



FCC/IC Test Report

FOR:

Intel Corporation

Model Number: DZ110

Product Description: Smartphone with GSM/GPRS/EDGE, UMTS/HSPA+, LTE, Wi-Fi, BT, NFC and GPS Radios

**FCC ID: O2Z-DZ10
IC ID: 1000W – DZ110**

47 CFR Part 2, 22, 24, 27

**RSS-GEN Issue 3, RSS-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 2,
RSS-130 Issue 1, RSS-199 Issue 1**

**TEST REPORT #: EMC_INTEL_039_14001_FCC22_24_27_LTE_WWAN_Rev1
DATE: 2014-06-30**



**FCC:
A2LA Accredited**

**IC recognized #
3462B-1**

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1 Assessment

The following device was evaluated against the applicable criteria specified in FCC rules parts 2, 22, 24 and 27 of Title 47 of the Code of Federal Regulations and in Industry Canada Standards RSS-Gen, RSS-132, RSS-133, RSS -139, RSS-199.
No deviations were ascertained during the course of the tests performed.

Company	Description	Model #
Intel Corp	Smartphone with GSM/GPRS/EDGE, UMTS/HSPA+, LTE, Wi-Fi, BT, NFC and GPS Radios	DZ110

Responsible for Testing Laboratory:

			
		Josie Sabado	Signing on the behalf of Franz Engert
2014-06-30	Compliance	(Test Lab Manager)	(Compliance Manager)
Date	Section	Name	Signature

Responsible for the Report:

			
		Danh Le	Digitally signed by Danh Le DN: cn=Danh Le, o=Cetecom, ou=Compliance, email=danh.le@cetecom.com, c=US
2013-06-30	Compliance	(EMC Engineer)	Date: 2014.07.07 23:28:10 -07'00'
Date	Section	Name	Signature

The test results of this test report relate exclusively to the test item specified in Section3.
CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM Inc. USA.

2 Administrative Data

1.1 Identification of the Testing Laboratory Issuing the Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Test Lab Manager:	Franz Engert
Responsible Project Leader:	Danh Le

1.2 Identification of the Client

Applicant's Name:	Intel Corporation
Street Address:	2200 Mission College Blvd
City/Zip Code	Santa Clara / 95054
Country	USA
Contact Person:	Christine Ryan
Phone No.	408 300 2167
Fax:	408-765-2336
e-mail:	Christine.m.ryan@intel.com

1.3 Identification of the Manufacturer

Manufacturer's Name:	Same as client.
Manufacturers Address:	
City/Zip Code	
Country	

3 Equipment under Test (EUT)

1.4 Specification of the Equipment under Test

Marketing Name:	Intel 4.5-inch Premium LTE Smartphone
Model Number:	DZ110
FCC-ID :	O2Z-DZ110
IC ID:	1000W-DZ110
Product Description:	Smartphone with GSM/GPRS/EDGE, UMTS/HSPA+, LTE, Wi-Fi, BT, NFC and GPS Radios
Operating Frequency Ranges (MHz) / Channels:	LTE Band 17 (700 MHz): 710 -716 MHz LTE Band 5 (850 MHz): 824.2-848.8 MHz LTE Band 2 (1900 MHz): 1850.2-1909.8 MHz LTE Band 4 (1700 MHz): 1712.4 -1752.5 MHz LTE Band 7 (2500MHz): 2500 MHz – 2570 MHz
Type(s) of Modulation:	QPSK, 16 QAM and 64 QAM
Antenna info (antenna presented for testing with the development board):	LTE Band 2 (1900): Antenna gain = 2.8dBi LTE Band 4 (1700): Antenna gain = 1.6dBi LTE Band 5 (850): Antenna gain = -4.1dBi LTE Band 17 (700): Antenna gain = -10.5dBi LTE Band 7 (2500): Antenna gain = 0.1dBi
Rated Operating Voltage Range:	AA lithium battery pack (dedicated) Vmin: 3.6V/ Vnom: 3.8V / Vmax: 4.2V
Rated Operating Temperature Range:	-10°C ~ +55°C
Test Sample Status:	Prototype
Other Radios included:	Intel XMM 7160 Radio Module GSM 850/900/1800/1900MHz GPRS / EDGE Multi-slot class 33 operation WCDMA / HSPA+ 850/900/1700/1900/2100 MHz LTE 700/800/850/900/1700/1800/1900/2100/2600 WLAN 802.11a/ac/b/g/n, BT Basic/EDR/LE (2.4 GHz and 5GHz band of operation) NFC NXP PN547 13.56 MHz GPS 1575.42 MHz

1.5 Identification of the Equipment under Test (EUT)

EUT #	Serial Number	Sample	HW/SW Version
1	INV133600934	Radiated/Conducted	PR2D.2

1.6 Identification of Accessory equipment

AE #	Type	Manufacturer	Model	Part Number
1	AC adapter	Salcomp	SC1402	1322100099636

1.7 Environmental conditions during Test

The following environmental conditions were maintained during the course of testing:

Ambient Temperature: 20-25°C

Relative Humidity: 40-60%

1.8 Dates of Testing

02/13/2014 – 04/01/2014

4 Subject of Investigation

The objective of the measurements applied by CETECOM Inc. was to establish compliance of the EUT as described under Ch. 3 of this Test Report, with the applicable criteria specified in

47 CFR Part 2: Title 47 of the Code of Federal Regulations: Chapter I-Federal Communications Commission Frequency allocations and radio treaty matters; general rules and regulations.

47 CFR Part 22: Title 47 of the Code of Federal Regulations: Chapter I-Federal Communications Commission subchapter B- common carrier services; Part 22- Public mobile services

47 CFR Part 24: Title 47 of the Code of Federal Regulations: Chapter I-Federal Communications Commission subchapter B- common carrier services; Part 24- Personal communication services

47 CFR Part 27: Title 47 of the Code of Federal Regulations: Chapter I-Federal Communications Commission subchapter B- common carrier services; Part 27-Miscellaneous wireless communication services

RSS-GEN- Issue 3: General Requirements and Information for the Certification of Radio Apparatus

RSS-132- Issue 3: Spectrum management and telecommunication policy- Radio Standards Specifications Cellular telephones employing new technologies operating in the bands 824-849MHz and 869-894MHz

RSS-133- Issue 6: Spectrum management and telecommunication policy- Radio Standards Specifications- 2GHz personal communication services

RSS-139- Issue 2: Spectrum management and telecommunication policy- Radio Standards Specifications- Advance wireless services equipment operating in the bands 1710-1755MHz and 2110-2155MHz

RSS-130, Issue 1: Mobile Broadband Services (MBS) Equipment Operating in the Frequency Bands 698-756 MHz and 777-787 MHz

RSS-199 — Broadband Radio Service (BRS) Equipment Operating in the Band 2500-2690 MHz

This test report is to support a request for new equipment authorization under the FCC ID: **O2Z-DZ110** and IC ID **1000W-DZ110**.

5 Summary of Measurement Results

5.1 LTE Band 17 (700 MHz):

Specifications	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046 §27.50(d)(4) RSS-GEN, 4.8 RSS-130(4.4)	RF Output Power	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§27.50(d)(5) RSS-GEN, 4.8 RSS-130(4.4)	Peak-to-average Ratio	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1055 §27.54 RSS-GEN, 4.7 RSS-130(4.3)	Frequency Stability	Extreme	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1049 §27.53(h) RSS-Gen, 4.6	Occupied Bandwidth	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1051 §27.53(h) RSS-GEN, 4.9 RSS-130 4.6.1	Band Edge Compliance	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1053 §27.53(h) RSS-GEN, 4.9 RSS-130 4.6.2	Unwanted Emissions	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					

NA= Not Applicable; NP= Not Performed.

5.2 LTE Band 2 (1900 MHz):

Specifications	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046 §24.232 (a) RSS-GEN, 4.8 RSS-133, 6.4	RF Output Power	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§24.232 (d) RSS-133, 6.4	Peak-to-average Ratio	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1055 §24.235 RSS-GEN, 4.7 RSS-133, 6.3	Frequency Stability	Extreme	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1049 RSS-GEN, 4.6	Occupied Bandwidth	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1051 §24.238 RSS-GEN, 4.9 RSS-133, 6.5	Band Edge Compliance	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1053 §24.238 RSS-GEN, 4.9 RSS-133, 6.5	Unwanted Emissions	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					

Note: NA= Not Applicable; NP= Not Performed.

5.3 LTE Band 4 (1700 MHz):

Specifications	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046 §27.50(d)(4) RSS-GEN, 4.8 RSS-1RSS-139(6.4)	RF Output Power	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§27.50(d)(5) RSS-GEN, 4.8 RSS-1RSS-139(6.4)	Peak-to-average Ratio	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1055 §27.54 RSS-GEN, 4.7 RSS-139(6.3)	Frequency Stability	Extreme	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1049 §27.53(h) RSS-Gen, 4.6	Occupied Bandwidth	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1051 §27.53(h) RSS-GEN, 4.9 RSS-139 6.5	Band Edge Compliance	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1053 §27.53(h) RSS-GEN, 4.9 RSS-139 6.5	Unwanted Emissions	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					

NA= Not Applicable; NP= Not Performed.

Note1: Radiated test method is used for this test case, RF conducted is not required.

5.4 LTE Band 5 (850 MHz):

Specifications	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046 §22.913 (a) RSS-GEN, 4.8 RSS-132, 5.4	RF Output Power	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
RSS-GEN, 4.8 RSS-132 (5.4)	Peak-to-average Ratio	Nominal	QPSK	□	□	■	□	Complies
			16 QAM					
§2.1055 §22.355 RSS-GEN, 4.7 RSS-132 5.3	Frequency Stability	Extreme	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1049 §22.917(b) RSS-GEN, 4.6	Occupied Bandwidth	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1051 §22.917 RSS-GEN, 4.9 RSS-132, 5.5	Band Edge Compliance	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1053 §22.917 RSS-GEN, 4.9 RSS-132, 5.5	Unwanted Emissions	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					

Note: NA= Not Applicable; NP= Not Performed.

5.5 LTE Band 7 (2500 MHz):

Specifications	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046 §27.50(h)(2) RSS-GEN, 4.8 RSS-199, 4.4	RF Output Power	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
27.50(d)(5) RSS-GEN, 4.8 RSS-130(4.4)	Peak-to-average Ratio	Nominal	QPSK	□	□	■	□	Complies
			16 QAM					
§2.1055 §27.54 RSS-GEN, 4.7 RSS-199, 3.4	Frequency Stability	Extreme	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1049 §27.53(h) RSS-GEN, 4.6 RSS-199, 4.2	Occupied Bandwidth	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1051 §27.53(h) RSS-GEN, 4.9 RSS-199, 4.5	Band Edge Compliance	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					
§2.1053 §27.53(h) RSS-GEN, 4.9 RSS-199, 4.5	Unwanted Emissions	Nominal	QPSK	■	□	□	□	Complies
			16 QAM					

Note: NA= Not Applicable; NP= Not Performed.

6 Measurements

6.1 Measurement Uncertainty

For Power Output, Peak-Average Ratio, Band Edge Unwanted Emissions and Radiated Spurious Emissions the measurement uncertainty has been determined to:

	Uncertainty in dB radiated <30MHz	Uncertainty in in dB radiated 30MHz - 1GHz	Uncertainty in dB radiated > 1GHz	Uncertainty in dB Conducted measurement
standard deviation k=1	2.48	1.94	2.16	0.64
95% confidence interval in dB	4.86	3.79	4.24	1.25
95% confidence interval in dB in delta to Result	+/-2.5 dB	+/-2.0 dB	+/- 2.3dB	+/-0.7dB

Assesment from 3-12-2014 including contributions (as applicable) for NSA of chamber, VSWR of chamber, Uncertainty contribution of the antennas, Uncertainty contributions of ESU40, Uncertainty contribution of non-conducting table and all mismatch uncertainties of the involved equipment.

For OBW and Frequency Stability the measurement uncertainty is only determined by the ESU40 receiver. Maximum uncertainty is 2Hz.

6.2 RF Power Output

6.2.1 References

FCC: CFR Part 2.1046, CFR Part 22.913, CFR Part 24.232, CFR Part 27.50

IC: RSS-Gen Section 4.8; RSS-132 Section 5.4; RSS-133 Section 6.4, RSS-139 Section 6.4, RSS-130 Section 4.4

971168 D01 Power Meas License Digital Systems v02r01

6.2.2 Measurement Requirements:

6.2.2.1 FCC 2.1046: RF power output.

Power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on circuit elements as specified. The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

6.2.2.2 RSS-Gen 4.8: RF power output.

Transmitter output power measurements shall be carried out before the unwanted emissions test. The transmitter output power value, obtained from this test, serves as the reference level used to determine the unwanted emissions.

6.2.3 Limits:

6.2.3.1 Band5 (850MHz)

FCC Part 22.913 (a) & RSS-132 Section 5.4

FCC: Average ERP < 38.45 dBm (7W)

IC: Average EIRP < 40.60 dBm (11.5W)

6.2.3.2 Band2 (1900 MHz)

FCC Part 24.232 (c) (e) & RSS-133 Section 6.4/SRSP-510 Section 5.1.2

FCC: Average EIRP < 33 dBm (2W)

IC: Average EIRP < 33 dBm (2W)

6.2.3.3 Band4 1700 MHz

FCC Part 27.50 (d) (4) (6) & RSS-139 Section 6.4

FCC: Average EIRP < 30 dBm (1W)

IC: Average EIRP < 30 dBm (1W)

6.2.3.4 Band17 (700 MHz)

FCC Part 27.50 (c) (10) & RSS-130 Section 4.4

FCC: Average ERP < 34.8 dBm (3W)

IC: Average EIRP < 37 dBm (5W)

6.2.3.5 Band7 (2500 MHz)

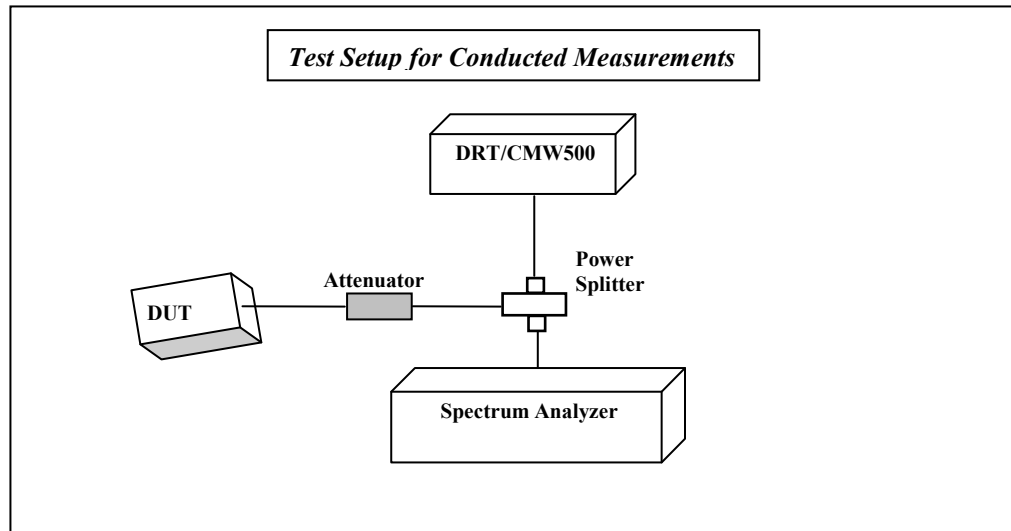
FCC Part 27.50 (h) (2)

RSS-199 Section 4.4

FCC: Average EIRP < 33dBm (2W)

IC: Average EIRP < 33 dBm (2W)

6.2.4 Measurement Procedure:



The DUT is using as much total output power as permissible according to the standards independent of physical bandwidth used. In order to achieve this goal the amplifier gain or baseband signal level inside the DUT is dynamically adjusted when the bandwidth changes. To verify the capability of the DUT to perform this dynamic adjustment it was tested with one single RB and with the full RB configuration for each supported channel bandwidth for each band under test.

Different modulations have different peak to average ratios so 16QAM and QPSK have been tested.

Testing for Low, Mid and High channel is the basic procedure from all radio base standards to catch frequency response over the band.

The power measurements were carried out with the CMW500. It returns peak and average results. Internally it uses a time domain power measurement function for Peak and RMS power. The measurements are including a range of at least 25LTE frames to ensure stable and reproduceable results for peak and average. A spot check has been carried out comparing this method with the frequency domain methods described in 971168 D01 Power Meas License Digital Systems v02r01 - yielding results within 0.2dB.

The gains have been taken from the customer documentation.

The following attenuations have been determined for the bands under test. They have been entered in the RF config menu of the CMW500 to be able to take the final corrected reading

LTE Band	Frequency at center	Attenuation
Band 17	710MHz	4.2dB
Band 2	1880MHz	5.8dB
Band 4	1732MHz	5.4dB
Band 5	835MHz	4.0dB
Band 7	2535MHz	5.3dB

6.2.4.1 Test Conditions:

Tnom: 22°C; Vnom: 3.8 V

6.2.5 Test Results

6.2.5.1 Conducted Output Power LTE Band 17:

LTE Band 17 (704 MHz – 716 MHz)							
RB Size = 1		RB Offset = Low/Mid/High				BW (MHz) = 0.18	
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
23780/709/Low	26.70	22.59	4.11	-10.5	9.94	34.8	Pass
23790/710/Mid	27.23	22.36	4.87	-10.5	9.71	34.8	Pass
23800/711/High	27.35	22.60	4.75	-10.5	9.95	34.8	Pass

LTE Band 17 (704 MHz – 716 MHz)							
RB Size = 25		RB Offset = Low				BW (MHz) = 5.0	
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
23755/706.5/Low	27.65	21.44	6.21	-10.5	8.79	34.8	Pass
23790/710/Low	27.80	21.50	6.3	-10.5	8.85	34.8	Pass
23825/713.5/Low	27.75	21.56	6.19	-10.5	8.91	34.8	Pass

LTE Band 17 (704 MHz – 716 MHz)							
Resource Block Size = 50		Resource Block Offset = Low				BW (MHz) = 10	
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
23780/709/Low	27.35	21.28	6.07	-10.5	8.63	34.8	Pass
23790/710/Low	27.51	21.56	5.95	-10.5	8.91	34.8	Pass
23800/711/Low	27.39	21.73	5.66	-10.5	9.08	34.8	Pass

LTE Band 17 (704 MHz – 716 MHz)							
Resource Block Size = 1		Resource Block Offset = Low/Mid/High				BW (MHz) = 0.18	
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
23780/709/Low	27.19	21.18	6.01	-10.5	8.53	34.8	Pass
23790/710/Mid	26.55	21.65	4.9	-10.5	9	34.8	Pass
23800/711/High	26.87	21.77	5.1	-10.5	9.12	34.8	Pass

LTE Band 17 (704 MHz – 716 MHz)							
Resource Block Size = 25		Resource Block Offset = Low				BW (MHz) = 5.0	
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
23755/706.5/Low	27.64	20.68	6.96	-10.5	8.03	34.8	Pass
23790/710/Low	27.82	20.71	7.11	-10.5	8.06	34.8	Pass
23825/713.5/Low	27.94	20.77	7.17	-10.5	8.12	34.8	Pass

LTE Band 17 (704 MHz – 716 MHz)							
Resource Block Size = 50		Resource Block Offset = Low				BW (MHz) = 10	
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
23780/709/Low	27.50	20.50	7	-10.5	7.85	34.8	Pass
23790/710/Low	28.10	20.77	7.33	-10.5	8.12	34.8	Pass
23800/711/Low	27.77	20.51	7.26	-10.5	7.86	34.8	Pass

6.2.5.2 Conducted Output Power LTE Band 2:

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 1		RB Offset = Low/Mid/High				BW (MHz) = 0.18	
Modulation: QPSK							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18700/1860/Low	26.46	21.81	4.65	2.8	24.61	33	Pass
18900/1880/Mid	25.22	22.53	2.69	2.8	25.33	33	Pass
19100/1900/High	25.09	22.45	2.64	2.8	25.25	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 6		RB Offset = Low				BW (MHz) = 1.4	
Modulation: QPSK							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18607/1850.7/Low	27.16	21.00	6.16	2.8	23.80	33	Pass
18900/1880/Low	26.42	20.86	5.56	2.8	23.66	33	Pass
19193/1909.3/Low	26.35	20.29	6.06	2.8	23.09	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 15		RB Offset = Low				BW (MHz) = 3.0	
Modulation: QPSK							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18615/1851.5/Low	27.26	21.11	6.15	2.8	23.91	33	Pass
18900/1880/Low	26.46	20.91	5.55	2.8	23.71	33	Pass
19185/1908.5/Low	26.56	20.42	6.14	2.8	23.22	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 25		RB Offset = Low				BW (MHz) = 5.0	
Modulation: QPSK							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18625/1852.5/Low	27.44	21.22	6.22	2.8	24.02	33	Pass
18900/1880/Low	26.51	20.82	5.69	2.8	23.62	33	Pass
19175/1907.5/Low	26.67	20.39	6.28	2.8	23.19	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 50		RB Offset = Low				BW (MHz) = 10.0	
Modulation: QPSK							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18650/1855/Low	27.42	20.96	6.46	2.8	23.76	33	Pass
18900/1880/Low	26.51	20.75	5.76	2.8	23.55	33	Pass
19150/1905/Low	27.46	21.02	6.44	2.8	23.82	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 75		RB Offset = Low				BW (MHz) = 15.0	
Modulation: QPSK							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18675/1857.5/Low	27.68	21.38	6.3	2.8	24.18	33	Pass
18900/1880/Low	27.05	21.21	5.84	2.8	24.01	33	Pass
19125/1902.5/Low	27.15	20.78	6.37	2.8	23.58	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 100		RB Offset = Low				BW (MHz) = 20	
Modulation: QPSK							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18700/1860/Low	28.11	22.03	6.08	2.8	24.83	33	Pass
18900/1880/Low	27	21.96	5.04	2.8	24.76	33	Pass
19100/1900/Low	27.05	21.57	5.48	2.8	24.75	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 1		RB Offset = Low/Mid/High				BW (MHz) = 0.18	
Modulation: 16 QAM							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18700/1860/Low	26.38	21.51	4.87	2.8	24.31	33	Pass
18900/1880/Mid	25.25	21.98	3.27	2.8	24.78	33	Pass
19100/1900/High	25.27	21.92	3.35	2.8	24.72	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 6			RB Offset = Low			BW (MHz) = 1.4	
Modulation: 16 QAM							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18607/1850.7/Low	27.23	20.25	6.98	2.8	23.05	33	Pass
18900/1880/Low	26.32	20	6.32	2.8	22.8	33	Pass
19193/1909.3/Low	26.5	19.41	7.09	2.8	22.21	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 15			RB Offset = Low			BW (MHz) = 3.0	
Modulation: 16 QAM							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18615/1851.5/Low	27.43	20.31	7.12	2.8	23.11	33	Pass
18900/1880/Low	26.56	20.11	6.45	2.8	22.91	33	Pass
19185/1908.5/Low	26.49	19.58	6.91	2.8	22.38	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 25			RB Offset = Low			BW (MHz) = 5.0	
Modulation: 16 QAM							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18625/1852.5/Low	27.38	20.42	6.96	2.8	23.22	33	Pass
18900/1880/Low	26.53	20.03	6.5	2.8	22.83	33	Pass
19175/1907.5/Low	26.73	19.77	6.96	2.8	22.57	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 50			RB Offset = Low			BW (MHz) = 10.0	
Modulation: 16 QAM							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18650/1855/Low	27.35	20.15	7.2	2.8	22.95	33	Pass
18900/1880/Low	26.55	19.94	6.61	2.8	22.74	33	Pass
19150/1905/Low	26.73	19.53	7.2	2.8	22.33	33	Pass

LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 75			RB Offset = Low			BW (MHz) = 15.0	
Modulation: 16 QAM							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18675/1857.5/Low	27.61	20.51	7.1	2.8	23.31	33	Pass
18900/1880/Low	26.7	20.28	6.42	2.8	23.08	33	Pass
19125/1902.5/Low	26.96	19.95	7.01	2.8	22.75	33	Pass



LTE Band 2 (1850 MHz – 1910 MHz)							
RB Size = 100			RB Offset = Low			BW (MHz) = 20	
Modulation: 16 QAM							
Ch/Center Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
18700/1860/Low	28.18	21.27	6.91	2.8	24.07	33	Pass
18900/1880/Low	26.92	21.32	5.6	2.8	24.12	33	Pass
19100/1900/Low	27.08	20.8	6.28	2.8	23.6	33	Pass

6.2.5.3 Conducted Output Power LTE Band 4:

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 1		RB Offset = Low/Mid/High				BW (MHz) = 0.18	
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20050/1720/Low	27.09	22.75	4.34	1.6	24.35	30/30	Pass
20175/1732.5/Mid	26.77	23.52	3.25	1.6	25.12	30/30	Pass
20300/1745/High	26.70	22.94	3.76	1.6	24.54	30/30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 6			RB Offset = Low		BW (MHz) = 1.4		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
19957/1710.7/Low	27.14	22.19	4.95	1.6	23.79	30/30	Pass
20175/1732.5/Low	27.85	21.95	5.9	1.6	23.55	30/30	Pass
20393/1754.3/Low	27.66	22.00	5.66	1.6	23.6	30/30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 15			RB Offset = Low		BW (MHz) = 3.0		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
19965/1711.5/Low	27.50	22.35	5.15	1.6	23.95	30/30	Pass
20175/1732.5/Low	27.66	22.12	5.54	1.6	23.72	30/30	Pass
20385/1753.5/Low	28.04	22.15	5.89	1.6	23.75	30/30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 25			RB Offset = Low		BW (MHz) = 5.0		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
19975/1712.5/Low	27.41	22.33	5.08	1.6	23.93	30/30	Pass
20175/1732.5/Low	28.07	22.13	5.94	1.6	23.73	30/30	Pass
20375/1752.5/Low	28.65	22.19	6.46	1.6	23.79	30/30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 50			RB Offset = Low		BW (MHz) = 10.0		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20000/1715/Low	27.55	22.23	5.32	1.6	23.83	30/30	Pass
20175/1732.5/Low	27.74	21.94	5.8	1.6	23.54	30/30	Pass
20350/1750/Low	28.07	22.03	6.04	1.6	23.63	30/30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 75			RB Offset = Low		BW (MHz) = 15.0		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20025/1717.5/Low	27.97	22.53	5.44	1.6	24.13	30/30	Pass
20175/1732.5/Low	28.23	22.36	5.87	1.6	23.96	30/30	Pass
20325/1747.5/Low	28.58	22.47	6.11	1.6	24.07	30/30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 100			RB Offset = Low		BW (MHz) = 20		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20050/1720/Low	28.04	22.35	5.69	1.6	23.95	30/30	Pass
20175/1732.5/Low	28.19	22.68	5.51	1.6	24.28	30/30	Pass
20300/1745/Low	28.12	21.99	6.13	1.6	23.59	30/30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 1			RB Offset = Low/Mid/High		BW (MHz) = 0.18		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20050/1720/Low	27.12	22.32	4.8	1.6	23.92	30	Pass
20175/1732.5/Mid	26.89	22.99	3.9	1.6	24.59	30	Pass
20300/1745/High	26.83	22.66	4.17	1.6	24.26	30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 6			RB Offset = Low		BW (MHz) = 1.4		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
19957/1710.7/Low	27.21	21.34	5.87	1.6	24.14	30	Pass
20175/1732.5/Low	27.80	21.15	6.65	1.6	23.95	30	Pass
20393/1754.3/Low	28.03	21.08	6.95	1.6	23.88	30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 15			RB Offset = Low		BW (MHz) = 3.0		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
19965/1711.5/Low	27.30	21.57	5.73	1.6	23.17	30	Pass
20175/1732.5/Low	28.07	21.11	6.96	1.6	22.71	30	Pass
20385/1753.5/Low	27.96	21.25	6.71	1.6	22.85	30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 25			RB Offset = Low		BW (MHz) = 5.0		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
19975/1712.5/Low	27.59	21.65	5.94	1.6	23.25	30	Pass
20175/1732.5/Low	27.74	21.30	6.44	1.6	22.90	30	Pass
20375/1752.5/Low	28.64	21.37	7.27	1.6	22.97	30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 50			RB Offset = Low		BW (MHz) = 10.0		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20000/1715/Low	27.62	21.44	6.18	1.6	23.04	30	Pass
20175/1732.5/Low	27.53	21.18	6.35	1.6	22.78	30	Pass
20350/1750/Low	28.46	21.22	7.24	1.6	22.82	30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 75			RB Offset = Low		BW (MHz) = 15.0		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20025/1717.5/Low	27.76	21.79	5.97	1.6	23.39	30	Pass
20175/1732.5/Low	28.13	21.55	6.58	1.6	23.15	30	Pass
20325/1747.5/Low	28.26	21.66	6.6	1.6	23.26	30	Pass

LTE Band 4 (1710 MHz – 1755 MHz)							
RB Size = 100			RB Offset = Low		BW (MHz) = 20		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBd)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20050/1720/Low	28.11	21.56	6.55	1.6	23.16	30	Pass
20175/1732.5/Low	28.24	21.95	6.29	1.6	23.55	30	Pass
20300/1745/Low	28.11	21.25	6.86	1.6	22.85	30	Pass

6.2.5.4 Conducted Output Power LTE Band 5:

LTE Band 5 (824 MHz – 849 MHz)							
RB Size = 1			RB Offset = Low/Mid/High		BW (MHz) = 0.18		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
20450/829/Low	26.50	23.19	3.31	-4.1	16.94	38.45	Pass
20525/836.5/Mid	26.68	21.78	4.9	-4.1	15.53	38.45	Pass
20600/844/High	26.14	21.00	5.14	-4.1	14.75	38.45	Pass

LTE Band 5 (824 MHz – 849 MHz)							
RB Size = 6			RB Offset = Low		BW (MHz) = 1.4		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
20407/824.7/Low	27.6	21.94	5.66	-4.1	15.69	38.45	Pass
20525/836.5/Low	27.20	21.51	5.69	-4.1	15.26	38.45	Pass
20643/848.3/Low	27.5	21.8	5.7	-4.1	15.55	38.45	Pass

LTE Band 5 (824 MHz – 849 MHz)							
RB Size = 15			RB Offset = Low		BW (MHz) = 3.0		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
20415/825.5/Low	27.82	22.13	5.69	-4.1	15.88	38.45	Pass
20525/836.5/Low	28.11	21.80	6.31	-4.1	15.55	38.45	Pass
20635/847.5/Low	28.22	22.09	6.13	-4.1	15.84	38.45	Pass

LTE Band 5 (824 MHz – 849 MHz)							
RB Size = 25			RB Offset = Low		BW (MHz) = 5.0		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
20425/826.5/Low	27.93	22.16	5.77	-4.1	15.91	38.45	Pass
20525/836.5/Low	27.78	21.81	5.97	-4.1	15.56	38.45	Pass
20625/846.5/Low	27.71	22.15	5.56	-4.1	15.90	38.45	Pass

LTE Band 5 (824 MHz – 849 MHz)							
RB Size = 50			RB Offset = Low		BW (MHz) = 10		
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
20450/829/Low	27.08	21.4	5.68	-4.1	15.15	38.45	Pass
20525/836.5/Low	26.72	21.00	5.72	-4.1	14.75	38.45	Pass
20600/844/Low	26.83	21.49	5.34	-4.1	15.24	38.45	Pass

LTE Band 5 (824 MHz – 849 MHz)							
RB Size = 1			RB Offset = Low/Mid/High		BW (MHz) = 0.18		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
20450/829/Low	26.64	22.88	3.76	-4.1	16.63	38.45	Pass
20525/836.5/Mid	25.96	21.18	4.78	-4.1	14.93	38.45	Pass
20600/844/High	25.38	20.17	5.21	-4.1	13.92	38.45	Pass

LTE Band 5 (824 MHz – 849 MHz)							
RB Size = 6			RB Offset = Low		BW (MHz) = 1.4		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
20407/824.7/Low	28.07	21.22	6.85	-4.1	14.97	38.45	Pass
20525/836.5/Low	27.46	21.47	5.99	-4.1	15.22	38.45	Pass
20643/848.3/Low	28.15	21.83	6.32	-4.1	15.58	38.45	Pass

LTE Band 5 (824 MHz – 849 MHz)							
RB Size = 15			RB Offset = Low		BW (MHz) = 3.0		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
20415/825.5/Low	28.06	21.30	6.76	-4.1	15.05	38.45	Pass
20525/836.5/Low	27.45	21.73	5.72	-4.1	15.48	38.45	Pass
20635/847.5/Low	28.19	22.07	6.12	-4.1	15.82	38.45	Pass

LTE Band 5 (824 MHz – 849 MHz)							
RB Size = 25			RB Offset = Low		BW (MHz) = 5.0		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
20425/826.5/Low	27.75	21.39	6.36	-4.1	15.14	38.45	Pass
20525/836.5/Low	28.24	21.77	6.47	-4.1	15.52	38.45	Pass
20625/846.5/Low	27.80	22.17	5.63	-4.1	15.92	38.45	Pass

LTE Band 5 (824 MHz – 849 MHz)							
RB Size = 50			RB Offset = Low		BW (MHz) = 10		
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	ERP Average (dBm)	ERP Average Limit (dBm) FCC/IC	Results
20450/829/Low	27.41	20.60	6.81	-4.1	14.35	38.45	Pass
20525/836.5/Low	27.33	20.23	7.1	-4.1	13.98	38.45	Pass
20600/844/Low	26.96	20.68	6.28	-4.1	14.43	38.45	Pass

6.2.5.5 Conducted Output Power LTE Band 7:

LTE Band 7 (2500 MHz – 2570 MHz)							
RB Size = 1		RB Offset = Low/Mid/High				BW (MHz) = 0.18	
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20850/2510/Low	25.95	21.22	4.73	0.1	21.32	33	Pass
21100/2535/Mid	25.93	22.26	3.67	0.1	22.36	33	Pass
21350/2560/High	24.97	20.48	4.49	0.1	20.58	33	Pass

LTE Band 7 (2500 MHz – 2570 MHz)							
Resource Block Size = 25		Resource Block Offset = Low				BW (MHz) = 5.0	
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20775/2502.5/Low	28.27	21.78	6.49	0.1	21.88	33	Pass
21100/2535/Low	27.67	22.30	5.37	0.1	22.40	33	Pass
21425/2567.5/Low	27.65	21.75	5.9	0.1	21.85	33	Pass

LTE Band 7 (2500 MHz – 2570 MHz)							
Resource Block Size = 50		Resource Block Offset = Low				BW (MHz) = 10.0	
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20800/2505/Low	27.72	21.85	5.87	0.1	21.95	33	Pass
21100/2535/Low	27.63	22.18	5.45	0.1	22.23	33	Pass
21400/2565/Low	27.50	21.75	5.75	0.1	21.85	33	Pass

LTE Band 7 (2500 MHz – 2570 MHz)							
Resource Block Size = 75		Resource Block Offset = Low				BW (MHz) = 15.0	
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20825/2507.5/Low	28.43	22.06	6.37	0.1	22.16	33	Pass
21100/2535/Low	28.47	22.53	5.94	0.1	22.63	33	Pass
21375/2562.5/Low	27.97	21.92	6.05	0.1	22.02	33	Pass

LTE Band 7 (2500 MHz – 2570 MHz)							
Resource Block Size = 100		Resource Block Offset = Low				BW (MHz) = 20	
Modulation: QPSK							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20850/2510/Low	26.72	20.69	6.03	0.1	20.79	33	Pass
21100/2535/Low	26.77	21.47	5.3	0.1	21.57	33	Pass
21350/2560/Low	26.25	20.27	5.98	0.1	20.37	33	Pass

LTE Band 7 (2500 MHz – 2570 MHz)							
Resource Block Size = 1		Resource Block Offset = Low/Mid/High				BW (MHz) = 0.18	
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20850/2510/Low	25.96	20.65	5.31	0.1	20.75	33	Pass
21100/2535/Mid	26.02	21.75	4.27	0.1	21.85	33	Pass
21350/2560/High	25.20	20.39	4.81	0.1	20.49	33	Pass

LTE Band 7 (2500 MHz – 2570 MHz)							
Resource Block Size = 25		Resource Block Offset = Low				BW (MHz) = 5.0	
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20775/2502.5/Low	28.14	20.92	7.22	0.1	21.02	33	Pass
21100/2535/Low	27.82	21.53	6.29	0.1	21.63	33	Pass
21425/2567.5/Low	27.45	21.21	6.24	0.1	21.31	33	Pass

LTE Band 7 (2500 MHz – 2570 MHz)							
Resource Block Size = 50		Resource Block Offset = Low				BW (MHz) = 10.0	
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20800/2505/Low	28.00	21.15	6.85	0.1	21.25	33	Pass
21100/2535/Low	27.83	21.37	6.46	0.1	21.47	33	Pass
21400/2565/Low	27.11	20.94	6.17	0.1	21.04	33	Pass

LTE Band 7 (2500 MHz – 2570 MHz)							
Resource Block Size = 75		Resource Block Offset = Low				BW (MHz) = 15.0	
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20825/2507.5/Low	28.04	21.22	6.82	0.1	21.32	33	Pass
21100/2535/Low	27.69	21.59	6.1	0.1	21.69	33	Pass
21375/2562.5/Low	27.65	21.08	6.57	0.1	21.18	33	Pass

LTE Band 7 (2500 MHz – 2570 MHz)							
Resource Block Size = 100		Resource Block Offset = Low				BW (MHz) = 20	
Modulation: 16 QAM							
Ch/Frequency (MHz)/RB	Conducted Output Power Peak(dBm)	Conducted Output Power Average(dBm)	PAR (limit 13dB)	Antenna Gain (dBi)	EIRP Average (dBm)	EIRP Average Limit (dBm) FCC/IC	Results
20850/2510/Low	26.85	19.89	6.96	0.1	19.99	33	Pass
21100/2535/Low	26.90	20.70	6.2	0.1	20.80	33	Pass
21350/2560/Low	26.28	19.44	6.84	0.1	19.54	33	Pass

6.2.6 Test Verdict

Pass

6.3 PEAK-AVERAGE Ratio

6.3.1 References

FCC CFR 47 §24.232 (D); FCC CFR 47 §27.50 (D) (5)
RSS-132(5.4); RSS-133(6.4)

6.3.2 Limits:

Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

6.3.3 Results:

The results are contained in the tables of the previous section

6.3.4 Verdict:

Pass

6.4 Occupied Bandwidth

6.4.1 References

FCC: CFR Part 2.1053, CFR Part 22.917, CFR Part 24.238 (b), CFR Part 27.53 (g)
IC: RSS-Gen Section 4.9; RSS-132 Section 4.5.1; RSS-133 Section 2.6, RSS-139 Section 6.5, RSS-199

6.4.2 Limits

RSS-199:

Channel bandwidth ≥ 1 MHz. Is fulfilled as 1.4 MHz is the lowest implemented channel bandwidth. The physical bandwidth when using 4 resource blocks or less can be smaller.

6.4.3 Measurement Requirements:

99% bandwidth is the width of the emission signal such that, between the lower and the upper frequency from the top carrier, the mean powers emitted are each equal to 0.5% of the emitted power.

26 dB bandwidth is the width of the emission signal where the lower and the upper frequency of the signal is 26 dB down reference to the top carrier.

6.4.4 Spectrum Analyzer settings

Setting	26dB bandwidth	99% bandwidth
Frequency	Center of Channel	Center of Channel
Span	2-5xOBW iterativ	2-5xOBW iterativ
RBW	1-5% of OBW iterativ	1-5% of OBW iterativ
VBW	$>3 \times \text{RBW}$	
Reference level	>10 dB down from top	>10 dB down from top
Attenuation	Just enough to avoid overload	Just enough to avoid overload
Detector	Peak	Peak
Trace	Max Hold	Max Hold
Determine result	go to marker menu- select reference fixed – peak search – set ref point level offset -26dB- select marker one – select delta marker – move delta marker one to one intersection of trace with -26dBc line – select marker two – move it to other intersection with -26dBc line – calculate the OBW as the difference of both marker deltas to the reference point	use the macro of the SA

6.4.5 Test Results / Plots

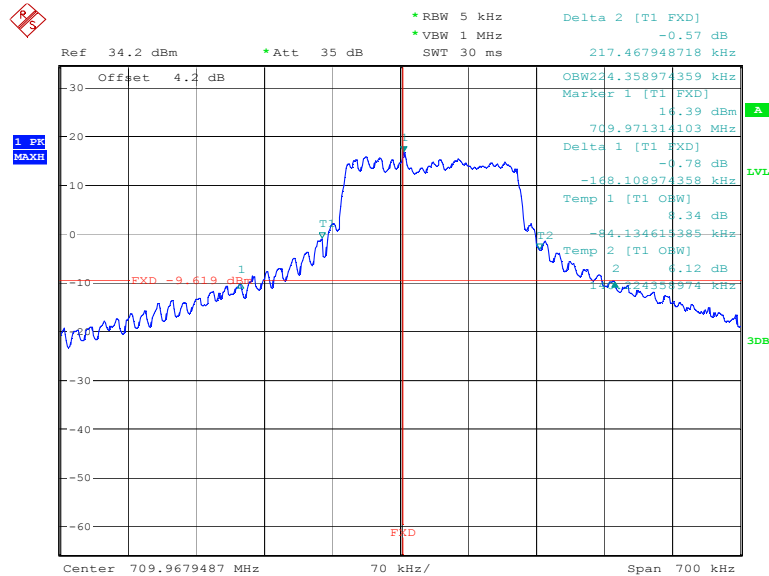
6.4.5.1 OBW LTE FDD Band 17 table:

LTE Band 17 (704 MHz – 716 MHz) - Modulation: QPSK			
Channel No.	Frequency (MHz)	26 dB (MHz)	99% (MHz)
RB Size = 1		RB Offset = 0	BW (MHz) = 0.18
23790	710	0.39	0.22
RB Size = 25		RB Offset = 0	BW (MHz) = 5
23790	710	5.14	4.53
RB Size = 50		RB Offset = 0	BW (MHz) = 10
23790	710	10.1	9.01

LTE Band 17 (704 MHz – 716 MHz) - Modulation: 16QAM			
Channel No.	Frequency (MHz)	26 dB (MHz)	99% (MHz)
RB Size = 1		RB Offset = 0	BW (MHz) = 0.18
23790	710	0.42	0.23
RB Size = 25		RB Offset = 0	BW (MHz) = 5
23790	710	5.11	4.51
RB Size = 50		RB Offset = 0	BW (MHz) = 10
23790	710	10.0	8.94

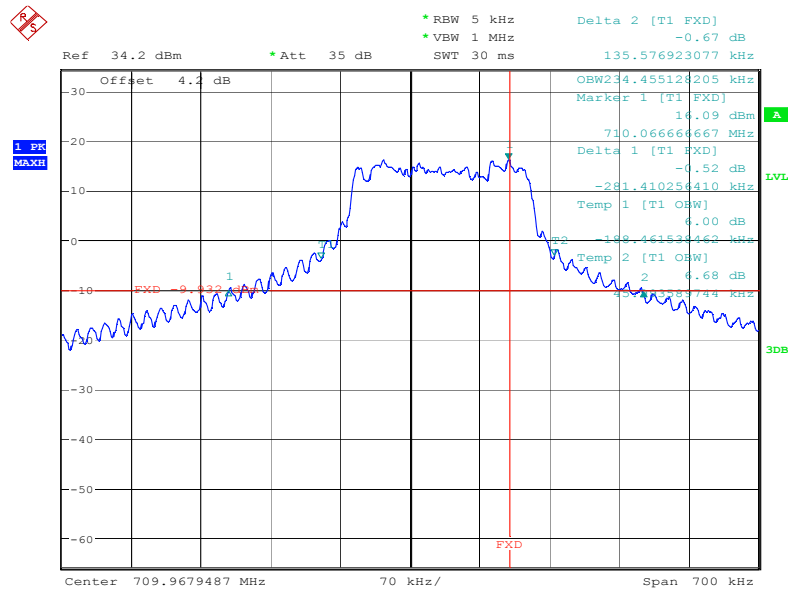
6.4.5.2 OBW LTE FDD Band 17 plots:

26 dB -99% BW (LTE Band 17) Channel **23790 (710 MHz)** – RB Size = 1; RB Offset = 0; BW = 5 MHz;
 Modulation = **QPSK**



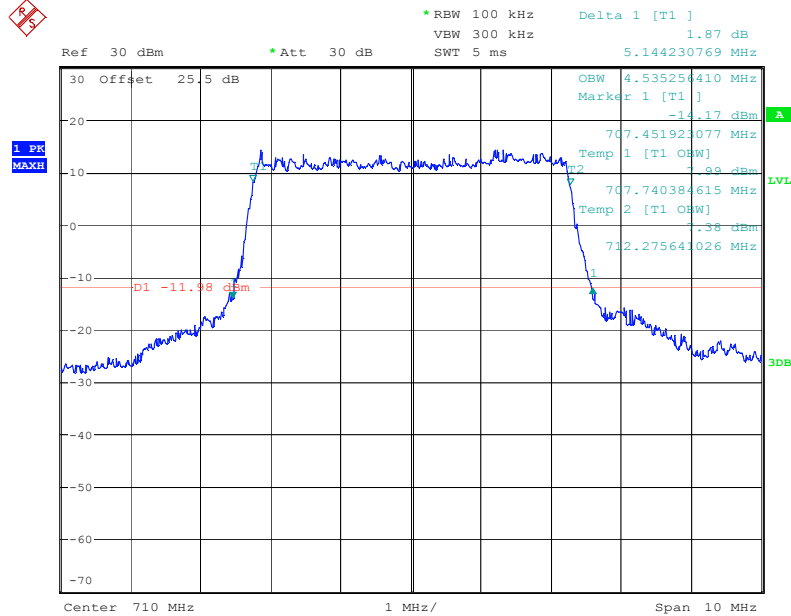
low
 Date: 29.JUN.2014 16:33:50

26 dB -99% BW (LTE Band 17) Channel **23790 (710 MHz)** – RB Size = 1; RB Offset = 0; BW = 5 MHz;
 Modulation = **16QAM**



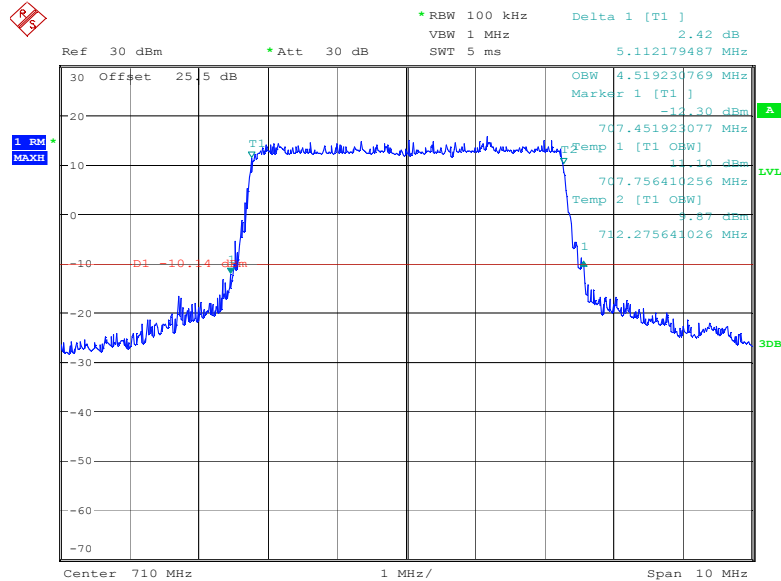
low
 Date: 29.JUN.2014 16:31:34

26 dB -99% BW (LTE Band 17) Channel **23790 (710 MHz)** – RB Size = **1**; RB Offset = **0**; BW = **5 MHz**;
Modulation = **QPSK**



Date: 12.MAR.2014 00:37:21

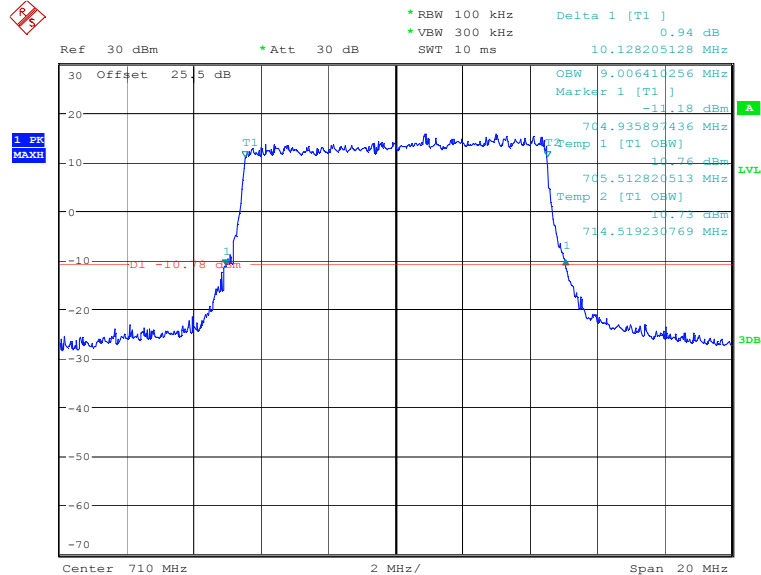
26 dB -99% BW (LTE Band 17) Channel **23790 (710 MHz)** – RB Size = **25**; RB Offset = 0; BW = **5 MHz**;
Modulation = **16 QAM**



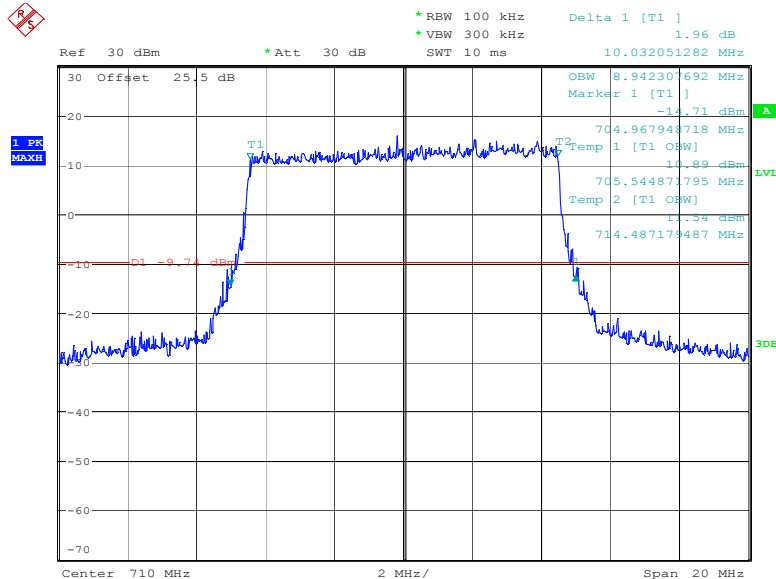
low

Date: 12.MAR.2014 19:00:11

26 dB -99% BW (LTE Band 17) Channel **23790 (710 MHz)** – RB Size = **50**; RB Offset = 0; BW = **10 MHz**;
Modulation = **QPSK**



26 dB -99% BW (LTE Band 17) Channel **23790 (710 MHz)** – RB Size = **50**; RB Offset = 0; BW = **10 MHz**;
Modulation = **16 QAM**



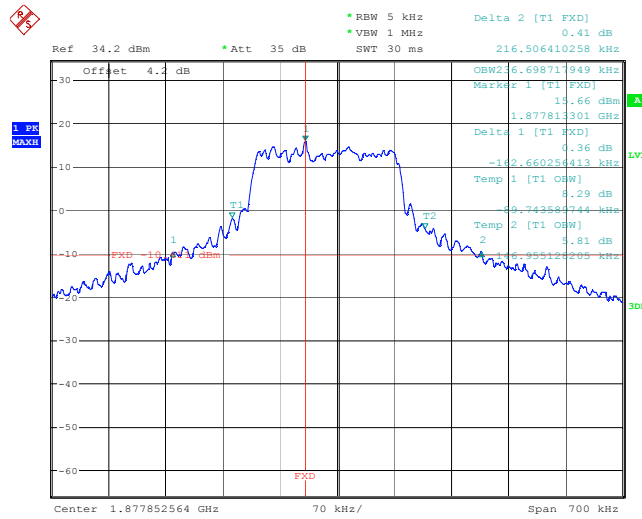
6.4.5.3 OBW LTE FDD Band 2 table:

LTE Band 2 (1850 MHz – 1910 MHz) -Modulation: QPSK			
Channel No.	Frequency (MHz)	26 dB (MHz)	99% (MHz)
RB Size =1		RB Offset = 0	BW (MHz) = 0.18
18900	1880	0.38	0.24
RB Size = 6		RB Offset = 0	BW (MHz) = 1.4
18900	1880	1.45	1.14
RB Size = 15		RB Offset = 0	BW (MHz) = 3
18900	1880	3.08	2.72
RB Size = 25		RB Offset = 0	BW (MHz) = 5
18900	1880	5.14	4.51
RB Size = 50		RB Offset = 0	BW (MHz) = 10
18900	1880	10.2	8.97
RB Size = 75		RB Offset = 0	BW (MHz) = 15
20175	1732.5	14.92	13.41
RB Size = 100		RB Offset = 0	BW (MHz) = 20
20175	1732.5	19.30	17.82

LTE Band 2 (1850 MHz – 1910 MHz) -Modulation: 16QAM			
Channel No.	Frequency (MHz)	26 dB (MHz)	99% (MHz)
RB Size = 1	RB Offset = 0	BW (MHz) = 0.18	
18900	1880	0.38	0.24
RB Size = 6	RB Offset = 0	BW (MHz) = 1.4	
18900	1880	1.44	1.14
RB Size = 15	RB Offset = 0	BW (MHz) = 3	
18900	1880	3.06	2.71
RB Size = 25	RB Offset = 0	BW (MHz) = 5	
18900	1880	5.17	4.53
RB Size = 50	RB Offset = 0	BW (MHz) = 10	
18900	1880	10.1	8.97
RB Size = 75	RB Offset = 0	BW (MHz) = 15	
20175	1732.5	15.26	13.41
RB Size = 100	RB Offset = 0	BW (MHz) = 20	
20175	1732.5	19.10	17.88

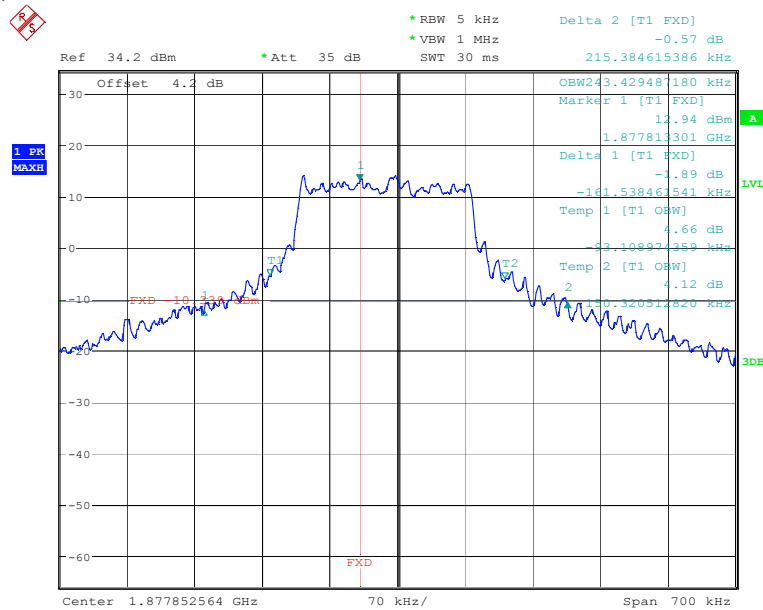
6.4.5.4 OBW LTE FDD Band 2 plots:

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = 1; RB Offset = 0; BW = 1.4 MHz;
 Modulation = **QPSK**



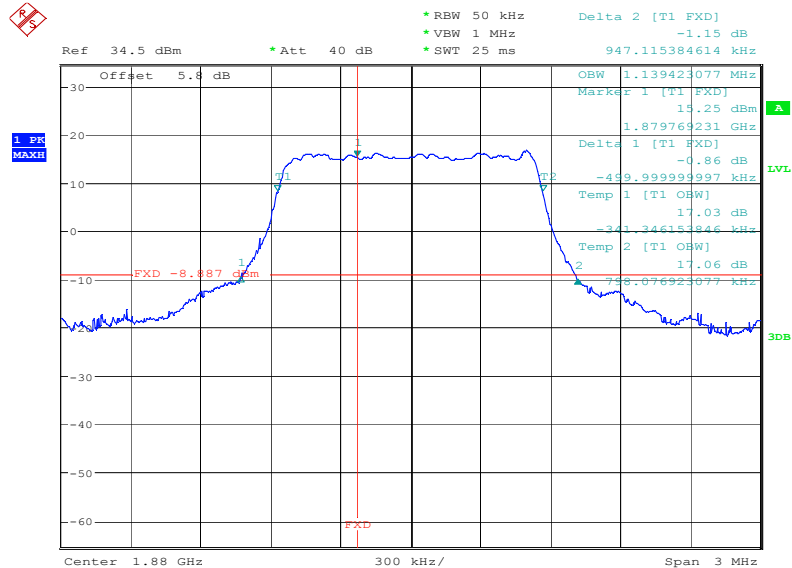
low
 Date: 29.JUN.2014 16:40:16

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = 1; RB Offset = 0; BW = 1.4 MHz;
 Modulation = **16QAM**



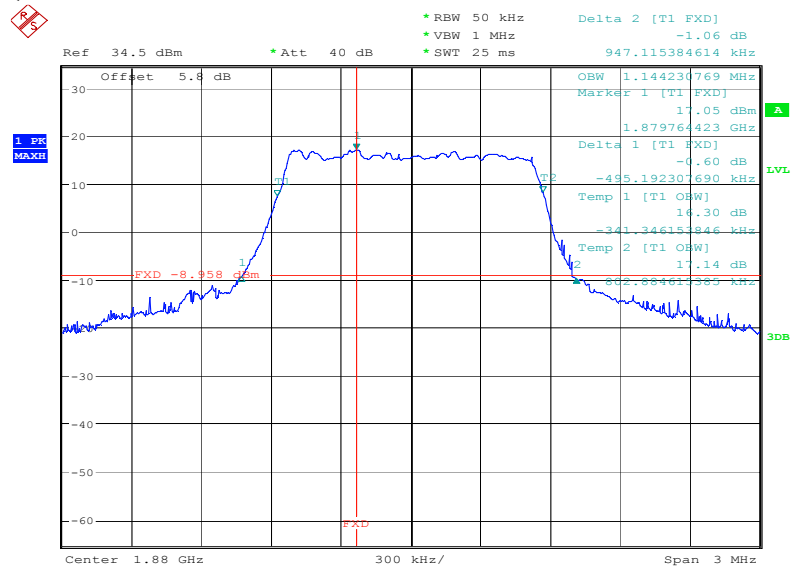
low
 Date: 29.JUN.2014 16:42:47

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **6**; RB Offset = 0; BW = **1.4 MHz**;
Modulation = **QPSK**



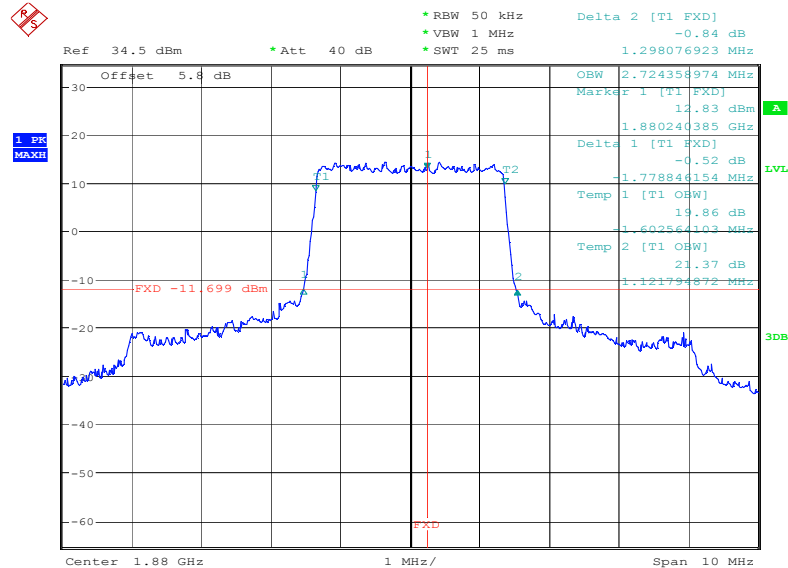
low
Date: 29.JUN.2014 16:01:52

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **6**; RB Offset = 0; BW = **1.4 MHz**;
Modulation = **16QAM**



low
Date: 29.JUN.2014 15:59:19

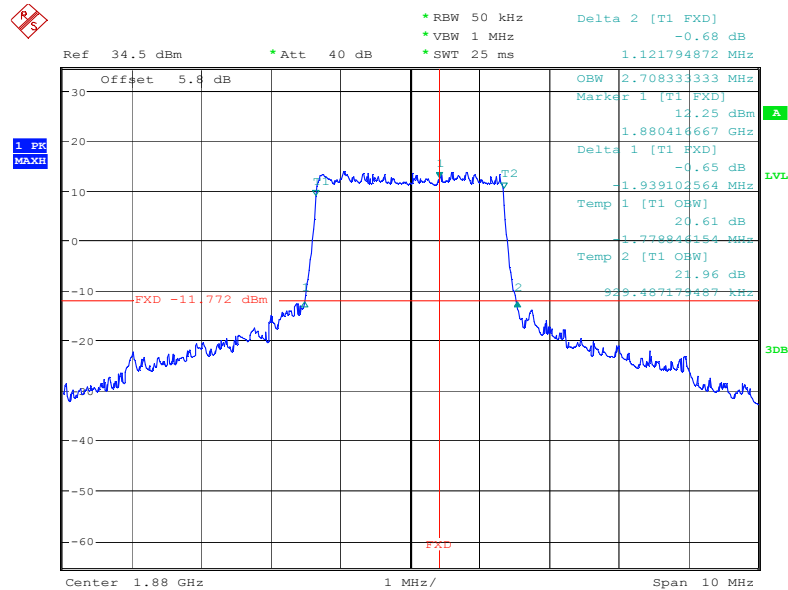
26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **15**; RB Offset = 0; BW = **3 MHz**;
Modulation = **QPSK**



low

Date: 29.JUN.2014 15:53:05

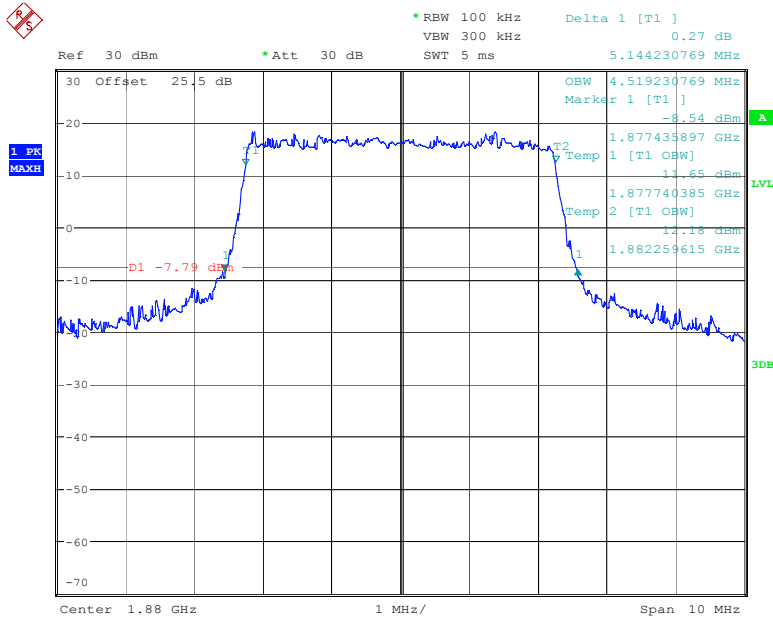
26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **15**; RB Offset = 0; BW = **3 MHz**;
Modulation = **16QAM**



low

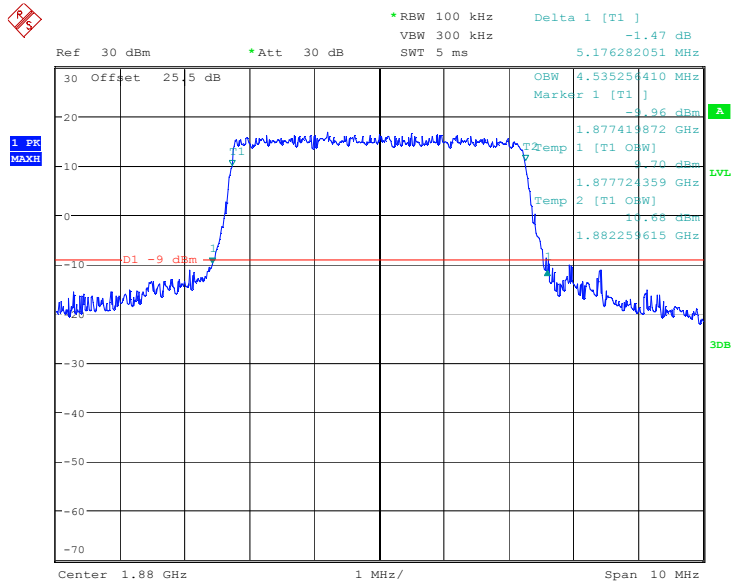
Date: 29.JUN.2014 15:55:21

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **25**; RB Offset = 0; BW = **5 MHz**;
Modulation = **QPSK**



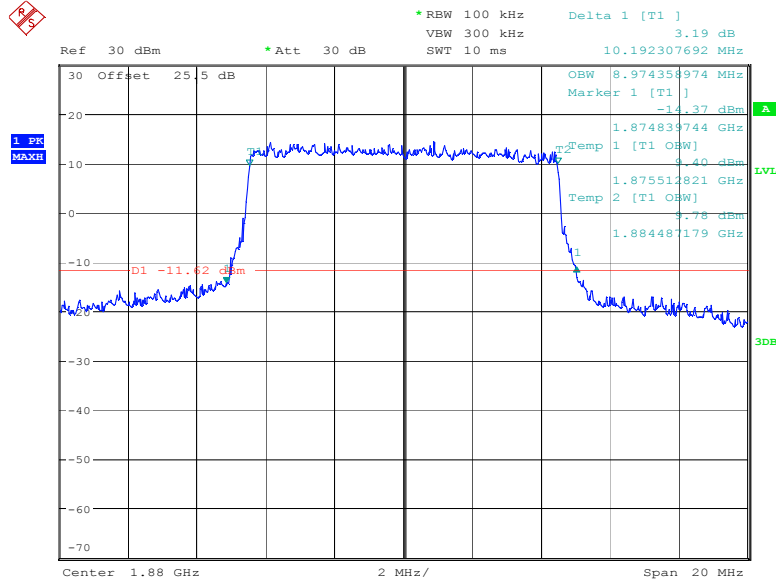
Date: 11.MAR.2014 20:21:39

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **25**; RB Offset = 0; BW = **5 MHz**;
Modulation = **16 QAM**



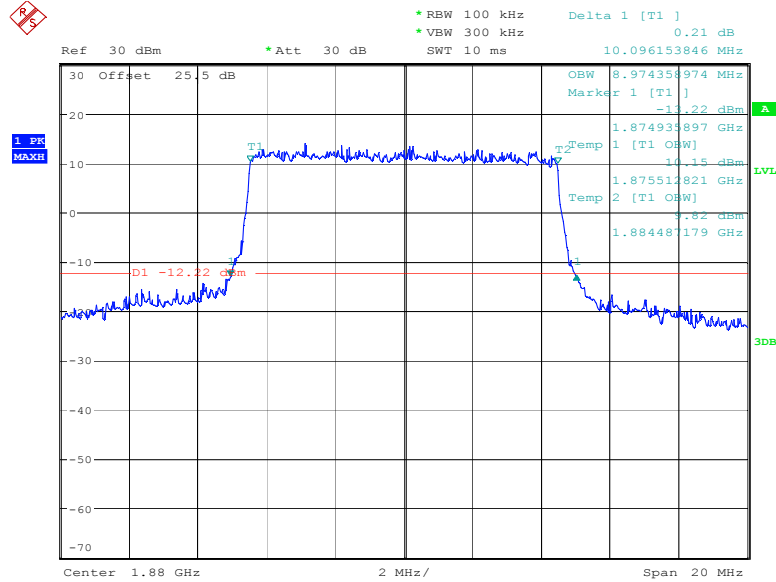
Date: 11.MAR.2014 20:57:25

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **50**; RB Offset = 0; BW = **10 MHz**;
Modulation = **QPSK**



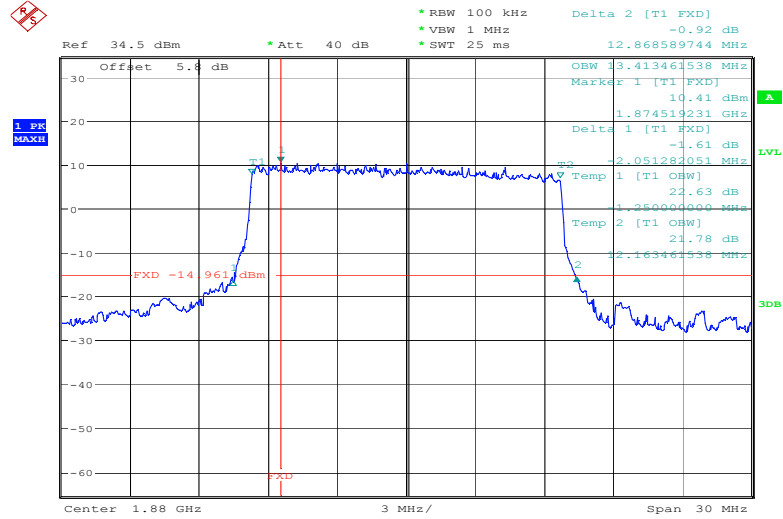
low
Date: 27.FEB.2014 18:46:53

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **50**; RB Offset = 0; BW = **10 MHz**;
Modulation = **16 QAM**



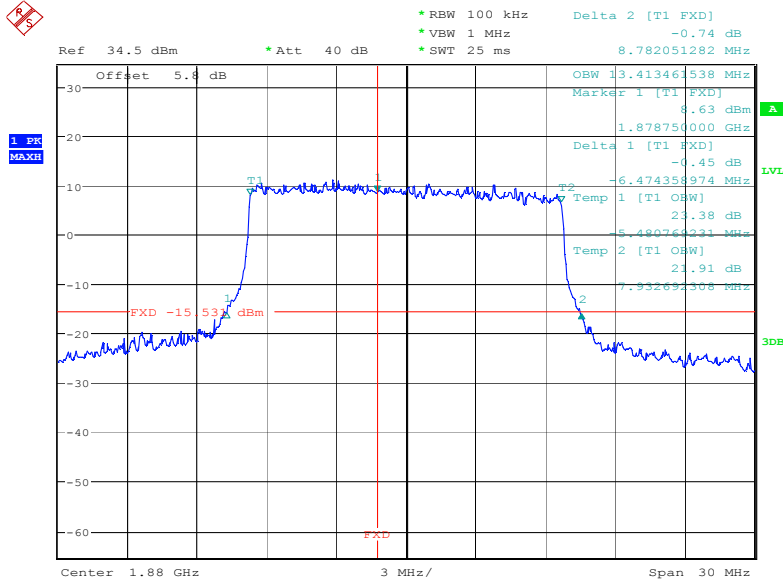
low
Date: 27.FEB.2014 20:58:28

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **75**; RB Offset = 0; BW = **15 MHz**;
 Modulation = **QPSK**



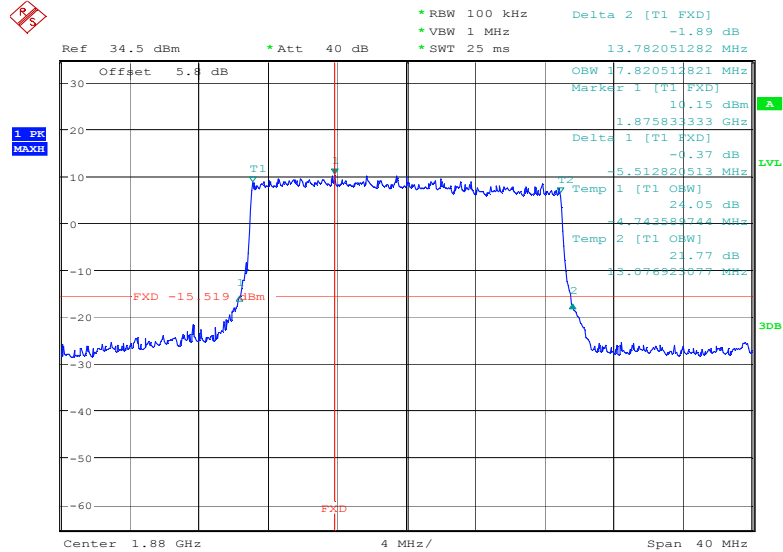
low
 Date: 29.JUN.2014 15:21:07

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **75**; RB Offset = 0; BW = **15 MHz**;
 Modulation = **16 QAM**

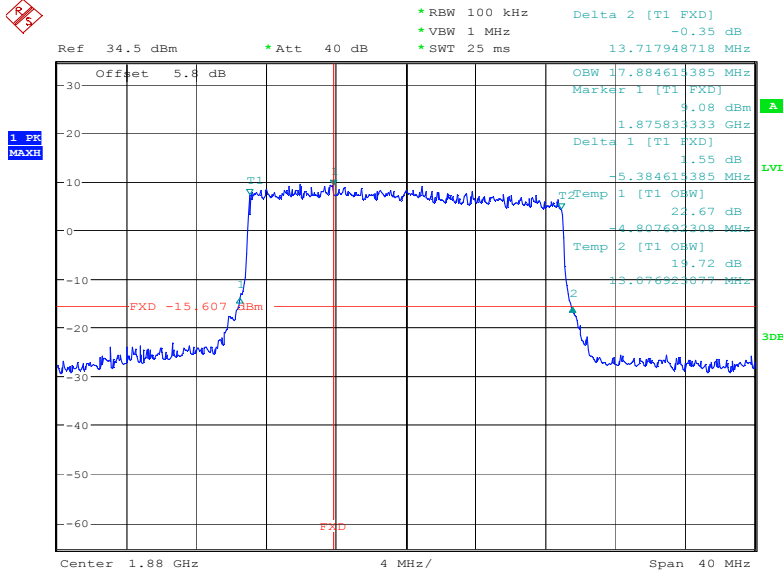


low
 Date: 29.JUN.2014 15:17:46

26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **100**; RB Offset = 0; BW = **20 MHz**;
Modulation = **QPSK**



26 dB -99% BW (LTE Band 2) Channel **18900 (1880 MHz)** – RB Size = **100**; RB Offset = 0; BW = **20 MHz**;
Modulation = **16QAM**



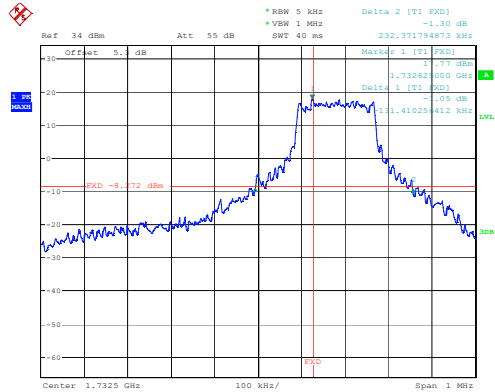
6.4.5.5 OBW LTE FDD Band 4 tables:

LTE Band 4 (1710 MHz – 1755 MHz) -Modulation: QPSK			
Channel No.	Frequency (MHz)	26 dB (MHz)	99% (MHz)
RB Size =1		RB Offset = 0	BW (MHz) = 0.18
20175	1732.5	0.36	0.22
RB Size = 6		RB Offset = 0	BW (MHz) = 1.4
20175	1732.5	1.43	1.12
RB Size = 15		RB Offset = 0	BW (MHz) = 3
20175	1732.5	3.63	2.76
RB Size = 25		RB Offset = 0	BW (MHz) = 5
20175	1732.5	5.17	4.52
RB Size = 50		RB Offset = 0	BW (MHz) = 10
20175	1732.5	10.1	8.97
RB Size = 75		RB Offset = 0	BW (MHz) = 15
20175	1732.5	16.53	13.62
RB Size = 100		RB Offset = 0	BW (MHz) = 20
20175	1732.5	20.43	17.95

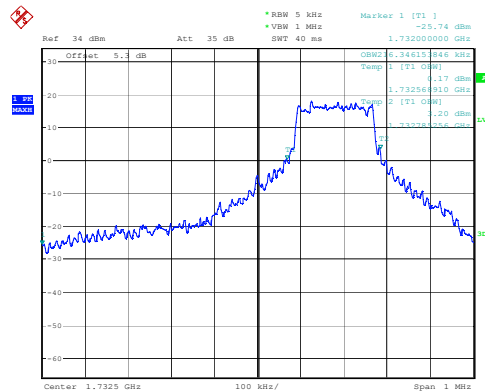
LTE Band 4 (1710 MHz – 1755 MHz) -Modulation: 16 QAM			
Channel No.	Frequency (MHz)	26 dB (MHz)	99% (MHz)
RB Size = 1		RB Offset = 0	BW (MHz) = 0.18
20175	1732.5	0.38	0.22
RB Size = 6		RB Offset = 0	BW (MHz) = 1.4
20175	1732.5	1.48	1.13
RB Size = 15		RB Offset = 0	BW (MHz) = 3
20175	1732.5	3.46	2.76
RB Size = 25		RB Offset = 0	BW (MHz) = 5
20175	1732.5	5.22	4.55
RB Size = 50		RB Offset = 0	BW (MHz) = 10
20175	1732.5	9.97	8.94
RB Size = 75		RB Offset = 0	BW (MHz) = 15
20175	1732.5	15.96	13.62
RB Size = 100		RB Offset = 0	BW (MHz) = 20
20175	1732.5	20.75	18.03

6.4.5.6 OBW LTE FDD Band 4 plots:

26 dB -99% BW (LTE Band 4) Channel **20175 (1732.5 MHz)** – RB Size = 1; RB Offset = MID; BW = 5 MHz;
 Modulation = QPSK

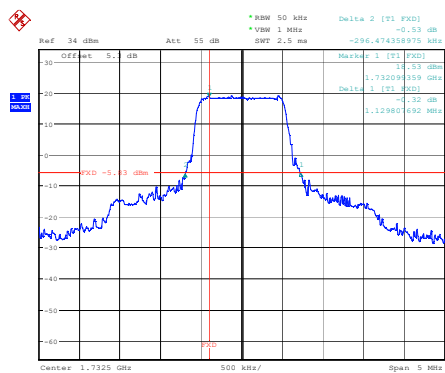


low
 Date: 18.JUN.2014 19:10:16

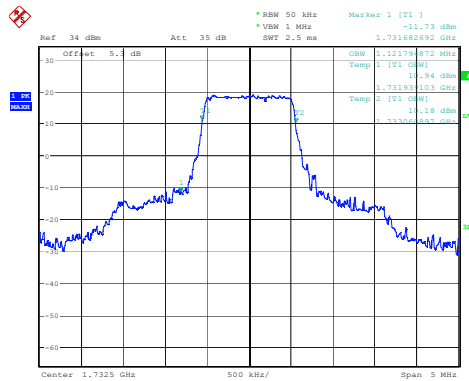


low
 Date: 18.JUN.2014 19:05:24

26 dB -99% BW (LTE Band 4) Channel **20175 (1732.5 MHz)** – RB Size = 6; RB Offset = 0; BW = 1.4 MHz;
 Modulation = QPSK

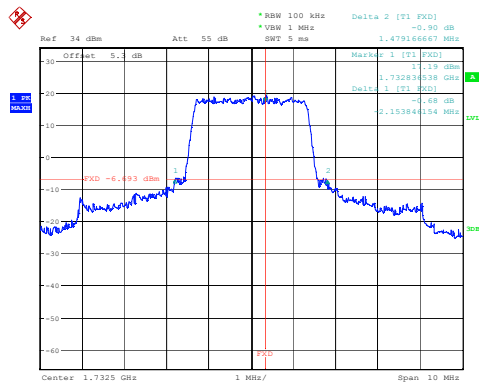


low
 Date: 18.JUN.2014 19:23:31

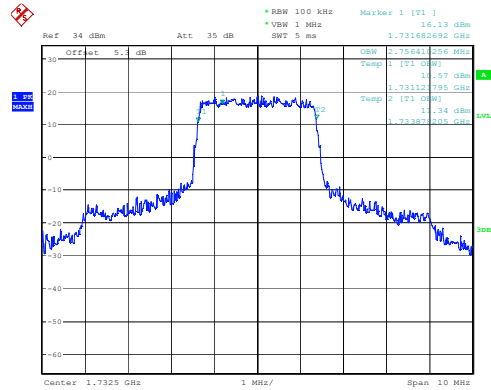


low
 Date: 18.JUN.2014 19:19:46

26 dB -99% BW (LTE Band 4) Channel 20175 (1732.5 MHz) – RB Size = 15; RB Offset = 0; BW = 3.0 MHz; Modulation = QPSK

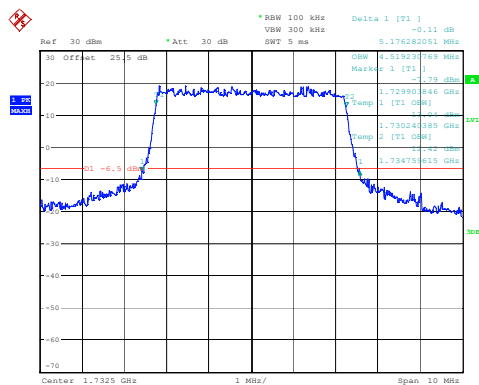


low
 Date: 18.JUN.2014 19:14:07

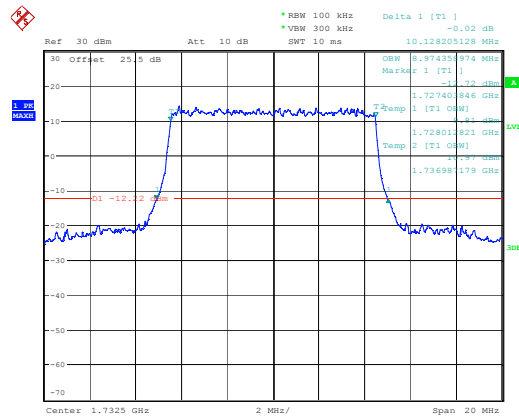


low
 Date: 18.JUN.2014 19:18:19

26 dB -99% BW (LTE Band 4) Channel 20175 (1732.5 MHz) – RB Size = 25/50; RB Offset = 0; BW = 5 MHz/10MHz; Modulation = QPSK

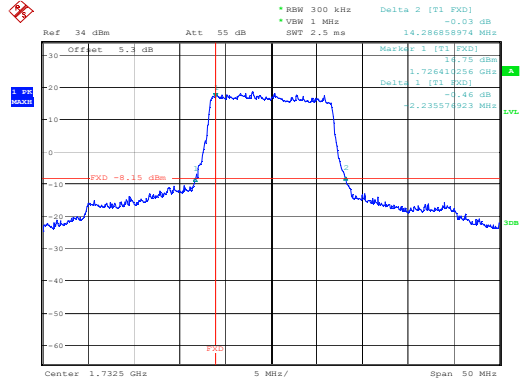


Date: 11.MAR.2014 18:50:54

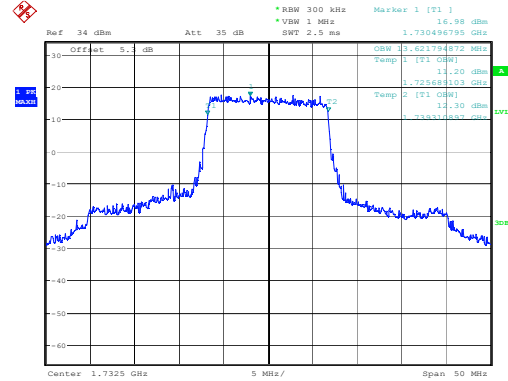


Date: 2.MAY.2014 22:06:05

26 dB -99% BW (LTE Band 4) Channel **20175 (1732.5 MHz)** – RB Size = **75**; RB Offset = 0; BW = **15.0 MHz**;
Modulation = **QPSK**

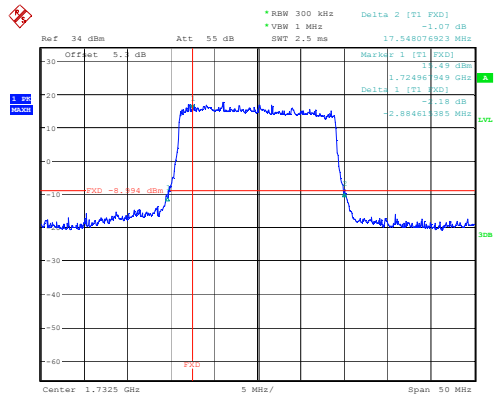


low
Date: 18.JUN.2014 19:26:22

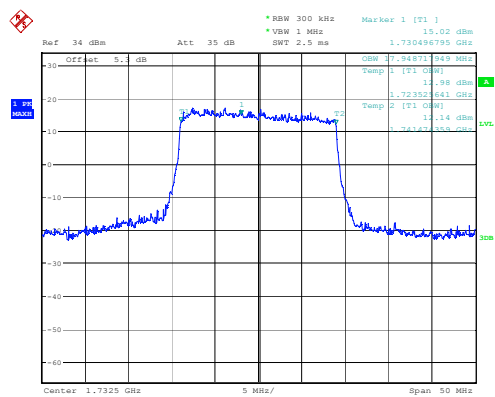


low
Date: 18.JUN.2014 19:29:16

26 dB -99% BW (LTE Band 4) Channel **20175 (1732.5 MHz)** – RB Size = **100**; RB Offset = 0; BW = **20.0 MHz**;
Modulation = **QPSK**

