TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Softbank 101P

FCC ID: UCE211043A

To: FCC Part 15.247: 2011 Subpart C

Test Report Serial No:
RFI-RPT-RP83554JD05A V2.0

Version 2.0 supersedes all previous versions

This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals: 	
Checked By:	Ian Watch
Signature: 	
Date of Issue:	17 October 2011

RFI Global Services Ltd
Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire RG23 8BG
Telephone: +44 (0)1256 312000 Facsimile: +44 (0)1256 312001
Email: info@rfi-global.com Website: www.rfi-global.com

Registered in England and Wales. Company number:2117901

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Table of Contents

1. Customer Information

Company Name:	Panasonic Mobile Communications Development of Europe Ltd.
Address:	Panasonic House Willoughby Road Bracknell Berkshire RG12 8FP United Kingdom

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.247
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 15 Subpart C (Intentional Radiators) - Section 15.247
Specification Reference:	47CFR15.107 and 47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 15 Subpart B (Unintentional Radiators) - Sections 15.107 and 15.109
Specification Reference:	47CFR15.207 and 47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 15 Subpart C (Intentional Radiators) - Sections 15.207 and 15.209
Site Registration:	FCC: 209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	12 September 2011 to 28 September 2011

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.107(a)	Receiver/Idle Mode AC Conducted Emissions	✓
Part 15.109	Receiver/Idle Mode Radiated Spurious Emissions	✓
Part 15.207	Transmitter AC Conducted Emissions	✓
Part 15.247(a)(2)	Transmitter Minimum 6 dB Bandwidth	✓
Part 15.247(e)	Transmitter Power Spectral Density	✓
Part 15.247(b)(3)	Transmitter Maximum Peak Output Power	✓
Part 15.247(b)(3)	Transmitter Average Conducted Output Power	Note 1
Part 15.247(d) & 15.209(a)	Transmitter Radiated Emissions	✓
Part 15.247(d) & 15.209(a)	Transmitter Band Edge Radiated Emissions	✓
Key to Results ✓ = Complied ✗ = Did not comply		

Note 1: The measurement was performed to support SAR tests.

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
Reference:	ANSI C63.10 (2009)
Title:	American National Standard for Testing Unlicensed Wireless Devices

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	Softbank
Model Name or Number:	101P
IMEI:	004401221134089 *(Radiated sample #1)* 004401221130087*(Conducted RF port sample)*
Hardware Version Number:	Revision C
Software Version Number:	ACPU: sbm-07-0363 CCPU: R1D_EC01
FCC ID:	UCE211043A

Brand Name:	Softbank
Model Name or Number:	101P
IMEI:	004401221134063 *(Radiated sample #2)*
Hardware Version Number:	Revision C
Software Version Number:	ACPU: sbm-07-0319 CCPU: R1D_EC01
FCC ID:	UCE211043A

Brand Name:	Softbank
Description:	Battery
Model Name or Number:	PMBBE1

Brand Name:	Softbank
Description:	AC Charger
Model Name or Number:	PMCBD1

Brand Name:	Softbank
Description:	Desktop Charger
Model Name or Number:	PMEBE1

Brand Name:	Softbank
Description:	Charge/USB Data cable
Model Name or Number:	PMCBD1

Brand Name:	Softbank
Description:	Personal Hands-Free
Model Name or Number:	PMLBD1

3.2. Description of EUT

The equipment under test was a dual mode UMTS/GSM cellular handset with *Bluetooth*, WLAN and RFID

3.3. Modifications Incorporated in the EUT

The Customer stated that the final software version is ACPU: sbm-07-0363 CCPU: R1D_EC01

Initial software version ACPU: sbm-07-0319 CCPU: R1D_EC01 was installed in the sample with IMEI 004401221134063. The Customer stated this version was to enable operation of WLAN therefore allowing WLAN test cases to be performed. Otherwise this software is identical to the final software version and has no impact on the test results contained within this test report.

3.4. Additional Information Related to Testing

Technology Tested:	WLAN (IEEE 802.11)		
Type of Unit:	Transceiver		
Modulation Type:	BPSK, QPSK, 16 QAM and 64QAM		
Data Rate:	1, 2, 5.5, 11, 6, 9, 12, 18, 24, 36, 48, 54,6.5,13,19.5, 26, 39, 52, 58.5, 6.5, 7.2,14.4, 21.7, 28.9, 43.3, 57.8, 65 and 72.2 Mbps		
Declared Antenna Gain	-1.3 dBi		
Power Supply Requirement(s):	Nominal	3.7 V	
Maximum Conducted Output Power:	20.7 dBm		
Transmit Frequency Range:	2412 MHz to 2462 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	1	2412
	Middle	6	2437
	Top	11	2462
Receive Frequency Range:	2412 MHz to 2462 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	1	2412
	Middle	6	2437
	Top	11	2462

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Brand Name:	Panasonic
Description:	Laptop PC
Model Name or Number:	Toughbook CF-74

Brand Name:	Generic
Description:	Micro SD Memory Card
Model Name or Number:	128 MB

Brand Name:	Buffalo
Description:	USB Hub
Model Name or Number:	BSH3U01

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Receiver/Idle mode.
- Continuously transmitting at maximum power on the bottom, centre and top channels as required using the supported data rates.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- Controlled using a bespoke application on the laptop PC supplied by the Client. The application was used to enable continuous transmission and receive mode and to select the test channels, data rates and modulation schemes as required.
- Receive/Idle tests: The 802.11 mode was active but not transmitting.
- Transmitter spurious emissions were performed with the EUT transmitting with a data rate of 11 Mbps, as this was found to have the highest power level and therefore deemed to be worst case.
- Idle and transmitter radiated spurious emissions tests were performed with the Desktop charger connected to the EUT as this was found to be the worst case during pre-scans. All the accessories were individually connected and measurements made during the pre-scans to determine the worst case combination.
- The conducted sample with IMEI 004401221130087 was used for 6 dB Bandwidth, maximum output power and power spectral density tests.
- The radiated sample with IMEI 004401221134063 was used for idle mode AC conducted emissions and idle mode radiated spurious emissions < 1 GHz tests.
- The radiated sample with IMEI 004401221134089 was used for all other tests.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

5.2. Test Results

5.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions

Test Summary:

Test Engineer:	Patrick Jones	**Test Date:**	22 September 2011
Test Sample IMEI:	004401221134089		

FCC Part:	15.107
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	30

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.249000	Live	46.5	61.8	15.3	Complied
0.420000	Live	45.4	57.4	12.0	Complied
0.501000	Live	44.0	56.0	12.0	Complied
0.501000	Live	44.1	56.0	11.9	Complied
0.631500	Live	39.6	56.0	16.4	Complied
0.672000	Live	39.7	56.0	16.3	Complied
0.874500	Live	39.9	56.0	16.1	Complied
1.365000	Live	41.4	56.0	14.6	Complied
1.423500	Live	43.2	56.0	12.8	Complied
1.617000	Live	55.2	56.0	0.8	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.415500	Live	30.3	47.5	17.2	Complied
0.415500	Live	30.3	47.5	17.2	Complied
0.496500	Live	27.2	46.1	18.9	Complied
0.541500	Live	24.6	46.0	21.4	Complied
1.284000	Live	28.4	46.0	17.6	Complied
1.738500	Live	40.7	46.0	5.3	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)

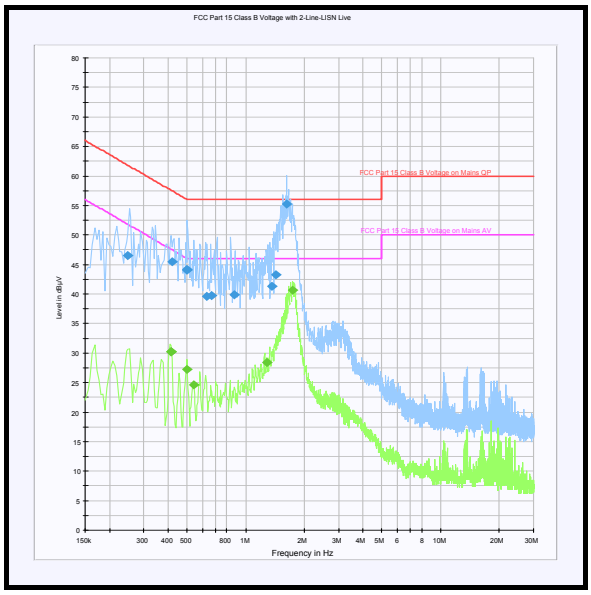
Results: Neutral / Quasi Peak

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.415500	Neutral	50.3	57.5	7.2	Complied
0.420000	Neutral	48.1	57.4	9.3	Complied
0.501000	Neutral	47.2	56.0	8.8	Complied
0.541500	Neutral	43.8	56.0	12.2	Complied
0.591000	Neutral	41.8	56.0	14.2	Complied
1.644000	Neutral	50.5	56.0	5.5	Complied

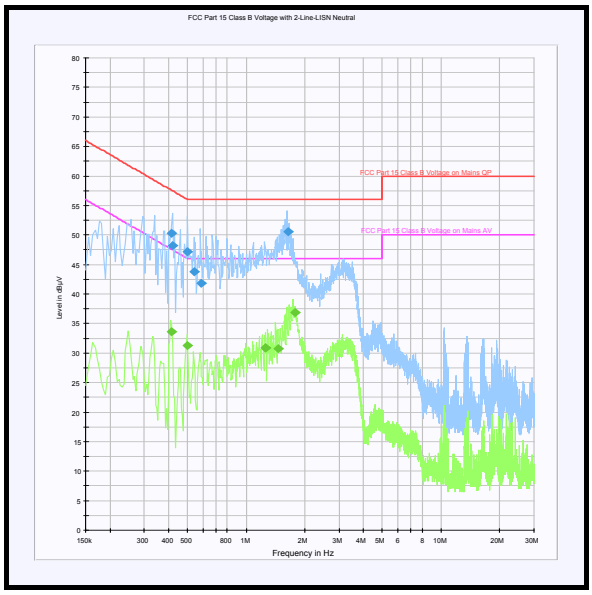
Results: Neutral / Average

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.415500	Neutral	33.6	47.5	13.9	Complied
0.496500	Neutral	31.3	46.1	14.8	Complied
1.252500	Neutral	30.9	46.0	15.1	Complied
1.257000	Neutral	30.9	46.0	15.1	Complied
1.455000	Neutral	30.7	46.0	15.3	Complied
1.774500	Neutral	36.8	46.0	9.2	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)



Live



Neutral

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	27 September 2011
Test Sample IMEI:	004401221134063		

FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.4 Section 8
Frequency Range:	30 MHz to 1000 MHz

Environmental Conditions:

Temperature (°C):	28
Relative Humidity (%):	33

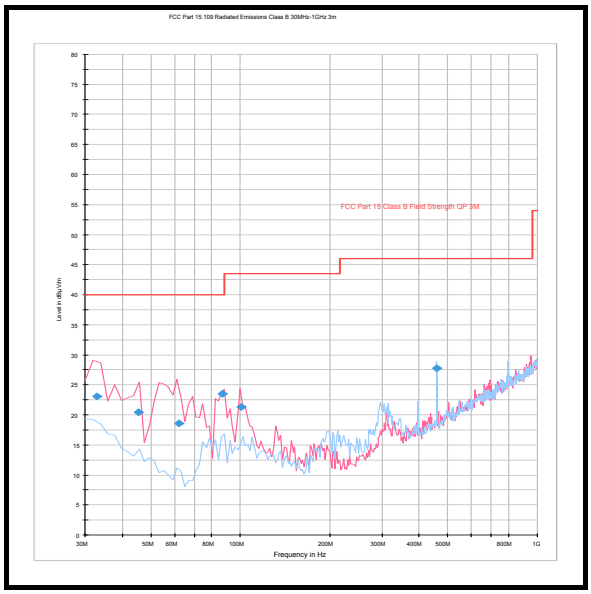
Results: Quasi Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
32.907	Vertical	23.0	40.0	17.0	Complied
45.276	Vertical	20.4	40.0	19.6	Complied
61.991	Vertical	18.6	40.0	21.4	Complied
86.945	Vertical	23.5	40.0	16.5	Complied
100.513	Vertical	21.3	43.5	22.2	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. All emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
3. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Receiver/Idle Mode Radiated Spurious Emissions (continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

Receiver/Idle Mode Radiated Spurious Emissions (continued)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	12 September 2011
Test Sample IMEI:	004401221134089		

FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.4 Section 8
Frequency Range:	1 GHz to 12.75 GHz

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	30

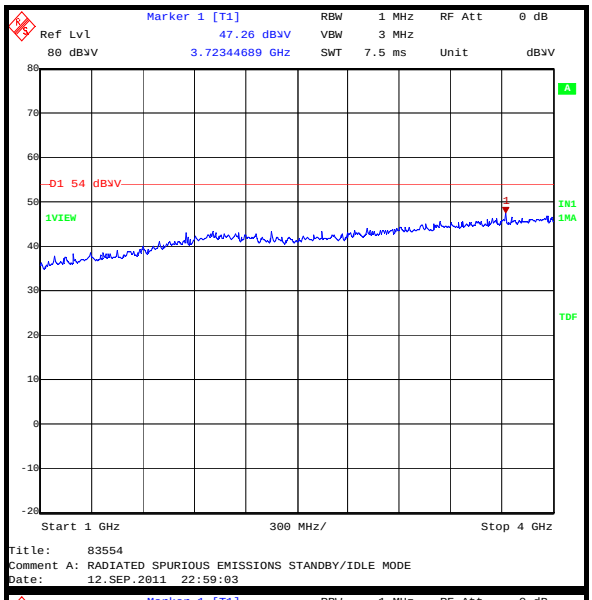
Results:

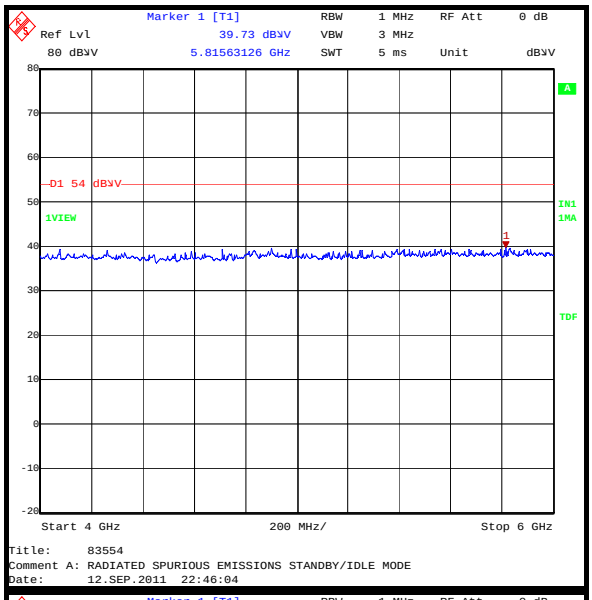
Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
3723.447	Vertical	47.3	54.0	6.7	Complied

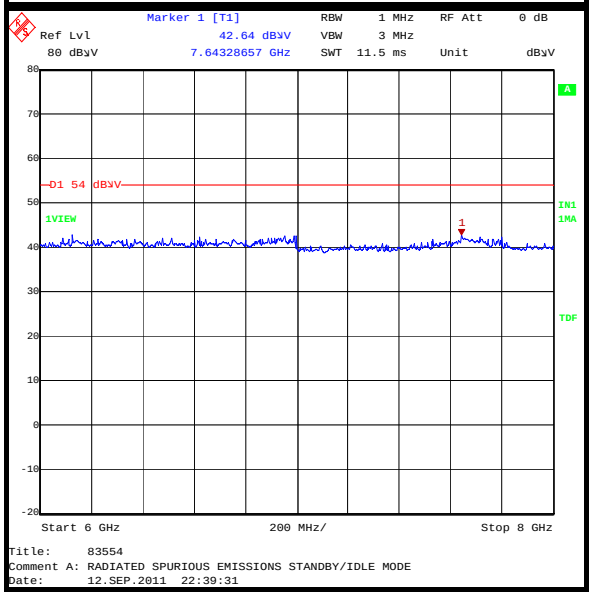
Note(s):

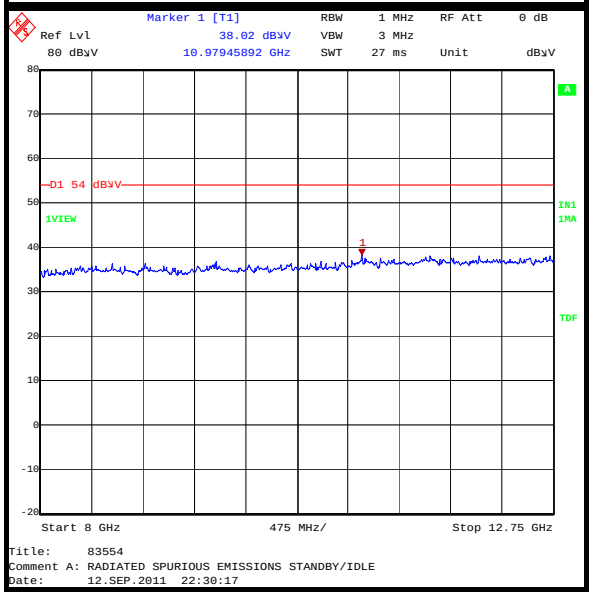
1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.
3. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Receiver/Idle Mode Radiated Spurious Emissions (continued)









5.2.3. Transmitter AC Conducted Spurious Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	26 September 2011
Test Sample IMEI:	004401221134089		

FCC Part:	15.207
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	31

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
1.590000	Live	43.0	56.0	13.0	Complied
1.833000	Live	42.5	56.0	13.5	Complied
1.878000	Live	44.8	56.0	11.2	Complied
1.959000	Live	45.9	56.0	10.1	Complied
1.999500	Live	45.5	56.0	10.5	Complied
2.004000	Live	46.3	56.0	9.7	Complied
2.053500	Live	48.3	56.0	7.7	Complied
2.053500	Live	48.2	56.0	7.8	Complied
2.053500	Live	47.5	56.0	8.5	Complied
2.094000	Live	45.7	56.0	10.3	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
1.230000	Live	30.5	46.0	15.6	Complied
1.563000	Live	28.7	46.0	17.3	Complied
1.972500	Live	27.0	46.0	19.0	Complied
2.013000	Live	26.8	46.0	19.2	Complied
2.017500	Live	26.9	46.0	19.1	Complied
2.058000	Live	26.6	46.0	19.4	Complied
2.058000	Live	26.8	46.0	19.2	Complied
2.062500	Live	25.9	46.0	20.1	Complied
2.098500	Live	26.0	46.0	20.0	Complied
2.179500	Live	24.9	46.0	21.1	Complied

Transmitter AC Conducted Spurious Emissions (continued)

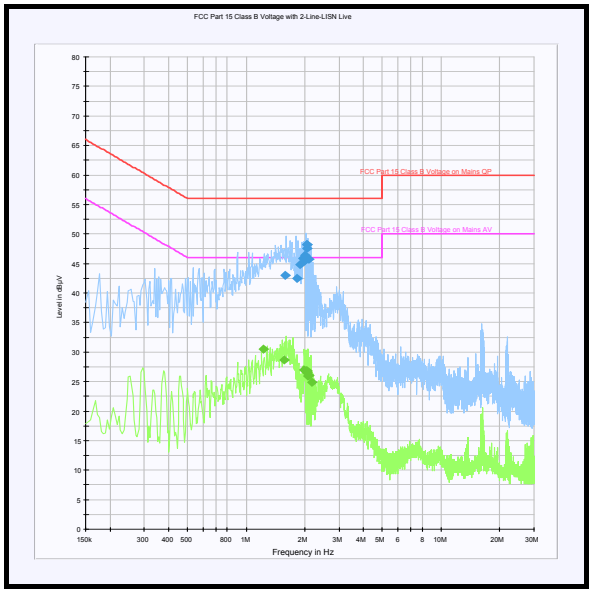
Results: Neutral / Quasi Peak

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
1.801500	Neutral	49.4	56.0	6.6	Complied
1.927500	Neutral	51.7	56.0	4.3	Complied
1.945500	Neutral	55.3	56.0	0.7	Complied
1.945500	Neutral	55.2	56.0	0.8	Complied
1.986000	Neutral	55.5	56.0	0.5	Complied
2.017500	Neutral	55.7	56.0	0.3	Complied
2.058000	Neutral	54.8	56.0	1.2	Complied
2.062500	Neutral	55.8	56.0	0.2	Complied
2.098500	Neutral	52.9	56.0	3.1	Complied
2.143500	Neutral	52.4	56.0	3.6	Complied

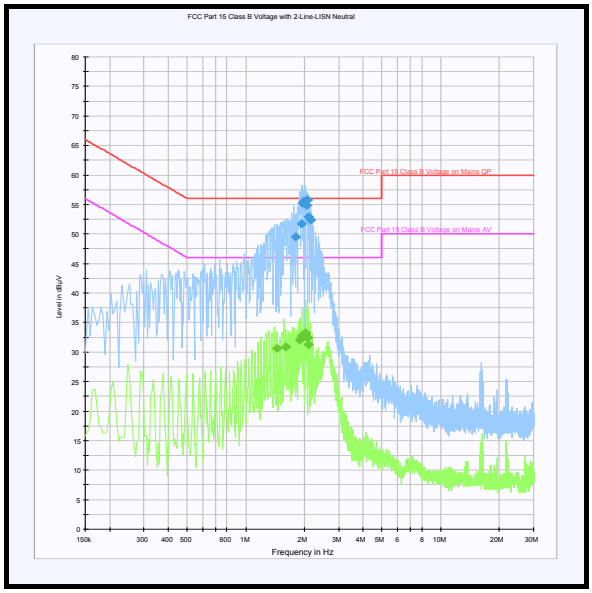
Results: Neutral / Average

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
1.446000	Neutral	30.6	46.0	15.4	Complied
1.608000	Neutral	30.9	46.0	15.1	Complied
1.896000	Neutral	32.1	46.0	13.9	Complied
1.936500	Neutral	32.7	46.0	13.3	Complied
1.977000	Neutral	32.9	46.0	13.1	Complied
1.981500	Neutral	32.9	46.0	13.1	Complied
2.022000	Neutral	33.1	46.0	12.9	Complied
2.022000	Neutral	33.2	46.0	12.8	Complied
2.062500	Neutral	32.4	46.0	13.6	Complied
2.103000	Neutral	31.2	46.0	14.8	Complied

Transmitter AC Conducted Spurious Emissions (continued)



Live



Neutral

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.2.4. Transmitter 6 dB Bandwidth

Test Summary:

Test Engineer:	Sarah Williams	**Test Date:**	26 September 2011
Test Sample IMEI:	004401221130087		

FCC Part:	15.247(a)(2)
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.1

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	36

Results: 1 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	9.719	≥0.5	9.219	Complied
Middle	10.120	≥0.5	9.620	Complied
Top	9.720	≥0.5	9.220	Complied

Results: 2 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	10.020	≥0.5	9.520	Complied
Middle	9.920	≥0.5	9.420	Complied
Top	10.020	≥0.5	9.520	Complied

Results: 5.5 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	10.120	≥0.5	9.620	Complied
Middle	10.020	≥0.5	9.520	Complied
Top	9.519	≥0.5	9.019	Complied

Transmitter 6 dB Bandwidth (continued)

Results: 11 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	10.421	≥0.5	9.921	Complied
Middle	10.822	≥0.5	10.322	Complied
Top	10.421	≥0.5	9.921	Complied

Results: 6 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.233	≥0.5	15.733	Complied
Middle	16.233	≥0.5	15.733	Complied
Top	16.132	≥0.5	15.632	Complied

Results: 9 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.233	≥0.5	15.733	Complied
Middle	16.433	≥0.5	15.933	Complied
Top	15.932	≥0.5	15.432	Complied

Results: 12 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.233	≥0.5	15.733	Complied
Middle	16.333	≥0.5	15.833	Complied
Top	16.433	≥0.5	15.933	Complied

Results: 18 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.032	≥0.5	15.532	Complied
Middle	16.333	≥0.5	15.833	Complied
Top	16.232	≥0.5	15.732	Complied

Results: 24 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.734	≥0.5	16.234	Complied
Middle	16.734	≥0.5	16.234	Complied
Top	16.734	≥0.5	16.234	Complied

Transmitter 6 dB Bandwidth (continued)

Results: 36 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.734	≥0.5	16.234	Complied
Middle	16.734	≥0.5	16.234	Complied
Top	16.734	≥0.5	16.234	Complied

Results: 48 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.533	≥0.5	16.033	Complied
Middle	16.633	≥0.5	16.133	Complied
Top	16.734	≥0.5	16.234	Complied

