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FCC TEST REPORT

Applicant	Harris Corporation
Address	1025 West NASA Boulevard Melbourne FL 32919-0001 USA
FCC ID	NK73226316
Model Number	3226316
Product Description	DUAL BAND CELLULAR BASE STATTION
Date Sample Received	7/12/2013
Date Tested	7/22/2013
Tested By	Nam Nguyen
Approved By	Nam Nguyen
Timco Report No.	1210AUT13TestReport.docx
Test Results	☒ PASS ☐ FAIL

ACCREDITED
Test Certificate #0955-01

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STATEMENT OF COMPLIANCE

This equipment has been tested in accordance with the standards identified in the referenced test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report and demonstrate that the equipment complies with the appropriate standards.

I attest that the necessary measurements were made by me or under my supervision, at Timco Engineering, Inc. located at 849 N.W. State Road 45, Newberry, Florida 32669 USA.

Authorized Signatory Name: Nam Nguyen

Signature:

Function: Project Manager/Testing Technician

Date: Aug 5, 2013

GENERAL INFORMATION

DUT Specification

The test results relate only to the items tested.			
FCC Rule Part(s)	Pt 22, Pt 24, Pt 27, Pt 15.109, KDB 971168 D01		
DUT Description	DUAL BAND CELLULAR BASE STATTION		
FCC ID	NK73226316		
Model Name	3226316		
Operating Frequency	728 – 756 MHz 869 – 894 MHz 1910 – 1995 MHz 2110 – 2155 MHz		
Max. Power Rating	0.10 Watts.		
Emission Designators	3MOOW7D, 5MOOW7D, 10MOW7D		
User Power Control	☐ Yes	☒ No	
DUT Power Source	☐ 110–120Vac/50– 60Hz		
	☒ DC Power		
	☐ Battery Operated Exclusively		
Test Item	☐ Prototype	☒ Pre-Production	☐ Production
Type of Equipment	☒ Fixed	☐ Mobile	☐ Portable
Power supply	SORENSEN Model No: DLM 60-10 Input: (115VAC/11A) or (230VAC/6A), 47 – 63 Hz Output: (0 – 60)VDC, 10A		

Test Facility: The test sites used by Timco Engineering Inc. for radiated and conducted emission data are located at 849 NW State Road 45 Newberry, FL 32669 USA.

Test Condition: The DUT was tested in the laboratory in an environment with normal temperature and humidity.
The temperature was 26°C with a relative humidity of 50%.

Modification to the DUT: No modification was made to the DUT during testing.

Test Exercise (e.g. software description, test signal, etc.): The DUT was placed in continuous transmit mode of operation.

EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
Analyzer Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	10/28/11	10/28/13
Analyzer Tan Tower Preamplifier	HP	8449B-H02	3008A00372	10/28/11	10/28/13
Antenna: Biconnical	Eaton	94455-1	1096	05/10/13	05/10/15
Antenna: Log-Periodic	Electro-Metrics	LPA-25	1122	05/09/13	05/09/15
Horn Antenna	ETS	3117	35923	12/7/11	12/7/13
Antenna: Dipole Kit	Electro-Metrics	TDA-30/1-4	152	11/01/09	11/01/99
Notch Filter	Microlab	HA-10N		5/17/13	5/17/15
Notch Filter	Microlab	HA-20N		5/17/13	5/17/15
Power Meter	Boonton Electronics	4531	11793	1/9/13	1/9/15
Sensor	Boonton	51072A	34647	01/19/13	01/19/15
Frequency Counter	HP	5352B	2632A00165	06/26/13	06/26/15
Frequency Counter	HP	5385A	2730A03025	08/17/11	08/17/13
Hygro-Thermometer	Extech	445703	0602	06/20/13	06/20/15
Digital Multimeter	Fluke	77	35053830	09/09/11	09/09/13
Analyzer Tan Tower RF Preselector	HP	85685A	3221A01400	10/28/11	10/28/13
Attenuator	Narda	769-30	10267	3/15/13	3/15/15
EMI Receiver	Rohde & Schwarz	ESIB40	100274	3/16/12	3/16/14
Analyzer Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	10/28/11	10/28/13
Temperature Chamber	Tenney Engineering	TTRC	11717-7	07/03/12	07/03/14
Frequency Counter	HP	5385A	3242A07460	08/17/11	08/17/13
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	12/31/11	12/31/13
DC Power Supply	Astron	VS-50M	9001191	01/19/13	01/19/15

TEST PROCEDURE

Power Line Conducted Interference: The procedure used was ANSI C63.4-2003 using a 50uH LISN. Both lines were observed with the DUT transmitting. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

Bandwidth 20 dB: The measurements were made with the spectrum analyzer's resolution bandwidth (RBW) = 1 MHz and the video bandwidth (VBW) = 3 MHz and the span set as shown on plot.

Power Output: The RF power output was measured at the antenna feed point using a EMI receiver.

Antenna Conducted Emissions: The RBW = 100 kHz, VBW = 300 kHz and the span set to 10 MHz and the spectrum was scanned from 30 MHz to the 10th Harmonic of the fundamental. Above 1 GHz the resolution bandwidth was 1 MHz, the VBW = 3 MHz, and the span 50 MHz.

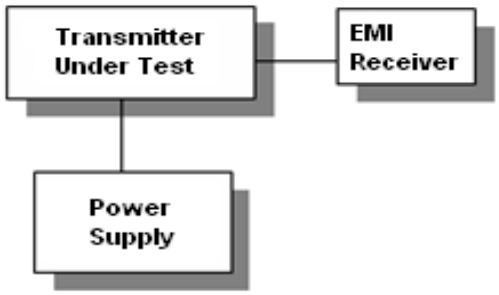
Radiation Interference: The test procedure used was ANSI C63.4-2003 using an Agilent spectrum receiver with pre-selector. The bandwidth (RBW) of the spectrum receiver was 100 kHz up to 1 GHz and 1 MHz above 1 GHz with an appropriate sweep speed. The VBW above 1 GHz was 3 MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

RF POWER OUTPUT

Rules Part No.: Part 2.1046(a), KDB 971168 D01 (5.0)

Requirements:

Method of Measuring: This test was conducted per ANSI/TIA 603-C: 2004 using the EMI receiver as measured by connecting a 50ohm input to the RF output connector



Test Data Table 1: 1930 MHz – 1995 MHz

3 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
8055	1931.5	7.36	5
8365	1962.5	7.59	6
8675	1993.5	7.6	6

5 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
8065	1932.5	8.92	8
8365	1962.5	9.12	8
8665	1992.5	6.96	5

[Continued]

10 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
8090	1935.0	11.89	15
8365	1962.5	11.59	14
8640	1990.0	8.38	7

Test Data Table 2: 2110 MHz – 2155 MHz

3 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
4165	2111.5	5.89	4
4375	2132.5	4.99	3
4585	2153.5	5.75	4

5 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
4175	2112.5	6.04	4
4375	2132.5	4.86	3
4575	2152.5	5.2	3

10 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
4200	2115.0	6.89	5
4375	2132.5	5.59	4
4550	2150.0	5.07	3

[Continued]

Test Data Table 3: 869 MHz – 894 MHz

3 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
2415	870.5	10.17	10
2525	881.5	9.9	10
2635	892.5	10.04	10

5 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
2425	871.5	10.7	12
2525	881.5	10.7	12
2625	891.5	10.58	11

10 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
2450	874.0	13.49	22
2525	881.5	12.96	20
2600	889.0	13.2	21

Test Data Table 4: 728 MHz – 756 MHz

3 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
5015	729.5	9.99	10
5140	742.0	9.66	9
5265	754.5	10.36	11

[Continued]

5 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
5025	730.5	10.38	11
5140	742.0	10.29	11
5255	753.5	11.46	14

10 MHz			
Channel Number	Channel Frequency (MHz)	Output Power	
		(dBm)	(mW)
5050	733.0	11.89	15
5130	741.0	12.81	19
5230	751.0	12.03	16

OCCUPIED BANDWIDTH

Rules Part No.: §2.1049, § KDB 971168 D01 (4.2)

Requirements:

Out of band emissions: The mean power of emissions must be attenuated below the mean power of the un-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by: At least 43 + 10log(Po) = dB.

Please refer to the plots below.

The Reference level on the following plots was calibrated using a 3 MHz RBW=VBW.

Test Data Table 5 – Power Bandwidth (99%) (3 MHz)

3 MHz		
Channel Number	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
8365	1962.50	2.74
4375	2132.50	2.68
2525	881.50	2.68
5140	742.00	2.74

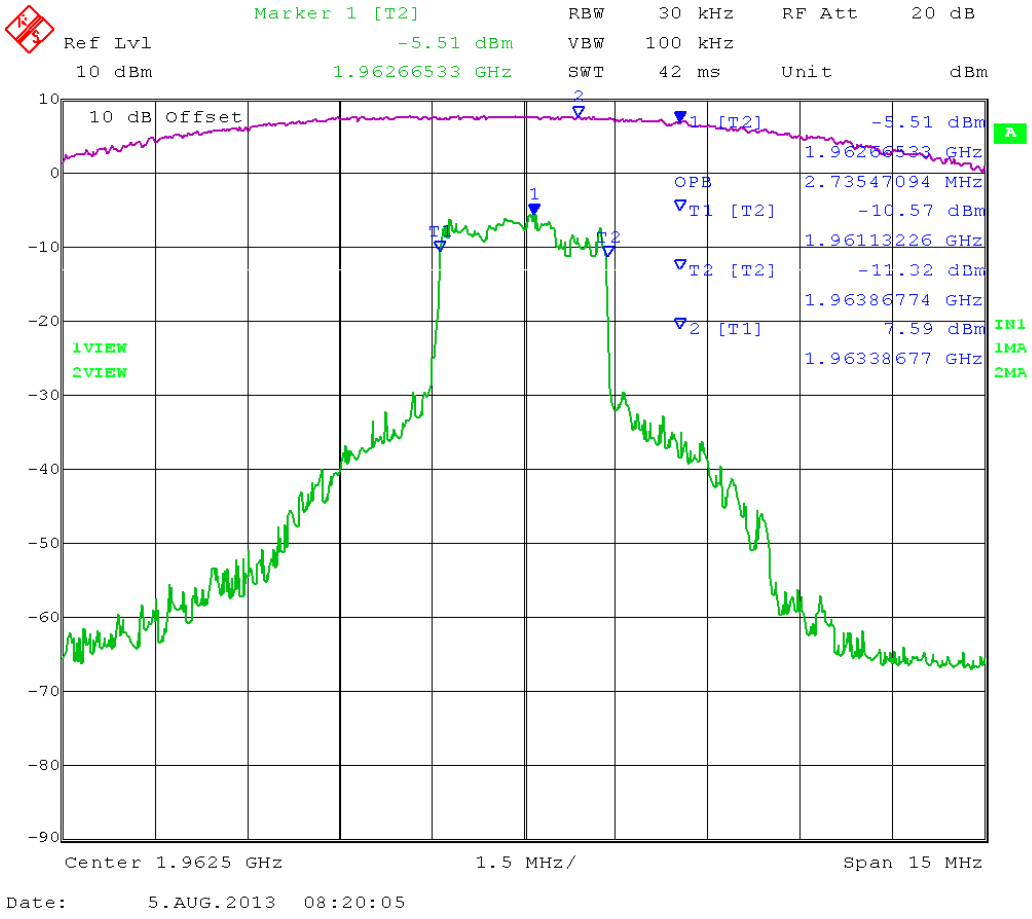


Figure 1: Occupied bandwidth 1962.5 MHz (3 MHz)

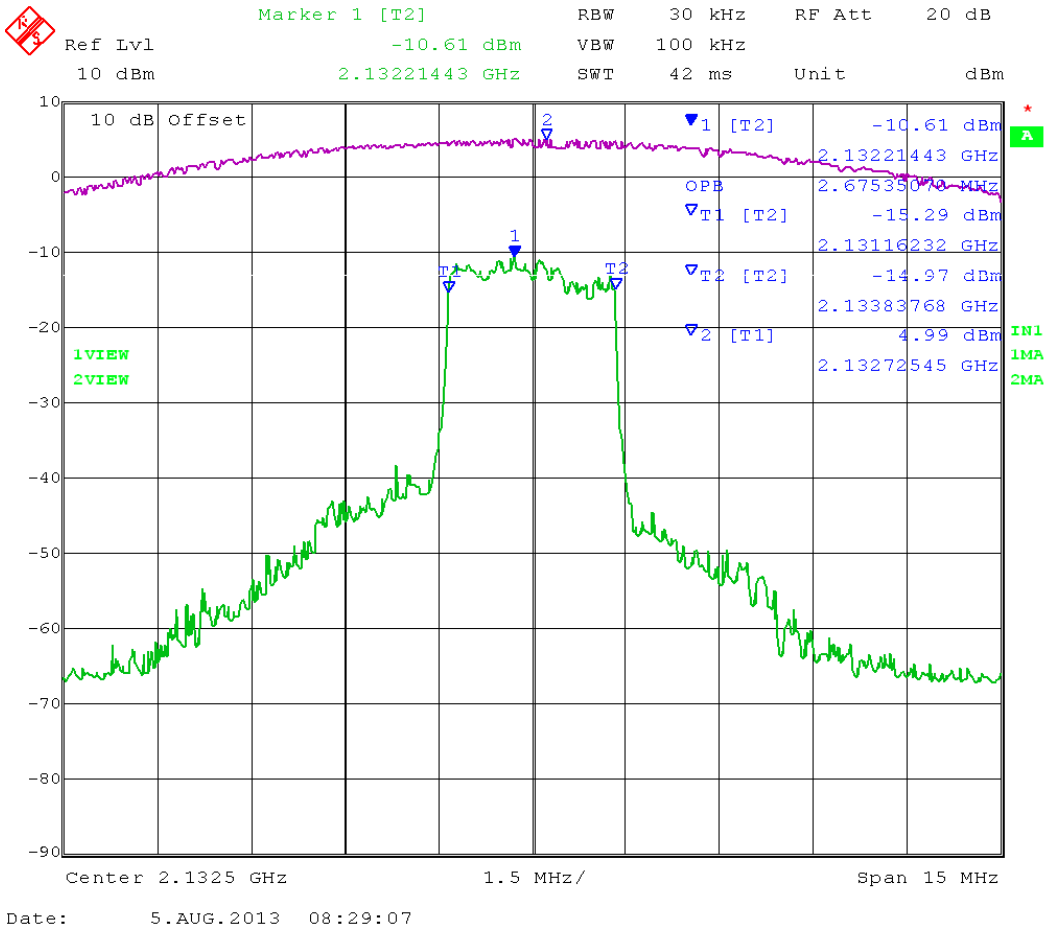


Figure 2: Occupied bandwidth 2132.5 MHz (3 MHz)

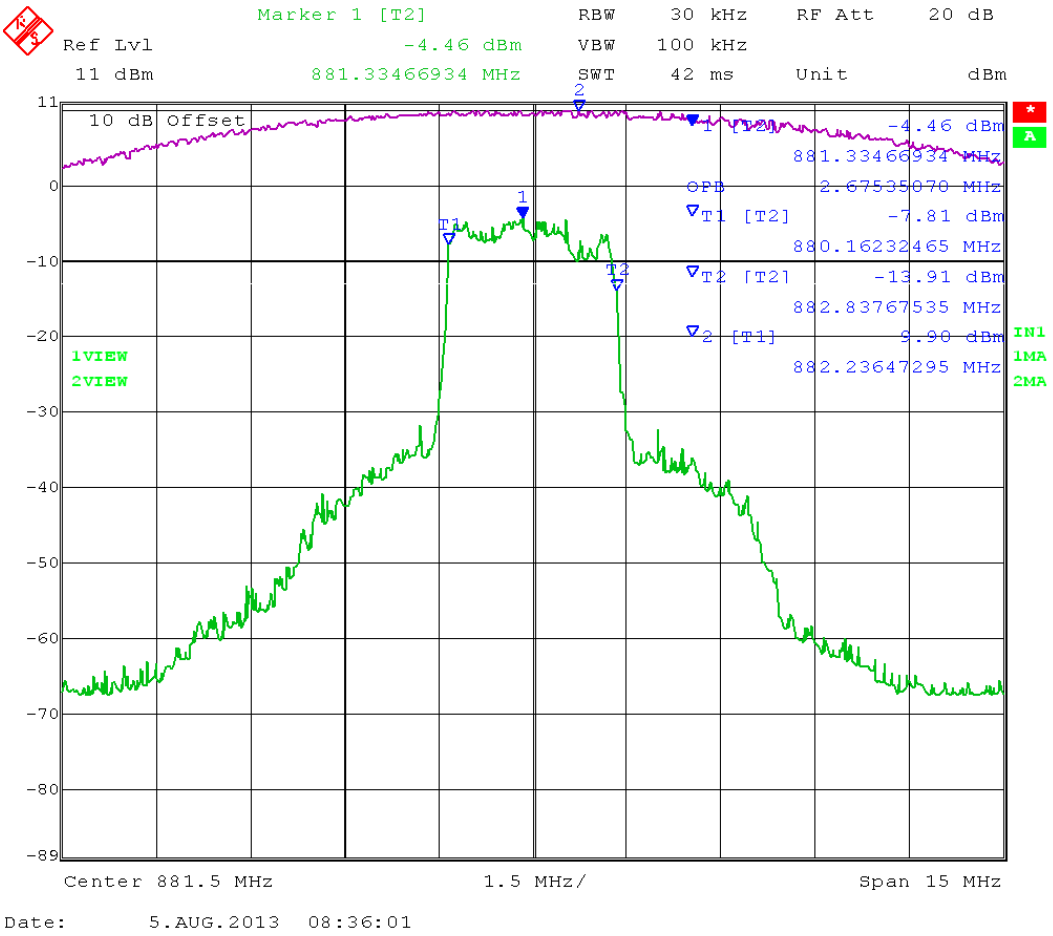


Figure 3: Occupied bandwidth 881.5 MHz (3 MHz)