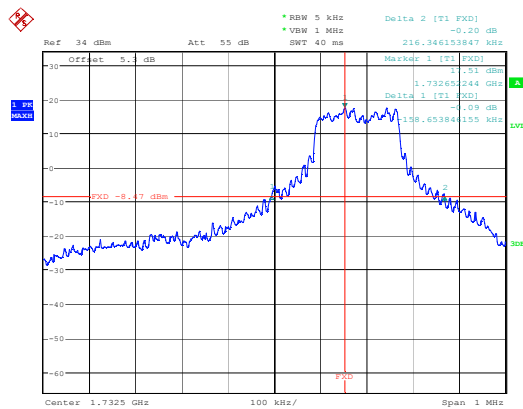


low
Date: 18.JUN.2014 19:32:50

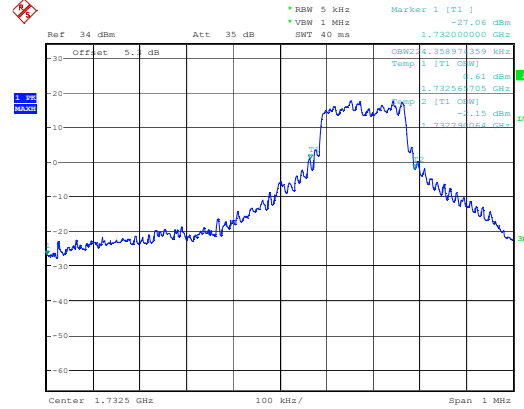


low
Date: 18.JUN.2014 19:30:08

26 dB -99% BW (LTE Band 4) Channel **20175 (1732.5 MHz)** – RB Size = 1; RB Offset = MID; BW = 5 MHz;
Modulation = 16QAM

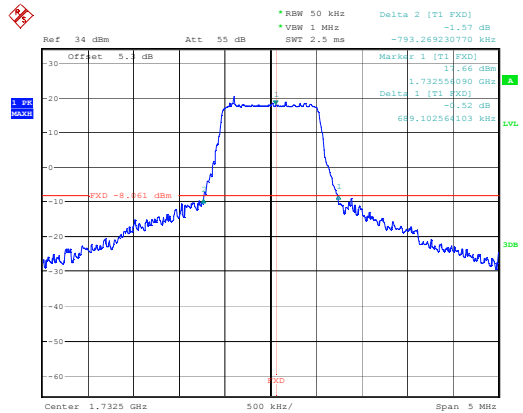


low
Date: 18.JUN.2014 19:08:50

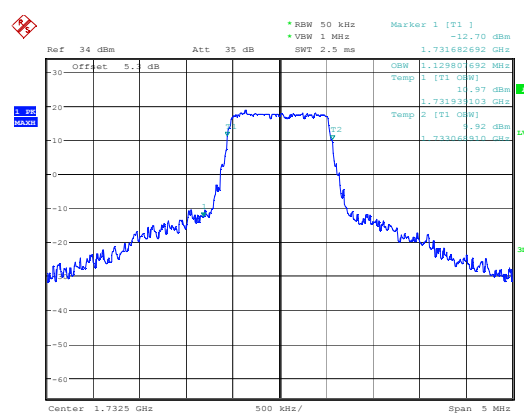


low
Date: 18.JUN.2014 19:06:55

26 dB -99% BW (LTE Band 4) Channel **20175 (1732.5 MHz)** – RB Size = 6; RB Offset = 0; BW = 1.4 MHz;
Modulation = 16QAM

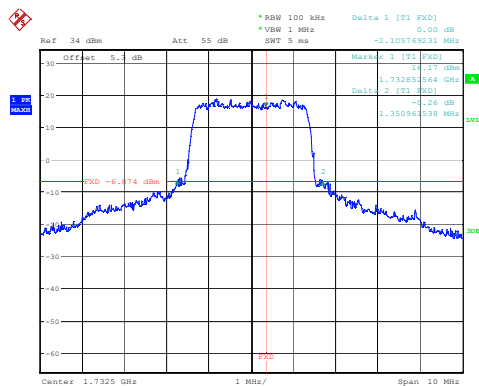


low
Date: 18.JUN.2014 19:21:38

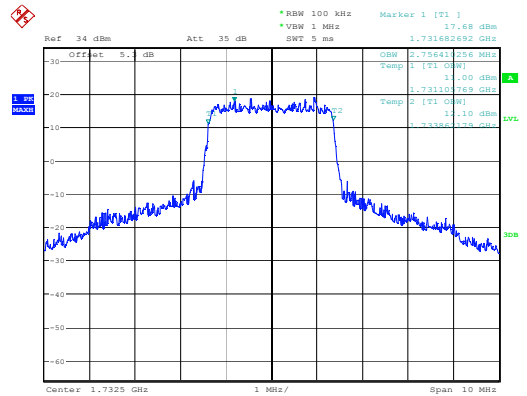


low
Date: 18.JUN.2014 19:20:38

26 dB -99% BW (LTE Band 4) Channel 20175 (1732.5 MHz) – RB Size = 15; RB Offset = 0; BW = 3.0 MHz; Modulation = 16QAM

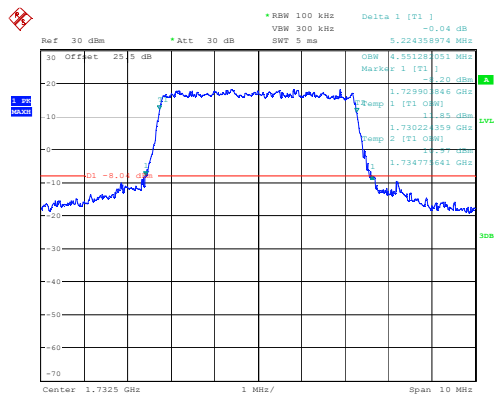


low
Date: 18.JUN.2014 19:16:21

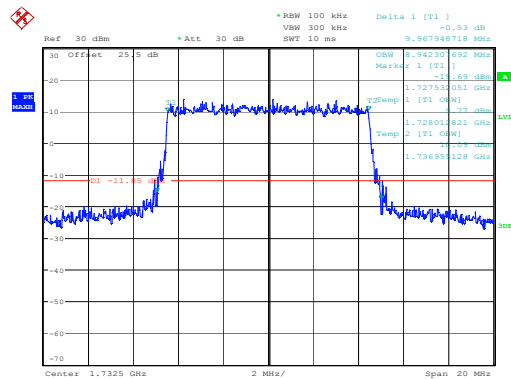


low
Date: 18.JUN.2014 19:17:34

26 dB -99% BW (LTE Band 4) Channel 20175 (1732.5 MHz) – RB Size = 25/50; RB Offset = 0; BW = 5 MHz/10MHz; Modulation = 16 QAM

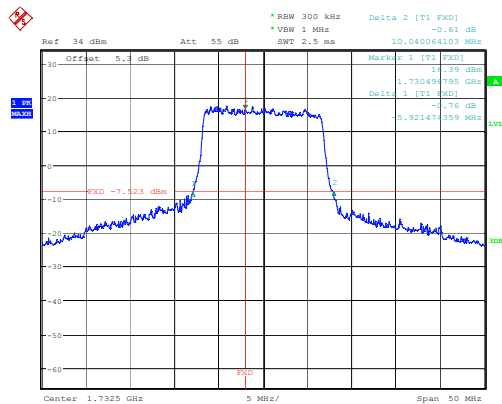


low
Date: 11.MAR.2014 22:29:42

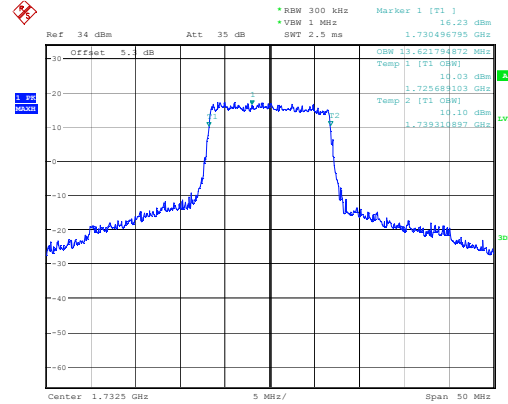


low
Date: 27.FEB.2014 22:33:27

26 dB -99% BW (LTE Band 4) Channel 20175 (1732.5 MHz) – RB Size = 75; RB Offset = 0; BW = 15.0 MHz; Modulation = 16QAM

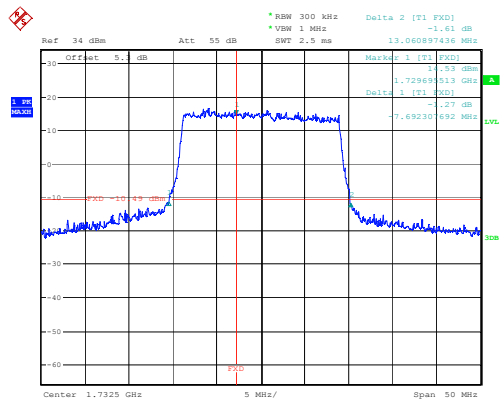


low
Date: 18.JUN.2014 19:27:40

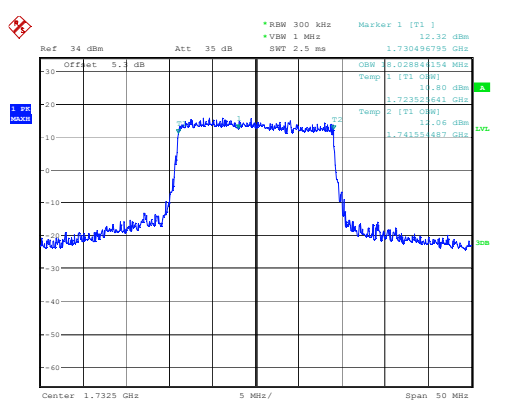


low
Date: 18.JUN.2014 19:28:46

26 dB -99% BW (LTE Band 4) Channel 20175 (1732.5 MHz) – RB Size = 100; RB Offset = 0; BW = 20.0 MHz; Modulation = 16QAM



low
Date: 18.JUN.2014 19:31:39



low
Date: 18.JUN.2014 19:30:46

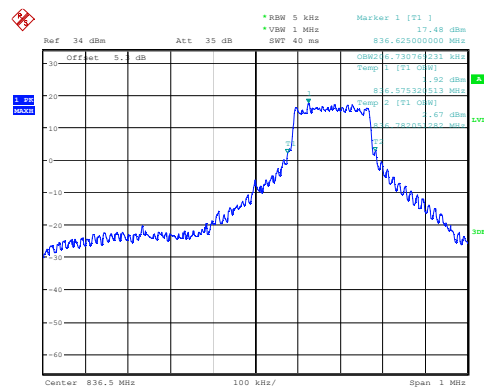
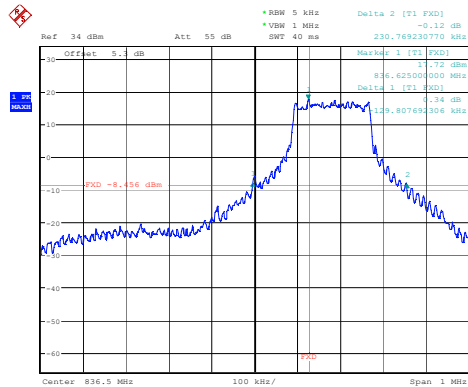
6.4.5.7 OBW LTE FDD Band 5 tables:

LTE Band 5 (824 MHz – 849 MHz) -Modulation: QPSK			
Channel No.	Frequency (MHz)	26 dB (MHz)	99% (MHz)
RB Size = 1	RB Offset = 0	BW (MHz) = 0.18	
20525	836.5	0.36	0.21
RB Size = 6	RB Offset = 0	BW (MHz) = 1.4	
20525	836.5	1.43	1.11
RB Size = 15	RB Offset = 0	BW (MHz) = 3	
20525	836.5	3.14	2.77
RB Size = 25	RB Offset = 0	BW (MHz) = 5	
20525	836.5	5.09	4.53
RB Size = 50	RB Offset = 0	BW (MHz) = 10	
20525	836.5	9.90	8.97

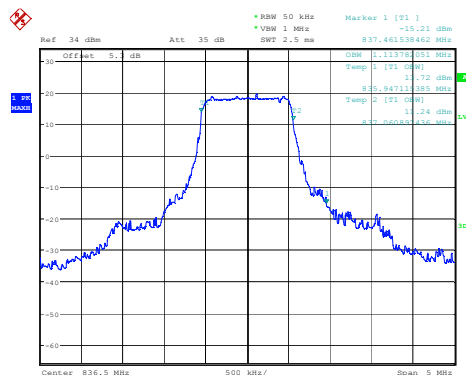
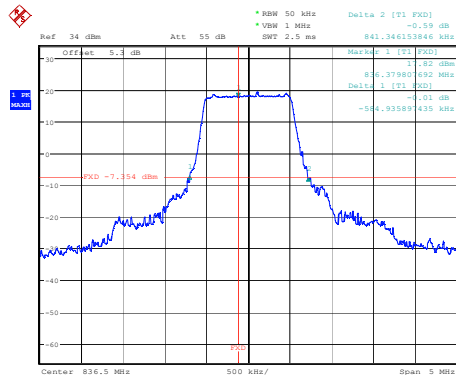
LTE Band 5 (824 MHz – 849 MHz) -Modulation: 16 QAM			
Channel No.	Frequency (MHz)	26 dB (MHz)	99% (MHz)
RB Size = 1	RB Offset = 0	BW (MHz) = 0.18	
20525	836.5	0.37	0.22
RB Size = 6	RB Offset = 0	BW (MHz) = 1.4	
20525	836.5	1.42	1.12
RB Size = 15	RB Offset = 0	BW (MHz) = 3	
20525	836.5	3.13	2.75
RB Size = 25	RB Offset = 0	BW (MHz) = 5	
20525	836.5	5.19	4.55
RB Size = 50	RB Offset = 0	BW (MHz) = 10	
20525	836.5	10.1	8.97

6.4.5.8 OBW LTE FDD Band 5 plots:

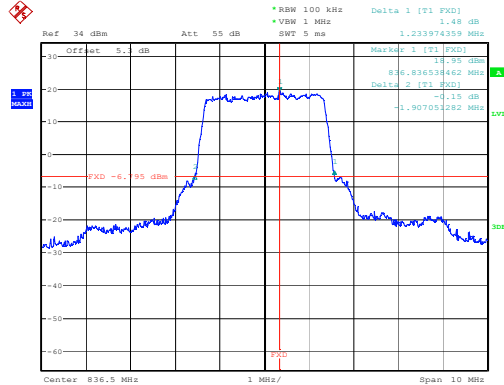
26 dB -99% BW (LTE Band 5) Channel **20525 (836.5 MHz)** – RB Size = 1; RB Offset = MID; BW = 5 MHz;
Modulation = QPSK



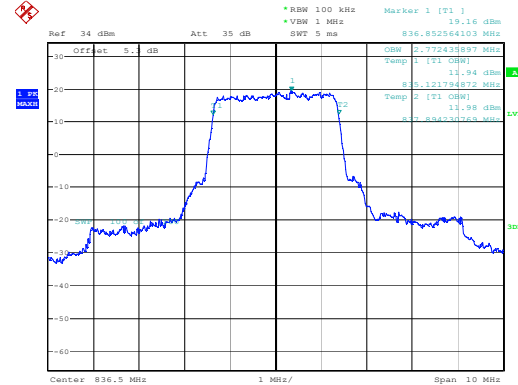
26 dB -99% BW (LTE Band 5) Channel **20525 (836.5 MHz)** – RB Size = 6; RB Offset = 0; BW = 1.4 MHz;
Modulation = QPSK



26 dB -99% BW (LTE Band 5) Channel 20525 (836.5 MHz) – RB Size = 15; RB Offset = 0; BW = 3 MHz;
Modulation = QPSK

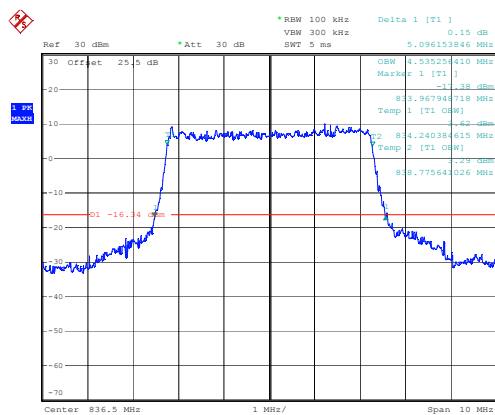


low
Date: 18.JUN.2014 15:40:39

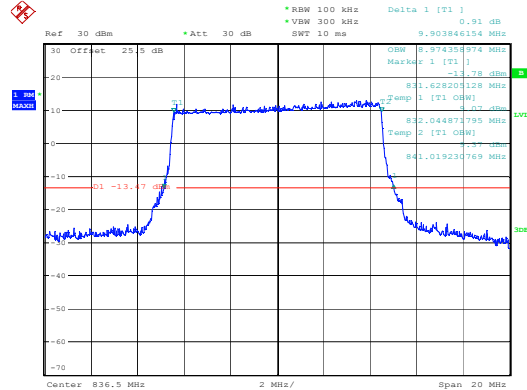


low
Date: 18.JUN.2014 15:23:46

26 dB -99% BW (LTE Band 5) Channel 20525 (836.5 MHz) – RB Size = 25/50; RB Offset = 0; BW = 5 MHz/10MHz; Modulation = QPSK

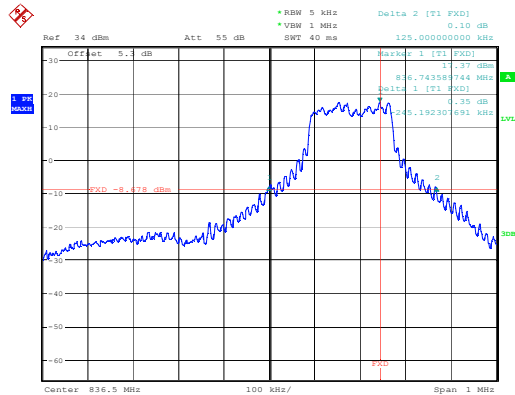


Date: 11.MAR.2014 23:19:23

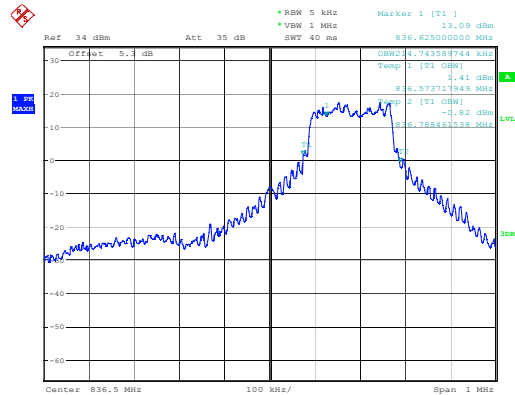


low
Date: 25.FEB.2014 22:51:40

26 dB -99% BW (LTE Band 5) Channel **20525 (836.5 MHz)** – RB Size = **1**; RB Offset = MID; BW = **5 MHz**;
Modulation = **16QAM**

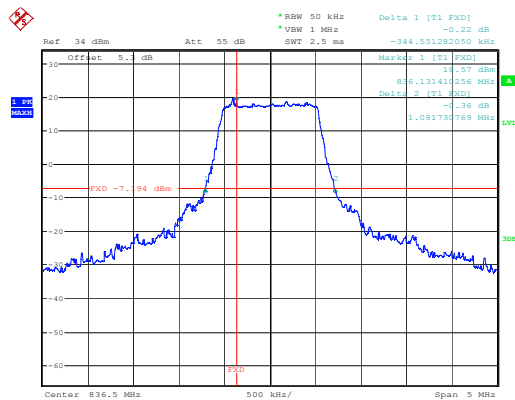


low
Date: 18.JUN.2014 18:49:57

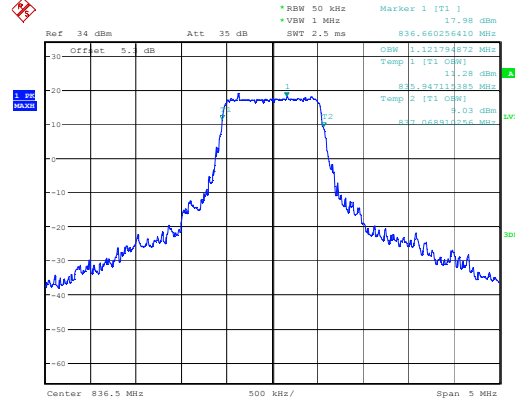


low
Date: 18.JUN.2014 18:55:02

26 dB -99% BW (LTE Band 5) Channel **20525 (836.5 MHz)** – RB Size = **6**; RB Offset = **0**; BW = **1.4 MHz**;
Modulation = **16QAM**

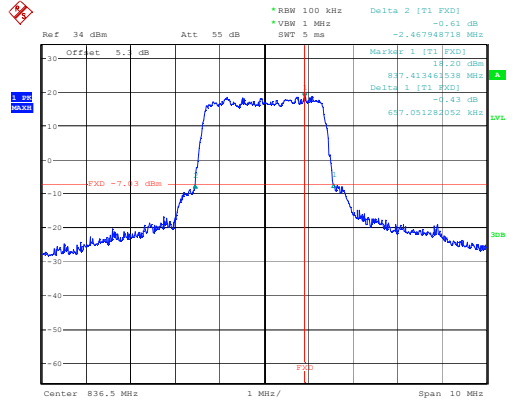


low
Date: 18.JUN.2014 18:42:10

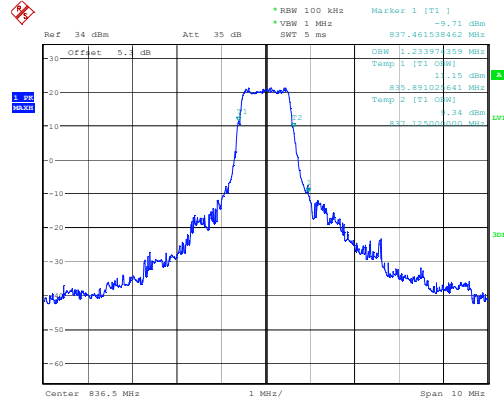


low
Date: 18.JUN.2014 18:40:02

26 dB -99% BW (LTE Band 5) Channel 20525 (836.5 MHz) – RB Size = 15; RB Offset = 0; BW = 3 MHz; Modulation = 16QAM

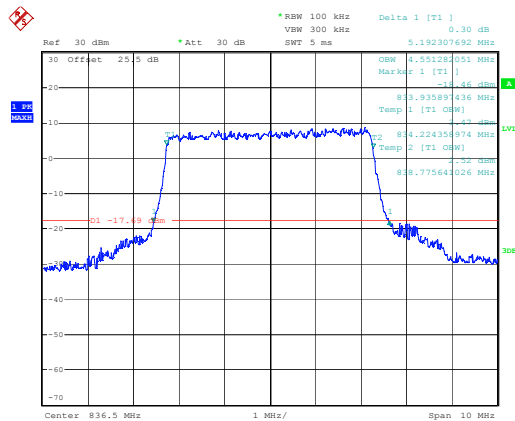


low
Date: 18.JUN.2014 15:44:06

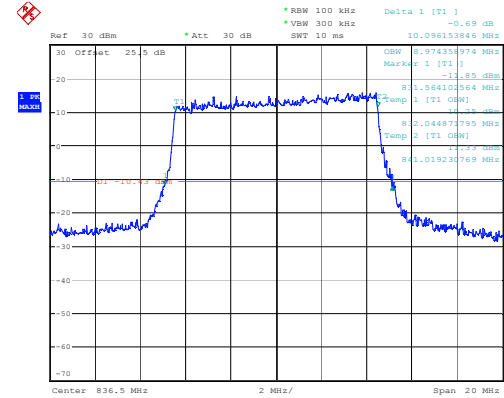


low
Date: 18.JUN.2014 18:35:48

26 dB -99% BW (LTE Band 5) Channel 20525 (836.5 MHz) – RB Size = 25/50; RB Offset = 0; BW = 5 MHz/10MHz; Modulation = 16QAM



low
Date: 12.MAR.2014 00:05:46



low
Date: 27.FEB.2014 23:01:00

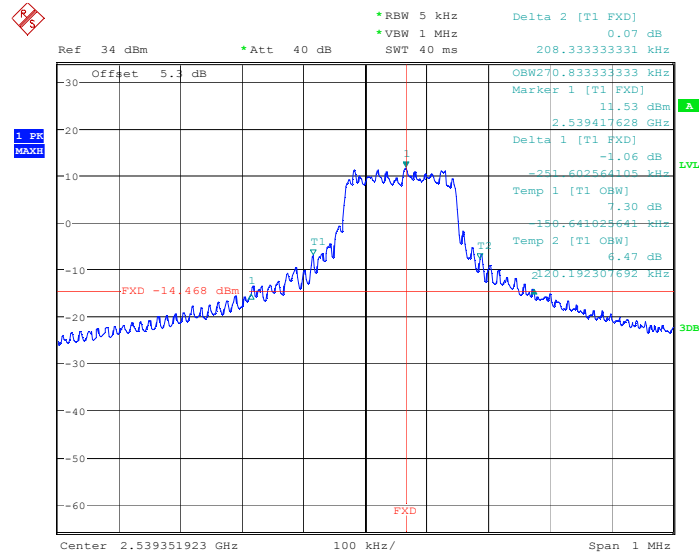
6.4.5.9 OBW LTE FDD Band 7 tables:

LTE Band 7 (2500 MHz – 2690 MHz) -Modulation: QPSK			
Channel No.	Frequency (MHz)	26 dB (MHz)	99% (MHz)
RB Size = 1		RB Offset = 0	BW (MHz) = 0.18
21100	2535	0.46	0.27
RB Size = 25		RB Offset = 0	BW (MHz) = 5
21100	2535	5.19	4.54
RB Size = 50		RB Offset = 0	BW (MHz) = 10
21100	2535	9.55	8.94
RB Size = 75		RB Offset = 0	BW (MHz) = 15
21100	2535	15.85	13.46
RB Size = 100		RB Offset = 0	BW (MHz) = 20
21100	2535	19.23	17.88

LTE Band 7 (2500 MHz – 2690 MHz) -Modulation: 16QAM			
Channel No.	Frequency (MHz)	26 dB (MHz)	99% (MHz)
RB Size = 1	RB Offset = 0	BW (MHz) = 0.18	
21100	2535	0.47	0.25
RB Size = 25	RB Offset = 0	BW (MHz) = 5	
21100	2535	4.84	4.54
RB Size = 50	RB Offset = 0	BW (MHz) = 10	
21100	2535	10.38	8.97
RB Size = 75	RB Offset = 0	BW (MHz) = 15	
21100	2535	15.32	13.46
RB Size = 100	RB Offset = 0	BW (MHz) = 20	
21100	2535	19.75	17.88

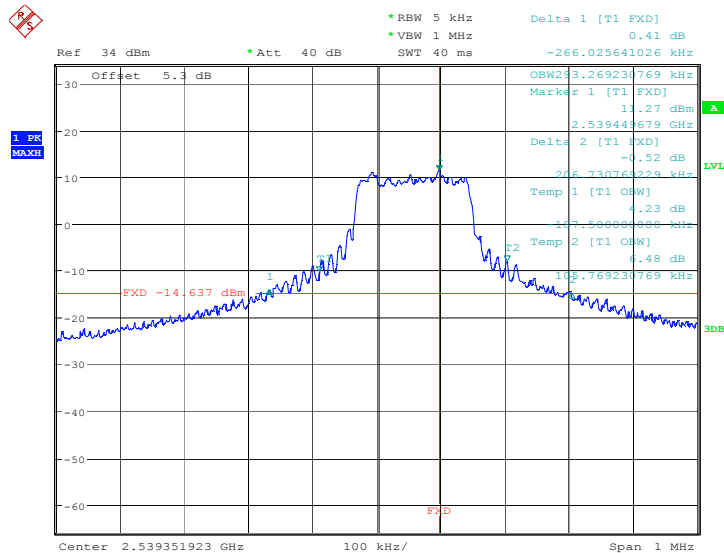
6.4.5.10 OBW LTE FDD Band 7 plots:

26dB and 99% BW (LTE Band 7) Channel 21100 (2535 MHz) – RB Size = 1; RB Offset = 49; BW = 10 MHz;
 Modulation = QPSK



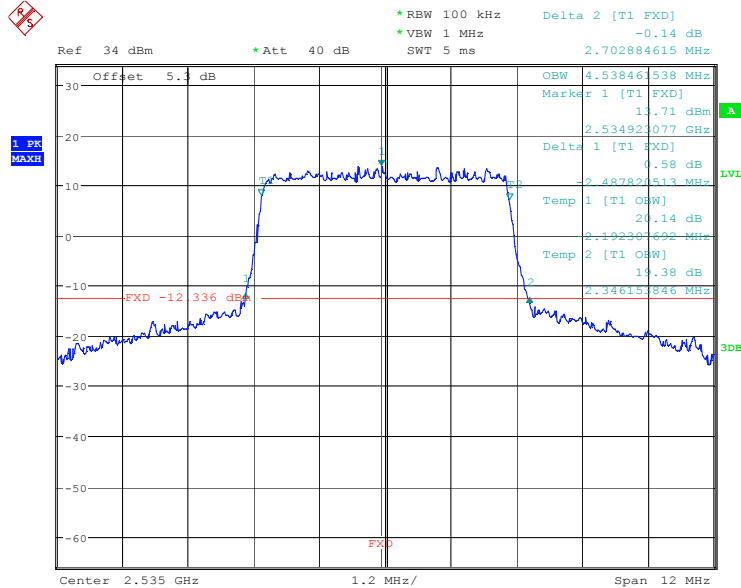
low
 Date: 29.JUN.2014 14:03:25

26dB and 99% BW (LTE Band 7) Channel 21100 (2535 MHz) – RB Size = 1; RB Offset = 49; BW = 10 MHz;
 Modulation = 16QAM



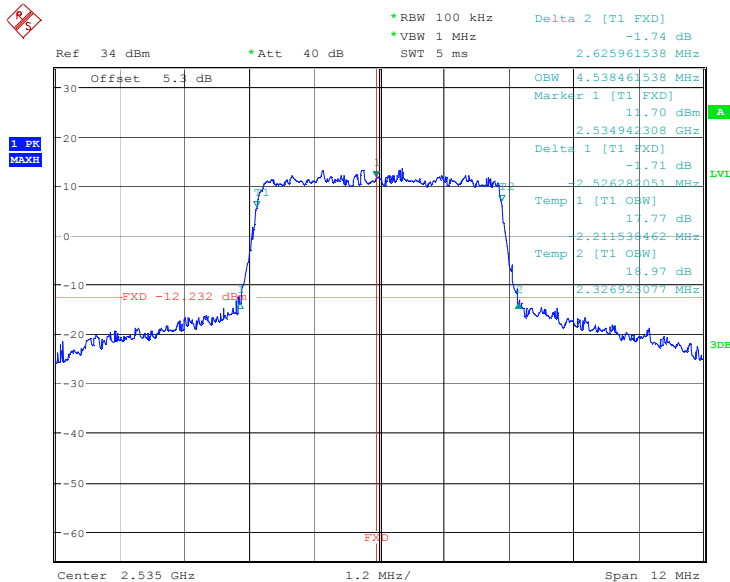
low
 Date: 29.JUN.2014 13:58:07

26dB and 99% BW (LTE Band 7) Channel 21100 (2535 MHz) – RB Size = 25; RB Offset = 0; BW = 5 MHz;
 Modulation = QPSK



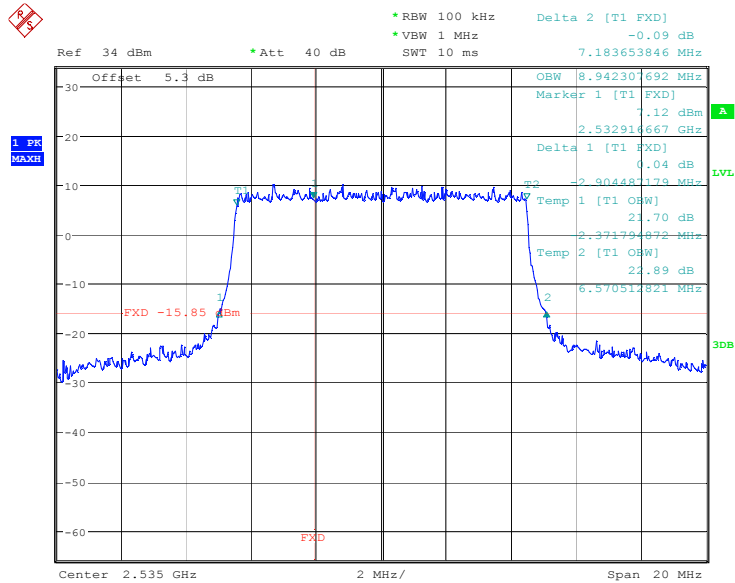
low
 Date: 29.JUN.2014 14:22:02

26dB and 99% BW (LTE Band 7) Channel 21100 (2535 MHz) – RB Size = 25; RB Offset = 0; BW = 5 MHz;
 Modulation = 16QAM



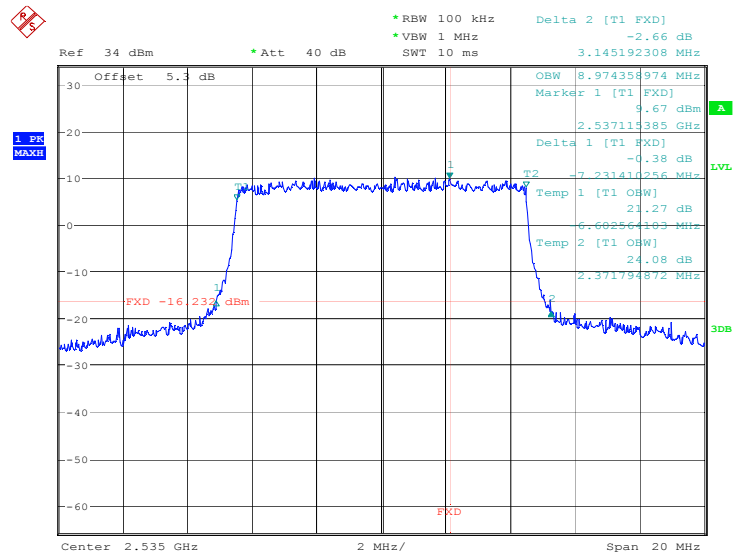
low
 Date: 29.JUN.2014 14:23:41

26dB and 99% BW (LTE Band 7) Channel 21100 (2535 MHz) – RB Size = 50; RB Offset = 0; BW = 10 MHz;
 Modulation = QPSK



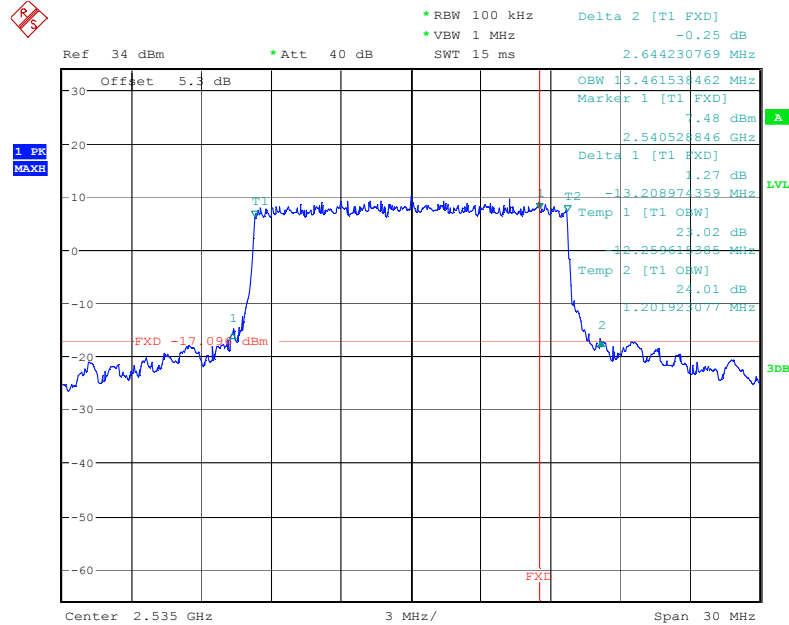
low
 Date: 29.JUN.2014 14:36:05

26dB and 99% BW (LTE Band 7) Channel 21100 (2535 MHz) – RB Size = 50; RB Offset = 0; BW = 10 MHz;
 Modulation = 16QAM



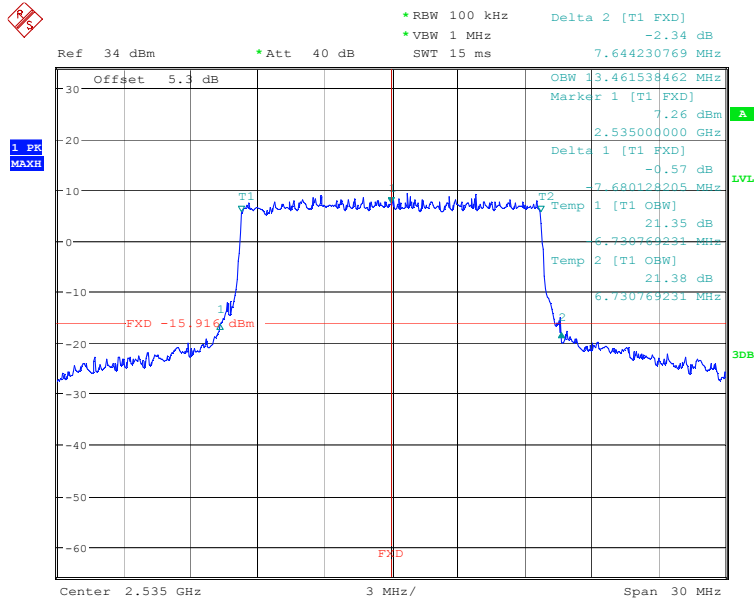
low
 Date: 29.JUN.2014 14:33:22

26dB and 99% BW (LTE Band 7) Channel 21100 (2535 MHz) – RB Size = 75; RB Offset = 0; BW = 15 MHz;
 Modulation = QPSK



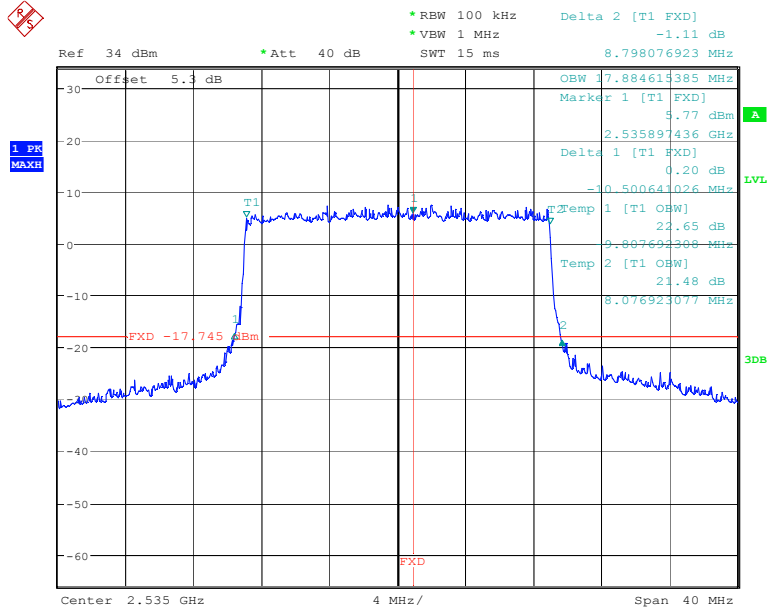
low
 Date: 29.JUN.2014 14:41:59

26dB and 99% BW (LTE Band 7) Channel 21100 (2535 MHz) – RB Size = 75; RB Offset = 0; BW = 15 MHz;
 Modulation = 16QAM



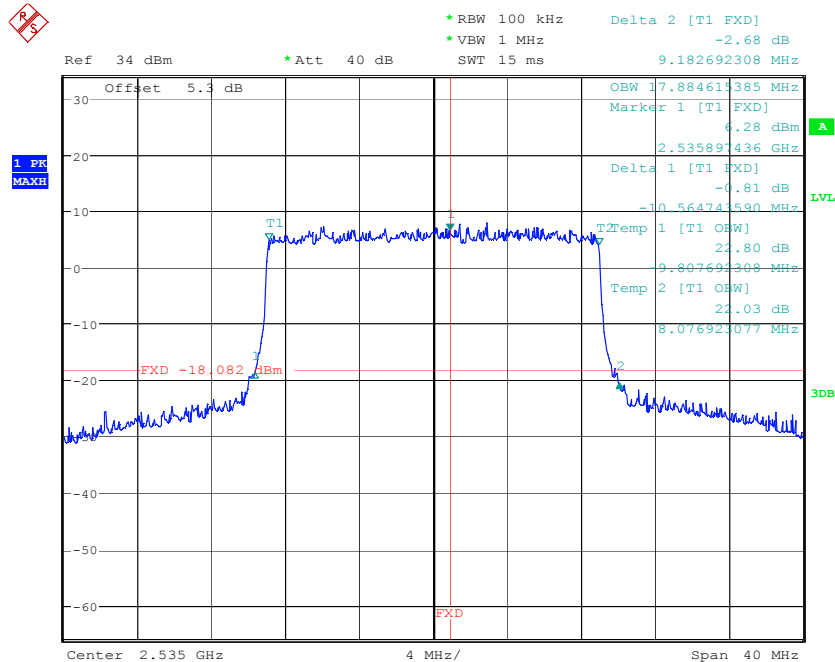
low
 Date: 29.JUN.2014 14:45:47

26dB and 99% BW (LTE Band 7) Channel 21100 (2535 MHz) – RB Size = 100; RB Offset = 0; BW = 20 MHz; Modulation = QPSK



low
 Date: 29.JUN.2014 14:52:27

26dB and 99% BW (LTE Band 7) Channel 21100 (2535 MHz) – RB Size = 100; RB Offset = 0; BW = 20 MHz; Modulation = 16QAM



low
 Date: 29.JUN.2014 14:49:51

6.5 Frequency Stability

6.5.1 References

FCC: CFR Part 2.1055, CFR Part 22.355, CFR Part 24.235, CFR Part 27.54

IC: RSS-Gen Section 4.7; RSS 132 Section 4.3; RSS 133 Section 6.3, RSS-139 Section 6.3, RSS-199 Section 4.3

6.5.2 Measurement requirements:

Frequency stability is a measure of frequency drift due to temperature and supply voltage variations with reference to the frequency measured at an appropriate reference temperature and the rated supply voltage.

A hand-held device that is only capable of operating using internal batteries shall be tested using a new battery without any further requirement to vary the supply voltage. Alternatively, an external supply voltage can be used and set at the battery nominal voltage, and again at the battery operating end point voltage which shall be specified by the equipment manufacturer.

6.5.3 Limits

NOTE: Freq. Error (ppm) = Freq. Error (Hz) / Declared Freq (MHz)

Limit is +/- 1.5ppm for base stations

Limit is +/- 2.5ppm for mobile devices

For Hand carried battery powered equipment:

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235/22.355 Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.6VDC and 4.2VDC, with a nominal voltage of 3.8VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of -5.0% and +10.5%. For the purposes of measuring frequency stability these voltage limits are to be used.

§2.1055 (D)(1)

For devices that operated with an external AC supply, DC supply, and are battery operated (AFC FREQ ERROR vs. VOLTAGE) – Voltage shall be varied between 85% and 115% of the nominal voltage.

6.5.4 Test Data:

6.5.4.1 LTE FDD Band 17

Mode: LTE (Band 17), High Channel, Highest output power		
Modulation = QPSK		
BW = 1 RB		
Channel No. 23800	Frequency: 711 MHz	
	Freq. Error (Hz)	Freq. Error (ppm)
Min. voltage = 3.6 Vdc	13	0.018
Max. voltage = 4.2 Vdc	11	0.015
Battery End Point:	3.5 Vdc	

§2.1055 (A)(1)

AFC FREQ ERROR vs. TEMPERATURE

Channel No. 23800	711	Nom Vol: 3.8V
Temperature (°C)	Freq. Error (Hz)	Freq. Error (ppm)
-10	-19	-0.027
0	-14	-0.020
+10	-10	-0.014
+20	-11	-0.015
+30	12	0.017
+40	11	0.015
+50	-8	-0.011

6.5.4.2 LTE FDD Band 2

Mode: LTE (Band 2), Mid Channel, Highest output power Modulation = QPSK		
Channel No. 18900	Frequency: 1880 MHz	
	Freq. Error (Hz)	Freq. Error (ppm)
Min. voltage = 3.6 Vdc	13	0.007
Max. voltage = 4.2 Vdc	13	0.007
Battery End Point: = 3.4 Vdc		

§2.1055 (A)(1)

AFC FREQ ERROR vs. TEMPERATURE

Channel No. 18900	Frequency: 1880 MHz	Nom Vol: 3.8V
Temperature (°C)	Freq. Error (Hz)	Freq. Error (ppm)
-10	-15	-0.008
0	-20	-0.011
+10	-14	-0.007
+20	11	0.006
+30	7	0.004
+40	-10	-0.005
+50	-14	-0.007

6.5.4.3 LTE FDD Band 4

Mode: LTE (Band 4), Low Channel, Highest output power Modulation = 16 QAM		
Channel No. 20175	1732.5 MHz	
	Freq. Error (Hz)	Freq. Error (ppm)
Min. voltage = 3.6 Vdc	11	0.006
Max. voltage = 4.2 Vdc	11	0.006
Battery End Point:	3.4 Vdc	

§2.1055 (A)(1)

AFC FREQ ERROR vs. TEMPERATURE

Channel No. 20175	1732.5 MHz	Nom Vol: 3.8V
Temperature (°C)	Freq. Error (Hz)	Freq. Error (ppm)
-10	-20	-0.012
0	-26	-0.015
+10	-11	-0.006
+20	11	0.006
+30	18	0.010
+40	-15	-0.009
+50	20	0.012

6.5.4.4 LTE FDD Band 5

Mode: LTE (Band 5), Low Channel, Highest output power		
Channel No. 20450	Frequency: 829 MHz	
	Freq. Error (Hz)	Freq. Error (ppm)
Min. voltage = 3.6 Vdc	17	0.021
Max. voltage = 4.2 Vdc	11	0.013
Battery End Point: =	3.4 Vdc	

§2.1055 (A)(1)

AFC FREQ ERROR vs. TEMPERATURE

Channel No. 20450	Frequency: 829 MHz	Nom Vol: 3.8V
Temperature (°C)	Freq. Error (Hz)	Freq. Error (ppm)
-10	-15	-0.018
0	-19	-0.023
+10	-12	-0.014
+20	-2	-0.002
+30	17	0.021
+40	17	0.021
+50	20	0.024

6.5.4.5 LTE FDD Band 7

Mode: LTE (Band 7), Mid Channel, Highest output power Modulation = QPSK		
Channel No. 21100	Frequency: 2535 MHz	
	Freq. Error (Hz)	Freq. Error (ppm)
Min. voltage = 3.6 Vdc	21	0.008
Max. voltage = 4.2 Vdc	23	0.009
Battery End Point: =	3.4 Vdc	

§2.1055 (A)(1)

AFC FREQ ERROR vs. TEMPERATURE

Channel No. 21100	Frequency: 2535 MHz	Nom Vol: 3.8V
Temperature (°C)	Freq. Error (Hz)	Freq. Error (ppm)
-10	-27	-0.011
0	-27	-0.011
+10	-12	-0.005
+20	-3	-0.001
+30	26	0.010
+40	25	0.010
+50	31	0.012

6.5.5 Test Verdict:

PASS

6.6 Band Edge (Conducted) / Transmitter Unwanted Emissions

6.6.1 References

FCC: CFR Part 2.1053, CFR Part 22.917 (a) (b), CFR Part 24.238 (a) (b), CFR Part 27.53 (g), CFR Part 27.53 (f), CFR Part 27.53 (l)

IC: RSS-132 Section 4.5.1.1, RSS 133 Section 6.5, RSS 133 Section 6.5, RSS-199 Section 4.5

6.6.2 Limits

Note: The text below is taken from the FCC rules. For all bands the FCC rules are equally or more stringent than the IC rules and are thus be considered as a worst case for both.

6.6.2.1 LTE Band 5

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed

6.6.2.2 LTE Band 2

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed

6.6.2.3 LTE Band 4

(g) AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1710-1755 MHz, 2110-2155 MHz, 2000-2020 MHz, 2180-2200 MHz, 1915-1920 MHz, and 1995-2000 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

(3) Measurement procedure. (i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

6.6.2.4 LTE Band 7

(4) For mobile digital stations, the attenuation factor shall be not less than $43 + 10 \log(P)$ dB at the channel edge and $55 + 10 \log(P)$ dB at 5.5 megahertz from the channel edges.

(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed

6.6.2.5 LTE Band 17

(f) For operations in the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

6.6.3 Measurement Procedure:

Frequency: lower or upper band edge frequency

Span: 10MHz

RBW: 100kHz below 1GHz, 1MHz above 1GHz

VBW: 3x RBW

Detector: RMS (because the fundamental limits are RMS and nothing stated otherwise according to 971168 D01 Power Meas License Digital Systems v02r01 section 6.0)

Trace: AVG over at least 100 sweeps

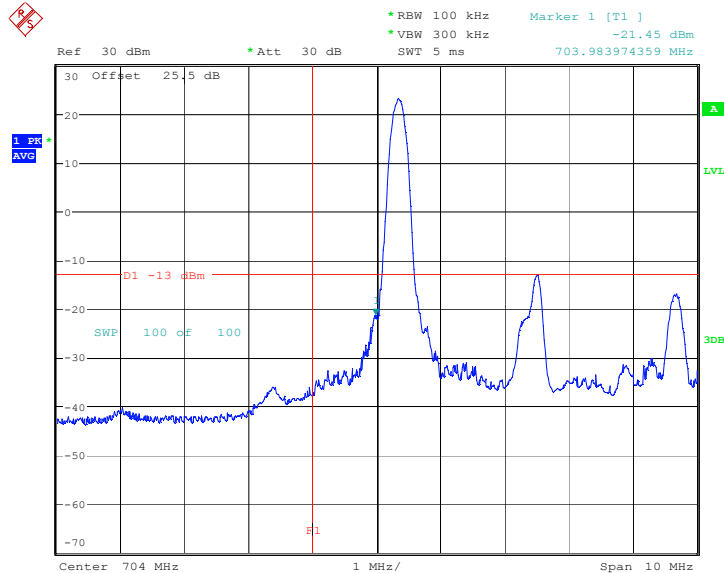
Sweep time: AUTO

In case the result should be above the limit choose RBW to 1% of the emission bandwidth as measured above and repeat the measurement.

6.6.4 Test Results / Plots

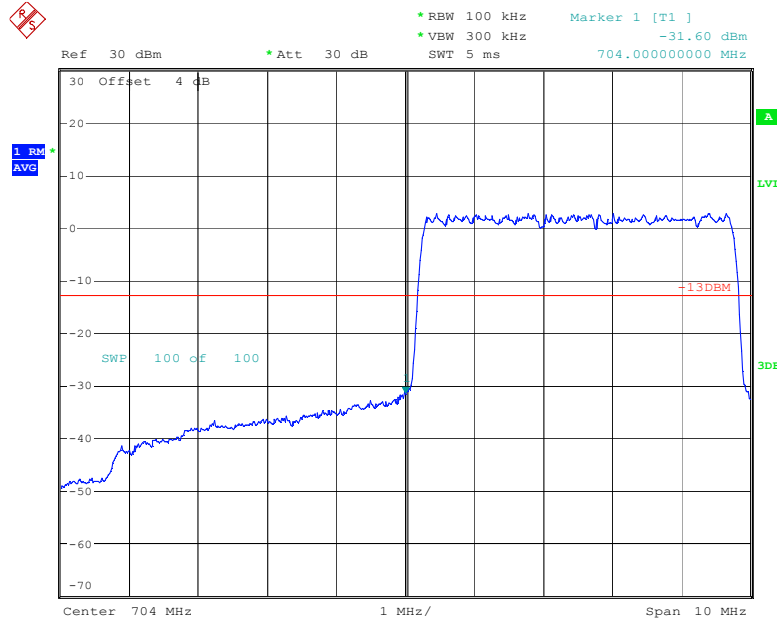
6.6.4.1 LTE Band 17 (704 MHz – 716 MHz)

Lower BE (LTE Band 17) Channel 23755 (706.5 MHz) – RB Size = 1 ; RB Offset = 0;
 BW = 5 MHz; Modulation = QPSK



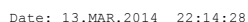
Date: 13.MAR.2014 22:08:43

Lower BE (LTE Band 17) Channel 23755 (706.5 MHz) – RB Size = 25 ; RB Offset = 0;
 BW = 5 MHz; Modulation = QPSK



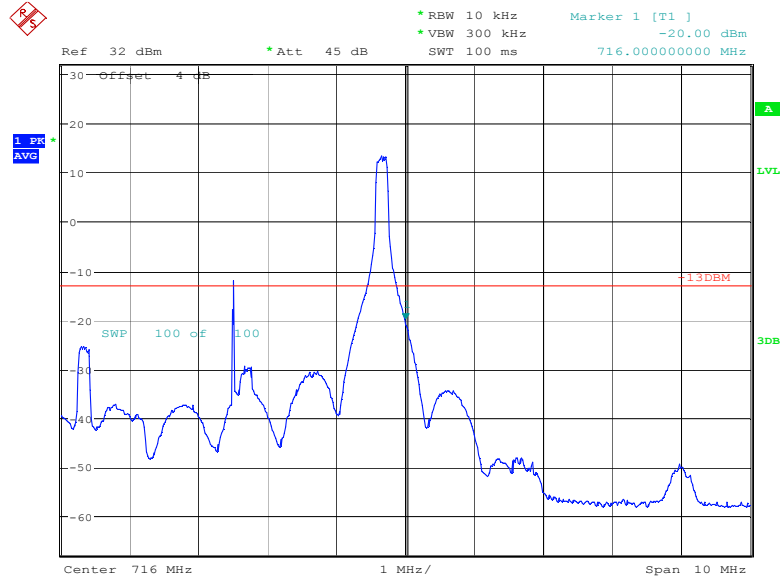
low

Date: 10.JUN.2014 23:39:18



Date: 10.JUN.2014 23:39:18

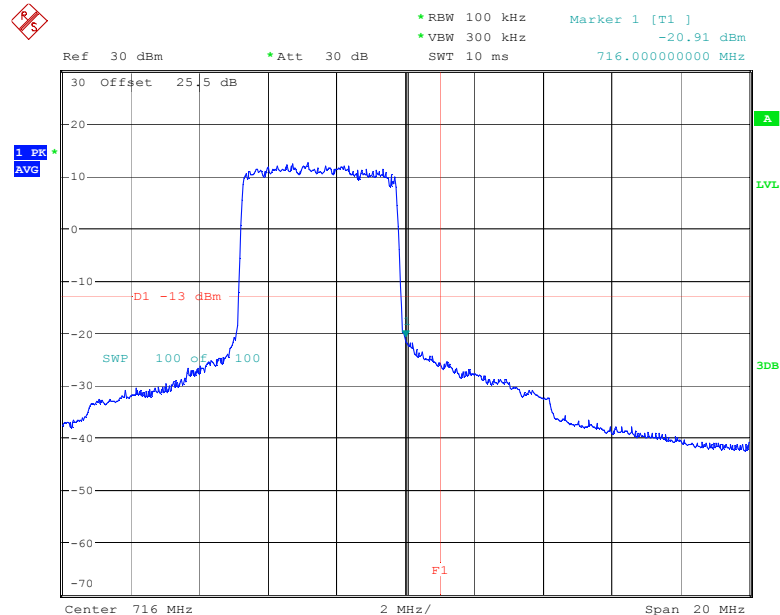
**Upper BE (LTE Band 17) Channel 23825 (713.5 MHz) – RB Size = 1 ; RB Offset = 24;
 BW = 5 MHz; Modulation = QPSK**



low
 Date: 4.JUN.2014 15:09:31

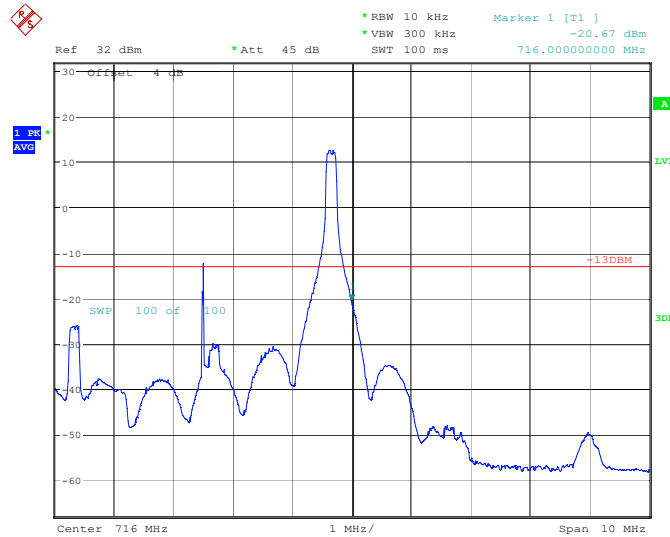
Note: The OBW of one resource block is 150kHz. Within 1MHz of band edge RBW of 1.5kHz is allowed.

**Upper BE (LTE Band 17) Channel 23825 (713.5 MHz) – RB Size = 25 ; RB Offset = 0;
 BW = 5 MHz; Modulation = QPSK**



Date: 13.MAR.2014 18:43:04

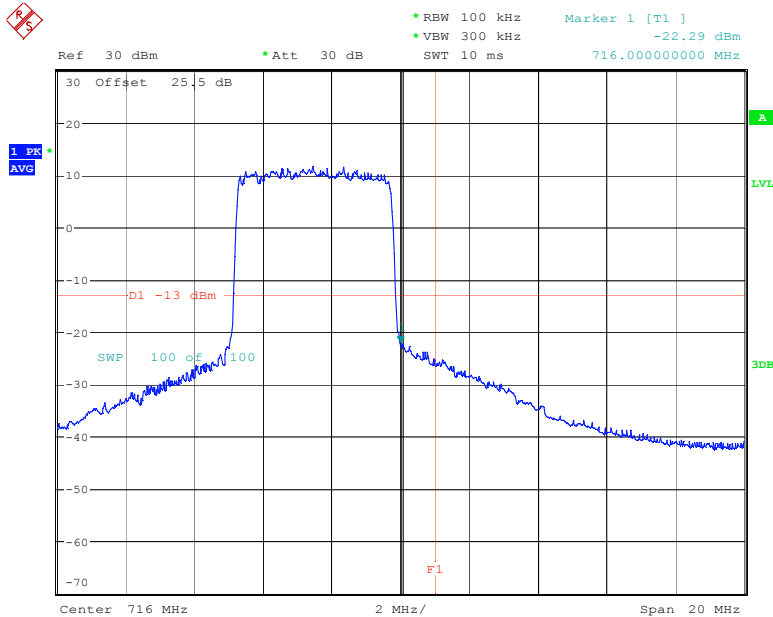
**Upper BE (LTE Band 17) Channel 23825 (713.5 MHz) – RB Size = 1 ; RB Offset = 24;
 BW = 5 MHz; Modulation = 16 QAM**



low
 Date: 4.JUN.2014 15:11:26

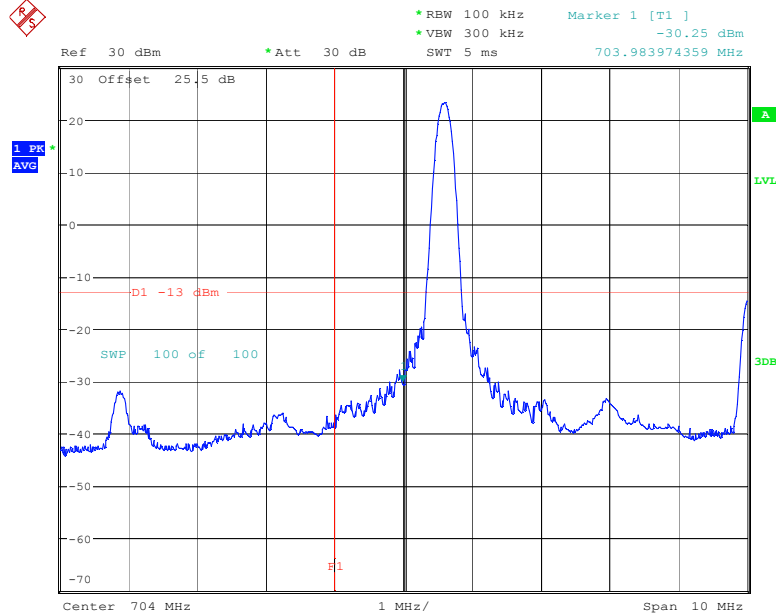
Note: The OBW of one resource block is 150kHz. Within 1MHz of band edge RBW of 1.5kHz is allowed.

**Upper BE (LTE Band 17) Channel 23825 (713.5 MHz) – RB Size = 25 ; RB Offset = 0;
 BW = 5 MHz; Modulation = 16 QAM**



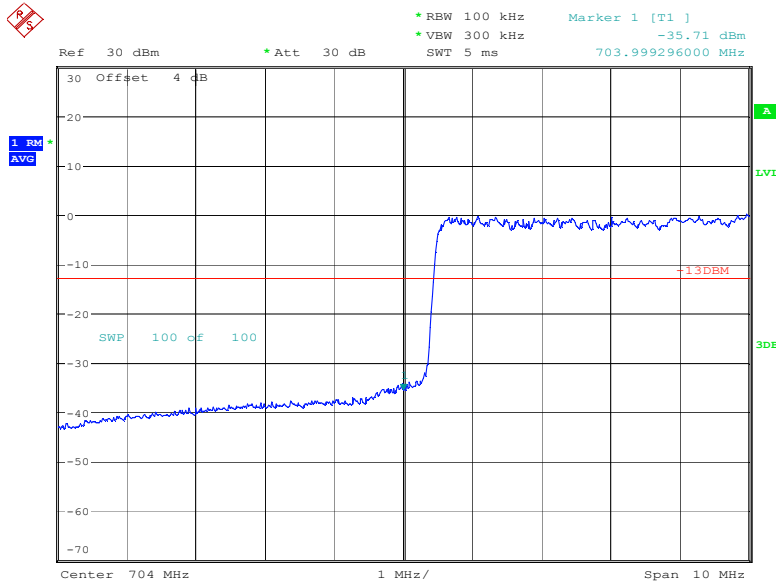
Date: 13.MAR.2014 20:16:42

Lower BE (LTE Band 17) Channel 23780 (709 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK



Date: 13.MAR.2014 22:22:13

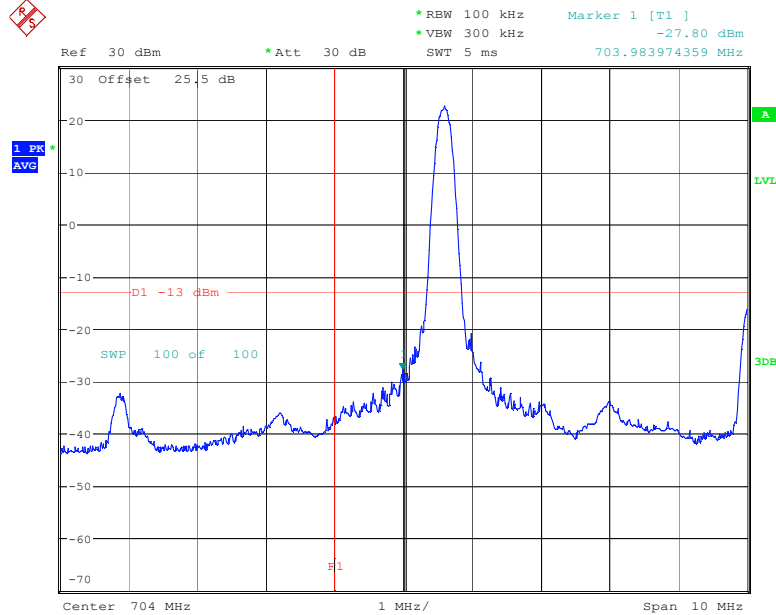
Lower BE (LTE Band 17) Channel 23780 (709 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK



low

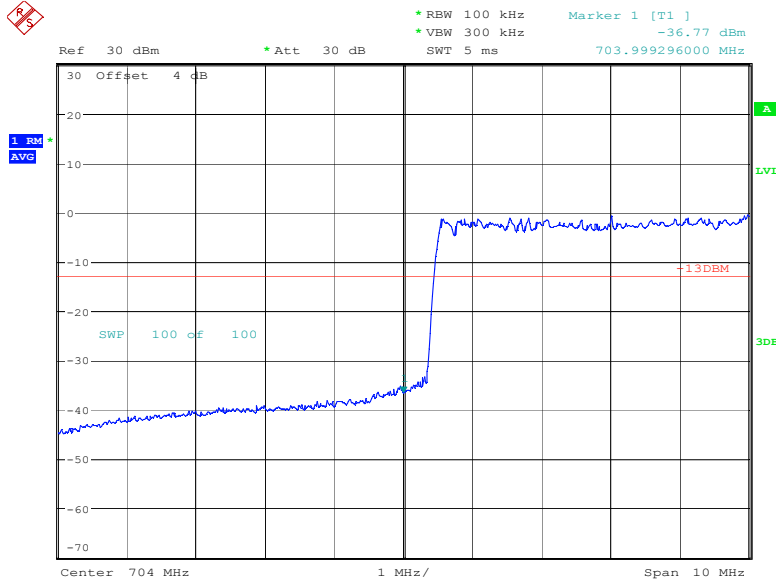
Date: 11.JUN.2014 00:27:02

Lower BE (LTE Band 17) Channel 23780 (709 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



Date: 13.MAR.2014 22:29:21

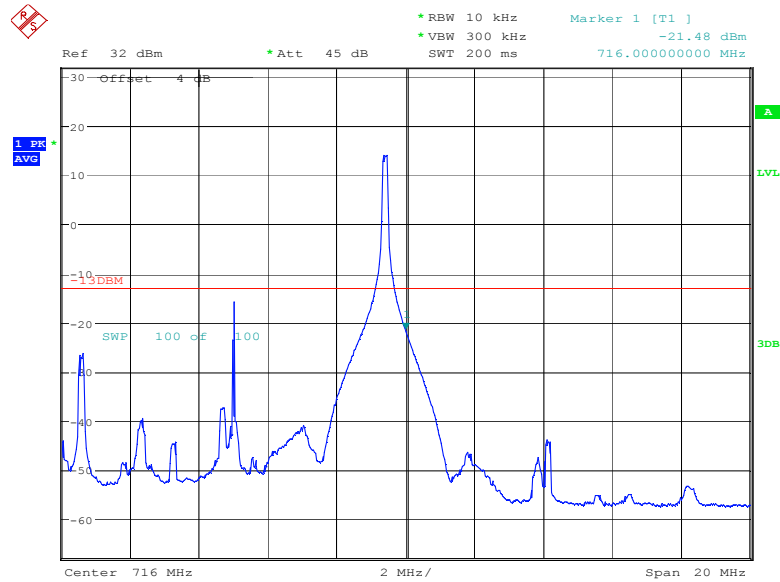
Lower BE (LTE Band 17) Channel 23780 (709 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



low

Date: 11.JUN.2014 00:31:02

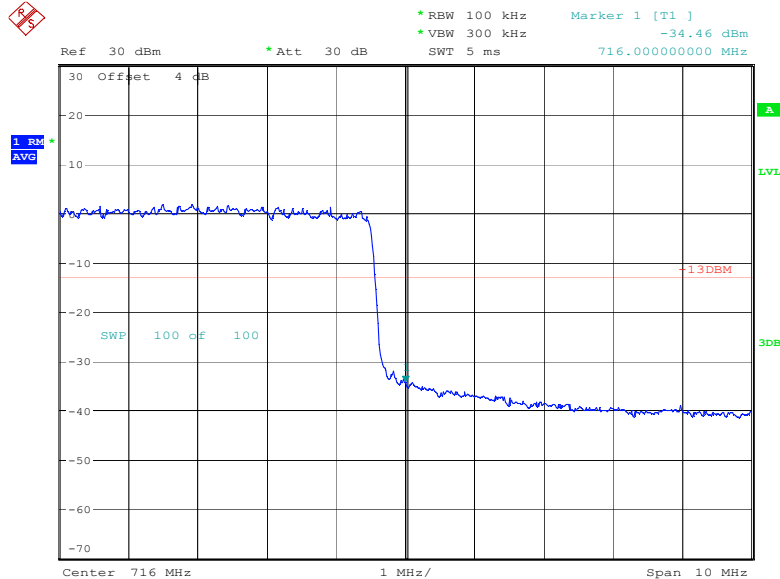
Upper BE (LTE Band 17) Channel 23800 (711 MHz) – RB Size = 1 ; RB Offset = 49;
BW = 10 MHz; Modulation = QPSK



low
Date: 4.JUN.2014 15:25:17

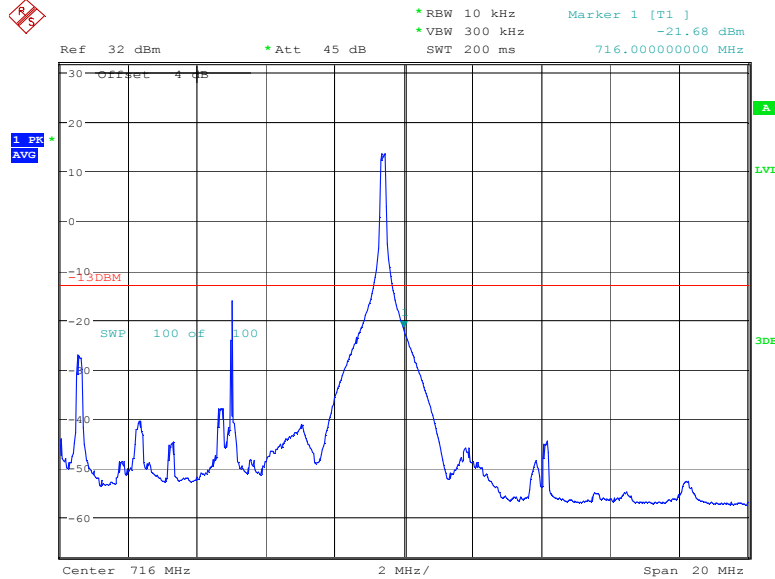
Note: The OBW of one resource block is 180kHz. Within 1MHz of band edge RBW of 1.8kHz is allowed.

Upper BE (LTE Band 17) Channel 23800 (711 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK



low
Date: 11.JUN.2014 00:48:07

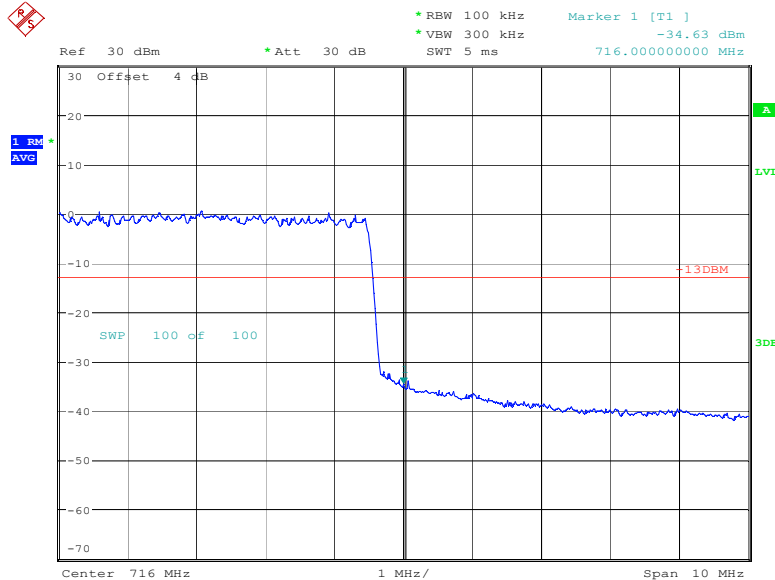
Upper BE (LTE Band 17) Channel 23800 (711 MHz) – RB Size = 1 ; RB Offset = 49;
BW = 10 MHz; Modulation = 16 QAM



low
 Date: 4.JUN.2014 15:26:36

Note: The OBW of one resource block is 150kHz. Within 1MHz of band edge RBW of 1.5kHz is allowed.

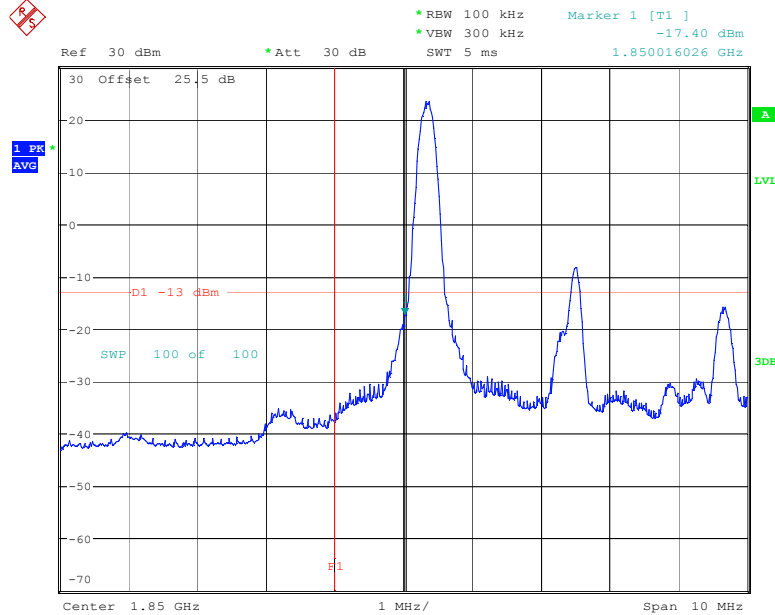
Upper BE (LTE Band 17) Channel 23800 (711 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



low
 Date: 11.JUN.2014 00:54:28

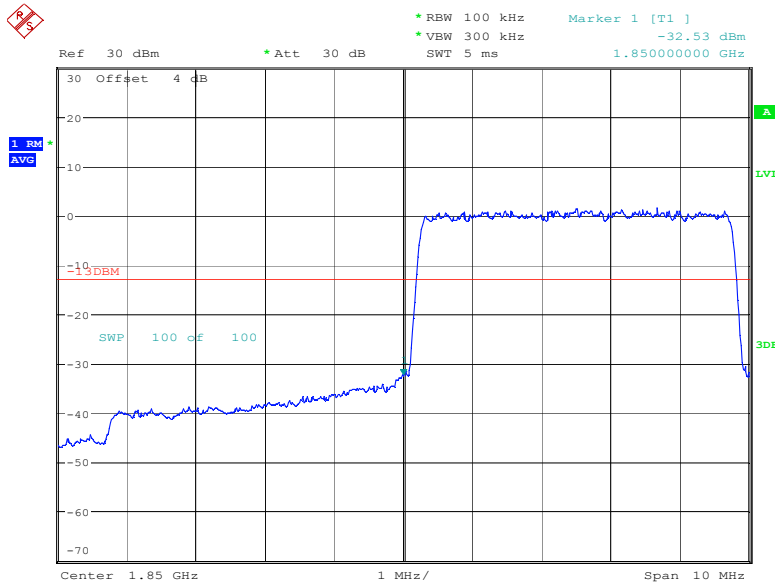
6.6.4.2 LTE Band 2 (1850 MHz – 1910 MHz)

Lower BE (LTE Band 2) Channel 18625 (1852.5 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 5 MHz; Modulation = QPSK



Date: 13.MAR.2014 20:51:51

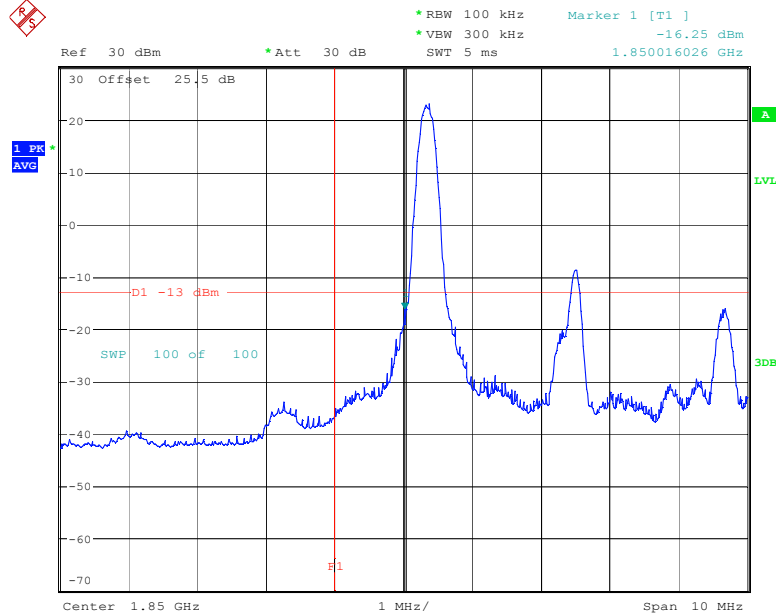
Lower BE (LTE Band 2) Channel 18625 (1852.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = QPSK



low

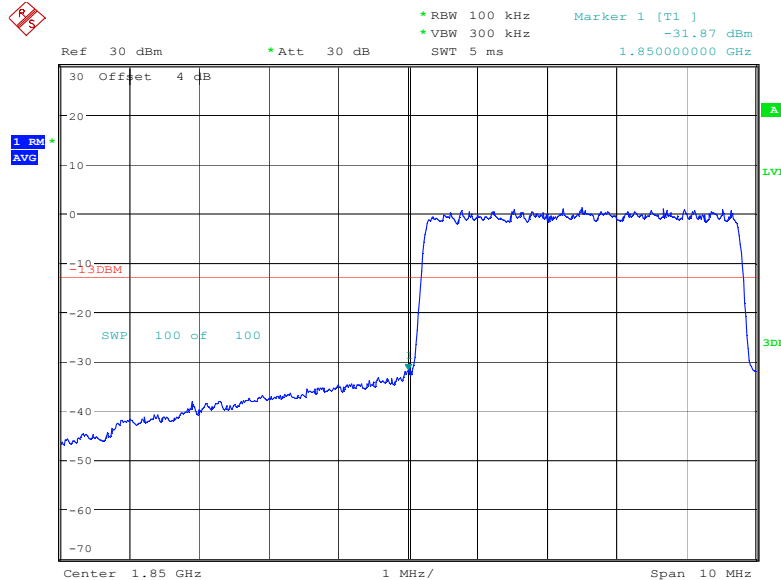
Date: 11.JUN.2014 01:02:24

Lower BE (LTE Band 2) Channel 18625 (1852.5 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 5 MHz; Modulation = 16 QAM



