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Test Report: 99388TRFWL

Applicant: Dekolink Wireless
16 Bazel St., Kiryat-Arieh,
Petah-Tikvah 49001
Israel

Apparatus: DEKO 3189

FCC ID: OIWCSRSMR893180

In Accordance With: FCC Part 90, Boosters
Private Land Mobile Radio Services

Tested By: Nemko Canada Inc.
303 River Road
Ottawa, Ontario
K1V 1H2

Authorized By: 
Jason Nixon, Telecom Specialist

Date: February 11, 2008

Total Number of Pages: 67

Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 90. Conducted measurements were performed in accordance with ANSI TIA-603-B-2002. Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

The assessment summary is as follows:

Apparatus Assessed:	DEKO 3189
Specification:	FCC Part 90 Private Land Mobile Radio Services
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None
Report Release History:	Original Release

Author: Andrey Adelberg EMC/Wireless Specialist

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

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Section 1: Equipment Under Test

1.1 Product Identification

The Equipment Under Test was identified as follows:

Name: Dual-Band Selective Mid-Repeater

M/N: MW-CSR-SMR89-3180

S/N: 0712D9147

Repeater Nick Name: DEKO 3189

Application SW version: 6BF

Repeater P/N: DEKO3189N

Repeater HW version: 1.A

Firmware version: 6.10.af

1.2 Samples Submitted for Assessment

The following samples of the apparatus have been submitted for type assessment:

Sample No.	Description	Serial No.
1	Digital Repeater DEKO 3189	0712D9147

The first samples were received on: January 3, 2008

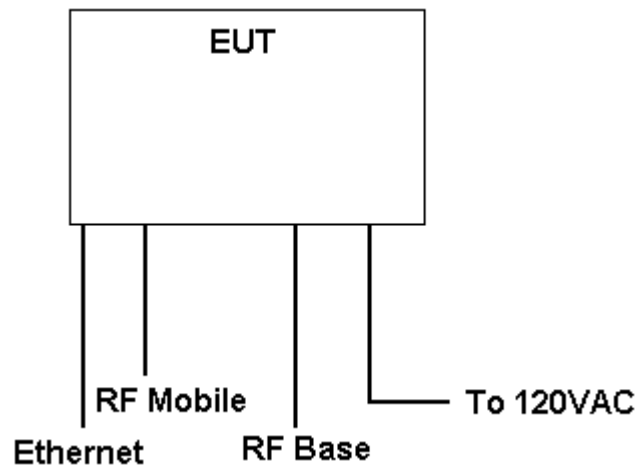
1.3 Theory of Operation

Deko3189 is a dual-band selective mid-repeater that supports both iDEN 800 MHz and 900 MHz bands. The repeater is specifically designed for simultaneous dual-band operation of ESMR 800 MHz and 900 MHz and is band selectable in the 800 MHz range [18 MHz or 7 MHz bandwidth] and fixed band in the 900 MHz range [5 MHz bandwidth].

1.4 Technical Specifications of the EUT

Manufacturer:	Dekolink Wireless Ltd.
Operating Frequencies (MHz):	Uplink: 800 MHz Band: 806-824 MHz (with 18 MHz band-pass filter) 817-824 MHz (with 7 MHz band-pass filter) 900 MHz Band: 896-901 MHz (with 5 MHz band-pass filter) Downlink: 800 MHz Band: 851-869 MHz (with 18 MHz band-pass filter) 862-869 MHz (with 7 MHz band-pass filter) 900 MHz Band: 935-940 MHz (with 5 MHz band-pass filter)
Emission Designator:	G7W
Rated Power:	+31 $\pm$1 dBm (Downlink) +24 $\pm$1 dBm (Uplink)
Measured Power:	+29.72 dBm (0.938 W) (Downlink) +22.86 dBm (0.193 W) (Uplink)
Modulation:	iDEN
Power Source:	100 – 240 VDC

1.5 Block diagram of the EUT



Section 2: Test Conditions

2.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 2 Subpart J, Equipment Authorization Procedures
 FCC Part 90 Private Land Mobile Radio Services
 FCC 2-11-04/EAB/RF Amplifier, Booster, and Repeater Reminder Sheet

2.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

2.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range : 15 – 30 °C
 Humidity range : 20 - 75 %
 Pressure range : 86 - 106 kPa
 Power supply range : +/- 5% of rated voltages

2.4 Test Equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
Signal Generator	Rohde & Schwarz	SMIQ06B	FA001878	Sept 4/08
Signal Generator	Rohde & Schwarz	SMIQ03E	FA001269	Aug 13/08
Spectrum Analyzer	Rohde & Schwarz	FSP40	FA001920	Mar 19/08
Attenuator	Narda	769-20	FA001394	COU
Biconical	Sunol	BC2	FA002078	July 25/08
Log Periodic Antenna	Sunol	LP5	FA002077	July 25/08
Flush Mount Turntable	Sunol	FM2022	FA002082	NCR
Controller	Sunol	SC104V	FA002060	NCR
Mast	Sunol	TLT2	FA002061	NCR
50 Coax cable	HUBER + SUHNER	None	FA002022	Sept. 19/08
50 Coax cable	HUBER + SUHNER	None	FA002015	Sept. 19/08
Spectrum Analyzer	Rohde & Schwarz	FSU	FA001877	Jan 16/08
Horn Antenna #1	EMCO	3115	FA000649	Feb 26/08
RF AMP	JCA	1-2 GHz	FA001498	Aug. 21/08
RF AMP	JCA	2-4 GHz	FA001496	Aug. 21/08
RF AMP	JCA	4-8 GHz	FA001497	Aug. 21/08
RF AMP	Narda	5 - 18GHz	FA001409	COU
Power Meter	HP	E4418B	FA001413	Jun 12/08
Power Sensor	HP	8487A	FA001908	Jun 12/08

COU – Calibrate on Use

NCR – No Calibration Required

Section 3: Observations

3.1 Modifications Performed During Assessment

No modifications were performed during assessment.

3.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

3.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

3.4 Test Deleted

No Tests were deleted from this assessment.

3.5 Additional Observations

There were no additional observations made during this assessment.

Section 4: Results Summary

This section contains the following:

FCC Part 90: Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

- N No : not applicable / not relevant.
- Y Yes : Mandatory i.e. the apparatus shall conform to these tests.
- N/T Not Tested, mandatory but not assessed. (See section 3.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

4.1 FCC Part 90 : Test Results

Clause	Test Method	Test Description	Required	Result
90.205	2.1046	Output power	YES	PASS
90.210	2.1051	Conducted spurious emissions	YES	PASS
90.210	2.1053	Radiated spurious emissions	YES	PASS
90.213	2.1055	Frequency stability	YES	PASS
90.214	—	Transient Behavior	NO	
90.219	—	Use of boosters	YES	PASS
2-11-04/EAB/RF	2.1049	Occupied bandwidth	YES	PASS
2-11-04/EAB/RF	—	Out of band rejection	YES	PASS

Appendix A: Test Results

Clause 90.205 Output Power

Applicants for licenses must request and use no more power than the actual power necessary for satisfactory operation. Except where otherwise specifically provided for, the maximum power that will be authorized for new stations authorized after August 16, 1995 is as follows in FCC Part 90.205(a) through (r).

Test Conditions:

Sample Number:	1	Temperature:	23 °C
Date:	January 7, 2008	Humidity:	45 %
Modification State:	0	Tester:	Andrey Adelberg
		Laboratory:	Ottawa

Test Results:

See Attached Table.

Additional Observations:

The output power was measured by using a calibrated power meter.
Test was performed with input single iDEN800/iDEN900 carrier set to the 1dB compression point.

Output power test results

UL/DL	Frequency Band	Filter Bandwidth, MHz	Input Frequency, MHz	Input Modulation	Output Power, dBm
Uplink	iDEN 800	18	806.5	iDEN	22.42
			815.0		22.78
			823.5		22.54
	iDEN 900	5	896.5	iDEN	21.26
			898.5		21.34
			900.5		21.24
	iDEN 800	7	817.5	iDEN	22.86
			820.5		22.63
			823.5		22.47
Downlink	iDEN 800	18	851.5	iDEN	29.52
			860.0		29.82
			868.5		29.32
	iDEN 900	5	935.5	iDEN	28.43
			937.5		28.64
			939.5		28.52
	iDEN 800	7	862.5	iDEN	29.72
			866.5		29.54
			868.5		29.46

Maximum output power test results:

Maximum Measured Power – Downlink: 29.72 dBm (0.938 W)

Maximum Measured Power – Uplink: 22.86 dBm (0.193 W)

Clause 90.210 Conducted Spurious Emissions

Except as indicated elsewhere in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (m) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere, the Table below specifies the emission masks for equipment operating in the frequency bands governed under this part.

Test Conditions:

Sample Number:	1	Temperature:	23 °C
Date:	January 8, 2008	Humidity:	35 %
Modification State:	0	Tester:	Andrey Adelberg
		Laboratory:	Ottawa

Test Results:

See Attached Plots.

Additional Observations:

The Spectrum was searched from 30MHz to the 10GHz.

All measurements were performed using a Peak Detector with 100kHz/300kHz RBW/VBW below 1GHz and a 1MHz/3M RBW/VBW above 1GHz.

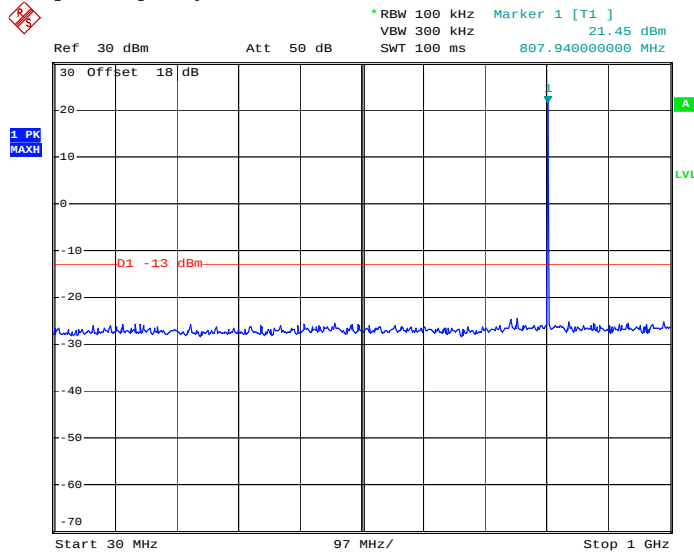
Note: Due to wide span, fundamental emission on the plots seems to be off its actual frequency.

Input Signal was single iDEN800/iDEN900 carrier

For Intermodulation measurements two identical carriers with 1 MHz distance one from the other were supplied to the input of the EUT.

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

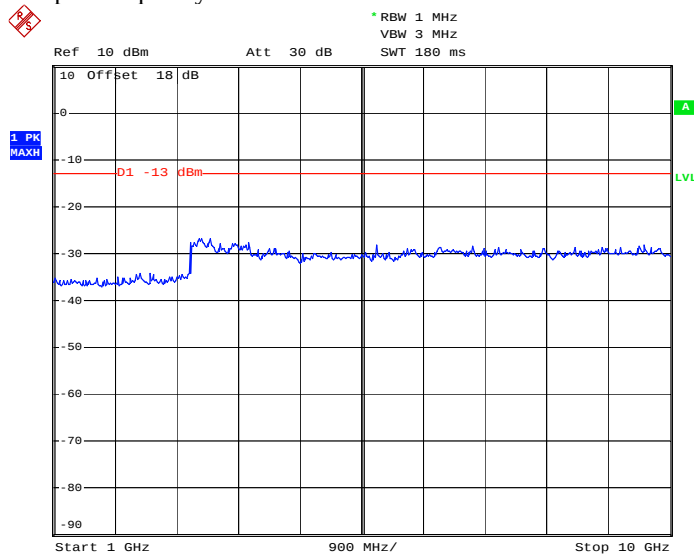
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 806.5 MHz



Date: 8.JAN.2008 17:23:27

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

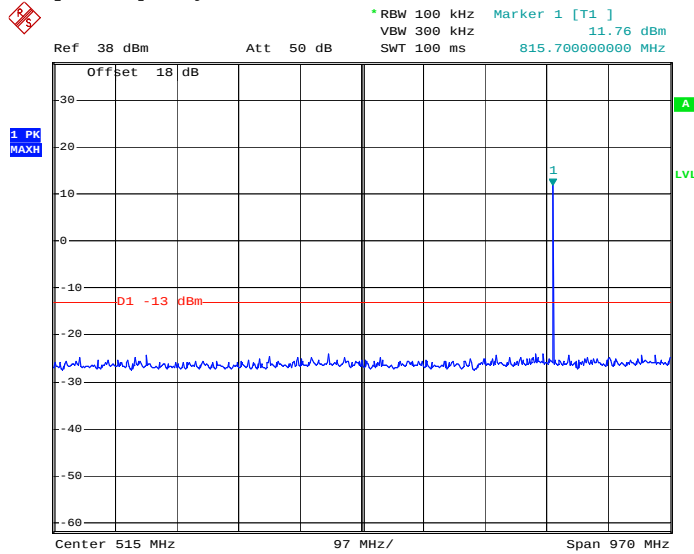
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 806.5 MHz



Date: 8.JAN.2008 17:32:25

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

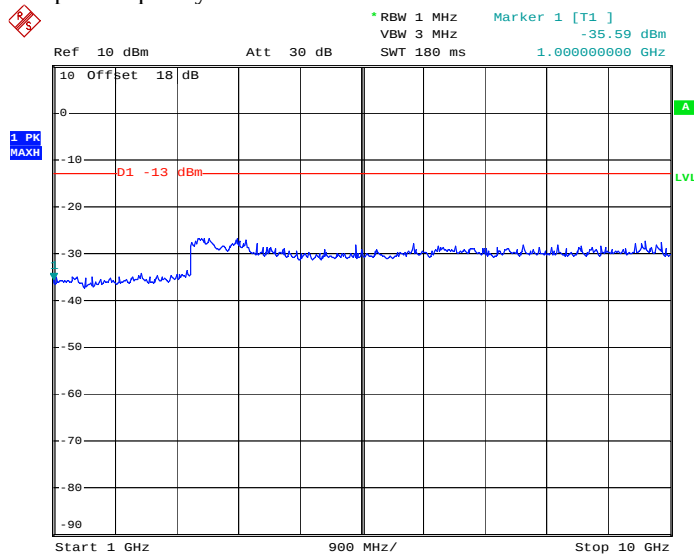
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 815.0 MHz



Date: 8.JAN.2008 12:48:21

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

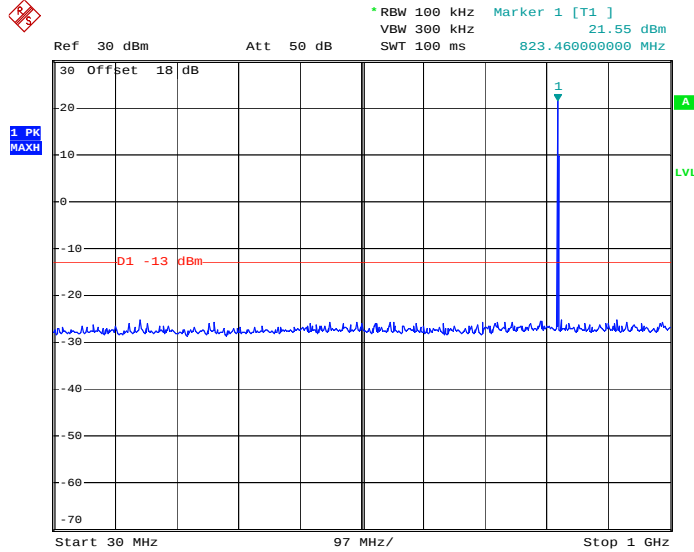
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 815.0 MHz



Date: 8.JAN.2008 12:51:41

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

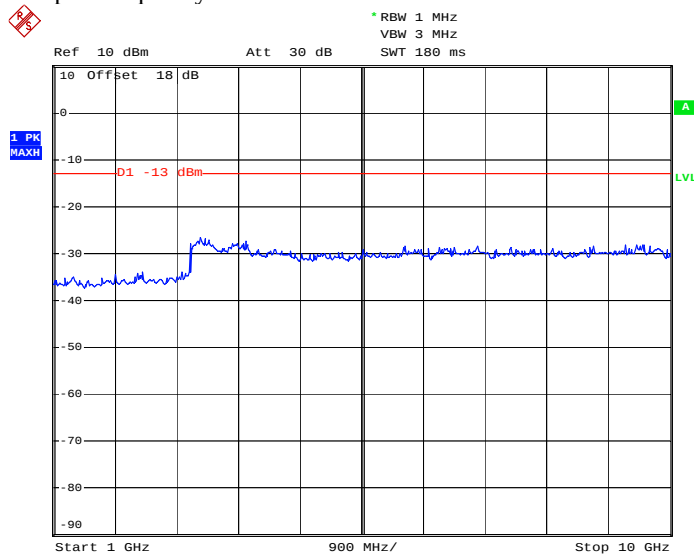
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 823.5 MHz



Date: 8.JAN.2008 17:24:19

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

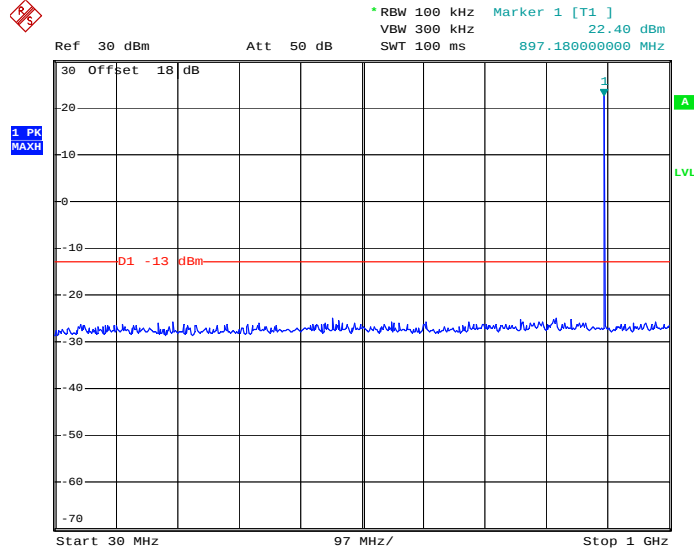
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 823.5 MHz