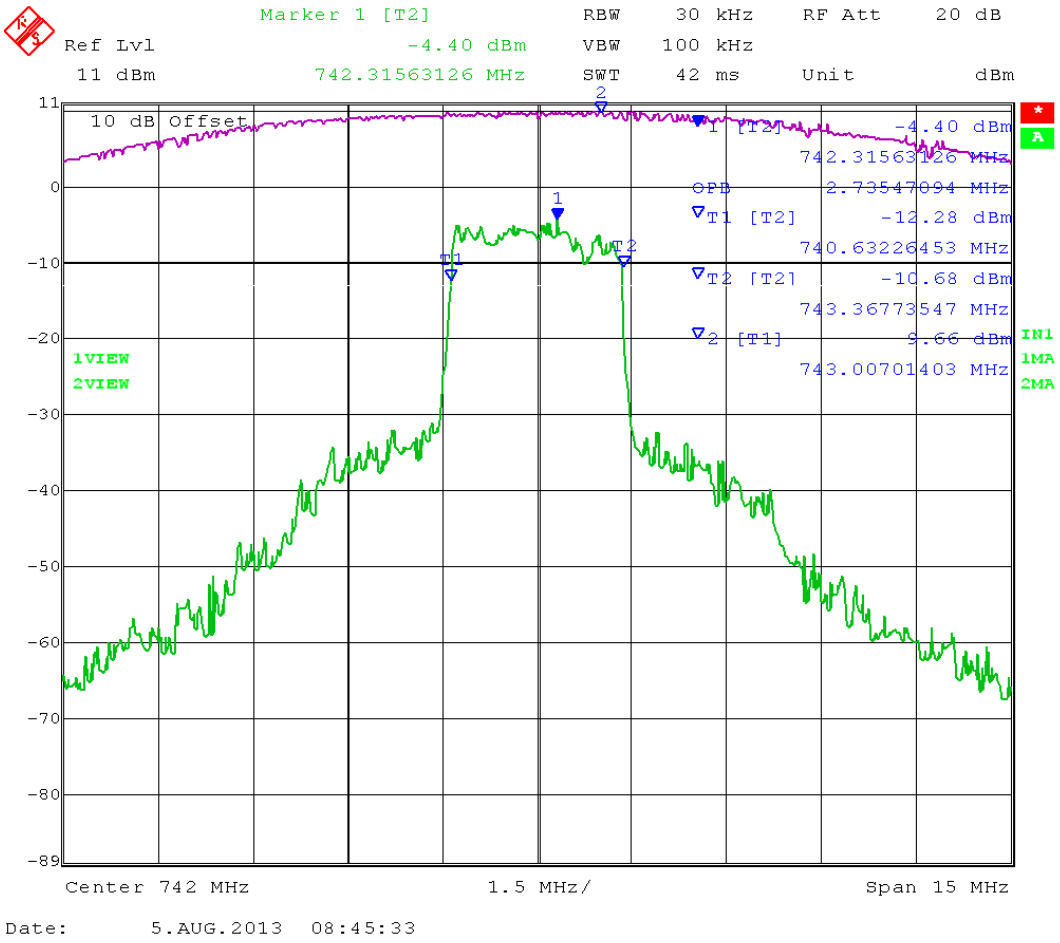


Figure 4: Occupied bandwidth 742.0 MHz (3 MHz)

The Reference level on the following plots was calibrated using a 5 MHz RBW=VBW.

Test Data Table 6 – Power Bandwidth (99%) (5 MHz)

5 MHz		
Channel Number	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
8365	1962.50	4.56
4375	2132.50	4.56
2525	881.50	4.56
5140	742.00	4.51

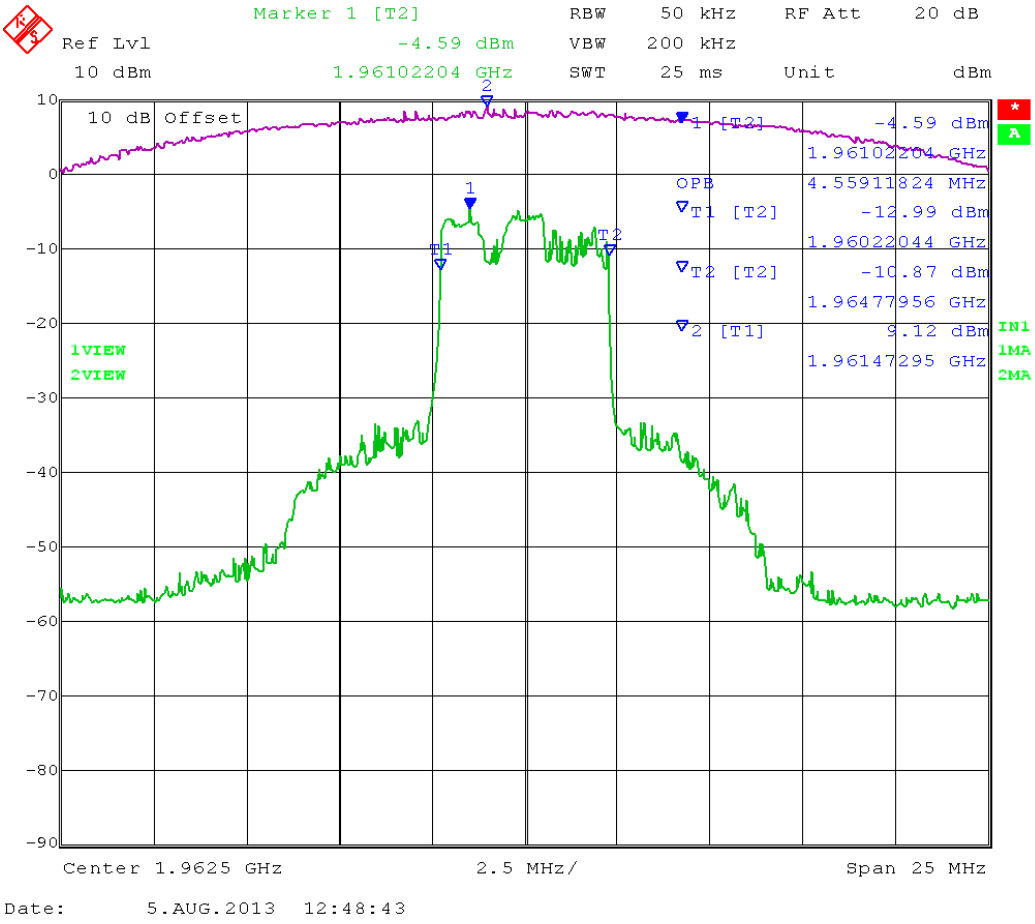


Figure 5: Occupied bandwidth 1962.5 MHz (5 MHz)

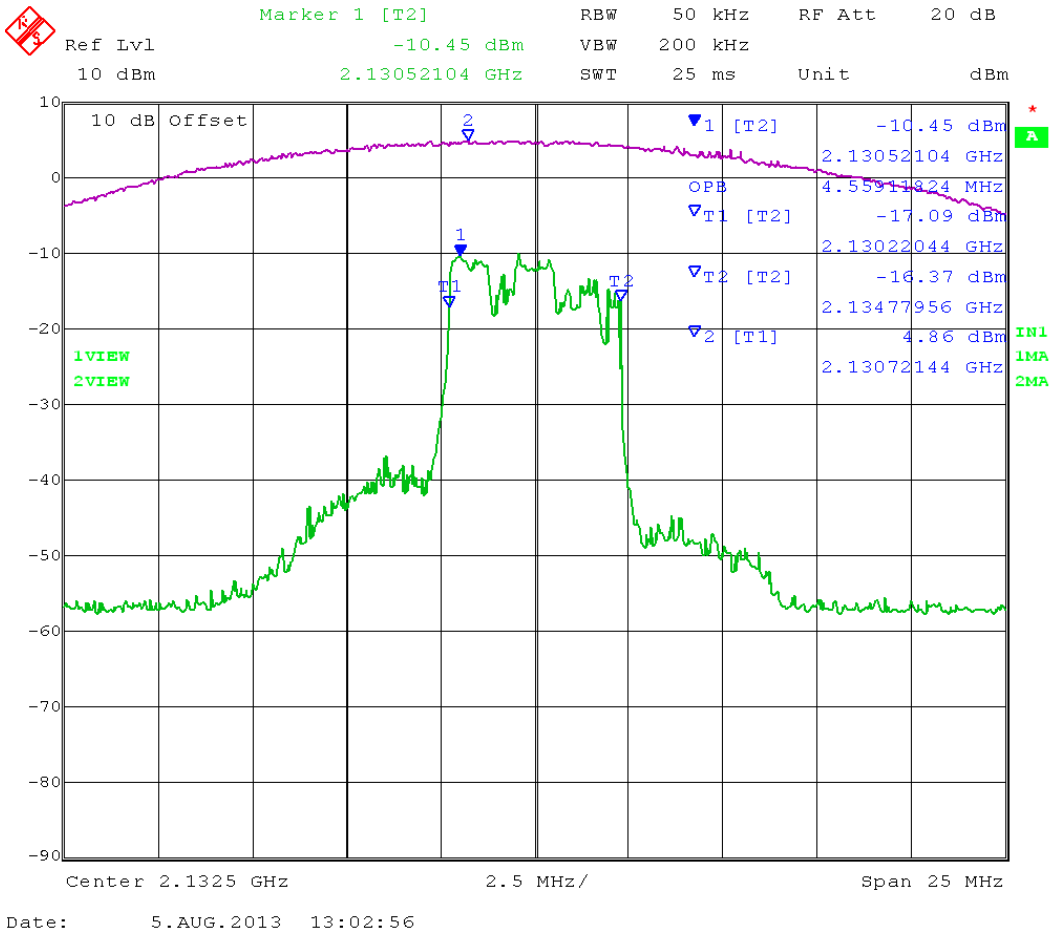


Figure 6: Occupied bandwidth 2132.5 MHz (5 MHz)

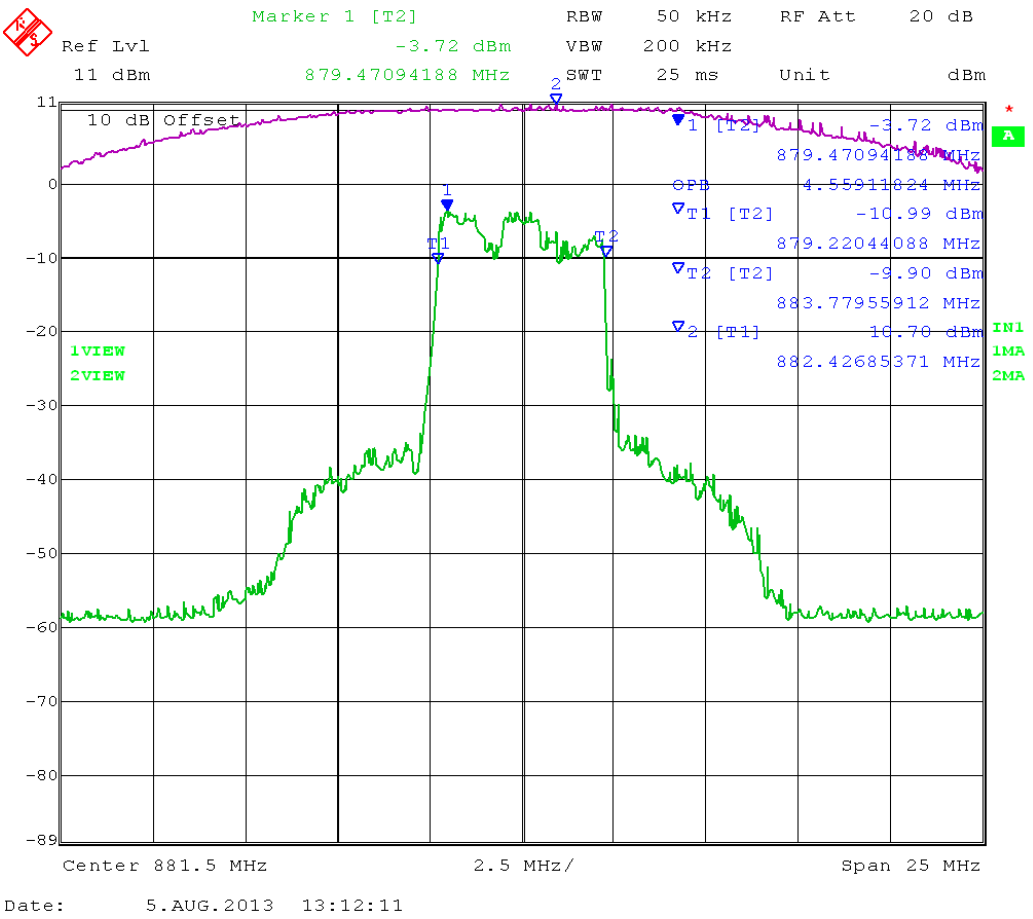


Figure 7: Occupied bandwidth 881.5 MHz (5 MHz)

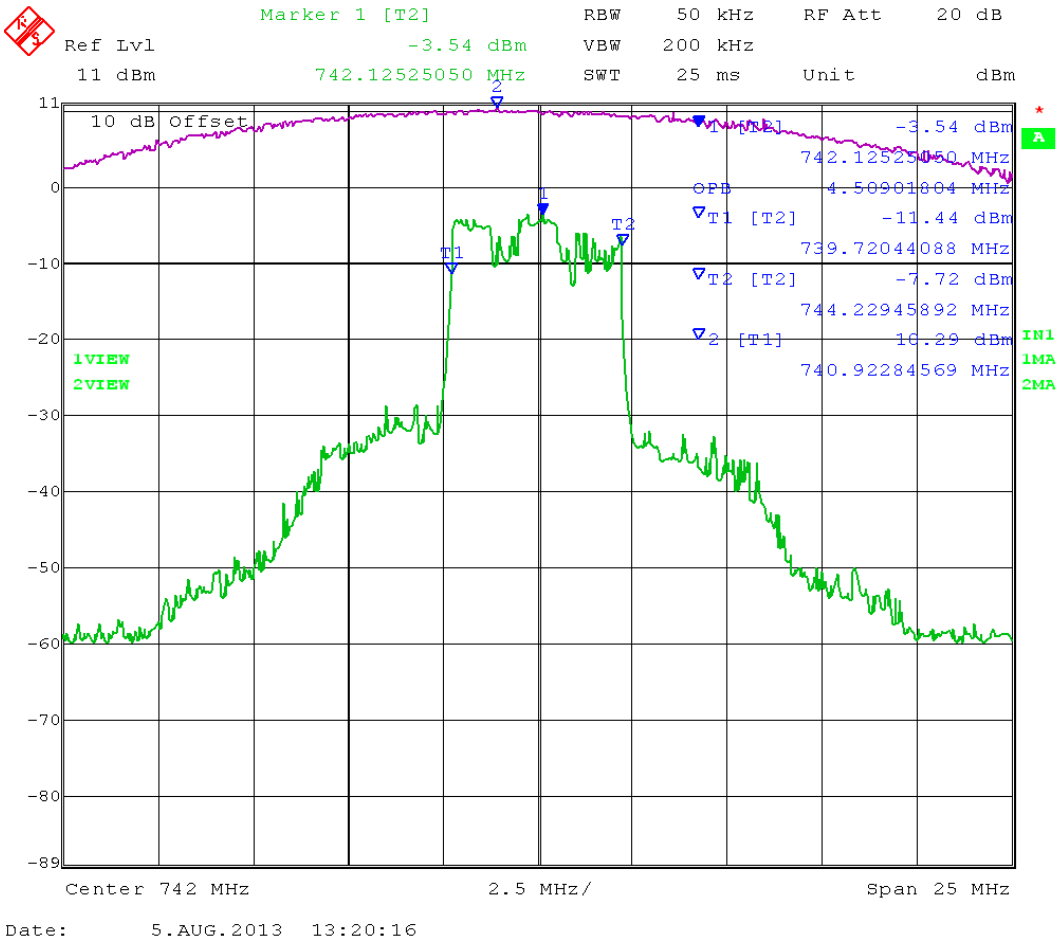


Figure 8: Occupied bandwidth 742.0 MHz (5 MHz)

The Reference level on the following plots was calibrated using a 10 MHz RBW=VBW.

