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Report On

FCC Testing of the Sharp SHL25 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDD I, FDD V) & Quad-band LTE (B1, B3, B17, B18) & AXGP (TDD 41) multi mode cellular phone with Bluetooth, ANT+, WLAN, SRD (NFC, FeliCa) and GPS

In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 27

COMMERCIAL-IN-CONFIDENCE

FCC ID: APYHRO00206

Document 75925936 Report 18 Issue 1

May 2014



Product Service

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COMMERCIAL-IN-CONFIDENCE

REPORT ON

FCC Testing of the Sharp SHL25 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDD I, FDD V) & Quad-band LTE (B1, B3, B17, B18) & AXGP (TDD 41) multi mode cellular phone with Bluetooth, ANT+, WLAN, SRD (NFC, FeliCa) and GPS
In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 27

Document 75925936 Report 18 Issue 1

May 2014

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DATED

14 May 2014

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 2 and FCC CFR 47 Part 27. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

M Russell

G Lawler



A Galpin

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SECTION 1

REPORT SUMMARY

FCC Testing of the
Sharp SHL25 Dual-band CDMA (BC0, BC6) & Quad-band GSM
(GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDD I, FDD V) & Quad-band LTE
(B1, B3, B17, B18) & AXGP (TDD 41) multi mode cellular phone with Bluetooth, ANT+, WLAN,
SRD (NFC, FeliCa) and GPS
In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 27



Product Service

1.1 INTRODUCTION

The information contained in this report is intended to show the verification of FCC Testing of the Sharp SHL25 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDD I, FDD V) & Quad-band LTE (B1, B3, B17, B18) & AXGP (TDD 41) multi mode cellular phone with Bluetooth, ANT+, WLAN, SRD (NFC, FeliCa) and GPS to the requirements of FCC CFR 47 Part 2 and FCC CFR 47 Part 27.

Objective	To perform FCC Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Sharp Corporation
Model Number(s)	SHL25
Serial Number(s)	IMEI 004401115170223
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 2 (2013) FCC CFR 47 Part 27 (2013)
Disposal	Held Pending Disposal
Reference Number	Not Applicable
Date	Not Applicable
Order Number	10070
Date	10 March 2014
Start of Test	10 April 2014
Finish of Test	1 May 2014
Name of Engineer(s)	M Russell G Lawler A Galpin
Related Document(s)	ANSI C63.4: 2003



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 27 is shown below.

Section	Spec Clause		Test Description	Result	Comments/Base Standard
	Pt 2	Pt 27			
LTE FDD17					
2.1	2.1046	27.50	Power Limits and Duty Cycle	Pass	
2.2	2.1047(d)	-	Modulation Characteristics	Pass	
2.3	2.1049	27.53	Emission Limits	Pass	
2.4	2.1055	27.54	Frequency Stability	Pass	



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1.3 PRODUCT TECHNICAL DESCRIPTION

Please refer to the SHL25 Model Description Form.

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Sharp SHL25 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDD I, FDD V) & Quad-band LTE (B1, B3, B17, B18) & AXGP (TDD 41) multi mode cellular phone with Bluetooth, ANT+, WLAN, SRD (NFC, FeliCa) and GPS. A full technical description can be found in the manufacturer's documentation.

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from a 4.0 V DC supply.

FCC Measurement Facility Registration Number
90987 Octagon House, Fareham Test Laboratory

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standard were made during testing.

1.7 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.



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SECTION 2

TEST DETAILS

FCC Testing of the
Sharp SHL25 Dual-band CDMA (BC0, BC6) & Quad-band GSM
(GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDD I, FDD V) & Quad-band LTE
(B1, B3, B17, B18) & AXGP (TDD 41) multi mode cellular phone with Bluetooth, ANT+, WLAN,
SRD (NFC, FeliCa) and GPS
In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 27



2.1 POWER LIMITS AND DUTY CYCLE

2.1.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1046
FCC CFR 47 Part 27, Clause 27.50

2.1.2 Equipment Under Test and Modification State

SHL25 S/N: IMEI 004401115170223 - Modification State 0

2.1.3 Date of Test

13 April 2014 & 22 April 2014

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Procedure

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 27.50, Part 2.1046 and KDB 971168.

Carrier Power

The path loss between the EUT and the Power Meter was measured using a Network Analyser. The EUT was connected to a wideband RF average Power Meter via a cable, attenuator and combiner. The recorded path loss was entered as an offset on the Power Meter. The other port of the combiner was connected to a wideband communications tester.

Measurements were performed with the EUT operating at maximum power on bottom, middle and top frequencies on QPSK and 16QAM modulation schemes with all resource blocks and a single resource block positioned at the low, middle and high position for each channel bandwidth.

The average power was then recorded as shown in the tables below.

Peak to Average Ratio

The path loss between the EUT and the Spectrum Analyser was measured using a Network Analyser. The EUT was connected to a Spectrum Analyser via a cable, attenuator and combiner. The recorded path loss was entered as a reference level offset on the Spectrum Analyser. The other port of the combiner was connected to a wideband communications tester.

Using the CCDF of the spectrum analyser and the procedure defined in KDB 97118, section 5.7.1, the peak to average ratio was recorded, the measurement was repeated ten times and the highest result was recorded as shown in the tables below.

Measurements were performed with the EUT operating at maximum power on bottom, middle and top frequencies on QPSK and 16QAM modulation schemes with all resource blocks and a single resource block positioned at the low, middle and high position for each channel bandwidth.



Effective Radiated Power

Measurements of the fundamental from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations. The fundamental frequency was maximised by adjusting the antenna height, antenna polarisation and turntable azimuth. A peak detector was used with the trace set to max hold. The maximum result was recorded.

The mast and controller were then returned to the positions which gave the maximum result. The Spectrum Analyser detector was set to rms and configured to integrate the power over the entire emission bandwidth to give the total output power.

The EUT was then removed from the chamber and replaced with a substitution antenna. Using a signal generator the level was adjusted to achieve the same value on the measuring instrument as previously recorded with the EUT. The final result (ERP) was determined by a calculation using the signal generator level, antenna gain and cable loss.

Measurements were performed in the configuration that yielded the highest conducted RF output power for every supported modulation scheme on each bandwidth, as determined in the tables below. The measurements were performed at a 3m distance unless otherwise stated.

2.1.6 Environmental Conditions

Ambient Temperature	20.8 - 23.1°C
Relative Humidity	32.0 - 43.3%



2.1.7 Test Results

4.0 V DC Supply

Conducted Power

Carrier Power

5.0 MHz Bandwidth - QPSK

Carrier Power (dBm)											
706.5 MHz				710.0 MHz				713.5 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
22.81	22.89	22.89	22.07	23.02	22.99	23.01	22.01	23.00	23.04	23.05	22.06

5.0 MHz Bandwidth - 16QAM

Carrier Power (dBm)											
706.5 MHz				710.0 MHz				713.5 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
21.94	21.98	21.99	21.07	22.05	22.05	22.05	21.01	22.04	22.07	22.11	21.09

10.0 MHz Bandwidth - QPSK

Carrier Power (dBm)											
709.0 MHz				710.0 MHz				711.0 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
23.08	23.00	23.06	22.04	22.80	22.89	22.95	22.03	22.99	23.00	23.05	22.03

10.0 MHz Bandwidth - 16QAM

Carrier Power (dBm)											
709.0 MHz				710.0 MHz				711.0 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
22.06	21.97	22.02	21.01	21.97	22.00	22.07	21.01	21.97	21.97	22.04	21.01

Peak To Average Ratio5.0 MHz Bandwidth - QPSK

Peak To Average Ratio (dB)											
706.5 MHz				710.0 MHz				713.5 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
4.61	3.84	4.13	5.64	3.92	3.94	3.85	5.48	3.80	4.08	3.99	5.56

5.0 MHz Bandwidth - 16QAM

Peak To Average Ratio (dB)											
706.5 MHz				710.0 MHz				713.5 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
5.38	5.92	6.03	6.63	5.25	5.24	6.72	6.49	4.97	5.26	5.12	6.50

10.0 MHz Bandwidth - QPSK

Peak To Average Ratio (dB)											
709.0 MHz				710.0 MHz				711.0 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
4.79	4.09	4.33	6.53	4.70	3.99	4.37	6.64	3.94	3.98	4.34	6.38

10.0 MHz Bandwidth - 16QAM

Peak To Average Ratio (dB)											
709.0 MHz				710.0 MHz				711.0 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
5.86	5.22	5.44	7.90	5.74	5.01	5.42	7.51	5.05	5.22	5.41	7.98

**Radiated Power****Effective Radiated Power****5.0 MHz Bandwidth - QPSK**

Resource Block	706.5 MHz		710.0 MHz		713.5 MHz	
	Result (dBm)	Result (mW)	Result (dBm)	Result (mW)	Result (dBm)	Result (mW)
1 Resource Block - Low	-	-	17.32	53.95	-	-
1 Resource Block - High	17.11	51.40	-	-	17.38	54.70

5.0 MHz Bandwidth – 16QAM

Resource Block	706.5 MHz		710.0 MHz		713.5 MHz	
	Result (dBm)	Result (mW)	Result (dBm)	Result (mW)	Result (dBm)	Result (mW)
1 Resource Block - High	16.66	46.34	16.29	42.56	16.51	44.77

10.0 MHz Bandwidth - QPSK

Resource Block	709.0 MHz		710.0 MHz		711.0 MHz	
	Result (dBm)	Result (mW)	Result (dBm)	Result (mW)	Result (dBm)	Result (mW)
1 Resource Block - Low	-	-	17.55	56.89	-	-
1 Resource Block - High	17.18	52.24	-	-	17.67	58.48

10.0 MHz Bandwidth – 16QAM

Resource Block	709.0 MHz		710.0 MHz		711.0 MHz	
	Result (dBm)	Result (mW)	Result (dBm)	Result (mW)	Result (dBm)	Result (mW)
1 Resource Block - High	16.28	42.46	16.89	48.87	16.99	50.00

Remarks

Some resource block configurations were identified as being a lower power and therefore were not tested.

Limit Clause 27.50 (c)(10)

Fixed, Mobile and Portable Stations: <3 W



Product Service

2.2 MODULATION CHARACTERISTICS

2.2.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1047(d)

2.2.2 Equipment Under Test and Modification State

SHL25 S/N: IMEI 004401115170678 - Modification State 0

2.2.3 Date of Test

25 April 2014

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Procedure

The following plots show a representation of the Modulation Characteristics of an LTE signal as measured from the EUT using the transmitter measurement functionality of a wideband radio communications tester. Both supported modulation schemes of QPSK and 16QAM with a 10 MHz bandwidth were recorded as shown in the plots below.

2.2.6 Environmental Conditions

Ambient Temperature	22.4°C
Relative Humidity	46.0%

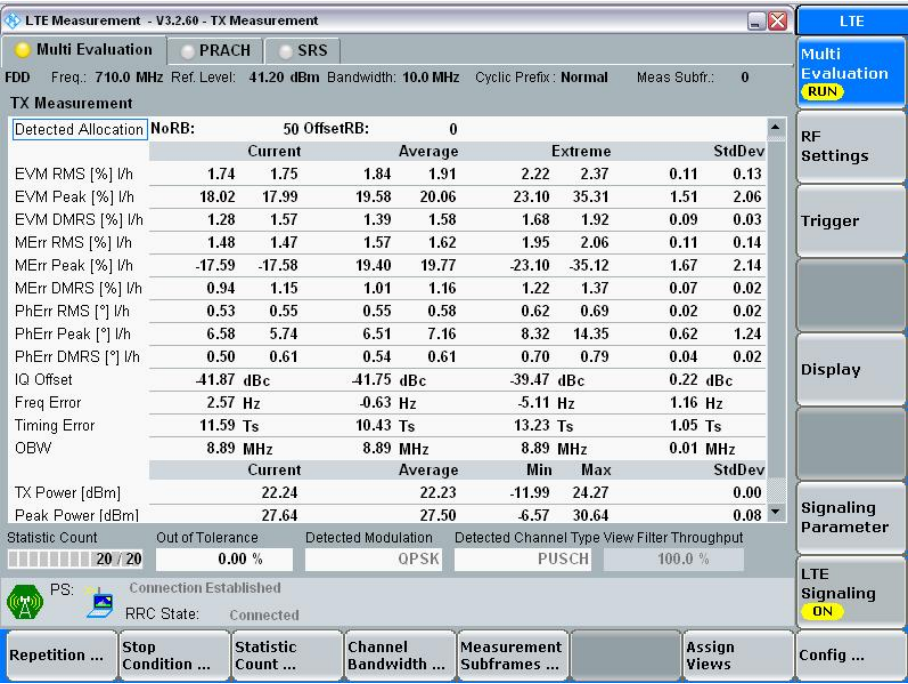


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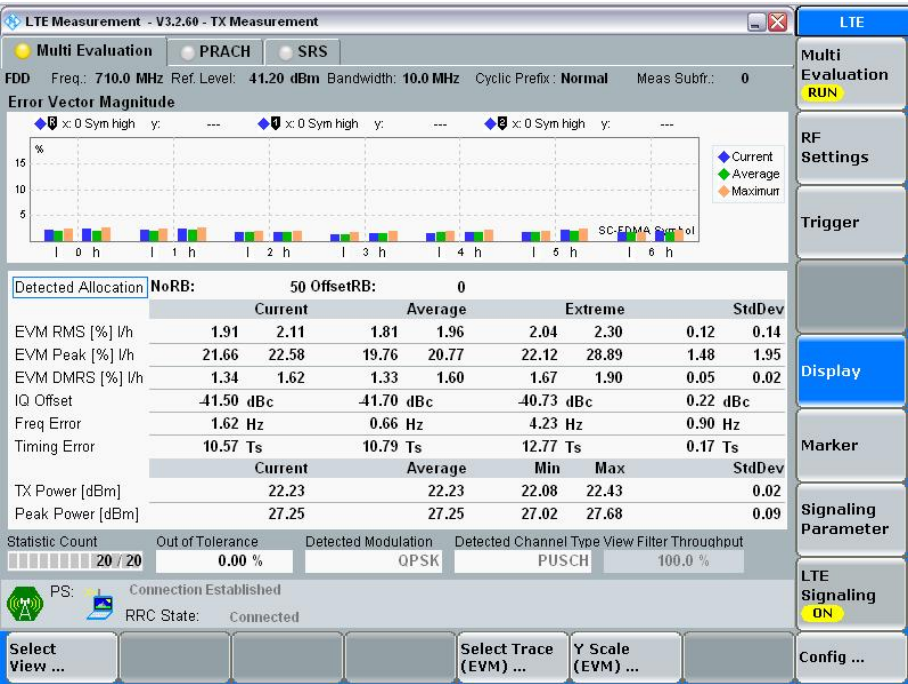
2.2.7 Test Results

10.0 MHz Bandwidth - QPSK

Transmitter Measurements Summary - All Resource Blocks



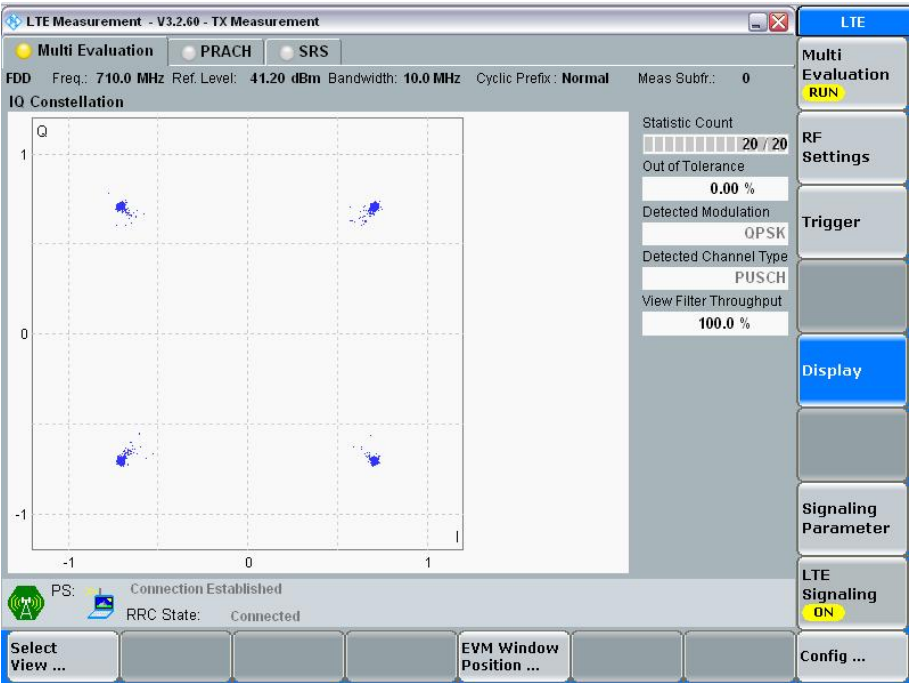
Error Vector Magnitude - All Resource Blocks



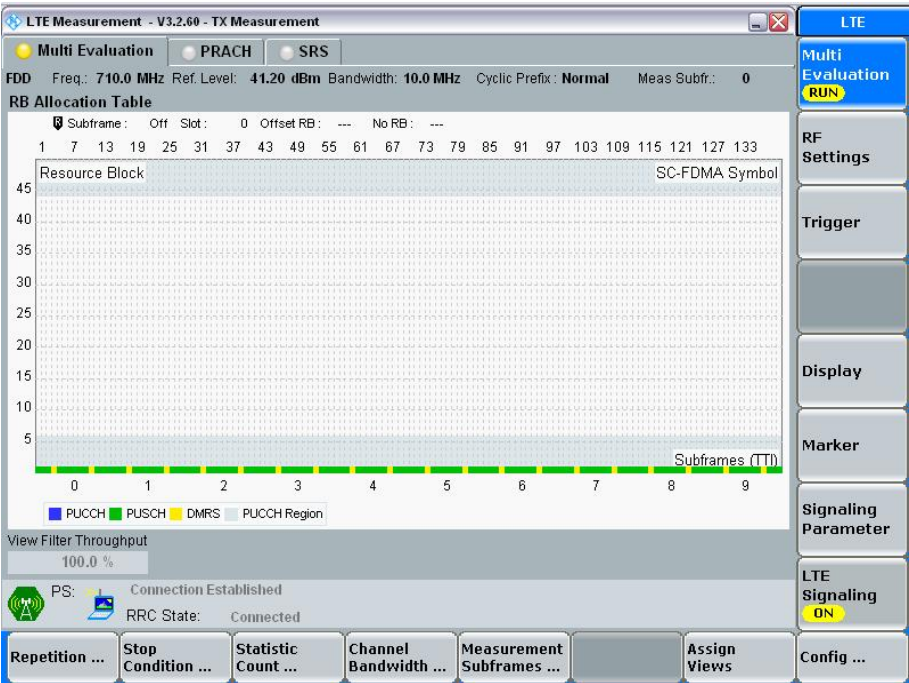


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IQ Constellation - All Resource Blocks



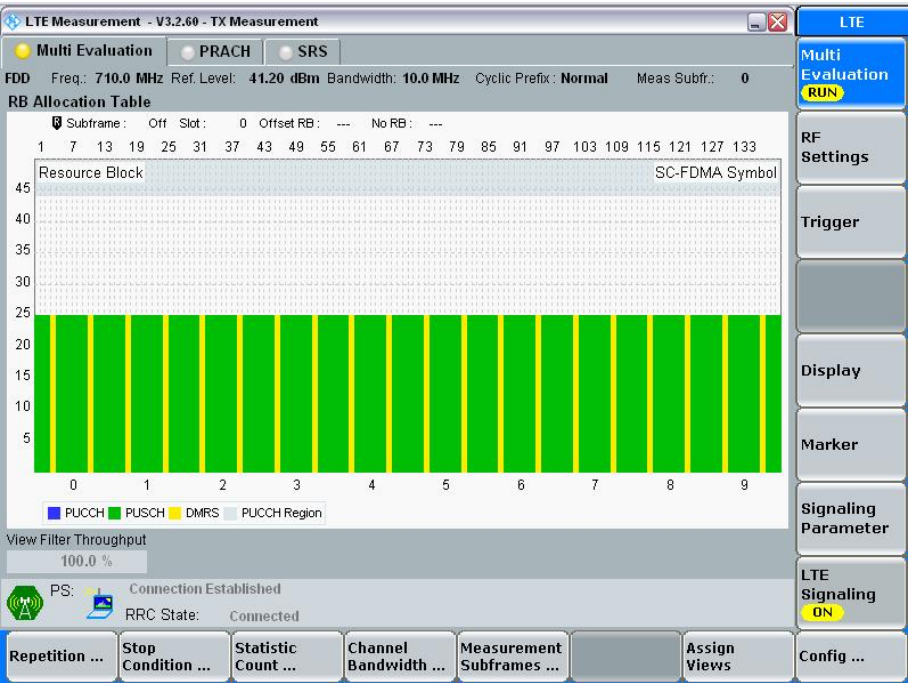
Resource Block Allocation - 1 Resource Block



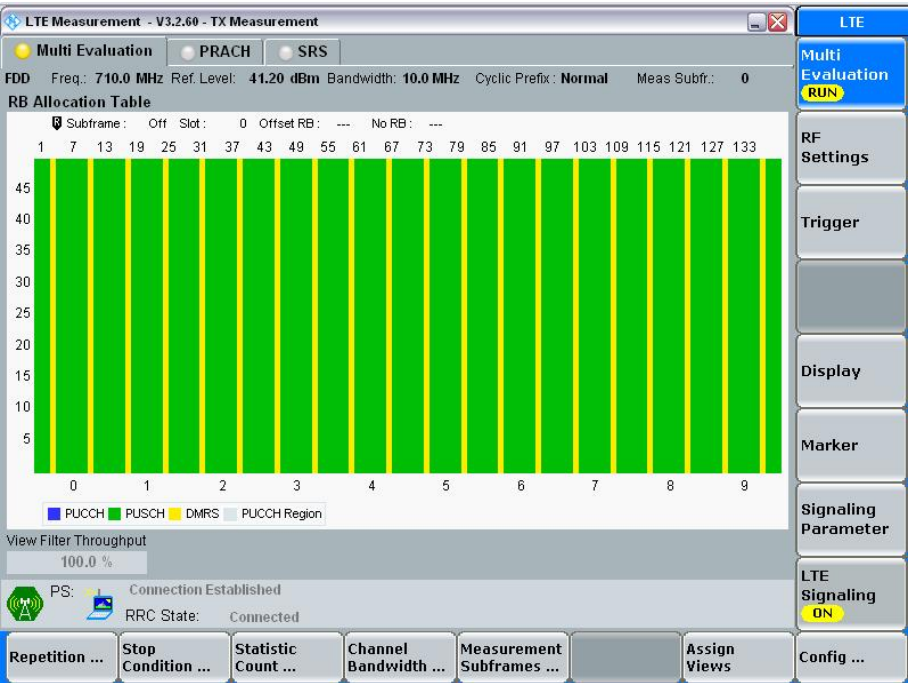


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Resource Block Allocation - 25 Resource Blocks



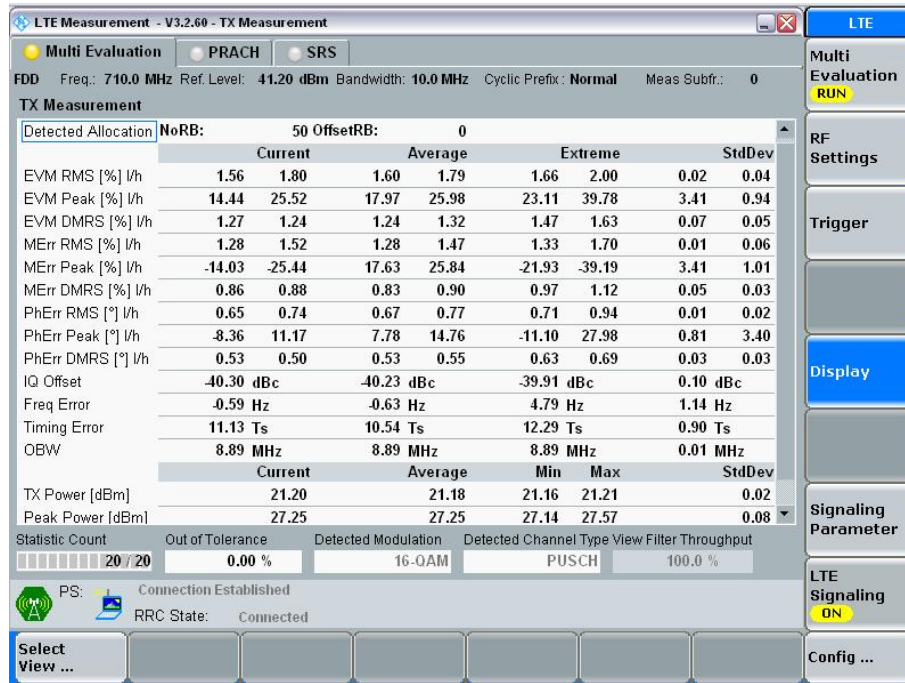
Resource Block Allocation - All Resource Blocks



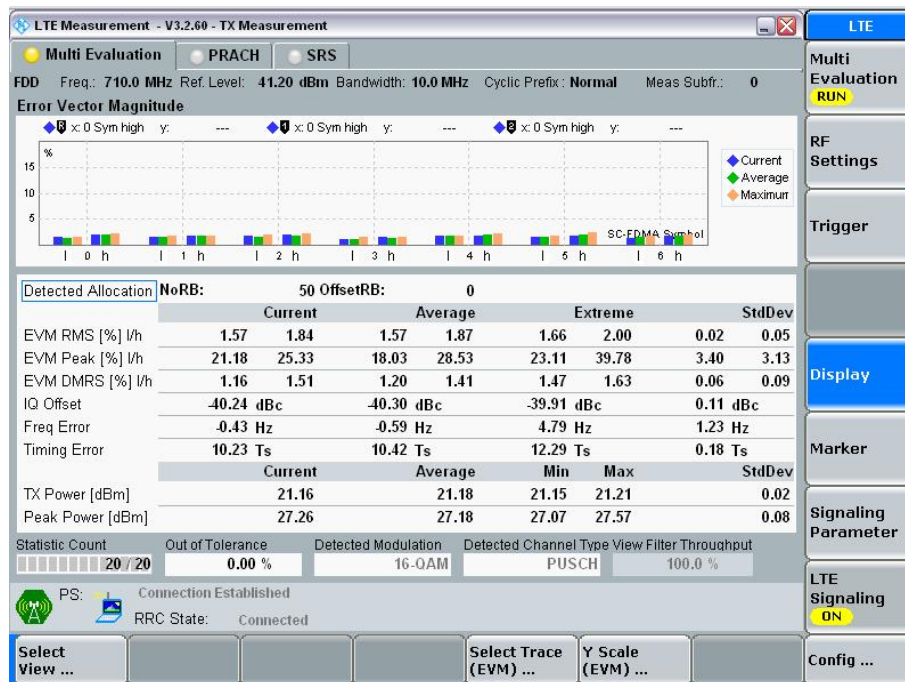


10.0 MHz - 16QAM

Transmitter Measurements Summary - All Resource Blocks



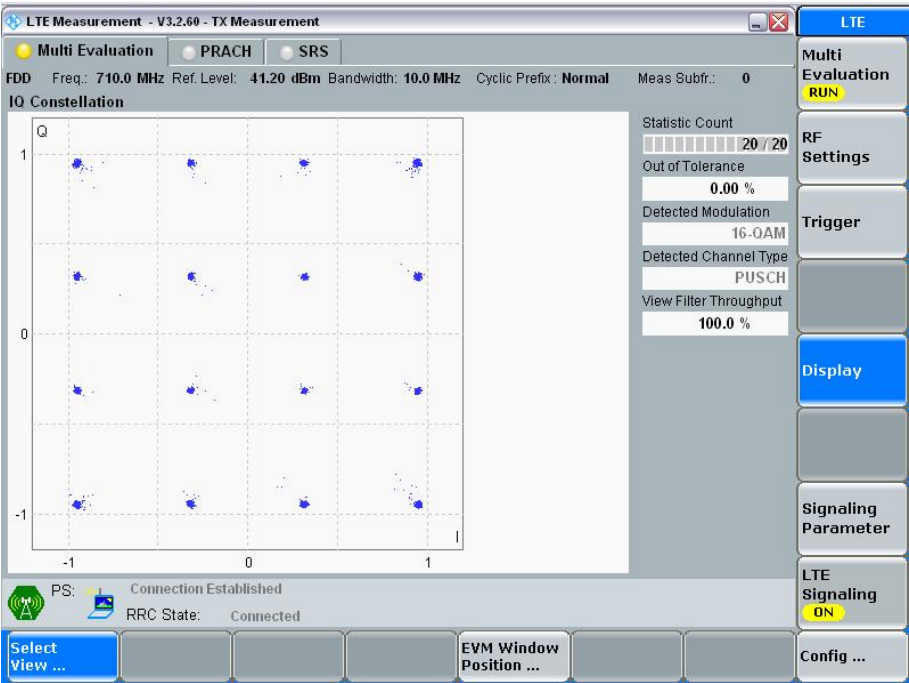
Error Vector Magnitude - All Resource Blocks



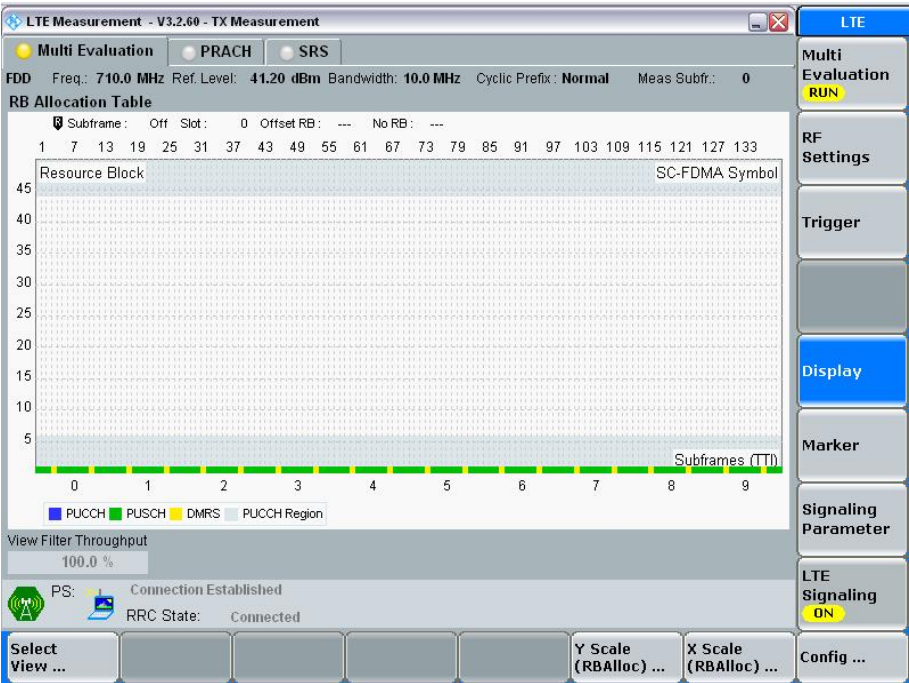


Product Service

IQ Constellation - All Resource Blocks



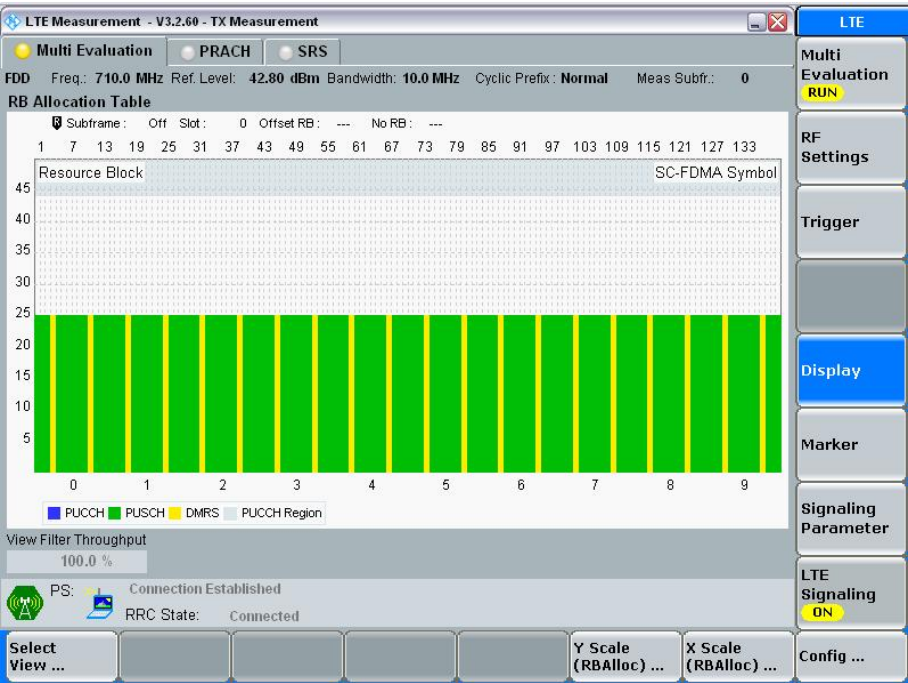
Resource Block Allocation - 1 Resource Block



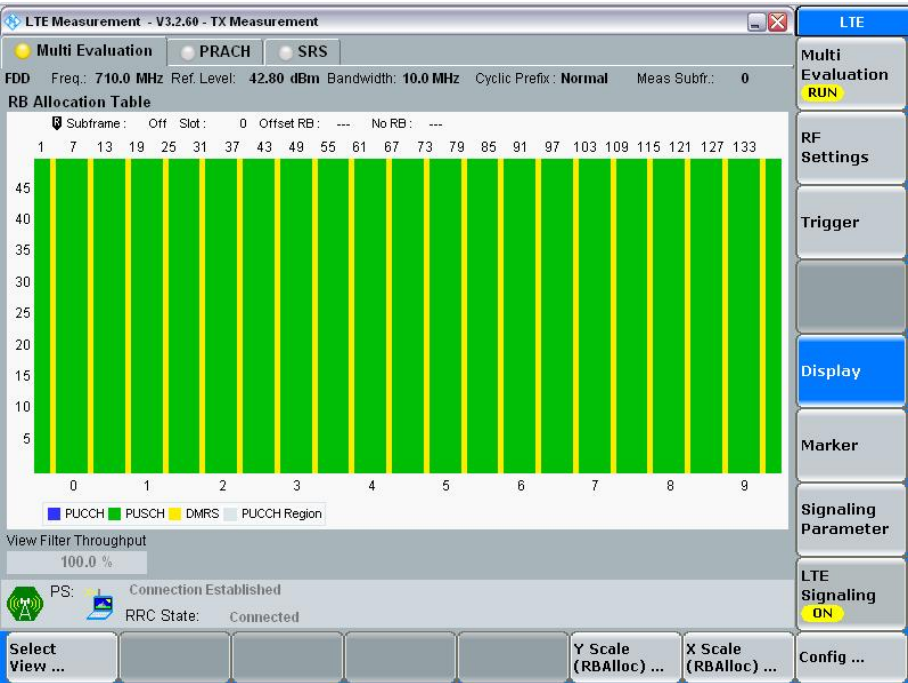


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Resource Block Allocation - 25 Resource Blocks



Resource Block Allocation - All Resource Blocks





Product Service

2.3 EMISSION LIMITS

2.3.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1049
FCC CFR 47 Part 27, Clause 27.53

2.3.2 Equipment Under Test and Modification State

SHL25 S/N: IMEI 004401115170223 - Modification State 0

2.3.3 Date of Test

11 April 2014 & 13 April 2014

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Procedure

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 27.53, Part 2.1049 and KDB 971168.