Results: 54 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.734	≥0.5	16.234	Complied
Middle	16.533	≥0.5	16.033	Complied
Top	16.734	≥0.5	16.234	Complied

Results: 6.5 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.335	≥0.5	16.835	Complied
Middle	17.635	≥0.5	17.135	Complied
Top	17.234	≥0.5	16.734	Complied

Results: 13 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.134	≥0.5	16.634	Complied
Middle	17.535	≥0.5	17.035	Complied
Top	17.535	≥0.5	17.035	Complied

Results: 19.5 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.134	≥0.5	16.634	Complied
Middle	17.235	≥0.5	16.735	Complied
Top	17.635	≥0.5	17.135	Complied

Transmitter 6 dB Bandwidth (continued)

Results: 26 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.936	≥0.5	17.436	Complied
Middle	17.936	≥0.5	17.436	Complied
Top	17.936	≥0.5	17.436	Complied

Results: 39 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.936	≥0.5	17.436	Complied
Middle	17.936	≥0.5	17.436	Complied
Top	17.936	≥0.5	17.436	Complied

Results: 52 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.936	≥0.5	17.436	Complied
Middle	17.936	≥0.5	17.436	Complied
Top	17.936	≥0.5	17.436	Complied

Results: 58.5 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.936	≥0.5	17.436	Complied
Middle	17.936	≥0.5	17.436	Complied
Top	17.836	≥0.5	17.336	Complied

Results: 65 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.936	≥0.5	17.436	Complied
Middle	17.936	≥0.5	17.436	Complied
Top	17.936	≥0.5	17.436	Complied

Results: 7.2 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.335	≥0.5	16.835	Complied
Middle	17.335	≥0.5	16.835	Complied
Top	17.335	≥0.5	16.835	Complied

Results: 14.4 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.635	≥0.5	17.135	Complied
Middle	17.335	≥0.5	16.835	Complied
Top	17.335	≥0.5	16.835	Complied

Results: 21.7 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.435	≥0.5	16.935	Complied
Middle	17.435	≥0.5	16.935	Complied
Top	17.635	≥0.5	17.135	Complied

Results: 28.9 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.936	≥0.5	17.436	Complied
Middle	17.936	≥0.5	17.436	Complied
Top	17.936	≥0.5	17.436	Complied

Results: 43.3 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.936	≥0.5	17.436	Complied
Middle	17.936	≥0.5	17.436	Complied
Top	17.936	≥0.5	17.436	Complied

Results: 57.8 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.936	≥0.5	17.436	Complied
Middle	17.936	≥0.5	17.436	Complied
Top	17.936	≥0.5	17.436	Complied

Results: 65 Mbps

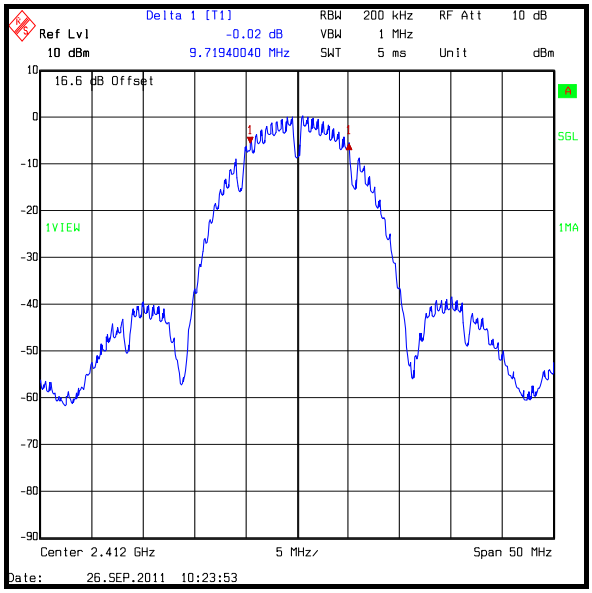
Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.936	≥0.5	17.436	Complied
Middle	17.936	≥0.5	17.436	Complied
Top	17.936	≥0.5	17.436	Complied

Transmitter 6 dB Bandwidth (continued)

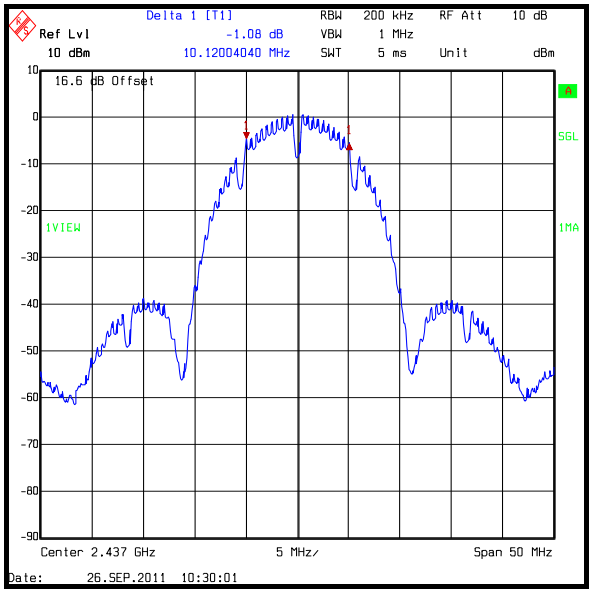
Results: 72.2 Mbps

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	17.936	≥0.5	17.436	Complied
Middle	17.936	≥0.5	17.436	Complied
Top	17.936	≥0.5	17.436	Complied

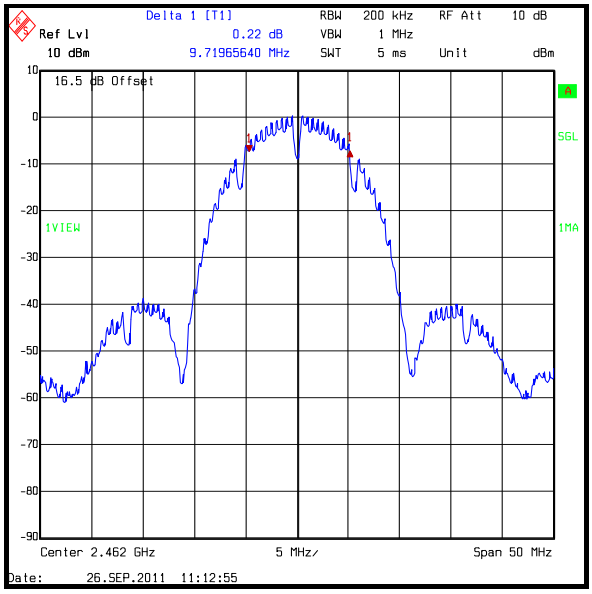
Results: 1 Mbps



Bottom channel



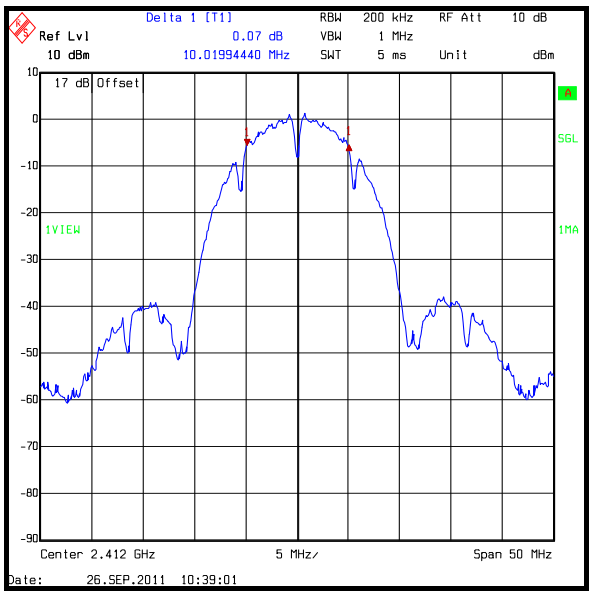
Middle channel



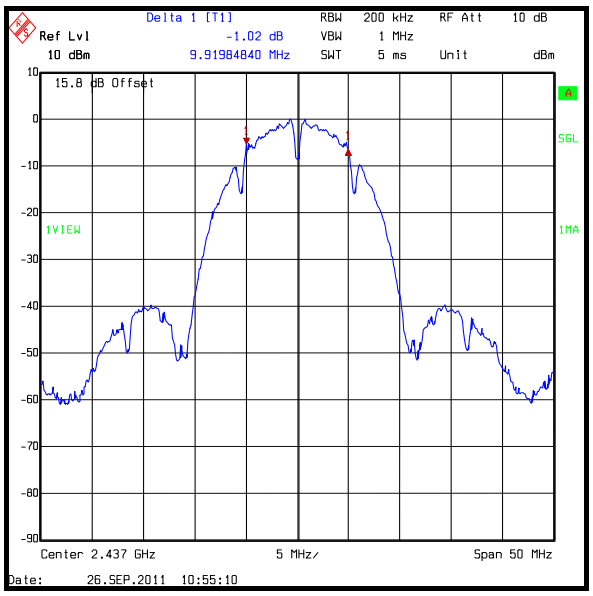
Top channel

Transmitter 6 dB Bandwidth (continued)

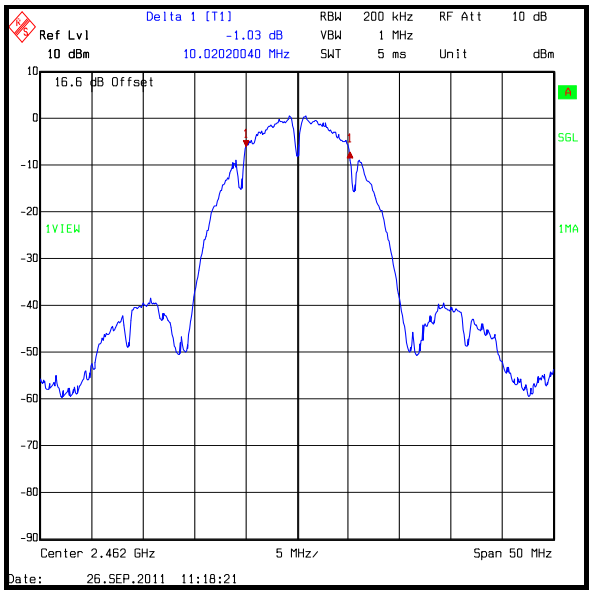
Results: 2 Mbps



Bottom channel



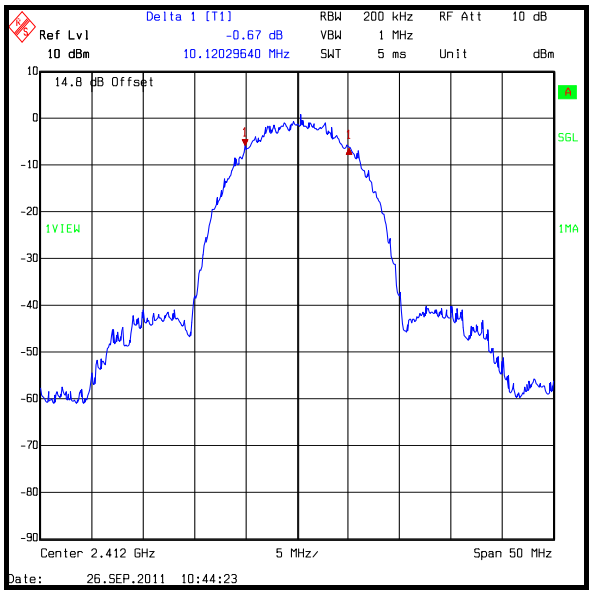
Middle channel



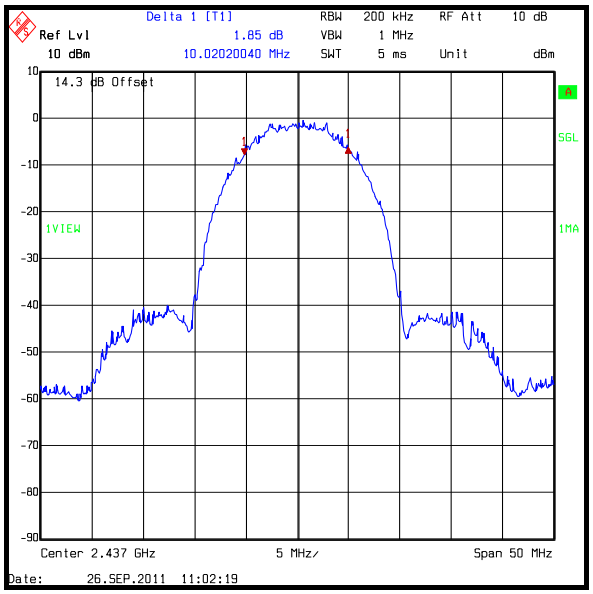
Top channel

Transmitter 6 dB Bandwidth (continued)

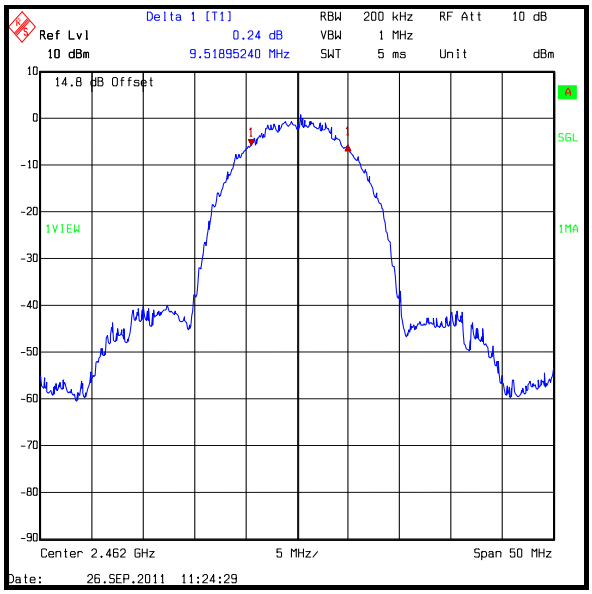
Results: 5.5 Mbps



Bottom channel



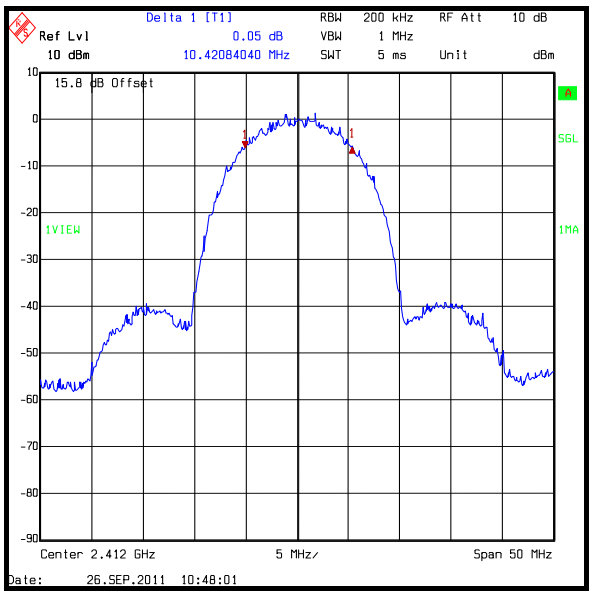
Middle channel



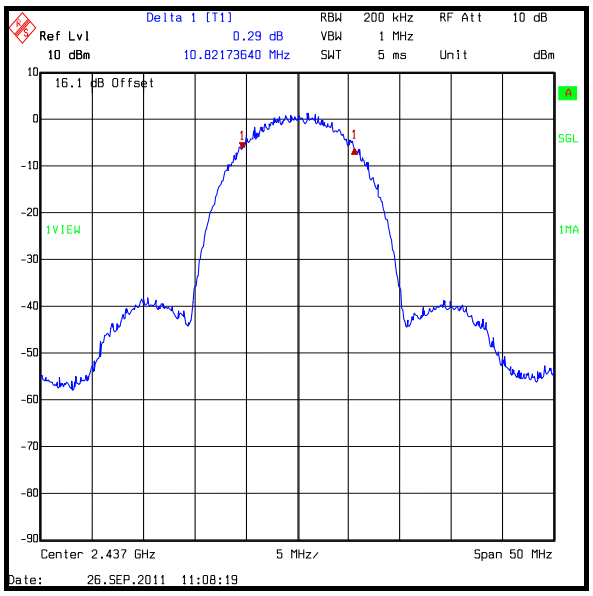
Top channel

Transmitter 6 dB Bandwidth (continued)

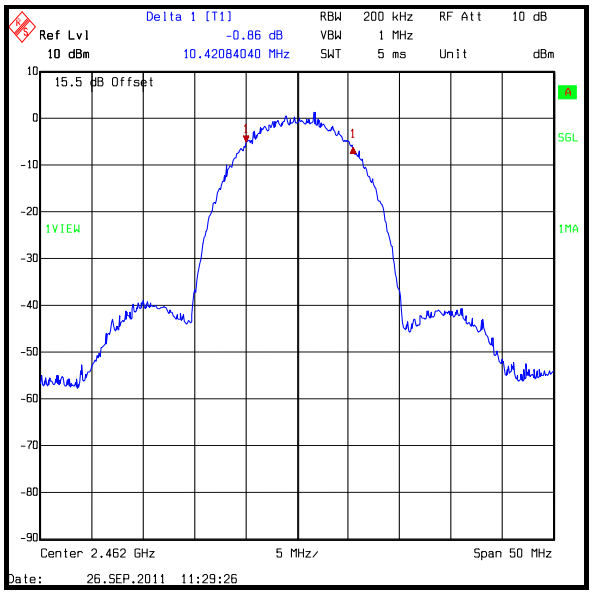
Results: 11 Mbps



Bottom channel



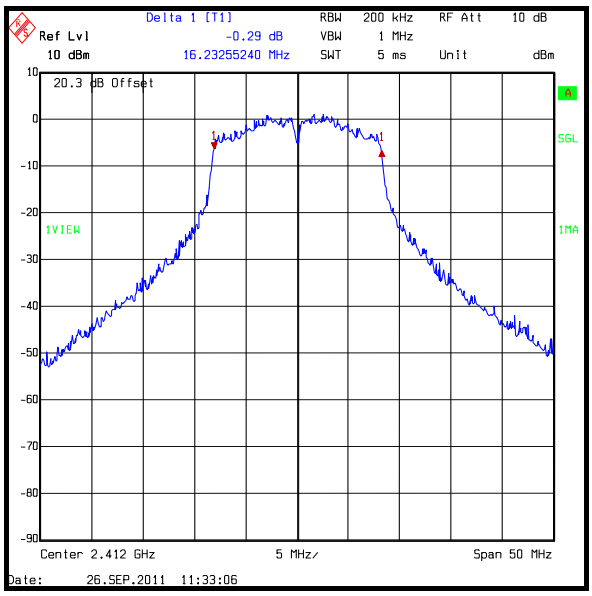
Middle channel



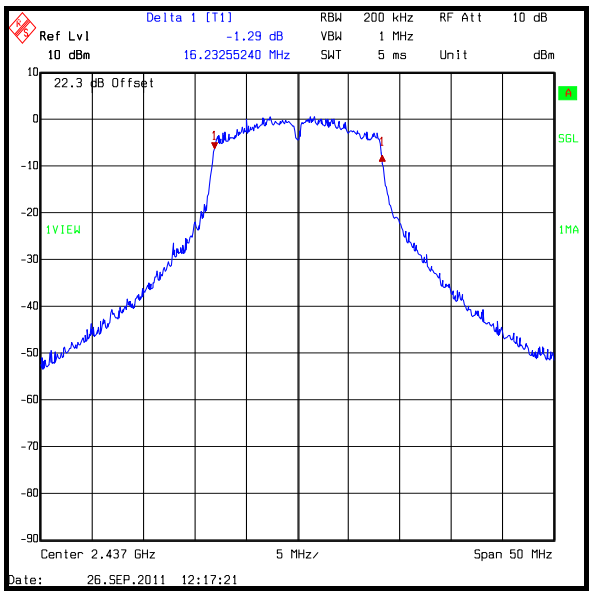
Top channel

Transmitter 6 dB Bandwidth (continued)

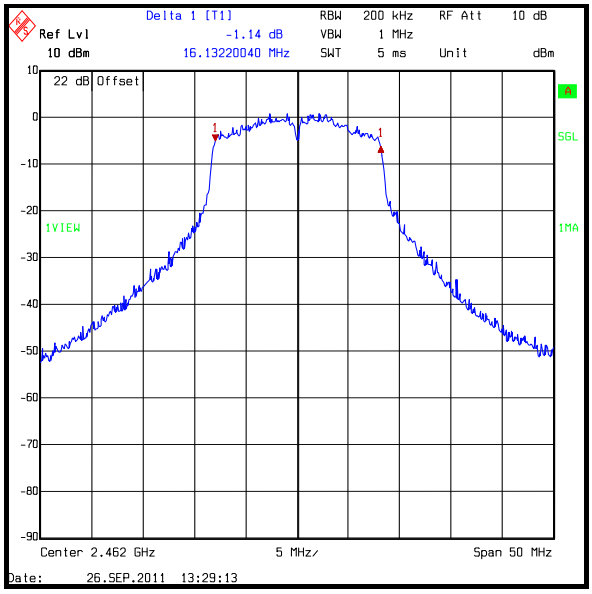
Results: 6 Mbps



Bottom channel



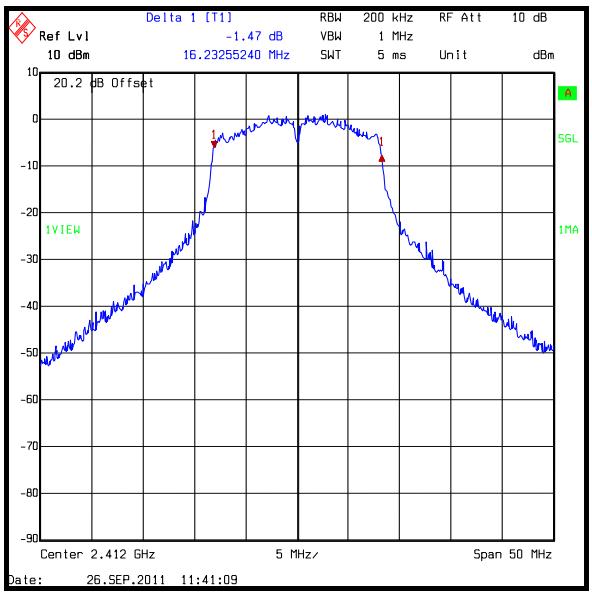
Middle channel



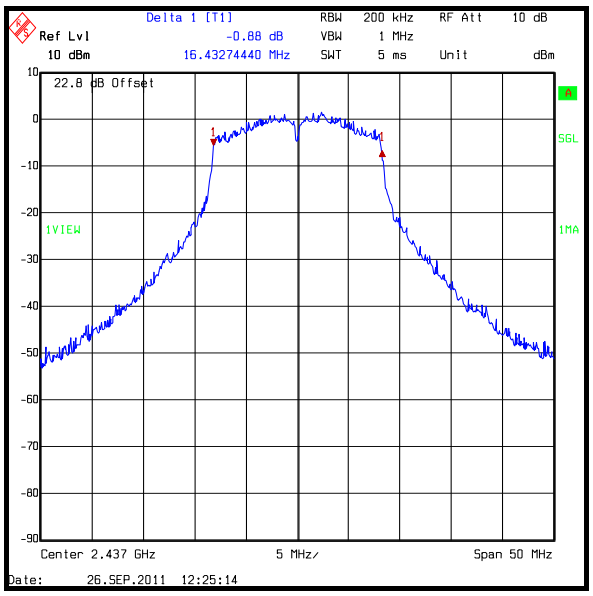
Top channel

Transmitter 6 dB Bandwidth (continued)