Date: 13.MAR.2014 21:07:21

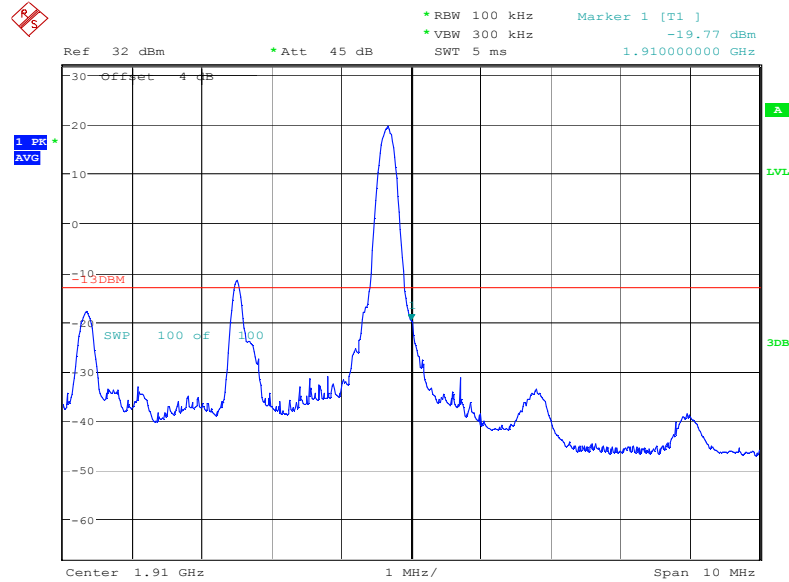
Lower BE (LTE Band 2) Channel 18625 (1852.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = 16 QAM



low

Date: 11.JUN.2014 01:06:31

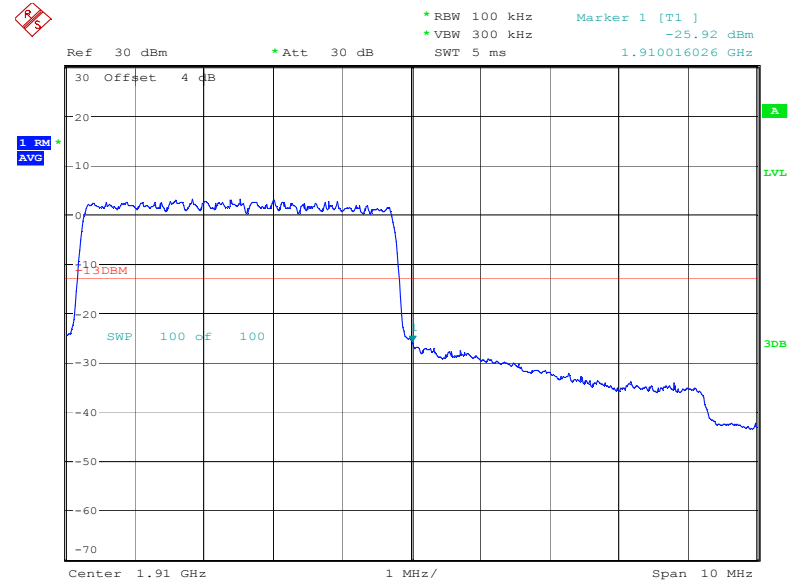
Upper BE (LTE Band 2) Channel 19175 (1907.5 MHz) – RB Size = 1 ; RB Offset = 24; BW = 5 MHz; Modulation = QPSK



