

FCC PART 22H, 24E & 27
MEASUREMENT AND TEST REPORT

For

JDTECK INC

107 South Hoagland Blvd., Kissimmee, FL 34741, USA

FCC ID: SQXJD60-7-TB-US

Report Type: Original Report	Product Type: Wireless Cellular Repeater
Test Engineer: Phoenix Liu <i>Phoenix Liu</i>	
Report Number: RSZ11050503	
Report Date: 2011-06-22	
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP*, or any agency of the Federal Government.

* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
OBJECTIVE	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST METHODOLOGY	3
TEST FACILITY	4
SYSTEM TEST CONFIGURATION.....	5
JUSTIFICATION	5
EQUIPMENT MODIFICATIONS	5
LOCAL SUPPORT EQUIPMENT LIST AND DETAILS	5
EXTERNAL I/O CABLE.....	5
CONFIGURATION OF TEST SETUP	6
BLOCK DIAGRAM OF TEST SETUP	6
SUMMARY OF TEST RESULTS	7
FCC §1.1307 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)	8
APPLICABLE STANDARD	8
TEST DATA	8
FCC §2.1047 - MODULATION CHARACTERISTIC	10
FCC §2.1046, §22.913(A), §24.232(C) & §27.50 - RF OUTPUT POWER.....	11
APPLICABLE STANDARD	11
TEST PROCEDURE	11
TEST EQUIPMENT LIST AND DETAILS.....	11
TEST DATA	12
FCC §2.1049, §22.917, §22.905, §24.238 & §27.53 - OCCUPIED BANDWIDTH	14
APPLICABLE STANDARDS.....	14
TEST PROCEDURE	14
TEST EQUIPMENT LIST AND DETAILS.....	14
TEST DATA	14
FCC §2.1051, §22.917(A), §24.238(A) & §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS	49
APPLICABLE STANDARDS.....	49
TEST PROCEDURE	49
TEST EQUIPMENT LIST AND DETAILS.....	49
TEST DATA	49
FCC §2.1053, §22.917, §24.238 & §27.53- SPURIOUS RADIATED EMISSIONS	132
APPLICABLE STANDARDS.....	132
TEST PROCEDURE	132
TEST EQUIPMENT LIST AND DETAILS.....	132
TEST DATA	133
FCC §22.917(A), §24.238(A) & §27.53 - BAND EDGES.....	138
APPLICABLE STANDARDS.....	138
TEST PROCEDURE	138
TEST EQUIPMENT LIST AND DETAILS.....	138
TEST DATA	138

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *JDTECK INC*'s product, model number: *JD60-7-TB-US (FCC ID: SQXJD60-7-TB-US)* or the "EUT" as referred to in this report is a *Wireless Cellular Repeater*, which measures approximately: 33 cm (L) x 25 cm (W) x 5.3 cm (H), rated input voltage: DC 9V adapter.

Adapter Information: AC/DC ADAPTER

Model: GM-120500

Input: AC 100-240V 50/60Hz

Output: DC 12V, 5.0A

Frequency Range:

GSM/CDMA Cellular Band: 824-849 MHz (Uplink); 869-894 MHz (Downlink)

GSM/CDMA PCS Band: 1850-1910 MHz (Uplink); 1930-1990 MHz (Downlink)

AWS Band: 1710-1755 MHz (Uplink), 2110-2155 MHz (Downlink)

Transmitter Output Power:

GSM/CDMA Cellular Band: 10 ± 1 dBm (Uplink); 15 ± 1 dBm (Downlink)

GSM/CDMA PCS Band: 10 ± 1 dBm (Uplink); 15 ± 1 dBm (Downlink)

AWS Band: 10 ± 1 dBm (Uplink) ; 15 ± 1 dBm (Downlink)

** All measurement and test data in this report was gathered from production sample serial number: 1105014 (Assigned by BACL, Shenzhen). The EUT was received on 2011-05-05.*

Objective

This type approval report is prepared on behalf of *JDTECK INC* in accordance with Part 2, Subpart J, Part 22 Subpart H, Part 24 Subpart E and Part 27 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability, band edge and radiated margin.

Related Submittal(s)/Grant(s)

N/A

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services

Part 24 Subpart E - Personal Communication Services

Part 27 - Miscellaneous wireless communications services

Applicable Standards: TIA/EIA 603-C, ANSI C63.4-2003.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp.(Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>

SYSTEM TEST CONFIGURATION

Justification

The EUT was configured for testing according to TIA/EIA-603-C.

The final qualification test was performed with the EUT operating at normal mode.

Equipment Modifications

No modifications were made to the EUT.

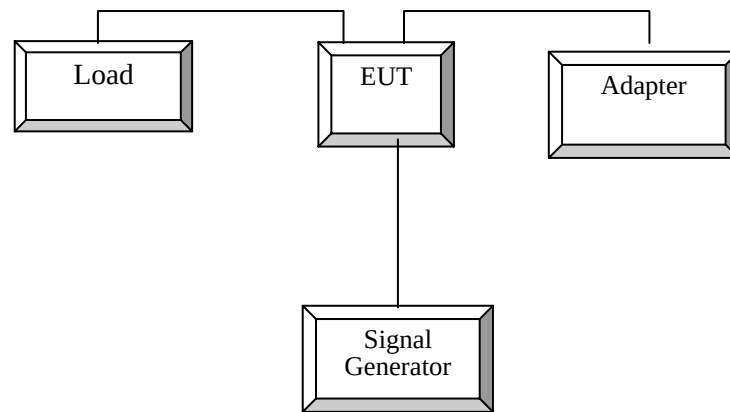
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Agilent	ESG-D Series Signal Generator	E4432B	GB40051703

External I/O Cable

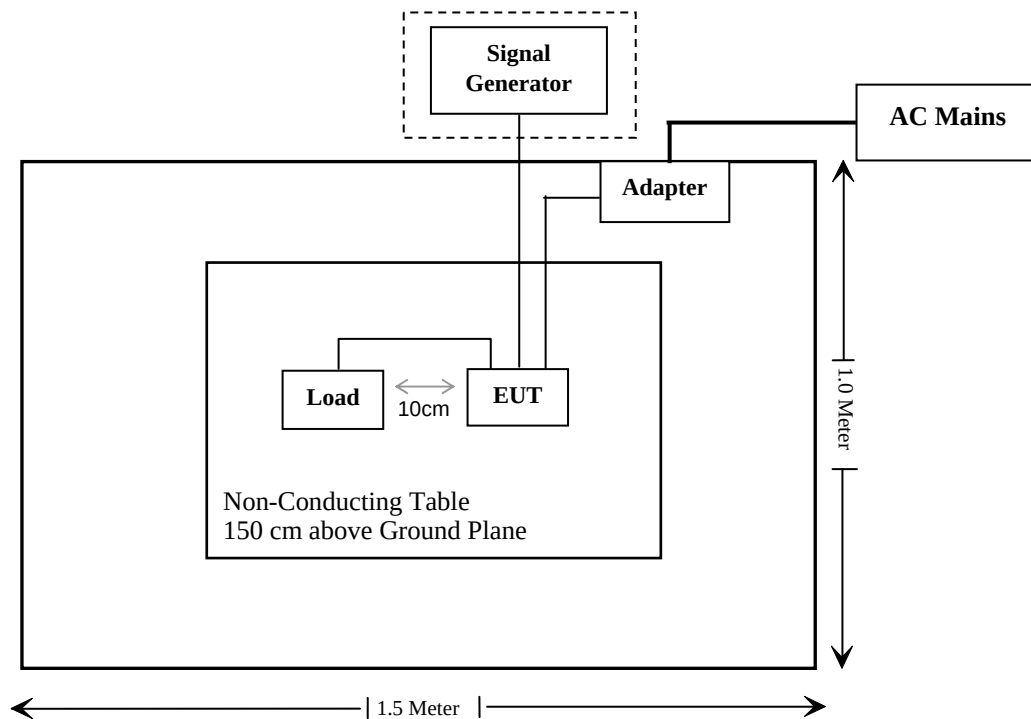
Cable Description	Length (m)	From/Port	To
Shielded Detachable AC Cable	1.7	LISN / AC mains	Adapter
Shielded Detachable DC Cable	1.7	Adapter	EUT
Shielded Detachable RF Cable	1.0	Signal Generator	EUT
Shielded Detachable RF Cable	1.0	EUT	Terminal load

Configuration of Test Setup



Block Diagram of Test Setup

Downlink/Uplink:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b)(1), §2.1091	Maximum Permissible Exposure (MPE)	Compliance
§2.1046; §22.913 (a); §24.232 (c), §27.50(d)	RF Output Power	Compliance
§2.1047	Modulation Characteristics	N/A
§2.1049; §22.905 §22.917; §24.238 §27.53(c)	99% & -26 dB Occupied Bandwidth	Compliance
§2.1051, §22.917 (a); §24.238 (a), §27.53(c)	Spurious Emissions at Antenna Terminal	Compliance
§2.1053, §22.917 (a); §24.238 (a), §27.53(c)	Field Strength of Spurious Radiation	Compliance
§22.917 (a); §24.238 (a), §27.53(c)	Out of band emission, Band Edge	Compliance
§2.1055, §22.355; §24.235, §27.53(c)	Frequency stability vs. temperature Frequency stability vs. voltage	N/A*

Note: * the device is an repeater.

FCC §1.1307 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart FCC §1.1307 (b)(1) and §2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mw/cm ²)	Averaging Time (Minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

Test Data

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where:

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally **numeric** gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

GSM Cellular Band (Part 22H):

Mode	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
Uplink	836.6	14	25.119	8.6	7.244	> 400	0.00009	0.558
Downlink	881.6	8	6.310	14.59	28.774	> 400	0.00009	0.588

GSM PCS Band (Part 24E):

Mode	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
Uplink	1880.0	14	25.119	9.10	8.128	> 400	0.00010	1.00
Downlink	1960.0	8	6.310	14.19	26.242	> 400	0.00008	1.00

CDMA Cellular Band (Part 22H):

Mode	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
Uplink	836.52	14	25.119	9.95	9.886	> 400	0.00012	0.558
Downlink	881.52	8	6.310	14.19	26.242	> 400	0.00008	0.588

CDMA PCS Band (Part 24E):

Mode	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
Uplink	1880.0	14	25.119	9.60	9.120	> 400	0.00012	1.00
Downlink	1960.0	8	6.310	14.45	27.861	> 400	0.00008	1.00

WCDMA AWS Band (Part 27):

Mode	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
Uplink	1732.4	14	25.119	9.35	8.610	> 400	0.000108	1.0
Downlink	2132.4	8	6.310	14.70	29.512	> 400	0.000093	1.0

Result: The device meets FCC MPE limit at 400 cm distance.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H, 24E & 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC §2.1046, §22.913(a), §24.232(c) & §27.50 - RF OUTPUT POWER**Applicable Standard**

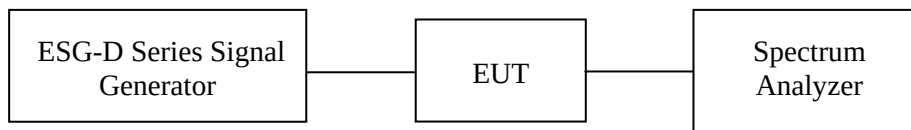
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), in no case may the peak output power of a base station transmitter exceed 2 watt EIRP.

According to §27.50, the maximum effective radiated power (ERP) of fixed and base station must not exceed 1000 Watts.

Test Procedure*Conducted method:*

The RF output of the transmitter was connected to the wireless test set and the spectrum analyzer through sufficient attenuation.

*Radiated method:*

TIA 603-C section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07
Agilent	PSA Series Spectrum Analyzer	E4443A	MY45300749	2011-01-07	2012-01-06
Agilent	ESG-D Series Signal Generator	E4432B	GB40051703	2010-11-20	2011-11-19

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Phoenix Liu on 2011-05-19 and 2011-6-22.

Conducted Power:**GSM Cellular Band (Part 22H)**

Mode	Modulation	Frequency (MHz)	Input power (dBm)	Output power (dBm)	Limit (dBm)
Uplink (824-849 MHz)	GMSK	824.2	-53	8.53	38.45
		836.6	-53	8.60	38.45
		848.8	-53	8.04	38.45
Downlink (869-894 MHz)		869.2	-52	14.23	38.45
		881.6	-52	14.59	38.45
		893.8	-52	14.17	38.45

GPRS Cellular Band (Part 22H)

Mode	Modulation	Frequency (MHz)	Input power (dBm)	Output power (dBm)	Limit (dBm)
Uplink (824-849 MHz)	8PSK	824.2	-53	8.50	38.45
		836.6	-53	8.58	38.45
		848.8	-53	7.94	38.45
Downlink (869-894 MHz)		869.2	-52	14.13	38.45
		881.6	-52	14.55	38.45
		893.8	-52	14.06	38.45

CDMA2000 Cellular Band (Part 22H)

Mode	Modulation	Frequency (MHz)	Input power (dBm)	Output power (dBm)	Limit (dBm)
Uplink (824-849 MHz)	CDMA2000	824.70	-53	9.90	38.45
		836.52	-53	9.95	38.45
		848.31	-53	7.95	38.45
Downlink (869-894 MHz)		869.70	-52	14.03	38.45
		881.52	-52	14.19	38.45
		893.31	-52	13.07	38.45

GSM PCS Band (Part 24E)

Mode	Modulation	Frequency (MHz)	Input power (dBm)	Output power (dBm)	Limit (dBm)
Uplink (1850-1910 MHz)	GMSK	1850.2	-53	9.03	33
		1880.0	-53	9.10	33
		1909.8	-53	9.04	33
Downlink (1930-1990 MHz)		1930.2	-52	14.15	33
		1960.0	-52	14.19	33
		1989.8	-52	13.82	33

GPRS PCS Band (Part 24E)

Mode	Modulation	Frequency (MHz)	Input power (dBm)	Output power (dBm)	Limit (dBm)
Uplink (1850-1910 MHz)	8PSK	1850.2	-53	9.04	33
		1880.0	-53	9.08	33
		1909.8	-53	9.00	33
Downlink (1930-1990 MHz)		1930.2	-52	14.01	33
		1960.0	-52	14.15	33
		1989.8	-52	13.79	33

CDMA2000 PCS Band (Part 24E)

Mode	Modulation	Frequency (MHz)	Input power (dBm)	Output power (dBm)	Limit (dBm)
Uplink (1850-1910 MHz)	CDMA2000	1851.25	-53	9.25	33
		1880.00	-53	9.60	33
		1908.75	-53	8.04	33
Downlink (1930-1990 MHz)		1931.25	-52	14.31	33
		1960.00	-52	14.45	33
		1988.75	-52	13.26	33

WCDMA AWS Band (Part 27):

Mode	Modulation	Frequency (MHz)	Input power (dBm)	Output power (dBm)	Limit (dBm)
Uplink (1710-1755 MHz)	WCDMA	1712.4	-53	9.31	60
		1732.4	-53	9.35	60
		1752.6	-53	9.27	60
Downlink (2110-2155 MHz)		2112.4	-52	14.50	60
		2132.4	-52	14.70	60
		2152.6	-52	14.55	60

FCC §2.1049, §22.917, §22.905, §24.238 & §27.53 - OCCUPIED BANDWIDTH

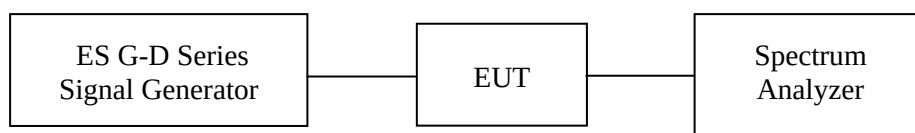
Applicable Standards

FCC §2.1049, §22.917, §22.905, §24.238 and §27.53.

Test Procedure

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 30 kHz (Cellular /PCS) and the 26 dB & 99% bandwidth was recorded.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2010-11-11	2011-11-10
Agilent	PSA Series Spectrum Analyzer	E4443A	MY45300749	2011-01-07	2012-01-06
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07
Agilent	ESG-D Series Signal Generator	E4432B	GB40051703	2010-11-20	2011-11-19

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

The testing was performed by Phoenix Liu on 2011-05-09 to 2011-06-22.

GMSK:

Cellular Band (Part 22H)

Input signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (824-849MHz)			
GMSK	836.6	250	338
Downlink (869-894MHz)			
GMSK	881.6	250	338

Output signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (824-849MHz)			
GMSK	836.6	248	334
Downlink (869-894MHz)			
GMSK	881.6	248	334

PCS Band (Part 24E)

Input signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (1850-1910 MHz)			
GMSK	1880	250	338
Downlink (1930-1990 MHz)			
GMSK	1960	252	340

Output signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (1850-1910 MHz)			
GMSK	1880	270	392
Downlink (1930-1990 MHz)			
GMSK	1960	270	386

8PSK

Cellular Band (Part 22H)

Input signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (824-849MHz)			
GMSK	836.6	274	388
Downlink (869-894MHz)			
GMSK	881.6	274	404

Output signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (824-849MHz)			
GMSK	836.6	270	390
Downlink (869-894MHz)			
GMSK	881.6	270	392

PCS Band (Part 24E)

Input signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (1850-1910 MHz)			
GMSK	1880	276	386
Downlink (1930-1990 MHz)			
GMSK	1960	274	376

Output signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (1850-1910 MHz)			
GMSK	1880	270	386
Downlink (1930-1990 MHz)			
GMSK	1960	270	386

CDMA2000:

Cellular Band (Part 22H)

Input signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (824-849MHz)			
CDMA2000	836.52	1268	1412
Downlink (869-894MHz)			
CDMA2000	881.52	1268	1408

Output signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (824-849MHz)			
CDMA2000	836.52	1264	1408
Downlink (869-894MHz)			
CDMA2000	881.52	1260	1412

PCS Band (Part 24E)

Input signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (1850-1910 MHz)			
CDMA2000	1880.00	1272	1416
Downlink (1930-1990 MHz)			
CDMA2000	1960.00	1264	1412

Output signal

Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Uplink (1850-1910 MHz)			
CDMA2000	1880.00	1264	1408
Downlink (1930-1990 MHz)			
CDMA2000	1960.00	1264	1408

WCDMA AWS Band (Part 27)

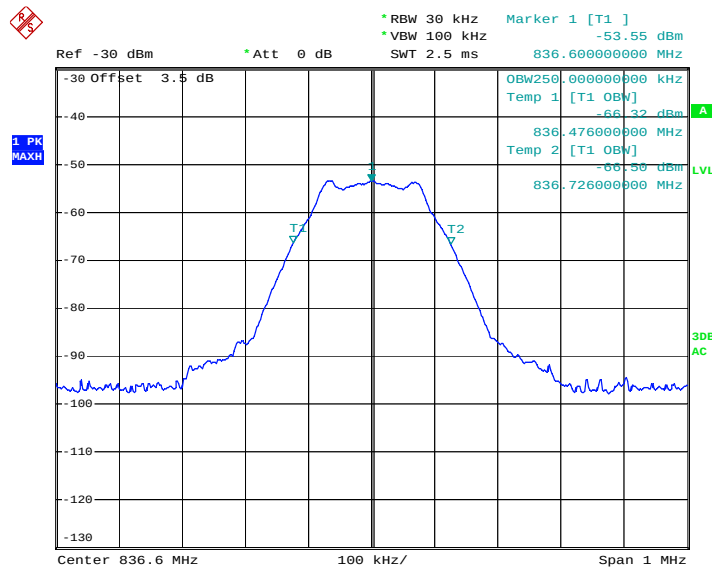
Input signal:

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
Uplink (1710-1755)MHz	Low	1712.4	4.16	4.56
	Middle	1732.4	4.10	4.51
	High	1752.6	4.15	4.54
Downlink (2110-2155)MHz	Low	2112.4	4.16	4.54
	Middle	2132.4	4.14	4.52
	High	2152.6	4.13	4.53

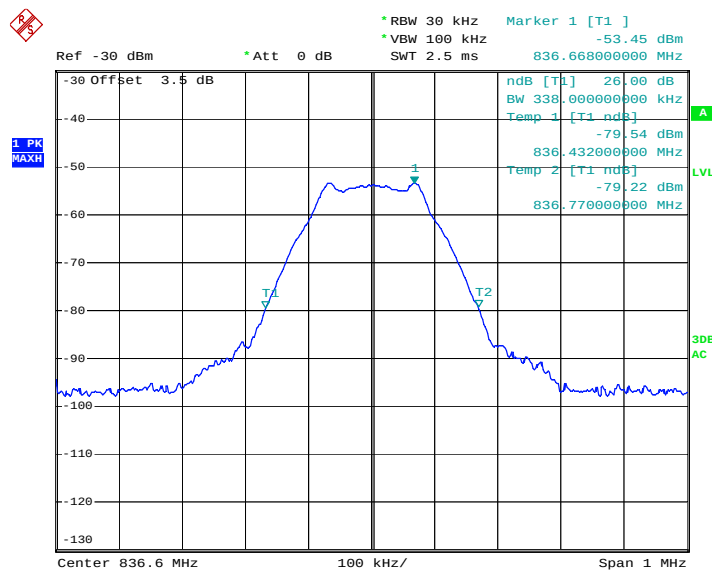
Output signal

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
Uplink (1710-1755)MHz	Low	1712.4	4.12	4.47
	Middle	1732.4	4.07	4.55
	High	1752.6	4.07	4.56
Downlink (2110-2155)MHz	Low	2112.4	4.06	4.54
	Middle	2132.4	4.09	4.54
	High	2152.6	4.14	4.55

Please refer to the following plots.

GMSK: Cellular Band (Part 22H)**Uplink mode:****Input Signal, 99% Bandwidth, GMSK**

Date: 26.MAY.2011 16:08:25

Input Signal, 26 dB Bandwidth, GMSK

Date: 26.MAY.2011 16:08:54

Ref 33.5 dBm * Att 45 dB RBW 30 kHz VBW 100 kHz SWT 2.5 ms Marker 1 [T1] 836.60400000 MHz 6.57 dBm

Offset 3.5 dB

OBW248.00000000 kHz

Temp 1 [T1 0BW] -6.84 dBm

836.17800000 MHz

Temp 2 [T1 0BW] -6.76 dBm

836.72600000 MHz

Center 836.6 MHz 100 kHz/ Span 1 MHz

1 PK WAXH

Date: 9.MAY.2011 14:30:11

1 PK
MAXH

Ref 33.5 dBm * Att 45 dB RBW 30 kHz VBW 100 kHz SWT 2.5 ms

Marker 1 [T1] 26.00 dB
BW 334.00000000 kHz
Temp 1 [T1 ndB] -10.61 dBm
836.43400000 MHz
Temp 2 [T1 ndB] -19.35 dBm
836.76800000 MHz

Offset 3.5 dB

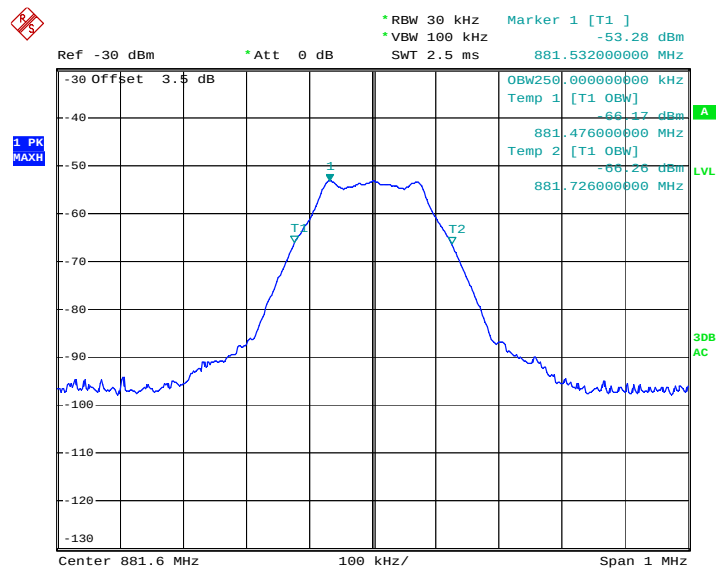
Center 836.6 MHz 100 kHz/ Span 1 MHz

3DB AC

Date: 9.MAY.2011 14:29:52

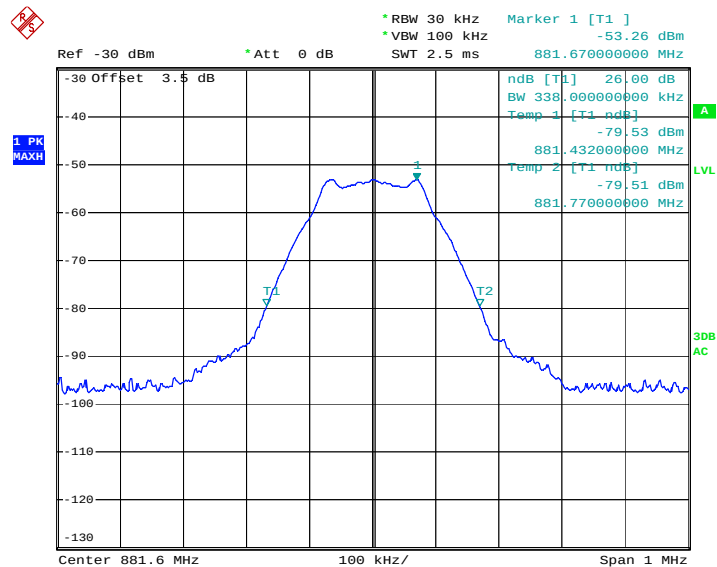
Downlink mode:

Input Signal, 99% Bandwidth, GMSK



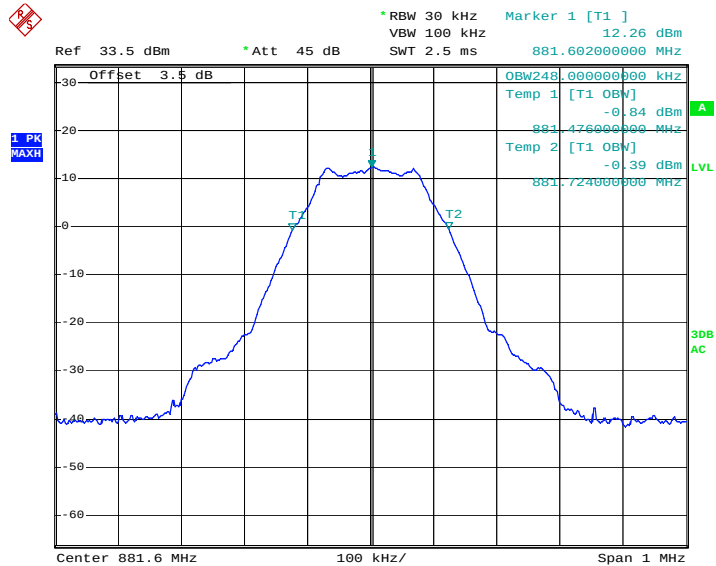
Date: 26.MAY.2011 16:09:59

Input Signal, 26 dB Bandwidth, GMSK



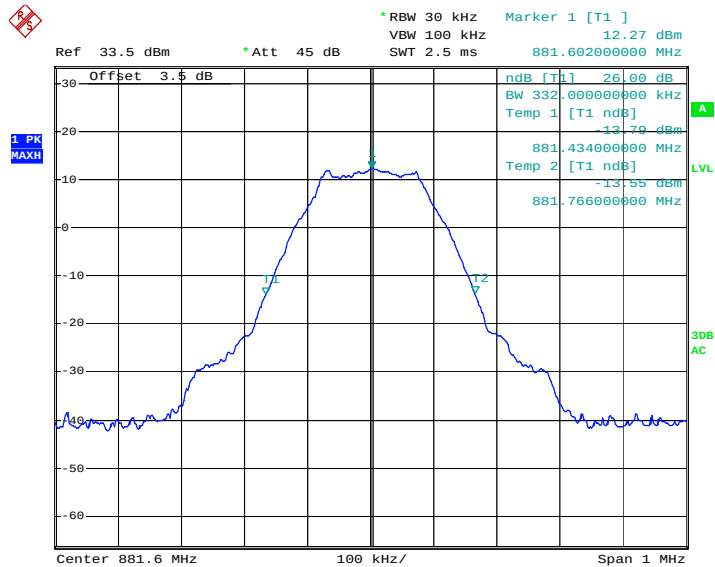
Date: 26.MAY.2011 16:09:33

Output Signal, 99% Bandwidth, GMSK



Date: 9.MAY.2011 15:03:59

Output Signal, 26 dB Bandwidth, GMSK

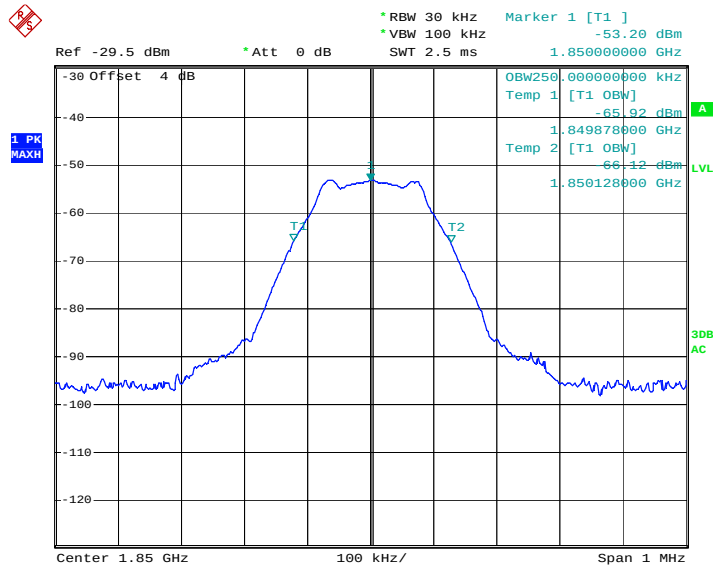


Date: 9.MAY.2011 15:04:29

PCS Band (Part 24E)

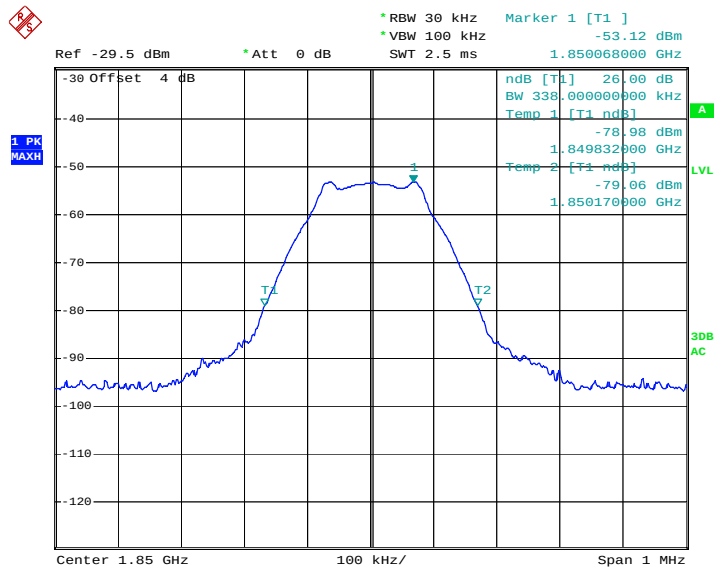
Uplink mode:

Input Signal, 99% Bandwidth, GMSK



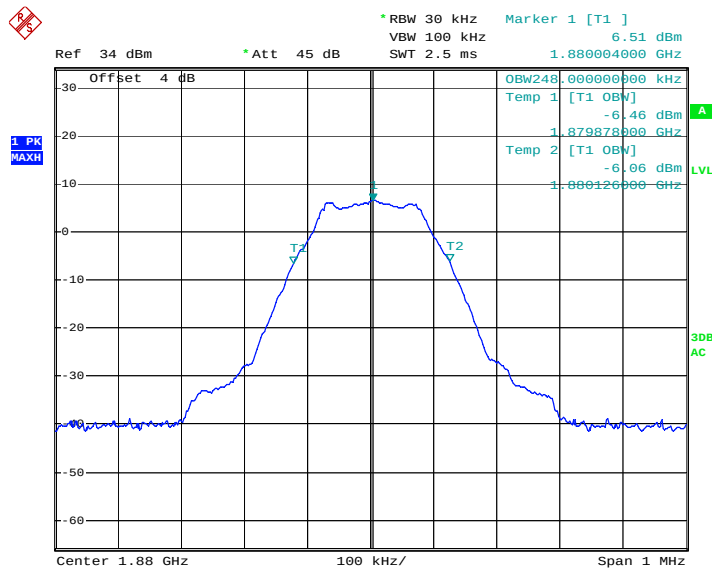
Date: 26.MAY.2011 16:10:59

Input Signal, 26 dB Bandwidth, GMSK



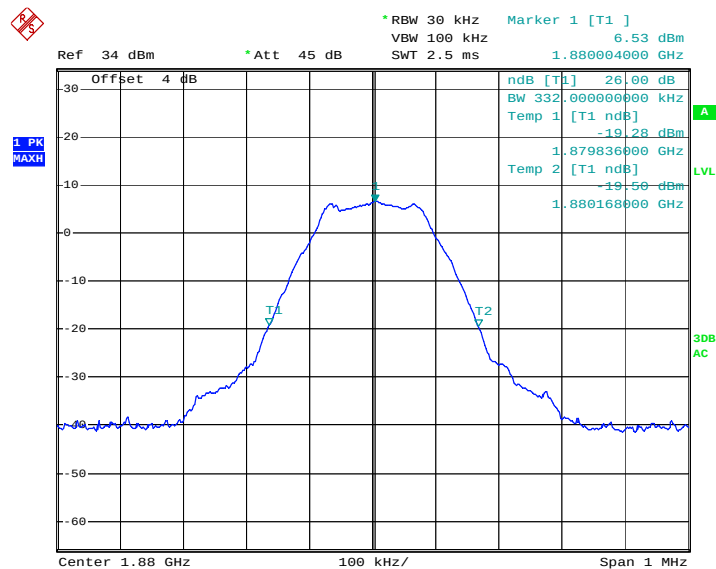
Date: 26.MAY.2011 16:11:34

Output Signal, 99% Bandwidth, GMSK



Date: 9.MAY.2011 14:43:58

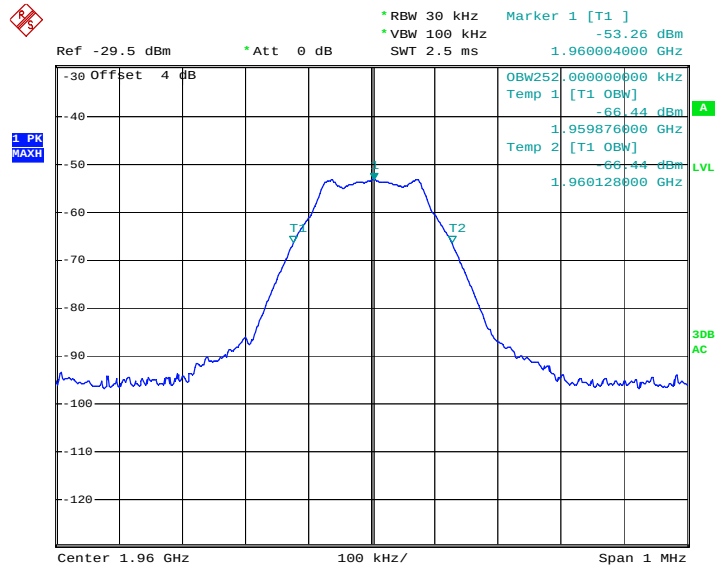
Output Signal, 26 dB Bandwidth, GMSK



Date: 9.MAY.2011 14:42:46

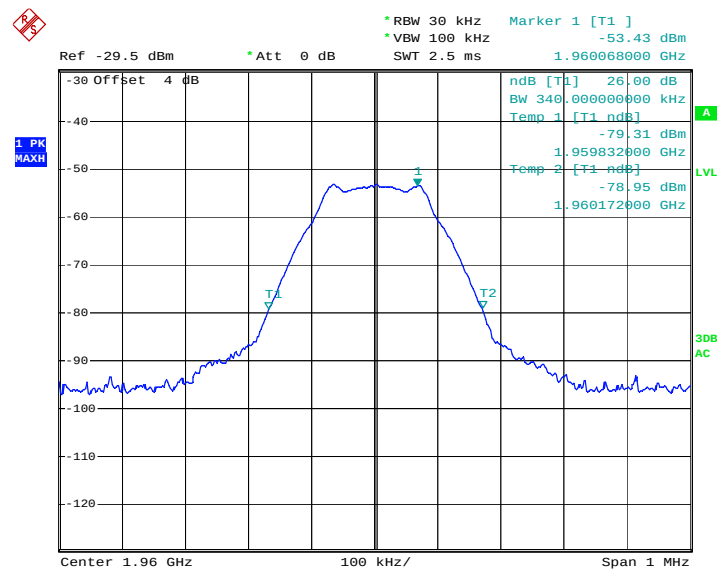
Downlink mode:

Input Signal, 99% Bandwidth, GMSK



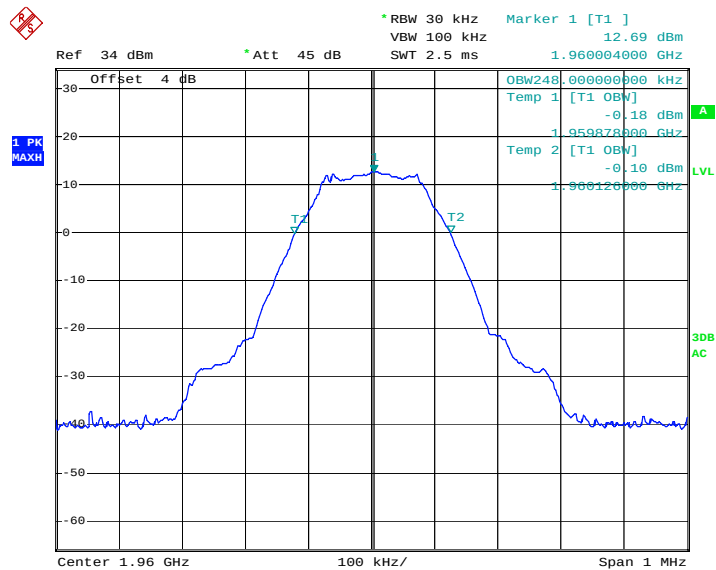
Date: 26.MAY.2011 16:12:48

Input Signal, 26 dB Bandwidth, GMSK



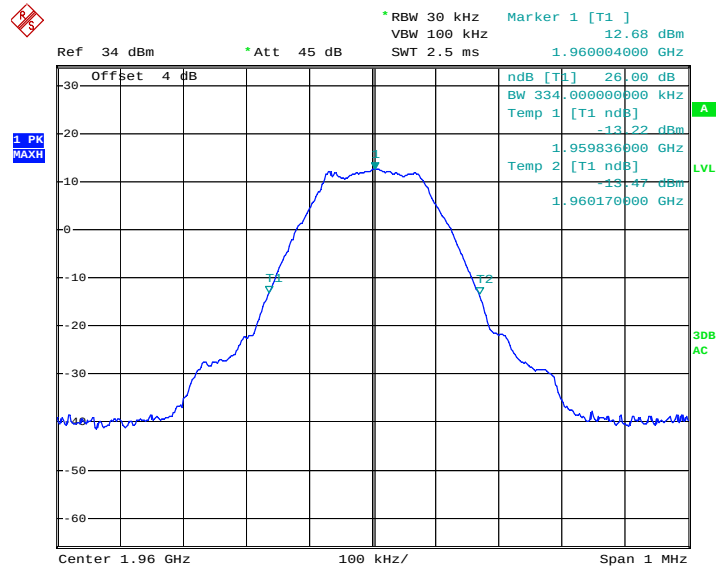
Date: 26.MAY.2011 16:12:15

Output Signal, 99% Bandwidth, GMSK

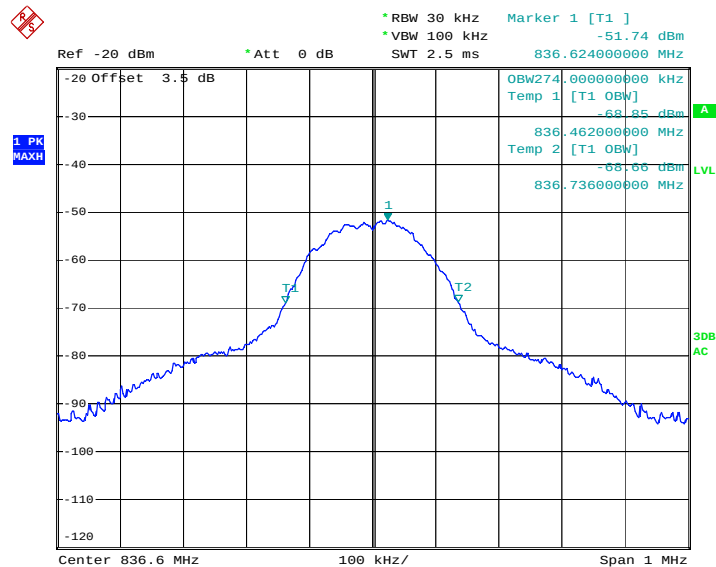


Date: 9.MAY.2011 15:12:23

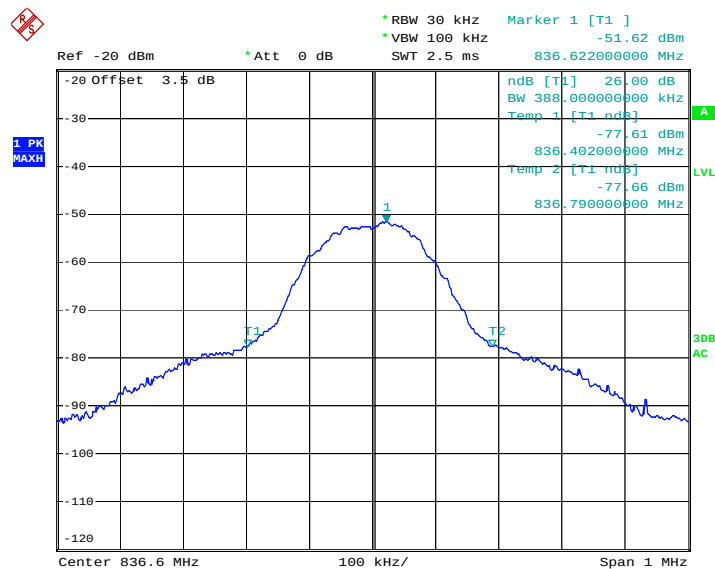
Output Signal, 26 dB Bandwidth, GMSK



Date: 9.MAY.2011 15:11:43

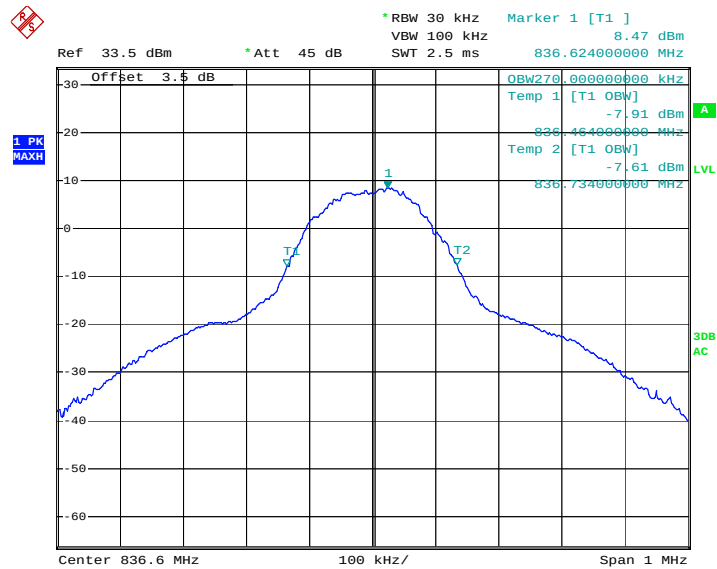
8PSK: Cellular Band (Part 22H)**Uplink mode:****Input Signal, 99% Bandwidth, 8PSK**