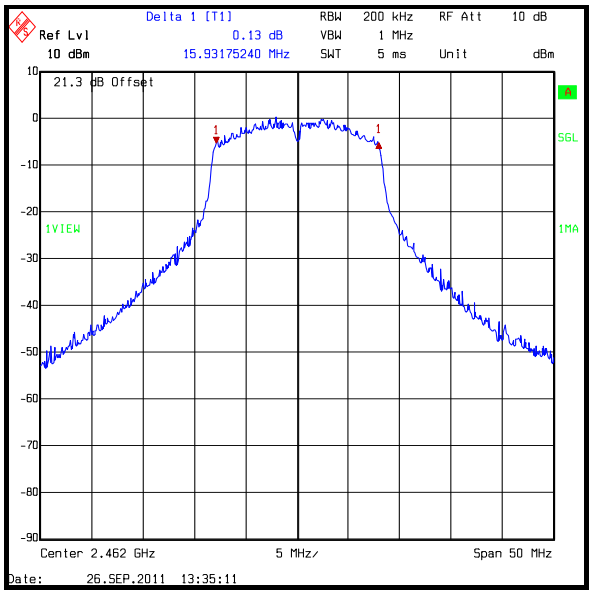
Results: 9 Mbps



Bottom channel



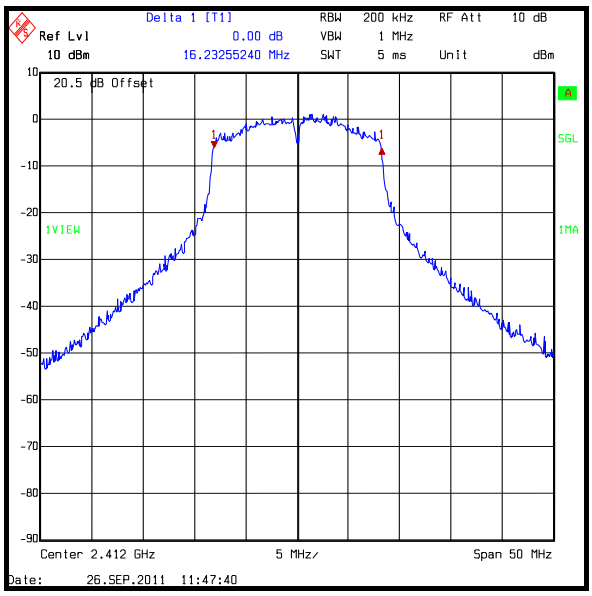
Middle channel



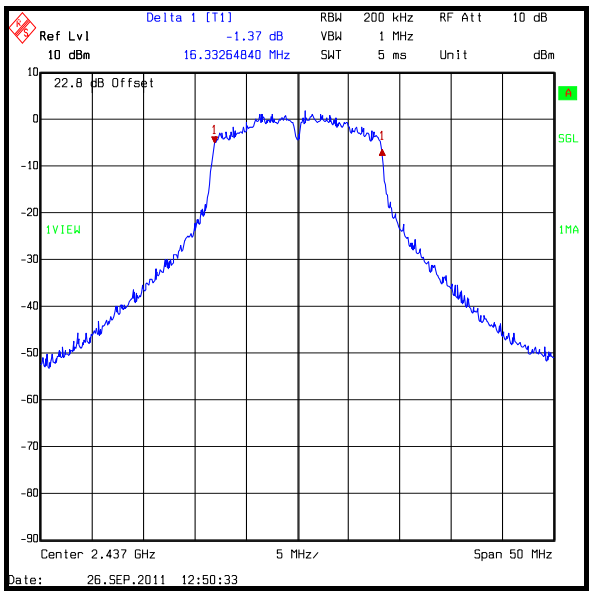
Top channel

Transmitter 6 dB Bandwidth (continued)

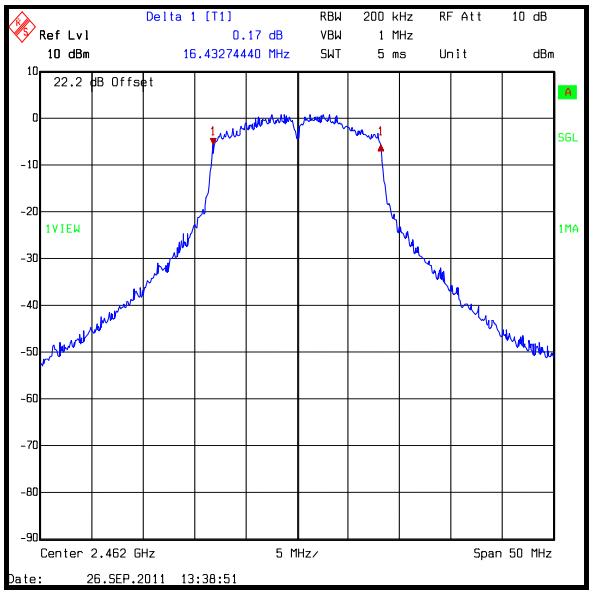
Results: 12 Mbps



Bottom channel



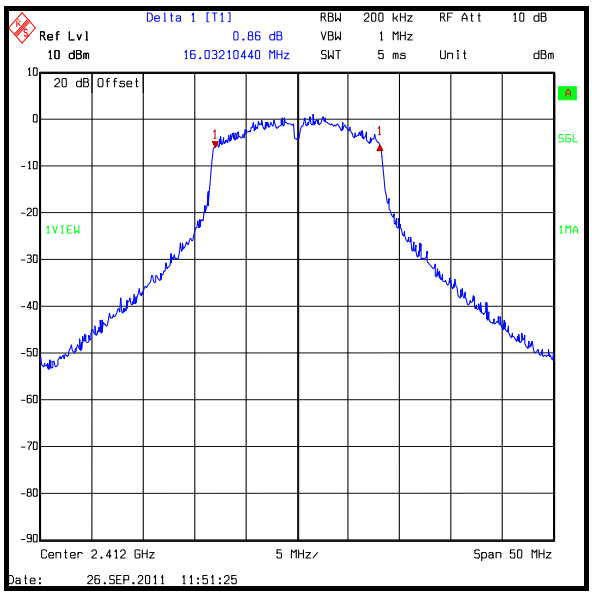
Middle channel



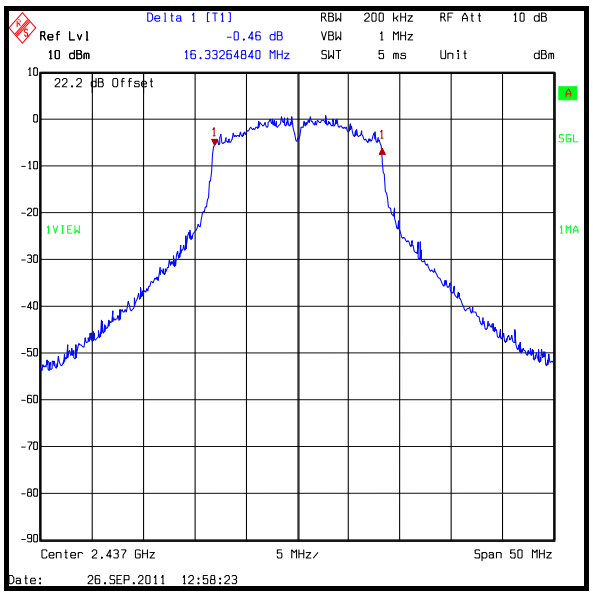
Top channel

Transmitter 6 dB Bandwidth (continued)

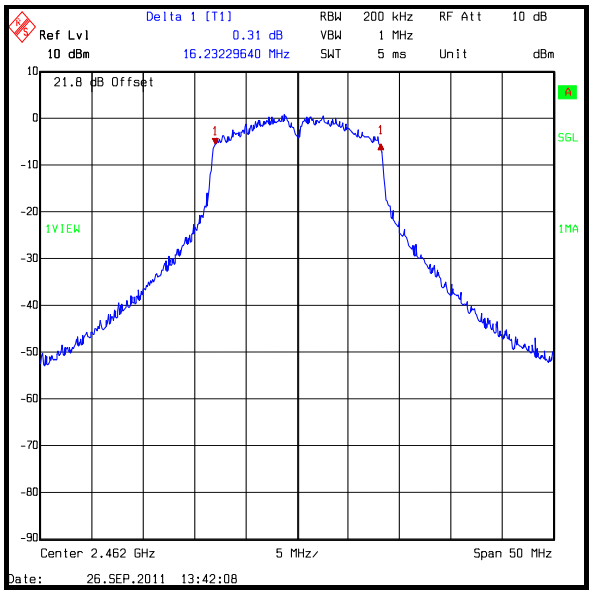
Results: 18 Mbps



Bottom channel



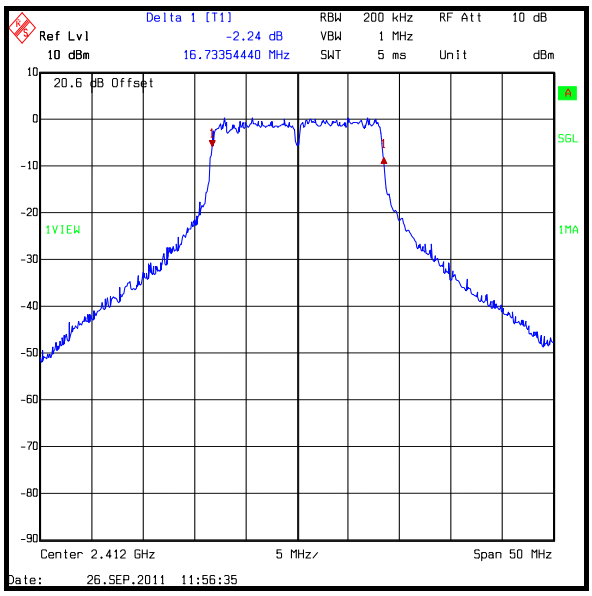
Middle channel



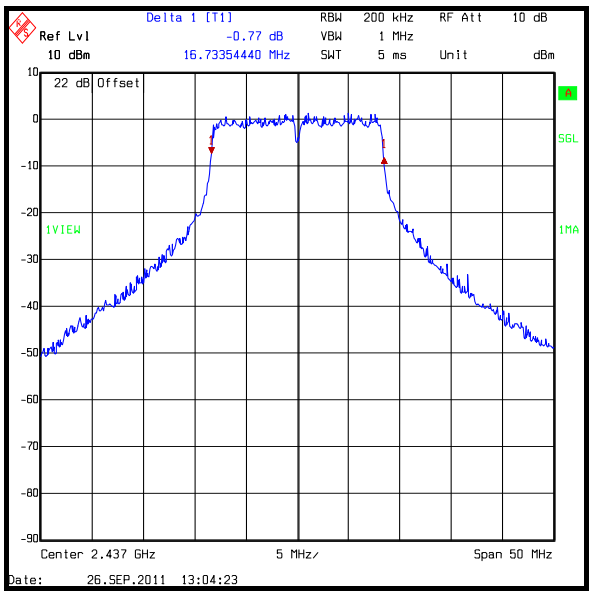
Top channel

Transmitter 6 dB Bandwidth (continued)

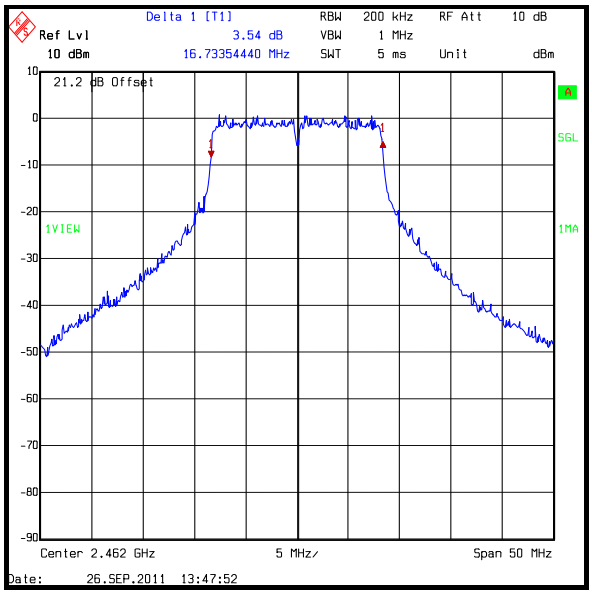
Results: 24 Mbps



Bottom channel



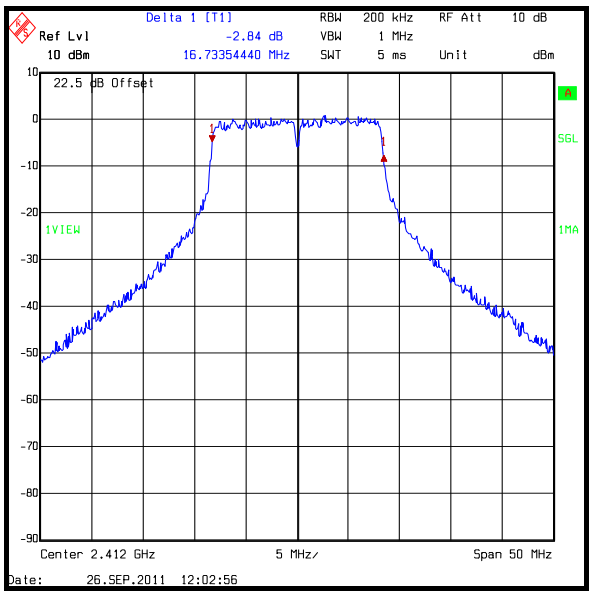
Middle channel



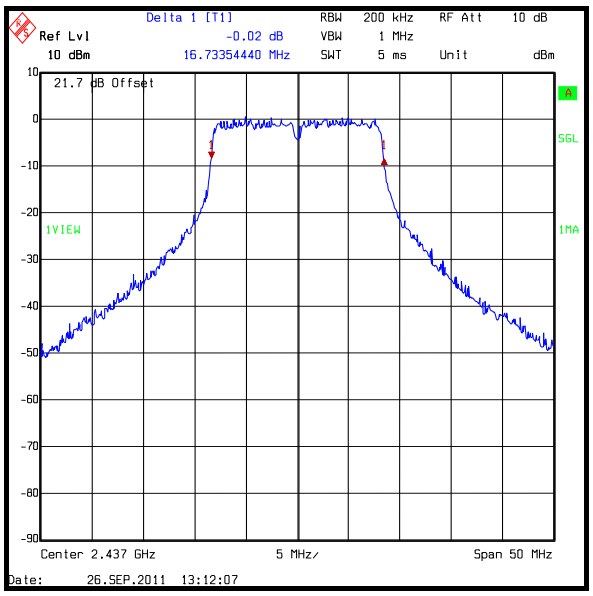
Top channel

Transmitter 6 dB Bandwidth (continued)

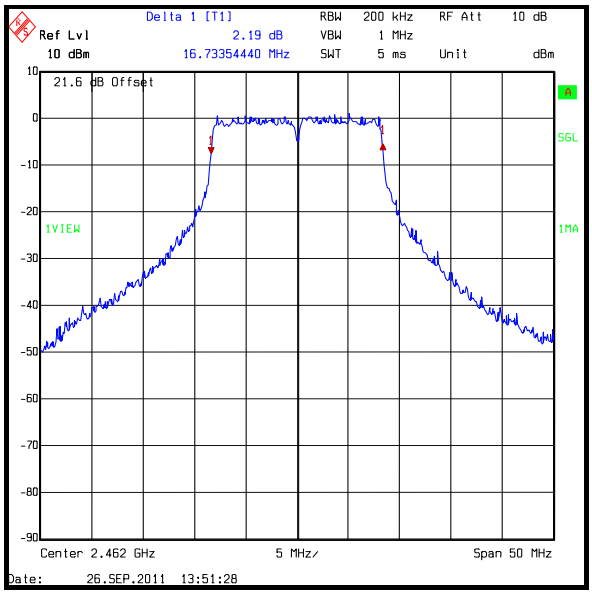
Results: 36 Mbps



Bottom channel



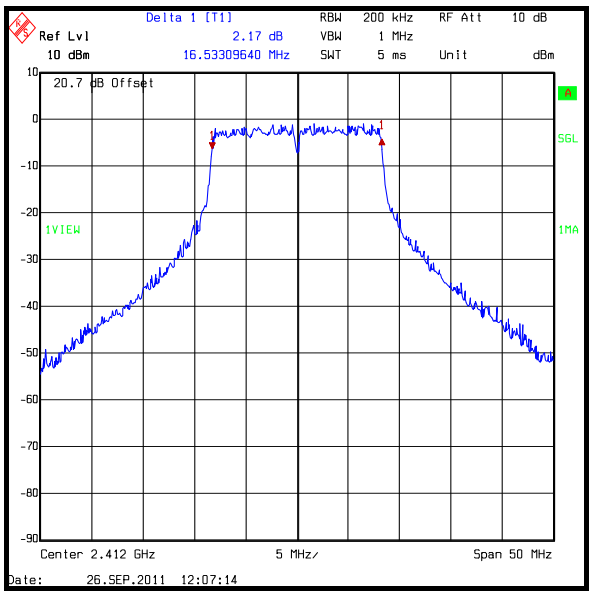
Middle channel



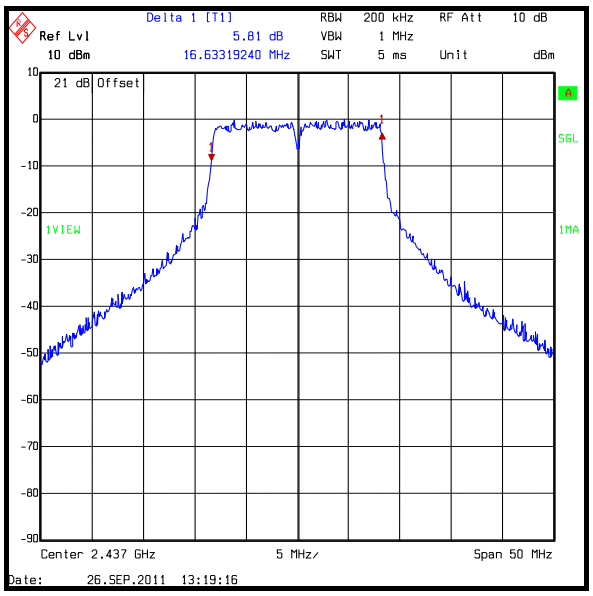
Top channel

Transmitter 6 dB Bandwidth (continued)

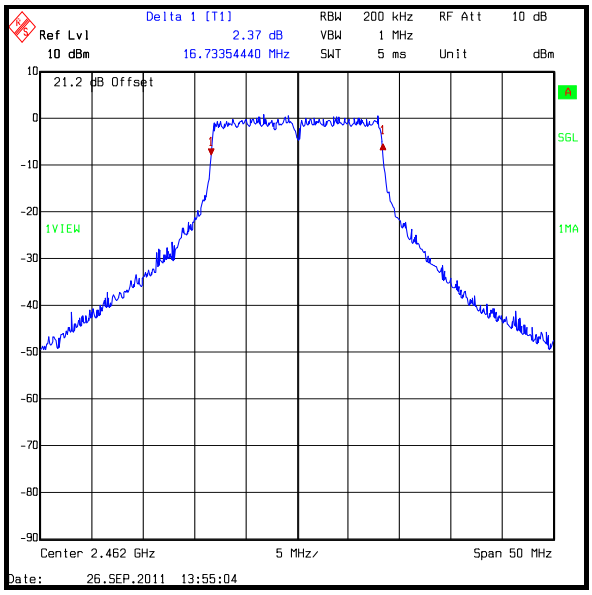
Results: 48 Mbps



Bottom channel



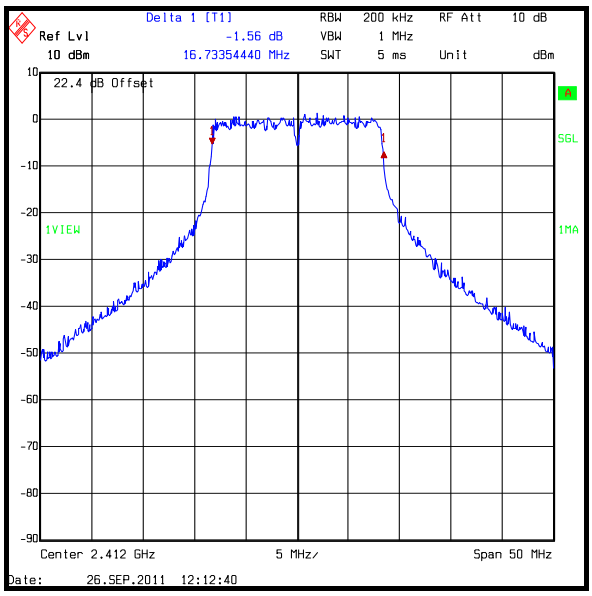
Middle channel



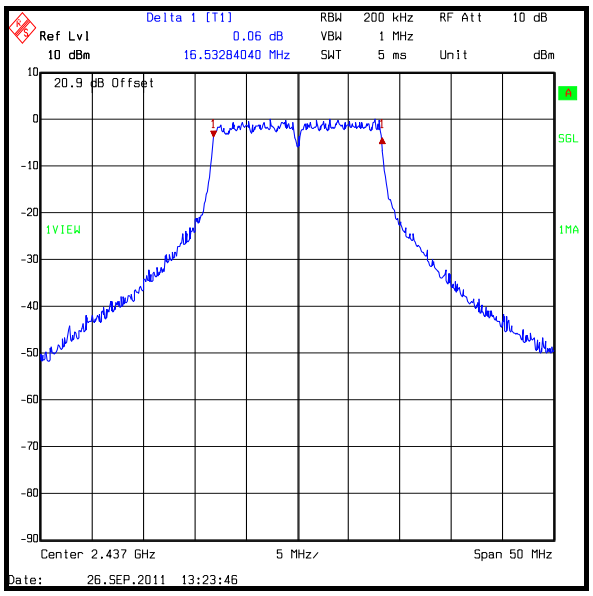
Top channel

Transmitter 6 dB Bandwidth (continued)

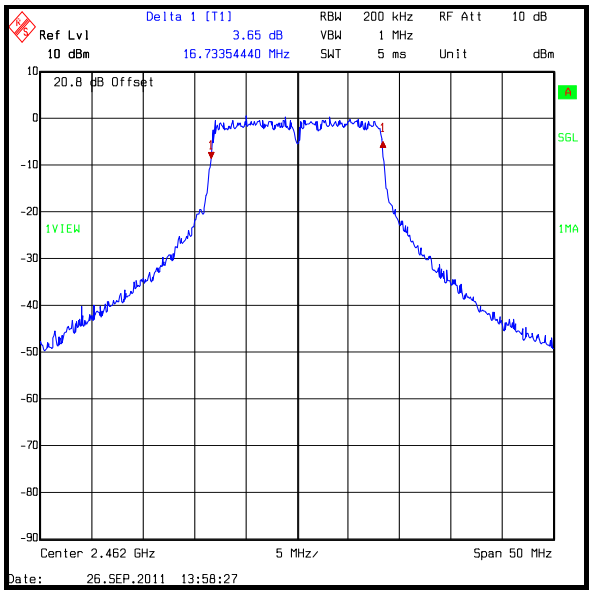
Results: 54 Mbps



Bottom channel



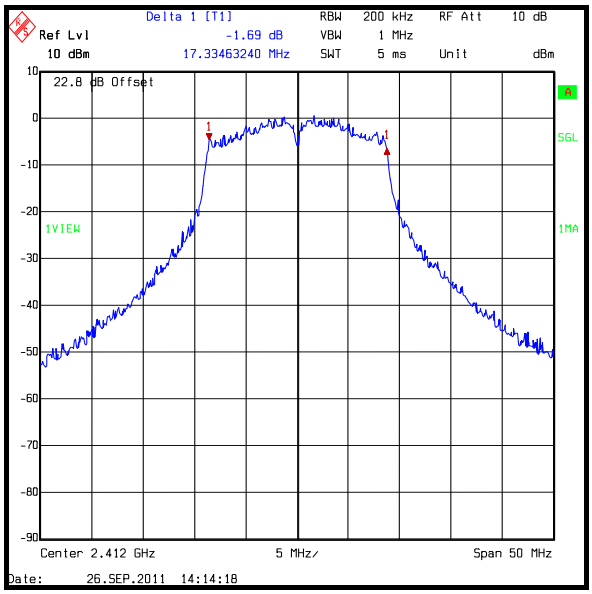
Middle channel



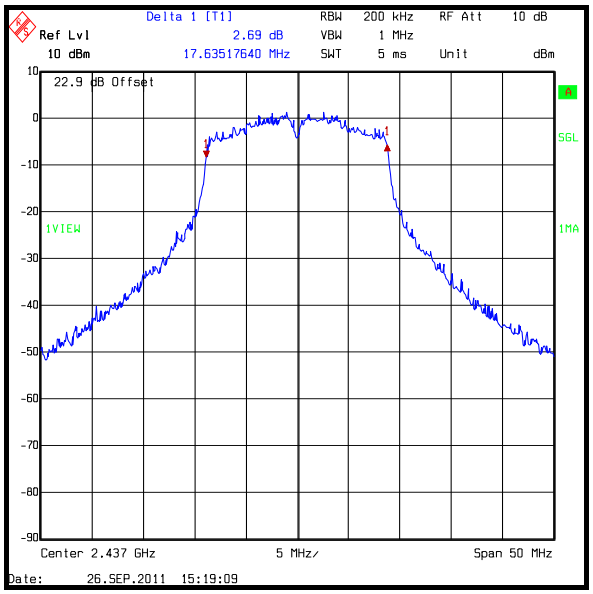
Top channel

Transmitter 6 dB Bandwidth (continued)