99% Occupied Bandwidth and 26 dB Bandwidth

The Spectrum Analyser was configured to measure the Occupied Bandwidth of the EUT using the 99% Occupied Bandwidth measurement function. The 26 dB bandwidth was also measured using the relative measurement procedure described in KDB 971168, section 4.1. The EUT was tested on bottom, middle and top channels, on all channel bandwidths for each supported modulation scheme with all resource blocks and a single resource block positioned at the resource block offset that yielded the highest conducted RF output power within the channel bandwidth.

Band Edge

The path loss between the EUT and Spectrum Analyser was measured using a Network Analyser and entered as a reference level offset. The EUT was set to transmit on maximum power using a wideband radio communications tester. The EUT was tested with all resource blocks active and with one resource block active at the position closest to the band edge on both the bottom and top channel. The RBW was set to a value of at least 1% of the Occupied Bandwidth value. The detector of the Spectrum Analyser was set to rms and the result checked against the -13 dBm limit defined in the specification. The results are shown in the following summary tables and plots.

Conducted Spurious Emissions

The path loss between the EUT and Spectrum Analyser was measured using a Network Analyser. The EUT was connected to the spectrum analyser via a cable, combiner and attenuator. At frequencies greater than 1.5 GHz, a high pass filter was also used. The other port of the combiner was connected to a wideband radio communications test set.



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The frequency spectrum was investigated from 9 kHz to 8 GHz. The EUT was set to transmit on full power with QPSK and 16QAM modulation schemes. The EUT was tested on bottom, middle and top channels, on all channel bandwidths for each supported modulation scheme with all resource blocks and a single resource block positioned at the resource block offset that yielded the highest conducted RF output power within the channel bandwidth. The resolution and video bandwidths were set to 100 kHz and 300 kHz thus meeting the requirements of Part 27.53(g). The spectrum analyser detector was set Peak and the trace to Max Hold.

The maximum path loss across the measurement bands were used as reference level offsets to ensure worst case.

Radiated Emissions

A preliminary profile of the Spurious Radiated Emissions was obtained up to the 10th harmonic by operating the EUT on a remotely controlled turntable within a semi-anechoic chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations. The profiling produced a list of the worst-case emissions together with the EUT azimuth and antenna polarisation.

Using the information from the preliminary profiling of the EUT, the list of emissions was then confirmed or updated under Alternative Open Site conditions. Emission levels were maximised by adjusting the antenna height, antenna polarisation and turntable azimuth.

Measurements were performed in the configuration that yielded the highest conducted RF output power for every supported modulation scheme on each bandwidth.

For any emissions found the EUT was then removed from the chamber and replaced with a substitution antenna. Using a signal generator the level was adjusted to achieve the same value on the measuring instrument as previously recorded with the EUT. The final result was determined by a calculation using the signal generator level, antenna gain and cable loss.

The measurements were performed at a 3m distance unless otherwise stated.

2.3.6 Environmental Conditions

Ambient Temperature	20.8 - 23.3°C
Relative Humidity	32.0 - 43.3%



Product Service

2.3.7 Test Results

Conducted

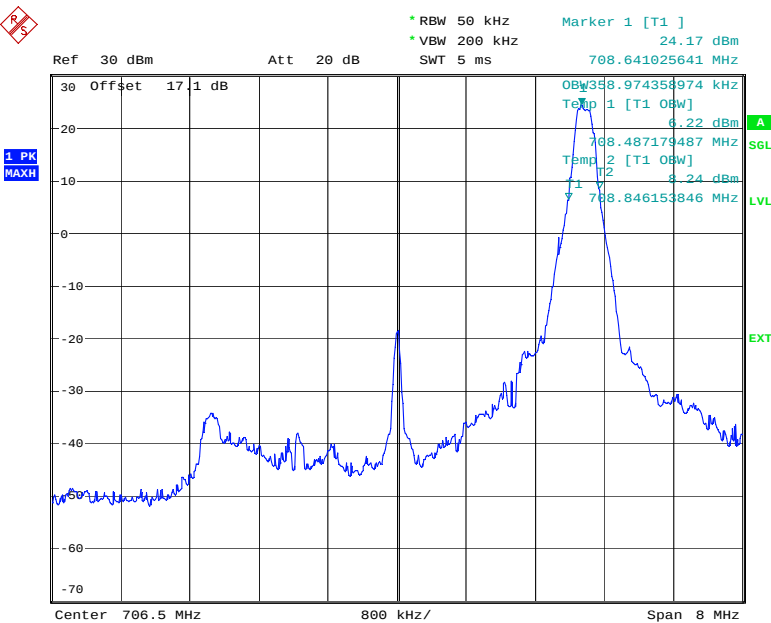
4.0 V DC Supply

Occupied Bandwidth

5.0 MHz Bandwidth - QPSK

Occupied Bandwidth (kHz)											
706.5 MHz				710.0 MHz				713.5 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
-	-	359.0	4500.0	371.8	-	-	4500.0	-	-	359.0	4461.5

706.5 MHz - 1 Resource Block - High

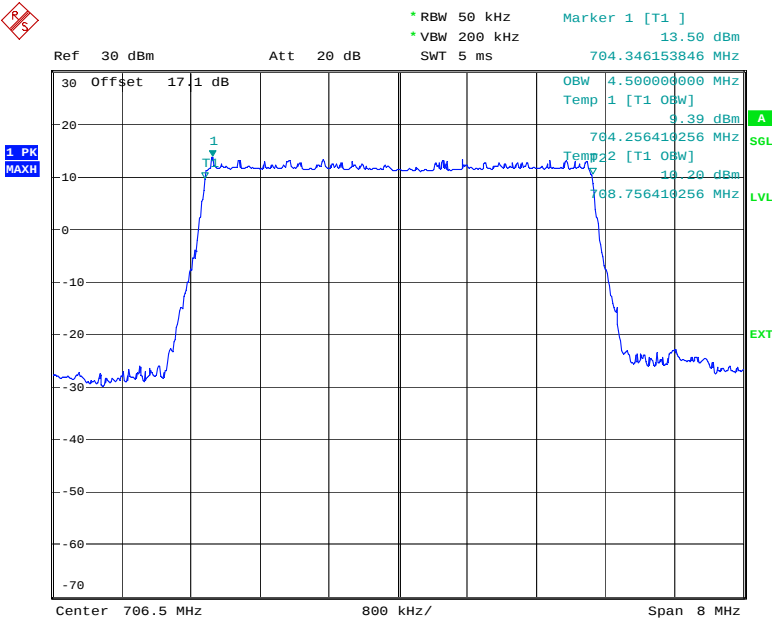


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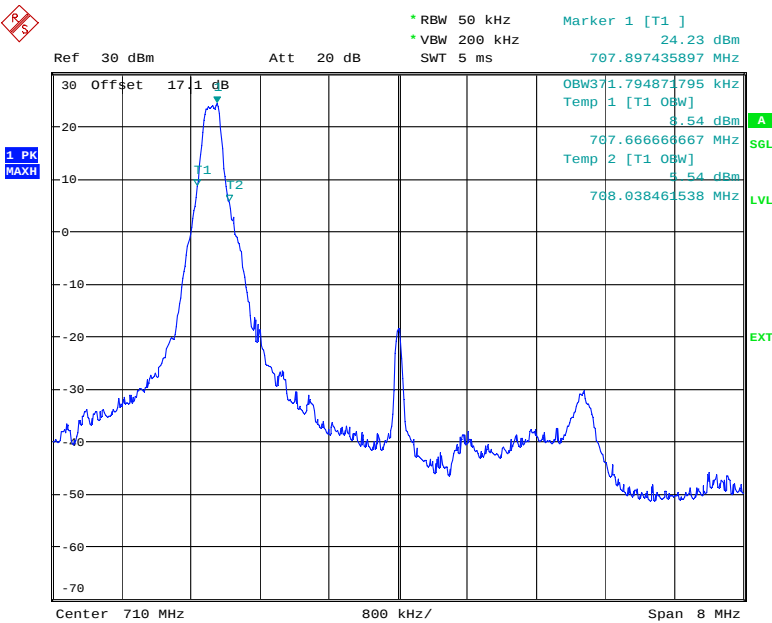
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706.5 MHz - All Resource Blocks



Date: 22.APR.2014 09:22:58

710 MHz - 1 Resource Block - Low

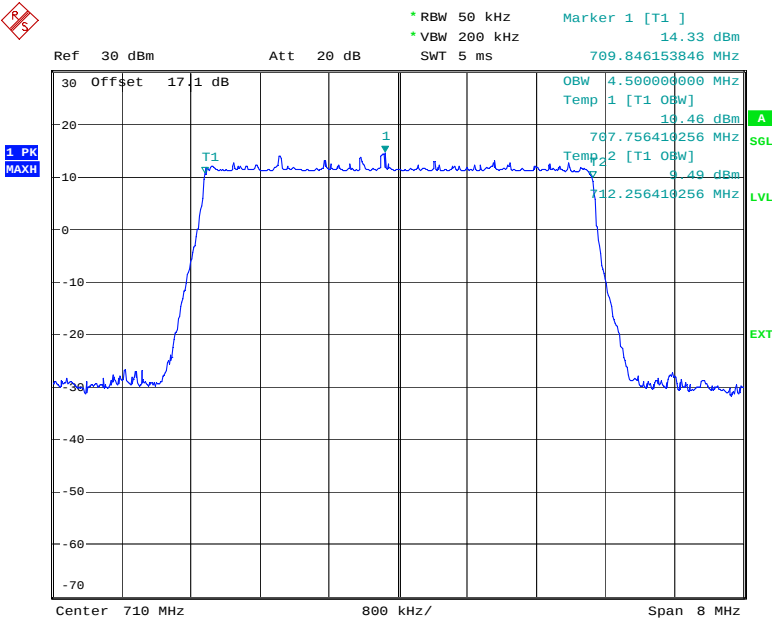


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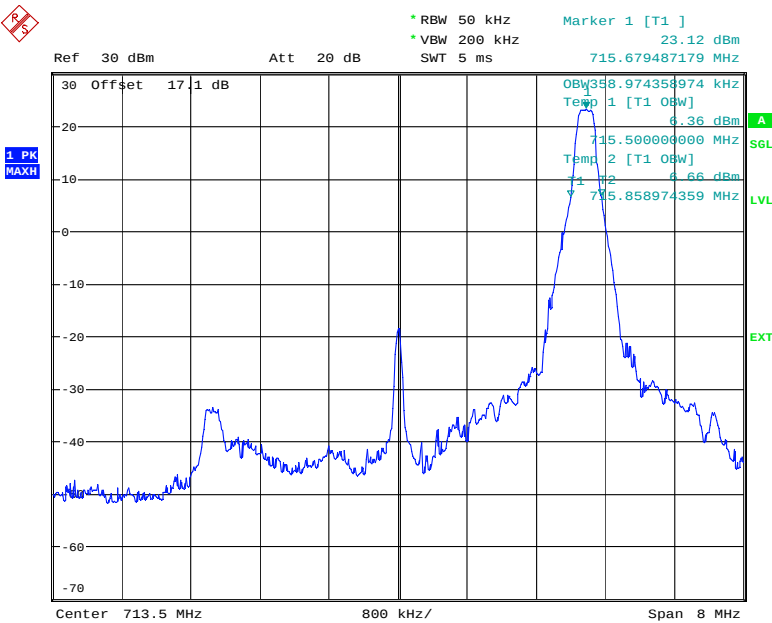
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710 MHz - All Resource Blocks



Date: 22.APR.2014 09:42:03

713.5 MHz - 1 Resource Block - High

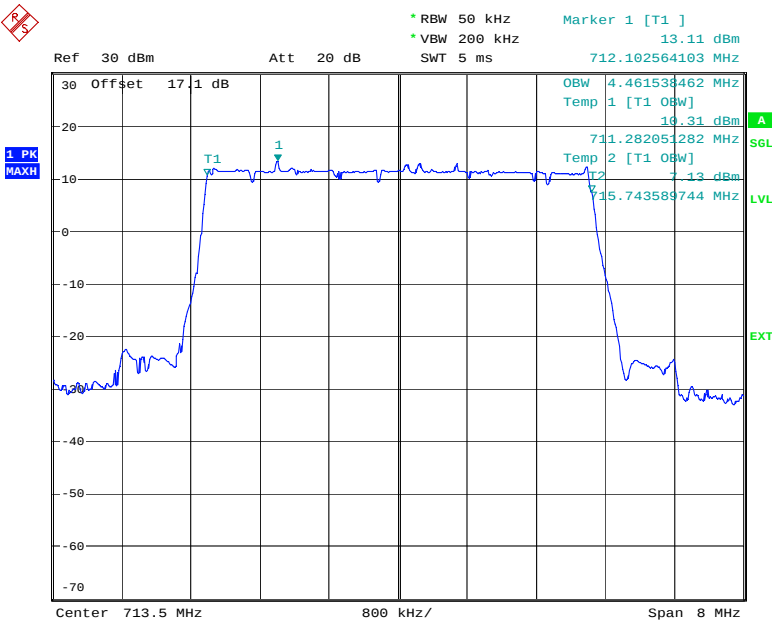


Date: 22.APR.2014 10:11:37



Product Service

713.5 MHz - All Resource Blocks



Date: 22.APR.2014 12:22:43

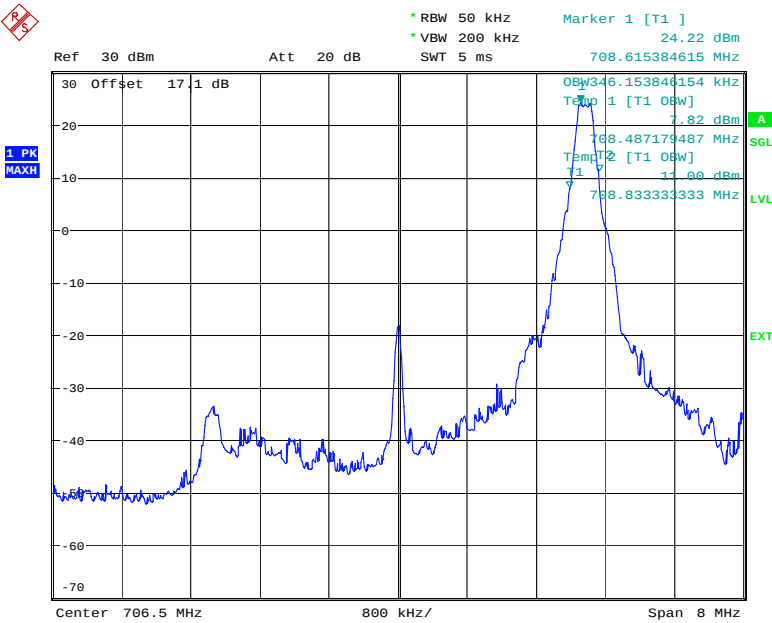


Product Service

5.0 MHz Bandwidth - 16QAM

Occupied Bandwidth (kHz)											
706.5 MHz				710.0 MHz				713.5 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
-	-	346.2	4487.2	-	-	371.8	4461.5	-	-	346.2	4461.5

706.5 MHz - 1 Resource Block - High

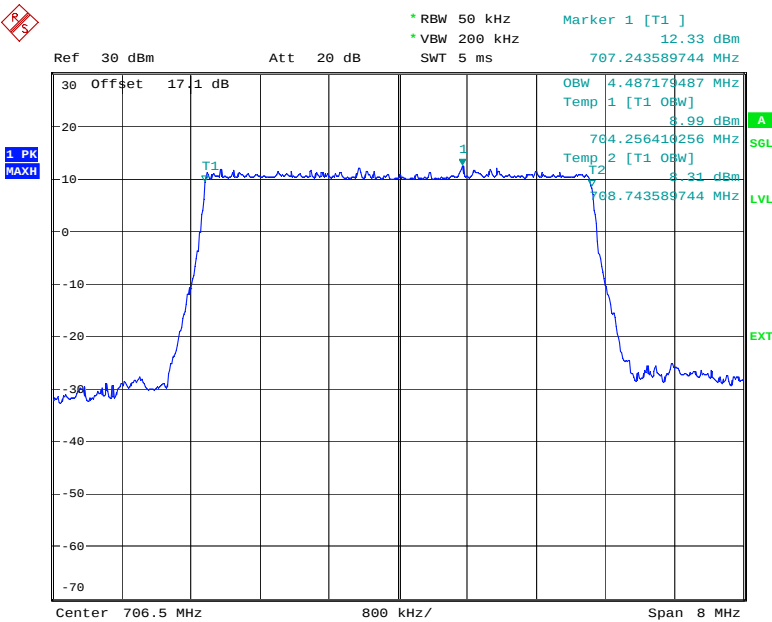


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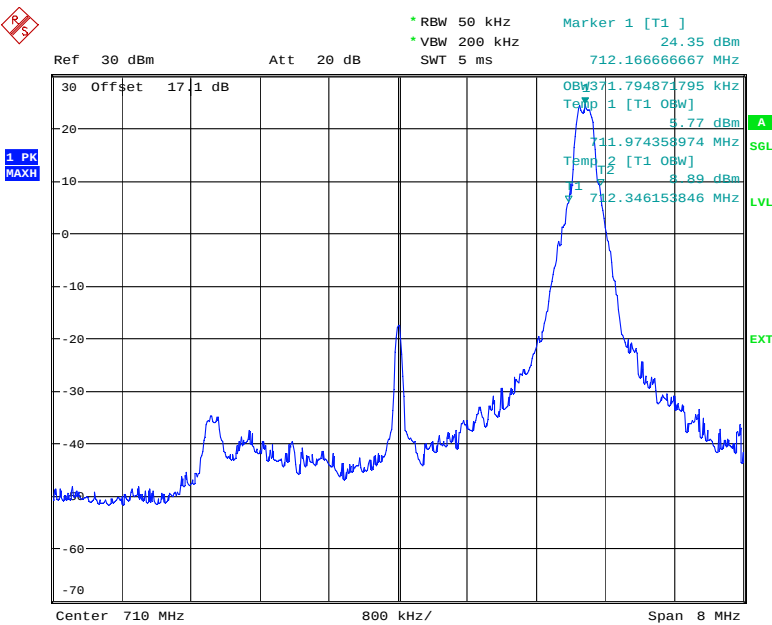
Product Service

706.5 MHz - All Resource Blocks



Date: 22.APR.2014 10:16:41

710 MHz - 1 Resource Block - High

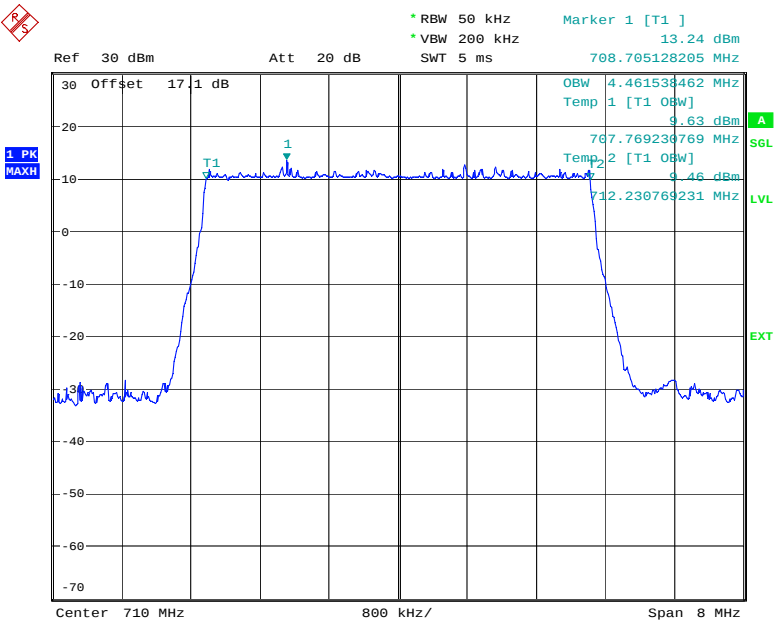


Date: 22.APR.2014 12:07:14



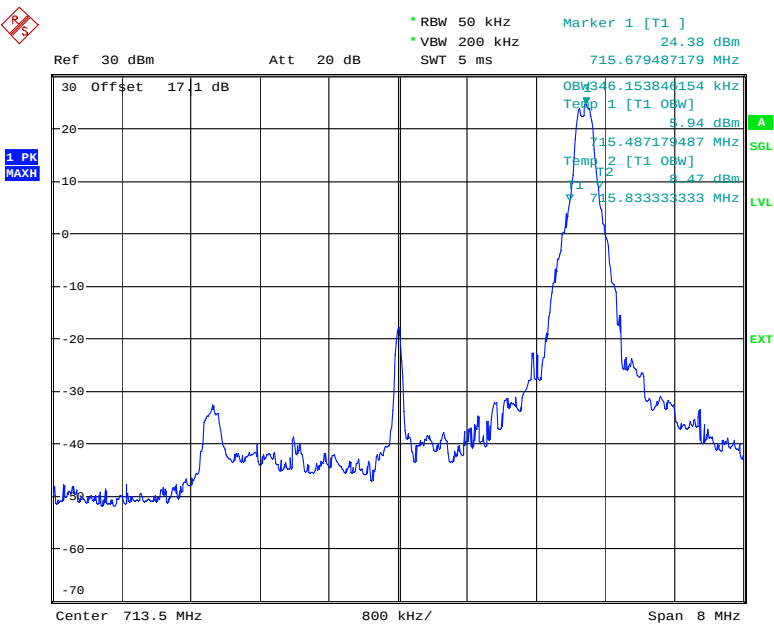
Product Service

710 MHz - All Resource Blocks



Date: 22.APR.2014 12:02:53

713.5 MHz - 1 Resource Block - High

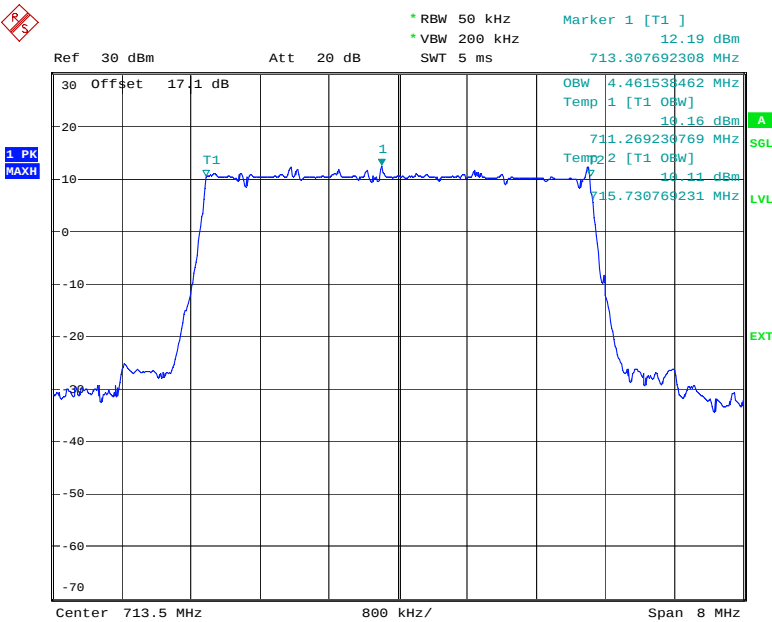


Date: 22.APR.2014 11:46:57



Product Service

713.5 MHz - All Resource Blocks



Date: 22.APR.2014 11:51:30

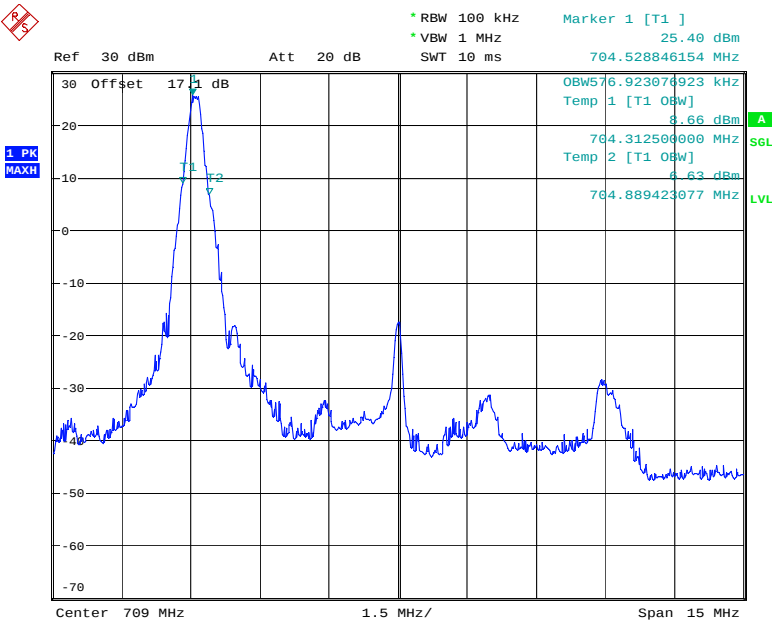


Product Service

10.0 MHz Bandwidth - QPSK

Occupied Bandwidth (kHz)											
709.0 MHz				710.0 MHz				711.0 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
576.9	-	-	8966.3	-	-	576.9	8966.3	-	-	576.9	8966.3

709 MHz - 1 Resource Block - Low

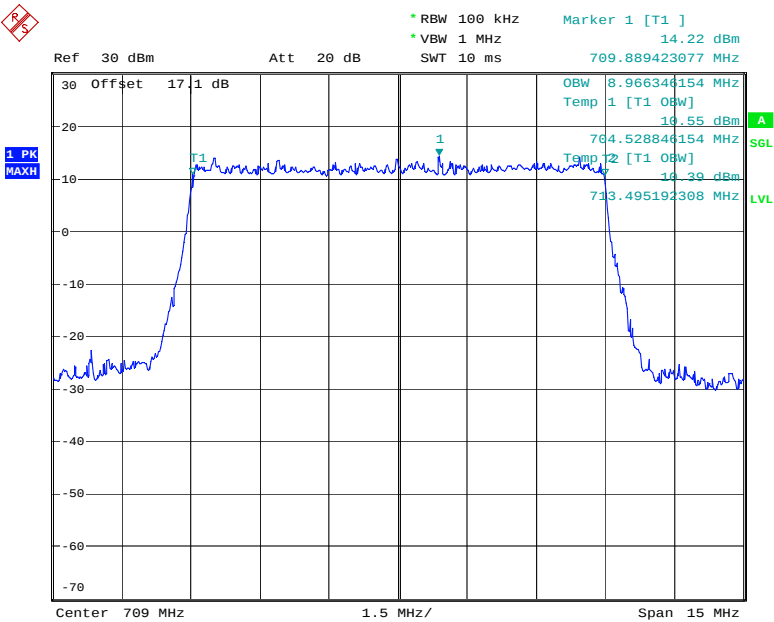


Date: 11.APR.2014 14:01:02



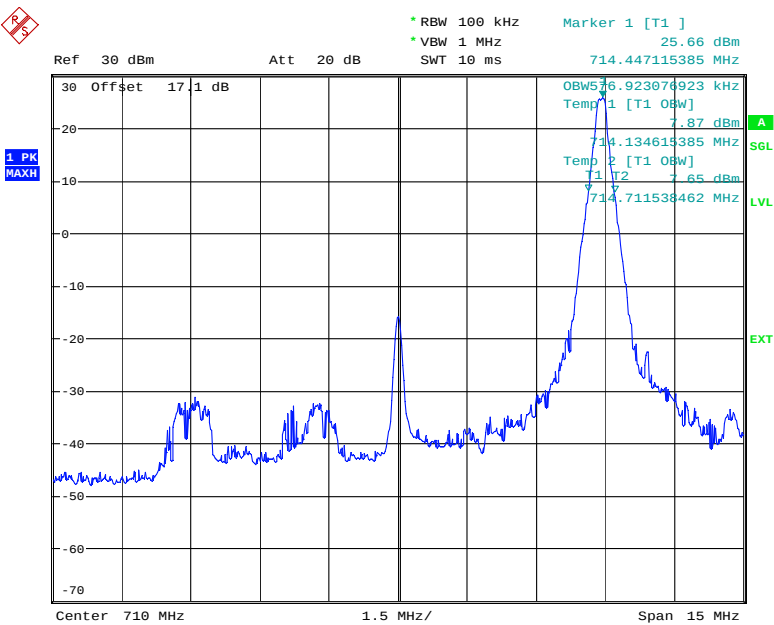
Product Service

709 MHz - All Resource Blocks



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

710 MHz - 1 Resource Block - High

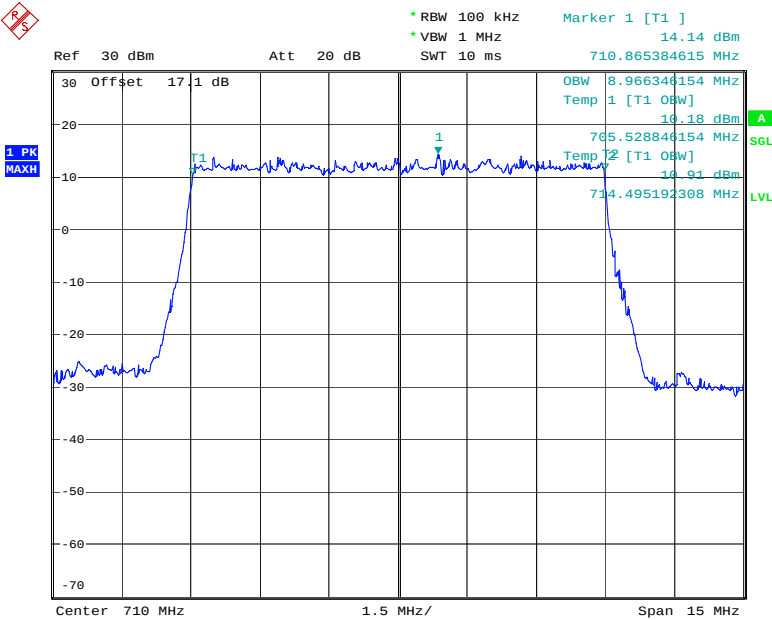


Date: 17.APR.2014 15:00:34



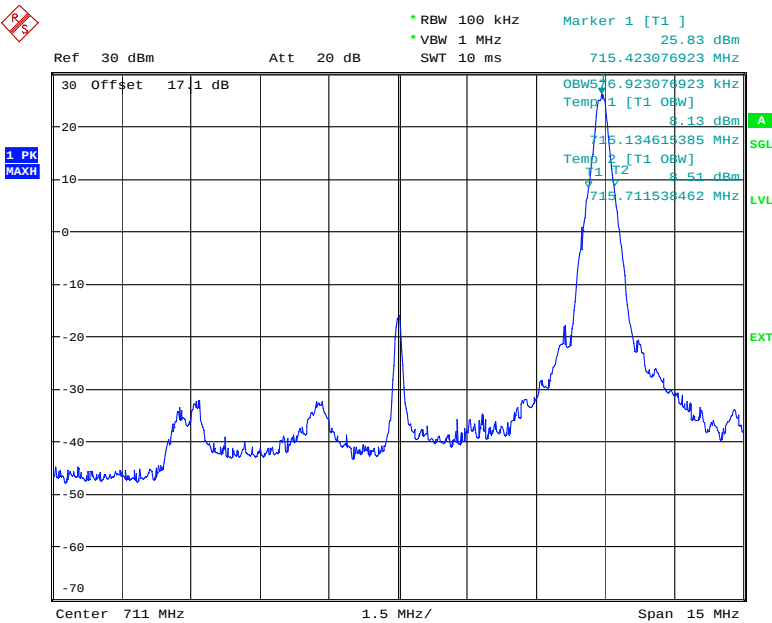
Product Service

710 MHz - All Resource Blocks



Date: 11.APR.2014 12:56:42

711 MHz - 1 Resource Block - High

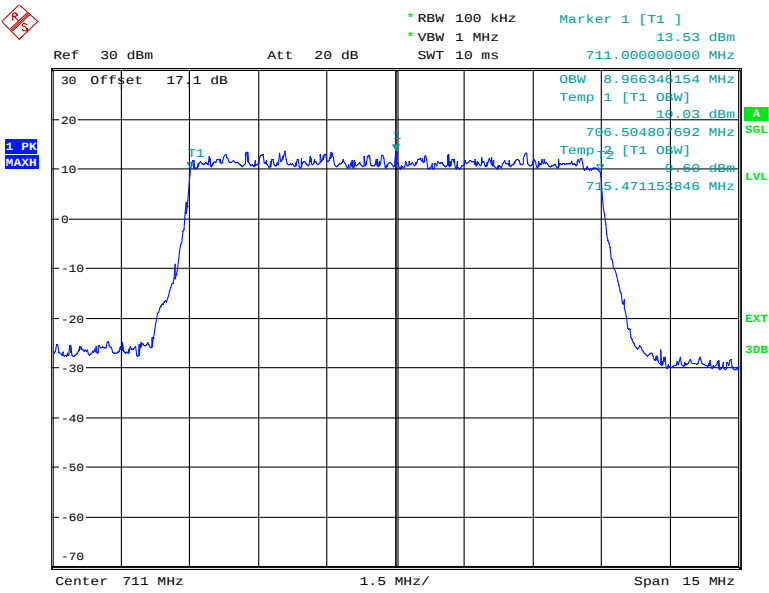


Date: 17.APR.2014 11:46:58



Product Service

711 MHz - All Resource Blocks



Date: 29.APR.2014 11:14:03

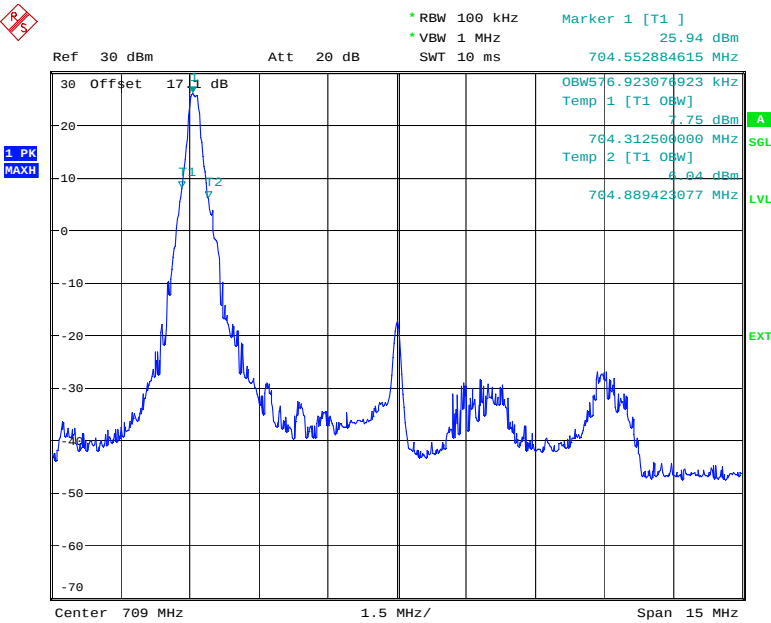


Product Service

10.0 MHz Bandwidth - 16QAM

Occupied Bandwidth (kHz)											
709.0 MHz				710.0 MHz				711.0 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
576.9	-	-	8942.3	-	-	528.8	8966.3	-	-	552.9	8942.3