Date: 9.MAY.2011 17:46:15

Input Signal, 26 dB Bandwidth, 8PSK

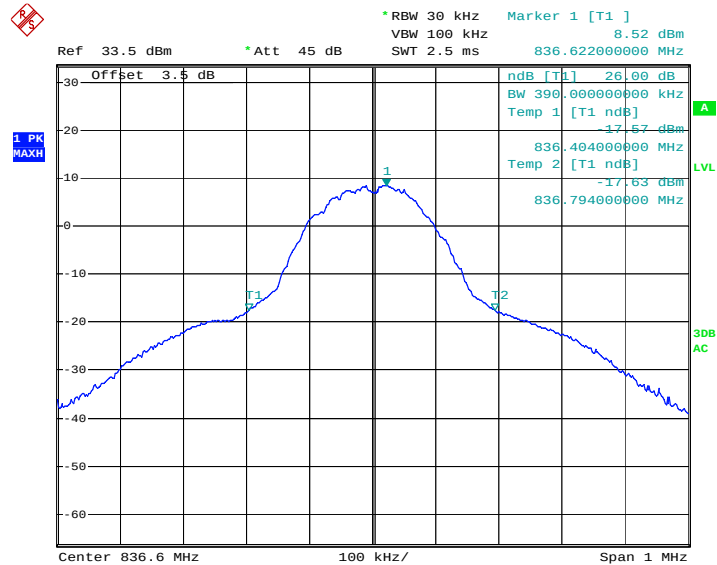
Date: 9.MAY.2011 17:47:45

Output Signal, 99% Bandwidth, 8PSK



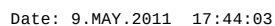
Date: 9.MAY.2011 14:25:03

Output Signal, 26 dB Bandwidth, 8PSK



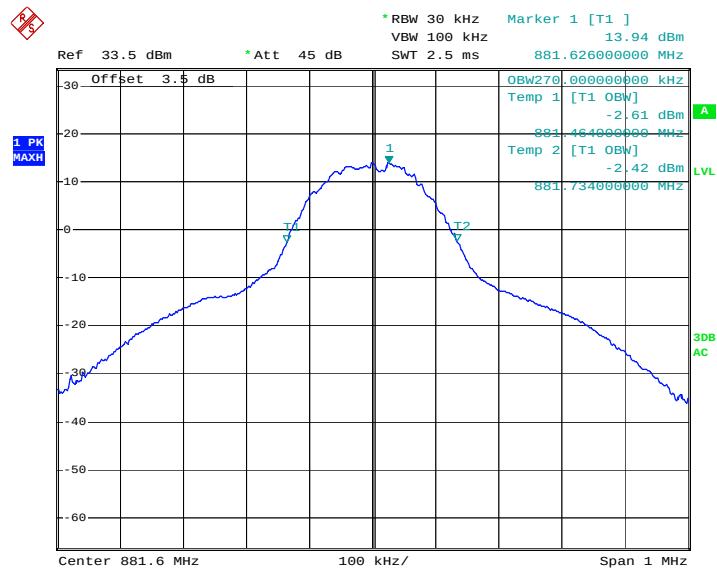
Date: 9.MAY.2011 14:26:38

Input Signal, 99% Bandwidth, 8PSK



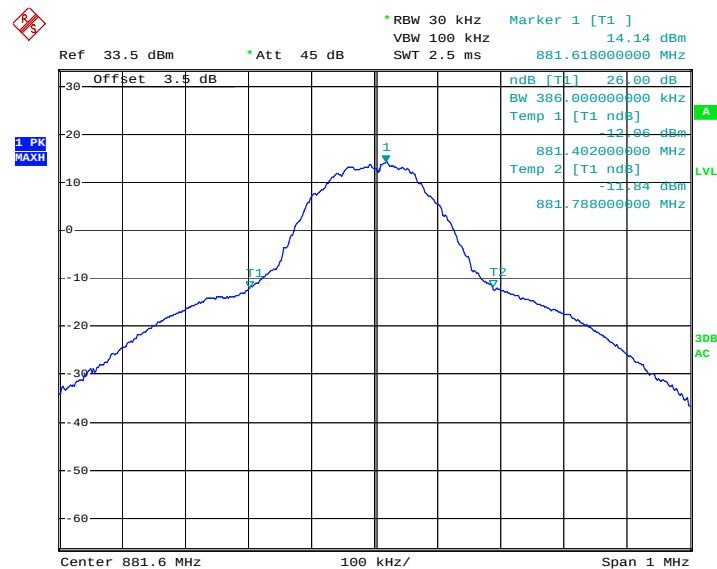
Date: 9.MAY.2011 17:43:08

Output Signal, 99% Bandwidth, 8PSK



Date: 9.MAY.2011 15:06:34

Output Signal, 26 dB Bandwidth, 8PSK

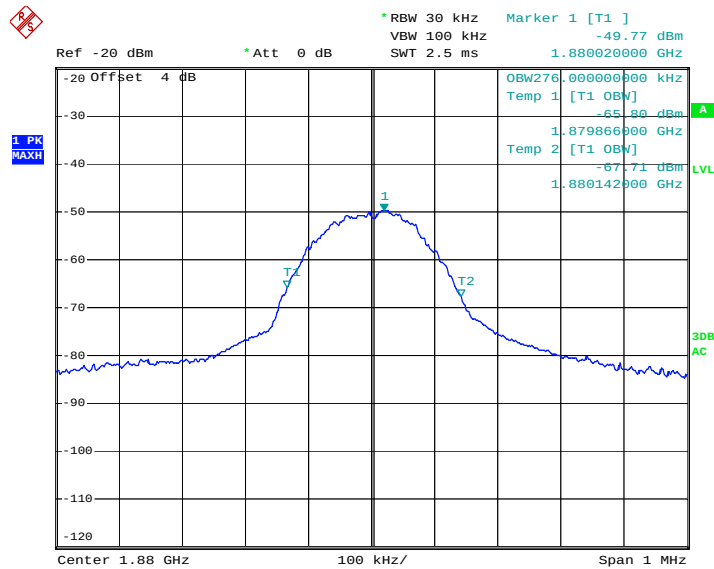


Date: 9.MAY.2011 15:05:36

PCS Band (Part 24E)

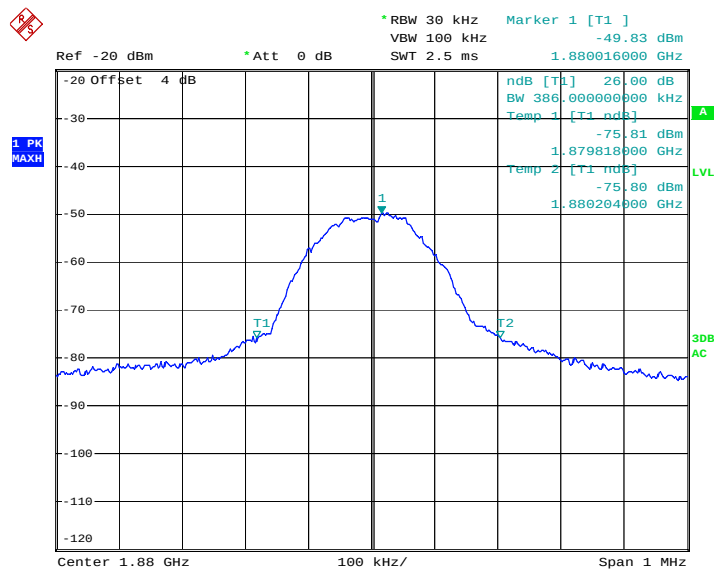
Uplink mode:

Input Signal, 99% Bandwidth, 8PSK



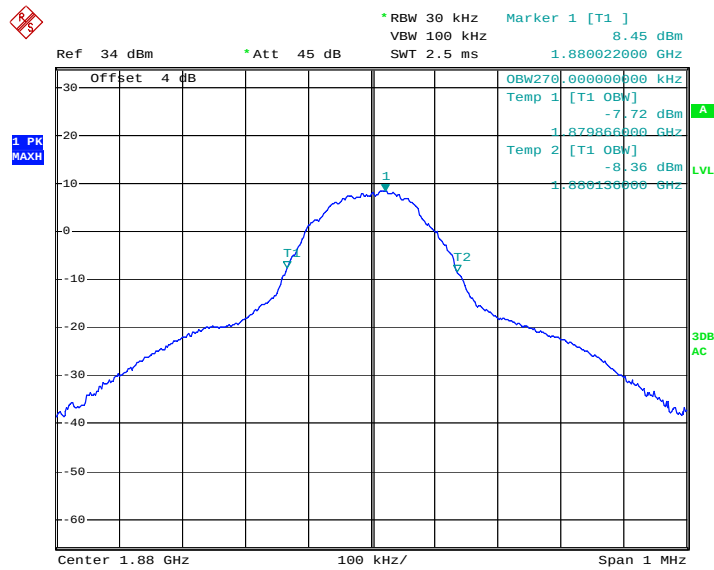
Date: 13.MAY.2011 14:17:14

Input Signal, 26 dB Bandwidth, 8PSK



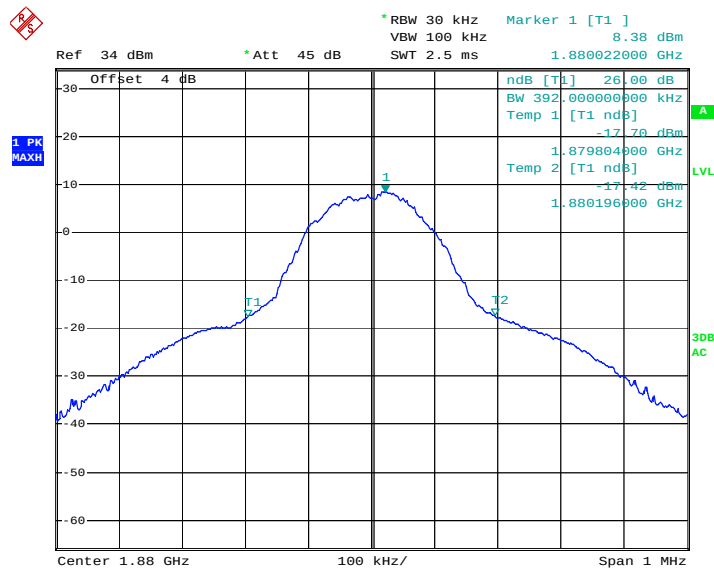
Date: 13.MAY.2011 14:18:09

Output Signal, 99% Bandwidth, 8PSK



Date: 9.MAY.2011 14:35:19

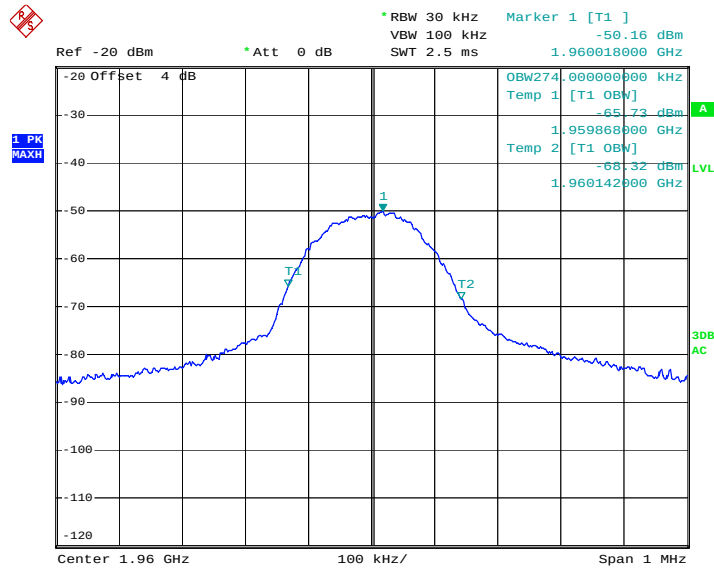
Output Signal, 26 dB Bandwidth, 8PSK



Date: 9.MAY.2011 14:40:43

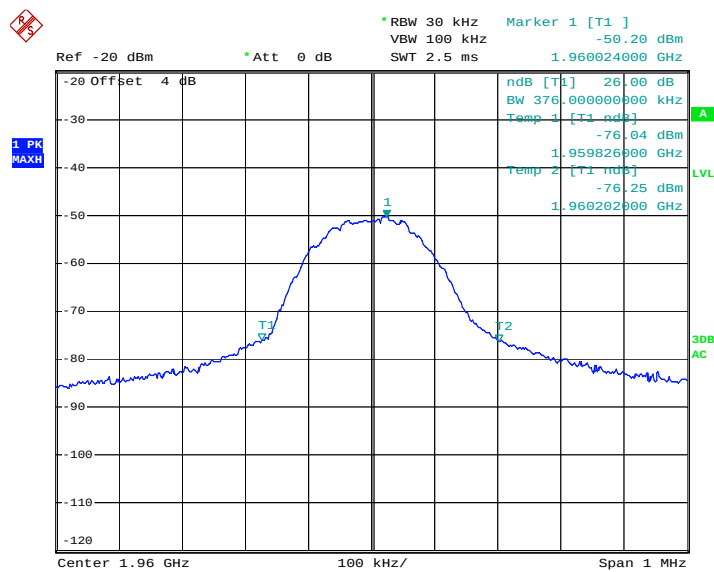
Downlink mode:

Input Signal, 99% Bandwidth, 8PSK



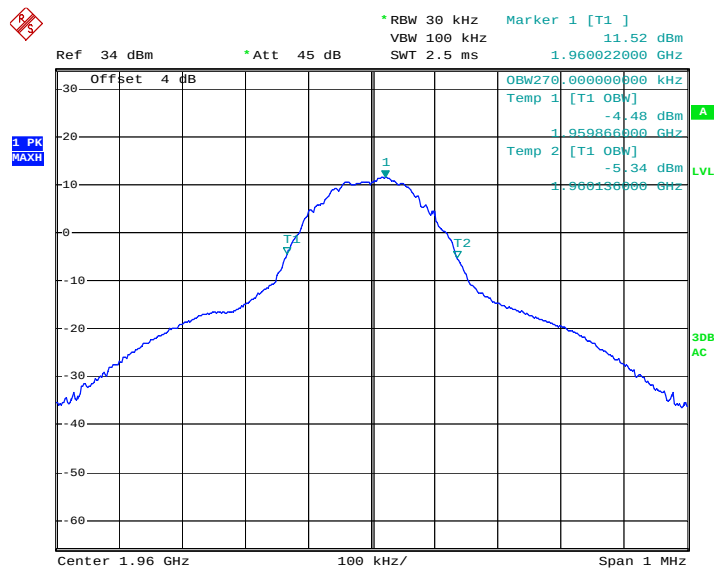
Date: 13.MAY.2011 14:23:28

Input Signal, 26 dB Bandwidth, 8PSK



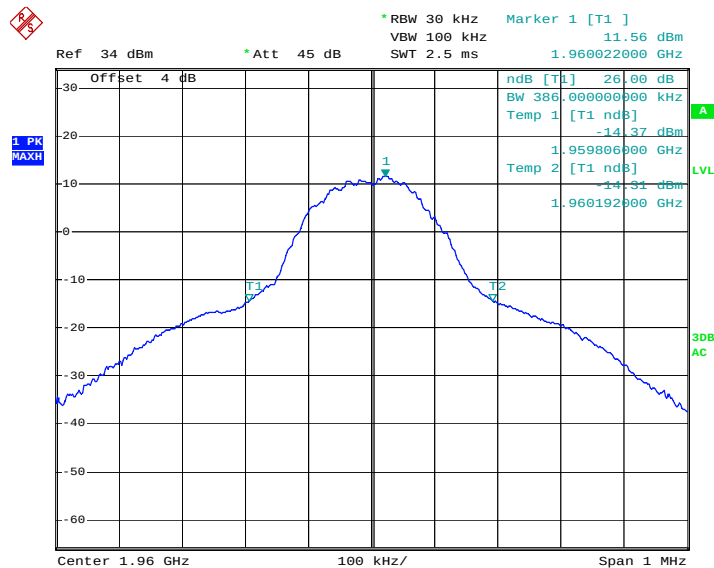
Date: 13.MAY.2011 14:24:33

Output Signal, 99% Bandwidth, 8PSK

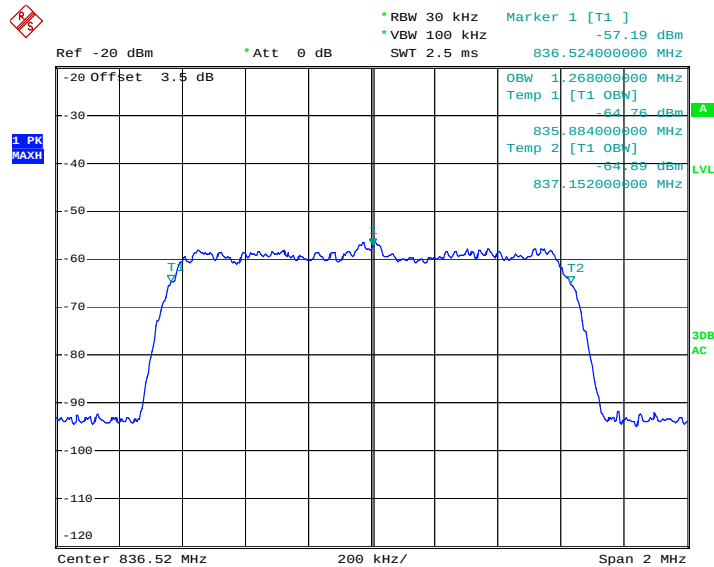


Date: 9.MAY.2011 15:09:10

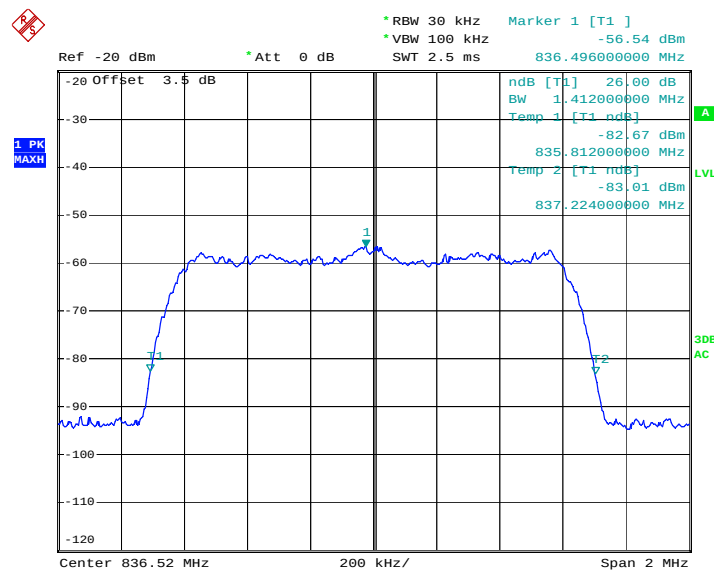
Output Signal, 26 dB Bandwidth, 8PSK



Date: 9.MAY.2011 15:10:06

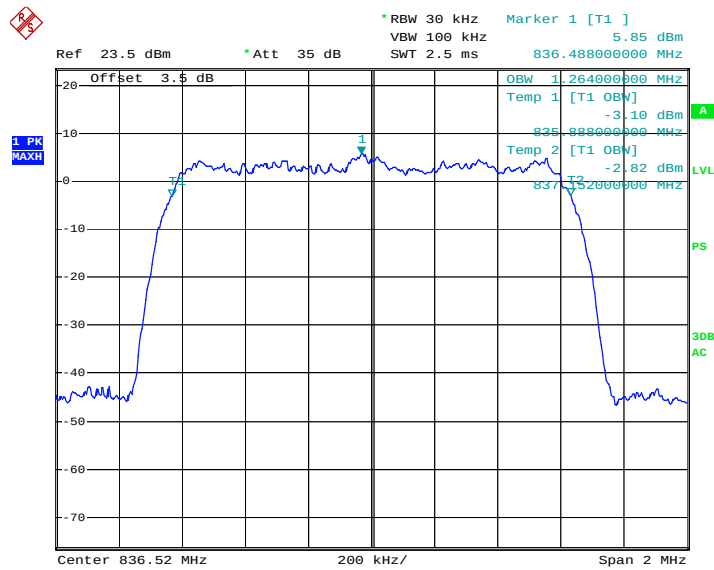
CDMA: Cellular Band (Part 22H)**Uplink mode:****Input Signal, 99% Bandwidth, CDMA2000**

Date: 12.JUN.2011 15:14:14

Input Signal, 26 dB Bandwidth, CDMA2000

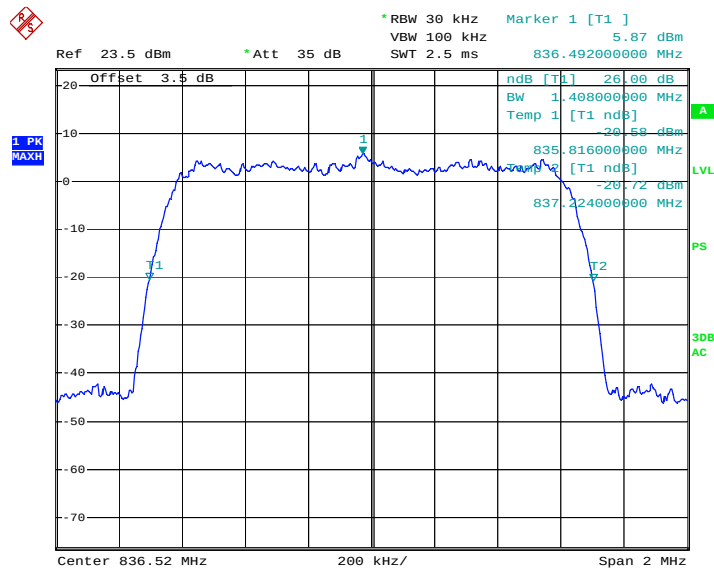
Date: 12.JUN.2011 15:21:27

Output Signal, 99% Bandwidth, CDMA2000



Date: 12.JUN.2011 18:14:53

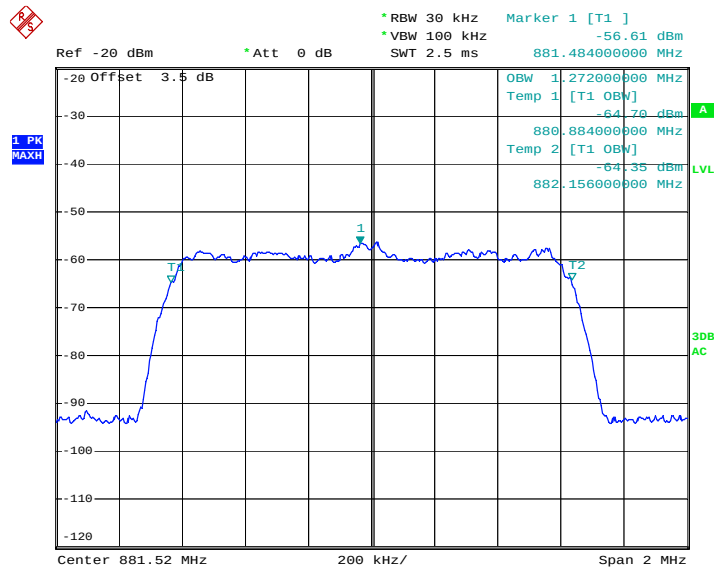
Output Signal, 26 dB Bandwidth, CDMA2000



Date: 12.JUN.2011 18:15:20

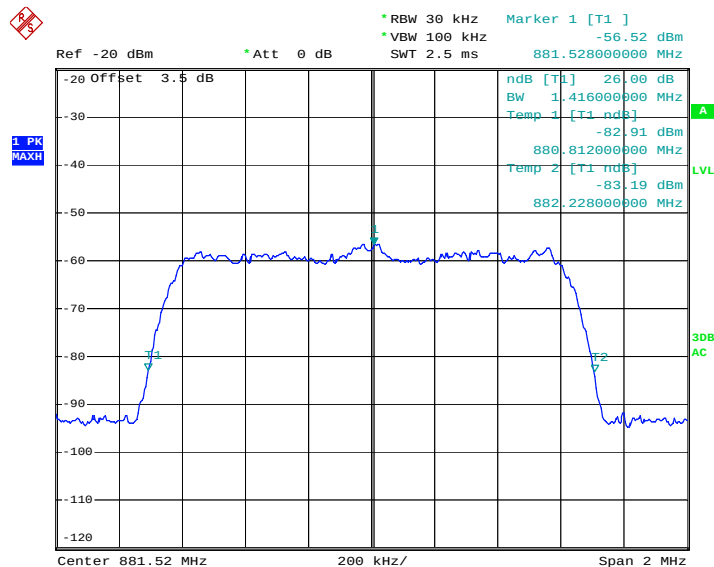
Downlink mode:

Input Signal, 99% Bandwidth, CDMA2000



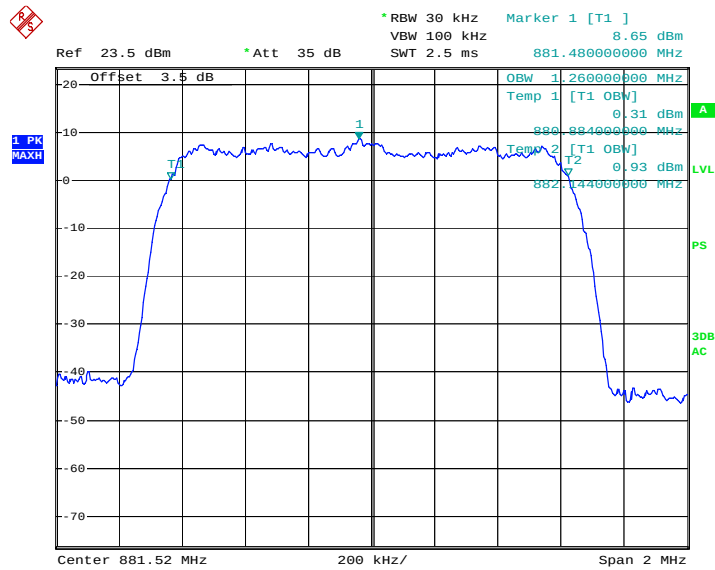
Date: 12.JUN.2011 15:17:04

Input Signal, 26 dB Bandwidth, CDMA2000



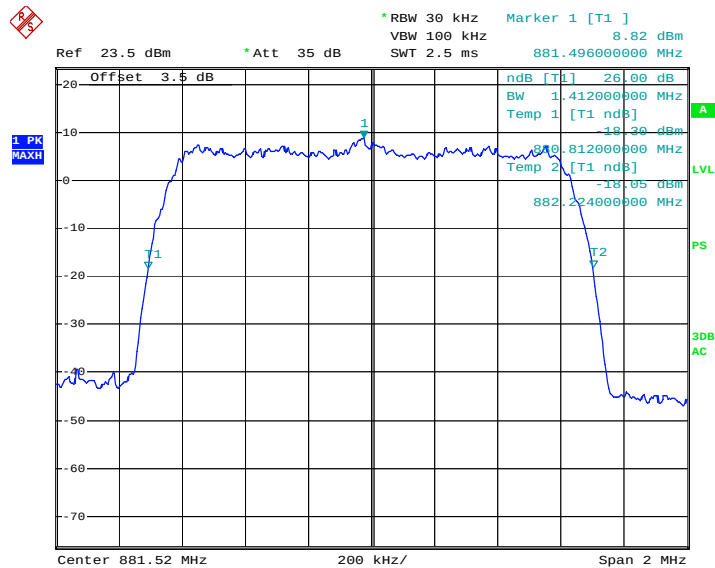
Date: 12.JUN.2011 15:19:22

Output Signal, 99% Bandwidth, CDMA2000



Date: 12.JUN.2011 18:22:17

Output Signal, 26 dB Bandwidth, CDMA2000

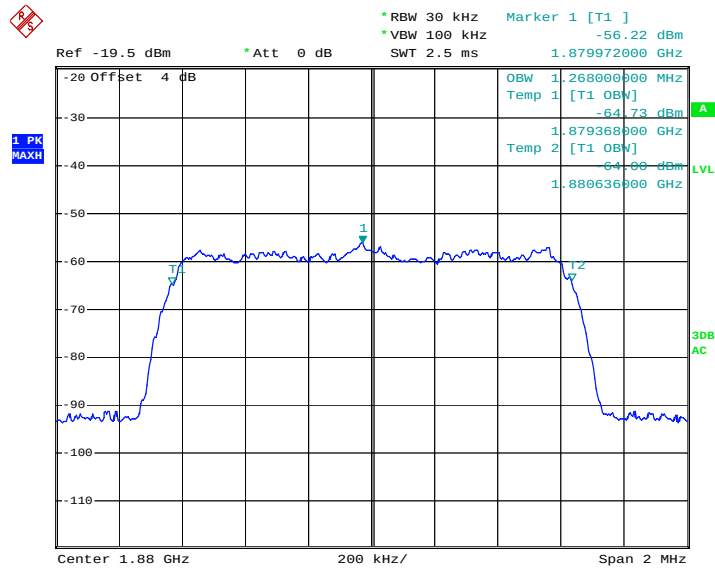


Date: 12.JUN.2011 18:22:45

PCS Band (Part 24E)

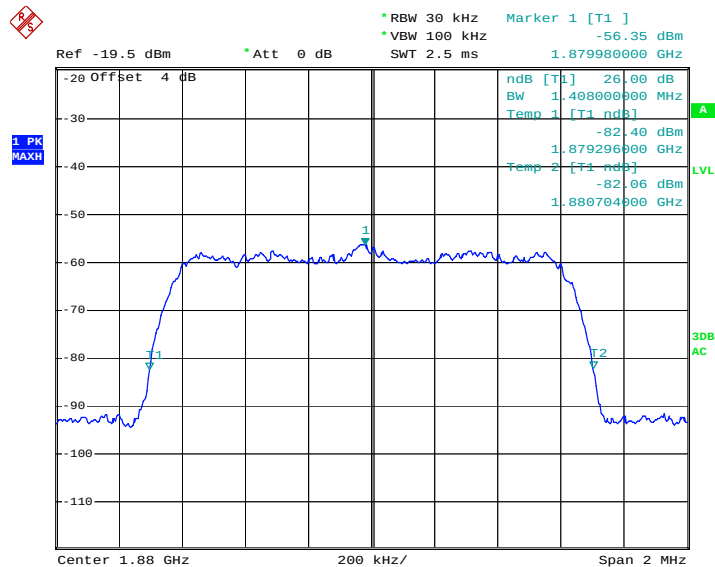
Uplink mode:

Input Signal, 99% Bandwidth, CDMA2000



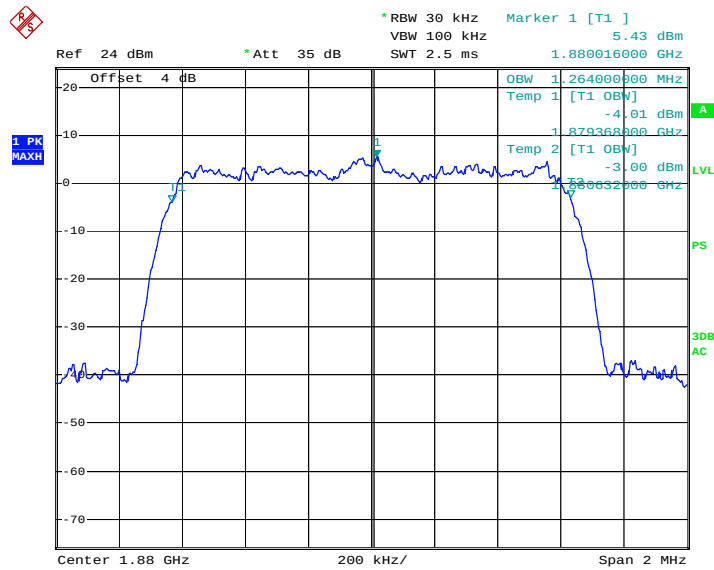
Date: 12.JUN.2011 15:26:34

Input Signal, 26 dB Bandwidth, CDMA2000



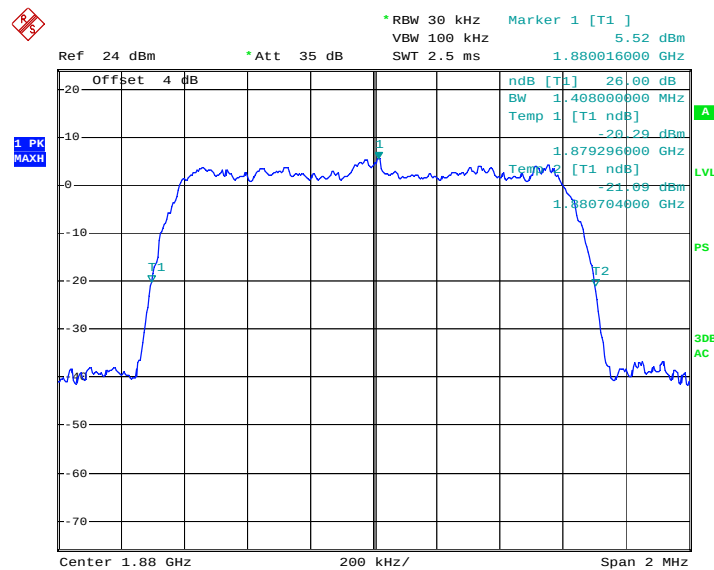
Date: 12.JUN.2011 15:27:06

Output Signal, 99% Bandwidth, CDMA2000



Date: 12.JUN.2011 18:33:11

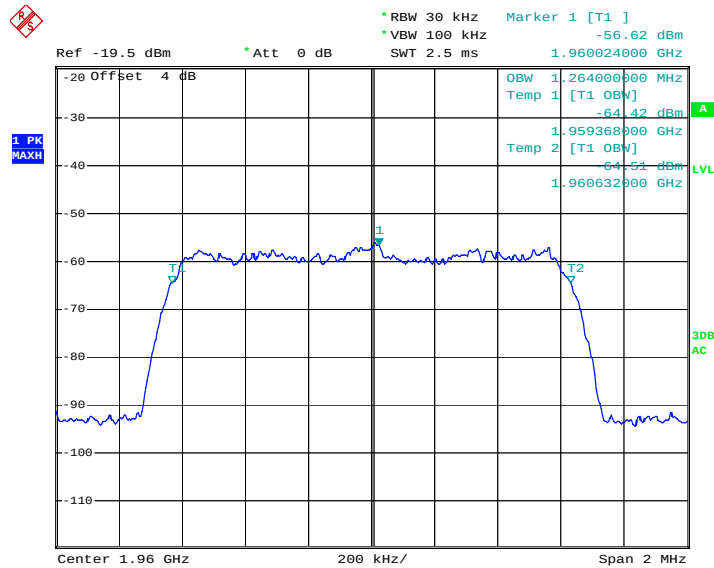
Output Signal, 26 dB Bandwidth, CDMA2000



Date: 12.JUN.2011 18:32:47

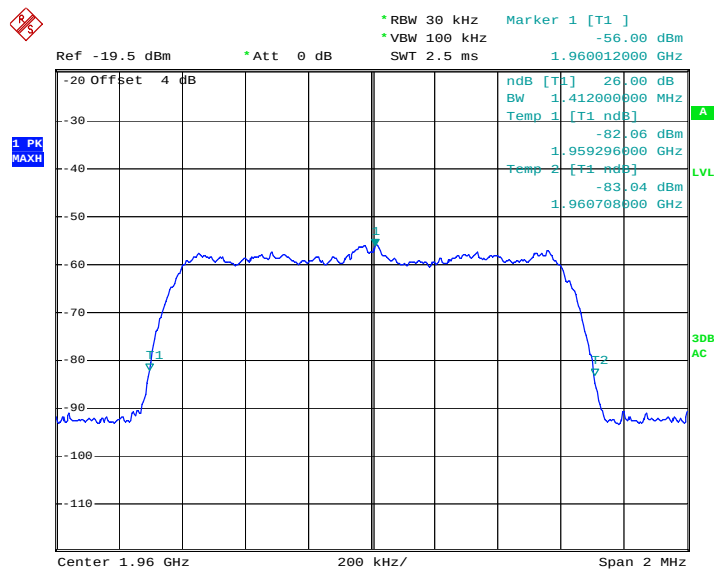
Downlink mode:

Input Signal, 99% Bandwidth, CDMA2000



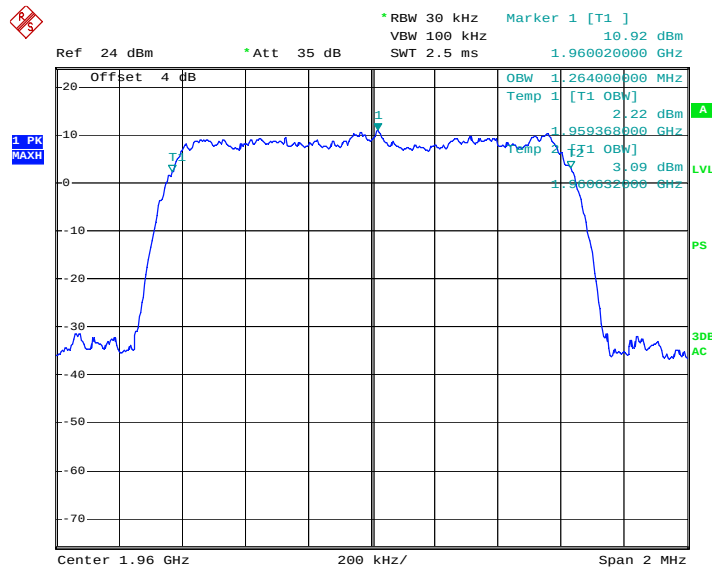
Date: 12.JUN.2011 15:32:44

Input Signal, 26 dB Bandwidth, CDMA2000



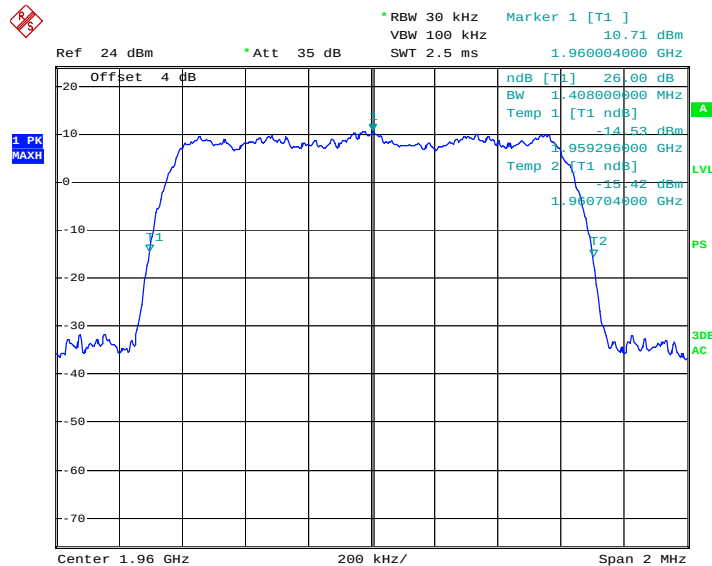
Date: 12.JUN.2011 15:32:17

Output Signal, 99% Bandwidth, CDMA2000



Date: 12.JUN.2011 18:28:21

Output Signal, 26 dB Bandwidth, CDMA2000

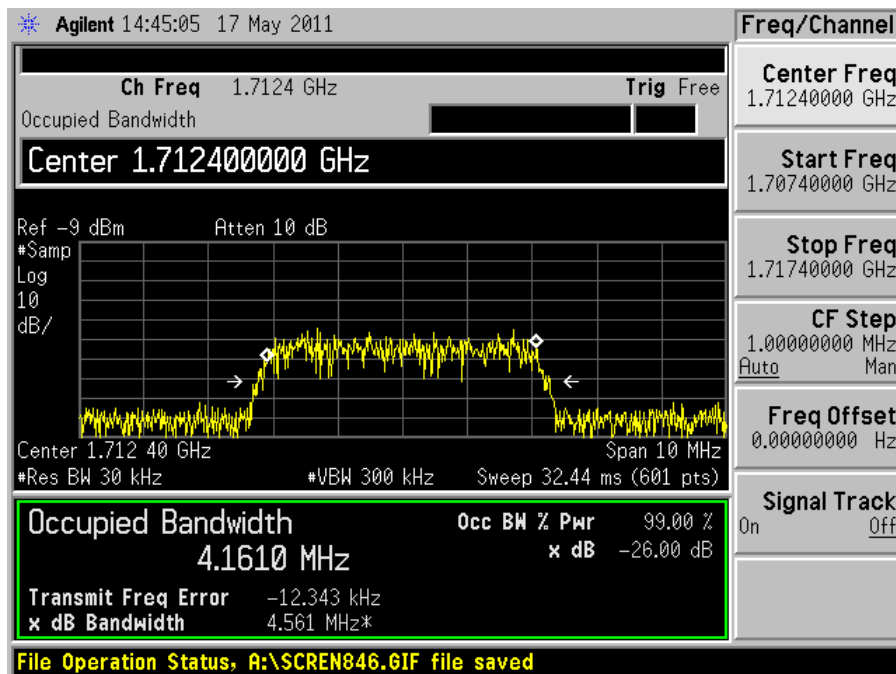


Date: 12.JUN.2011 18:28:58

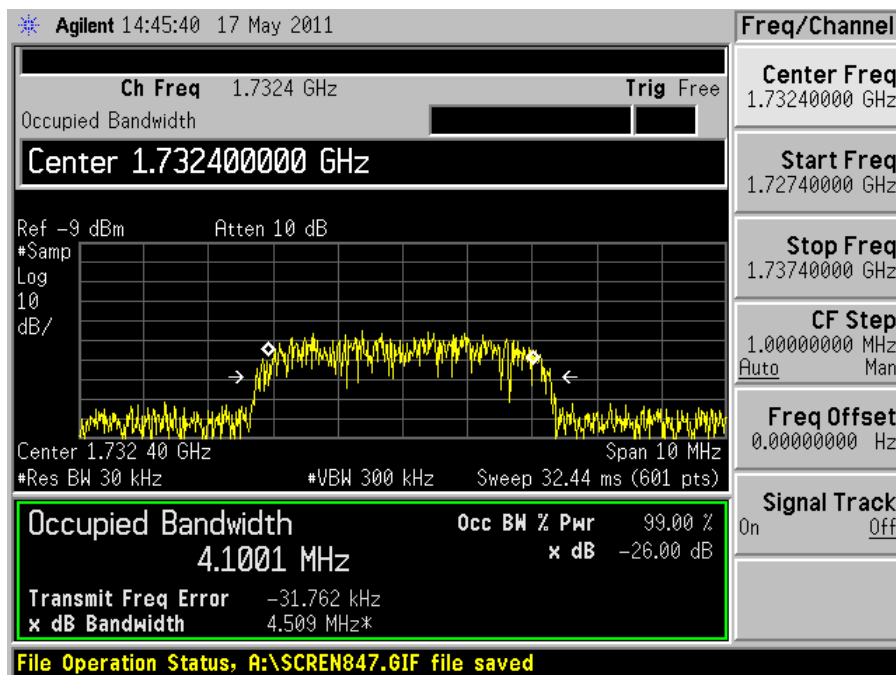
WCDMA AWS Band (PART 27)

Uplink mode:

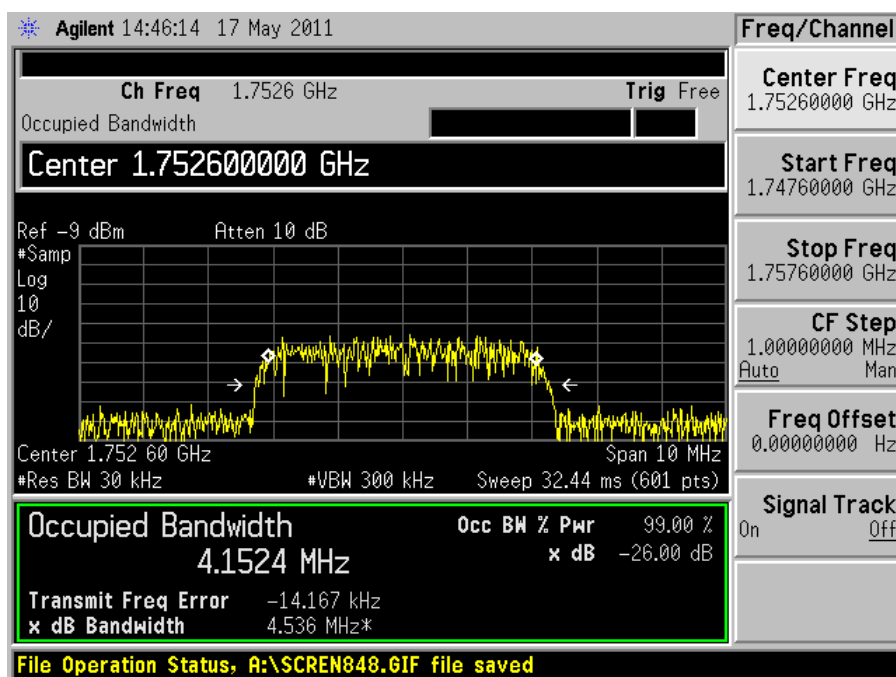
Input Signal Level and Spectrum Shape, Low channel



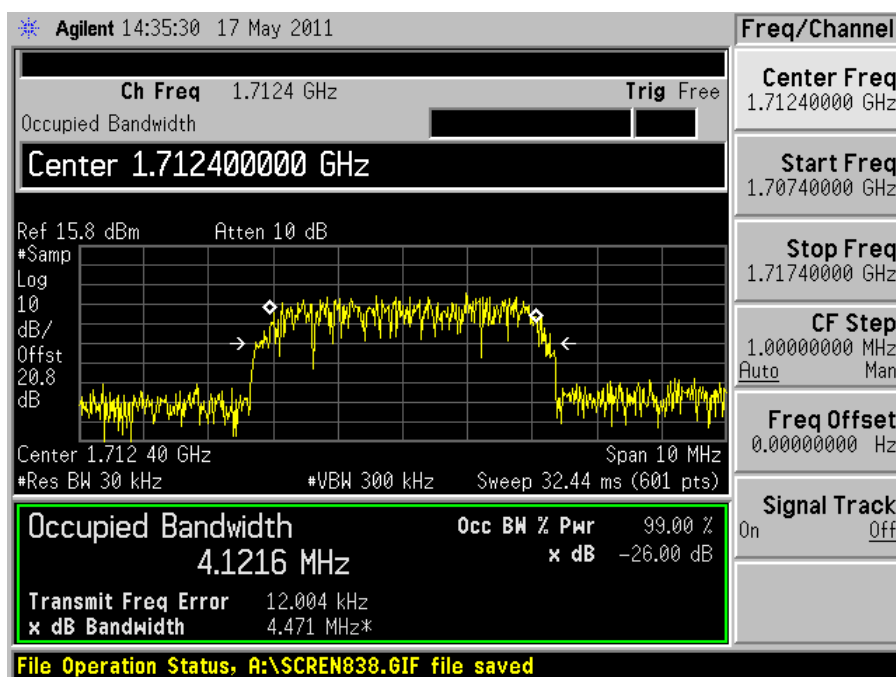
Input Signal Level and Spectrum Shape, Middle channel



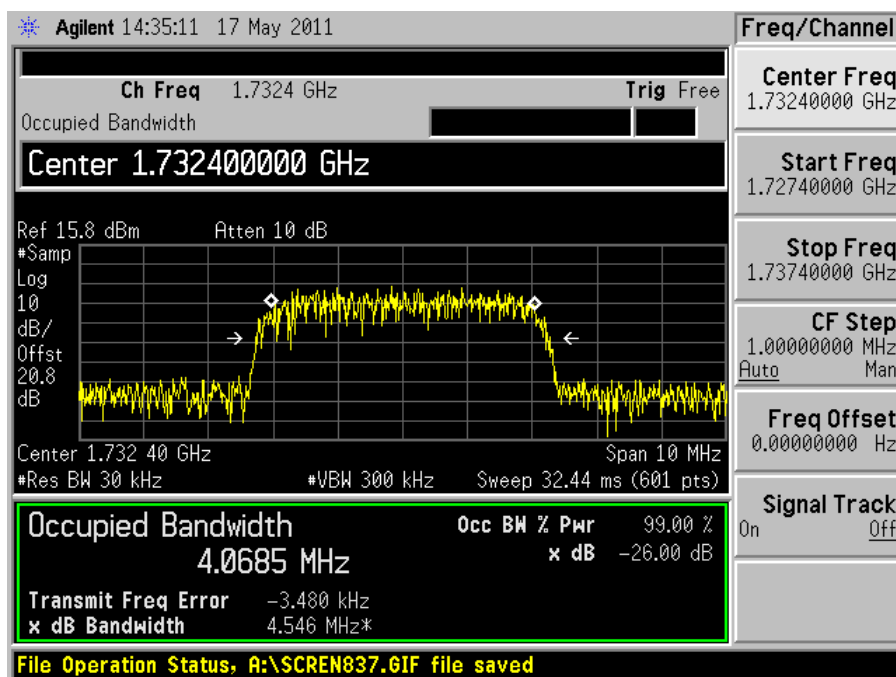
Input Signal Level and Spectrum Shape, High channel



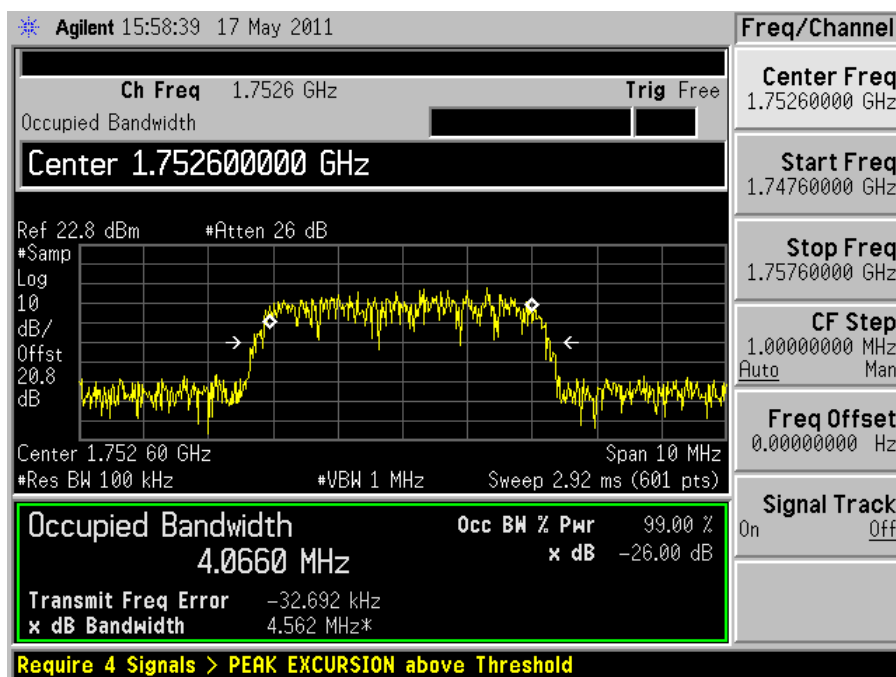
Output Signal Level and Spectrum Shape, Low channel



Output Signal Level and Spectrum Shape, Middle channel

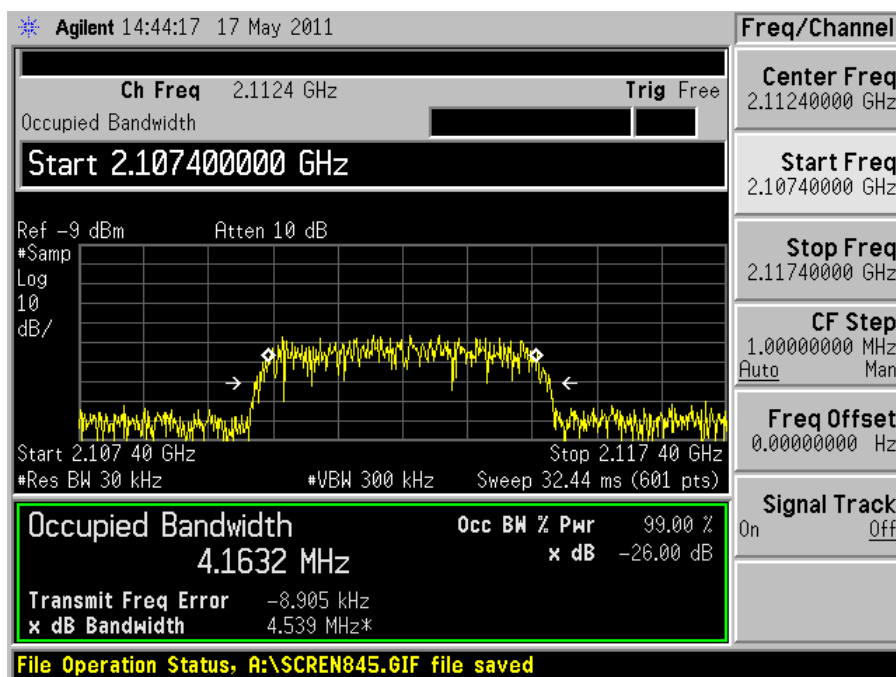


Output Signal Level and Spectrum Shape, high channel

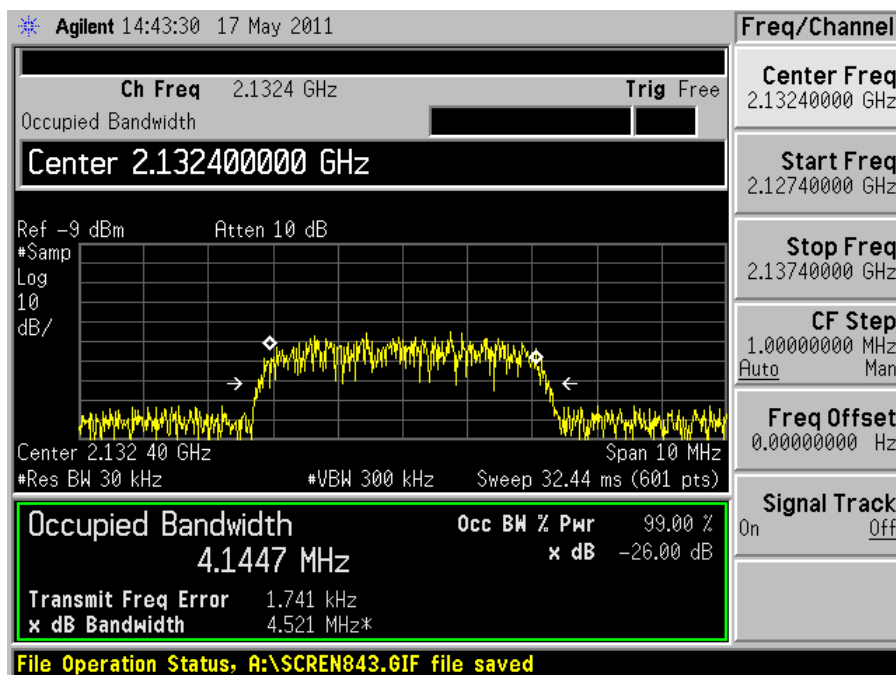


Downlink mode:

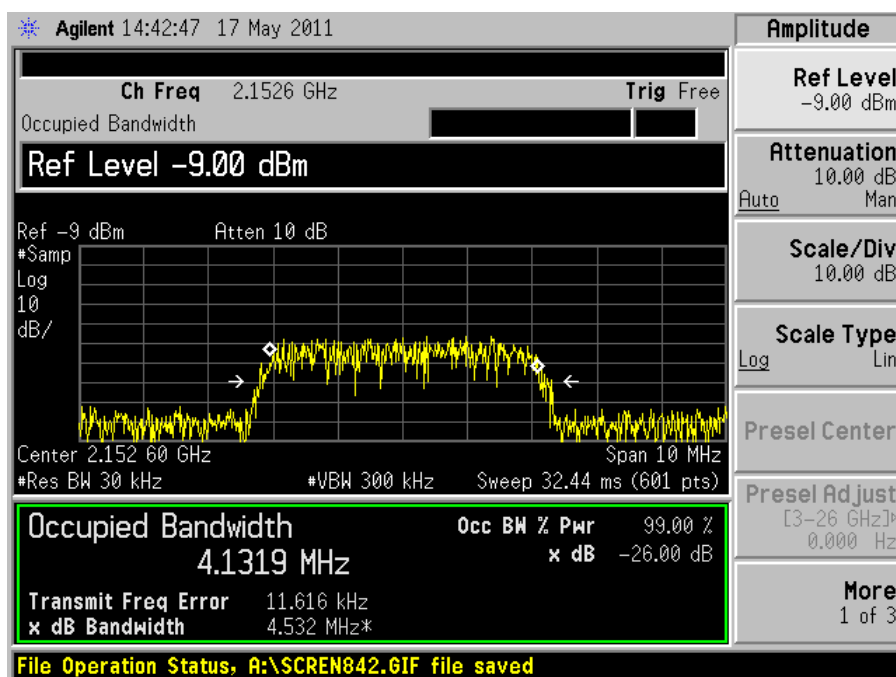
Input Signal Level and Spectrum Shape, Low channel



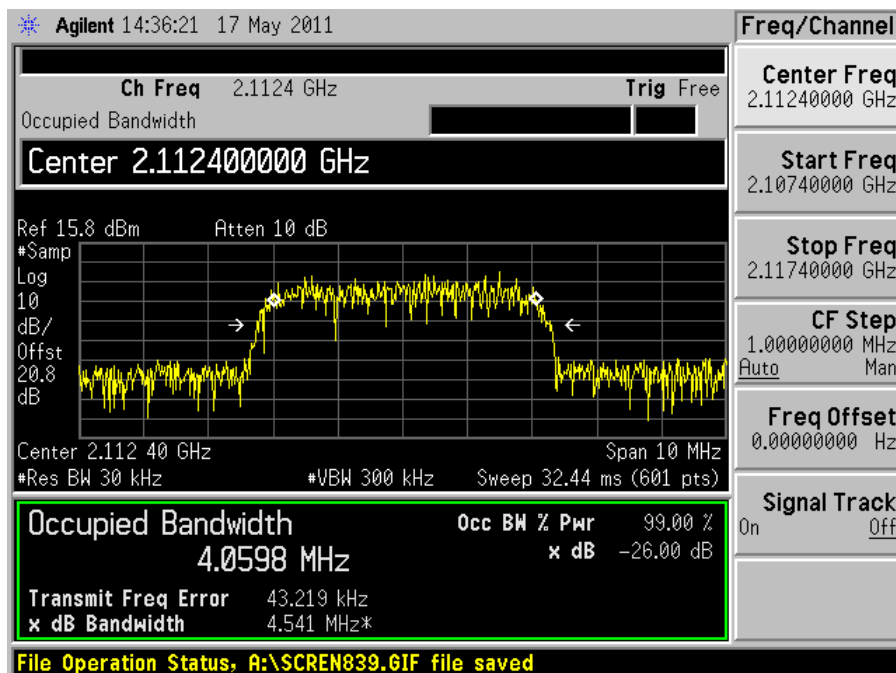
Input Signal Level and Spectrum Shape, Middle channel



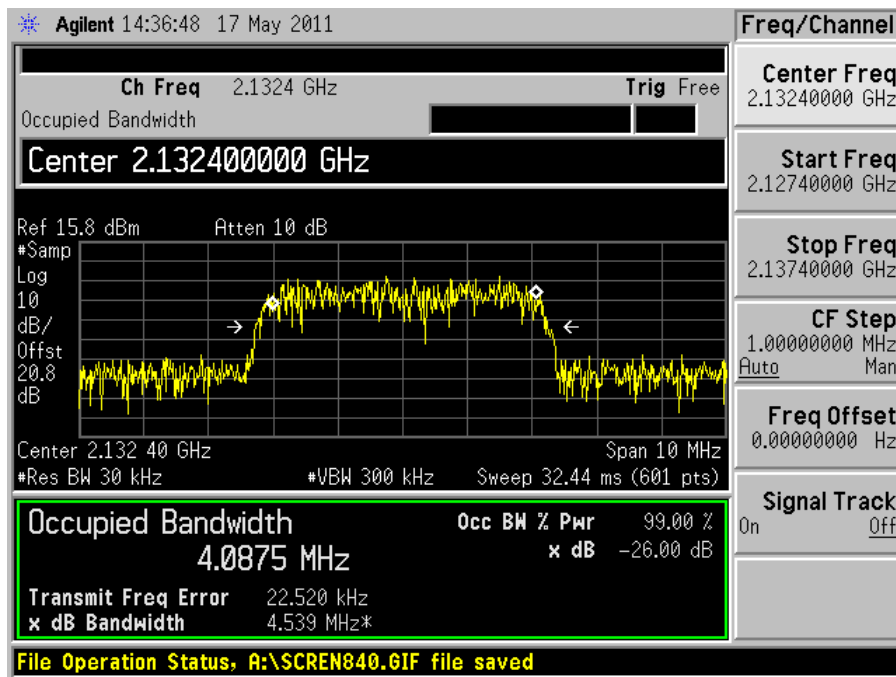
Input Signal Level and Spectrum Shape, High channel



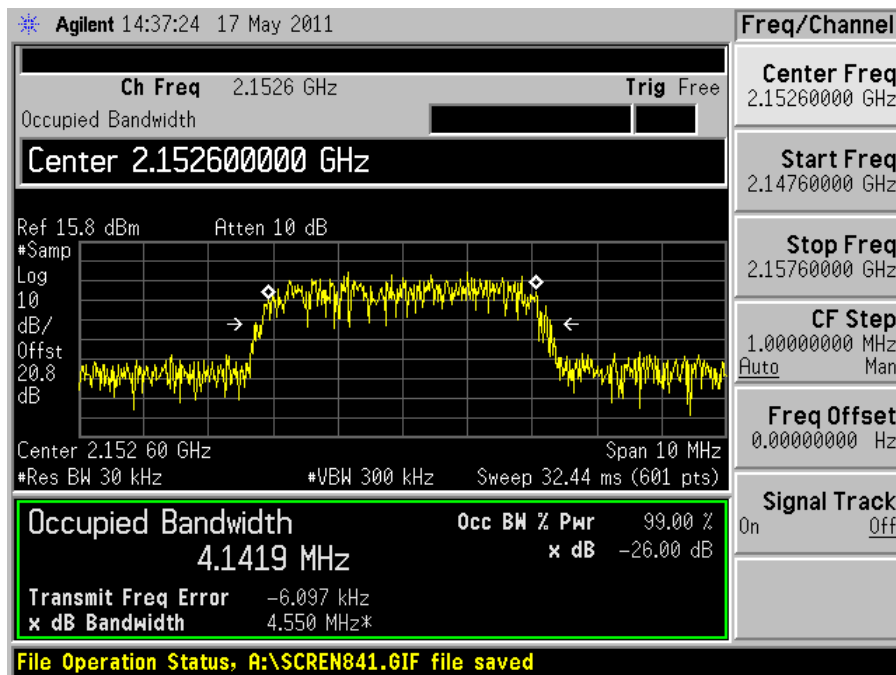
Output Signal Level and Spectrum Shape, Low channel



Output Signal Level and Spectrum Shape, Middle channel



Output Signal Level and Spectrum Shape, High channel



FCC §2.1051, §22.917(a), §24.238(a) & §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

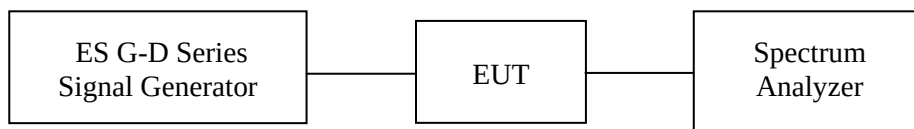
Applicable Standards

FCC §2.1051, §22.917(a), §24.238(a) and §27.53.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07
Agilent	ESG-D Series Signal Generator	E4432B	GB40051703	2010-11-20	2011-11-19
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2010-11-11	2011-11-10

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Phoenix Liu on 2011-05-17 to 2011-06-22.

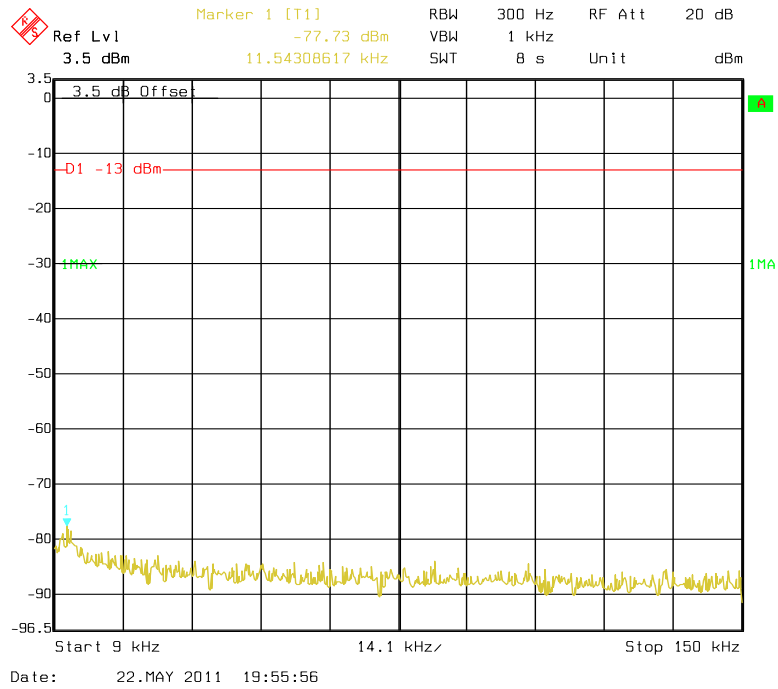
Please refer to the following plots.

Note: GMSK & 8PSK (Based on the pre-scan, GMSK Mode was tested as the worse)

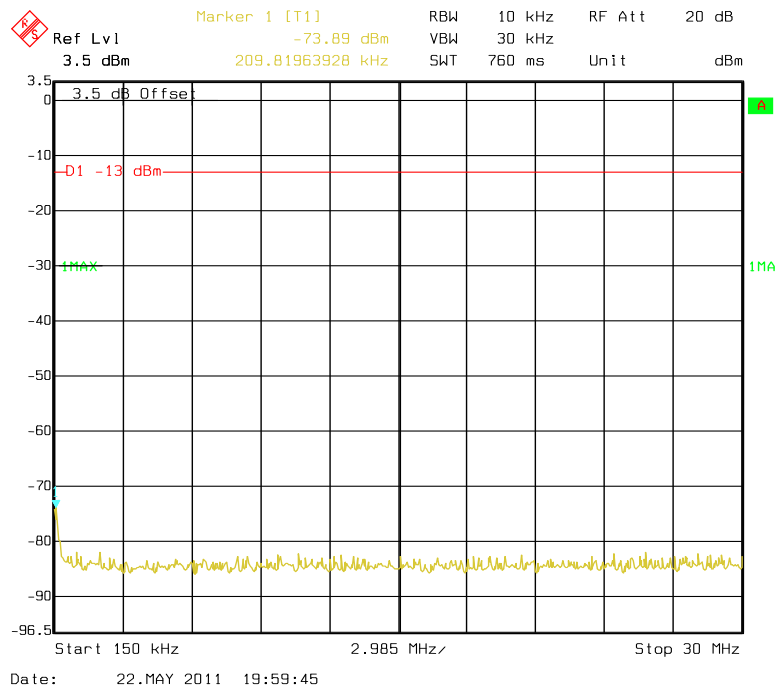
Cellular Band (Part 22H)