Date: 8.JAN.2008 17:32:47

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

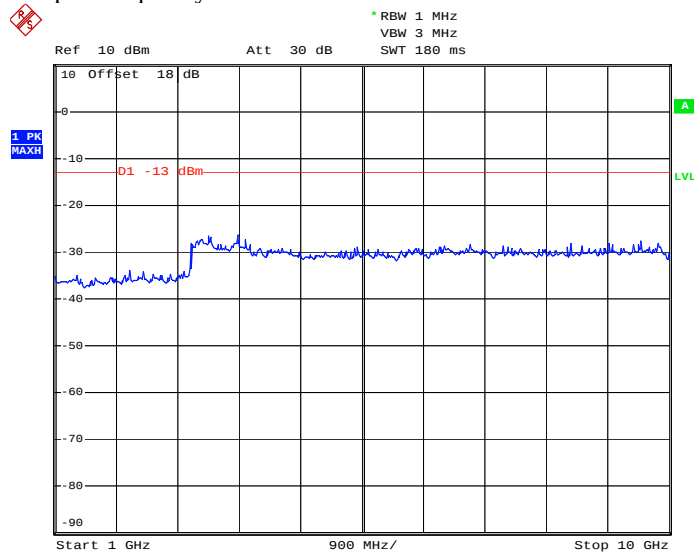
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 896.5 MHz



Date: 8.JAN.2008 17:25:19

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

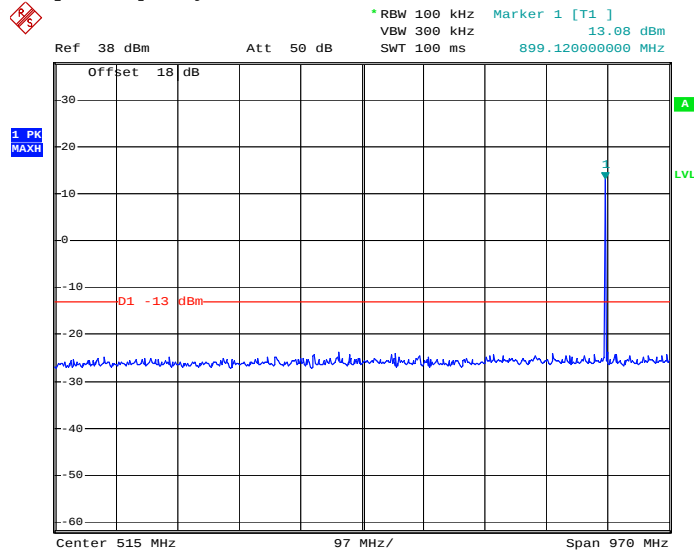
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 896.5 MHz



Date: 8.JAN.2008 17:31:30

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

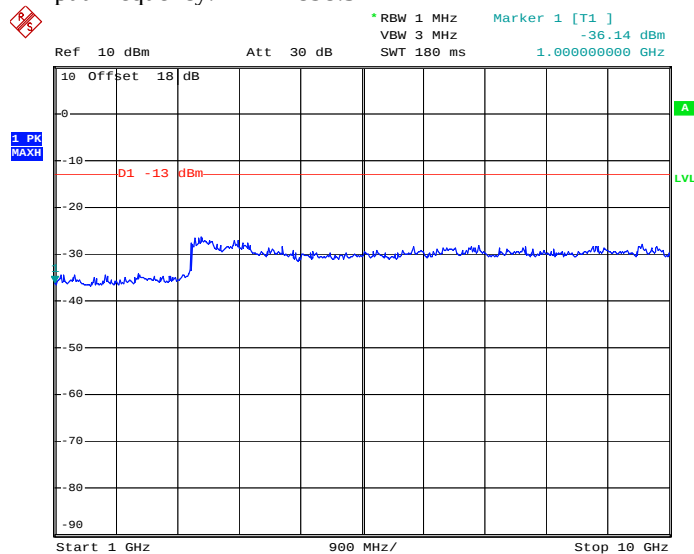
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 898.5 MHz



Date: 8.JAN.2008 12:49:41

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

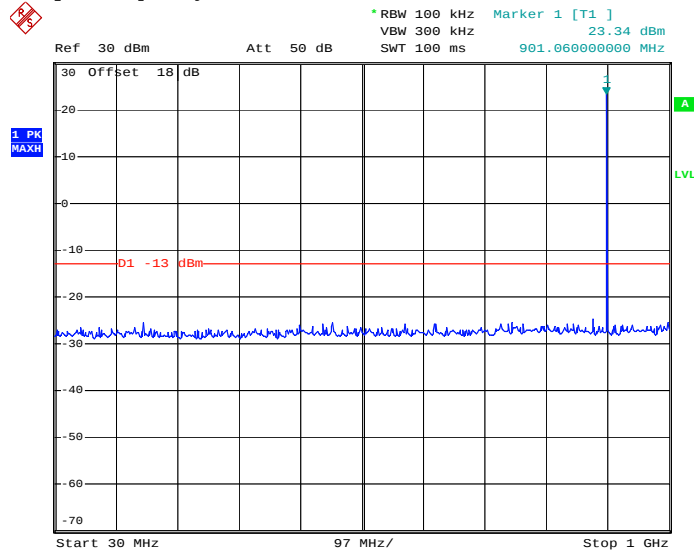
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 898.5 MHz



Date: 8.JAN.2008 12:50:53

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

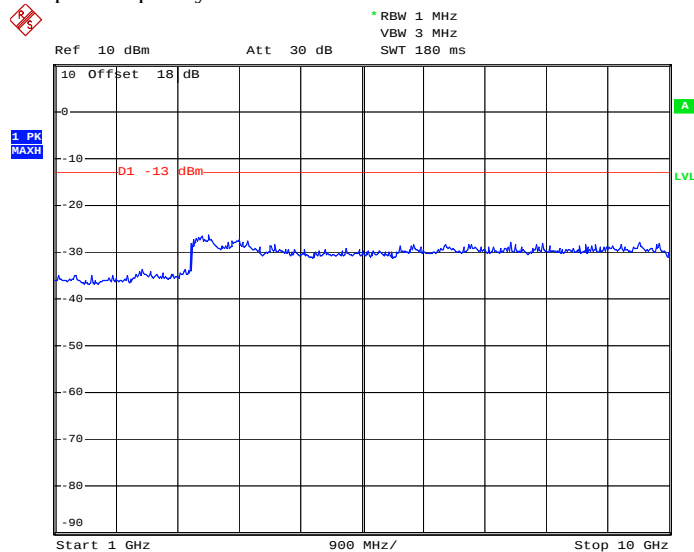
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 900.5 MHz



Date: 8.JAN.2008 17:25:56

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

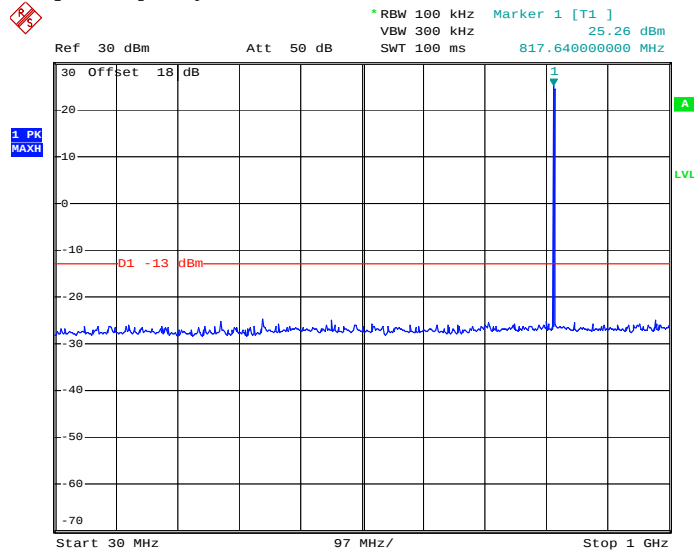
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 900.5 MHz



Date: 8.JAN.2008 17:31:10

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

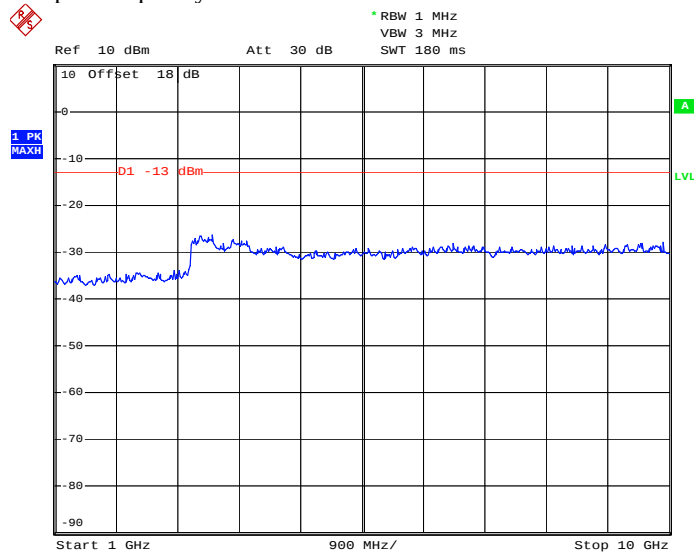
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 817.5 MHz



Date: 10.JAN.2008 14:34:39

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

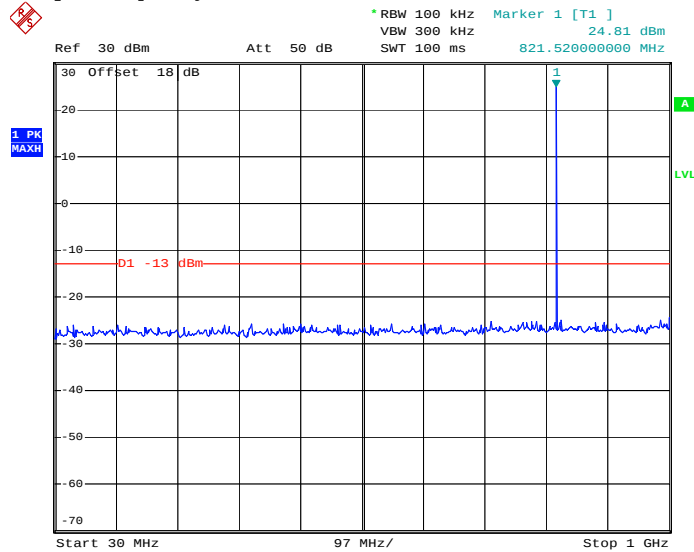
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 817.5 MHz



Date: 10.JAN.2008 14:41:07

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

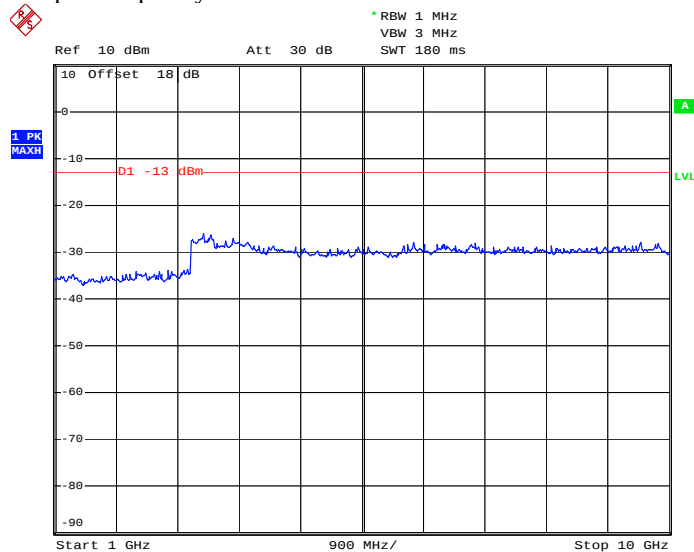
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 820.5 MHz



Date: 10.JAN.2008 14:35:34

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

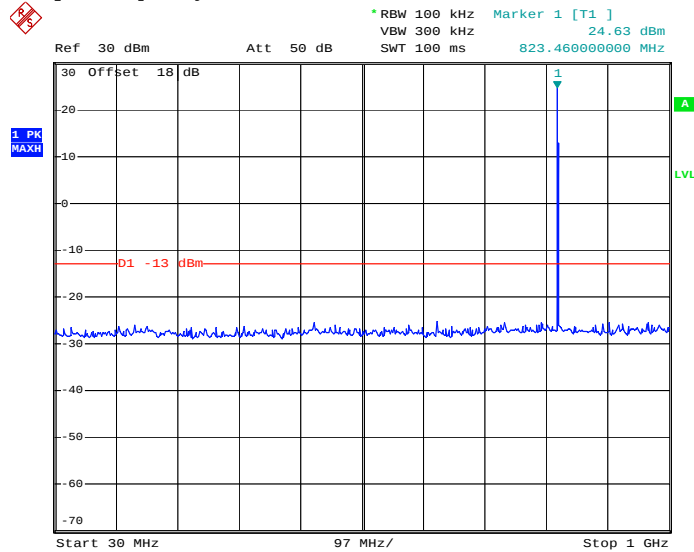
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 820.5 MHz



Date: 10.JAN.2008 14:41:59

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

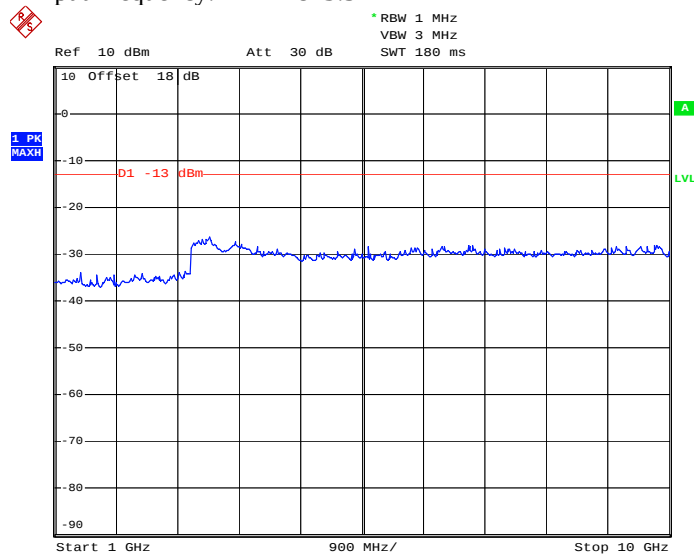
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 823.5 MHz



Date: 10.JAN.2008 14:36:10

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

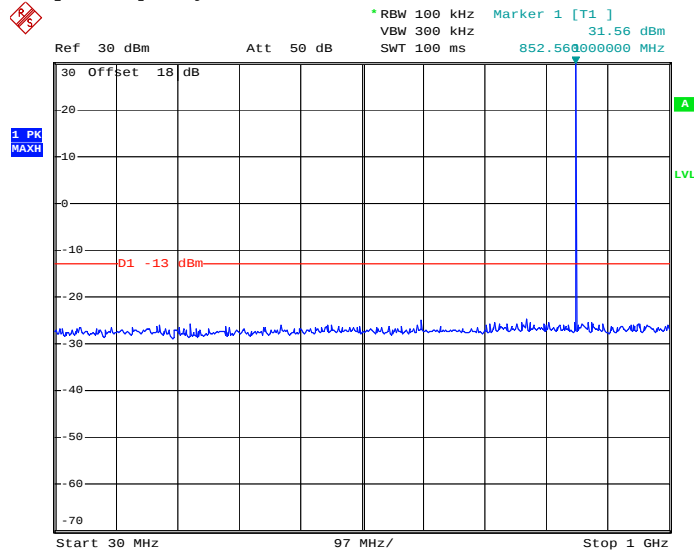
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 823.5 MHz



Date: 10.JAN.2008 14:42:36

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

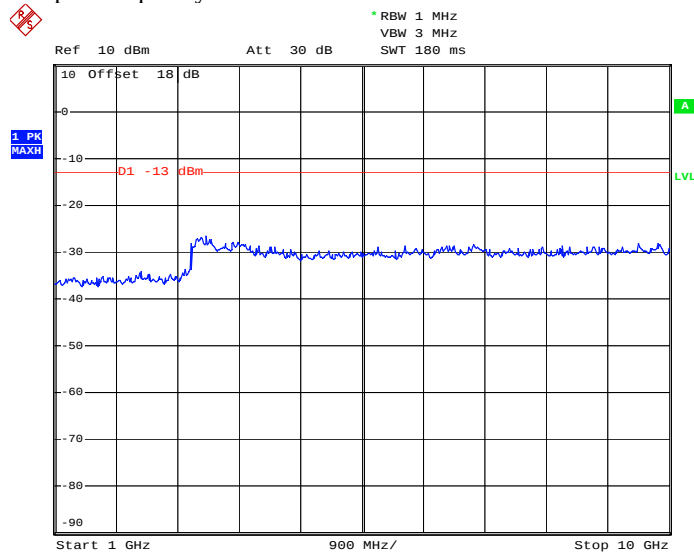
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 851.5 MHz



Date: 8.JAN.2008 17:19:37

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

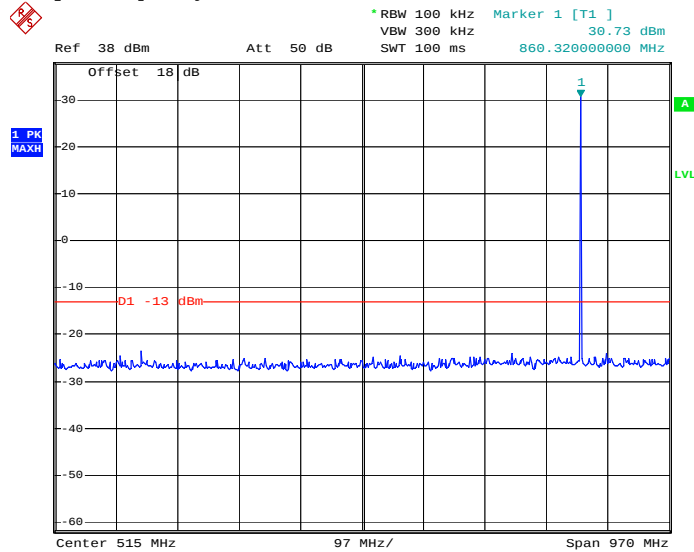
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 851.5 MHz