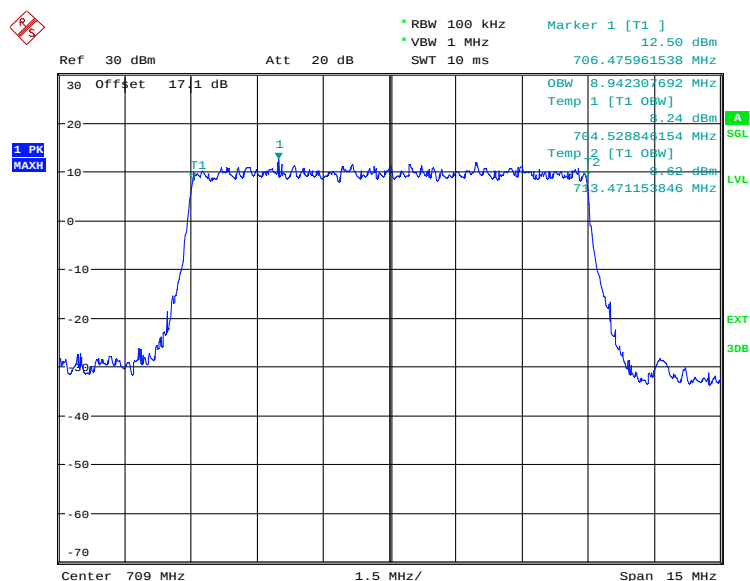
709 MHz - 1 Resource Block - Low



Date: 17.APR.2014 11:58:05

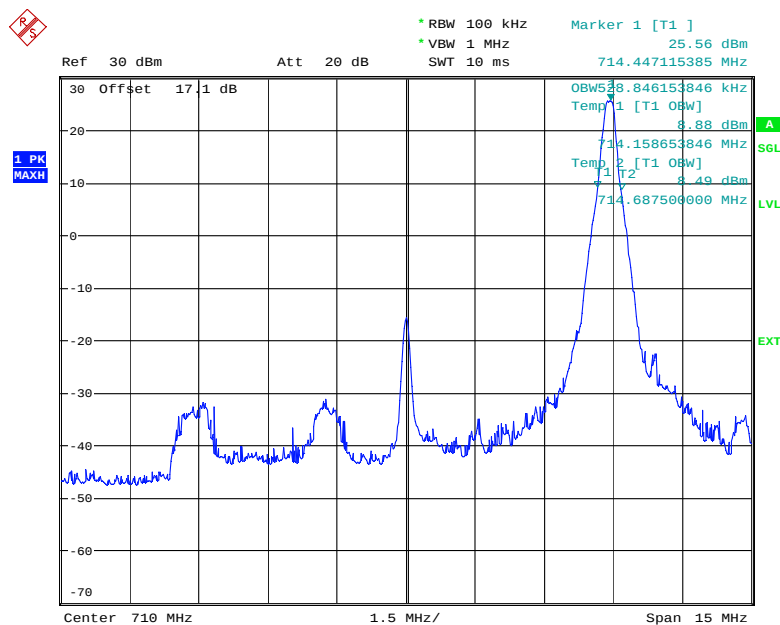


709 MHz - All Resource Blocks



Date: 29.APR.2014 10:54:11

710 MHz - 1 Resource Block - High

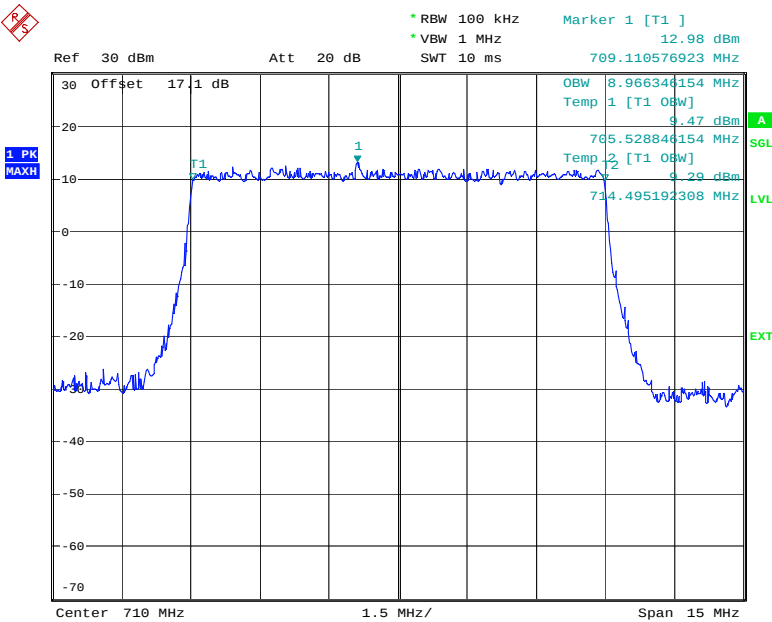


Date: 17.APR.2014 14:47:39



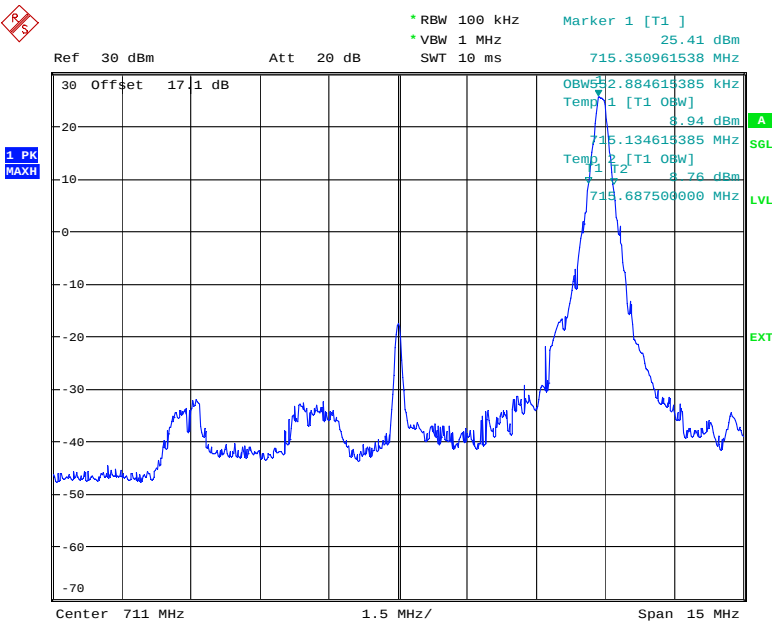
Product Service

710 MHz - All Resource Blocks



Date: 17.APR.2014 12:10:30

711 MHz - 1 Resource Block - High

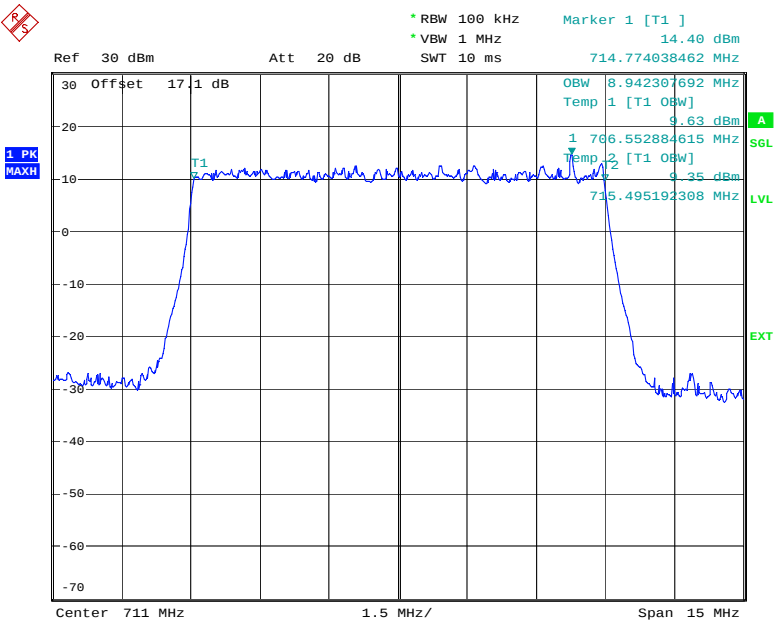


Date: 17.APR.2014 13:56:13



Product Service

711 MHz - All Resource Blocks



Date: 17.APR.2014 14:40:00



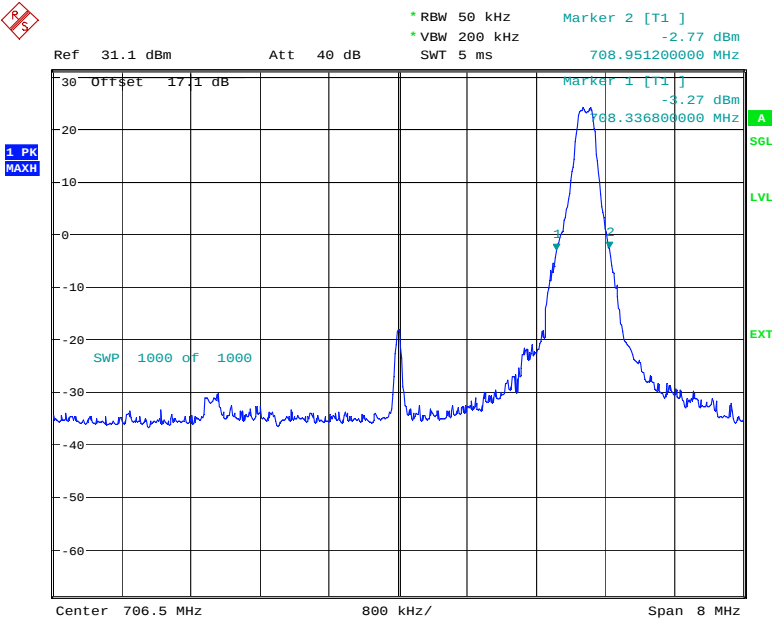
Product Service

26dB Bandwidth

5.0 MHz Bandwidth - QPSK

26dB Bandwidth (kHz)											
706.5 MHz				710.0 MHz				713.5 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
-	-	614.4	4966.4	588.8	-	-	4902.4	-	-	652.8	4979.2

706.5 MHz - 1 Resource Block - High

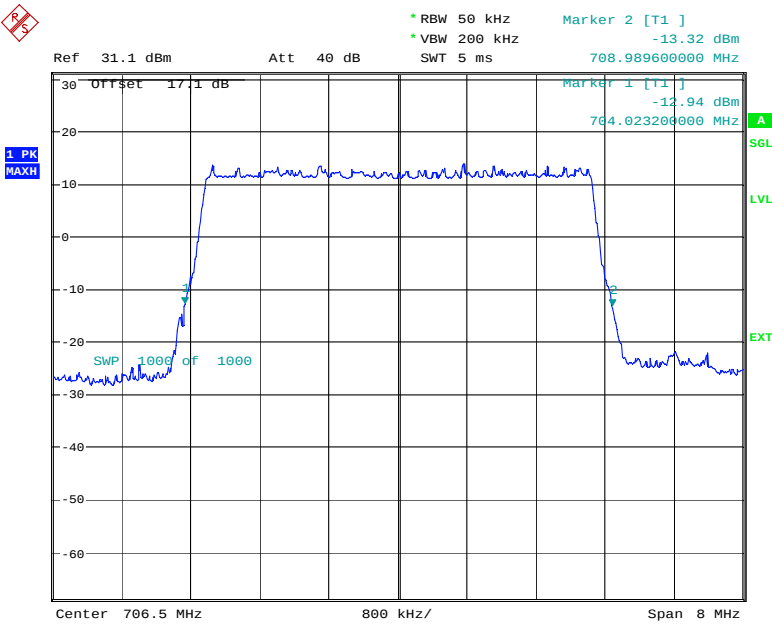


Date: 22.APR.2014 09:38:44



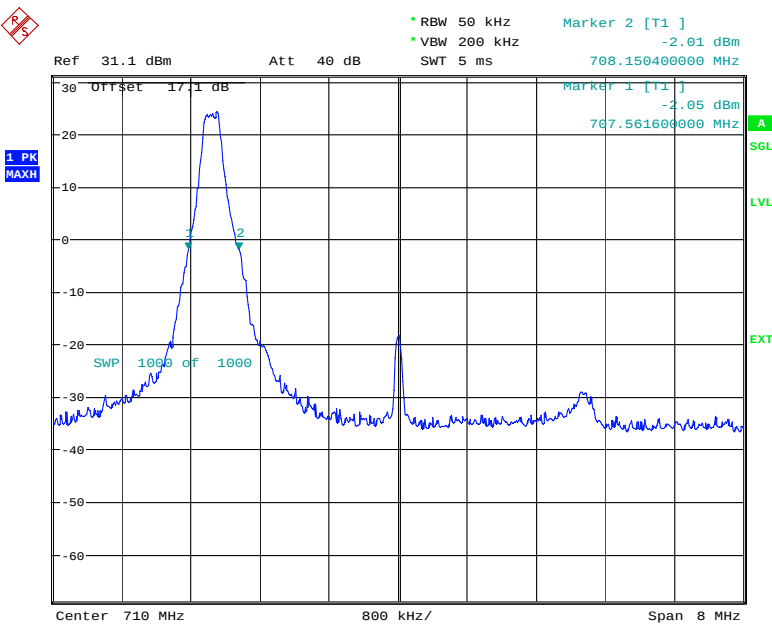
Product Service

706.5 MHz - All Resource Blocks



Date: 22.APR.2014 09:24:16

710 MHz - 1 Resource Block - Low

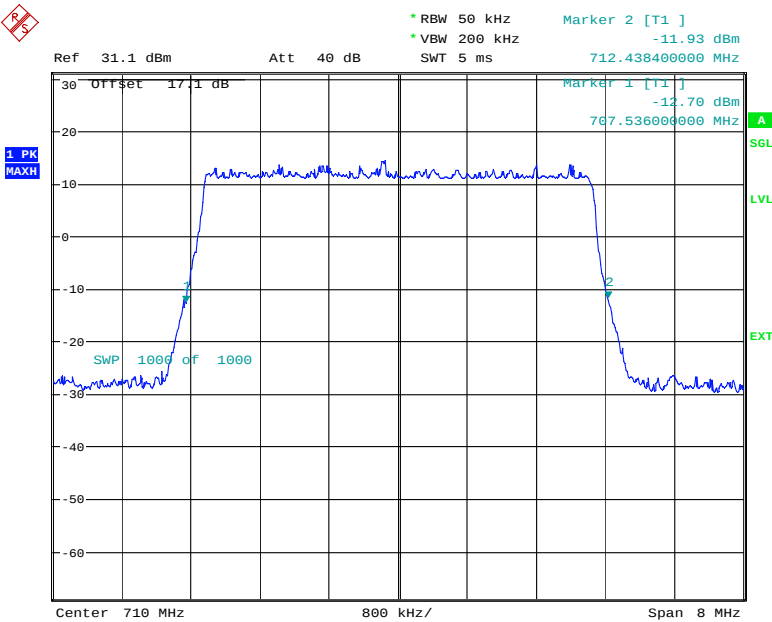


Date: 22.APR.2014 12:16:41



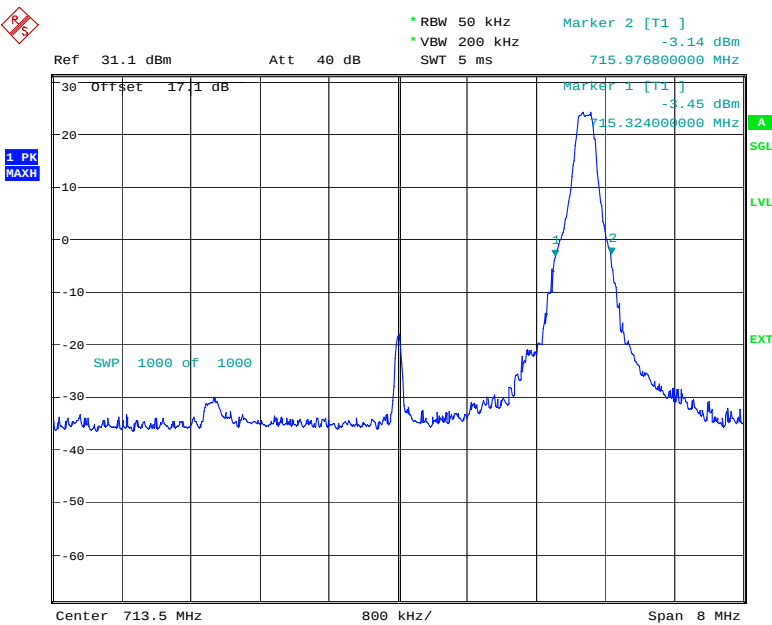
Product Service

710 MHz - All Resource Blocks



Date: 22.APR.2014 09:43:05

713.5 MHz - 1 Resource Block - High

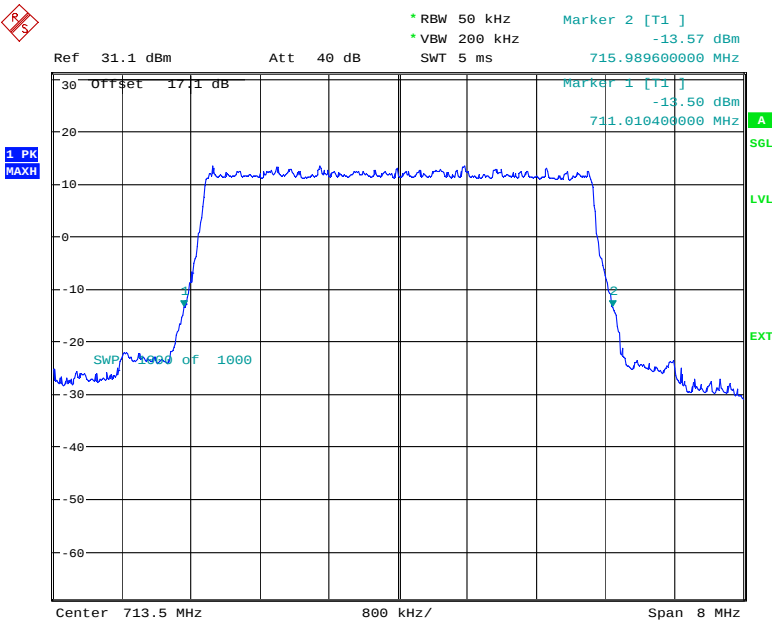


Date: 22.APR.2014 10:12:31



Product Service

713.5 MHz - All Resource Blocks



Date: 22.APR.2014 12:23:39

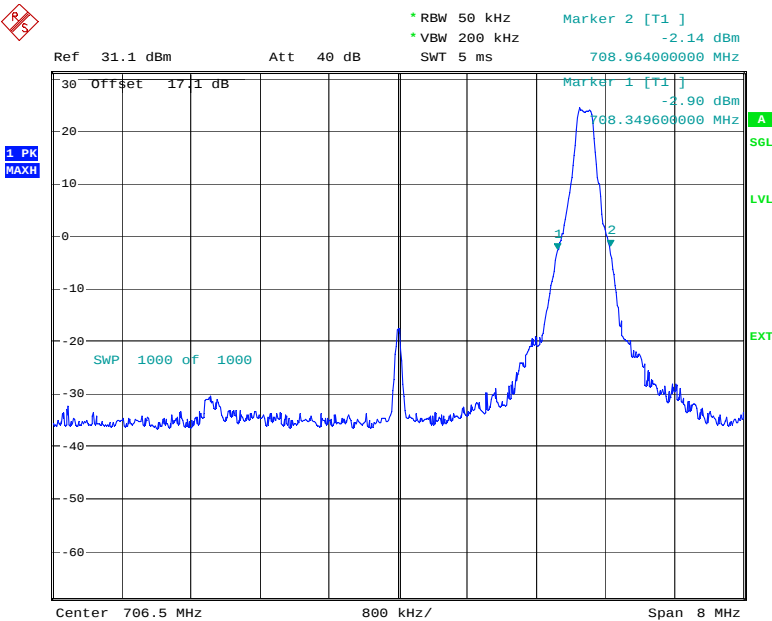


Product Service

5.0 MHz Bandwidth - 16QAM

26dB Bandwidth (kHz)											
706.5 MHz				710.0 MHz				713.5 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
-	-	614.4	4915.2	-	-	601.6	4940.8	-	-	601.6	4915.2

706.5 MHz - 1 Resource Block - High

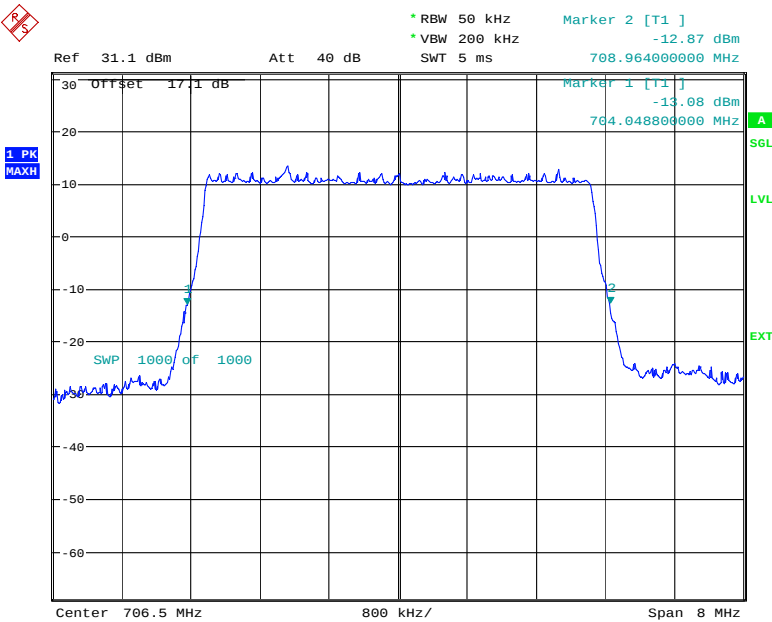


Date: 22.APR.2014 10:36:37



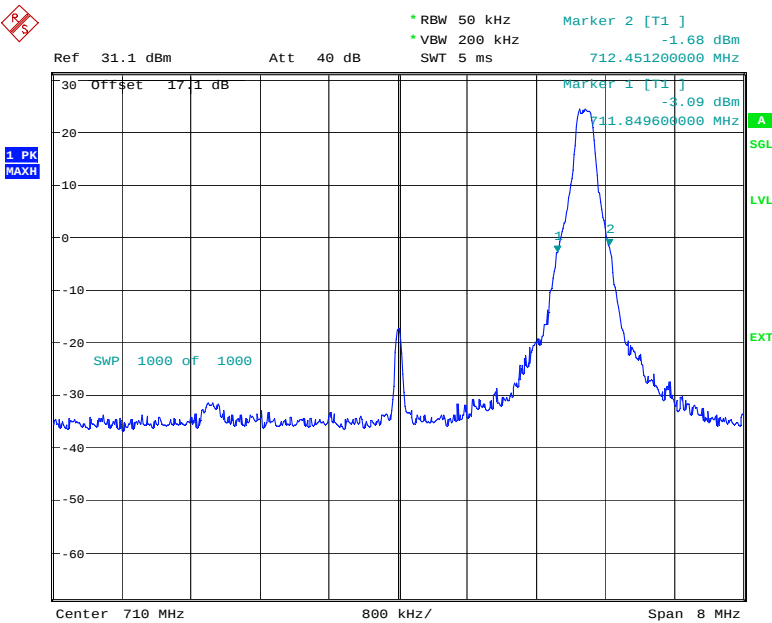
Product Service

706.5 MHz - All Resource Blocks



Date: 22.APR.2014 10:17:58

710 MHz - 1 Resource Block - High

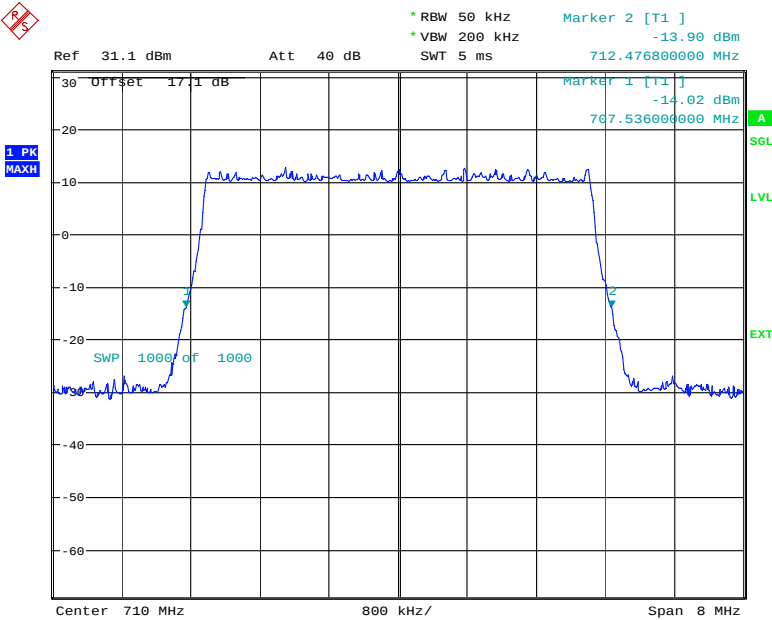


Date: 22.APR.2014 13:33:10



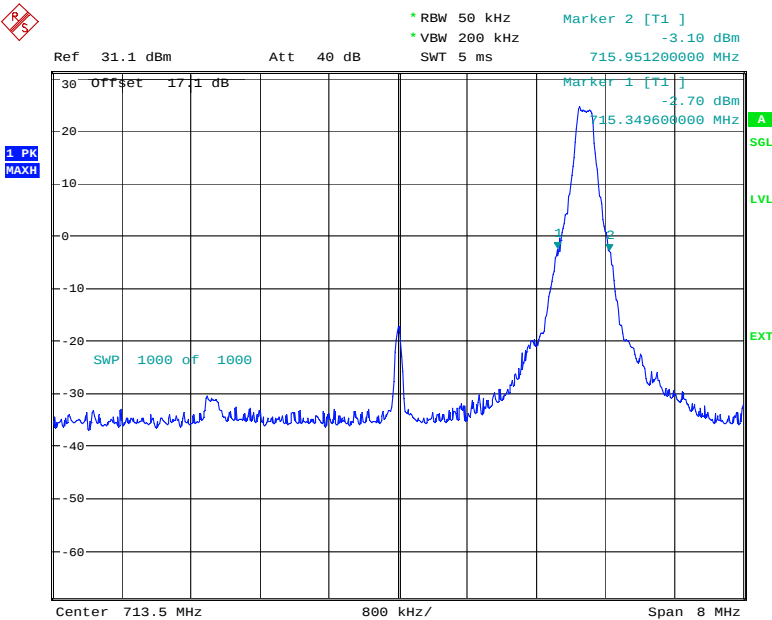
Product Service

710 MHz - All Resource Blocks



Date: 22.APR.2014 12:03:54

713.5 MHz - 1 Resource Block - High

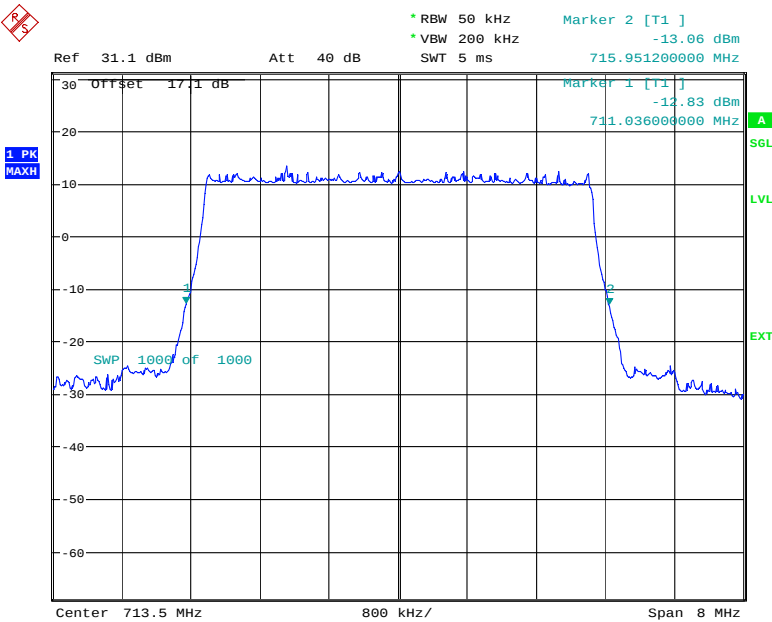


Date: 22.APR.2014 11:48:08



Product Service

713.5 MHz - All Resource Blocks



Date: 22.APR.2014 11:52:29

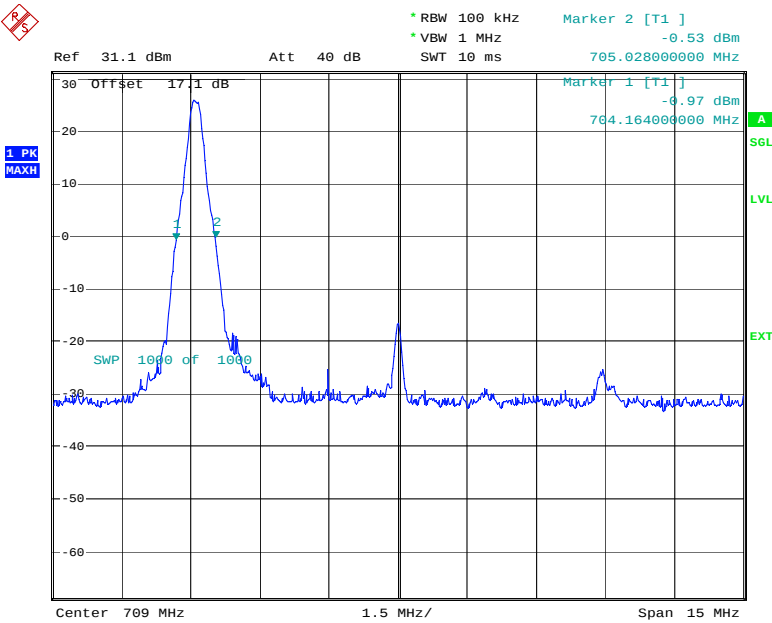


Product Service

10.0 MHz Bandwidth - QPSK

26dB Bandwidth (kHz)											
709.0 MHz				710.0 MHz				711.0 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
864.0	-	-	9840.0	-	-	864.0	9840.0	-	-	912.0	9864.0