Uplink

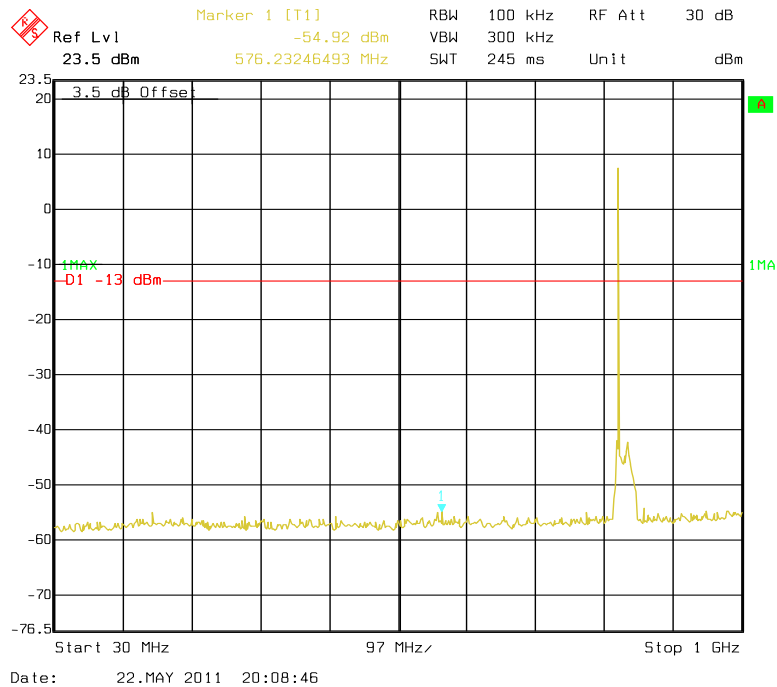
9-150 kHz – Low Channel



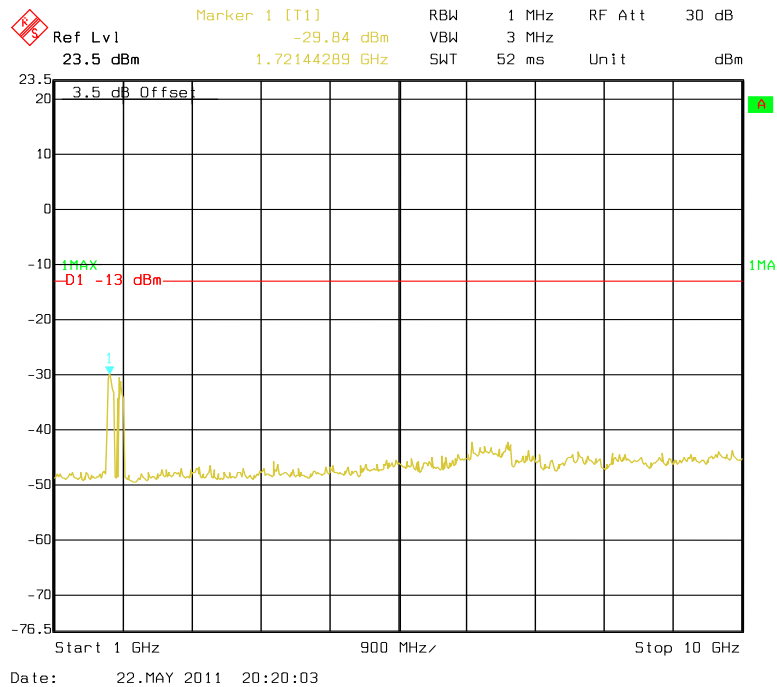
150 kHz – 30 MHz - Low Channel



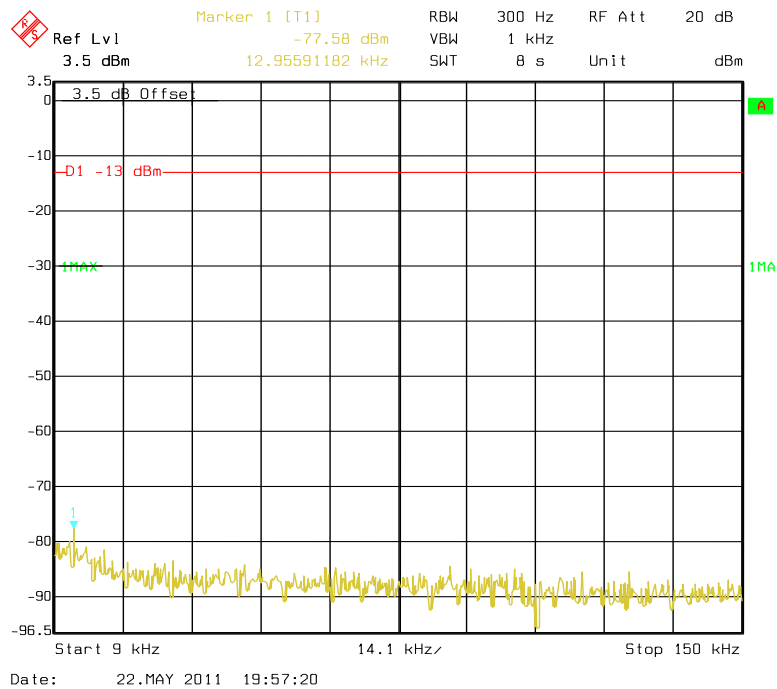
30 – 1000 MHz - Low Channel



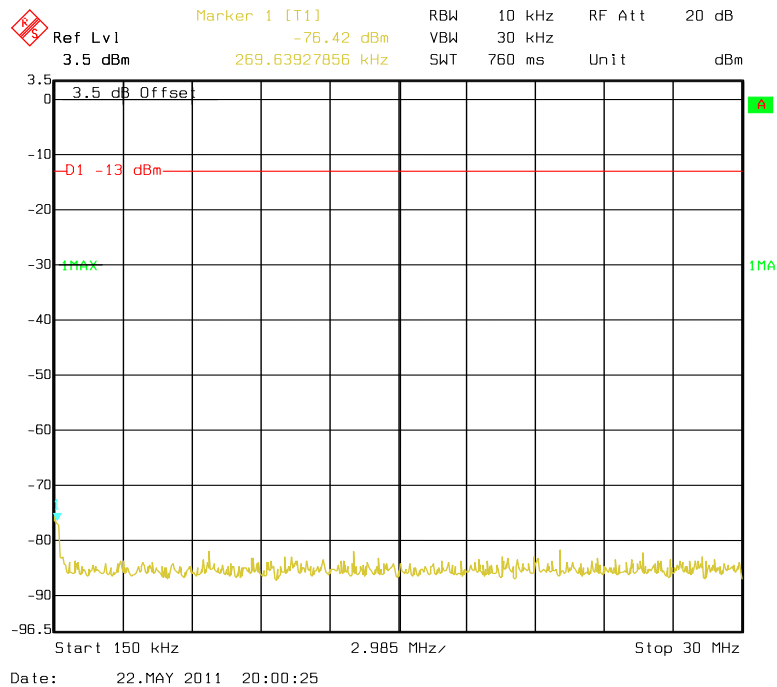
1 – 10 GHz - Low Channel



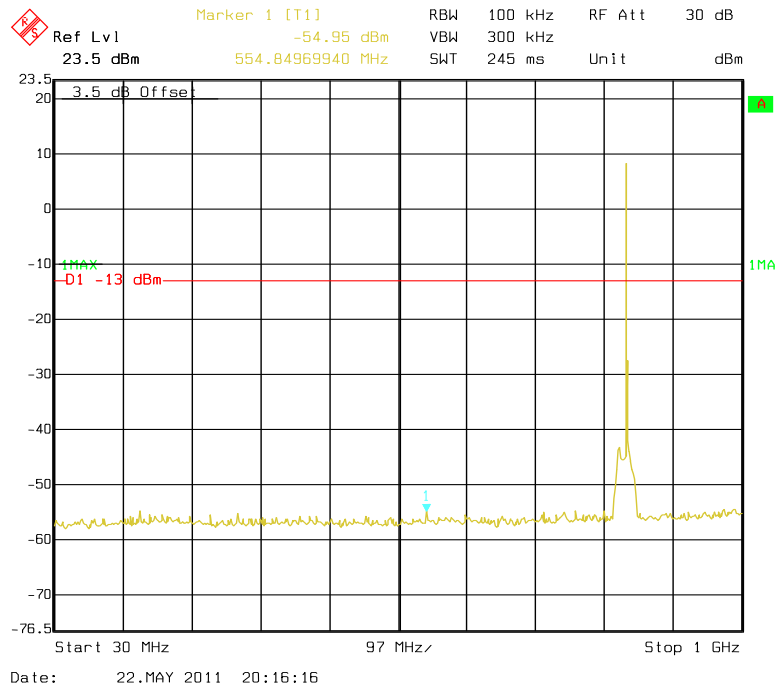
9-150 kHz - Middle Channel



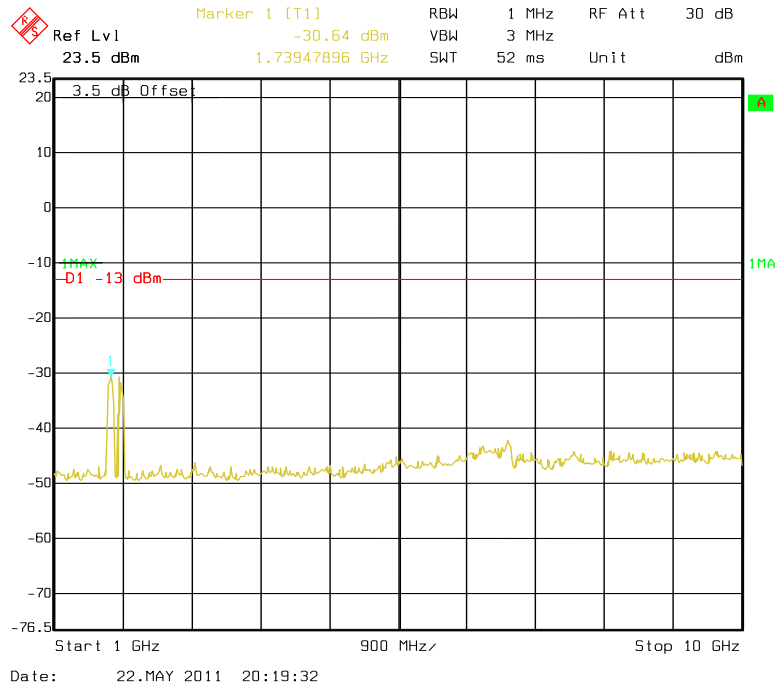
150 kHz – 30 MHz - Middle Channel



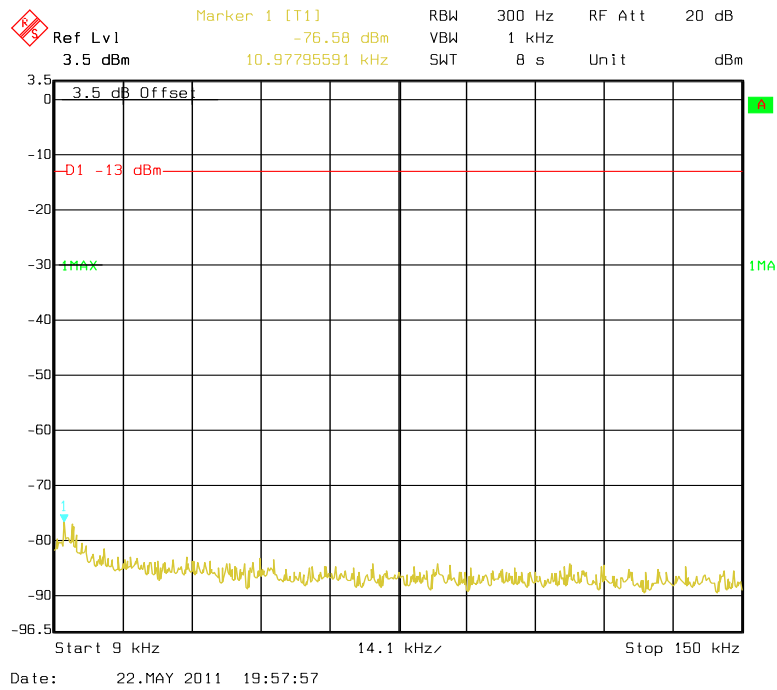
30 – 1000 MHz - Middle Channel



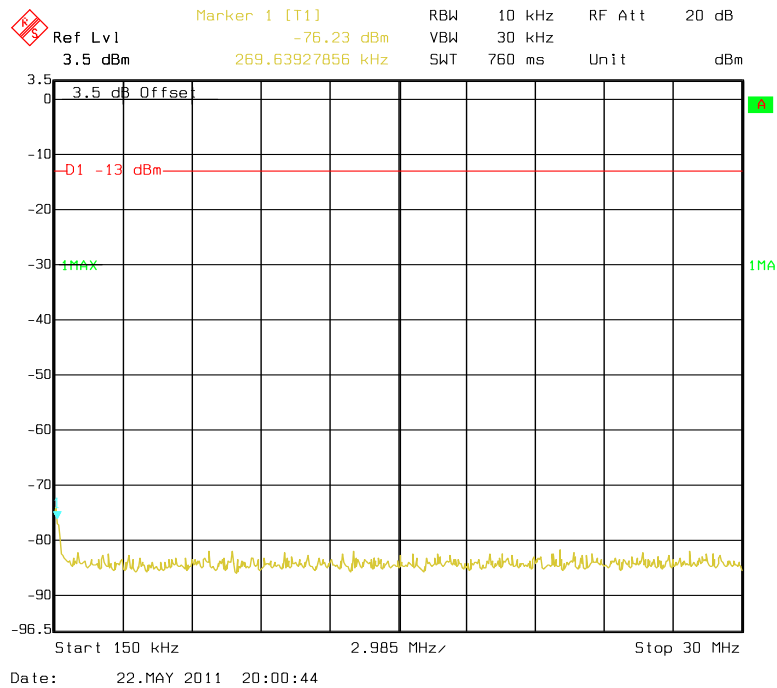
1 – 10 GHz - Middle Channel



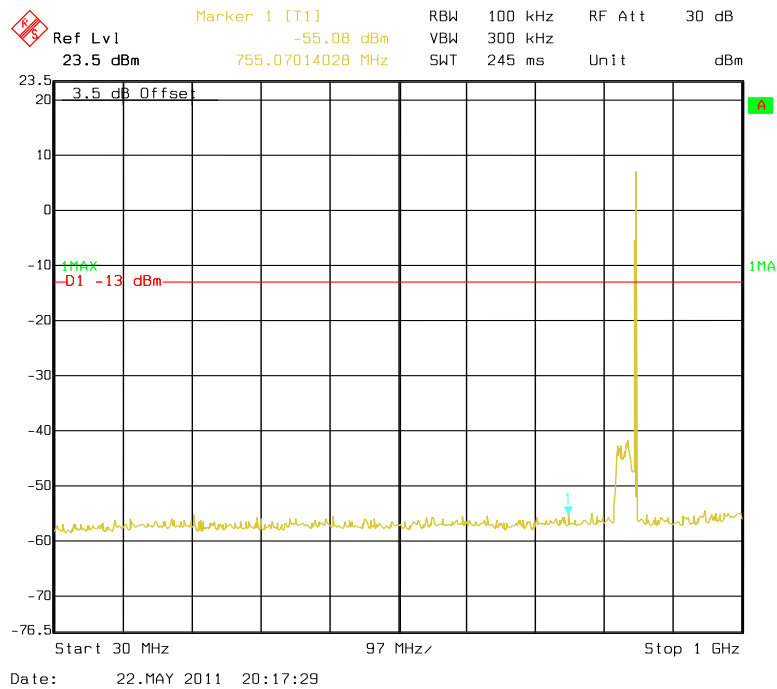
9-150 kHz – High Channel



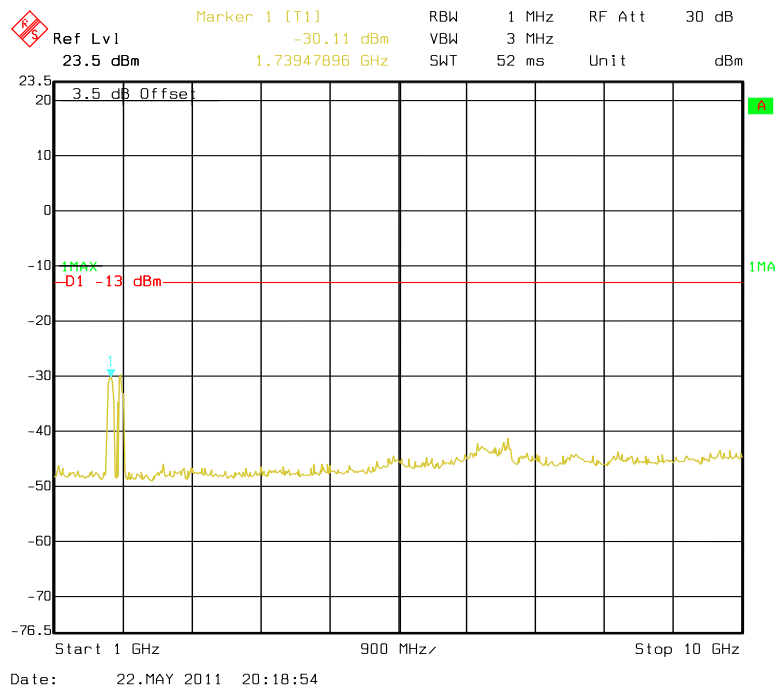
150 kHz – 30 MHz - High Channel



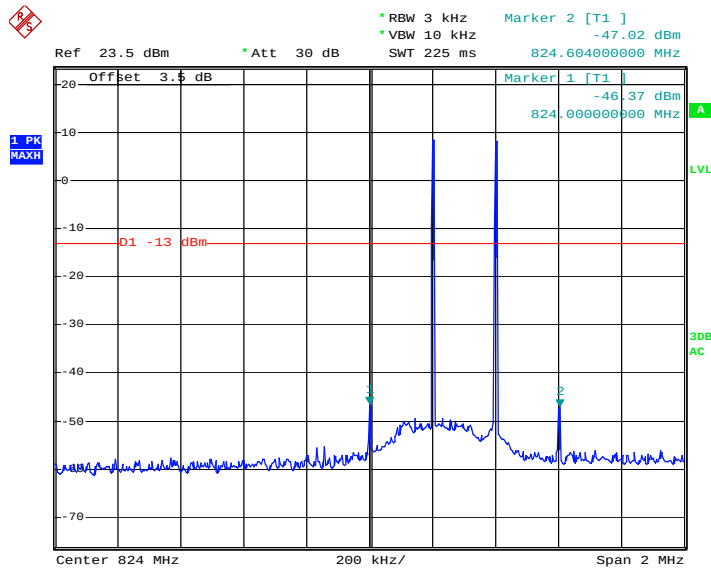
30 – 1000 MHz - High Channel



1 – 10 GHz - High Channel

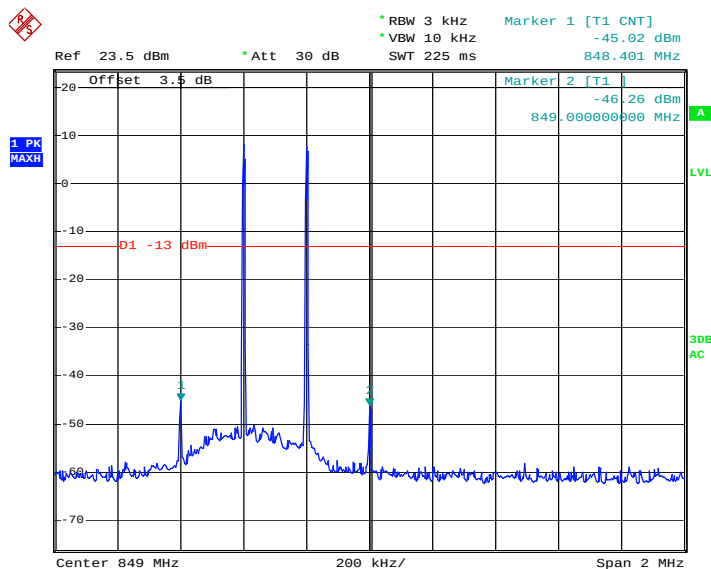


Two tone Inter modulation (Low Band edge), unmodulated



Date: 23.MAY.2011 13:50:10

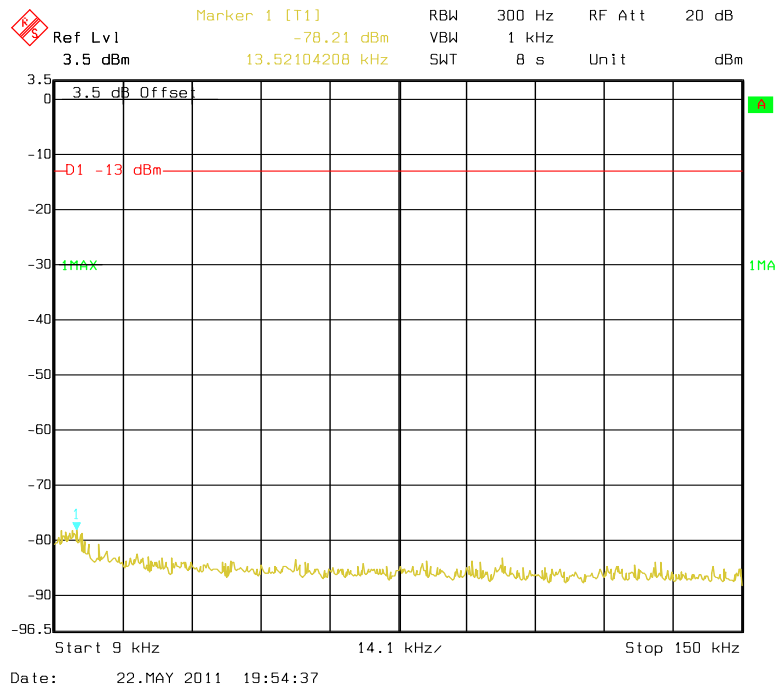
Two tone Inter modulation (High Band edge), unmodulated



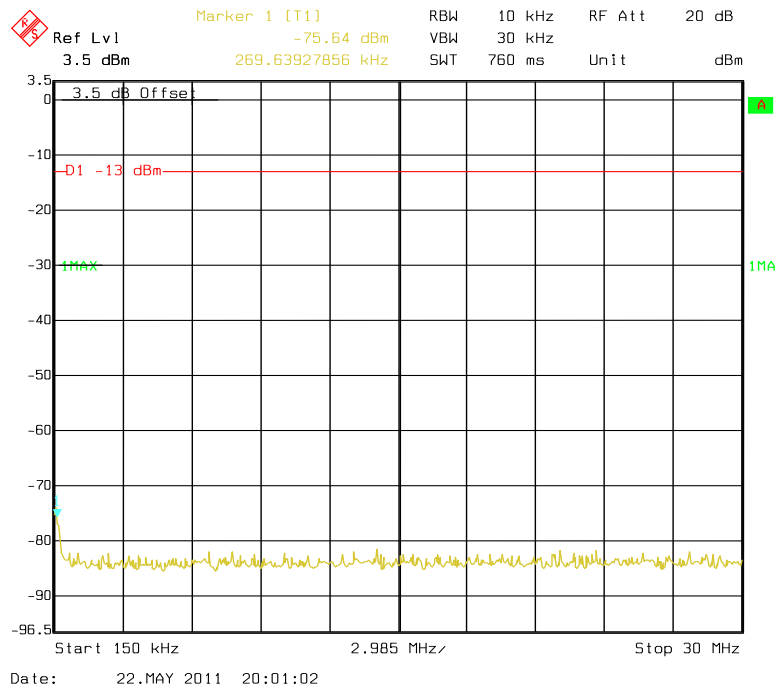
Date: 23.MAY.2011 13:52:02

Downlink

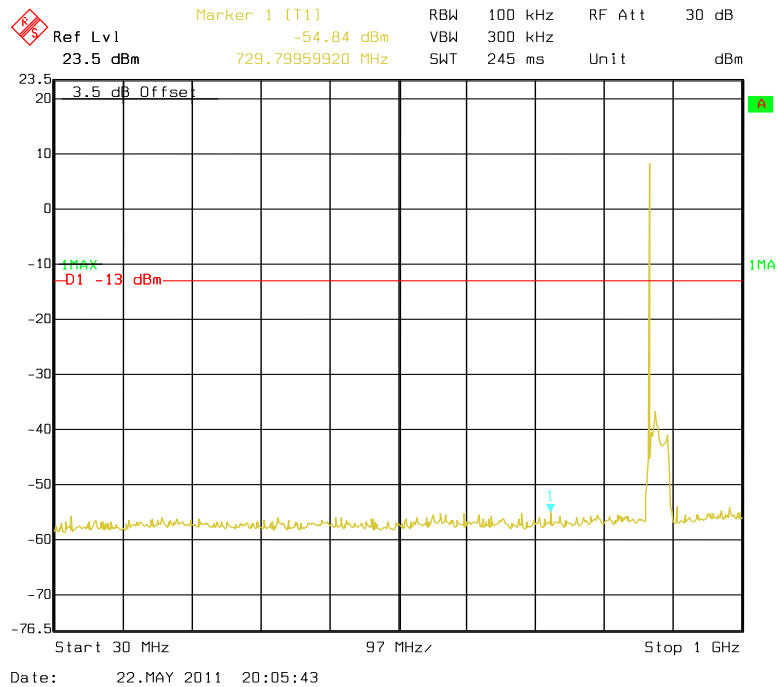
9-150 kHz – Low Channel



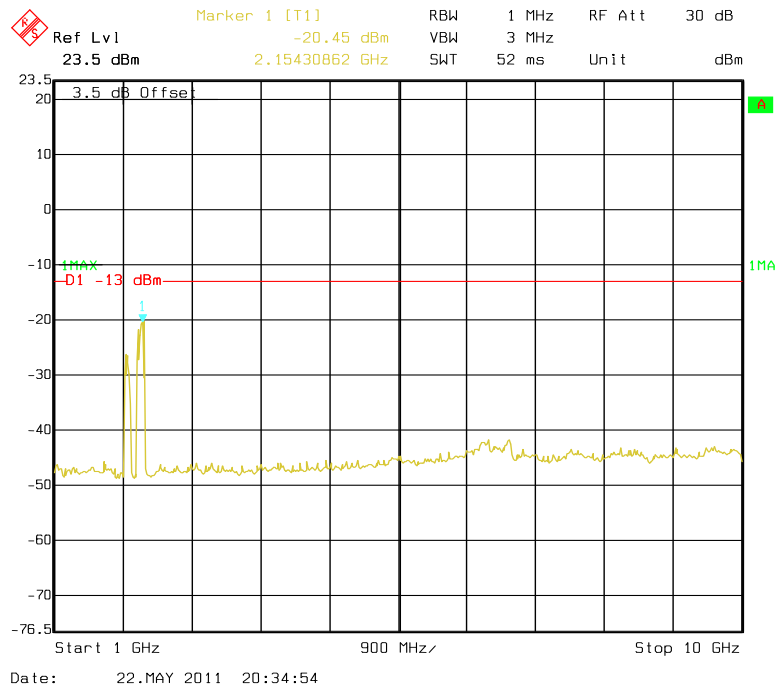
150 kHz – 30 MHz - Low Channel



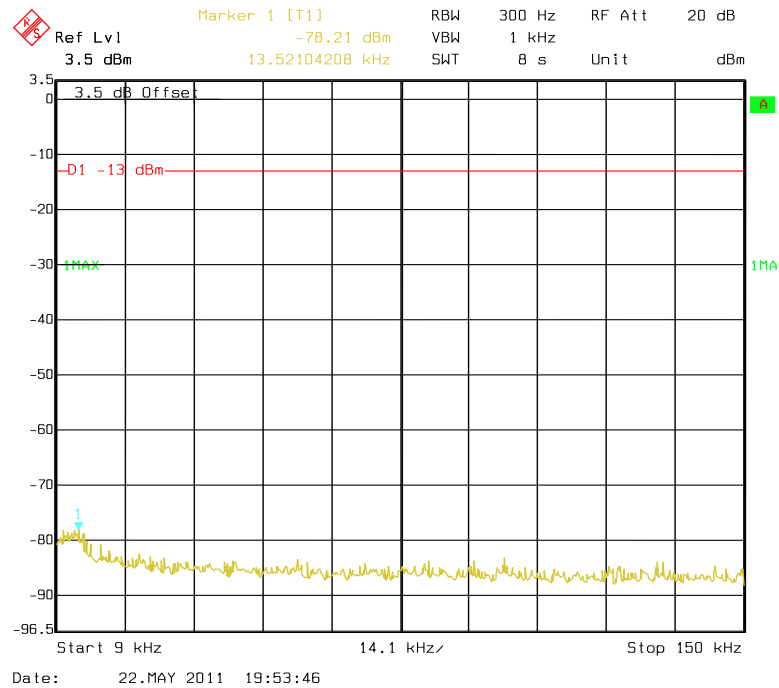
30 – 1000 MHz - Low Channel



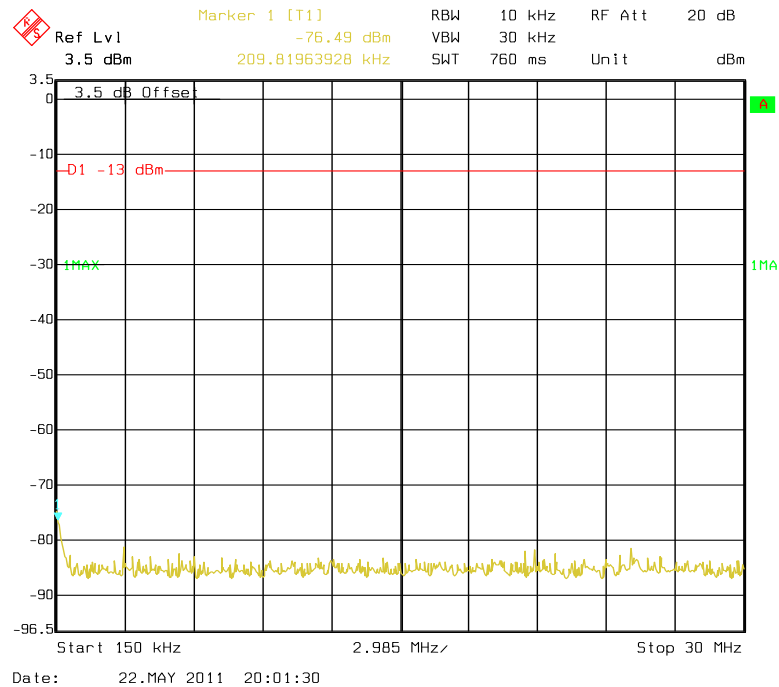
1 – 10 GHz - Low Channel



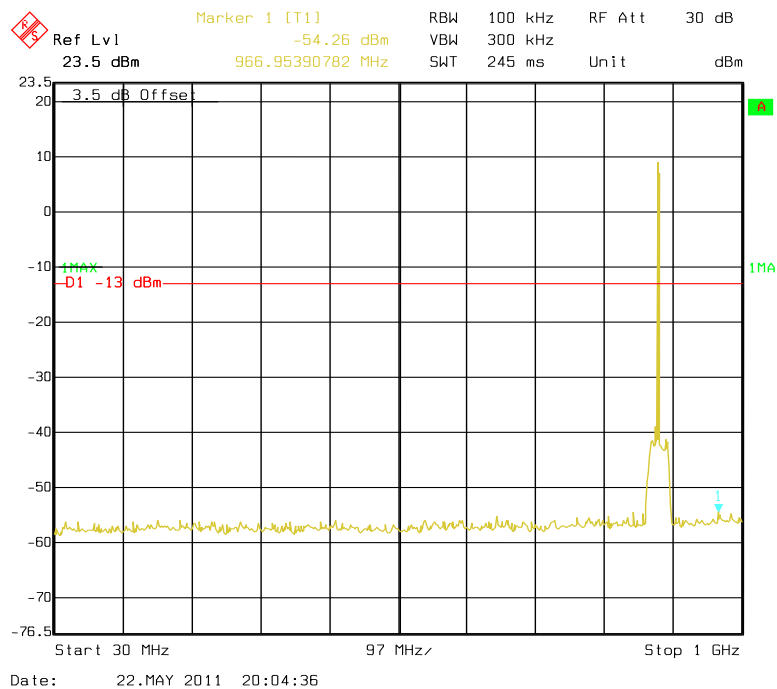
9-150 kHz - Middle Channel



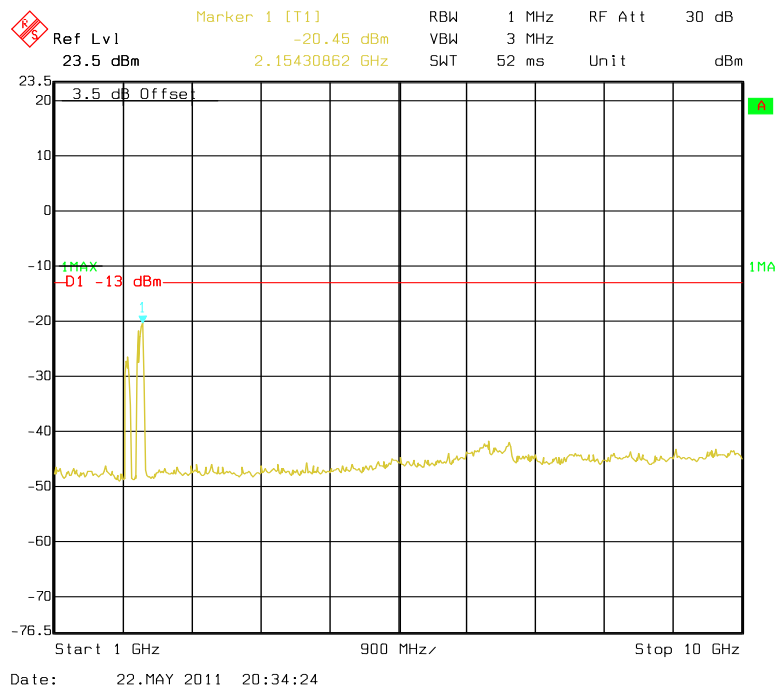
150 kHz – 30 MHz - Middle Channel



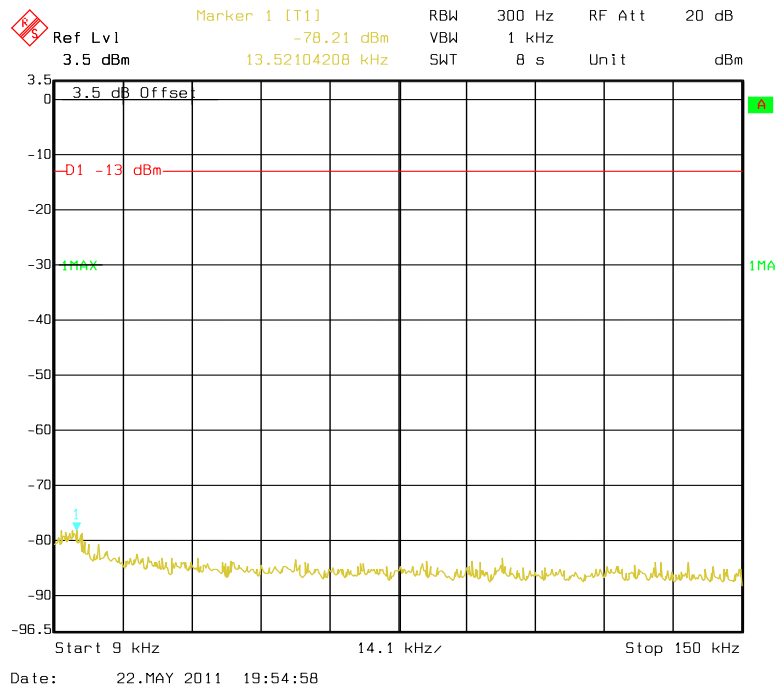
30 – 1000 MHz - Middle Channel



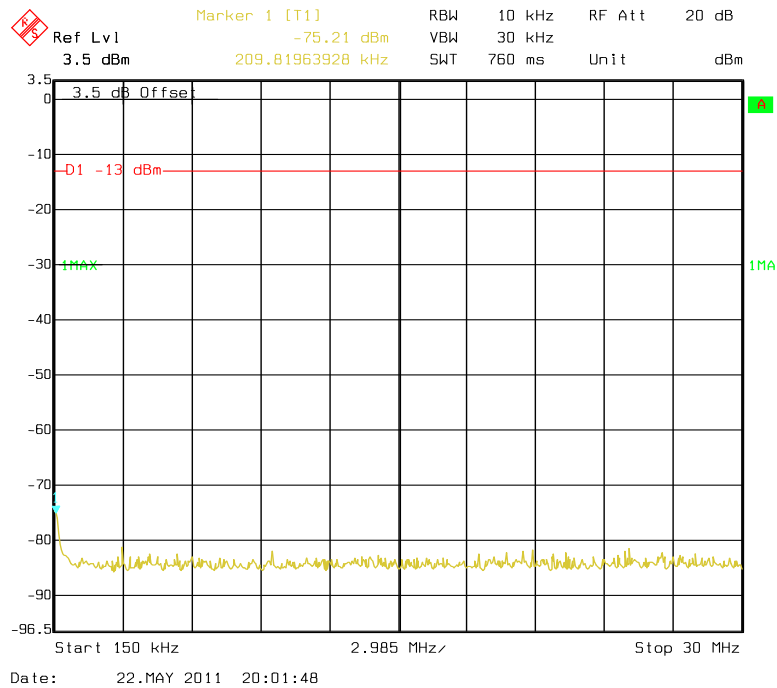
1 – 10 GHz - Middle Channel



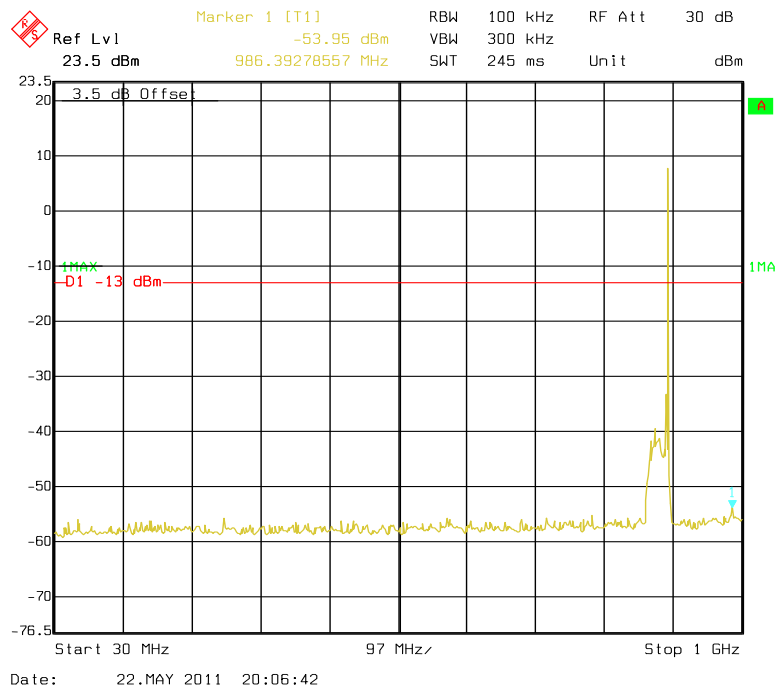
9-150 kHz – High Channel



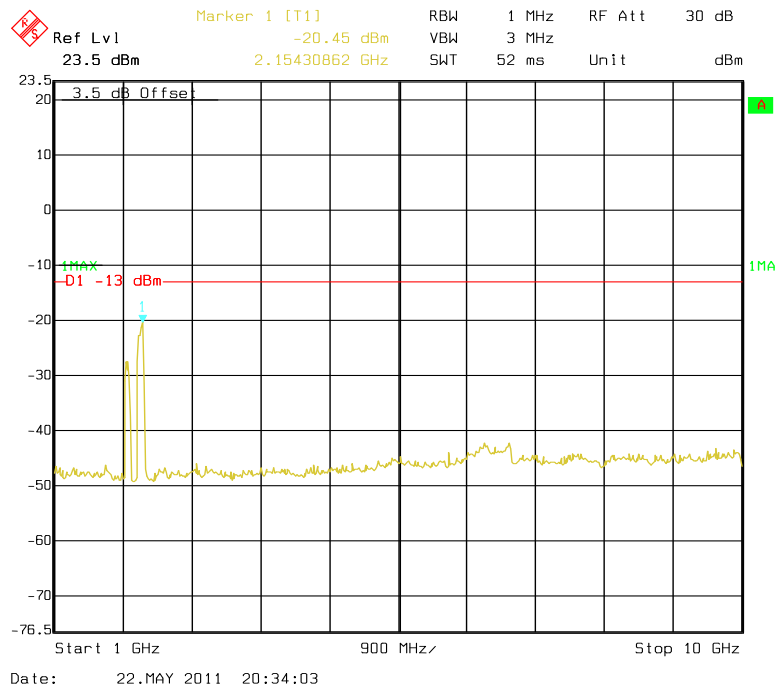
150 kHz – 30 MHz - High Channel



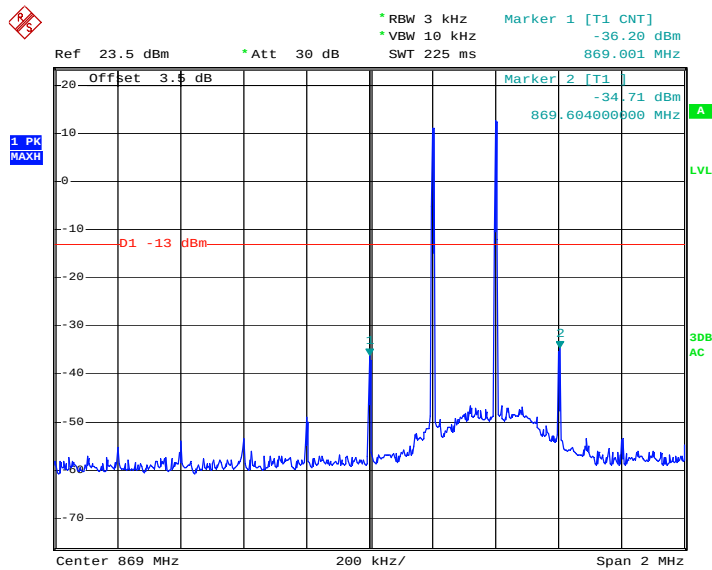
30 – 1000 MHz - High Channel



1 – 10 GHz - High Channel

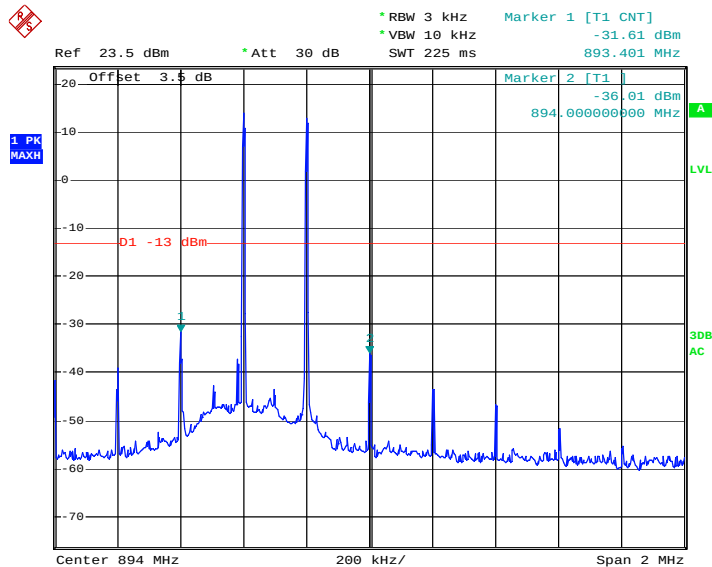


Two tone Inter modulation (Low Band edge), unmodulated



Date: 23.MAY.2011 14:31:24

Two tone Inter modulation (High Band edge), unmodulated

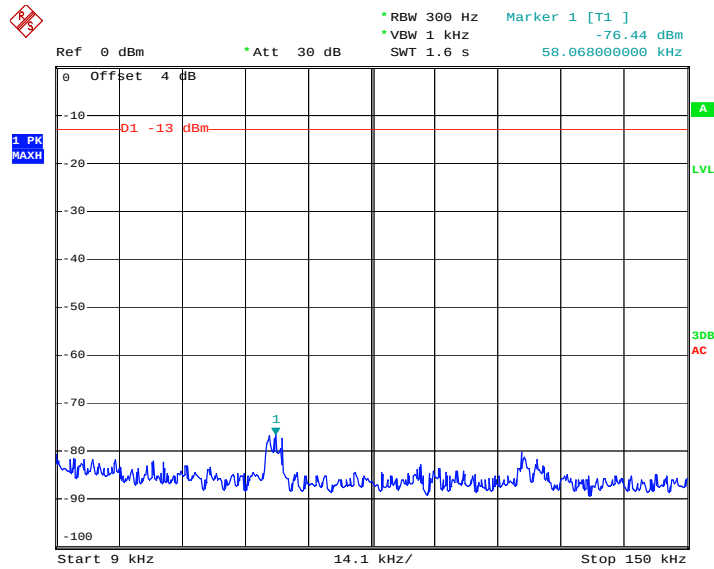


Date: 23.MAY.2011 14:30:33

PCS Band (Part 24E)

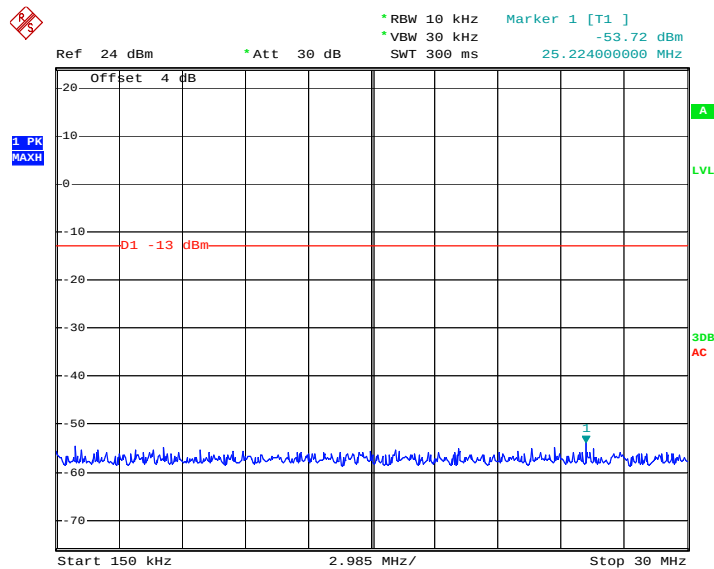
Uplink:

9-150 kHz – Low Channel



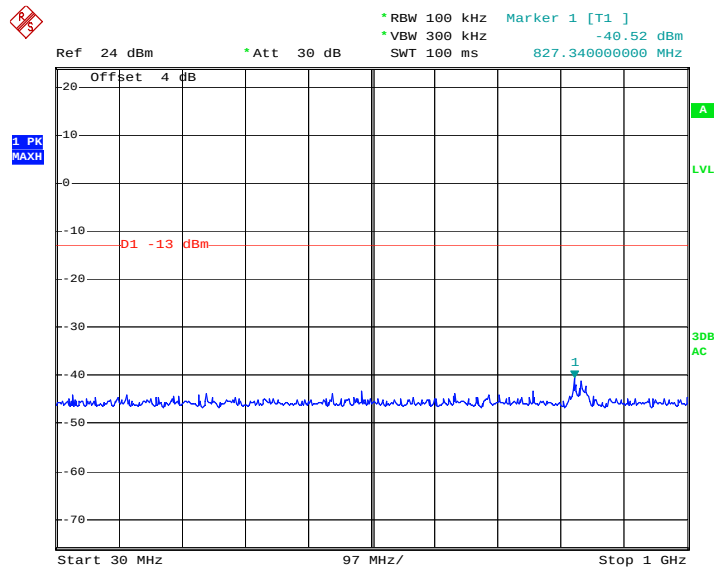
Date: 23.MAY.2011 18:24:41

150 kHz – 30 MHz - Low Channel



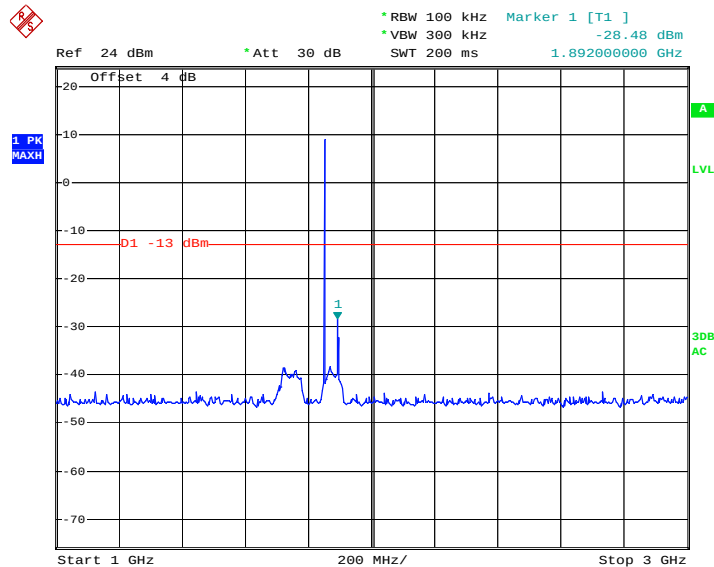
Date: 23.MAY.2011 18:31:43

30 – 1000 MHz - Low Channel



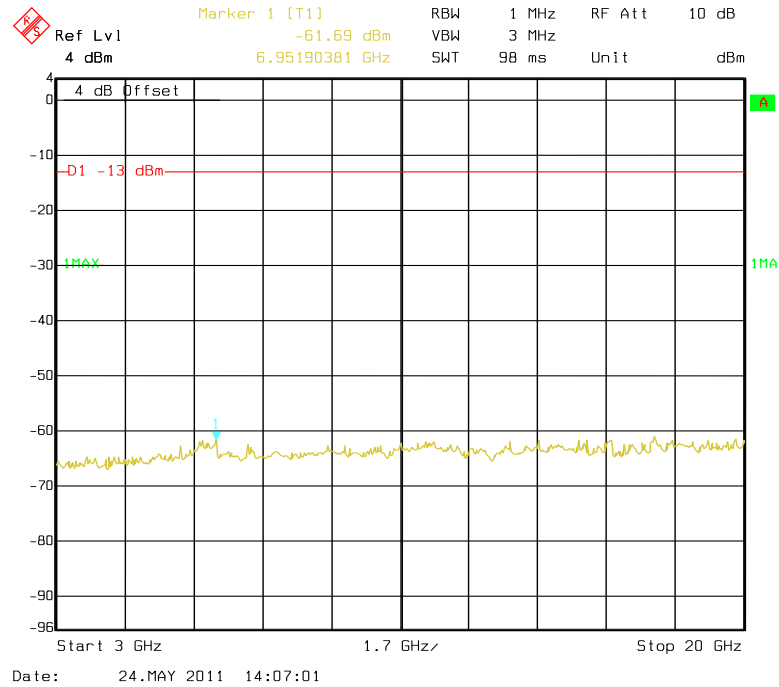
Date: 23.MAY.2011 18:33:30

1 – 3 GHz - Low Channel

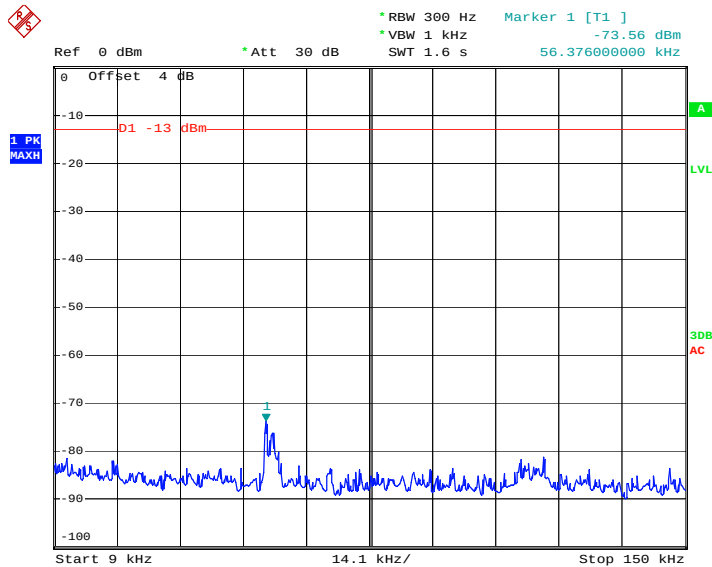


Date: 23.MAY.2011 18:39:22

3 - 20 GHz - Low Channel

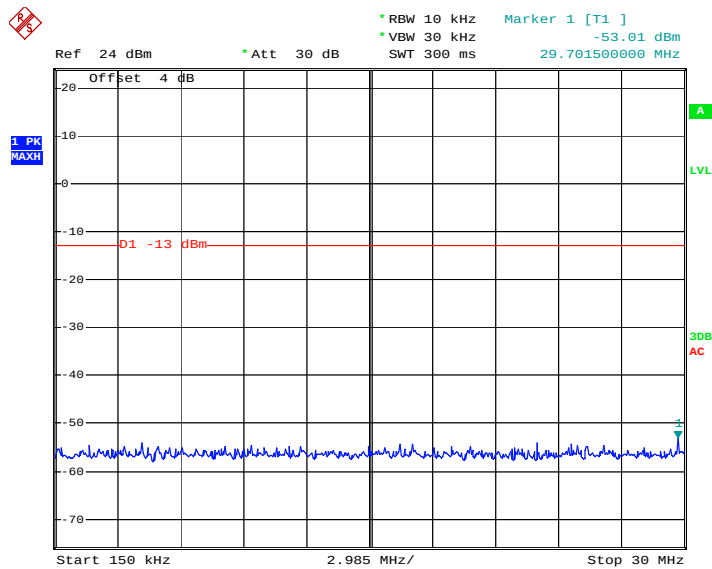


9-150 kHz - Middle Channel



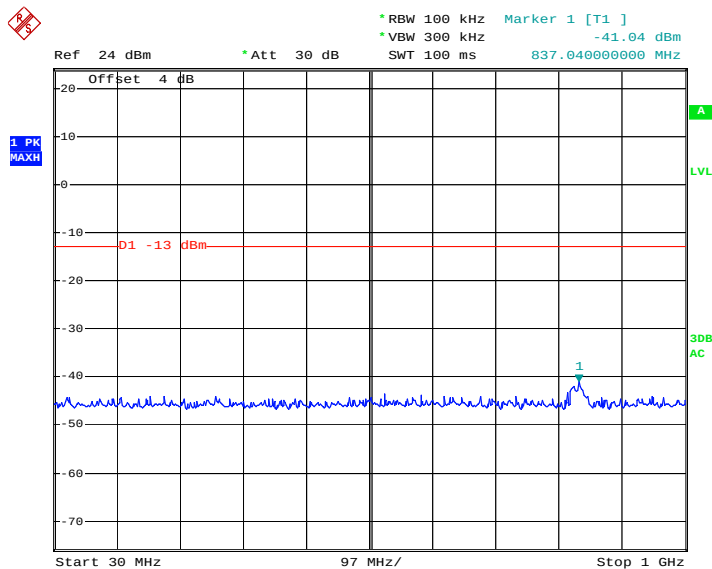
Date: 23.MAY.2011 18:25:22

150 kHz – 30 MHz - Middle Channel



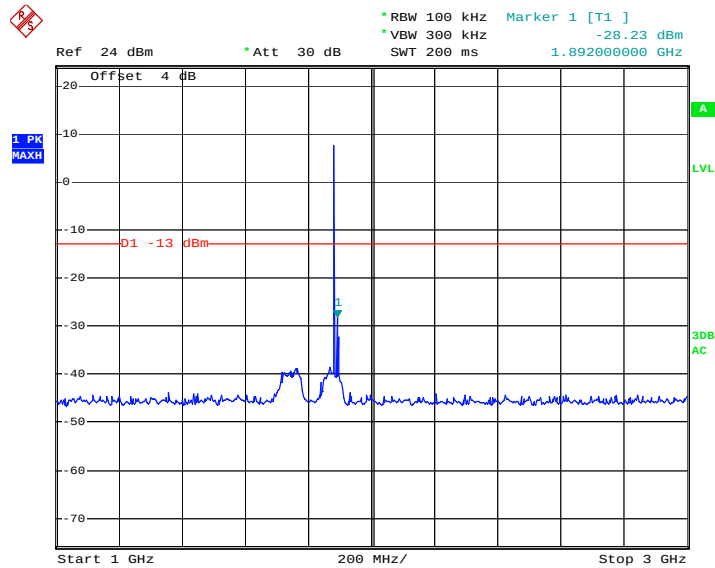
Date: 23.MAY.2011 18:31:27

30 – 1000 MHz - Middle Channel



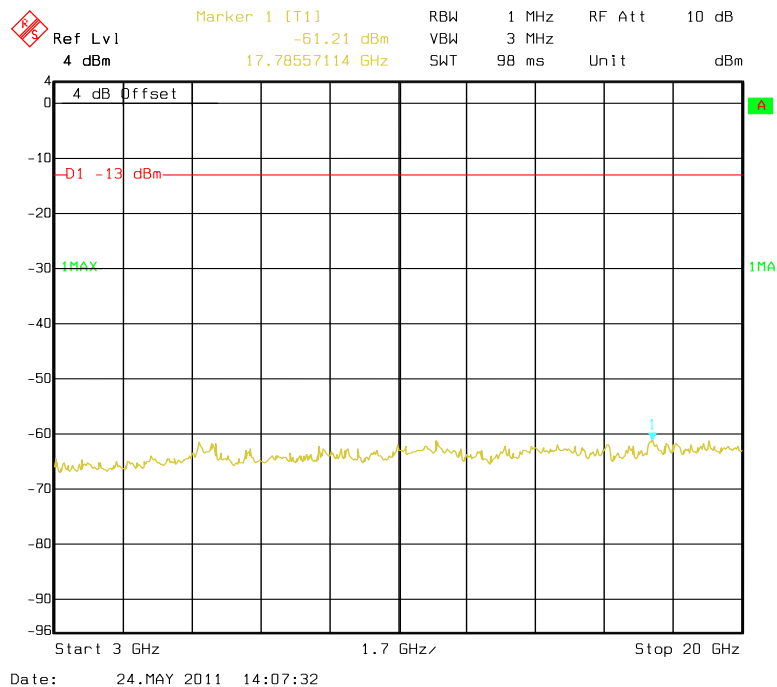
Date: 23.MAY.2011 18:34:22

1 – 3 GHz - Middle Channel



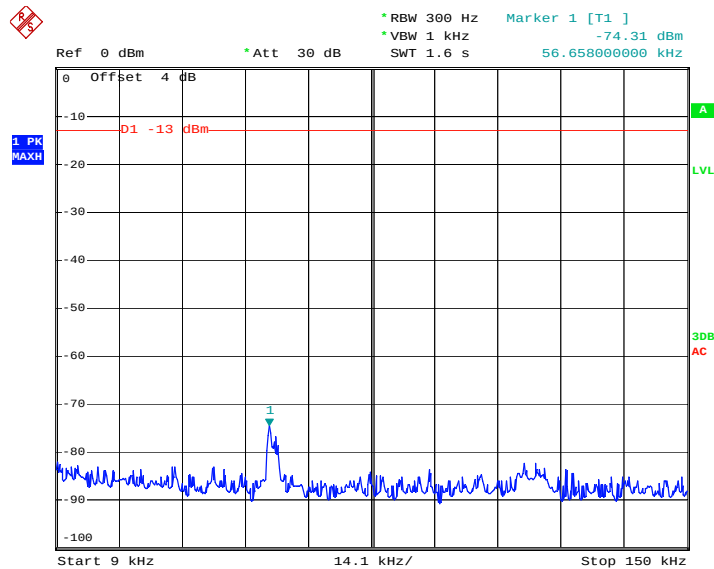
Date: 23.MAY.2011 18:40:36

3-20 GHz - Middle Channel



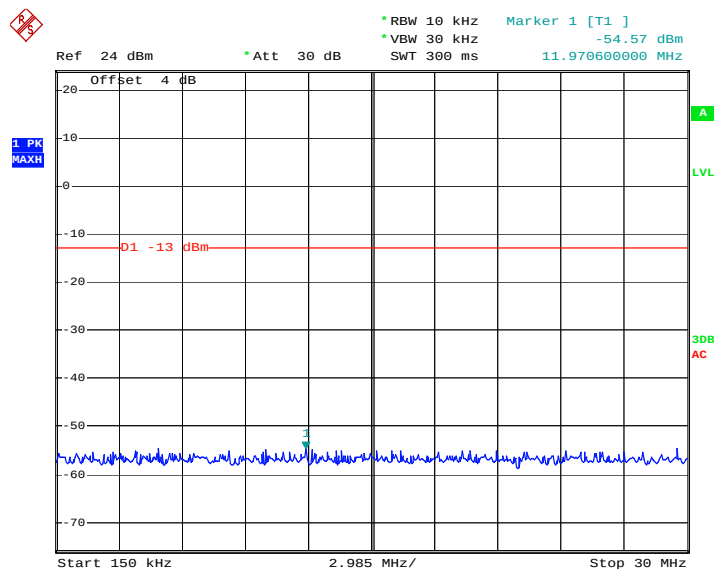
Date: 24.MAY 2011 14:07:32

9-150 kHz – High Channel



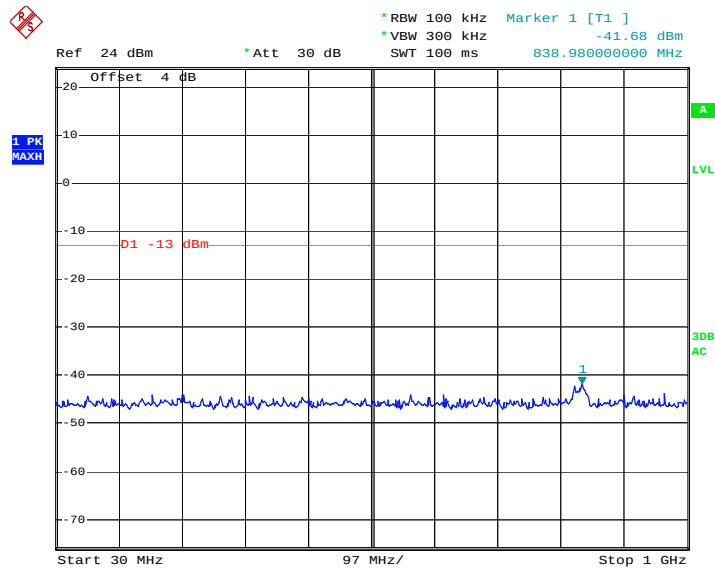
Date: 23.MAY.2011 18:26:50

150 kHz – 30 MHz - High Channel



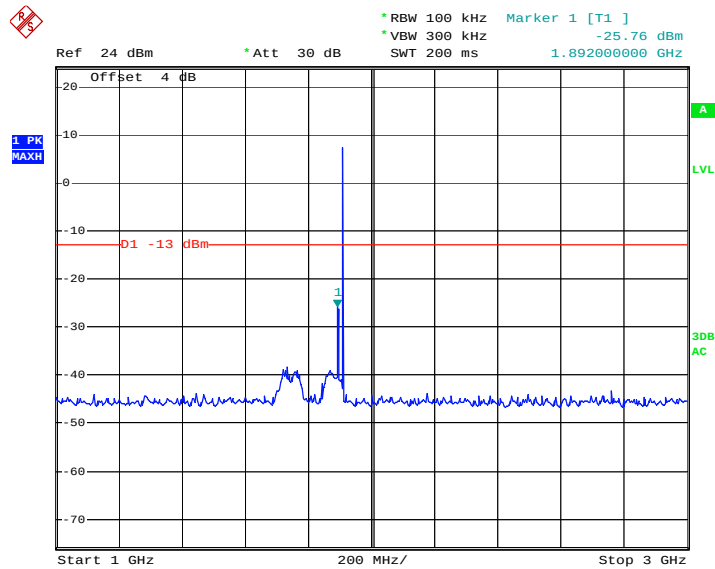
Date: 23.MAY.2011 18:30:32

30 – 1000 MHz - High Channel



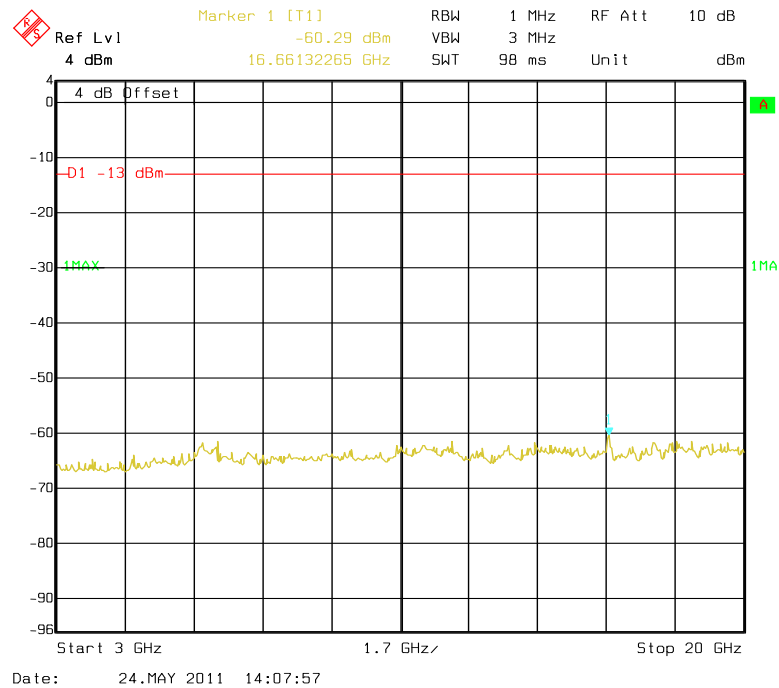
Date: 23.MAY.2011 18:34:48

1 – 3 GHz - High Channel

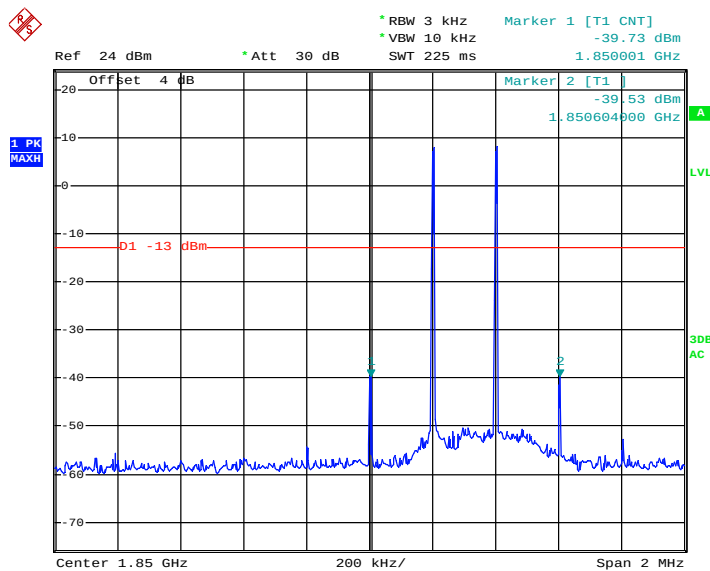


Date: 23.MAY.2011 18:41:38

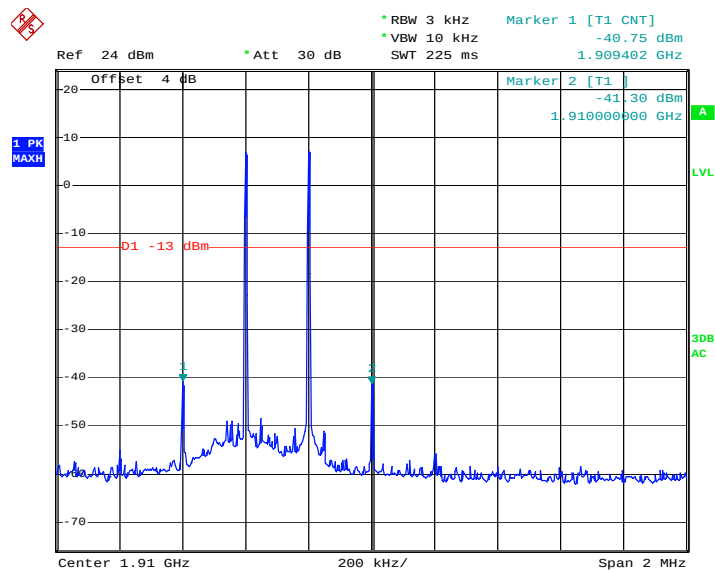
3 - 20 GHz - High Channel



Two tone Inter modulation (Low Band edge), unmodulated



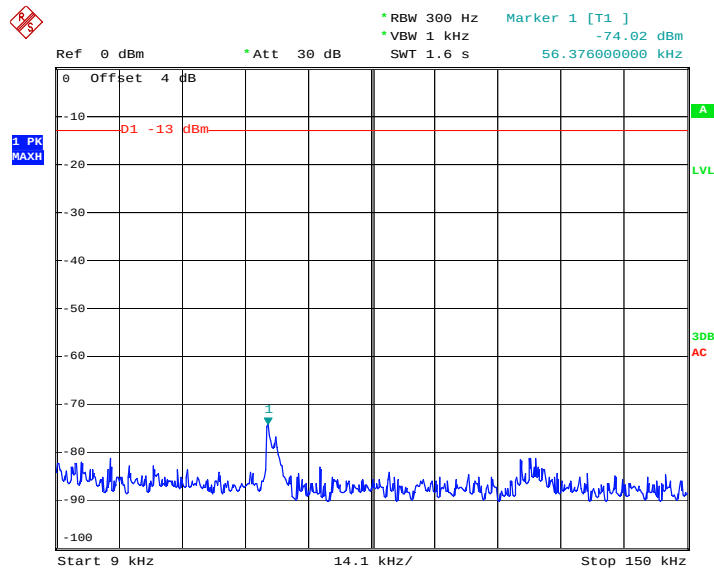
Two tone Inter modulation (High Band edge), unmodulated



Date: 23.MAY.2011 15:01:02

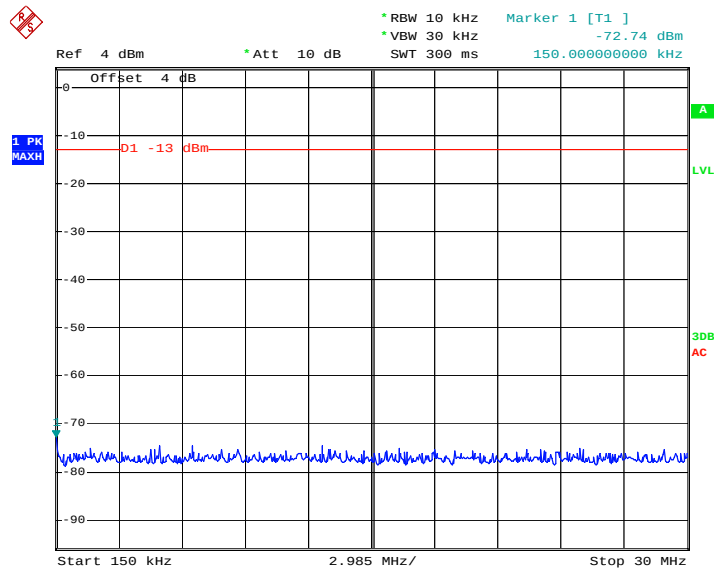
Downlink

9 - 150 kHz – Low Channel



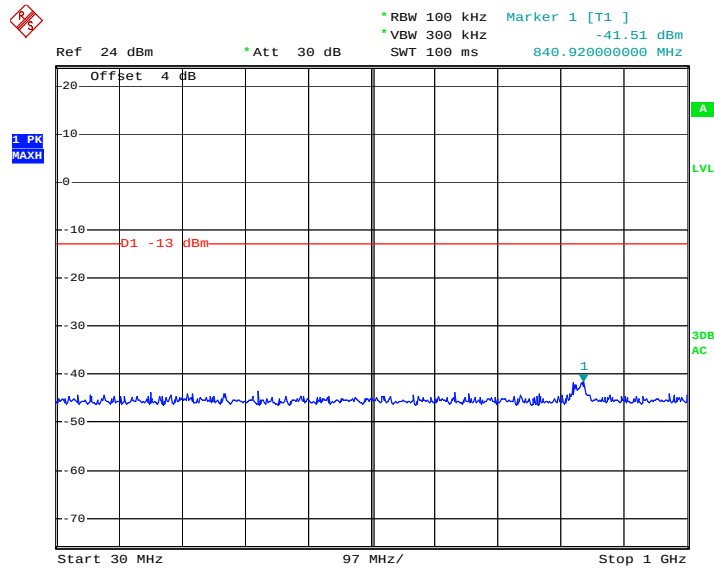
Date: 23.MAY.2011 18:27:50

150 kHz – 30 MHz - Low Channel



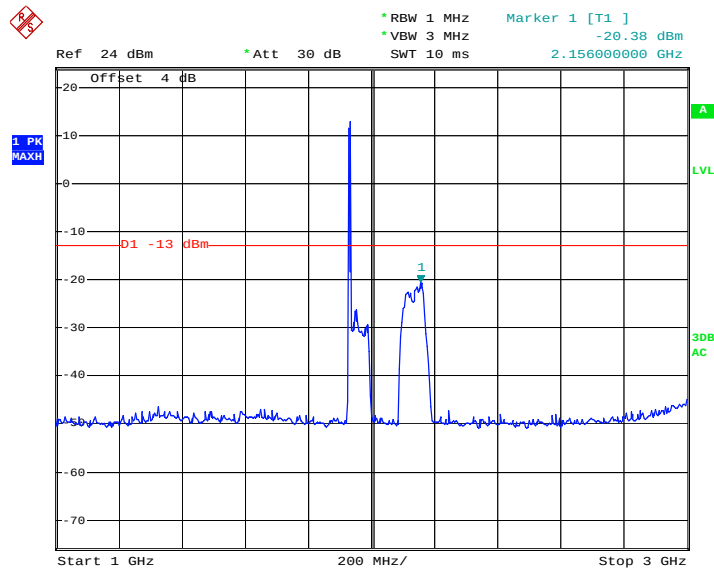
Date: 23.MAY.2011 18:29:49

30 – 1000 MHz - Low Channel



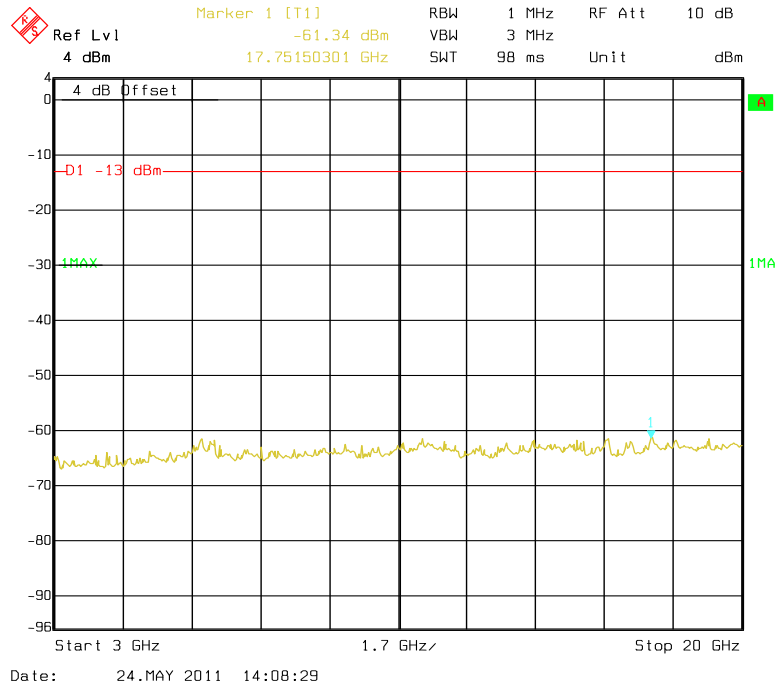
Date: 23.MAY.2011 18:36:45

1 – 3 GHz - Low Channel

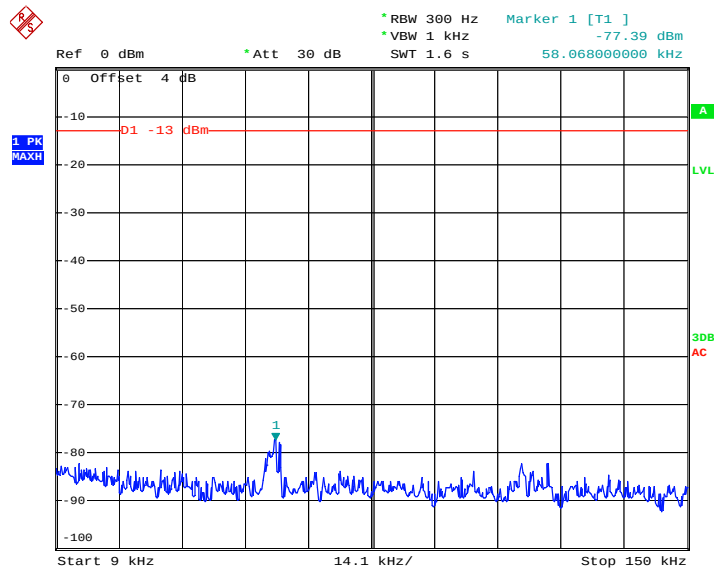


Date: 23.MAY.2011 18:47:40

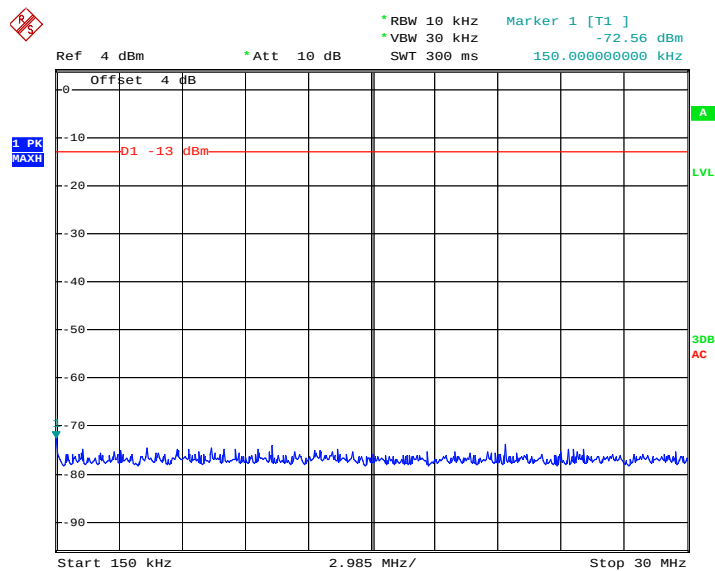
3 - 20 GHz - Low Channel



9 - 150 kHz - Middle Channel

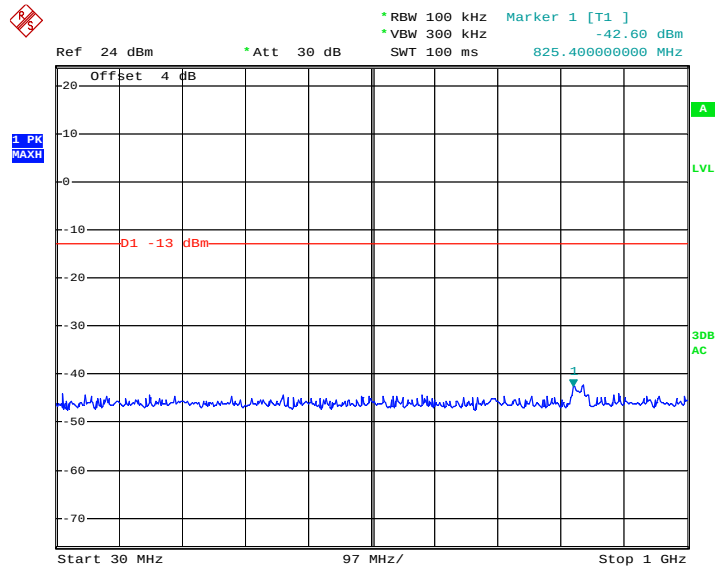


150 kHz – 30 MHz - Middle Channel



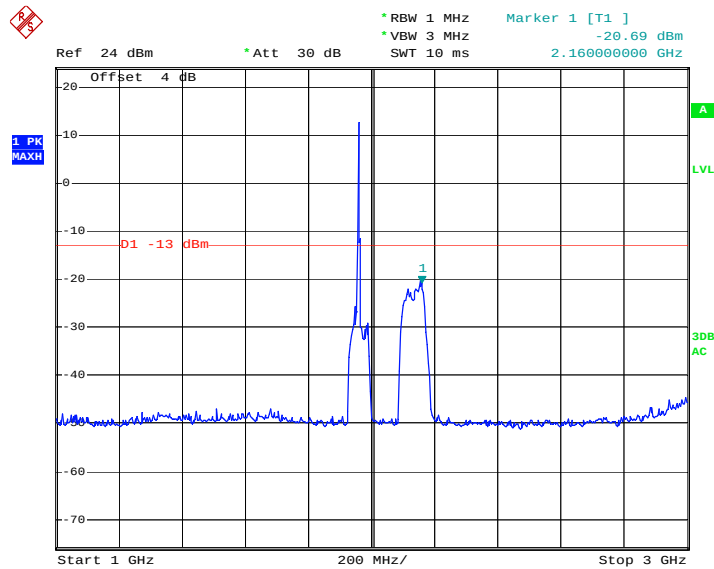
Date: 23.MAY.2011 18:29:33

30 – 1000 MHz - Middle Channel



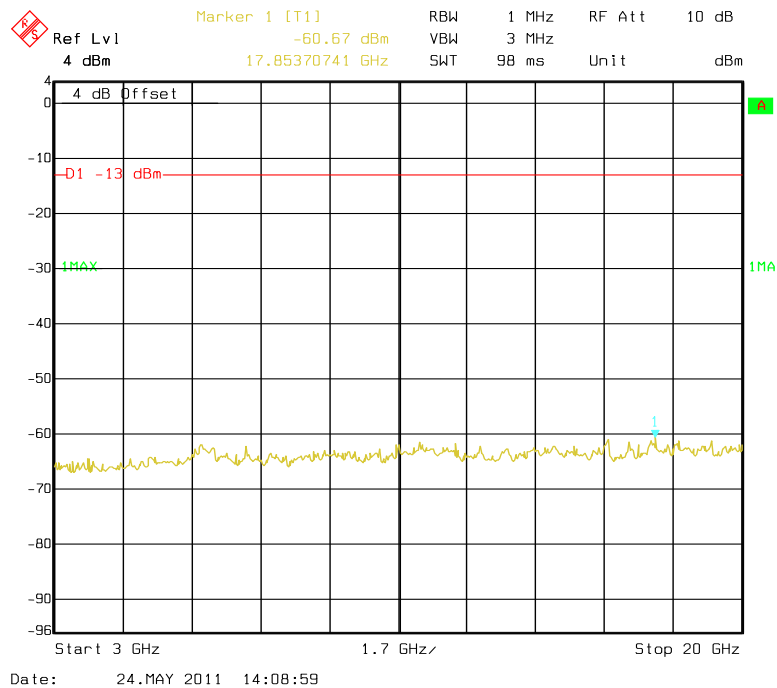
Date: 23.MAY.2011 18:35:42

1 – 3 GHz - Middle Channel

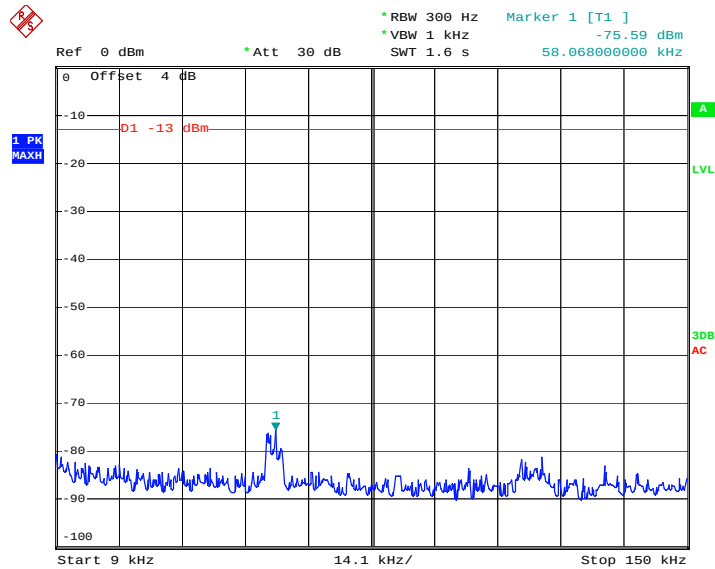


Date: 23.MAY.2011 18:47:00

3 - 20 GHz - Middle Channel

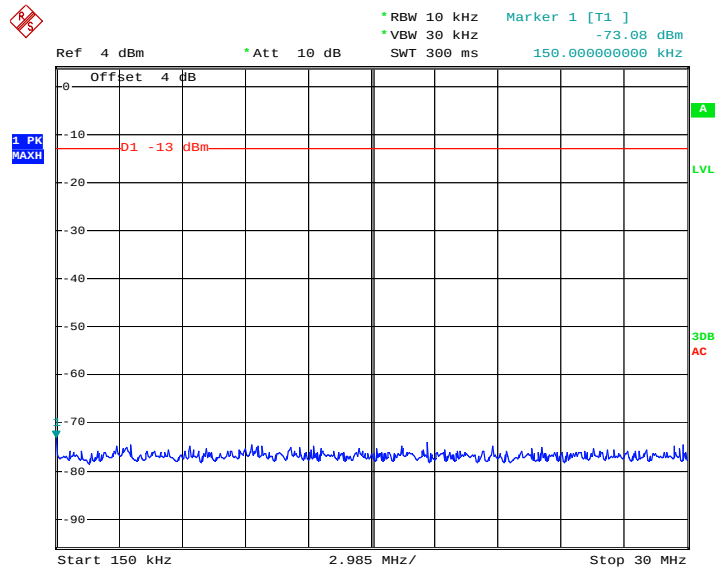


9-150 kHz – High Channel



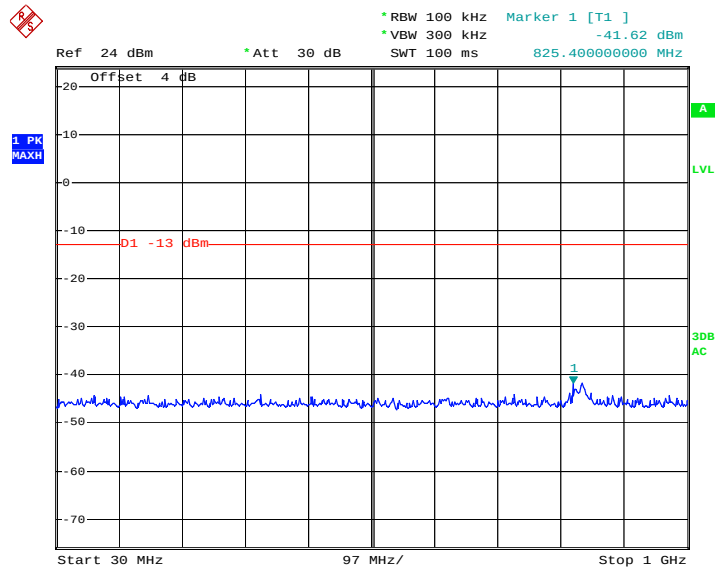
Date: 23.MAY.2011 18:27:23

150 kHz – 30 MHz - High Channel



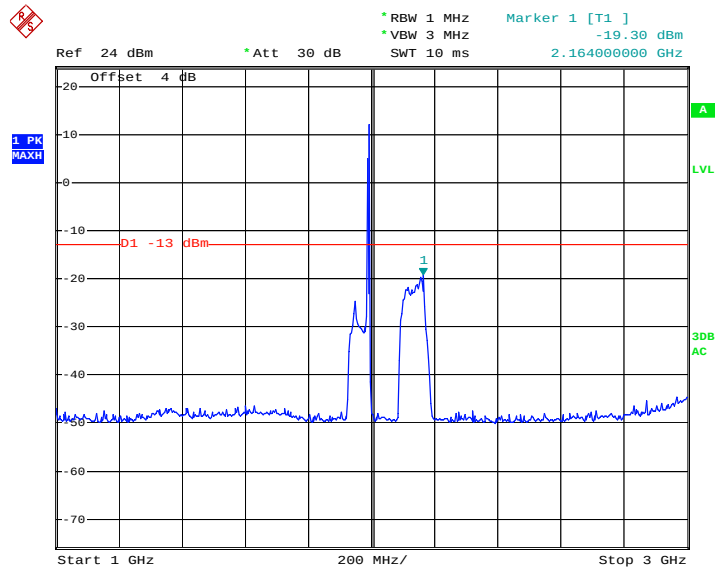
Date: 23.MAY.2011 18:29:12

30 – 1000 MHz - High Channel



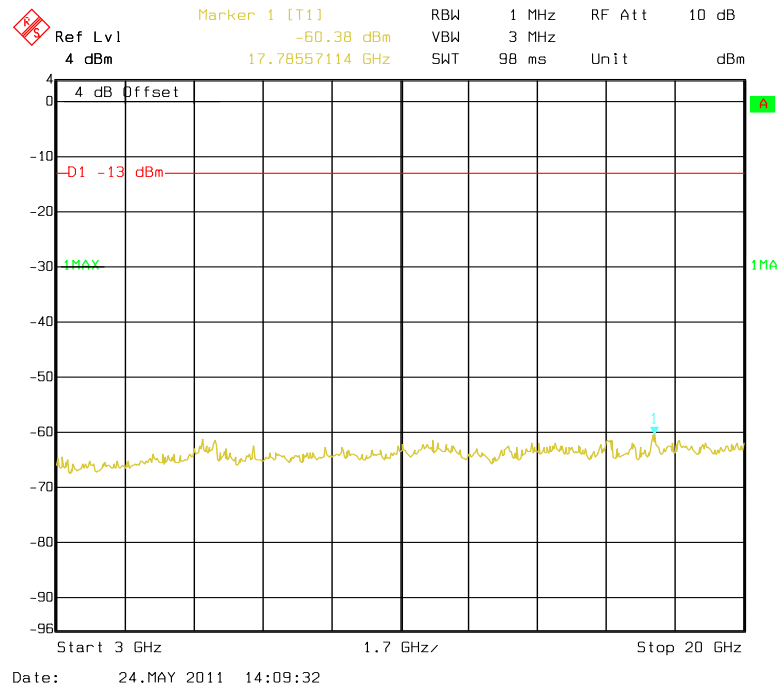
Date: 23.MAY.2011 18:35:20

1 – 3 GHz - High Channel

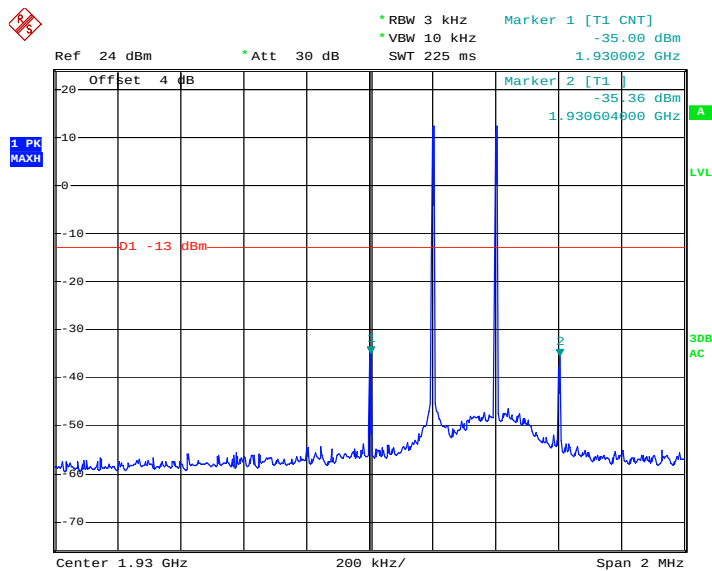


Date: 23.MAY.2011 18:46:26

3 - 20 GHz - High Channel

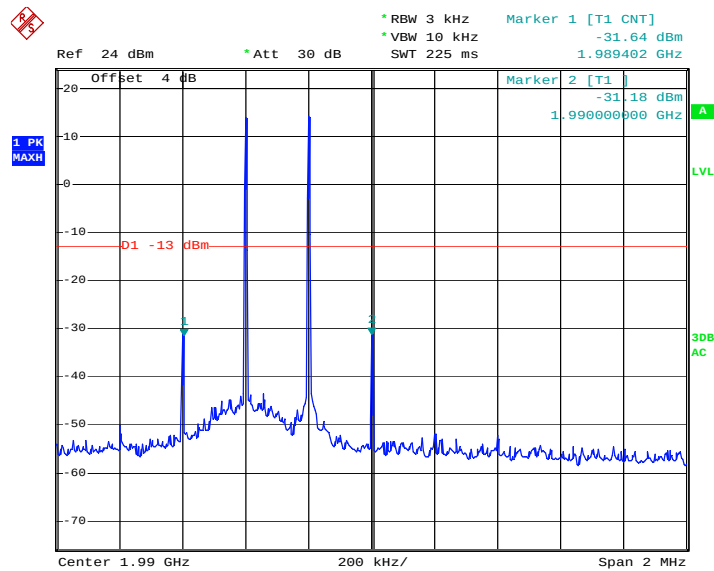


Two tone Inter modulation (Low Band edge), unmodulated

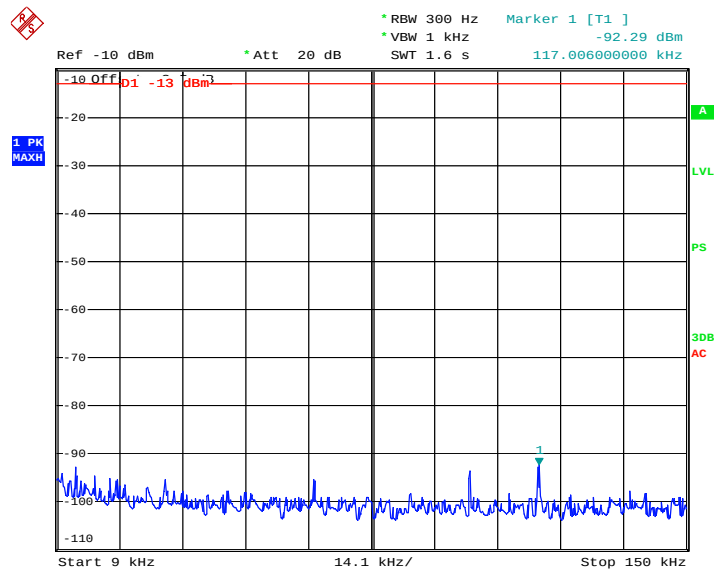


Date: 23.MAY.2011 14:45:05

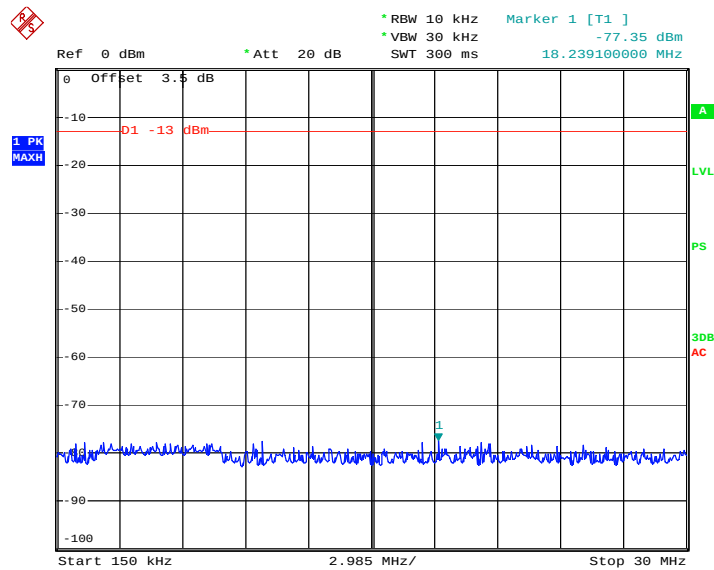
Two tone Inter modulation (High Band edge), unmodulated