Date: 8.JAN.2008 17:34:14

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

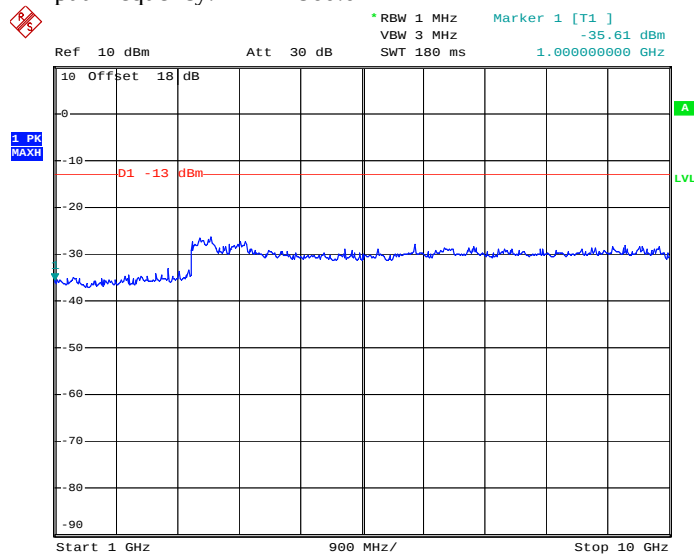
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 860.0 MHz



Date: 8.JAN.2008 12:46:48

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

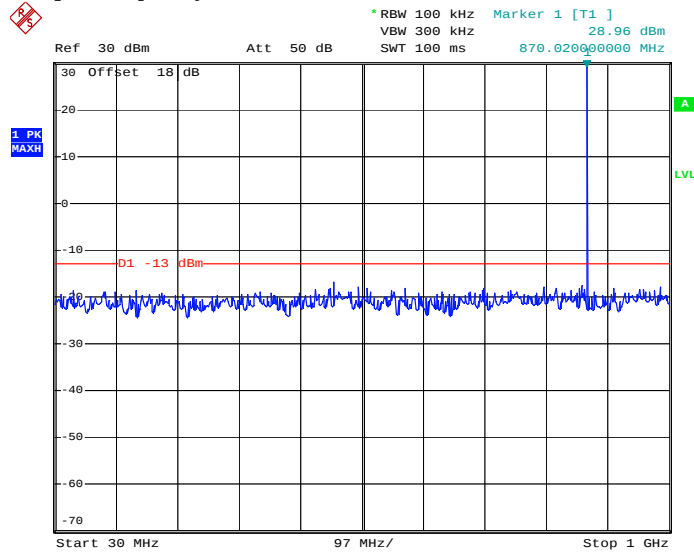
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 860.0 MHz



Date: 8.JAN.2008 12:52:50

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

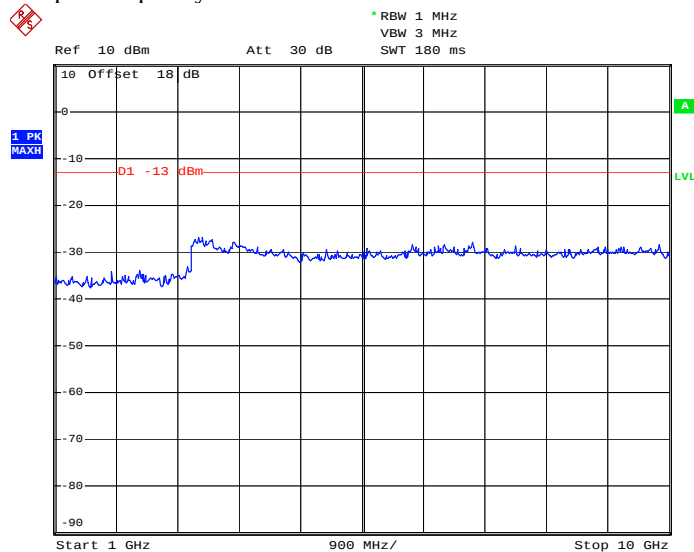
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 868.5 MHz



Date: 8.JAN.2008 17:18:25

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

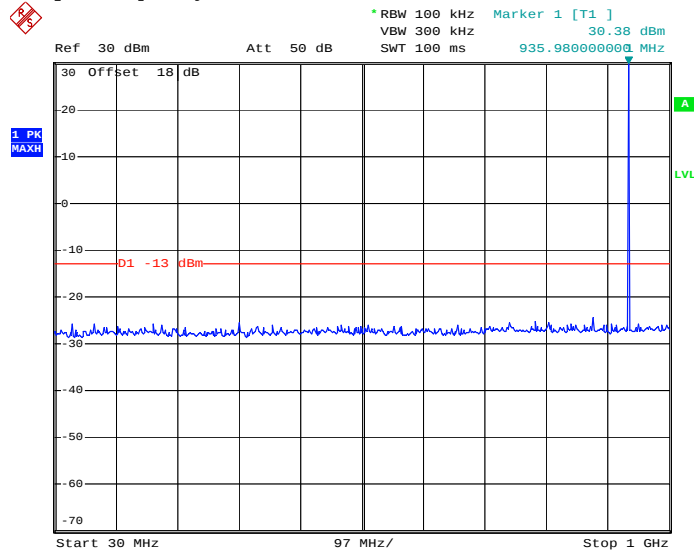
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 868.5 MHz



Date: 8.JAN.2008 17:34:30

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

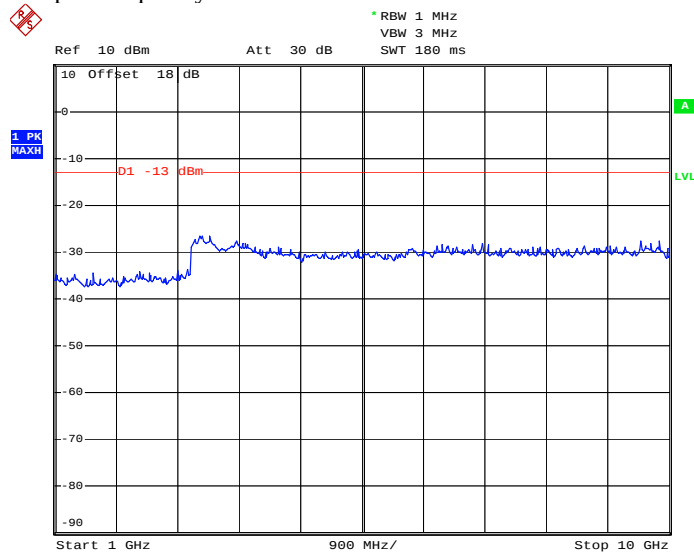
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 935.5 MHz



Date: 8.JAN.2008 17:20:32

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

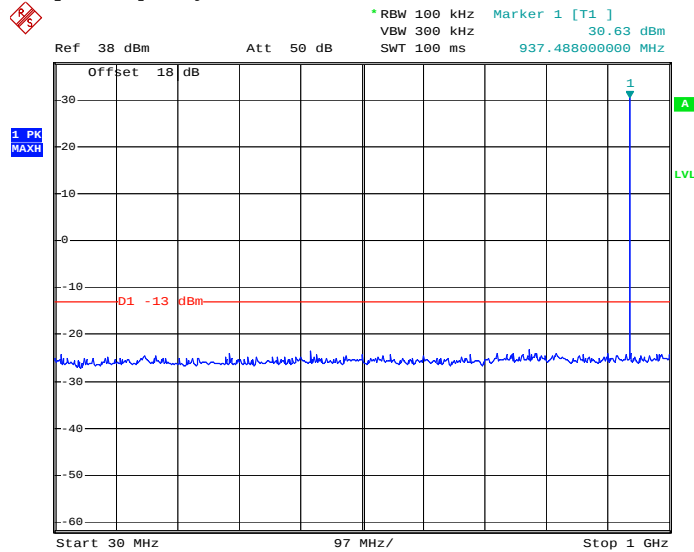
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 935.5 MHz



Date: 8.JAN.2008 17:34:49

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

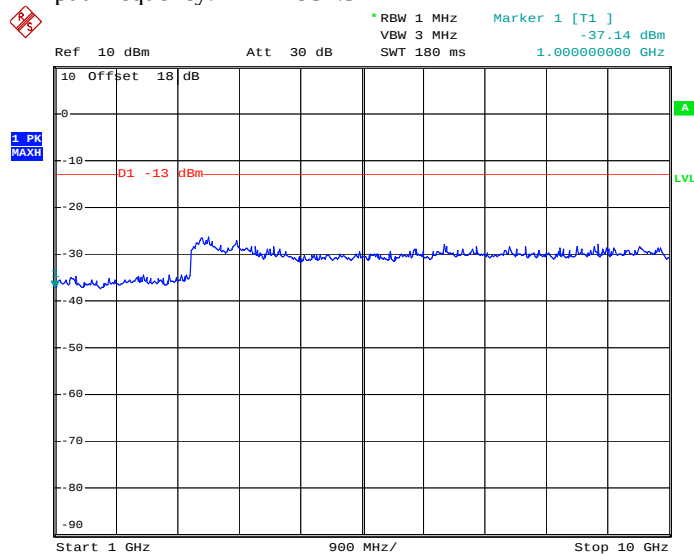
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 937.5 MHz



Date: 8.JAN.2008 12:45:49

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

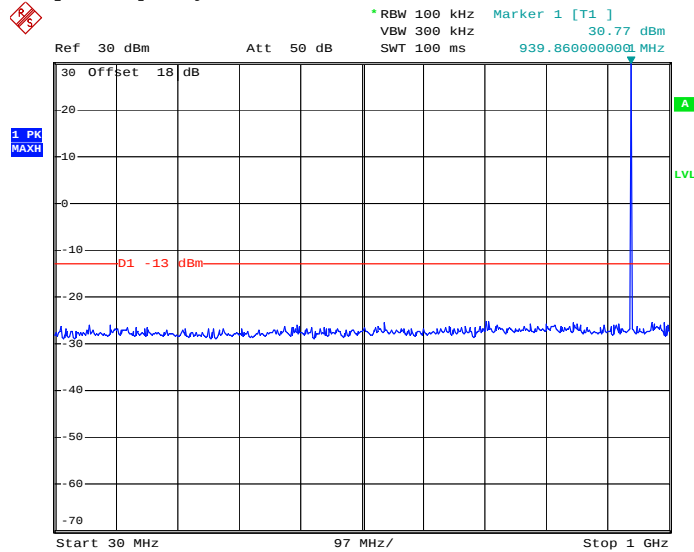
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 937.5 MHz



Date: 8.JAN.2008 12:53:32

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

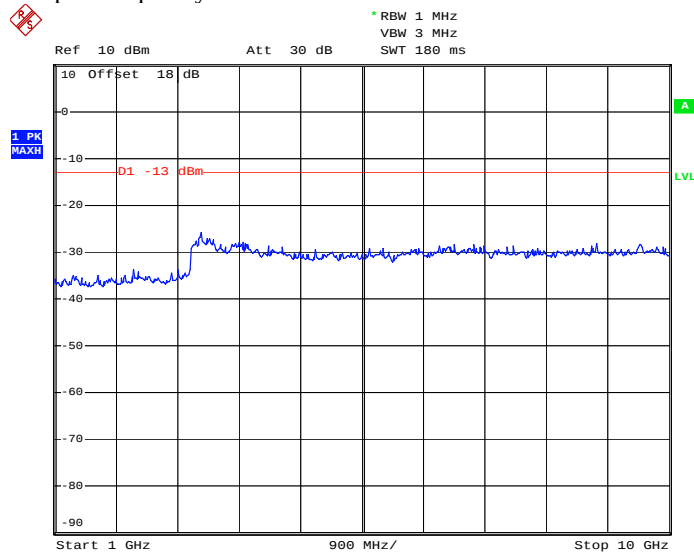
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 939.5 MHz



Date: 8.JAN.2008 17:21:11

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

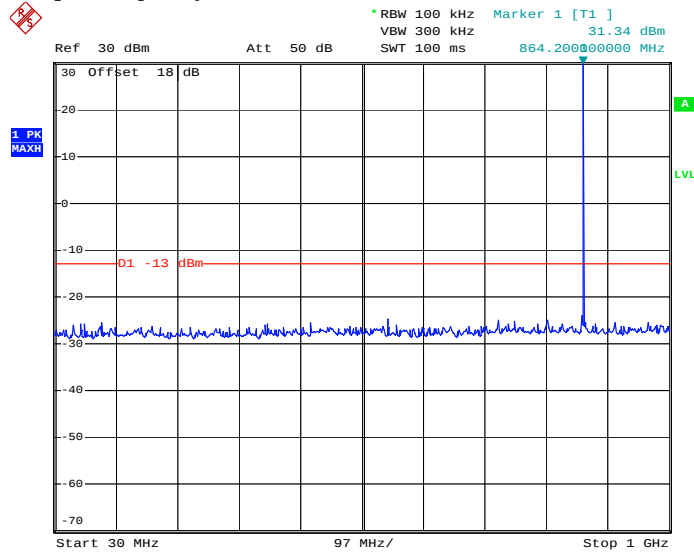
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 939.5 MHz



Date: 8.JAN.2008 17:35:06

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

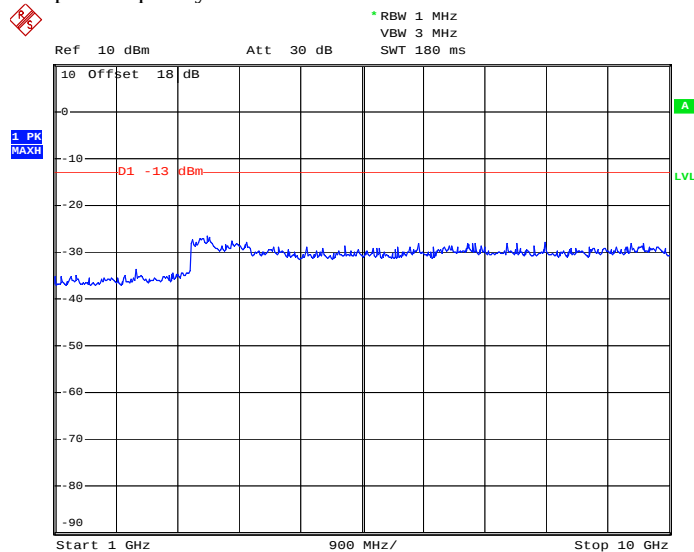
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 862.5 MHz



Date: 10.JAN.2008 14:37:27

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

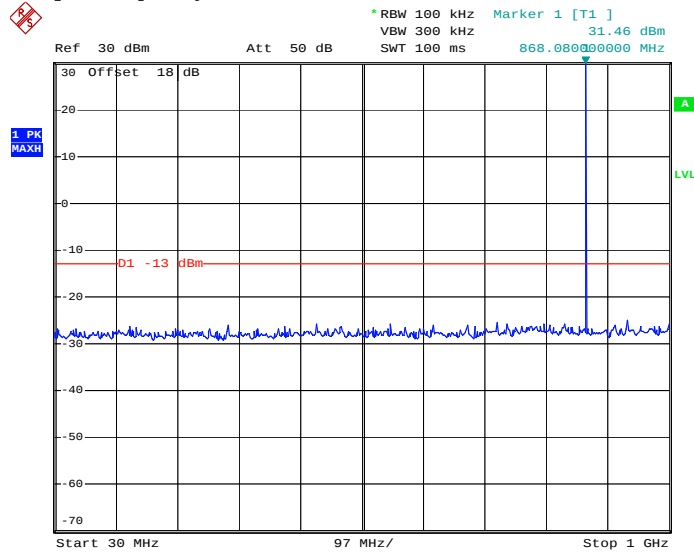
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 862.5 MHz



Date: 10.JAN.2008 14:40:06

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

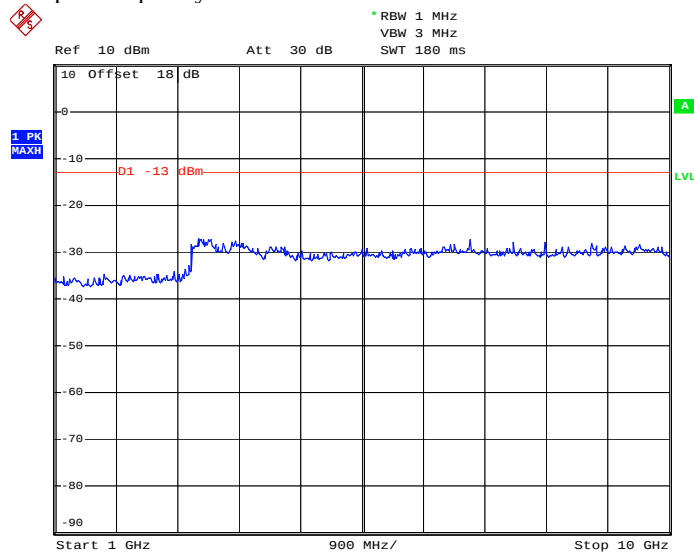
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 866.5 MHz