low

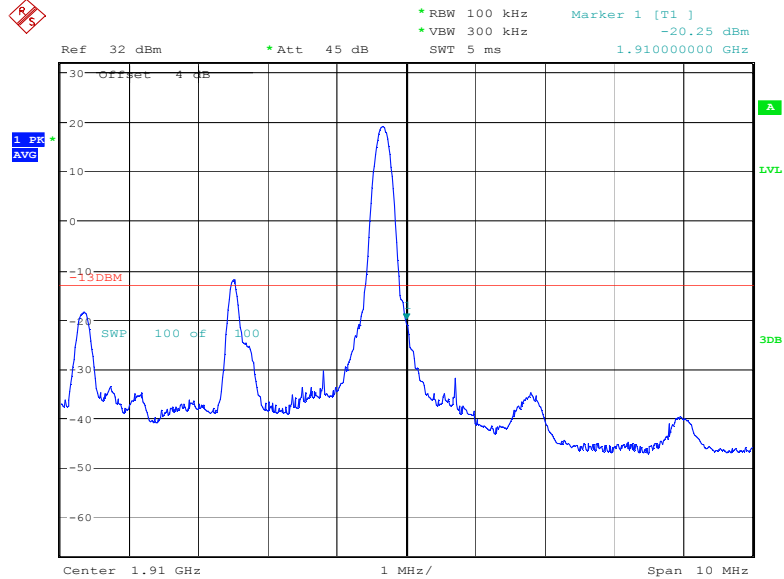
Date: 4.JUN.2014 15:38:30

**Upper BE (LTE Band 2) Channel 19175 (1907.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = QPSK**



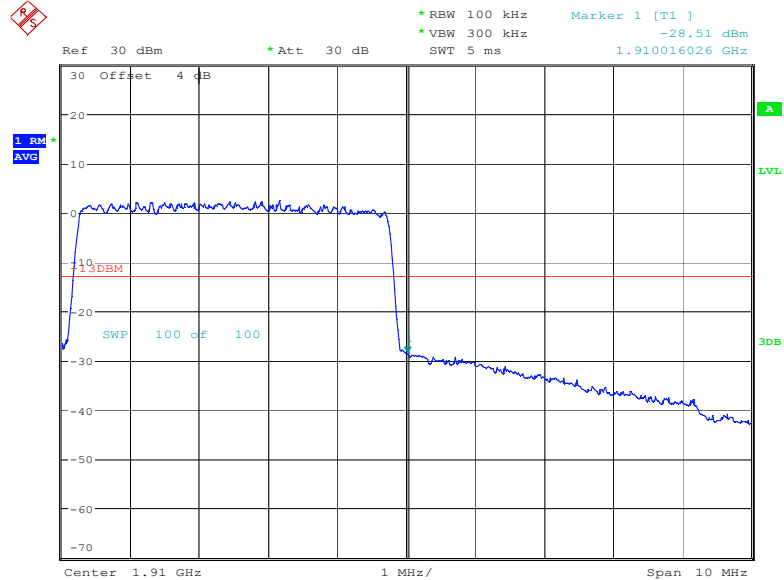
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low
Date: 11.JUN.2014 01:11:10
```

**Upper BE (LTE Band 2) Channel 19175 (1907.5 MHz) – RB Size = 1 ; RB Offset = 24;
BW = 5 MHz; Modulation = 16 QAM**



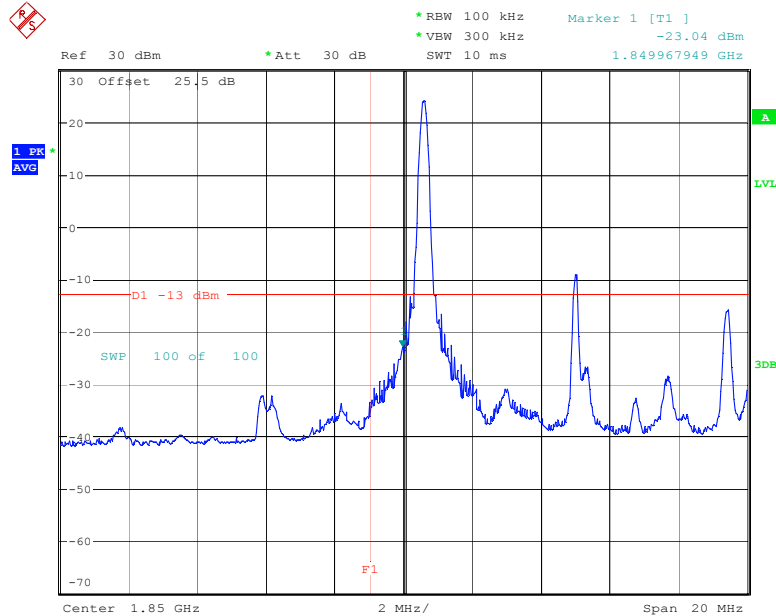
low
Date: 4.JUN.2014 15:39:25

**Upper BE (LTE Band 2) Channel 19175 (1907.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = 16 QAM**



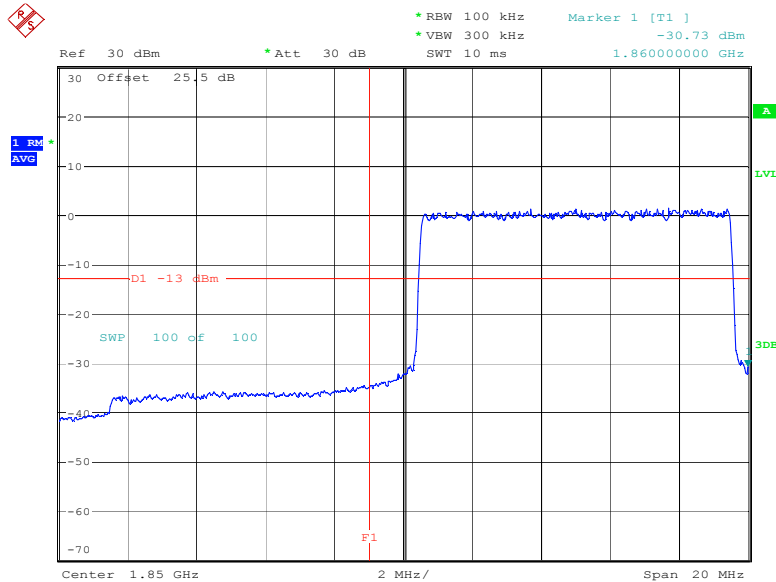
low
Date: 11.JUN.2014 01:13:30

Lower BE (LTE Band 2) Channel 18650 (1855 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK



Date: 14.MAR.2014 16:05:11

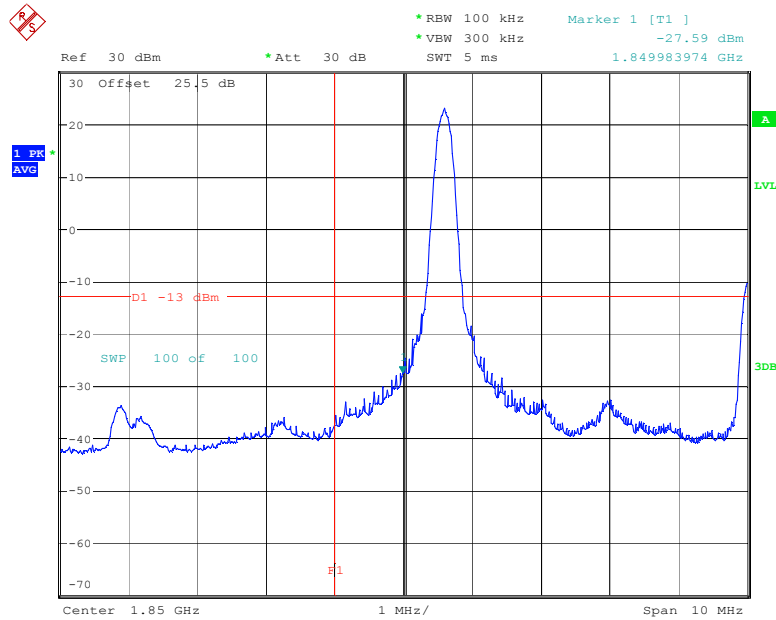
Lower BE (LTE Band 2) Channel 18650 (1855 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK



low

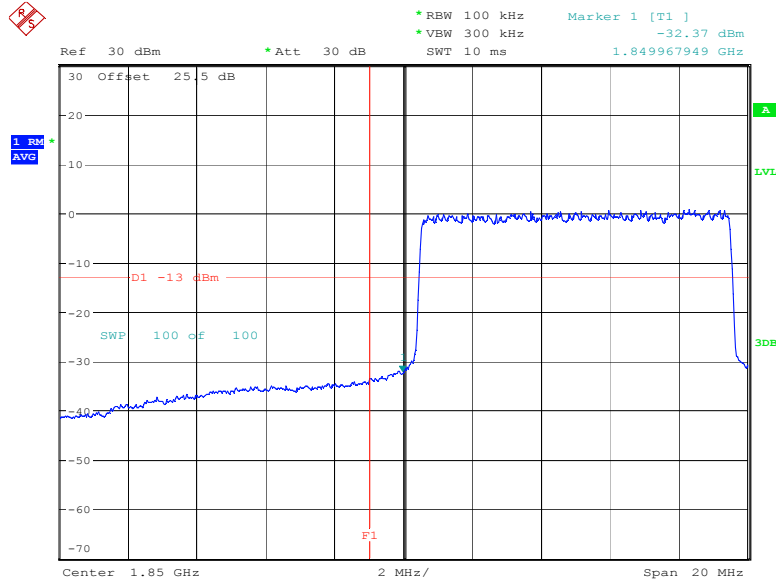
Date: 27.FEB.2014 19:17:25

Lower BE (LTE Band 2) Channel 18650 (1855 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



Date: 14.MAR.2014 16:10:04

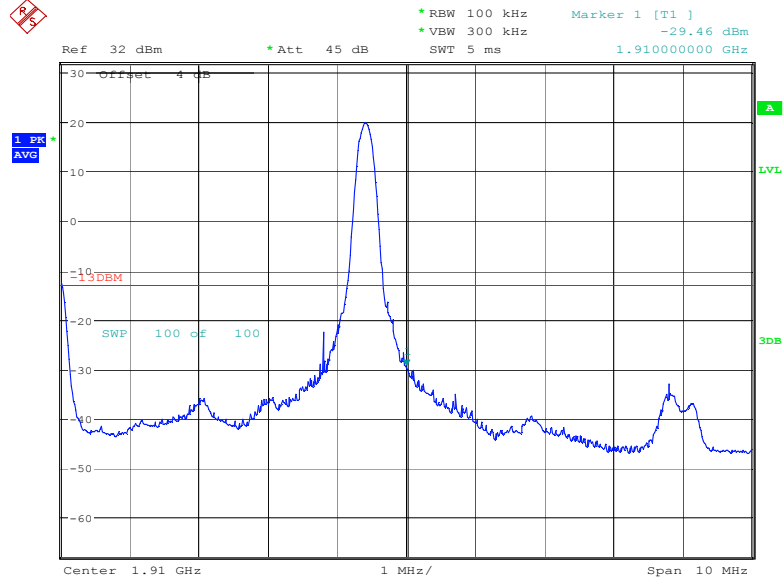
Lower BE (LTE Band 2) Channel 18650 (1855 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



low

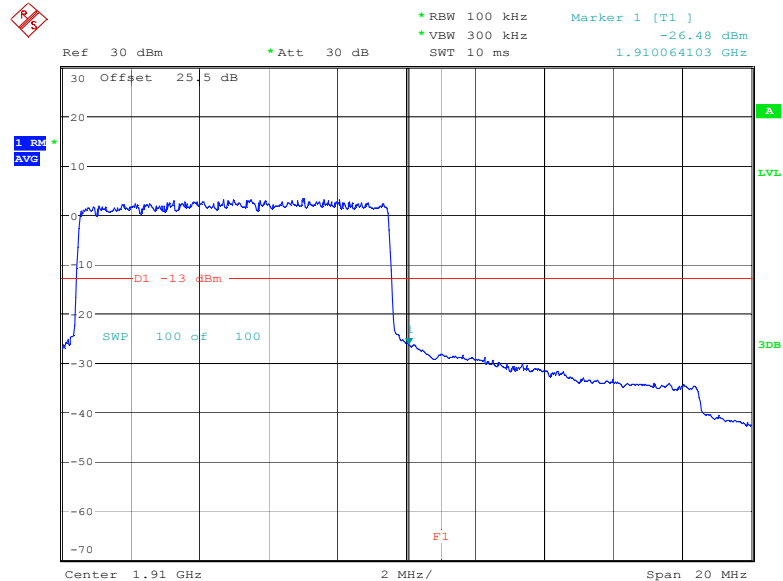
Date: 27.FEB.2014 19:20:06

Upper BE (LTE Band 2) Channel 19150 (1905 MHz) – RB Size = 1 ; RB Offset = 49;
BW = 10 MHz; Modulation = QPSK



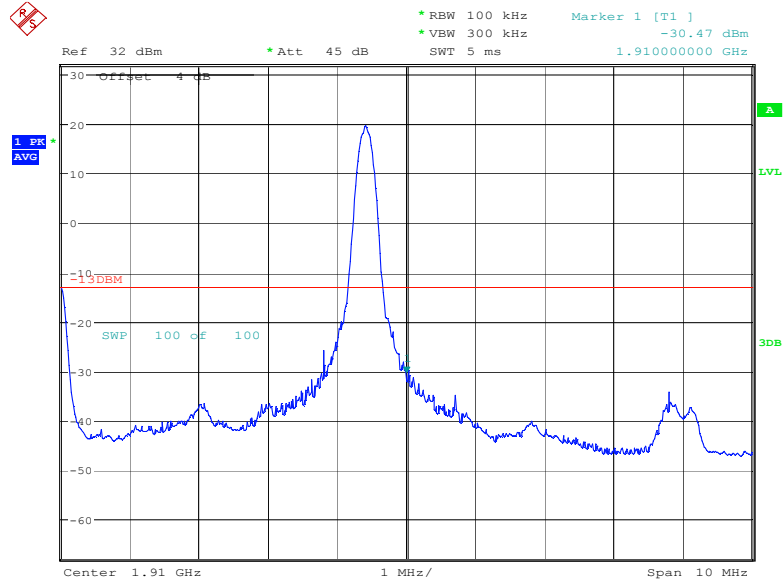
low
Date: 4.JUN.2014 15:35:19

Upper BE (LTE Band 2) Channel 19150 (1905 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK



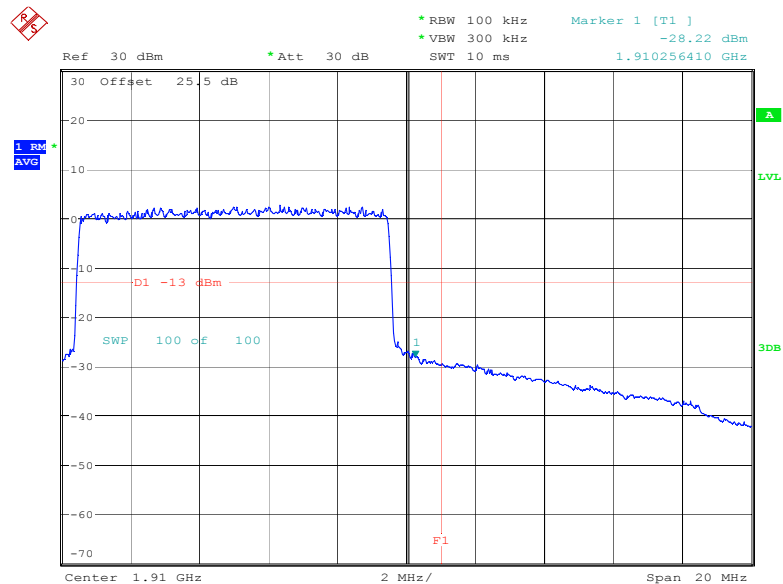
low
Date: 27.FEB.2014 21:20:37

Upper BE (LTE Band 2) Channel 19150 (1905 MHz) – RB Size = 1 ; RB Offset = 49;
BW = 10 MHz; Modulation = 16 QAM



low
Date: 4.JUN.2014 15:36:30

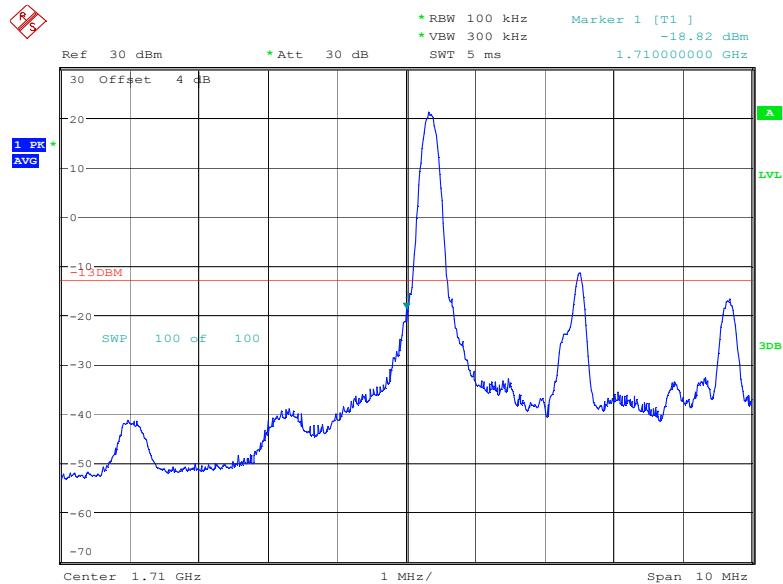
Upper BE (LTE Band 2) Channel 19150 (1905 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



low
Date: 27.FEB.2014 21:18:58

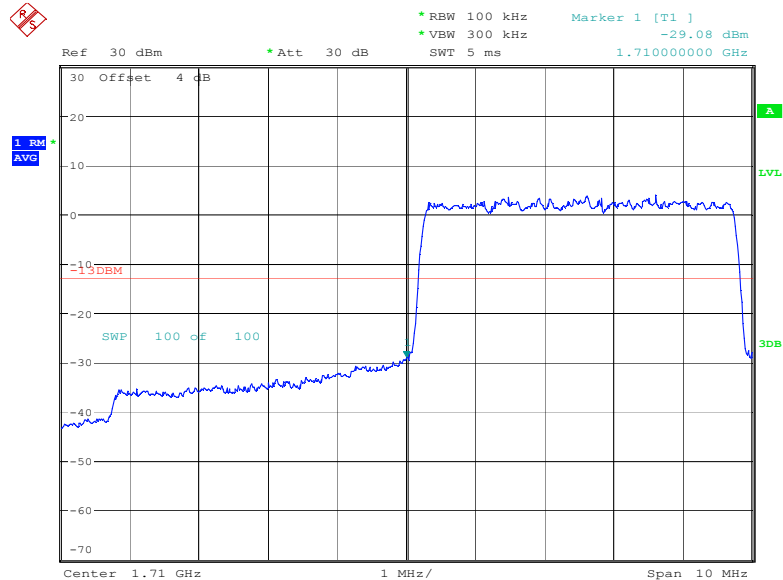
6.6.4.3 LTE Band 4 (1710 MHz – 1755 MHz)

Lower BE (LTE Band 4) Channel 19975 (1712.5 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 5 MHz; Modulation = QPSK



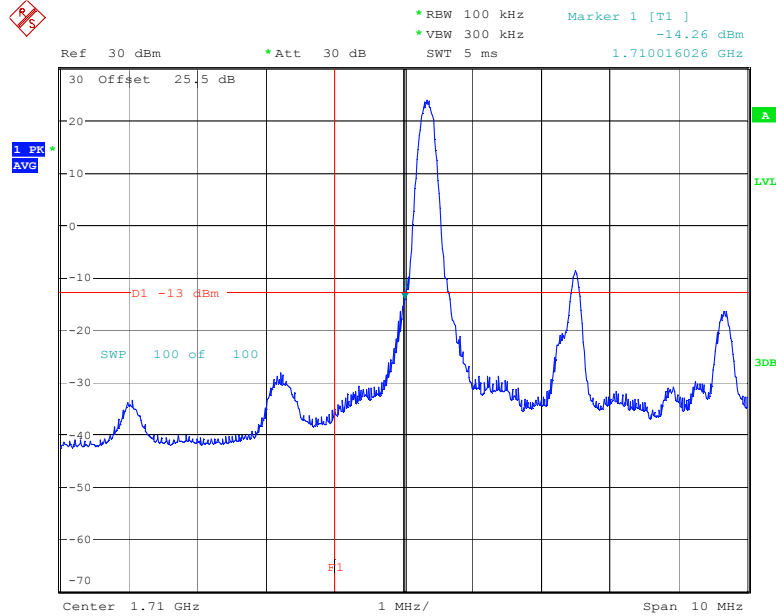
low
Date: 11.JUN.2014 01:19:07

Lower BE (LTE Band 4) Channel 19975 (1712.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = QPSK



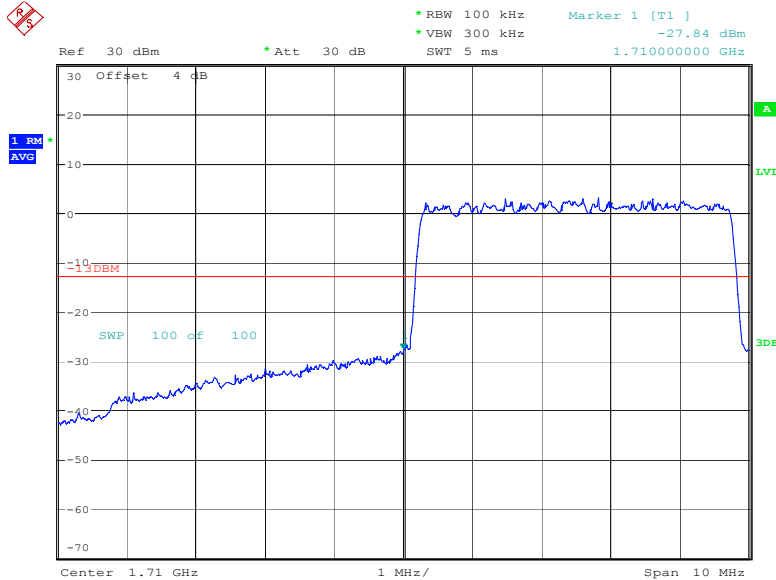
low
Date: 11.JUN.2014 01:22:31

**Lower BE (LTE Band 4) Channel 19975 (1712.5 MHz) – RB Size = 1 ; RB Offset = 0;
 BW = 5 MHz; Modulation = 16 QAM**



Date: 13.MAR.2014 21:25:35

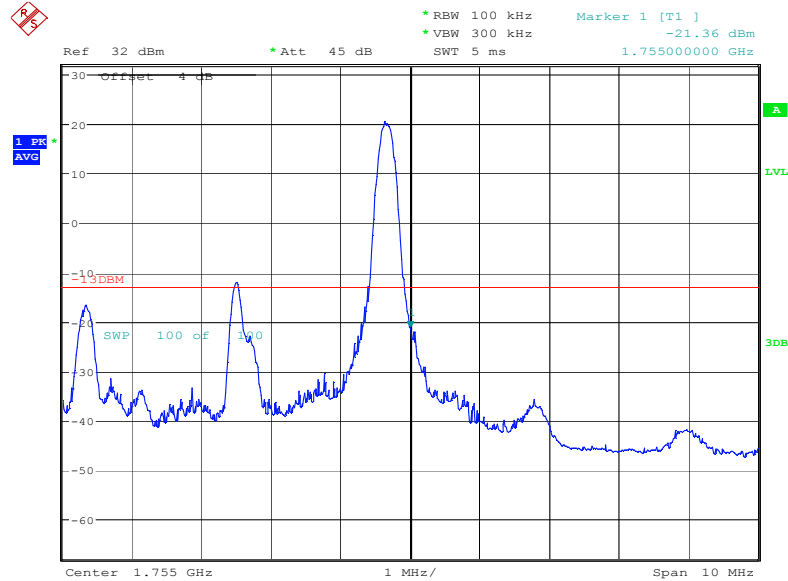
**Lower BE (LTE Band 4) Channel 19975 (1712.5 MHz) – RB Size = 25 ; RB Offset = 0;
 BW = 5 MHz; Modulation = 16 QAM**



low

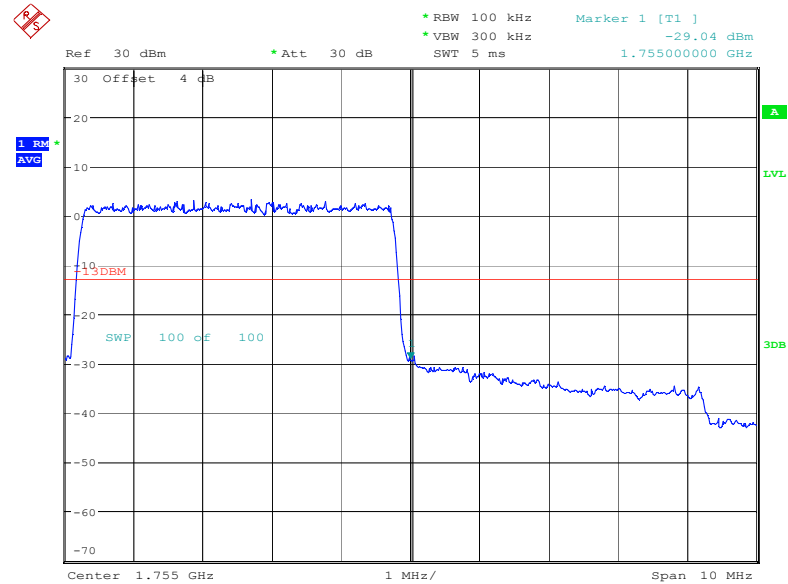
Date: 11.JUN.2014 01:27:25

Upper BE (LTE Band 4) Channel 20375 (1752.5 MHz) – RB Size = 1 ; RB Offset = 24;
BW = 5 MHz; Modulation = QPSK



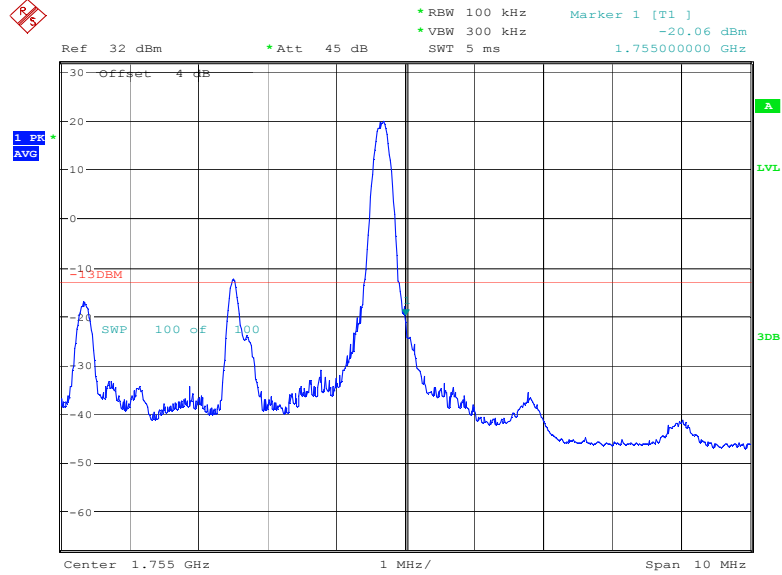
low
Date: 4.JUN.2014 15:43:24

Upper BE (LTE Band 4) Channel 20375 (1752.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = QPSK



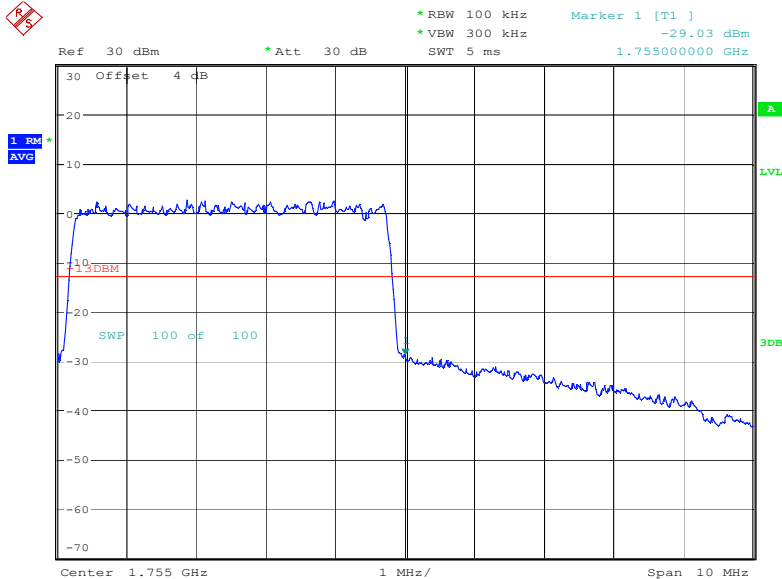
low
Date: 11.JUN.2014 01:29:47

**Upper BE (LTE Band 4) Channel 20375 (1752.5 MHz) – RB Size = 1 ; RB Offset = 24;
BW = 5 MHz; Modulation = 16 QAM**



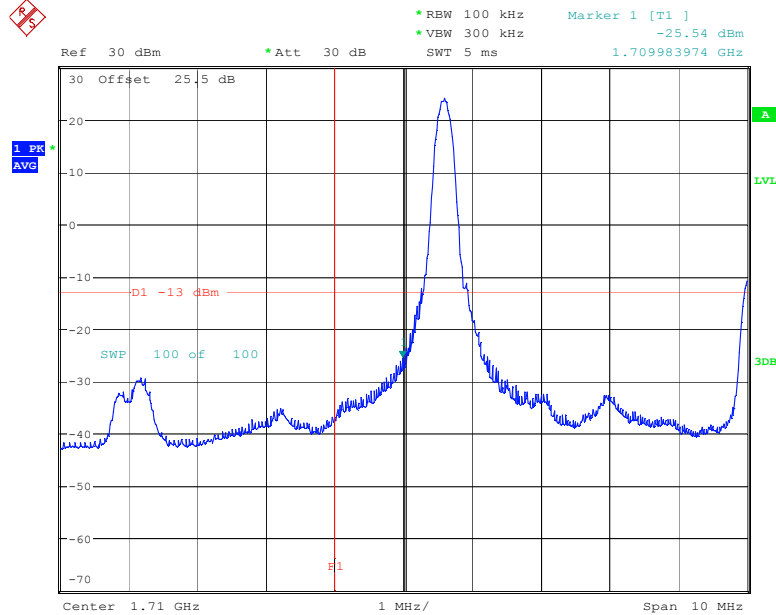
low
Date: 4.JUN.2014 15:43:59

**Upper BE (LTE Band 4) Channel 20375 (1752.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = 16 QAM**



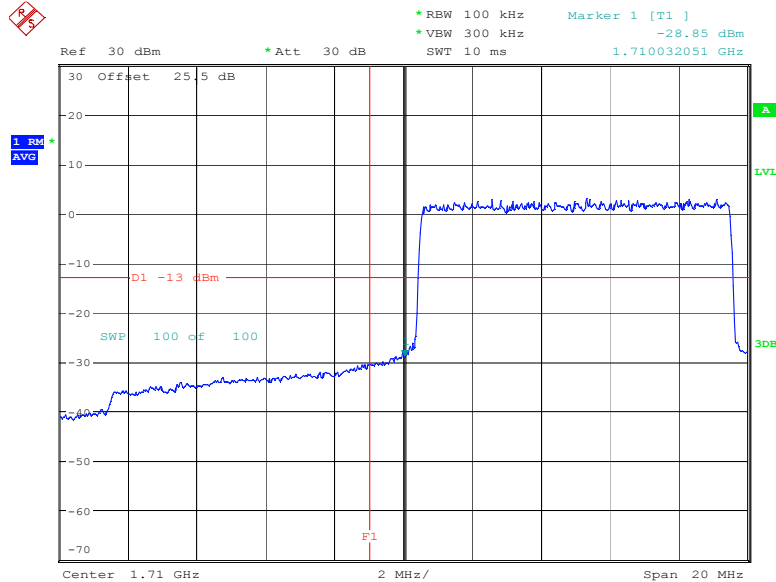
low
Date: 11.JUN.2014 01:32:04

Lower BE (LTE Band 4) Channel 20000 (1715 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK



Date: 14.MAR.2014 16:15:04

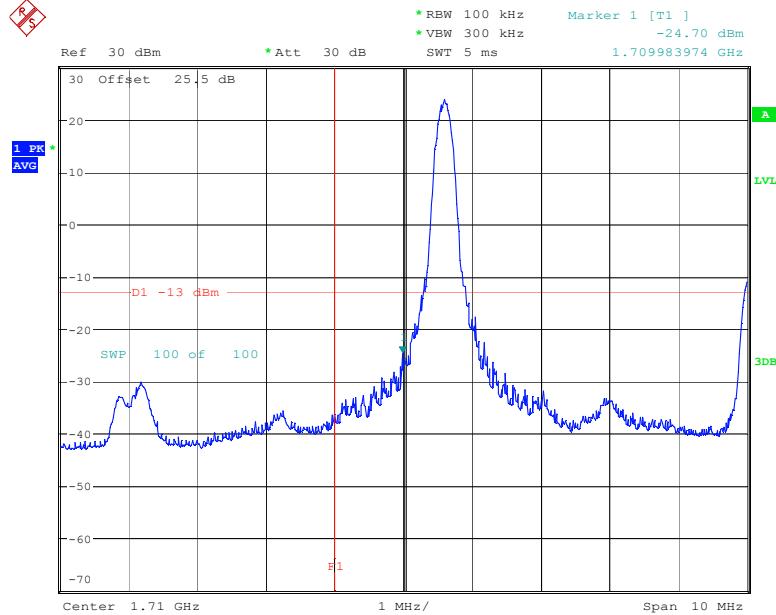
Lower BE (LTE Band 4) Channel 20000 (1715 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK



low

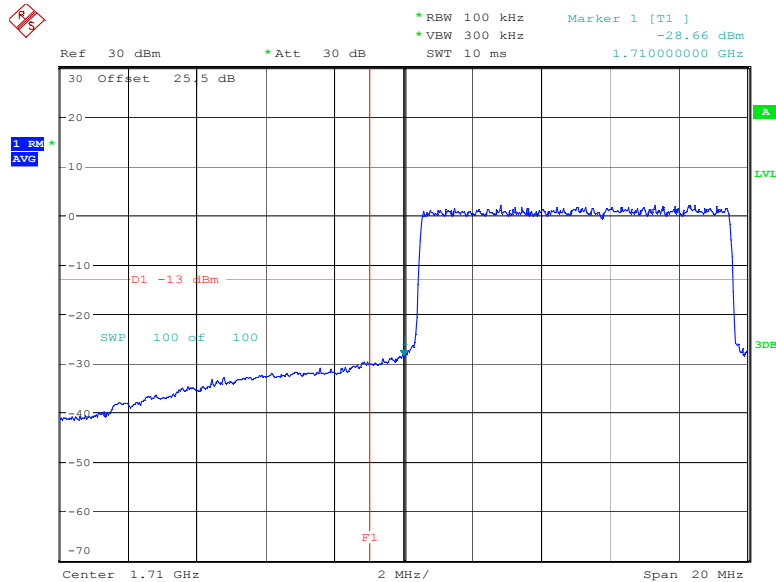
Date: 27.FEB.2014 22:49:41

Lower BE (LTE Band 4) Channel 20000 (1715 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



Date: 14.MAR.2014 16:19:51

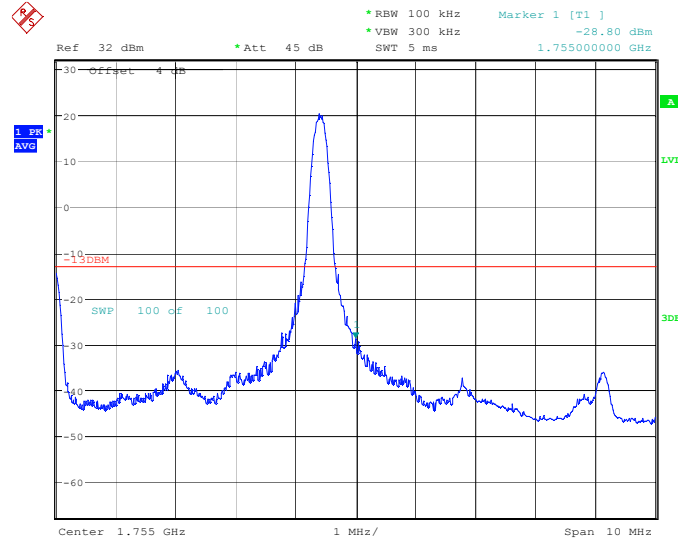
Lower BE (LTE Band 4) Channel 20000 (1715 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



low

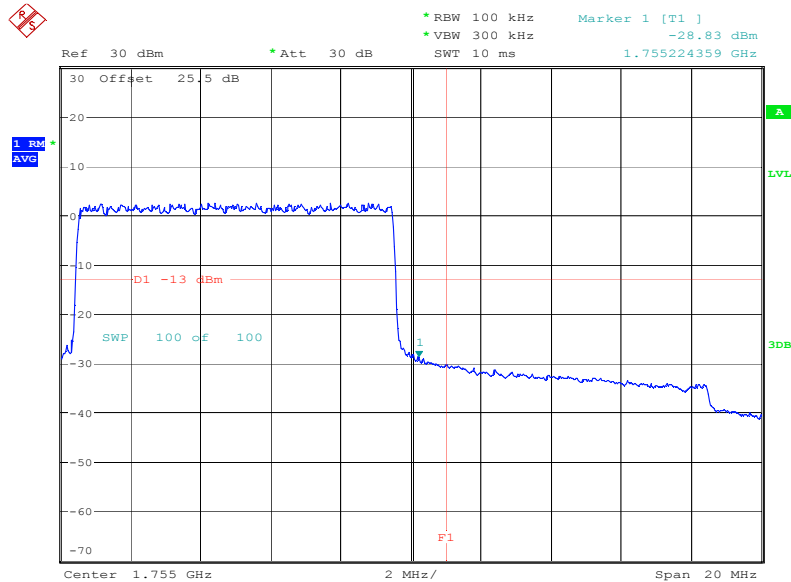
Date: 27.FEB.2014 22:47:59

Upper BE (LTE Band 4) Channel 20350 (1750 MHz) – RB Size = 1 ; RB Offset = 49;
BW = 10 MHz; Modulation = QPSK



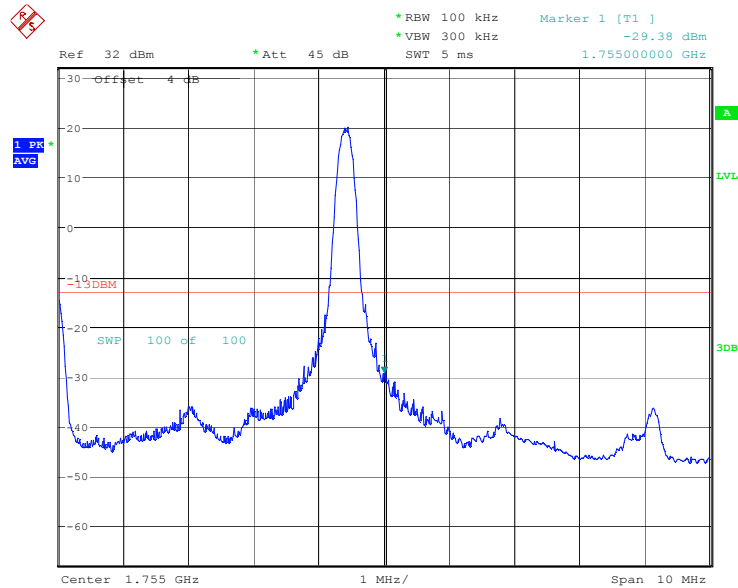
low
Date: 4.JUN.2014 15:45:38

Upper BE (LTE Band 4) Channel 20350 (1750 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK



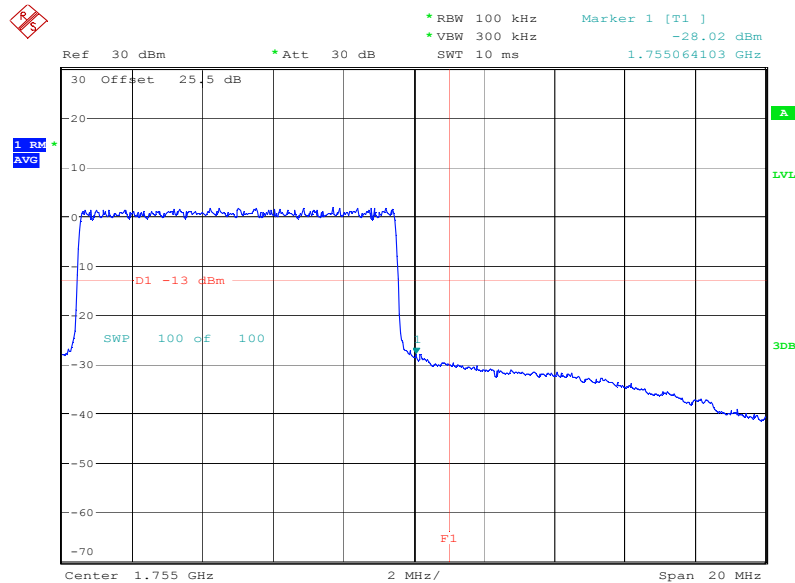
low
Date: 27.FEB.2014 22:51:29

Upper BE (LTE Band 4) Channel 20350 (1750 MHz) – RB Size = 1 ; RB Offset = 49;
BW = 10 MHz; Modulation = 16 QAM



low
 Date: 4.JUN.2014 15:46:23

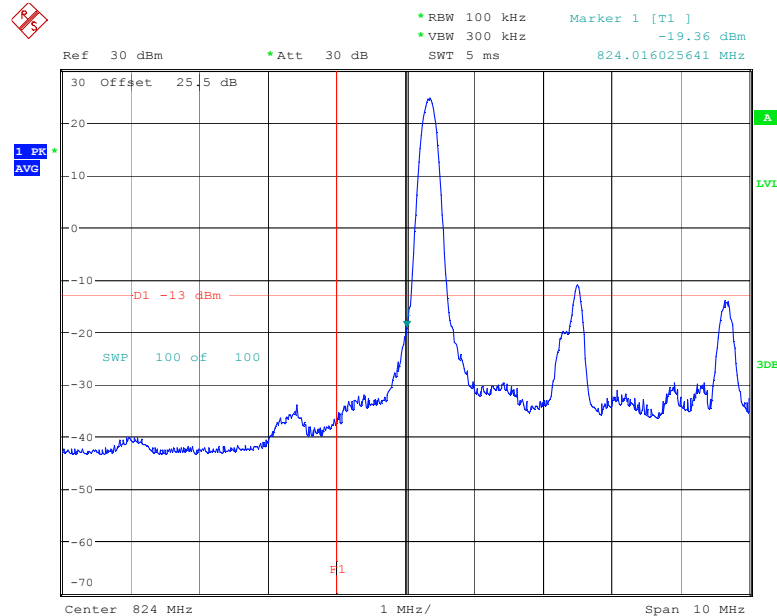
Upper BE (LTE Band 4) Channel 20350 (1750 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



low
 Date: 27.FEB.2014 22:52:48

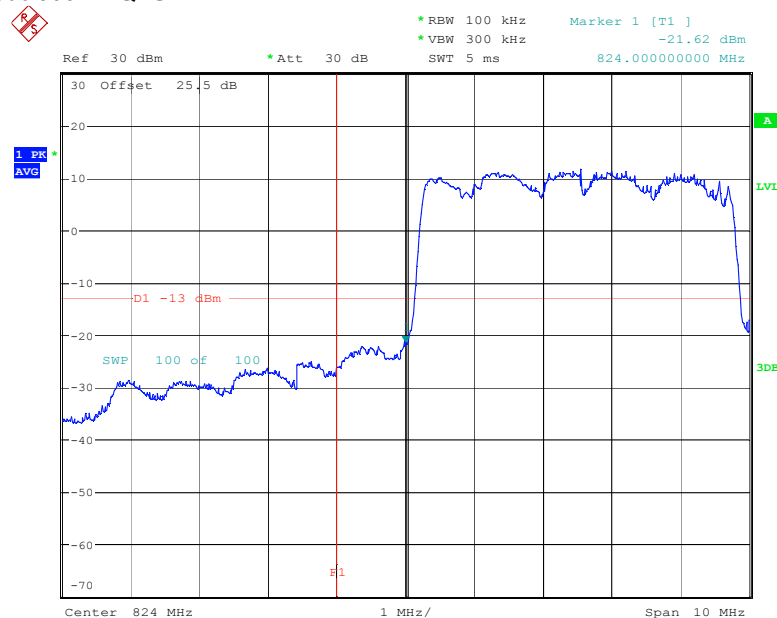
6.6.4.4 LTE Band 5 (824 MHz – 849 MHz)

Lower BE (LTE Band 5) Channel 20425 (826.5 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 5 MHz; Modulation = QPSK



Date: 13.MAR.2014 21:49:16

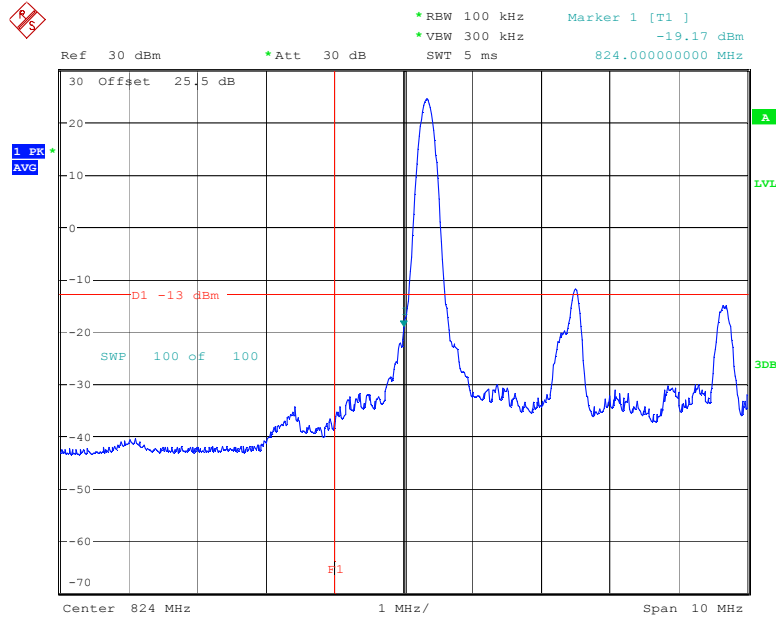
**Lower BE (LTE Band 5) Channel 20425 (826.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = QPSK**



Date: 13.MAR.2014 21:59:34

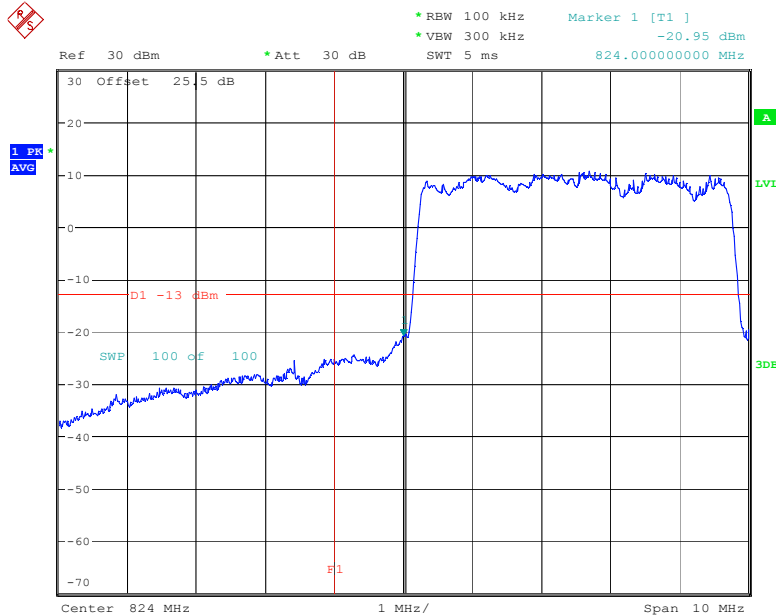
LTE Band 5 (824 MHz – 849 MHz)

Lower BE (LTE Band 5) Channel 20425 (826.5 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 5 MHz; Modulation = 16 QAM



Date: 13.MAR.2014 21:56:26

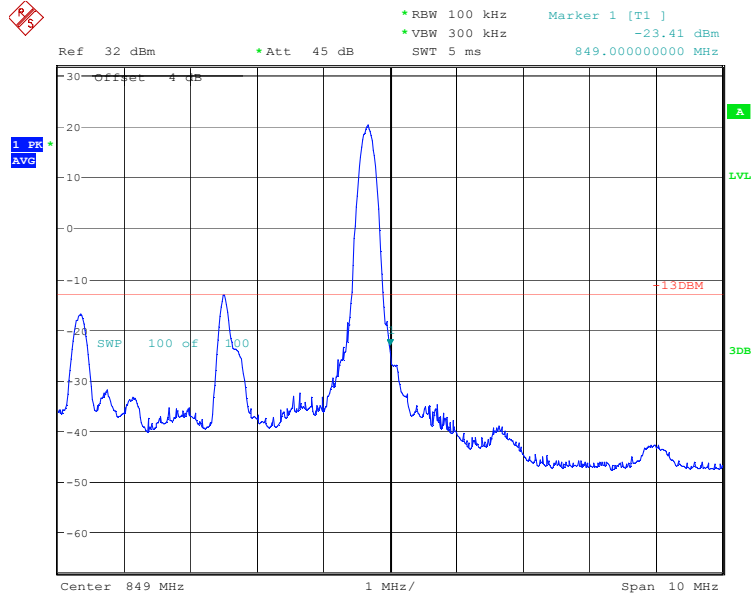
Lower BE (LTE Band 5) Channel 20425 (826.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = 16 QAM



Date: 13.MAR.2014 22:03:01

LTE Band 5 (824 MHz – 849 MHz)

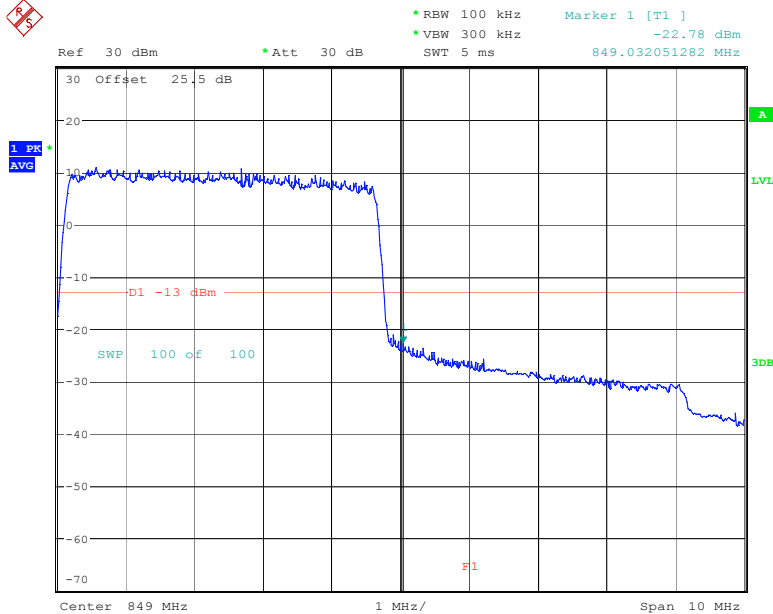
Upper BE (LTE Band 5) Channel 20625 (846.5 MHz) – RB Size = 1 ; RB Offset = 24;
BW = 5 MHz; Modulation = QPSK



low

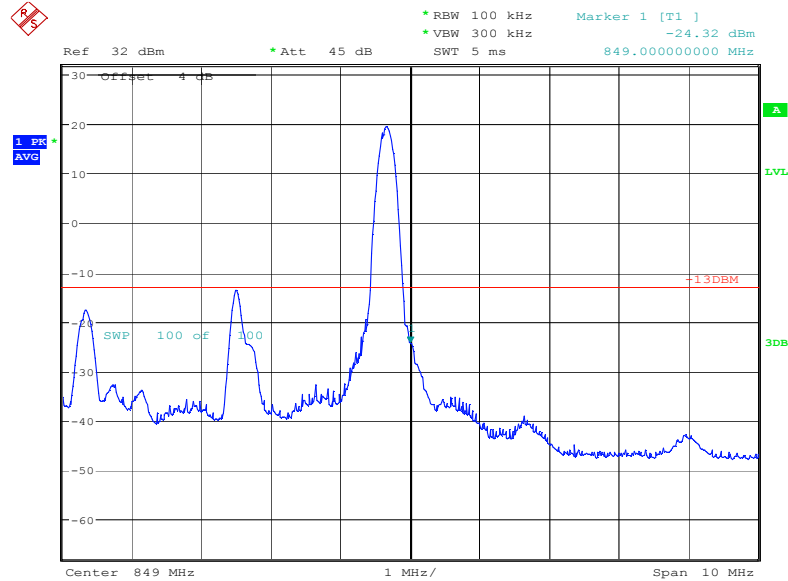
Date: 4.JUN.2014 15:51:53

Upper BE (LTE Band 5) Channel 20625 (846.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = QPSK



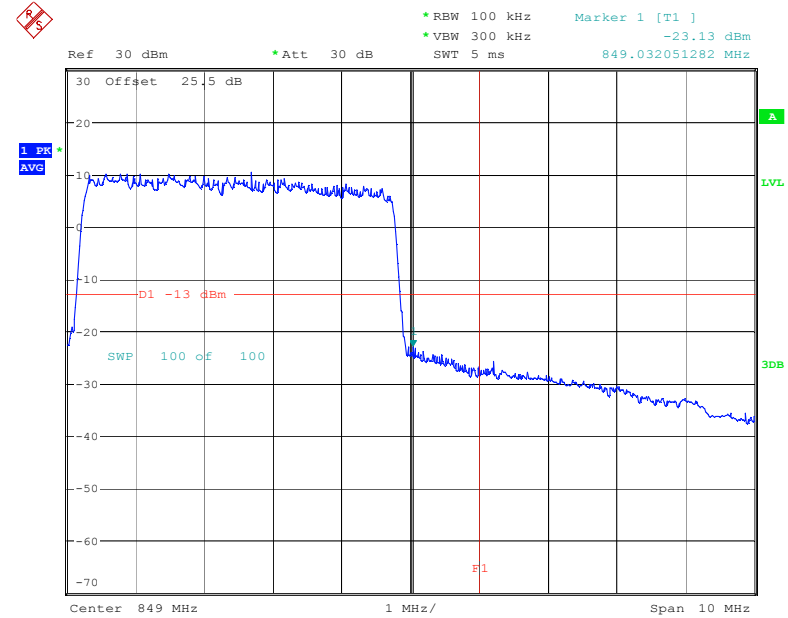
Date: 13.MAR.2014 22:00:36

**Upper BE (LTE Band 5) Channel 20625 (846.5 MHz) – RB Size = 1 ; RB Offset = 49;
BW = 5 MHz; Modulation = 16 QAM**



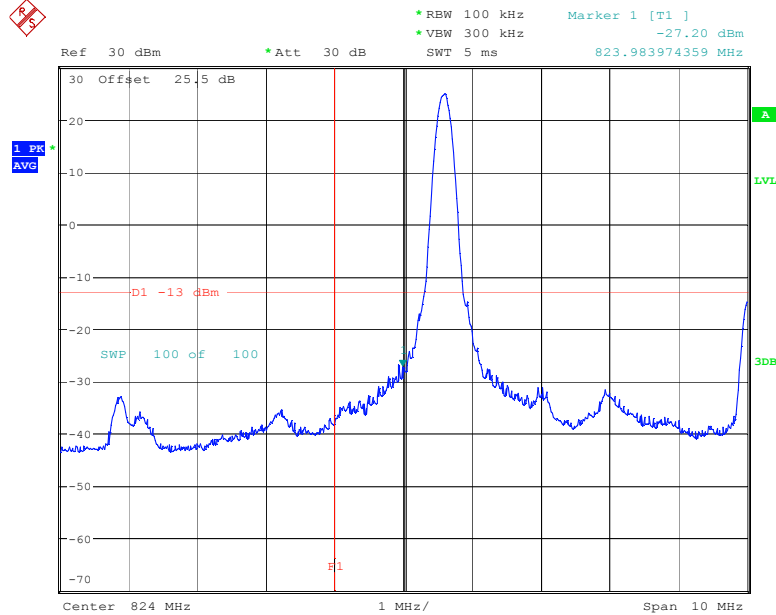
low
Date: 4.JUN.2014 15:53:29

**Upper BE (LTE Band 5) Channel 20625 (846.5 MHz) – RB Size = 25 ; RB Offset = 0;
BW = 5 MHz; Modulation = 16 QAM**



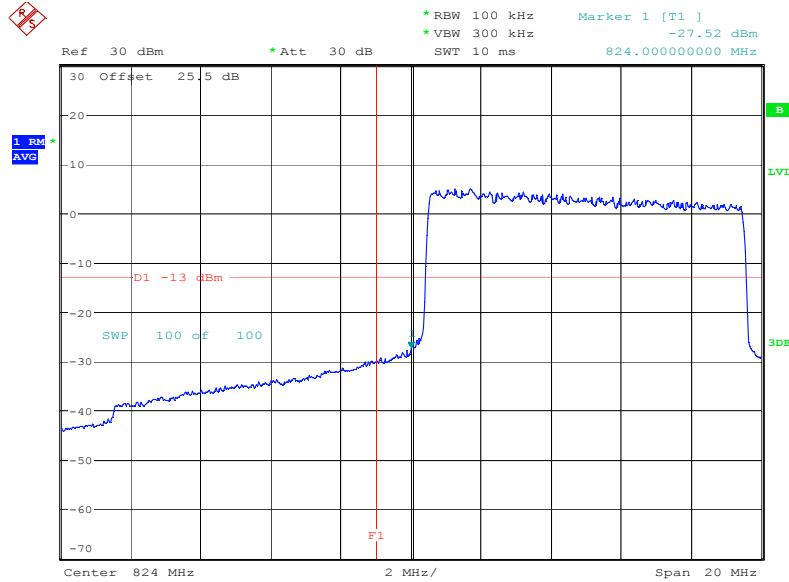
Date: 13.MAR.2014 22:04:04

Lower BE (LTE Band 5) Channel 20450 (829 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK



Date: 14.MAR.2014 16:25:41

Lower BE (LTE Band 5) Channel 20450 (829 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK

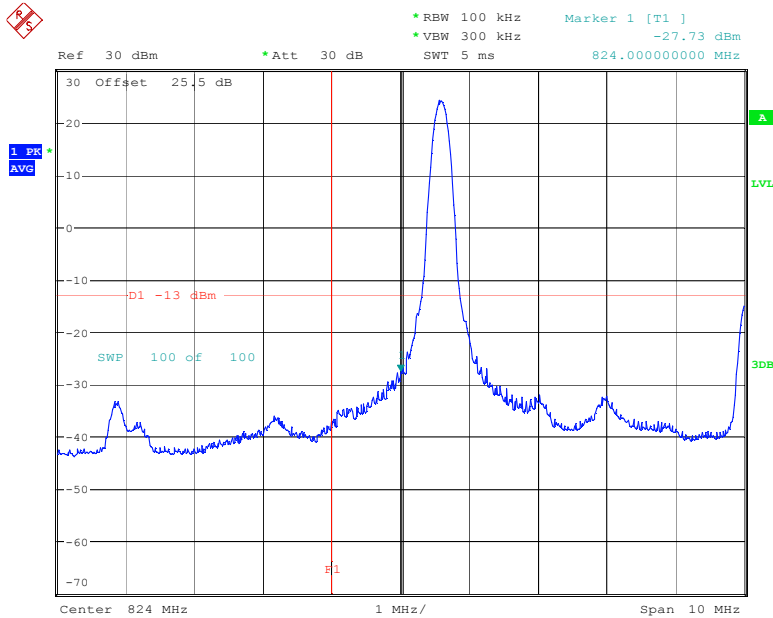


low

Date: 25.FEB.2014 23:09:33

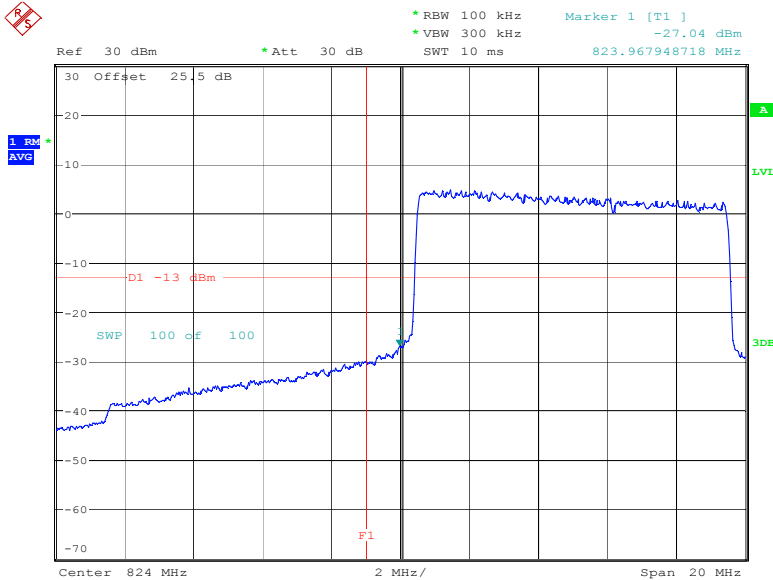
LTE Band 5 (824 MHz – 849 MHz)

Lower BE (LTE Band 5) Channel 20450 (829 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



Date: 14.MAR.2014 16:28:57

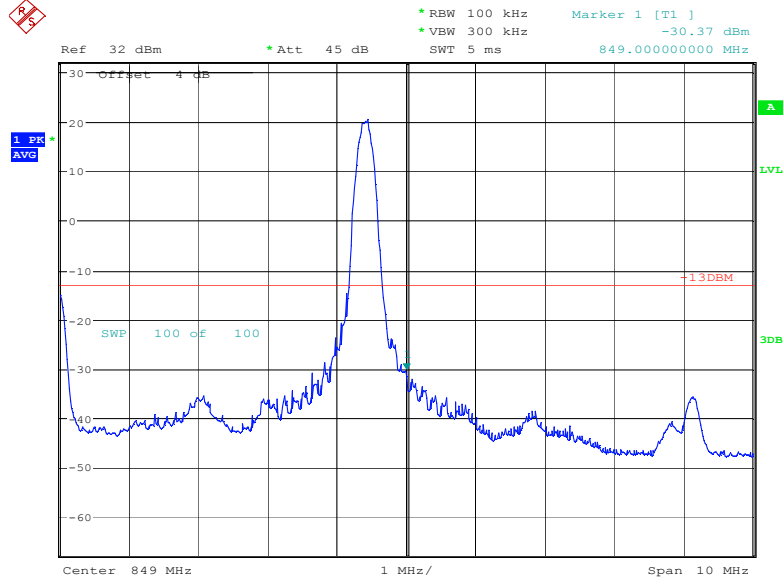
Lower BE (LTE Band 5) Channel 20450 (829 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM



low

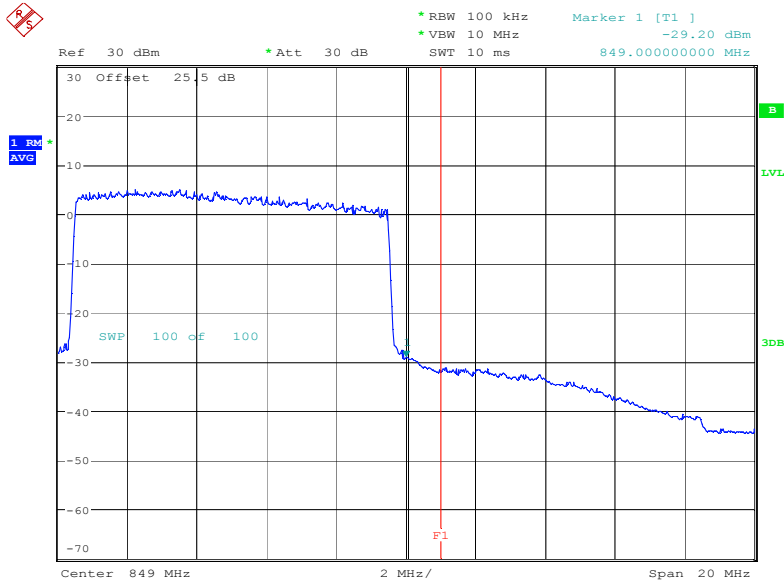
Date: 27.FEB.2014 22:55:26

**Upper BE (LTE Band 5) Channel 20600 (844 MHz) – RB Size = 1 ; RB Offset = 49;
BW = 10 MHz; Modulation = QPSK**



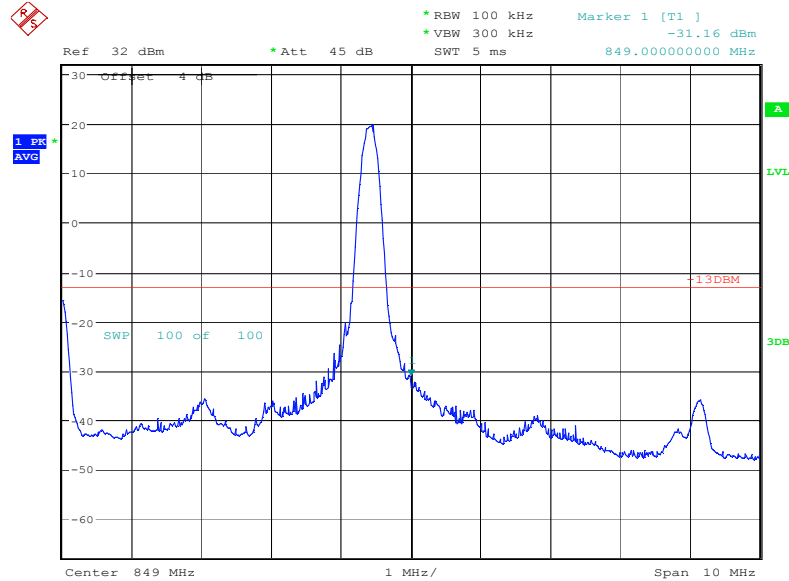
low
Date: 4.JUN.2014 15:56:15

**Upper BE (LTE Band 5) Channel 20600 (844 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = QPSK**



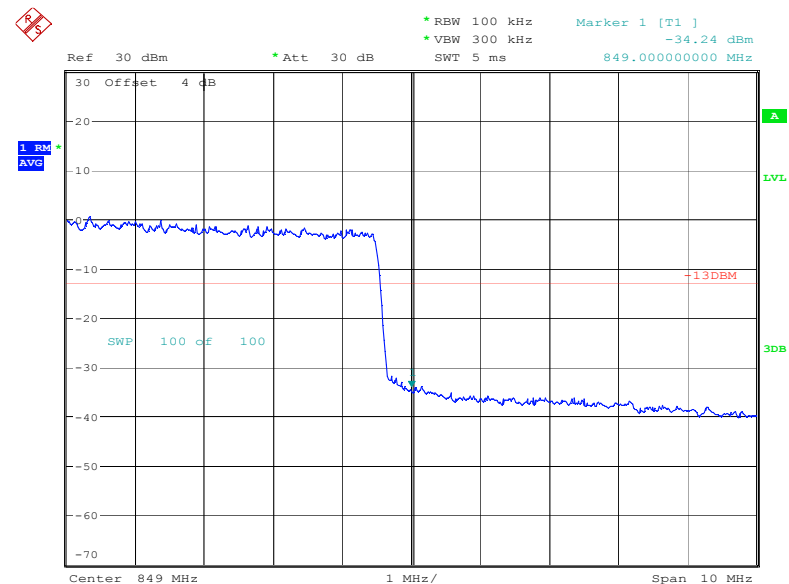