709 MHz - 1 Resource Block - Low

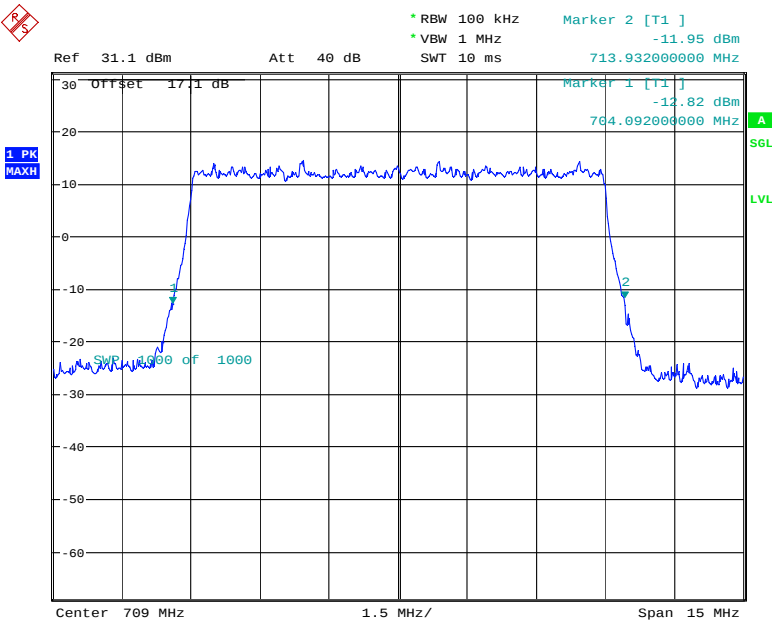


Date: 22.APR.2014 13:39:50



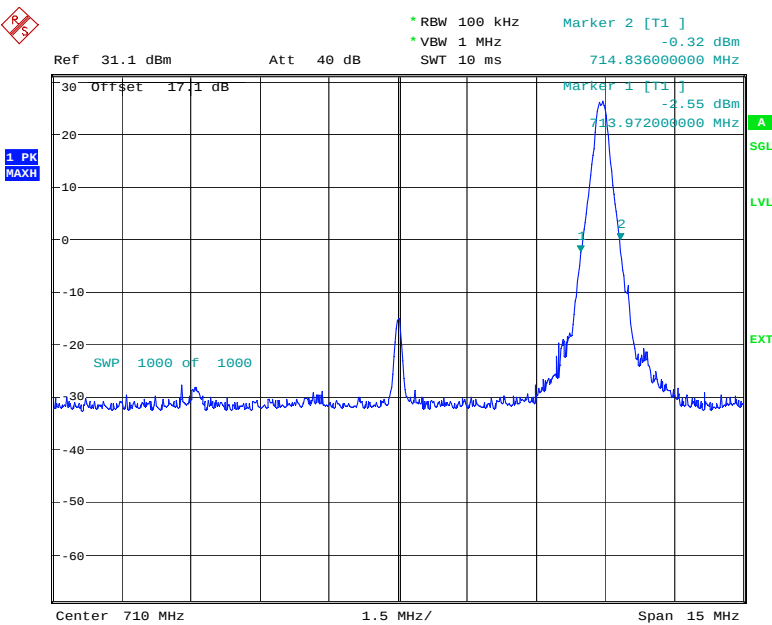
Product Service

709 MHz - All Resource Blocks



Date: 11.APR.2014 12:01:47

710 MHz - 1 Resource Block - High

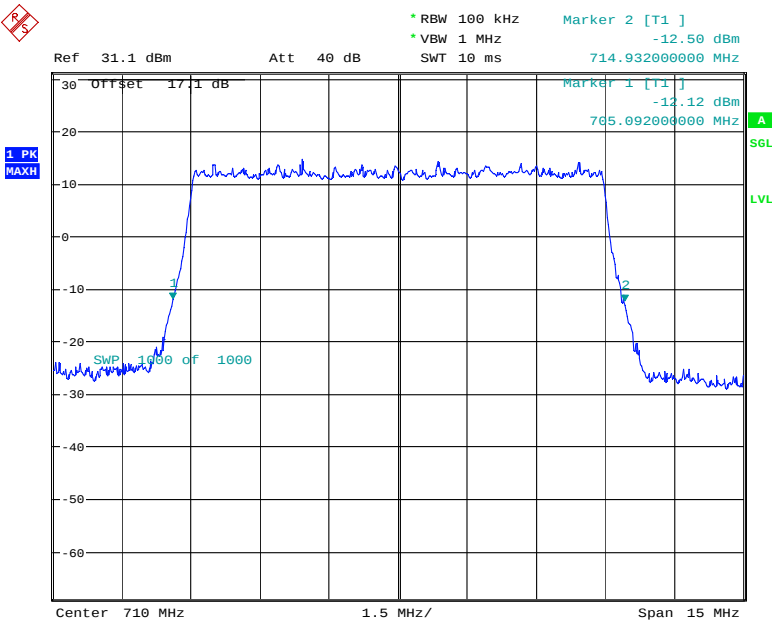


Date: 17.APR.2014 15:02:12



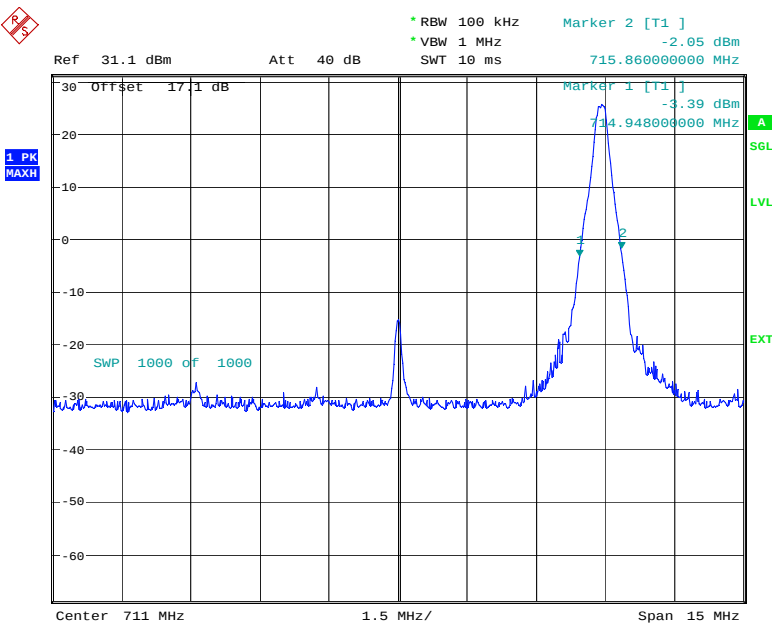
Product Service

710 MHz - All Resource Blocks



Date: 11.APR.2014 12:58:06

711 MHz - 1 Resource Block - High

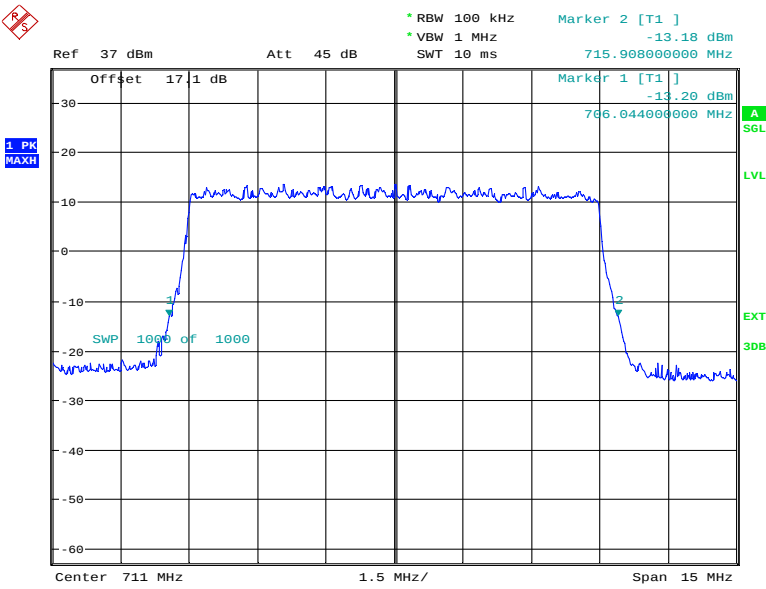


Date: 17.APR.2014 11:48:04



Product Service

711 MHz - All Resource Blocks



Date: 29.APR.2014 11:00:22

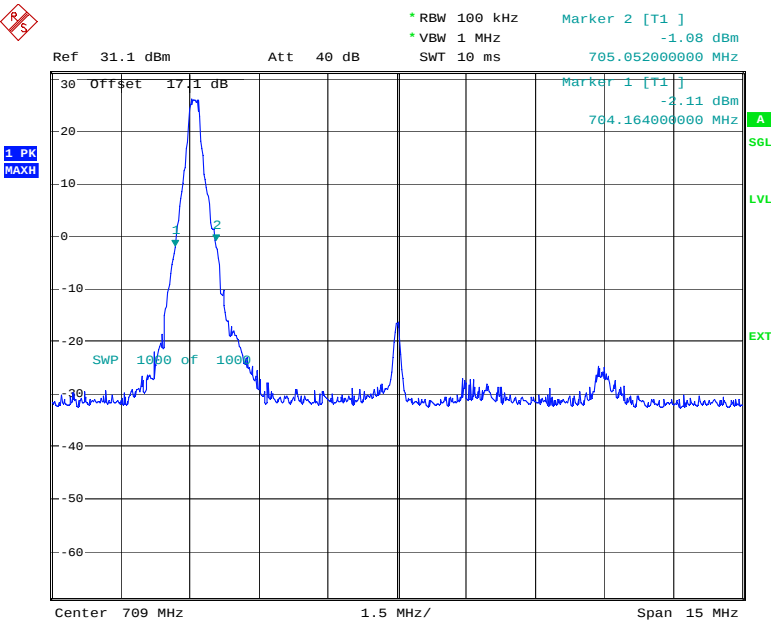


Product Service

10.0 MHz Bandwidth - 16QAM

26dB Bandwidth (kHz)											
709.0 MHz				710.0 MHz				711.0 MHz			
1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks	1 Resource Block			All Resource Blocks
Low	Mid	High		Low	Mid	High		Low	Mid	High	
888.0	-	-	9792.0	-	-	936.0	9744.0	-	-	936.0	9696.0

709 MHz - 1 Resource Block - Low

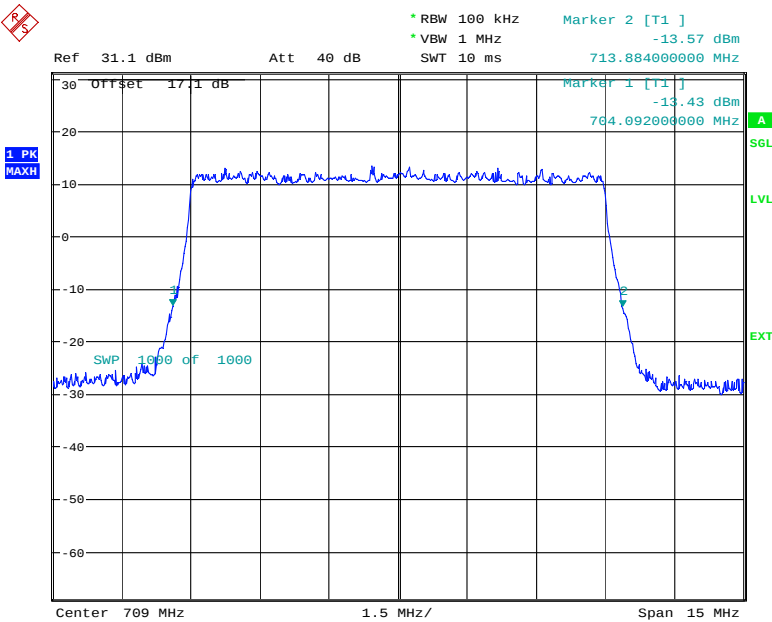


Date: 17.APR.2014 11:59:33



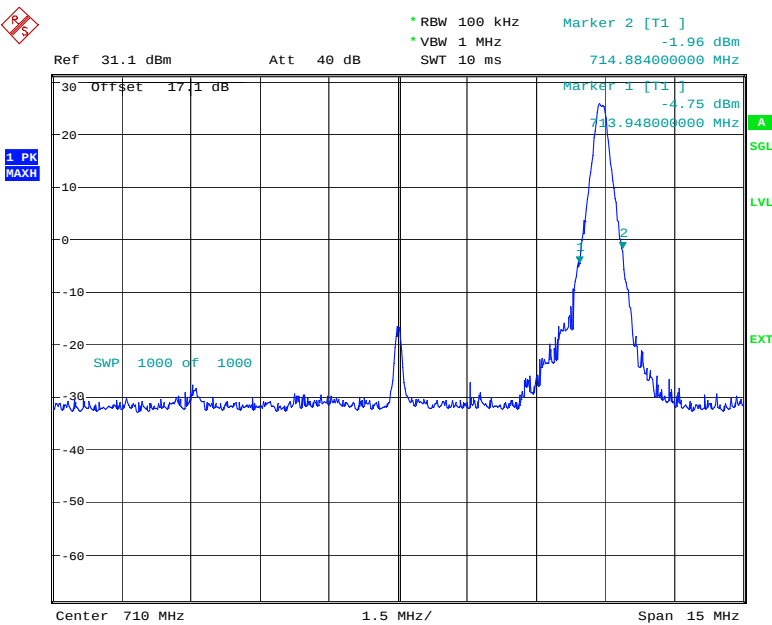
Product Service

709 MHz - All Resource Blocks



Date: 17.APR.2014 11:54:20

710 MHz - 1 Resource Block - High

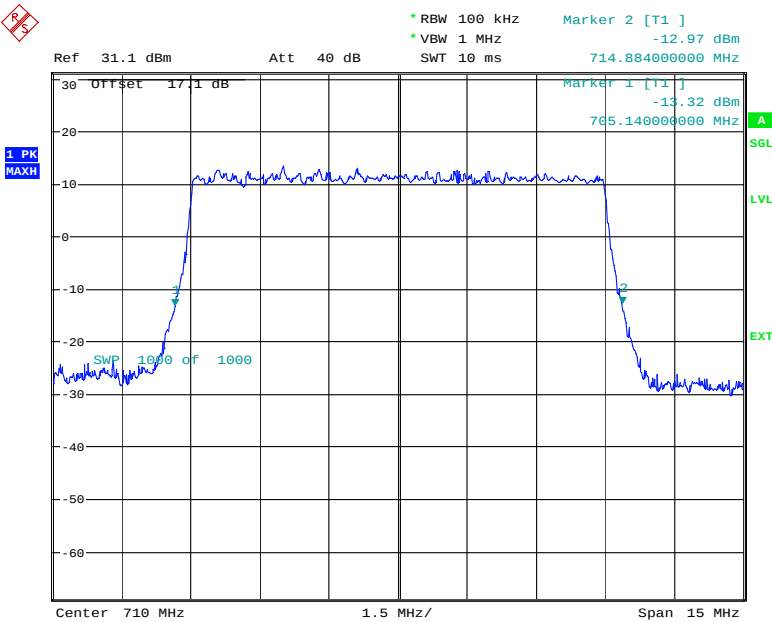


Date: 22.APR.2014 13:31:12



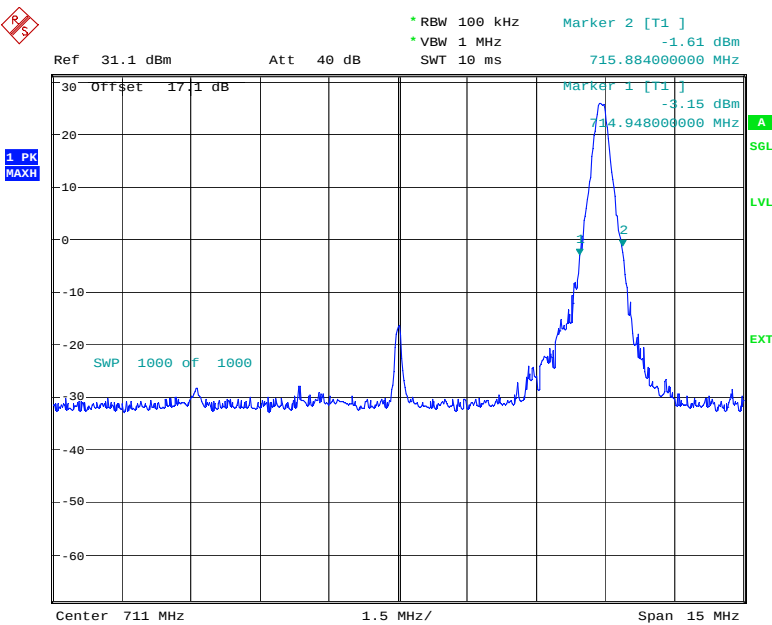
Product Service

710 MHz - All Resource Blocks



Date: 17.APR.2014 12:11:54

711 MHz - 1 Resource Block - High

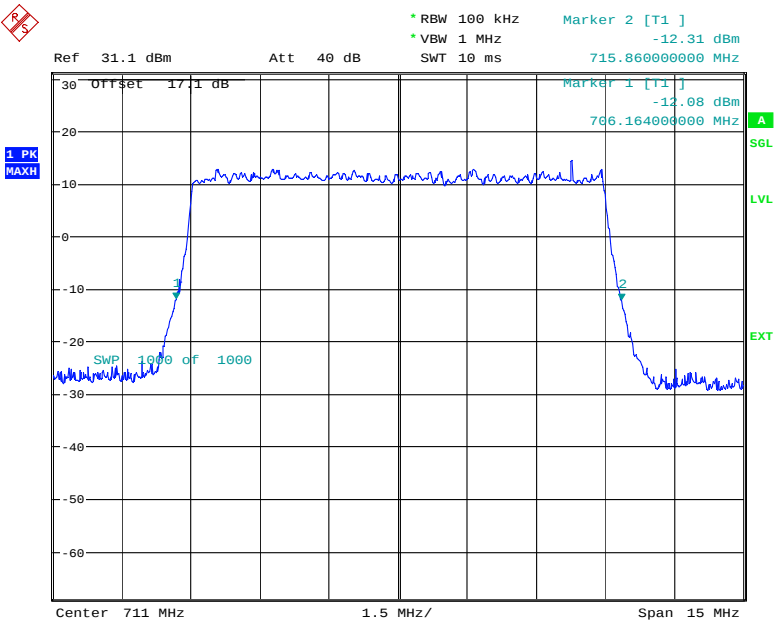


Date: 17.APR.2014 13:52:23



Product Service

711 MHz - All Resource Blocks



Date: 17.APR.2014 14:41:22



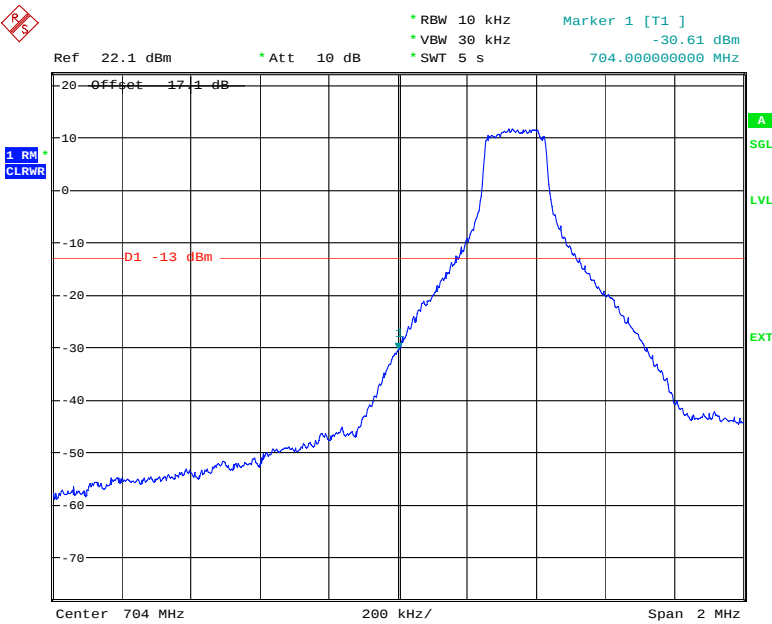
Product Service

Band Edge

5.0 MHz Bandwidth - QPSK

Band Edge (dBm)			
706.5 MHz		713.5 MHz	
1 Resource Block	All Resource Blocks	1 Resource Block	All Resource Blocks
Low		High	
-30.6	-28.8	-28.8	-29.2

706.5 MHz - 1 Resource Block - Low

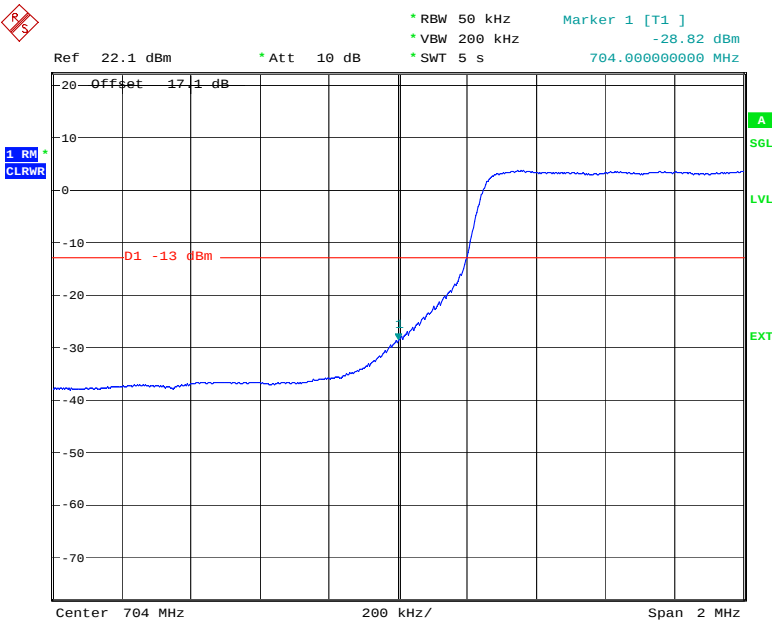


Date: 22.APR.2014 09:35:53



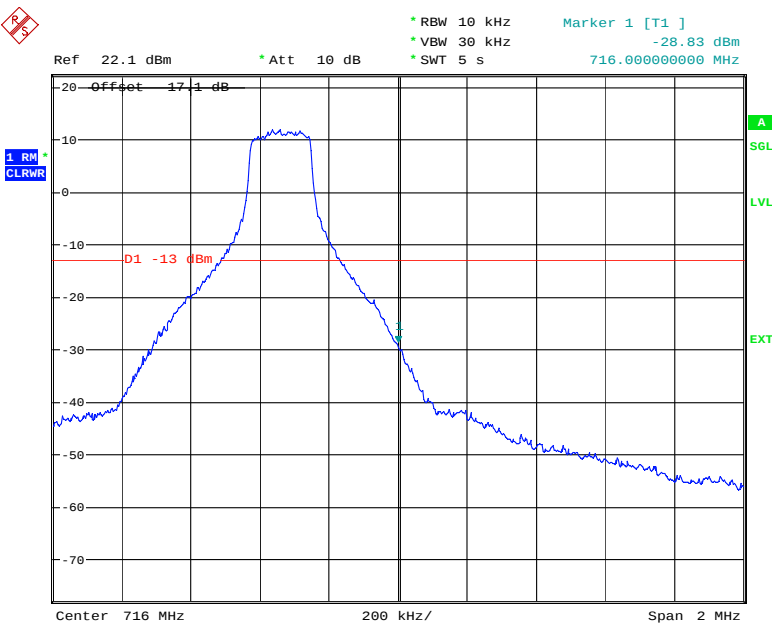
Product Service

706.5 MHz - All Resource Blocks



Date: 22.APR.2014 09:24:54

713.5 MHz - 1 Resource Block - High

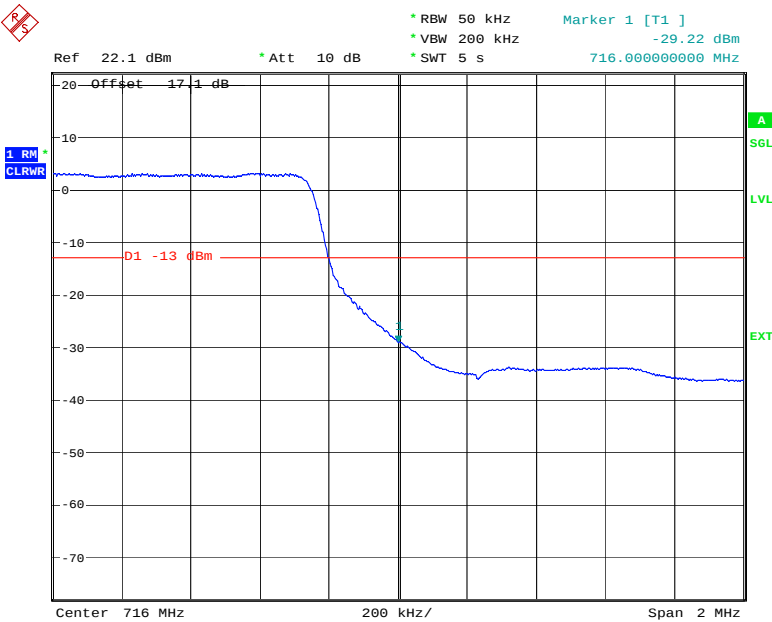


Date: 22.APR.2014 10:13:10



Product Service

713.5 MHz - All Resource Blocks



Date: 22.APR.2014 12:24:17

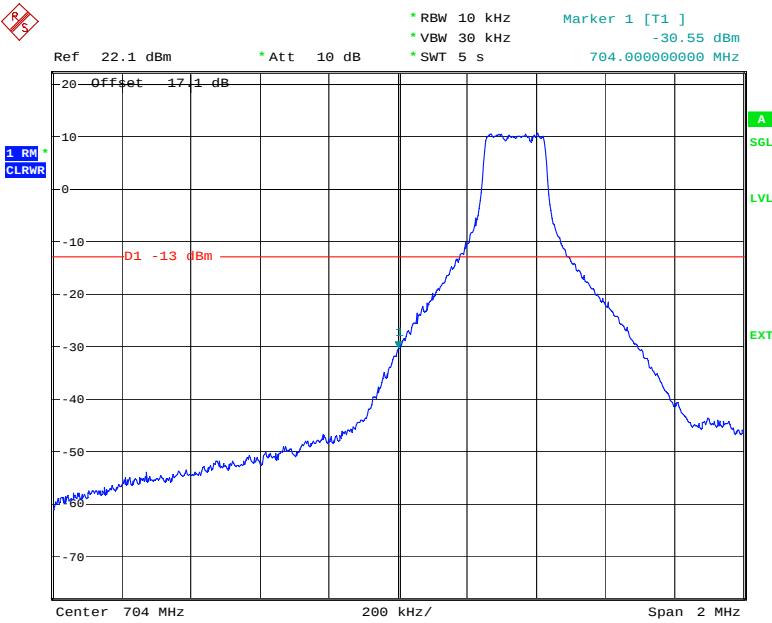


Product Service

5.0 MHz Bandwidth - 16QAM

Band Edge (dBm)			
706.5 MHz		713.5 MHz	
1 Resource Block	All Resource Blocks	1 Resource Block	All Resource Blocks
Low		High	
-30.6	-30.4	-30.9	-30.9

706.5 MHz - 1 Resource Block - Low

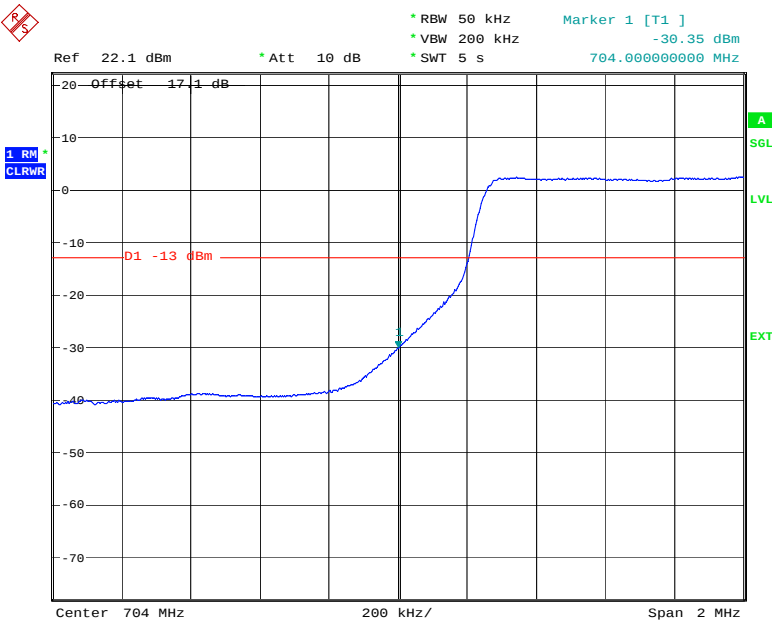


Date: 22.APR.2014 10:31:54



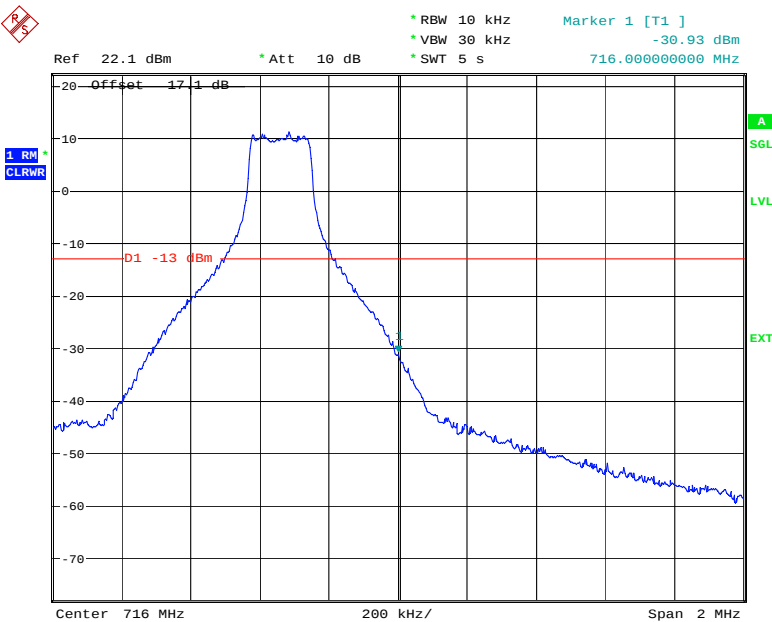
Product Service

706.5 MHz - All Resource Blocks



Date: 22.APR.2014 10:18:38

713.5 MHz - 1 Resource Block - High

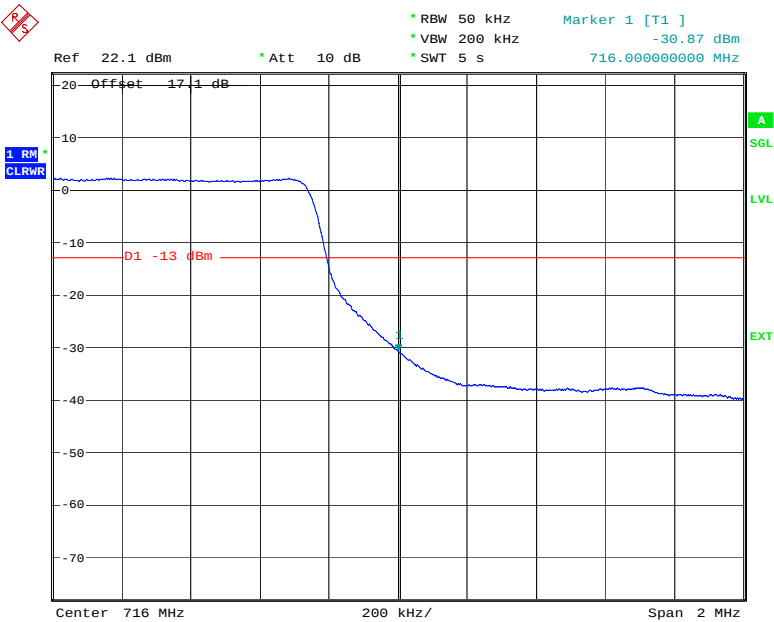


Date: 22.APR.2014 11:48:50



Product Service

713.5 MHz - All Resource Blocks



Date: 22.APR.2014 11:53:22

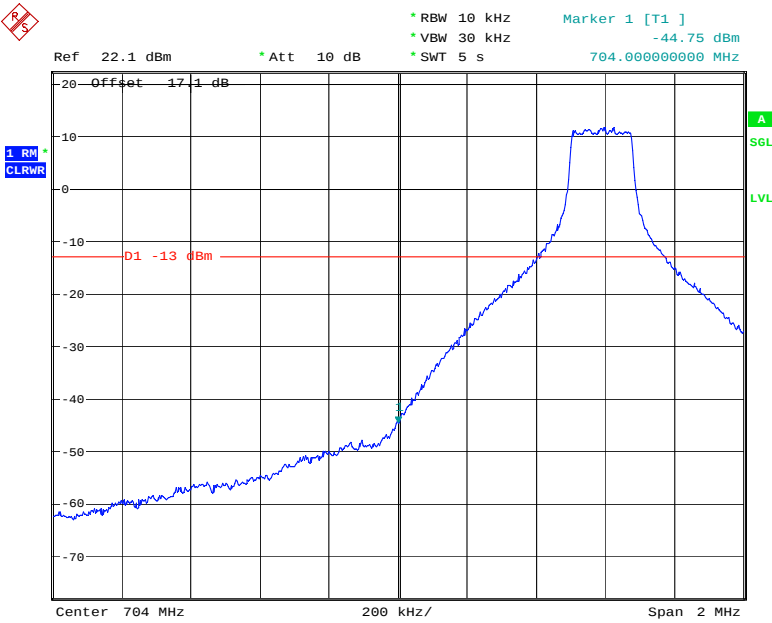


Product Service

10.0 MHz Bandwidth - QPSK

Band Edge (dBm)			
709.0 MHz		711.0 MHz	
1 Resource Block	All Resource Blocks	1 Resource Block	All Resource Blocks
Low		High	
-44.7	-30.4	-42.8	-32.4