Date: 10.JAN.2008 14:37:54

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

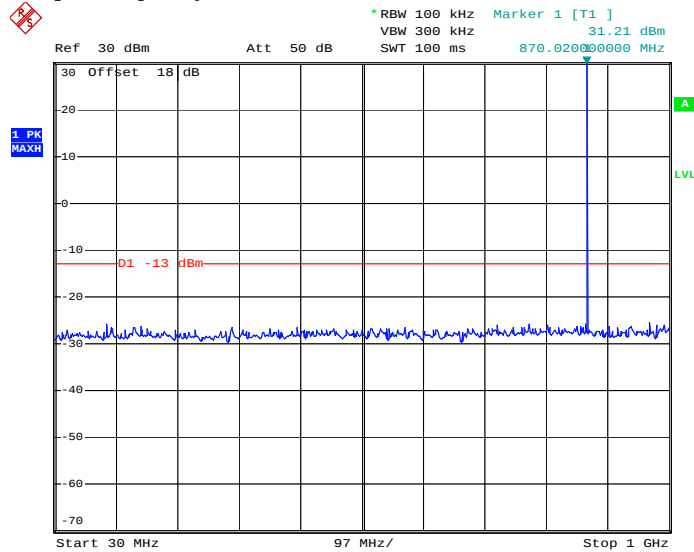
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 866.5 MHz



Date: 10.JAN.2008 14:39:40

Conducted Spurious Emissions measurements in 30 MHz to 1000 MHz range

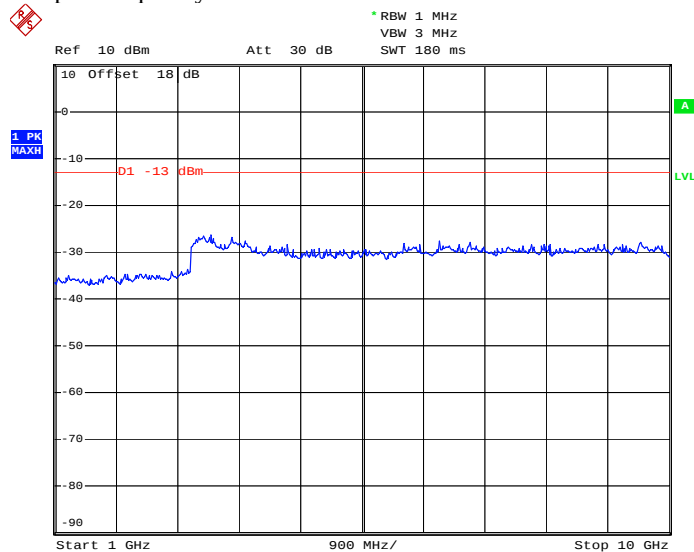
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 868.5 MHz



Date: 10.JAN.2008 14:38:17

Conducted Spurious Emissions measurements in 1 GHz to 10 GHz range

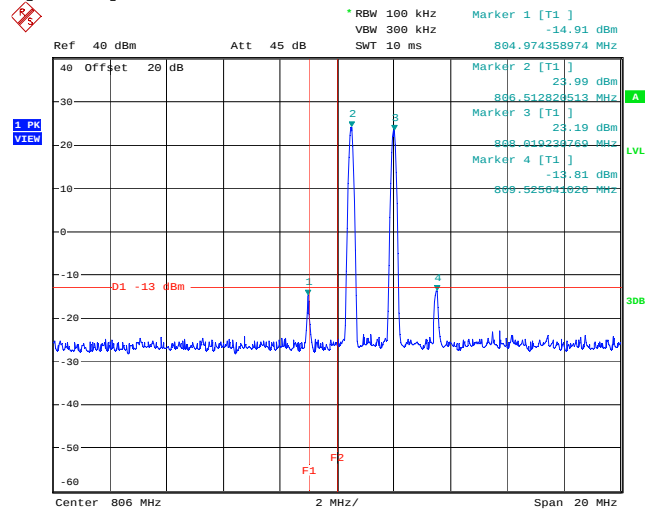
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 868.5 MHz



Date: 10.JAN.2008 14:39:18

3rd Order Intermodulation Products, Lower band edge check

UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequencies: 806.5 MHz and 807.5 MHz

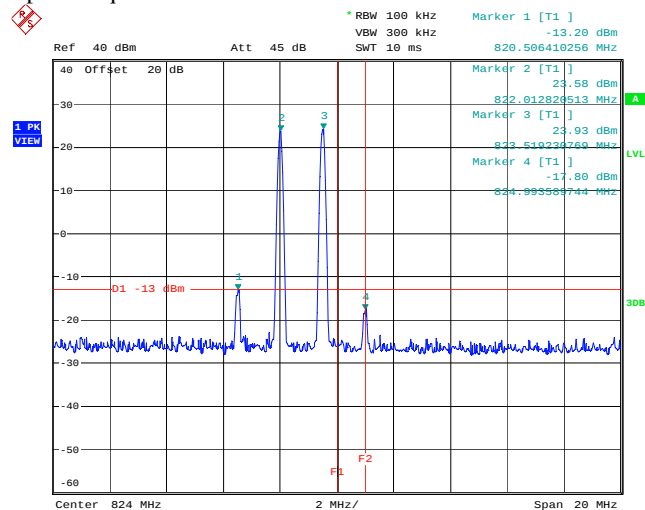


Date: 29.FEB.2008 21:02:38

Note: F2 is the band edge frequency, F1 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Upper band edge check

UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequencies: 822.5 MHz and 823.5 MHz

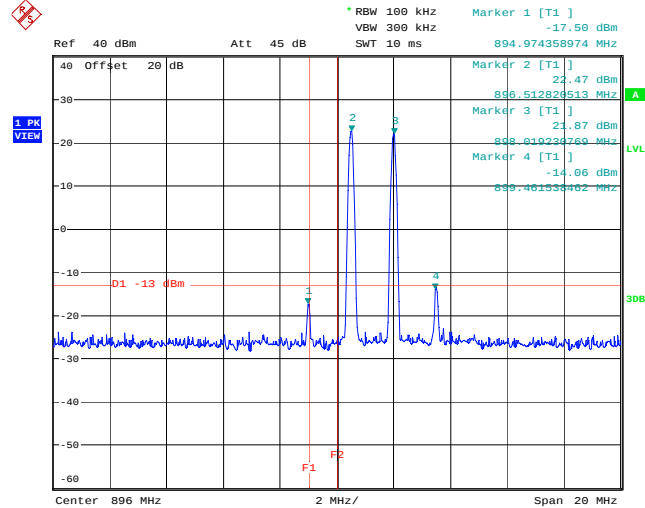


Date: 29.FEB.2008 21:05:30

Note: F1 is the band edge frequency, F2 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Lower band edge check

UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequencies: 896.5 MHz and 897.5 MHz

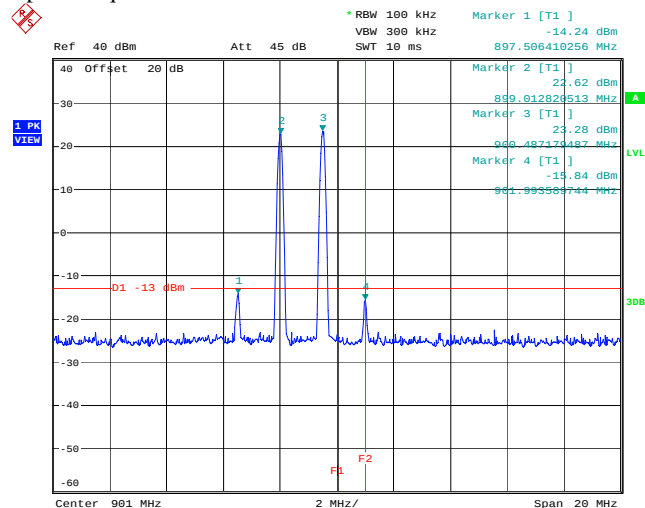


Date: 29.FEB.2008 20:58:09

Note: F2 is the band edge frequency, F1 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Upper band edge check

UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequencies: 899.5 MHz and 900.5 MHz

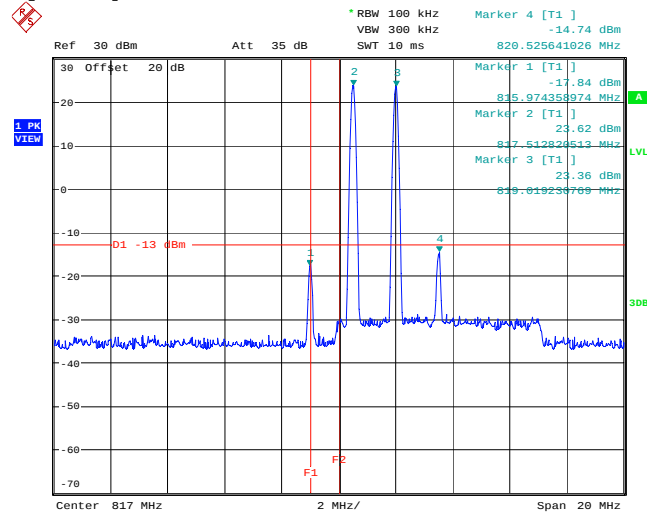


Date: 29.FEB.2008 21:00:08

Note: F1 is the band edge frequency, F2 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Lower band edge check

UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequencies: 817.5 MHz and 819 MHz

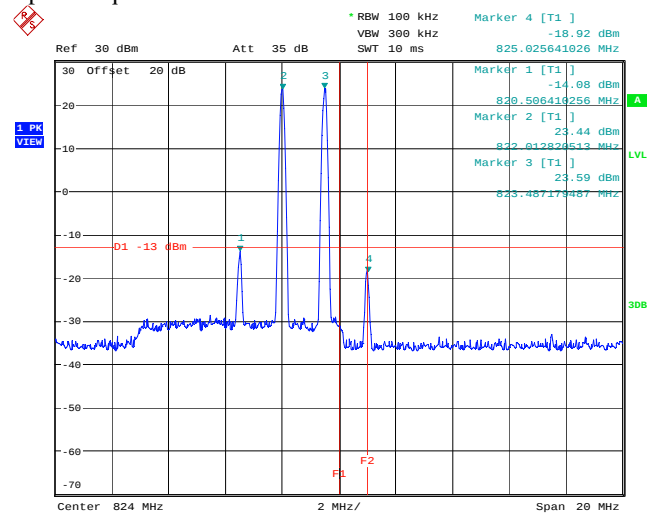


Date: 19.FEB.2008 16:38:24

Note: F2 is the band edge frequency, F1 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Upper band edge check

UL/DL: Uplink
Frequency band: 8176 MHz – 824 MHz, 7MHz filter
Input Frequencies: 822 MHz and 823.5 MHz

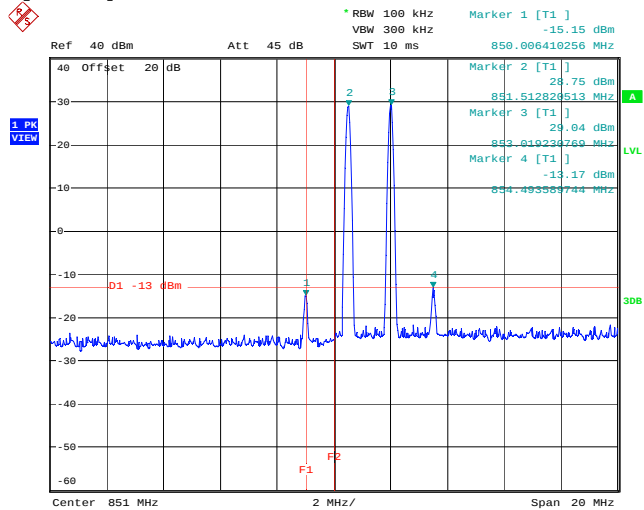


Date: 19.FEB.2008 16:41:18

Note: F1 is the band edge frequency, F2 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Lower band edge check

UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequencies: 851.5 MHz and 852.5 MHz

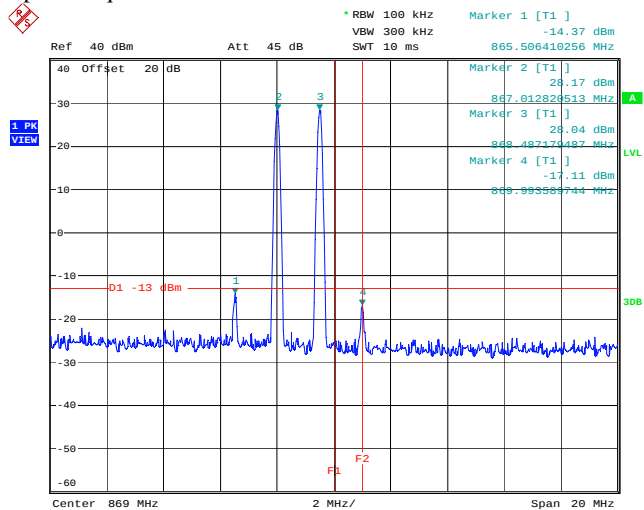


Date: 29.FEB.2008 20:20:00

Note: F2 is the band edge frequency, F1 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Upper band edge check

UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequencies: 867.5 MHz and 868.5 MHz

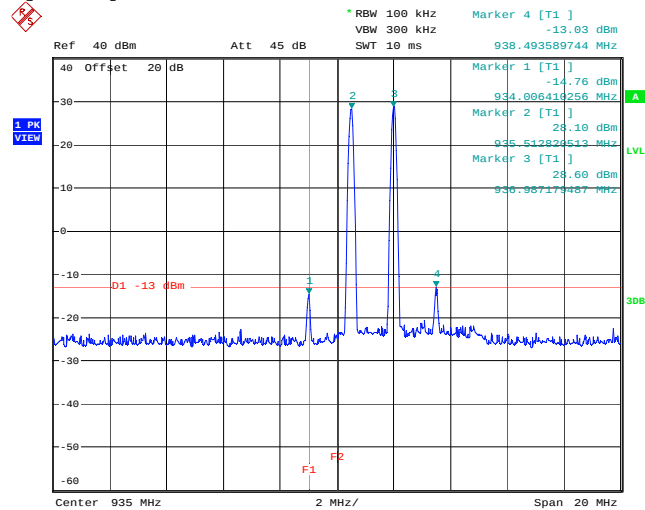


Date: 29.FEB.2008 20:23:28

Note: F1 is the band edge frequency, F2 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Lower band edge check

UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequencies: 935.5 MHz and 936.5 MHz

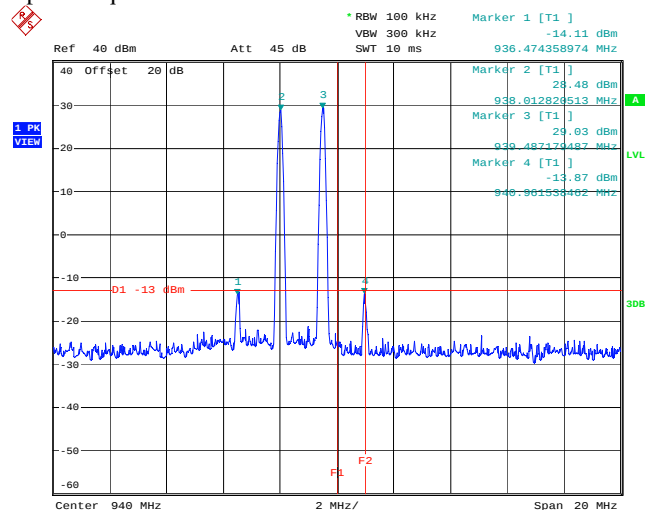


Date: 29.FEB.2008 20:30:42

Note: F2 is the band edge frequency, F1 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Upper band edge check

UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequencies: 938.5 MHz and 939.5 MHz

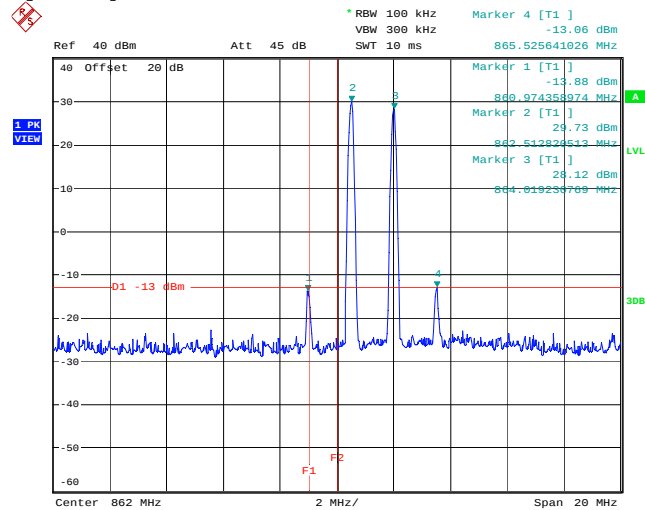


Date: 29.FEB.2008 20:28:48

Note: F1 is the band edge frequency, F2 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Lower band edge check

UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequencies: 862.5 MHz and 864 MHz

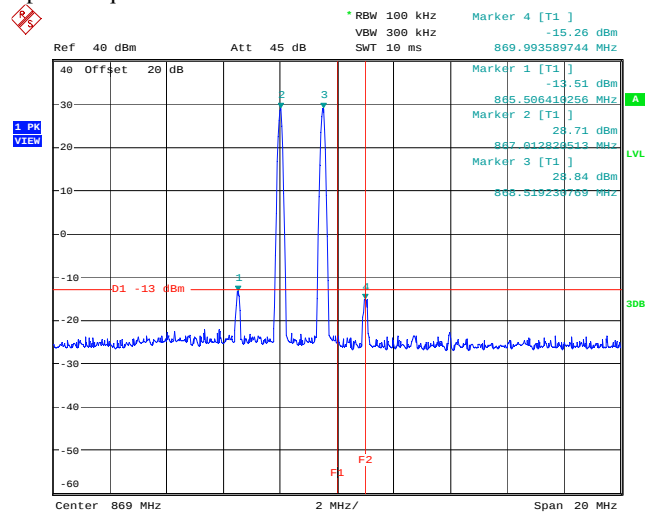


Date: 19.FEB.2008 16:46:01

Note: F2 is the band edge frequency, F1 if 1 MHz outside and adjacent to the band edge

3rd Order Intermodulation Products, Upper band edge check

UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequencies: 867 MHz and 868.5 MHz



Date: 19.FEB.2008 16:48:34

Note: F1 is the band edge frequency, F2 if 1 MHz outside and adjacent to the band edge

Clause 90.210 Radiated Spurious Emissions

Except as indicated elsewhere in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (m) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere, the Table below specifies the emission masks for equipment operating in the frequency bands governed under this part.