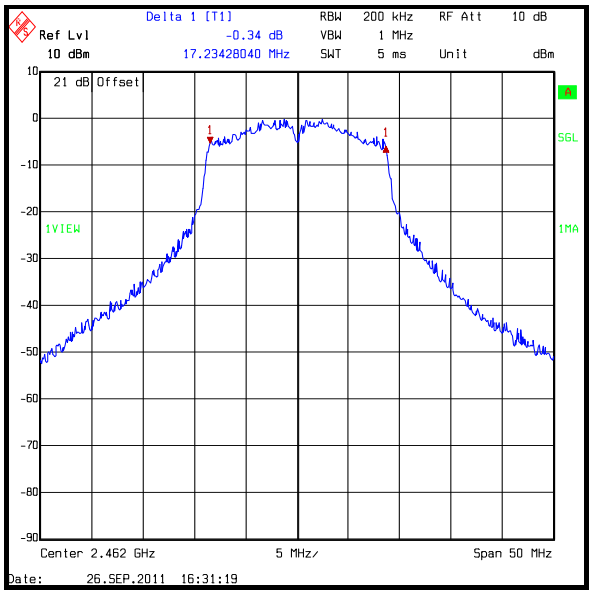
Results: 6.5 Mbps



Bottom channel



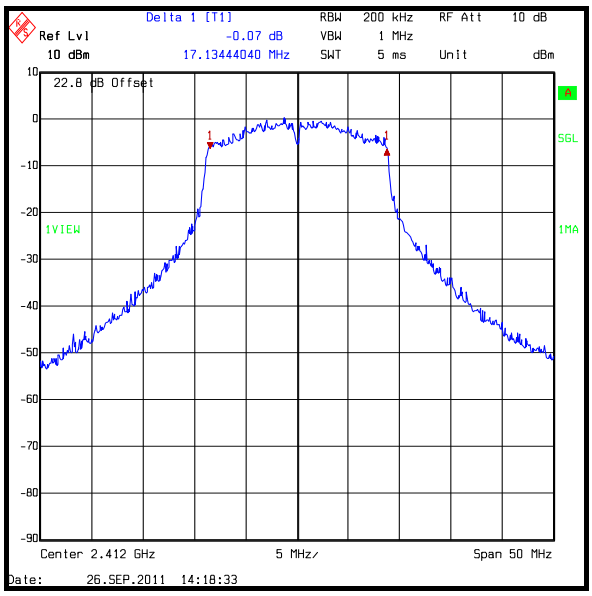
Middle channel



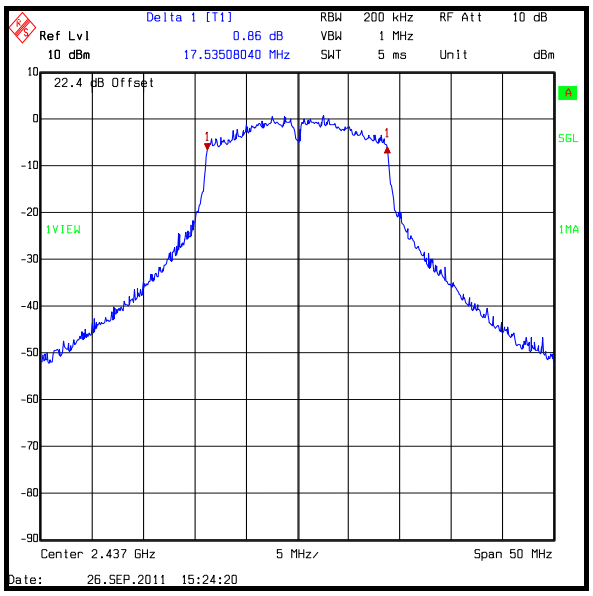
Top channel

Transmitter 6 dB Bandwidth (continued)

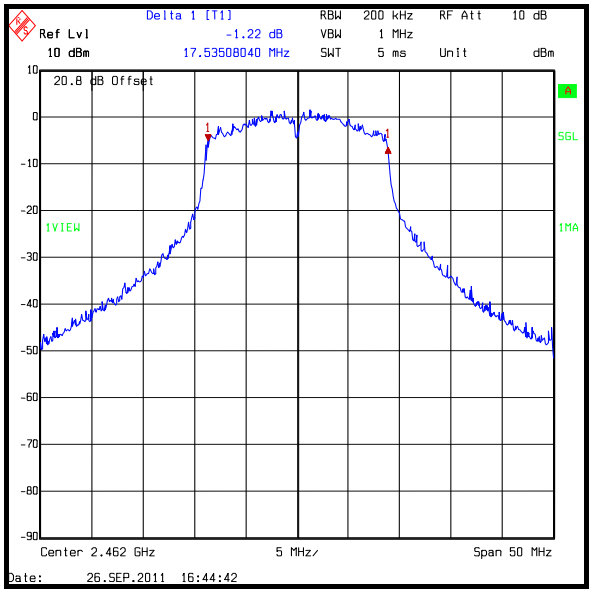
Results: 13 Mbps



Bottom channel



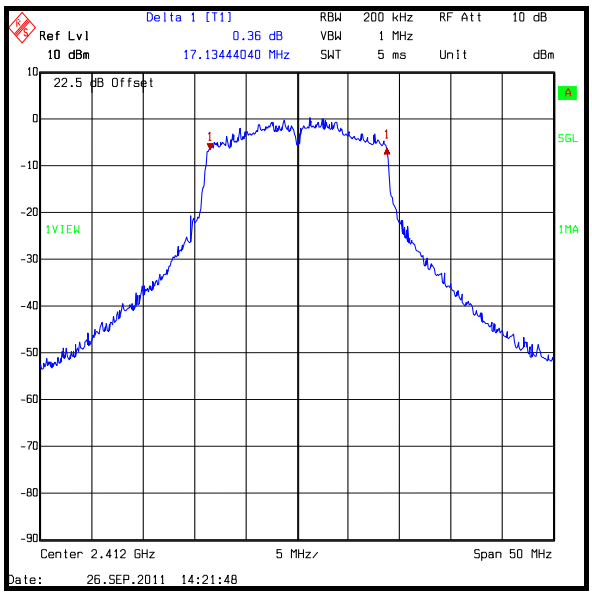
Middle channel



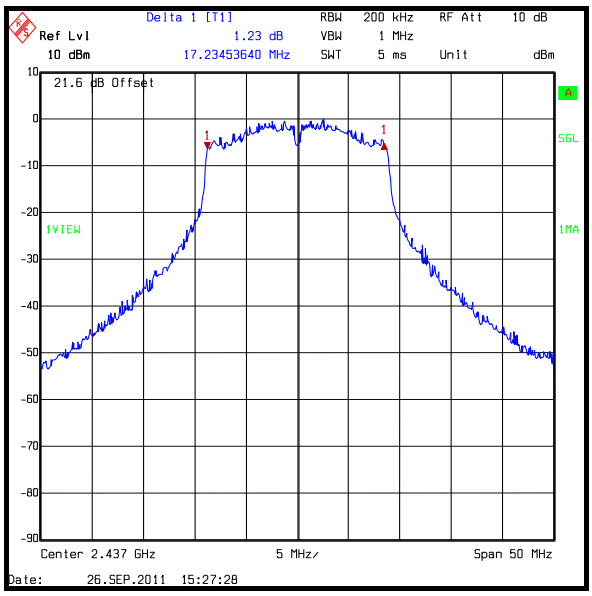
Top channel

Transmitter 6 dB Bandwidth (continued)

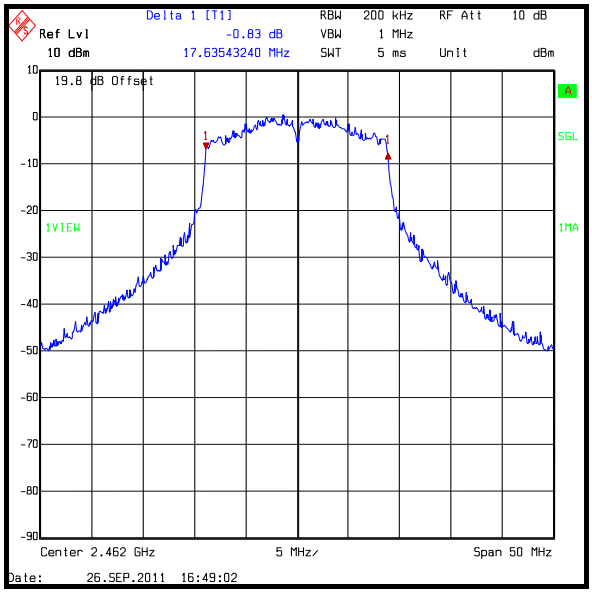
Results: 19.5 Mbps



Bottom channel



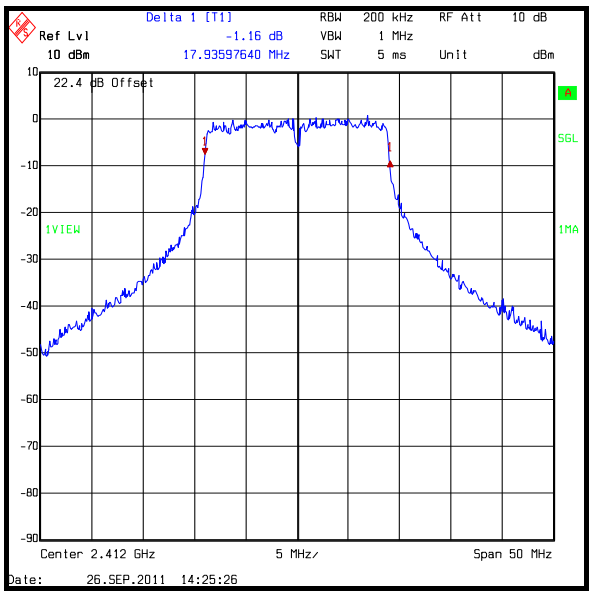
Middle channel



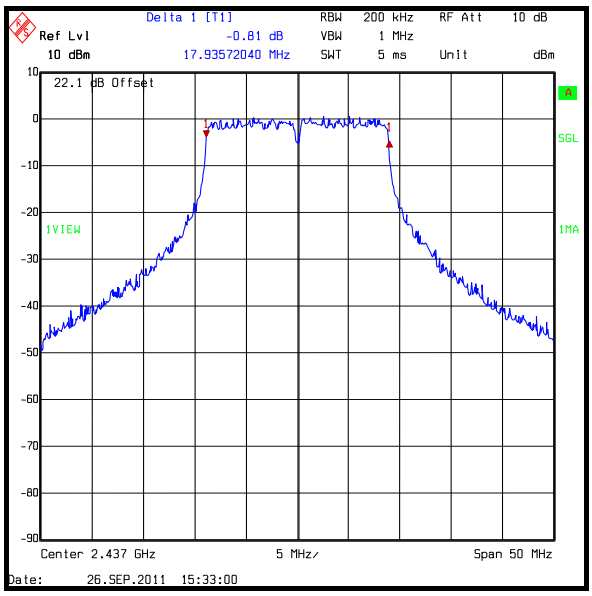
Top channel

Transmitter 6 dB Bandwidth (continued)

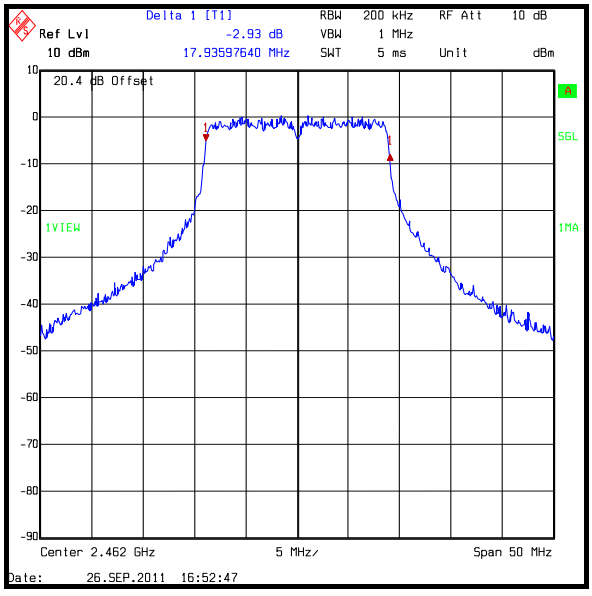
Results: 26 Mbps



Bottom channel



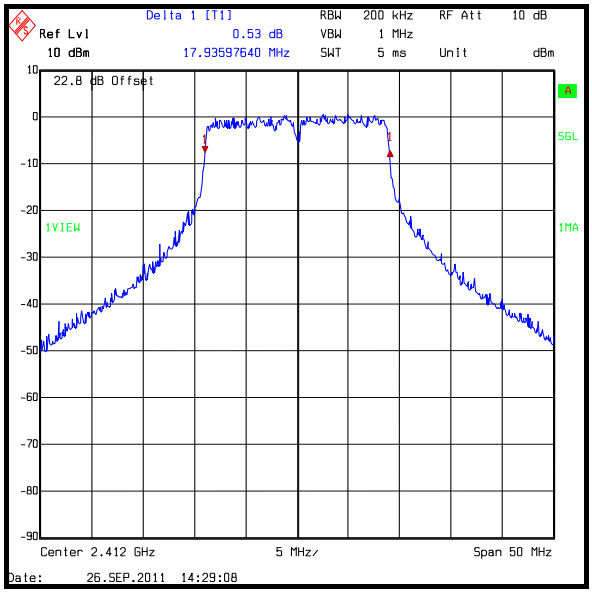
Middle channel



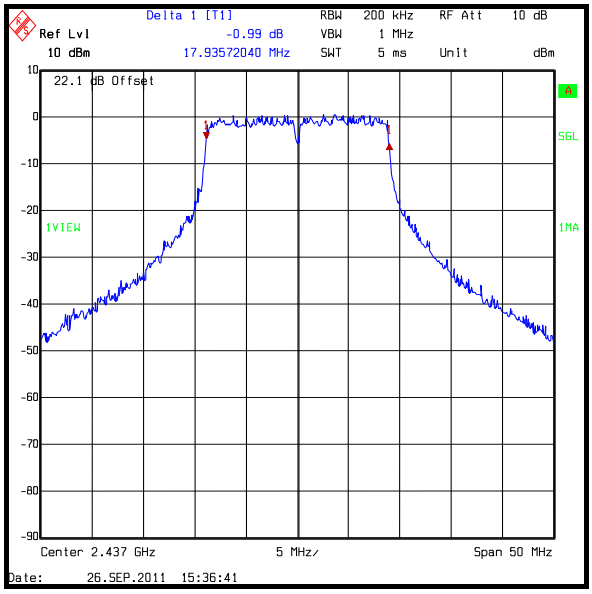
Top channel

Transmitter 6 dB Bandwidth (continued)

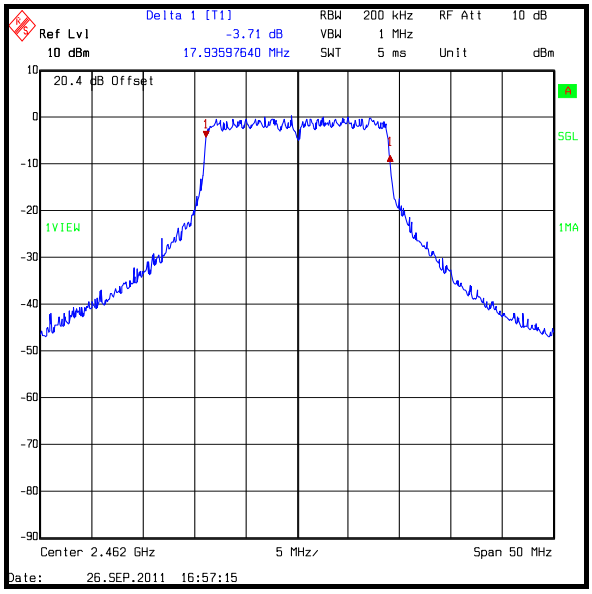
Results: 39 Mbps



Bottom channel



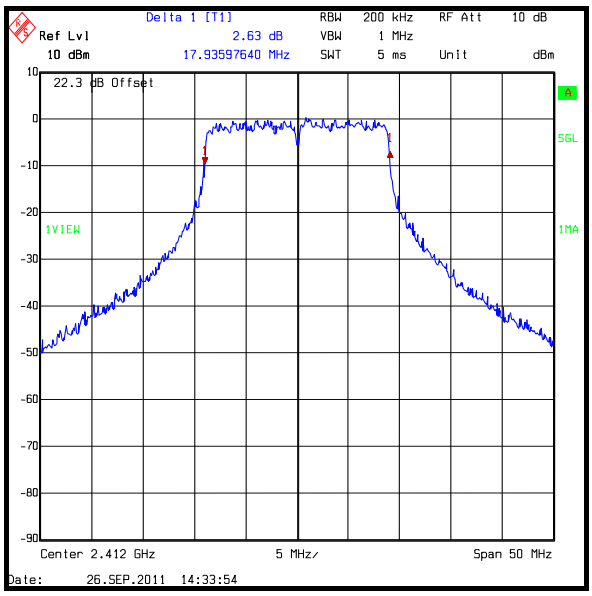
Middle channel



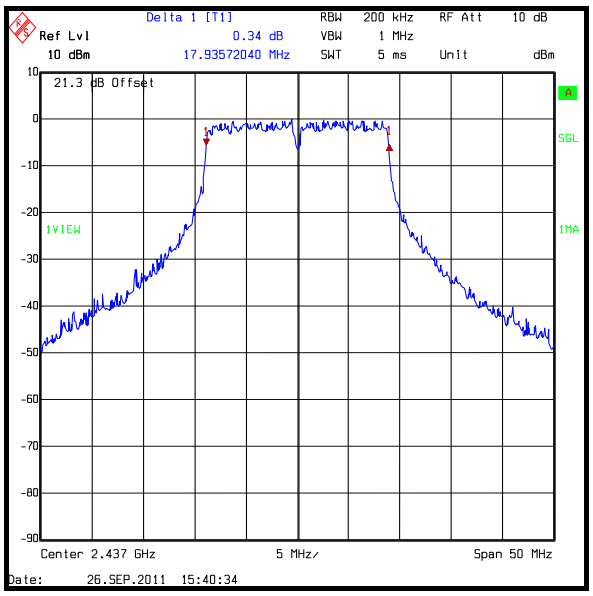
Top channel

Transmitter 6 dB Bandwidth (continued)

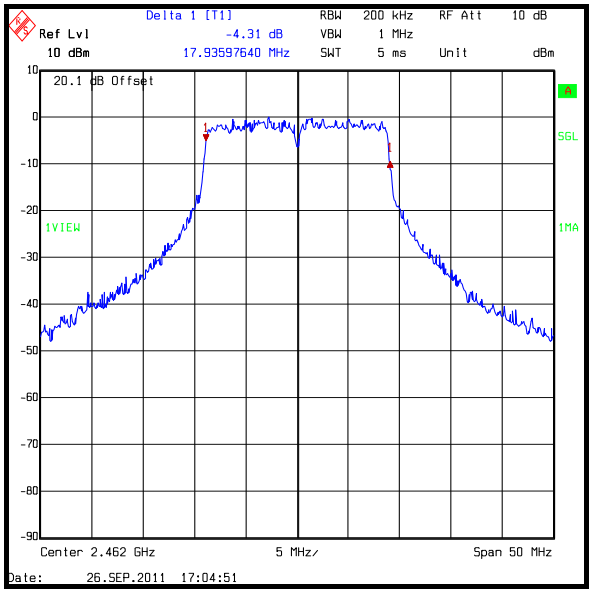
Results: 52 Mbps



Bottom channel



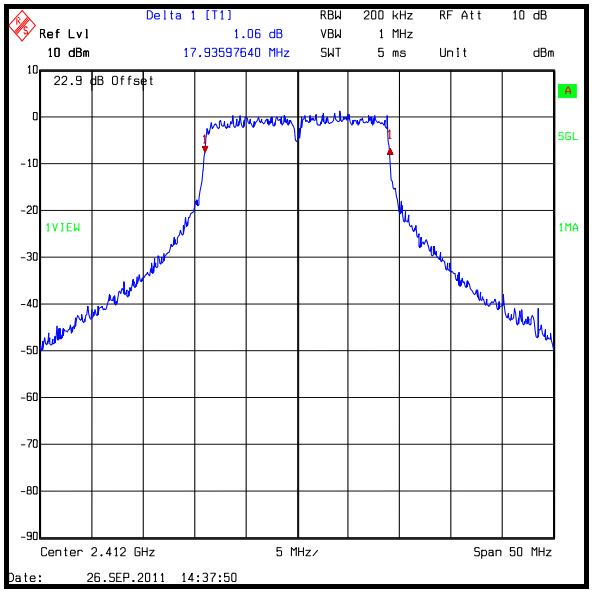
Middle channel



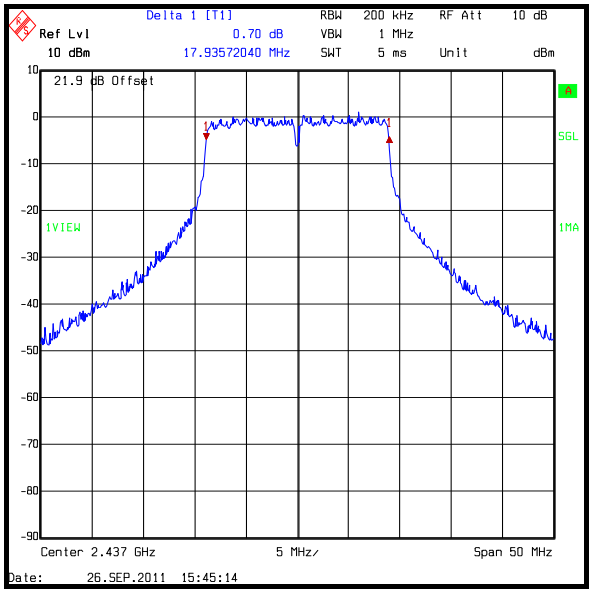
Top channel

Transmitter 6 dB Bandwidth (continued)

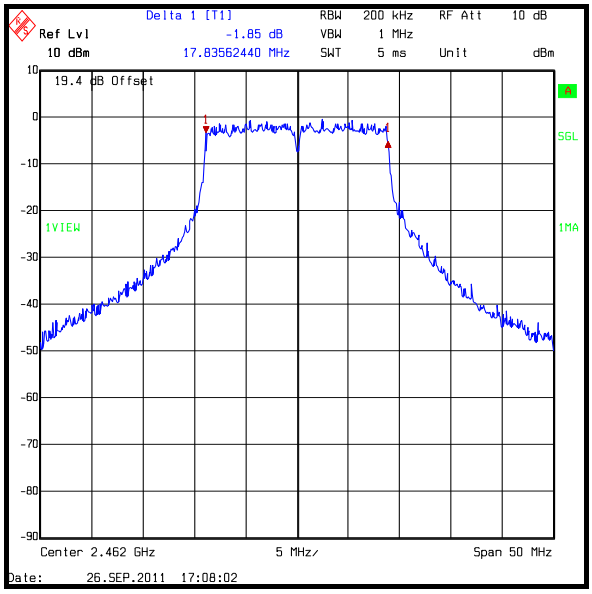
Results: 58.5 Mbps



Bottom channel



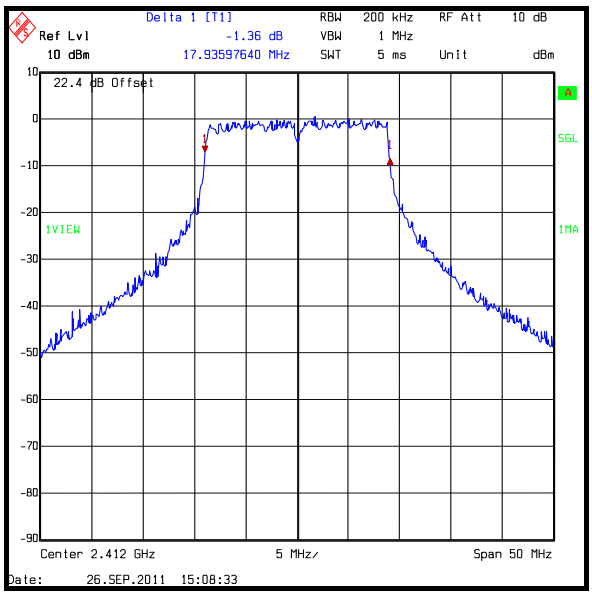
Middle channel



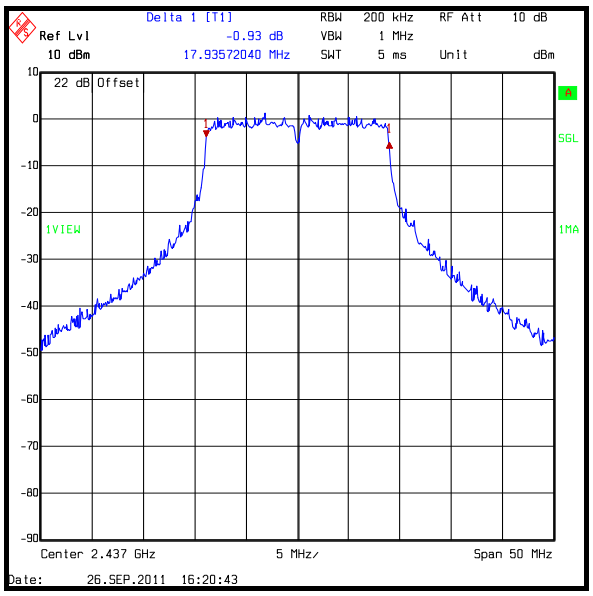
Top channel

Transmitter 6 dB Bandwidth (continued)