709 MHz - 1 Resource Block - Low

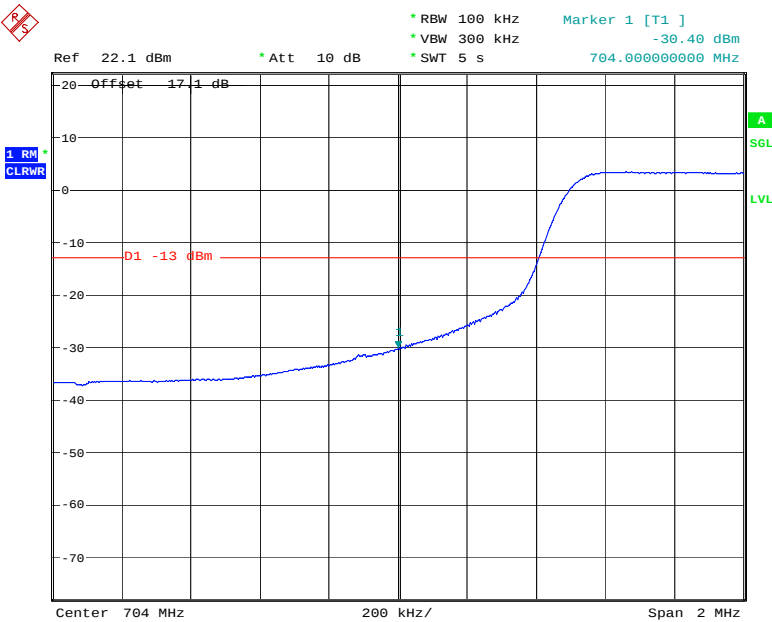


Date: 11.APR.2014 14:40:27



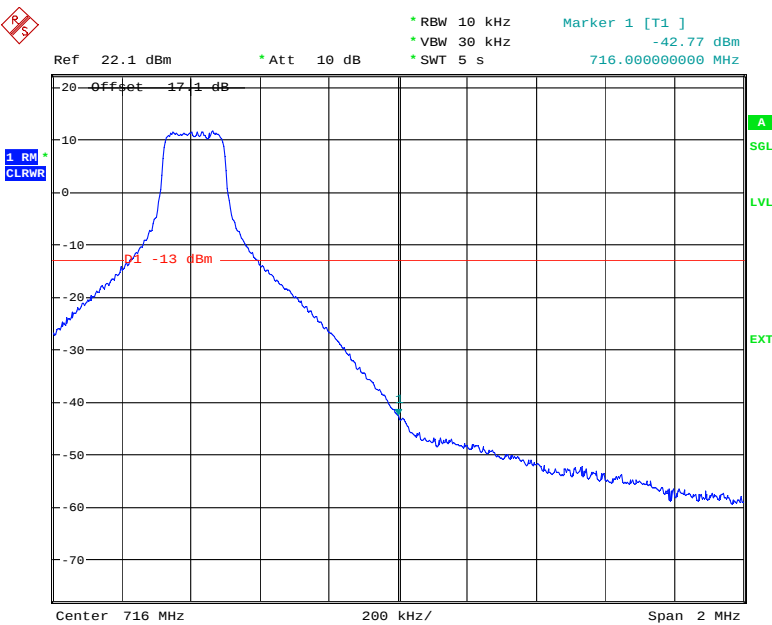
Product Service

709 MHz - All Resource Blocks



Date: 11.APR.2014 12:02:26

711 MHz - 1 Resource Block - High

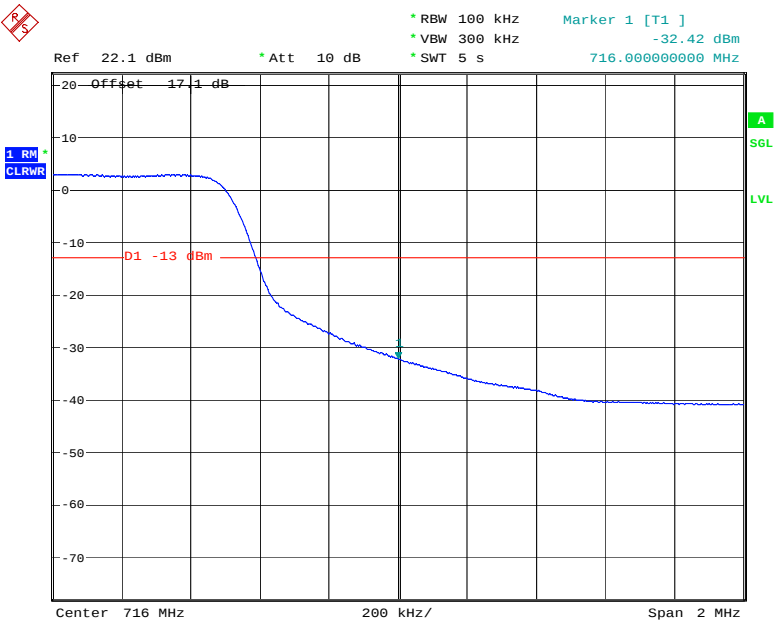


Date: 17.APR.2014 11:48:47



Product Service

711 MHz - All Resource Blocks



Date: 11.APR.2014 13:06:22

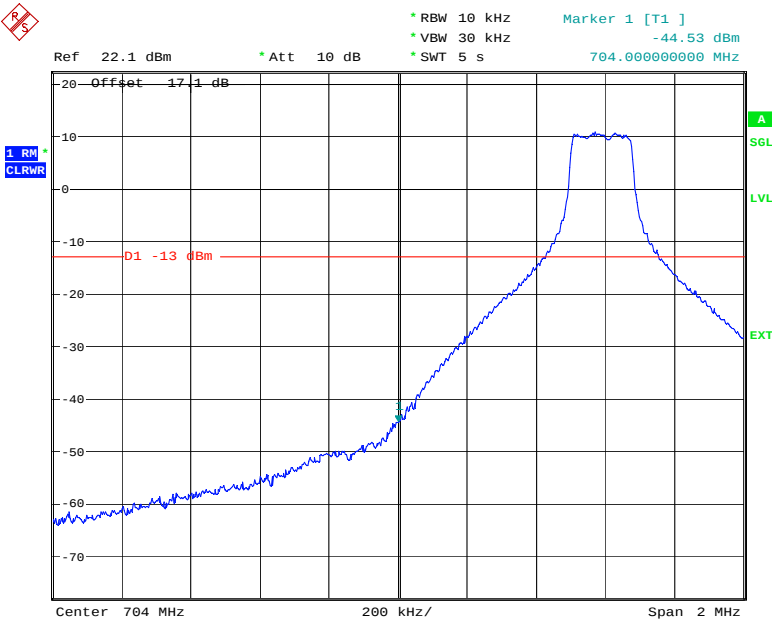


Product Service

10.0 MHz Bandwidth - 16QAM

Band Edge (dBm)			
709.0 MHz		711.0 MHz	
1 Resource Block	All Resource Blocks	1 Resource Block	All Resource Blocks
Low		High	
-44.5	-32.5	-42.8	-33.8