Test Conditions:

Sample Number:	1	Temperature:	22 °C
Date:	January 9, 2008	Humidity:	35 %
Modification State:	0	Tester:	Andrey Adelberg
		Laboratory:	Ottawa

Test Results:

All emissions found were more than 20 dB below the specified limit.

Additional Observations:

The Spectrum was searched from 30MHz to the 10th Harmonic.

All measurements were performed using a Peak Detector with 100kHz RBW below 1GHz and a 1MHz RBW above 1GHz at a distance of 3 meters.

Signal Generator was placed outside the Chamber and connected with RF cable to the EUT input. Input signal was CW carrier at the maximum power. The EUT was assessed in both directions: Uplink and Downlink.

Clause 90.213 Frequency Stability

- a) Unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following Table.

Minimum Frequency Stability in parts per million (ppm):

Frequency range (MHz)	Fixed and base stations	Mobile stations - Over 2 watts output power	Mobile stations - 2 watts or less output power
Below 25	100	100	200
25-50	20	20	50
72-76	5	---	50
150-174	50	5	50
216-220	1.0	---	1.0
220-222	0.1	1.5	1.5
421-512	2.5	5	5
806-809	1.0	1.5	1.5
809-824	1.5	2.5	2.5
851-854	1.0	1.5	1.5
854-869	1.5	2.5	2.5
896-901	0.1	1.5	1.5
902-928	2.5	2.5	2.5
929-930	1.5	---	---
935-940	0.1	1.5	1.5
1427-1435	300	300	300
Above 2450	---	---	---

Test Conditions:

Sample Number:	1	Temperature:	23 °C
Date:	January 7, 2008	Humidity:	35 %
Modification State:	0	Tester:	Andrey Adelberg
		Laboratory:	Ottawa

Test Results: Complies.

Additional Observations:

The tested repeater uses the same LO for down- and up-frequency conversion in the signal-processing chain; therefore the transmitted signal is identical in frequency to the received signal. This was verified by measuring the transmitted (output) signal frequency with a frequency counter that was phase-locked to a signal generator used to generate input RF signal. Measured frequency deviation was 0 Hz and the DUT was deemed to comply with frequency stability requirement.

Clause 2-11-04/EAB/RF Occupied Bandwidth

Using an RBW of 300Hz or 1% of the emission bandwidth, The spectral shape of the output should look similar to the input for all modulations.

Test Conditions:

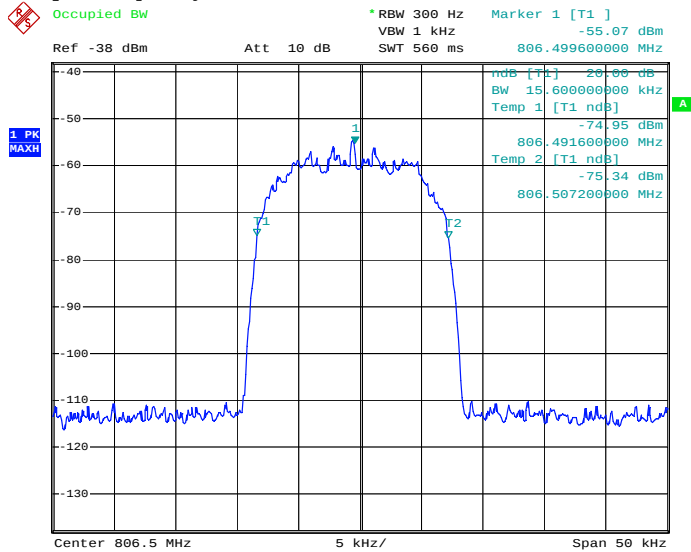
Sample Number:	1	Temperature:	23 °C
Date:	January 8, 2008	Humidity:	35 %
Modification State:	0	Tester:	Andrey Adelberg
		Laboratory:	Ottawa

Test Results:

See Attached Plots.

Occupied Bandwidth measurement at the input

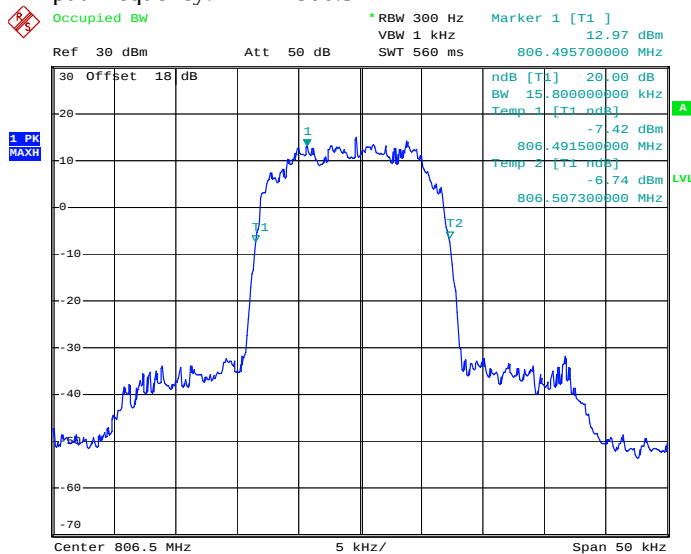
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 806.5 MHz



Date: 9.JAN.2008 12:38:33

Occupied Bandwidth measurement at the output

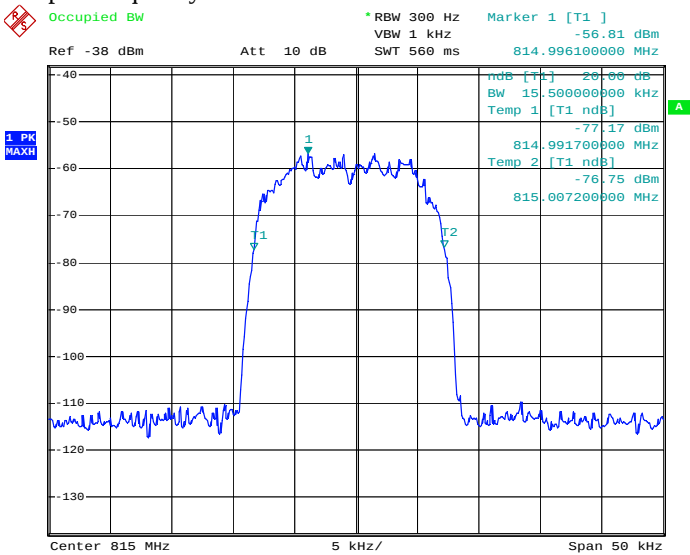
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 806.5 MHz



Date: 9.JAN.2008 12:30:23

Occupied Bandwidth measurement at the input

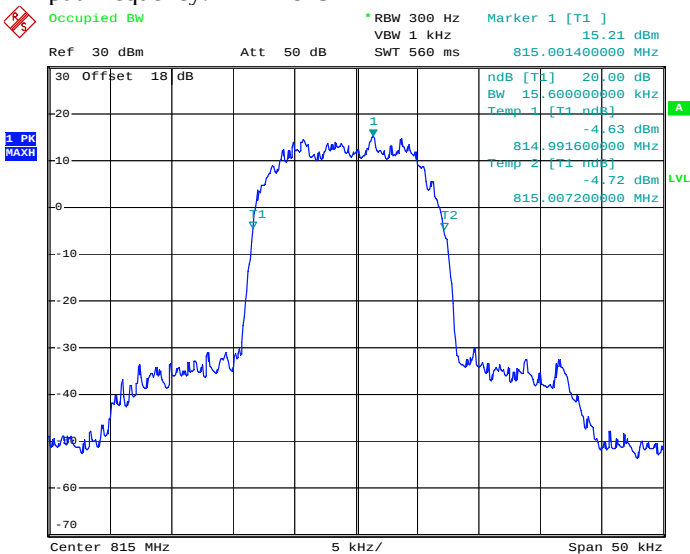
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 815 MHz



Date: 9.JAN.2008 12:39:42

Occupied Bandwidth measurement at the output

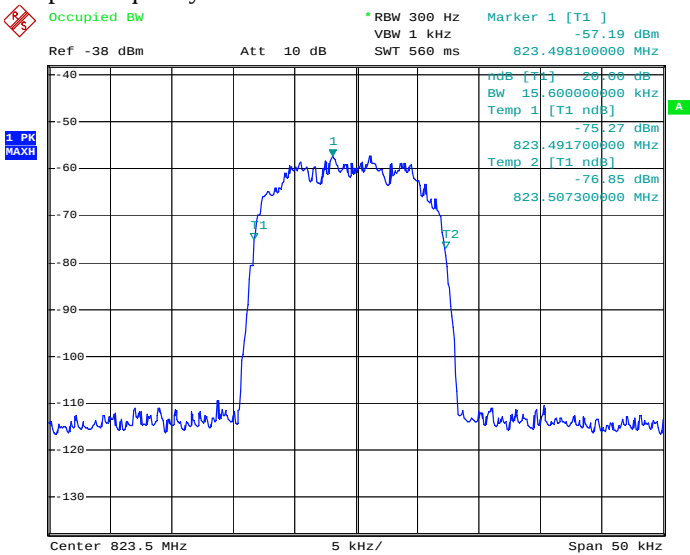
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 815 MHz



Date: 9.JAN.2008 12:31:10

Occupied Bandwidth measurement at the input

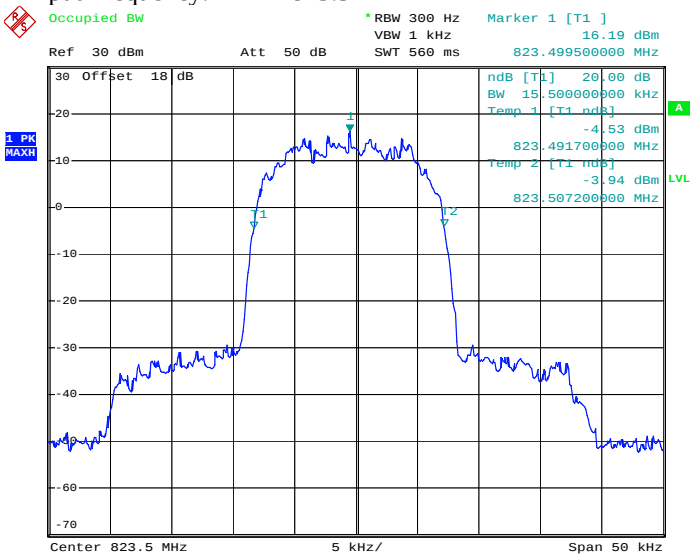
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 823.5 MHz



Date: 9.JAN.2008 12:40:18

Occupied Bandwidth measurement at the output

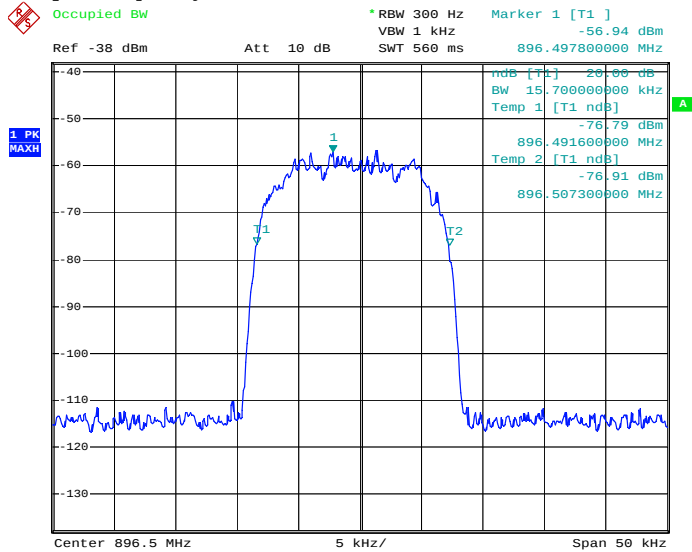
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz, 18MHz filter
Input Frequency: 823.5 MHz



Date: 9.JAN.2008 12:32:30

Occupied Bandwidth measurement at the input

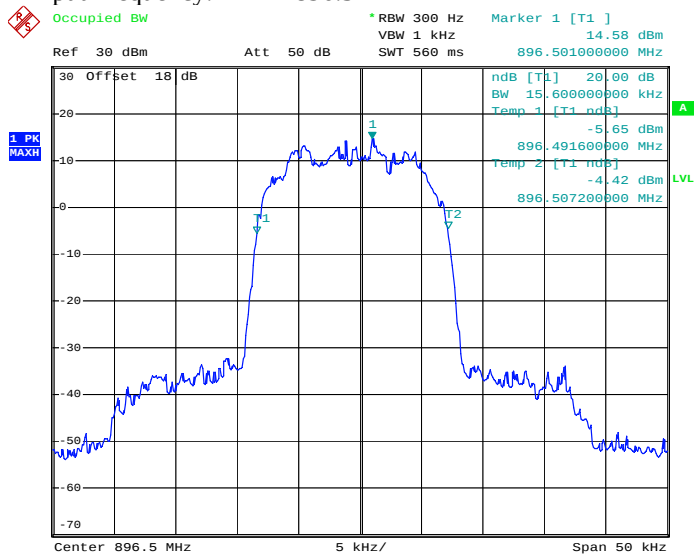
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 896.5 MHz



Date: 9.JAN.2008 12:40:59

Occupied Bandwidth measurement at the output

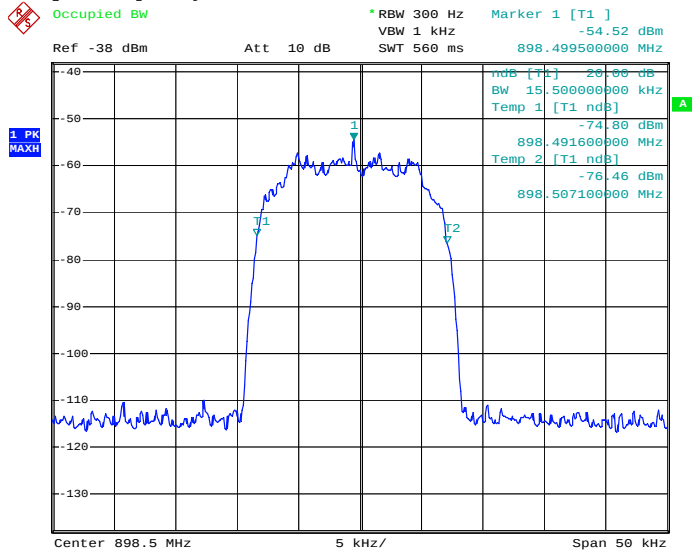
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 896.5 MHz



Date: 9.JAN.2008 12:33:24

Occupied Bandwidth measurement at the input

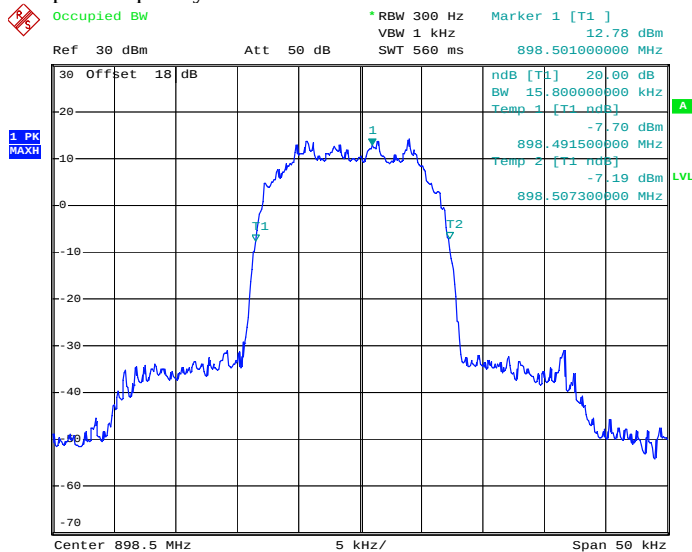
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 898.5 MHz



Date: 9.JAN.2008 12:41:43

Occupied Bandwidth measurement at the output

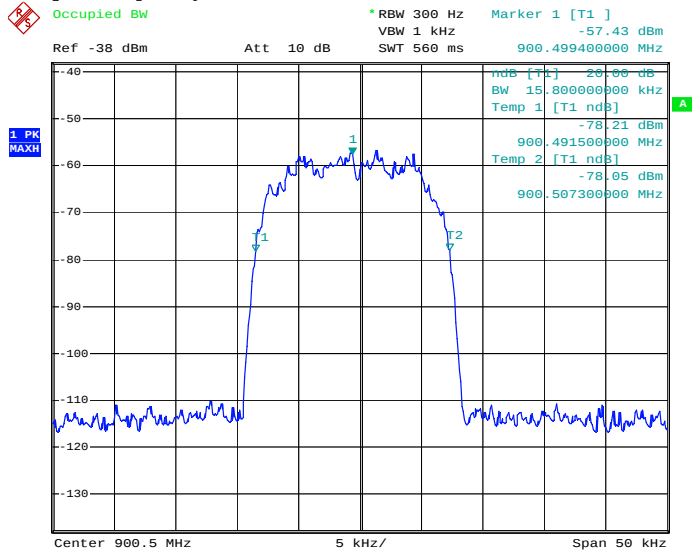
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 898.5 MHz



Date: 9.JAN.2008 12:34:24

Occupied Bandwidth measurement at the input

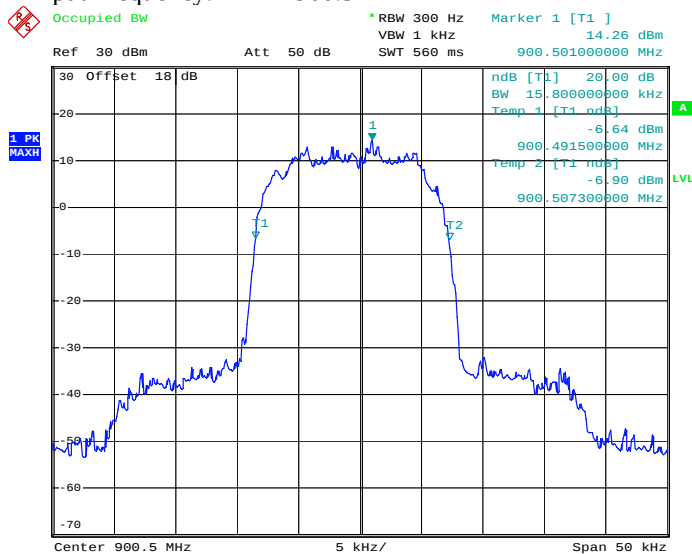
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 900.5 MHz