Test Data Table 7 – Power Bandwidth (99%) (10 MHz)

10 MHz		
Channel Number	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
8365	1962.50	9.02
4375	2132.50	9.02
2525	881.50	9.02
5130	741.00	9.02

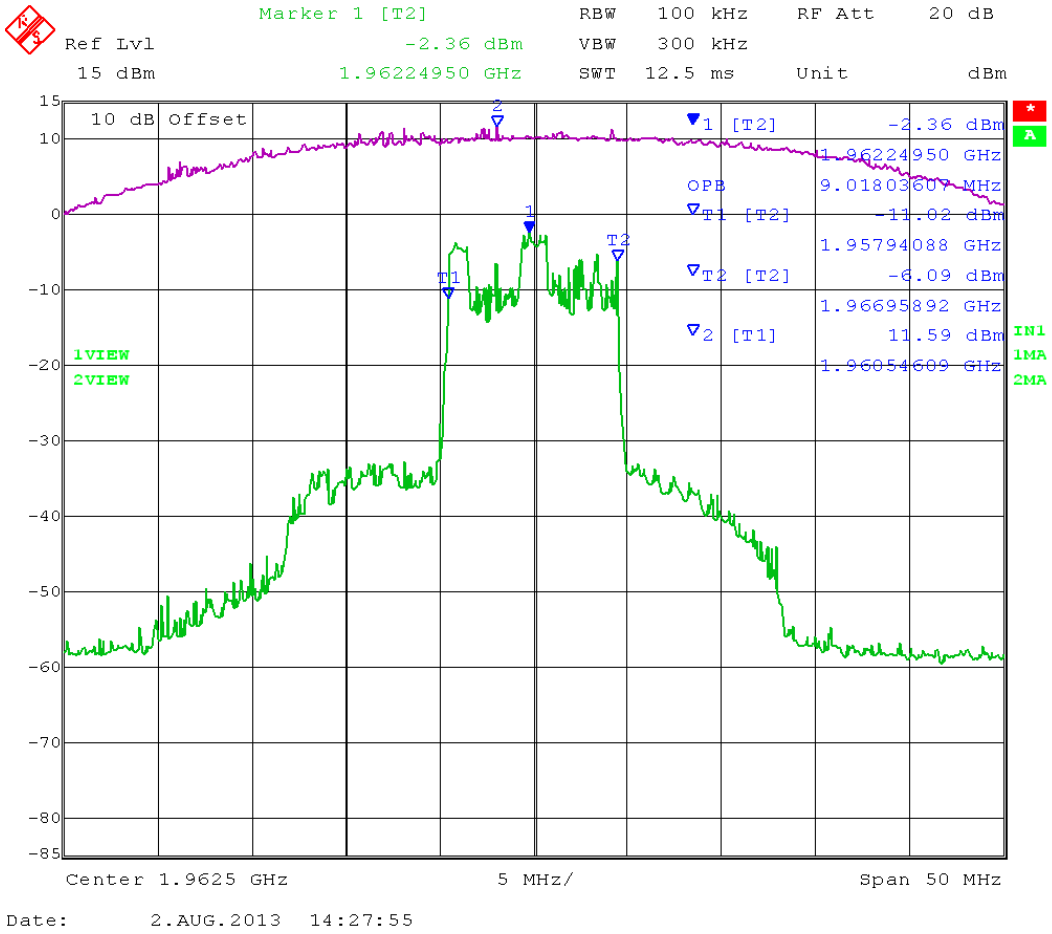


Figure 9: Occupied bandwidth 1962.5 MHz (10 MHz)

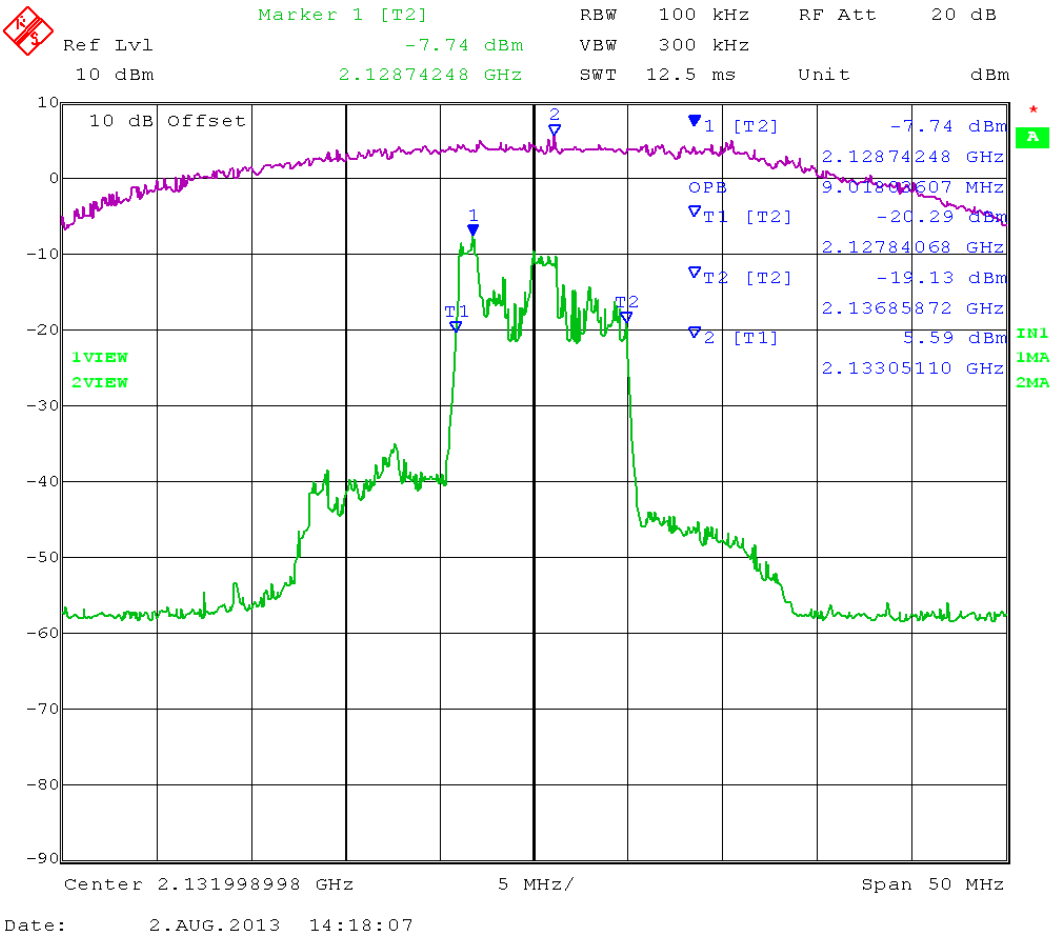


Figure 10: Occupied bandwidth 2132.5 MHz (10 MHz)

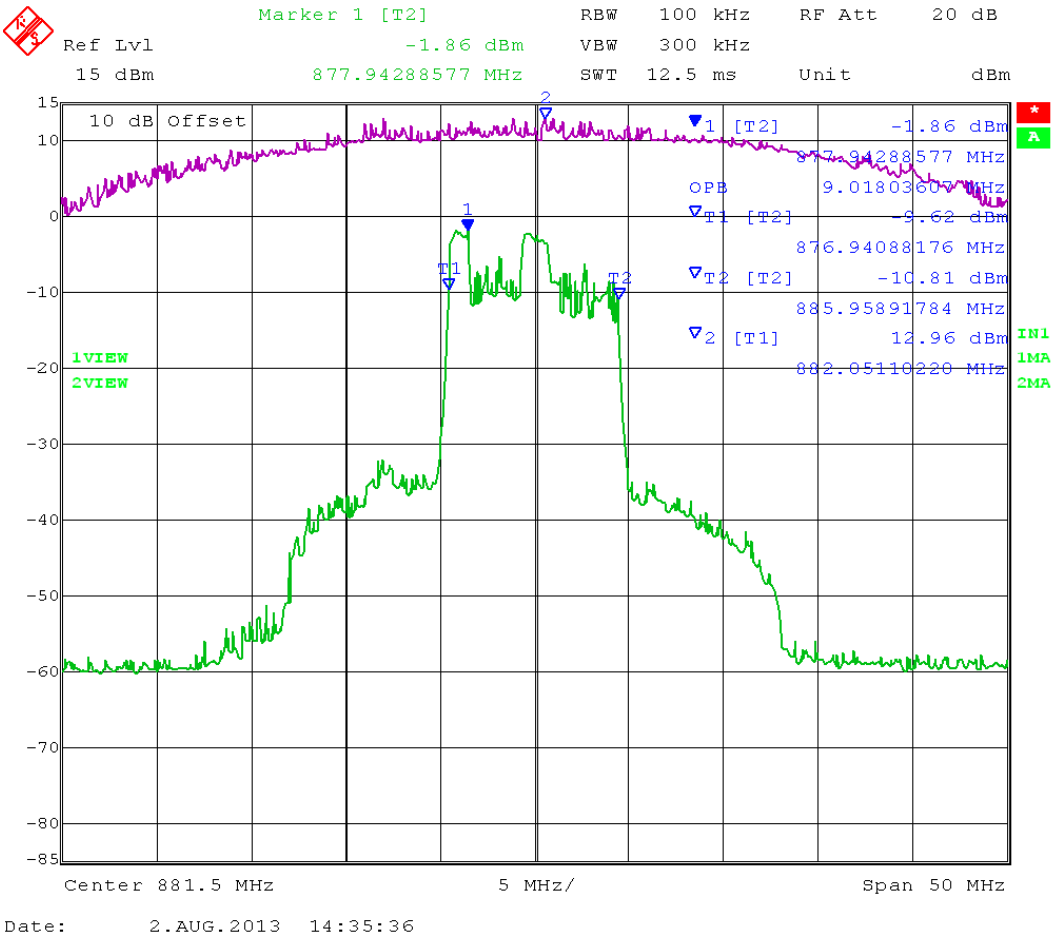


Figure 11: Occupied bandwidth 881.5 MHz (10 MHz)

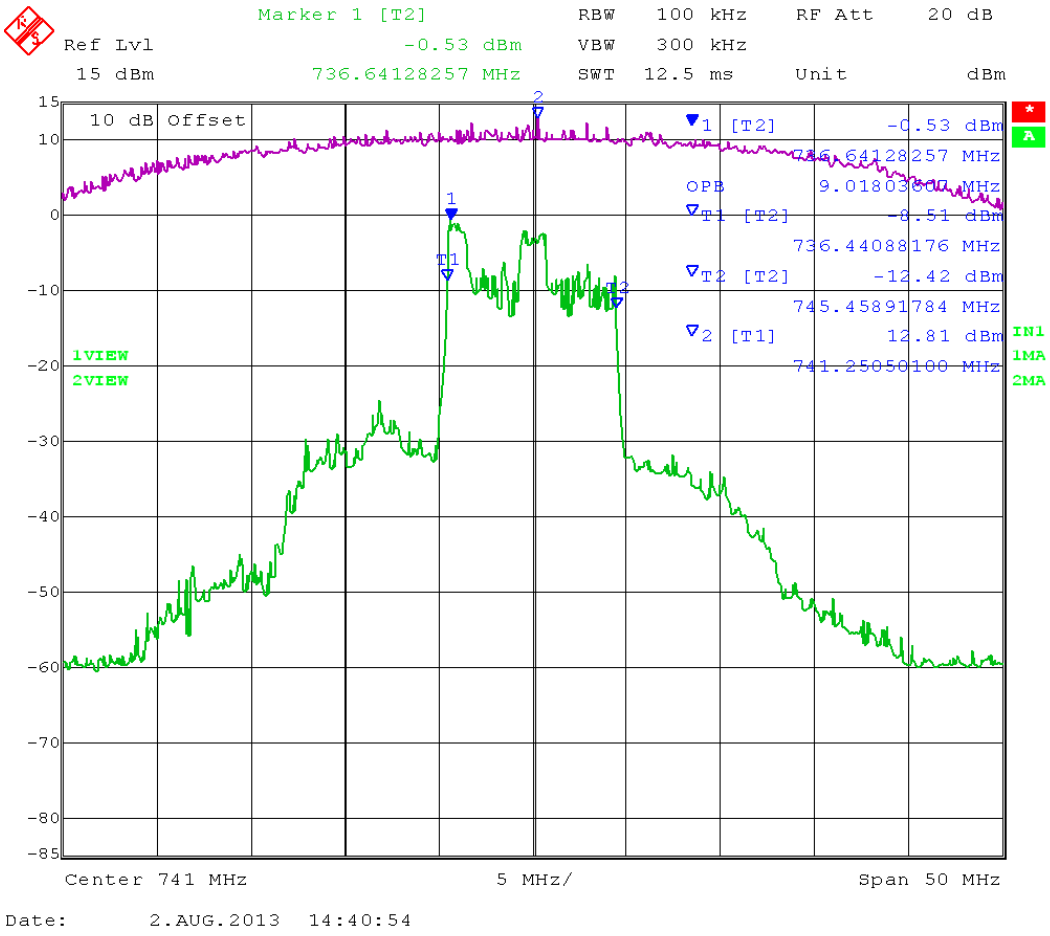


Figure 12: Occupied bandwidth 741.0 MHz (10 MHz)

BAND-EDGES COMPLIANCE

Rule Parts No.: Pt 2.1049, Pt 2.1051, 22H, 24E, 27C

Requirements: 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.

Test Data: The DUT appears to meet the requirements.

Bandedge compliance: Measurements were performed in accordance with Part 24.238, Part 22.917, Part 27.53

The Reference level on the following plots was calibrated using a 3 MHz RBW=VBW.

Test Data Table 8 – 1930 MHz – 1995 MHz (3 MHz)

3 MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
1931.5	1929.73	-33.27	-13
1993.5	1995.42	-42.52	-13

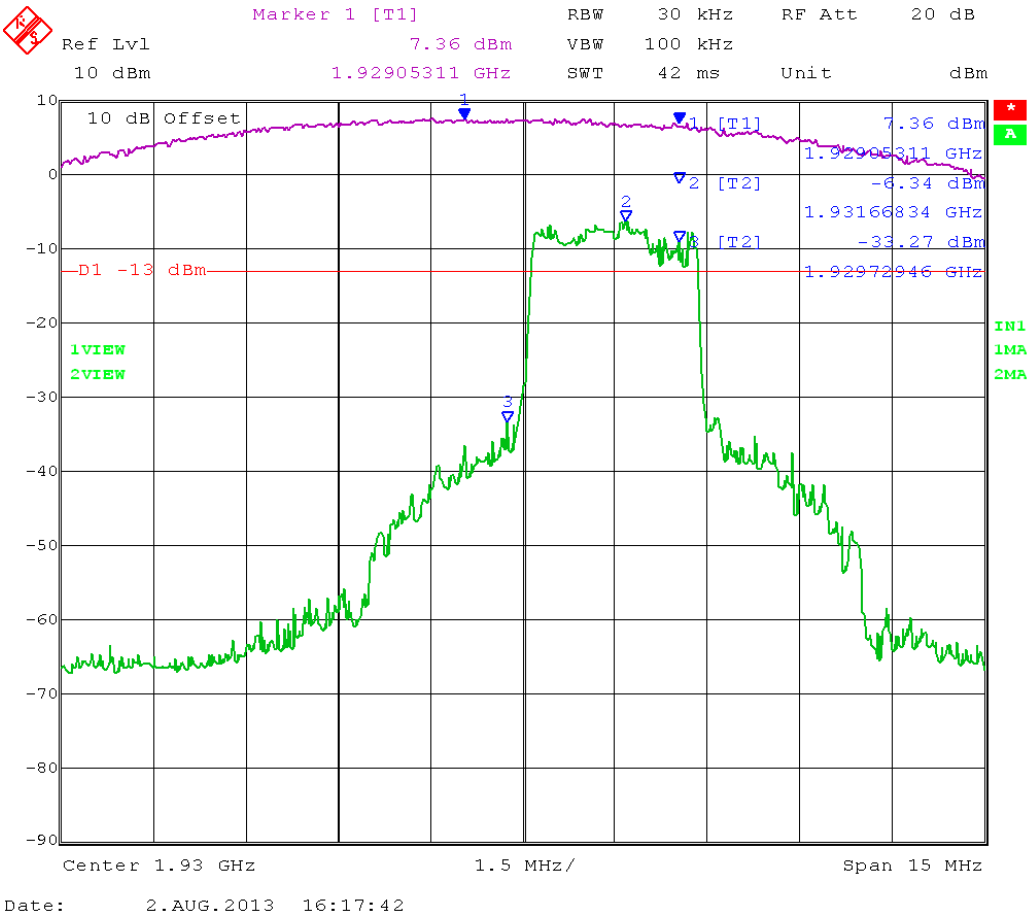


Figure 13: Low Channel 1931.5 MHz (3 MHz)

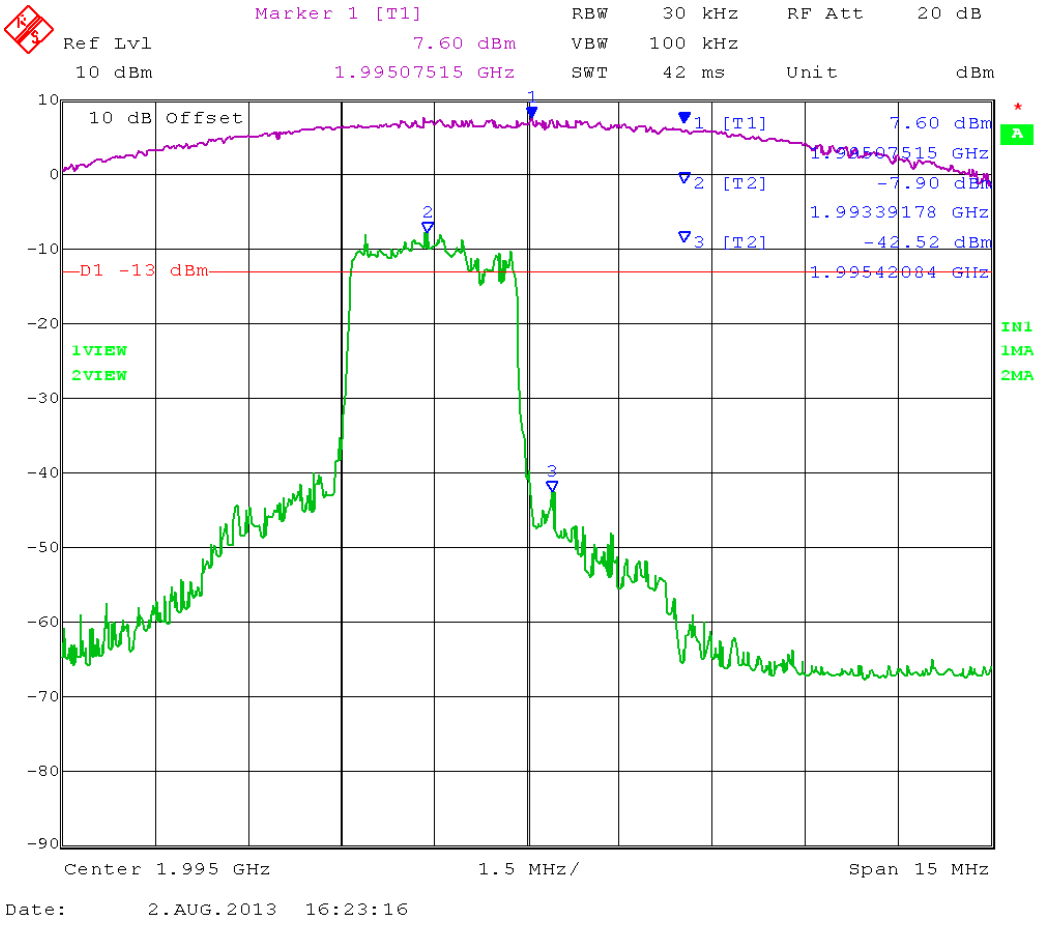


Figure 14: High Channel 1993.5 MHz (3 MHz)

The Reference level on the following plots was calibrated using a 5 MHz RBW=VBW.