709 MHz - 1 Resource Block - Low

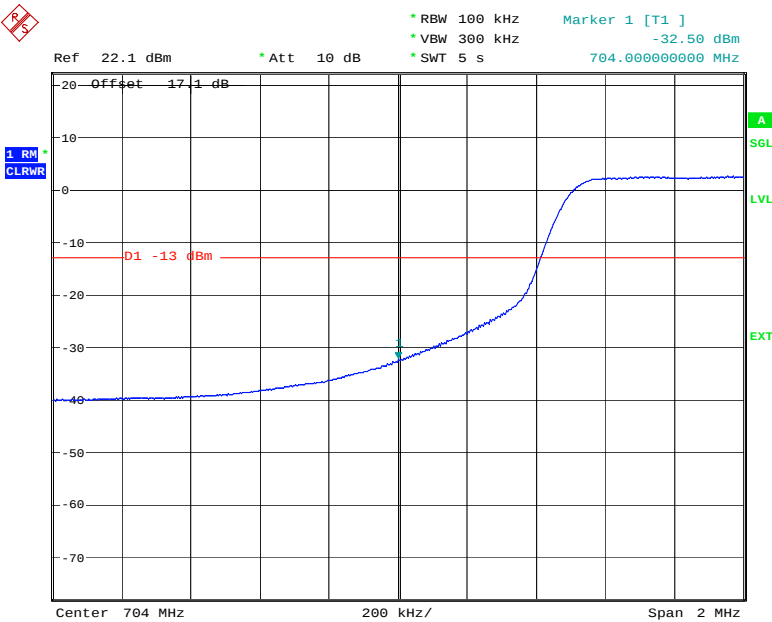


Date: 17.APR.2014 12:00:12



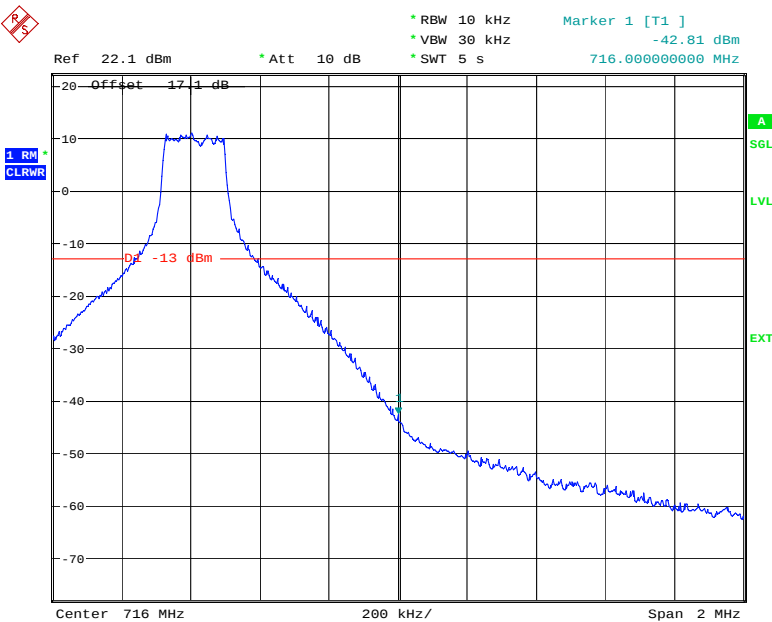
Product Service

709 MHz - All Resource Blocks



Date: 17.APR.2014 11:54:59

711 MHz - 1 Resource Block - High

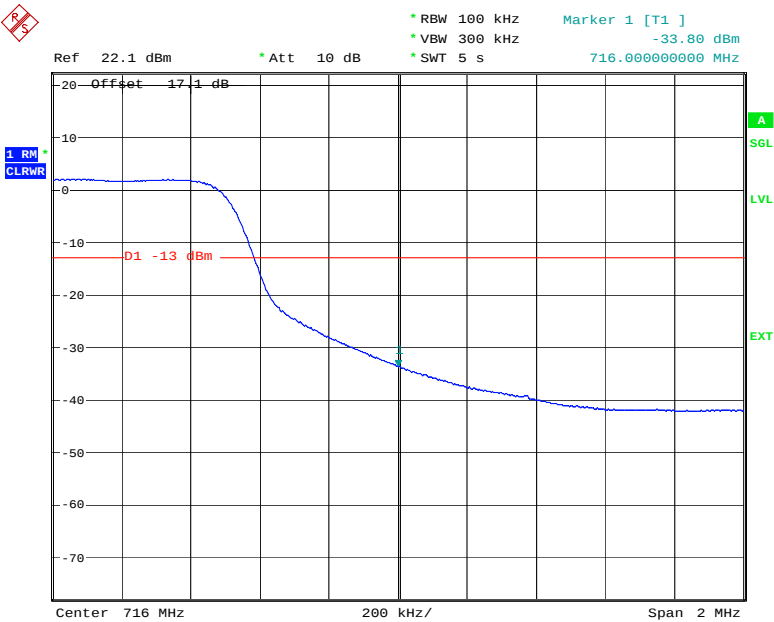


Date: 17.APR.2014 13:57:08



Product Service

711 MHz - All Resource Blocks



Date: 17.APR.2014 14:43:20

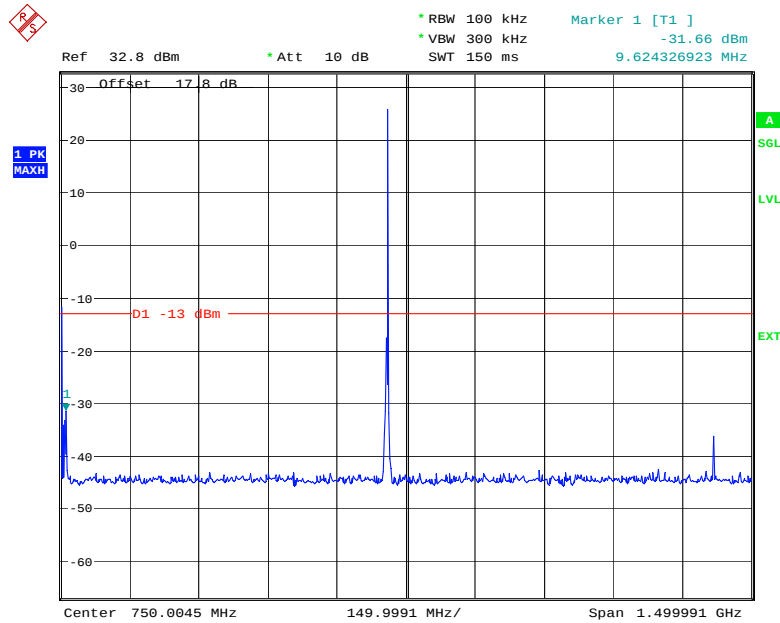


Product Service

Conducted Spurious Emissions Band 1

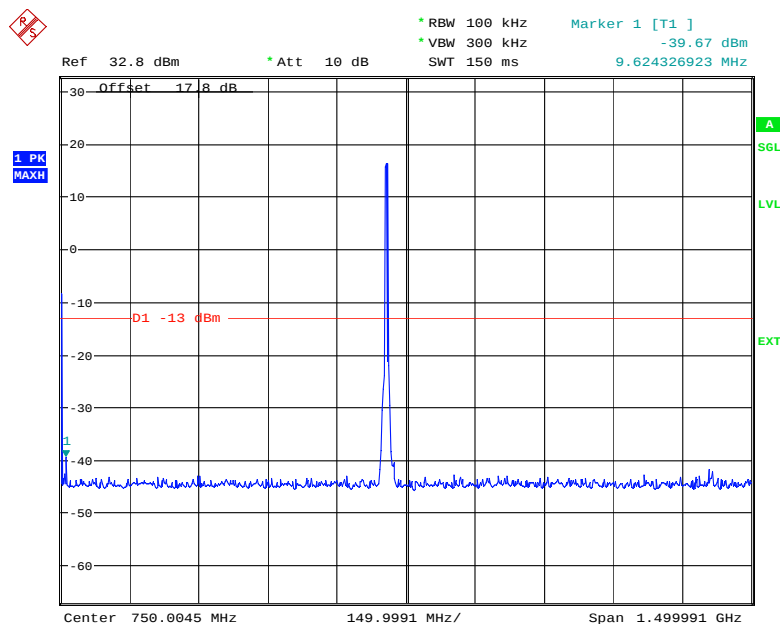
5.0 MHz Bandwidth - QPSK

706.5 MHz - 1 Resource Block - High



Date: 22.APR.2014 09:40:11

706.5 MHz - All Resource Blocks

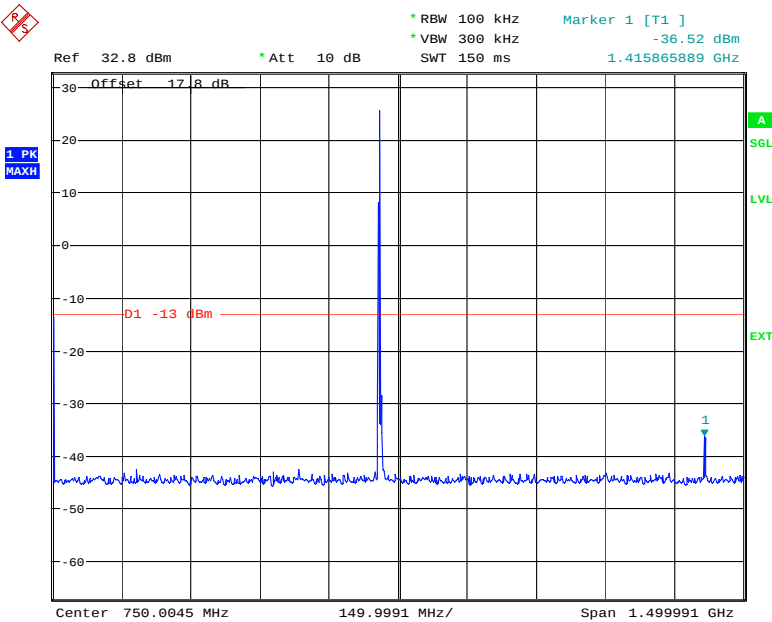


Date: 22.APR.2014 09:26:30



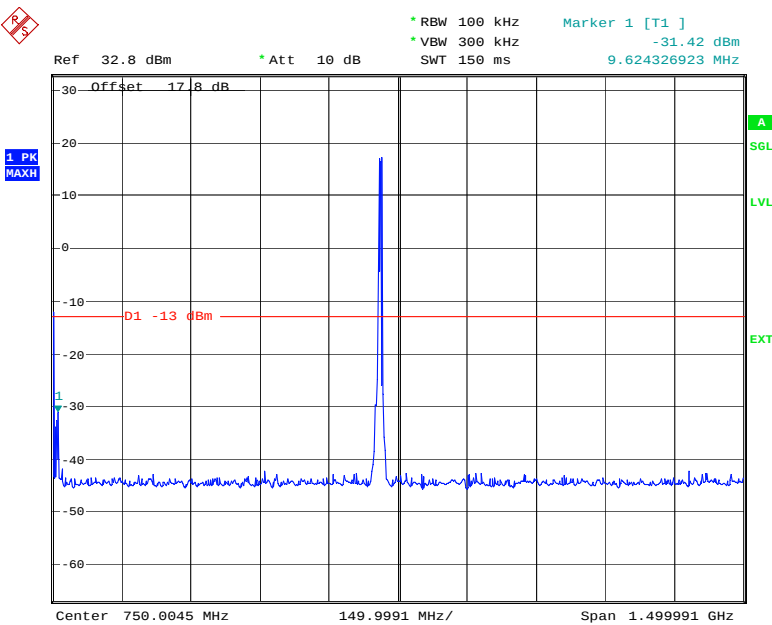
Product Service

710 MHz - 1 Resource Block - Low



Date: 22.APR.2014 12:19:48

710 MHz - All Resource Blocks

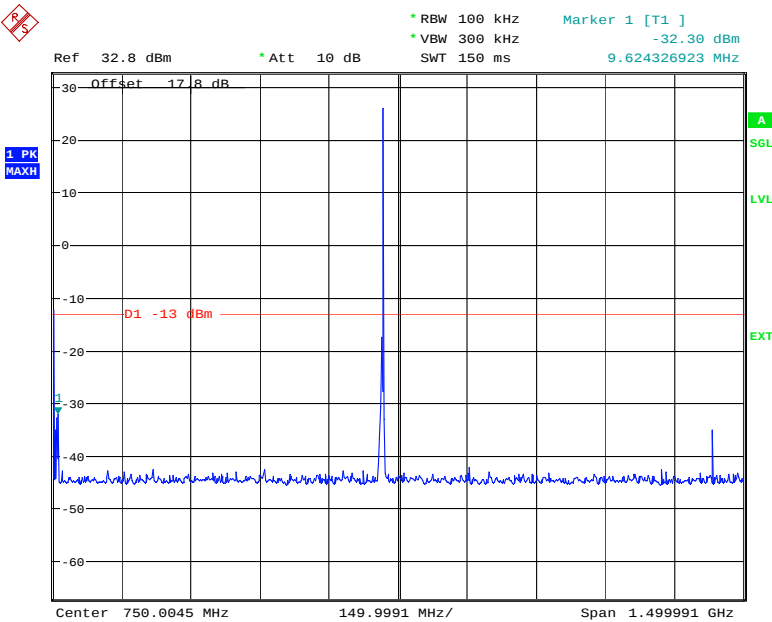


Date: 22.APR.2014 09:47:28



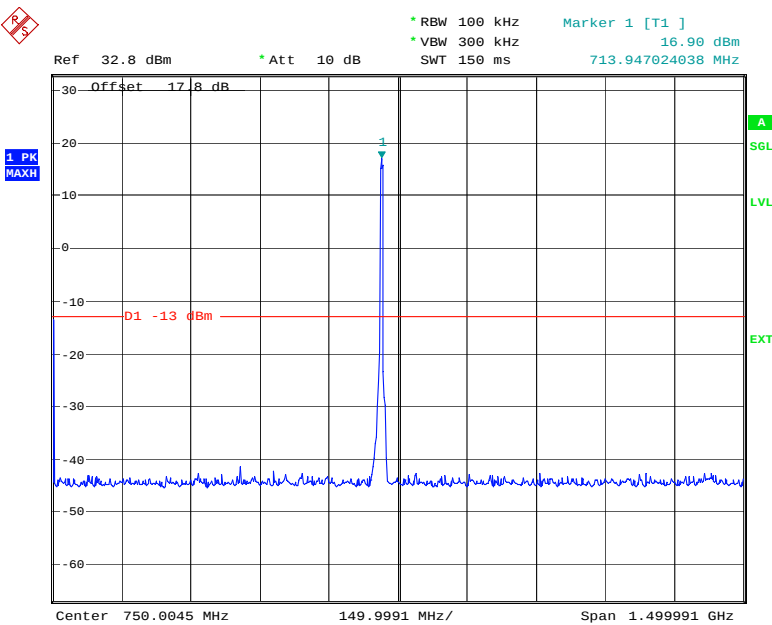
Product Service

713.5 MHz - 1 Resource Block - High



Date: 22.APR.2014 10:14:35

713.5 MHz - All Resource Blocks



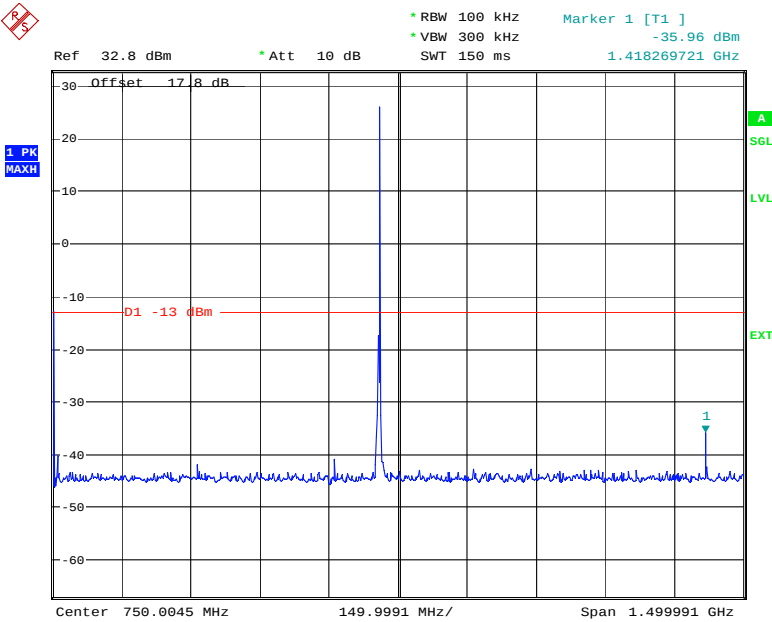
Date: 22.APR.2014 12:25:44



Product Service

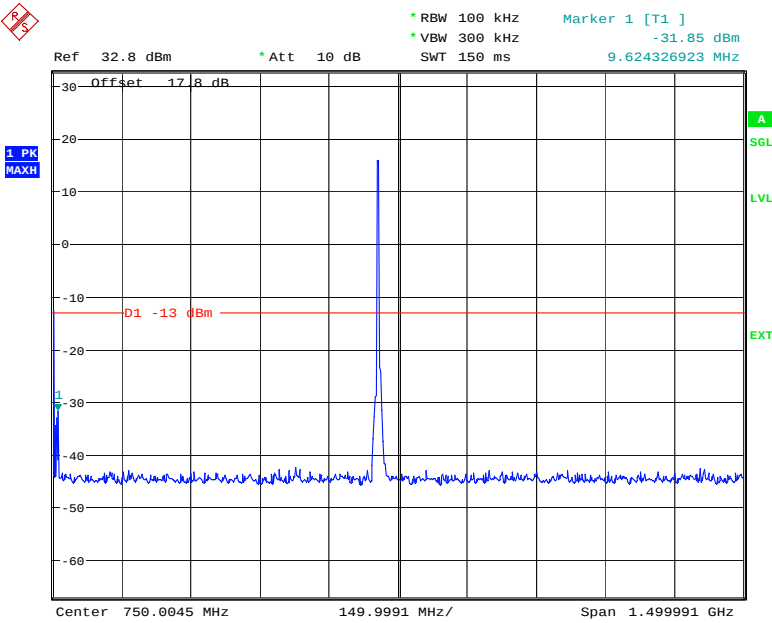
5.0 MHz Bandwidth - 16QAM

706.5 MHz - 1 Resource Block - High



Date: 22.APR.2014 10:37:59

706.5 MHz - All Resource Blocks

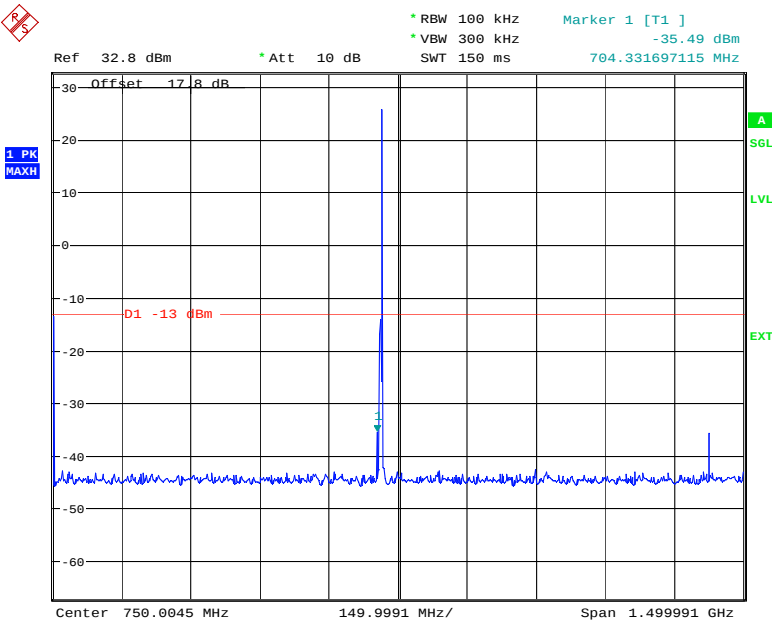


Date: 22.APR.2014 10:27:58



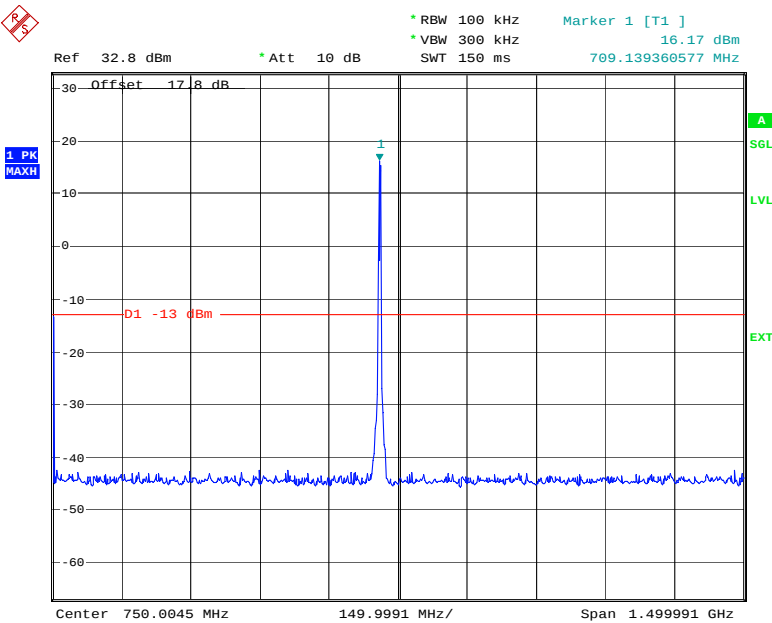
Product Service

710 MHz - 1 Resource Block - High



Date: 22.APR.2014 12:11:16

710 MHz - All Resource Blocks

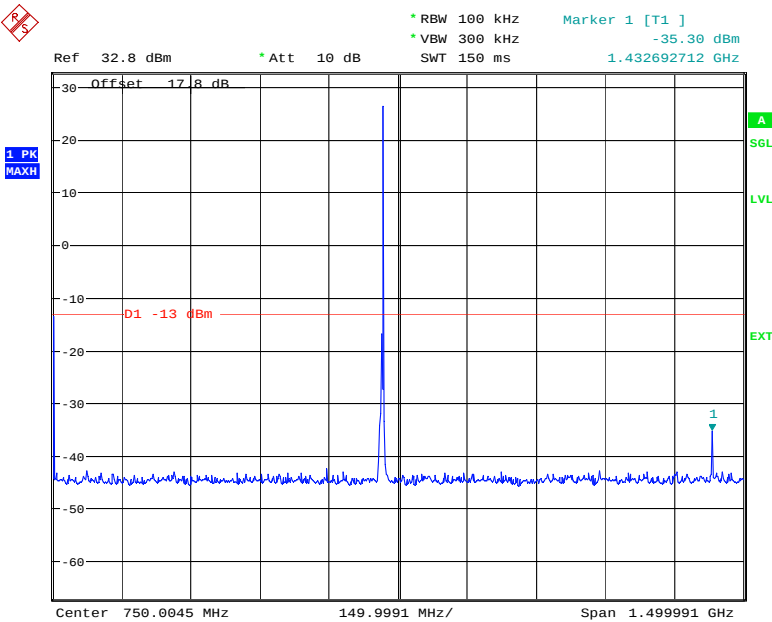


Date: 22.APR.2014 12:05:13



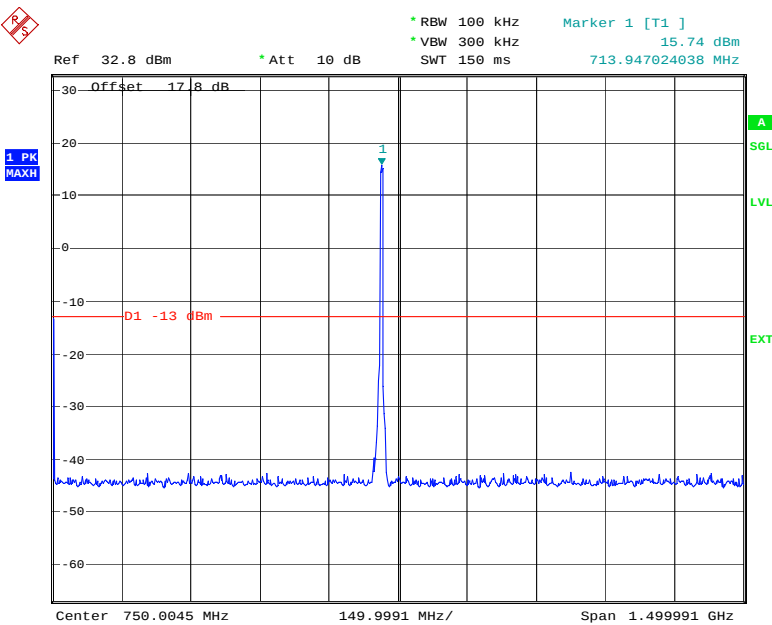
Product Service

713.5 MHz - 1 Resource Block - High



Date: 22.APR.2014 11:50:14

713.5 MHz - All Resource Blocks



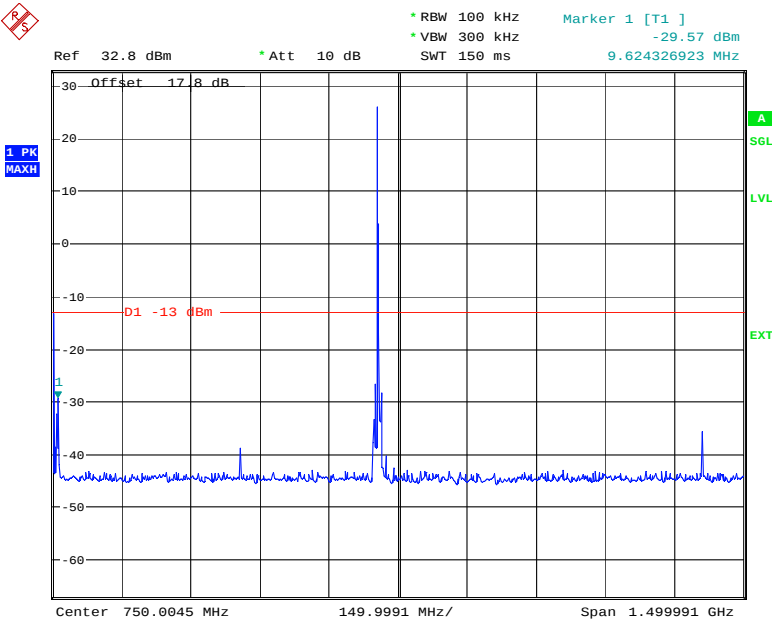
Date: 22.APR.2014 11:54:43



Product Service

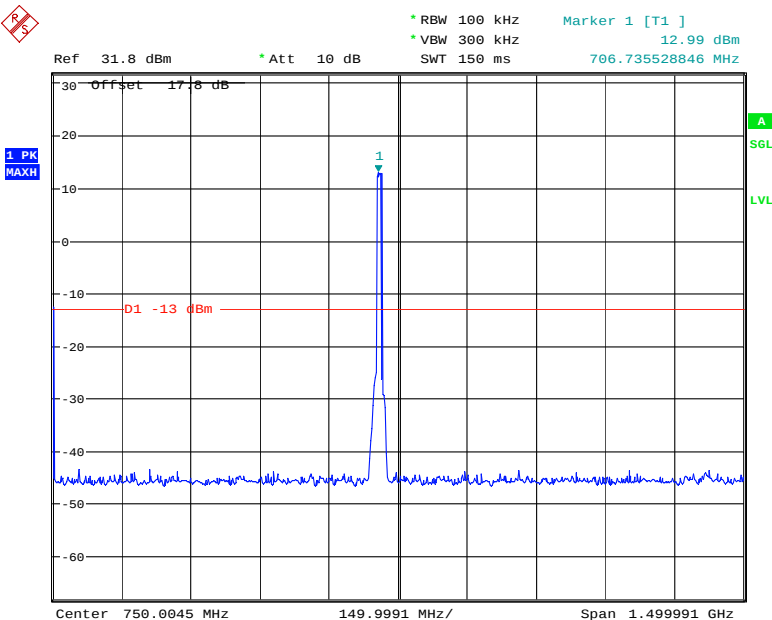
10.0 MHz Bandwidth - QPSK

709 MHz - 1 Resource Block - Low



Date: 22.APR.2014 13:41:50

709 MHz - All Resource Blocks

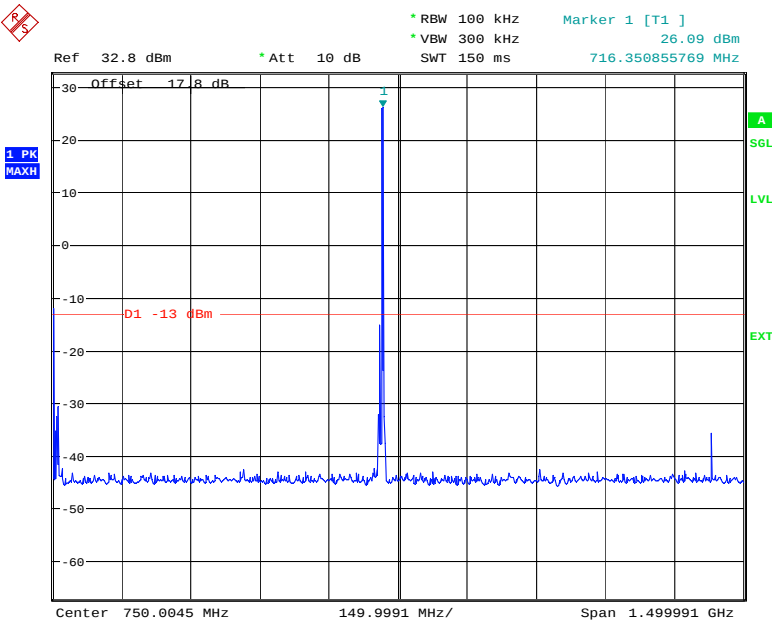


Date: 11.APR.2014 12:03:59



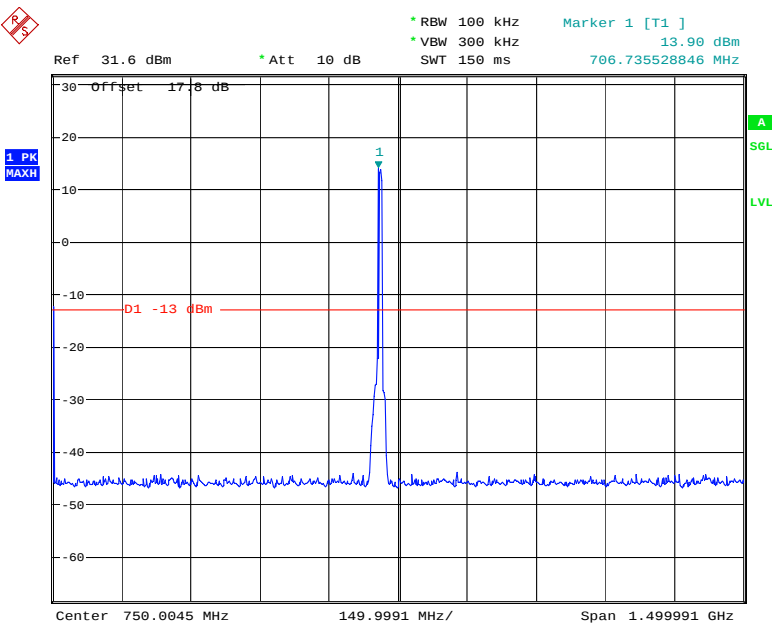
Product Service

710 MHz - 1 Resource Block - High



Date: 17.APR.2014 15:04:28

710 MHz - All Resource Blocks

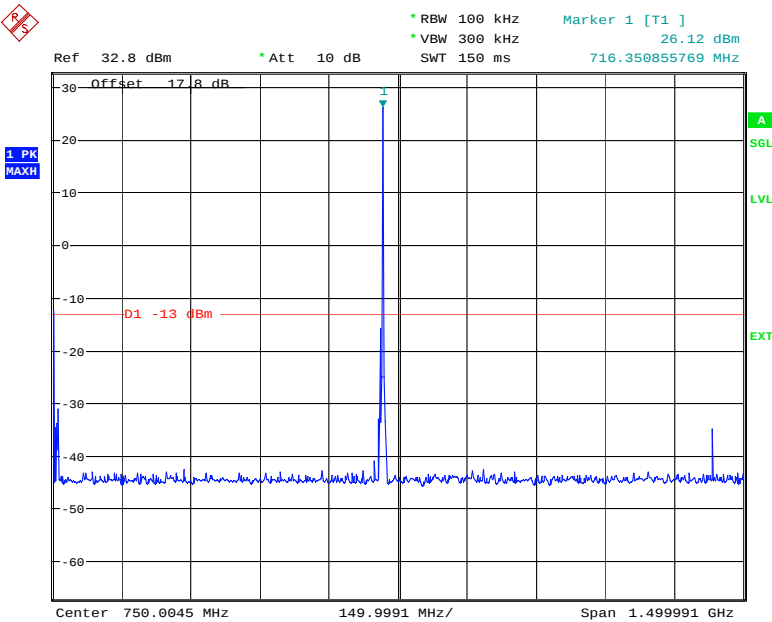


Date: 11.APR.2014 13:02:46



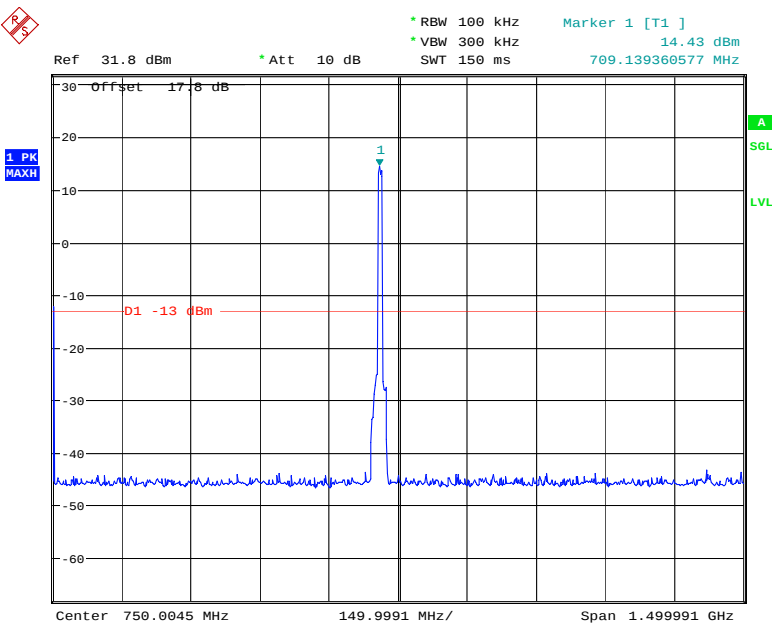
Product Service

711 MHz - 1 Resource Block - High



Date: 17.APR.2014 11:50:22

711 MHz - All Resource Blocks



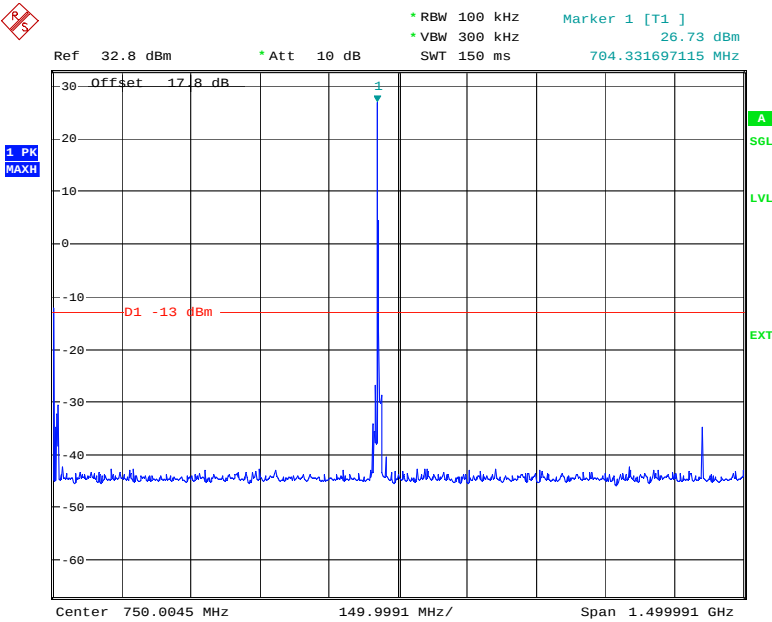
Date: 11.APR.2014 13:09:18



Product Service

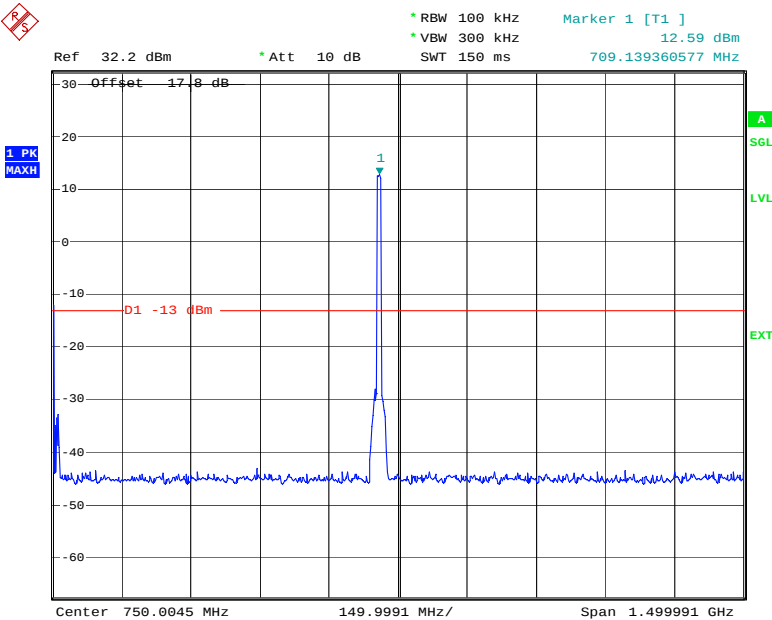
10.0 MHz Bandwidth - 16QAM

709 MHz - 1 Resource Block - Low



Date: 17.APR.2014 12:01:47

709 MHz - All Resource Blocks

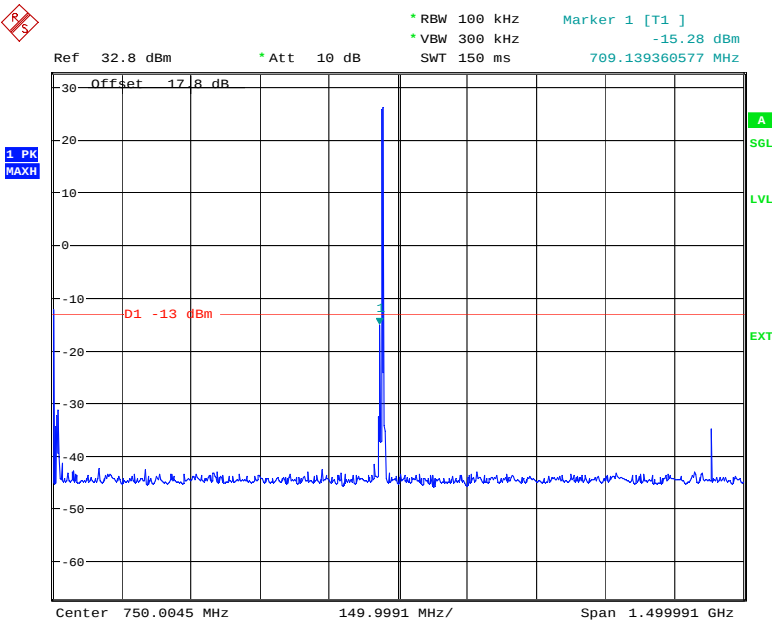


Date: 17.APR.2014 11:56:32



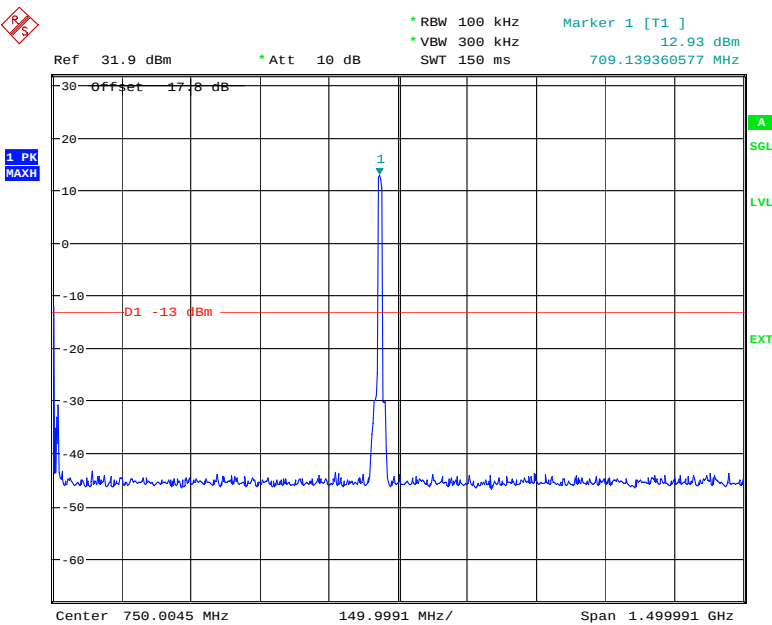
Product Service

710 MHz - 1 Resource Block - High



Date: 17.APR.2014 14:50:23

710 MHz - All Resource Blocks

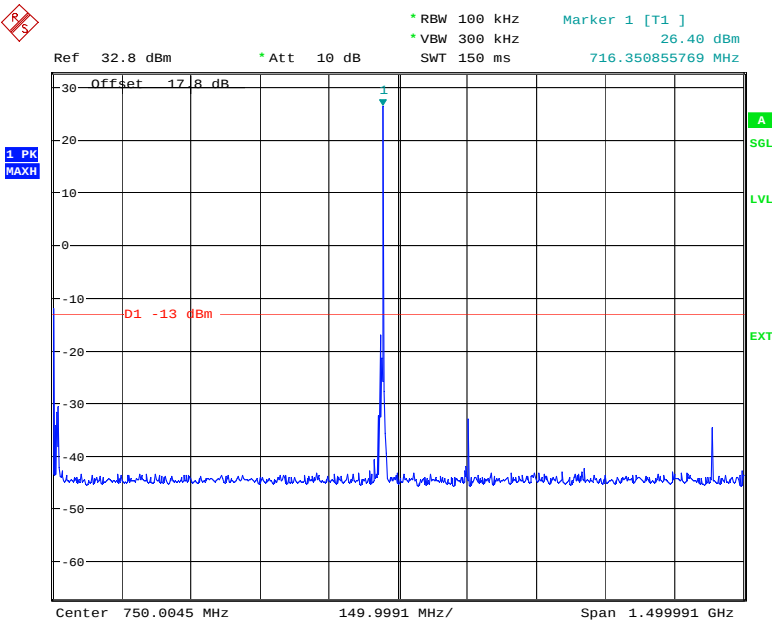


Date: 17.APR.2014 12:13:32



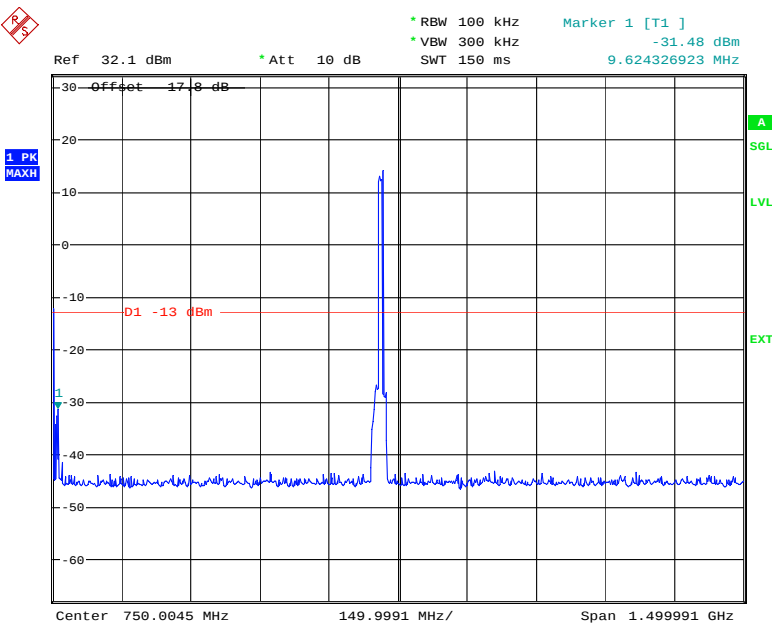
Product Service

711 MHz - 1 Resource Block - High