Date: 23.MAY.2011 14:46:31

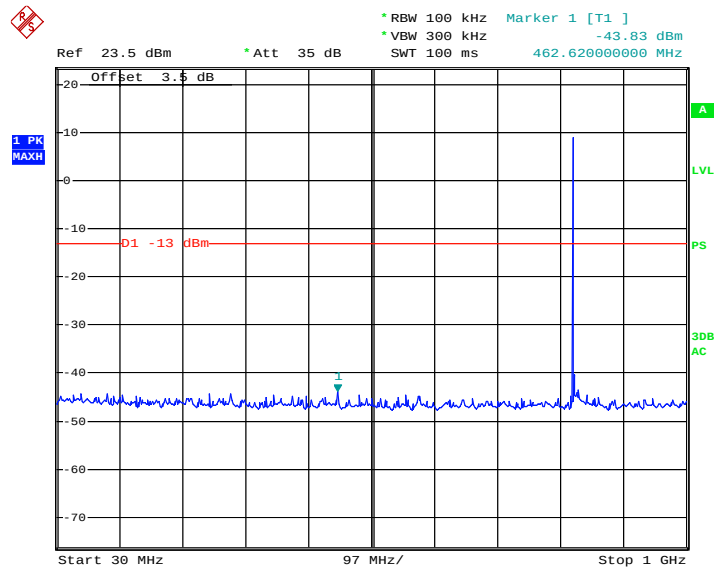
CDMA Mode:**Cellular Band (Part 22H)****Uplink****9-150 kHz – Low Channel**

Date: 12.JUN.2011 19:11:26

150 kHz – 30 MHz - Low Channel

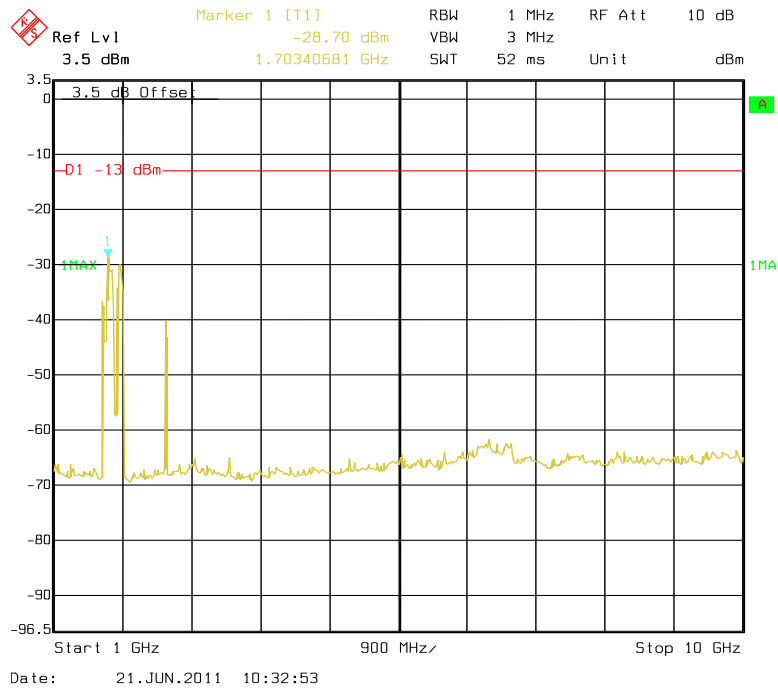
Date: 12.JUN.2011 19:12:21

30 – 1000 MHz - Low Channel



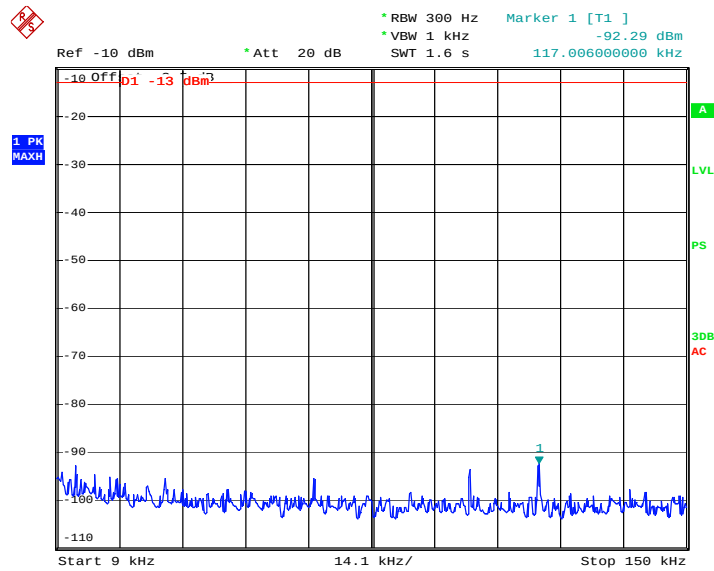
Date: 12.JUN.2011 19:12:57

1 – 10 GHz - Low Channel



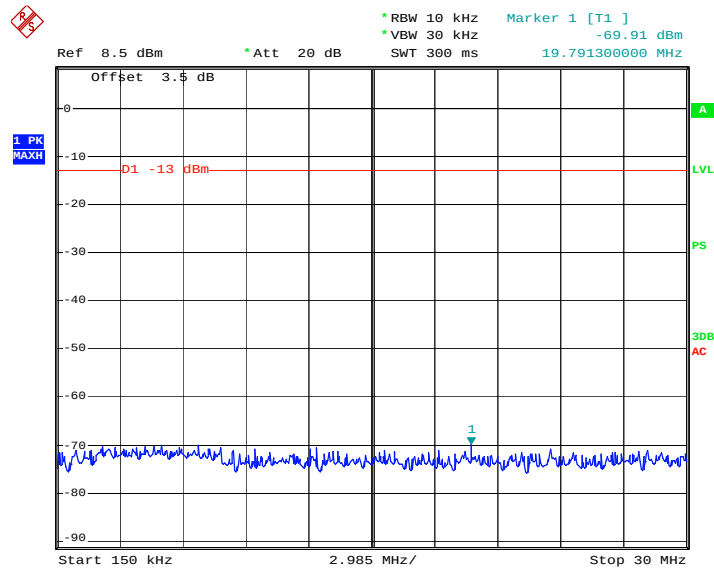
Date: 21.JUN.2011 10:32:53

9-150 kHz - Middle Channel



Date: 12.JUN.2011 19:11:26

150 kHz – 30 MHz - Middle Channel



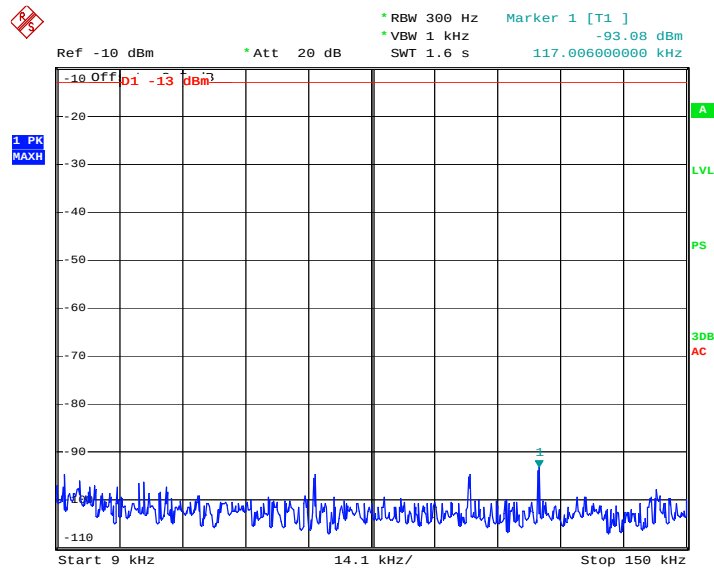
Date: 12.JUN.2011 19:15:44

[illegible]

1 – 10 GHz - Middle Channel

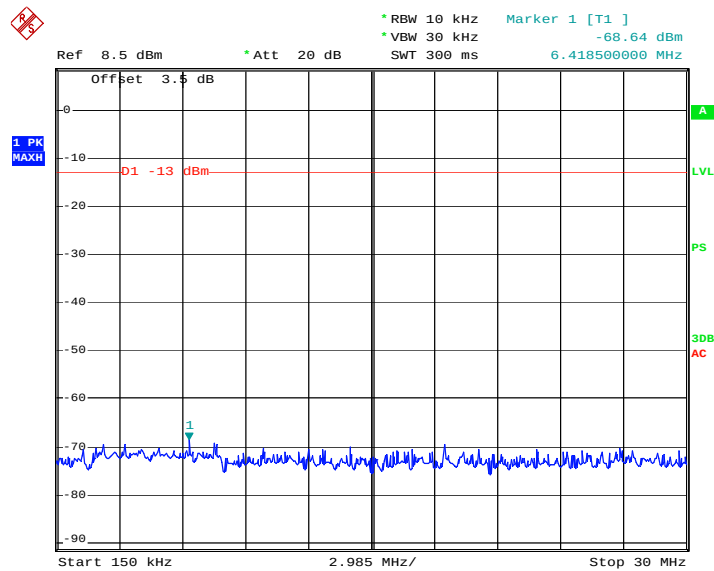


9-150 kHz – High Channel



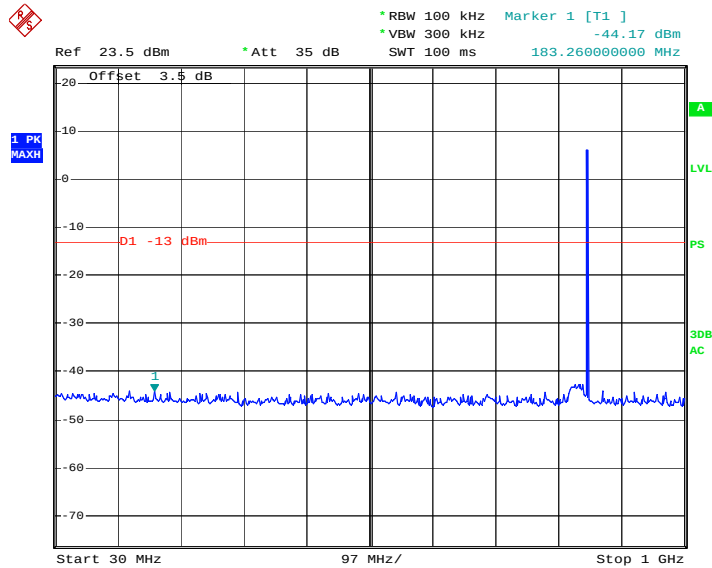
Date: 12.JUN.2011 19:18:36

150 kHz – 30 MHz - High Channel



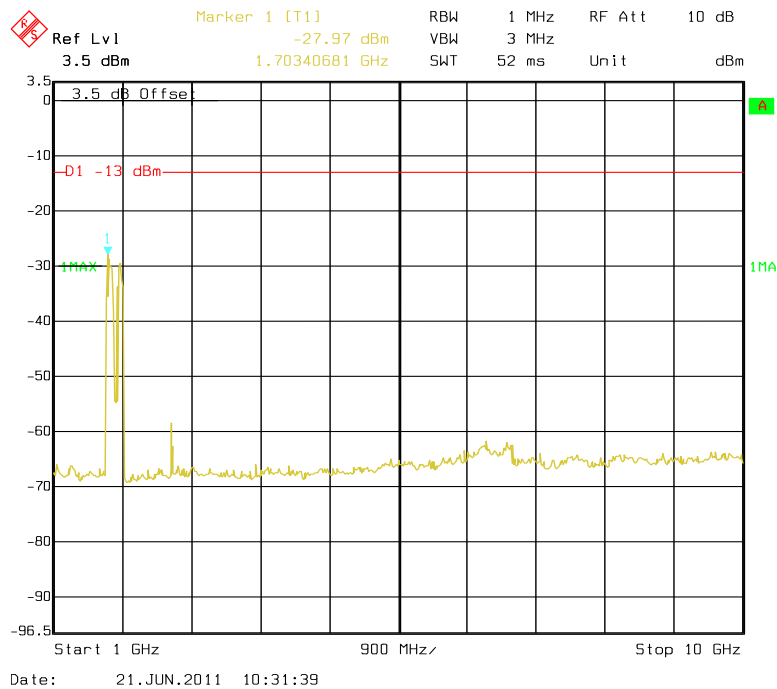
Date: 12.JUN.2011 19:15:18

30 – 1000 MHz - High Channel



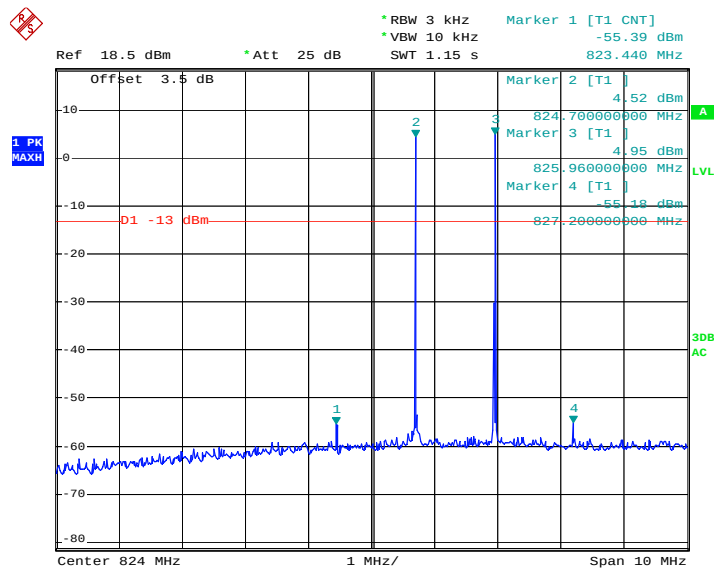
Date: 12.JUN.2011 19:14:44

1 – 10 GHz - High Channel



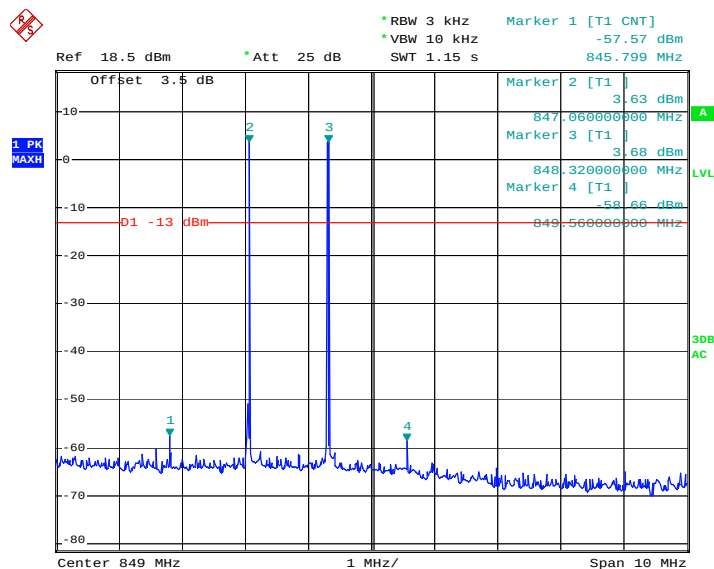
Date: 21.JUN.2011 10:31:39

Two tone Inter modulation (Low Band edge), unmodulated



Date: 20.JUN.2011 19:07:19

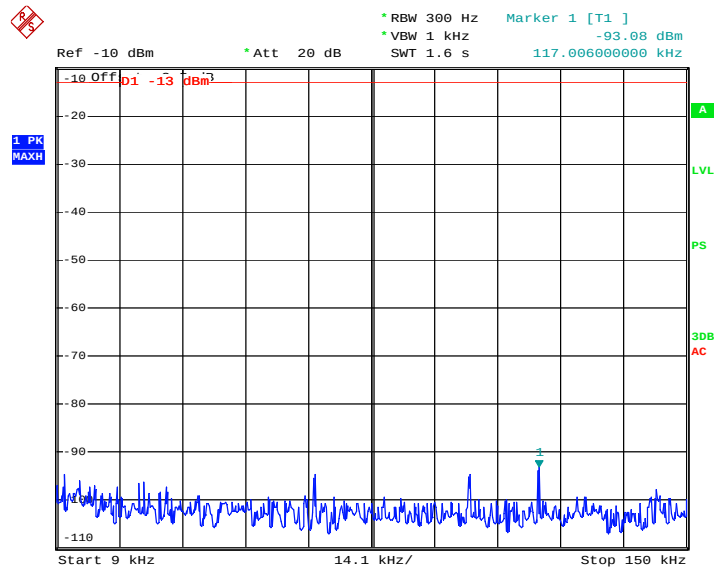
Two tone Inter modulation (High Band edge), unmodulated



Date: 20.JUN.2011 19:09:39

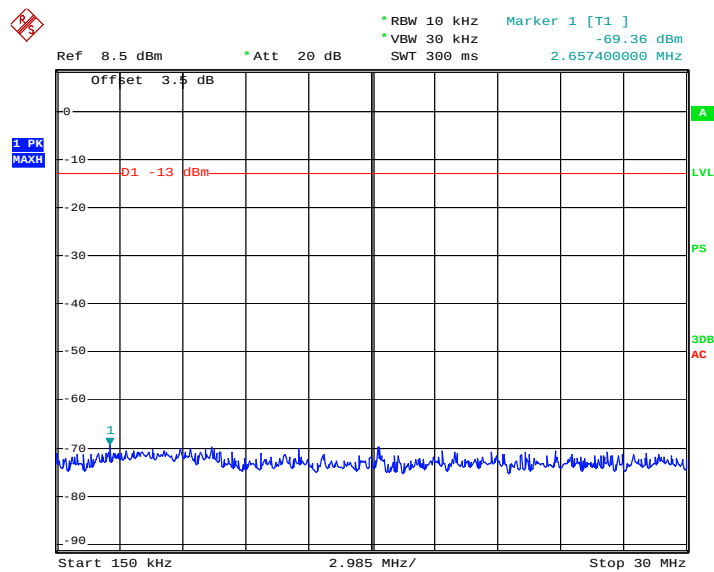
Downlink

9-150 kHz – Low Channel



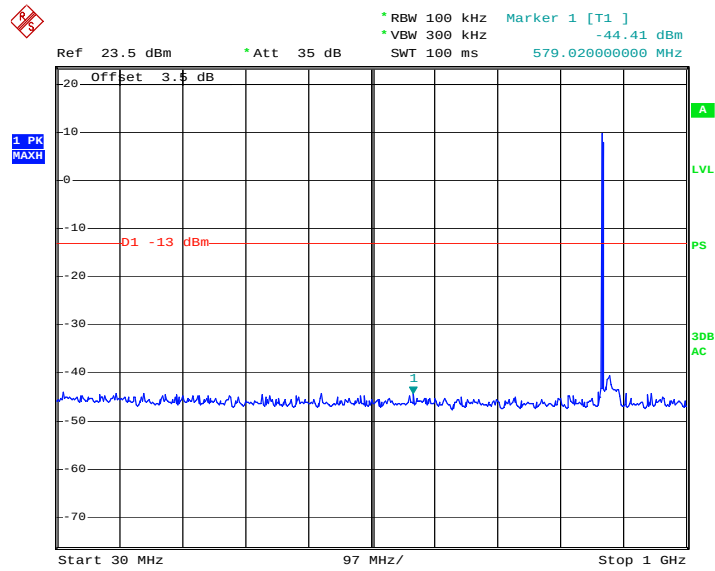
Date: 12.JUN.2011 19:18:36

150 kHz – 30 MHz - Low Channel



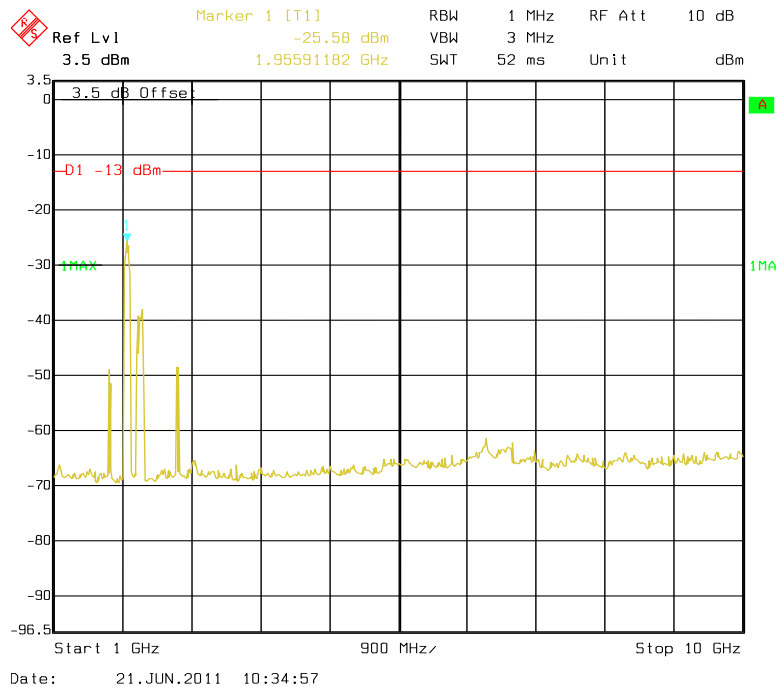
Date: 12.JUN.2011 19:17:25

30 – 1000 MHz - Low Channel



Date: 12.JUN.2011 19:20:23

1 – 10 GHz - Low Channel



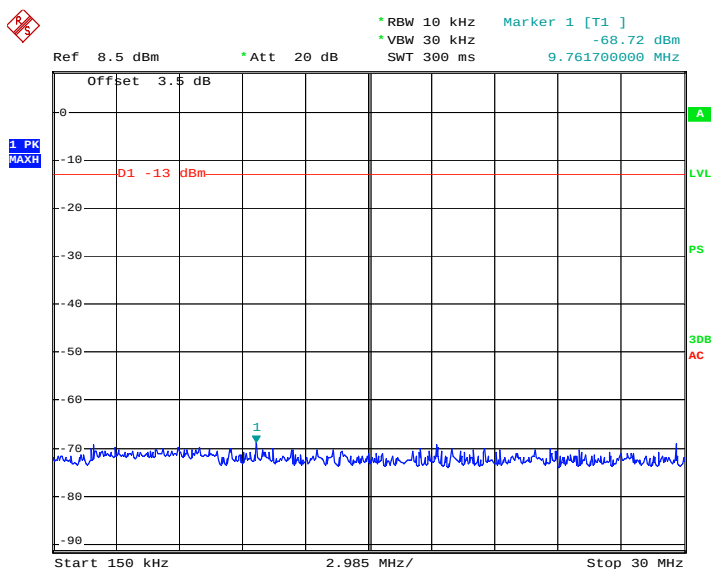
Ref -10 dBm * Att 20 dB * RBW 300 Hz Marker 1 [T1] -92.04 dBm
 * VBW 1 kHz SWT 1.6 s 117.00600000 kHz

-10 Off 01 -13 dBm

1 PK
MAXH

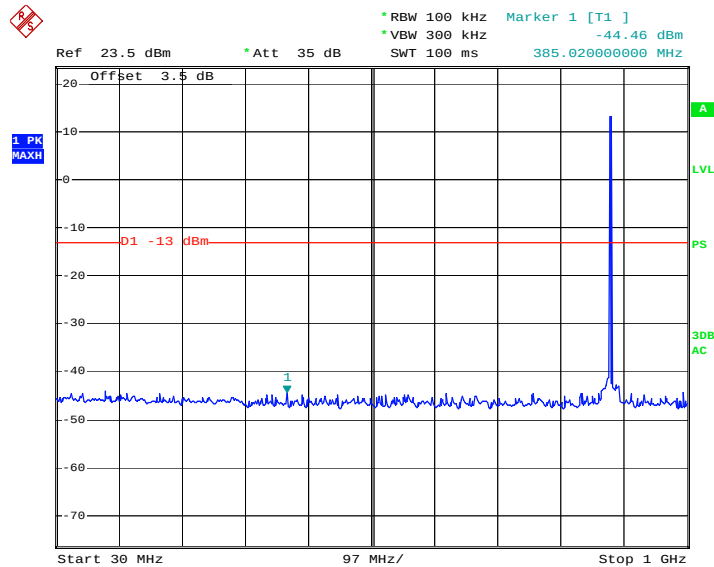
Start 9 kHz 14.1 kHz/ Stop 150 kHz

150 kHz – 30 MHz - Middle Channel



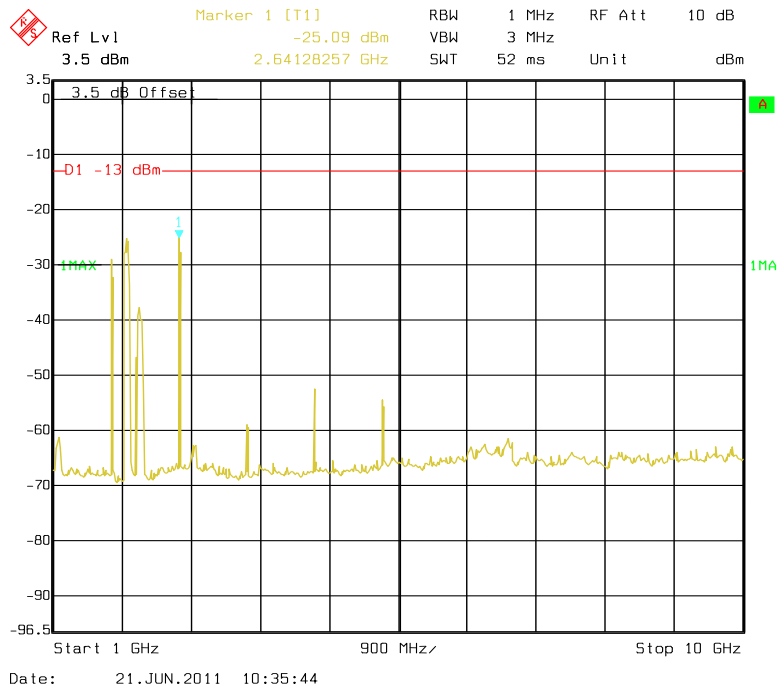
FCC Part 22H/24E/27 Test Report

30 – 1000 MHz - Middle Channel

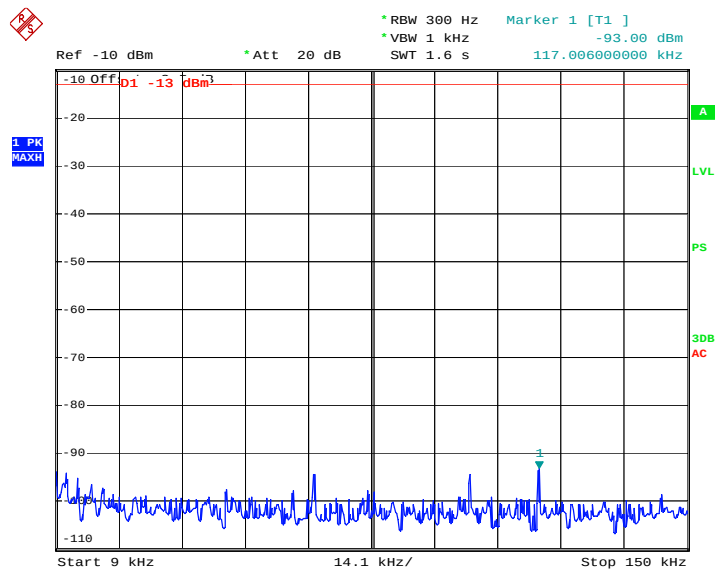


Date: 12.JUN.2011 19:21:26

1 – 10 GHz - Middle Channel

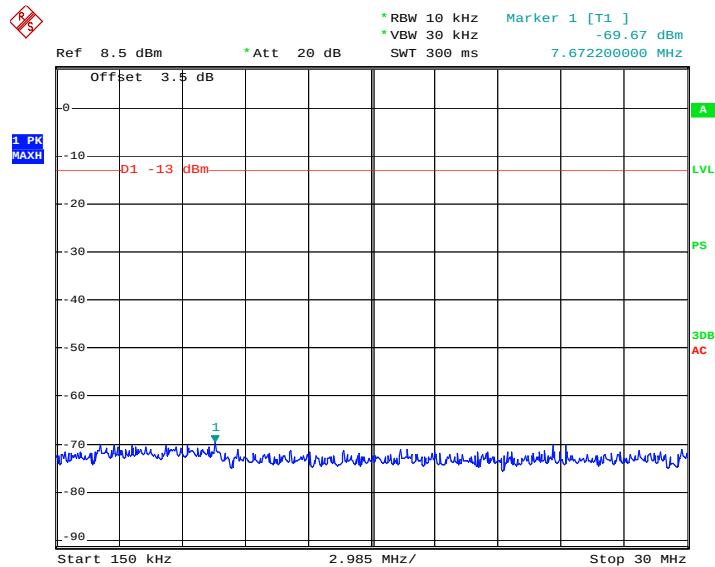


9-150 kHz – High Channel



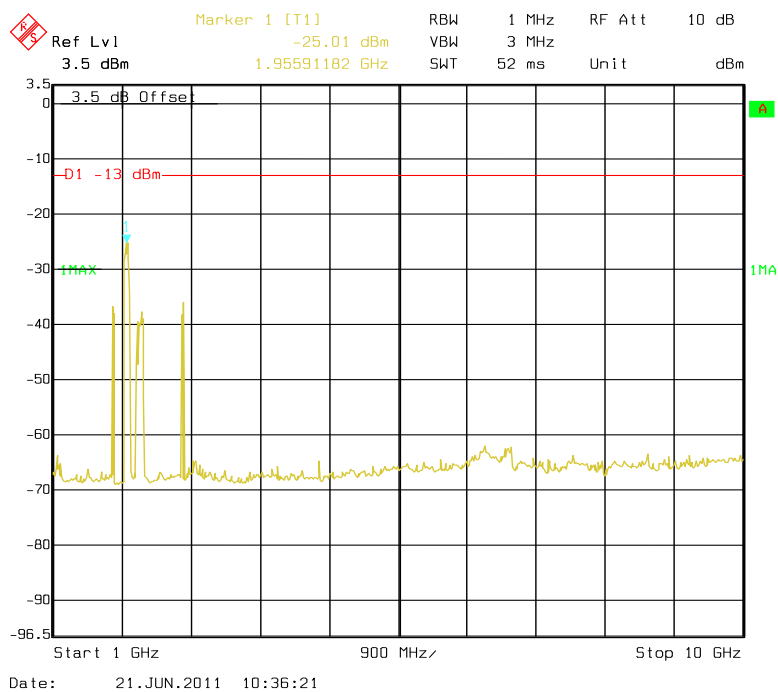
Date: 12.JUN.2011 19:18:20

150 kHz – 30 MHz - High Channel

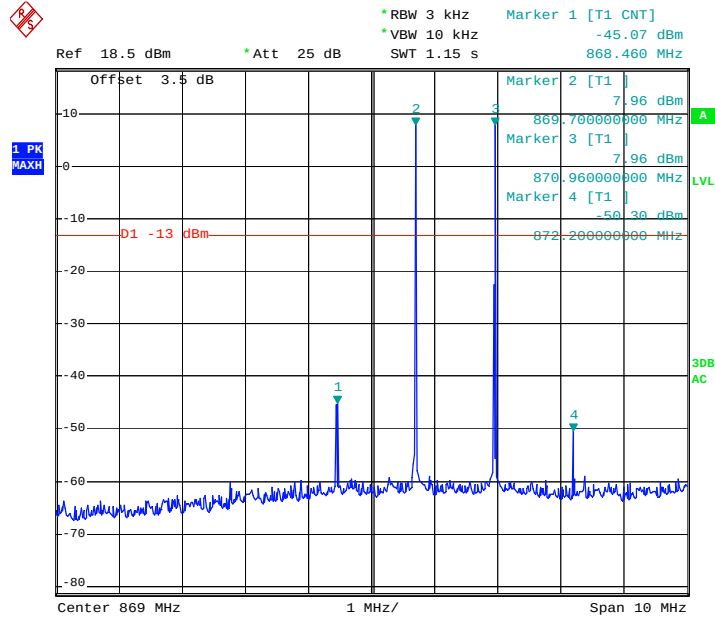


Date: 12.JUN.2011 19:17:43

1 – 10 GHz - High Channel

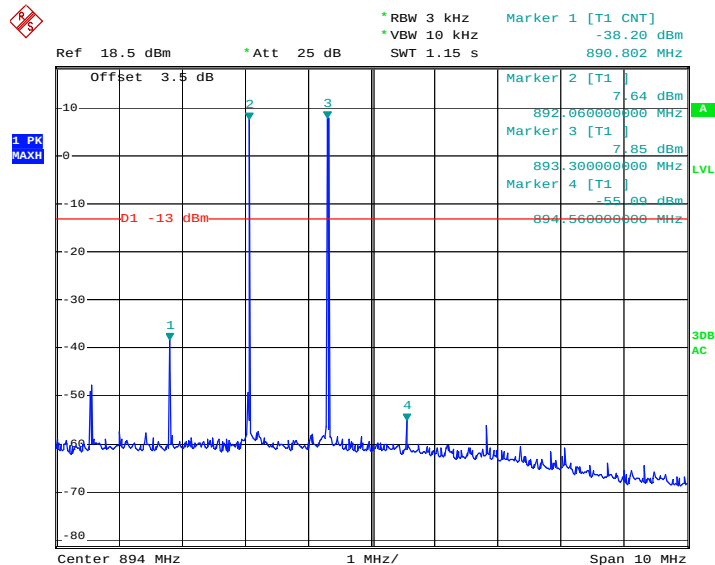


Two tone Inter modulation (Low Band edge), unmodulated



Date: 20.JUN.2011 19:22:01

Two tone Inter modulation (High Band edge), unmodulated

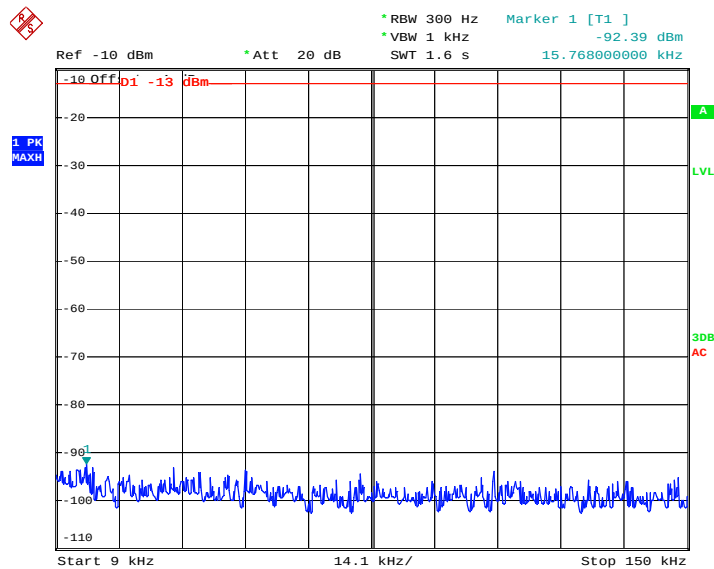


Date: 20.JUN.2011 19:23:43

PCS Band (Part 24E)

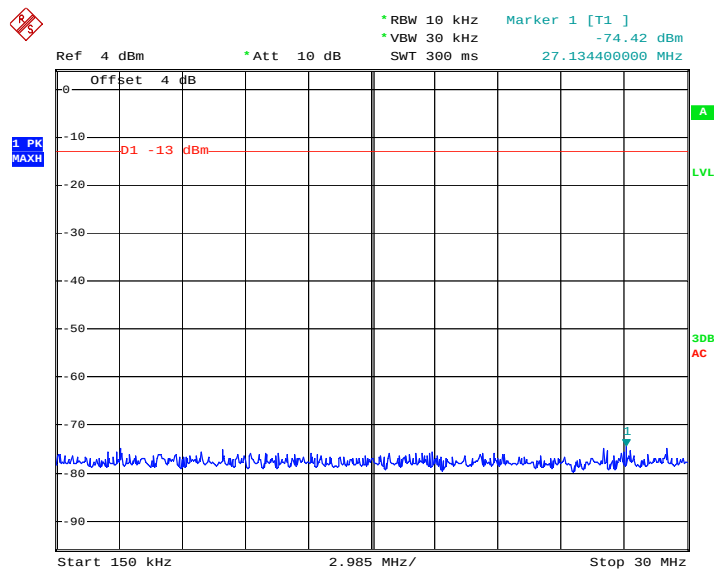
Uplink:

9-150 kHz – Low Channel



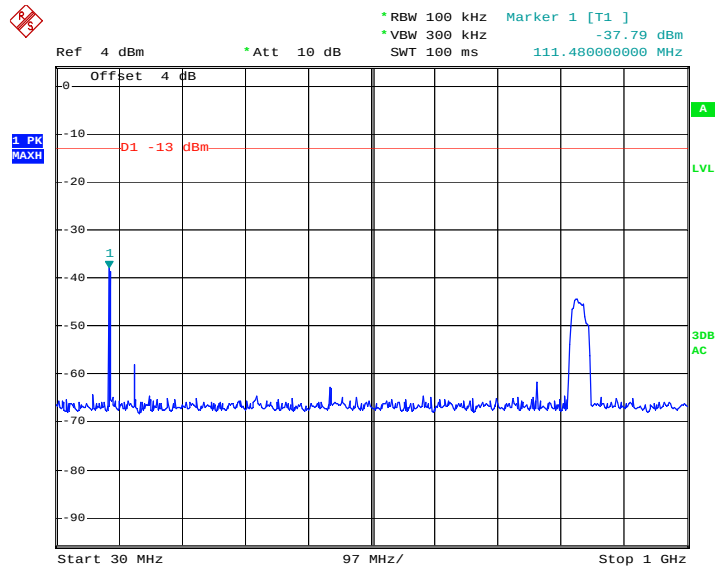
Date: 21.JUN.2011 12:05:04

150 kHz – 30 MHz - Low Channel



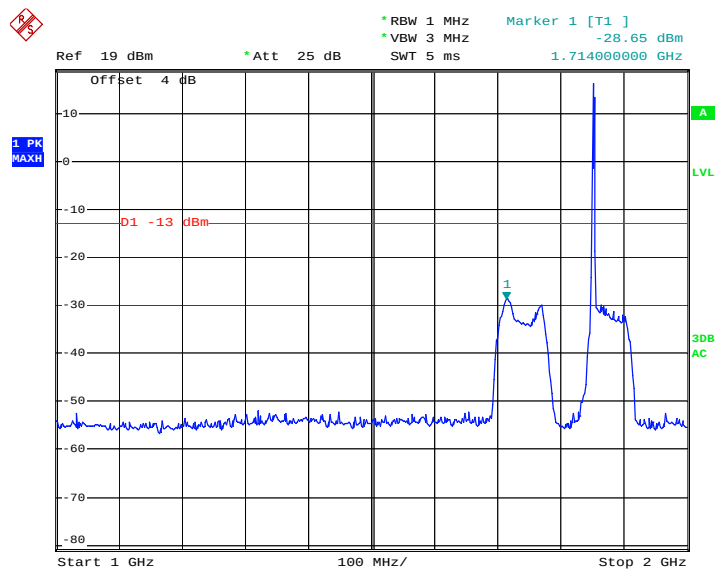
Date: 21.JUN.2011 12:06:12

30 – 1000 MHz - Low Channel



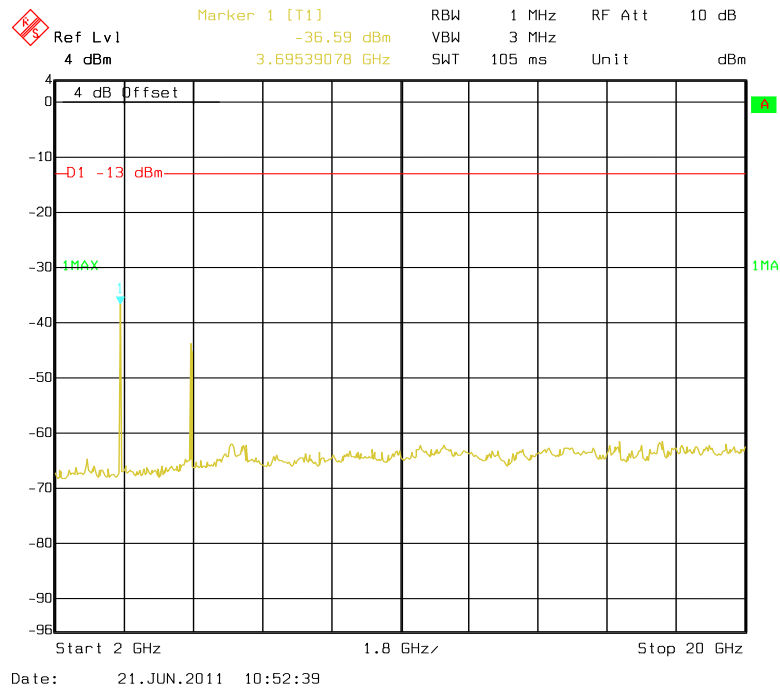
Date: 21.JUN.2011 12:10:54

1 – 2GHz - Low Channel

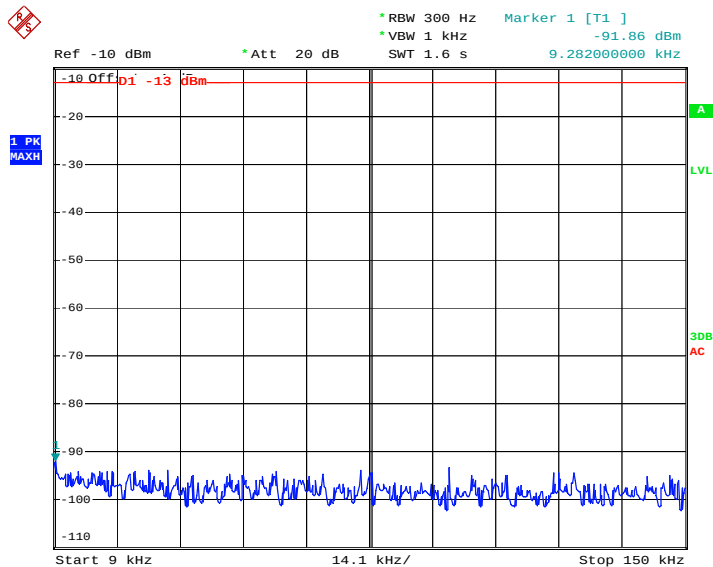


Date: 21.JUN.2011 12:13:35

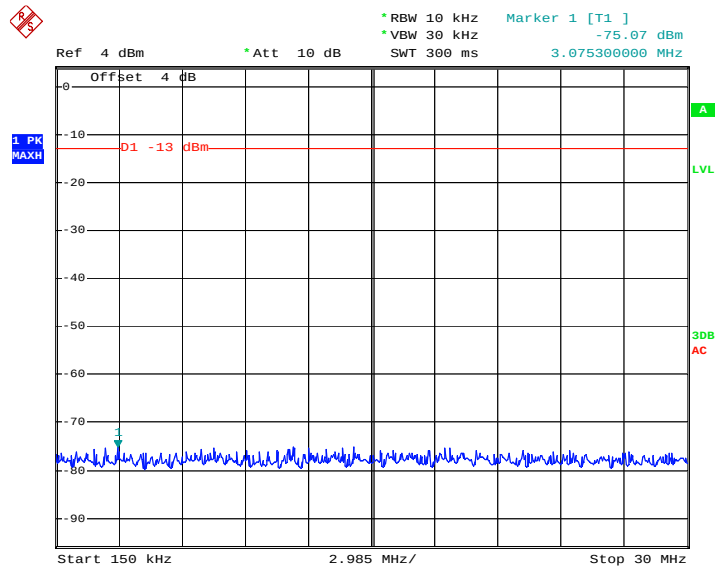
2 - 20 GHz - Low Channel



9-150 kHz - Middle Channel

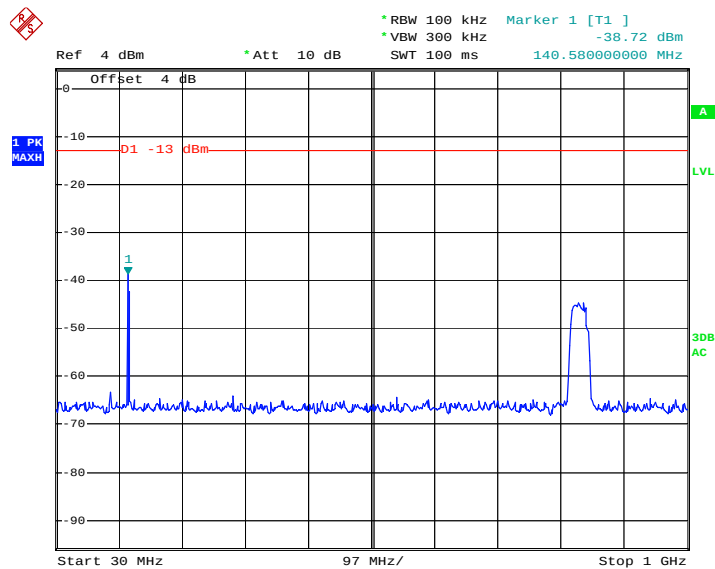


150 kHz – 30 MHz - Middle Channel



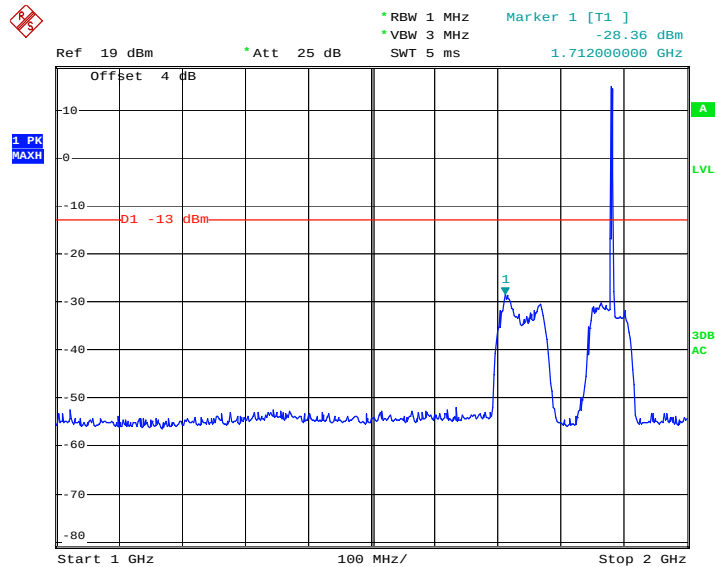
Date: 21.JUN.2011 12:06:33

30 – 1000 MHz - Middle Channel



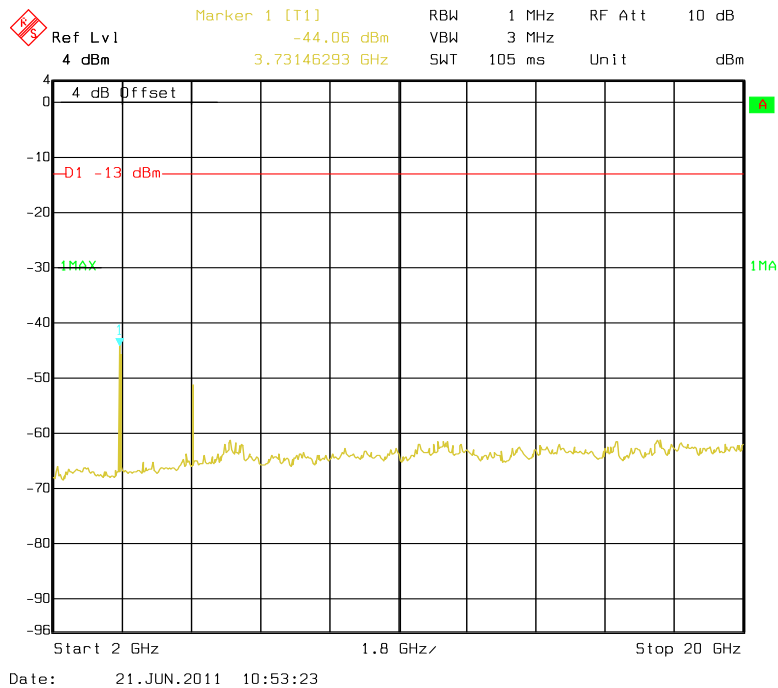
Date: 21.JUN.2011 12:10:22

1 – 2 GHz - Middle Channel

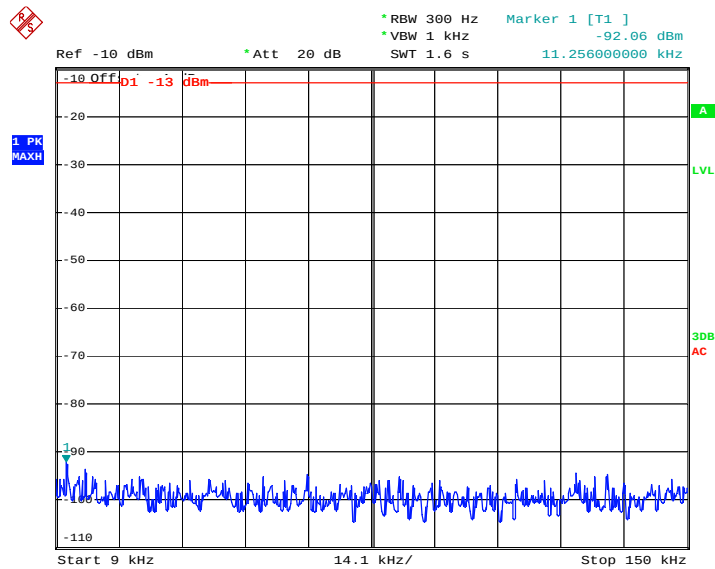


Date: 21.JUN.2011 12:13:06

2-20 GHz - Middle Channel

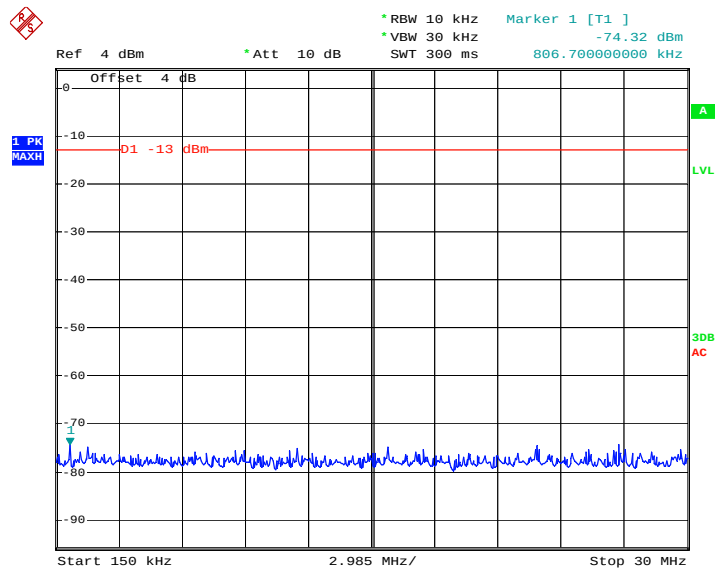


9-150 kHz – High Channel



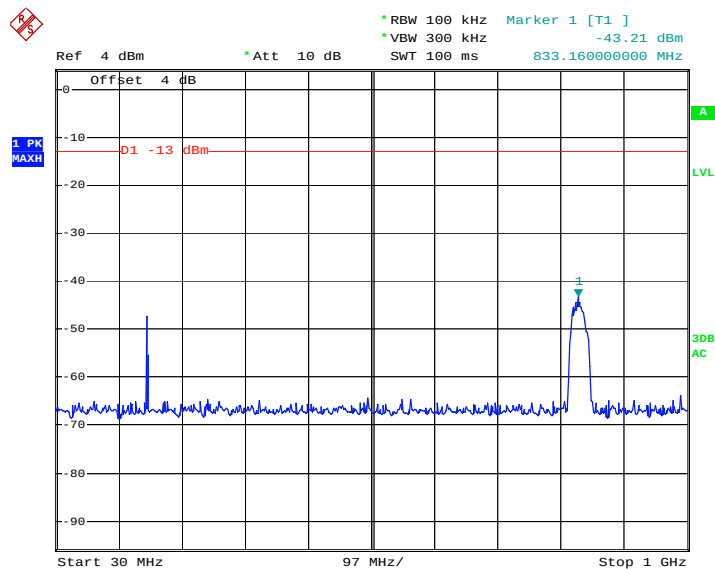
Date: 21.JUN.2011 12:04:42

150 kHz – 30 MHz - High Channel



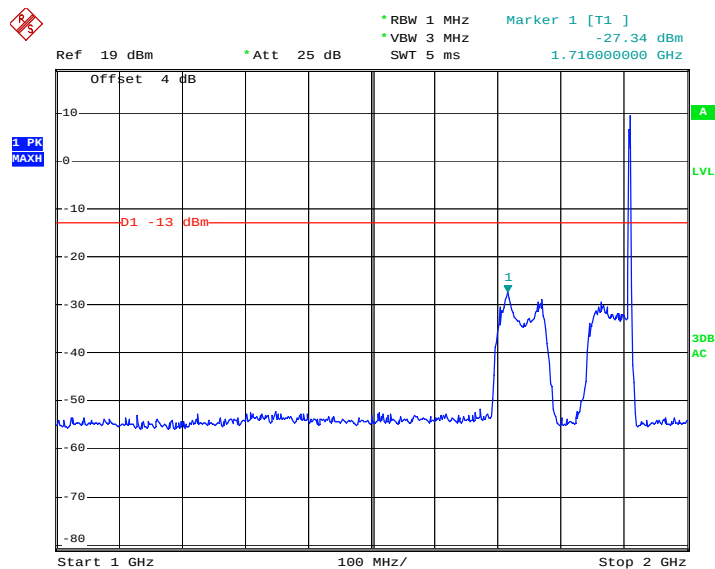
Date: 21.JUN.2011 12:06:46

30 – 1000 MHz - High Channel



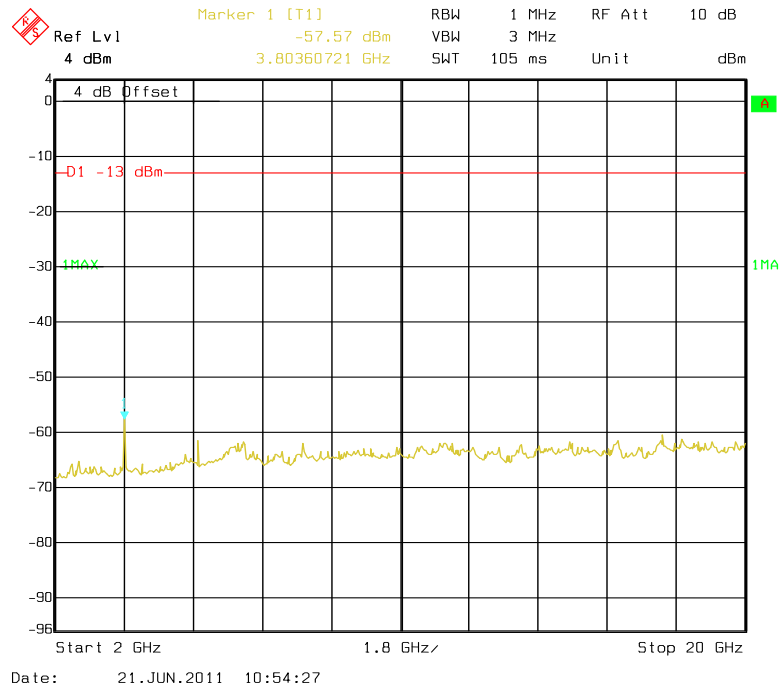
Date: 21.JUN.2011 12:11:17

1 – 2 GHz - High Channel

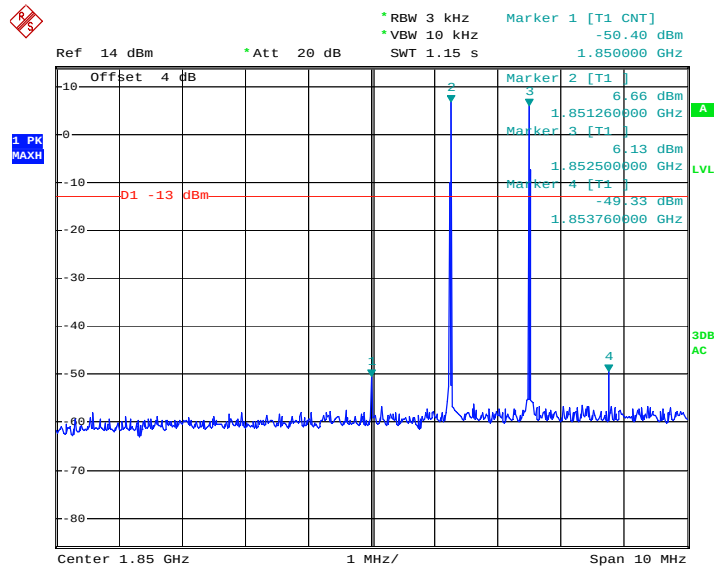


Date: 21.JUN.2011 12:12:33

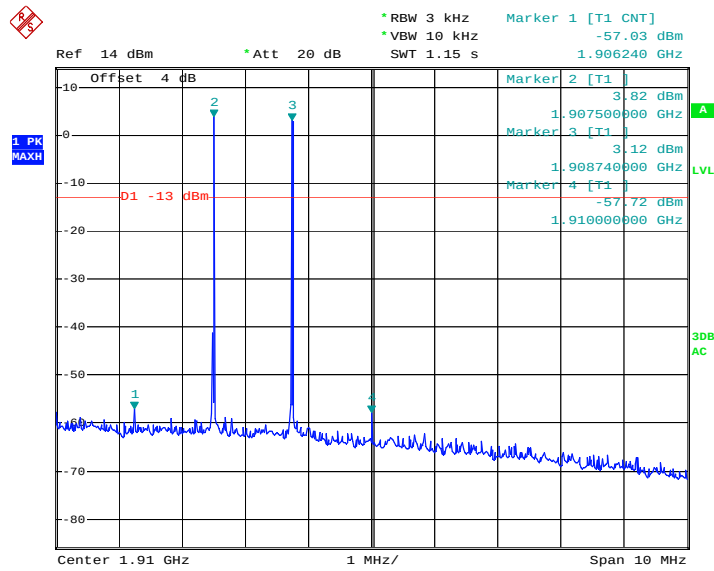
2 - 20 GHz - High Channel



Two tone Inter modulation (Low Band edge), unmodulated



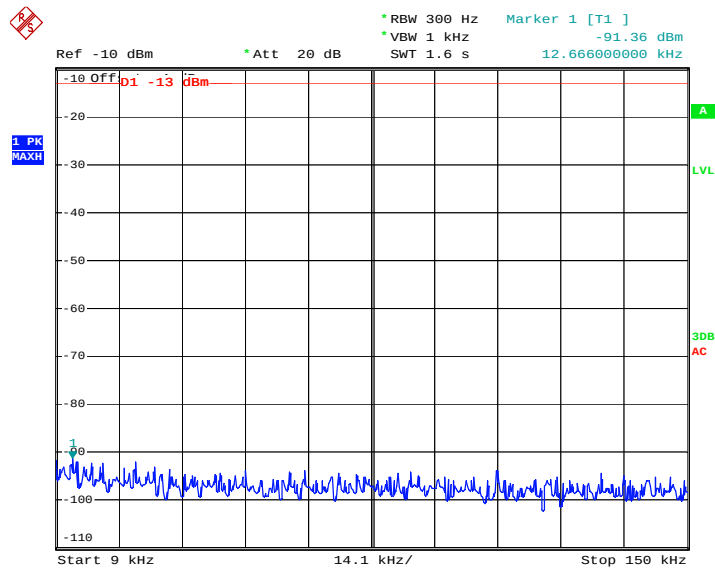
Two tone Inter modulation (High Band edge), unmodulated



Date: 20.JUN.2011 19:14:33

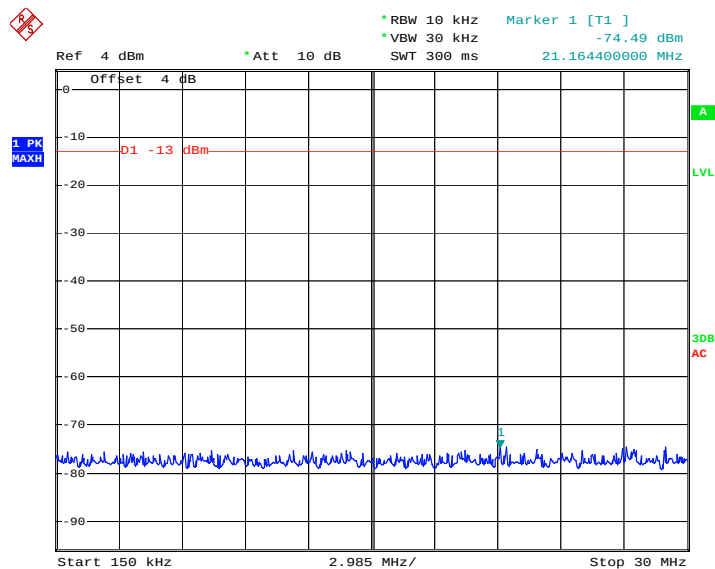
Downlink

9 - 150 kHz – Low Channel



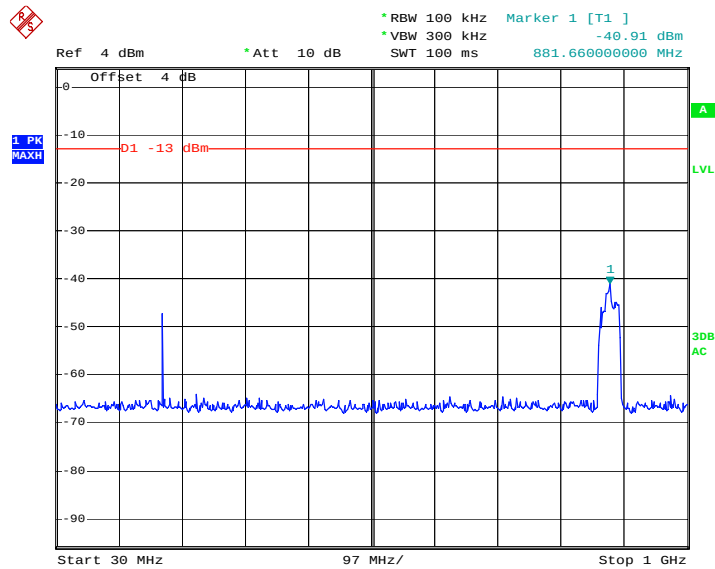
Date: 21.JUN.2011 12:03:29

150 kHz – 30 MHz - Low Channel



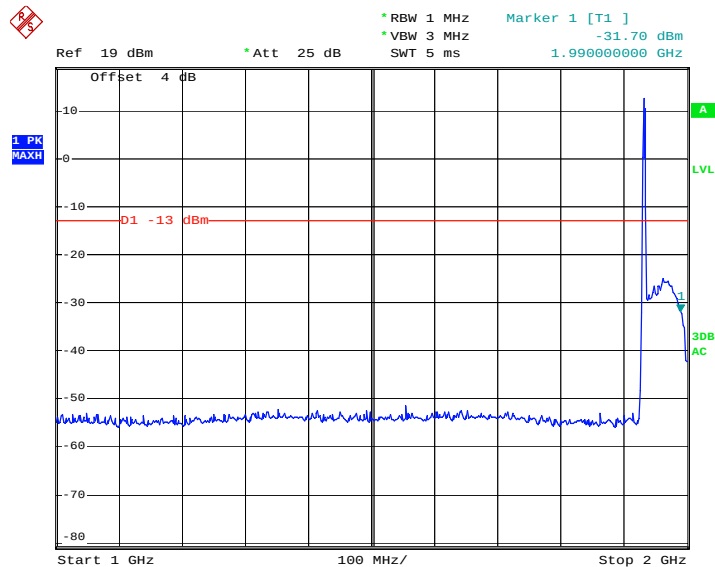
Date: 21.JUN.2011 12:07:44

30 – 1000 MHz - Low Channel



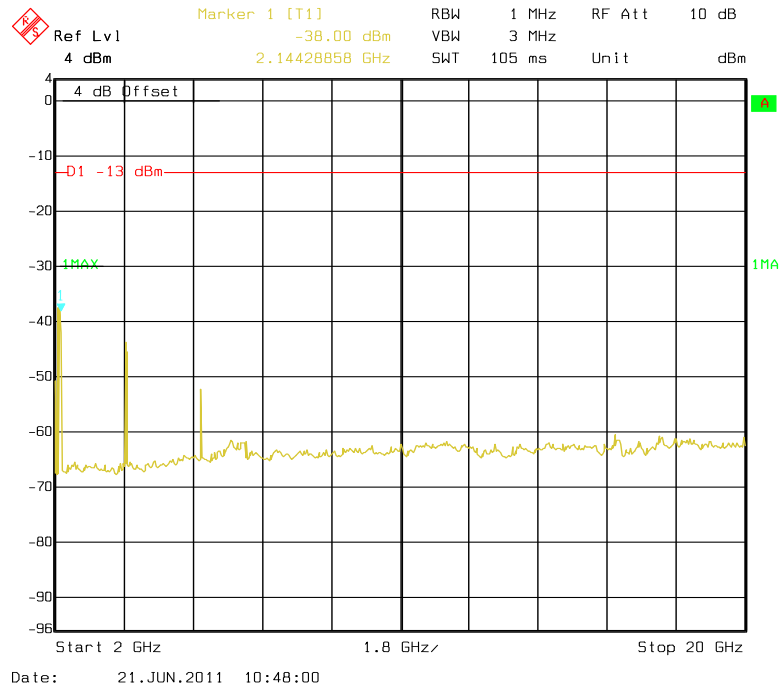
Date: 21.JUN.2011 12:19:32

1 – 2 GHz - Low Channel

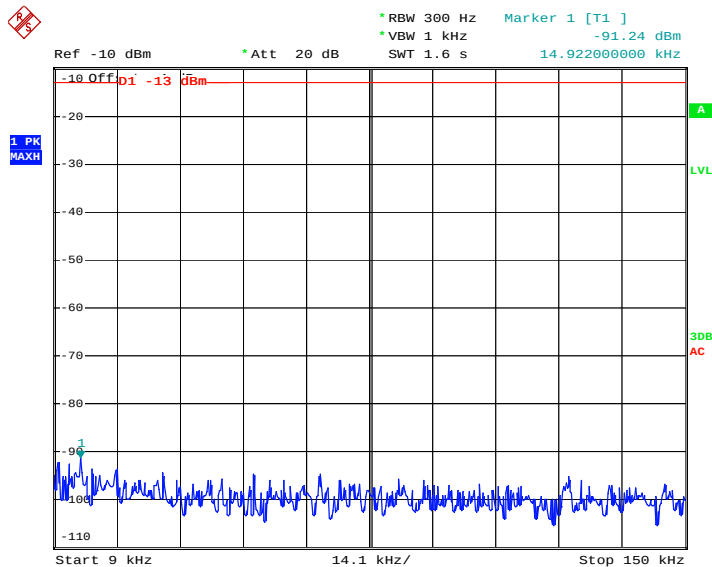


Date: 21.JUN.2011 12:15:24

2 - 20 GHz - Low Channel

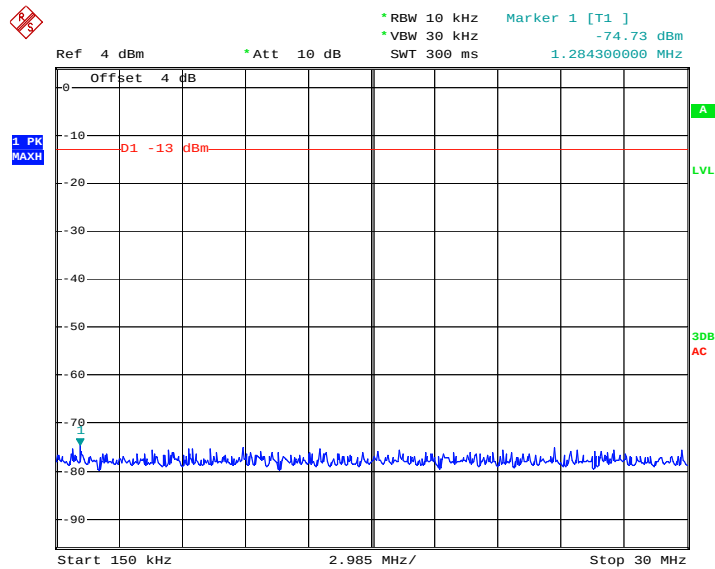


9 - 150 kHz - Middle Channel



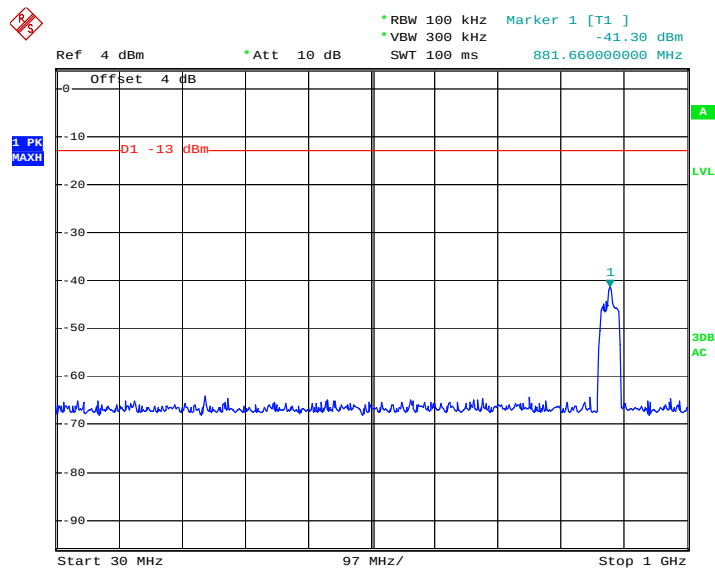
Date: 21.JUN.2011 12:03:59

150 kHz – 30 MHz - Middle Channel



Date: 21.JUN.2011 12:07:24

30 – 1000 MHz - Middle Channel



Date: 21.JUN.2011 12:19:04

1 PK MAXH

Offset 4 dB

Ref 19 dBm

* Att 25 dB

* RBW 1 MHz

* VBW 3 MHz

SWT 5 ms

Marker 1 [T1]