Test Data Table 9 – 1930 MHz – 1995 MHz (5 MHz)

5MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
1932.5	1929.95	-32.47	-13
1992.5	1996.35	-44.98	-13

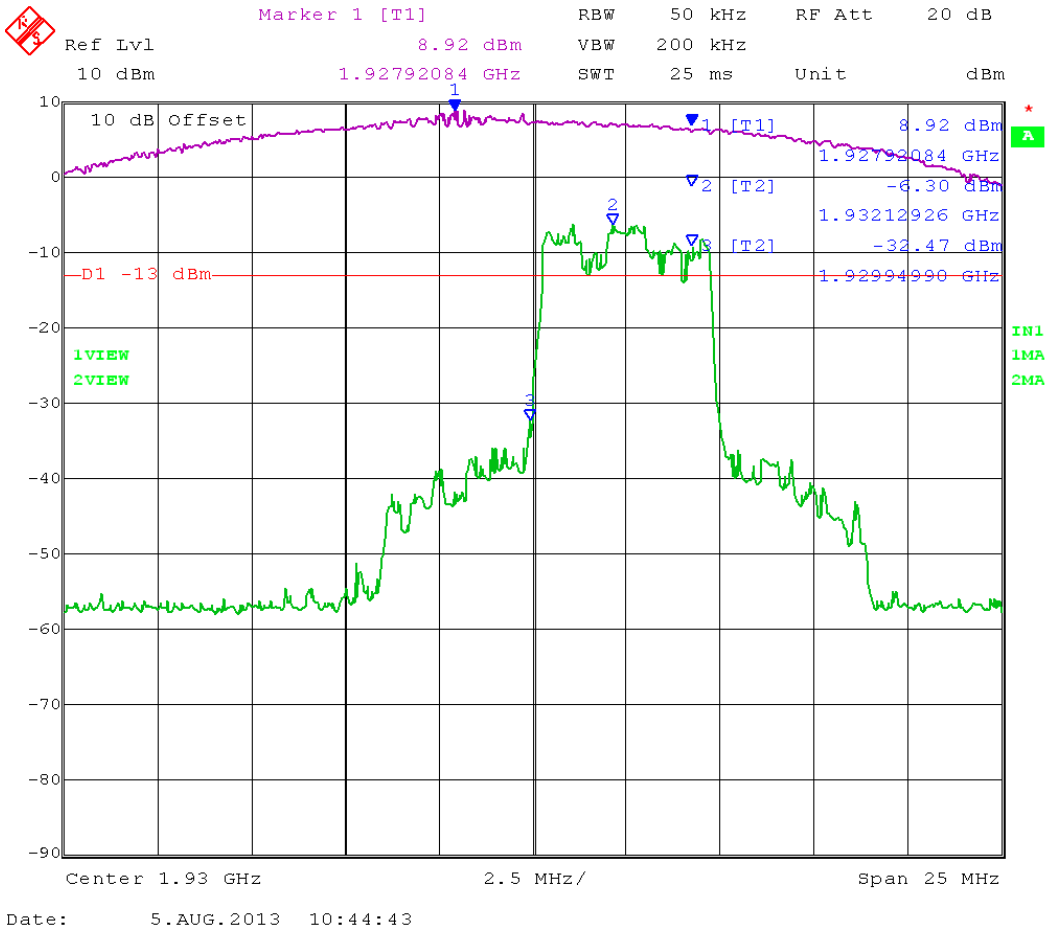


Figure 15: Low Channel 1932.5 MHz (5 MHz)

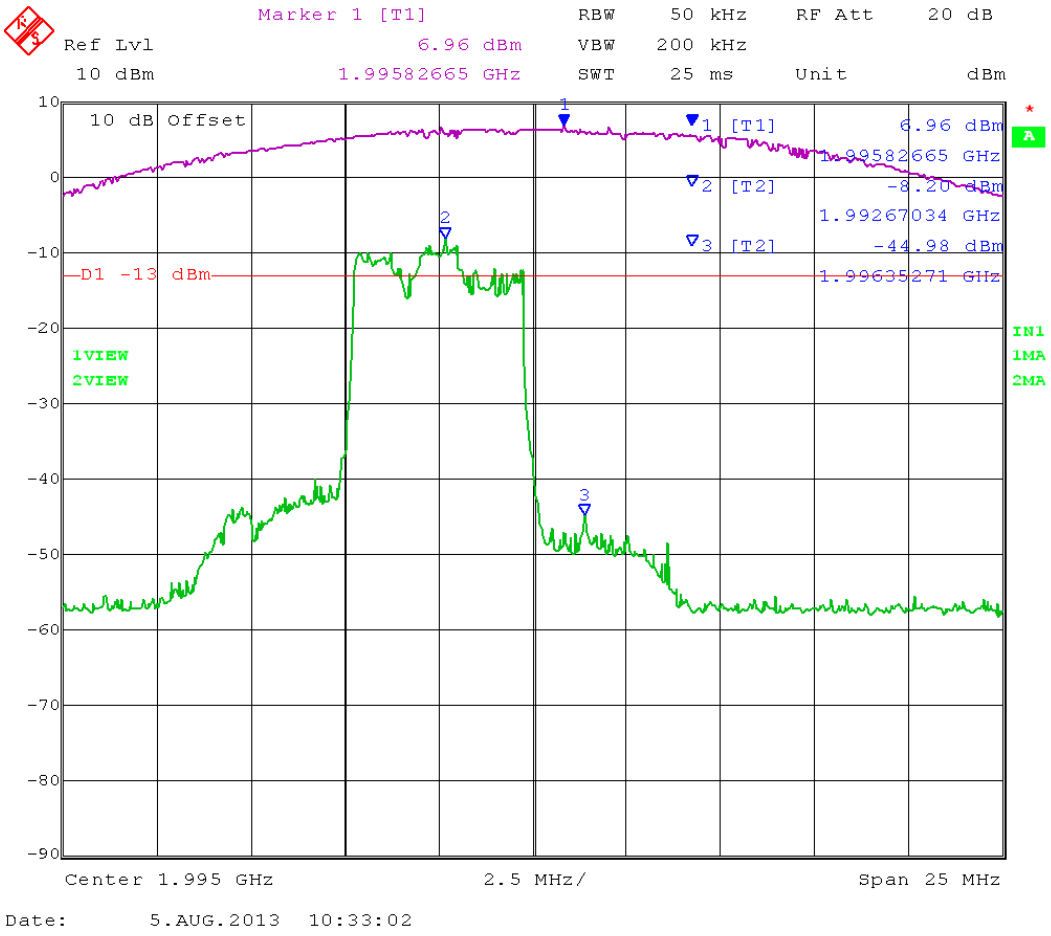


Figure 16: High Channel 1992.5 MHz (5 MHz)

The Reference level on the following plots was calibrated using a 10 MHz RBW=VBW.

Test Data Table 10 – 1930 MHz – 1995 MHz (10 MHz)

10 MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
1935.0	1926.90	-31.31	-13
1990.0	1997.90	-40.92	-13

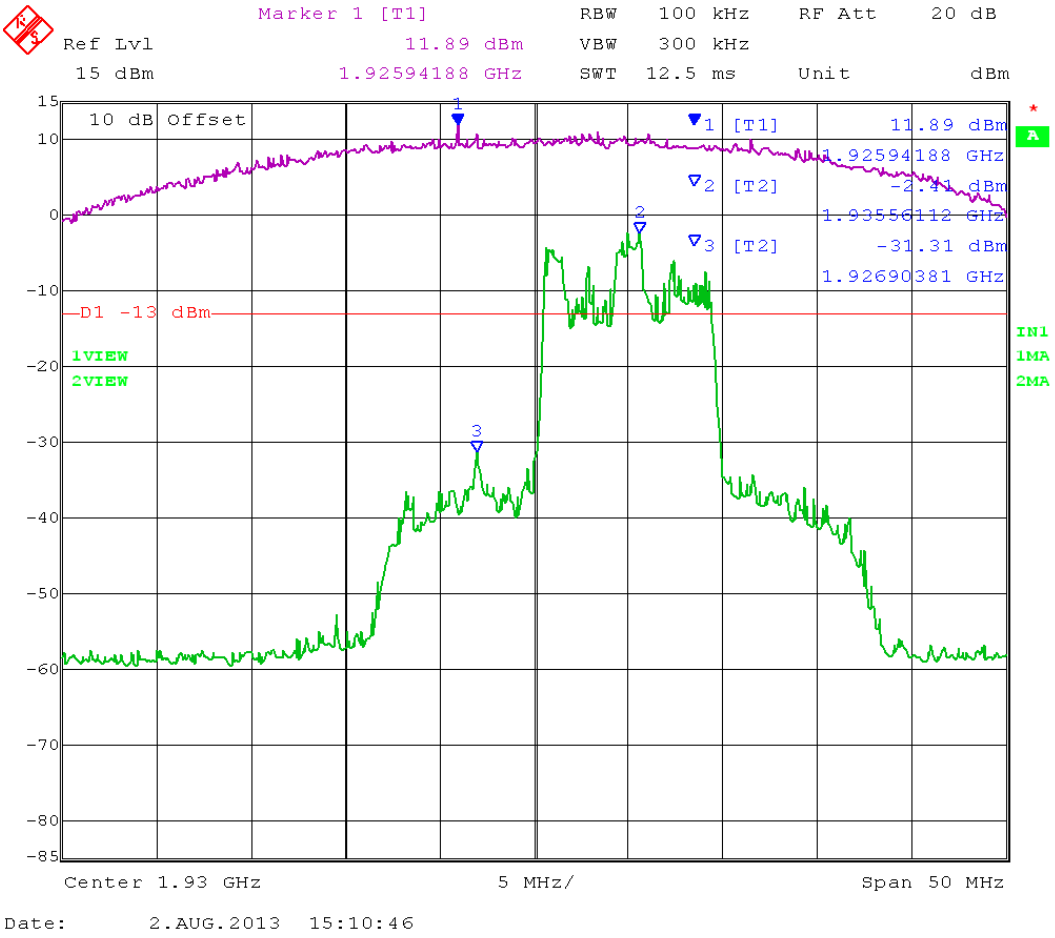


Figure 17: Low Channel 1935.0 MHz (10 MHz)

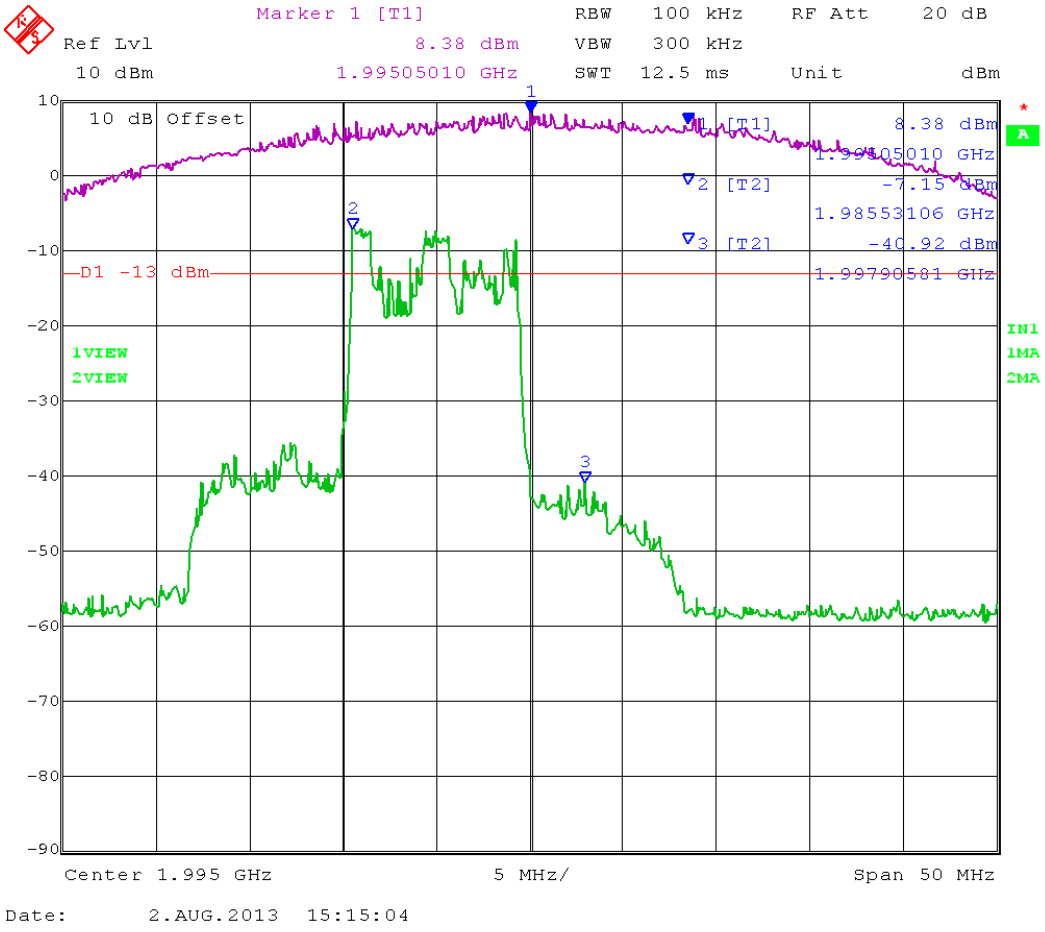


Figure 18: High Channel 1990.0 MHz (10 MHz)

The Reference level on the following plots was calibrated using a 3 MHz RBW=VBW.