low
Date: 25.FEB.2014 23:44:17

**Upper BE (LTE Band 5) Channel 20600 (844 MHz) – RB Size = 1 ; RB Offset = 49;
BW = 10 MHz; Modulation = 16 QAM**



low
Date: 4.JUN.2014 15:57:25

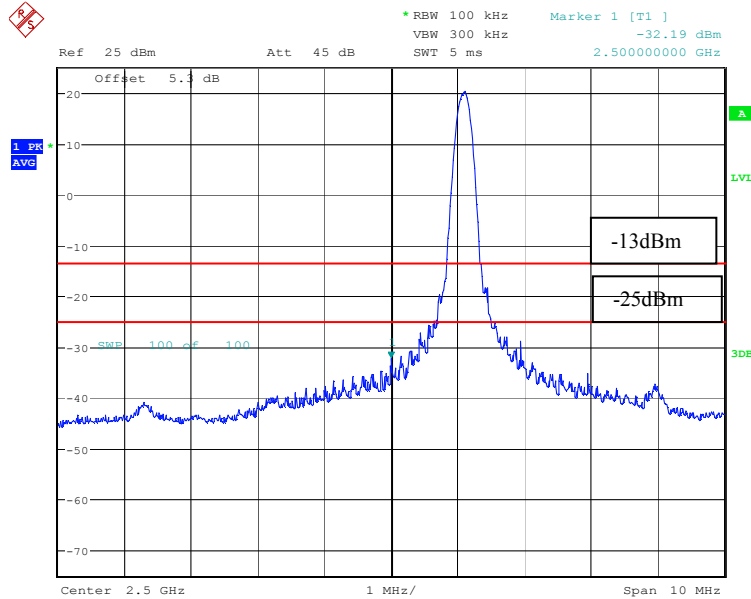
**Upper BE (LTE Band 5) Channel 20600 (844 MHz) – RB Size = 50 ; RB Offset = 0;
BW = 10 MHz; Modulation = 16 QAM**



low
Date: 11.JUN.2014 01:59:55

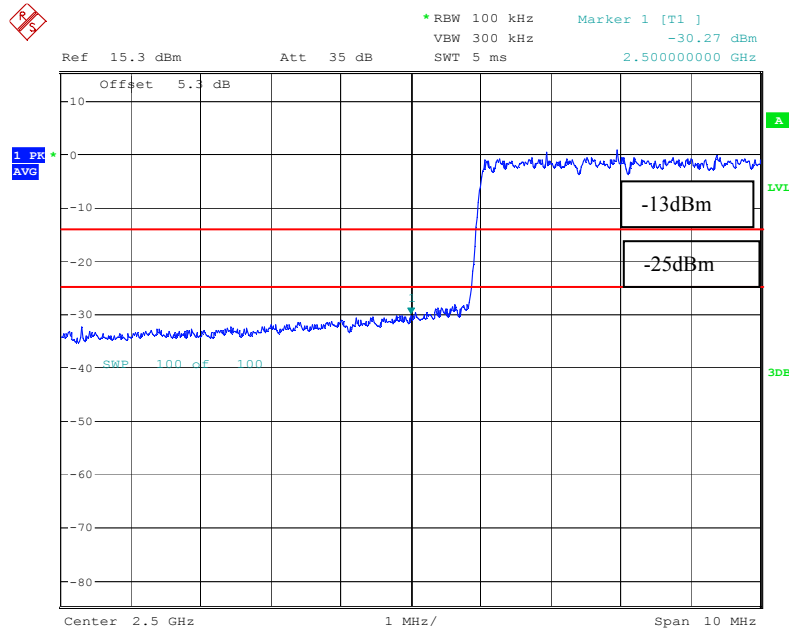
6.6.4.5 LTE Band 7 (2500 MHz – 2570 MHz)

Lower BE (LTE Band 7) Channel 20850 (2510 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 20 MHz; Modulation = QPSK



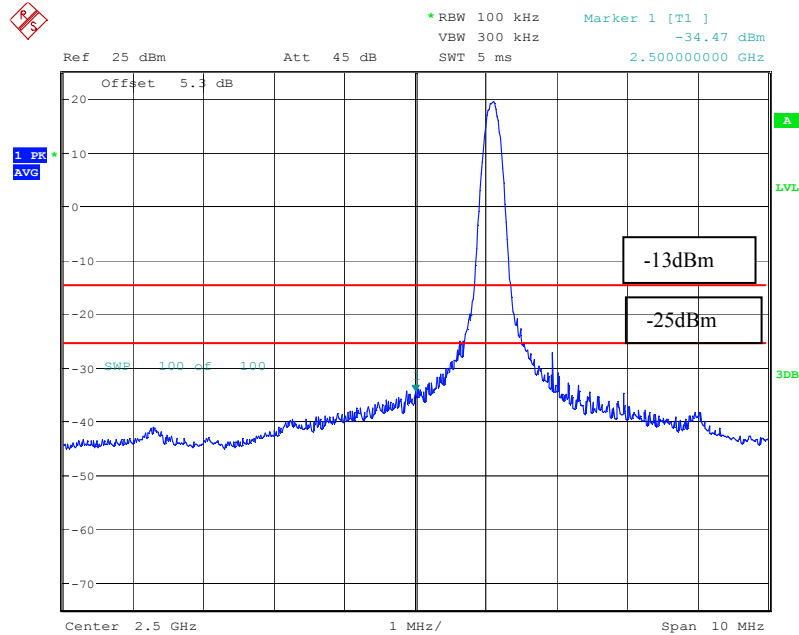
Note: The tighter limit of -25dBm applies 5.5MHz away from the band edge
 Note: The band edge is in the center of the graph

Lower BE (LTE Band 7) Channel 20850 (2510 MHz) – RB Size = 100 ; RB Offset = 0;
BW = 20 MHz; Modulation = QPSK



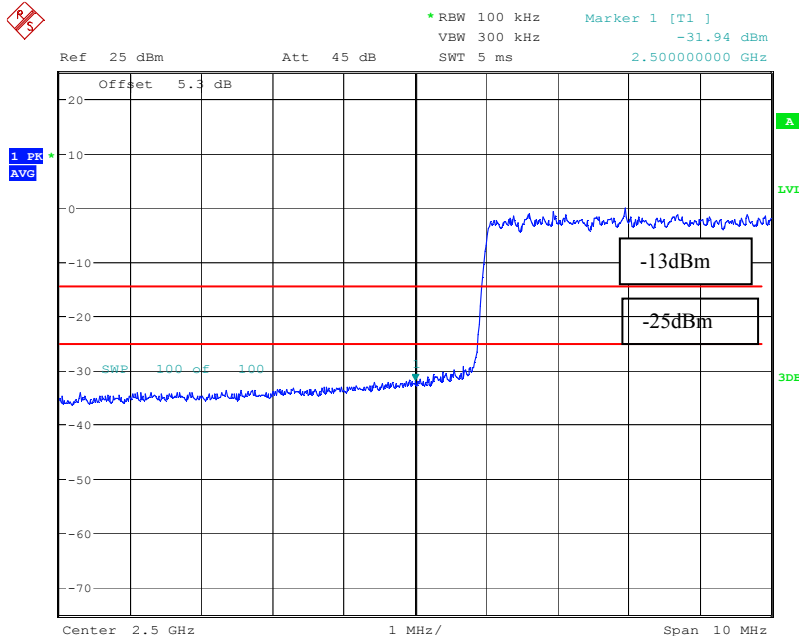
Note: The tighter limit of -25dBm applies 5.5MHz away from the band edge
 Note: The band edge is in the center of the graph

Lower BE (LTE Band 7) Channel 20850 (2510 MHz) – RB Size = 1 ; RB Offset = 0;
BW = 20 MHz; Modulation = 16 QAM



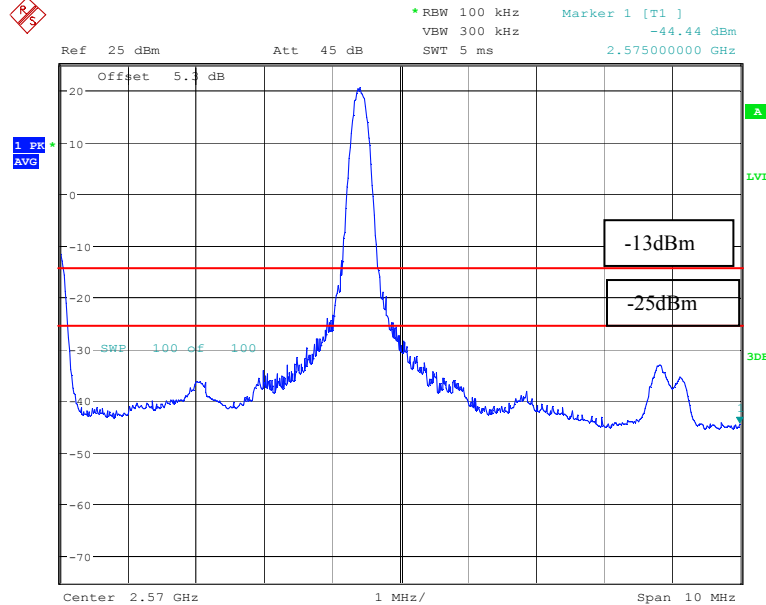
Note: The tighter limit of -25dBm applies 5.5MHz away from the band edge
 Note: The band edge is in the center of the graph

Lower BE (LTE Band 7) Channel 20850 (2510 MHz) – RB Size = 100 ; RB Offset = 0;
BW = 20 MHz; Modulation = 16 QAM



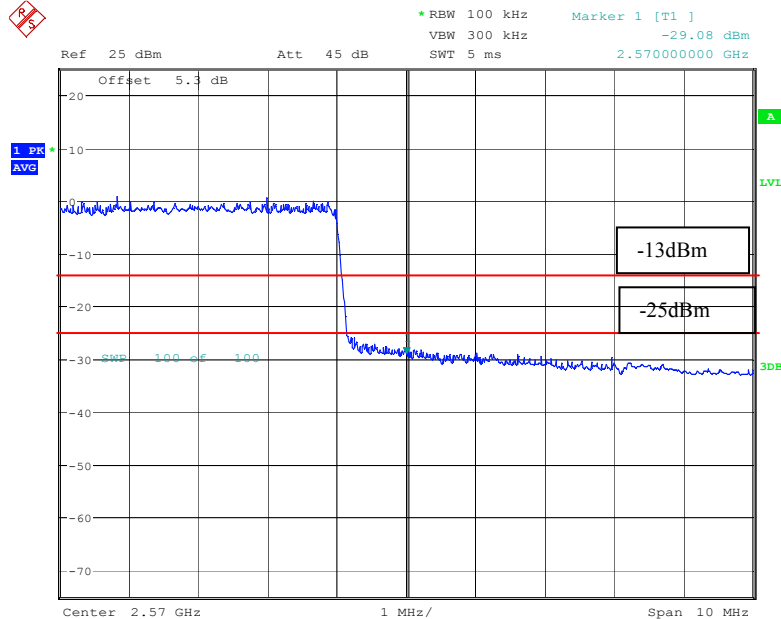
Note: The tighter limit of -25dBm applies 5.5MHz away from the band edge
 Note: The band edge is in the center of the graph

Higher BE (LTE Band 7) Channel 21350 (2560 MHz) – RB Size = 1 ; RB Offset = 99;
BW = 20 MHz; Modulation = QPSK



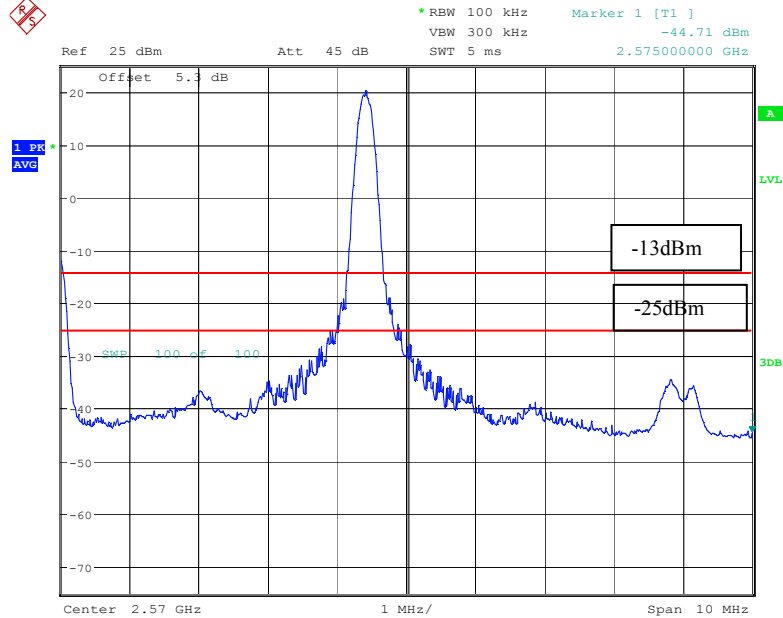
Note: The tighter limit of -25dBm applies 5.5MHz away from the band edge
 Note: The band edge is in the center of the graph

Higher BE (LTE Band 7) Channel 21350 (2560 MHz) – RB Size = 100 ; RB Offset = 0;
BW = 20 MHz; Modulation = QPSK



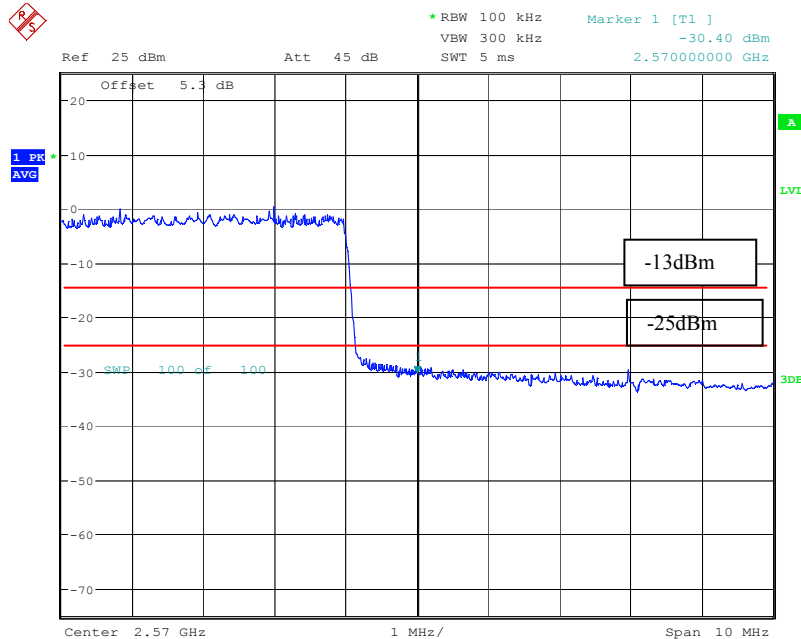
Note: The tighter limit of -25dBm applies 5.5MHz away from the band edge
 Note: The band edge is in the center of the graph

Higher BE (LTE Band 7) Channel 21350 (2560 MHz) – RB Size = 1 ; RB Offset = 99;
BW = 20 MHz; Modulation = 16 QAM



Note: The tighter limit of -25dBm applies 5.5MHz away from the band edge
 Note: The band edge is in the center of the graph

Higher BE (LTE Band 7) Channel 21350 (2560 MHz) – RB Size = 100 ; RB Offset = 0;
BW = 20 MHz; Modulation = 16 QAM



Note: The tighter limit of -25dBm applies 5.5MHz away from the band edge
 Note: The band edge is in the center of the graph

6.7 TX Radiated Spurious Emissions

6.7.1 References

See chapter with Band Edge measurements

6.7.2 Limits

See chapter with Band Edge measurements

6.7.3 Measurement requirements:

6.7.3.1 FCC §2.1057 Frequency spectrum to be investigated.

(a) In all of the measurements set forth in §§2.1051 and 2.1053, the spectrum shall be investigated from the lowest radio frequency signal generated in the equipment, without going below 9 kHz, up to at least the frequency shown below:

- (1) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
 - (2) If the equipment operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
 - (3) If the equipment operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower.
- (b) Particular attention should be paid to harmonics and subharmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency. Radiation at the frequencies of multiplier stages should also be checked.
- (c) The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.
- (d) Unless otherwise specified, measurements above 40 GHz shall be performed using a minimum resolution bandwidth of 1 MHz.

6.7.3.2 FCC 2.1053: Field strength of spurious radiation.

Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission.

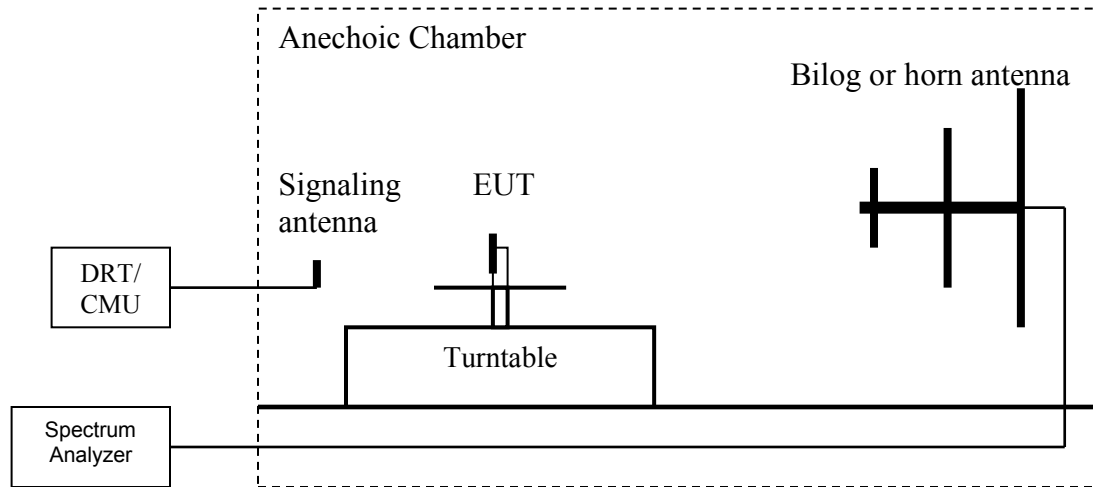
6.7.3.3 RSS-Gen 4.9: Transmitter unwanted spurious emissions

The same parameter, peak power or average power, used for the transmitter output power measurement shall be used for unwanted emission measurements.

The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device (local oscillator, intermediate or carrier frequency), or from 30 MHz, whichever is the lower, to the 5th harmonic of the highest frequency generated without exceeding 40 GHz.

6.7.4 Radiated out of band measurement procedure:

Ref: TIA-603C 2004- 2.2.12 Unwanted emissions: Radiated Spurious



Connect the equipment as shown in the above diagram with the EUT's antenna in a horizontal orientation.

Adjust the settings of the Digital Radio Communication Tester (DRT) to set the EUT to its maximum power at the required channel.

Set the spectrum analyzer to measure peak hold with the required settings.

Place the measurement antenna in a horizontal orientation. Rotate the EUT 360°. Raise the measurement antenna up to 4 meters in 0.5 meters increments and rotate the EUT 360° at each height to maximize all emissions. Measure and record all spurious emissions (LVL) up to the tenth harmonic of the carrier frequency.

Replace the EUT with a horizontally polarized half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.

Connect the antenna to a signal generator with known output power and record the path loss in dB (LOSS). $\text{LOSS} = \text{Generator Output Power (dBm)} - \text{Analyzer reading (dBm)}$.

Determine the level of spurious emissions using the following equation:

$$\text{Spurious (dBm)} = \text{LVL (dBm)} + \text{LOSS (dB)}$$

Repeat steps 4, 5 and 6 with all antennas vertically polarized.

Determine the level of spurious emissions using the following equation:

$$\text{Spurious (dBm)} = \text{LVL (dBm)} + \text{LOSS (dB)}$$

Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.

(Note: Steps 5 and 6 above are performed prior to testing and LOSS is recorded by test software. Steps 3, 4 and 7 above are performed with test software.)

6.7.5 Sample Calculations for Radiated Measurements

6.7.5.1 Power Measurements using Substitution Procedure:

The measurement on the Spectrum Analyzer is used as a basis for the Substitution procedure.

The EUT is replaced with a Signal Generator and an antenna. The setting on the Signal Generator is varied until the Spectrum Analyzer displays the original reading. EIRP is calculated as-

$$\text{EIRP (dBm)} = \text{Signal Generator setting (dBm)} - \text{Cable Loss (dB)} + \text{Antenna Gain (dBi)}$$

Example:

Frequency (MHz)	Measured SA (dBμV)	Signal Generator setting (dBm)	Antenna Gain (dBi)	Dipole Gain (dBd)	Cable Loss (dB)	EIRP (dBm)
1000	95.5	24.5	6.5	0	3.5	27.5

6.7.6 Measurement Survey:

The site is constructed in accordance with ANSI C63.4 requirements and is recognized by the FCC to be in compliance for a 3m site. The spectrum is scanned from 30MHz to the 10th harmonic of the highest frequency generated by the EUT.

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the 700 MHz, 850 MHz, 1700MHz and 1900 MHz and 2500 MHz bands of operation.

The configuration with 1 Resource Block has been chosen as a worst case configuration because 1RB represents the highest power density and thus the highest peak powers of all supported bandwidth configurations.

QPSK has been shown to deliver the Peak Power for Band 7 so QPSK modulation is chosen for the radiated emission measurements in Band 7.

For the other Bands both modulations showed similar result so emissions have been tested for both modulations.

For low channel the lowest resource block has been chosen and for high channel the highest to represent the worst case in terms of band edge proximity.