Date: 17.APR.2014 13:53:50

711 MHz - All Resource Blocks



Date: 17.APR.2014 14:44:48

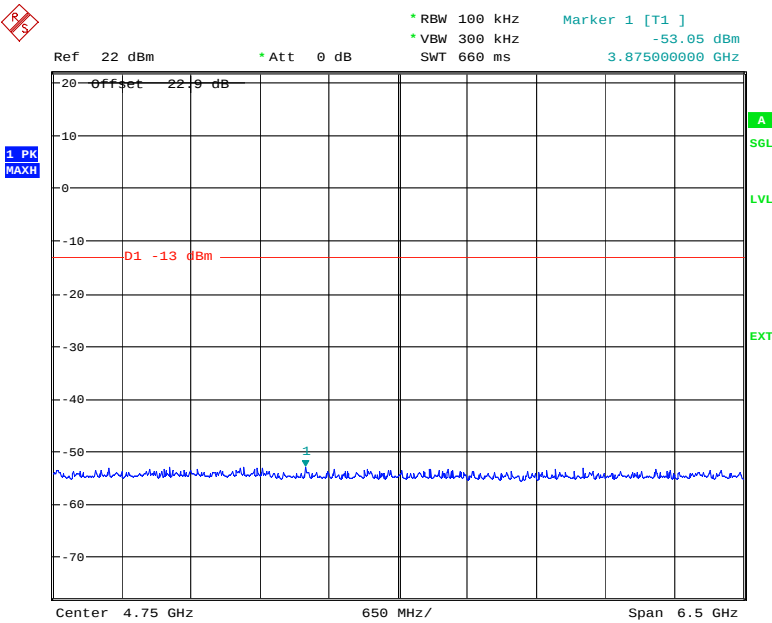


Product Service

Conducted Spurious Emissions Band 2

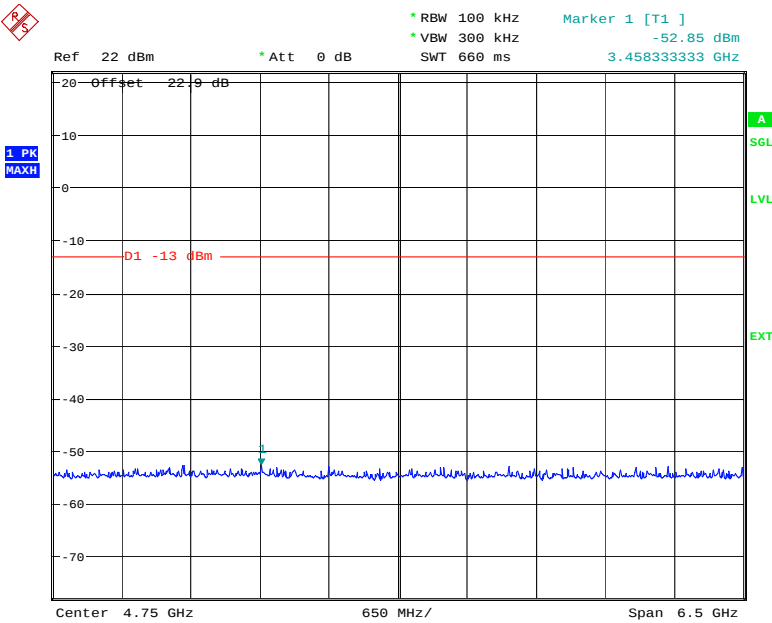
5.0 MHz Bandwidth - QPSK

706.5 MHz - 1 Resource Block - High



Date: 22.APR.2014 14:05:38

706.5 MHz - All Resource Blocks

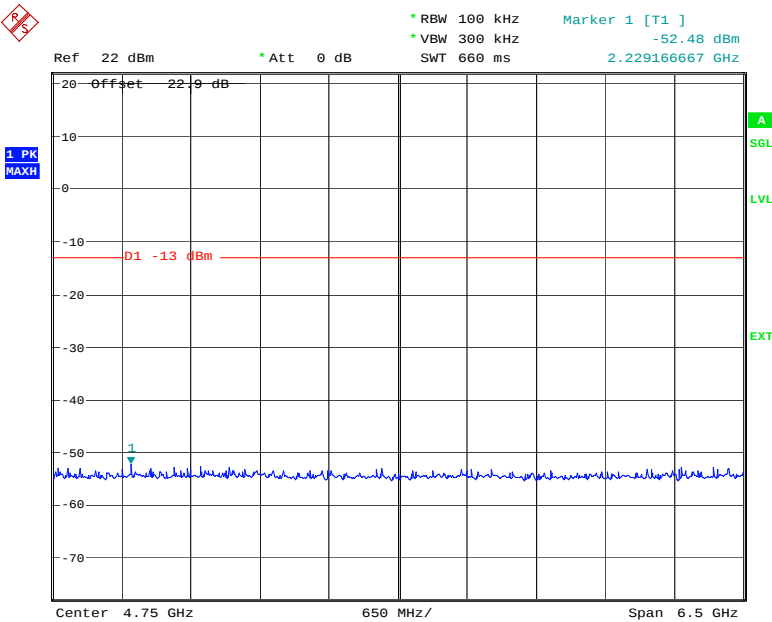


Date: 22.APR.2014 14:11:05



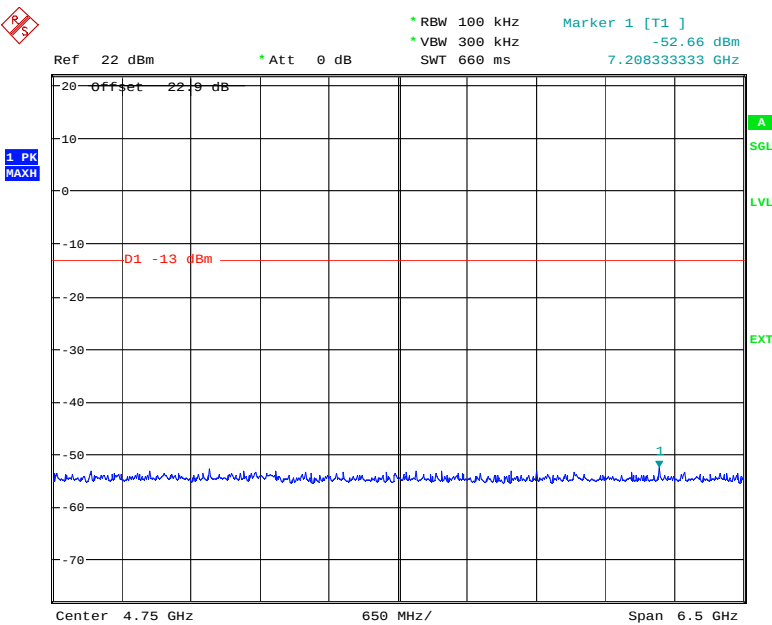
Product Service

710 MHz - 1 Resource Block - Low



Date: 22.APR.2014 14:21:21

710 MHz - All Resource Blocks

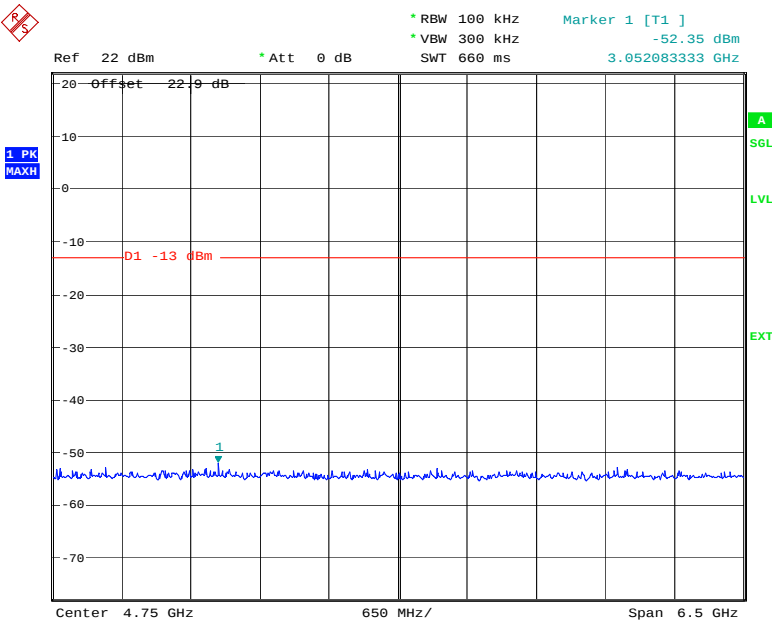


Date: 22.APR.2014 14:16:18



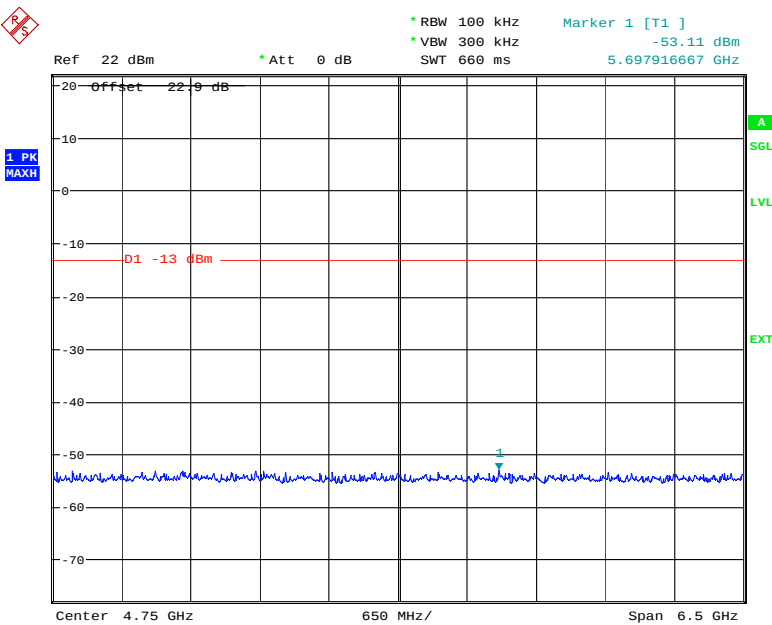
Product Service

713.5 MHz - 1 Resource Block - High



Date: 22.APR.2014 14:25:54

713.5 MHz - All Resource Blocks



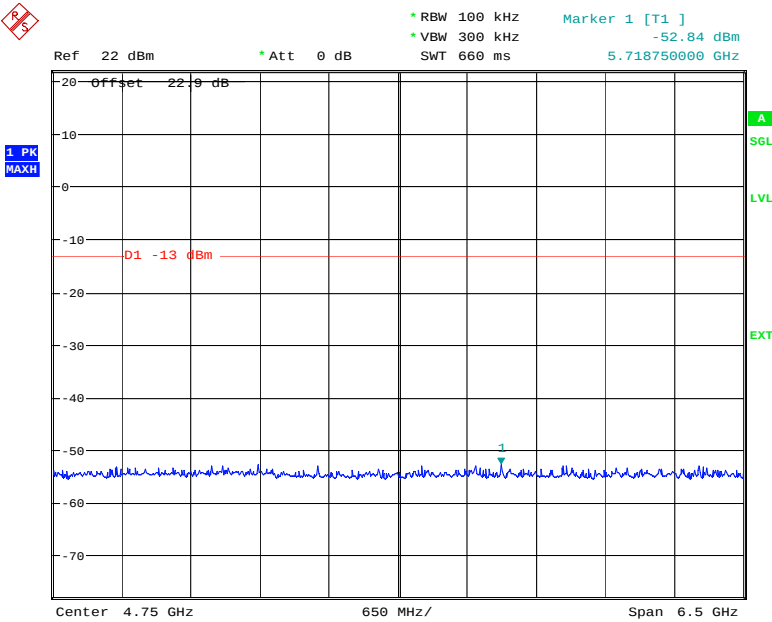
Date: 22.APR.2014 14:48:09



Product Service

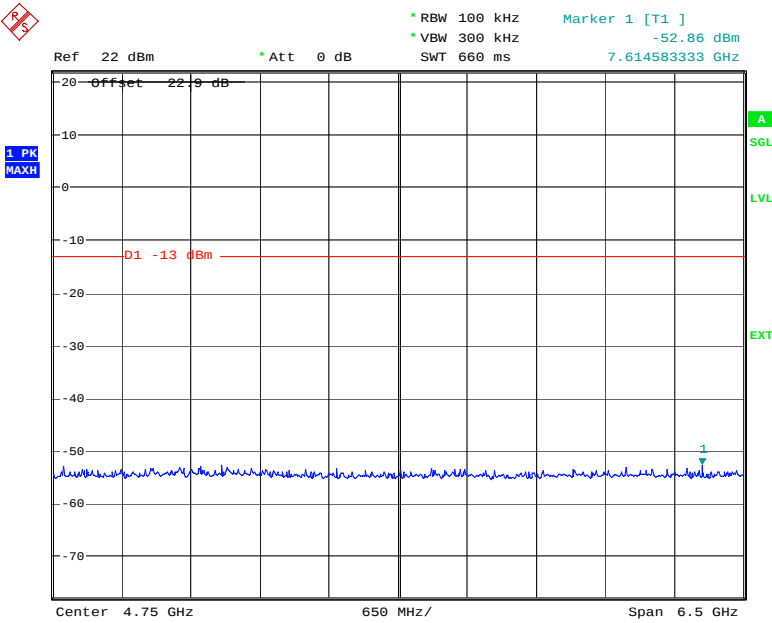
5.0 MHz Bandwidth - 16QAM

706.5 MHz - 1 Resource Block - High



Date: 22.APR.2014 15:05:47

706.5 MHz - All Resource Blocks

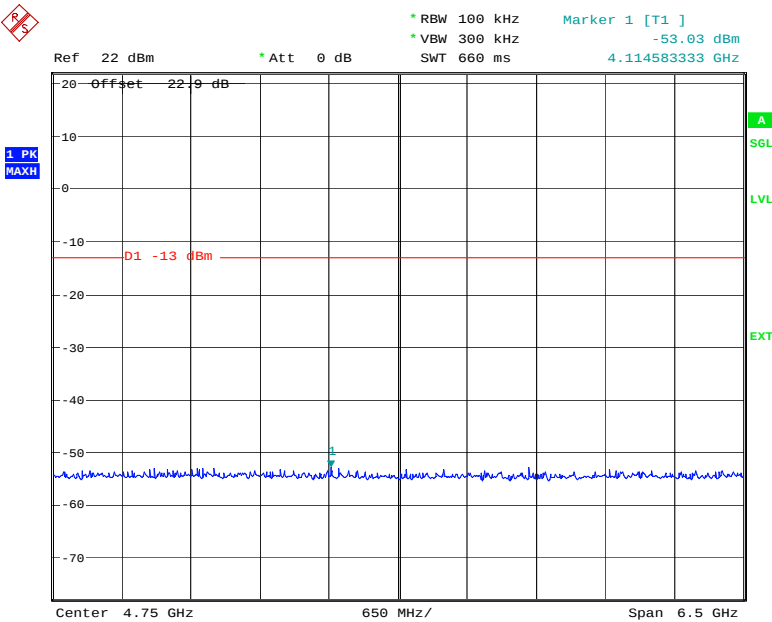


Date: 22.APR.2014 15:00:36



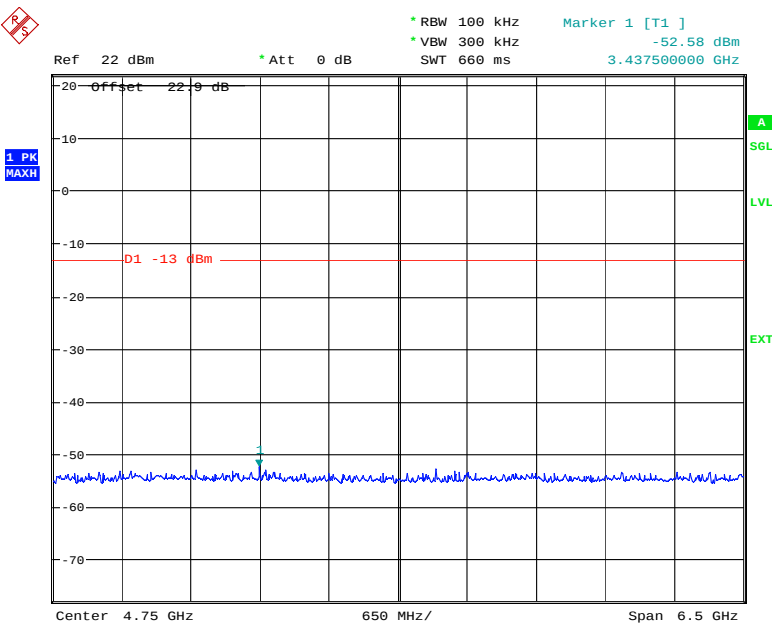
Product Service

710 MHz - 1 Resource Block - High



Date: 22.APR.2014 15:23:58

710 MHz - All Resource Blocks

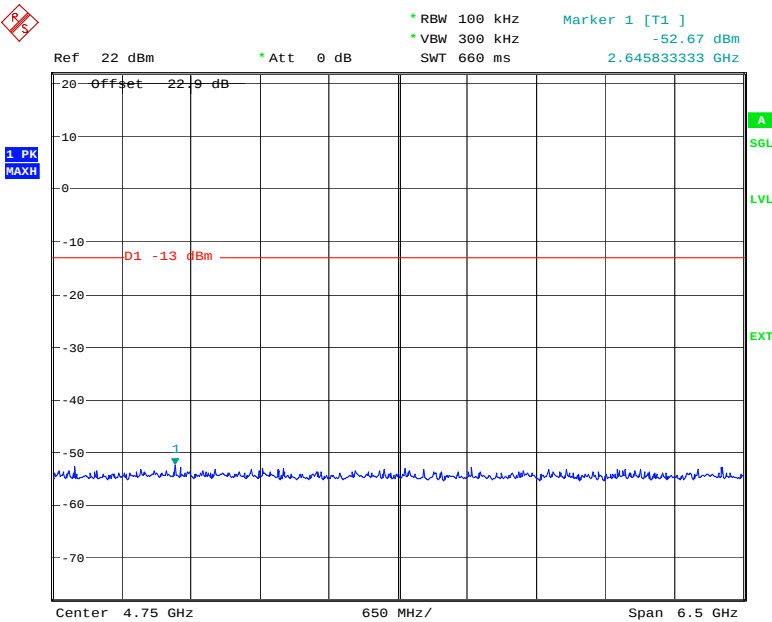


Date: 22.APR.2014 15:28:53



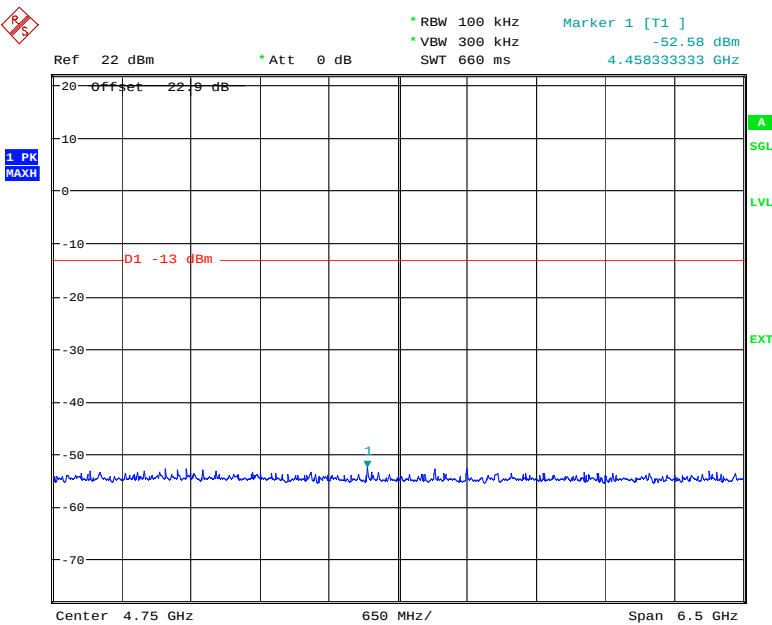
Product Service

713.5 MHz - 1 Resource Block - High



Date: 22.APR.2014 15:39:51

713.5 MHz - All Resource Blocks



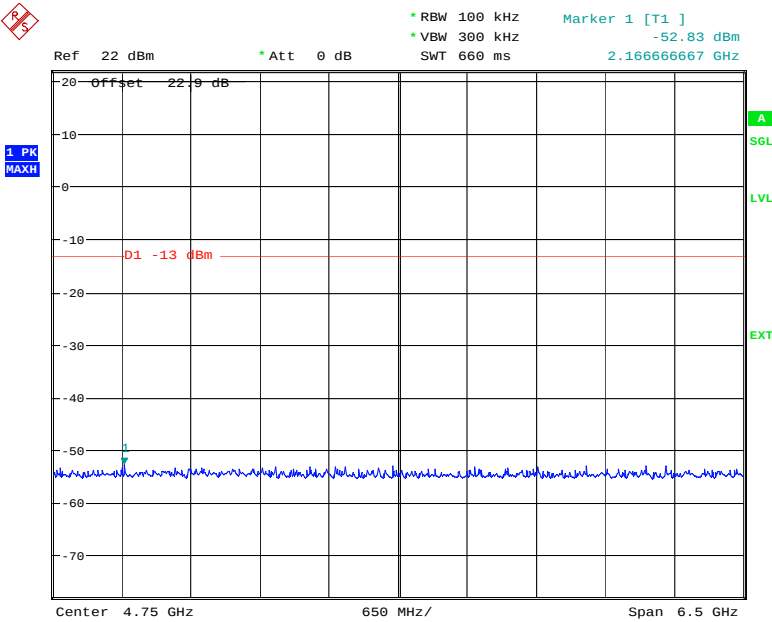
Date: 22.APR.2014 15:34:55



Product Service

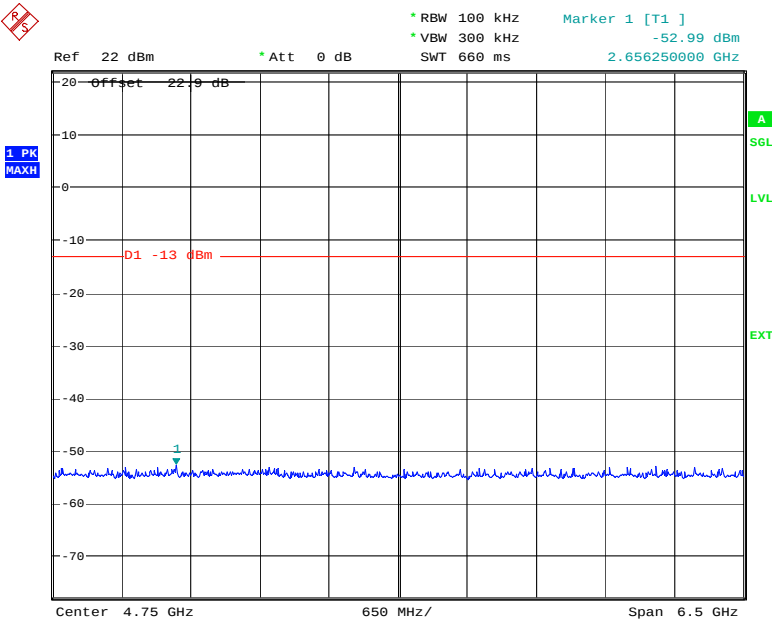
10.0 MHz Bandwidth - QPSK

709 MHz - 1 Resource Block - Low



Date: 22.APR.2014 15:54:35

709 MHz - All Resource Blocks

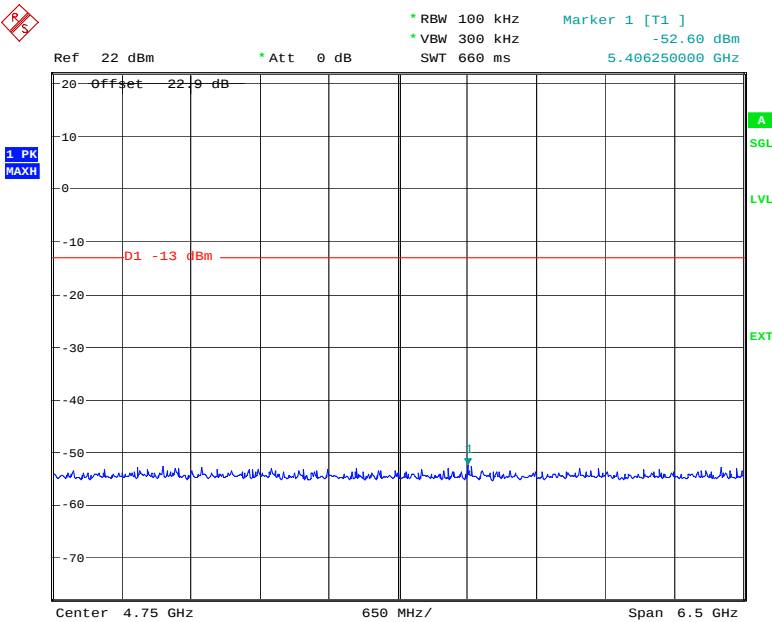


Date: 22.APR.2014 15:59:59



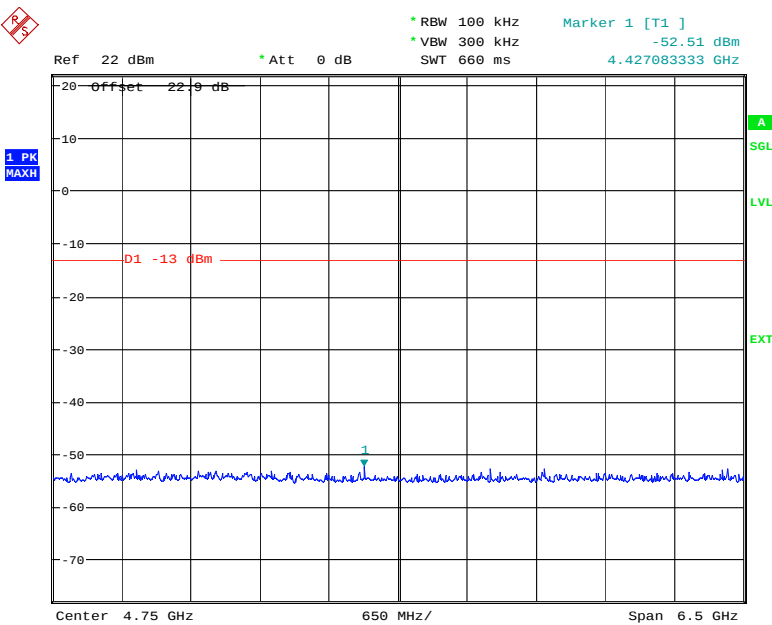
Product Service

710 MHz - 1 Resource Block - High



Date: 22.APR.2014 16:48:23

710 MHz - All Resource Blocks

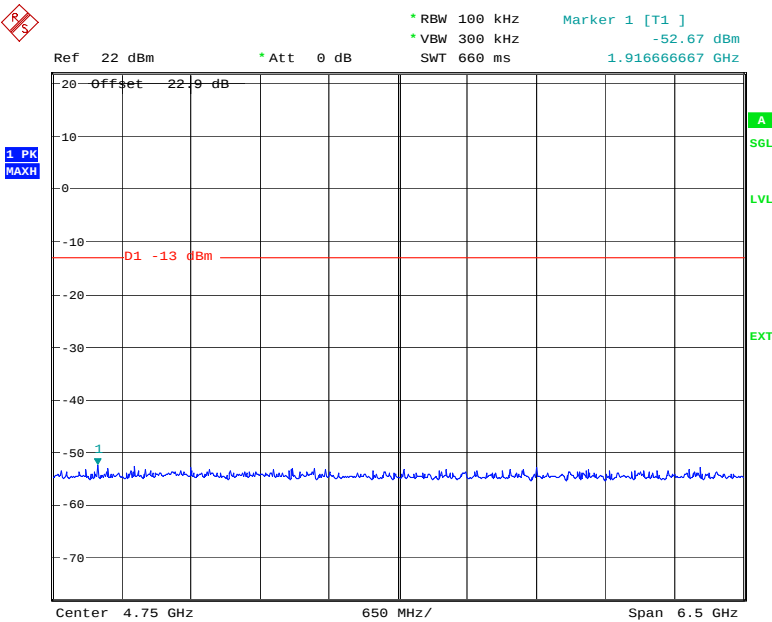


Date: 22.APR.2014 16:37:58



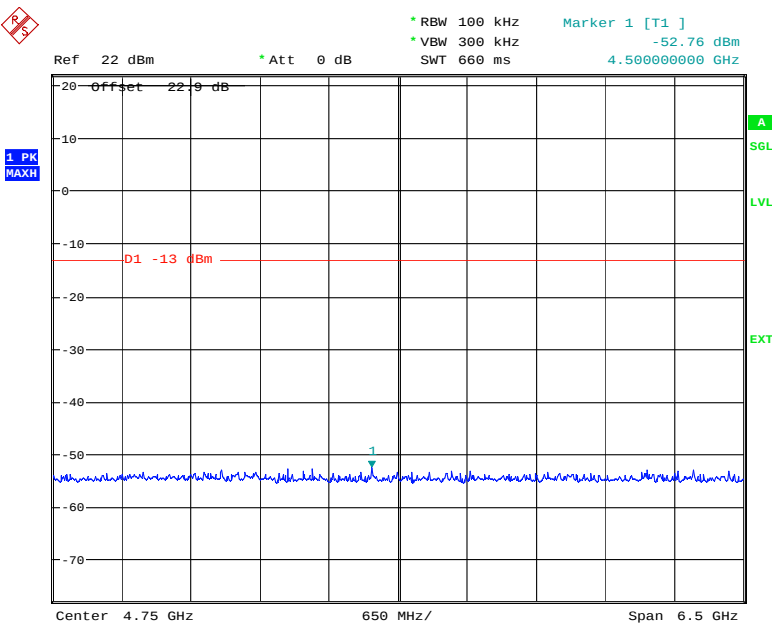
Product Service

711 MHz - 1 Resource Block - High



Date: 22.APR.2014 16:54:43

711 MHz - All Resource Blocks



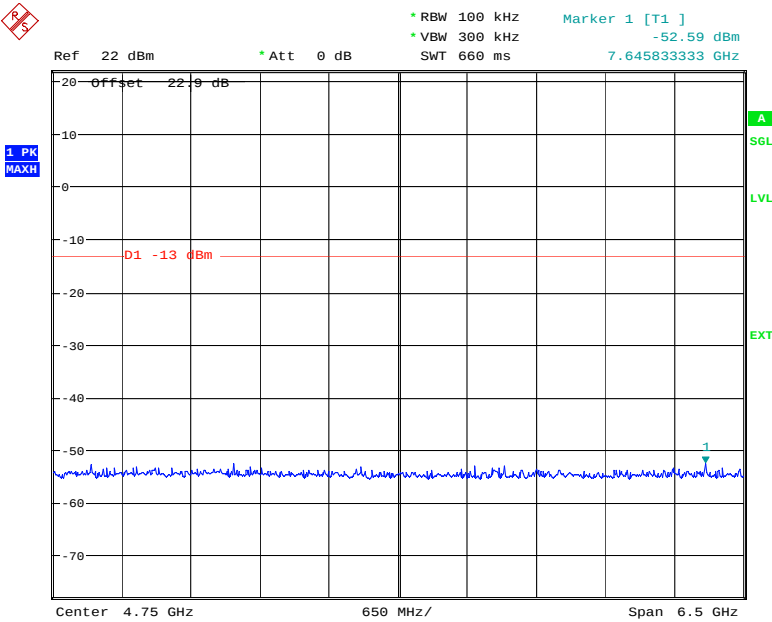
Date: 22.APR.2014 17:01:44



Product Service

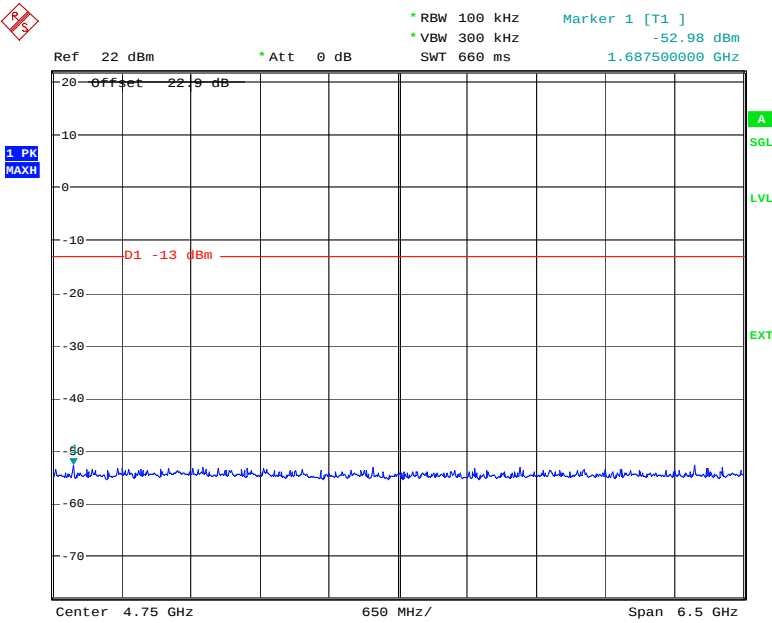
10.0 MHz Bandwidth - 16QAM

709 MHz - 1 Resource Block - Low



Date: 22.APR.2014 17:15:21

709 MHz - All Resource Blocks

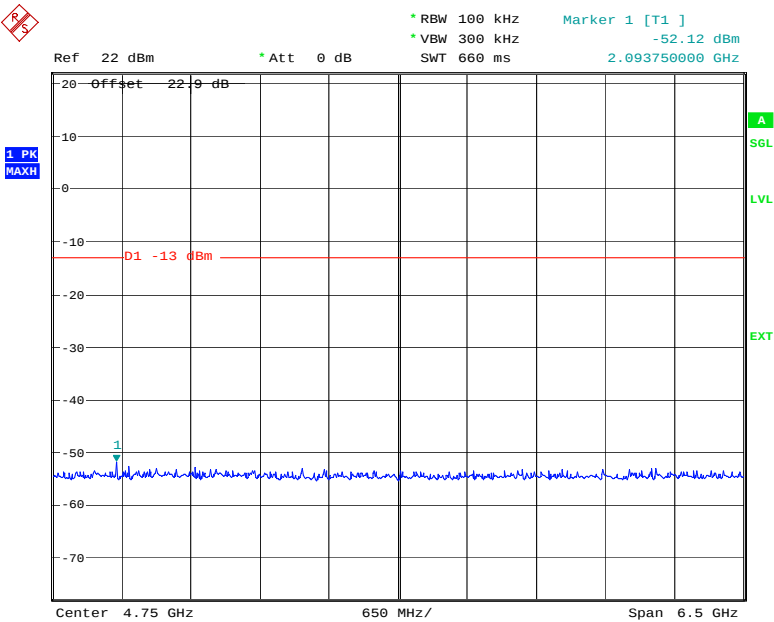


Date: 22.APR.2014 17:06:39



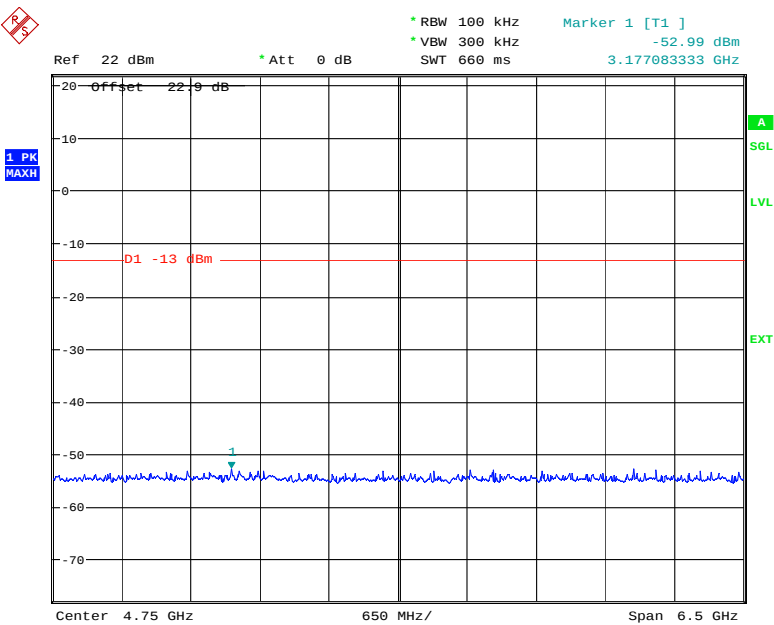
Product Service

710 MHz - 1 Resource Block - High



Date: 22.APR.2014 17:26:50

710 MHz - All Resource Blocks

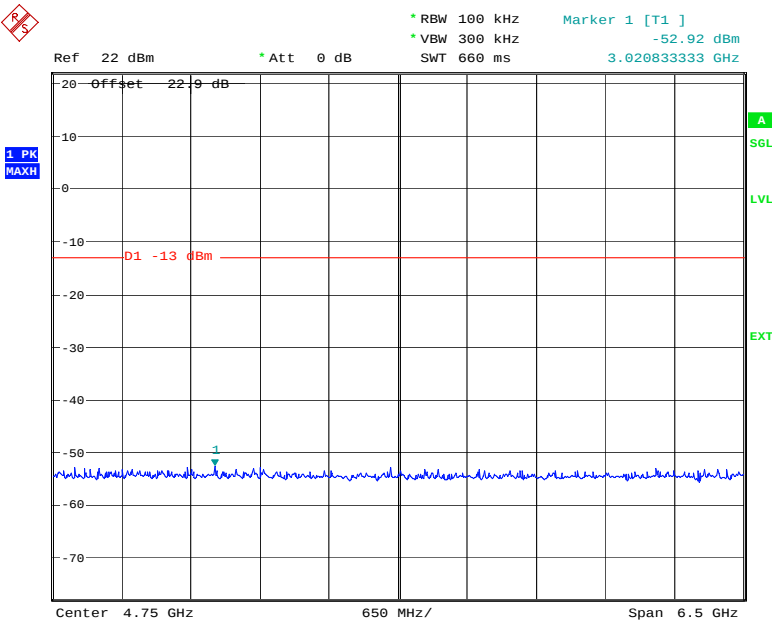


Date: 22.APR.2014 17:21:52



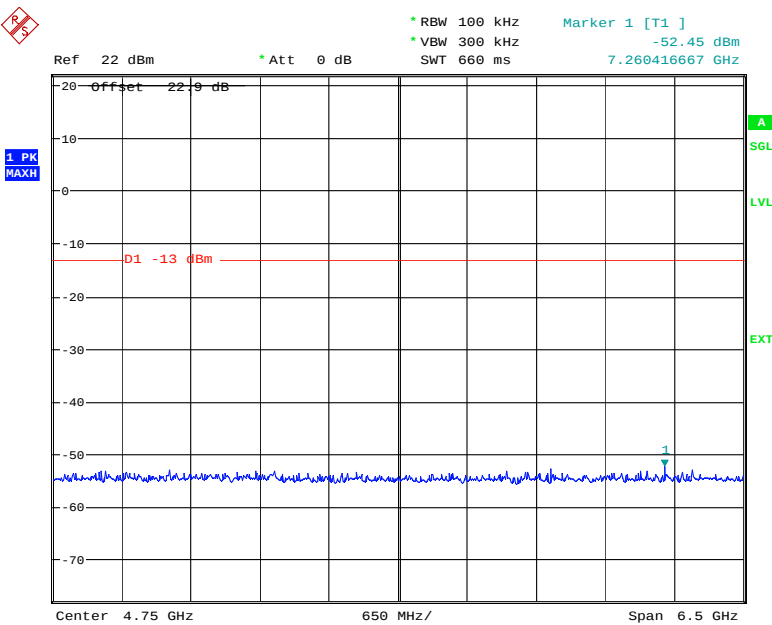
Product Service

711 MHz - 1 Resource Block - High



Date: 22.APR.2014 17:31:27

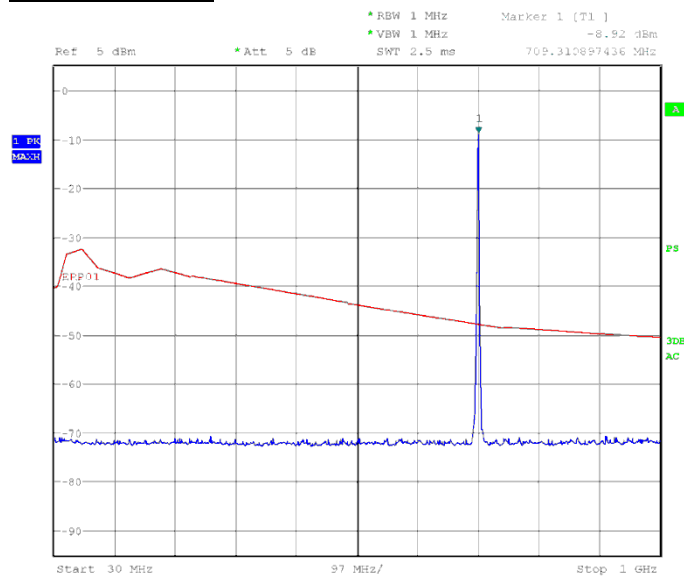
711 MHz - All Resource Blocks



Date: 22.APR.2014 17:35:58



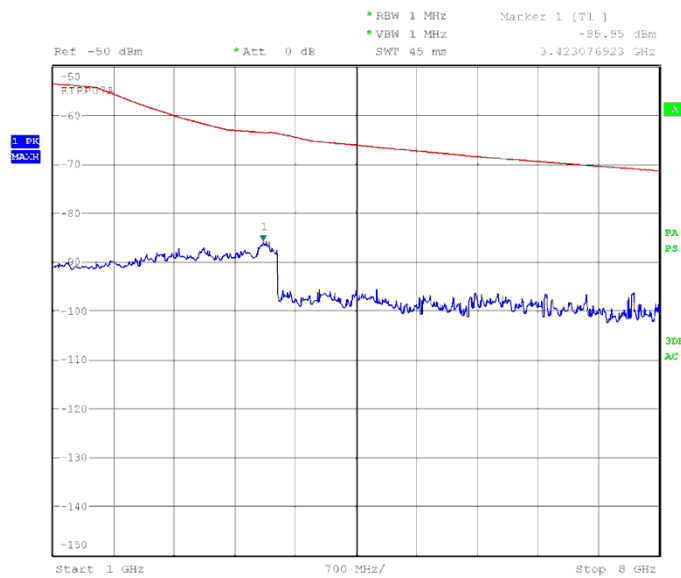
Product Service

Radiated**Radiated Emissions**5.0 MHz Bandwidth – QPSK1 Resource Block - High706.5 MHz30 MHz to 1 GHz