Test Data Table 11 – 2110 MHz – 2155 MHz (3 MHz)

3MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
2111.5	2109.94	-37.65	-13
2153.5	2155.12	-43.43	-13

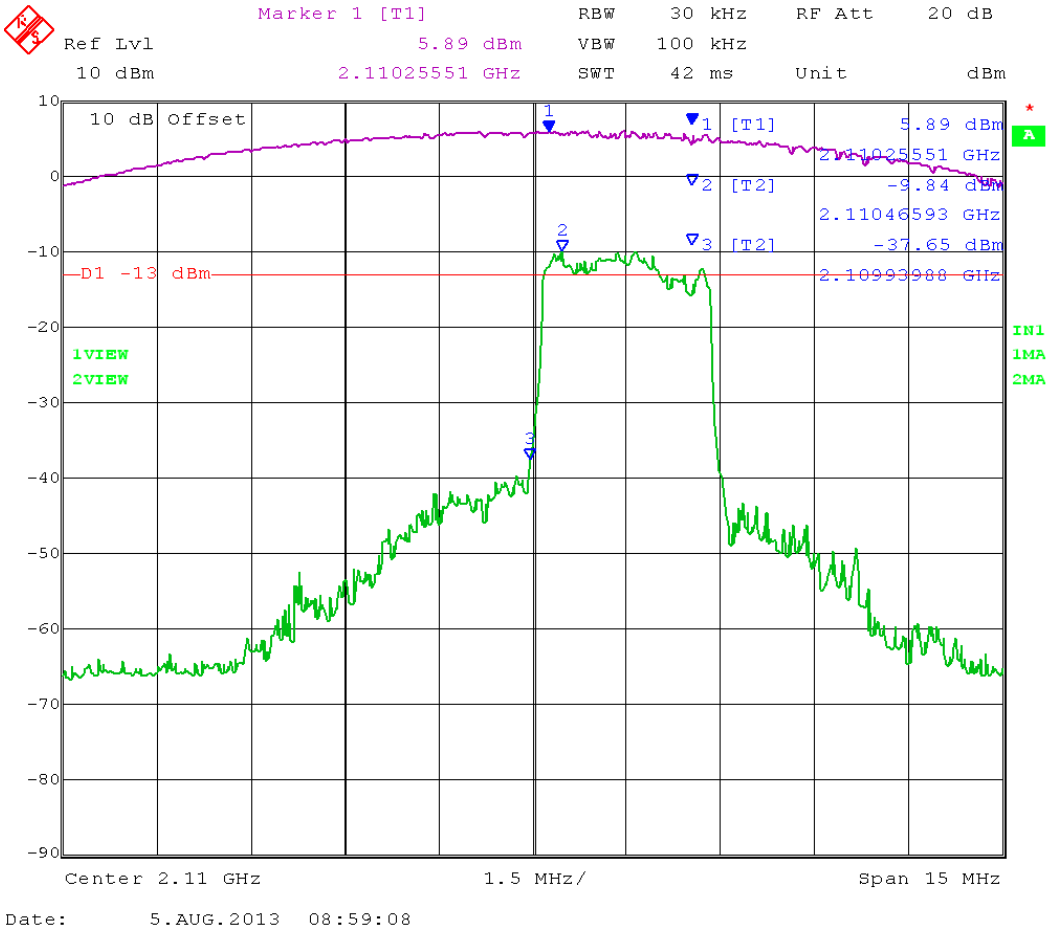


Figure 19: Low Channel 2111.5 MHz (3 MHz)

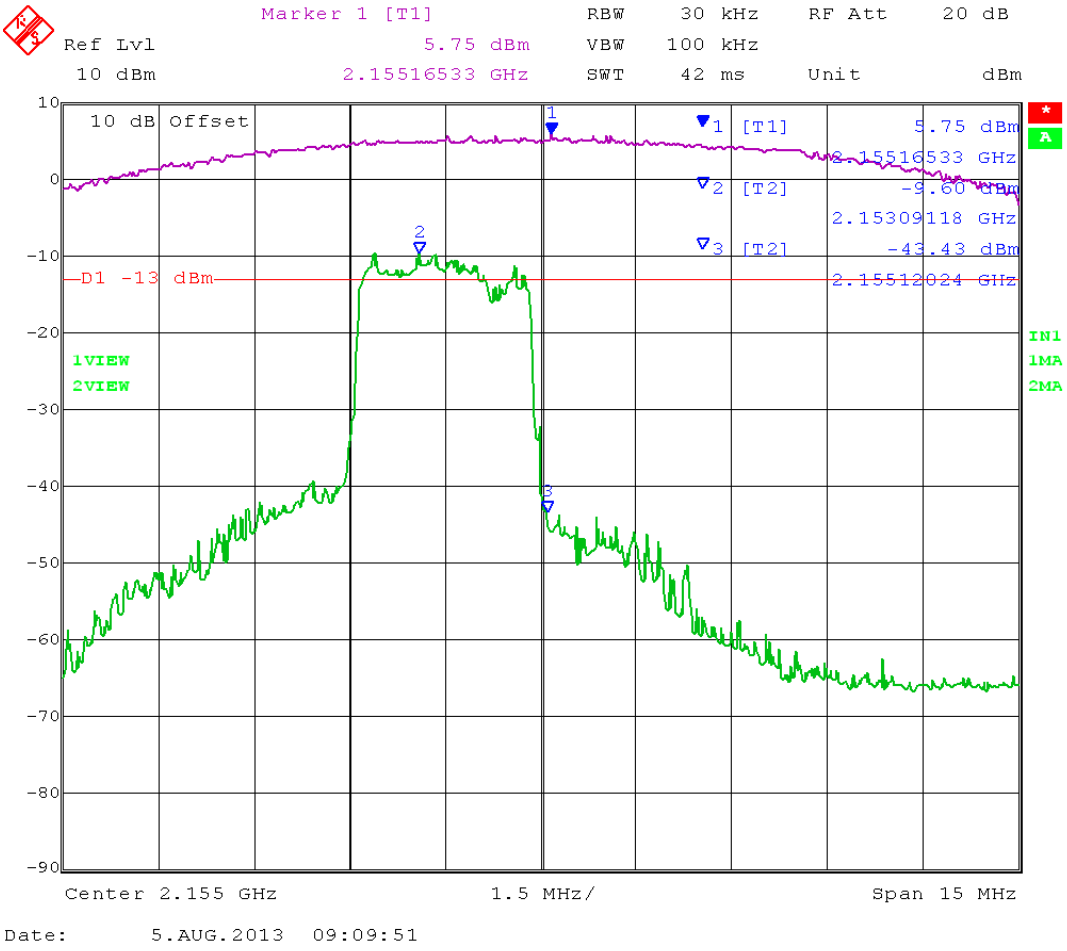


Figure 20: High Channel 2153.5 MHz (3 MHz)

The Reference level on the following plots was calibrated using a 5 MHz RBW=VBW.

Test Data Table 12 – 2110 MHz – 2155 MHz (5 MHz)

5 MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
2112.5	2109.93	-36.91	-13
2152.5	2155.20	-42.81	-13

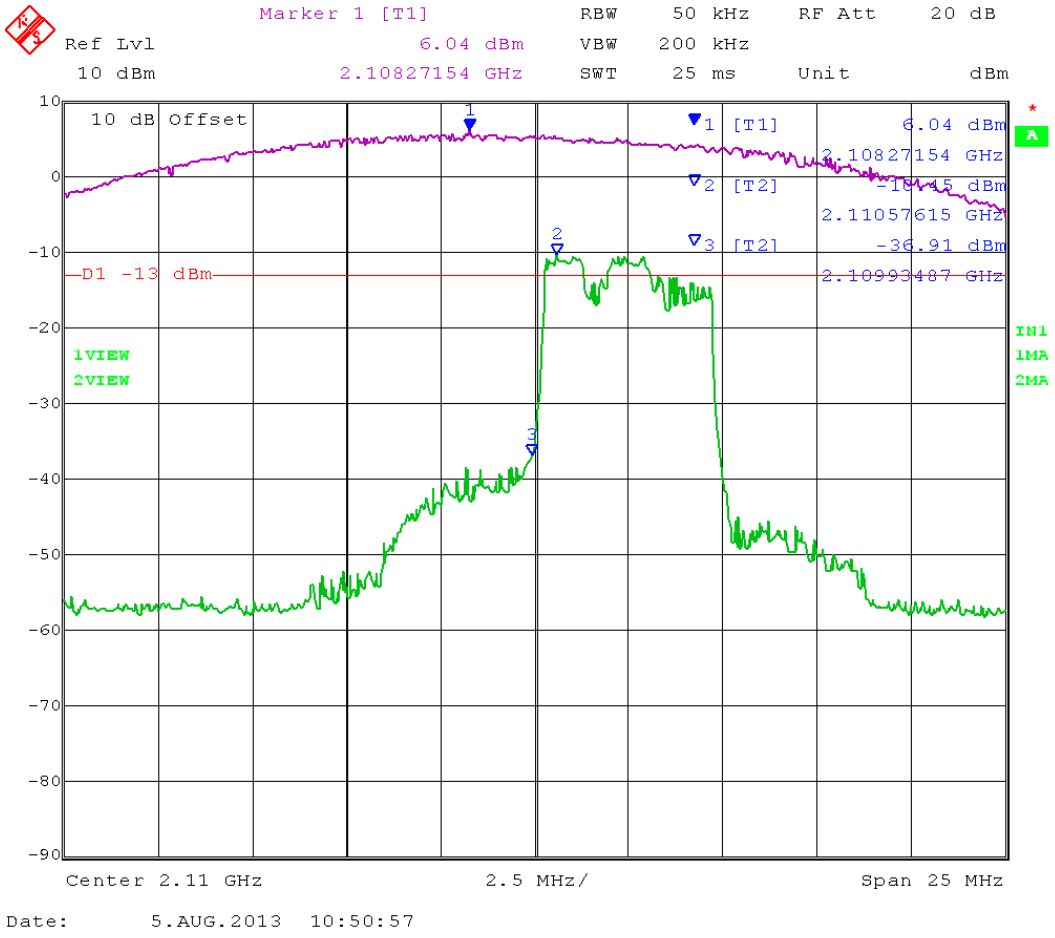


Figure 21: Low Channel 2112.5 MHz (5 MHz)

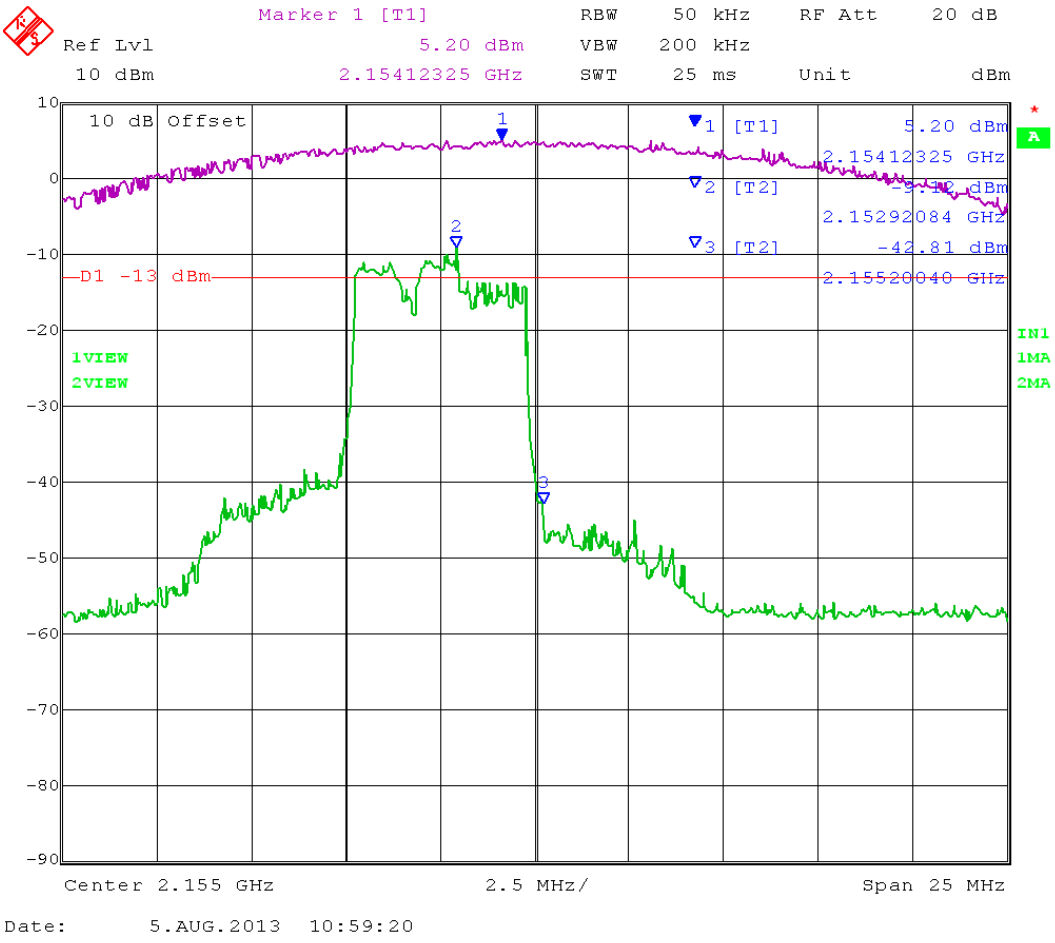


Figure 22: High Channel 2112.5 MHz (5 MHz)

The Reference level on the following plots was calibrated using a 10 MHz RBW=VBW.

Test Data Table 13 – 2110 MHz – 2155 MHz (10 MHz)

10 MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
2115	2106.90	-35.83	-13
2150	2156.40	-44.01	-13

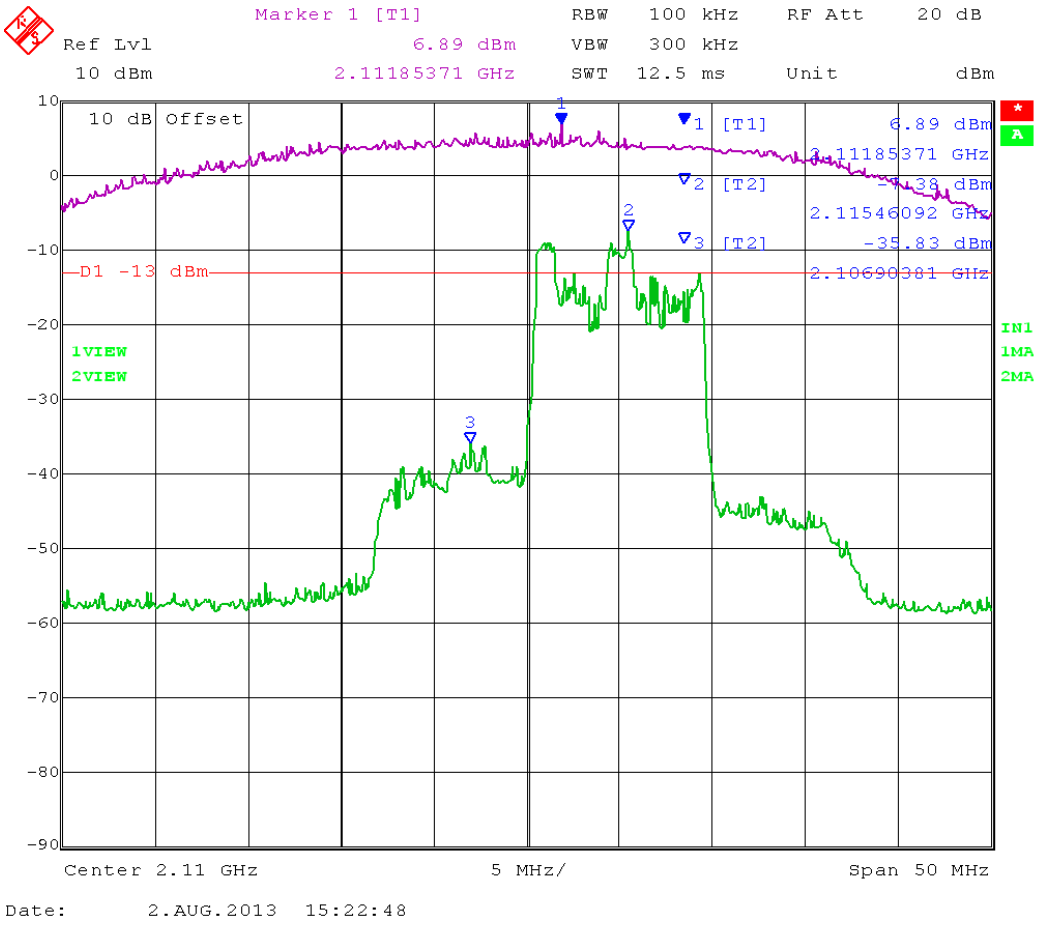


Figure 23: Low Channel 2115.0 MHz (10 MHz)

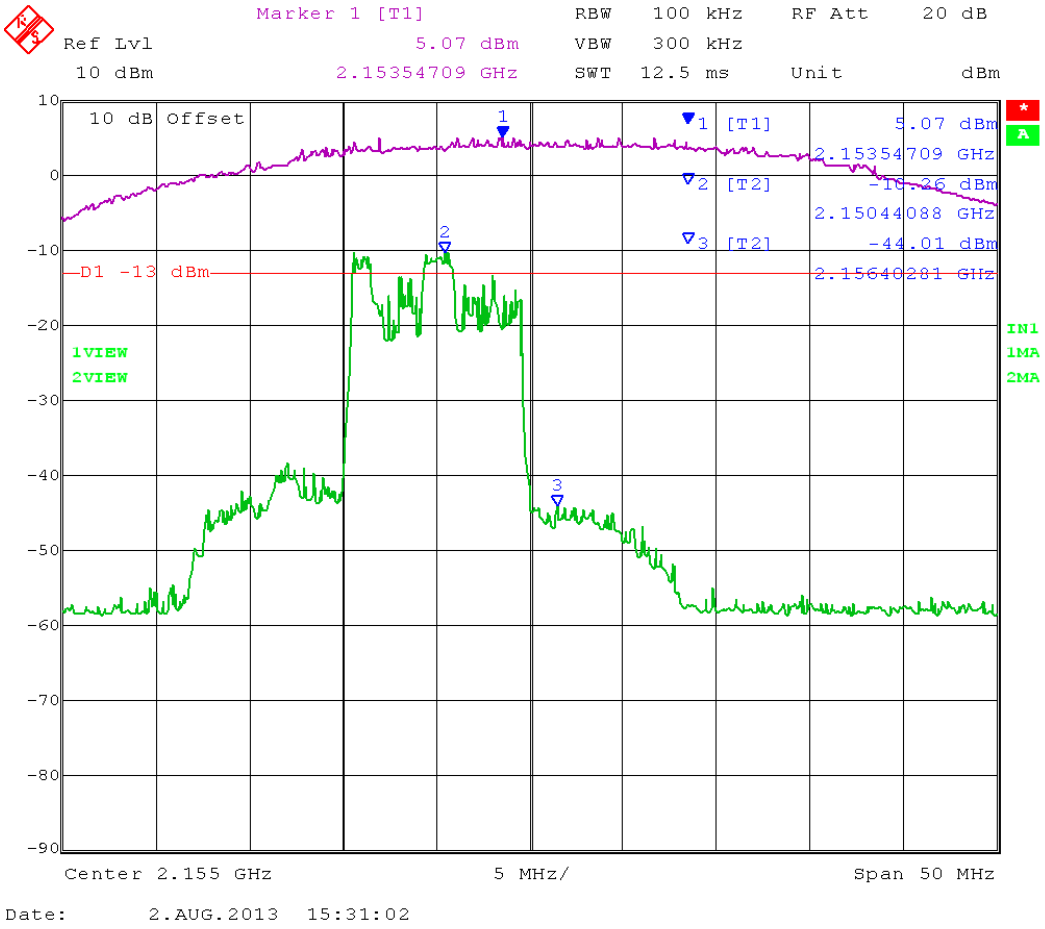


Figure 24: High Channel 2150.0 MHz (10 MHz)

The Reference level on the following plots was calibrated using a 3 MHz RBW=VBW.