For radiated measurements, all data in this report shows the worst case emissions data between H/V antenna polarizations and for all 3 orthogonal orientations of the EUT.

Unless mentioned otherwise, the emission signals above the limit line in the plots are from the carrier.

During TX mode the EUTs clock is running on frequencies above 30MHz to cope with the MIPS requirement of decoding radio signal and other real time tasks. Thus 30MHz was chosen as the lowest frequency for emission testing.

6.7.7 Test Conditions:

Tnom: 20°C; Vnom: 3.6 V

6.7.8 Test Results:

6.7.8.1 Spurious Emission LTE FDD 2:

6.7.8.1.1 LTE FDD 2 Summary Tables

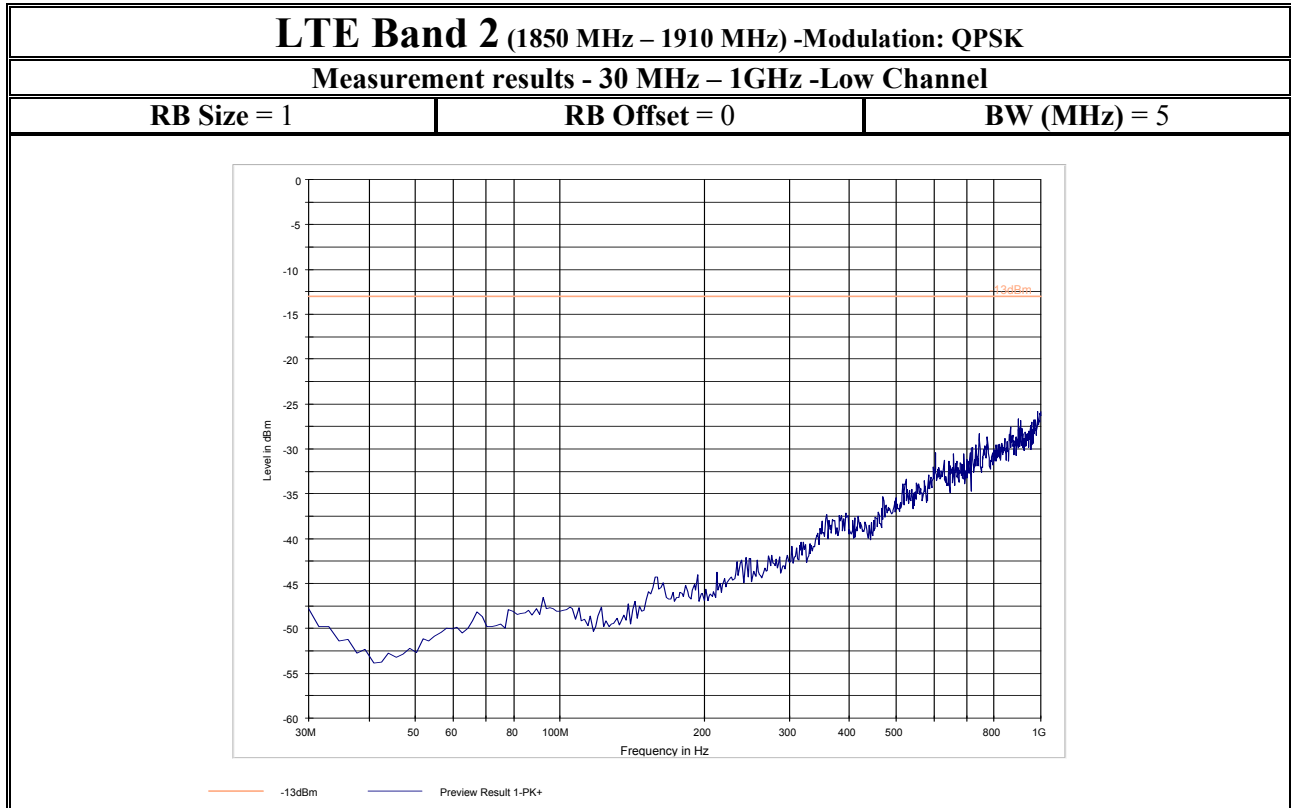
LTE Band 2 (1850 MHz – 1910 MHz) -Modulation: QPSK						
RB Size = 1			RB Offset = 0		BW (MHz) = 5	
Harmonic	Tx ch-18625 Freq. (MHz)	Level (dBm)	Tx ch-18900 Freq. (MHz)	Level (dBm)	Tx ch-19175 Freq. (MHz)	Level (dBm)
1	1852.5	20.913	1880	22.873	1907.5	21.947
2	3705	NF	3600	NF	3815	NF
3	5557.5	NF	5400	NF	5722.5	NF
4	7410	NF	7200	NF	7630	NF
5	9262.5	NF	9000	NF	9537.5	NF
6	11115	NF	10800	NF	11445	NF
7	12967.5	NF	13160	NF	13352.5	NF
8	14820	NF	15040	NF	15260	NF
9	16672.5	NF	16920	NF	17167.5	NF
10	18525	NF	18800	NF	19075	NF
NF= Noise Floor						

LTE Band 2 (1850 MHz – 1910 MHz) -Modulation: QPSK						
RB Size = 1			RB Offset = 0		BW (MHz) = 10	
Harmonic	Tx ch-18650 Freq. (MHz)	Level (dBm)	Tx ch-18900 Freq. (MHz)	Level (dBm)	Tx ch-19150 Freq. (MHz)	Level (dBm)
1	1855	20.393	1880	22.972	1905	22.675
2	3710	NF	3600	NF	3810	NF
3	5565	NF	5400	NF	5715	NF
4	7420	NF	7200	NF	7620	NF
5	9275	NF	9000	NF	9525	NF
6	11130	NF	10800	NF	11430	NF
7	130550	NF	13160	NF	13335	NF
8	14840	NF	15040	NF	15240	NF
9	16695	NF	16920	NF	16245	NF
10	18550	NF	18800	NF	19050	NF
NF= Noise Floor						

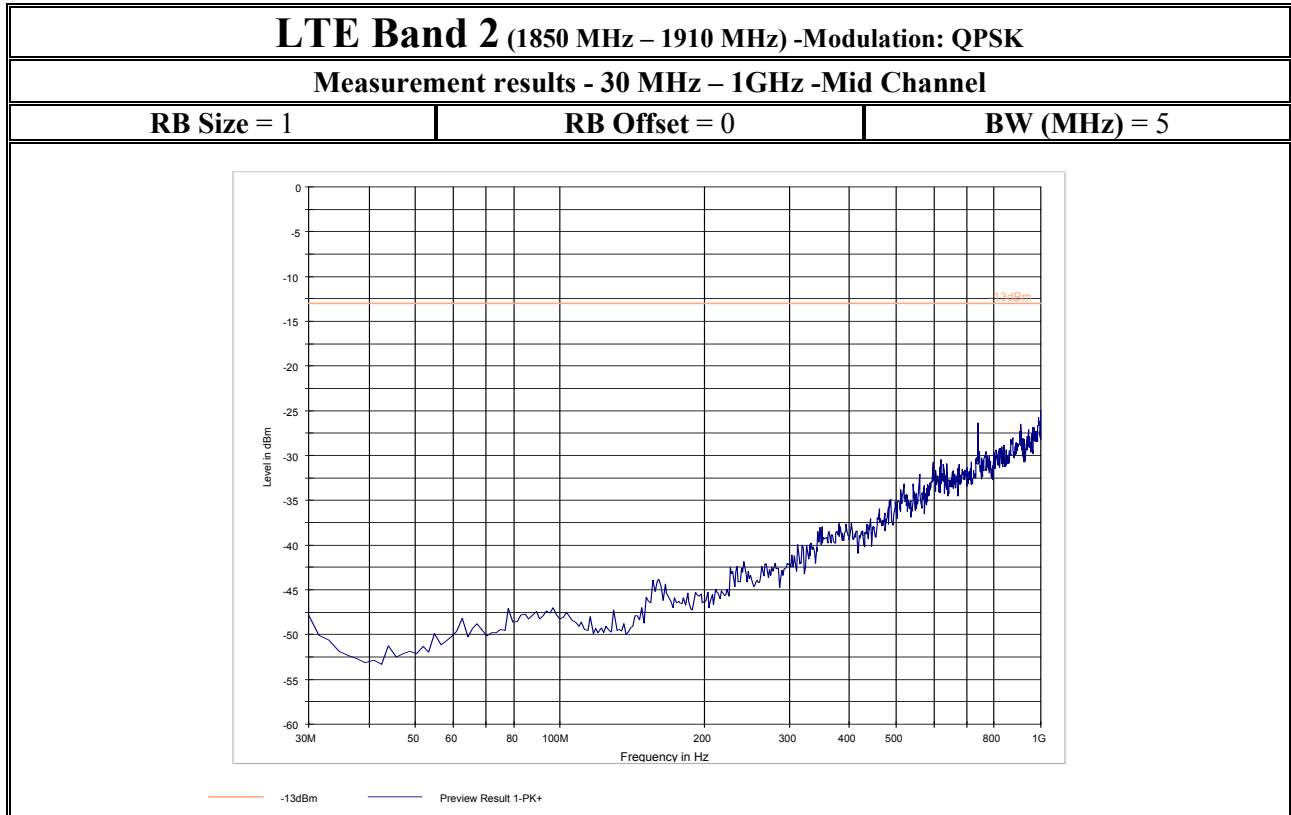
LTE Band 2 (1850 MHz – 1910 MHz) -Modulation: 16 QAM						
RB Size = 1			RB Offset = 0		BW (MHz) = 5	
Harmonic	Tx ch-18625 Freq. (MHz)	Level (dBm)	Tx ch-18900 Freq. (MHz)	Level (dBm)	Tx ch-19175 Freq. (MHz)	Level (dBm)
1	1852.5	20.309	1880	23.080	1907.5	-19.429
2	3705	NF	3600	NF	3815	NF
3	5557.5	NF	5400	NF	5722.5	NF
4	7410	NF	7200	NF	7630	NF
5	9262.5	NF	9000	NF	9537.5	NF
6	11115	NF	10800	NF	11445	NF
7	12967.5	NF	13160	NF	13352.5	NF
8	14820	NF	15040	NF	15260	NF
9	16672.5	NF	16920	NF	17167.5	NF
10	18525	NF	18800	NF	19075	NF
NF= Noise Floor						

LTE Band 2 (1850 MHz – 1910 MHz) -Modulation: 16 QAM						
RB Size = 1			RB Offset = 0		BW (MHz) = 10	
Harmonic	Tx ch-18650 Freq. (MHz)	Level (dBm)	Tx ch-18900 Freq. (MHz)	Level (dBm)	Tx ch-19150 Freq. (MHz)	Level (dBm)
1	1855	5.575	1880	23.023	1905	-21.412
2	3710	NF	3600	NF	3810	NF
3	5565	NF	5400	NF	5715	NF
4	7420	NF	7200	NF	7620	NF
5	9275	NF	9000	NF	9525	NF
6	11130	NF	10800	NF	11430	NF
7	130550	NF	13160	NF	13335	NF
8	14840	NF	15040	NF	15240	NF
9	16695	NF	16920	NF	16245	NF
10	18550	NF	18800	NF	19050	NF
NF= Noise Floor						

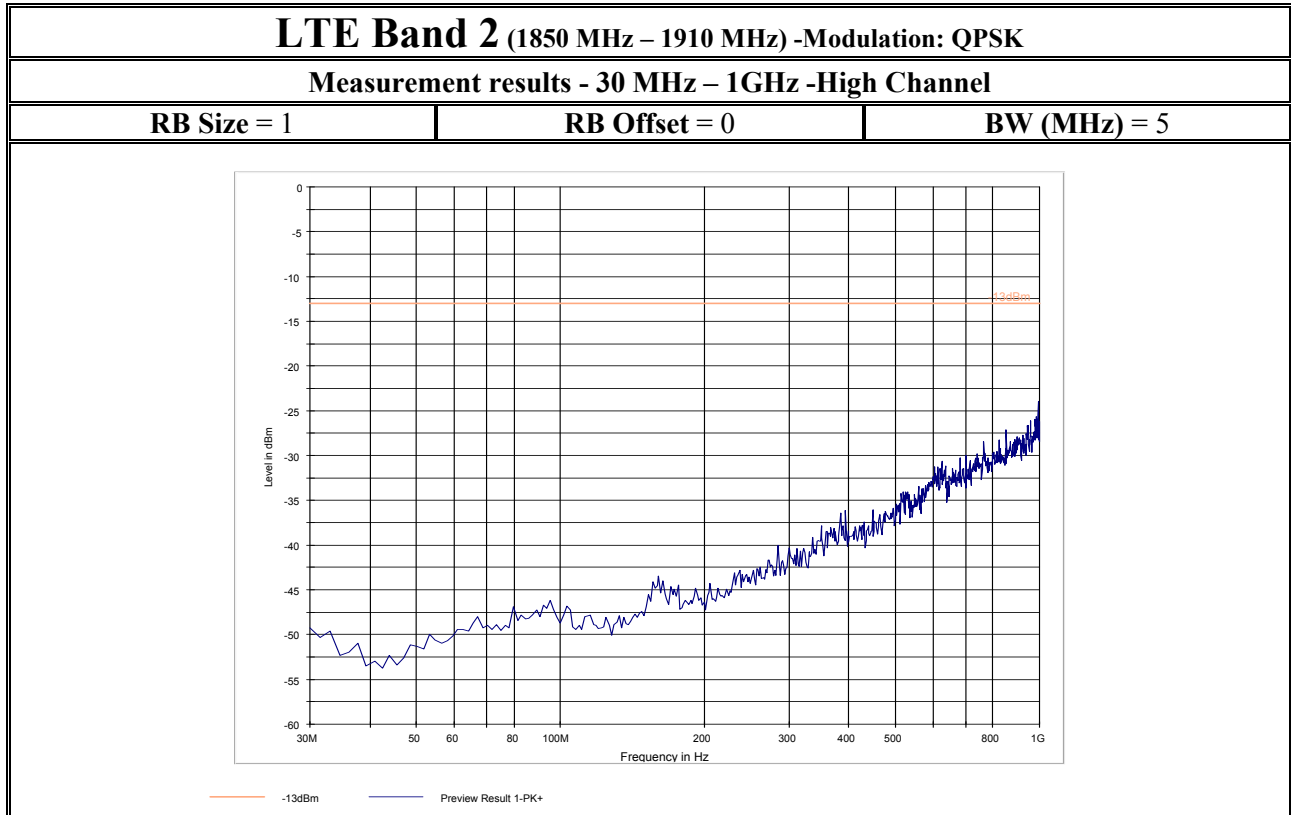
6.7.8.1.2 QPSK/ 5MHz/ Low Channel/ 30MHz to 1GHz:



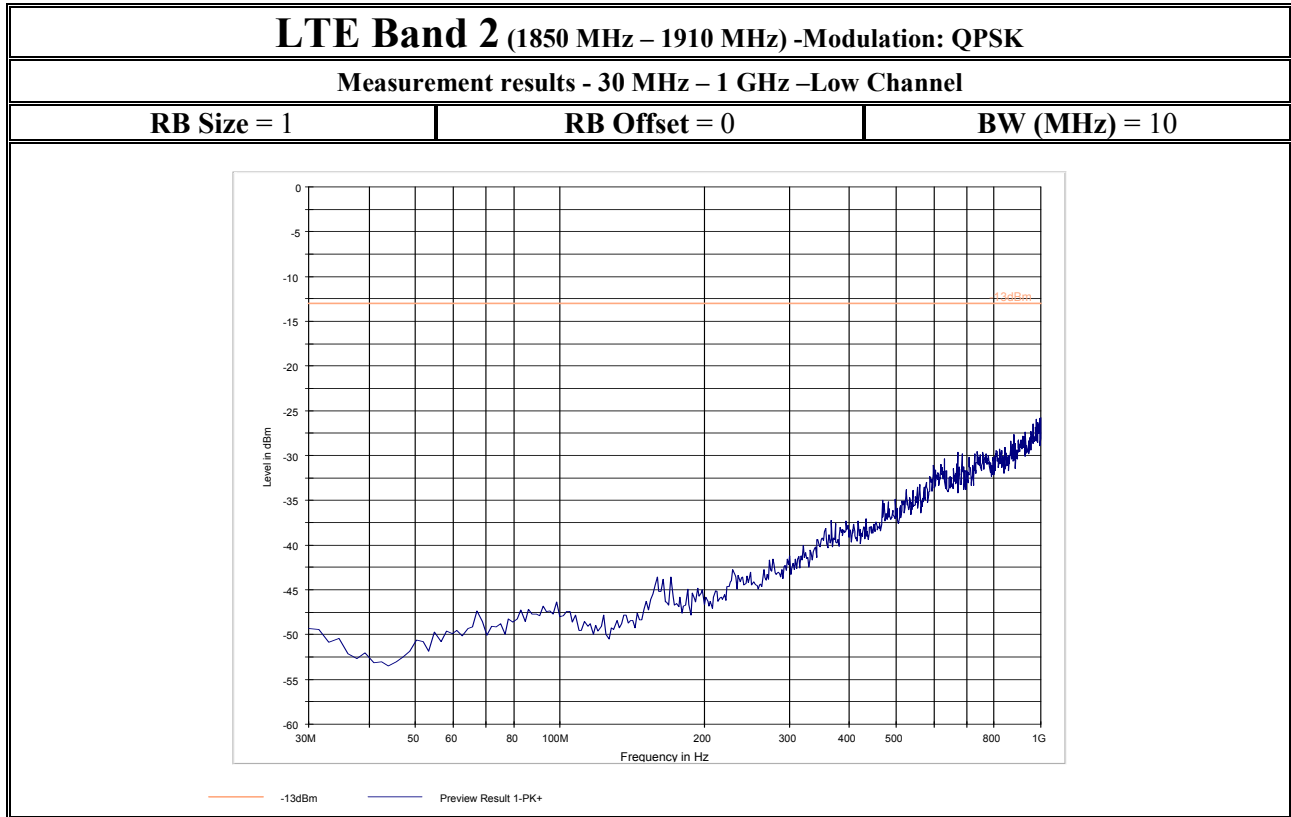
6.7.8.1.3 QPSK/ 5MHz/ Mid Channel/ 30MHz to 1GHz:



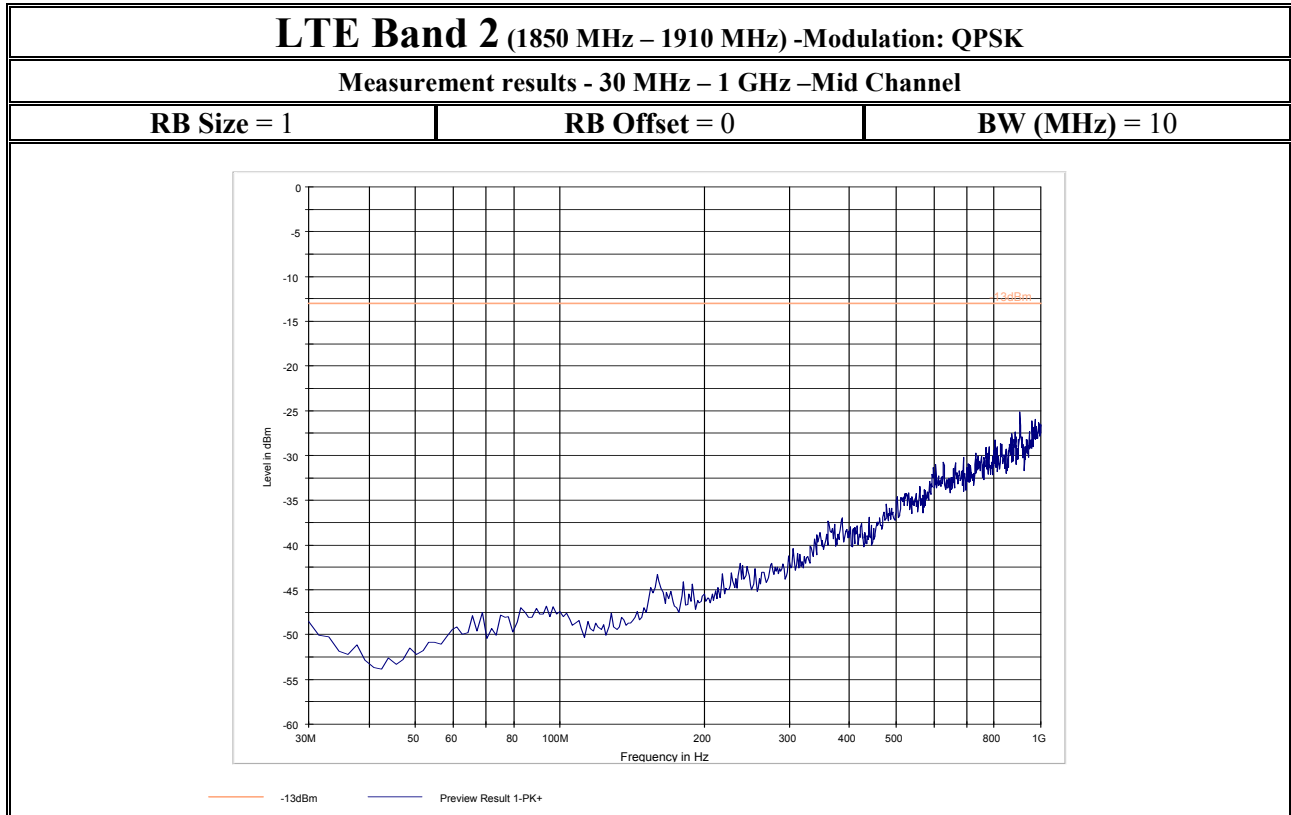
6.7.8.1.4 QPSK/ 5MHz/ High Channel/ 30MHz to 1GHz:



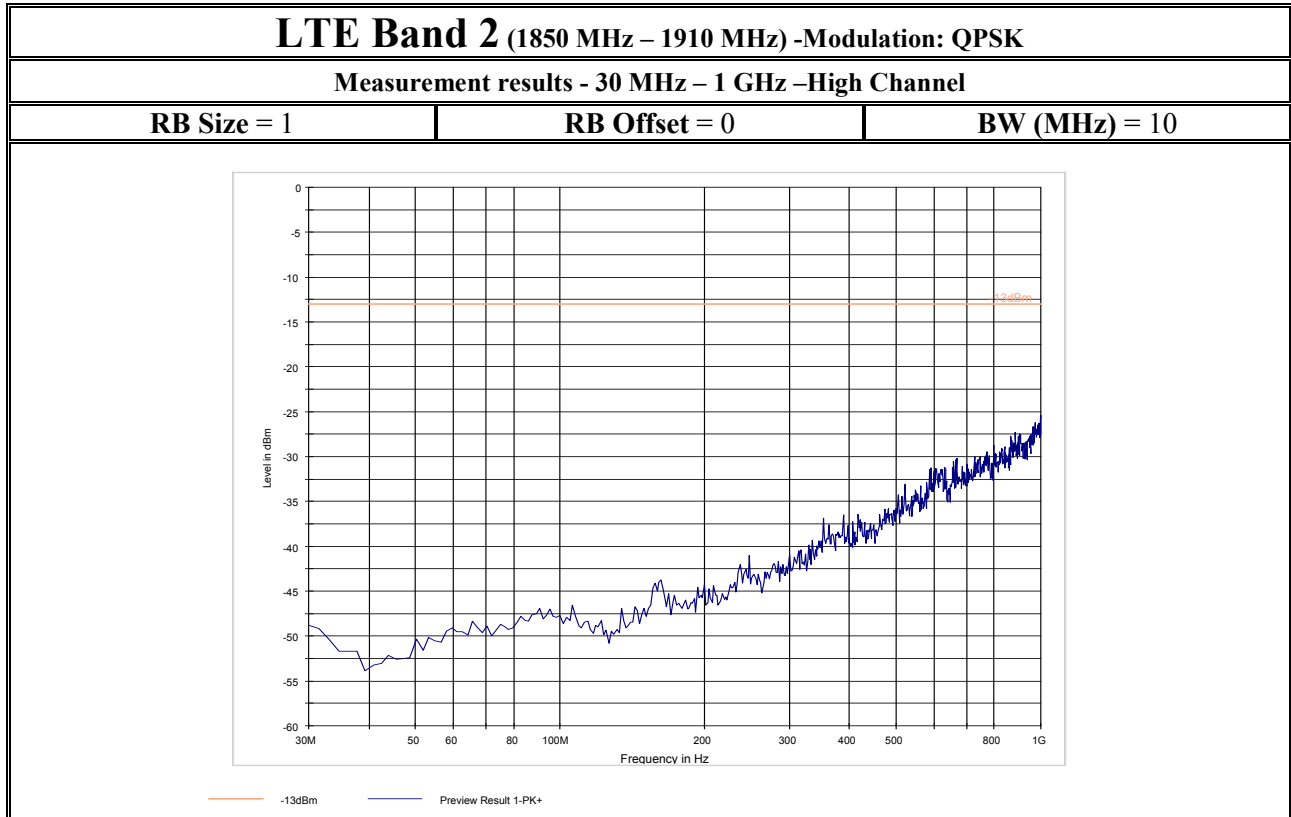
6.7.8.1.5 QPSK/ 10MHz/ Low Channel/ 30MHz to 1GHz:



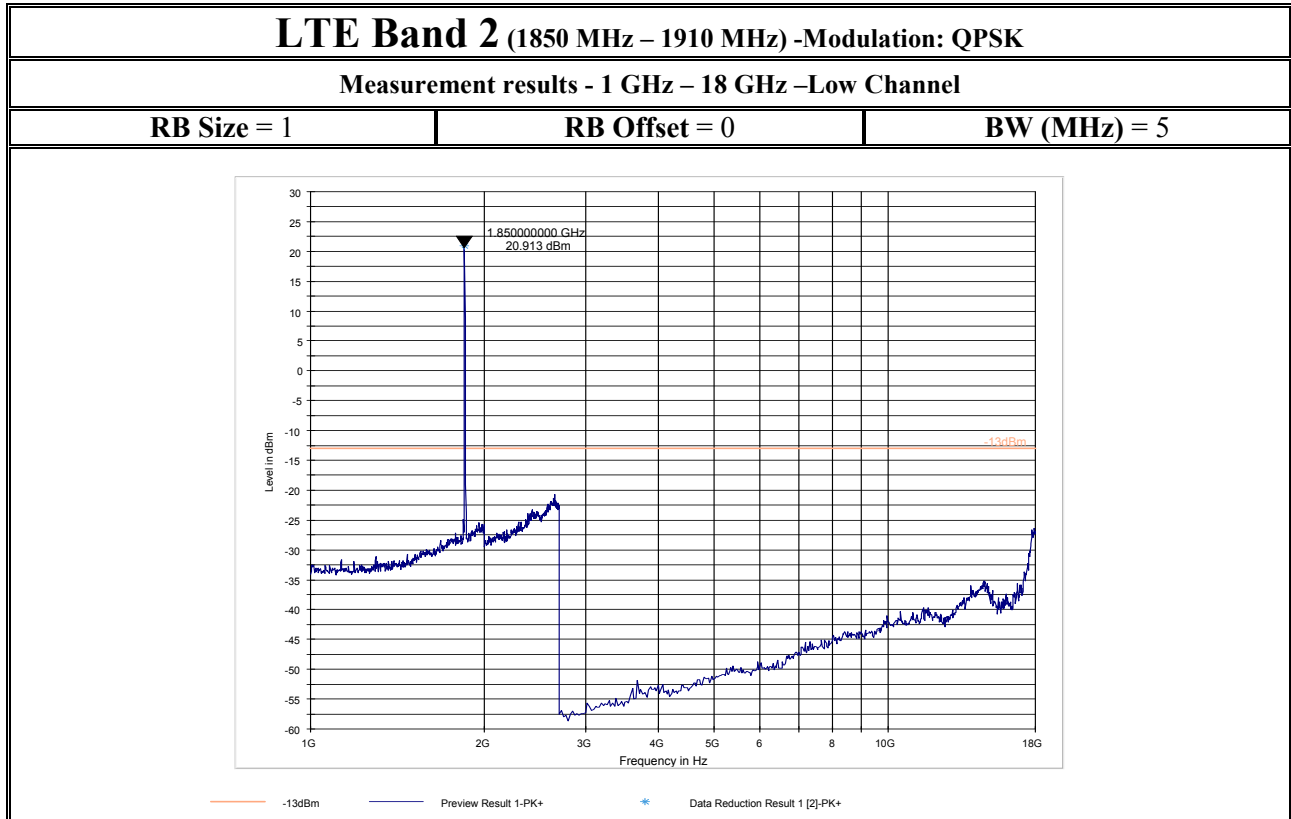
6.7.8.1.6 QPSK/ 10MHz/ Mid Channel/ 30MHz to 1GHz:



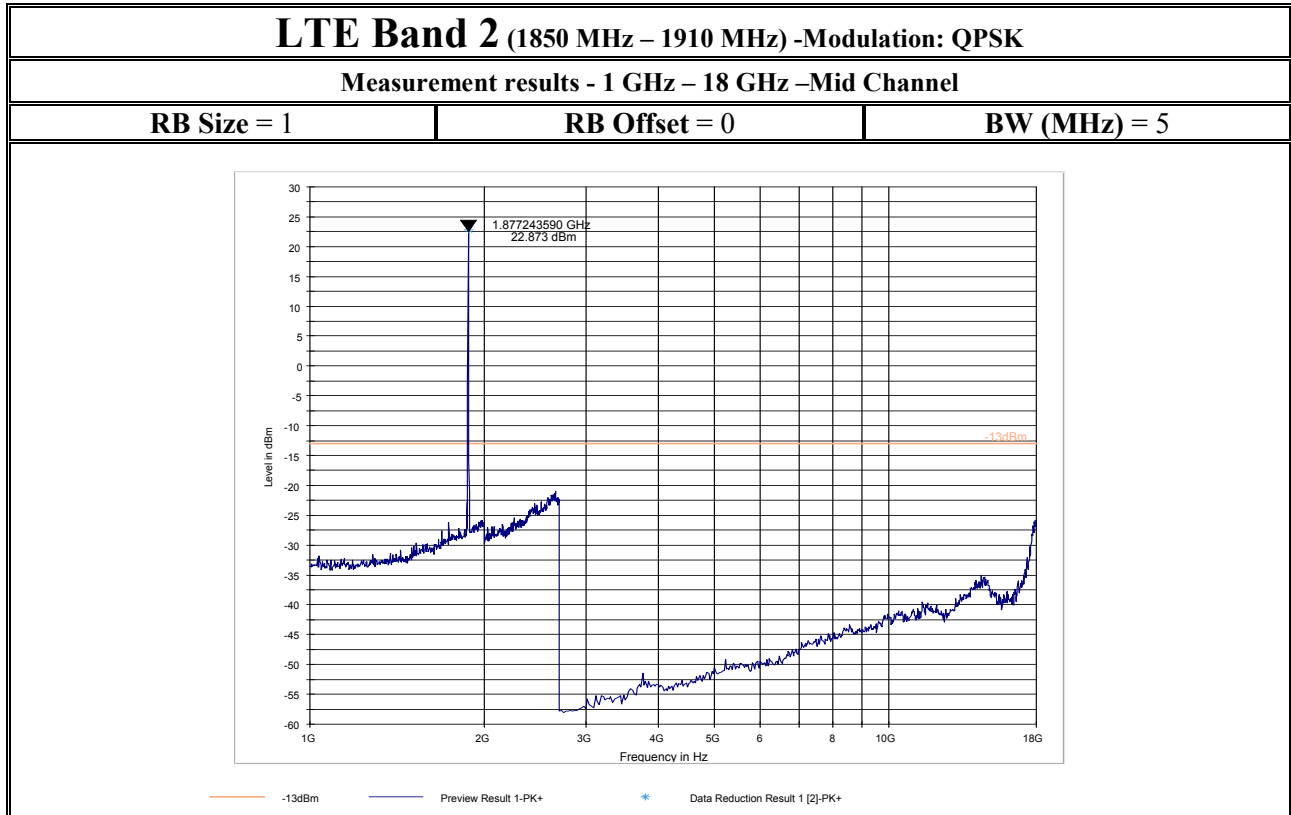
6.7.8.1.7 QPSK/ 10MHz/ High Channel/ 30MHz to 1GHz:



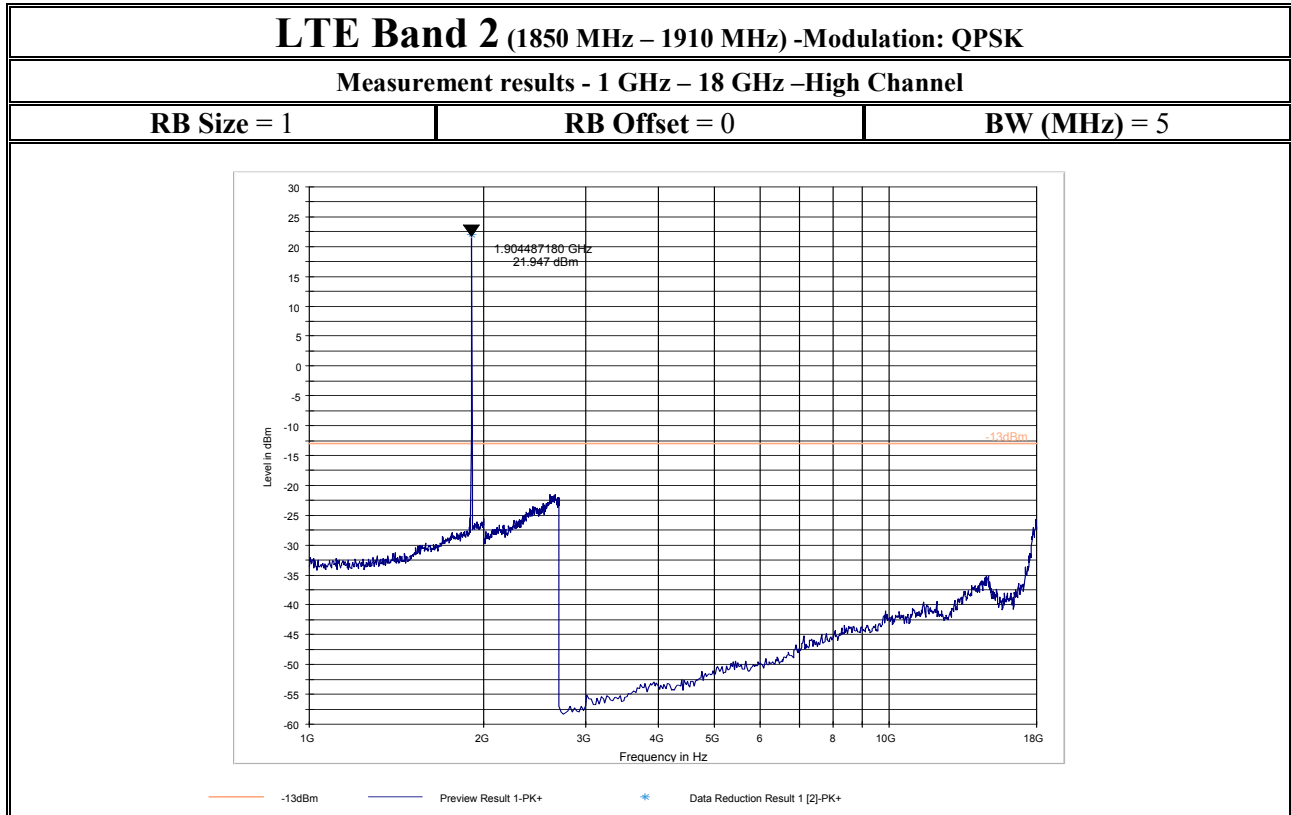
6.7.8.1.8 QPSK/ 5MHz/ Low Channel/ 1GHz to 18GHz:



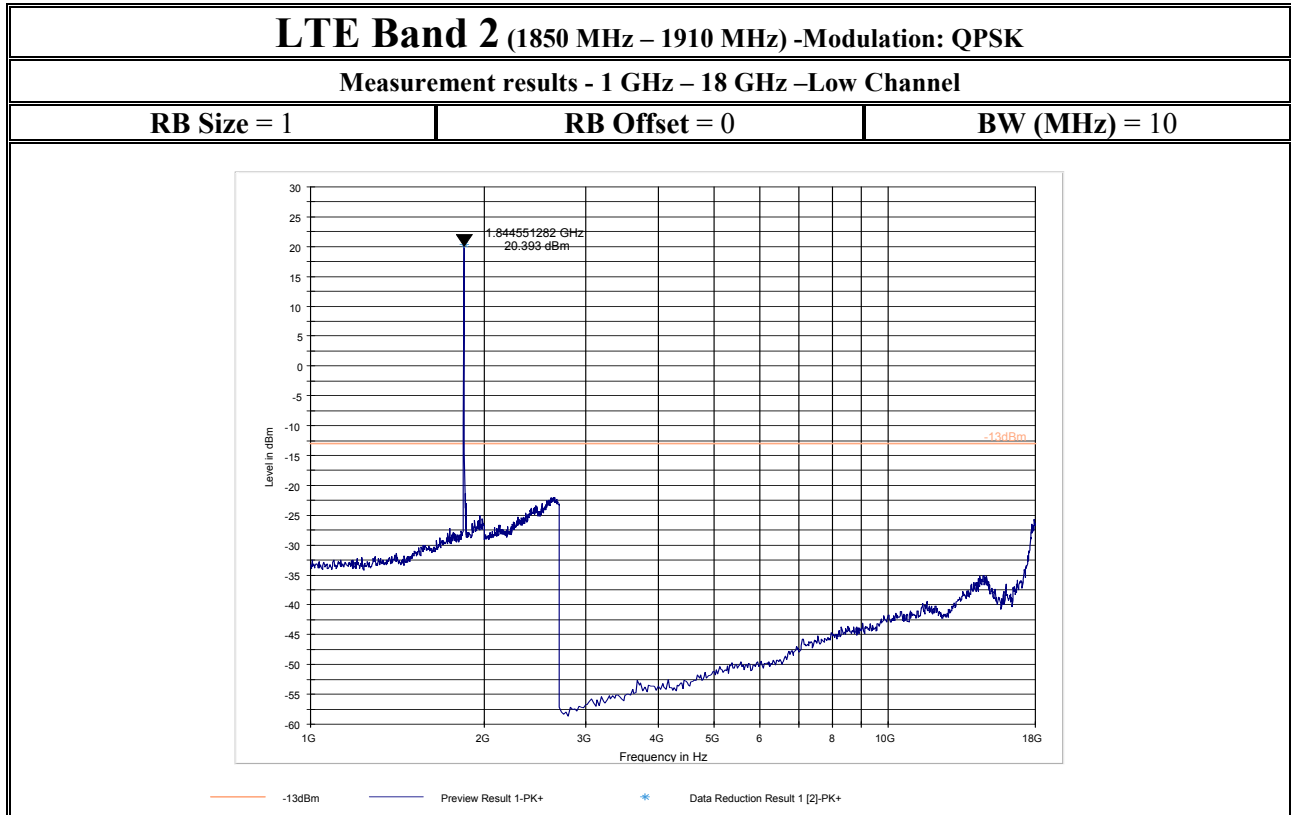
6.7.8.1.9 QPSK/ 5MHz/ Mid Channel/ 1GHz to 18GHz:



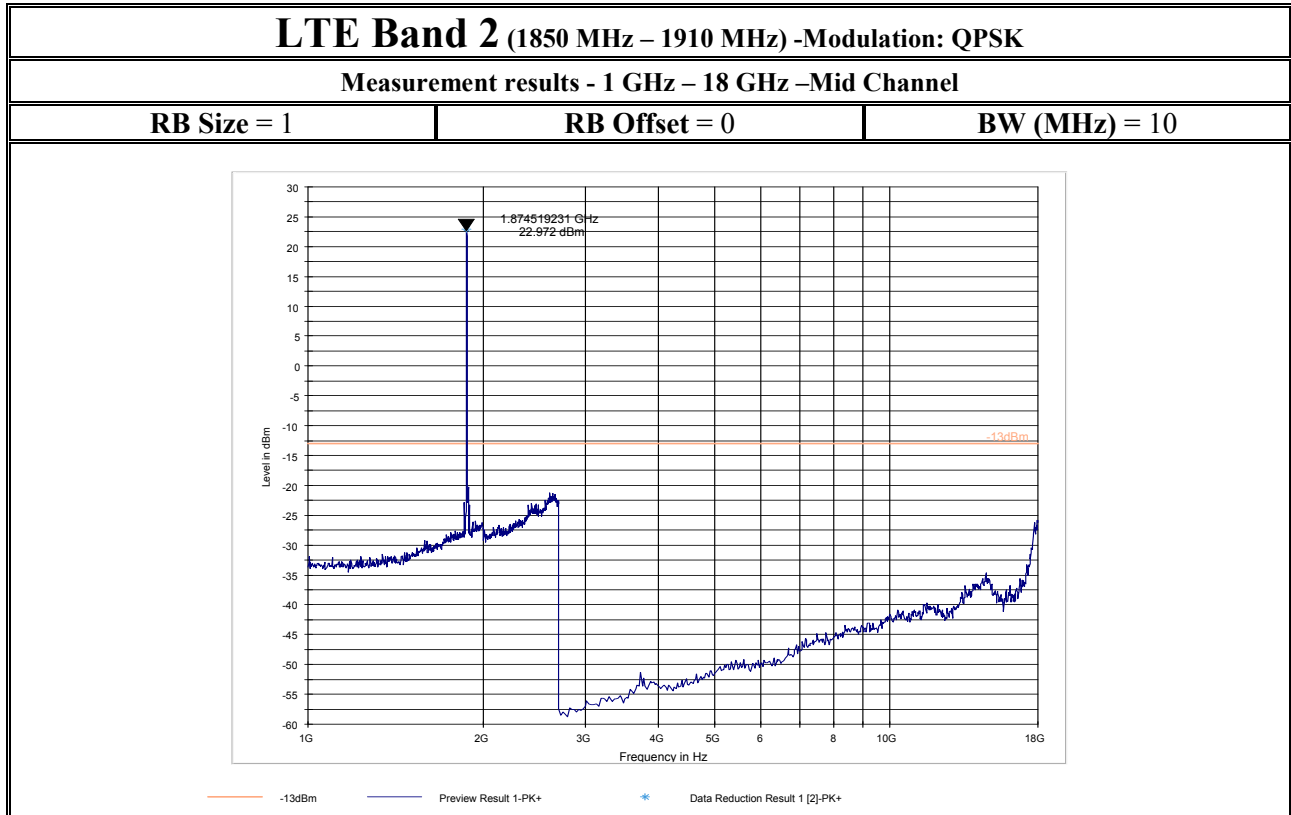
6.7.8.1.10 QPSK/ 5MHz/ High Channel/ 1GHz to 18GHz:



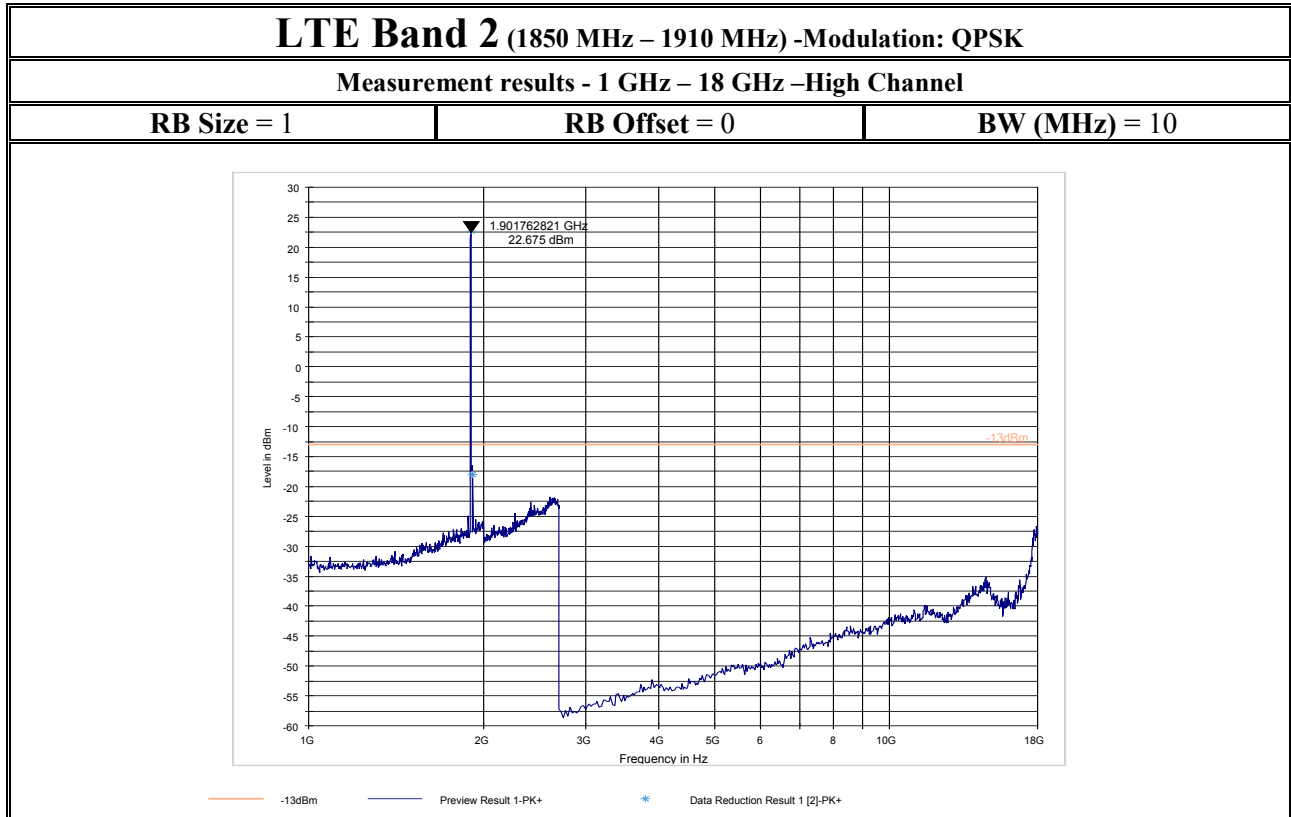
6.7.8.1.11 QPSK/ 10MHz/ Low Channel/ 1GHz to 18GHz:



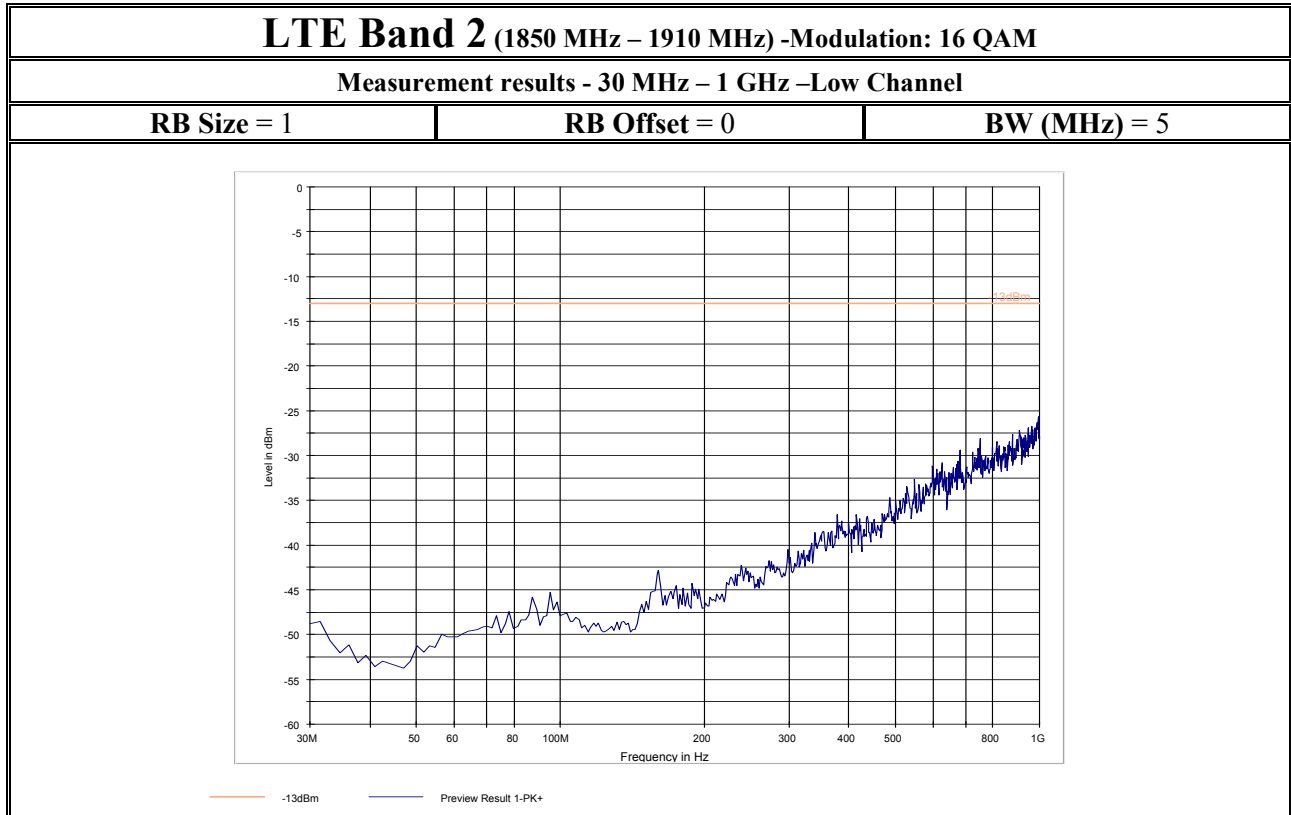
6.7.8.1.12 QPSK/ 10MHz/ Mid Channel/ 1GHz to 18GHz:



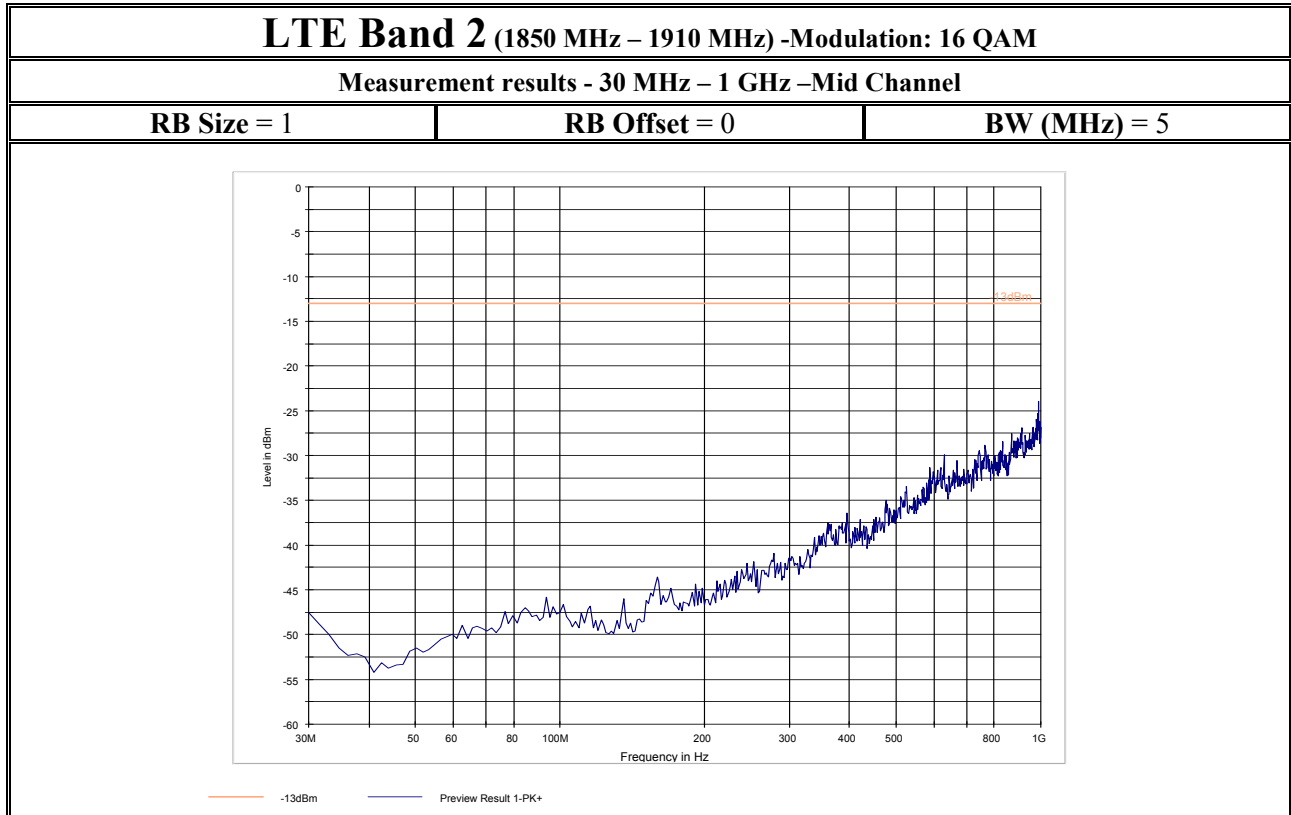
6.7.8.1.13 QPSK/ 10MHz/ High Channel/ 1GHz to 18GHz:



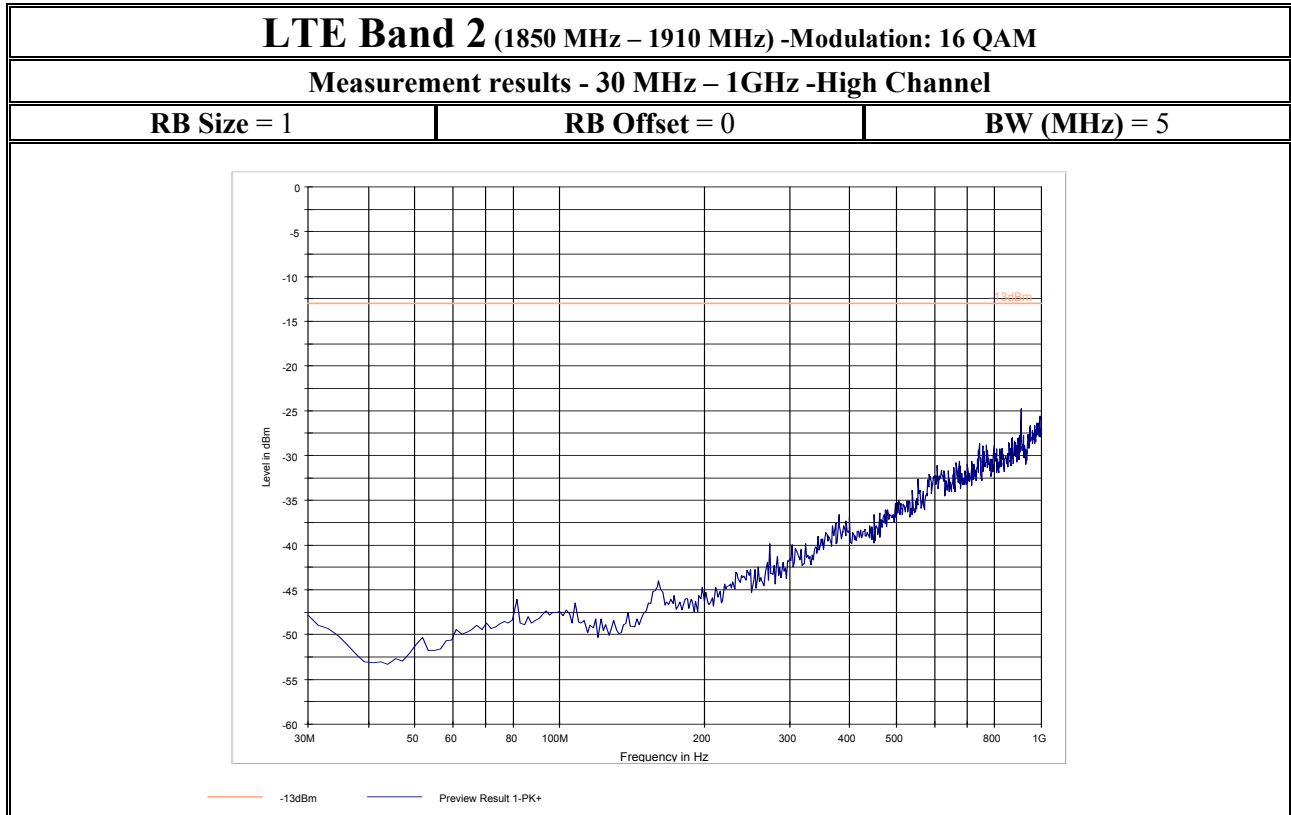
6.7.8.1.14 16 QAM/ 5MHz/ Low Channel/ 30MHz to 1GHz:



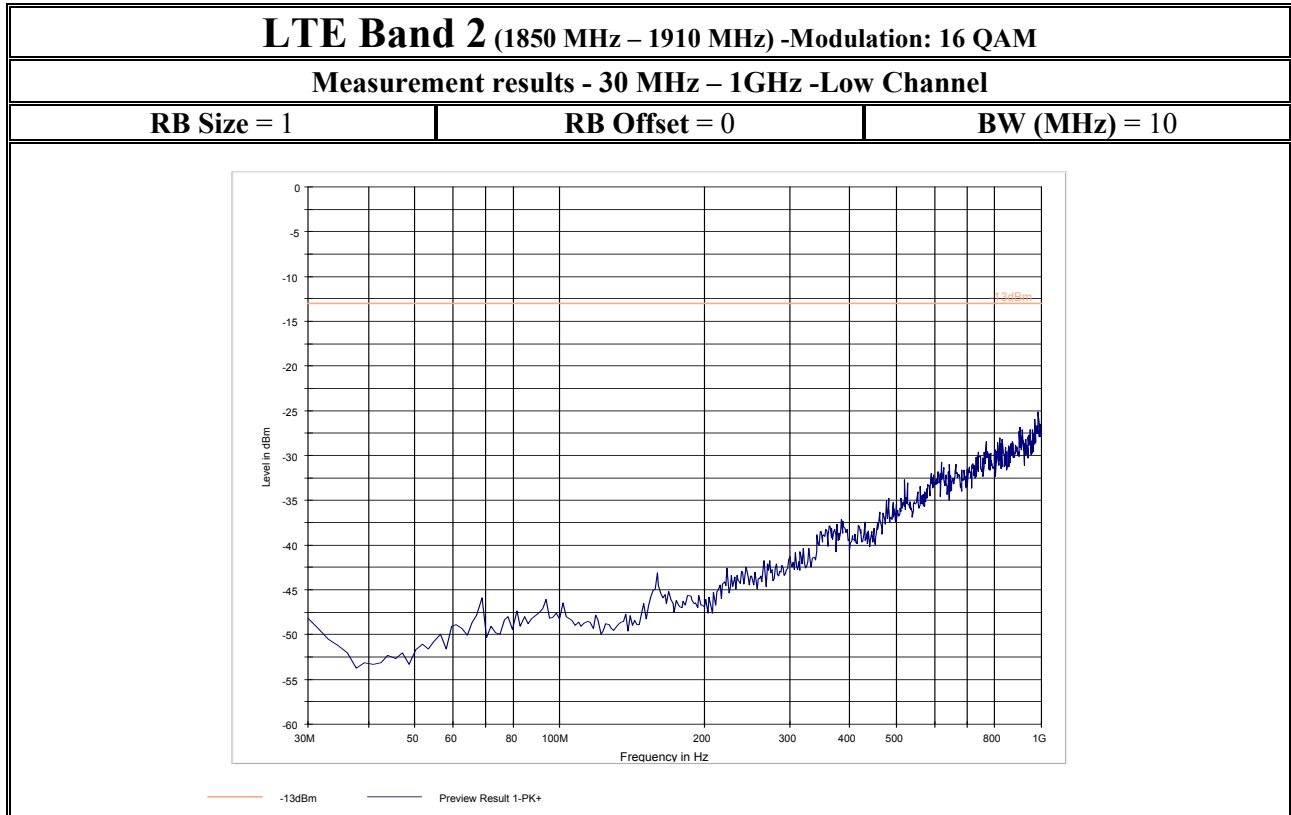
6.7.8.1.15 16 QAM/ 5MHz/ Mid Channel/ 30MHz to 1GHz:



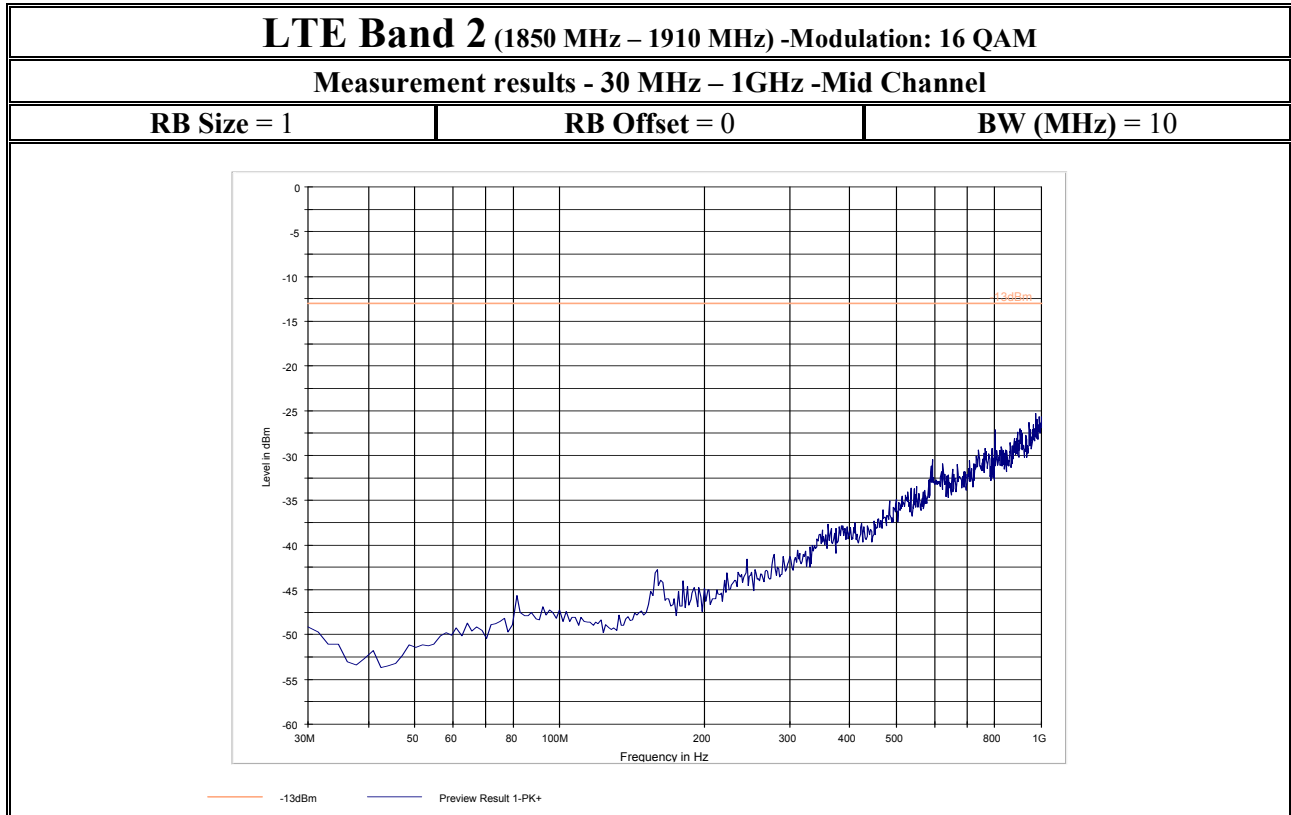
6.7.8.1.16 16 QAM/ 5MHz/ High Channel 30MHz to 1GHz:



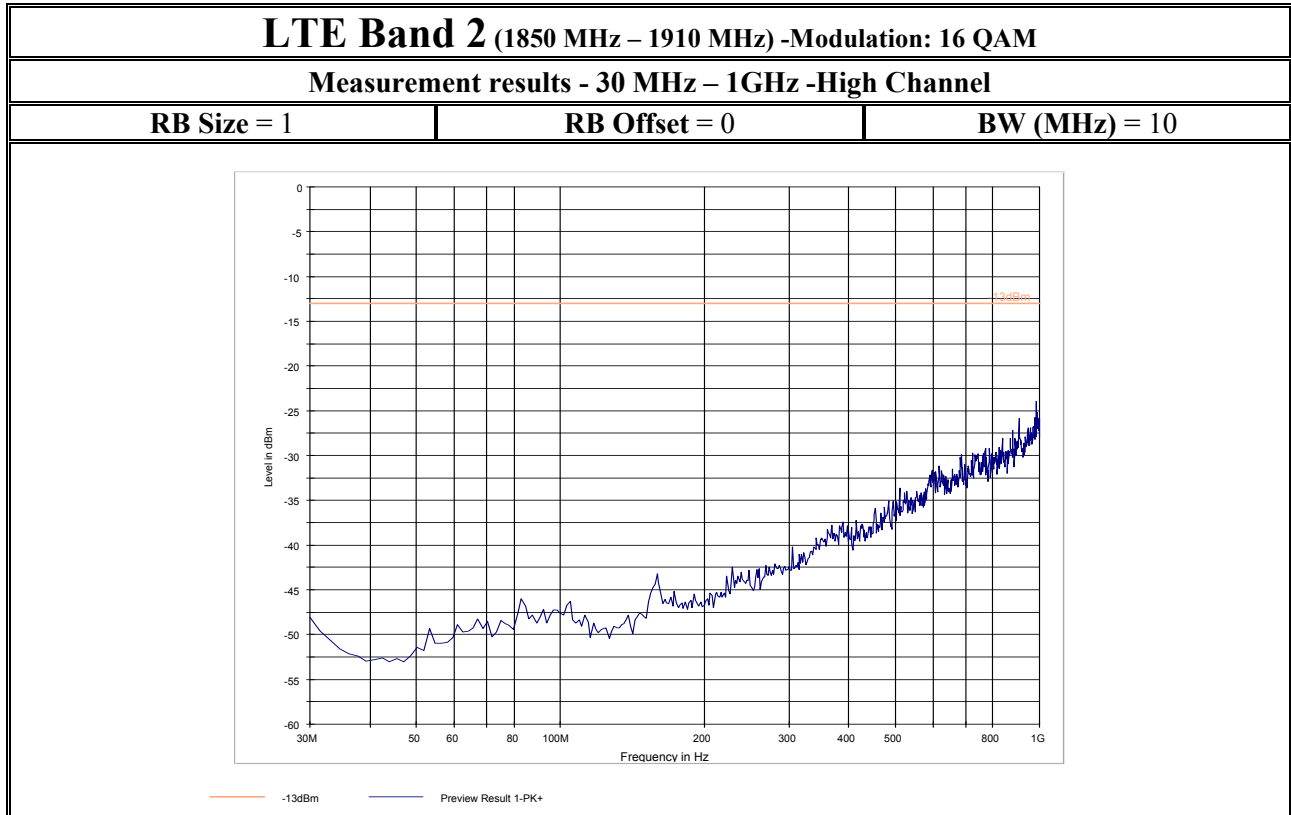
6.7.8.1.17 16 QAM/ 10MHz/ Low Channel/ 30MHz to 1GHz:



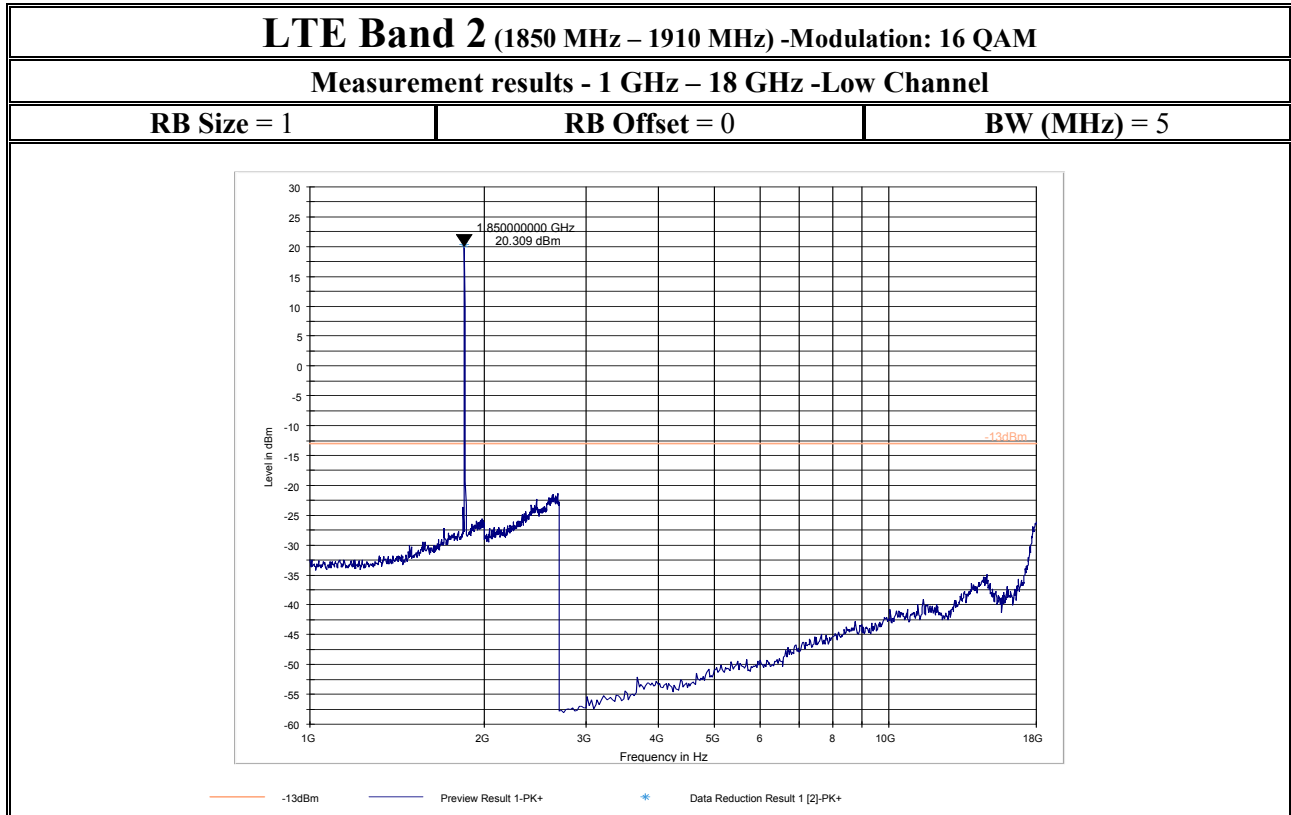
6.7.8.1.18 16 QAM/ 10MHz/ Mid Channel/ 30MHz to 1GHz:



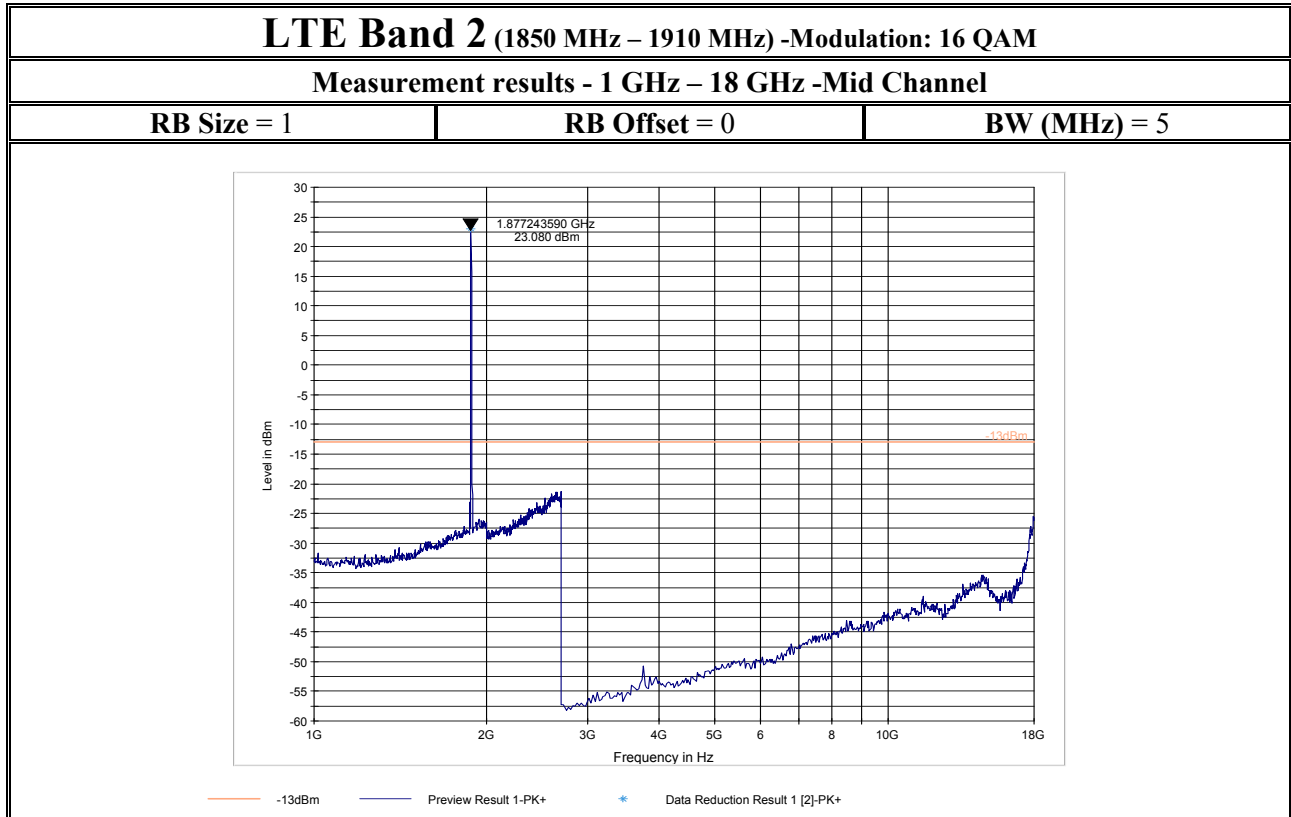
6.7.8.1.19 16 QAM/ 10MHz/ High Channel/ 30MHz to 1GHz:



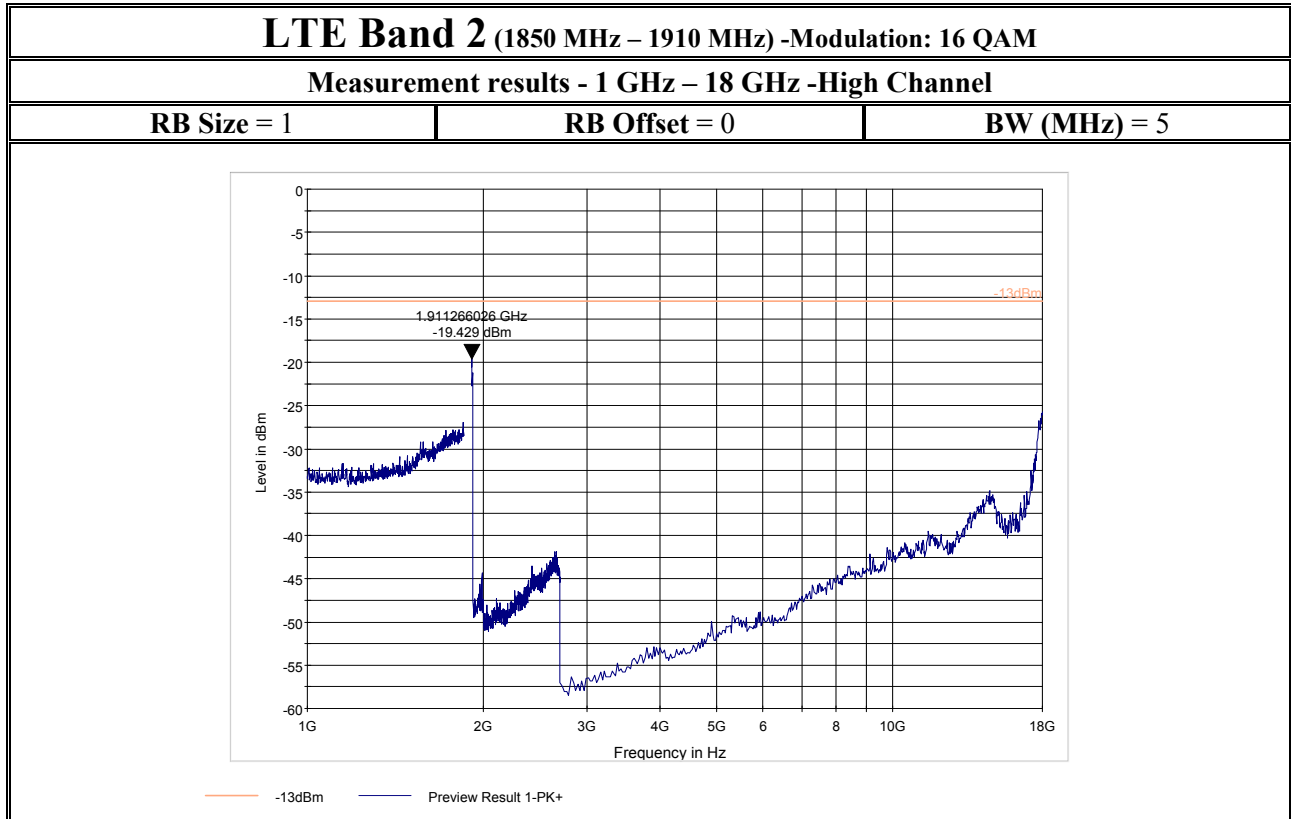
6.7.8.1.20 16 QAM/ 5MHz/ Low Channel/ 1GHz to 18GHz:



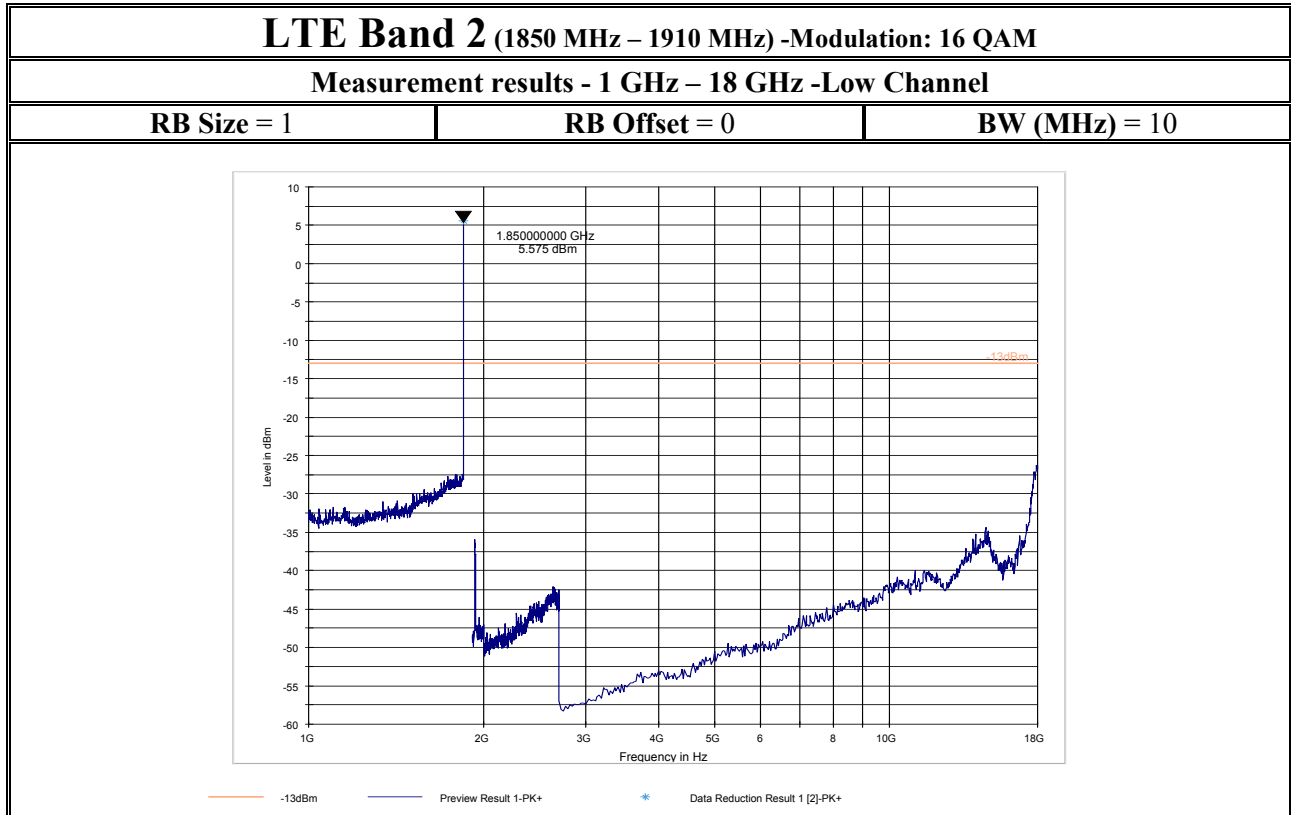
6.7.8.1.21 16 QAM/ 5MHz/ Mid Channel/ 1GHz to 18GHz:



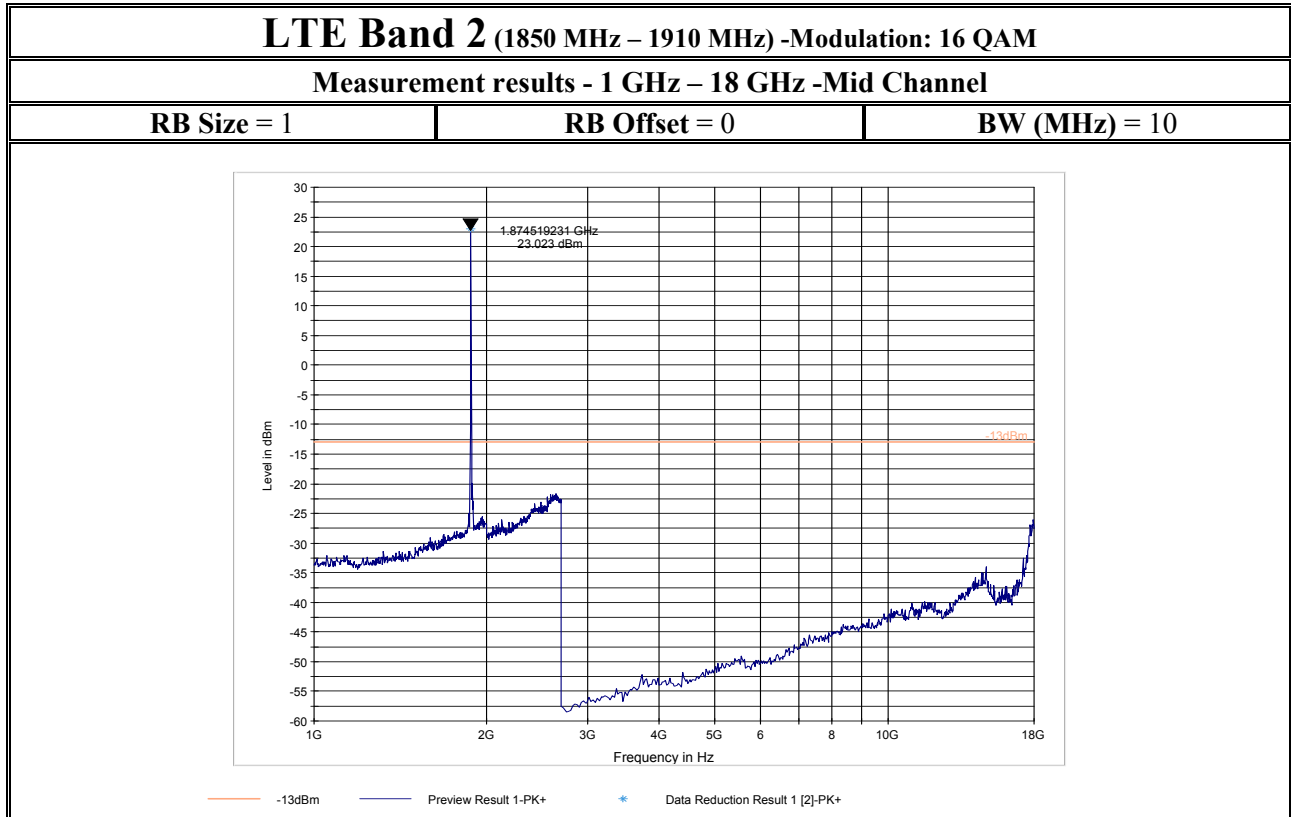
6.7.8.1.22 16 QAM/ 5MHz/ High Channel/ 1GHz to 18GHz:



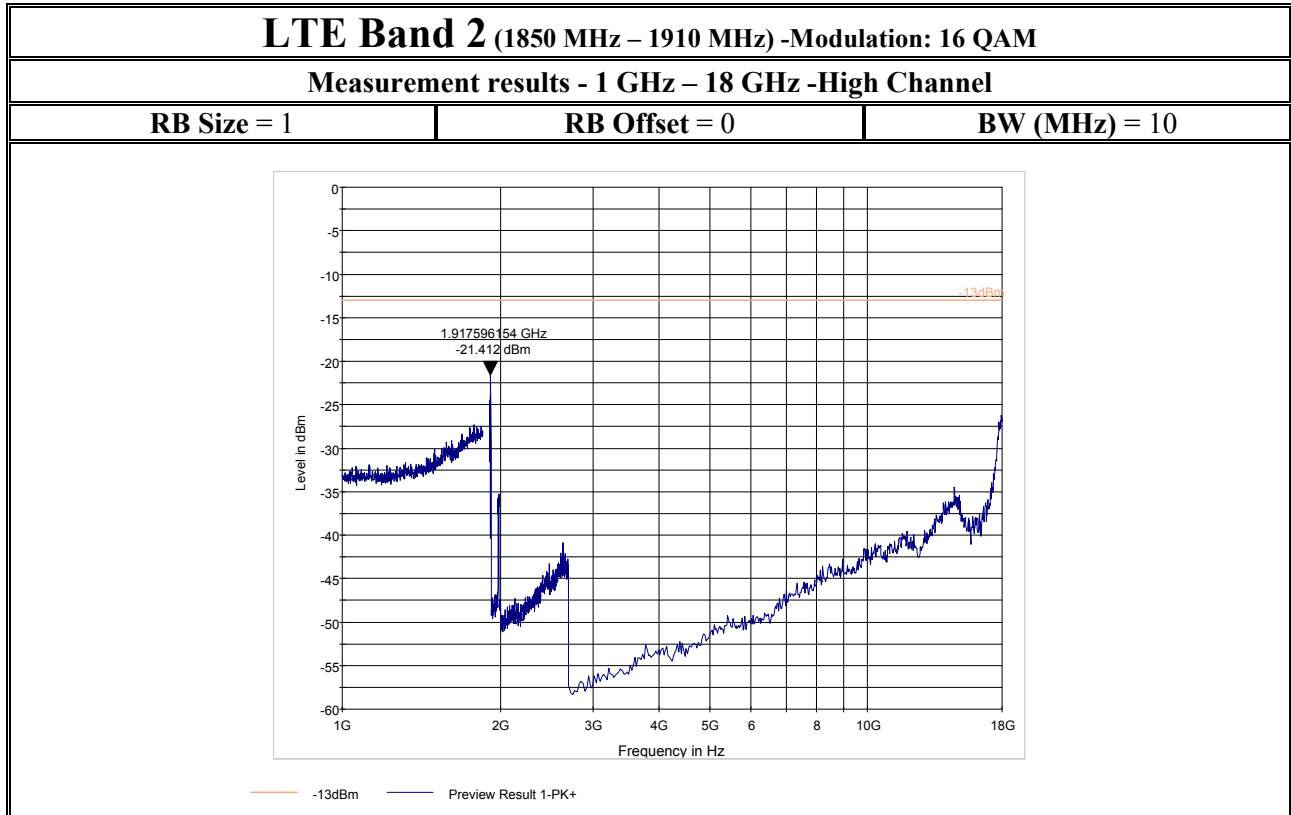
6.7.8.1.23 16 QAM/ 10MHz/ Low Channel/ 1GHz to 18GHz:



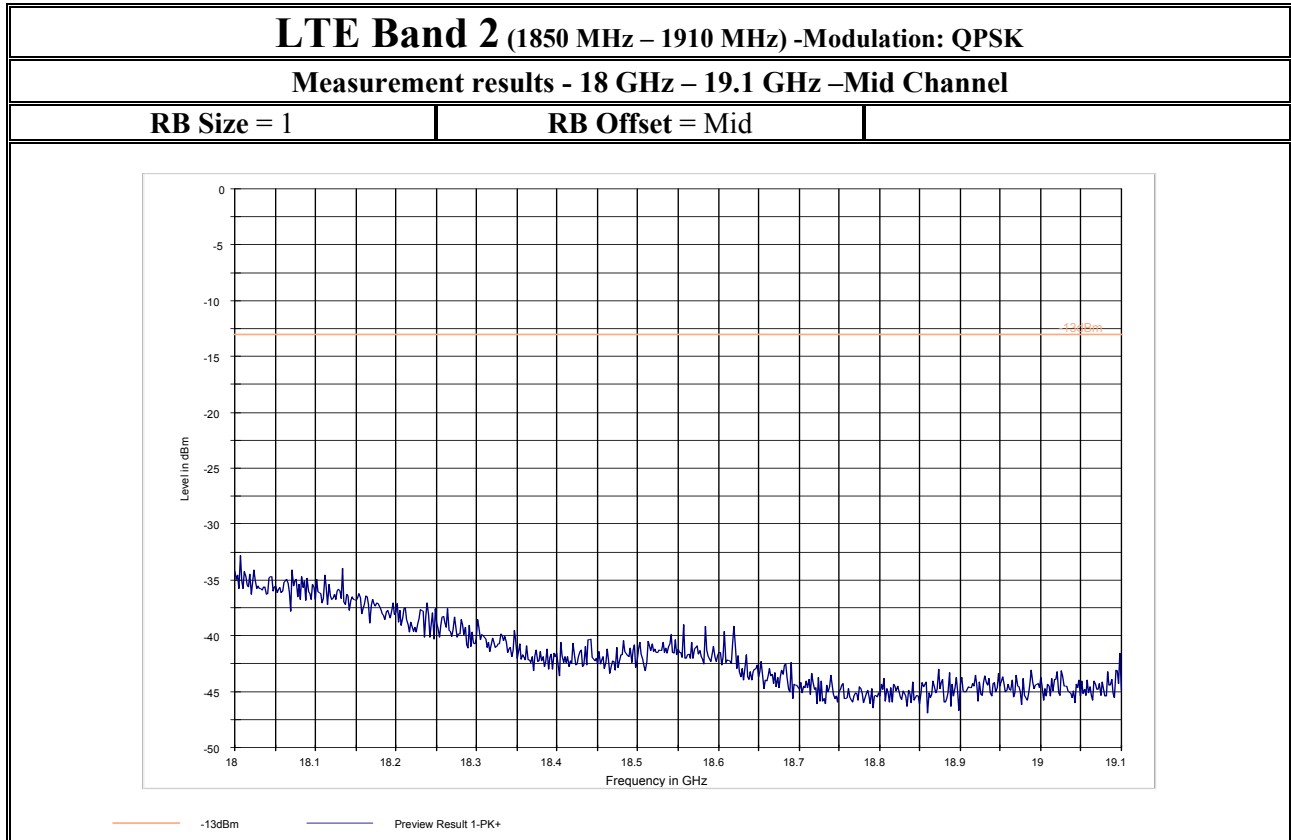
6.7.8.1.24 16 QAM/ 10MHz/ Mid Channel/ 1GHz to 18GHz:



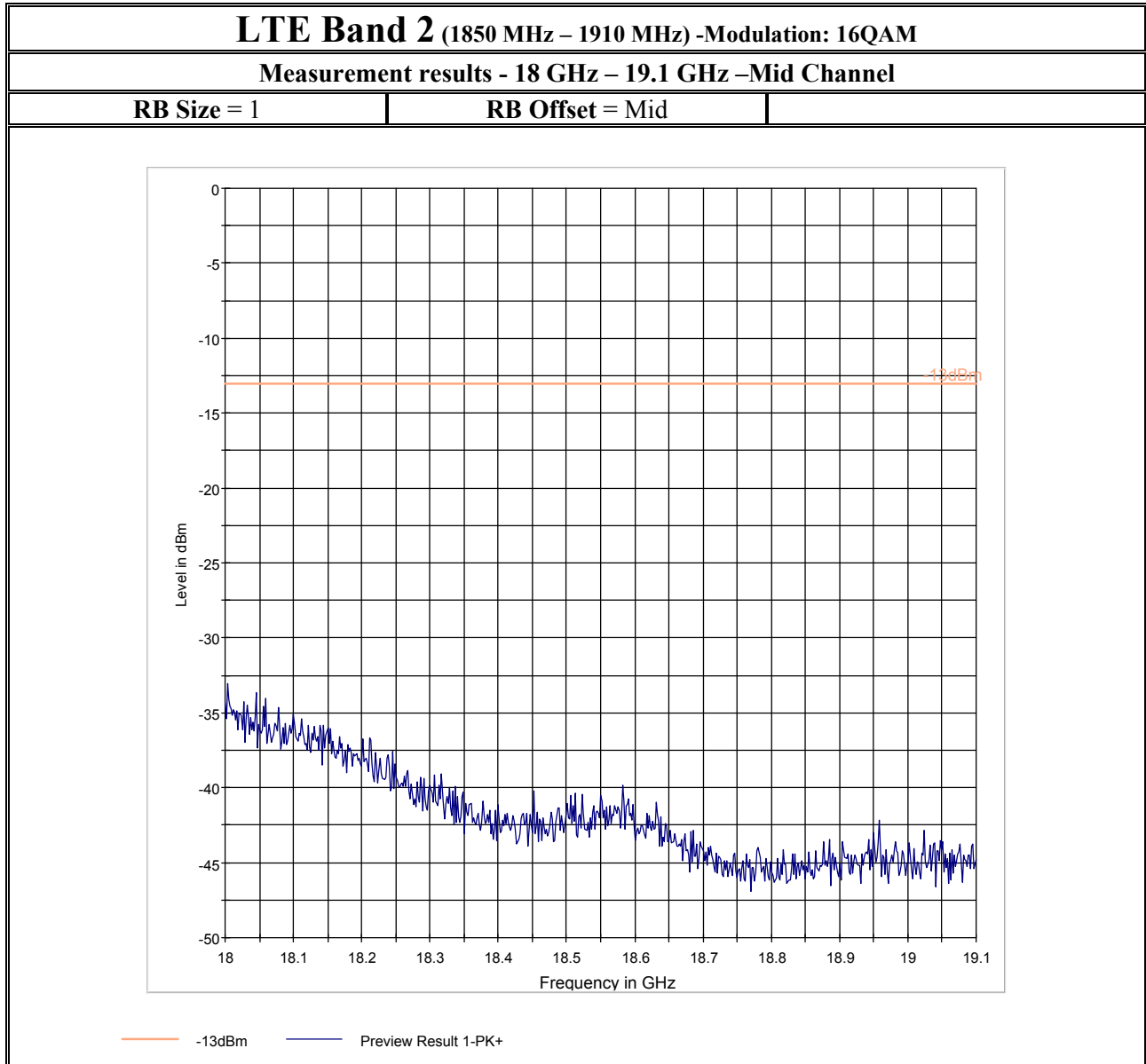
6.7.8.1.25 16 QAM/ 10MHz/ High Channel/ 1GHz to 18GHz:



6.7.8.1.26 QPSK/ 1RB Mid/ Mid Channel/ 18GHz to 19.1GHz:



6.7.8.1.27 16QAM/ 1RB Mid/ Mid Channel/ 18GHz to 19.1GHz:



6.7.8.2 Spurious Emission LTE FDD 4:

6.7.8.2.1 LTE FDD 4 Summary Tables

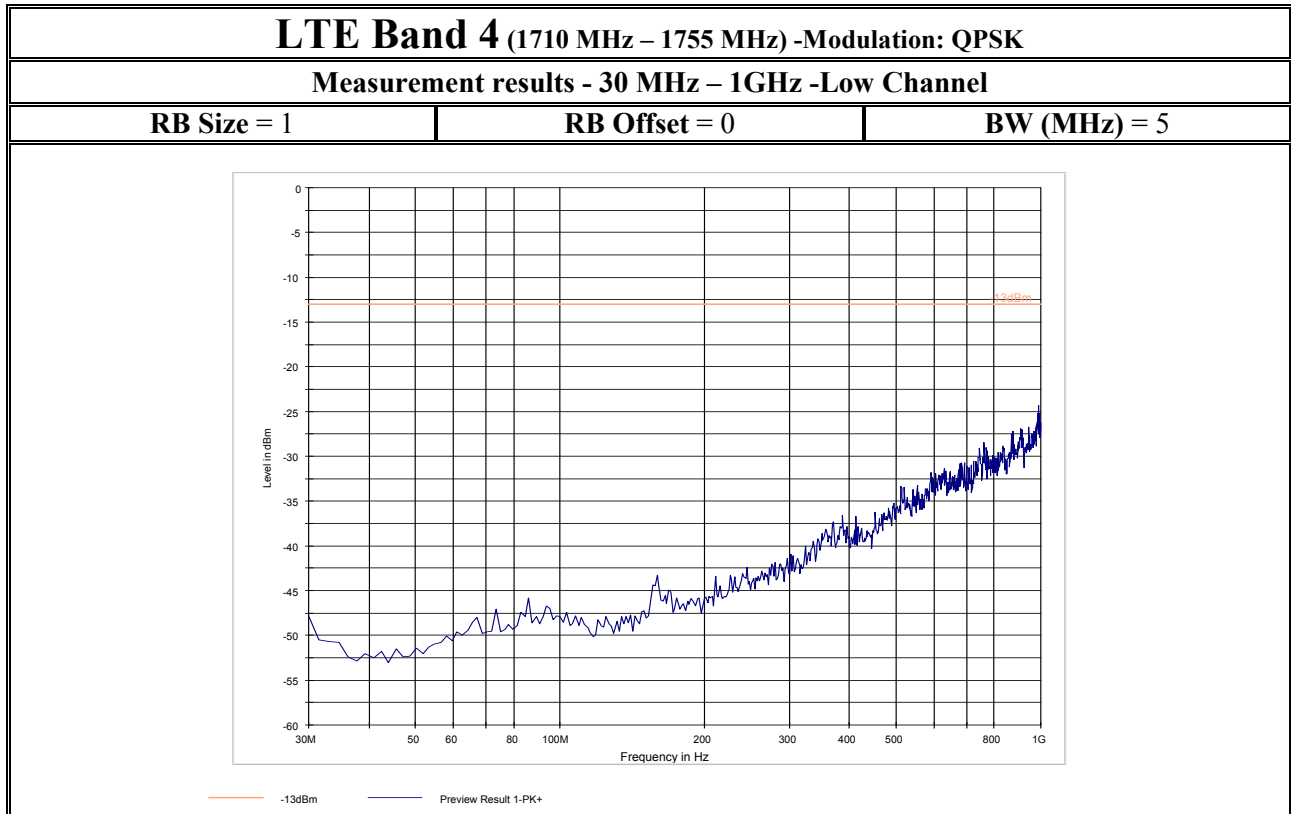
LTE Band 4 (1710 MHz – 1755 MHz) -Modulation: QPSK						
RB Size = 1			RB Offset = 0		BW (MHz) = 5	
Harmonic	Tx ch-19975 Freq. (MHz)	Level (dBm)	Tx ch-20175 Freq. (MHz)	Level (dBm)	Tx ch-20375 Freq. (MHz)	Level (dBm)
1	1712.5	22.333	1732.5	17.241	1752.5	23.873
2	3425	NF	3465	NF	3505	NF
3	5137.5	NF	5197.5	NF	5257.5	NF
4	6850	NF	6930	NF	7010	NF
5	8562.5	NF	8662.5	NF	8762.5	NF
6	10275	NF	10395	NF	10515	NF
7	11987.5	NF	12127.5	NF	12267.5	NF
8	13700	NF	13860	NF	14020	NF
9	15412.5	NF	15592.5	NF	15772.5	NF
10	17125	NF	17325	NF	17525	NF
NF= Noise Floor						

LTE Band 4 (1710 MHz – 1755 MHz) -Modulation: QPSK						
RB Size = 1			RB Offset = 0		BW (MHz) = 10	
Harmonic	Tx ch-20000 Freq. (MHz)	Level (dBm)	Tx ch-20175 Freq. (MHz)	Level (dBm)	Tx ch-20350 Freq. (MHz)	Level (dBm)
1	1715	22.790	1732.5	17.451	1750	22.078
2	3430	NF	3465	NF	3500	NF
3	5145	NF	5197.5	NF	5250	NF
4	6860	NF	6930	NF	7000	NF
5	8575	NF	8662.5	NF	8750	NF
6	10290	NF	10395	NF	10500	NF
7	12005	NF	12127.5	NF	12250	NF
8	13720	NF	13860	NF	14000	NF
9	15435	NF	15592.5	NF	15750	NF
10	17150	NF	17325	NF	17500	NF
NF= Noise Floor						

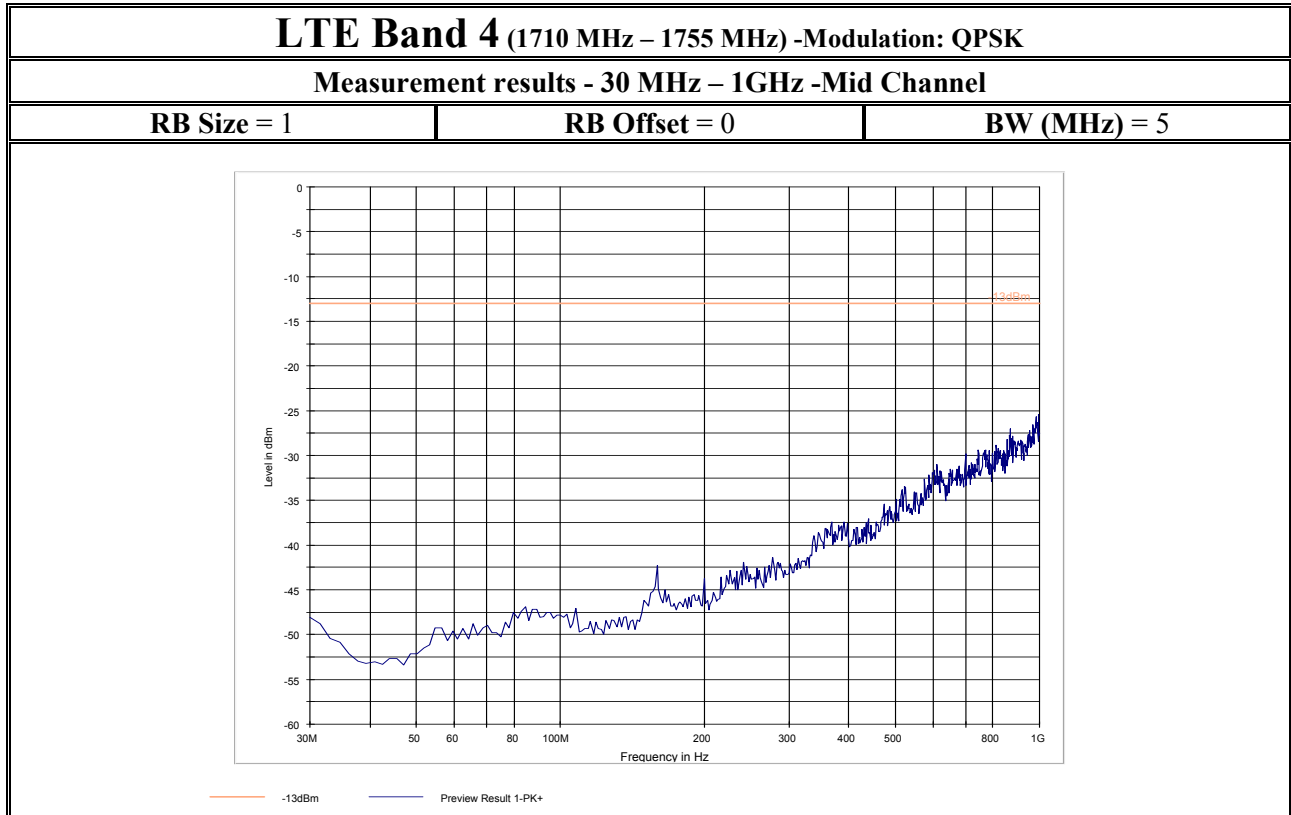
LTE Band 4 (1710 MHz – 1755 MHz) -Modulation: 16 QAM						
RB Size = 1			RB Offset = 0		BW (MHz) = 5	
Harmonic	Tx ch-19975 Freq. (MHz)	Level (dBm)	Tx ch-20175 Freq. (MHz)	Level (dBm)	Tx ch-20375 Freq. (MHz)	Level (dBm)
1	1712.5	22.732	1732.5	17.393	1752.5	22.304
2	3425	NF	3465	NF	3505	NF
3	5137.5	NF	5197.5	NF	5257.5	NF
4	6850	NF	6930	NF	7010	NF
5	8562.5	NF	8662.5	NF	8762.5	NF
6	10275	NF	10395	NF	10515	NF
7	11987.5	NF	12127.5	NF	12267.5	NF
8	13700	NF	13860	NF	14020	NF
9	15412.5	NF	15592.5	NF	15772.5	NF
10	17125	NF	17325	NF	17525	NF
NF= Noise Floor						

LTE Band 4 (824 MHz – 849 MHz) -Modulation: 16 QAM						
RB Size = 1			RB Offset = 0		BW (MHz) = 10	
Harmonic	Tx ch-20000 Freq. (MHz)	Level (dBm)	Tx ch-20175 Freq. (MHz)	Level (dBm)	Tx ch-20350 Freq. (MHz)	Level (dBm)
1	1715	22.640	1732.5	17.713	1750	22.175
2	3430	NF	3465	NF	3500	NF
3	5145	NF	5197.5	NF	5250	NF
4	6860	NF	6930	NF	7000	NF
5	8575	NF	8662.5	NF	8750	NF
6	10290	NF	10395	NF	10500	NF
7	12005	NF	12127.5	NF	12250	NF
8	13720	NF	13860	NF	14000	NF
9	15435	NF	15592.5	NF	15750	NF
10	17150	NF	17325	NF	17500	NF