Date: 9.JAN.2008 12:42:25

Occupied Bandwidth measurement at the output

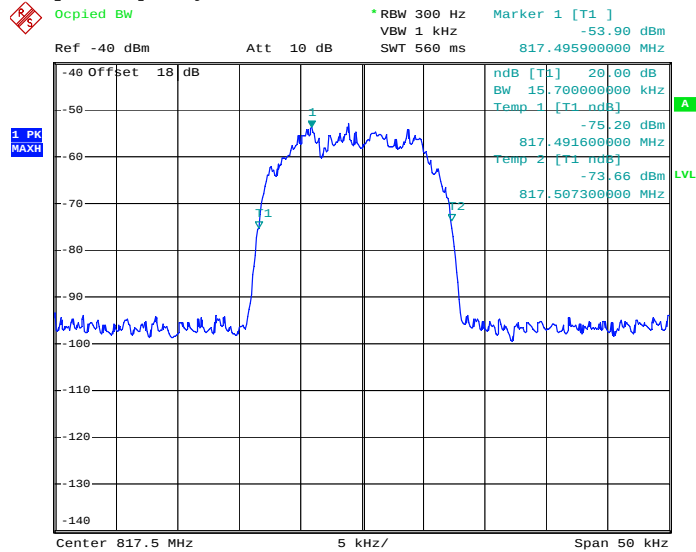
UL/DL: Uplink
Frequency band: 896 MHz – 901 MHz, 5MHz filter
Input Frequency: 900.5 MHz



Date: 9.JAN.2008 12:35:18

Occupied Bandwidth measurement at the input

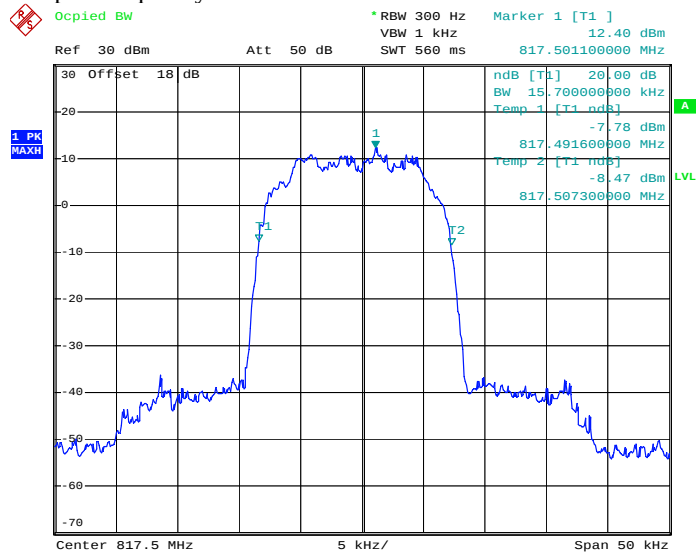
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 817.5 MHz



Date: 10.JAN.2008 14:10:37

Occupied Bandwidth measurement at the output

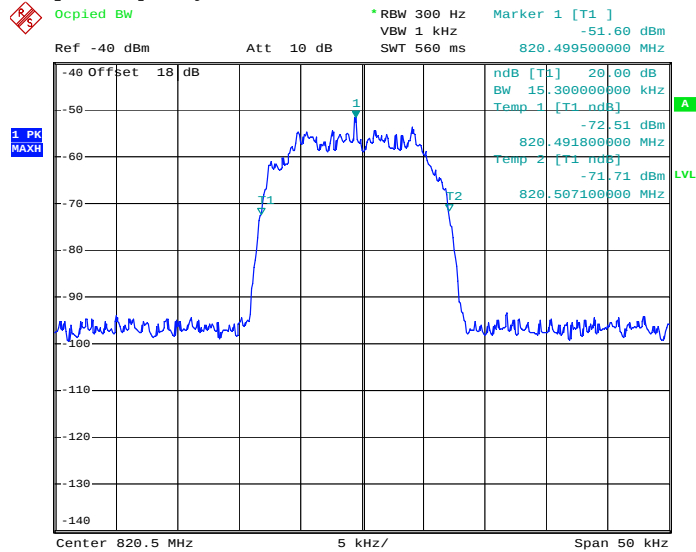
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 817.5 MHz



Date: 10.JAN.2008 14:05:08

Occupied Bandwidth measurement at the input

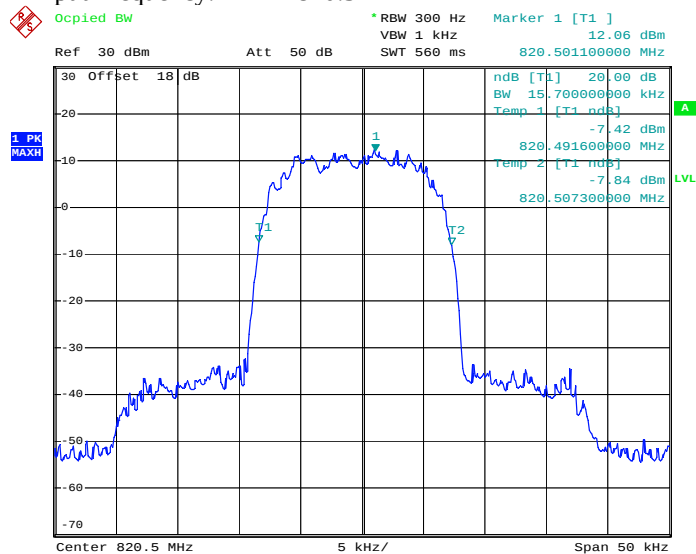
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 820.5 MHz



Date: 10.JAN.2008 14:09:54

Occupied Bandwidth measurement at the output

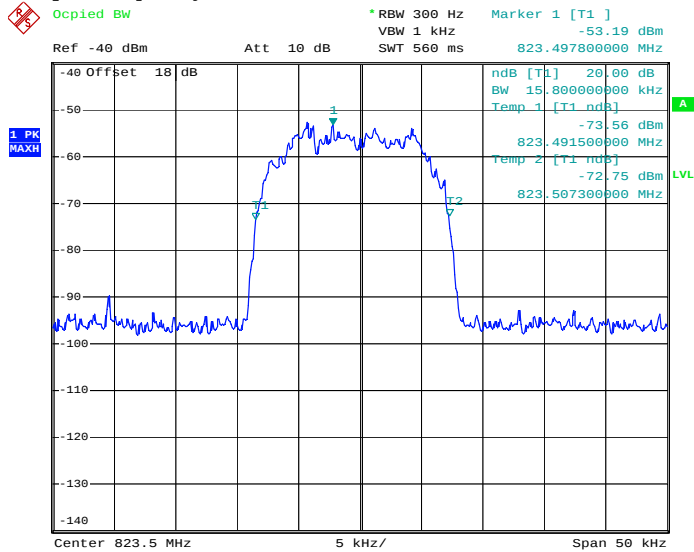
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 820.5 MHz



Date: 10.JAN.2008 14:06:19

Occupied Bandwidth measurement at the input

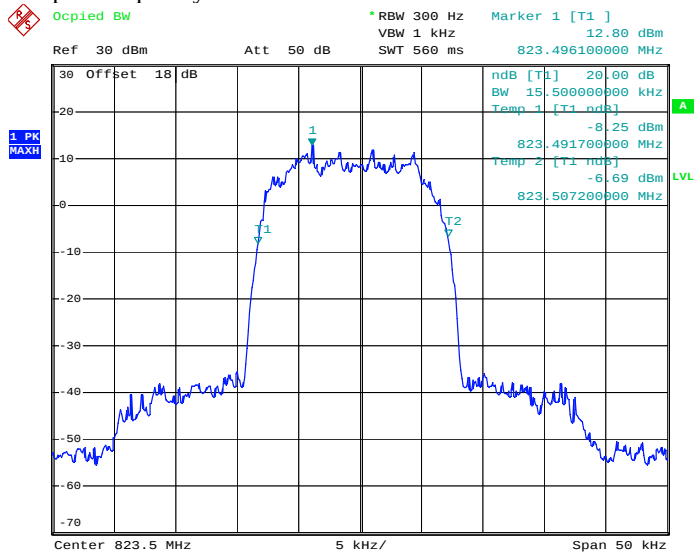
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 823.5 MHz



Date: 10.JAN.2008 14:09:15

Occupied Bandwidth measurement at the output

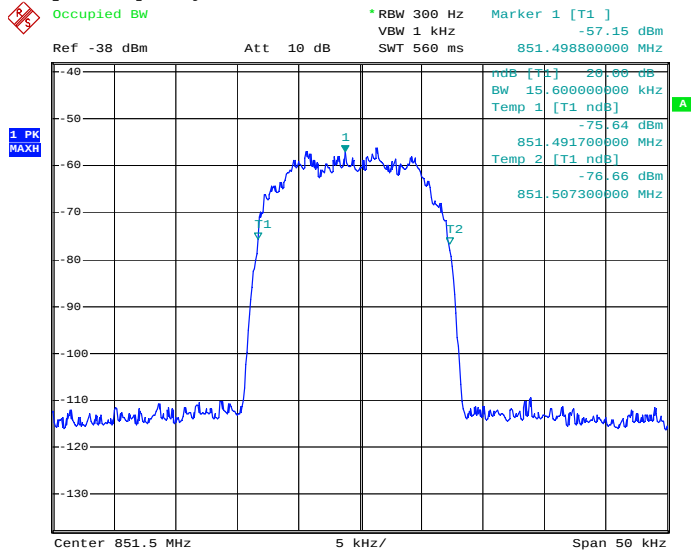
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz, 7MHz filter
Input Frequency: 823.5 MHz



Date: 10.JAN.2008 14:07:16

Occupied Bandwidth measurement at the input

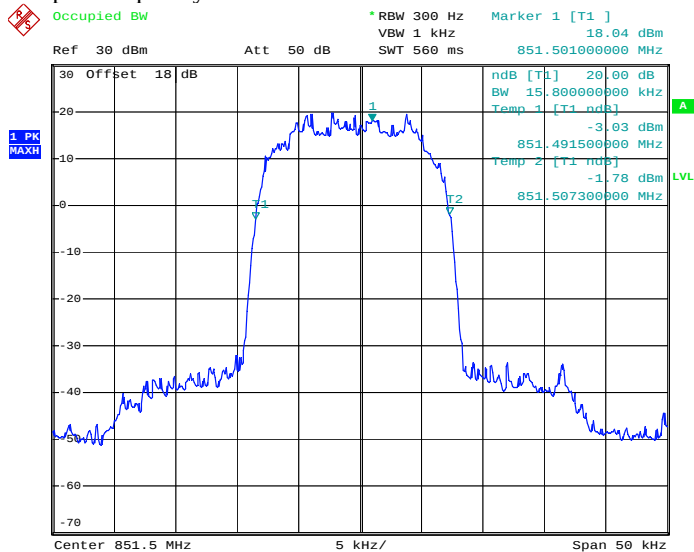
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 851.5 MHz



Date: 9.JAN.2008 12:43:16

Occupied Bandwidth measurement at the output

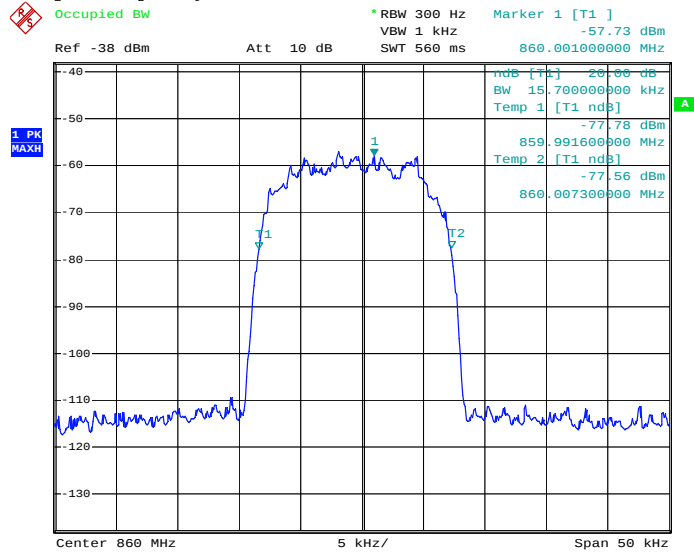
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 851.5 MHz



Date: 9.JAN.2008 12:26:44

Occupied Bandwidth measurement at the input

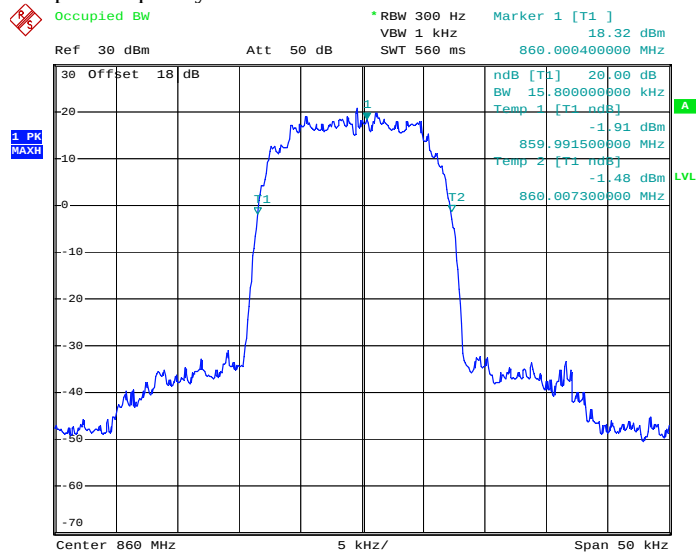
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 860 MHz



Date: 9.JAN.2008 12:43:51

Occupied Bandwidth measurement at the output

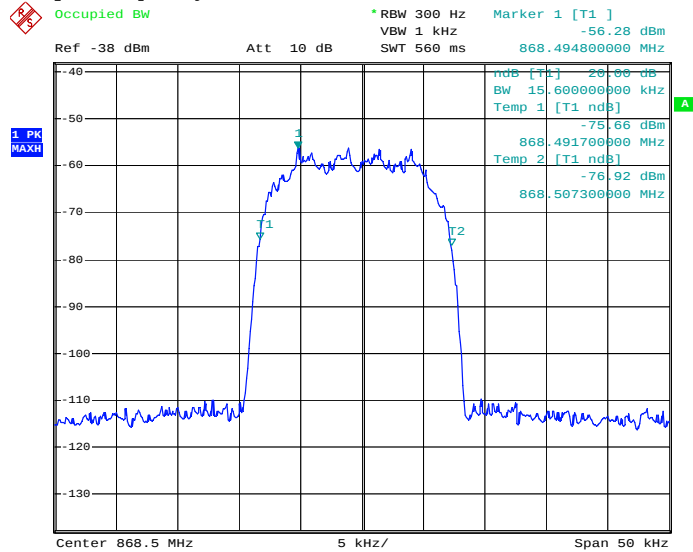
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 860 MHz



Date: 9.JAN.2008 12:27:37

Occupied Bandwidth measurement at the input

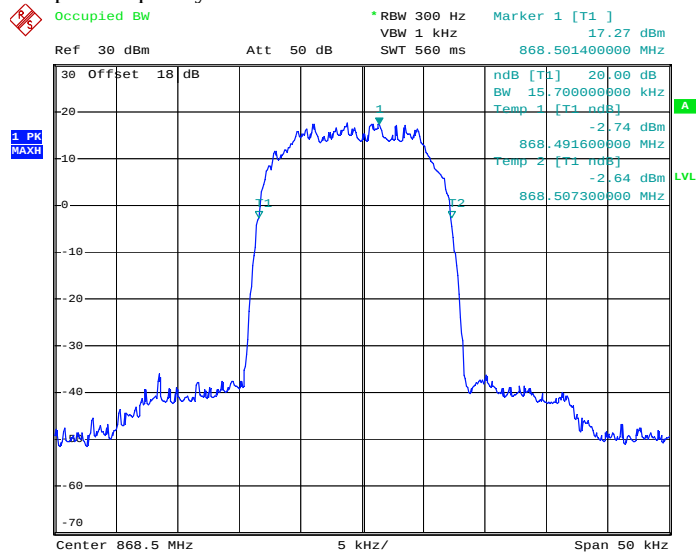
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 868.5 MHz



Date: 9.JAN.2008 12:44:51

Occupied Bandwidth measurement at the output

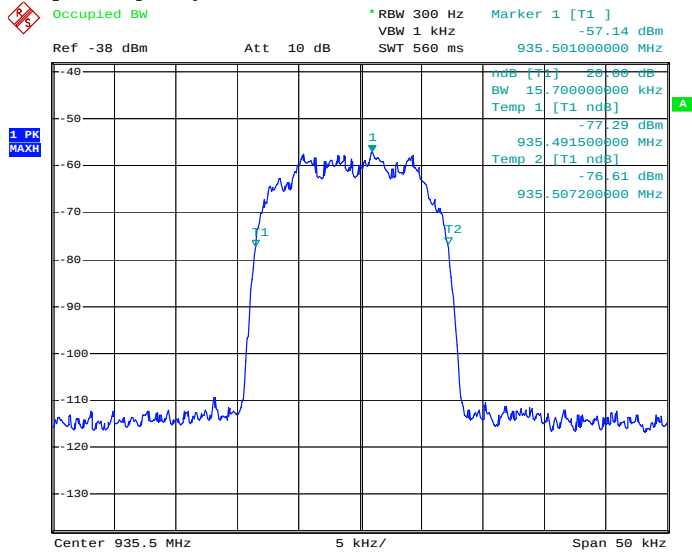
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz, 18MHz filter
Input Frequency: 868.5 MHz