Test Data Table 14 – 869 MHz – 894 MHz (3 MHz)

3 MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
870.5	868.94	-32.48	-13
892.5	894.48	-30.14	-13

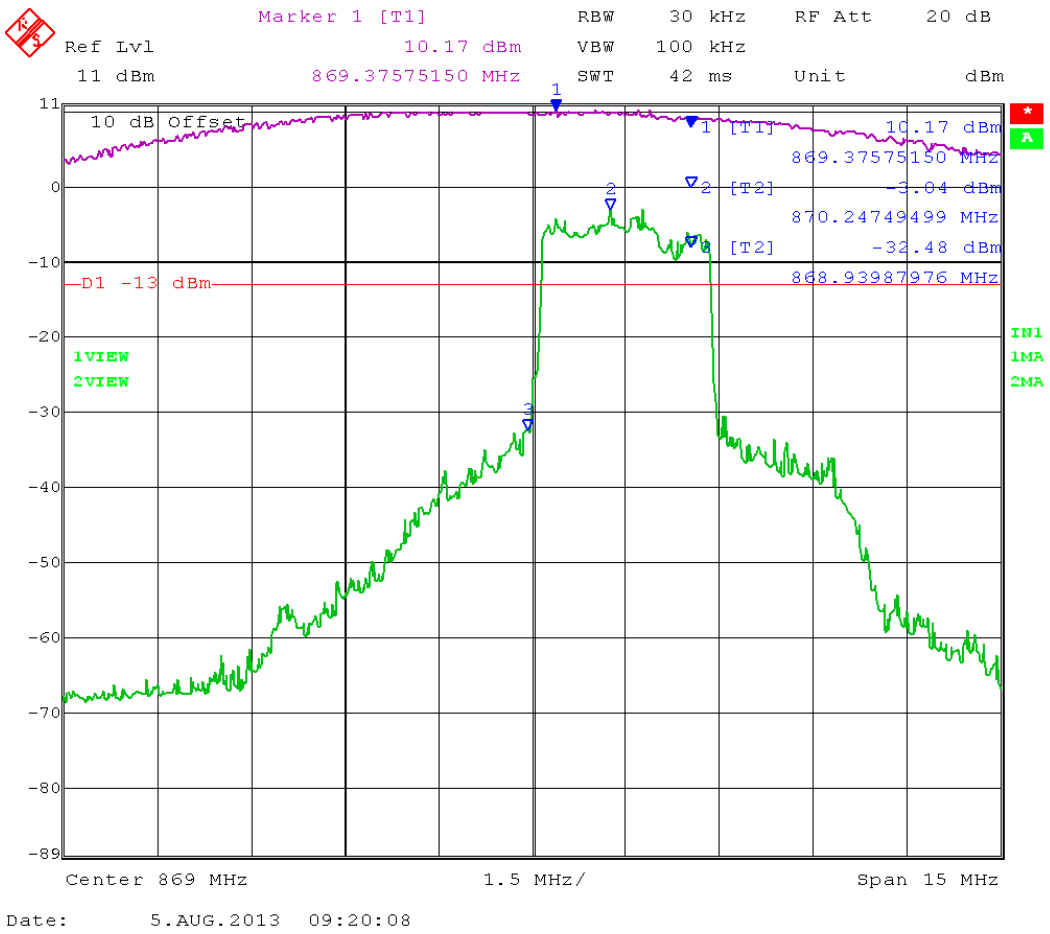


Figure 25: Low Channel 870.5 MHz (3 MHz)

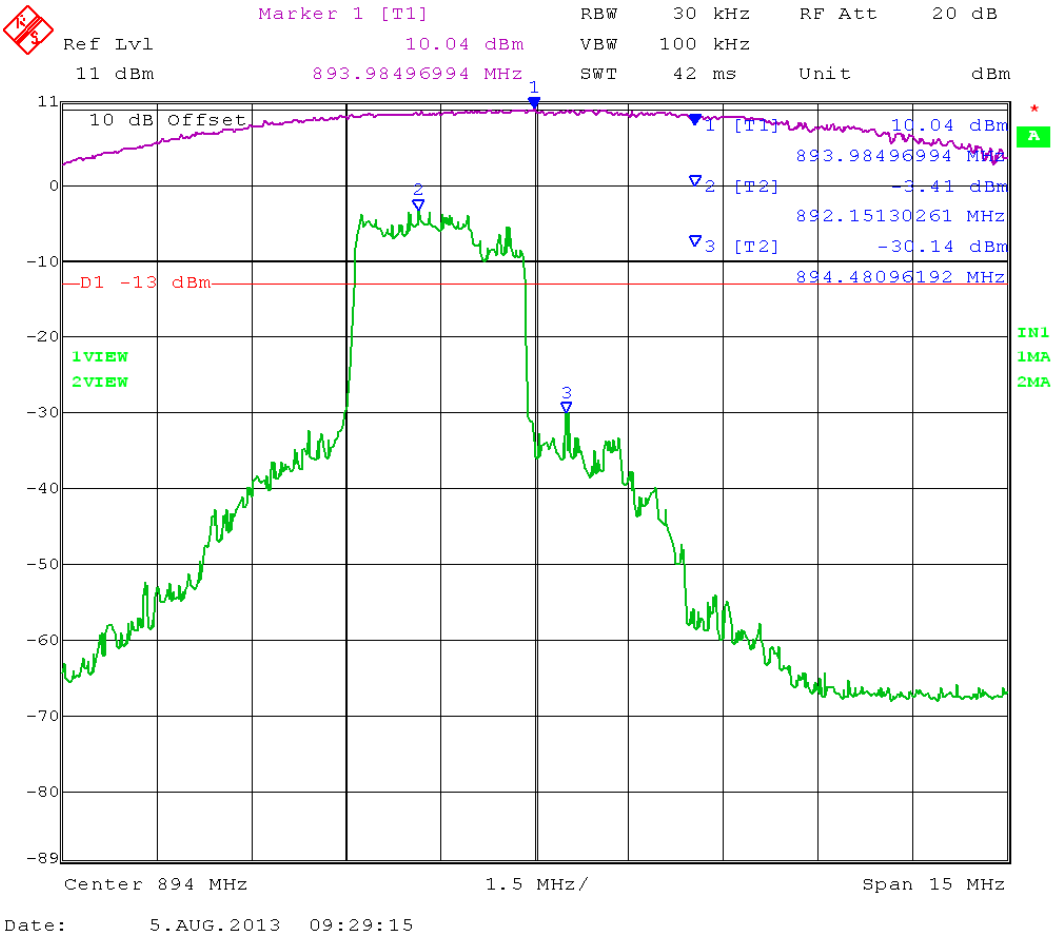


Figure 26: High Channel 892.5 MHz (3 MHz)

The Reference level on the following plots was calibrated using a 5 MHz RBW=VBW.

Test Data Table 15 – 869 MHz – 894 MHz (5 MHz)

5 MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
871.5	868.95	-30.46	-13
891.5	894.50	-34.85	-13

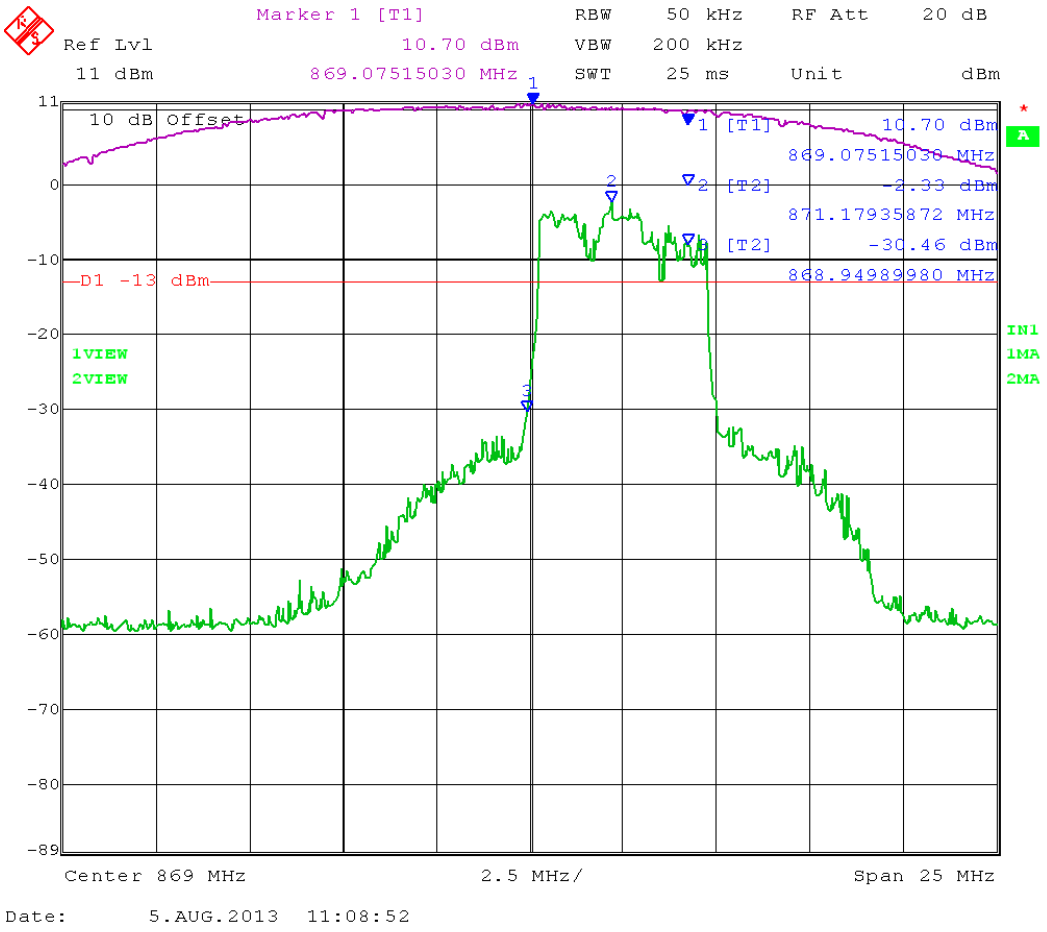


Figure 27: Low Channel 871.5 MHz (5 MHz)

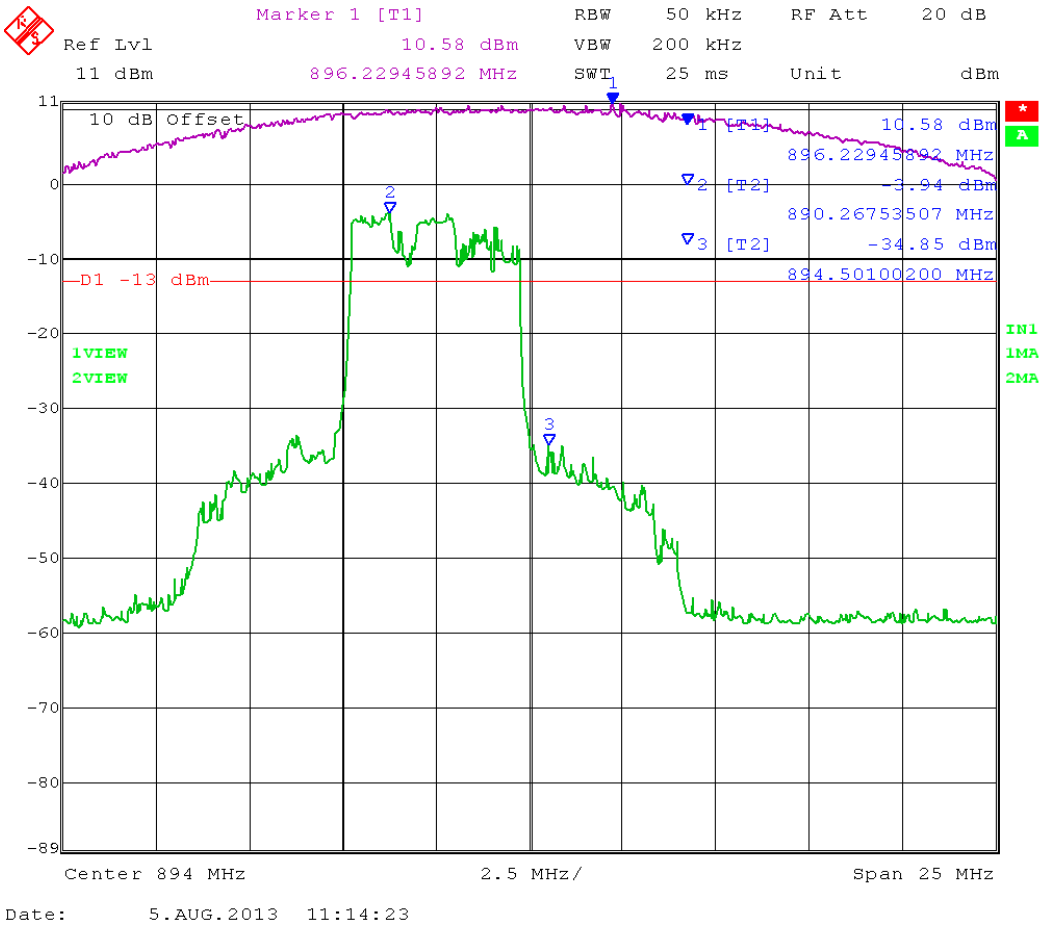


Figure 28: High Channel 891.5 MHz (5 MHz)

The Reference level on the following plots was calibrated using a 10 MHz RBW=VBW.

Test Data Table 16 – 869 MHz – 894 MHz (10 MHz)

10 MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
874	866.40	-31.59	-13
889	894.80	-33.58	-13

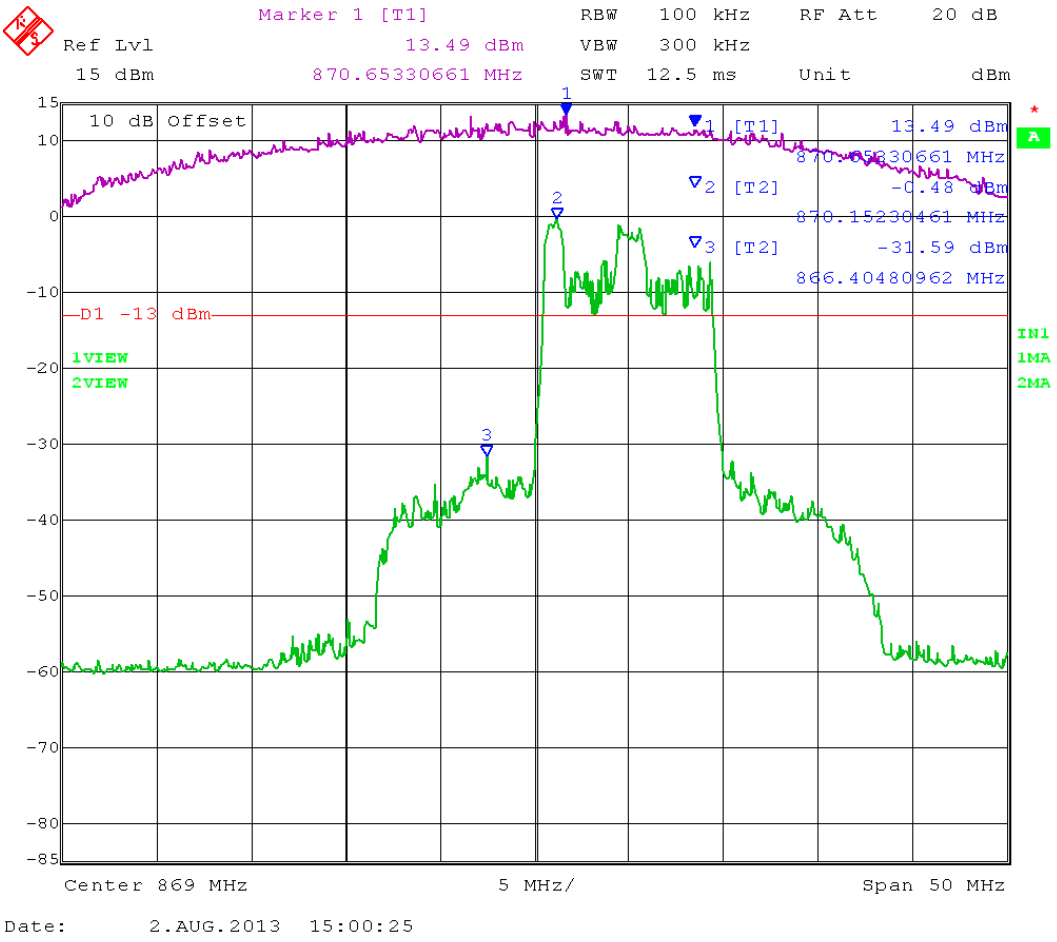


Figure 29: Low Channel 874.0 MHz (10 MHz)