NF= Noise Floor						

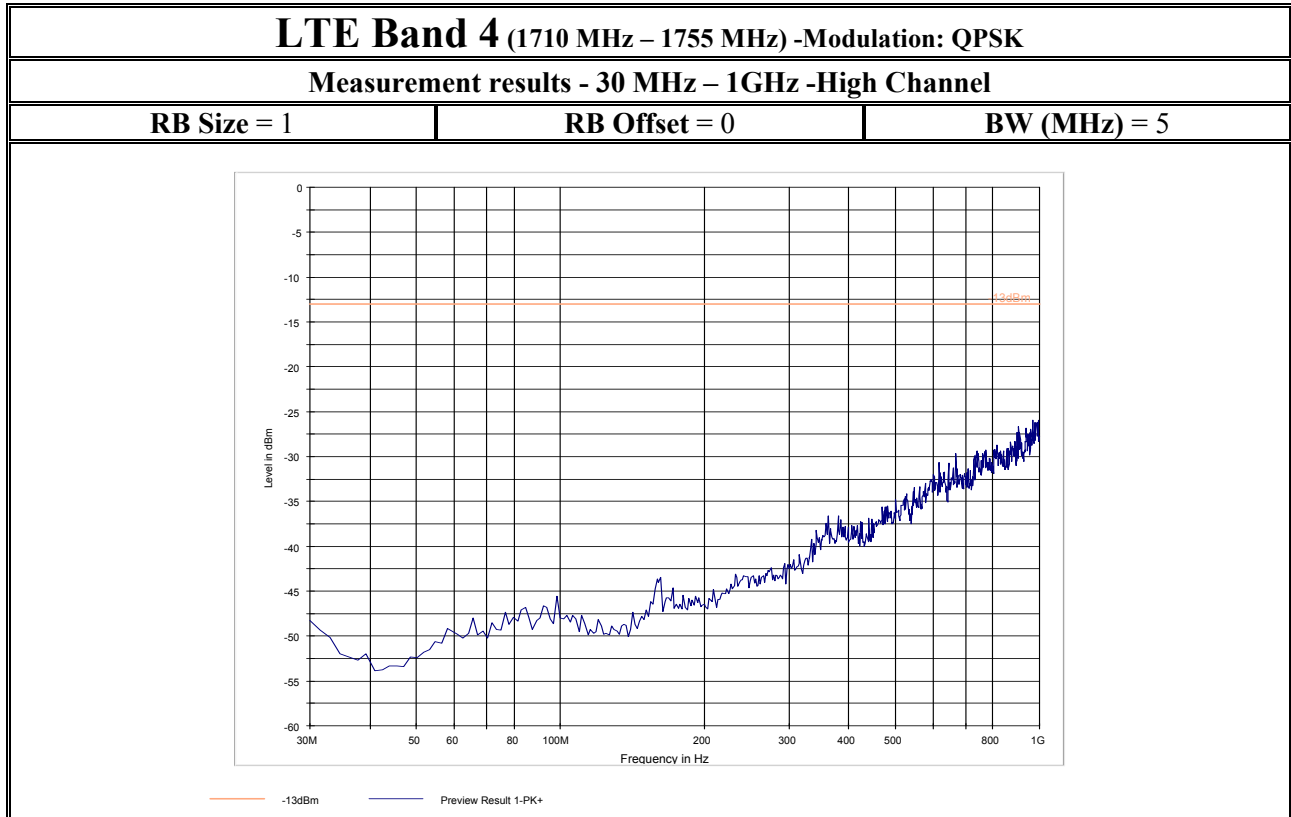
6.7.8.2.2 QPSK/ 5MHz/ Low Channel/ 30MHz to 1GHz



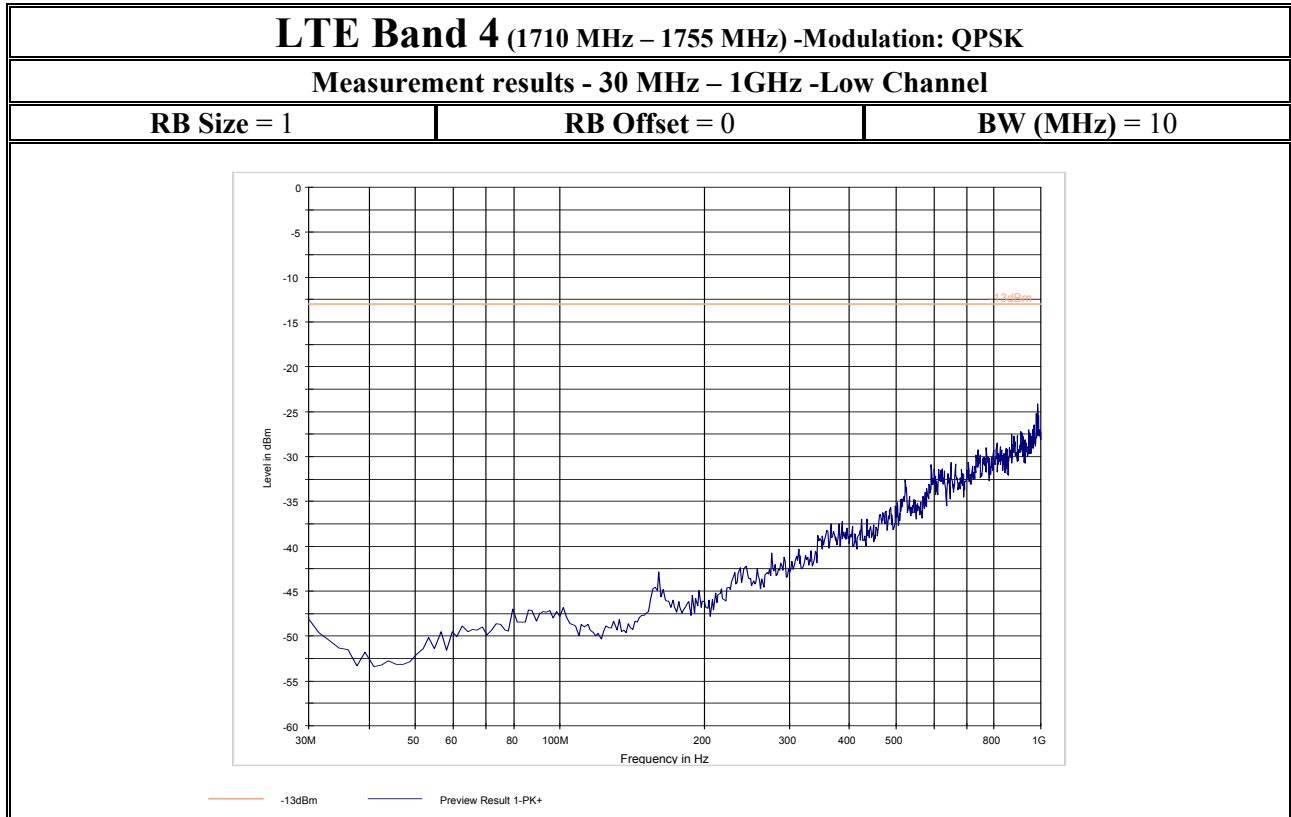
6.7.8.2.3 QPSK/ 5MHz/ Mid Channel/ 30MHz to 1GHz



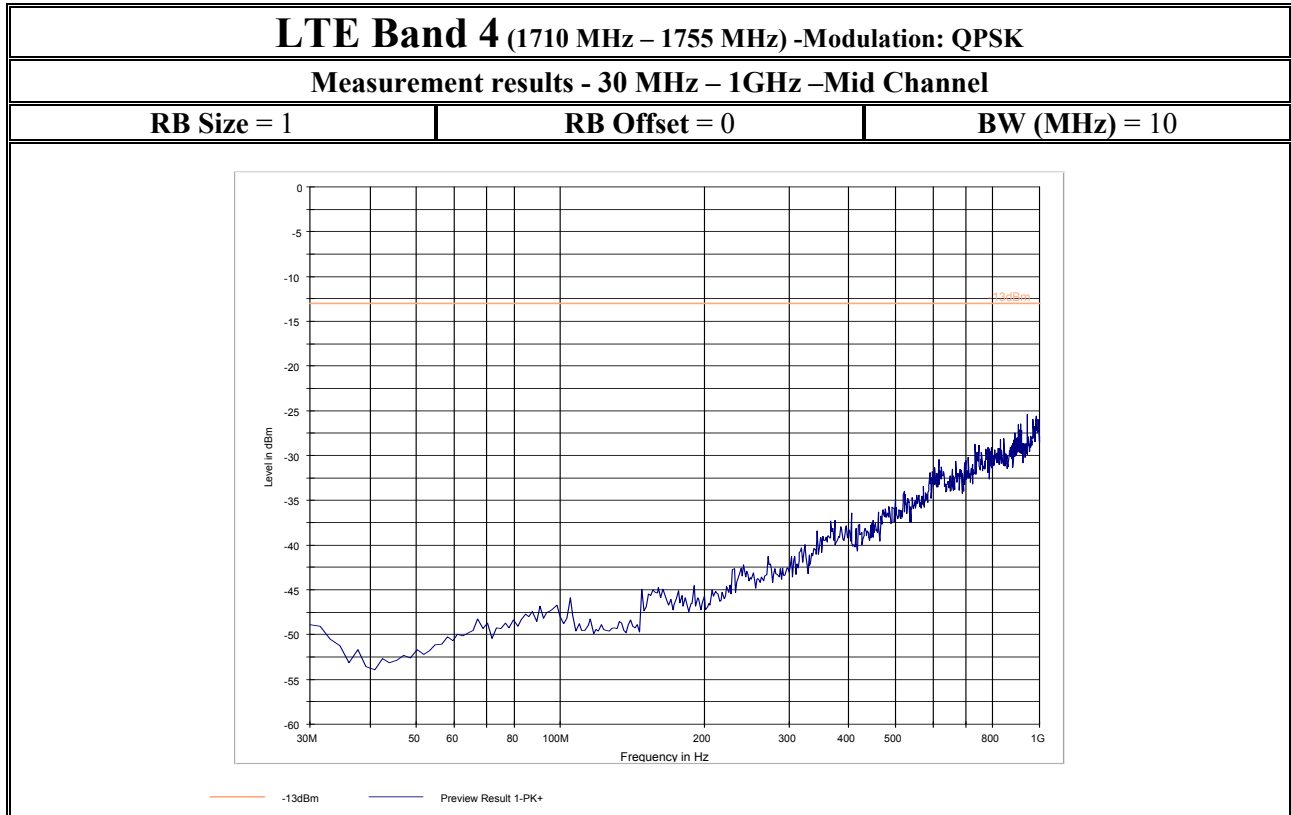
6.7.8.2.4 QPSK/ 5MHz/ High Channel/ 30MHz to 1GHz



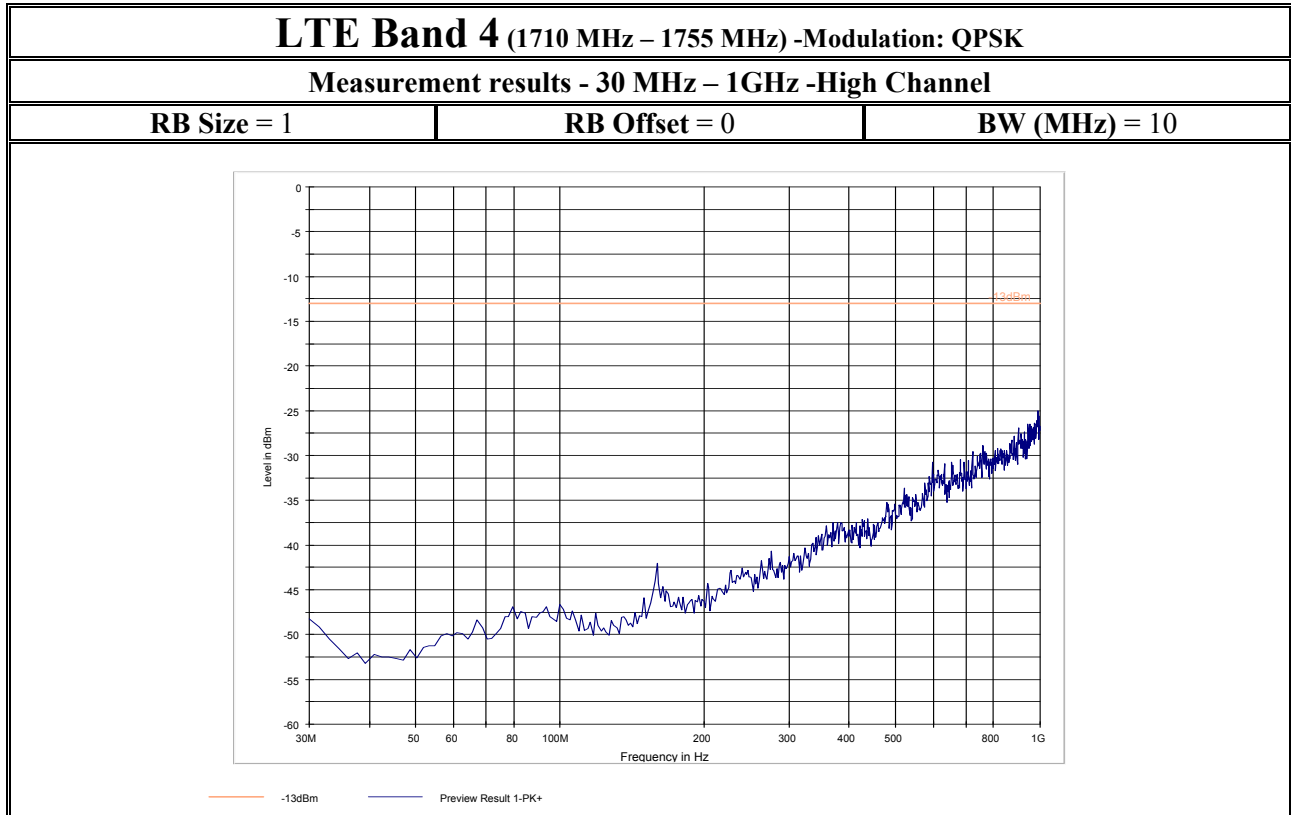
6.7.8.2.5 QPSK/ 10MHz/ Low Channel/ 30MHz to 1GHz



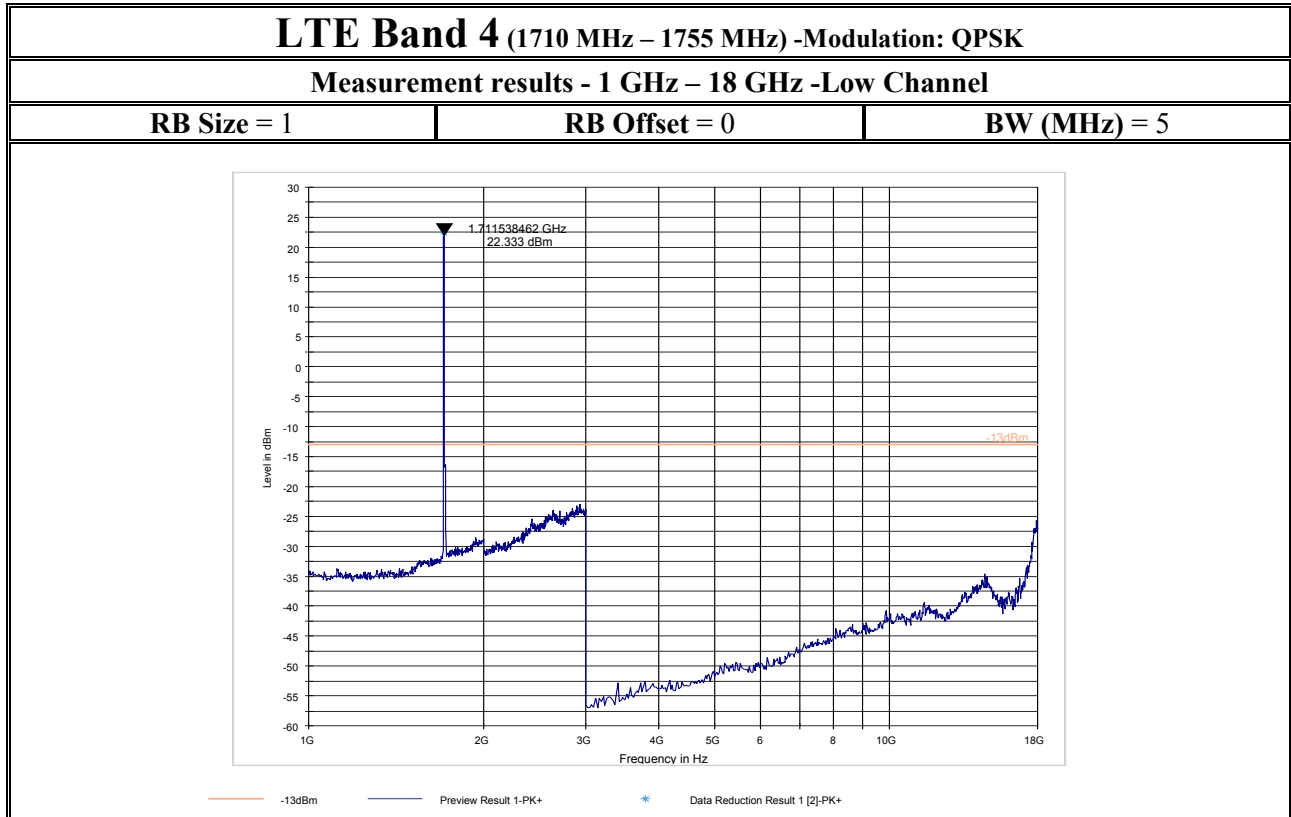
6.7.8.2.6 QPSK/ 10MHz/ Mid Channel/ 30MHz to 1GHz



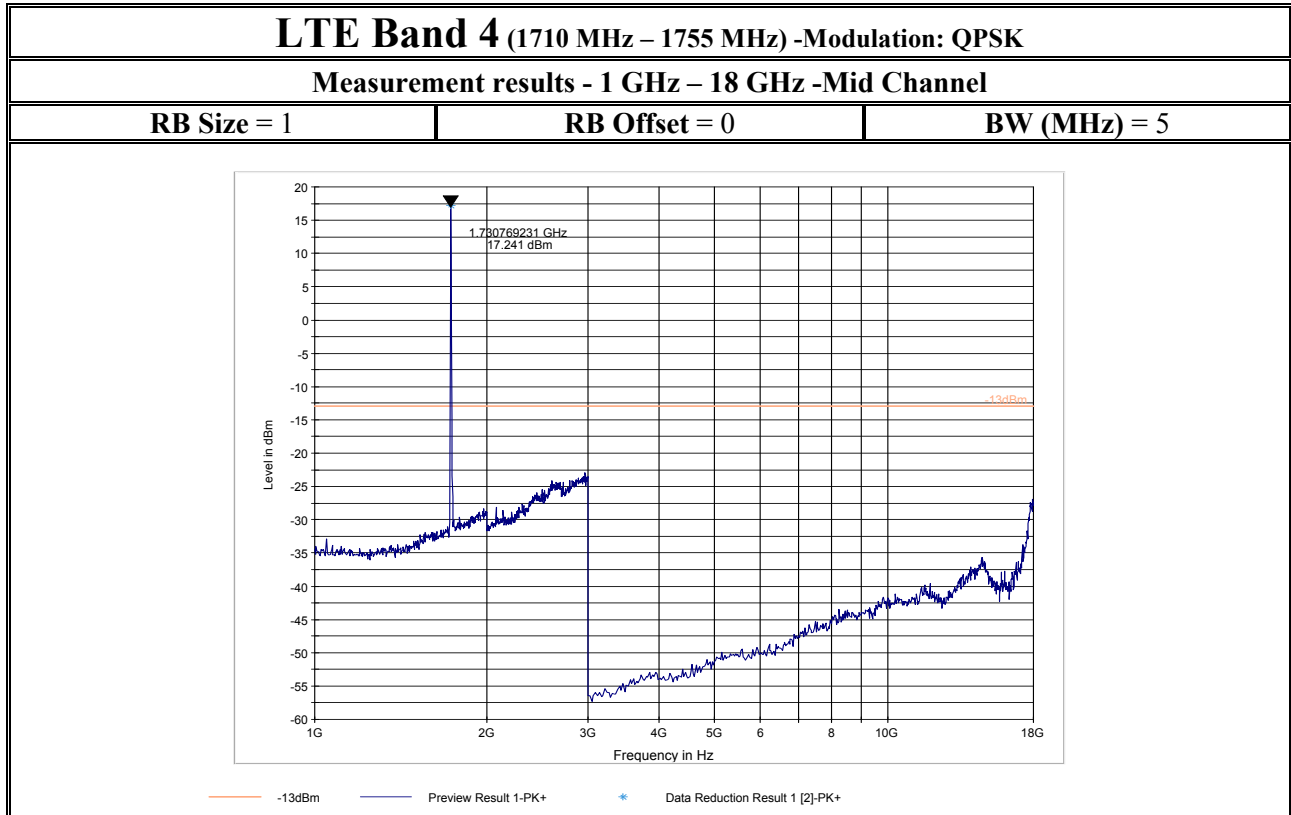
6.7.8.2.7 QPSK/ 10MHz/ High Channel/ 30MHz to 1GHz



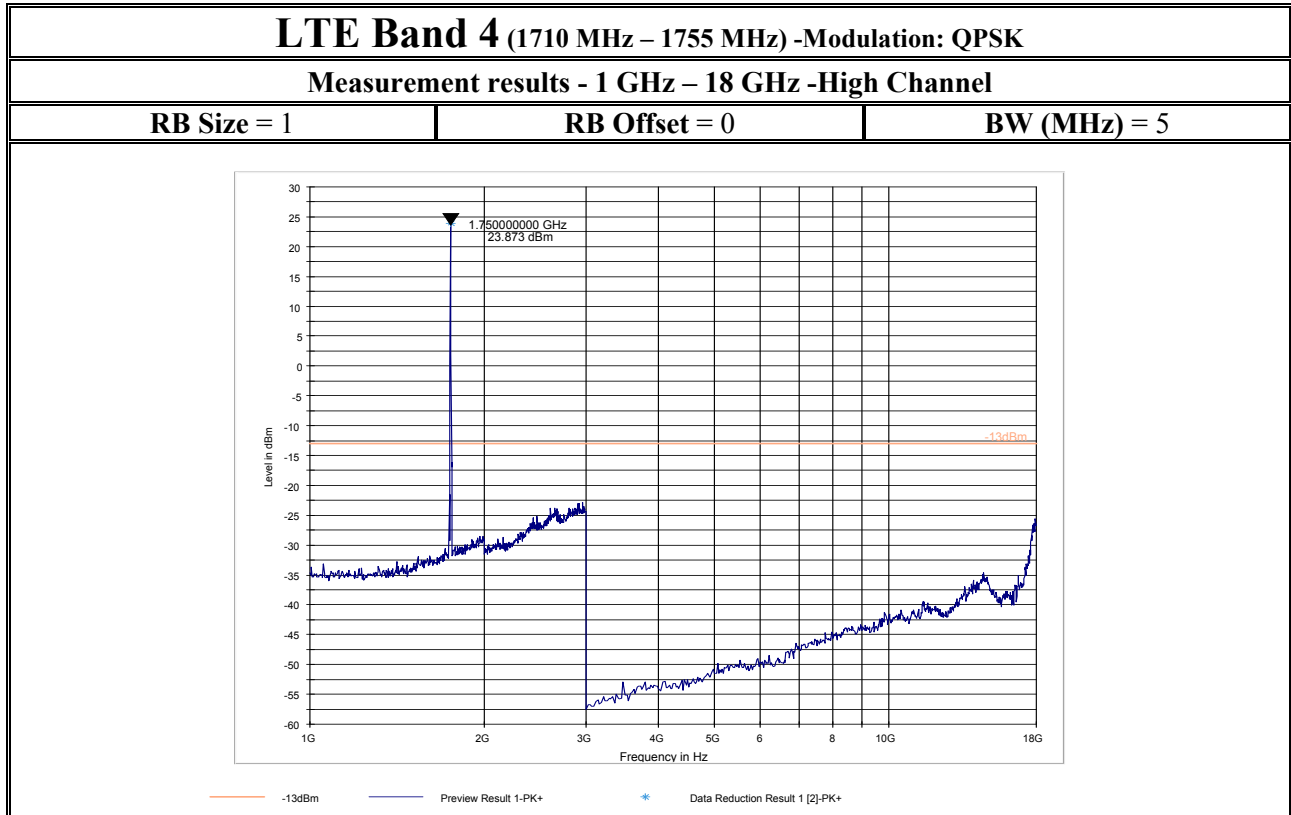
6.7.8.2.8 QPSK/ 5MHz/ Low Channel/ 1GHz to 18GHz



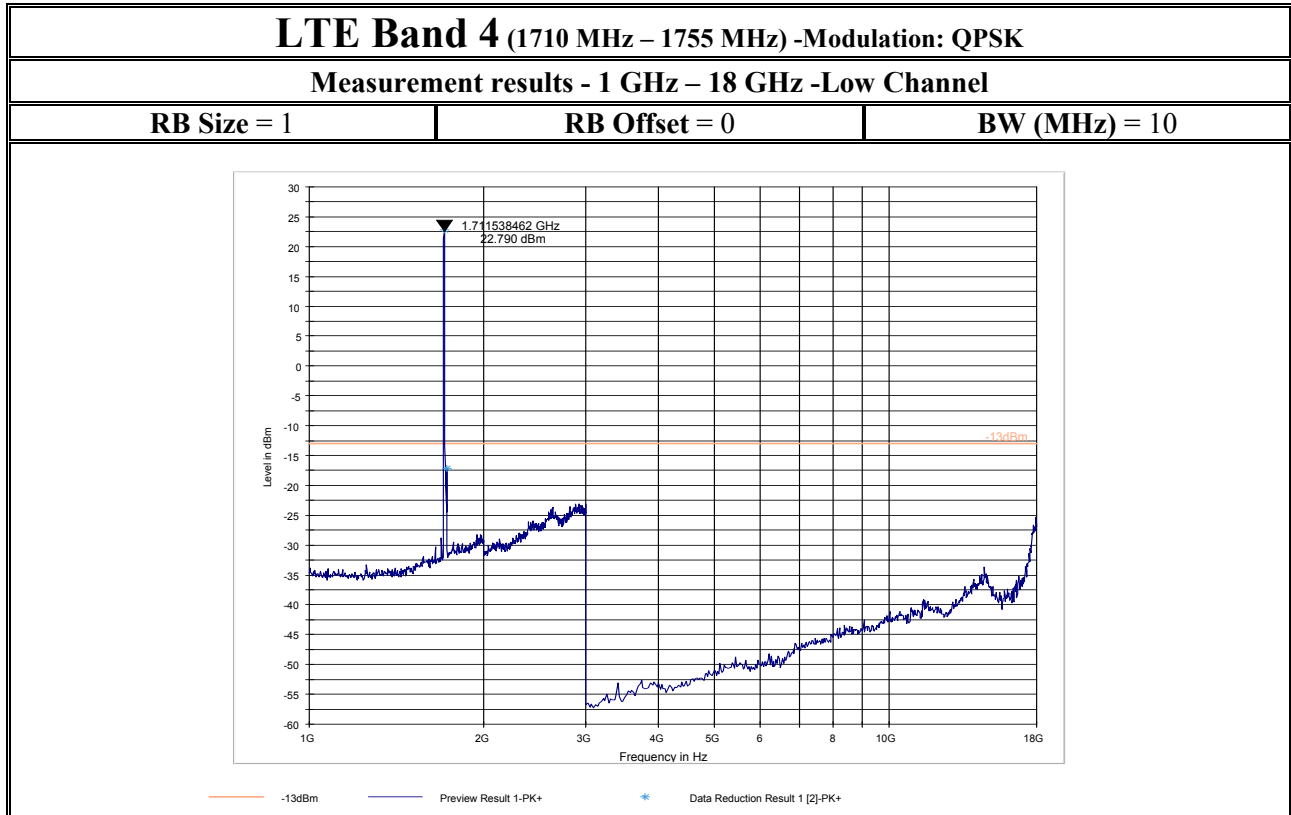
6.7.8.2.9 QPSK/ 5MHz/ Mid Channel/ 1GHz to 18GHz



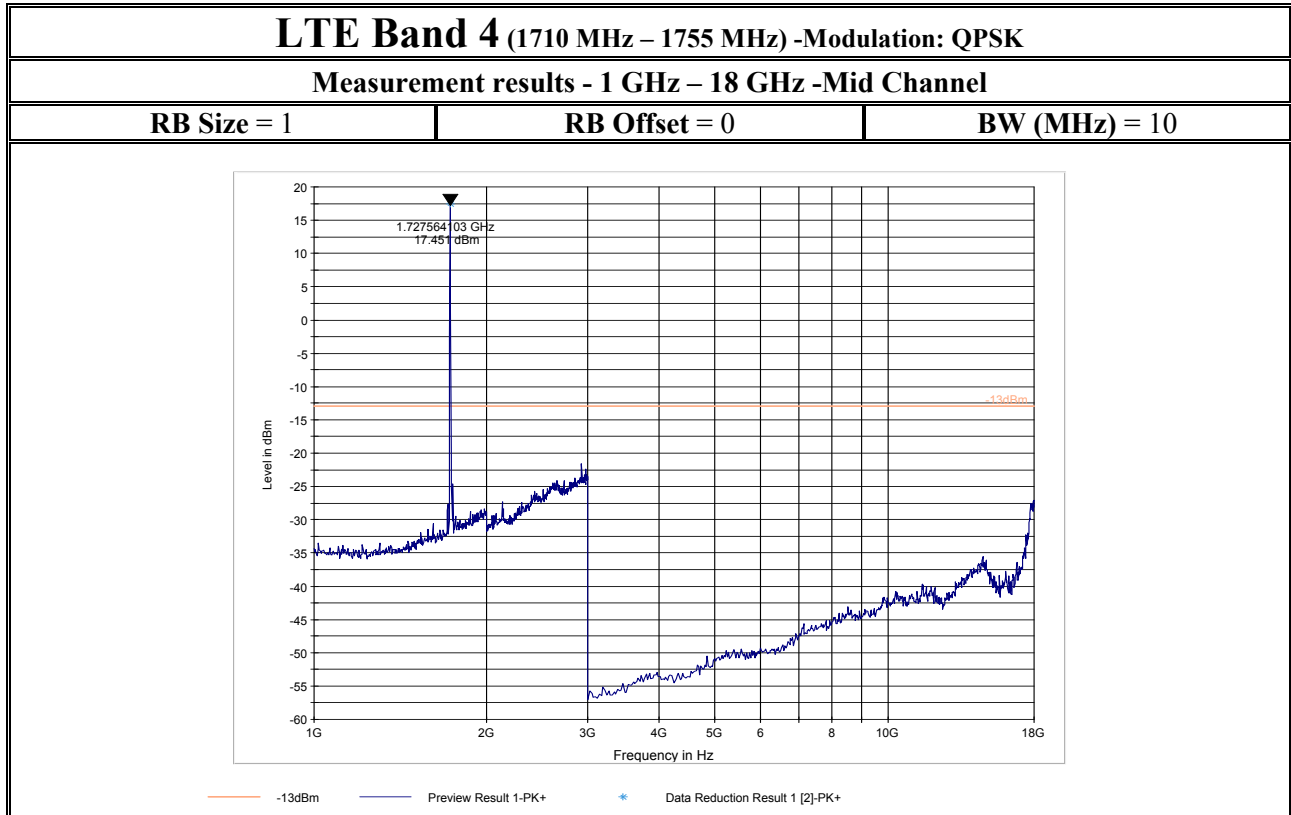
6.7.8.2.10 QPSK/ 5MHz/ High Channel/ 1GHz to 18GHz



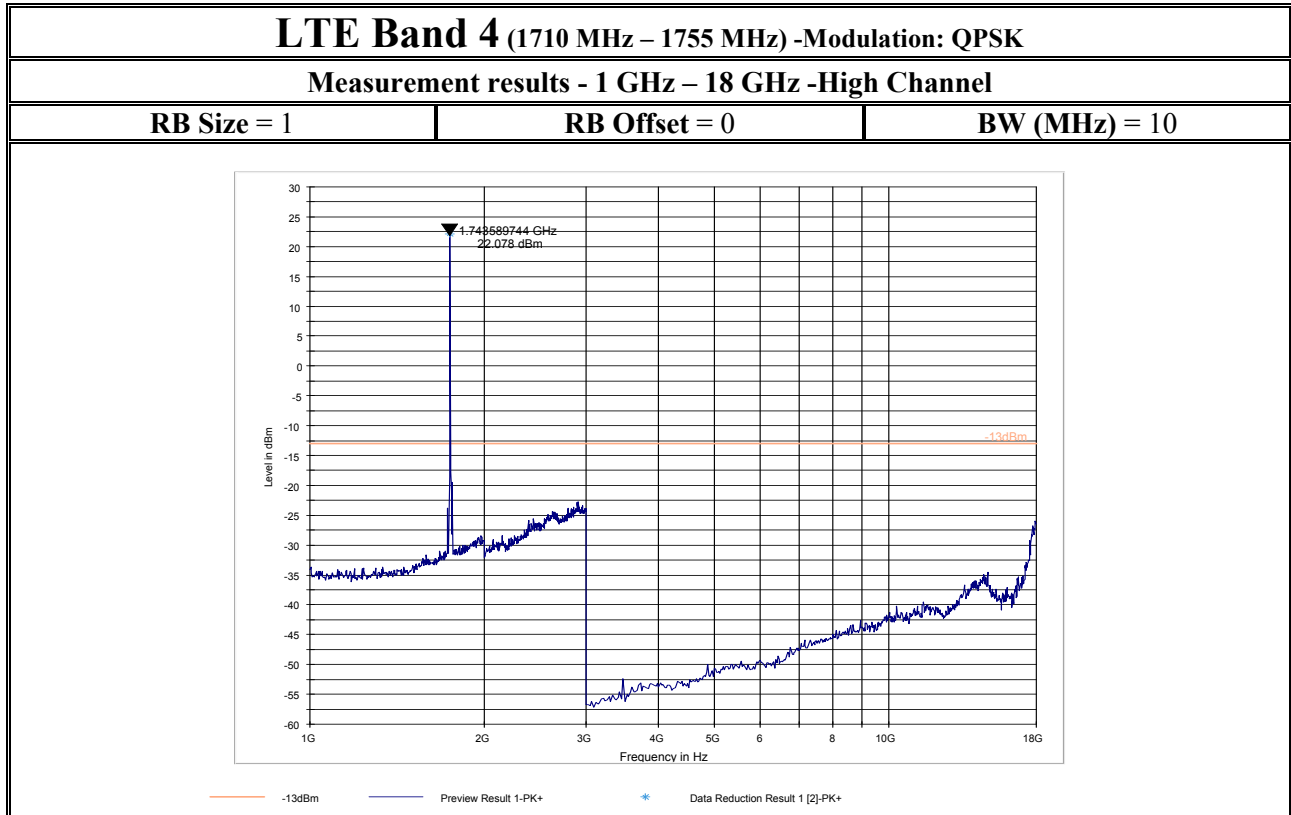
6.7.8.2.11 QPSK/ 10MHz/ Low Channel/ 1GHz to 18GHz



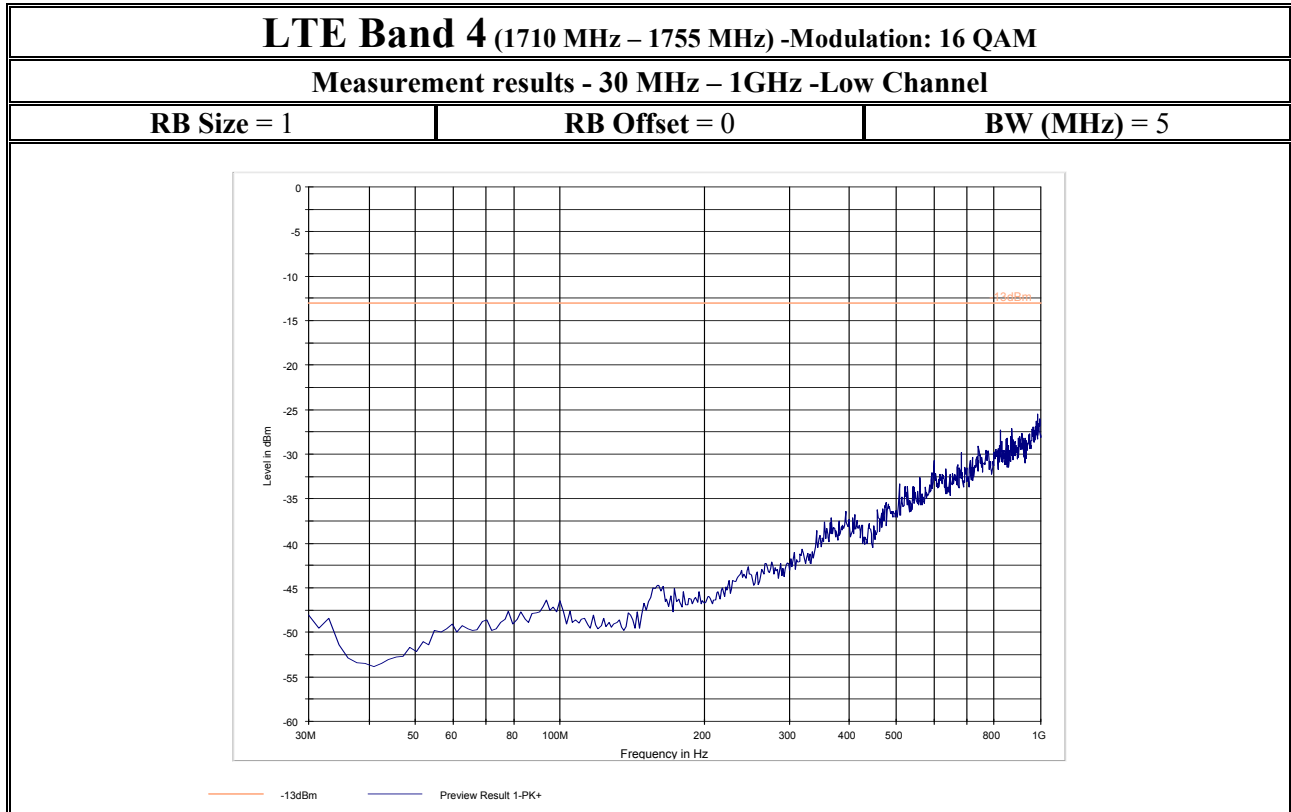
6.7.8.2.12 QPSK/ 10MHz/ Mid Channel/ 1GHz to 18GHz



6.7.8.2.13 QPSK/ 10MHz/ High Channel/ 1GHz to 18GHz

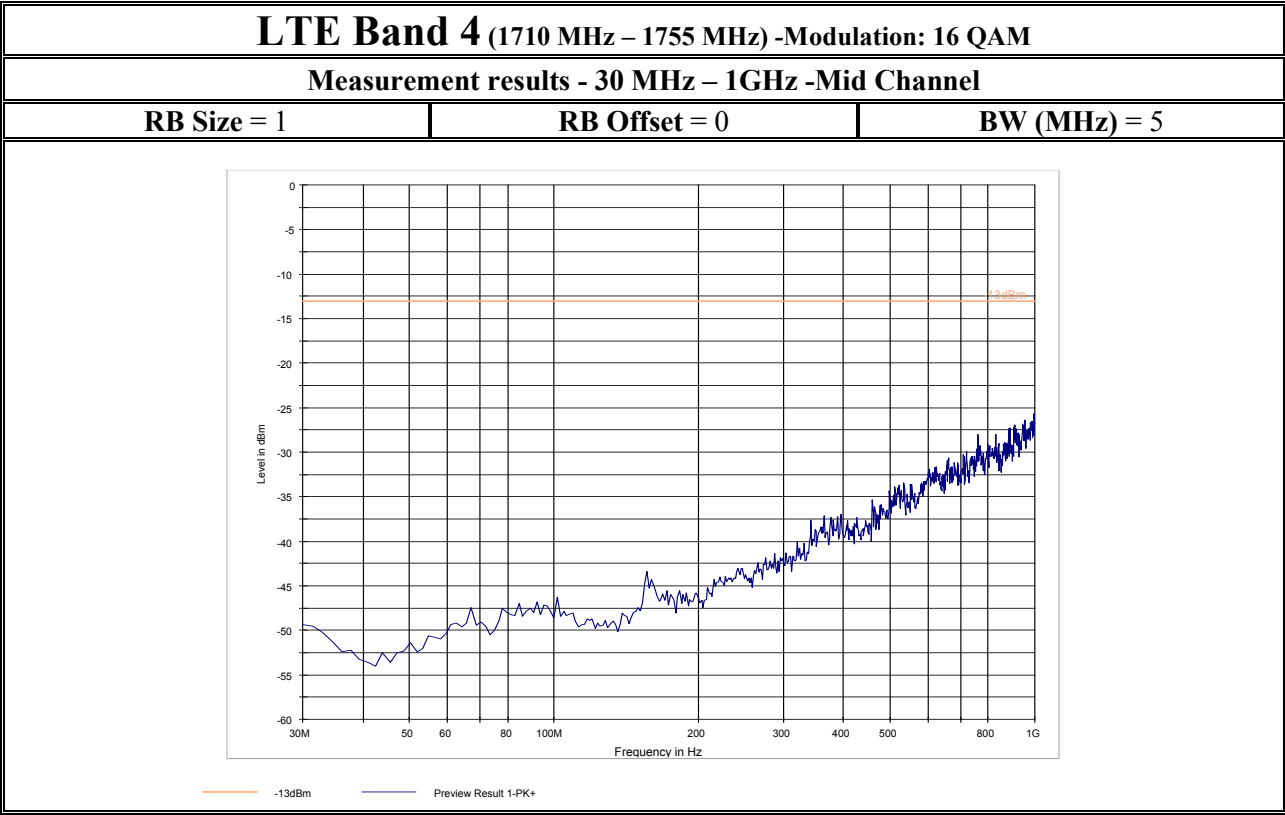


6.7.8.2.14 16 QAM/ 5MHz/ Low Channel/ 30MHz to 1GHz

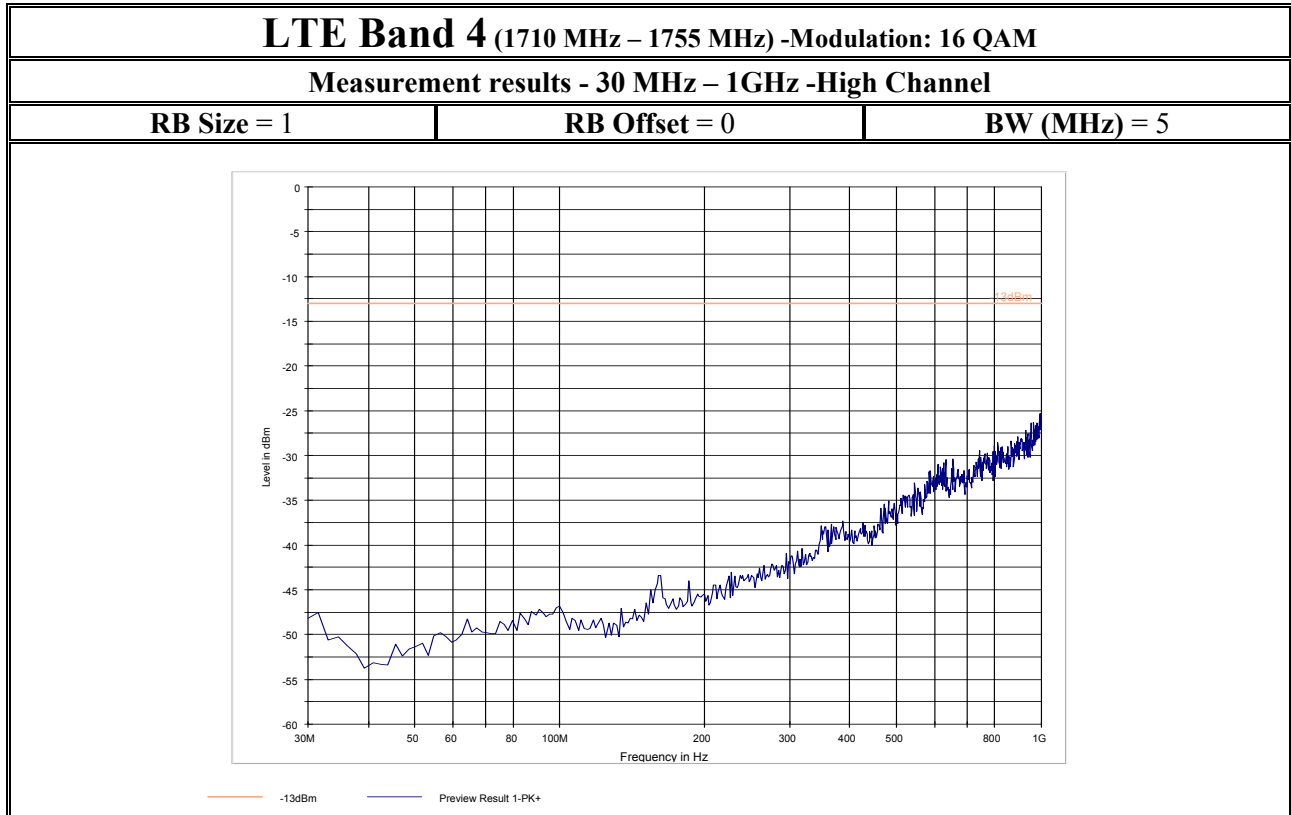




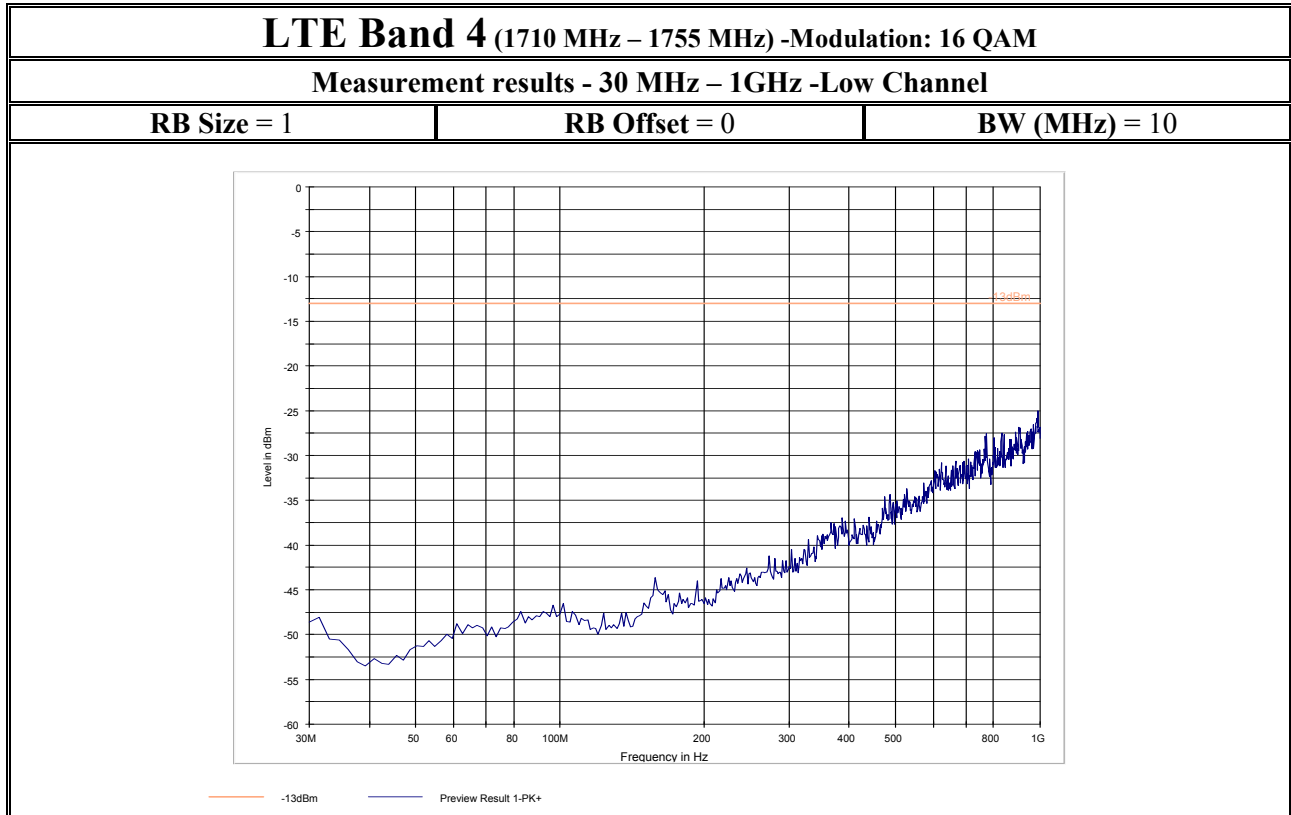
6.7.8.2.15 16 QAM/ 5MHz/ Mid Channel/ 30MHz to 1GHz



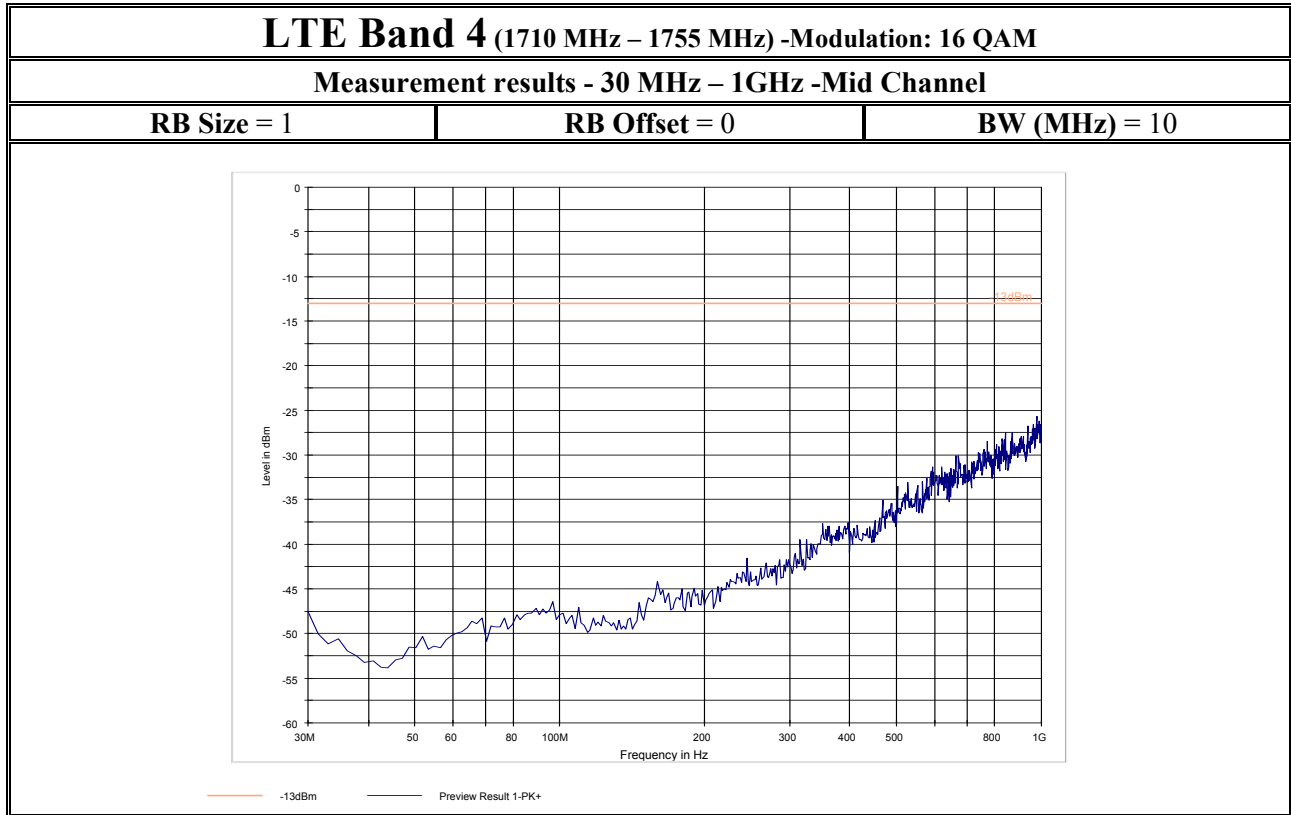
6.7.8.2.16 16 QAM/ 5MHz/ High Channel/ 30MHz to 1GHz



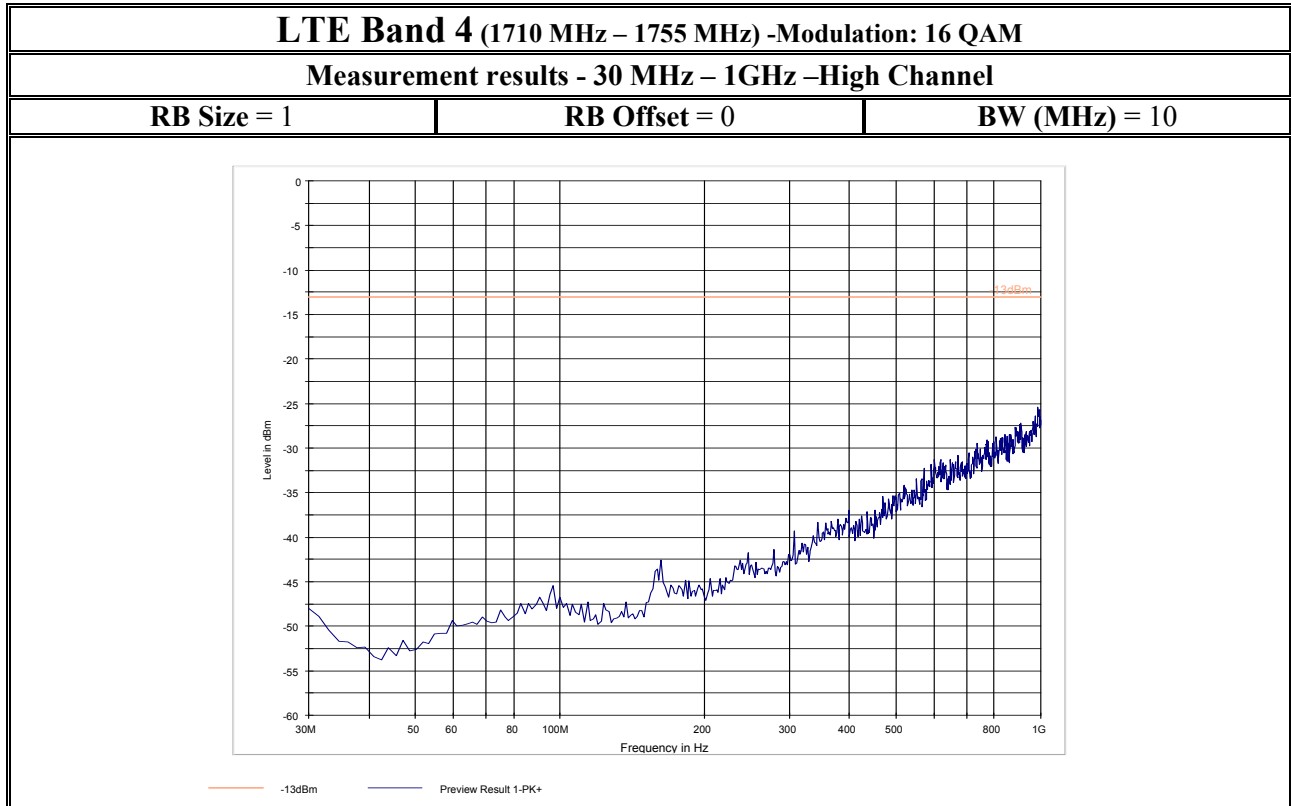
6.7.8.2.17 16 QAM/ 10MHz/ Low Channel/ 30MHz to 1GHz



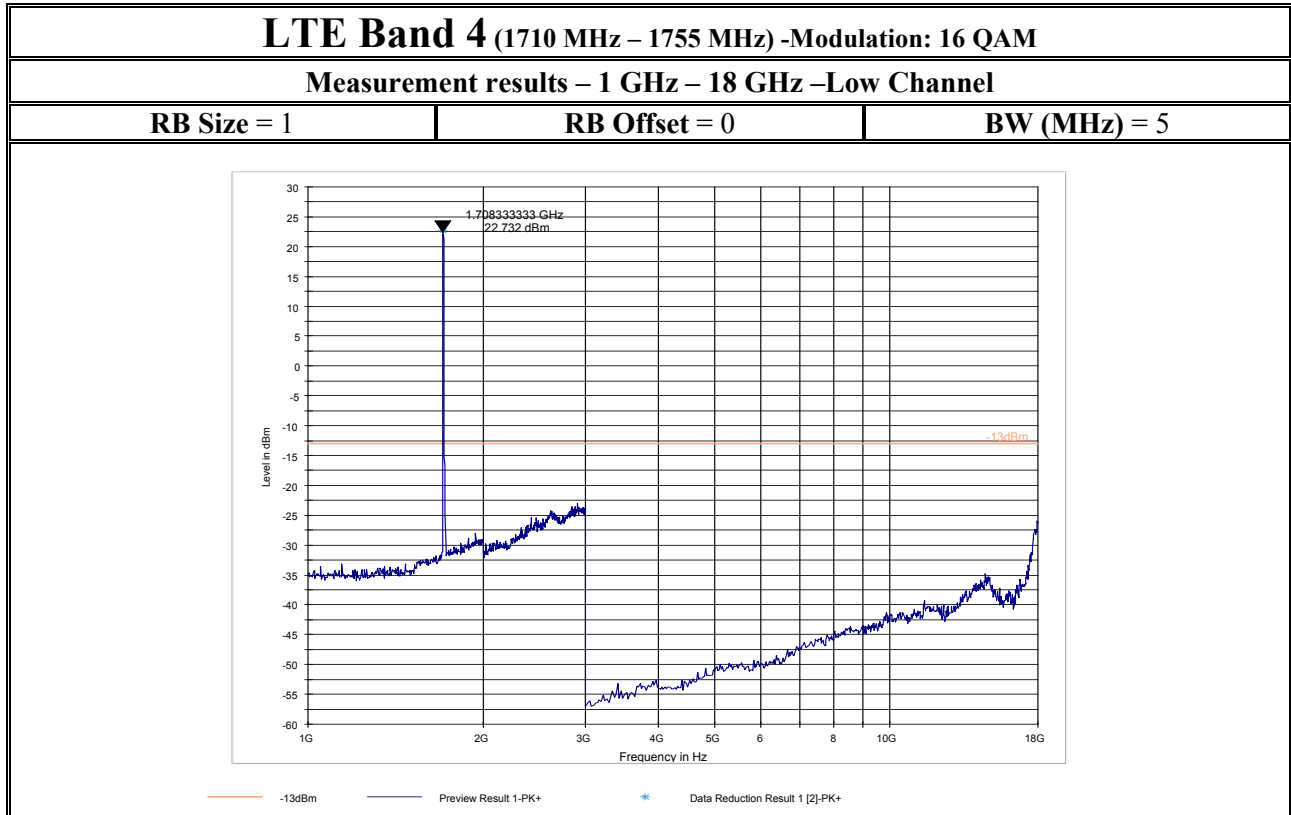
6.7.8.2.18 16 QAM/ 10MHz/ Mid Channel/ 30MHz to 1GHz



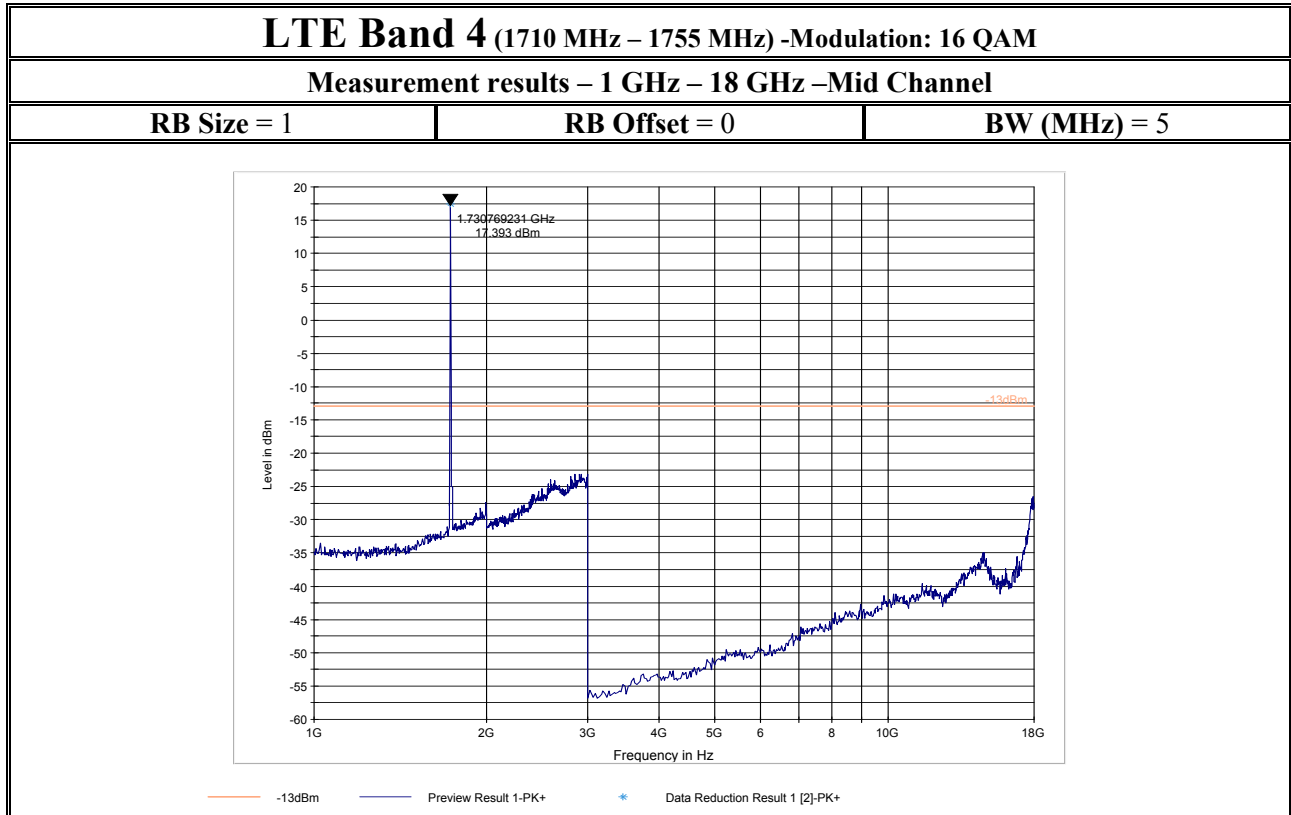
6.7.8.2.19 16 QAM/ 10MHz/ High Channel/ 30MHz to 1GHz



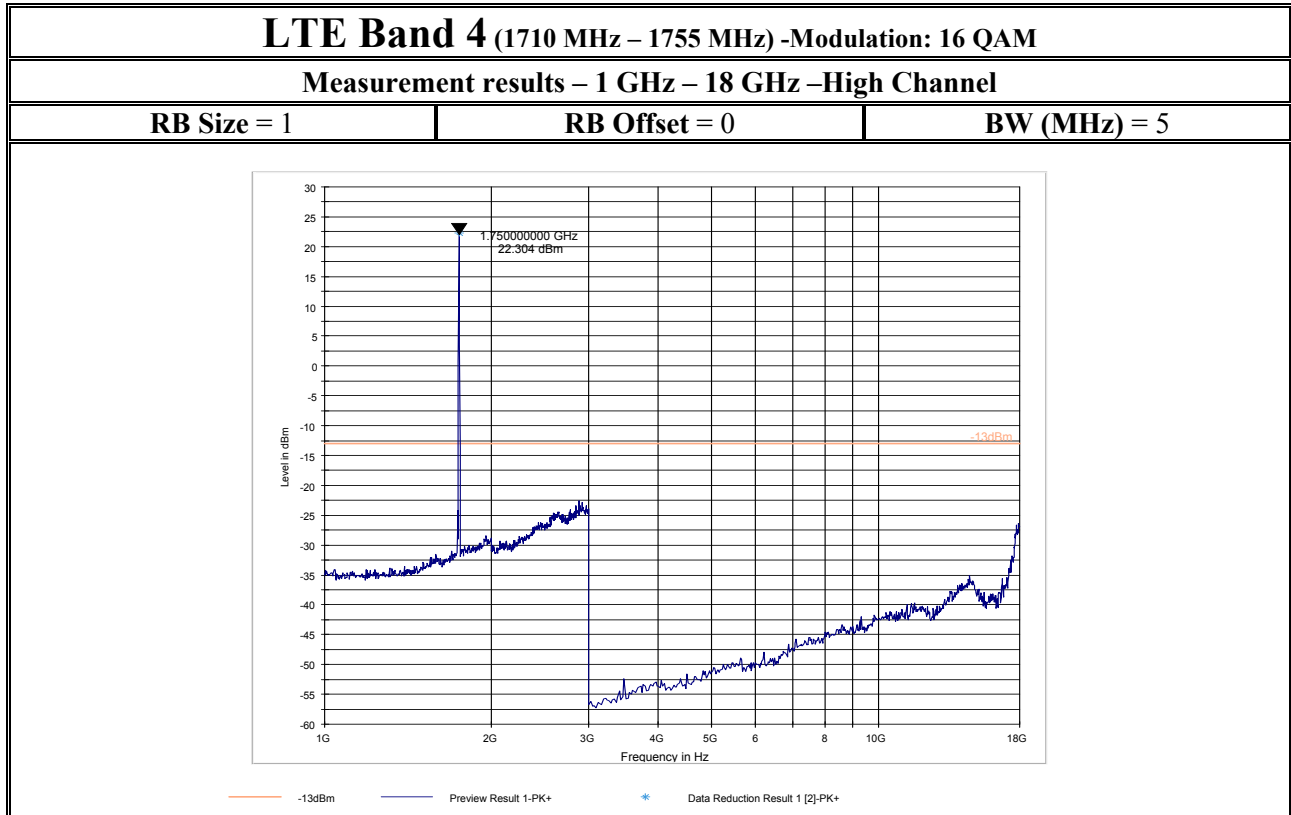
6.7.8.2.20 16 QAM/ 5MHz/ Low Channel/ 1GHz to 18GHz



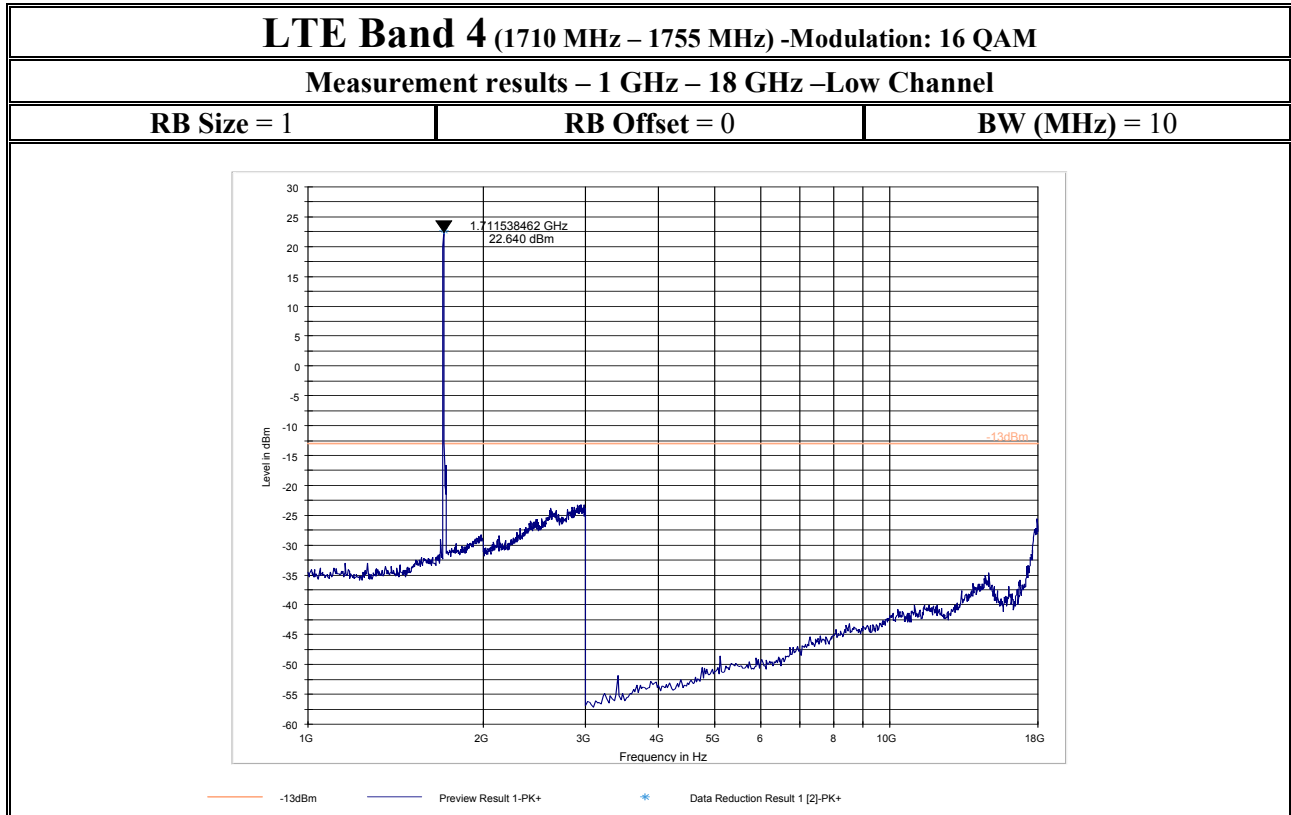
6.7.8.2.21 16 QAM/ 5MHz/ Mid Channel/ 1GHz to 18GHz



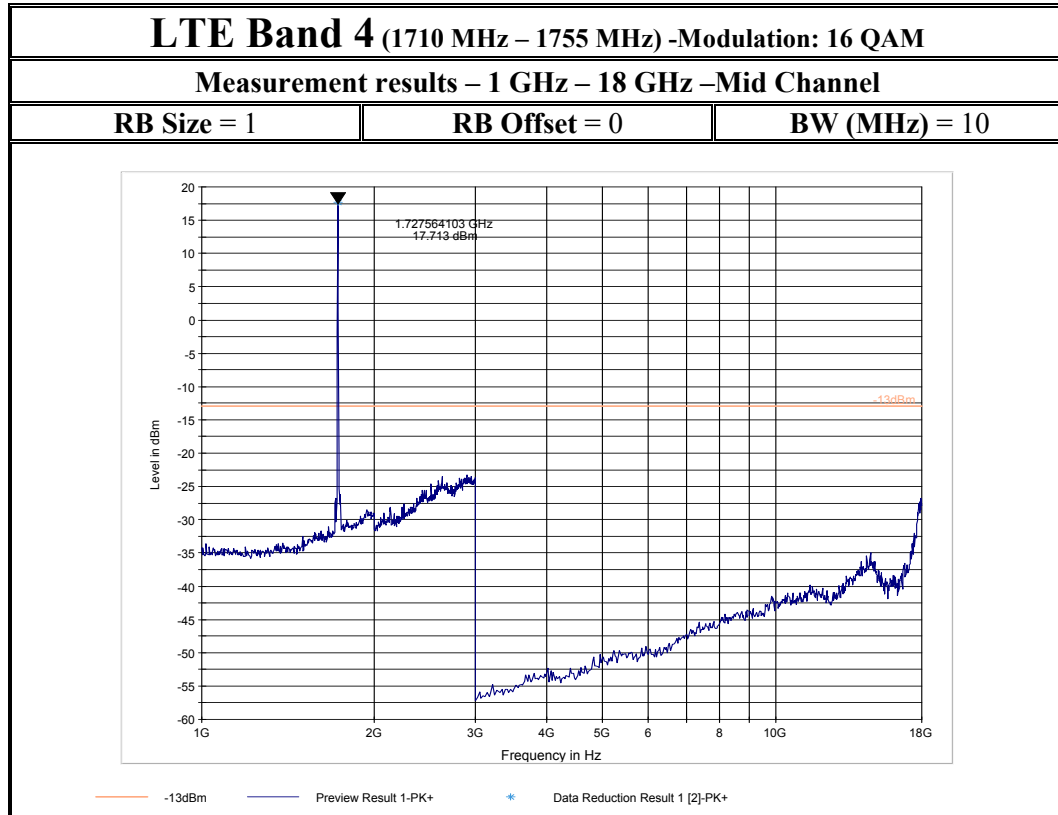
6.7.8.2.22 16 QAM/ 5MHz/ High Channel/ 1GHz to 18GHz



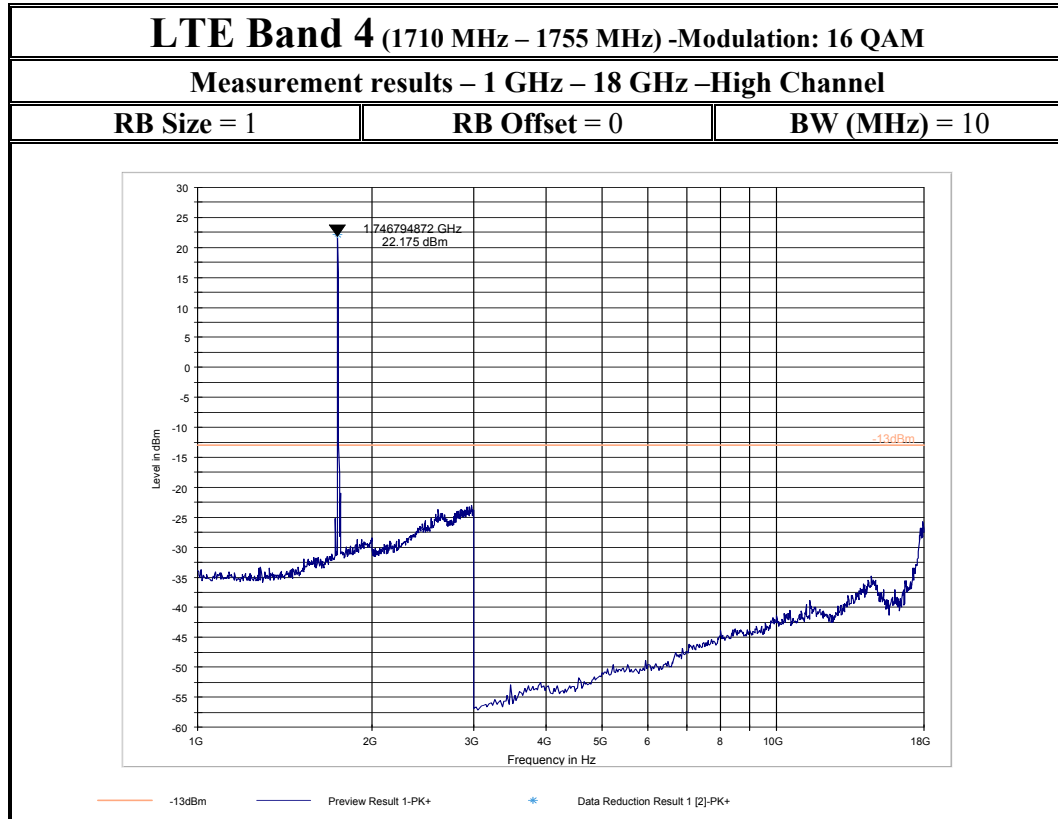
6.7.8.2.23 16 QAM/ 10MHz/ Low Channel/ 1GHz to 18GHz



6.7.8.2.24 16 QAM/ 10MHz/ Mid Channel/ 1GHz to 18GHz



6.7.8.2.25 16 QAM/ 10MHz/ High Channel/ 1GHz to 18GHz



6.7.8.3 Spurious Emission LTE FDD 5:

6.7.8.3.1 LTE FDD 5 Summary Tables

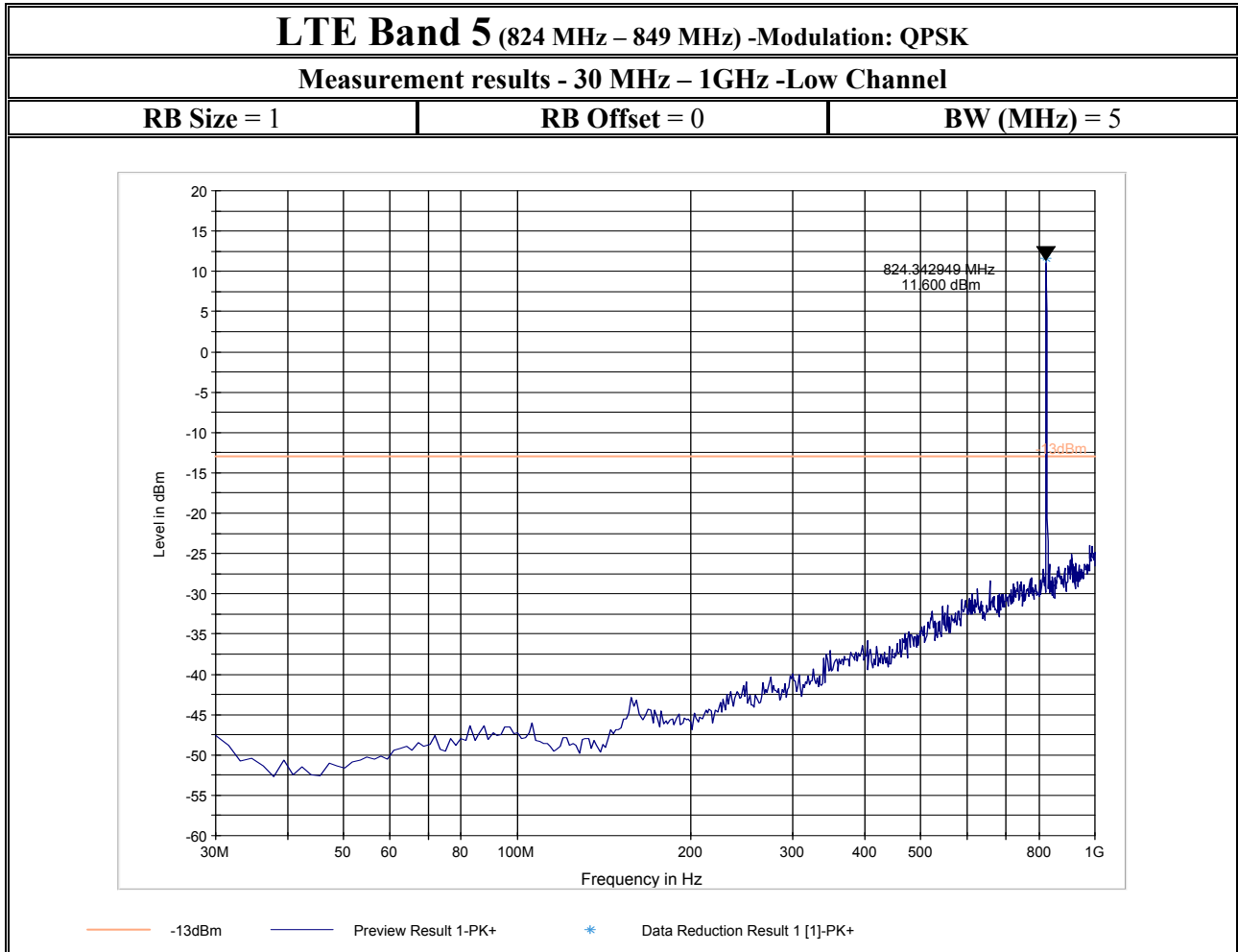
LTE Band 5 (824 MHz – 849 MHz) -Modulation: QPSK						
RB Size = 1			RB Offset = 0		BW (MHz) = 5	
Harmonic	Tx ch-20425 Freq. (MHz)	Level (dBm)	Tx ch-20525 Freq. (MHz)	Level (dBm)	Tx ch-20625 Freq. (MHz)	Level (dBm)
1	826.5	11.600	836.5	14.499	846.5	15.457
2	1653	NF	1673	NF	1693	NF
3	2479.5	NF	2509.5	-53.516	2539.5	-54.803
4	3306	-32.068	3346	-34.260	3386	-33.489
5	4132.5	-43.699	4182.5	-47.578	4232.5	NF
6	4959	NF	5019	NF	5079	NF
7	5785.5	NF	5855.5	NF	5925.5	NF
8	6612	NF	6692	NF	6772	NF
9	7438.5	NF	7528.5	NF	7618.5	NF
10	8265	NF	8365	NF	8465	NF
NF= Noise Floor						

LTE Band 5 (824 MHz – 849 MHz) -Modulation: QPSK						
RB Size = 1			RB Offset = 0		BW (MHz) = 10	
Harmonic	Tx ch-20450 Freq. (MHz)	Level (dBm)	Tx ch-20525 Freq. (MHz)	Level (dBm)	Tx ch-20600 Freq. (MHz)	Level (dBm)
1	829	12.733	836.5	15.730	844	13.096
2	1658	NF	1673	NF	1688	NF
3	2487	NF	2509.5	-48.876	2532	-53.728
4	3316	-34.410	3346	-36.452	3376	-31.237
5	4145	-42.554	4182.5	-48.948	4220	-47.588
6	4974	NF	5019	NF	5064	NF
7	5803	NF	5855.5	NF	5908	NF
8	6632	NF	6692	NF	6752	NF
9	7461	NF	7528.5	NF	7596	NF
10	8290	NF	8365	NF	8440	NF
NF= Noise Floor						

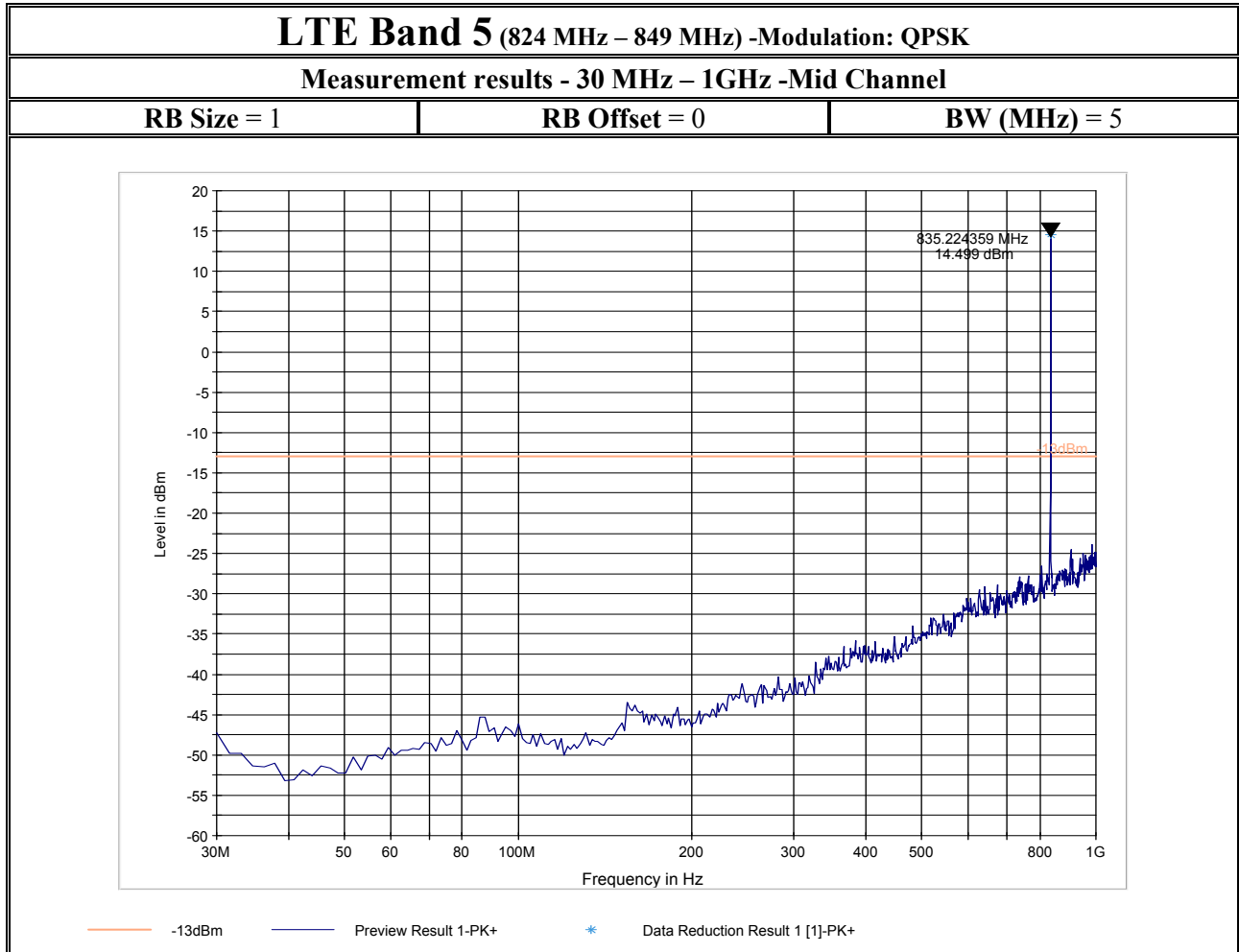
LTE Band 5 (824 MHz – 849 MHz) -Modulation: 16 QAM						
RB Size = 1			RB Offset = 0		BW (MHz) = 5	
Harmonic	Tx ch-20425 Freq. (MHz)	Level (dBm)	Tx ch-20525 Freq. (MHz)	Level (dBm)	Tx ch-20625 Freq. (MHz)	Level (dBm)
1	826.5	11.038	836.5	12.353	846.5	14.039
2	1658	NF	1673	NF	1688	NF
3	2487	NF	2509.5	-52.205	2532	-50.358
4	3316	-31.443	3346	-34.748	3376	-33.138
5	4145	-42.702	4182.5	-46.715	4220	NF
6	4974	NF	5019	NF	5064	NF
7	5803	NF	5855.5	NF	5908	NF
8	6632	NF	6692	NF	6752	NF
9	7461	NF	7528.5	NF	7596	NF
10	8290	NF	8365	NF	8440	NF
NF= Noise Floor						

LTE Band 5 (824 MHz – 849 MHz) -Modulation: 16 QAM						
RB Size = 1			RB Offset = 0		BW (MHz) = 10	
Harmonic	Tx ch-20450 Freq. (MHz)	Level (dBm)	Tx ch-20525 Freq. (MHz)	Level (dBm)	Tx ch-20600 Freq. (MHz)	Level (dBm)
1	829	13.154	836.5	16.419	844	13.193
2	1658	NF	1673	NF	1688	NF
3	2487	NF	2509.5	-51.093	2532	-54.192
4	3316	-32.931	3346	-34.540	3376	-31.145
5	4145	-42.733	4182.5	-48.652	4220	-47.167
6	4974	NF	5019	NF	5064	NF
7	5803	NF	5855.5	NF	5908	NF
8	6632	NF	6692	NF	6752	NF
9	7461	NF	7528.5	NF	7596	NF
10	8290	NF	8365	NF	8440	NF
NF= Noise Floor						

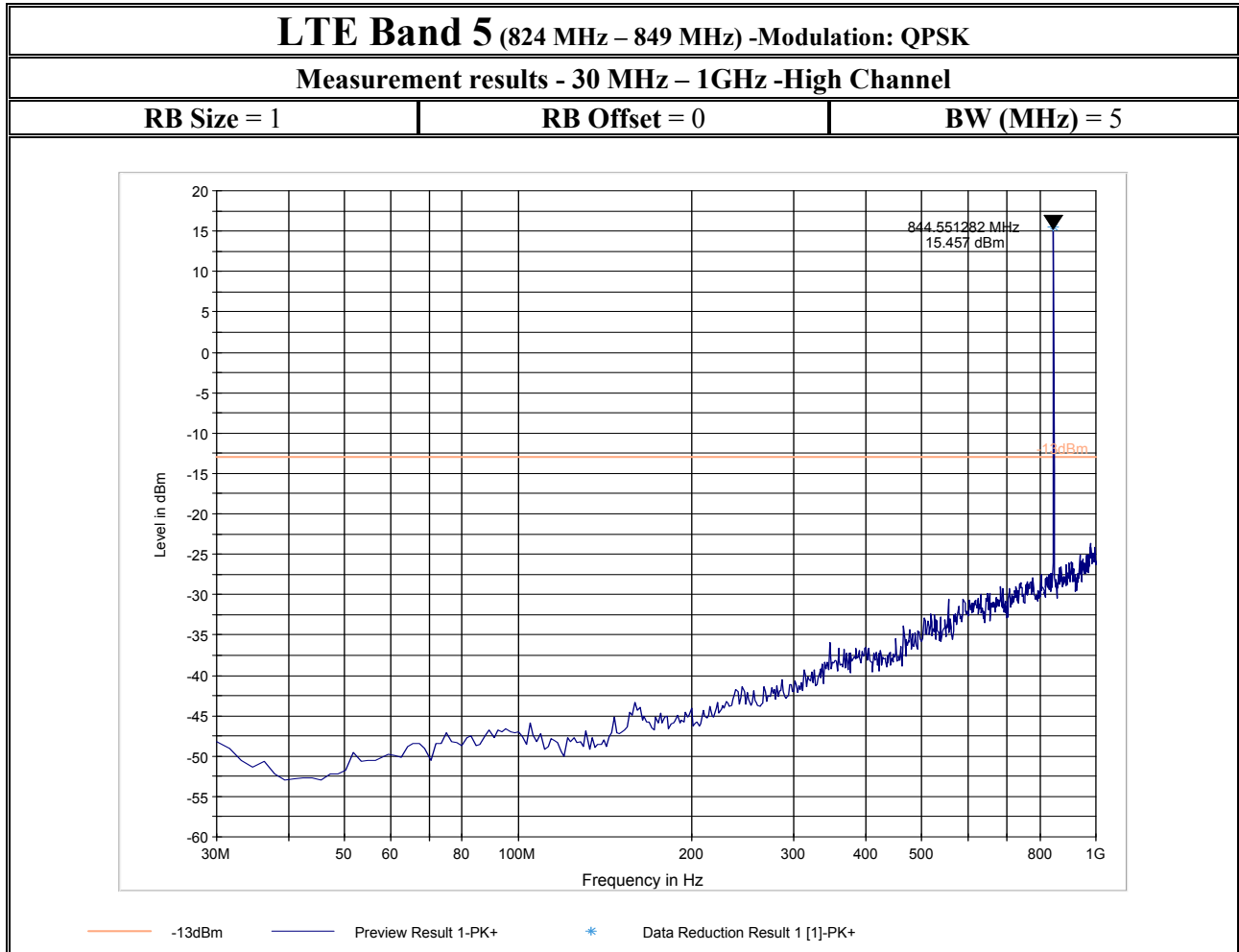
6.7.8.3.2 QPSK/ 5MHz/ Low Channel/ 30MHz to 1GHz



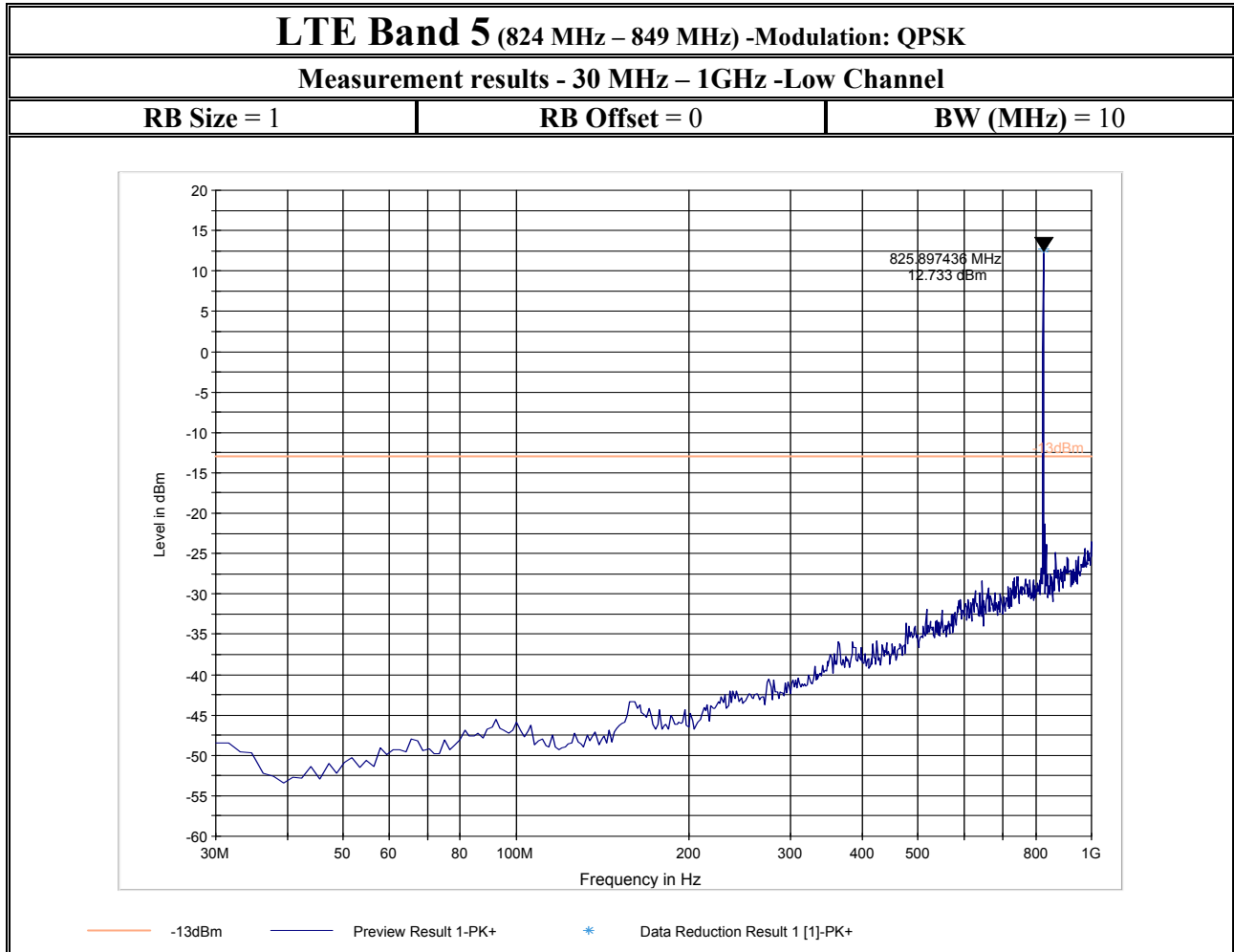
6.7.8.3.3 QPSK/ 5MHz/ Mid Channel/ 30MHz to 1GHz



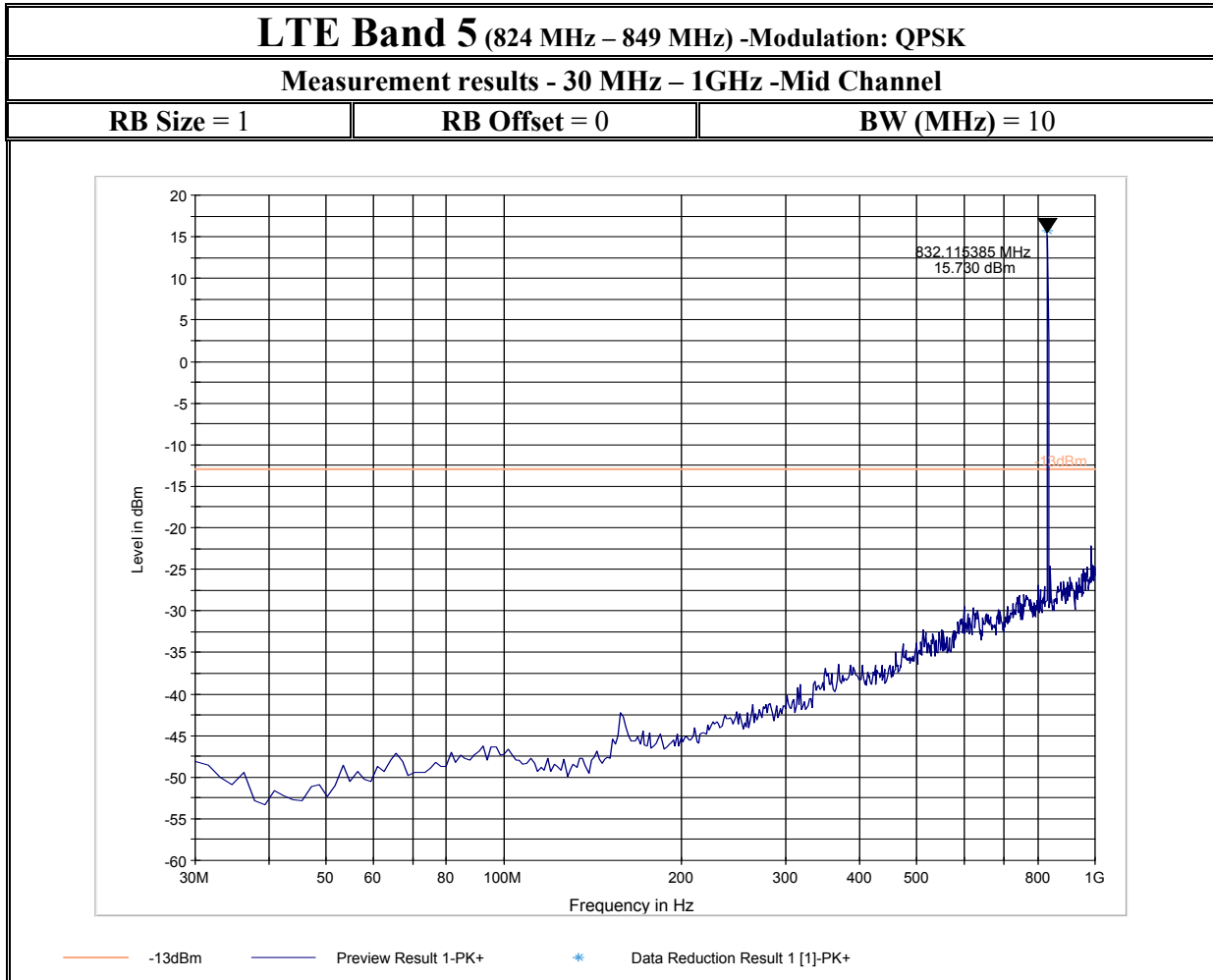
6.7.8.3.4 QPSK/ 5MHz/ High Channel/ 30MHz to 1GHz



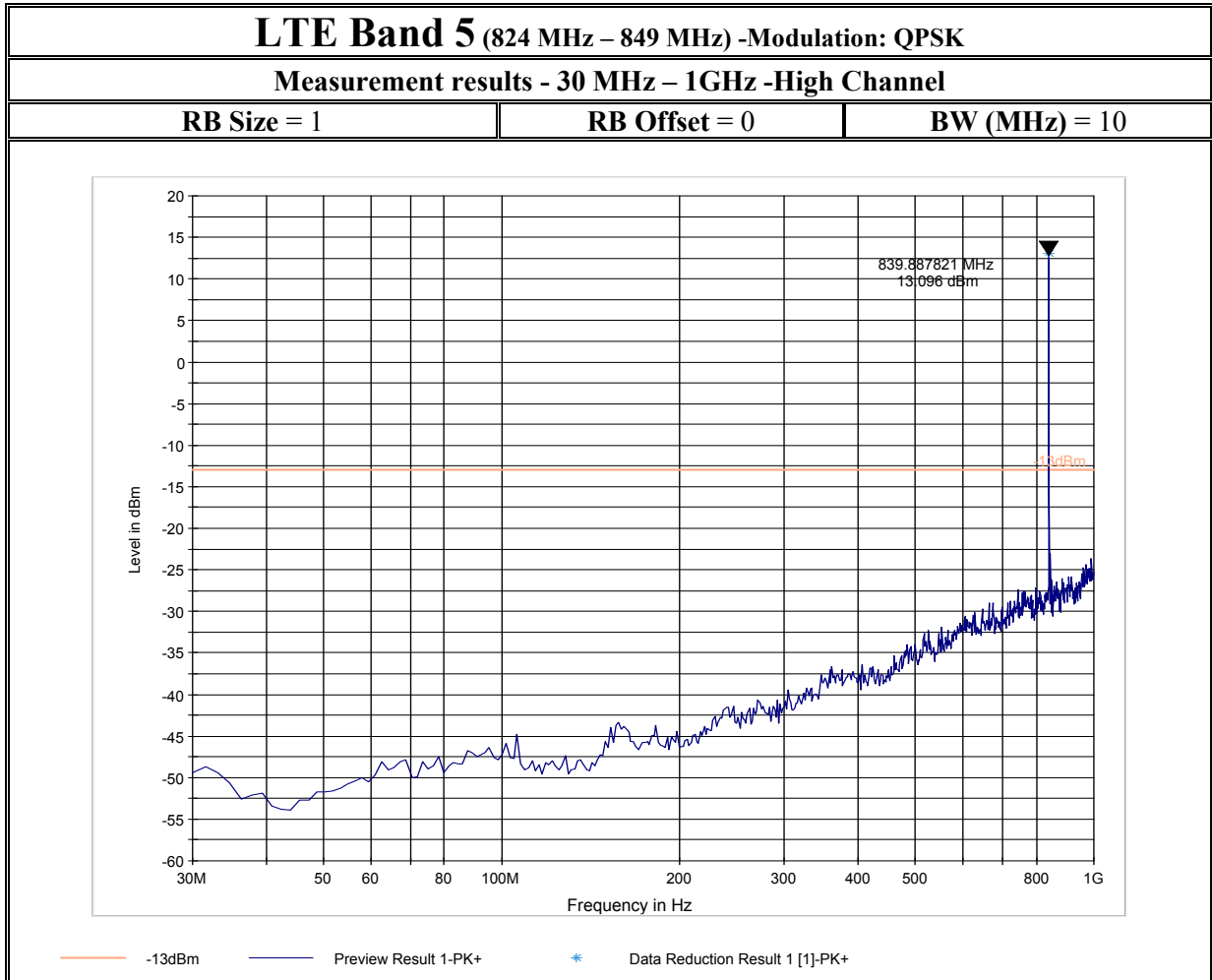
6.7.8.3.5 QPSK/ 10MHz/ Low Channel/ 30MHz to 1GHz



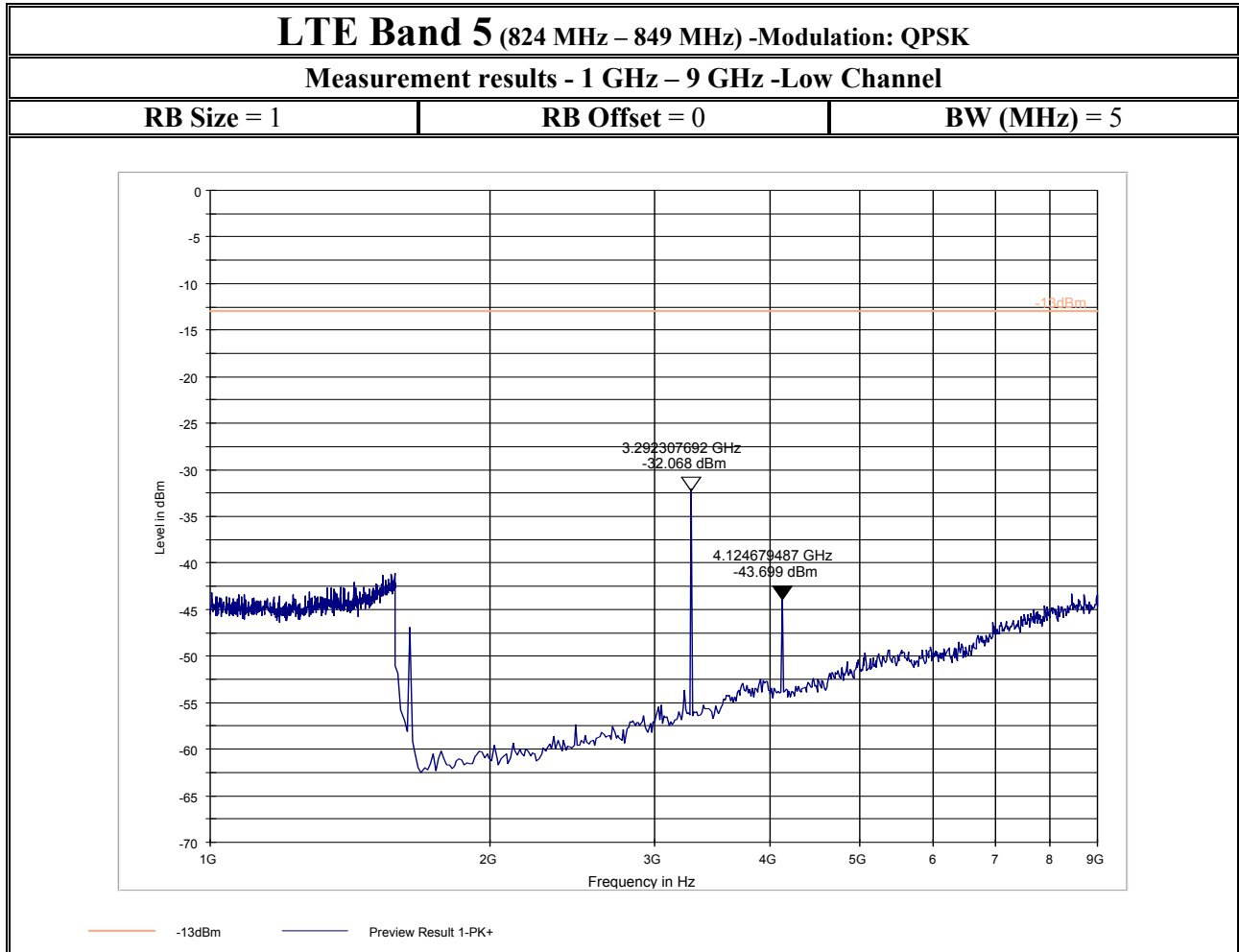
6.7.8.3.6 QPSK/ 10MHz/ Mid Channel/ 30MHz to 1GHz



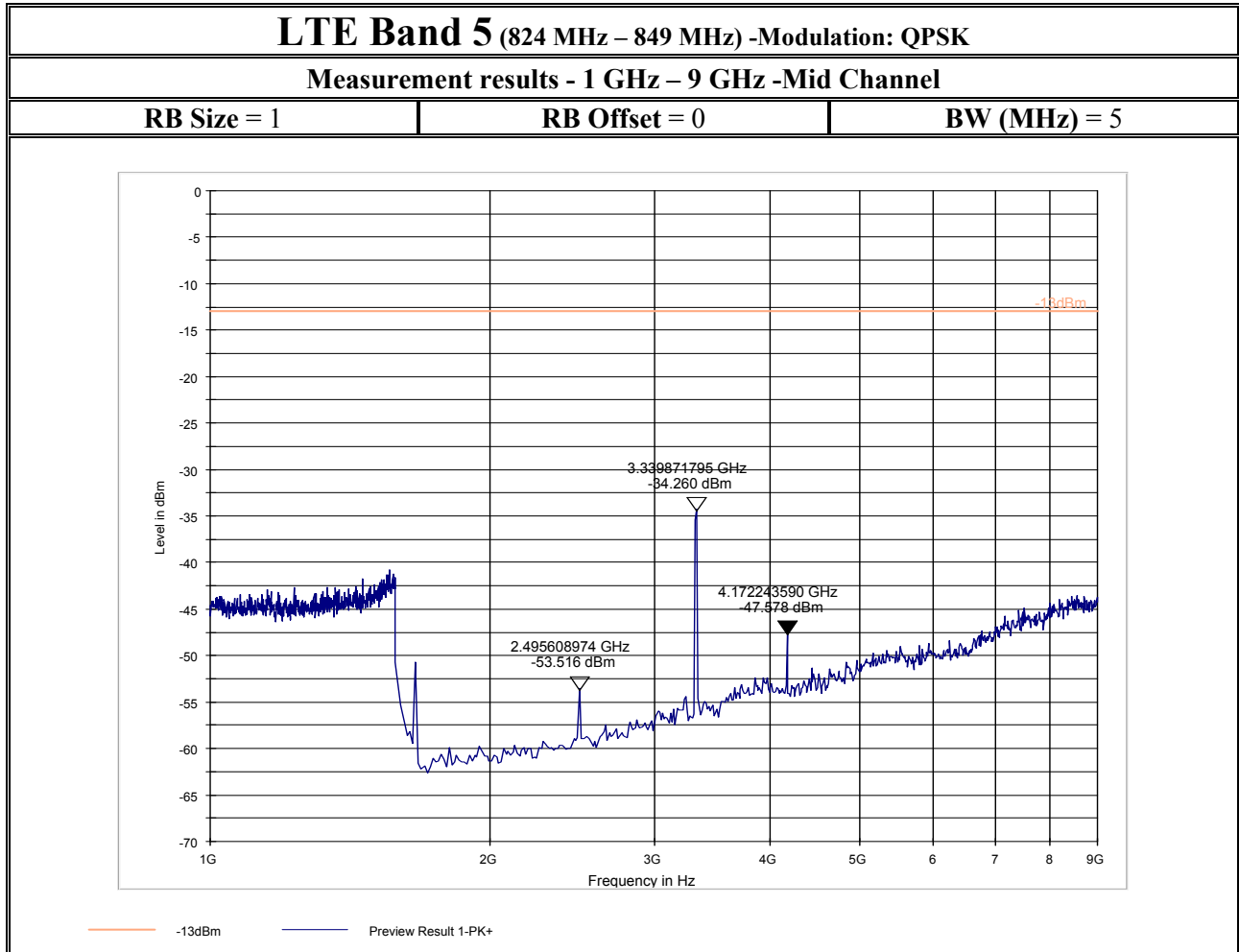
6.7.8.3.7 QPSK/ 10MHz/ High Channel/ 30MHz to 1GHz



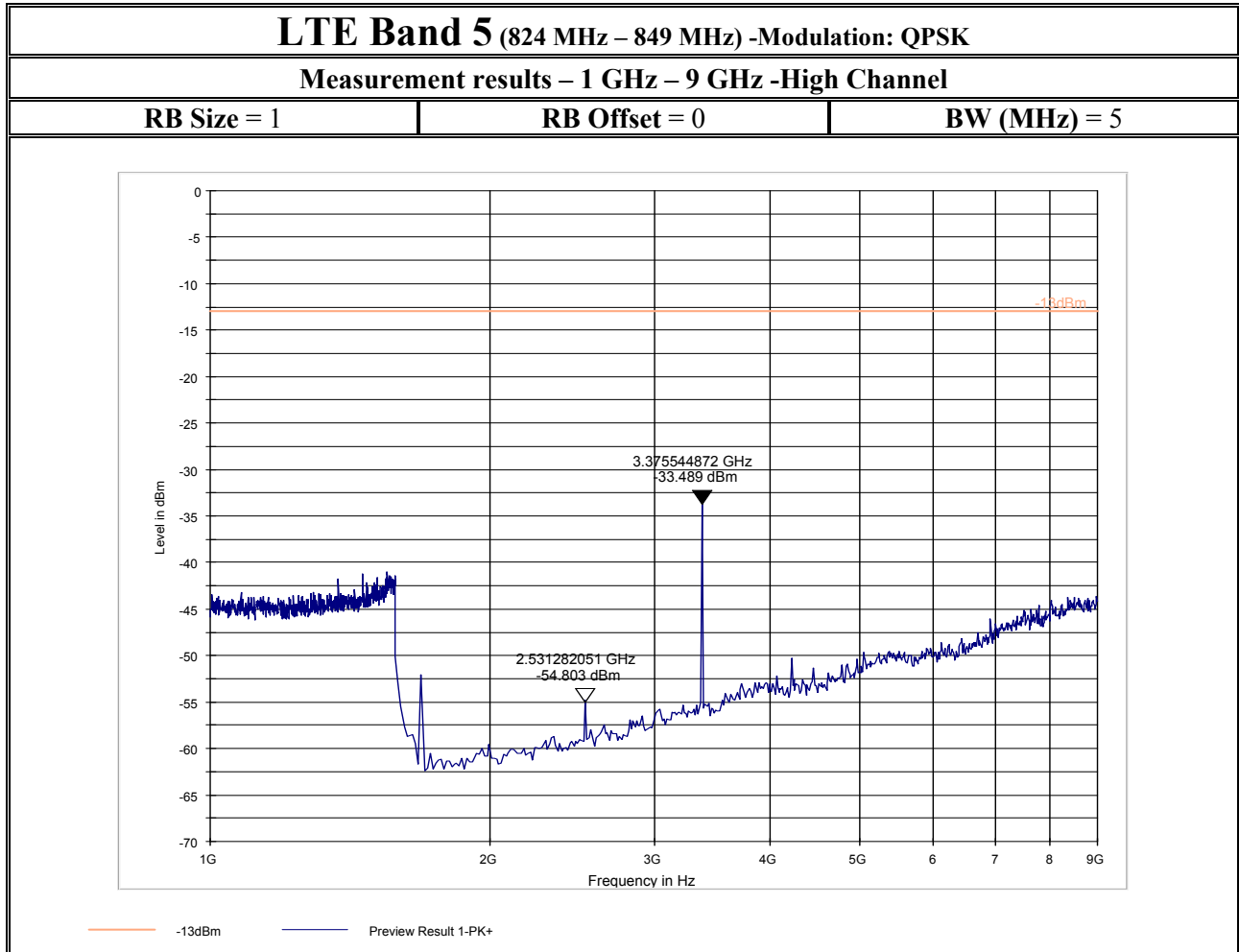
6.7.8.3.8 QPSK/ 5MHz/ Low Channel/ 1GHz to 9GHz



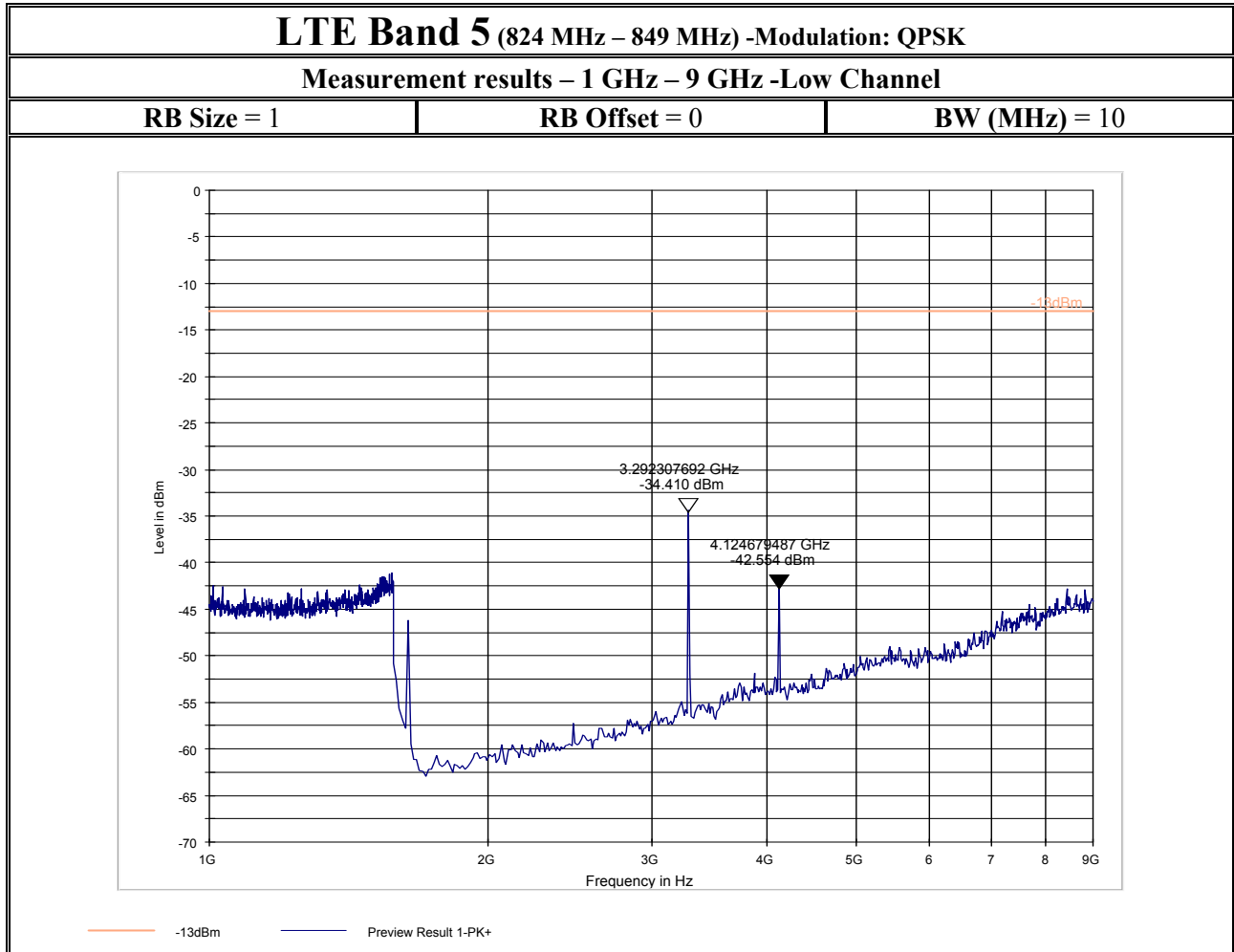
6.7.8.3.9 QPSK/ 5MHz/ Mid Channel/ 1GHz to 9GHz



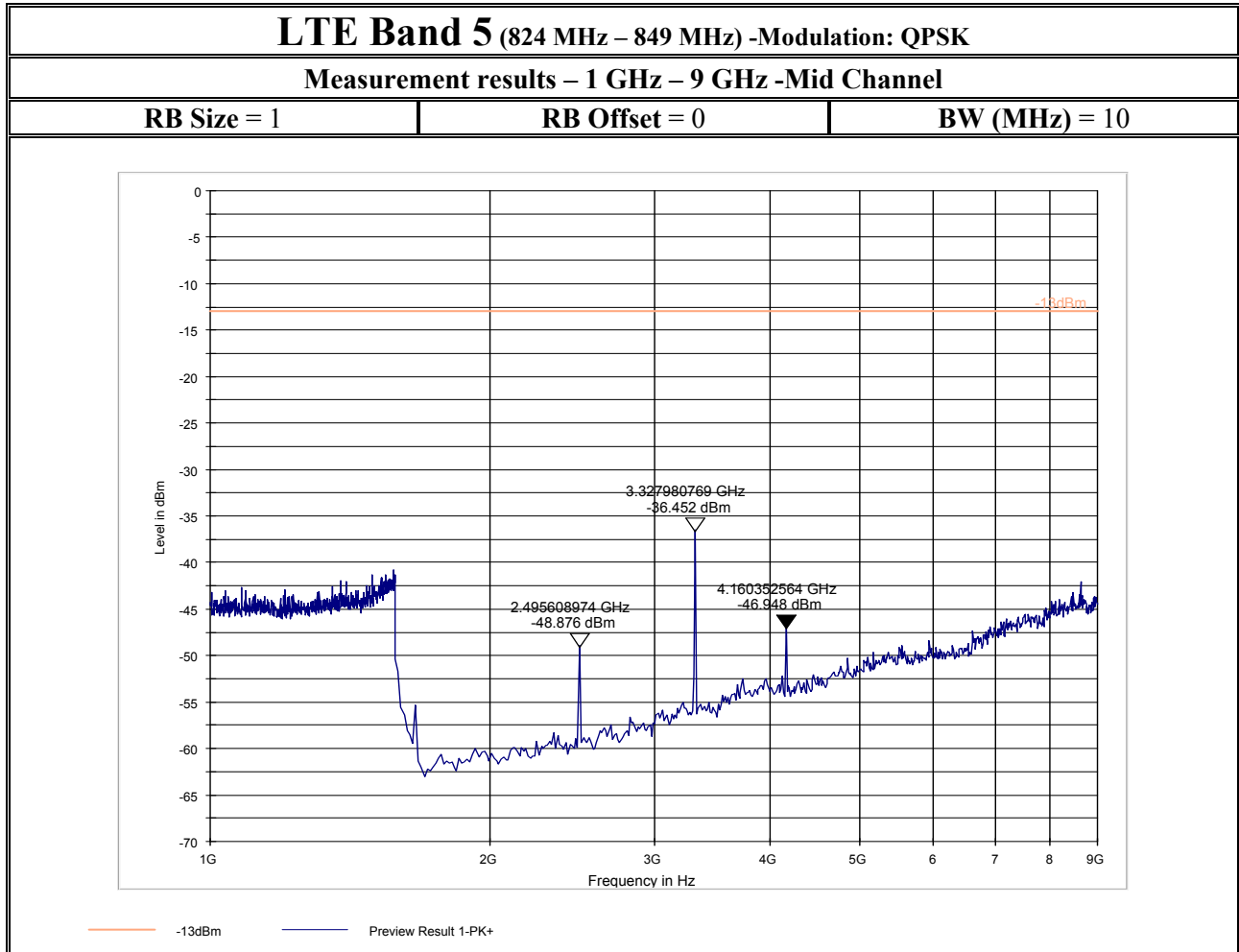
6.7.8.3.10 QPSK/ 5MHz/ High Channel/ 1GHz to 9GHz



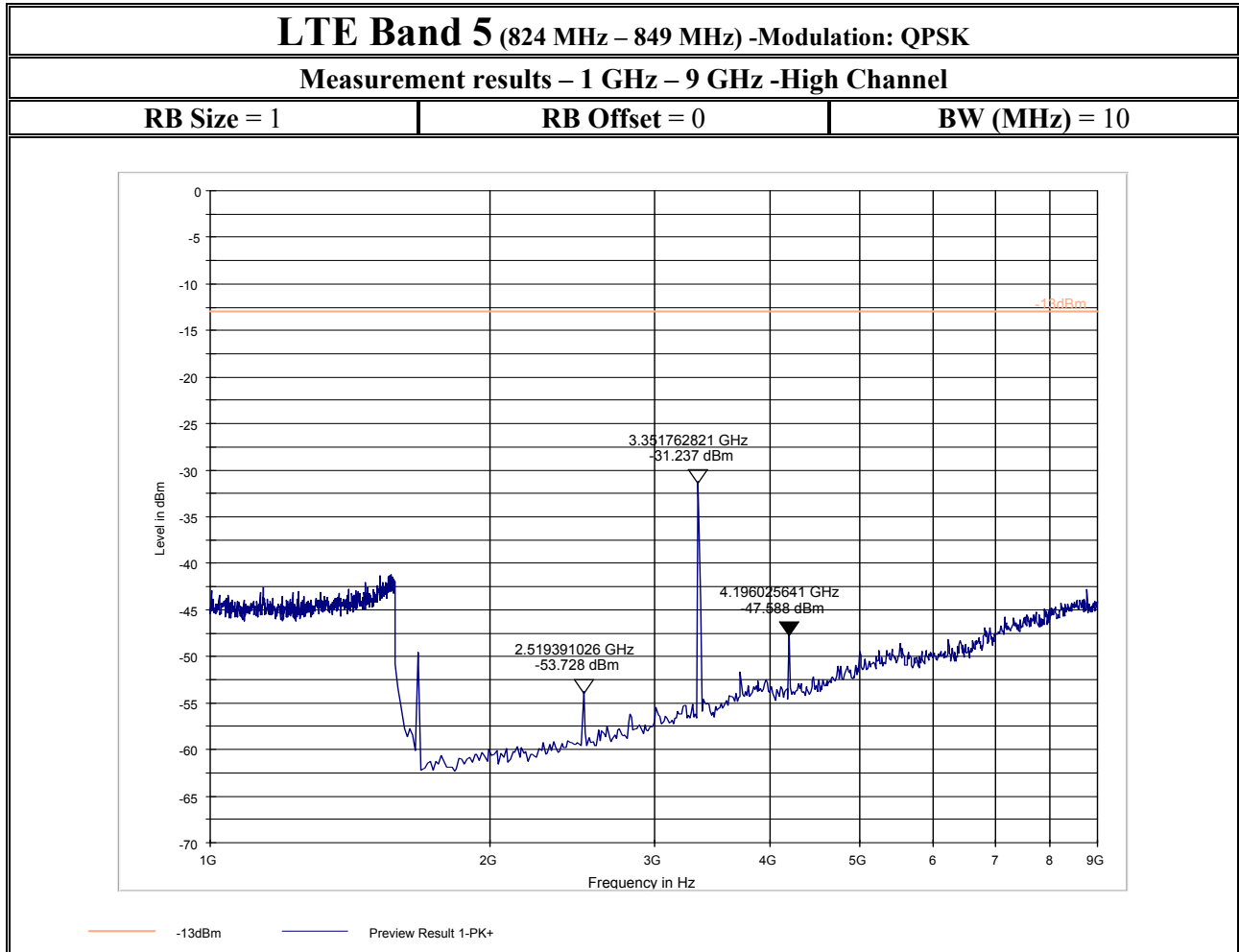
6.7.8.3.11 QPSK/ 10MHz/ Low Channel/ 1GHz to 9GHz



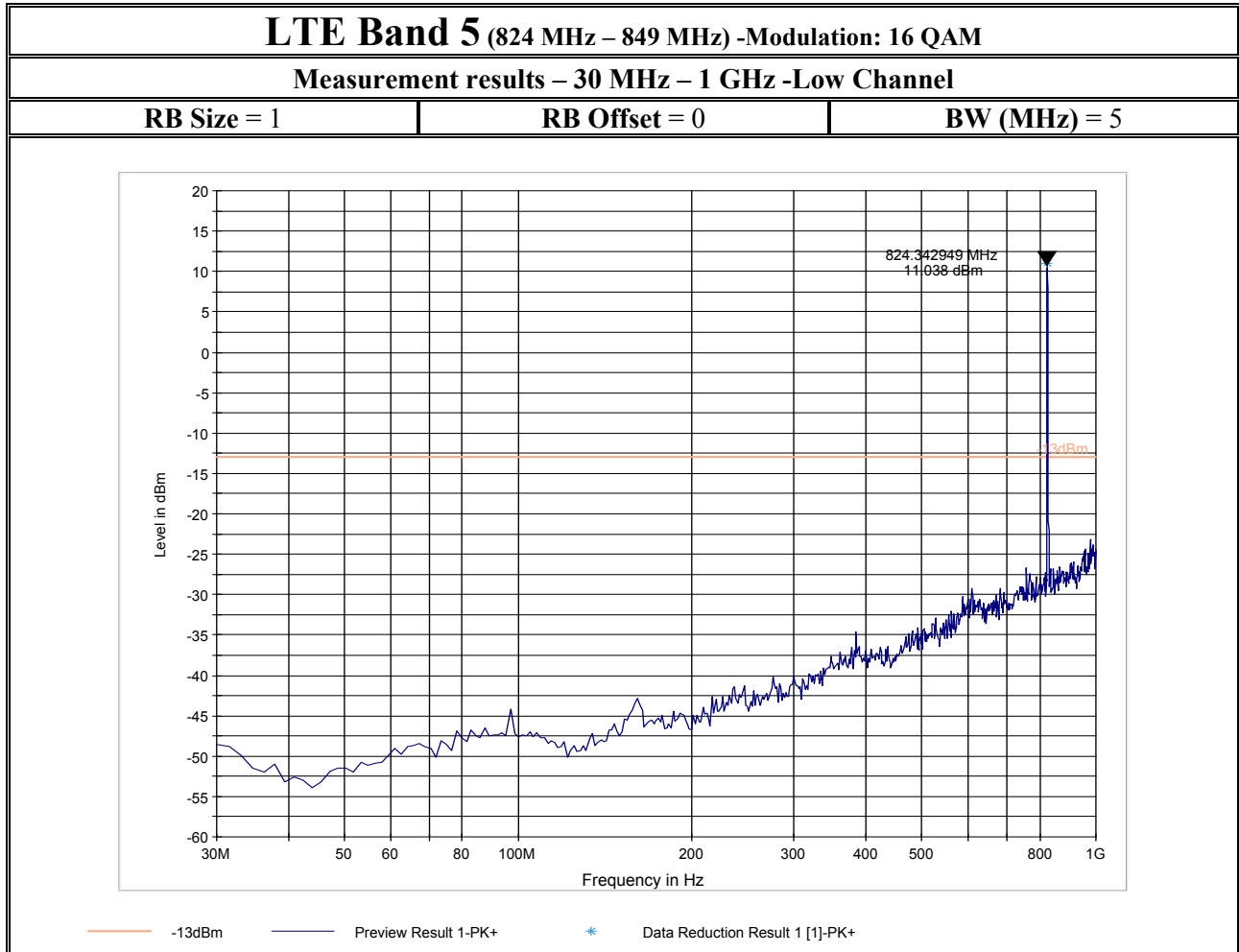
6.7.8.3.12 QPSK/ 10MHz/ Mid Channel/ 1GHz to 9GHz



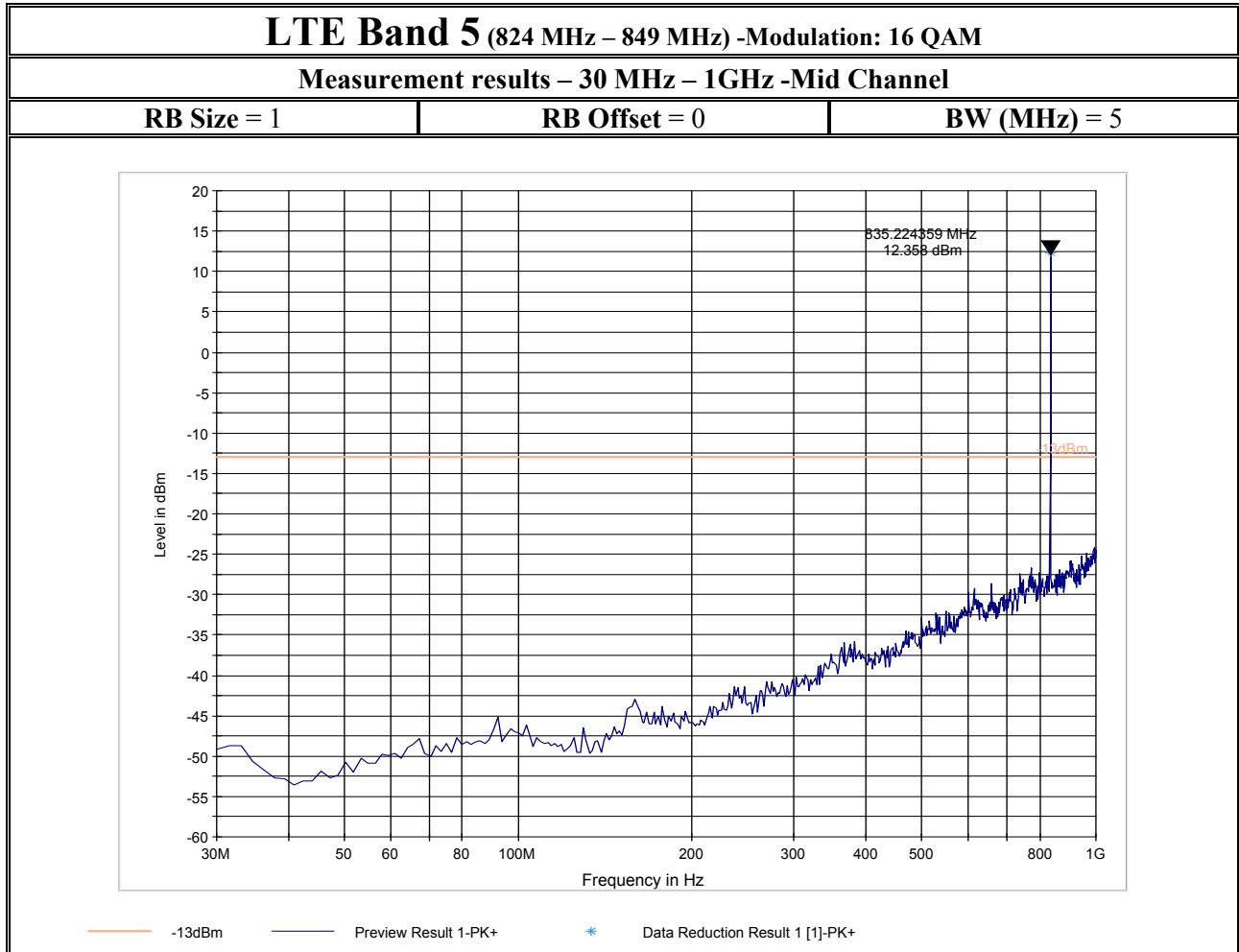
6.7.8.3.13 QPSK/ 10MHz/ High Channel/ 1GHz to 9GHz



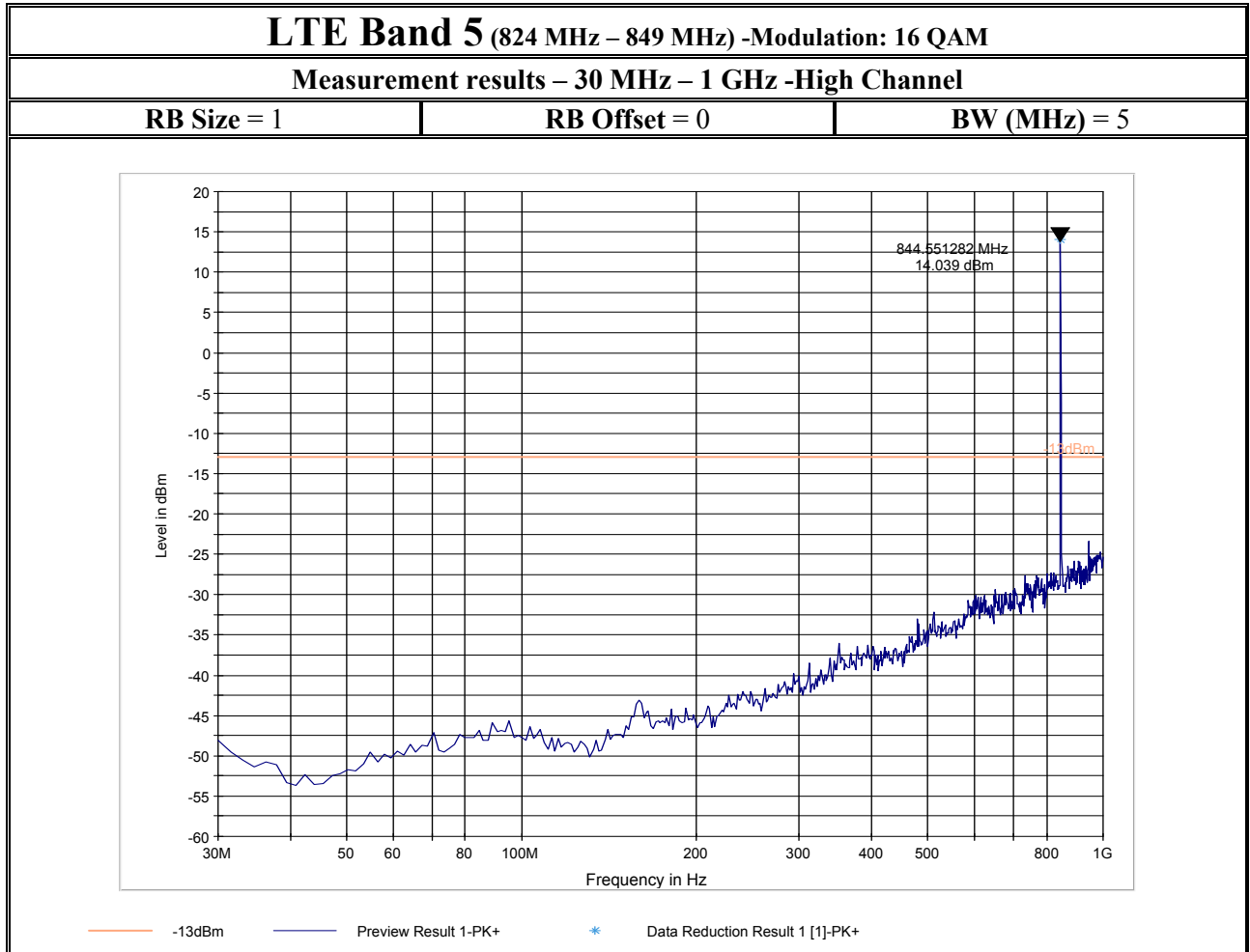
6.7.8.3.14 16 QAM/ 5MHz/ Low Channel/ 30MHz to 1GHz



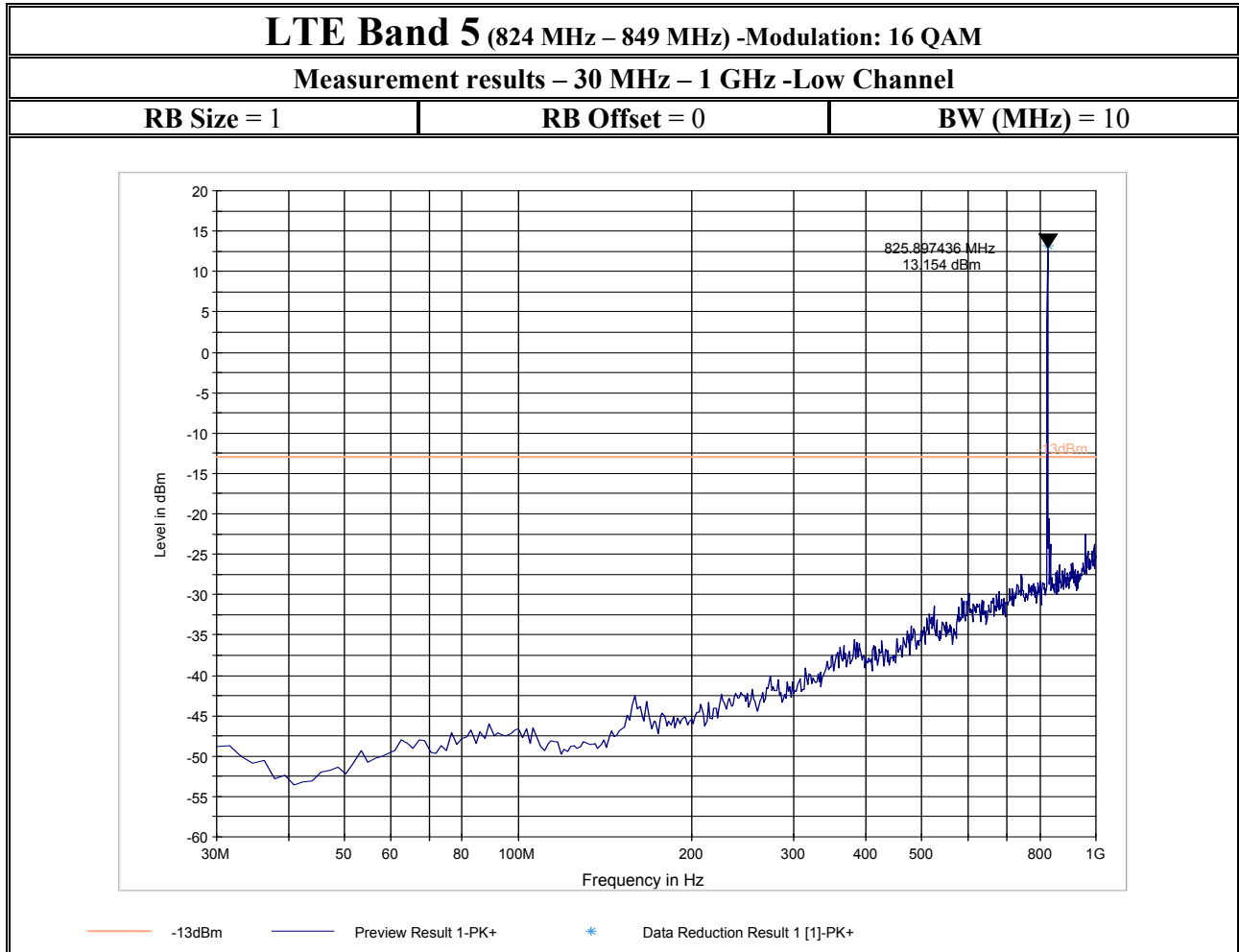
6.7.8.3.15 16 QAM/ 5MHz/ Mid Channel/ 30MHz to 1GHz



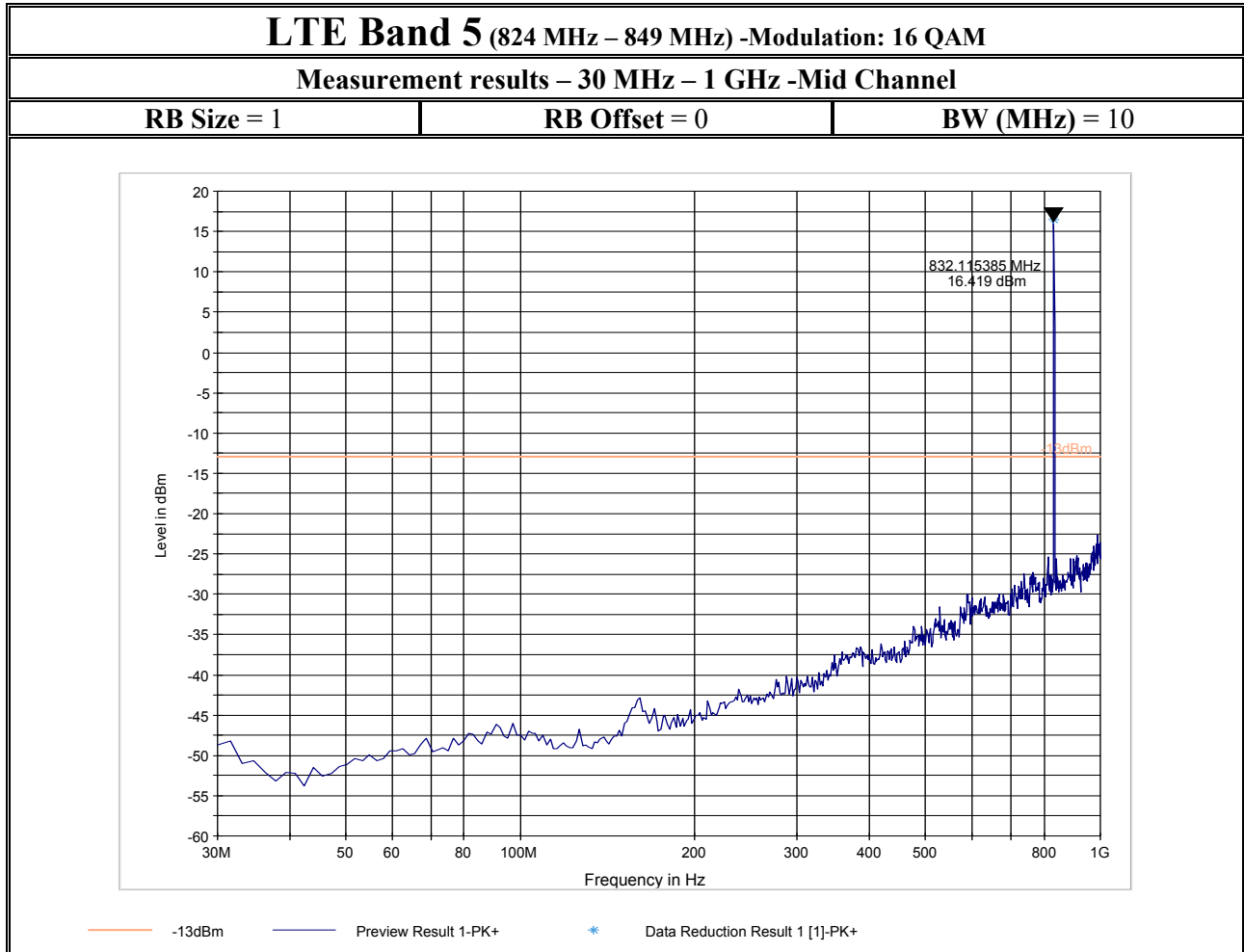
6.7.8.3.16 16 QAM/ 5MHz/ High Channel/ 30MHz to 1GHz



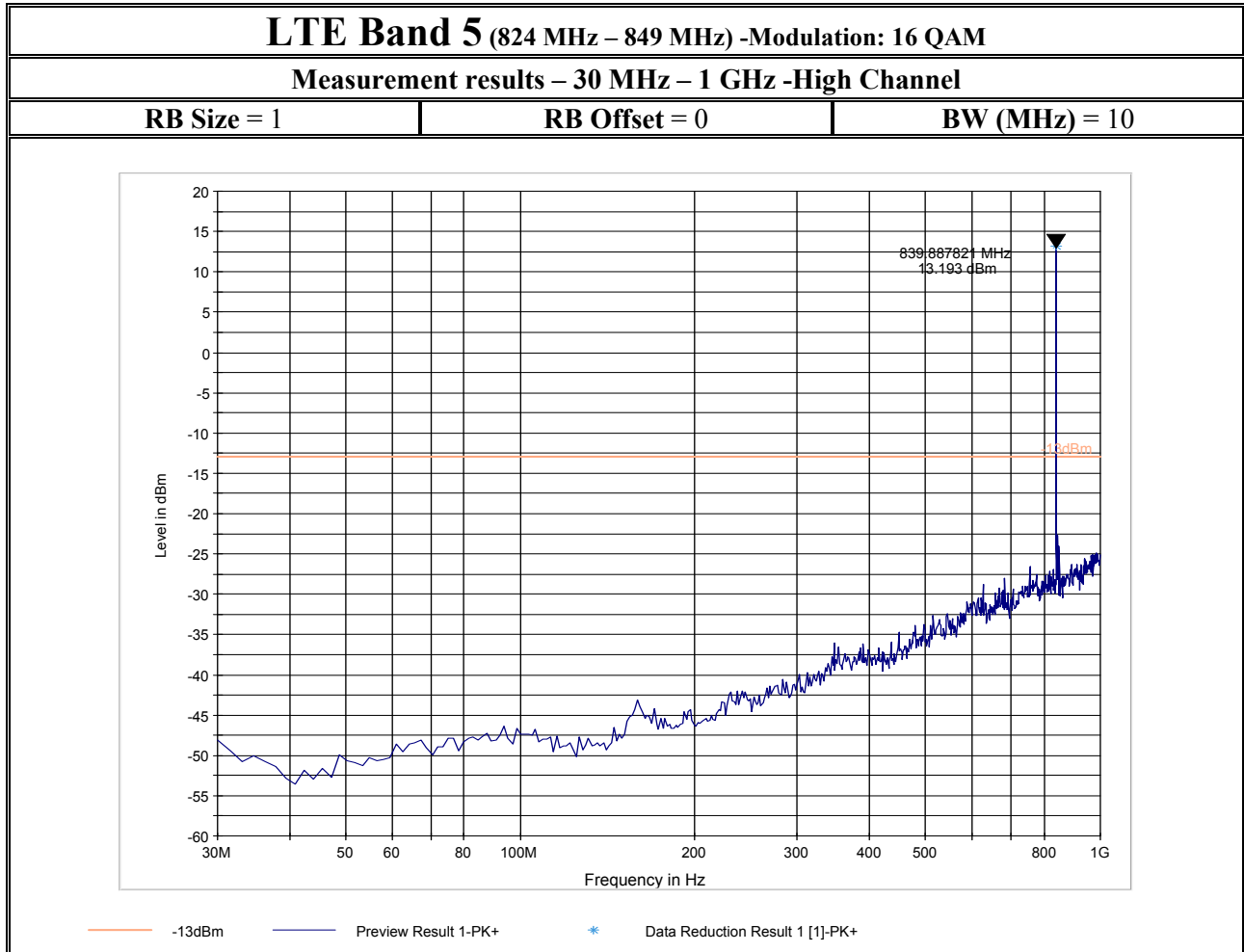
6.7.8.3.17 16 QAM/ 10MHz/ Low Channel/ 30MHz to 1GHz



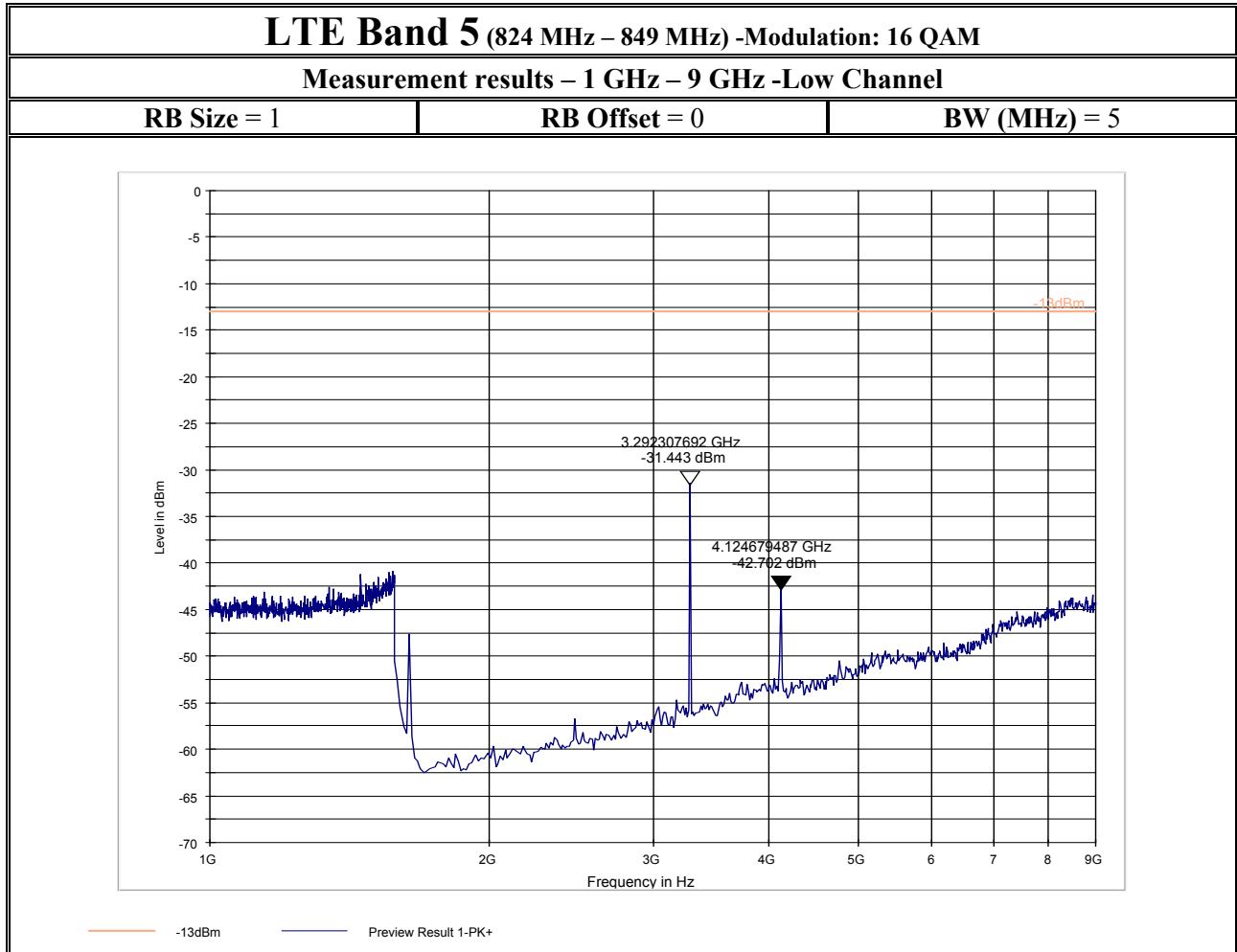
6.7.8.3.18 16 QAM/ 10MHz/ Mid Channel/ 30MHz to 1GHz



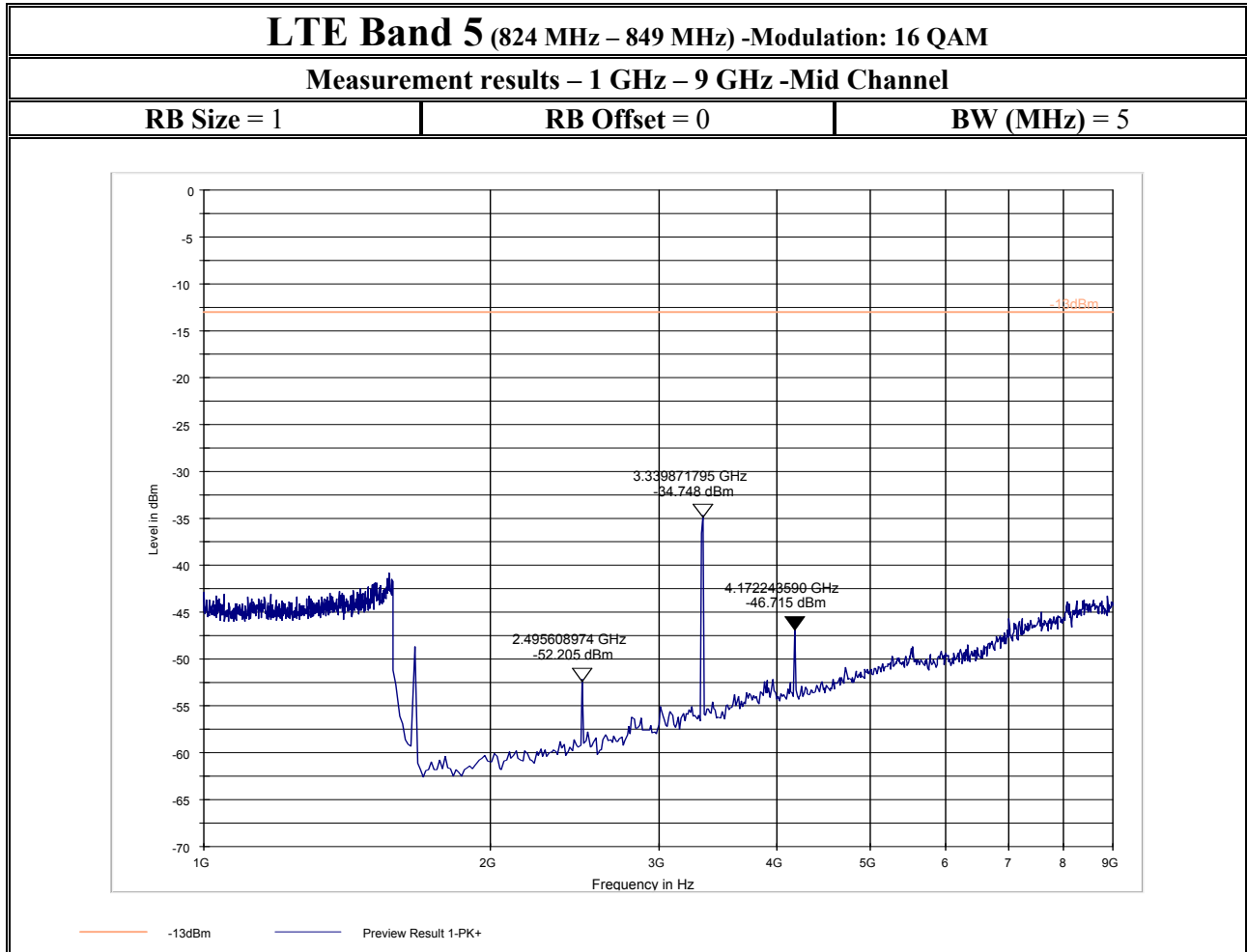
6.7.8.3.19 16 QAM/ 10MHz/ High Channel/ 30MHz to 1GHz



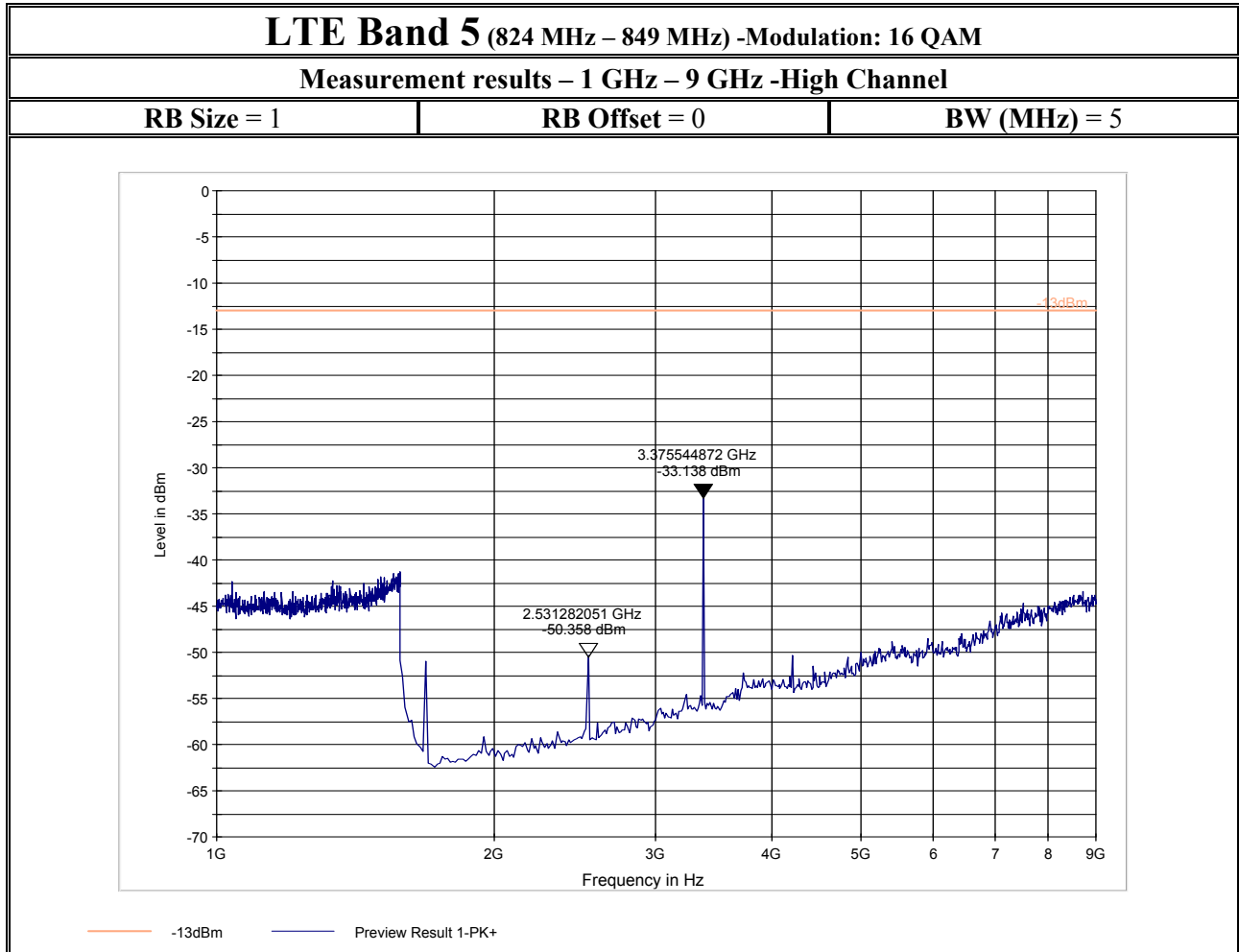
6.7.8.3.20 16 QAM/ 5MHz/ Low Channel/ 1GHz to 9GHz



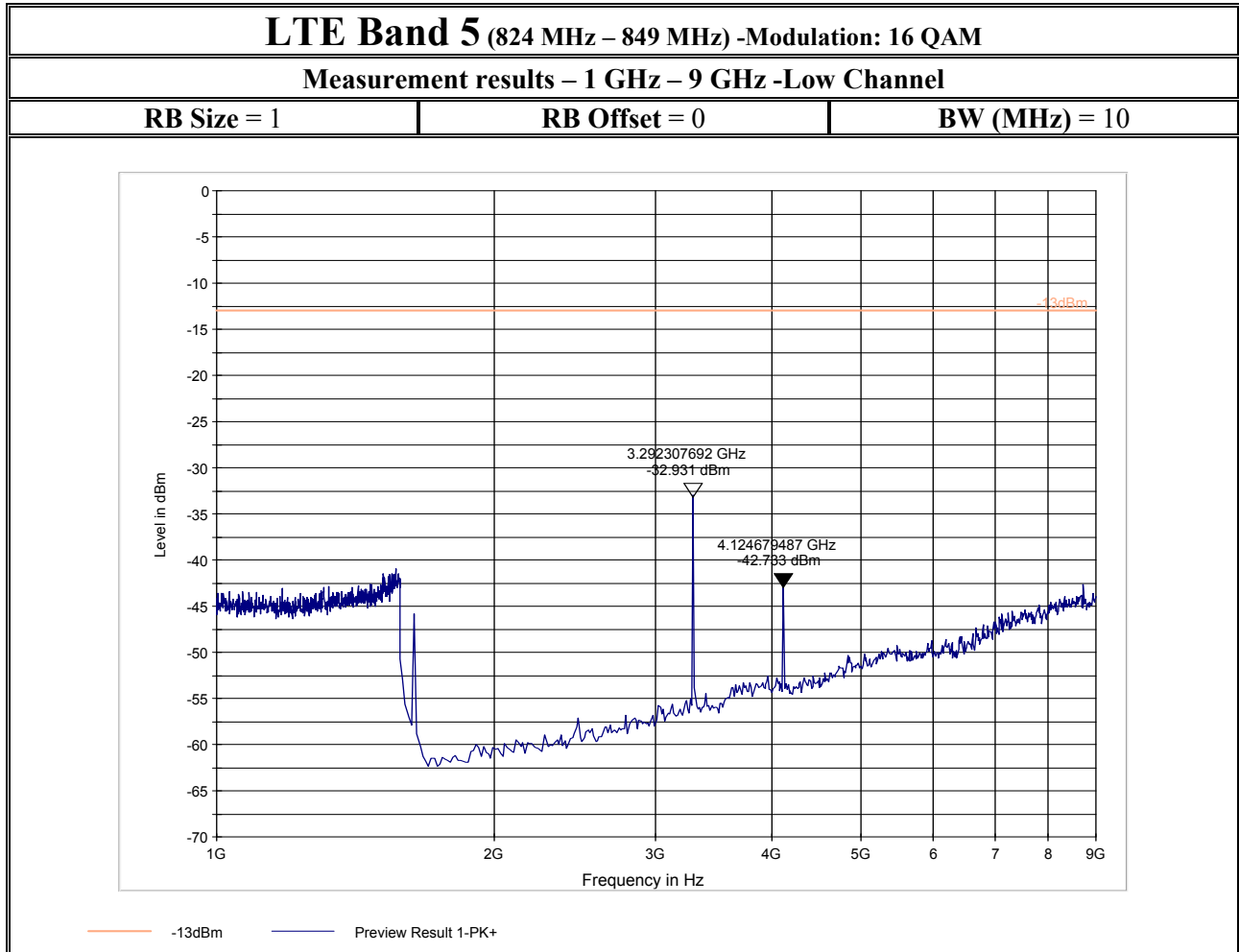
6.7.8.3.21 16 QAM/ 5MHz/ Mid Channel/ 1GHz to 9GHz



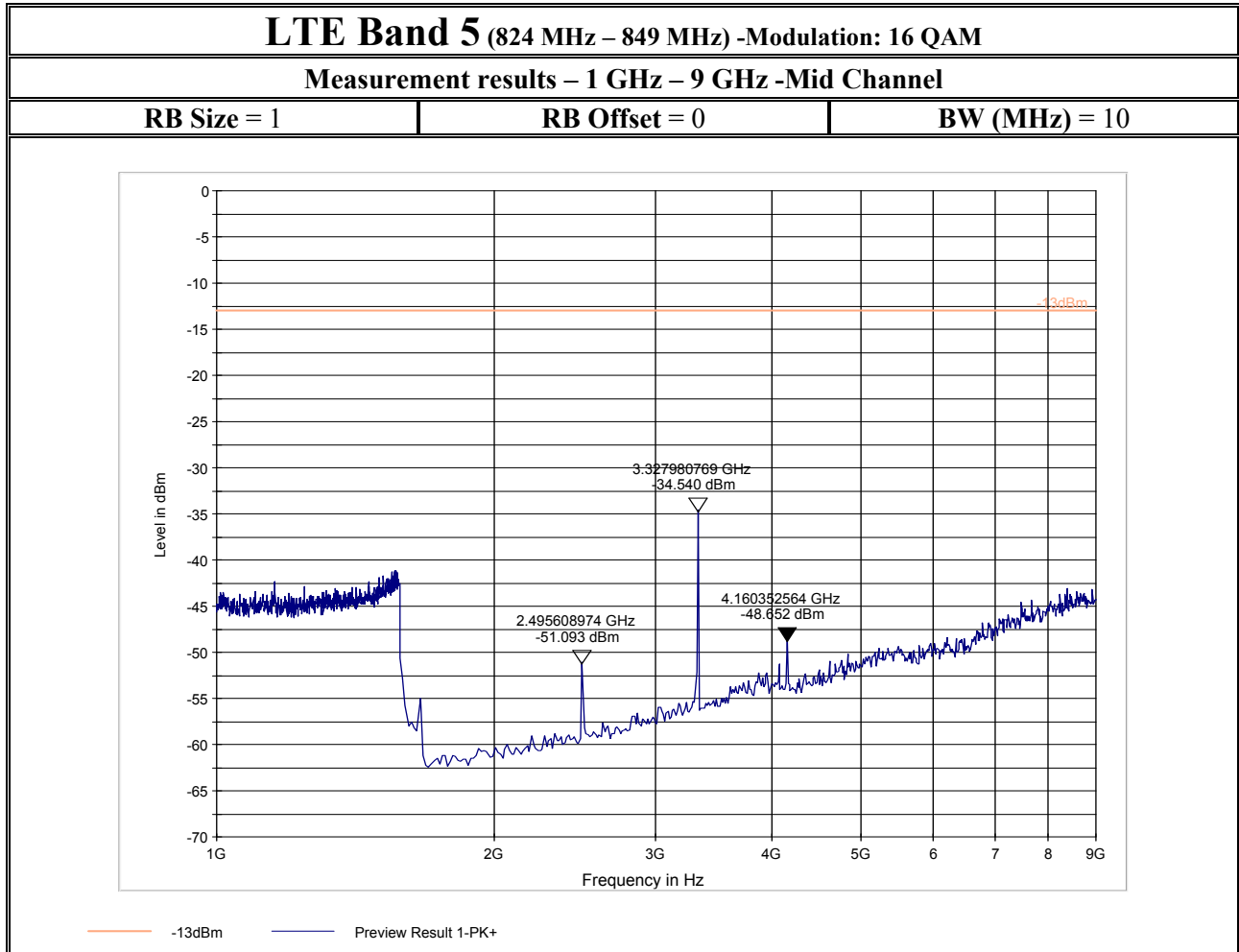
6.7.8.3.22 16 QAM/ 5MHz/ High Channel/ 1GHz to 9GHz



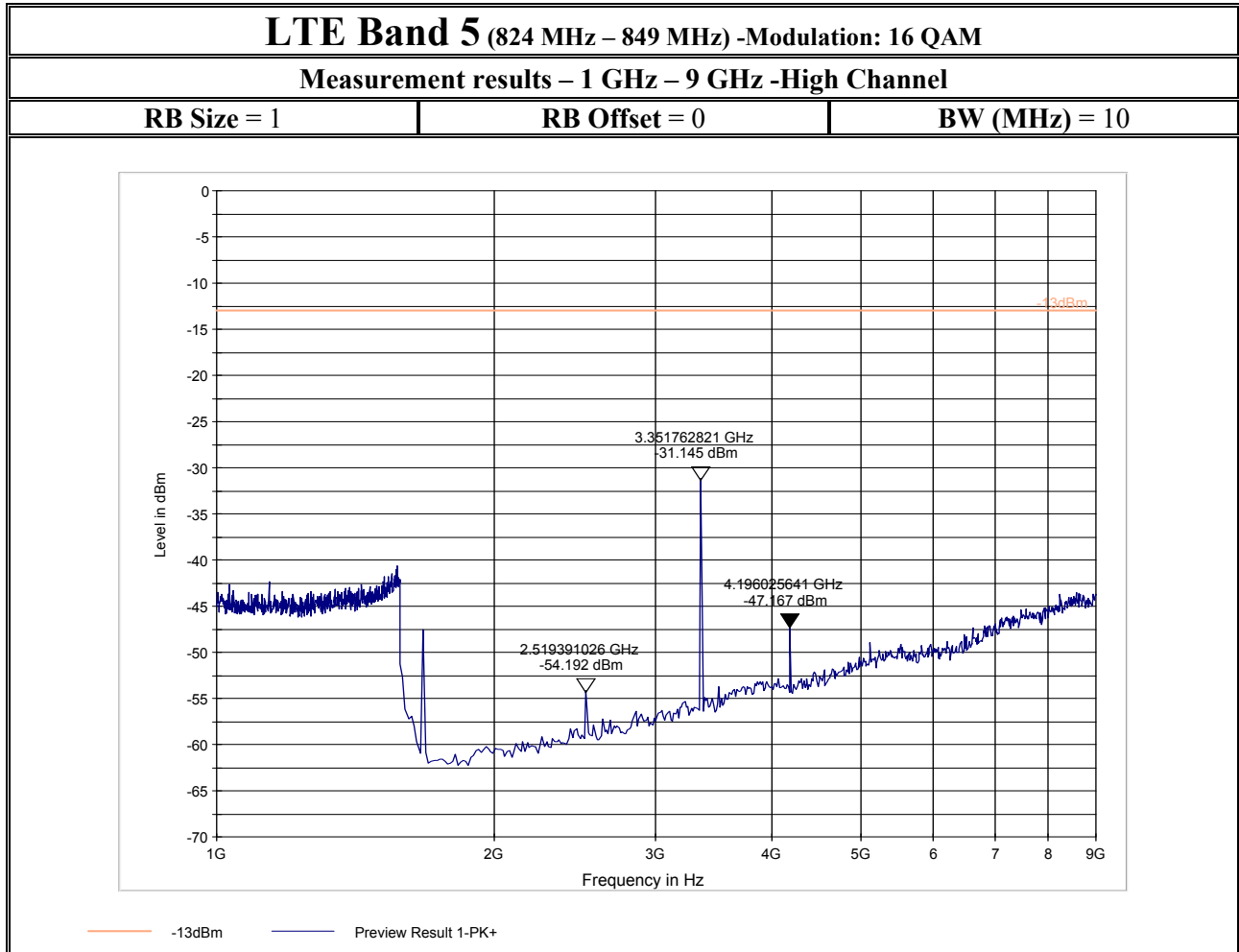
6.7.8.3.23 16 QAM/ 10MHz/ Low Channel/ 1GHz to 9GHz



6.7.8.3.24 16 QAM/ 10MHz/ Mid Channel/ 1GHz to 9GHz



6.7.8.3.25 16 QAM/ 10MHz/ High Channel/ 1GHz to 9GHz



6.7.8.4 Spurious Emissions LTE FDD 17:

6.7.8.4.1 LTE FDD 17 Summary Tables

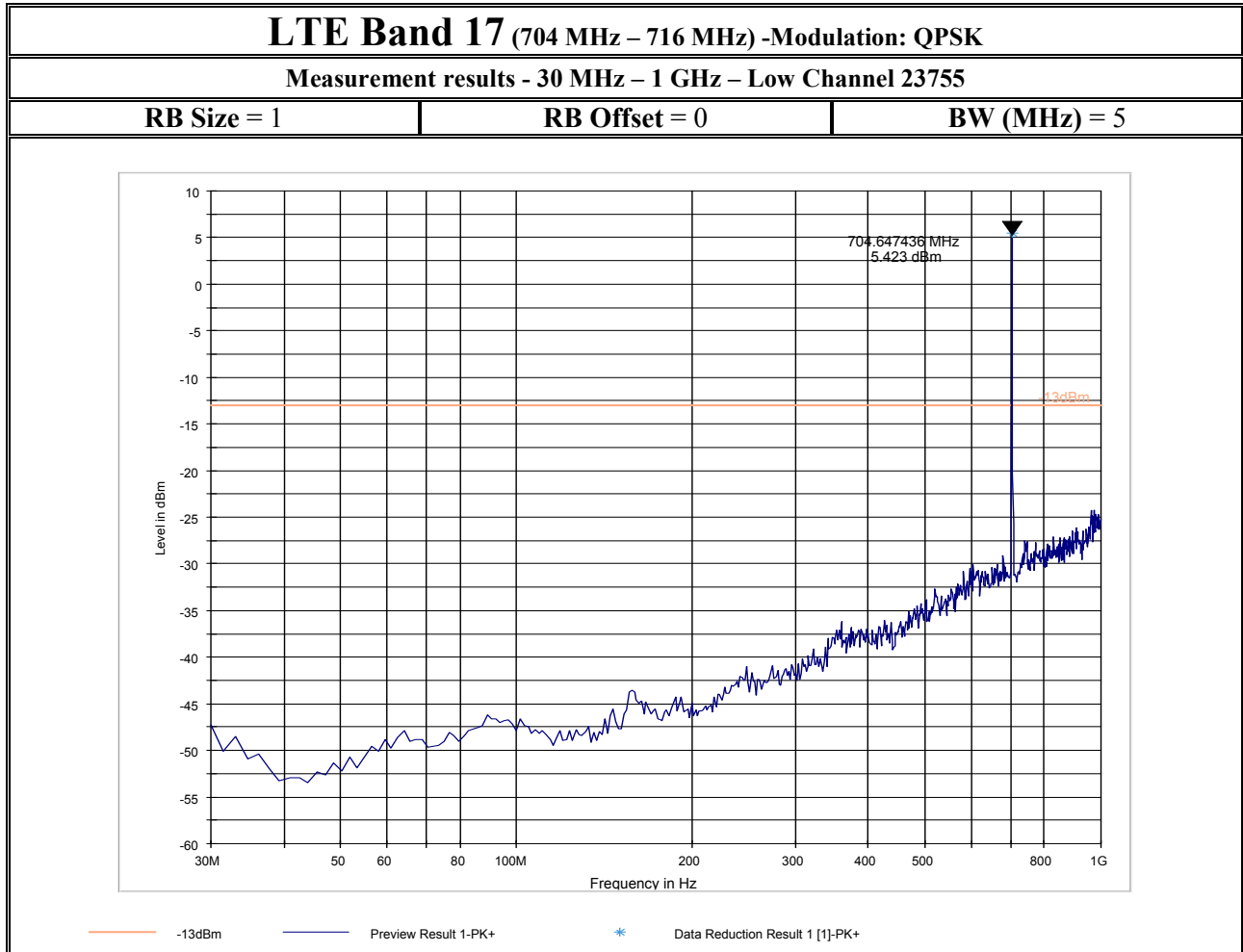
LTE Band 17 (704 MHz – 716 MHz) -Modulation: QPSK						
RB Size = 1			RB Offset = 0		BW (MHz) = 5	
Harmonic	Tx ch-23755 Freq. (MHz)	Level (dBm)	Tx ch-23790 Freq. (MHz)	Level (dBm)	Tx ch-23825 Freq. (MHz)	Level (dBm)
1	706.5	5.423	710	5.593	713.5	6.981
2	1413	NF	1420	NF	1427	NF
3	2119.5	NF	2130	NF	2140	NF
4	2826	NF	2840	NF	2854	NF
5	3532.5	NF	3550	NF	3567.5	NF
6	4239	NF	4260	NF	4281	NF
7	4945.5	NF	4970	NF	4994.5	NF
8	5652	NF	5680	NF	5708	NF
9	6358.5	NF	6390	NF	6421.5	NF
10	7065	NF	7100	NF	7135	NF
NF= Noise Floor						

LTE Band 17 (704 MHz – 716 MHz) -Modulation: QPSK						
RB Size = 1			RB Offset = 0		BW (MHz) = 10	