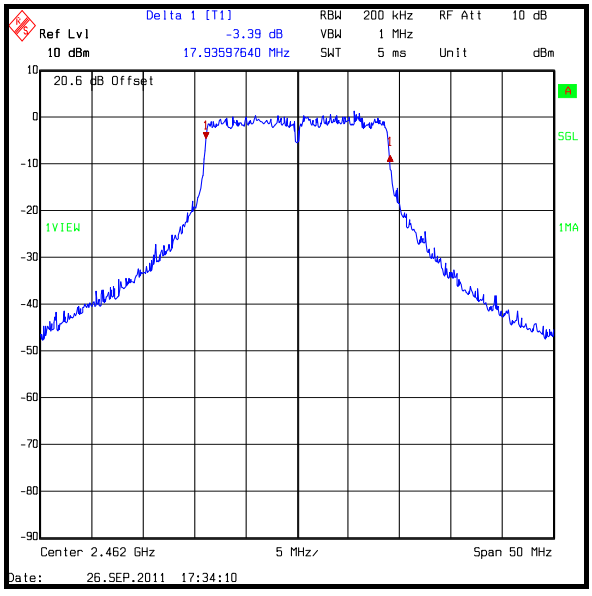
Results: 65 Mbps



Bottom channel



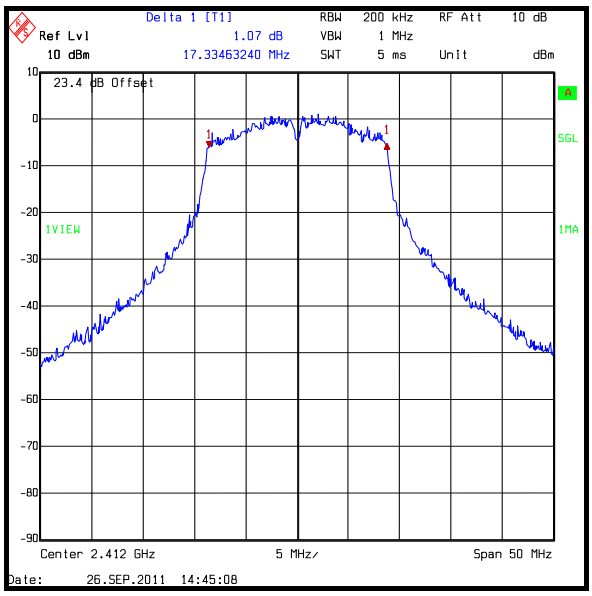
Middle channel



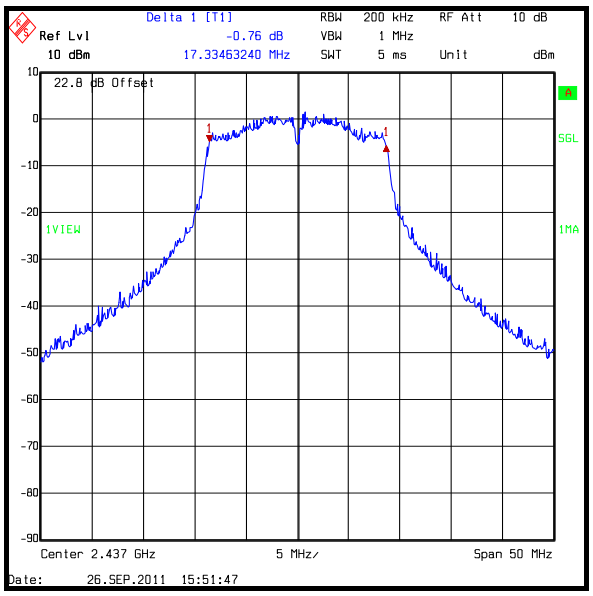
Top channel

Transmitter 6 dB Bandwidth (continued)

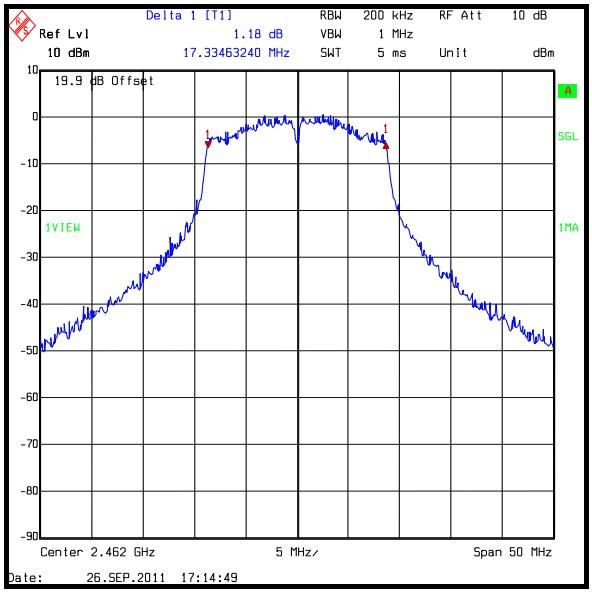
Results: 7.2 Mbps



Bottom channel



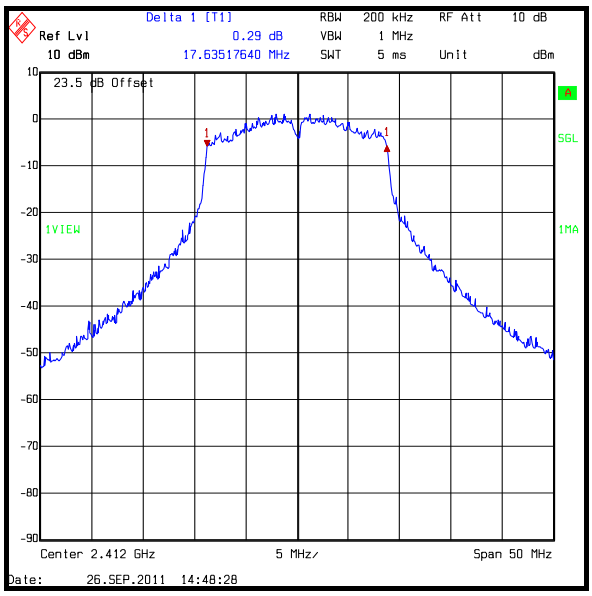
Middle channel



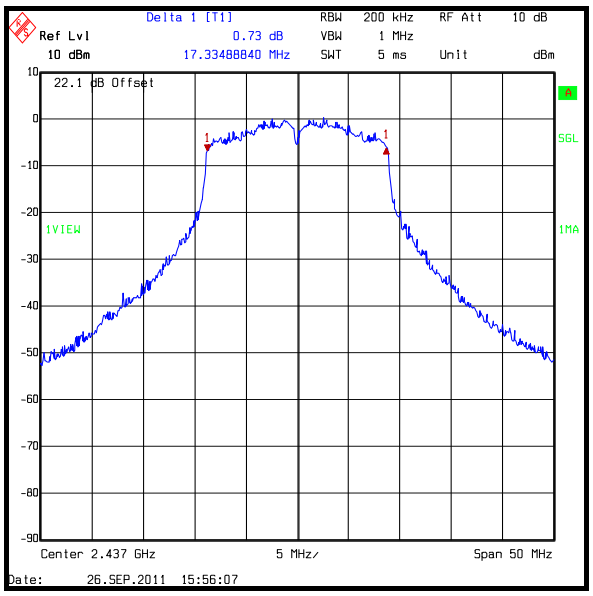
Top channel

Transmitter 6 dB Bandwidth (continued)

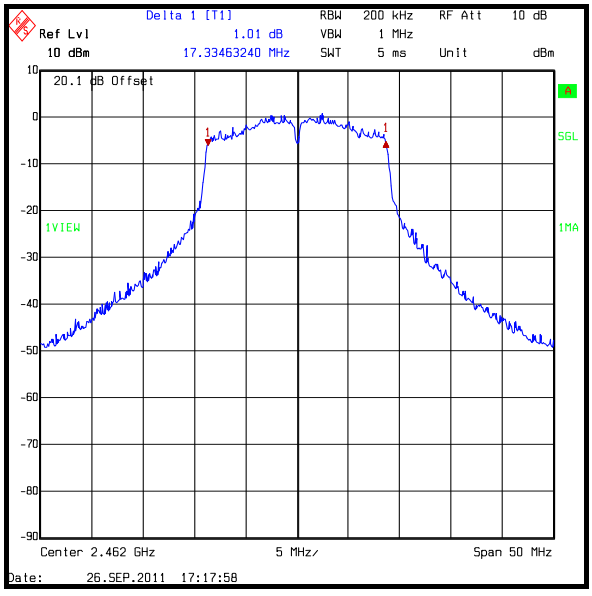
Results: 14.4 Mbps



Bottom channel



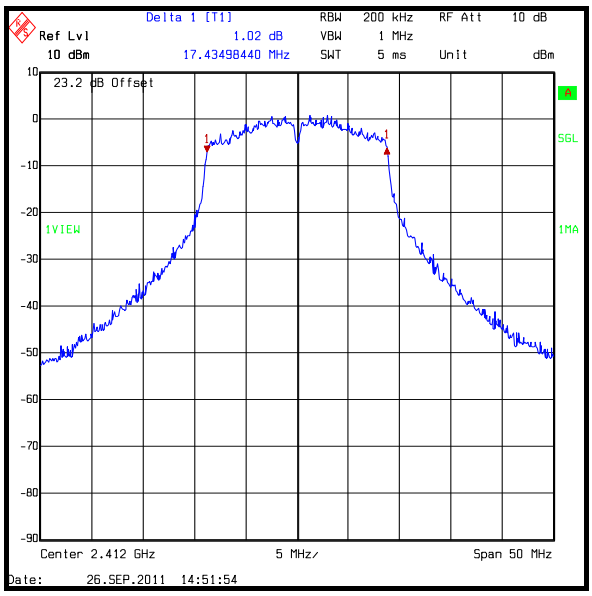
Middle channel



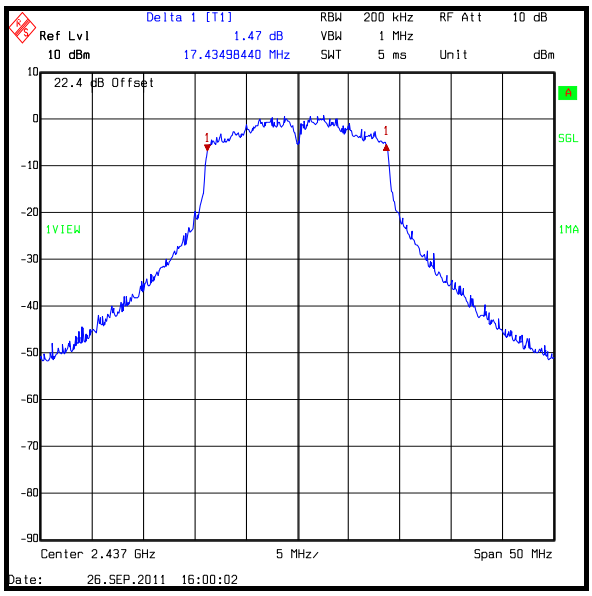
Top channel

Transmitter 6 dB Bandwidth (continued)

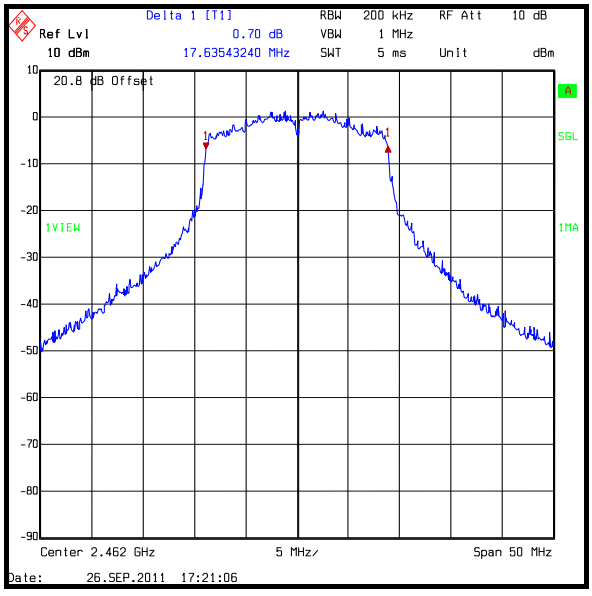
Results: 21.7 Mbps



Bottom channel



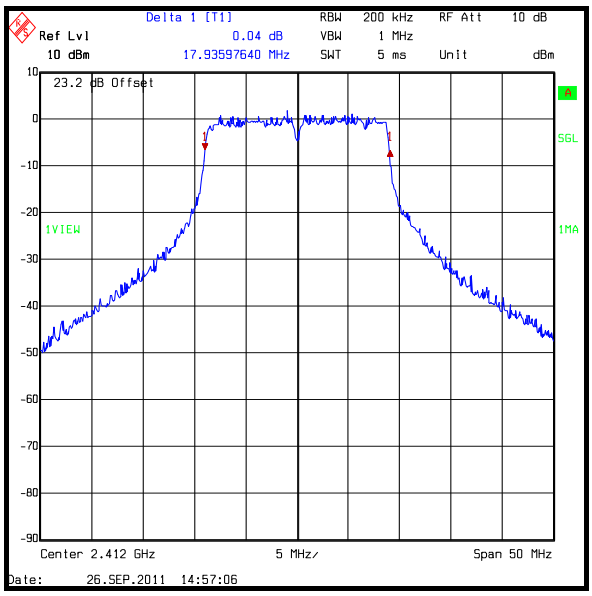
Middle channel



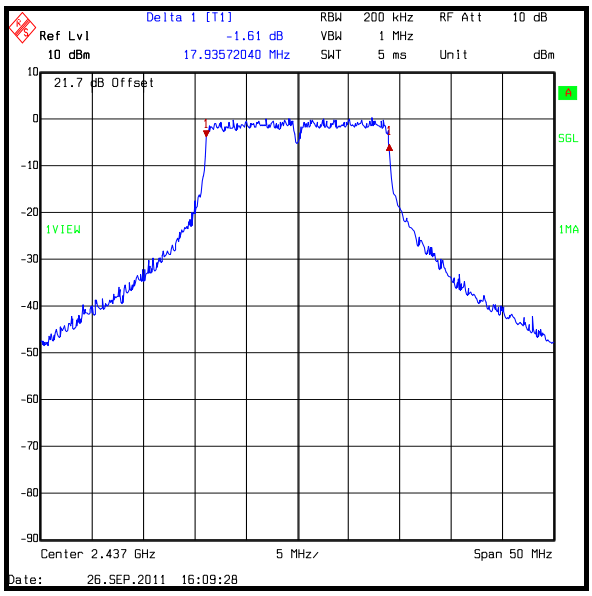
Top channel

Transmitter 6 dB Bandwidth (continued)

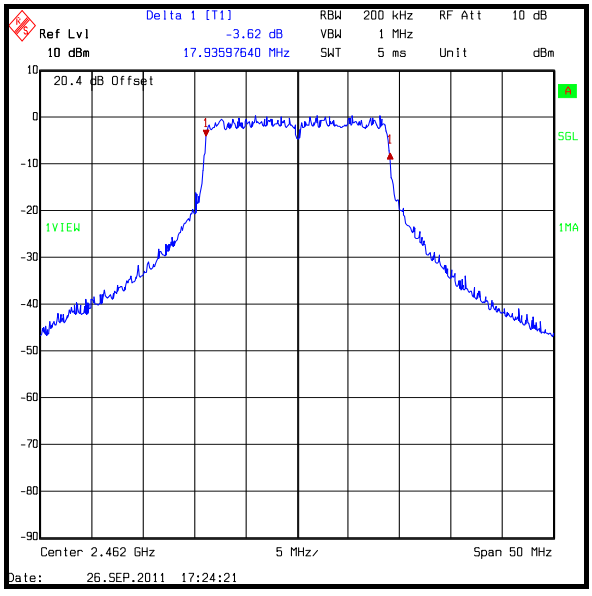
Results: 28.9 Mbps



Bottom channel



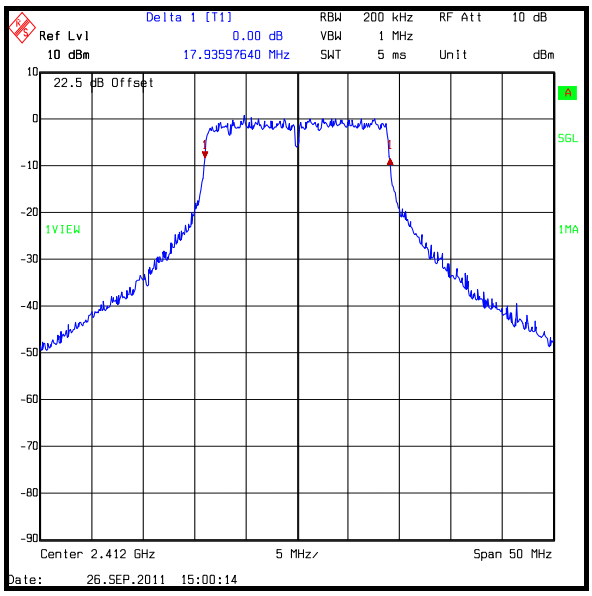
Middle channel



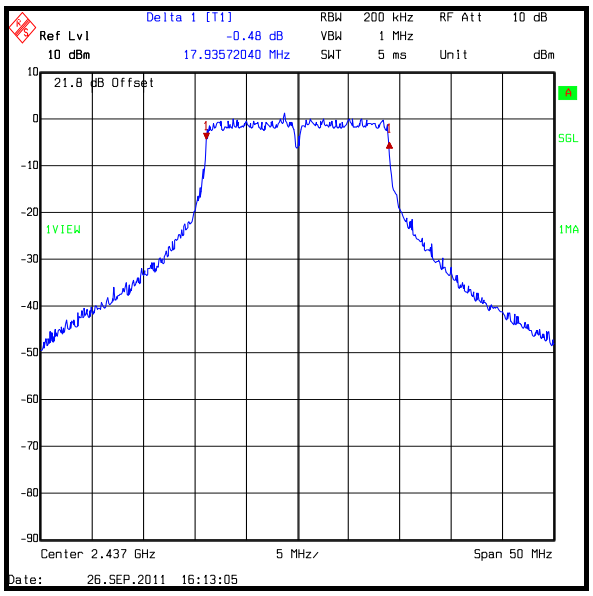
Top channel

Transmitter 6 dB Bandwidth (continued)

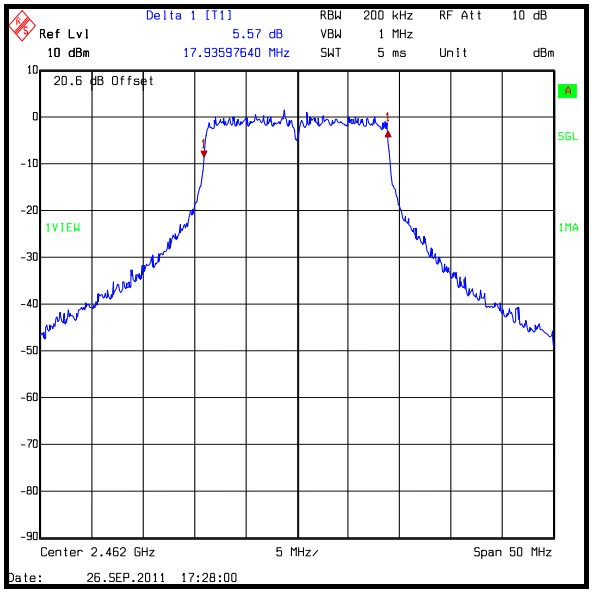
Results: 43.3 Mbps



Bottom channel



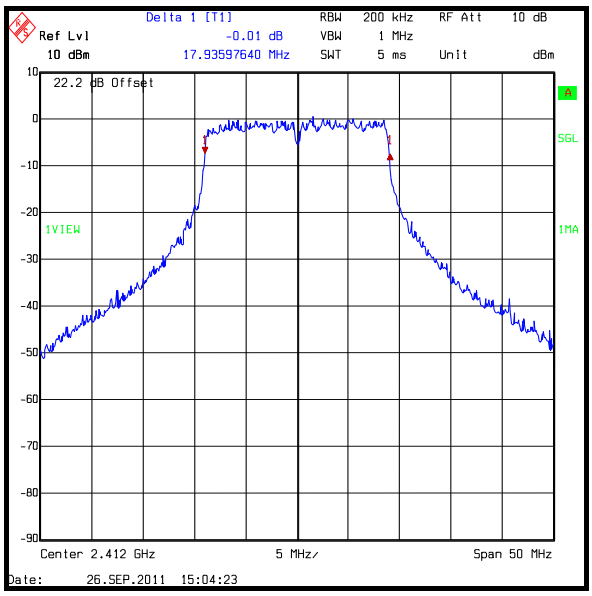
Middle channel



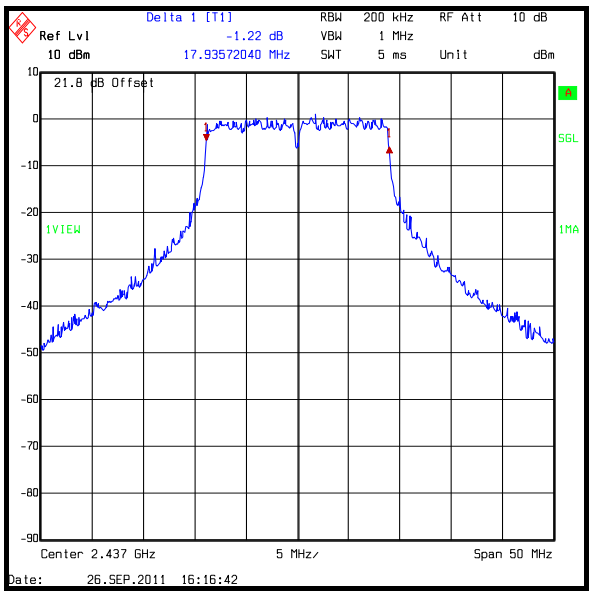
Top channel

Transmitter 6 dB Bandwidth (continued)