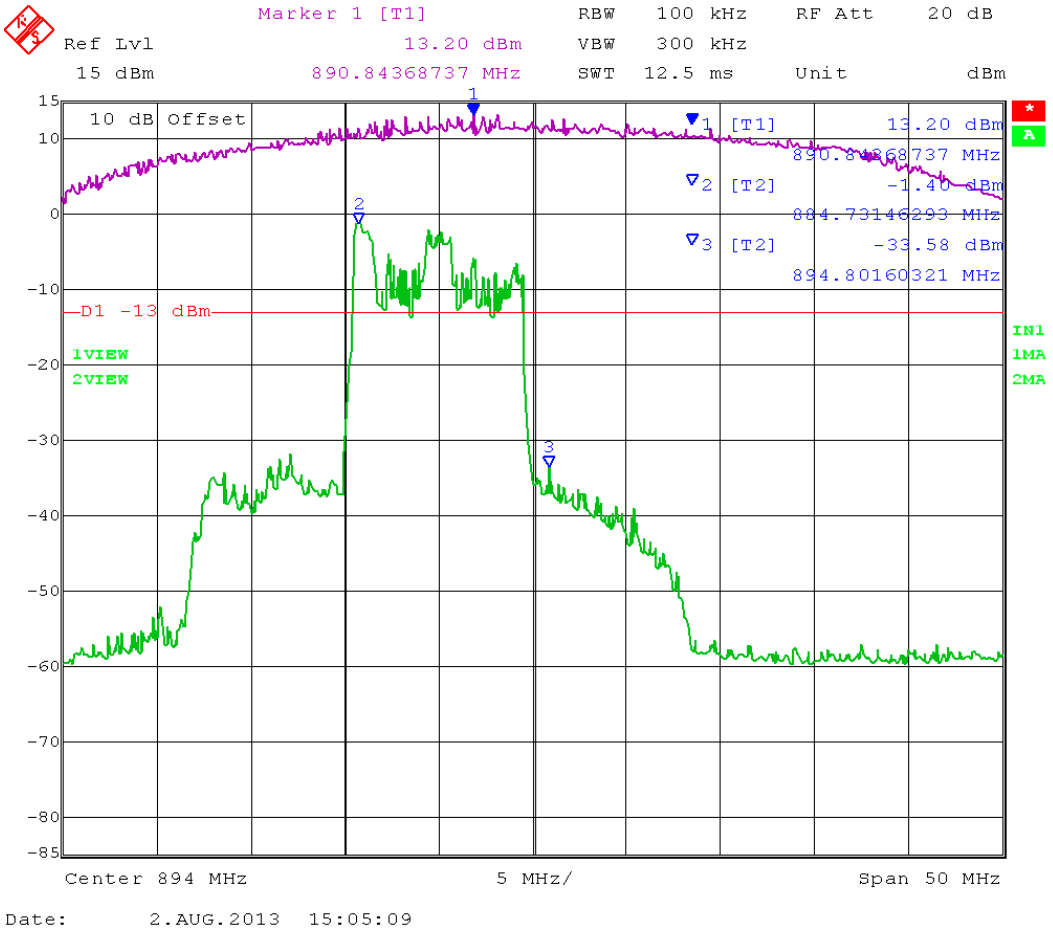


Figure 30: High Channel 889.0 MHz (10 MHz)

The Reference level on the following plots was calibrated using a 3 MHz RBW=VBW.

Test Data Table 17 – 728 MHz – 756 MHz (3 MHz)

3 MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
729.5	727.79	-31.72	-13
754.5	756.18	-31.60	-13

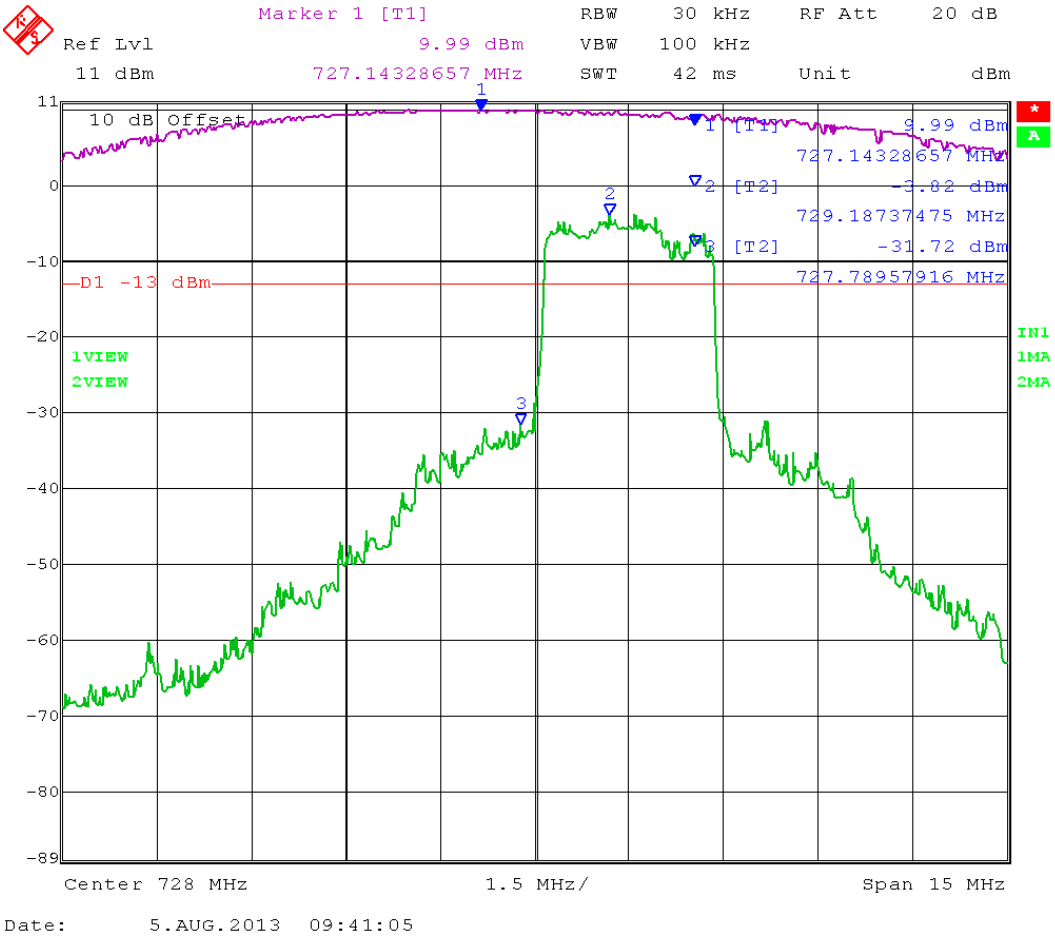


Figure 31: Low Channel 729.5 MHz (3 MHz)

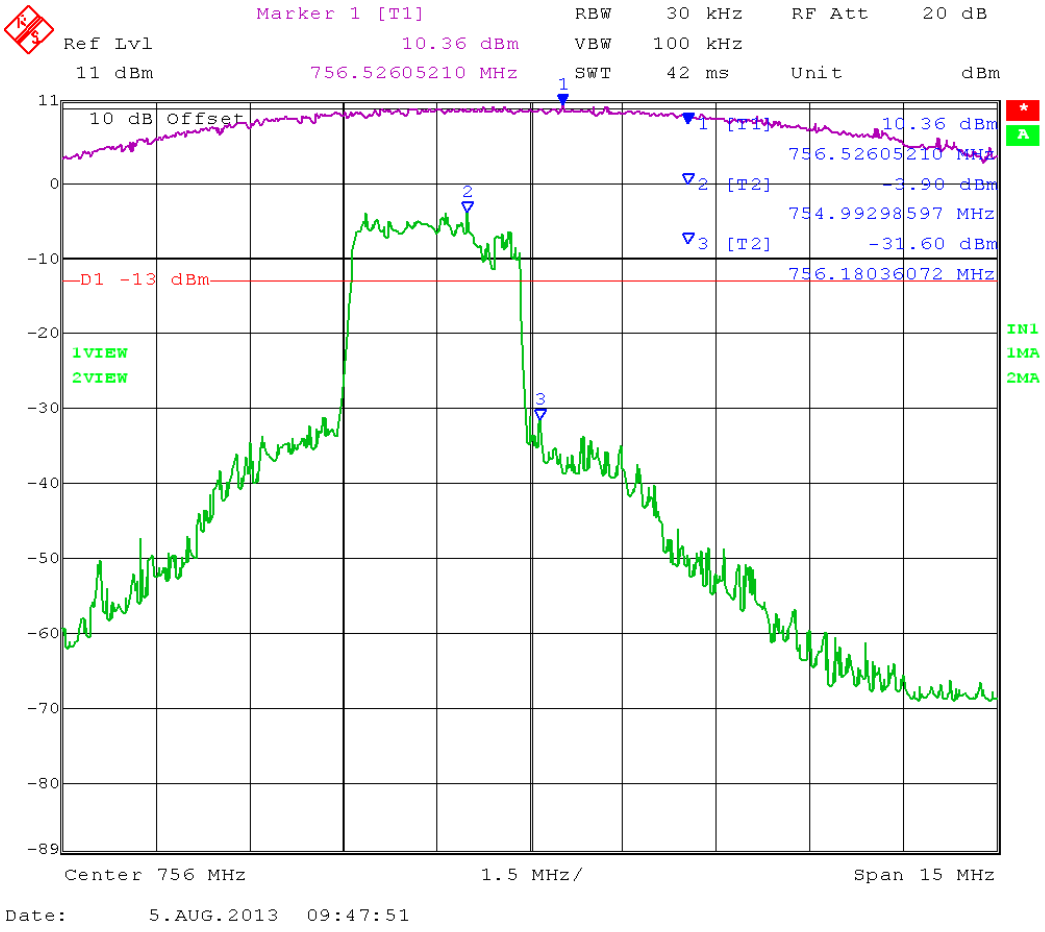


Figure 32: High Channel 754.5 MHz (3 MHz)

The Reference level on the following plots was calibrated using a 5 MHz RBW=VBW.

Test Data Table 18 – 728 MHz – 756 MHz (5 MHz)

5 MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
730.5	726.85	-29.40	-13
753.5	756.70	-33.23	-13

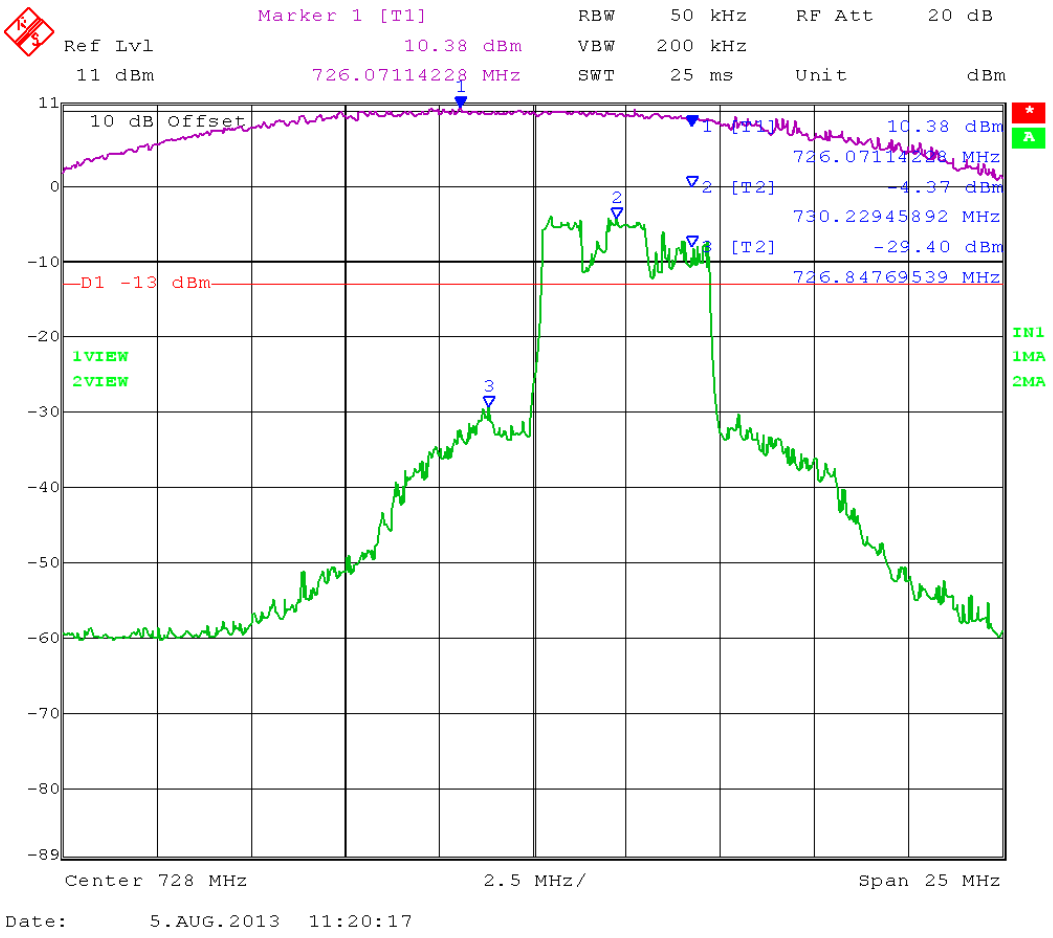


Figure 33: Low Channel 730.5 MHz (5 MHz)

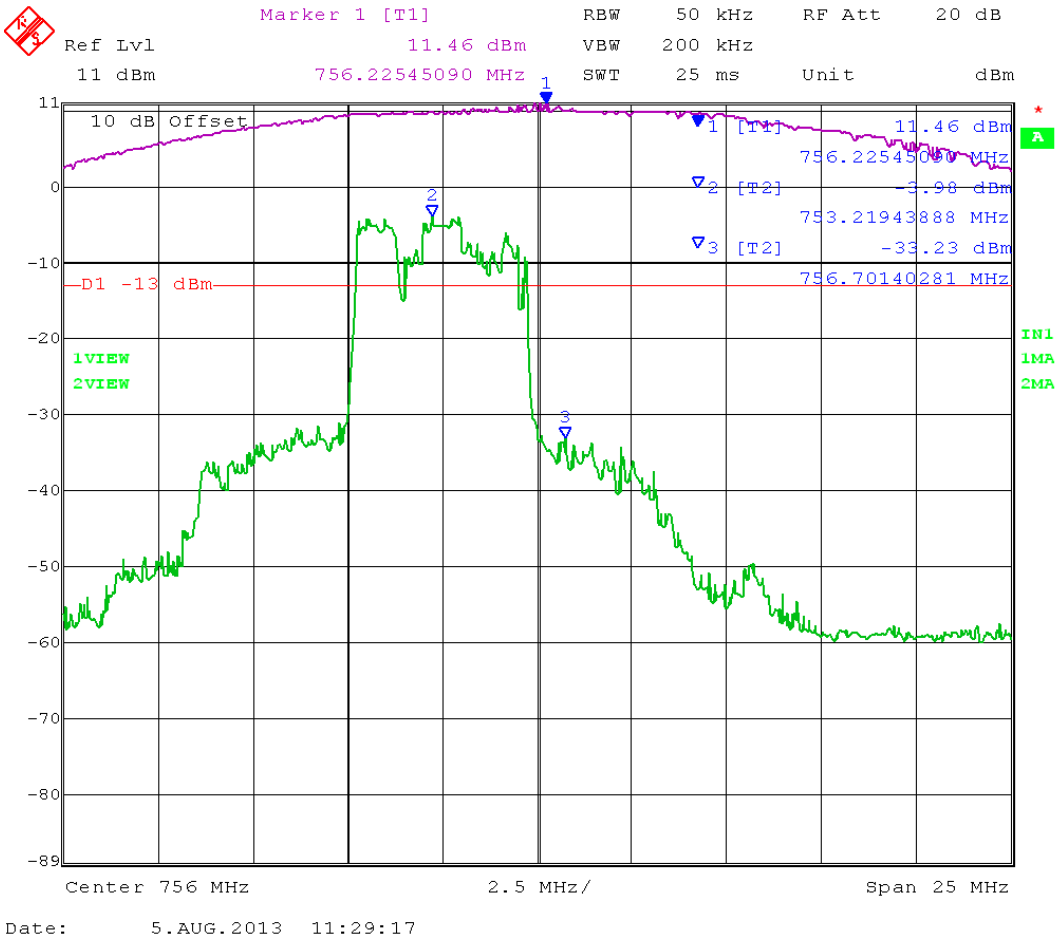


Figure 34: High Channel 753.5 MHz (5 MHz)

The Reference level on the following plots was calibrated using a 10 MHz RBW=VBW.