Date: 9.JAN.2008 12:28:42

Occupied Bandwidth measurement at the input

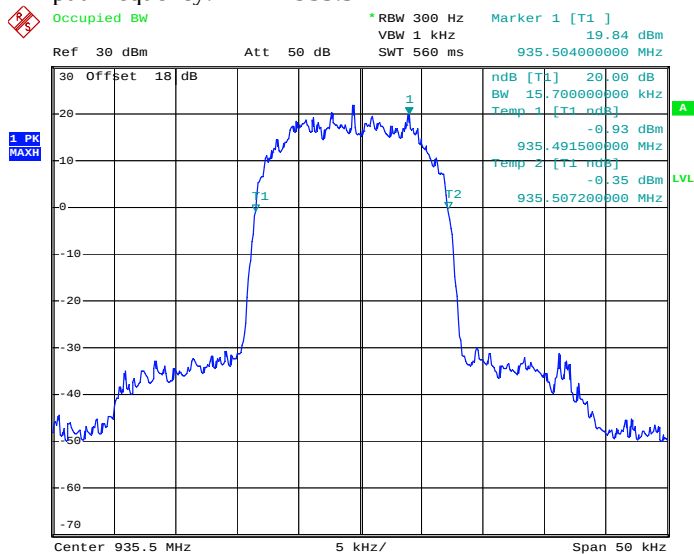
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 935.5 MHz



Date: 9.JAN.2008 12:45:39

Occupied Bandwidth measurement at the output

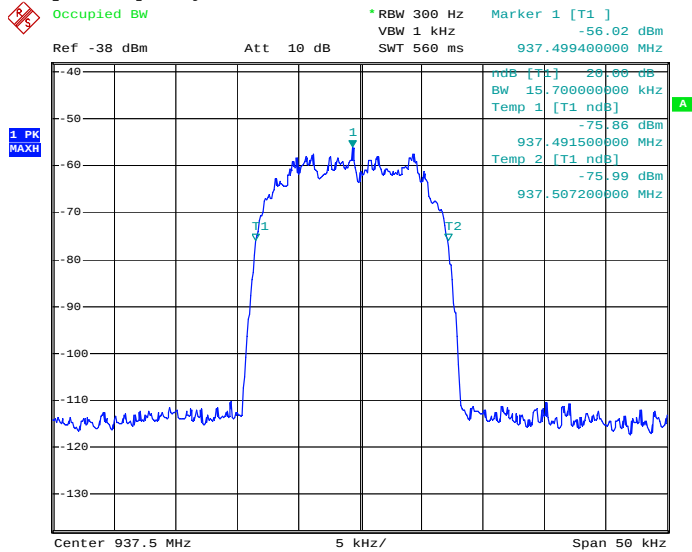
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 935.5 MHz



Date: 9.JAN.2008 12:25:04

Occupied Bandwidth measurement at the input

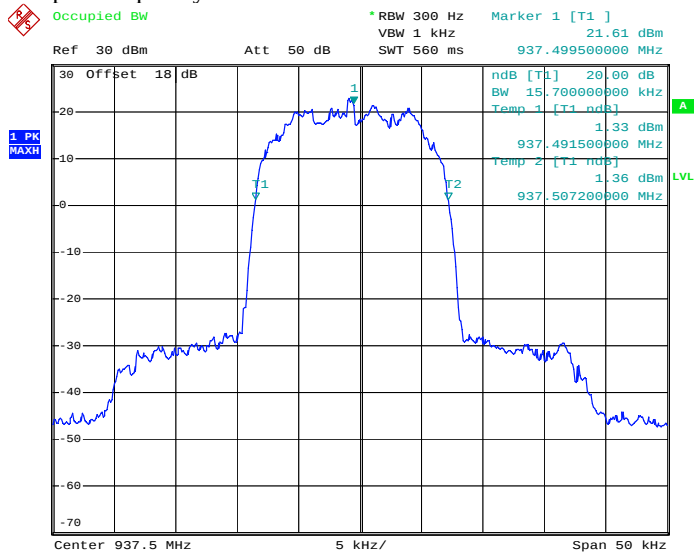
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 937.5 MHz



Date: 9.JAN.2008 12:46:16

Occupied Bandwidth measurement at the output

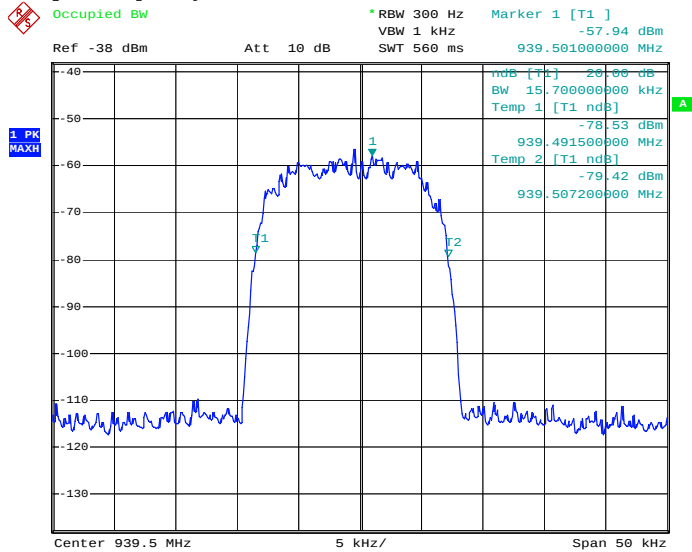
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 937.5 MHz



Date: 9.JAN.2008 12:23:37

Occupied Bandwidth measurement at the input

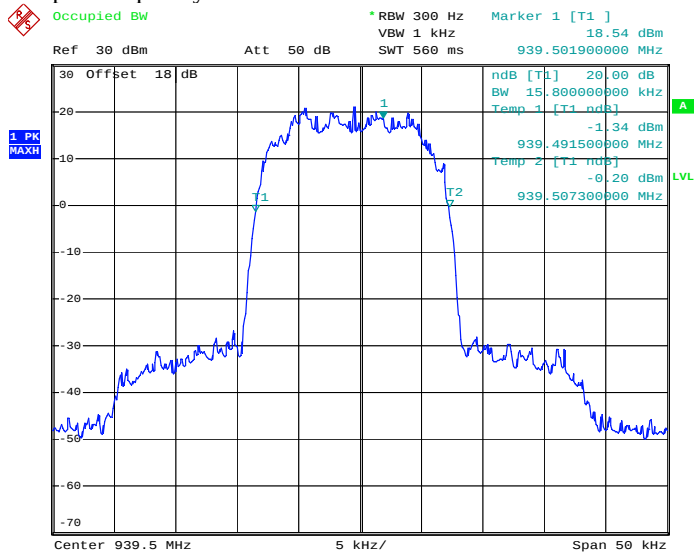
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 939.5 MHz



Date: 9.JAN.2008 12:46:51

Occupied Bandwidth measurement at the output

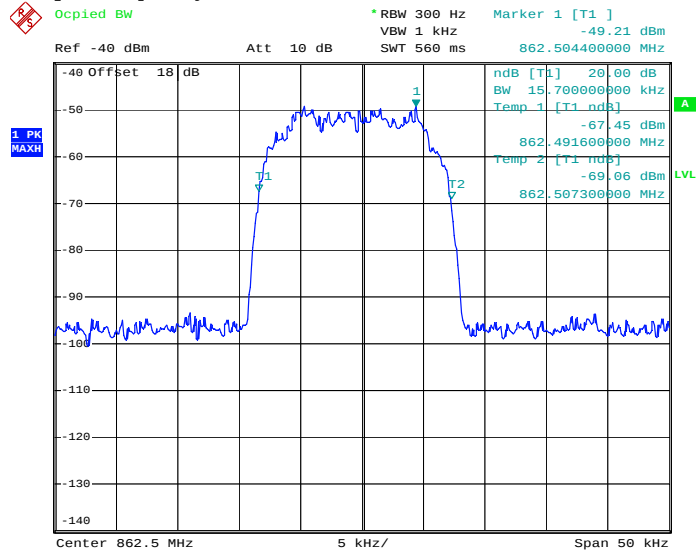
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz, 5MHz filter
Input Frequency: 939.5 MHz



Date: 9.JAN.2008 12:25:53

Occupied Bandwidth measurement at the input

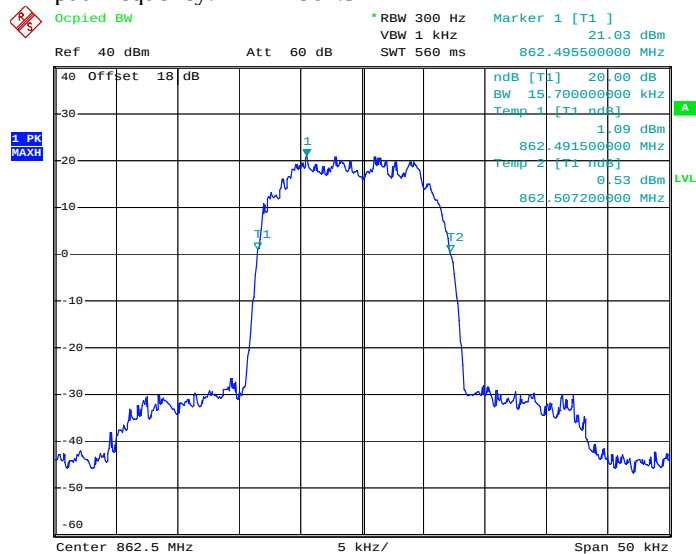
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 862.5 MHz



Date: 10.JAN.2008 14:12:50

Occupied Bandwidth measurement at the output

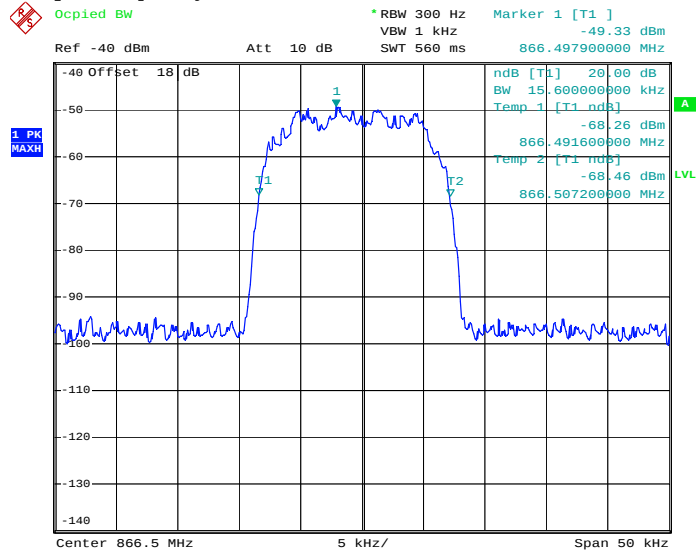
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 862.5 MHz



Date: 10.JAN.2008 14:02:26

Occupied Bandwidth measurement at the input

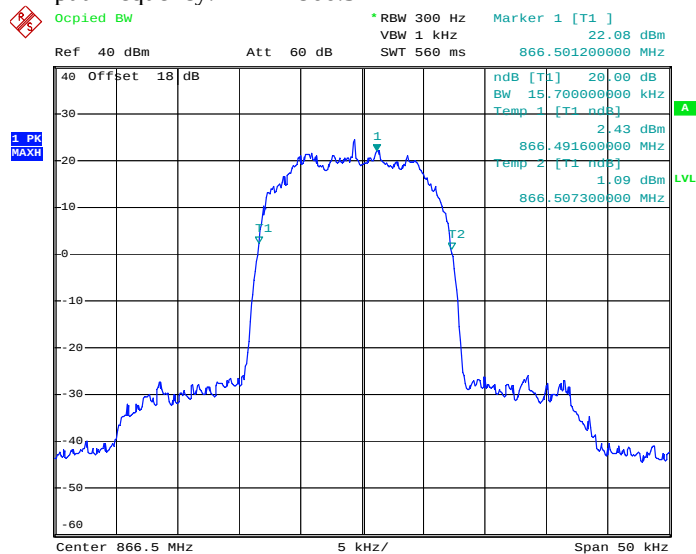
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 866.5 MHz



Date: 10.JAN.2008 14:12:15

Occupied Bandwidth measurement at the output

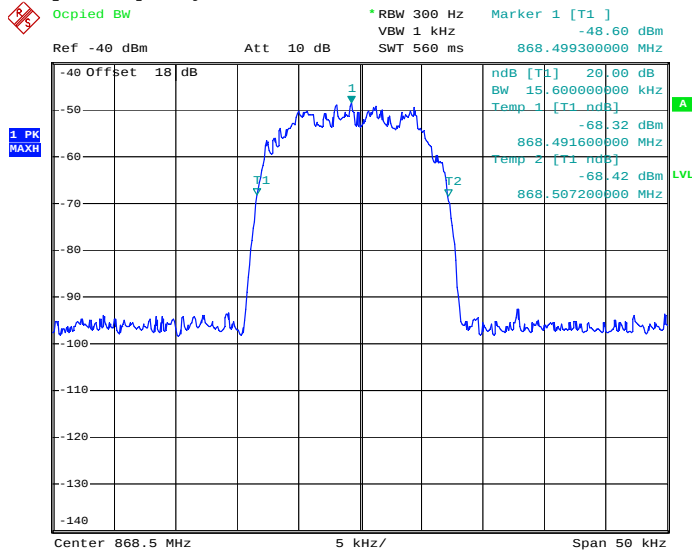
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 866.5 MHz



Date: 10.JAN.2008 14:01:40

Occupied Bandwidth measurement at the input

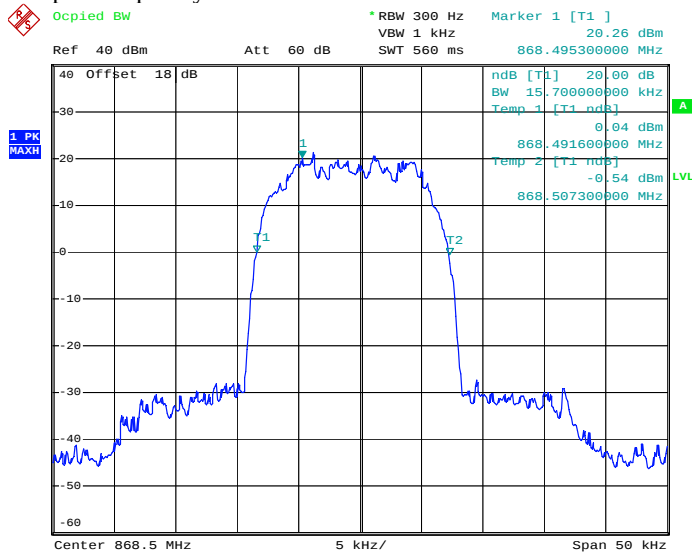
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 868.5 MHz



Date: 10.JAN.2008 14:11:42

Occupied Bandwidth measurement at the output

UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz, 7MHz filter
Input Frequency: 868.5 MHz



Date: 10.JAN.2008 14:03:05

Clause 2-11-04/EAB/RF Out of Band Rejection

Plots showing the filter frequency response.

Test Conditions:

Sample Number:	1	Temperature:	23 °C
Date:	January 8, 2008	Humidity:	35 %
Modification State:	0	Tester:	Andrey Adelberg
		Laboratory:	Ottawa

Test Results:

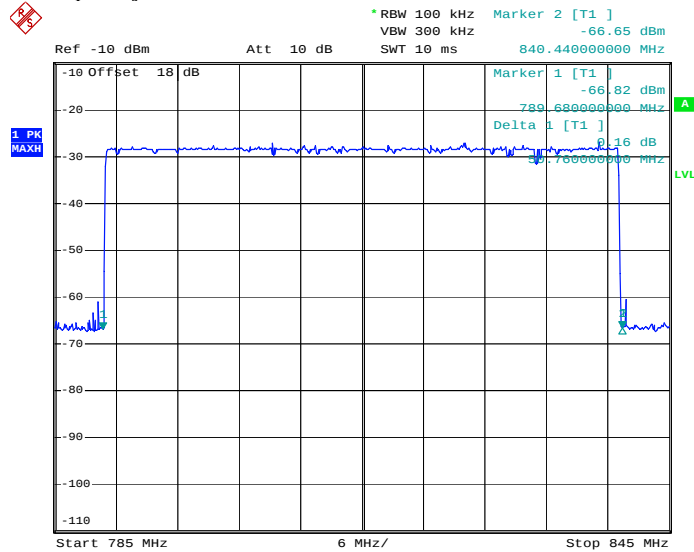
See Attached Plots.

Additional Observations:

Signal generator in sweep mode was connected to the input of the EUT. Sweep frequency range was set wider than specified bandwidth. Spectrum was captured at the input of the EUT and at the output of the EUT.

