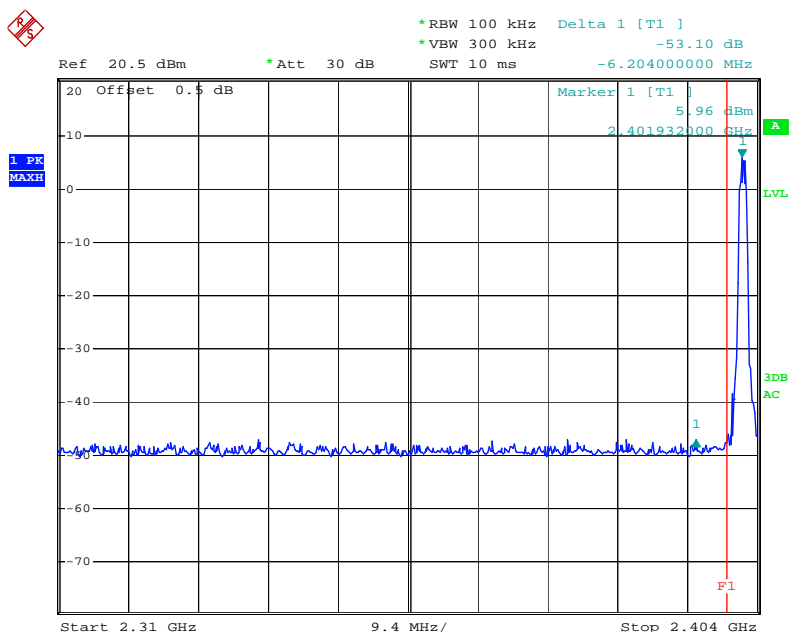
Date: 19.DEC.2011 11:43:30

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

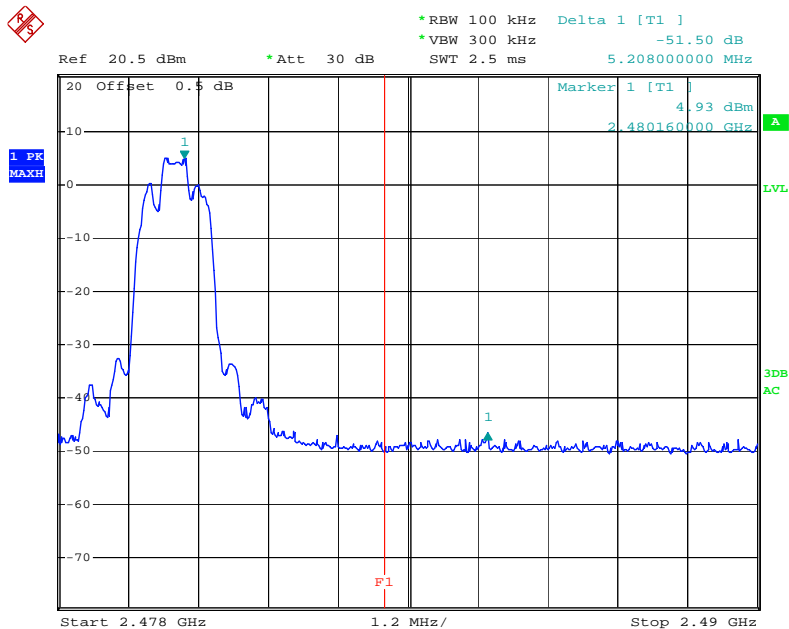
Date: 20.DEC.2011 22:33:42

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

Date: 20.DEC.2011 22:30:00

EDR (8DPSK): Band Edge-Left Side

Date: 20.DEC.2011 22:32:51

BDR (8DPSK): Band Edge-Right Side

Date: 20.DEC.2011 22:31:26

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