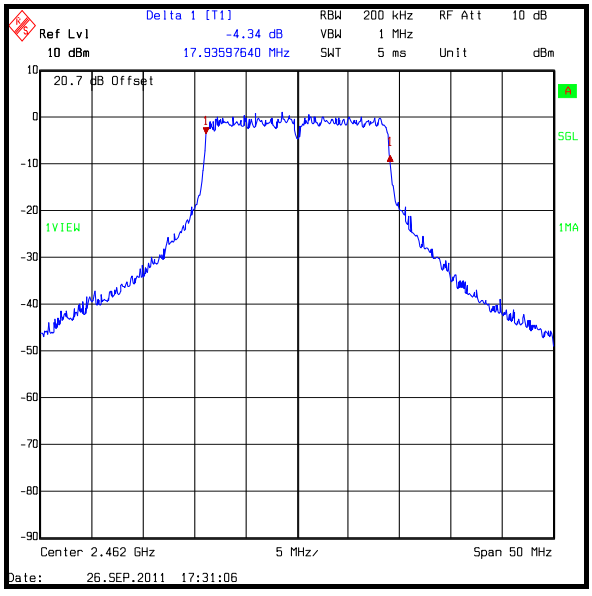
Results: 57.8 Mbps



Bottom channel



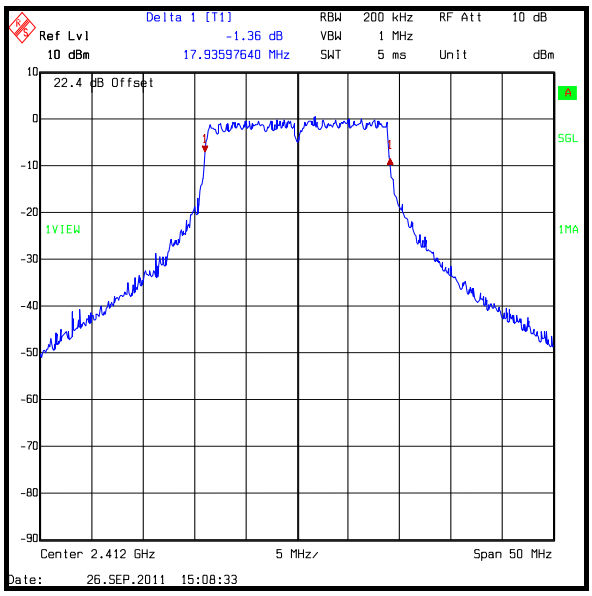
Middle channel



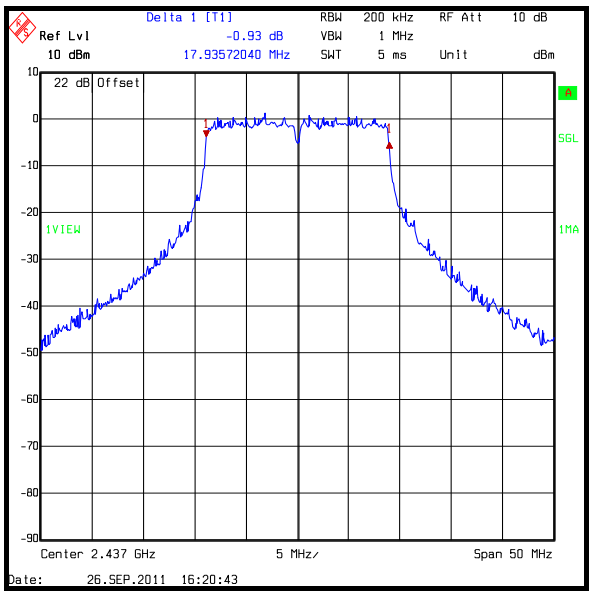
Top channel

Transmitter 6 dB Bandwidth (continued)

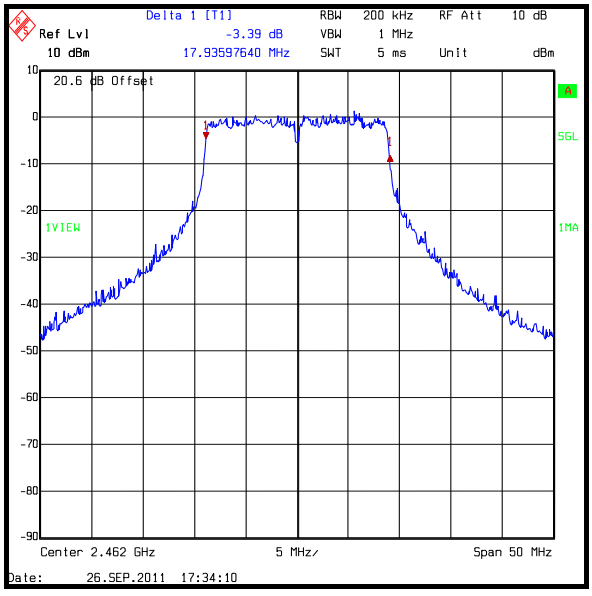
Results: 65 Mbps



Bottom channel



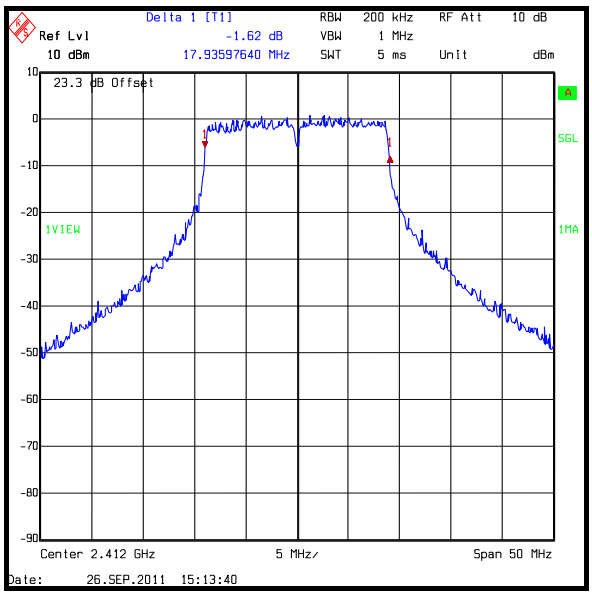
Middle channel



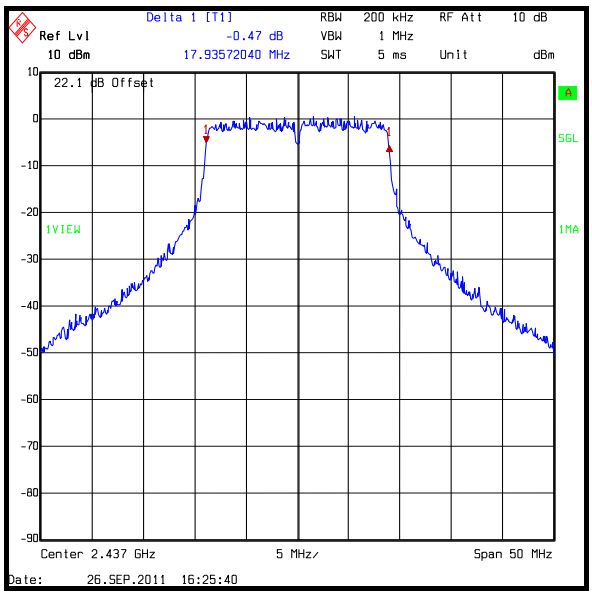
Top channel

Transmitter 6 dB Bandwidth (continued)

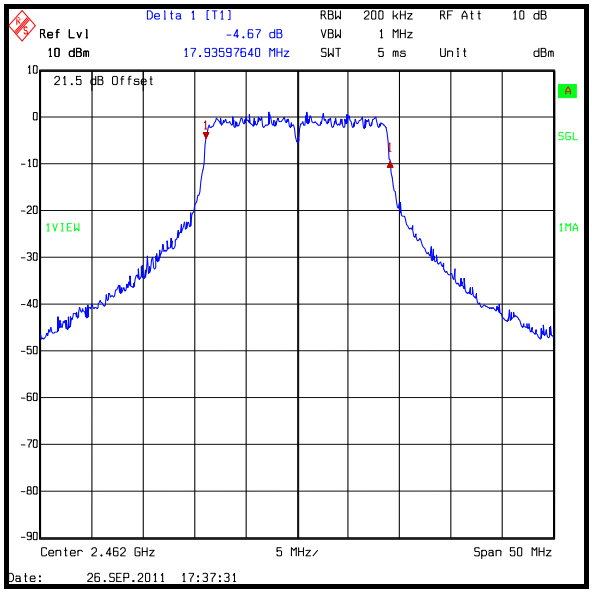
Results: 72.2 Mbps



Bottom channel



Middle channel



Top channel

5.2.4.1. Transmitter Power Spectral Density

Test Summary:

Test Engineer:	Sarah Williams	**Test Date:**	26 September 2011
Test Sample IMEI:	004401221130087		

FCC Part:	15.247(e)
Test Method Used:	As detailed in ANSI C63.10 Section 6.11.2

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	36

Results: 2 Mbps

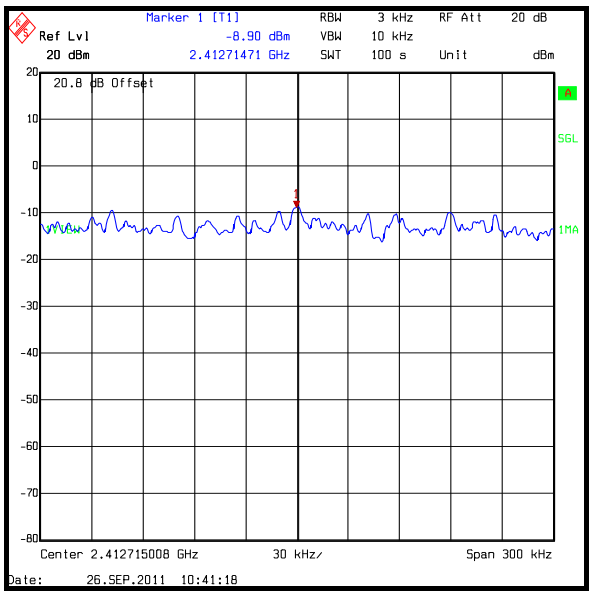
Channel	Output Power (dBm/3 kHz)	Limit (dBm/3 kHz)	Margin (dB)	Result
Bottom	-8.9	8.0	16.9	Complied
Middle	-8.6	8.0	16.6	Complied
Top	-10.3	8.0	18.3	Complied

Note(s):

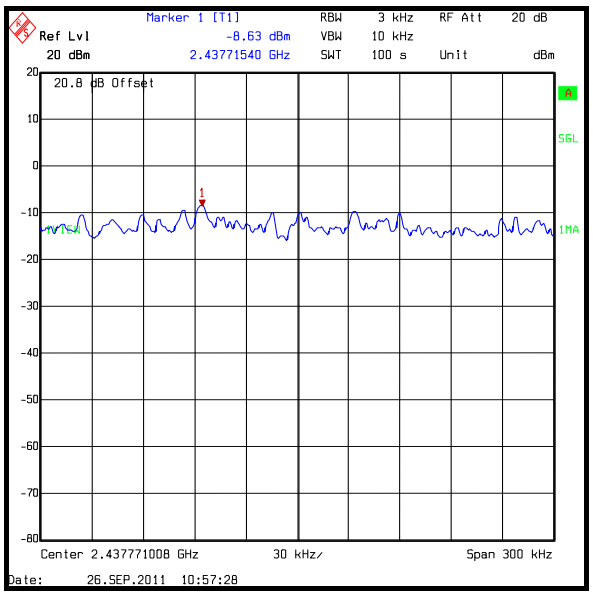
1. All supported modes were tested on the bottom, middle and top channels to determine the worst case configuration. The configuration that produced the highest levels is recorded in the table above.

Transmitter Power Spectral Density (continued)

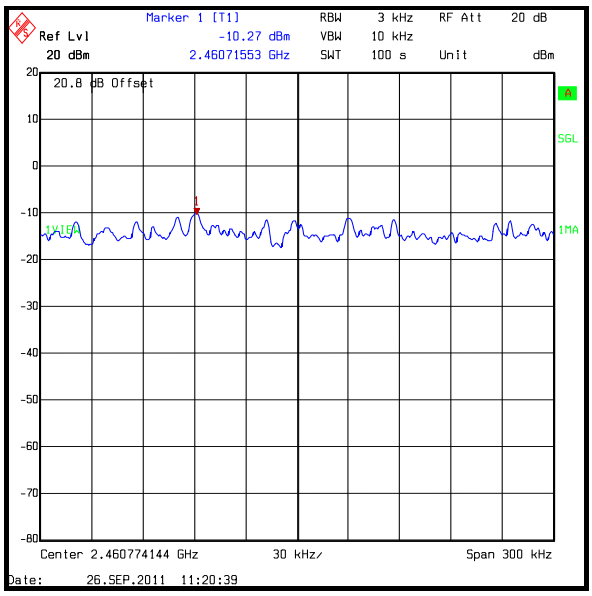
Results: 2 Mbps



Bottom channel



Middle channel



Top channel

5.2.5. Transmitter Maximum Peak Output Power

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	23 September 2011
Test Sample IMEI:	004401221130087		

FCC Part:	15.247(b)(3)
Test Method Used:	As detailed in ANSI C63.10 Section 6.10.2 and Sections 6.3 and 6.6 referencing ANSI C63.4 (see note below)

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	23

Results: 1 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	16.9	30.0	13.1	Complied
Middle	17.1	30.0	12.9	Complied
Top	17.2	30.0	12.8	Complied

De Facto EIRP Limit Comparison

Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	16.9	-1.3	15.6	36.0	20.4	Complied
Middle	17.1	-1.3	15.8	36.0	20.2	Complied
Top	17.2	-1.3	15.9	36.0	20.1	Complied

Transmitter Maximum Peak Output Power (continued)

Results: 9 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	18.2	30.0	11.8	Complied
Middle	18.8	30.0	11.2	Complied
Top	18.8	30.0	11.2	Complied

De Facto EIRP Limit Comparison

Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	18.2	-1.3	16.9	36.0	19.1	Complied
Middle	18.8	-1.3	17.5	36.0	18.5	Complied
Top	18.8	-1.3	17.5	36.0	18.5	Complied

Results: 11 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	20.2	30.0	9.8	Complied
Middle	20.6	30.0	9.4	Complied
Top	20.7	30.0	9.33	Complied

De Facto EIRP Limit Comparison

Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	20.2	-1.3	18.9	36.0	17.1	Complied
Middle	20.6	-1.3	19.3	36.0	16.7	Complied
Top	20.7	-1.3	19.4	36.0	16.6	Complied

Transmitter Maximum Peak Output Power (continued)

Results: 18 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	18.6	30.0	11.4	Complied
Middle	19.2	30.0	10.8	Complied
Top	19.1	30.0	10.9	Complied

De Facto EIRP Limit Comparison

Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	18.6	-1.3	17.3	36.0	18.7	Complied
Middle	19.2	-1.3	17.9	36.0	18.1	Complied
Top	19.1	-1.3	17.8	36.0	18.2	Complied

Results: 48 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	19.0	30.0	11.0	Complied
Middle	19.5	30.0	10.5	Complied
Top	19.1	30.0	10.9	Complied

De Facto EIRP Limit Comparison

Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	19.0	-1.3	17.7	36.0	18.3	Complied
Middle	19.5	-1.3	18.2	36.0	17.8	Complied
Top	19.1	-1.3	17.8	36.0	18.4	Complied

Transmitter Maximum Peak Output Power (continued)

Results: 72.2 Mbps

Conducted Peak Limit Comparison

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	18.4	30.0	11.6	Complied
Middle	18.7	30.0	11.3	Complied
Top	18.8	30.0	11.4	Complied

De Facto EIRP Limit Comparison

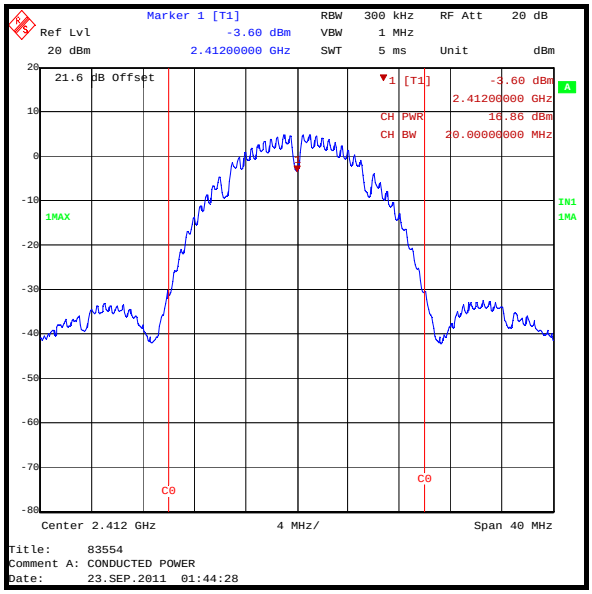
Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	18.4	-1.3	17.1	36.0	18.9	Complied
Middle	18.7	-1.3	17.4	36.0	18.6	Complied
Top	18.8	-1.3	17.5	36.0	18.7	Complied

Note(s):

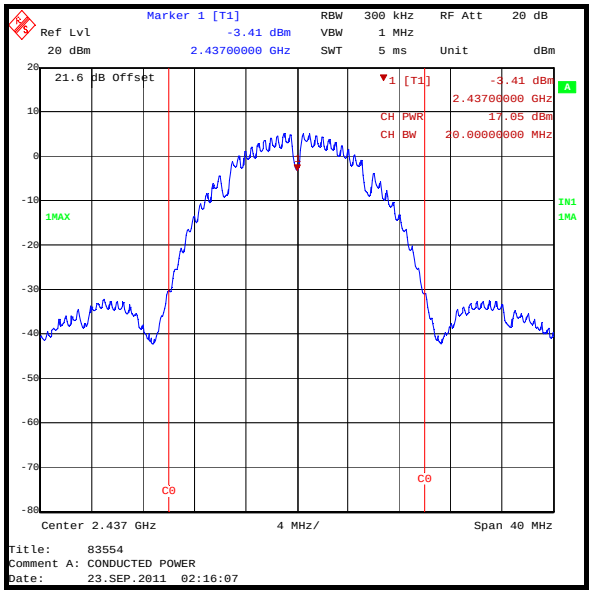
1. Power was measured using the channel power function on a spectrum analyser. The spectrum analyser was connected to the RF port on the EUT using suitable attenuation and RF cable.
2. Each supported modulation type was tested at the highest data rate.

Transmitter Maximum Peak Output Power (continued)

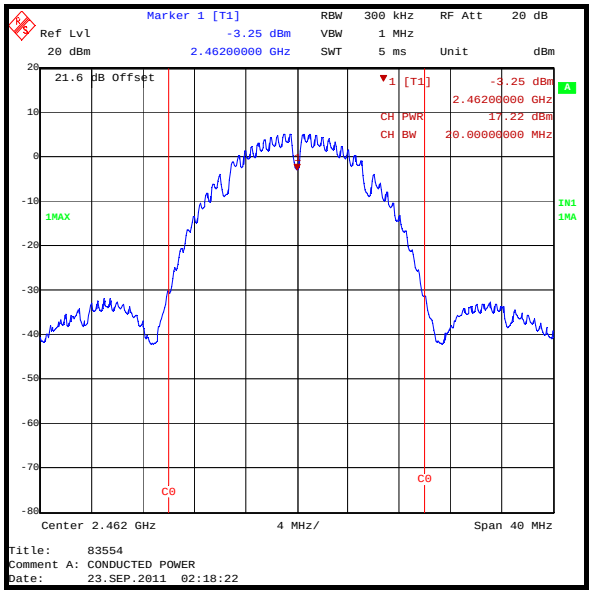
Results: 1 Mbps



Bottom channel



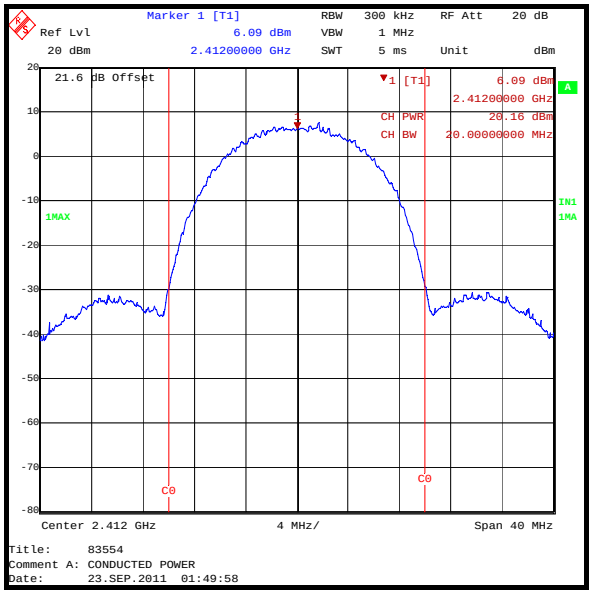
Middle channel



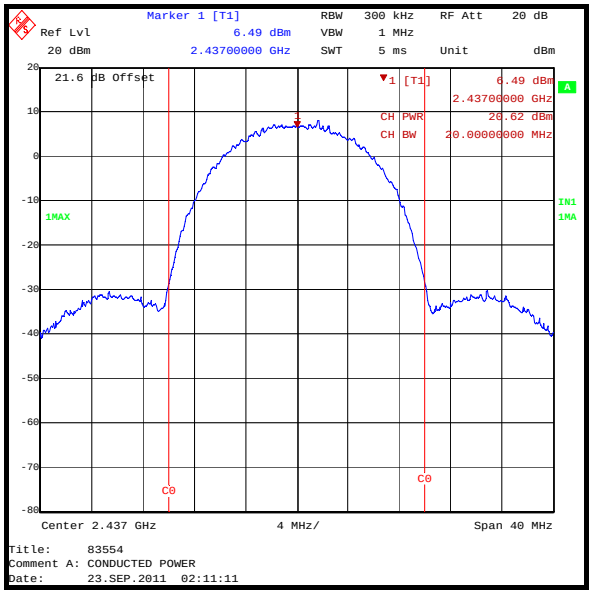
Top channel

Transmitter Maximum Peak Output Power (continued)

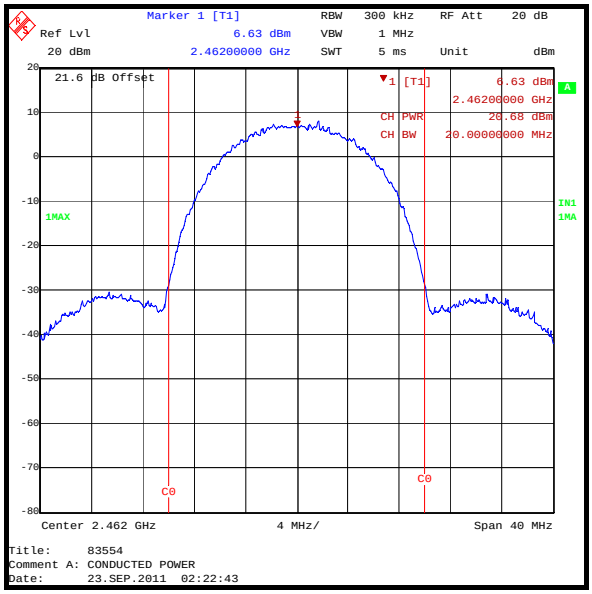
Results: 11 Mbps



Bottom channel



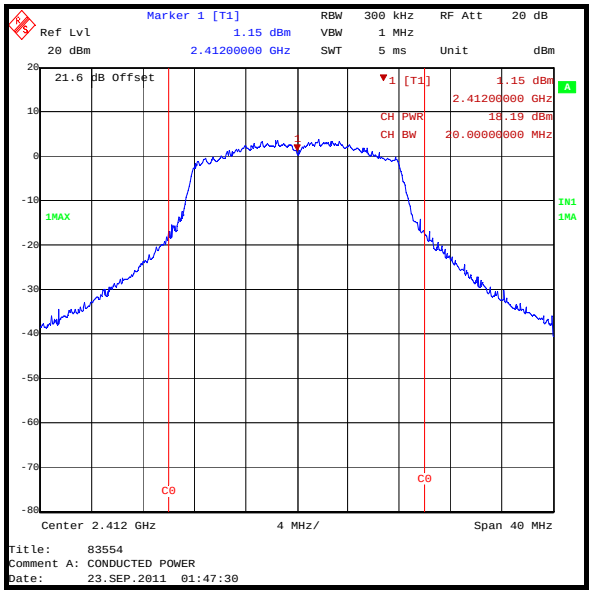
Middle channel



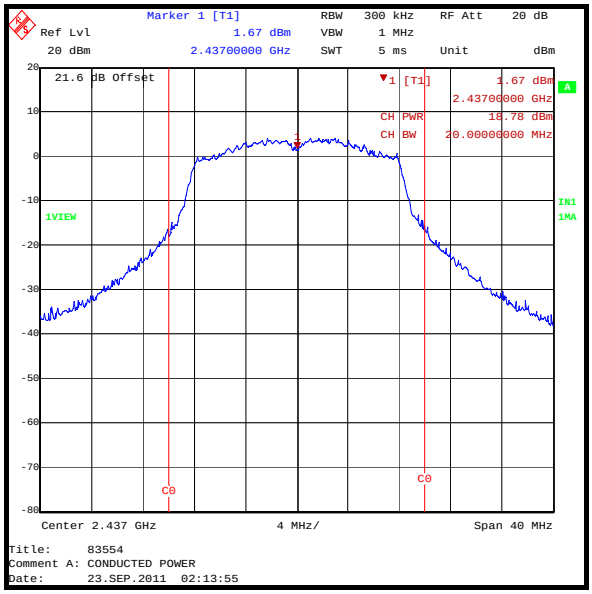
Top channel

Transmitter Maximum Peak Output Power (continued)