Harmonic	Tx ch-23780 Freq. (MHz)	Level (dBm)	Tx ch-23790 Freq. (MHz)	Level (dBm)	Tx ch-23800 Freq. (MHz)	Level (dBm)
1	709	9.529	710	5.772	711	8.071
2	3710	NF	1420	NF	1422	NF
3	5565	NF	2130	NF	2133	NF
4	7420	NF	2840	NF	2844	NF
5	9275	NF	3550	NF	3555	NF
6	11130	NF	4260	NF	4266	NF
7	130550	NF	4970	NF	4977	NF
8	14840	NF	5680	NF	5688	NF
9	16695	NF	6390	NF	6399	NF
10	18550	NF	7100	NF	7110	NF
NF= Noise Floor						

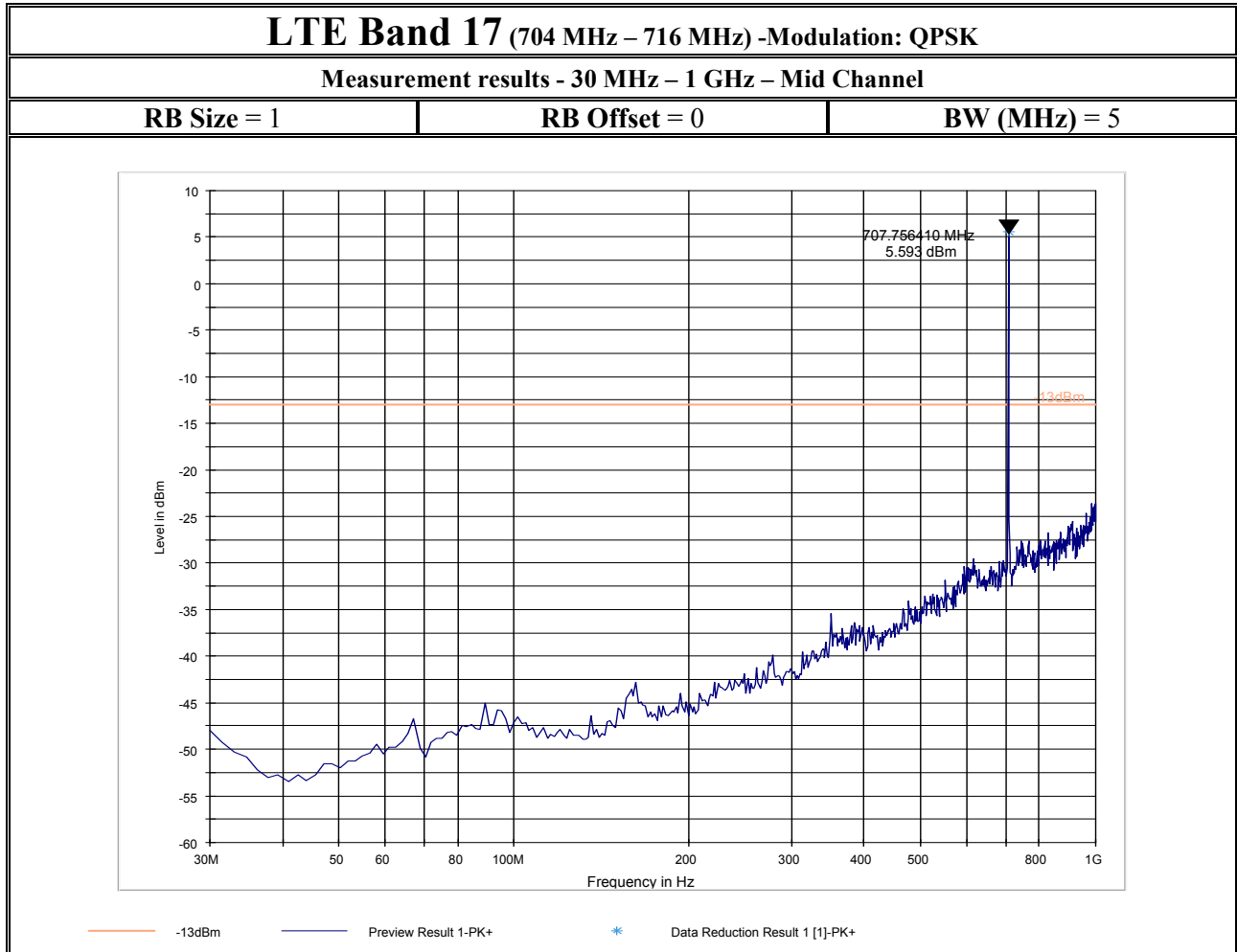
LTE Band 17 (704 MHz – 716 MHz) -Modulation: 16 QAM						
RB Size = 1			RB Offset = 0		BW (MHz) = 5	
Harmonic	Tx ch-23755 Freq. (MHz)	Level (dBm)	Tx ch-23790 Freq. (MHz)	Level (dBm)	Tx ch-23825 Freq. (MHz)	Level (dBm)
1	706.5	10.795	710	5.687	713.5	9.072
2	1413	NF	1420	NF	1427	NF
3	2119.5	NF	2130	NF	2140	NF
4	2826	NF	2840	NF	2854	NF
5	3532.5	NF	3550	NF	3567.5	NF
6	4239	NF	4260	NF	4281	NF
7	4945.5	NF	4970	NF	4994.5	NF
8	5652	NF	5680	NF	5708	NF
9	6358.5	NF	6390	NF	6421.5	NF
10	7065	NF	7100	NF	7135	NF
NF= Noise Floor						

LTE Band 17 (704 MHz – 716 MHz) -Modulation: 16 QAM						
RB Size = 1			RB Offset = 0		BW (MHz) = 10	
Harmonic	Tx ch-23780 Freq. (MHz)	Level (dBm)	Tx ch-23790 Freq. (MHz)	Level (dBm)	Tx ch-23800 Freq. (MHz)	Level (dBm)
1	709	9.667	710	8.271	711	5.226
2	3710	NF	1420	NF	1422	NF
3	5565	NF	2130	NF	2133	NF
4	7420	NF	2840	NF	2844	NF
5	9275	NF	3550	NF	3555	NF
6	11130	NF	4260	NF	4266	NF
7	130550	NF	4970	NF	4977	NF
8	14840	NF	5680	NF	5688	NF
9	16695	NF	6390	NF	6399	NF
10	18550	NF	7100	NF	7110	NF
NF= Noise Floor						

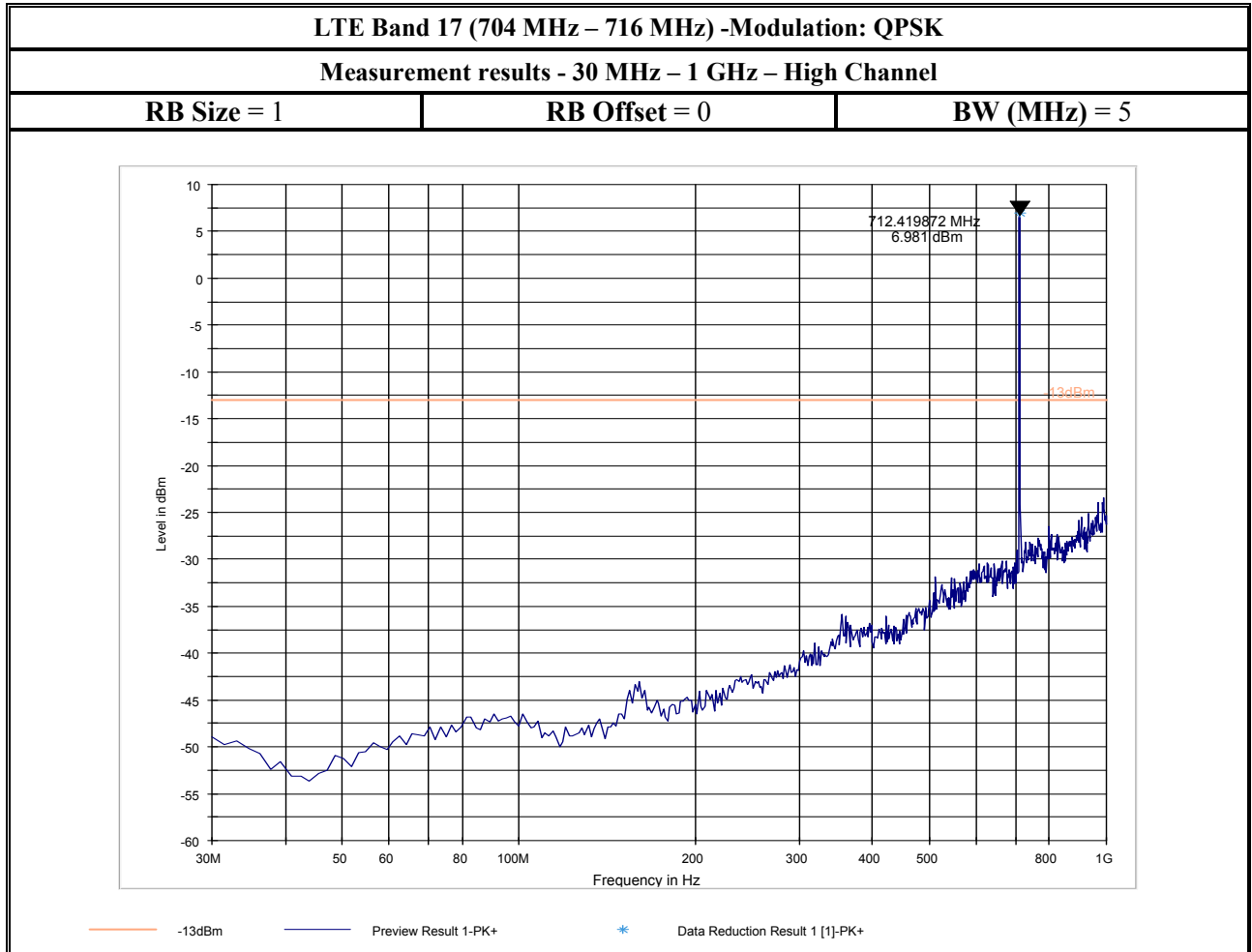
6.7.8.4.2 QPSK/ 5 MHz/ Low Channel/ 30MHz to 1GHz:



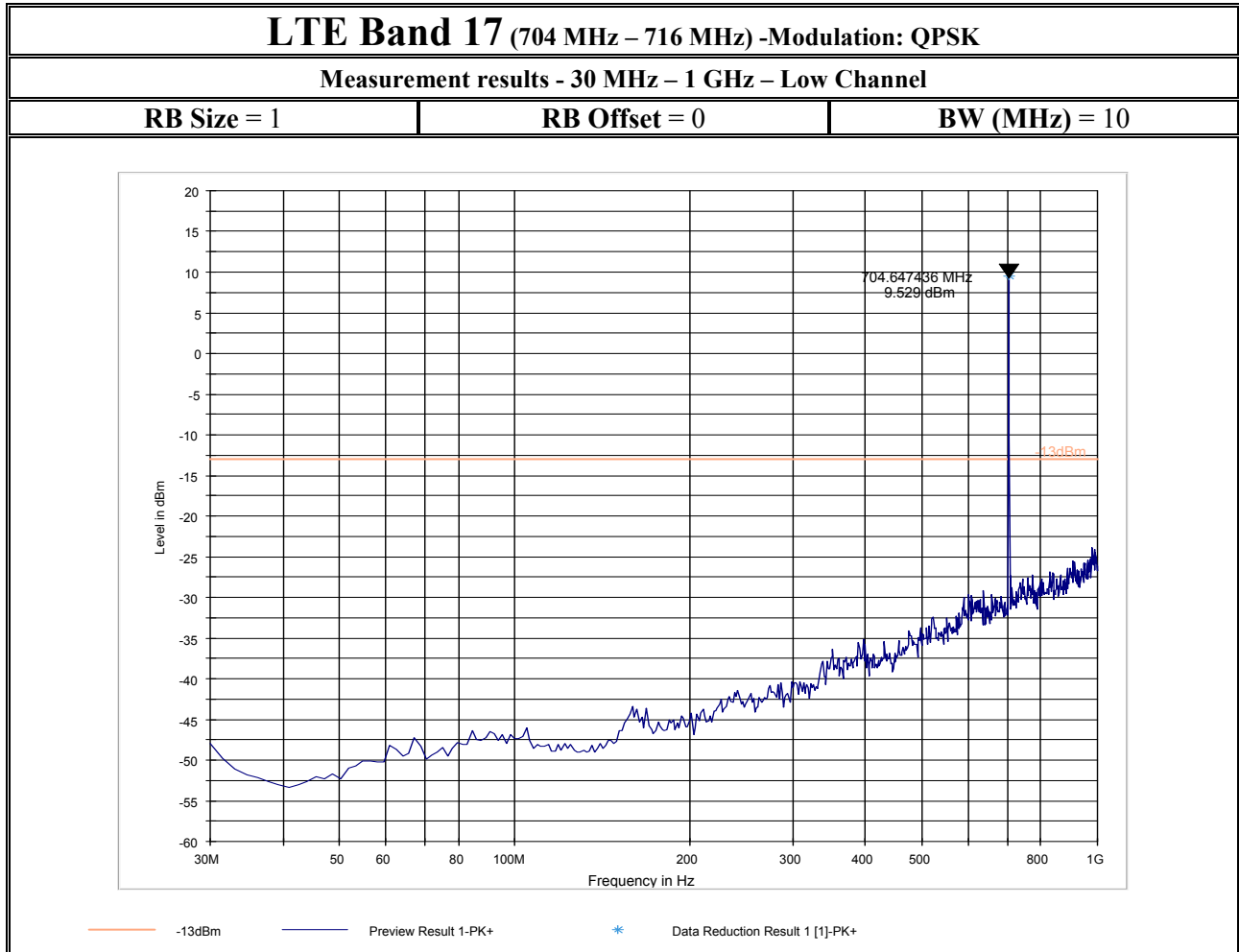
6.7.8.4.3 QPSK/ 5 MHz/ Mid Channel/ 30MHz to 1GHz:



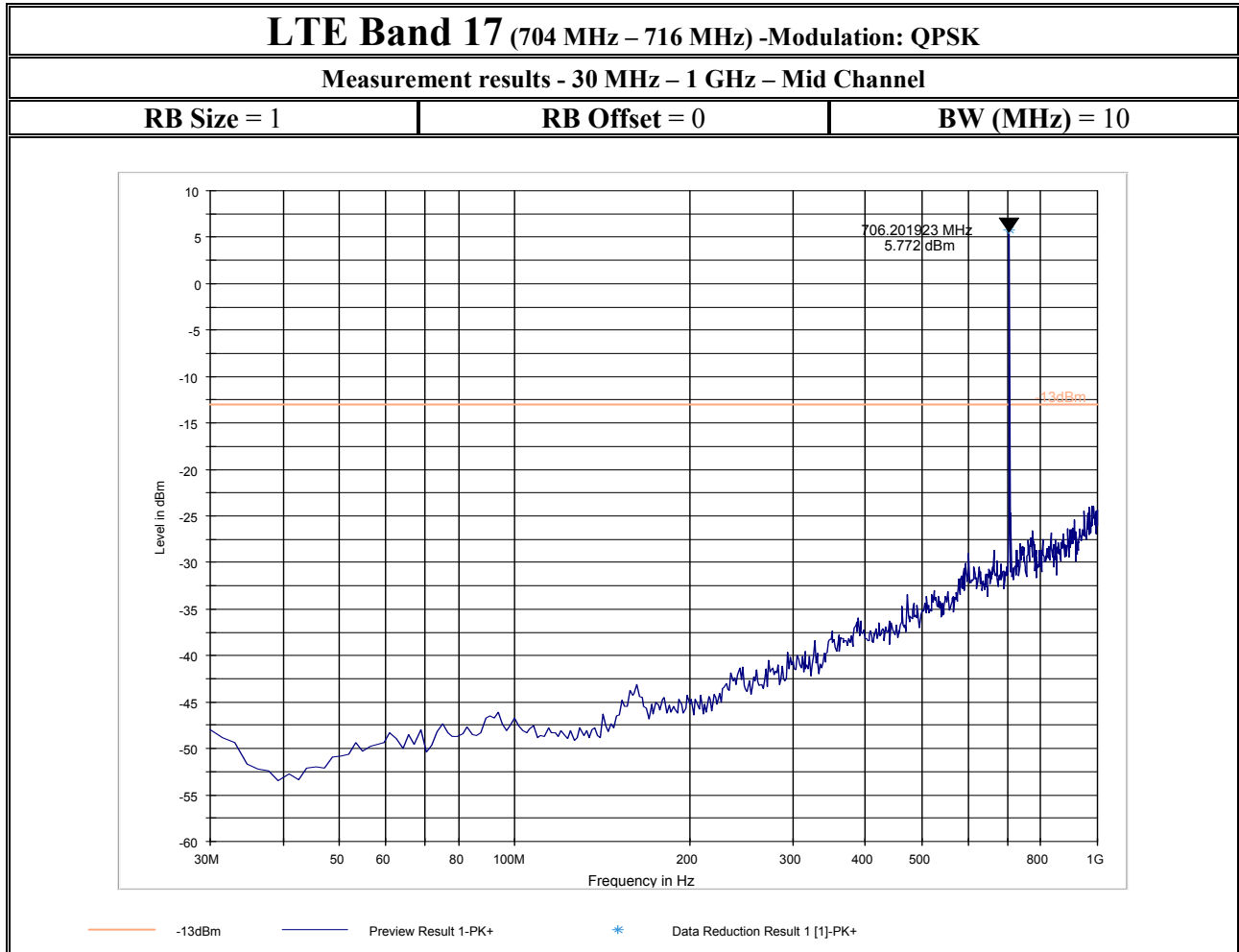
6.7.8.4.4 QPSK/ 5MHz/ High Channel/ 30MHz to 1GHz:



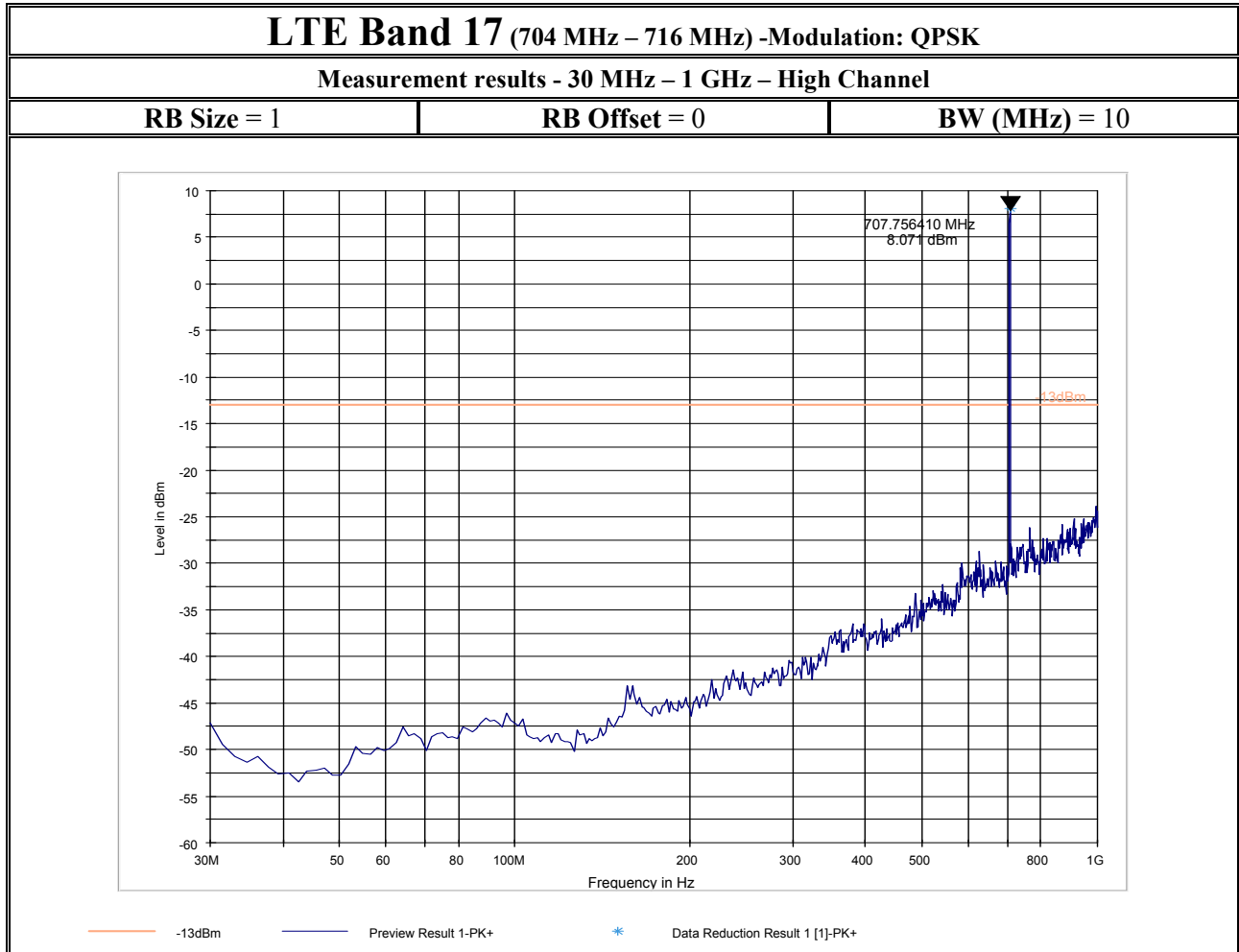
6.7.8.4.5 QPSK/ 5MHz/ Low Channel/ 30MHz to 1GHz:



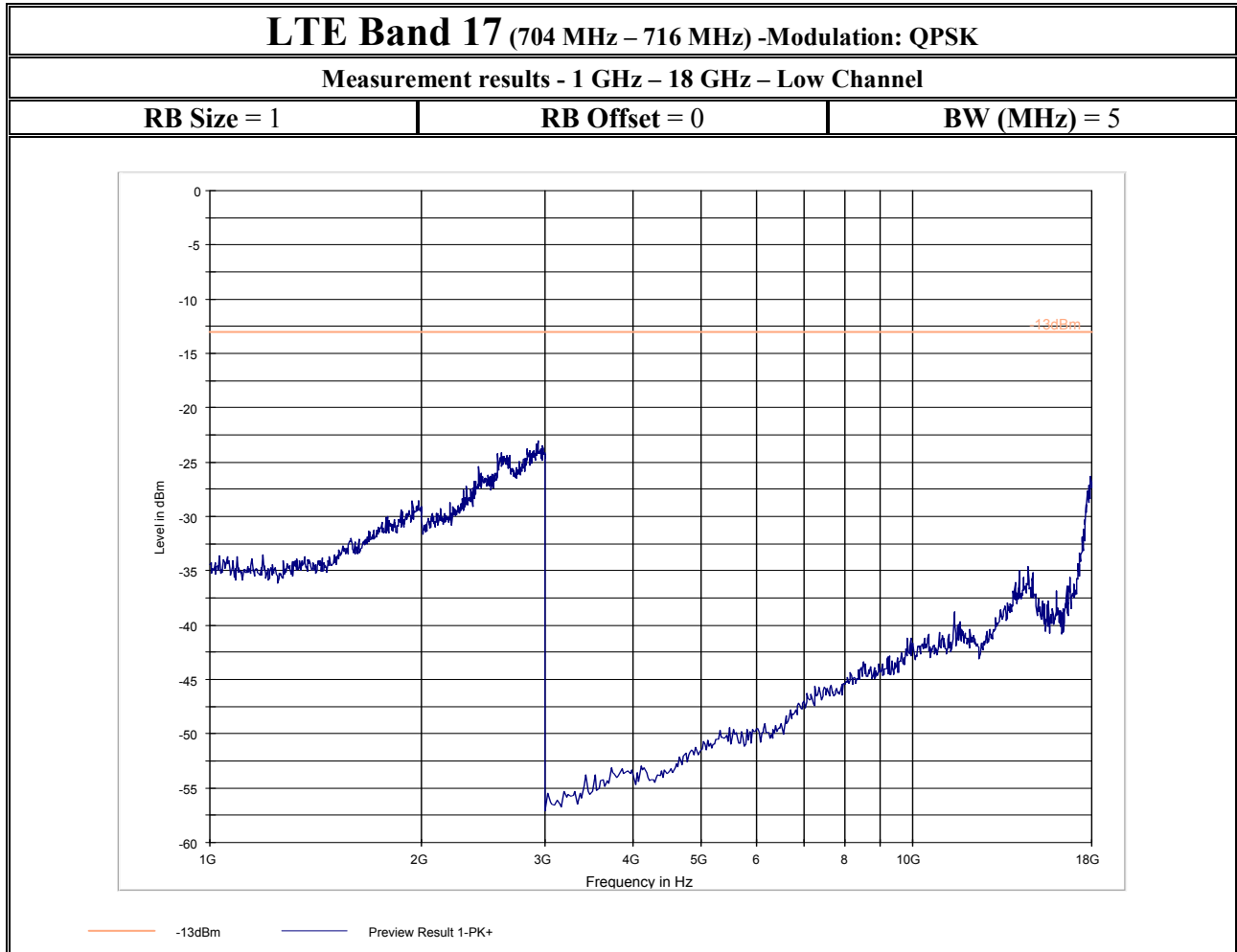
6.7.8.4.6 QPSK/10 MHz/ Mid Channel/ 30MHz to 1GHz:



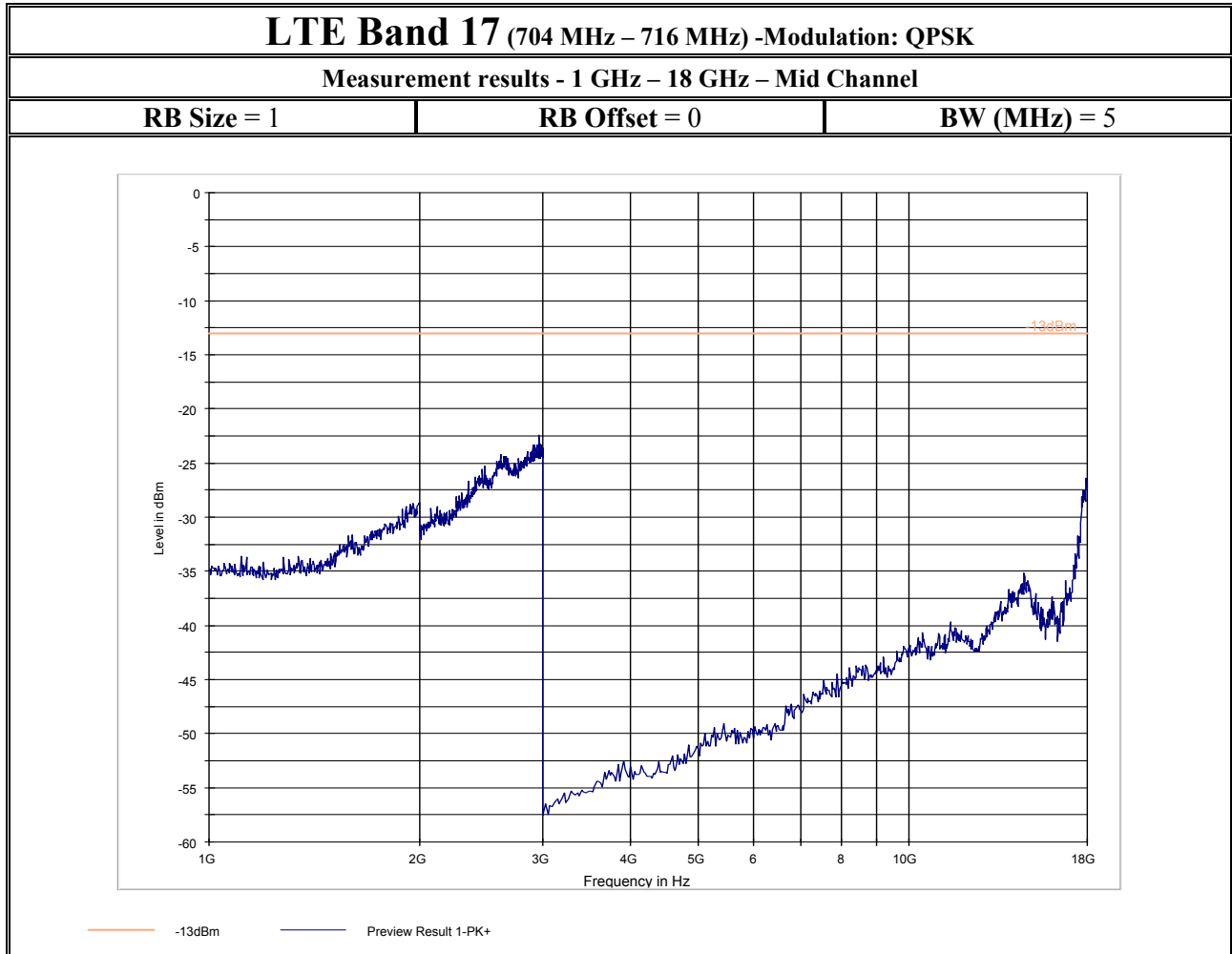
6.7.8.4.7 QPSK/ 10 MHz/ High Channel/ 30MHz to 1GHz:



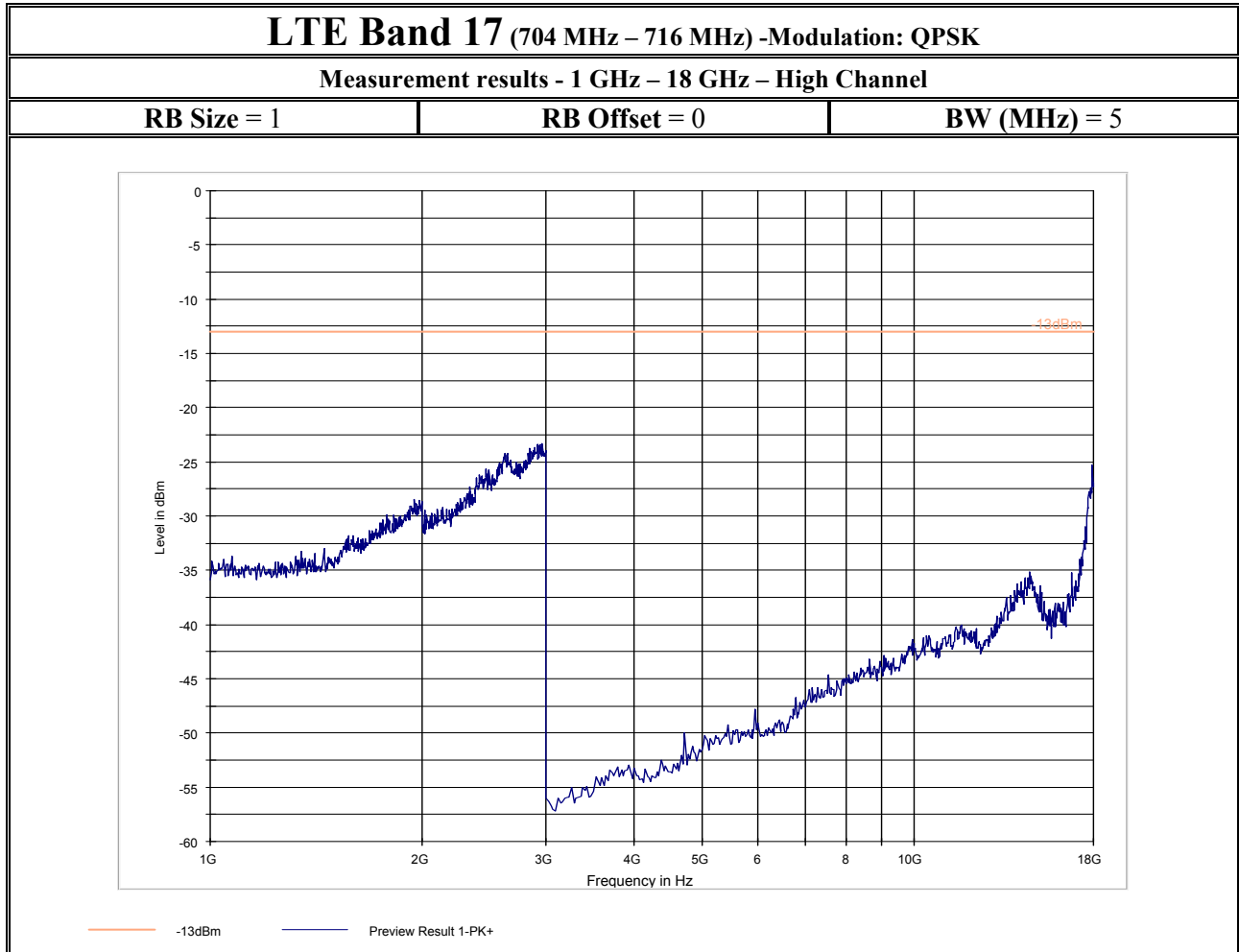
6.7.8.4.8 QPSK/ 5MHz/ Low Channel/ 1GHz to 18GHz:



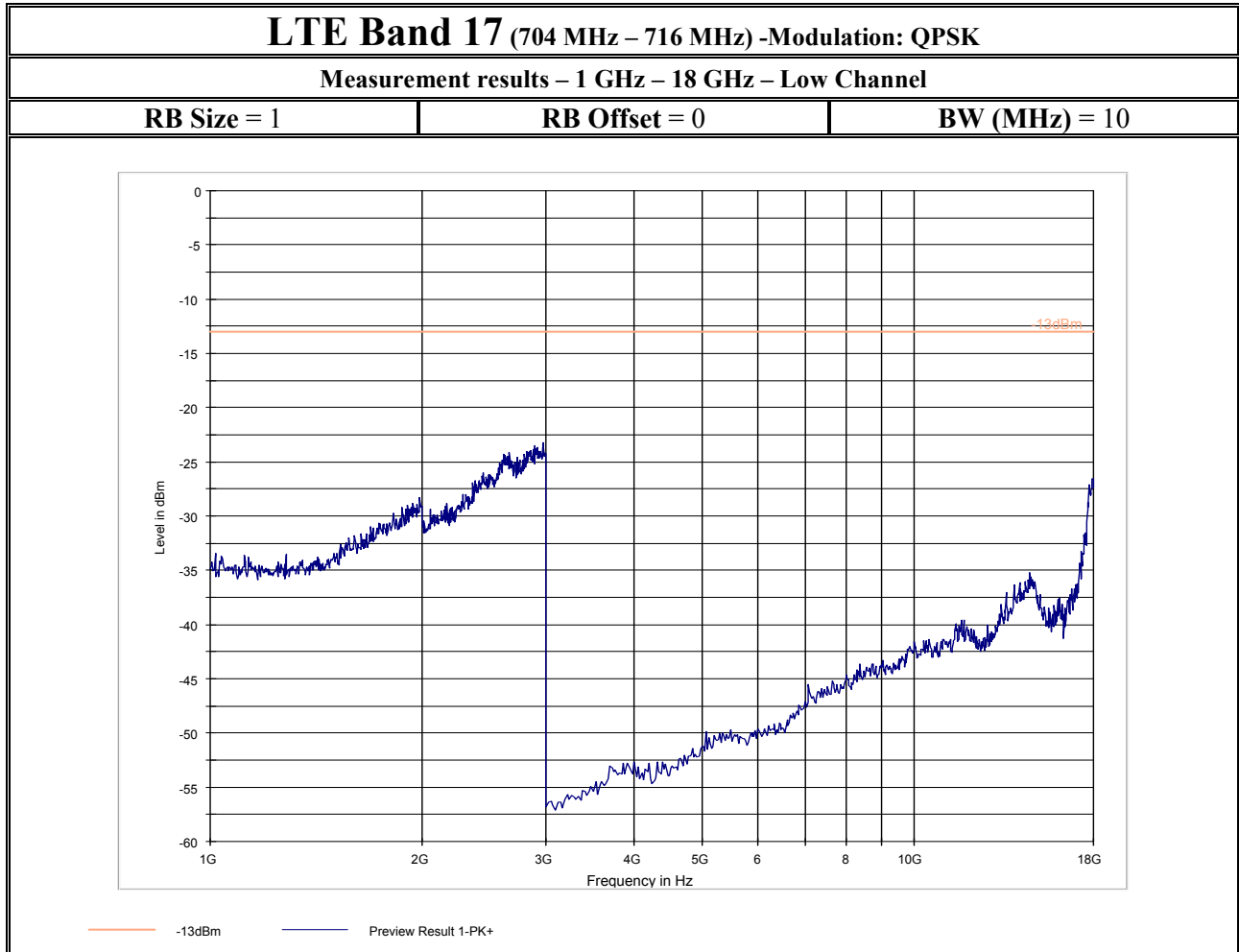
6.7.8.4.9 QPSK/ 5 MHz/ Mid Channel/ 1GHz to 18GHz:



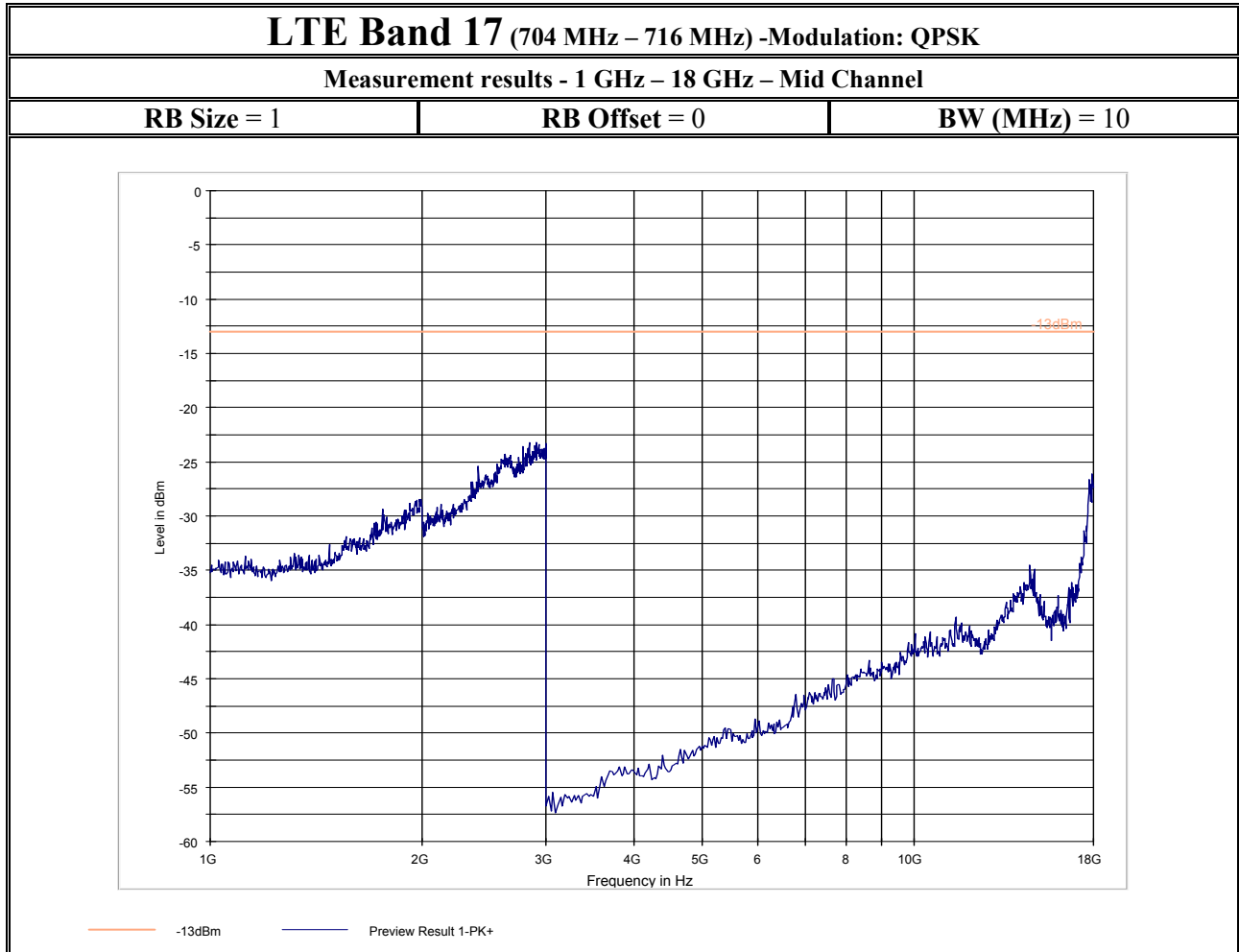
6.7.8.4.10 QPSK/ 5MHz/ High Channel/ 1GHz to 18GHz:



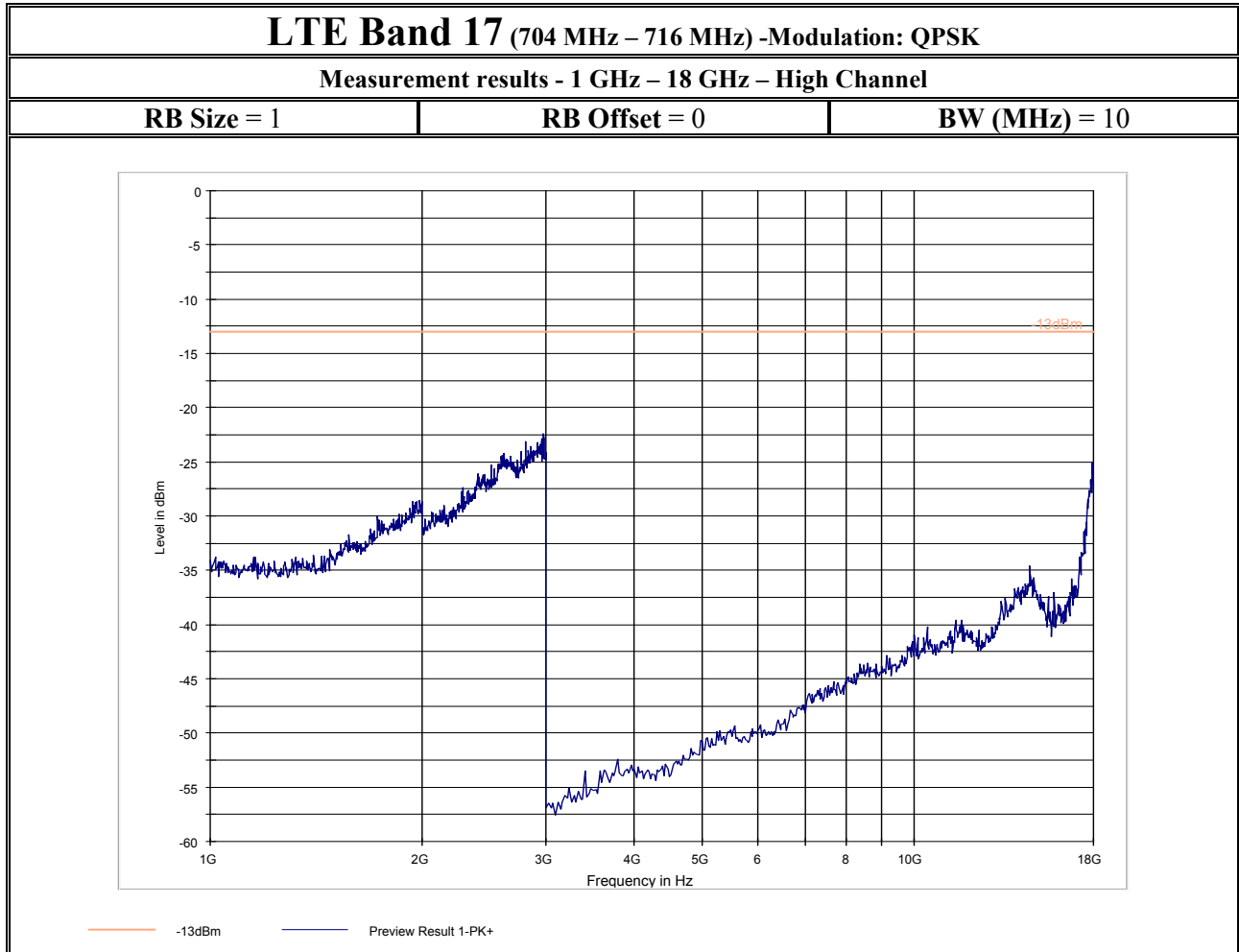
6.7.8.4.11 QPSK/10 MHz/ Low Channel/ 1GHz to 18GHz:



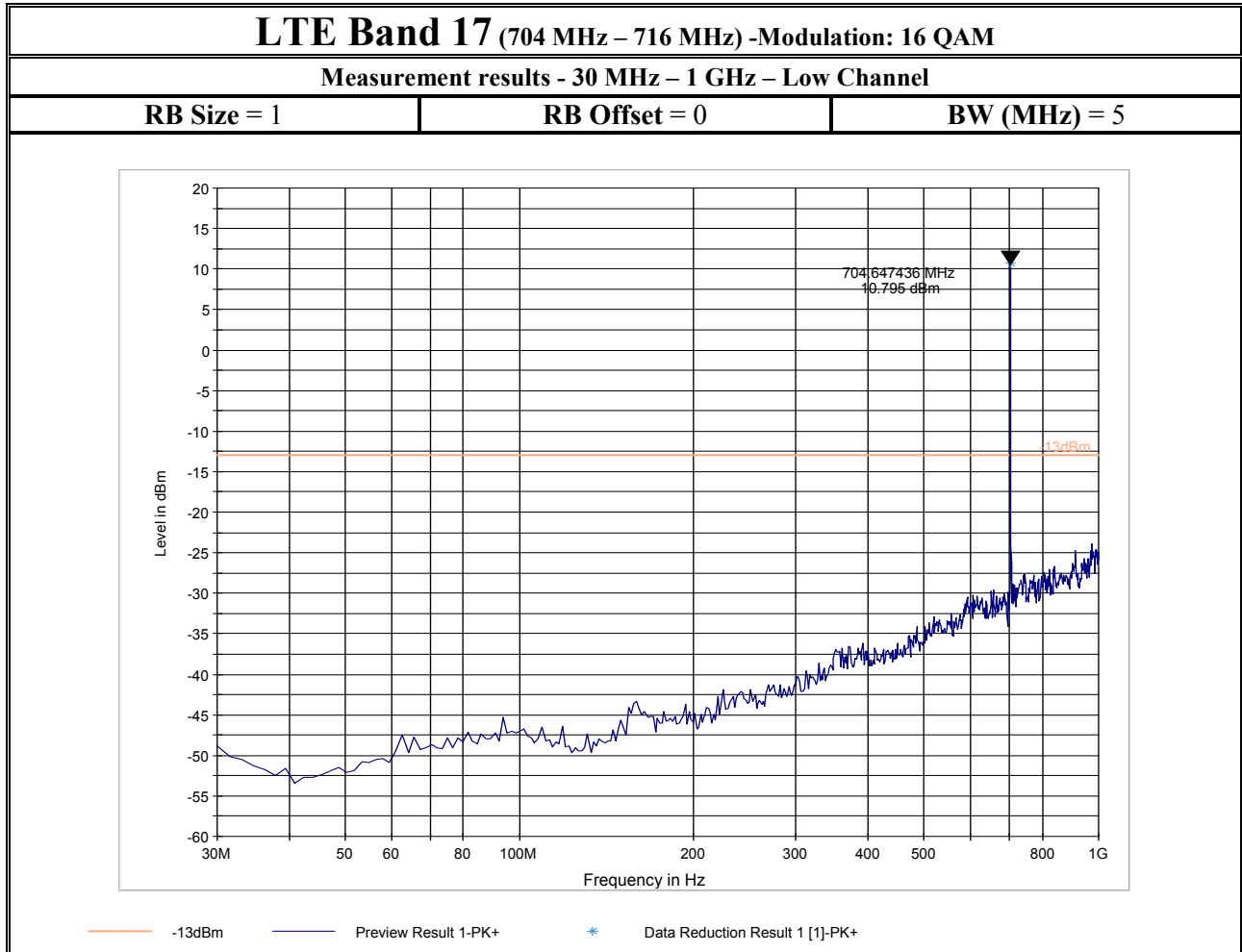
6.7.8.4.12 QPSK/ 10MHz/ Mid Channel/ 1GHz to 18GHz:



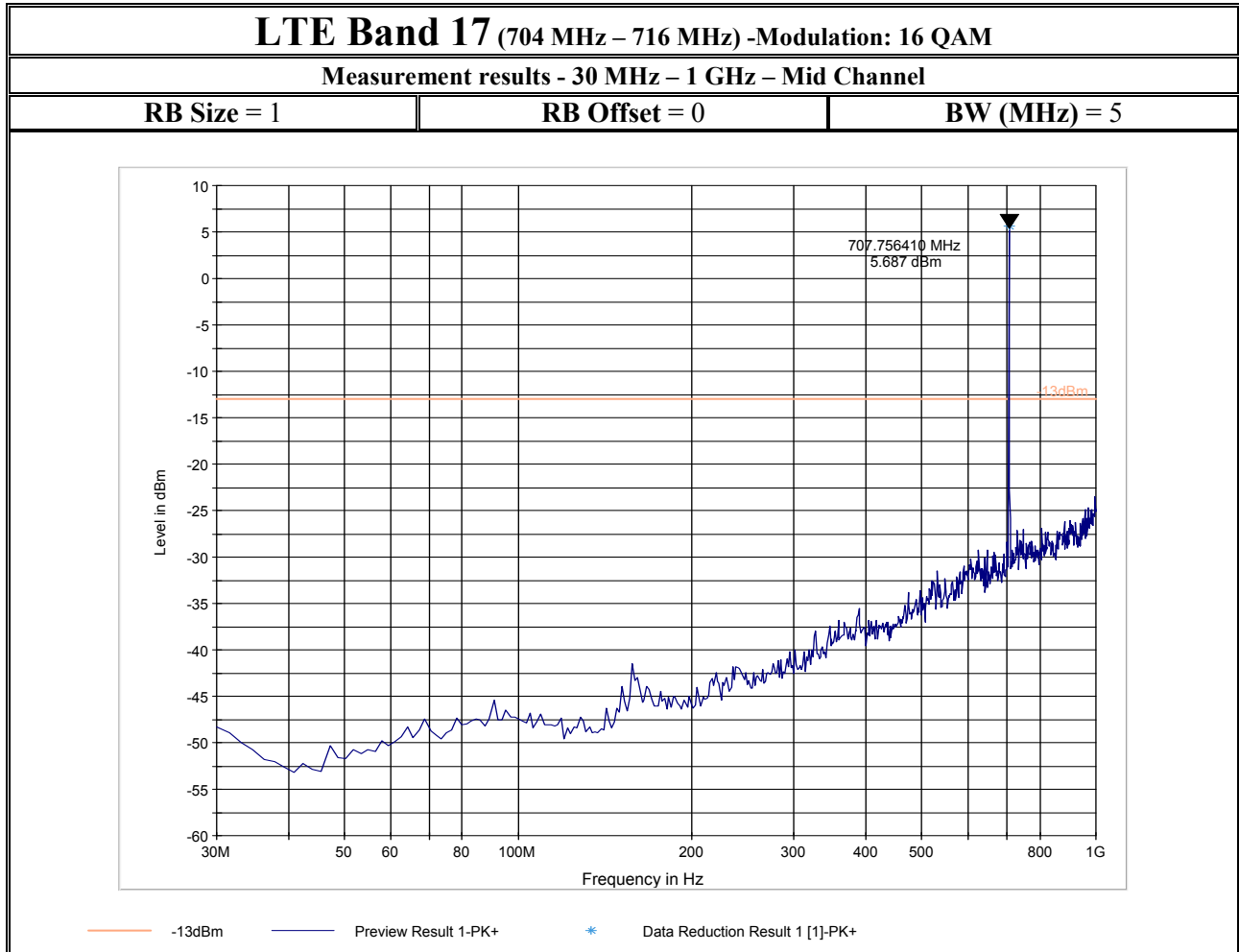
6.7.8.4.13 QPSK/ 10MHz/ High Channel/ 1GHz to 18GHz:



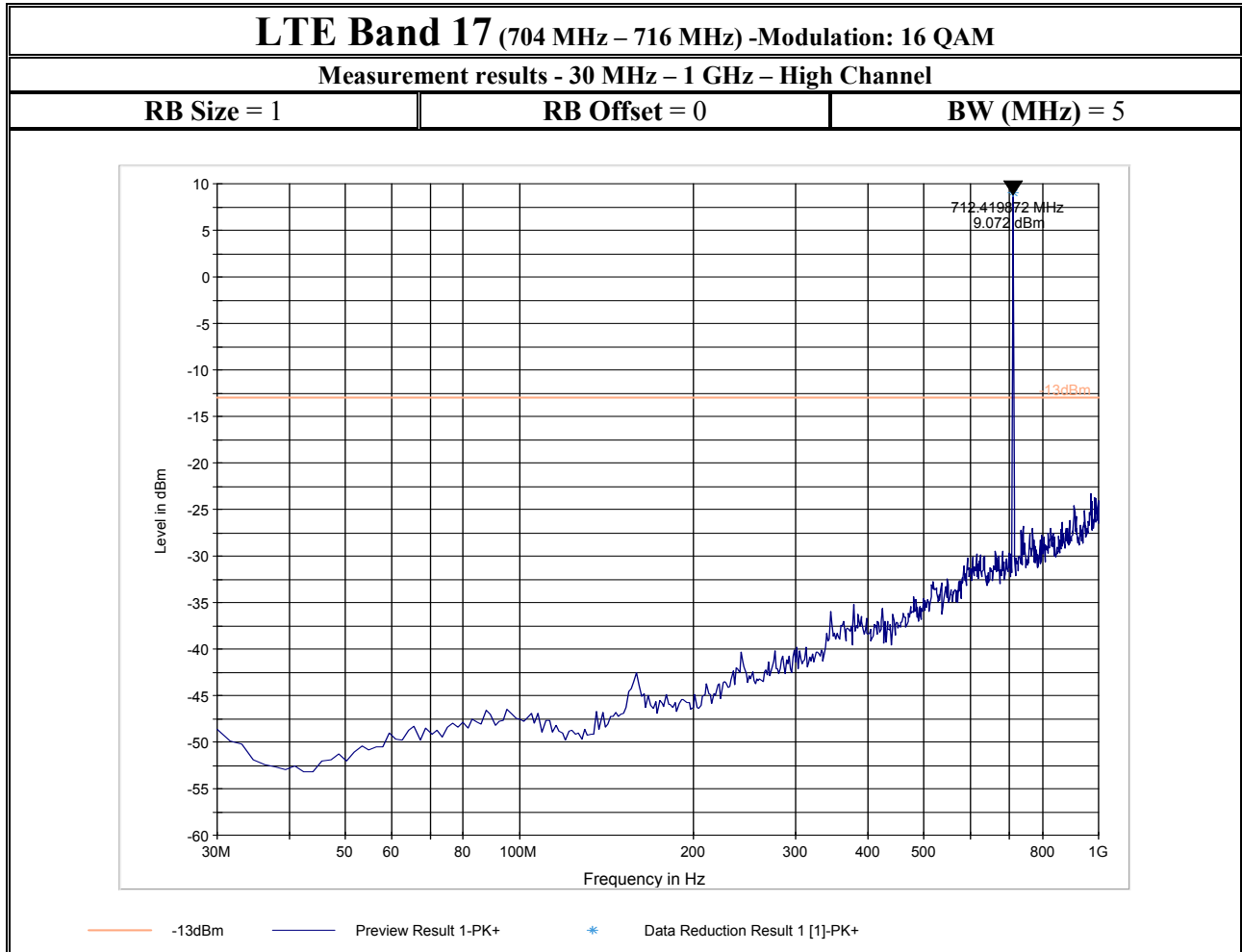
6.7.8.4.14 16 QAM/ 5MHz/ Low Channel/ 30MHz to 1GHz:



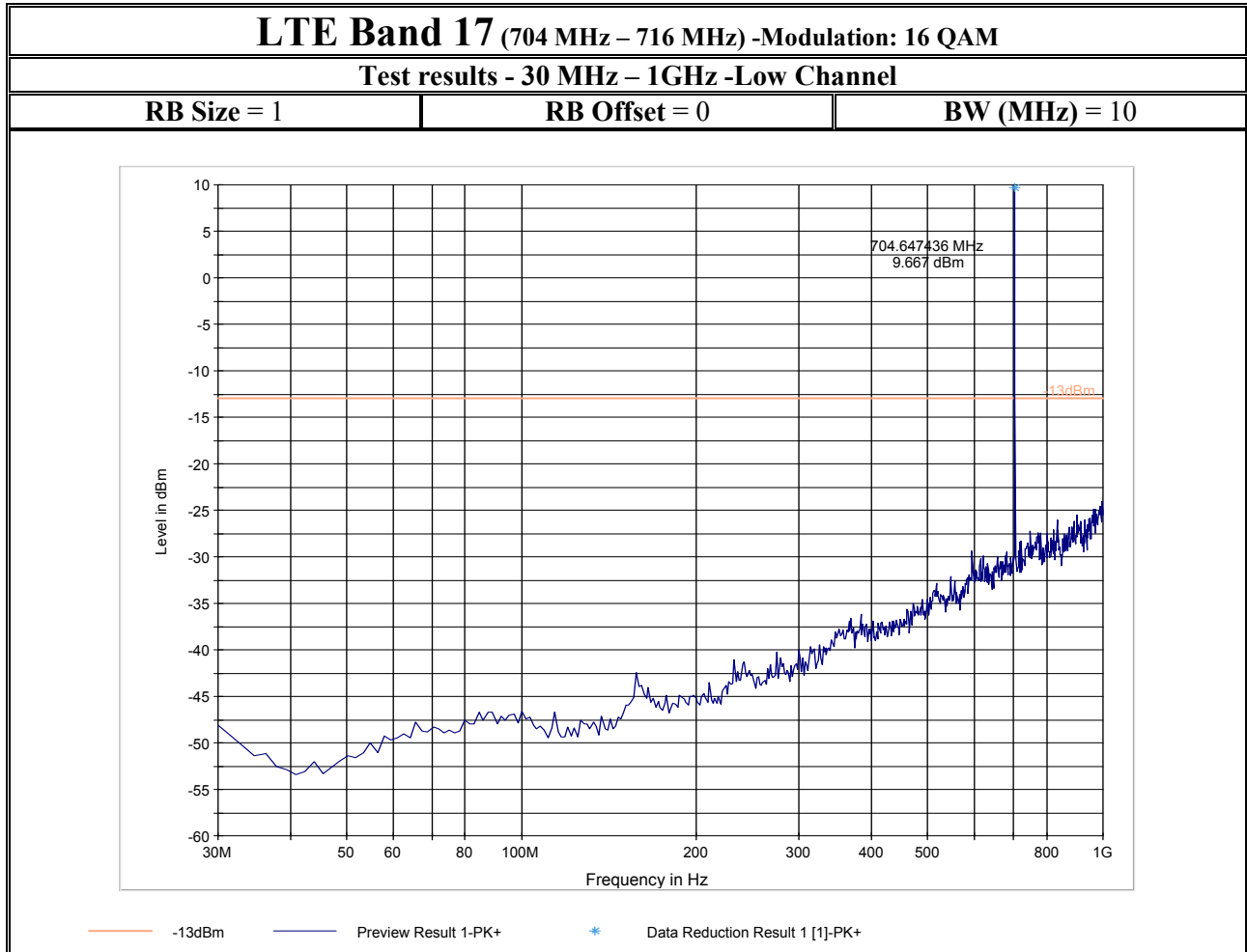
6.7.8.4.15 16 QAM/ 5MHz/ Mid Channel/ 30MHz to 1GHz:



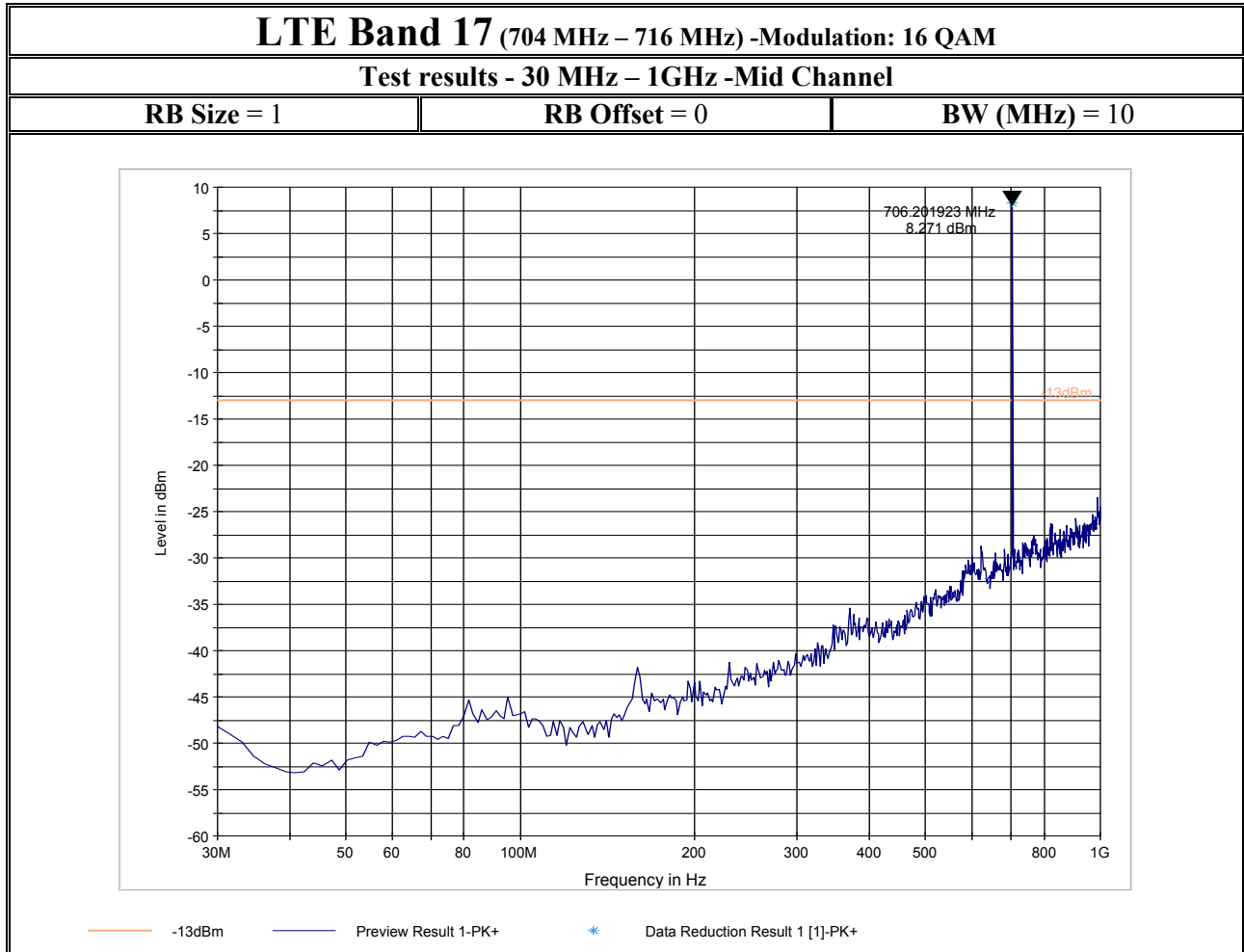
6.7.8.4.16 16 QAM/ 5MHz/ High Channel/ 30MHz to 1GHz:



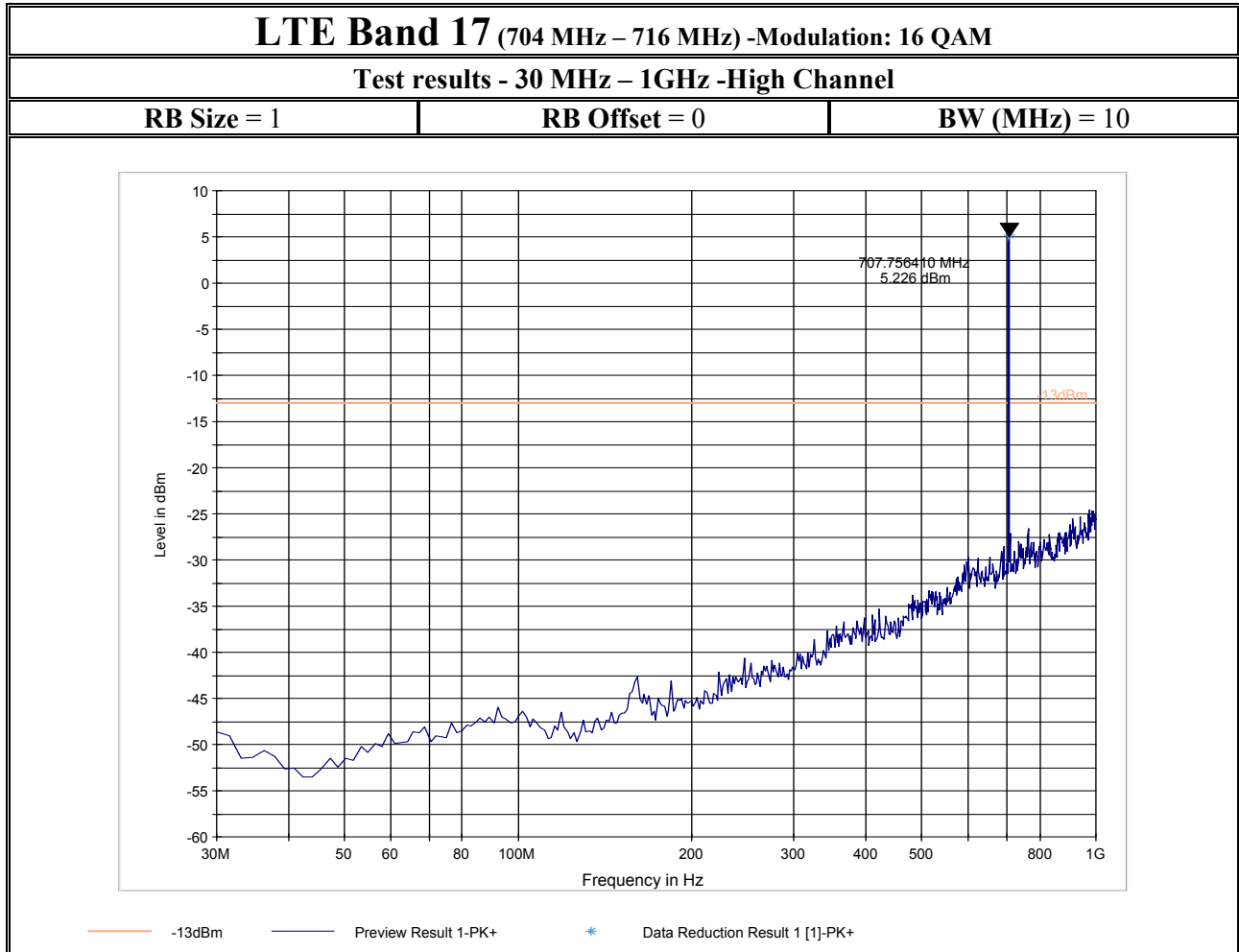
6.7.8.4.17 16 QAM/ 10MHz/ Low Channel/ 30MHz to 1GHz:



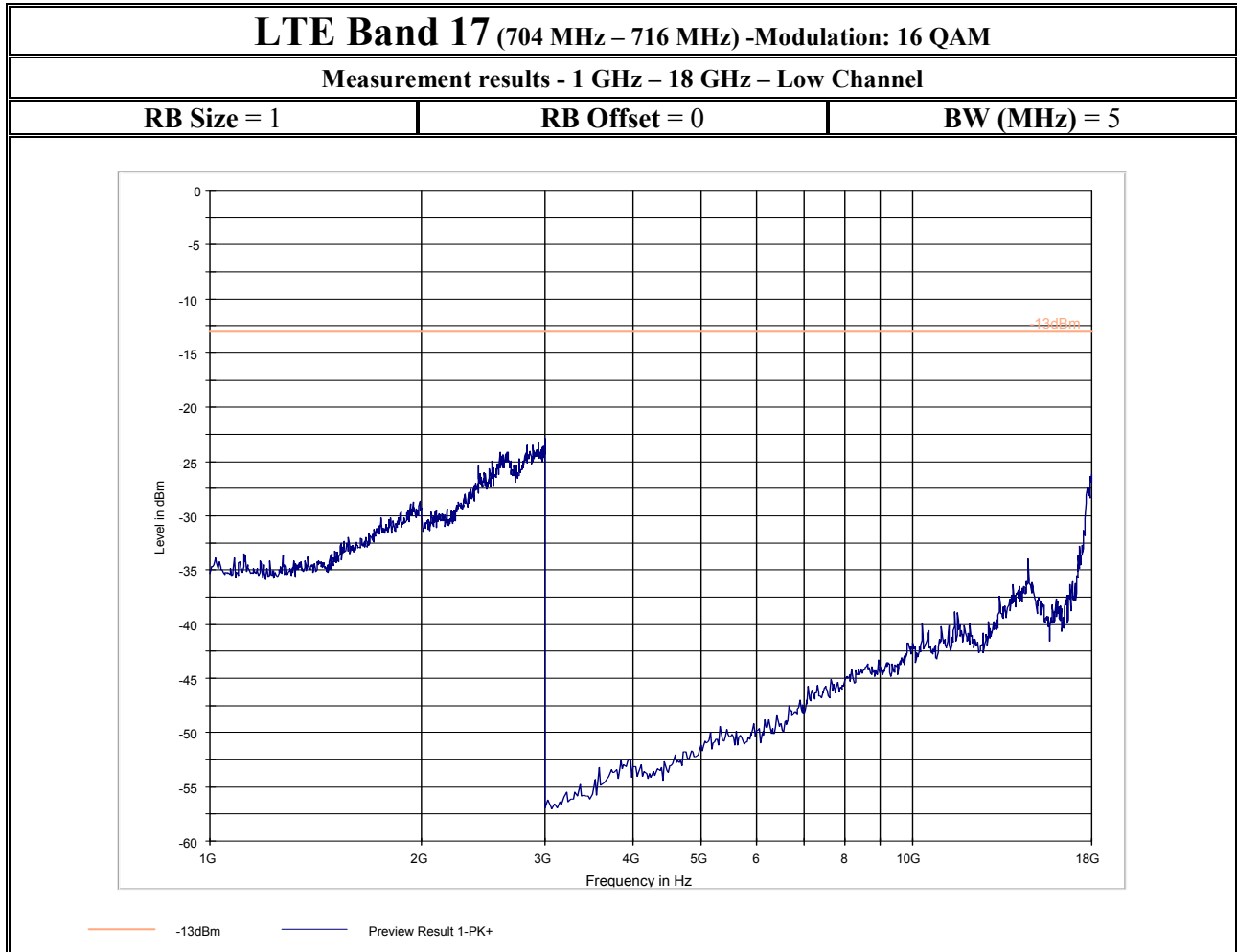
6.7.8.4.18 16 QAM/ 10MHz/ Mid Channel/ 30MHz to 1GHz:



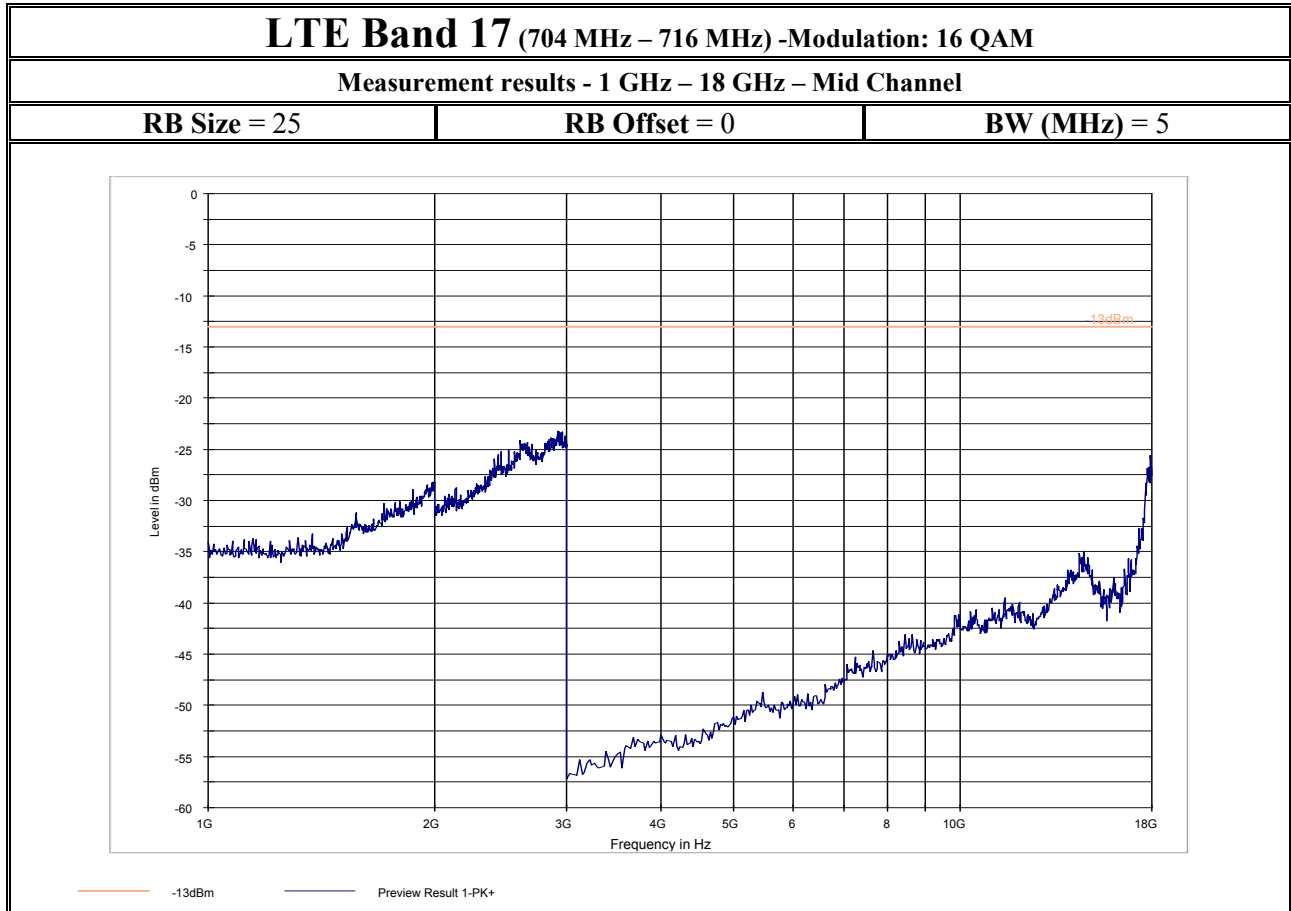
6.7.8.4.19 16 QAM/ 10MHz/ High Channel/ 30MHz to 1GHz:



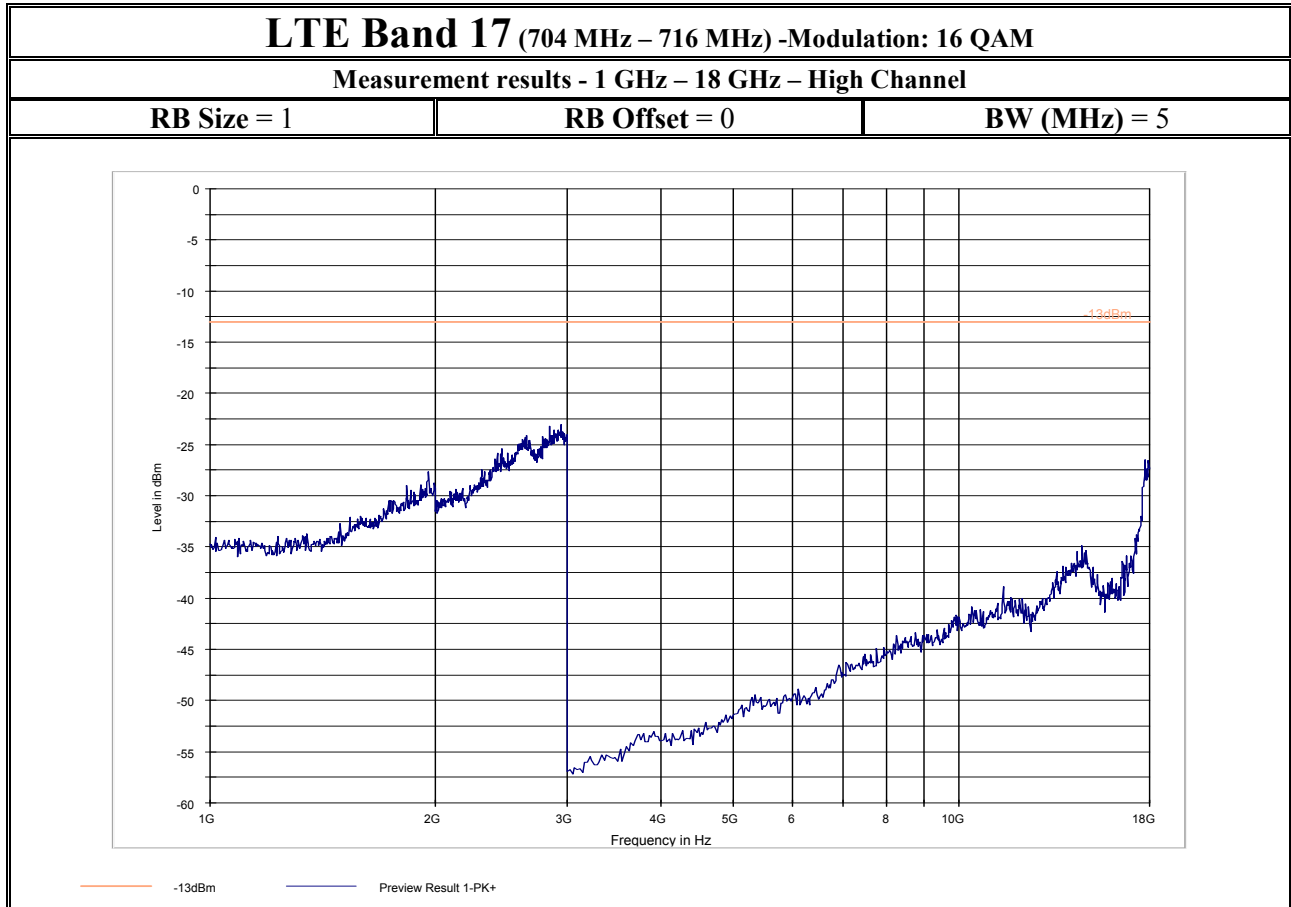
6.7.8.4.20 16 QAM/ 5MHz/ Low Channel/ 1GHz to 18GHz:



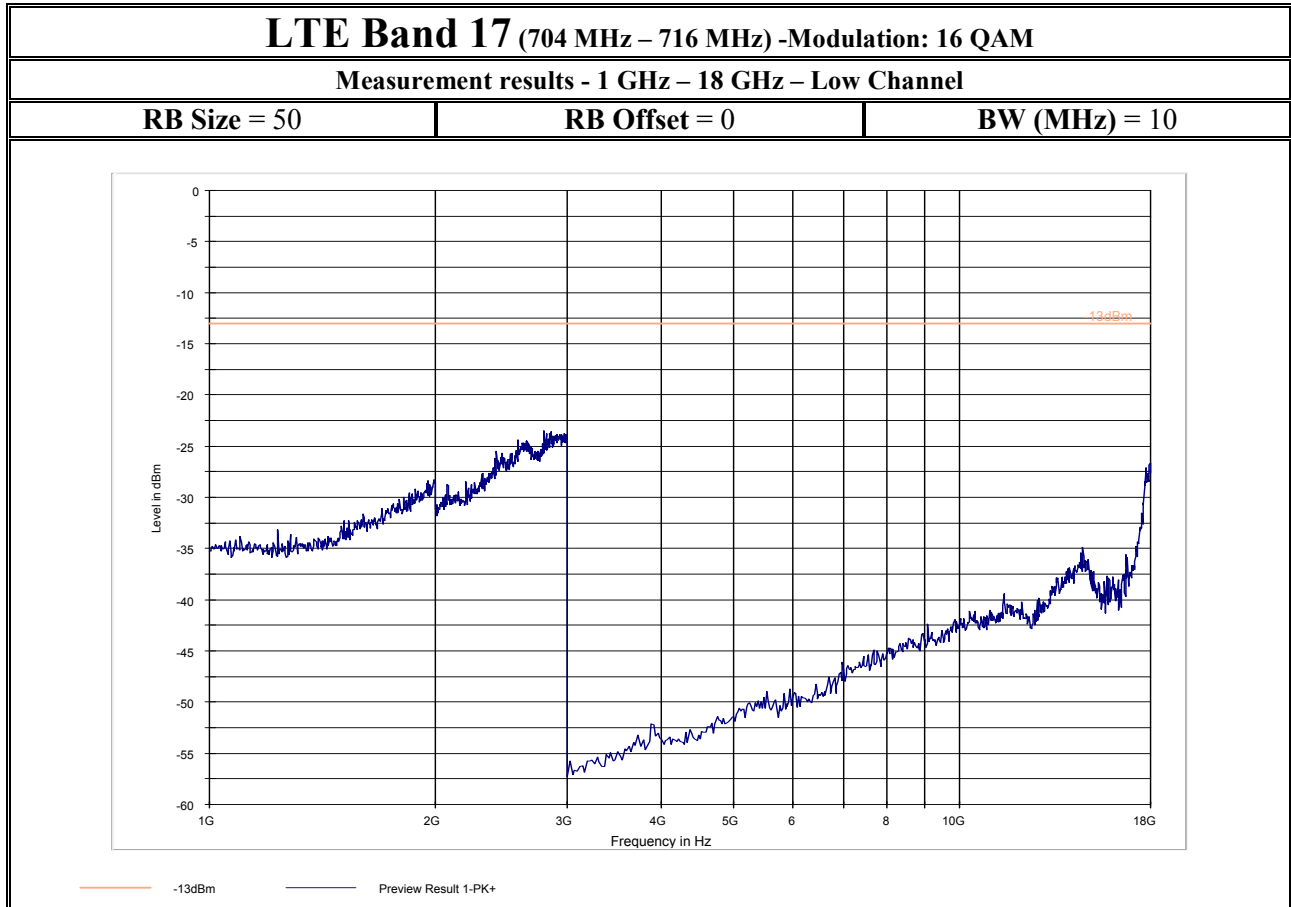
6.7.8.4.21 16 QAM/ 5MHz/ Mid Channel/ 1GHz to 18GHz:



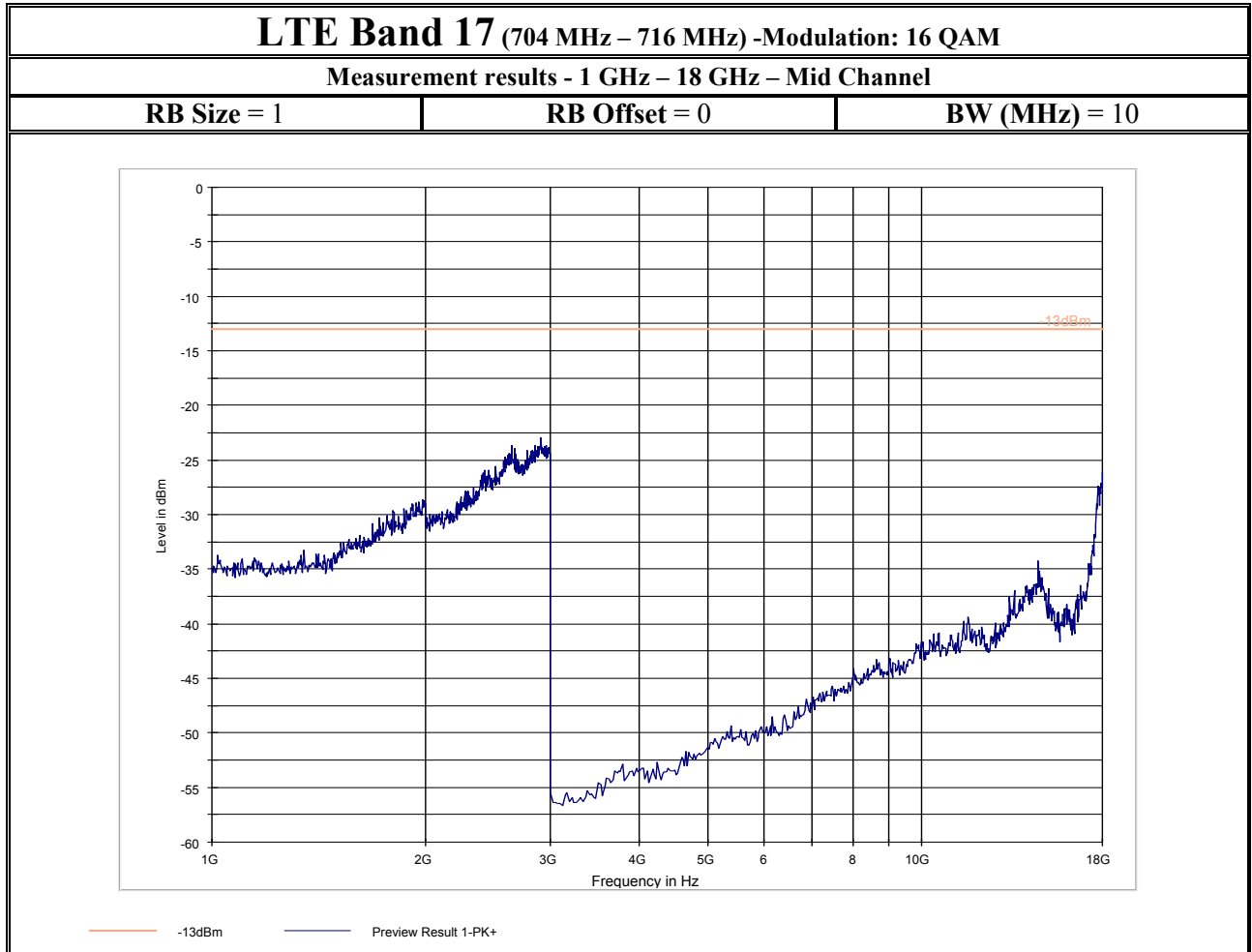
6.7.8.4.22 16 QAM/ 5MHz/ High Channel/ 1GHz to 18GHz:



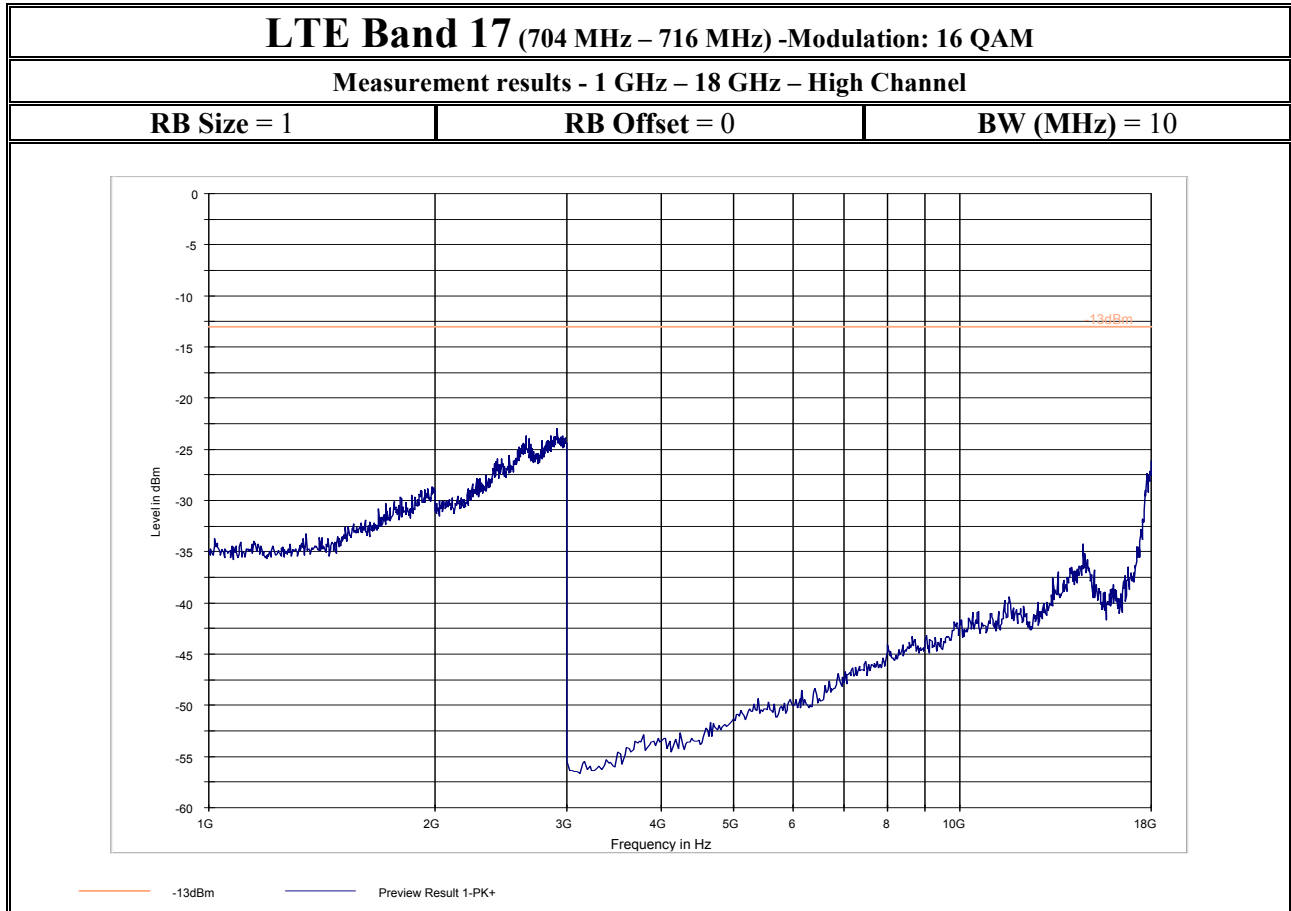
6.7.8.4.23 16 QAM/ 10MHz/ Low Channel/ 1GHz to 18GHz:



6.7.8.4.24 16 QAM/ 10MHz/ Mid Channel/ 1GHz to 18GHz:



6.7.8.4.25 16 QAM/ 10MHz/ High Channel/ 1GHz to 18GHz:

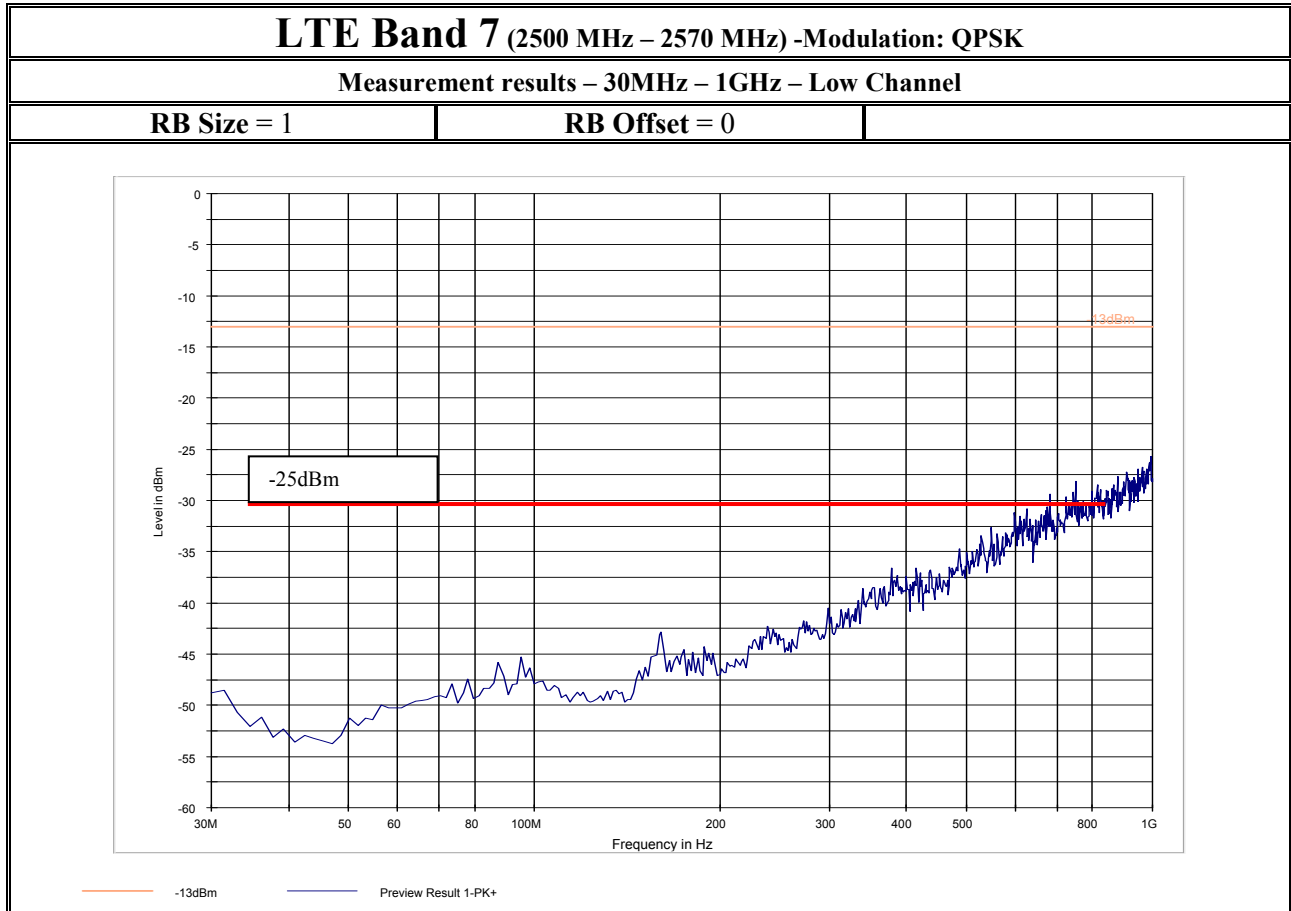


6.7.8.5 Spurious Emissions LTE FDD 7:

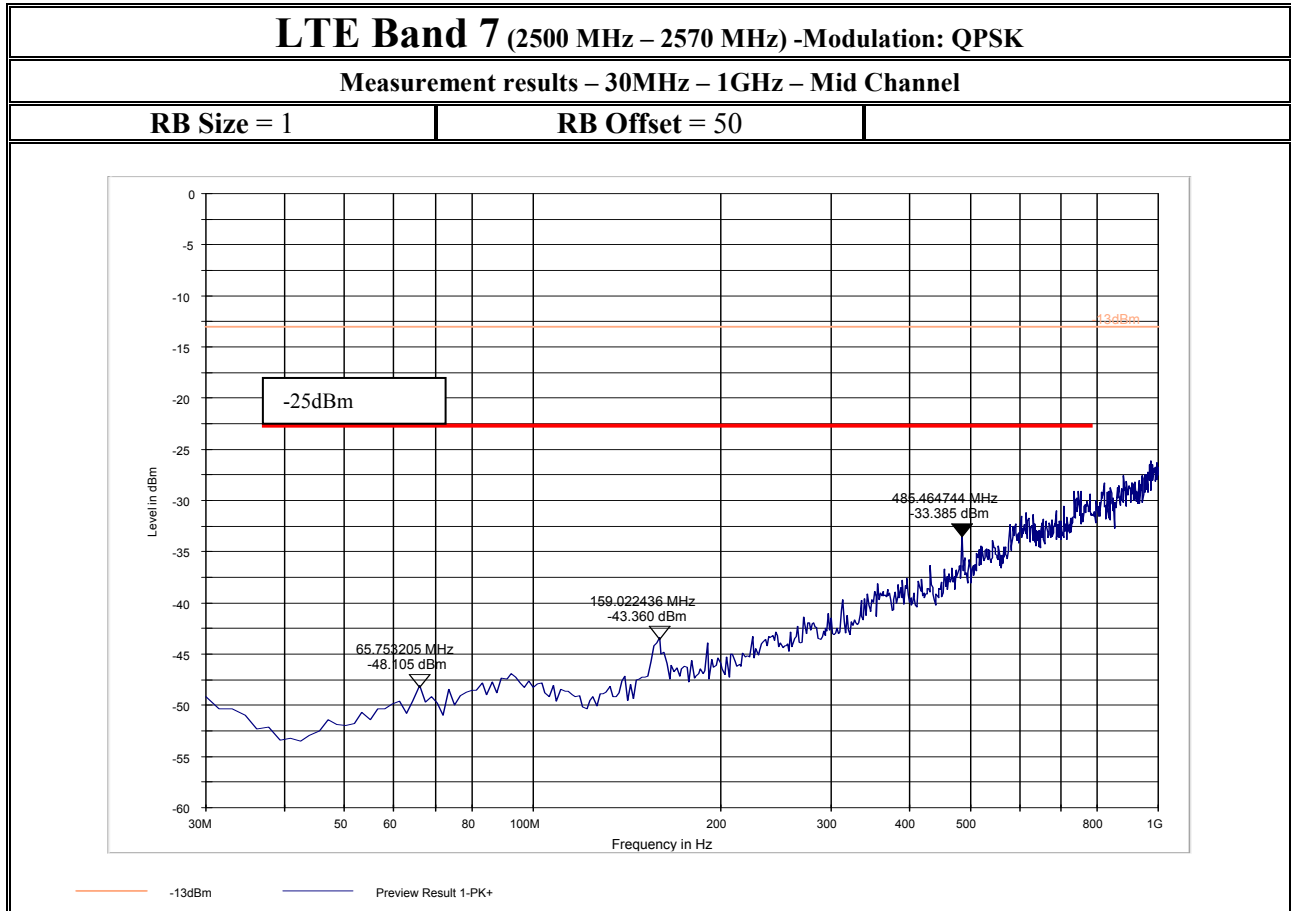
6.7.8.5.1 LTE FDD 7 Summary Tables

LTE Band 7 (2500 MHz – 2570 MHz) -Modulation: QPSK						
RB Size = 1/ RB Offset = 0/ BW (MHz) = 20			RB Size = 1/ RB Offset = 50/ BW (MHz) = 20		RB Size = 1/ RB Offset = 99/ BW (MHz) = 20	
Harmonic	Tx ch-20850 Freq. (MHz)	Level (dBm)	Tx ch-21100 Freq. (MHz)	Level (dBm)	Tx ch-21350 Freq. (MHz)	Level (dBm)
1	2510	14.40	2535	16.57	2560	17.47
2	5020	-43.11	5070	-38.52	5120	-30.67
3	7530	NF	7605	-40.82	7680	-28.04
4	10040	NF	10140	NF	10240	NF
5	12550	NF	12675	NF	12800	NF
6	15060	NF	15210	NF	15360	NF
7	17570	NF	17745	NF	17920	NF
8	20080	NF	20280	NF	20480	NF
9	22590	NF	22815	NF	23040	NF
10	25100	NF	25350	NF	25600	NF
NF= Noise Floor						

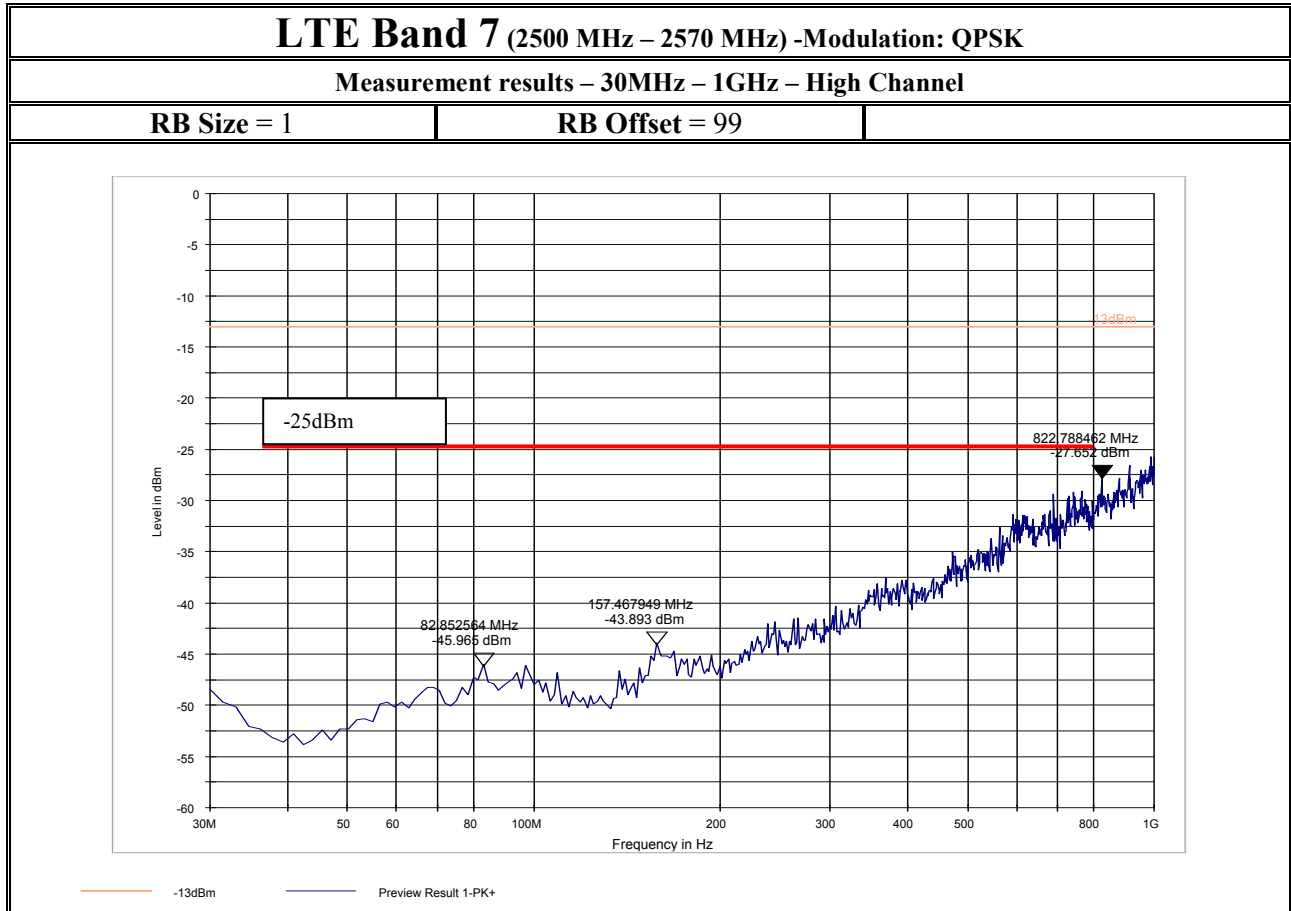
6.7.8.5.2 QPSK/ 1 RB Low/ Low Channel/ 30MHz to 1GHz



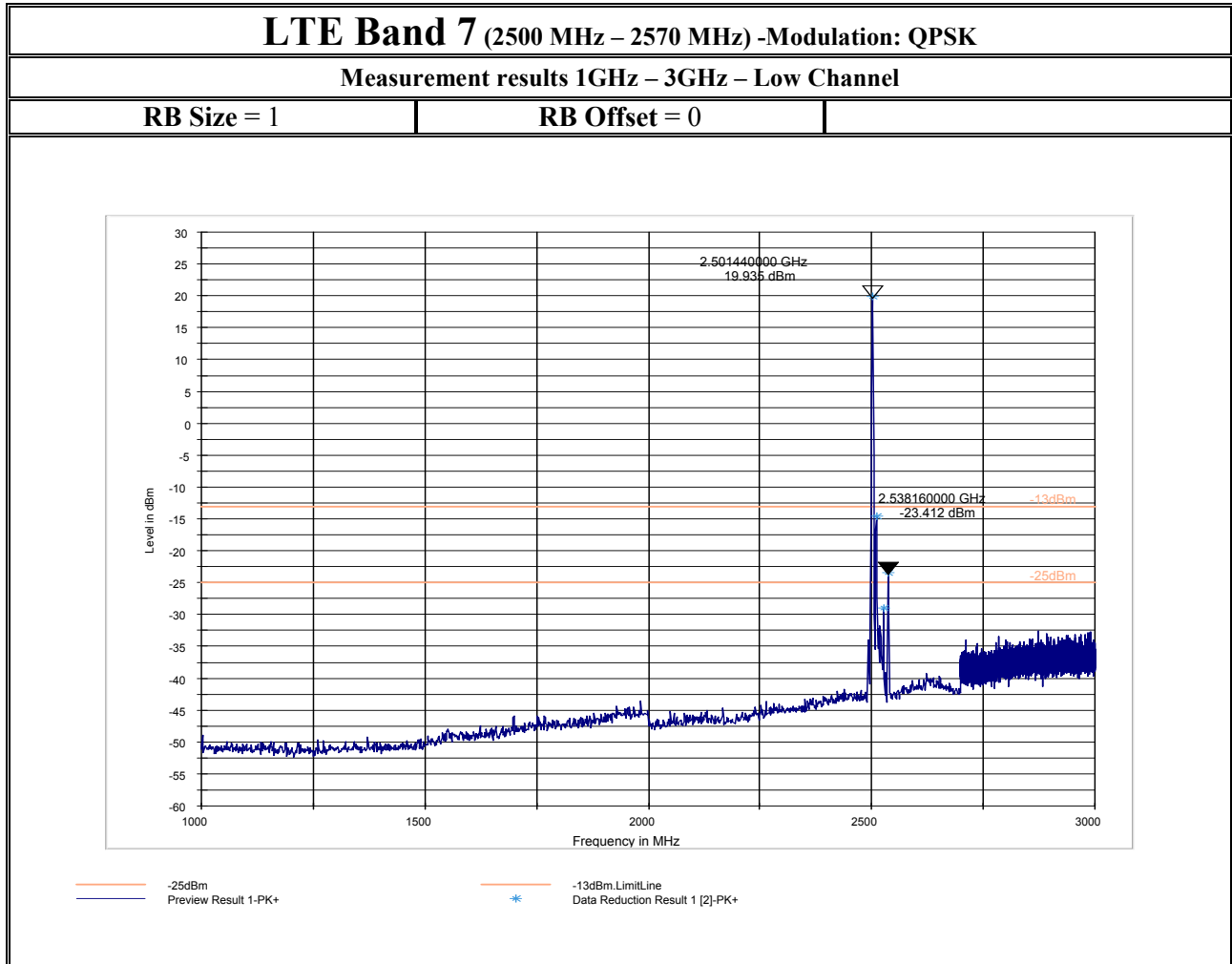
6.7.8.5.3 QPSK/ 1 RB Mid/ Mid Channel/ 30MHz to 1GHz



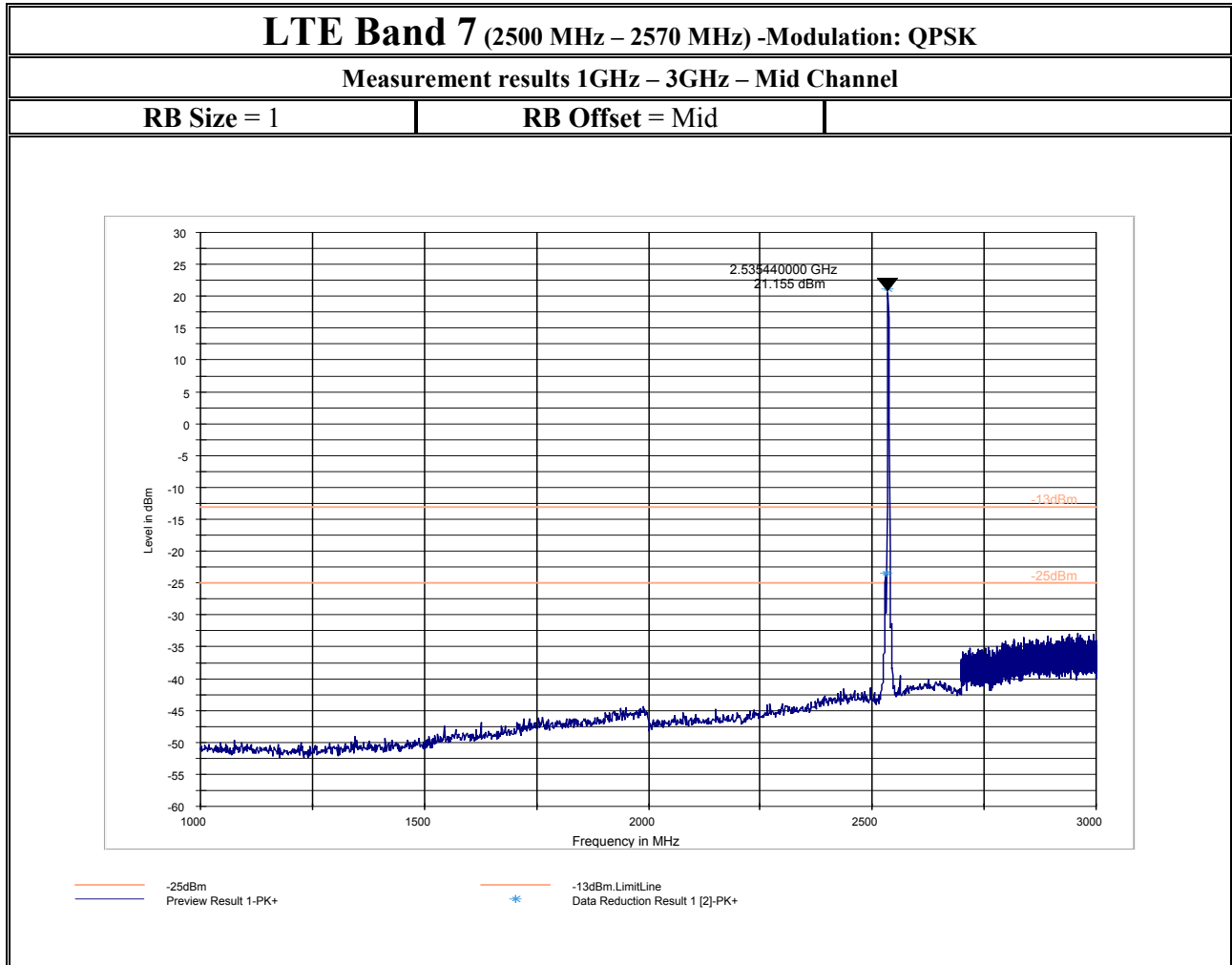
6.7.8.5.4 QPSK/ 1 RB High/ High Channel/ 30MHz to 1GHz



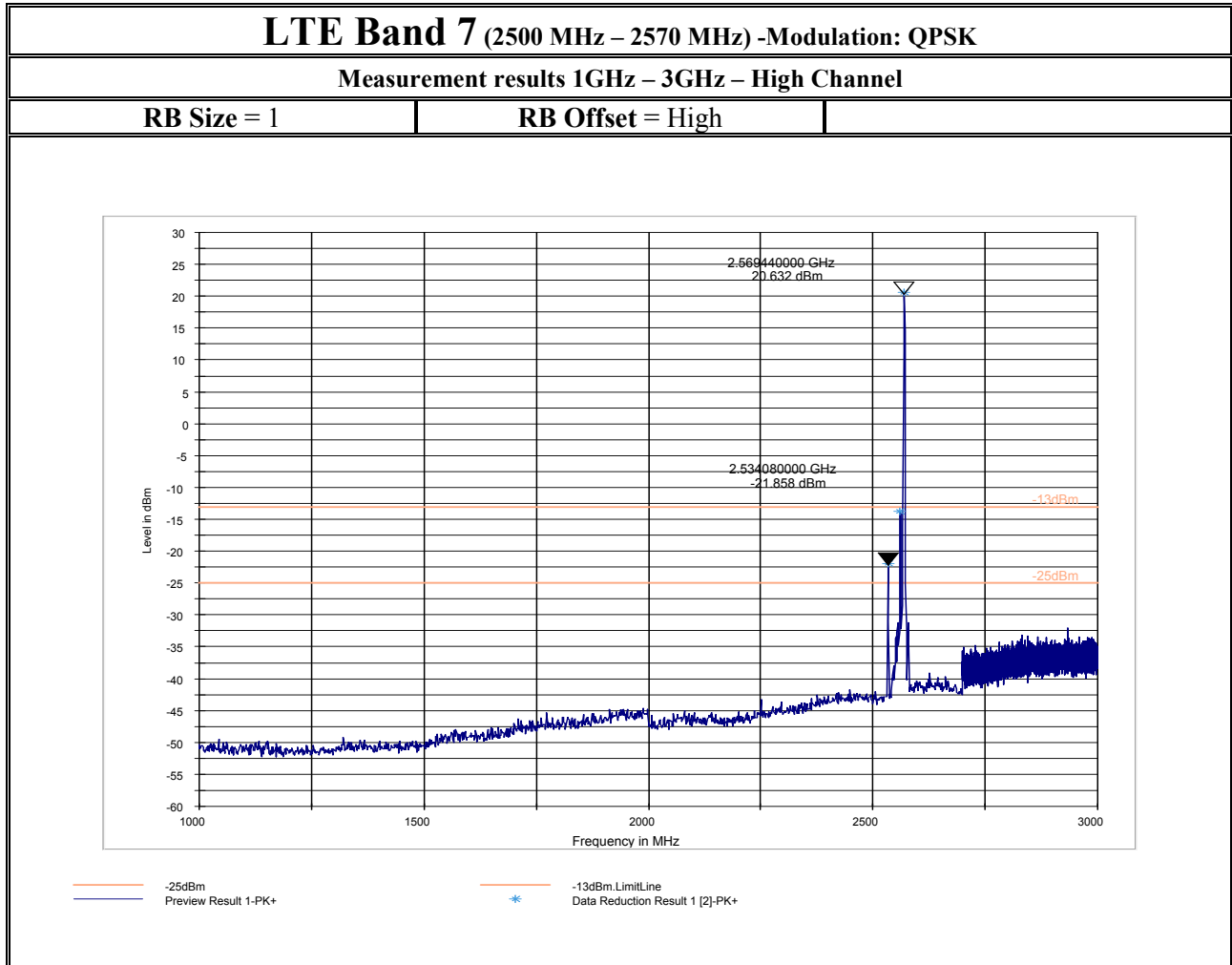
6.7.8.5.5 QPSK/ 1 RB Low/ Low Channel/ 1GHz to 3GHz



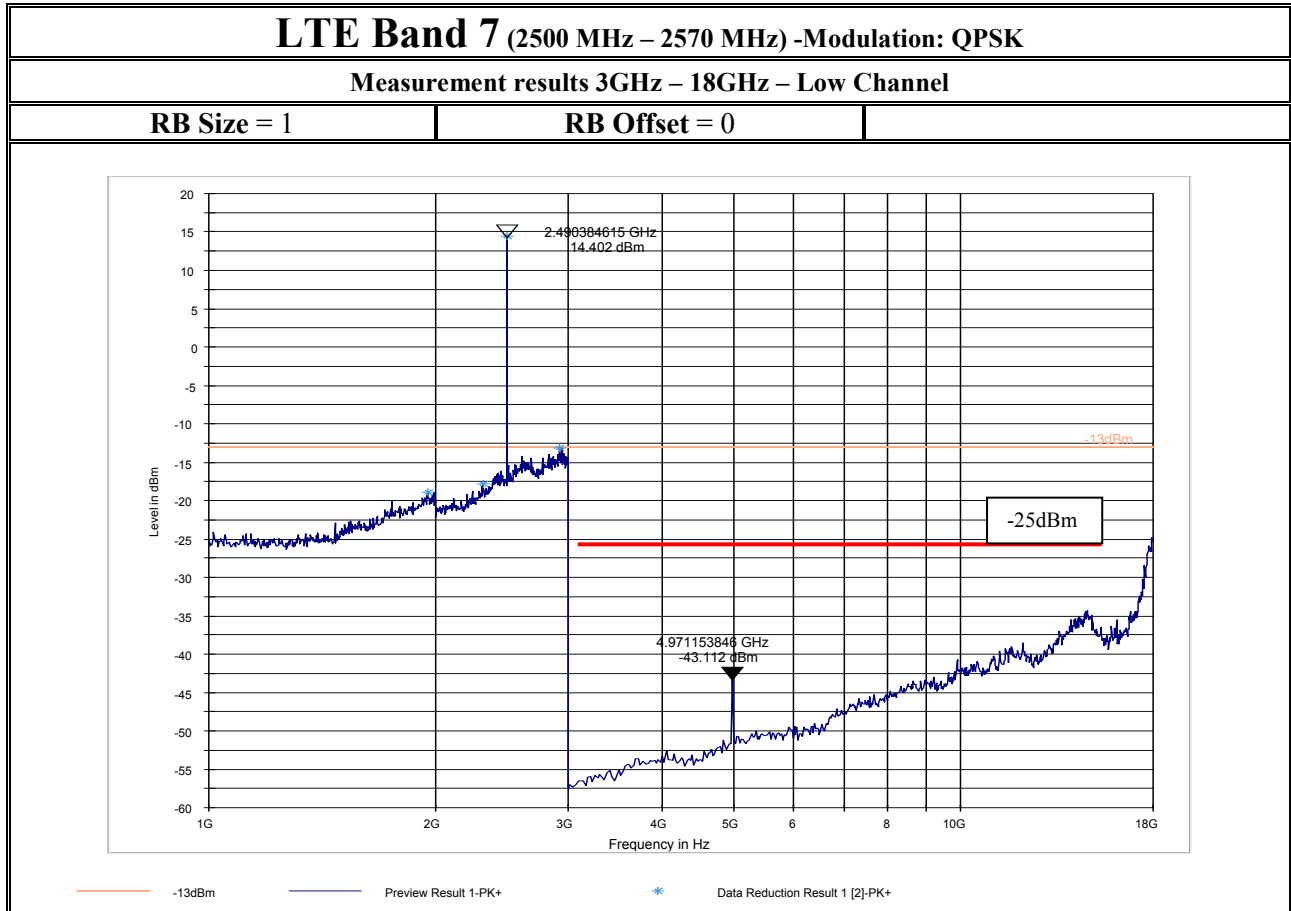
6.7.8.5.6 QPSK/ 1 RB Mid/ Mid Channel/ 1GHz to 3GHz



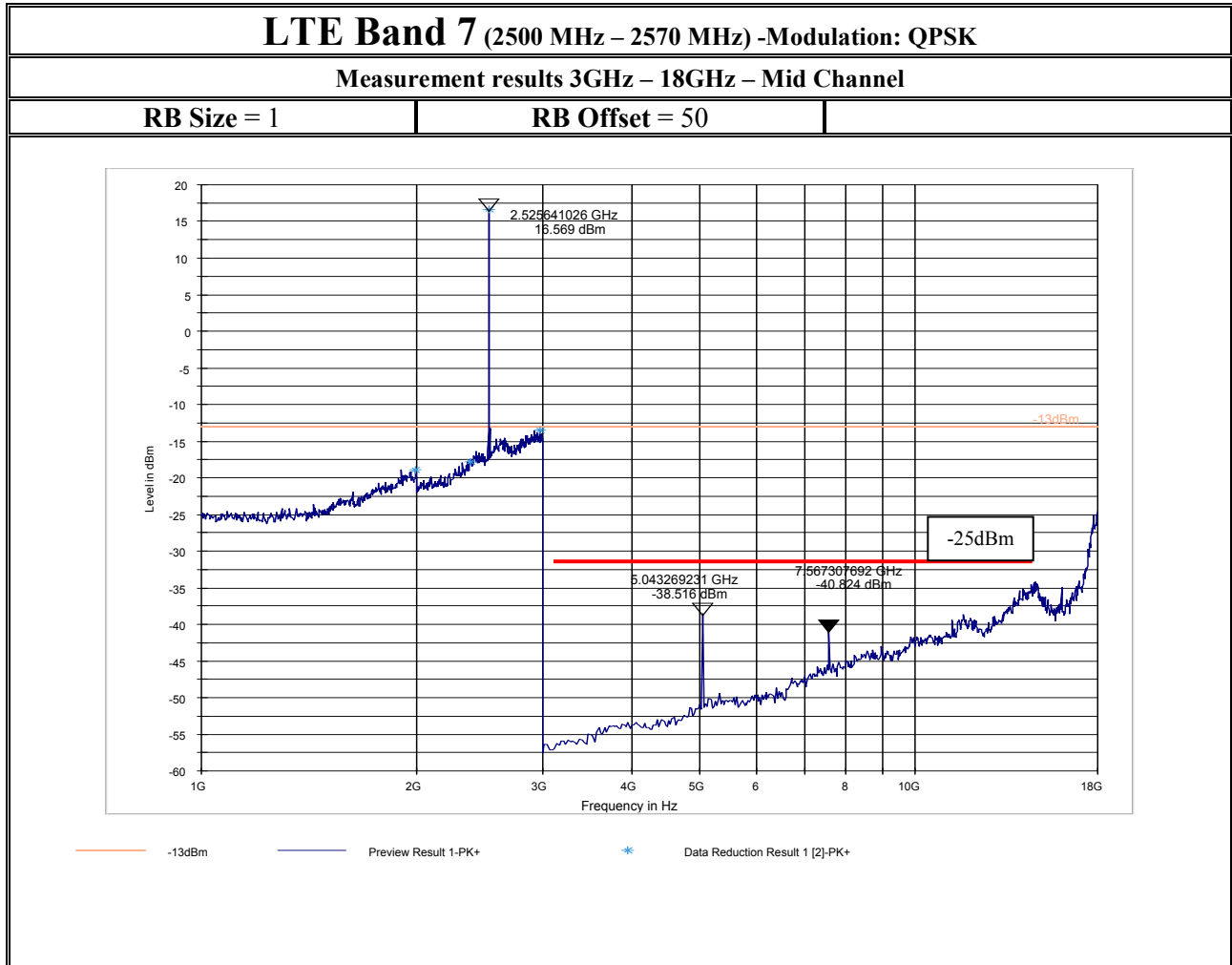
6.7.8.5.7 QPSK/ 1 RB High/ High Channel/ 1GHz to 3GHz



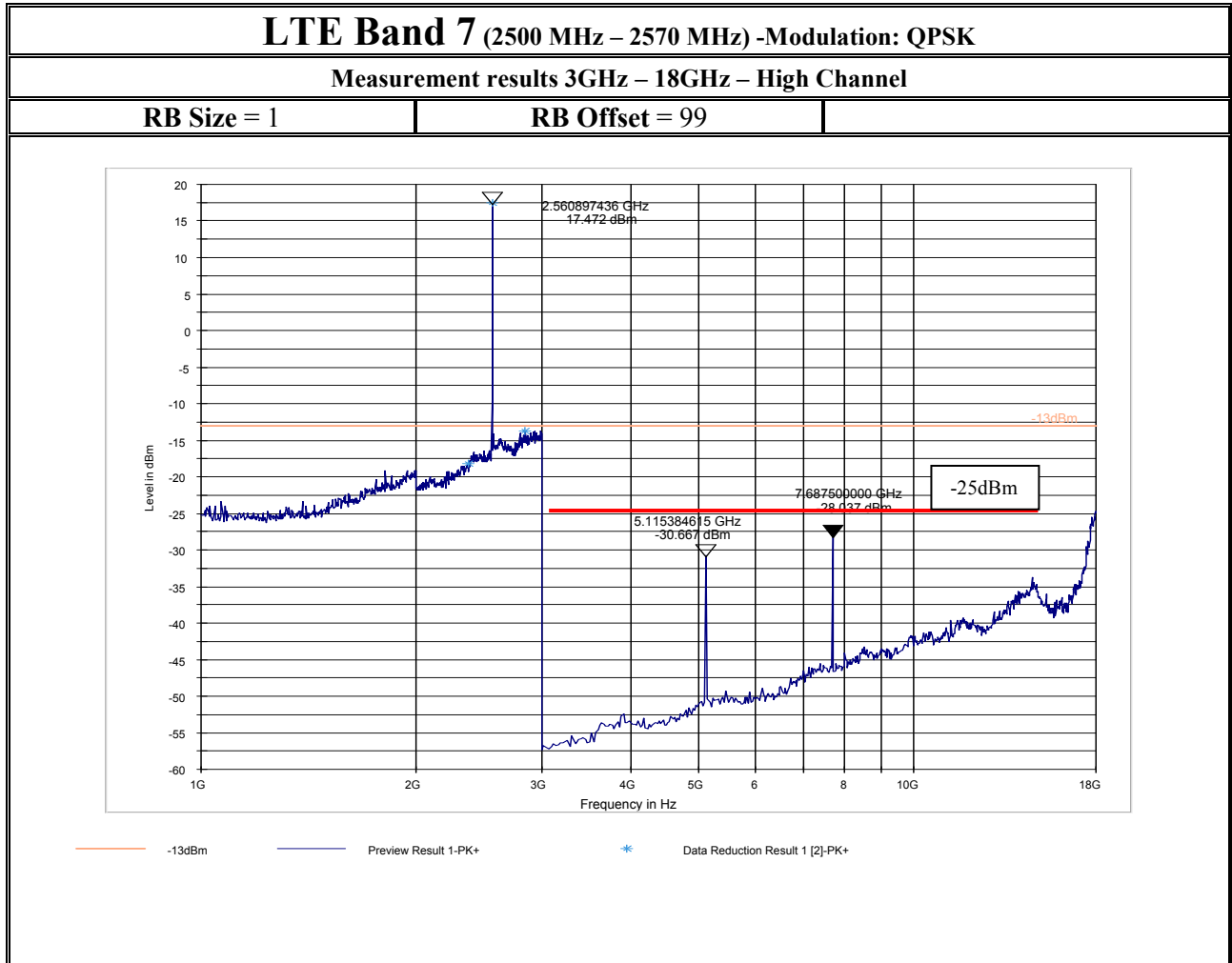
6.7.8.5.8 QPSK/ 1 RB Low/ Low Channel/ 3GHz to 18GHz



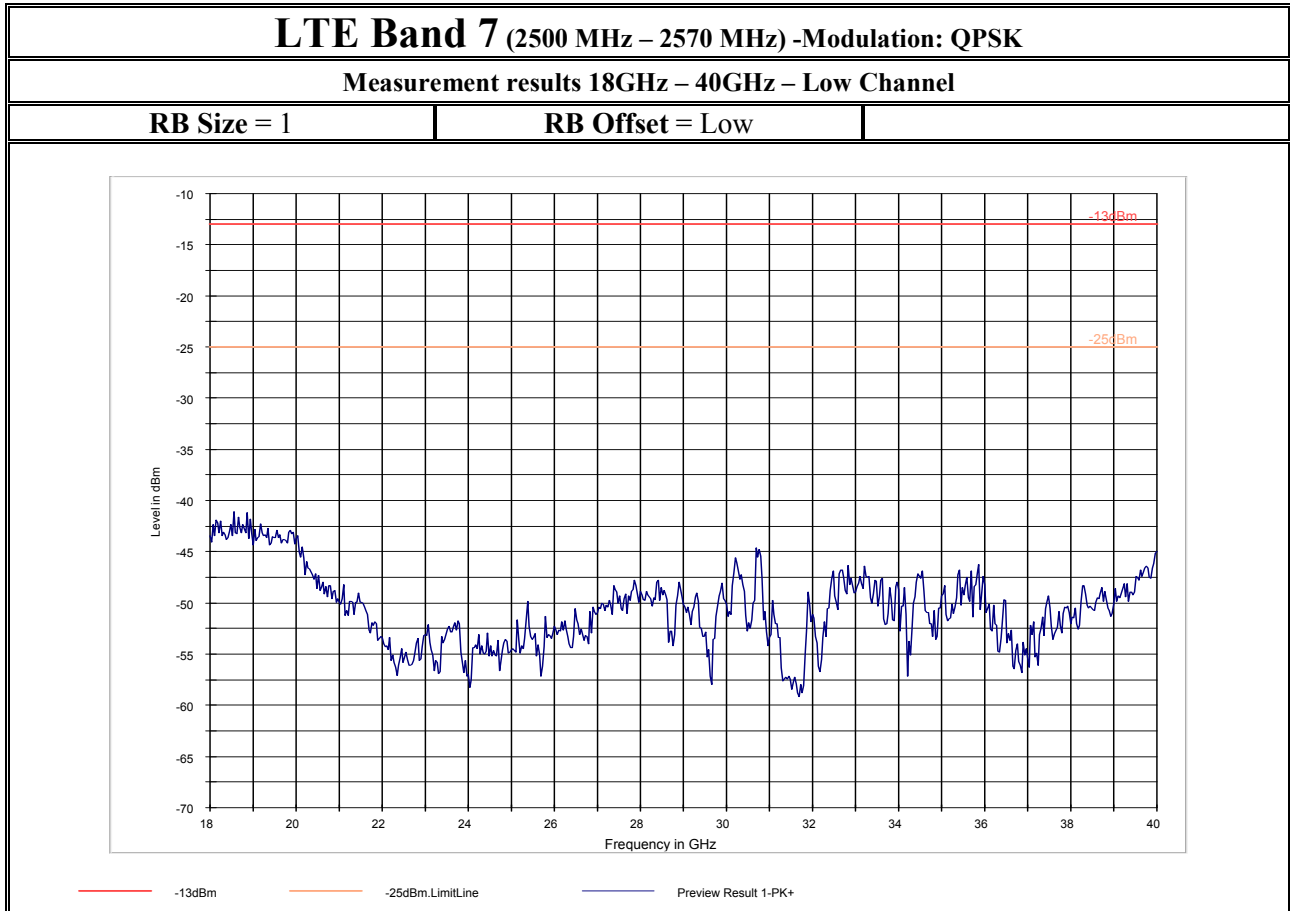
6.7.8.5.9 QPSK/ 1 RB Mid/ Mid Channel/ 3GHz to 18GHz



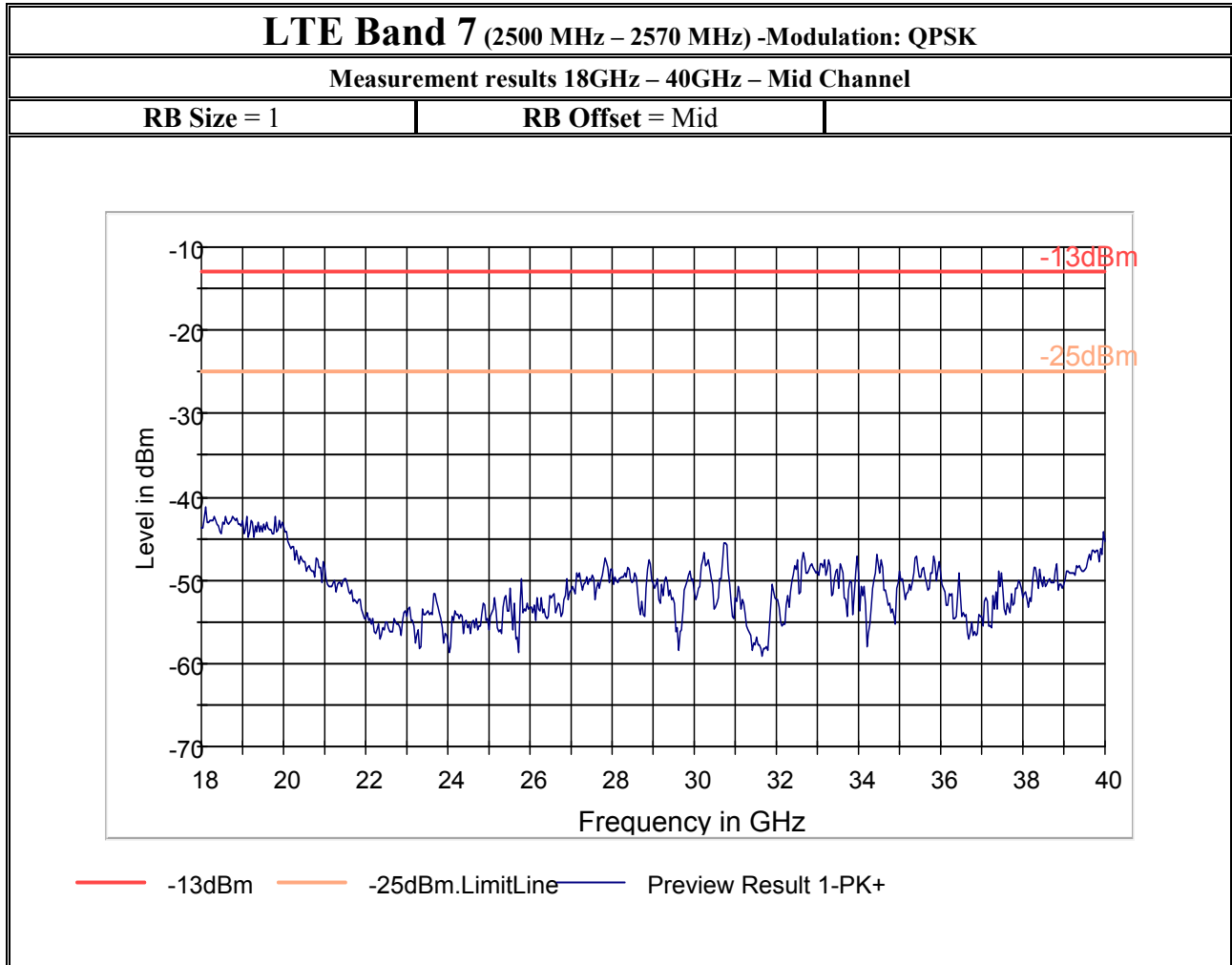
6.7.8.5.10 QPSK/ 1 RB High/ High Channel/ 3GHz to 18GHz



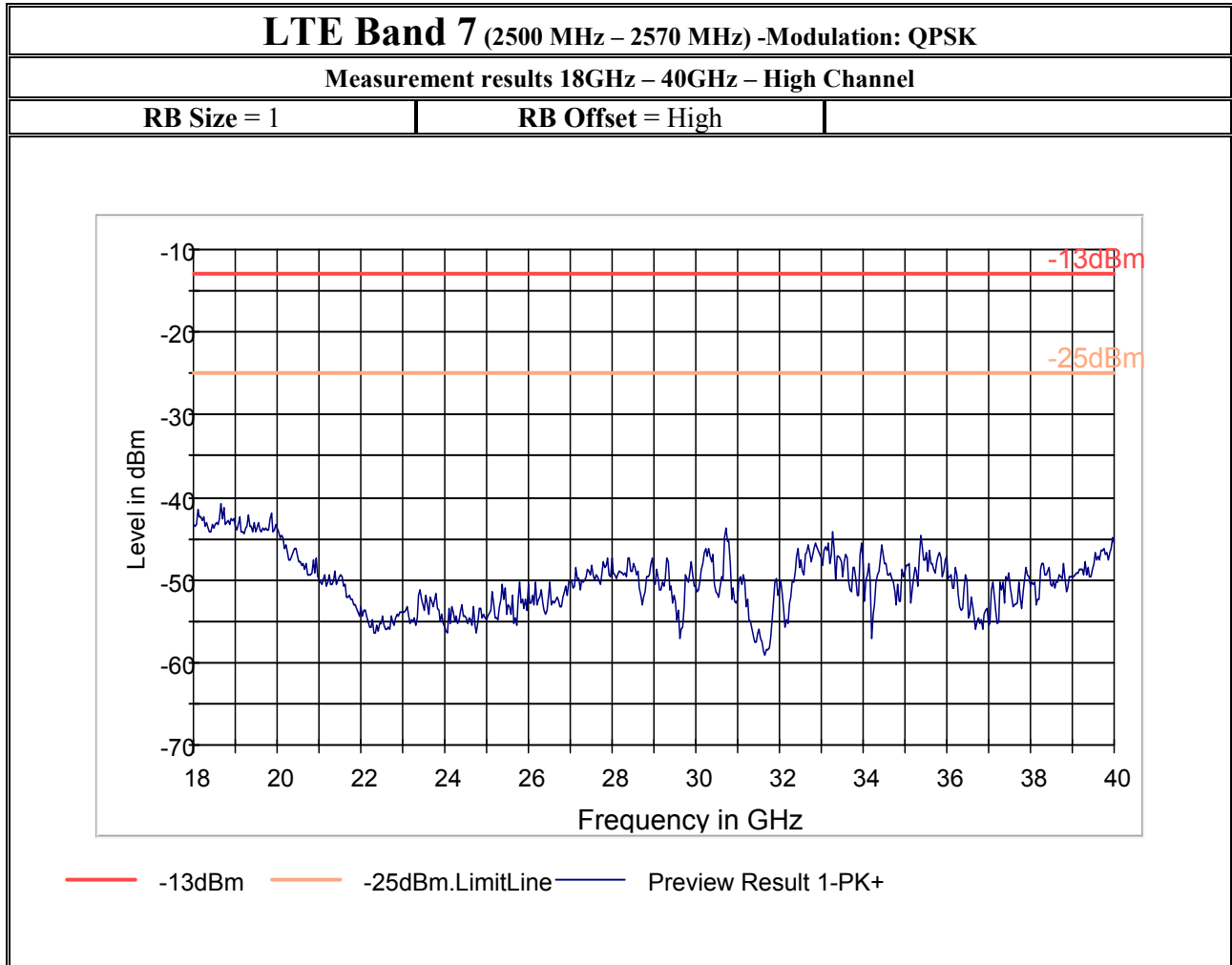
6.7.8.5.11 QPSK/ 1 RB Low/ Low Channel/ 18GHz to 40GHz



6.7.8.5.12 QPSK/ 1 RB Mid/ Mid Channel/ 18GHz to 40GHz



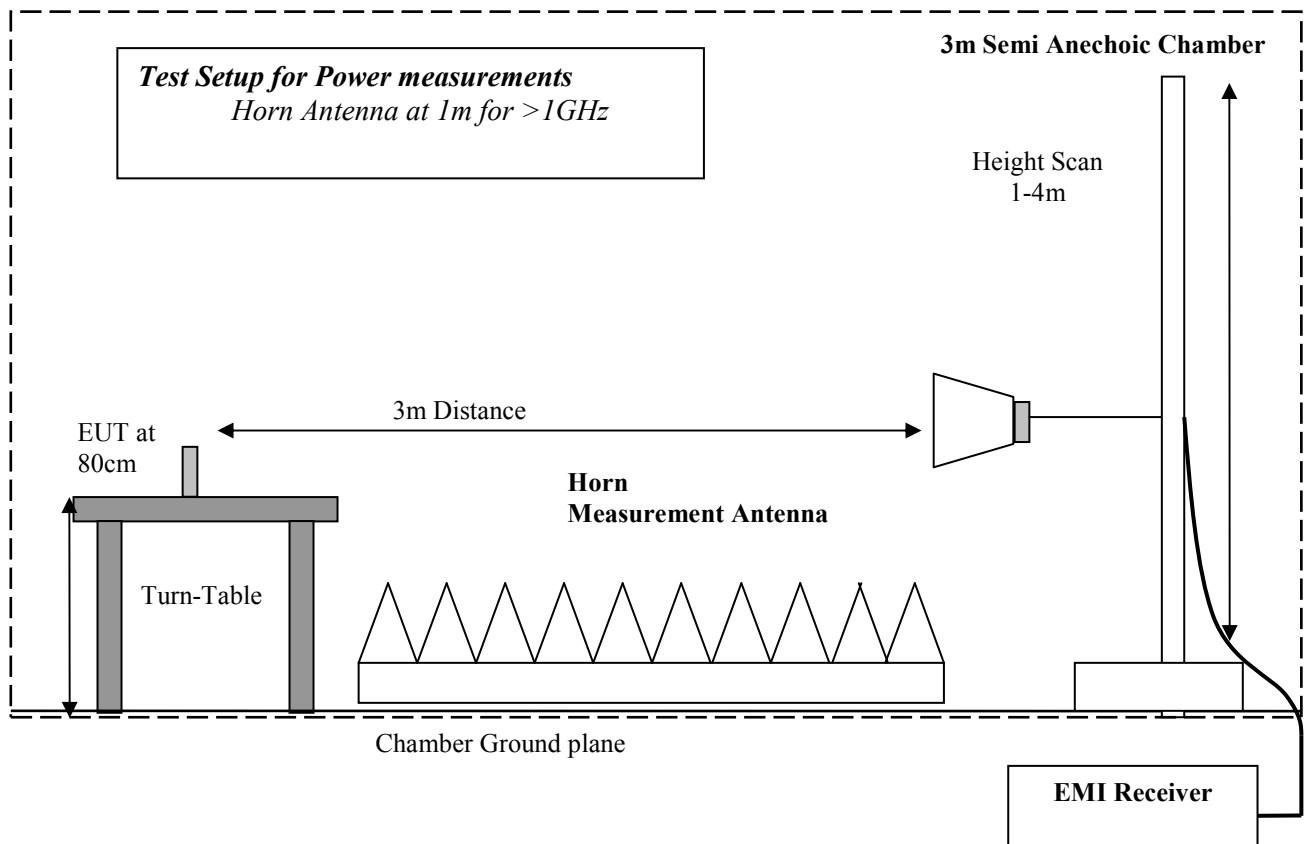
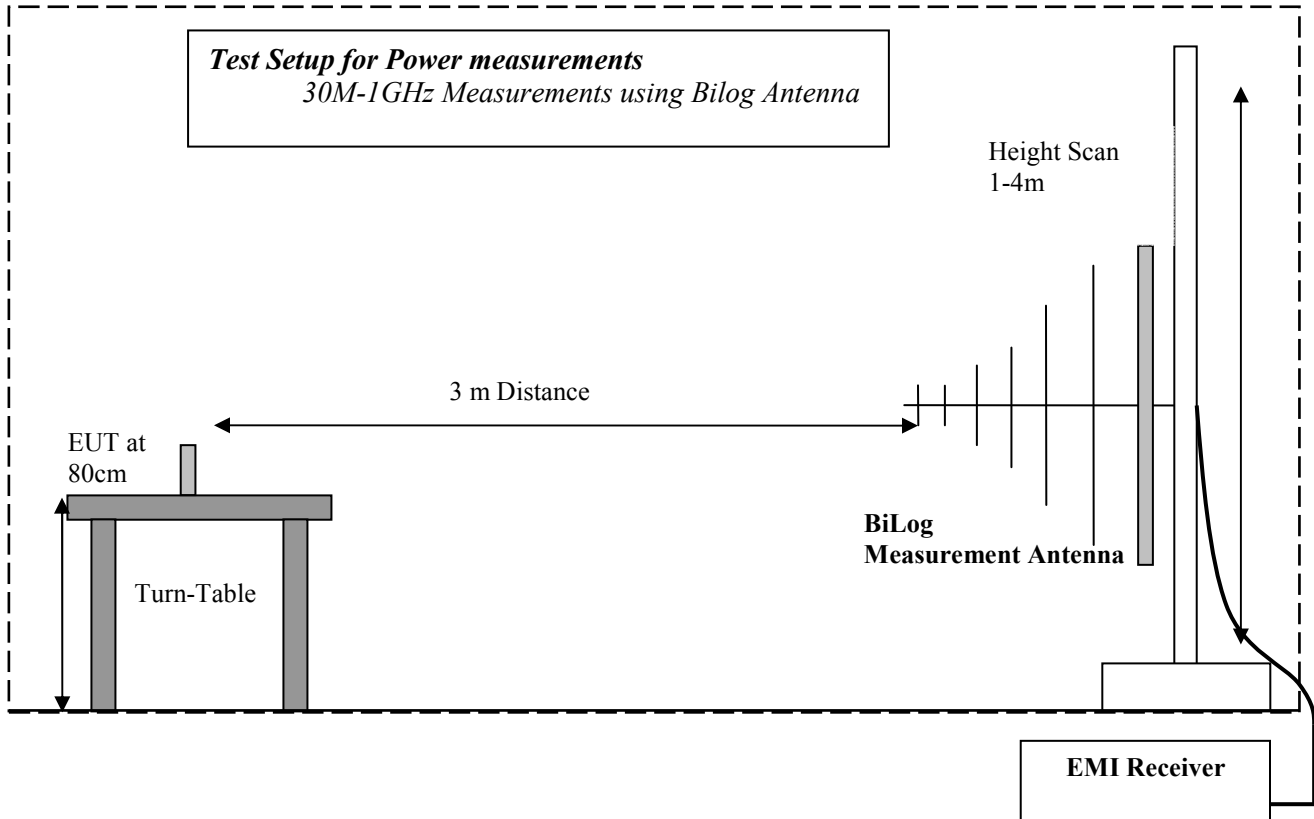
6.7.8.5.13 QPSK/ 1 RB High/ High Channel/ 18GHz to 40GHz



7 Test Equipment and Ancillaries used for tests

Equipment Name	Manufacturer	Type/Model	Serial No.	Cal Date	Cal Interval	Next cal date
3m Semi- Anechoic Chamber:						
Spectrum Analyzer	Rohde und Schwarz	FSU 26	200302	06/2013	2 years	06/2015
Receiver	Rohde und Schwarz	ESR3	101663	02/2013	2 years	02/2015
LISN	Rohde und Schwarz	ESV 216	101129	01/2013	2 years	01/2015
Radiocommunication Tester	Rohde and Schwarz	CMW 500	1201.0002K50	05/2013	2 years	05/2015
Horn Antenna	ETS Lindgren	3115	35111	04/2012	3 year	04/2015
Log Periodic Antenna	Rohde and Schwarz	HL 050	100515	04/2013	3 year	04/2015
Ultralog Antenna	Rohde and Schwarz	HL 562	100495	02/2012	3 year	02/2015
Open Switch Control Unit	Rohde and Schwarz	OPS 130	10085	n/a		
Extention Unit Open Switch Control Unit	Rohde and Schwarz	OSP 150	10086	n/a		
Signal Generator	Rohde and Schwarz	SMF 100A	101833	02/2012	2 years	02/2015
Turn Table TT	Maturo	1.5 SI	TT 1.5SI/204/6070910	n/a		
Compact antenna Mast	Maturo	CAM 4.0-P	CAM4.0- P/067/6000910	n/a		
Multiple Control Unit	Maturo	MCU	2140910	n/a		
Pre-Amplifier	Rohde and Schwarz	TS-PR 18	100072	Part of the system calibration		
High Pass Filter	Mini-Circuits	SHP-1200+	RUU11201224	Part of the system calibration		
High Pass Filter	Wainwright Instr.	WHKX 3.0/18	109	Part of the system calibration		
Ancillary equipment:						
Multimeter	Fluke	115 True RMS	21752138	3/2013	2 years	3/2015
DC Power Supply	GW Instek	GPS-1850D	EM845907	n/a		
Temperature Chamber	Test Equity	107	0700533	n/a		
Temperatuer Chamber	Test Equity	115	150300	n/a		
Thermometer	Fluke	5411B	17560031	12/2012	2 years	12/2014
Antenna	TECT Electronics	FPA3-0.8- 6.0R/1329	408213-0001	n/a		

8 Test Setup Diagrams



9 Revision History

Date	Report Name	Changes to report	Report prepared by
2014-06-30	EMC_INTEL_INTEL_039_14001_FCC22_24_27_LTE_WWAN_Rev1	Corrections on calculation of frequency accuracy. Updating the ERP/EIRP table. Adding details on LTE FDD Band 7. Optimized formatting of spurious emissions results.	Franz Engert