Test Data Table 19 – 728 MHz – 756 MHz (10 MHz)

10 MHz			
Channel Frequency (MHz)	Band-edge Frequency Emission (MHz)	Amplitude at the band-edge (dBm)	Limit (dBm)
733	724.74	-27.64	-13
751	756.90	-30.92	-13

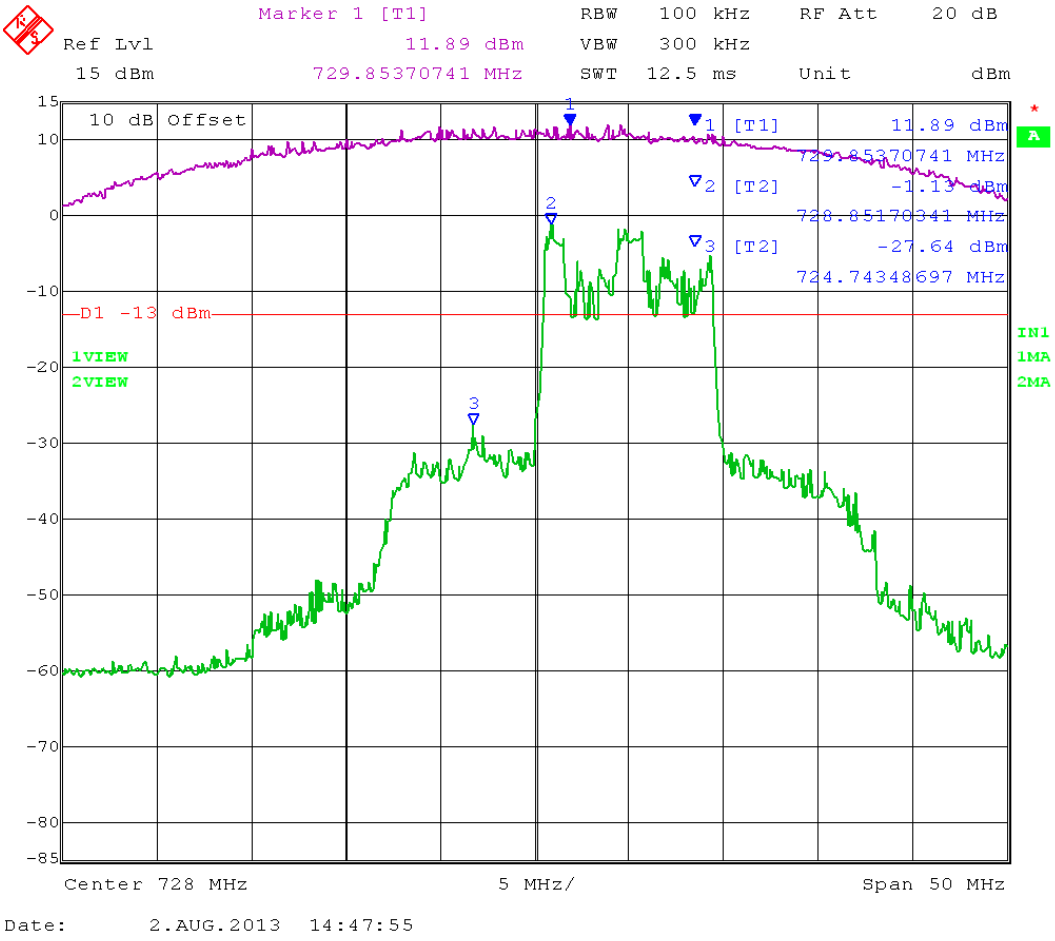


Figure 35: Low Channel 733.0 MHz (10 MHz)

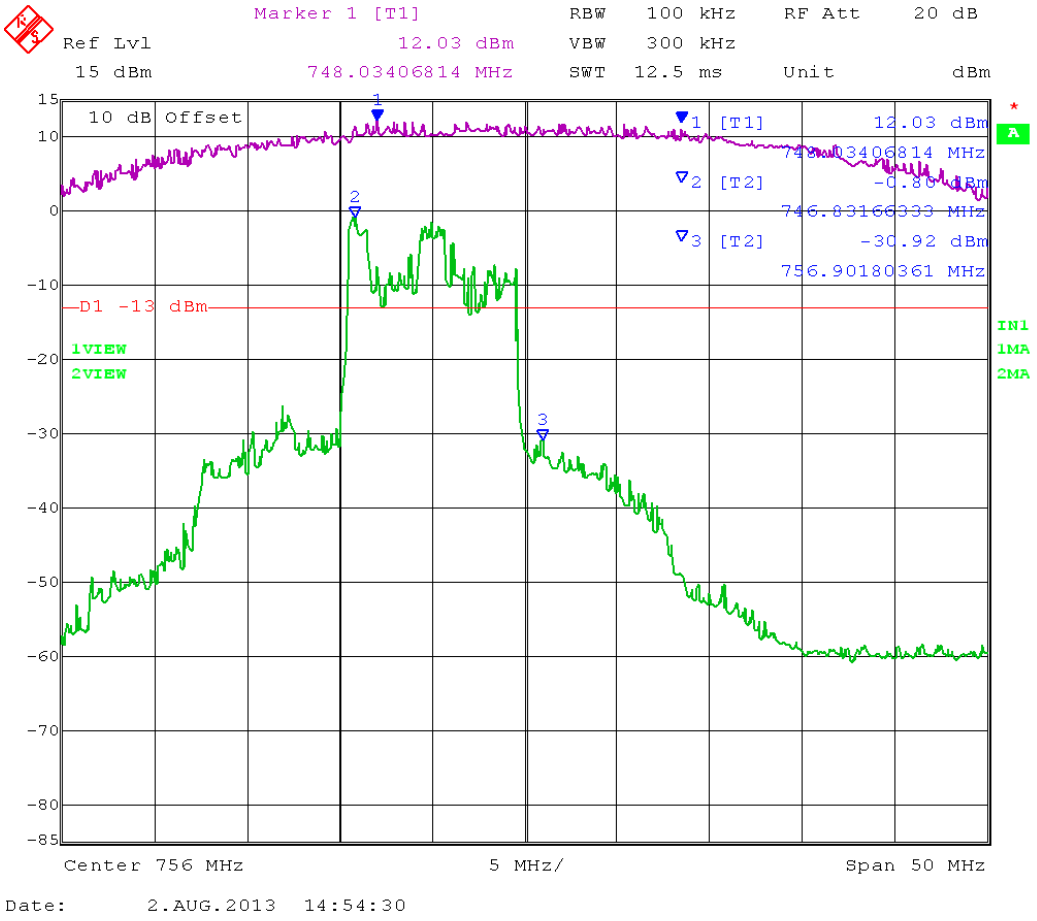


Figure 36: High Channel 751.0 MHz (10 MHz)

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Rules Part No.: §2.1051

Requirements: Emissions must be 43 +10log(Po) dB below the mean power output of the transmitter:
43 + 10log (0.10) = 33.0 dB

Method of Measurement: For analog modulation, the carrier was modulated 100% using a 2500 Hz tone. For digital modulation, the carrier is modulated to its maximum extent. The spectrum was scanned from 9 kHz or the lowest frequency used to at least the 10th harmonic of the fundamental. The measurements were made in accordance with ANSI/TIA 603-C: 2004.

Test Result: The DUT appears to meet the requirements. Test was performing with the worst case orientation.

Test Data Table 20 – Conducted Emissions – 1930 MHz – 1995 MHz

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
1935.00		1962.50		1990.00	
3870.00	58.5	3925.00	57.2	3980.00	59.2
5805.00	72.8	5887.50	73.9	5970.00	72.2
7740.00	71.4	7850.00	75.4	7960.00	73.4
9675.00	72.7	9812.50	73.7	9950.00	72.3
11610.00	NE	11775.00	NE	11940.00	NE
13545.00	NE	13737.50	NE	13930.00	NE
15480.00	NE	15700.00	NE	15920.00	NE
17415.00	NE	17662.50	NE	17910.00	NE
19350.00	NE	19625.00	NE	19900.00	NE

Test Data Table 21 – Conducted Emissions – 2110 MHz – 2155 MHz

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	DB Below Carrier (dBc)
2115.00		2132.50		2150.00	
4230.00	57.2	4265.00	59.5	4300.00	67.5
6345.00	70.9	6397.50	70.1	6450.00	70.4
8460.00	71.9	8530.00	71.0	8600.00	69.9
10575.00	NE	10662.50	NE	10750.00	NE
12690.00	NE	12795.00	NE	12900.00	NE
14805.00	NE	14927.50	NE	15050.00	NE
16920.00	NE	17060.00	NE	17200.00	NE
19035.00	NE	19192.50	NE	19350.00	NE
21150.00	NE	21325.00	NE	21500.00	NE

Test Data Table 22 – Conducted Emissions – 869 MHz – 894 MHz

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
874.00		881.50		889.00	
1748.00	56.5	1763.00	48.0	1778.00	56.7
2622.00	64.5	2644.50	61.1	2667.00	58.7
3496.00	89.8	3526.00	89.6	3556.00	87.2
4370.00	86.5	4407.50	86.5	4445.00	81.0
5244.00	NE	5289.00	NE	5334.00	NE
6118.00	NE	6170.50	NE	6223.00	NE
6992.00	NE	7052.00	NE	7112.00	NE
7866.00	NE	7933.50	NE	8001.00	NE
8740.00	NE	8815.00	NE	8890.00	NE

Test Data Table 23 – Conducted Emissions – 728 MHz – 756 MHz

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
733.00		741.00		751.00	
1466.00	48.2	1482.00	50.3	1502.00	51.9
2199.00	67.8	2223.00	63.1	2253.00	61.8
2932.00	87.2	2964.00	87.6	3004.00	85.1
3665.00	NE	3705.00	93.6	3755.00	90.1
4398.00	NE	4446.00	93.8	4506.00	93.1
5131.00	NE	5187.00	NE	5257.00	NE
5864.00	NE	5928.00	NE	6008.00	NE
6597.00	NE	6669.00	NE	6759.00	NE
7330.00	NE	7410.00	NE	7510.00	NE

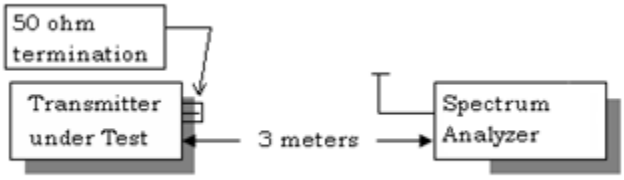
FIELD STRENGTH OF SPURIOUS EMISSIONS

Rules Part No.: Part 2.1053

Requirements: Emissions must be 43 + 10log(Po) dB below the mean power output of the transmitter. 43 + 10log(0.10) = 33.0 dB

Method of Measurements: The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per ANSI/TIA 603-C: 2004 using the substitution method. Equipment placed 80 cm above ground on a rotating table platform. Tuned, calibrated antenna which is raised from 1m to 4m above ground and changed in polarization.

Test Setup Diagram:



Test Data Table 24 – Radiated Emissions – 1930 MHz – 1995 MHz

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
1935.00		
3870.00	V	53.6
5805.00	V	48.4
7740.00	V	48.0
9675.00	V	42.1
11610.00	H/V	NE
13545.00	H/V	NE
15480.00	H/V	NE
17415.00	H/V	NE
19350.00	H/V	NE

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
1962.50		
3925.00	V	47.7
5887.50	V	48.9
7850.00	V	48.9
9812.50	V	40.6
11775.00	V	40.3
13737.50	H/V	NE
15700.00	H/V	NE
17662.50	H/V	NE
19625.00	H/V	NE

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
1990.00		
3980.00	V	52.6
5970.00	V	48.5
7960.00	V	47.2
9950.00	V	40.3
11940.00	H/V	NE
13930.00	H/V	NE
15920.00	H/V	NE
17910.00	H/V	NE
19900.00	H/V	NE

Notes: *No other emissions were found up to the 10th harmonics - NOISE FLOOR

Test Data Table 25 – Radiated Emissions – 2110 MHz – 2155 MHz

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)	Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)	Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
2115.00	0	0	2132.50	0	0	2150.00	0	0
4230.00	V	46.7	4265.00	V	51.2	4300.00	V	52.1
6345.00	V	47.4	6397.50	V	47.1	6450.00	V	47.6
8460.00	V	48.1	8530.00	V	44.6	8600.00	V	44.7
10575.00	V	48.4	10662.50	V	43.7	10750.00	V	43.7
12690.00	H/V	NE	12795.00	H/V	NE	12900.00	H/V	NE
14805.00	H/V	NE	14927.50	H/V	NE	15050.00	H/V	NE
16920.00	H/V	NE	17060.00	H/V	NE	17200.00	H/V	NE
19035.00	H/V	NE	19192.50	H/V	NE	19350.00	H/V	NE
21150.00	H/V	NE	21325.00	H/V	NE	21500.00	H/V	NE

Notes: *No other emissions were found up to the 10th harmonics - NOISE FLOOR

Test Data Table 26 – Radiated Emissions – 869 MHz – 894 MHz

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)	Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)	Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
874.00	0	0.0	881.50	0	0.0	889.00	0	0.0
1748.00	V	59.2	1763.00	V	58.1	1778.00	V	58.5
2622.00	V	53.6	2644.50	V	53.0	2667.00	V	53.7
3496.00	V	52.0	3526.00	V	51.5	3556.00	V	52.0
4370.00	V	50.4	4407.50	V	51.0	4445.00	V	51.6
5244.00	V	49.2	5289.00	V	49.0	5334.00	V	48.6
6118.00	H/V	NE	6170.50	H/V	NE	6223.00	H/V	NE
6992.00	H/V	NE	7052.00	H/V	NE	7112.00	H/V	NE
7866.00	H/V	NE	7933.50	H/V	NE	8001.00	H/V	NE
8740.00	H/V	NE	8815.00	H/V	NE	8890.00	H/V	NE

Notes: *No other emissions were found up to the 10th harmonics - NOISE FLOOR

Test Data Table 27 – Radiated Emissions – 728 MHz – 756 MHz

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)	Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)	Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
733.00	0	0.0	741.00	0	0.0	751.00	0	0.0
1466.00	V	60.4	1482.00	V	59.4	1502.00	V	60.7
2199.00	V	58.0	2223.00	V	56.3	2253.00	V	56.8
2932.00	V	54.7	2964.00	V	55.7	3004.00	V	55.3
3665.00	V	53.5	3705.00	V	52.6	3755.00	V	53.8
4398.00	V	54.7	4446.00	V	51.1	4506.00	V	52.8
5131.00	H/V	NE	5187.00	H/V	NE	5257.00	H/V	NE
5864.00	H/V	NE	5928.00	H/V	NE	6008.00	H/V	NE
6597.00	H/V	NE	6669.00	H/V	NE	6759.00	H/V	NE
7330.00	H/V	NE	7410.00	H/V	NE	7510.00	H/V	NE

Notes: *No other emissions were found up to the 10th harmonics - NOISE FLOOR

FREQUENCY STABILITY

Rules Part No.: Part 2.1055, Part 90

Requirements: Temperature and voltage tests were performed to verify that the frequency remains within the .00025%, 2.5ppm specification limit for.

Method of Measurement: The measurement technique is in accordance with ANSI/TIA 603-C:2004. The transmitter was placed in the temperature chamber at 25° C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15-second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30° C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15-second intervals. The worst case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 degrees C.

Device under test ceases to function below 0 °C

Test Data Table 28 – Frequency Stability – 1930 MHz – 1995 MHz

Assigned Frequency (Ref. Frequency) (MHz)		**1962.499679**
Temperature (ºC)	**Frequency (MHz)**	**Frequency Stability (PPM)**
0	1962.503513	1.95
+10	1962.502095	1.23
+20	1962.500525	0.43
+30	1962.499191	-0.25
+40	1962.498027	-0.84
+50	1962.497299	-1.21

Assigned Frequency (Ref. Frequency) (MHz)		
Battery %	**Frequency (MHz)**	**Frequency Stability (PPM)**
-15%	1962.499702	0.01
0	1962.499679	0.00
+15%	1962.499632	-0.02

Test Data Table 29 – Frequency Stability – 2110 MHz – 2155 MHz

Assigned Frequency (Ref. Frequency) (MHz)		2132.499664
Temperature (ºC)	**Frequency (MHz)**	**Frequency Stability (PPM)**
0	2132.503786	1.93
+10	2132.502238	1.21
+20	2132.500539	0.41
+30	2132.499106	-0.26
+40	2132.497873	-0.84
+50	2132.497083	-1.21

Assigned Frequency (Ref. Frequency) (MHz)		
Battery %	**Frequency (MHz)**	**Frequency Stability (PPM)**
-15%	2132.499688	0.01
0	2132.499664	0.00
+15%	2132.499622	-0.02

Test Data Table 30 – Frequency Stability – 869 MHz – 894 MHz

Assigned Frequency (Ref. Frequency) (MHz)		881.499948
Temperature (ºC)	**Frequency (MHz)**	**Frequency Stability (PPM)**
0	881.501631	1.91
+10	881.500997	1.19
+20	881.500258	0.35
+30	881.499679	-0.31
+40	881.499168	-0.88
+50	881.498822	-1.28

Assigned Frequency (Ref. Frequency) (MHz)		
Battery %	**Frequency (MHz)**	**Frequency Stability (PPM)**
-15%	881.499948	0.01
0	881.499948	0.00
+15%	881.499948	-0.02

Test Data Table 31 – Frequency Stability – 728 MHz – 756 MHz

Assigned Frequency (Ref. Frequency) (MHz)		**740.999864**
Temperature (ºC)	**Frequency (MHz)**	**Frequency Stability (PPM)**
0	741.001269	1.90
+10	741.000753	1.20
+20	741.000167	0.41
+30	740.999663	-0.27
+40	740.999252	-0.83
+50	740.998983	-1.19

Assigned Frequency (Ref. Frequency) (MHz)		
Battery %	**Frequency (MHz)**	**Frequency Stability (PPM)**
-15%	740.999872	0.01
0	740.999864	0.00
+15%	740.999864	0.03