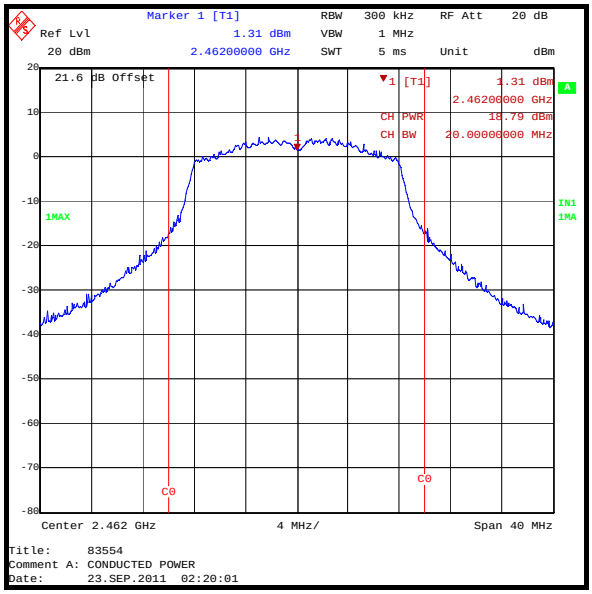
Results: 9 Mbps



Bottom channel



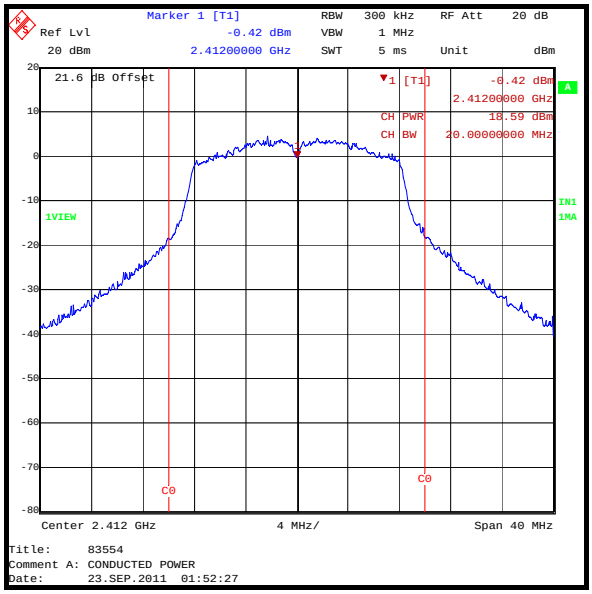
Middle channel



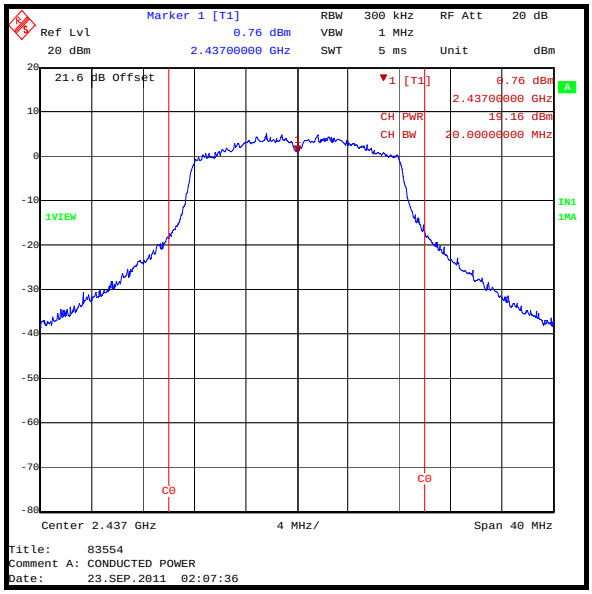
Top channel

Transmitter Maximum Peak Output Power (continued)

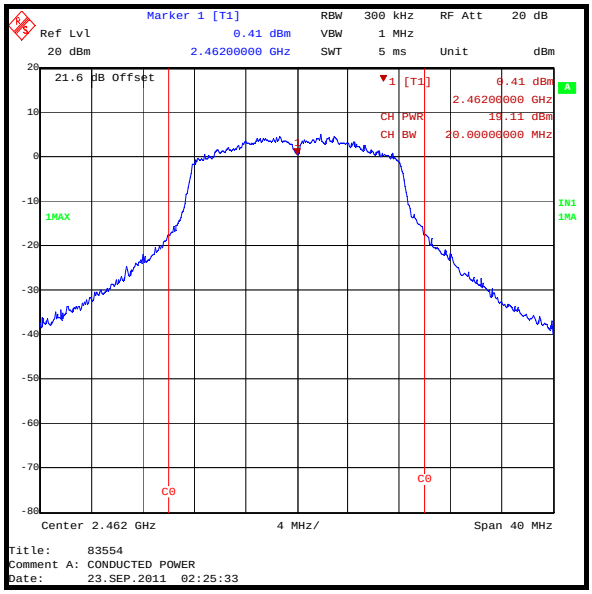
Results: 18 Mbps



Bottom channel



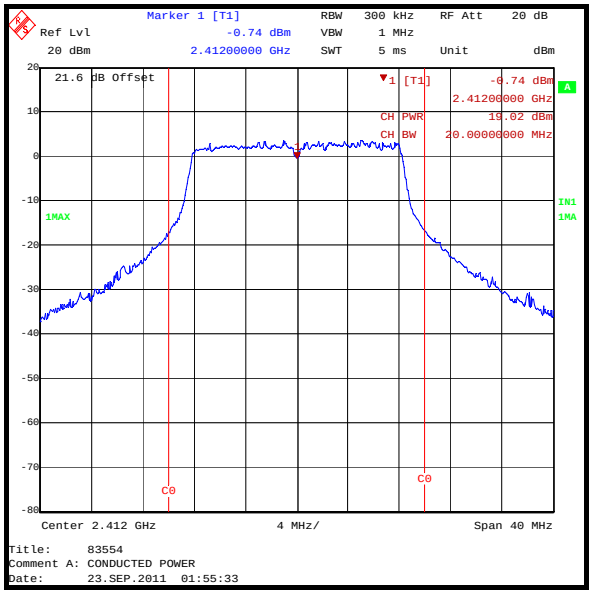
Middle channel



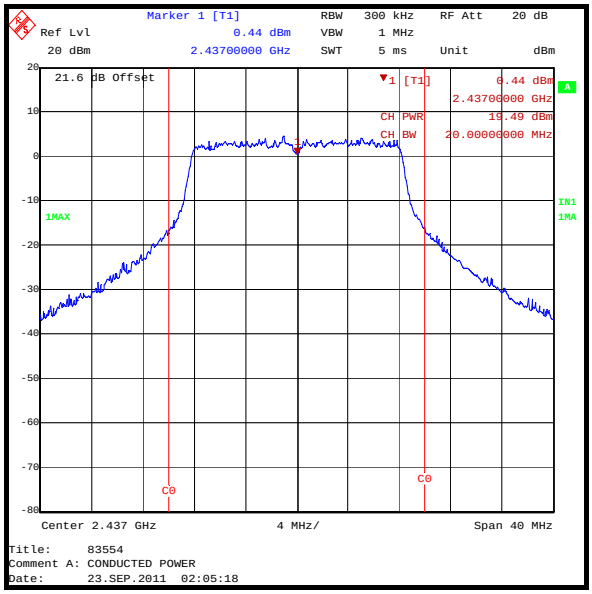
Top channel

Transmitter Maximum Peak Output Power (continued)

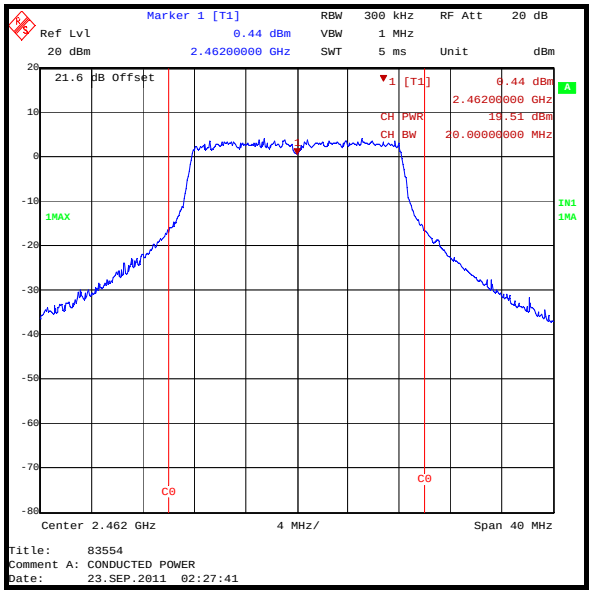
Results: 48 Mbps



Bottom channel



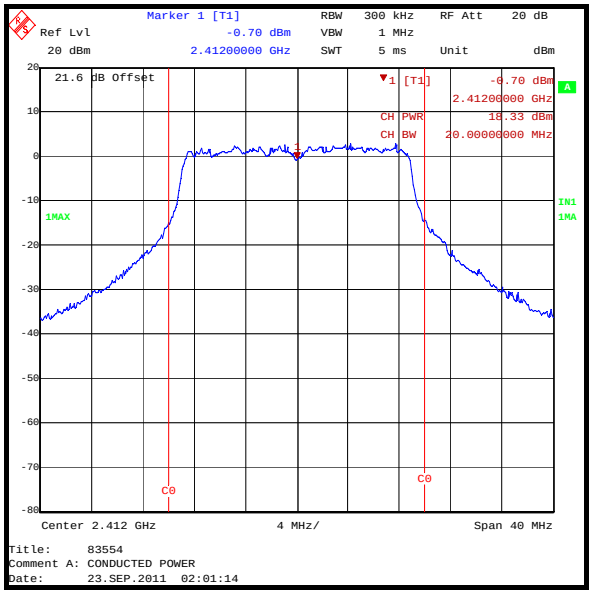
Middle channel



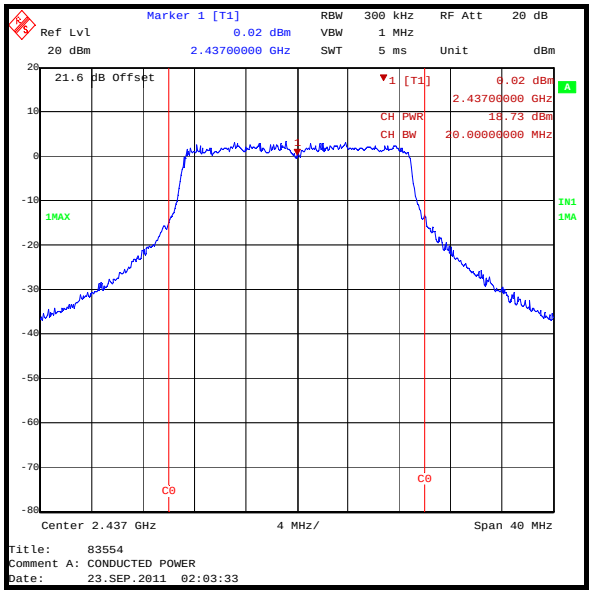
Top channel

Transmitter Maximum Peak Output Power (continued)

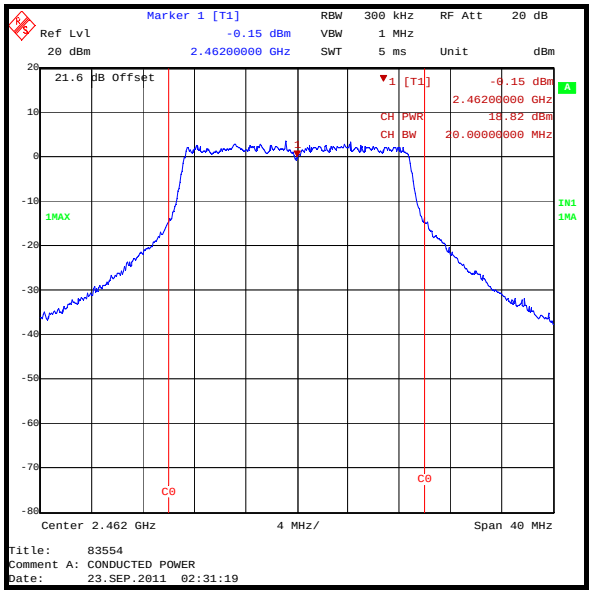
Results: 72.2 Mbps



Bottom channel



Middle channel



Top channel

5.2.6. Transmitter Average Conducted Output Power

Test Summary:

Test Engineer:	Jack Suter	**Test Date:**	13 September 2011
Test Sample IMEI:	004401221130087		

FCC Part:	15.247(b)(3)

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	25

Results:

Channel	Frequency (MHz)	Average Transmit Power (dBm)	Note
1	2412	13.2	802.11b (1 Mbps)
6	2437	13.7	
11	2462	13.8	
1	2412	12.6	802.11b (11 Mbps)
6	2437	13.3	
11	2462	13.4	
1	2412	11.7	802.11g (6 Mbps)
6	2437	11.6	
11	2462	12.4	
1	2412	10.6	802.11g (54 Mbps)
6	2437	11.5	
11	2462	11.6	
1	2412	11.3	802.11n (6.5 Mbps)
6	2412	12.3	
11	2412	12.3	

Note(s):

1. Conducted power measurements were performed to support SAR tests.

5.2.7. Transmitter Radiated Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	28 September 2011
Test Sample IMEI:	004401221134089		

FCC Part:	15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.5 referencing ANSI C63.4
Frequency Range	30 MHz to 1000 MHz

Environmental Conditions:

Temperature (°C):	28
Relative Humidity (%):	33

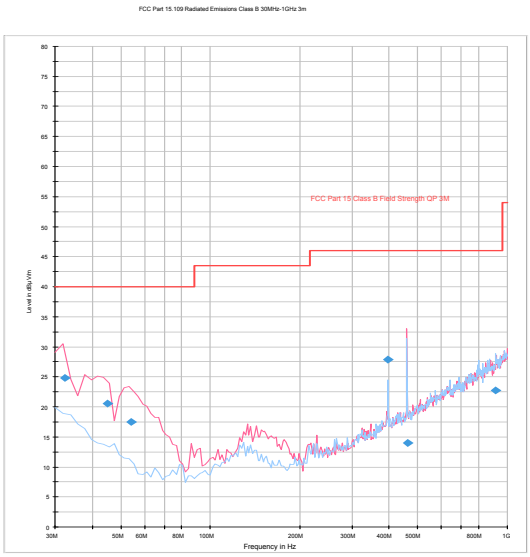
Results: Quasi Peak-Top Channel 802.11B 11 Mbps

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
32.507	Vertical	24.8	40.0	15.2	Complied
45.045	Vertical	20.5	40.0	19.5	Complied
53.966	Vertical	17.5	40.0	22.5	Complied
397.370	Horizontal	27.9	46.0	18.1	Complied
461.979	Vertical	14.0	46.0	32.0	Complied
914.569	Horizontal	22.7	46.0	23.3	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss
2. The preliminary scans showed similar emission levels below 1 GHz, for each channel of operation. Therefore final radiated emissions measurements were performed with the EUT set to the top channel only.
3. All other emissions were at least 20 dB below the appropriate limit or below the noise floor of the measurement system.
4. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Radiated Emissions (continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

Transmitter Radiated Emissions (continued)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	12 September 2011
Test Sample IMEI:	004401221134089		

FCC Part:	15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.6 referencing ANSI C63.4
Frequency Range	1 GHz to 25 GHz

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	30

Results: Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
3987.960	Vertical	59.2	74.0	14.8	Complied

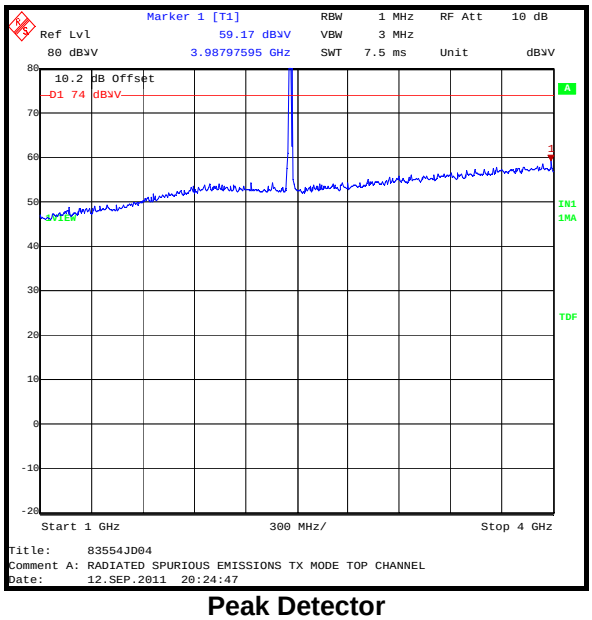
Results: Average

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
3963.278	Vertical	47.1	54.0	6.9	Complied

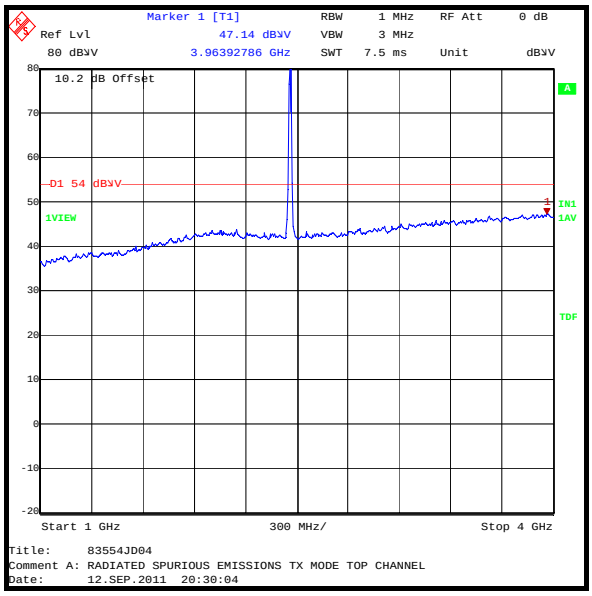
Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss
2. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
3. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver (of the range 1 GHz to 4 GHz) was recorded as shown in the table above.
4. The emission shown at 2462 MHz on the 1 GHz to 4 GHz plot is the EUT fundamental.
5. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

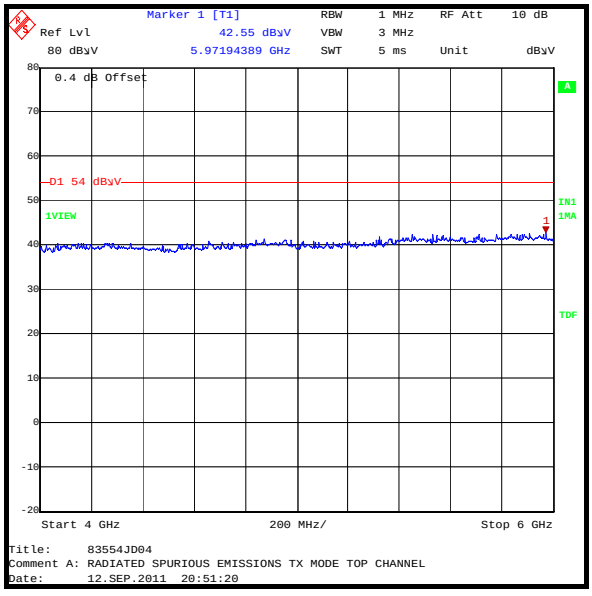
Transmitter Radiated Emissions (continued)

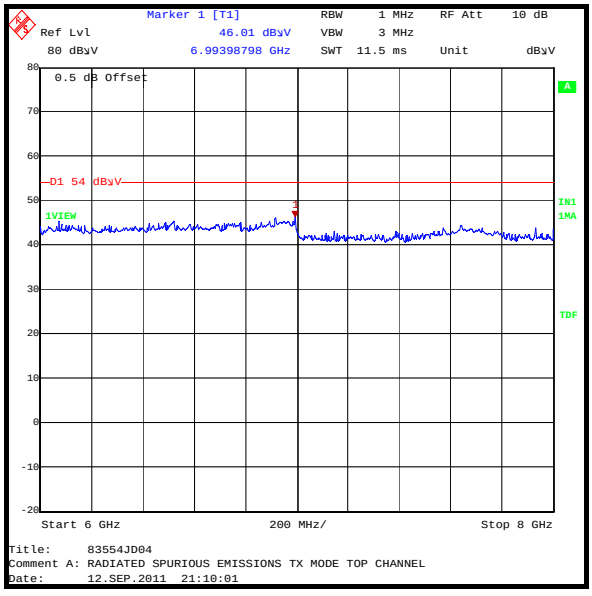


Peak Detector

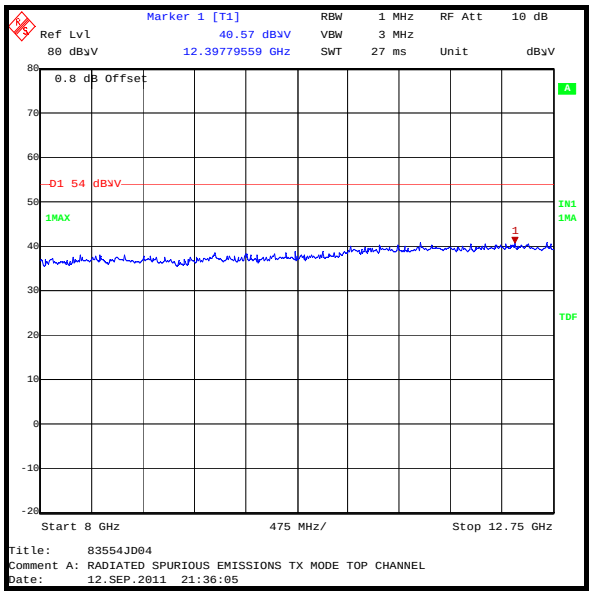


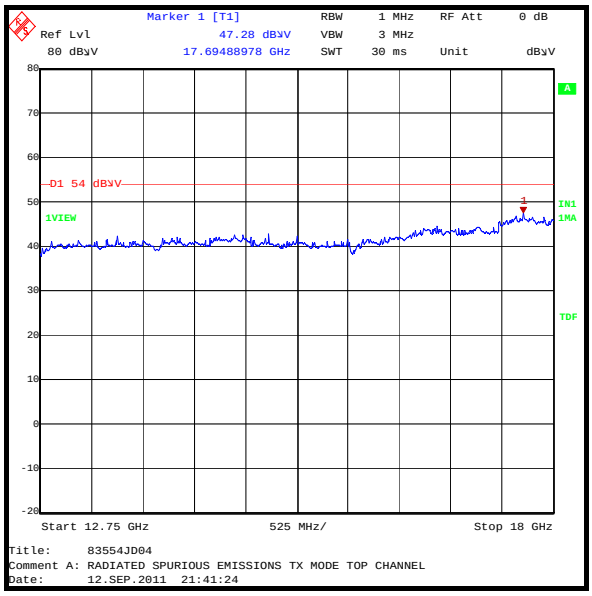
Average Detector

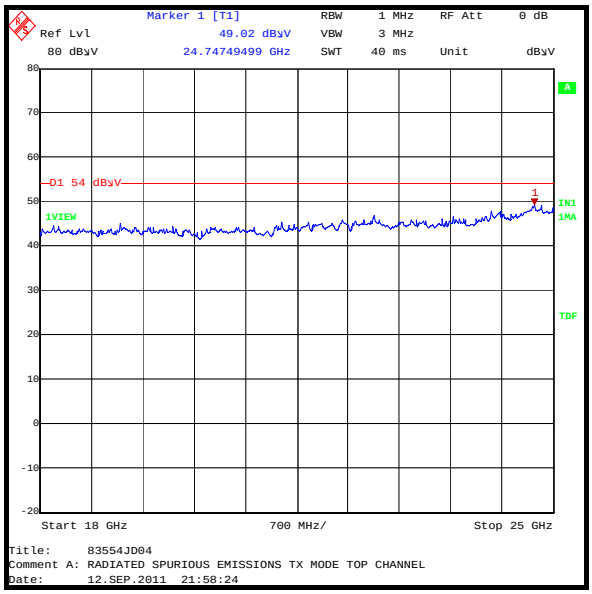




Transmitter Radiated Emissions (continued)







5.2.8. Transmitter Band Edge Radiated Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	12 September 2011
Test Sample IMEI:	004401221134089		

FCC Part:	15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.2

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	30

Results – Peak / 1 Mbps:

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2400	53.9	74.4*	20.5	Complied
2483.5	61.3	74.0	12.7	Complied

Results – Average / 1 Mbps:

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2483.5	49.1	54.0	4.9	Complied

Results – Peak / 9 Mbps:

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2400	59.3	72.3*	13.0	Complied
2483.5	62.3	74.0	11.7	Complied

Results – Average / 9 Mbps:

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2483.5	49.7	54.0	4.3	Complied

Transmitter Band Edge Radiated Emissions (continued)

Results – Peak / 11 Mbps:

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400	55.3	74.9*	19.6	Complied
2483.5	62.6	74.0	11.4	Complied

Results – Average / 11 Mbps:

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2483.5	49.3	54.0	4.7	Complied

Results – Peak / 18 Mbps:

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400	59.8	71.8*	12.0	Complied
2483.5	62.1	74.0	11.9	Complied

Results – Average / 18 Mbps:

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2483.5	49.7	54.0	4.3	Complied

Transmitter Band Edge Radiated Emissions (continued)

Results – Peak / 48 Mbps:

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400	59.8	70.6*	10.8	Complied
2483.5	63.4	74.0	10.6	Complied

Results – Average / 48 Mbps:

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2483.5	5.0	54.0	4.0	Complied

Results – Peak / 72.2 Mbps:

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2400	59.2	68.6*	9.4	Complied
2483.5	63.2	74.0	10.8	Complied

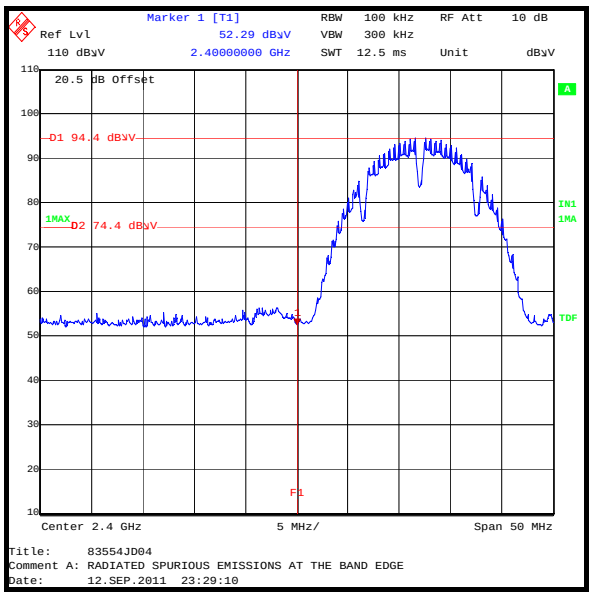
Results – Average / 72.2 Mbps:

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2483.5	49.9	54.0	4.1	Complied

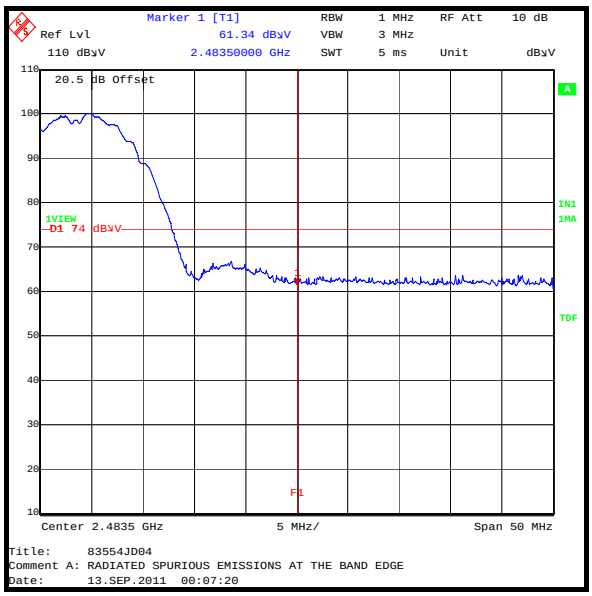
**-20 dBc limit*

Transmitter Band Edge Radiated Emissions (continued)

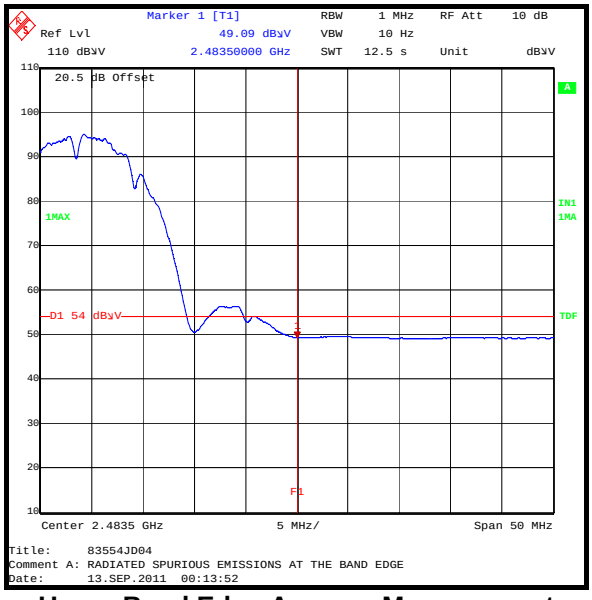
Results – 1 Mbps:



Lower Band Edge Peak Measurement



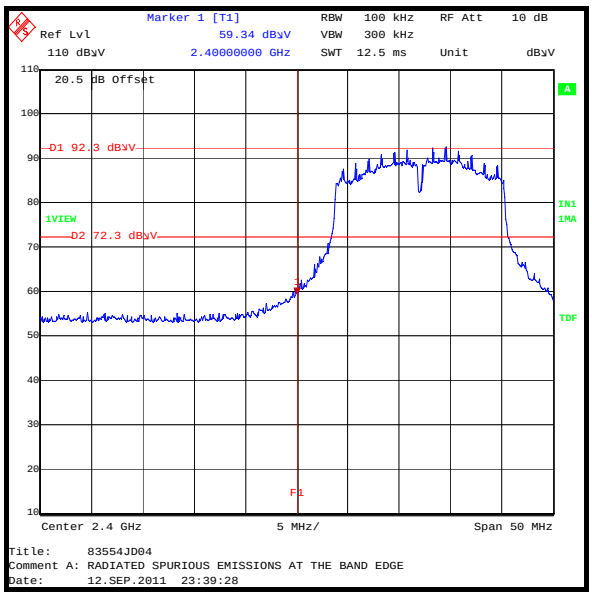
Upper Band Edge Peak Measurement



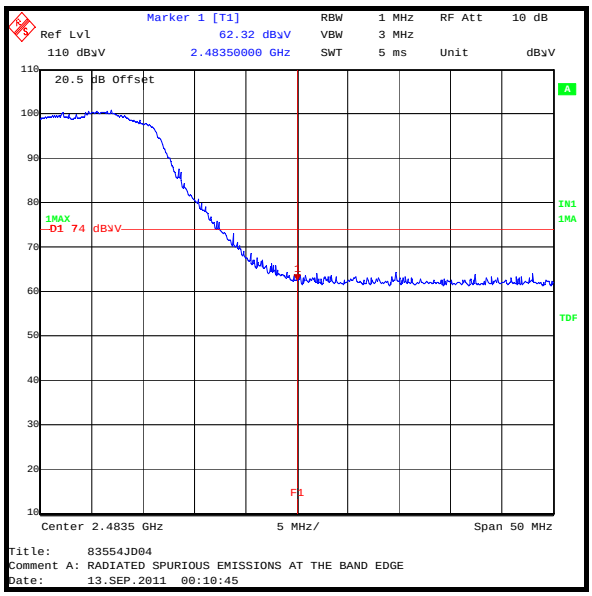
Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

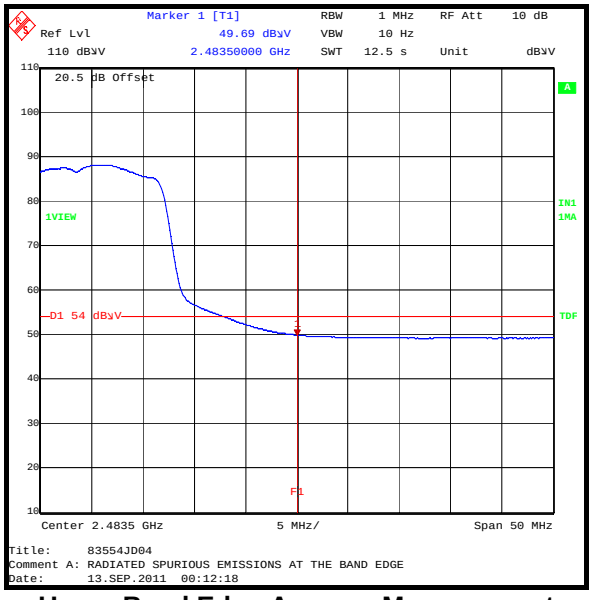
Results – 9 Mbps:



Lower Band Edge Peak Measurement



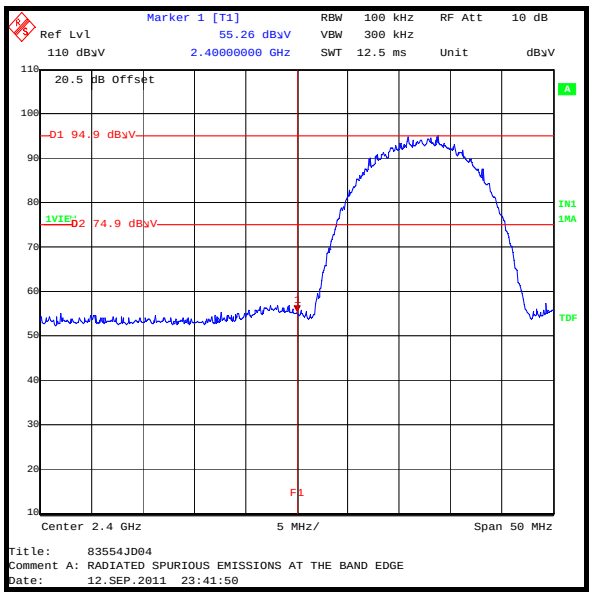
Upper Band Edge Peak Measurement



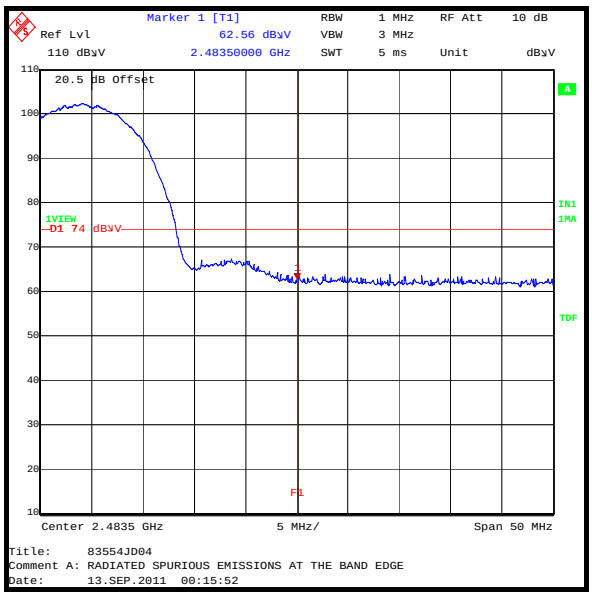
Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

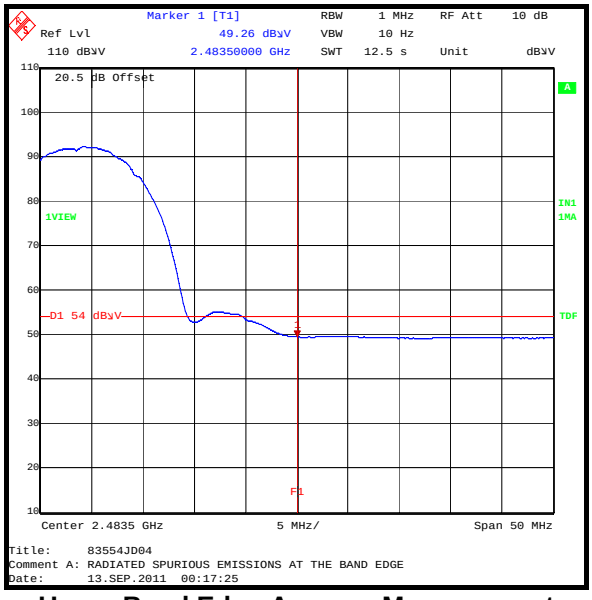
Results – 11 Mbps:



Lower Band Edge Peak Measurement



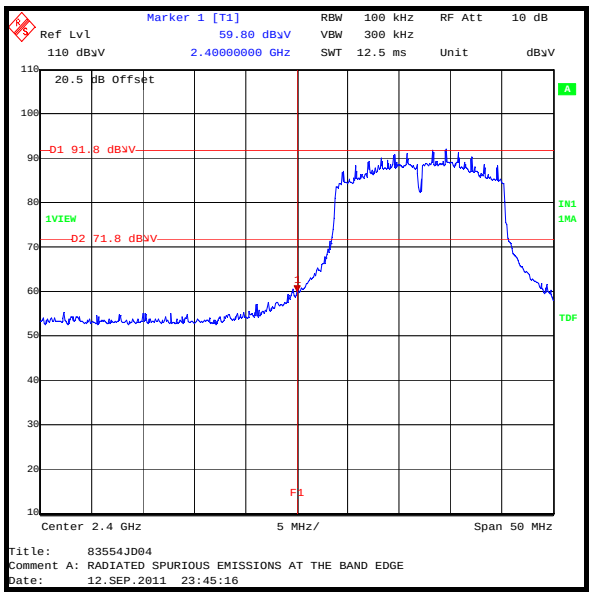
Upper Band Edge Peak Measurement



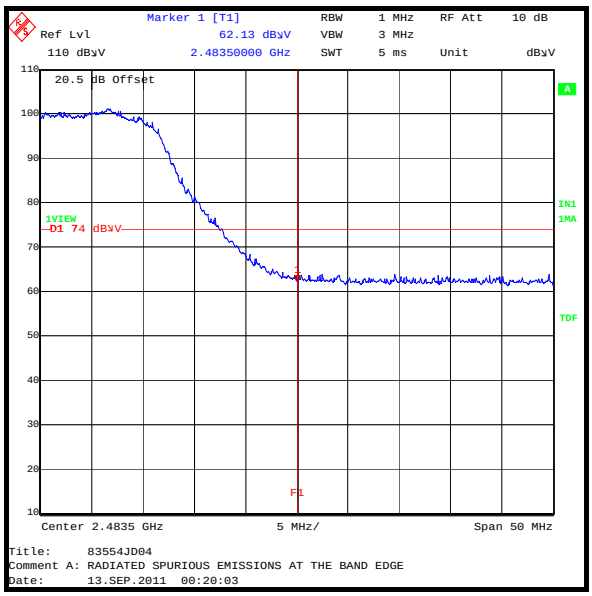
Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

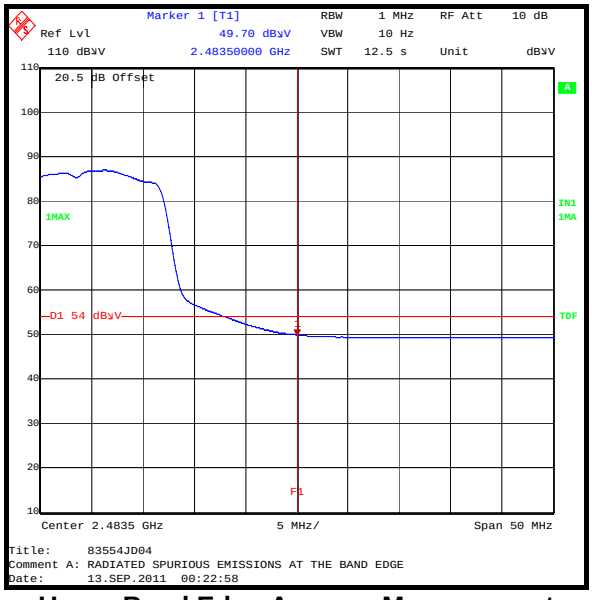
Results – 18 Mbps:



Lower Band Edge Peak Measurement



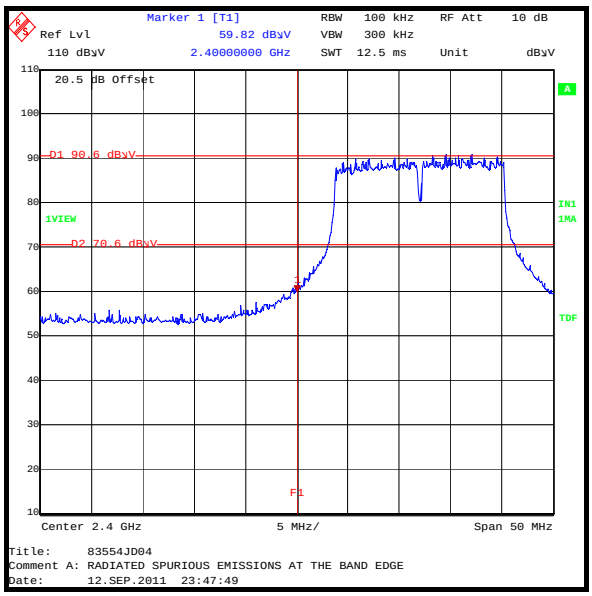
Upper Band Edge Peak Measurement



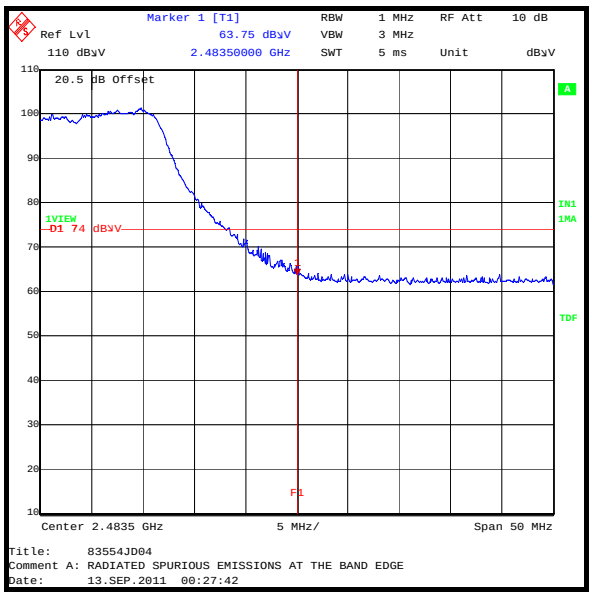
Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

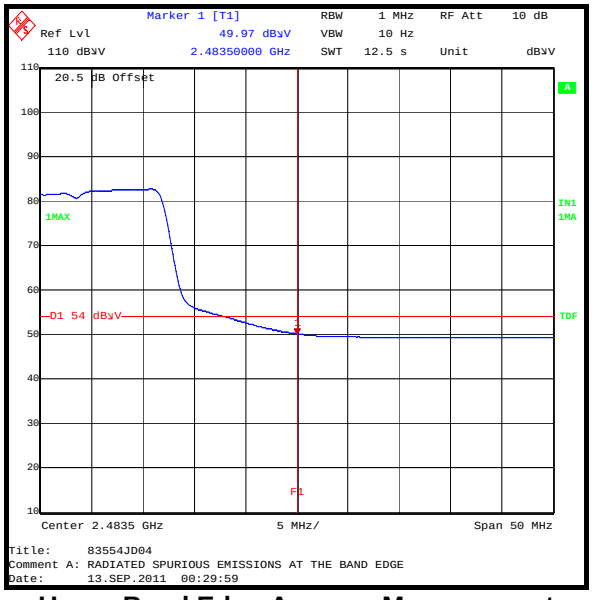
Results – 48 Mbps:



Lower Band Edge Peak Measurement



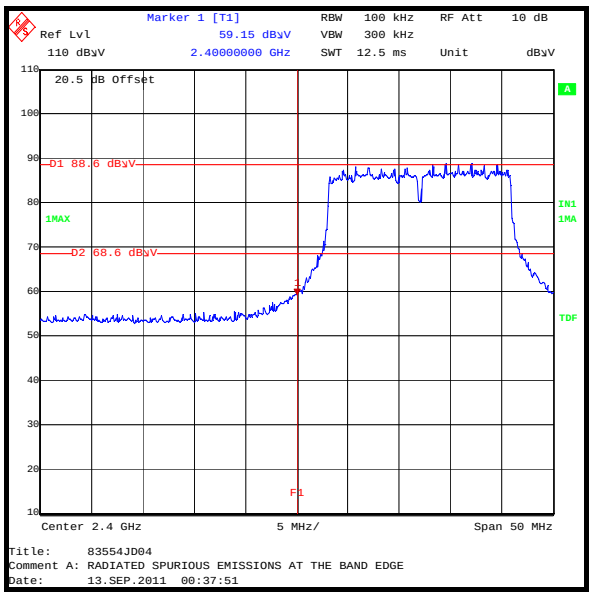
Upper Band Edge Peak Measurement



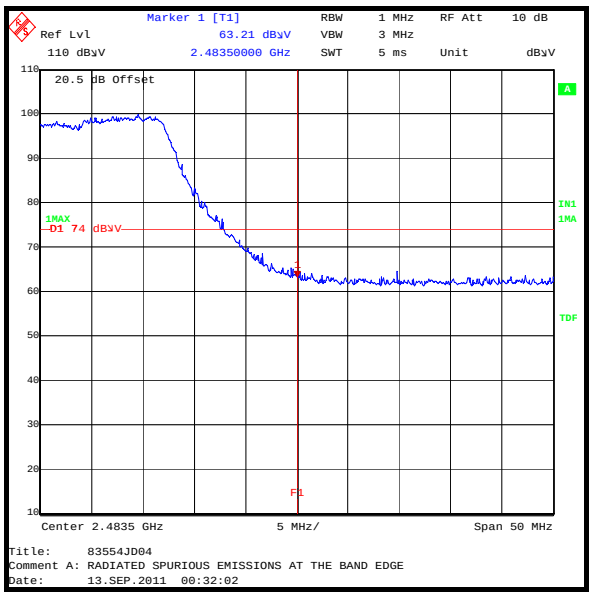
Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

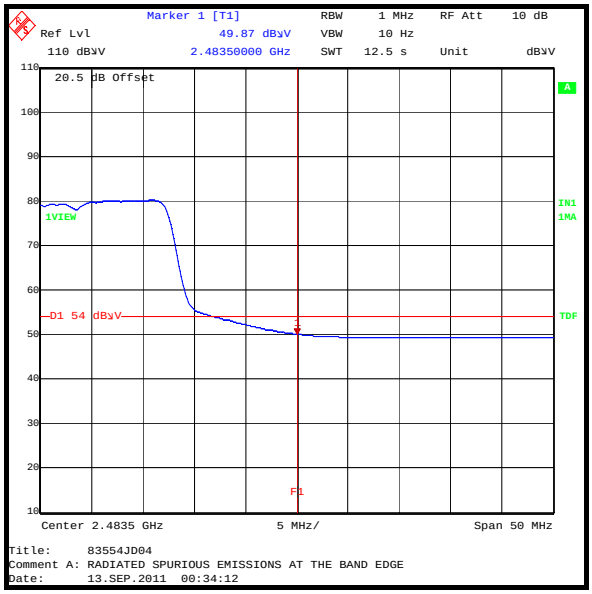
Results – 72.2 Mbps:



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.25 dB
Conducted Maximum Peak Output Power	2.4 GHz to 2.4835 GHz	95%	±0.27 dB
Spectral Power Density	2.4 GHz to 2.4835 GHz	95%	±2.94 dB
6 dB Bandwidth	2.4 GHz to 2.4835 GHz	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz to 25 GHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
A1393	Attenuator	Huber + Suhner	757456	6820.17.B	08 Jul 2012	12
A1396	Attenuator	Huber + Suhner	757987	6810.17.B	08 Jul 2012	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	20 Jun 2012	12
A1818	Antenna	EMCO	3115	00075692	13 Oct 2011	12
A1830	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100668	05 Mar 2012	12
A1834	Attenuator	Hewlett Packard	8491B	10444	26 Jul 2012	12
A1975	High Pass Filter	AtlanTecRF	AFH-03000	090424010	29 Dec 2011	12
A1981	High Pass Filter	AtlanTecRF	AFH-05000	09110200090	28 Feb 2012	12
A253	Antenna	Flann Microwave	12240-20	128	13 Oct 2011	12
A254	Antenna	Flann Microwave	14240-20	139	13 Oct 2011	12
A255	Antenna	Flann Microwave	16240-20	519	13 Oct 2011	12
A256	Antenna	Flann Microwave	18240-20	400	13 Oct 2011	12
A388	Attenuator	Huber + Suhner	6820.17.B	None	Calibrated before use	-
A436	Antenna	Flann Microwave	20240-20	330	13 Oct 2011	12
A553	Antenna	Chase	CBL6111A	1593	26 Mar 2012	12
A649	LISN	Rohde & Schwarz	ESH3-Z5	825562/008	05 Apr 2012	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	29 May 2012	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	13 Oct 2011	12
M1044	Power Sensor	Rohde & Schwarz	NRV-Z1	893350/0019	27 May 2012	12
M1124	Test Receiver	Rohde & Schwarz	ESI26	100046K	29 Jun 2012	12
M1242	Spectrum Analyser	Rohde & Schwarz	FSEM30	845986/022	03 Dec 2011	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	13 Jul 2012	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	11 May 2012	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	04 Feb 2012	12

NB In accordance with UKAS requirements all the measurement equipment is on a calibration schedule.