Out of Band Rejection measurement at the input

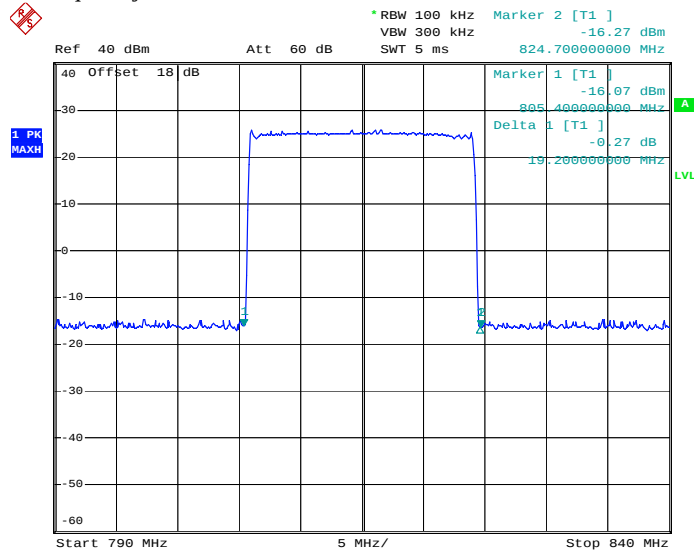
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz



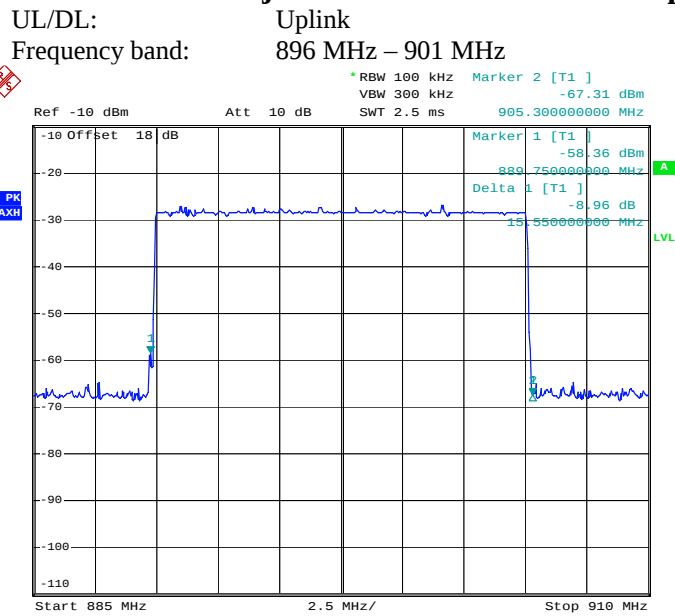
Date: 9.JAN.2008 11:40:17

Out of Band Rejection measurement at the output

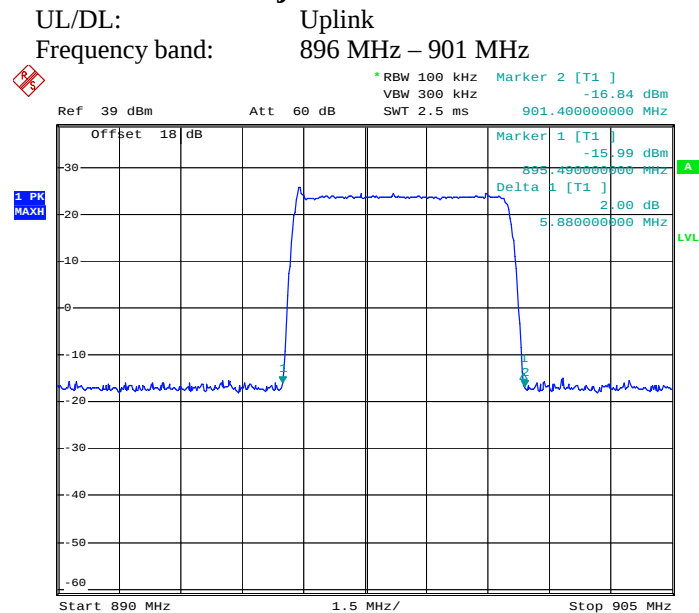
UL/DL: Uplink
Frequency band: 806 MHz – 824 MHz



Date: 8.JAN.2008 15:40:12

Out of Band Rejection measurement at the input

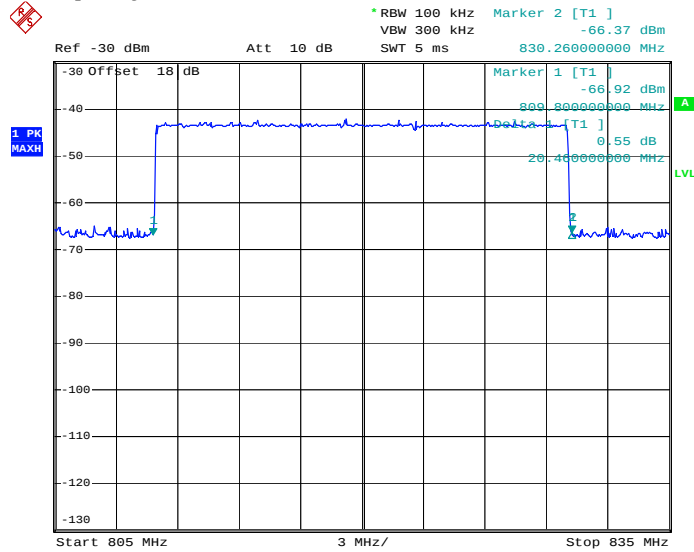
Date: 9.JAN.2008 11:37:12

Out of Band Rejection measurement at the output

Date: 8.JAN.2008 15:20:16

Out of Band Rejection measurement at the input

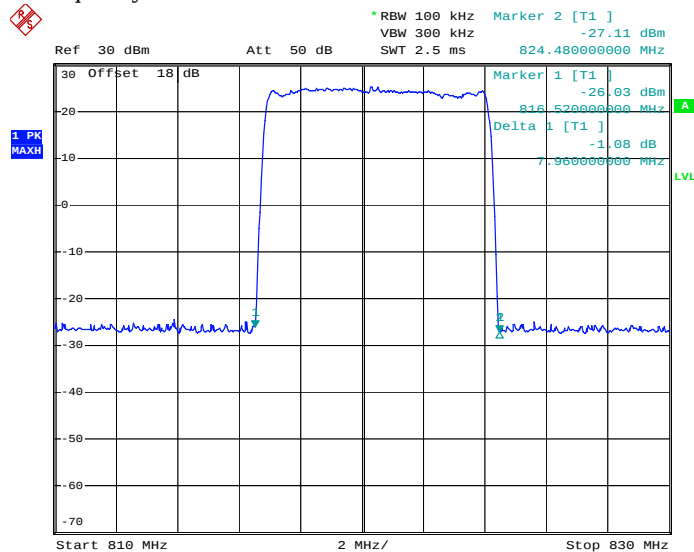
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz



Date: 10.JAN.2008 14:31:16

Out of Band Rejection measurement at the output

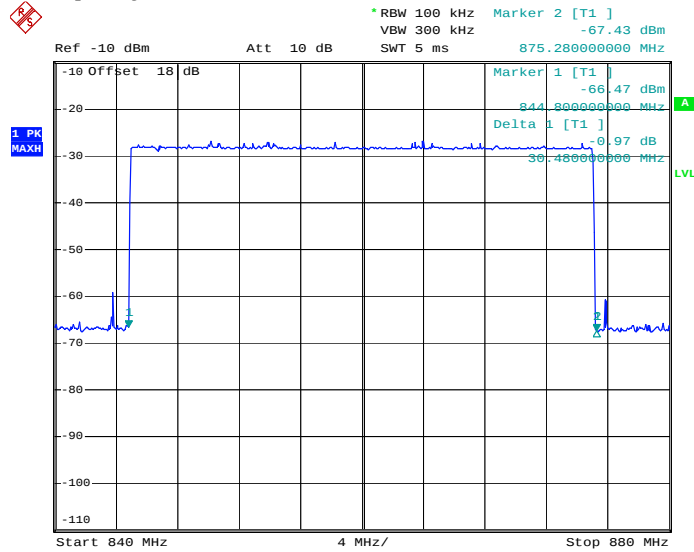
UL/DL: Uplink
Frequency band: 817 MHz – 824 MHz



Date: 10.JAN.2008 14:22:33

Out of Band Rejection measurement at the input

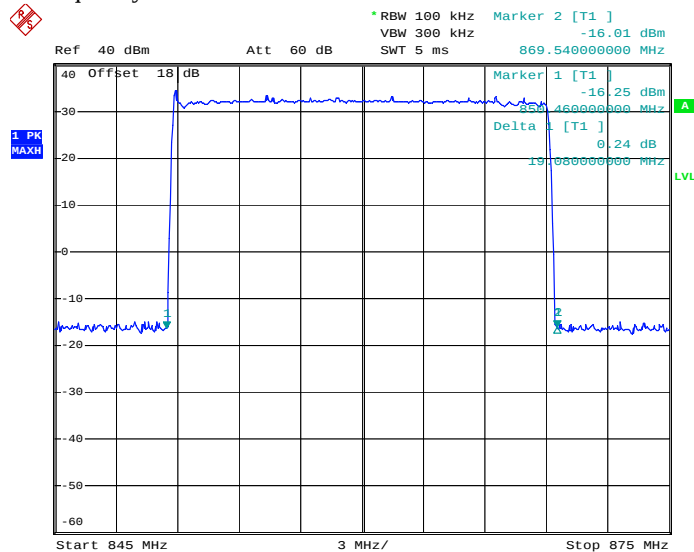
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz



Date: 9.JAN.2008 11:35:09

Out of Band Rejection measurement at the output

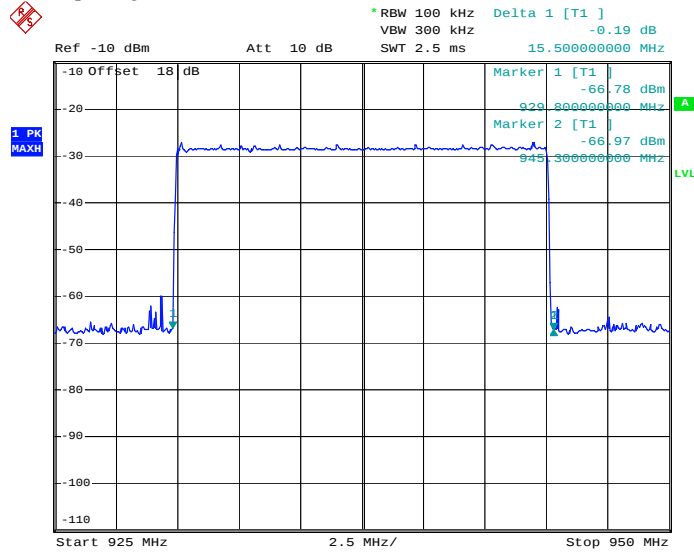
UL/DL: Downlink
Frequency band: 851 MHz – 869 MHz



Date: 8.JAN.2008 15:47:40

Out of Band Rejection measurement at the input

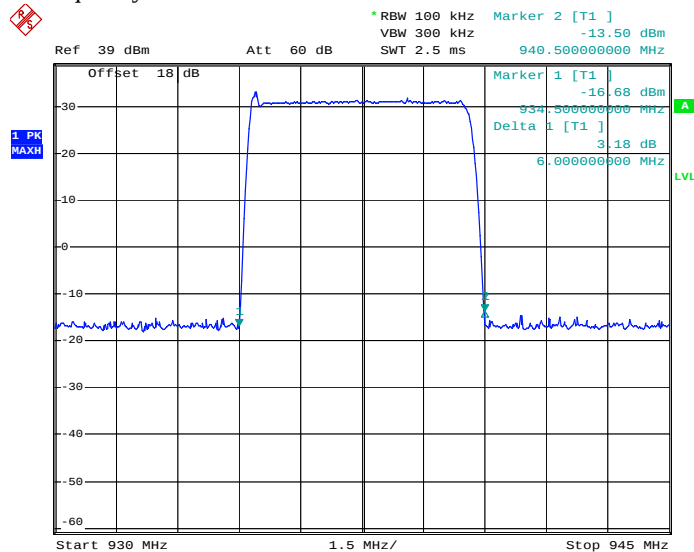
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz



Date: 9.JAN.2008 11:30:24

Out of Band Rejection measurement at the output

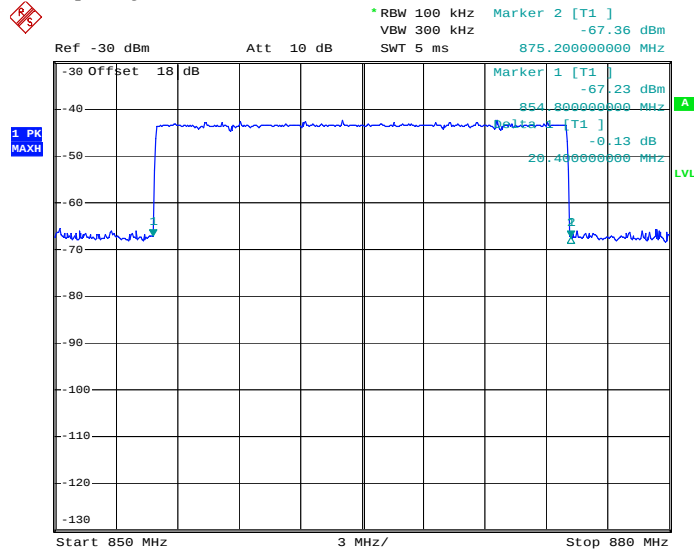
UL/DL: Downlink
Frequency band: 935 MHz – 940 MHz



Date: 8.JAN.2008 15:14:31

Out of Band Rejection measurement at the input

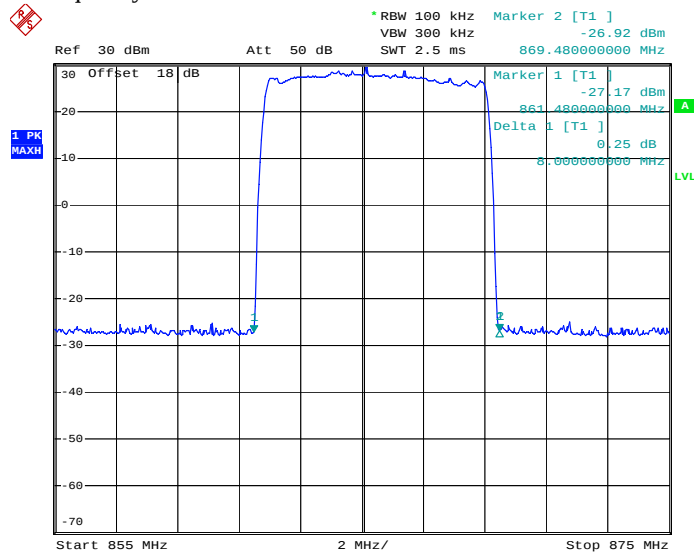
UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz



Date: 10.JAN.2008 14:28:58

Out of Band Rejection measurement at the output

UL/DL: Downlink
Frequency band: 862 MHz – 869 MHz



Date: 10.JAN.2008 14:25:56

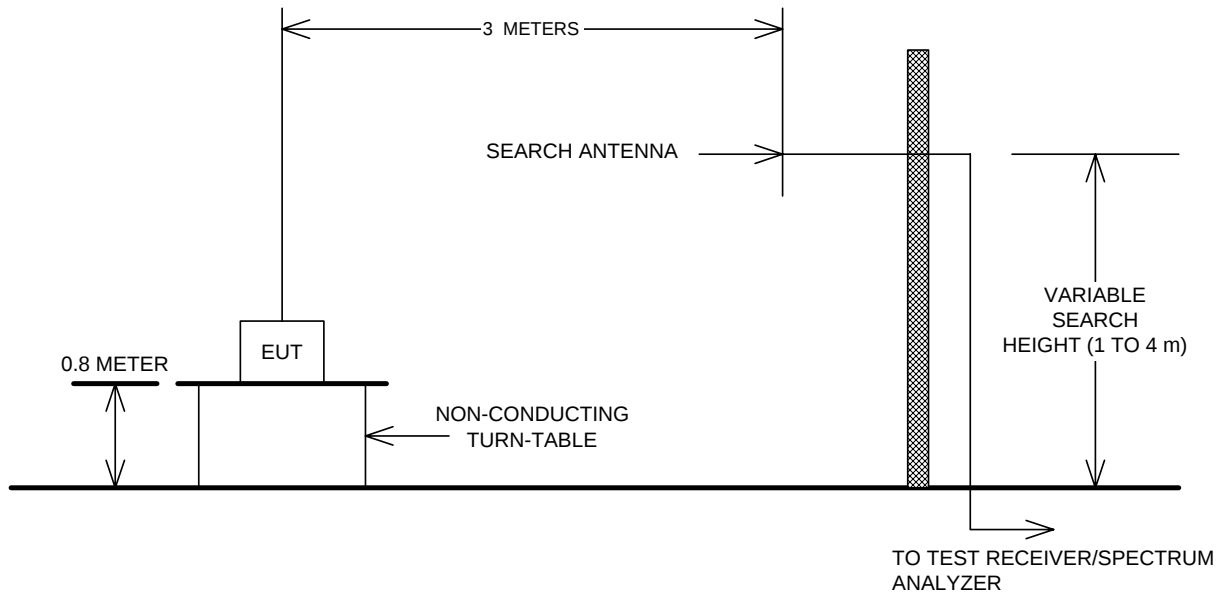
Appendix B: Setup Photographs

Spurious Emissions Setup:

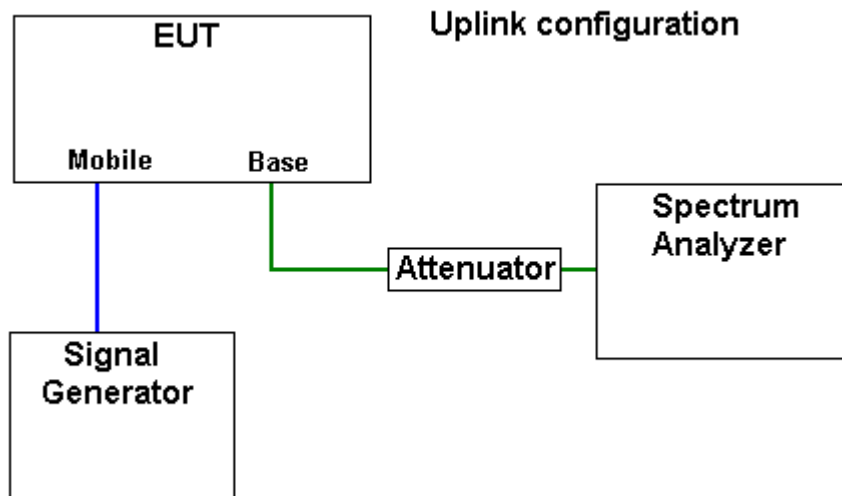


Appendix C: Block Diagram of Test Setups

Test Site For Radiated Emissions



Conducted Emissions, Output power, Occupied Bandwidth and Out of Band Rejection



Conducted Emissions, Output power, Occupied Bandwidth and Out of Band Rejection, continued