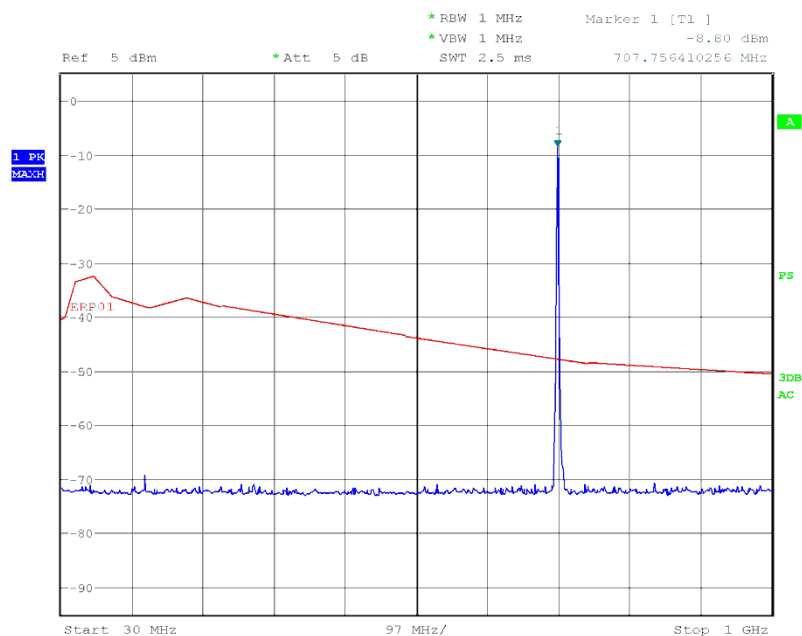
Date: 13.APR.2014 08:34:10



Product Service

1 GHz to 8 GHz

Date: 13.APR.2014 15:36:01

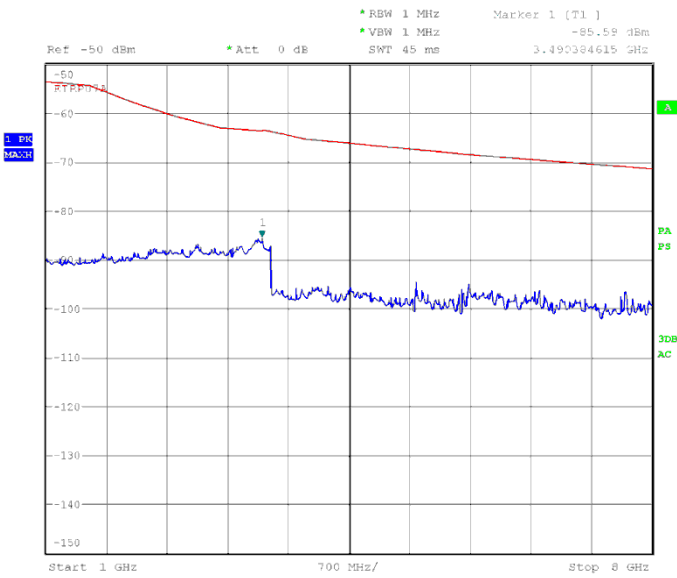
710.0 MHz30 MHz to 1 GHz

Date: 13.APR.2014 09:21:01



Product Service

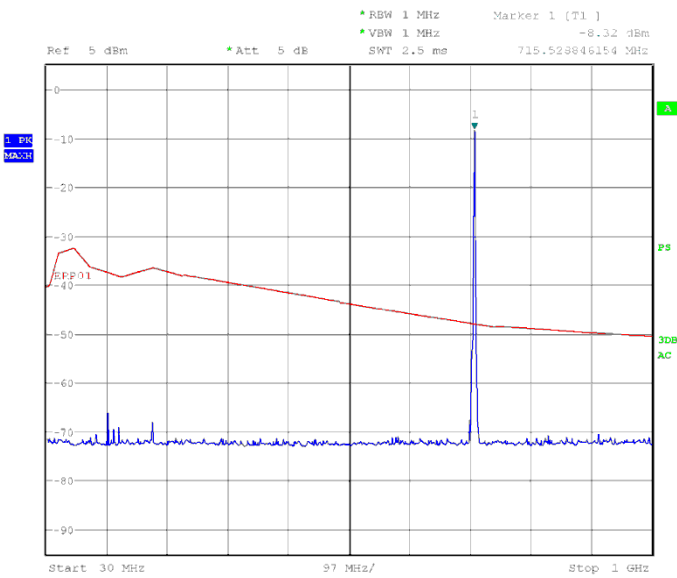
1 GHz to 8 GHz



Date: 13.APR.2014 15:37:26

713.5 MHz

30 MHz to 1 GHz

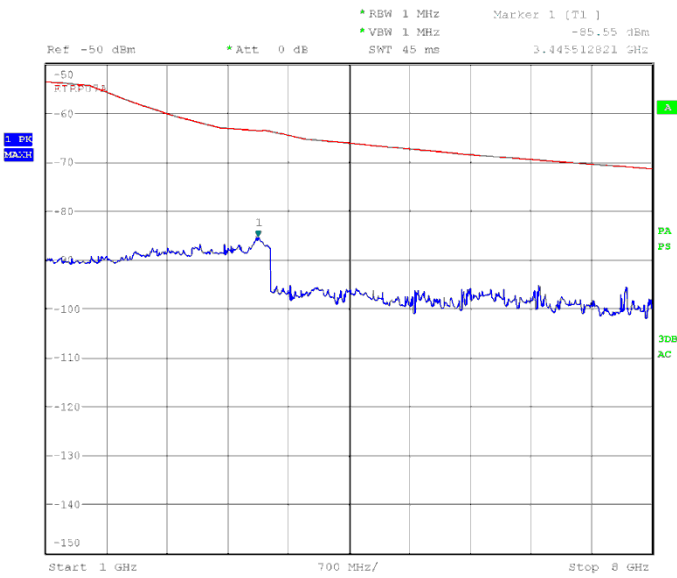


Date: 13.APR.2014 10:39:12



Product Service

1 GHz to 8 GHz



Date: 13.APR.2014 15:40:05



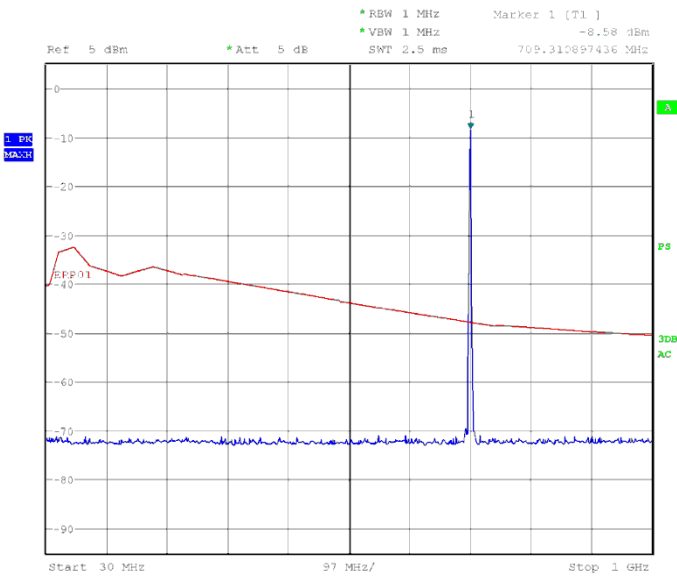
Product Service

5.0 MHz Bandwidth – 16QAM

1 Resource Block - High

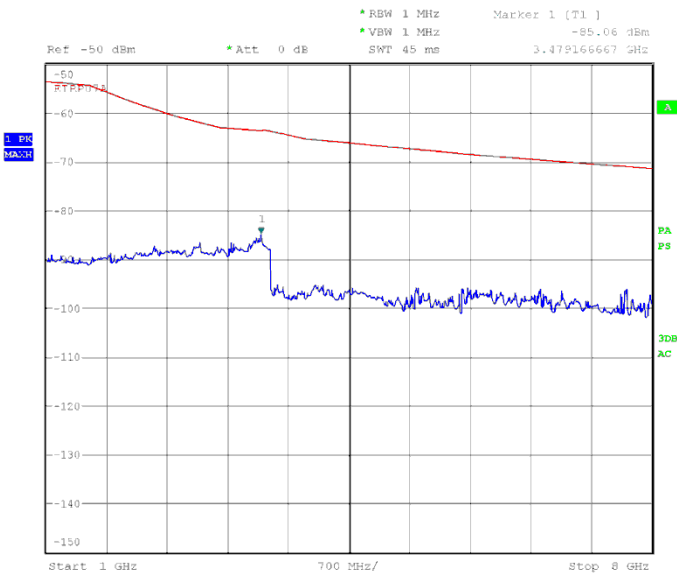
706.5 MHz

30 MHz to 1 GHz



Date: 13.APR.2014 10:45:11

1 GHz to 8 GHz



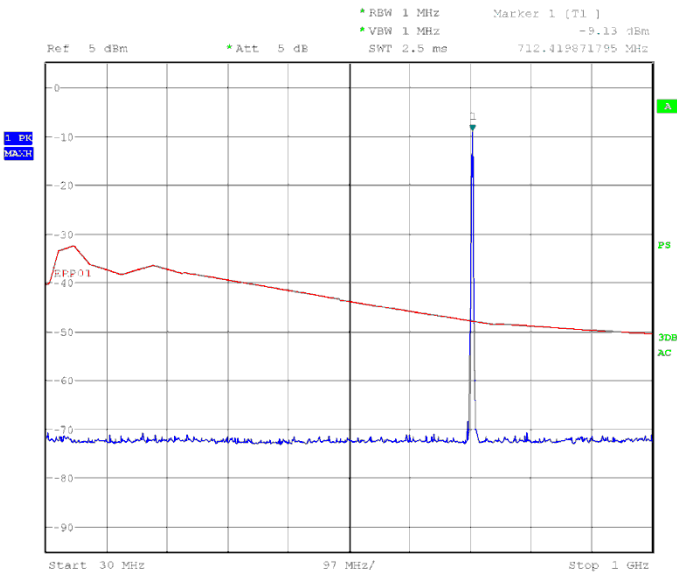
Date: 13.APR.2014 15:45:06



Product Service

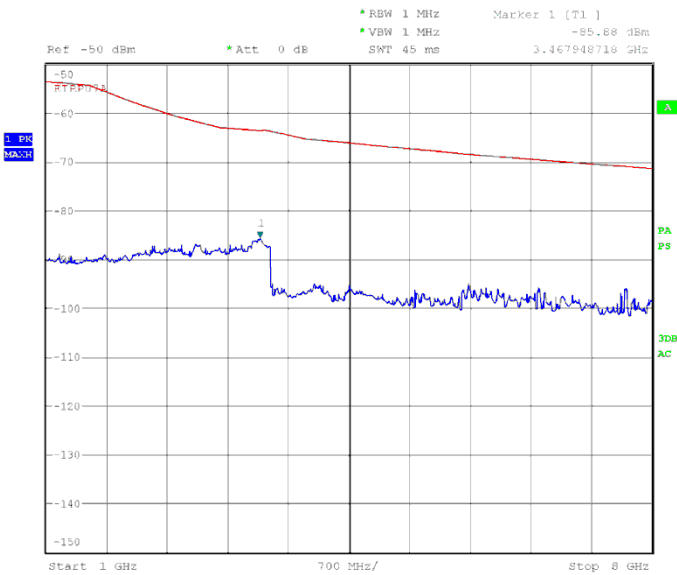
710.0 MHz

30 MHz to 1 GHz



Date: 13.APR.2014 11:32:25

1 GHz to 8 GHz



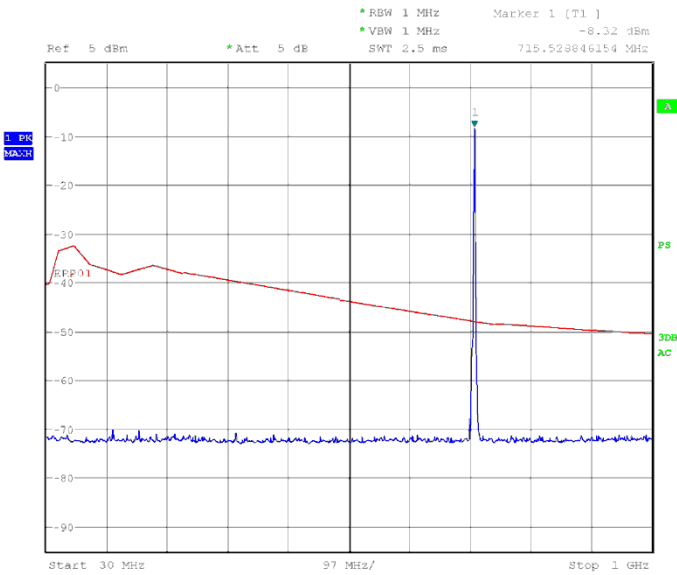
Date: 13.APR.2014 15:47:59



Product Service

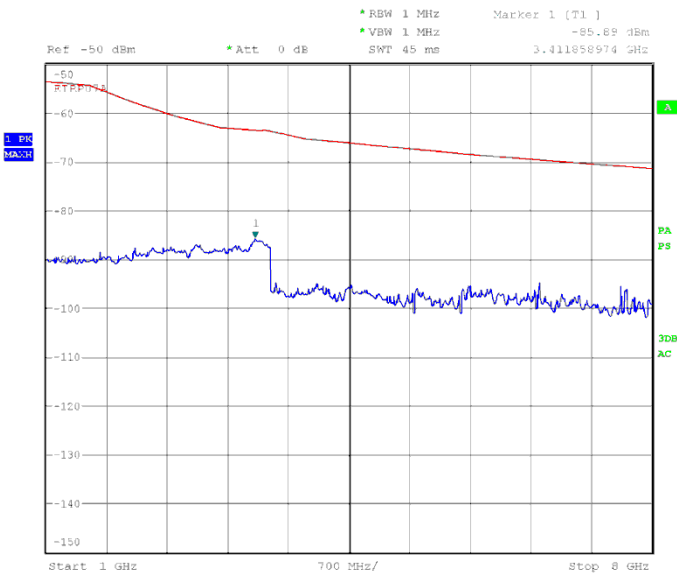
713.5 MHz

30 MHz to 1 GHz



Date: 13.APR.2014 11:35:20

1 GHz to 8 GHz



Date: 13.APR.2014 15:52:35



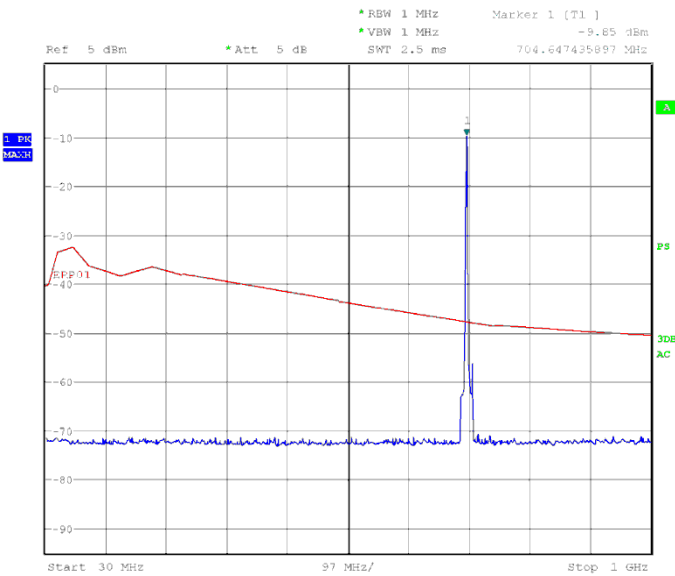
Product Service

10.0 MHz Bandwidth – QPSK

1 Resource Block - Low

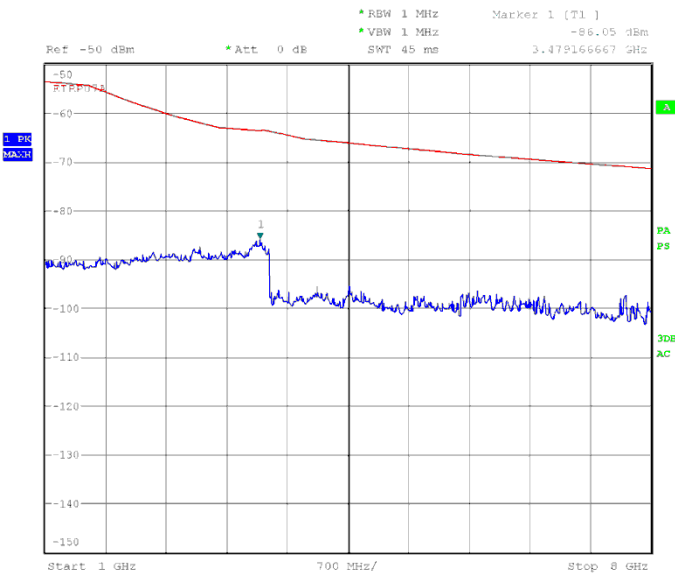
709.0 MHz

30 MHz to 1 GHz



Date: 13.APR.2014 11:59:15

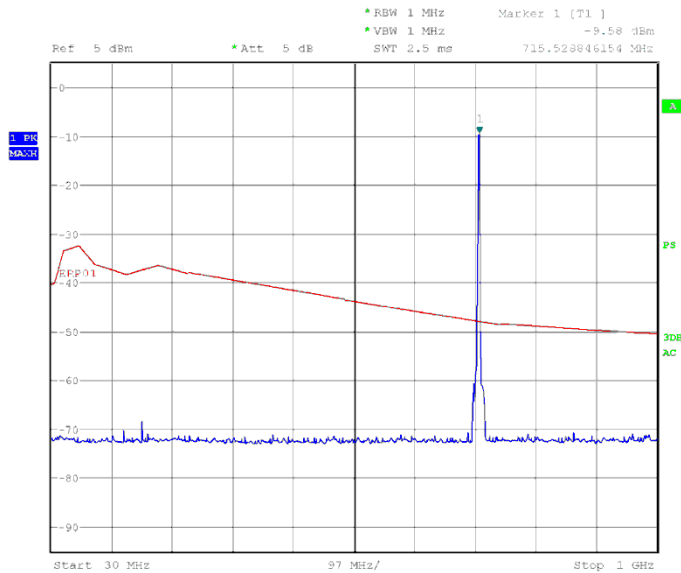
1 GHz to 8 GHz



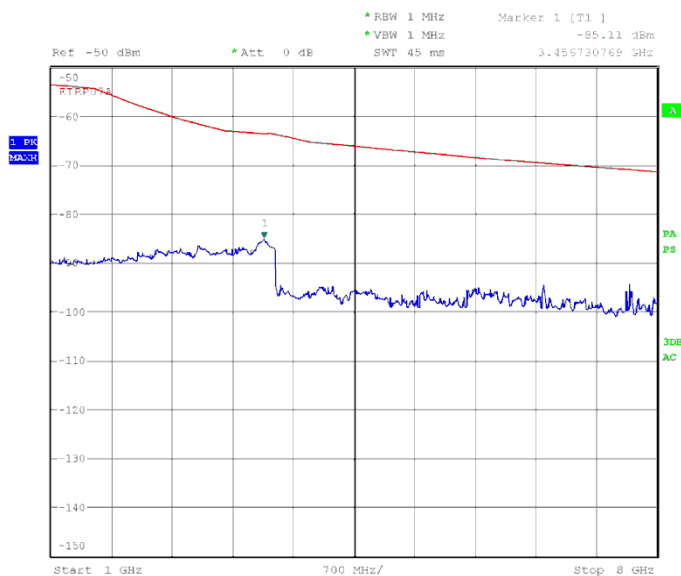
Date: 13.APR.2014 14:59:37



Product Service

1 Resource Block – High710.0 MHz30 MHz to 1 GHz

Date: 13.APR.2014 12:01:37

1 GHz to 8 GHz

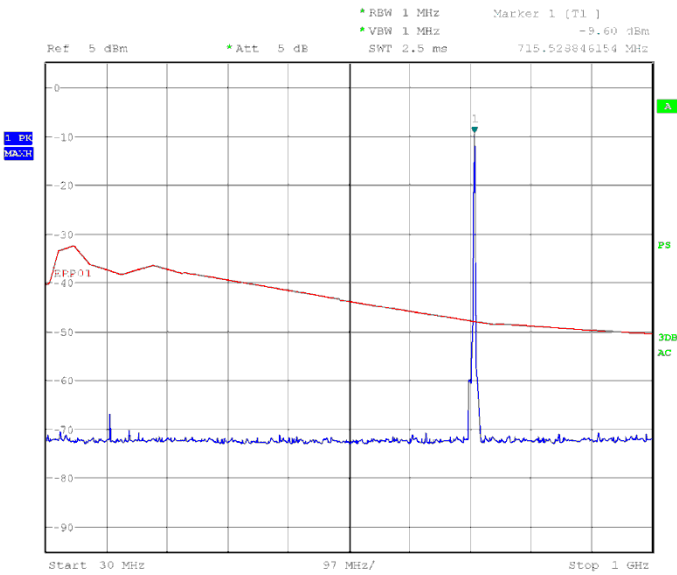
Date: 13.APR.2014 14:54:45



Product Service

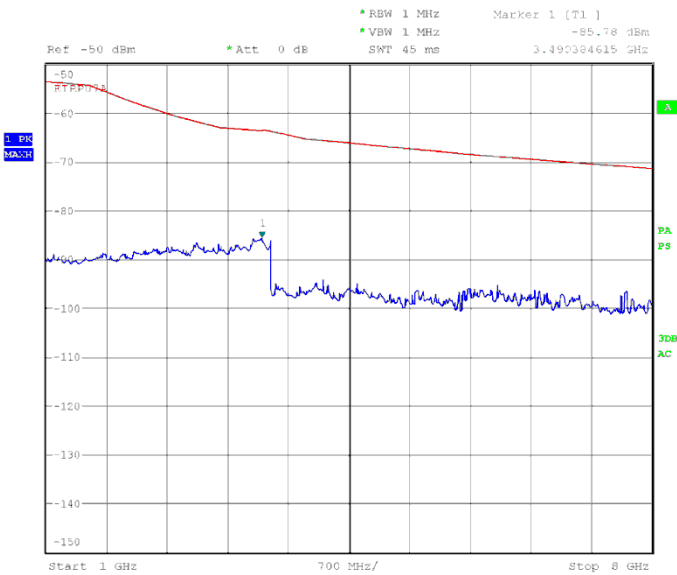
711.0 MHz

30 MHz to 1 GHz



Date: 13.APR.2014 12:15:54

1 GHz to 8 GHz



Date: 13.APR.2014 14:58:28



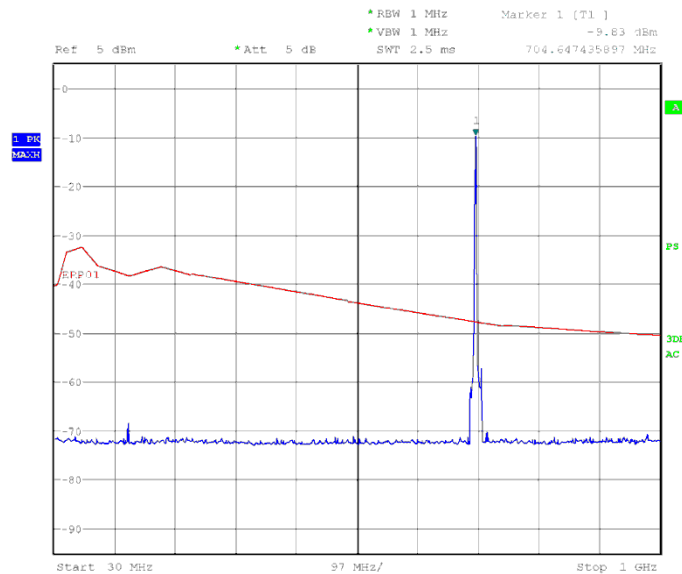
Product Service

10.0 MHz Bandwidth – 16QAM

1 Resource Block - Low

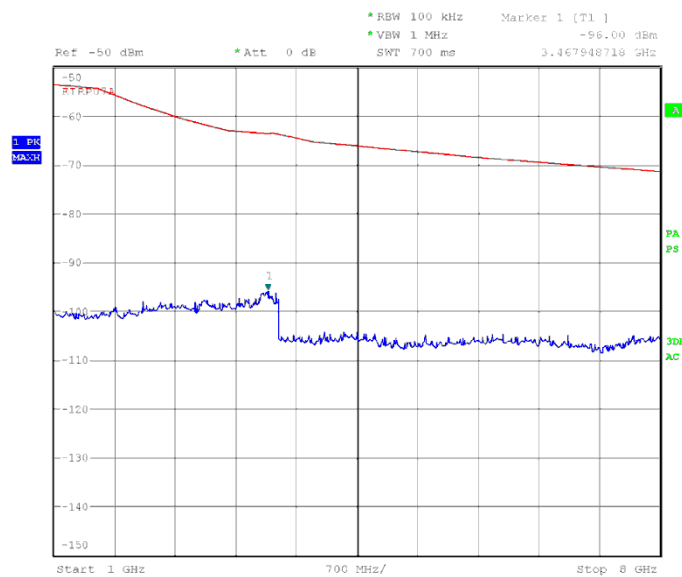
709.0 MHz

30 MHz to 1 GHz



Date: 13.APR.2014 12:30:15

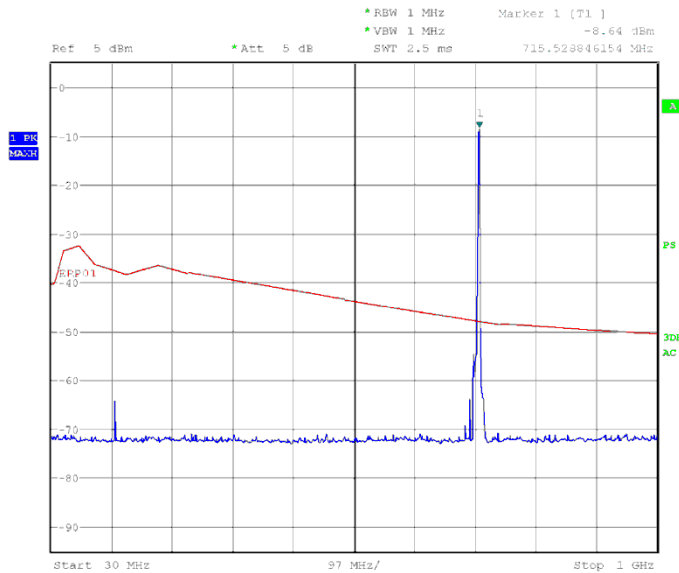
1 GHz to 8 GHz



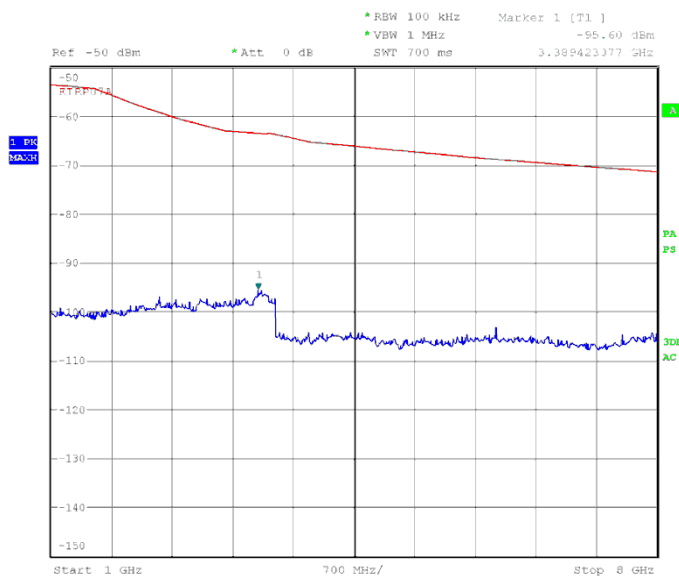
Date: 13.APR.2014 15:10:00



Product Service

1 Resource Block - High710.0 MHz30 MHz to 1 GHz

Date: 13.APR.2014 12:48:57

1 GHz to 8 GHz

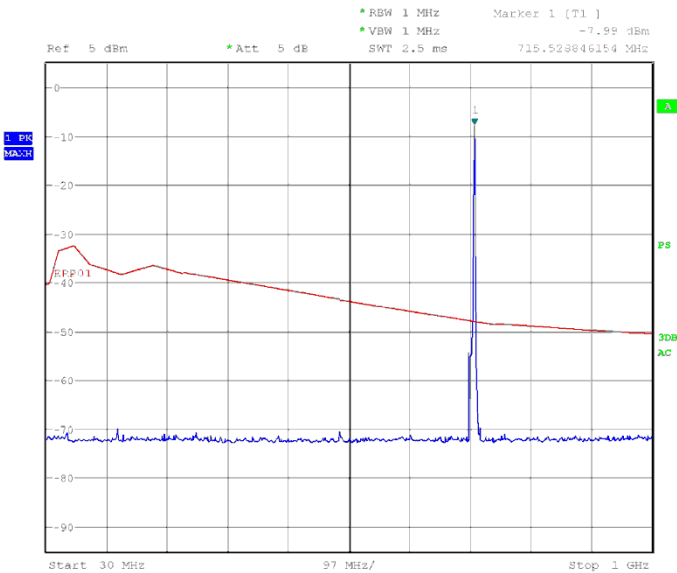
Date: 13.APR.2014 15:17:13



Product Service

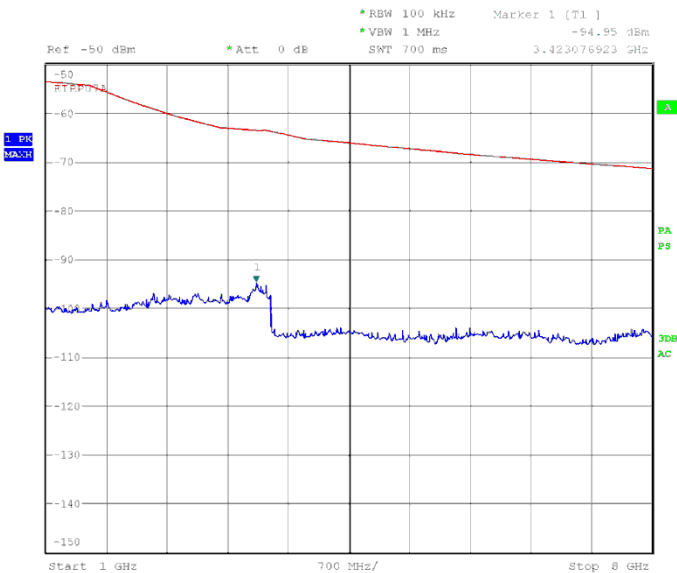
711.0 MHz

30 MHz to 1 GHz



Date: 13.APR.2014 13:23:26

1 GHz to 8 GHz



Date: 13.APR.2014 15:24:08



Product Service

Limit Clause 27.53 (g)

Conducted Emissions:	-13 dBm
Band Edge:	
Radiated Emissions:	



Product Service

2.4 FREQUENCY STABILITY

2.4.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055
FCC CFR 47 Part 27, Clause 27.54

2.4.2 Equipment Under Test and Modification State

SHL25 S/N: IMEI 004401115170678 - Modification State 0

2.4.3 Date of Test

30 April 2014

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Procedure

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 27.54 and FCC CFR 47 Part 2.1055.

The EUT was configured to transmit at maximum output power on the middle channel with QPSK and 16QAM modulation, with a 10 MHz bandwidth and all resource blocks active using a communications test set. The communications test set was connected to an external 10 MHz rubidium frequency standard to increase accuracy of the measurement. The Tx measurement function of the communications tester was then used and the maximum frequency error was then recorded.

Measurements were repeated over the temperature range of +50°C to -30°C in 10°C steps and at +20°C the voltage was varied to the maximum and minimum end point voltages as declared by the manufacturer.

2.4.6 Environmental Conditions

Ambient Temperature	22.8°C
Relative Humidity	41.5%



2.4.7 Test Results

4.0 V DC Supply

Frequency Stability

Under Temperature Variations

10 MHz Bandwidth - QPSK

Frequency Error (ppm)		
710.0 MHz		
Supply Voltage	Temperature Interval °C	All Resource Blocks
Vmin	+20	-0.004
Vnom	-30	0.005
Vnom	-20	0.005
Vnom	-10	-0.008
Vnom	0	0.005
Vnom	+10	0.006
Vnom	+20	-0.005
Vnom	+30	0.005
Vnom	+40	0.005
Vnom	+50	0.006

10 MHz Bandwidth – 16QAM

Frequency Error (ppm)		
710.0 MHz		
Supply Voltage	Temperature Interval °C	All Resource Blocks
Vmin	+20	-0.005
Vnom	-30	-0.005
Vnom	-20	-0.005
Vnom	-10	0.004
Vnom	0	0.007
Vnom	+10	0.007
Vnom	+20	0.004
Vnom	+30	0.005
Vnom	+40	-0.005
Vnom	+50	-0.004

Limit Clause 2.1055 (a)(1)(b) and 27.54

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorised bands of operation.



Product Service

SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1- Power Limits and Duty Cycle					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	3-May-2014
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	8-Nov-2014
Filter (High Pass)	Lorch	SHP7-7000-SR	566	12	24-Feb-2015
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	1002	12	18-Sep-2014
Pre-Amplifier	Phase One	PSO4-0087	1534	12	30-Sep-2014
Screened Room (5)	Rainford	Rainford	1545	24	10-Jan-2015
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
GSM Test Set	Rohde & Schwarz	CMU 200	2809	12	18-Jun-2014
Antenna (Bilog)	Chase	CBL6143	2904	24	10-Jun-2015
Antenna (Log Periodic)	Schaffner	UPA6108	3108	12	15-May-2014
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	22-Oct-2014
7m Armoured RF Cable	SSI Cable Corp.	1501-13-13-7m WA(-)	3600	-	TU
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Tilt Antenna Mast	maturo GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturo GmbH	NCD	3917	-	TU
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4143	12	22-Jul-2014
Section 2.2- Modulation Characteristics					
Multimeter	White Gold	WG022	190	12	28-Oct-2014
Power Divider	Weinschel	1506A	604	12	23-May-2014
Power Supply	Farnell	LT30-2	2903	-	TU
Attenuator (10dB, 20W)	Lucas Weinschel	1	3225	12	12-Dec-2014
'N' - 'N' RF Cable (1m)	Rhophase	NPS-1803-1000-NPS	3701	12	6-Mar-2015
2 Metre SMA Type Cable	Rhophase	3PS-1801A-2000-3PS	4111	12	5-Nov-2014
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4144	12	17-Jul-2014



Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.3 - Emission Limitations					
Multimeter	White Gold	WG022	190	12	28-Oct-2014
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	3-May-2014
Power Divider	Weinschel	1506A	604	12	23-May-2014
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	1002	12	18-Sep-2014
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	22-Jul-2014
Screened Room (5)	Rainford	Rainford	1545	24	10-Jan-2015
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	15-Nov-2014
Power Supply	Farnell	LT30-2	2903	-	TU
Hygrometer	Rotronic	I-1000	3220	12	16-Jul-2014
Attenuator (10dB, 20W)	Lucas Weinschel	1	3225	12	12-Dec-2014
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	22-Oct-2014
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	13-Sep-2014
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Tilt Antenna Mast	maturo GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturo GmbH	NCD	3917	-	TU
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4144	12	17-Jul-2014
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	18-Sep-2014
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	22-Jul-2014
Section 2.4- Frequency Stability					
Digital Temperature Indicator + T/C	Fluke	51	412	12	12-Feb-2015
Temperature Chamber	Montford	2F3	467	-	O/P Mon
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	22-Jul-2014
Multimeter	Iso-tech	IDM101	2419	12	9-Oct-2014
Hygrometer	Rotronic	I-1000	2891	12	8-Jul-2014
Climatic Chamber	TAS	Micro 225	2892	-	O/P Mon
Power Supply	Farnell	LT30-2	2903	-	TU
Multimeter	Fluke	79 Series II	3057	12	24-Sep-2014
Hygrometer	Rotronic	I-1000	3220	12	16-Jul-2014
Attenuator (10dB, 20W)	Lucas Weinschel	1	3225	12	12-Dec-2014
Attenuator (30dB, 150W)	Narda	769-30	3369	12	29-May-2014
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4144	12	17-Jul-2014
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	22-Jul-2014

TU – Traceability Unscheduled

O/P MON – Output Monitored with Calibrated Equipment



3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	MU
Modulation Characteristics	Occupied Bandwidth ; ± 262 kHz
Frequency Stability	± 9 Hz
Emission Limits	Radiated Emissions ; 30 MHz to 1 GHz ; ± 5.1 dB Radiated Emissions ; 1 GHz to 40 GHz ; ± 6.2 dB ERP / EIRP ; ± 3.0 dB Band Edge ; 30 MHz to 1 GHz ; ± 5.1 dB Band Edge ; 1 GHz to 40 GHz ; ± 6.2 dB
Power Limits and Duty Cycle	Conducted Power ; ± 0.7 dB ERP / EIRP ; ± 3.0 dB



Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA
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