-30.95 dBm

1.990000000 GHz

Start 1 GHz

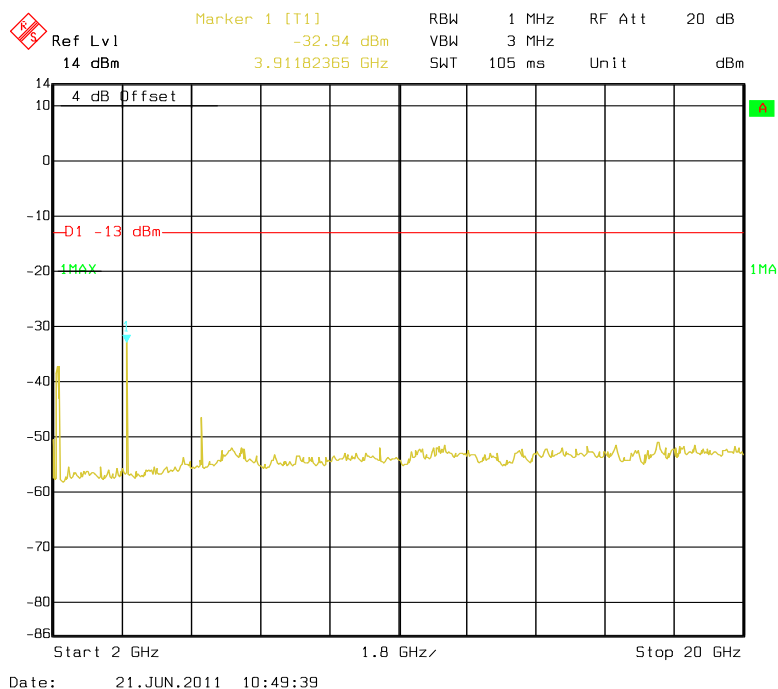
100 MHz/

Stop 2 GHz

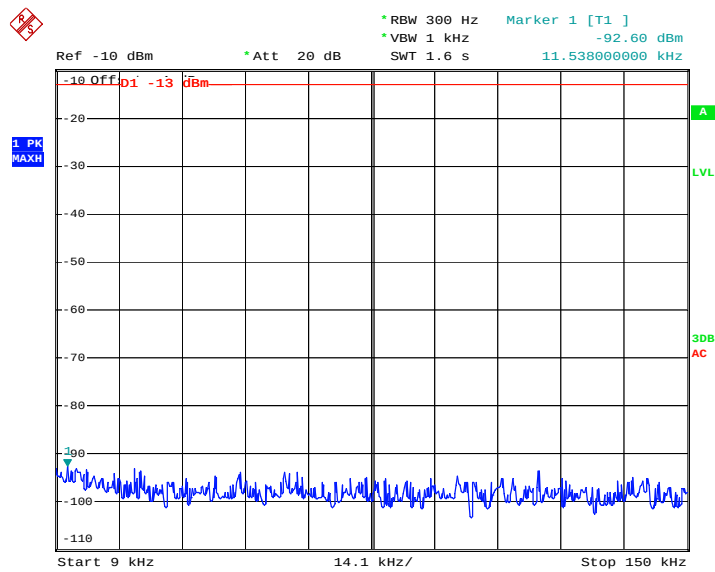
LVL

3dB AC

2 - 20 GHz - Middle Channel

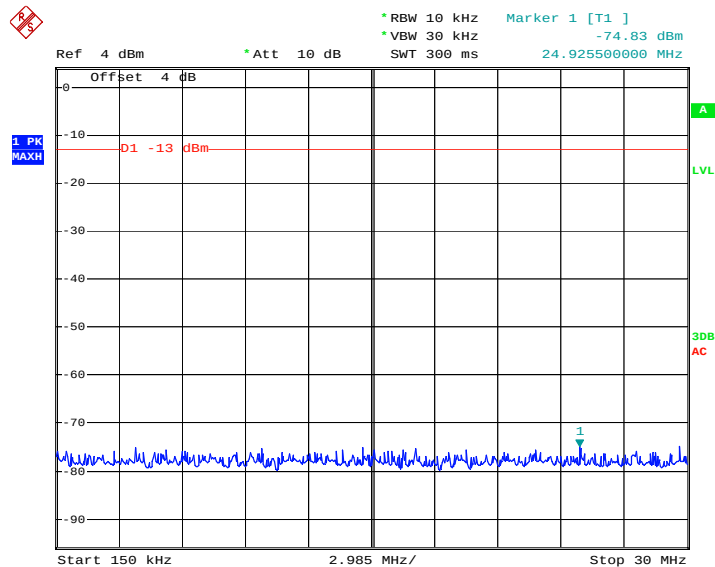


9 - 150 kHz – High Channel



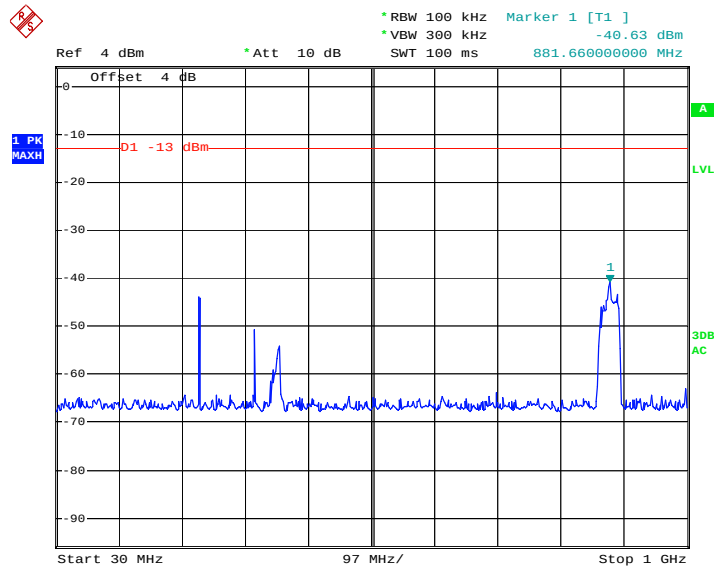
Date: 21.JUN.2011 12:04:21

150 kHz – 30 MHz - High Channel



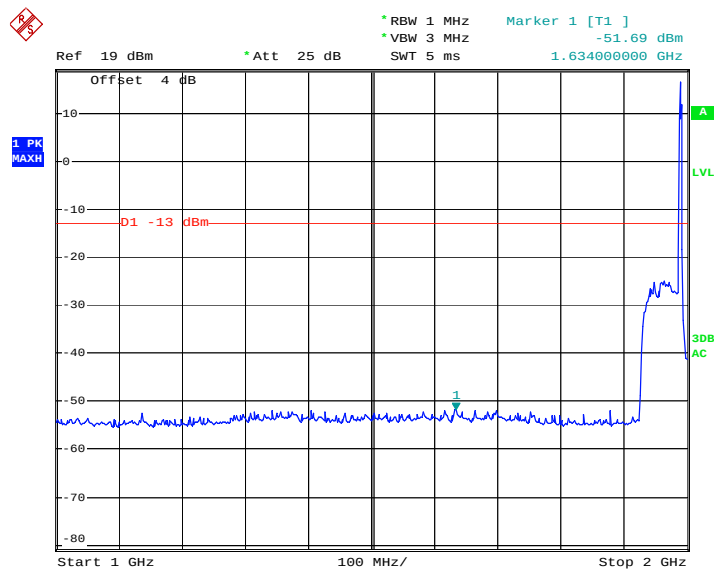
Date: 21.JUN.2011 12:07:04

30 – 1000 MHz - High Channel



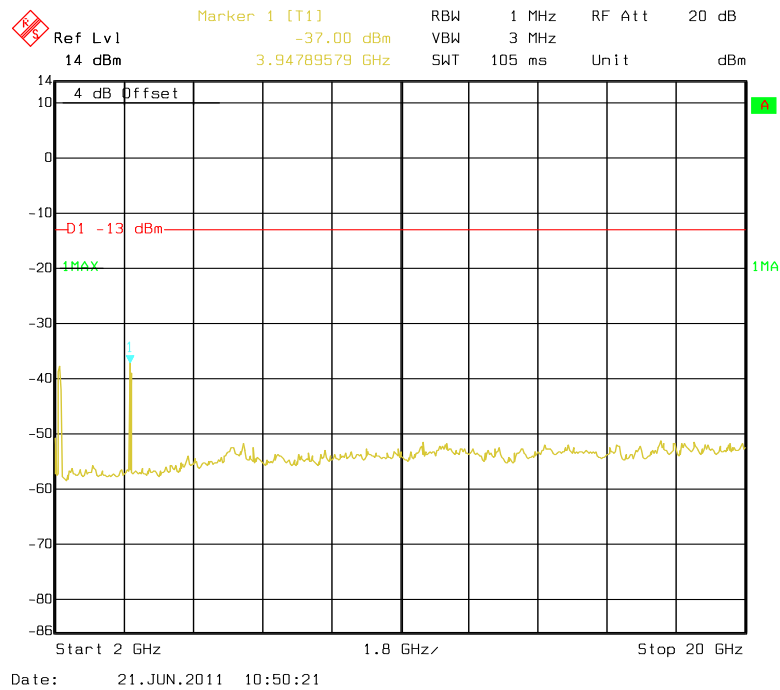
Date: 21.JUN.2011 12:18:37

1 – 2 GHz - High Channel

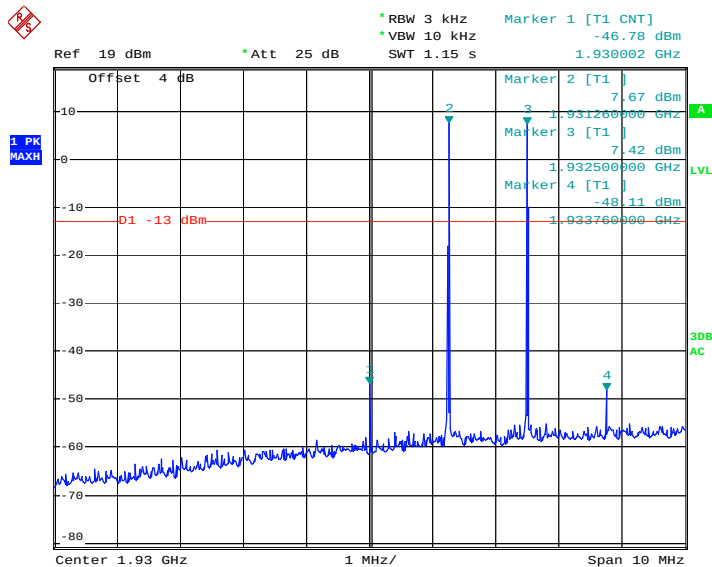


Date: 21.JUN.2011 12:17:59

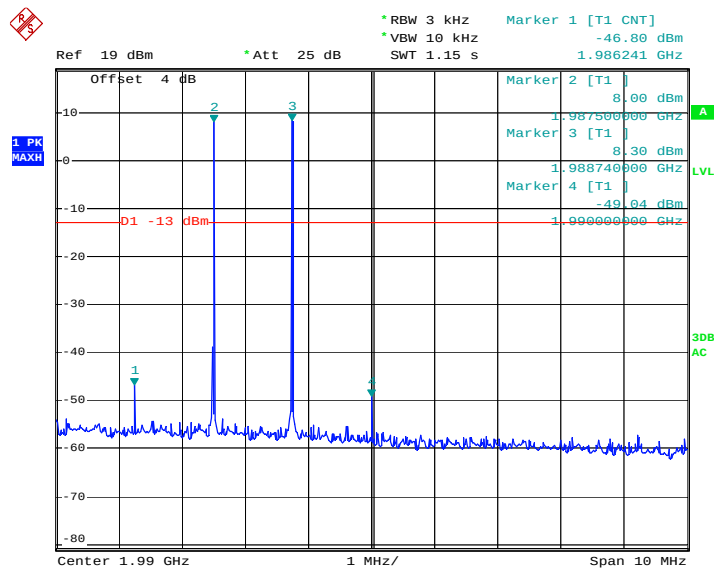
2 - 20 GHz - High Channel



Two tone Inter modulation (Low Band edge), unmodulated



Two tone Inter modulation (High Band edge), unmodulated

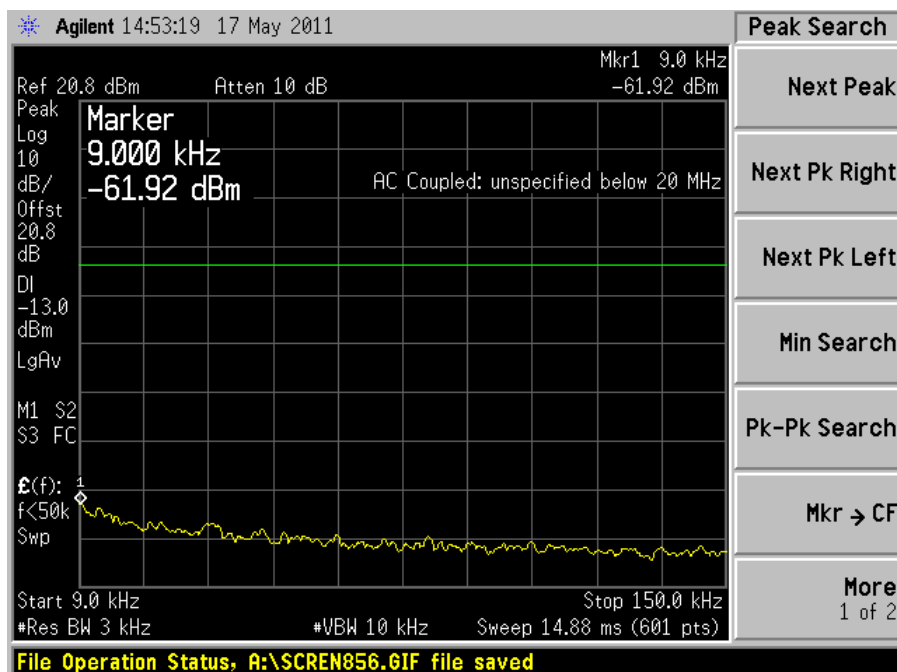


Date: 20.JUN.2011 19:20:23

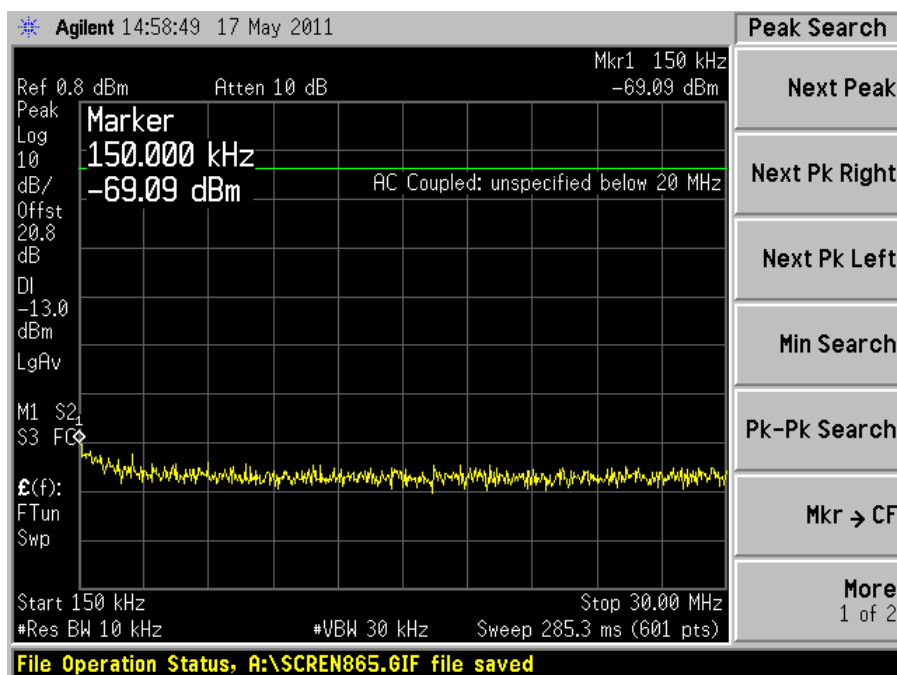
WCDMA AWS Band (PART 27)

Uplink mode:

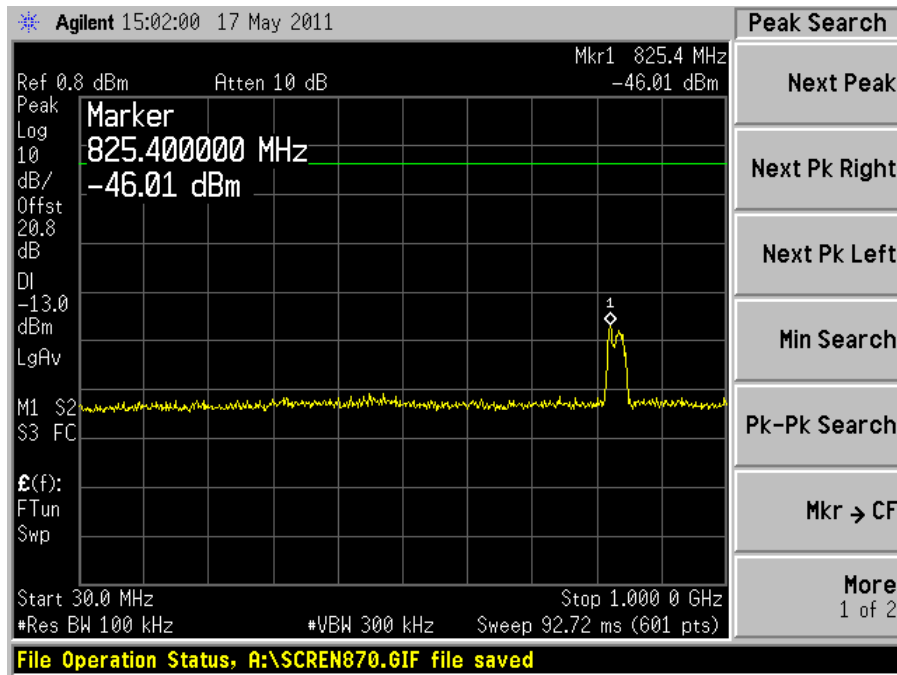
9-150 kHz - Low Channel



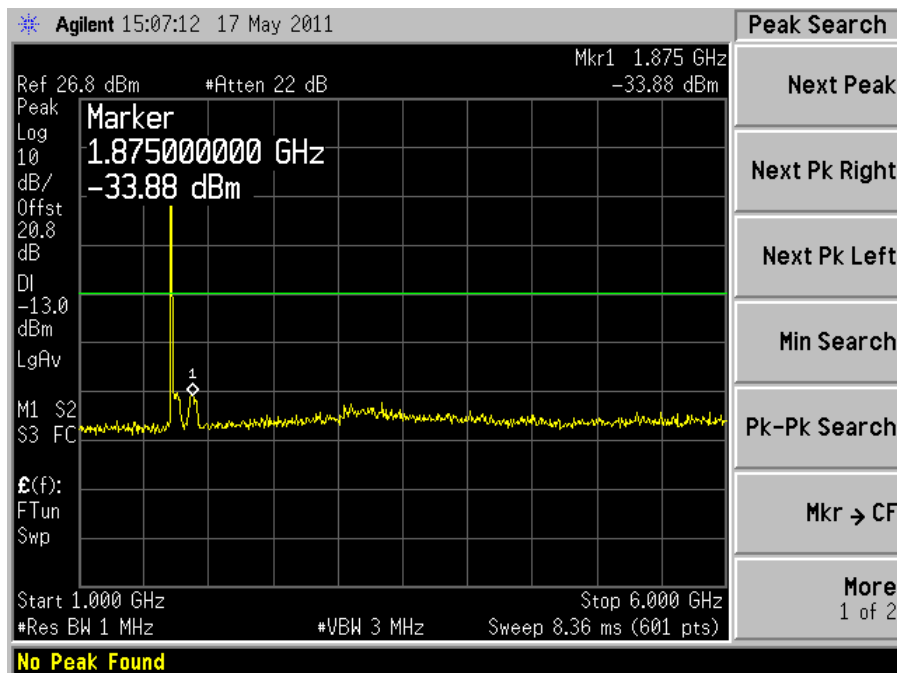
150 kHz – 30 MHz - Low Channel



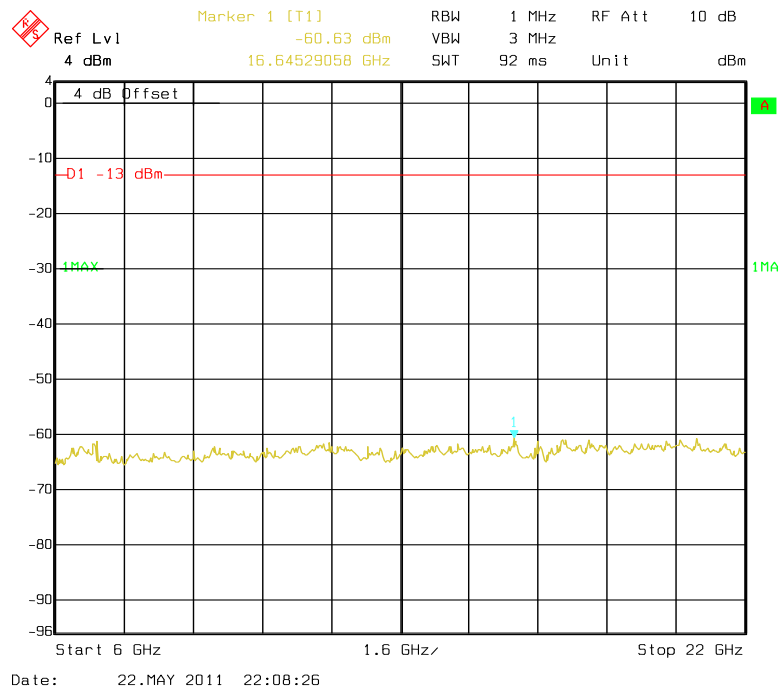
30 – 1000 MHz - Low Channel



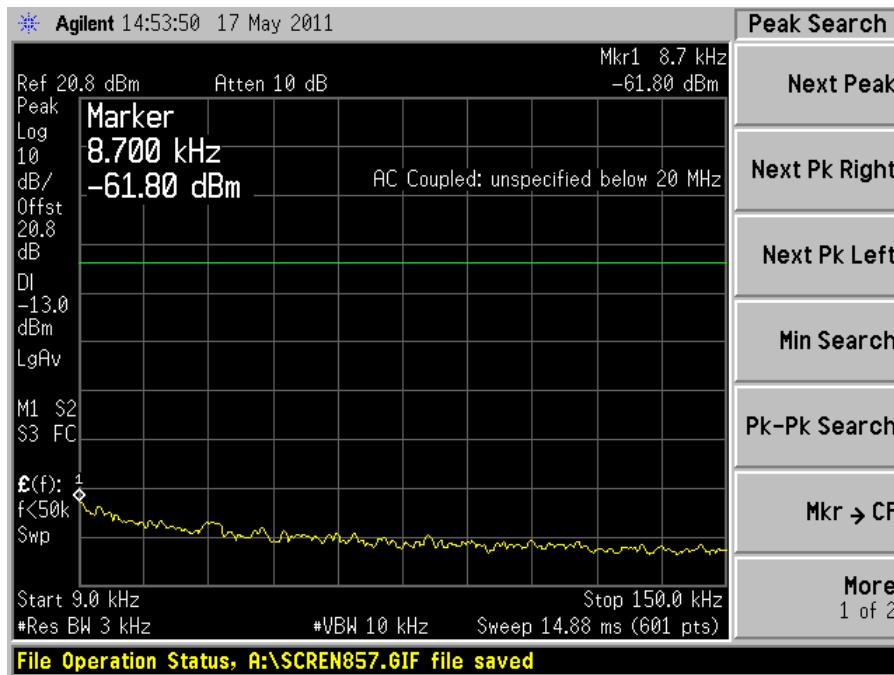
1 – 6 GHz - Low Channel



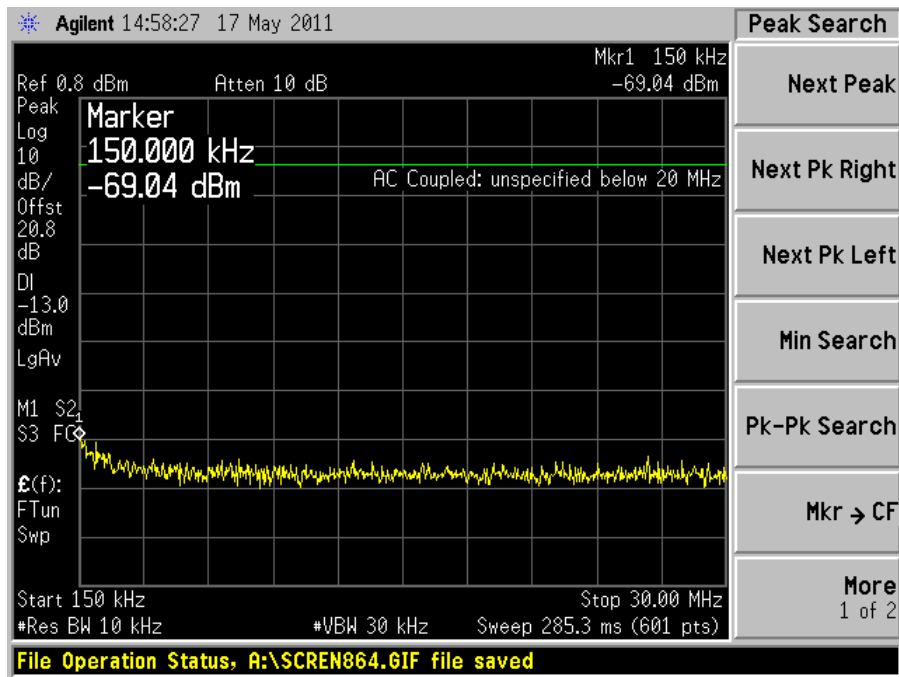
6 – 22 GHz - Low Channel



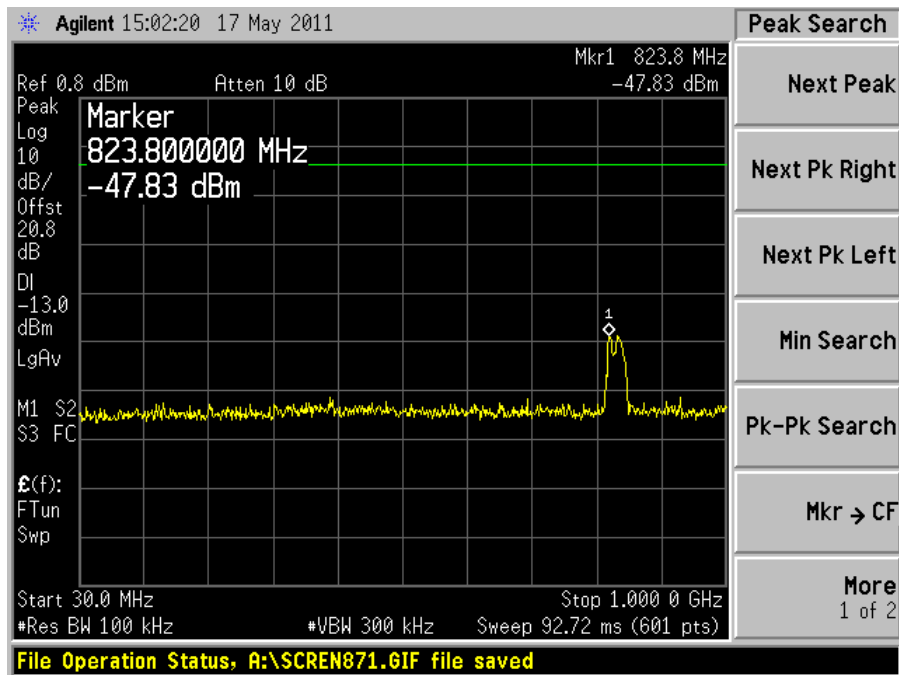
9-150 kHz - Middle Channel



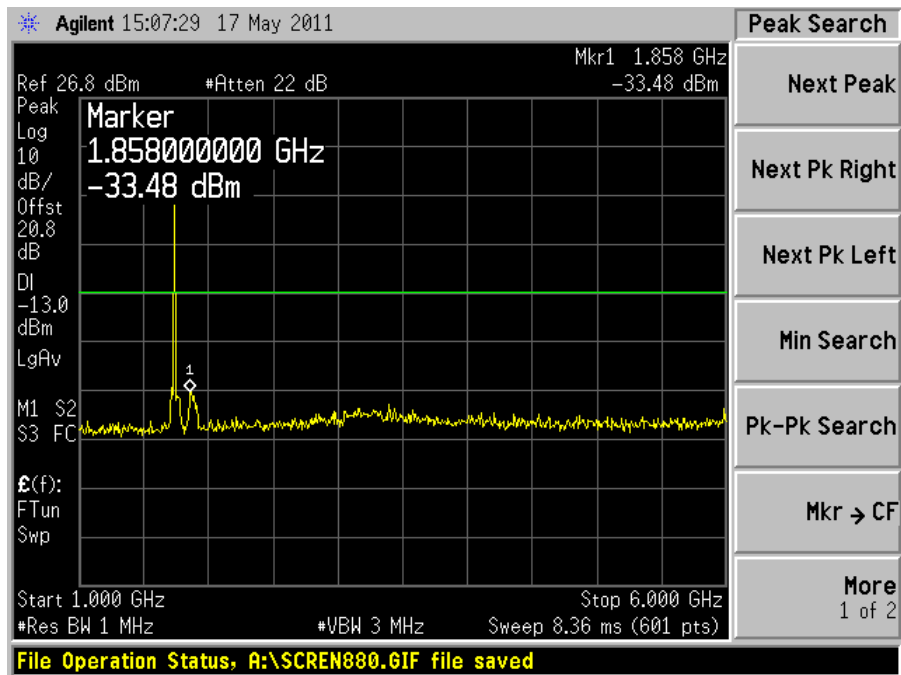
150 kHz – 30 MHz - Middle Channel



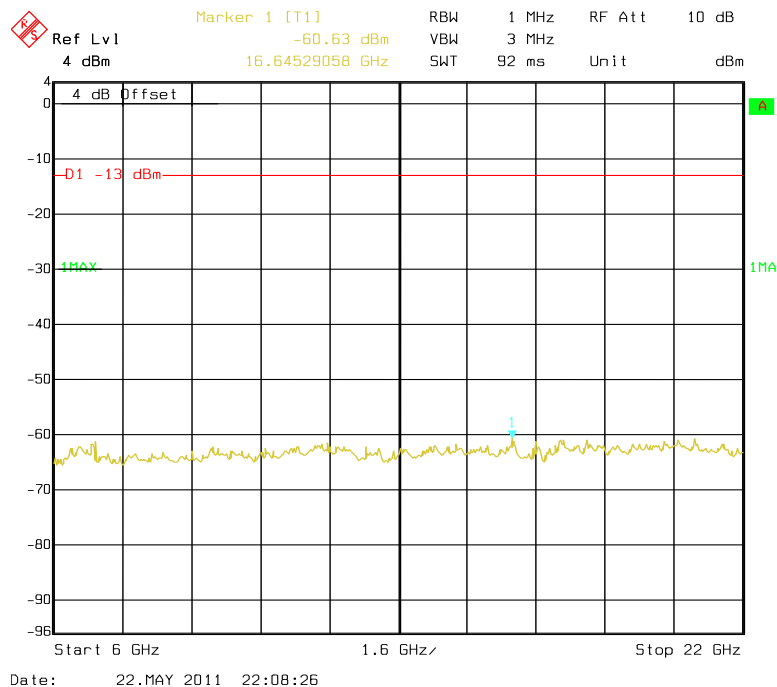
30 – 1000 MHz - Middle Channel



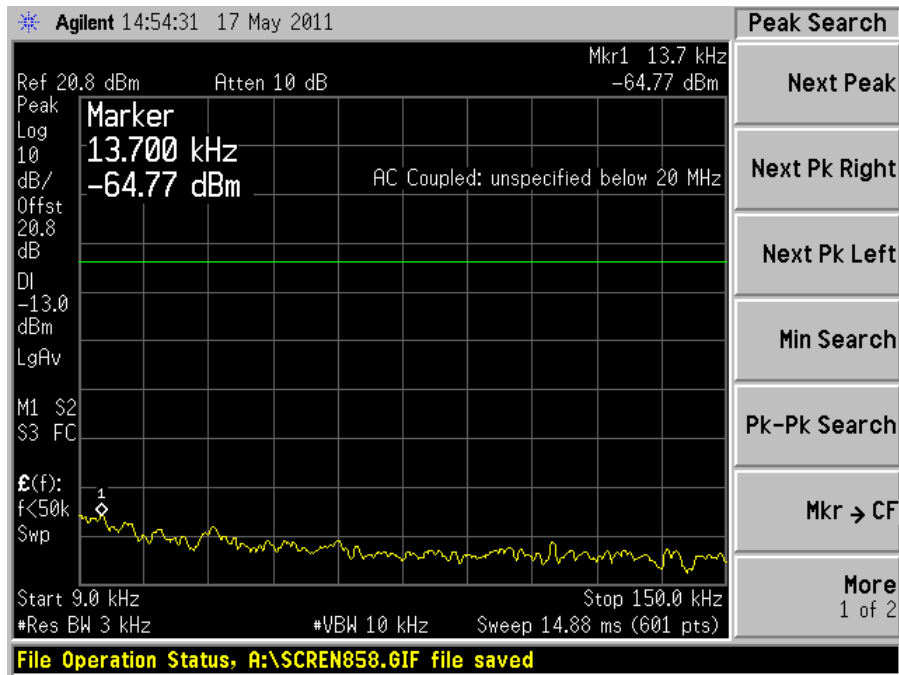
1 – 6 GHz - Middle Channel



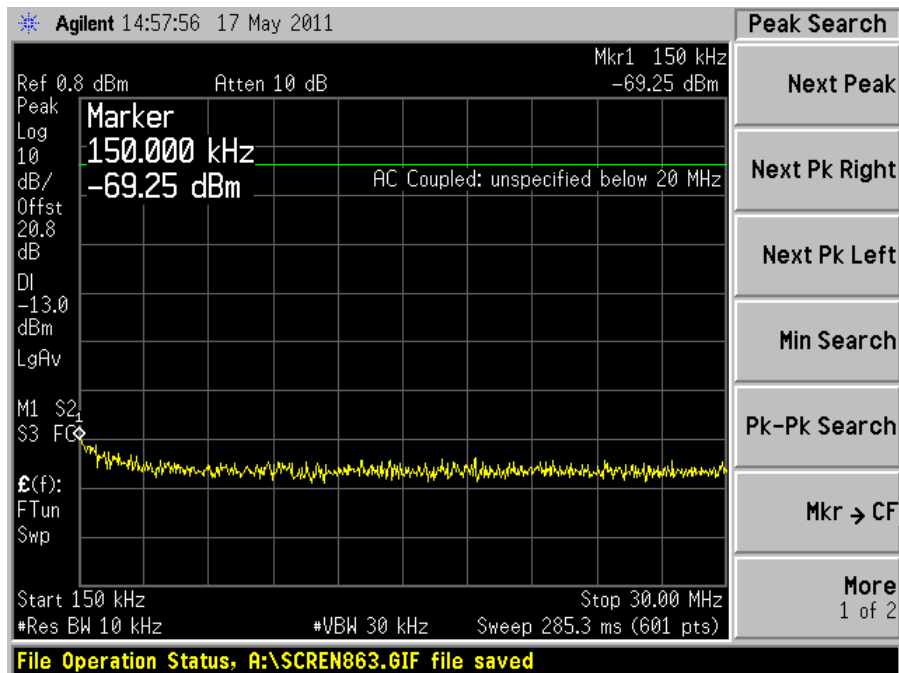
6 – 22 GHz - Middle Channel



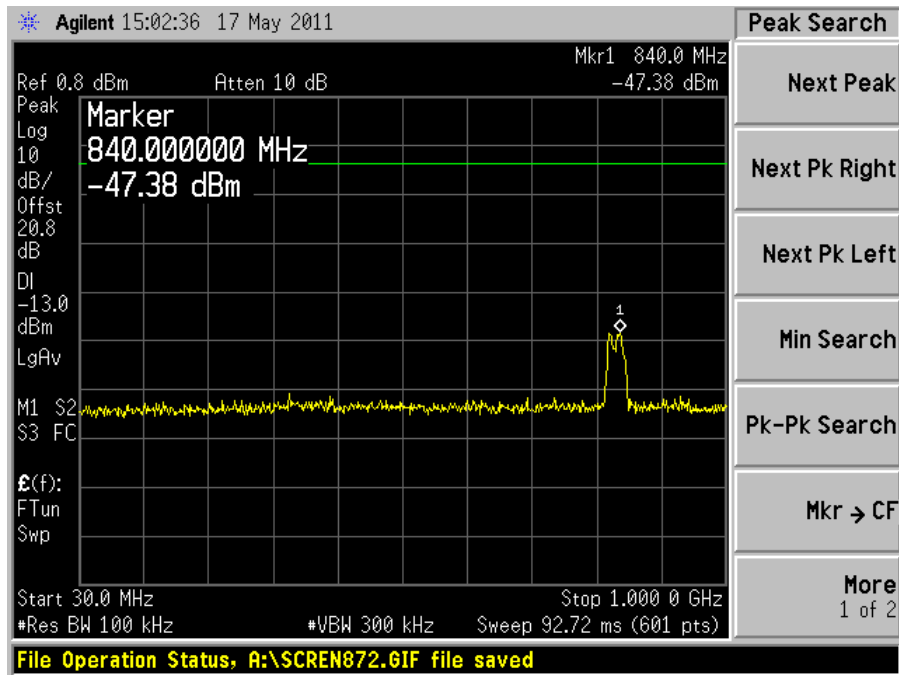
9-150 kHz – High Channel



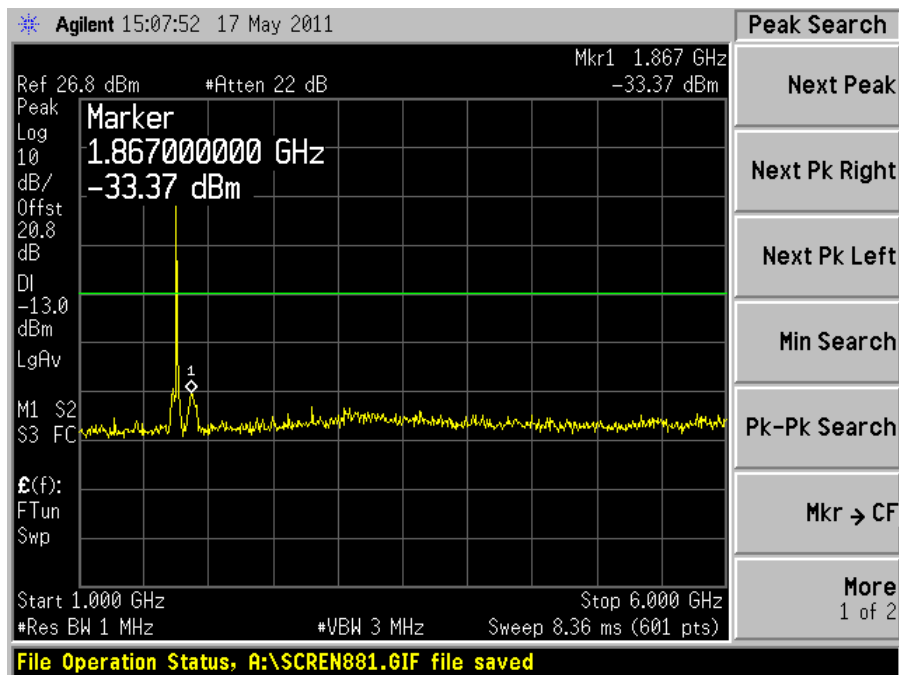
150 kHz – 30 MHz - High Channel



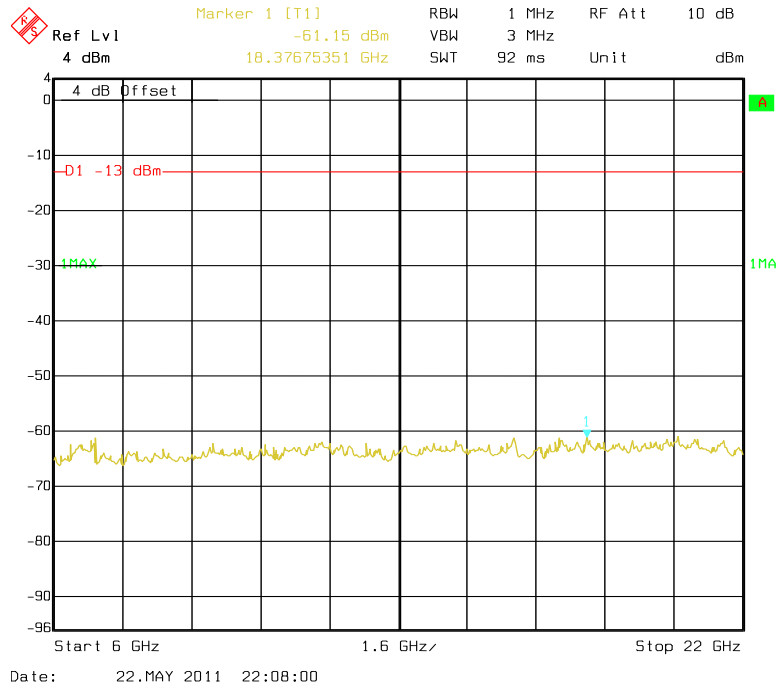
30 – 1000 MHz - High Channel



1 – 6 GHz - High Channel

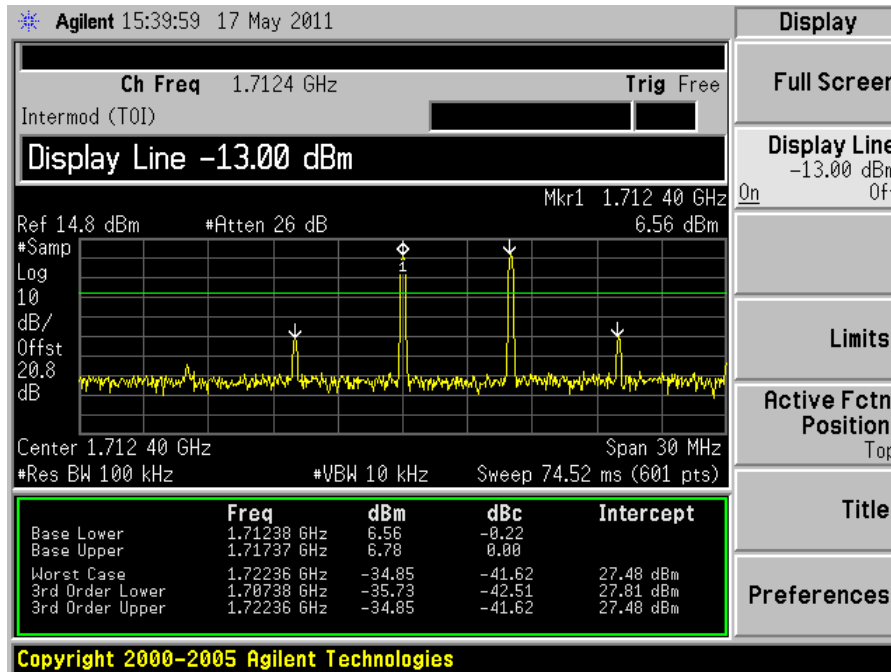


6 – 22 GHz - High Channel

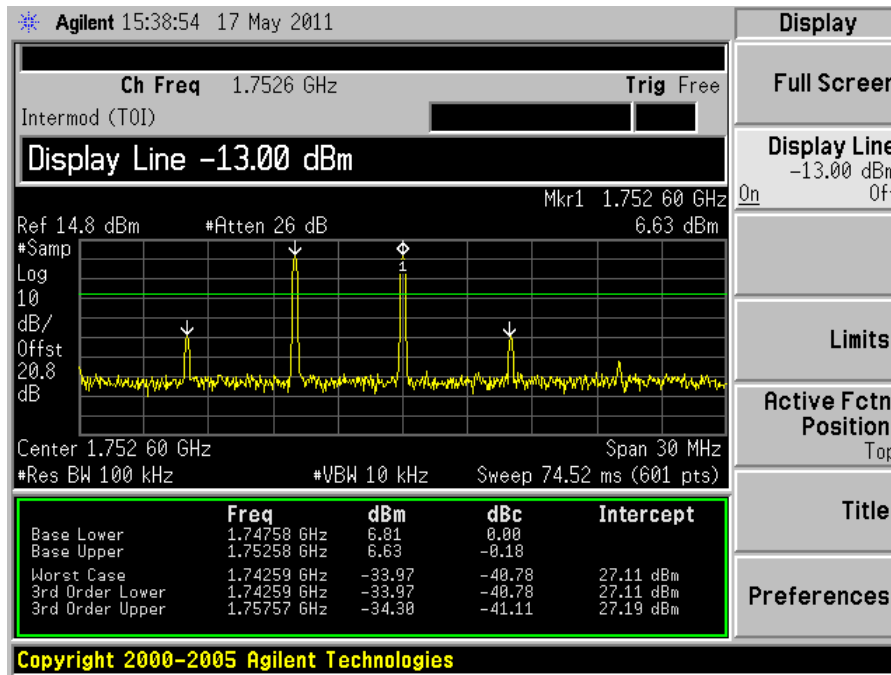


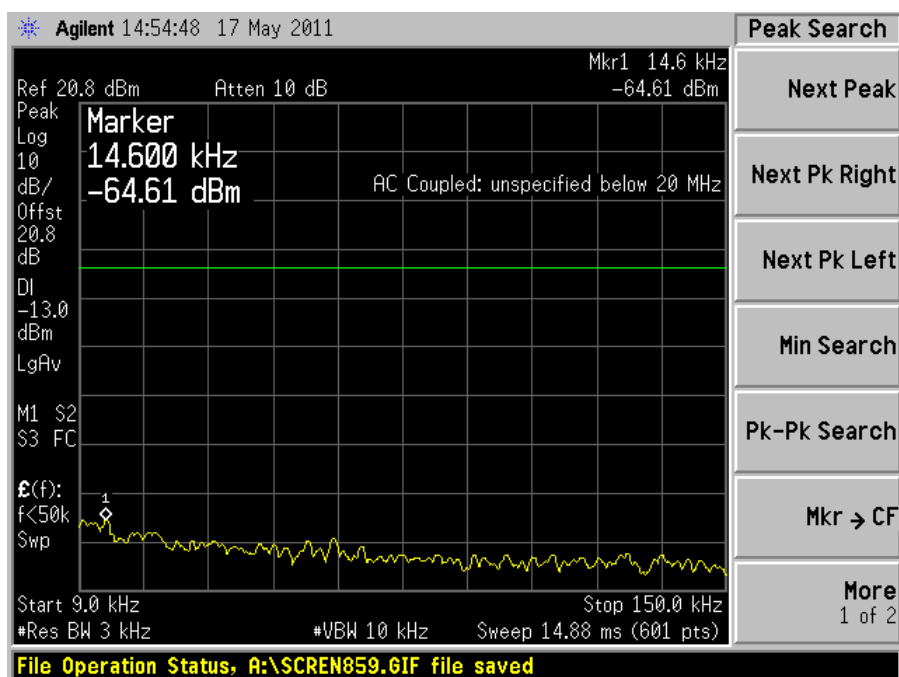
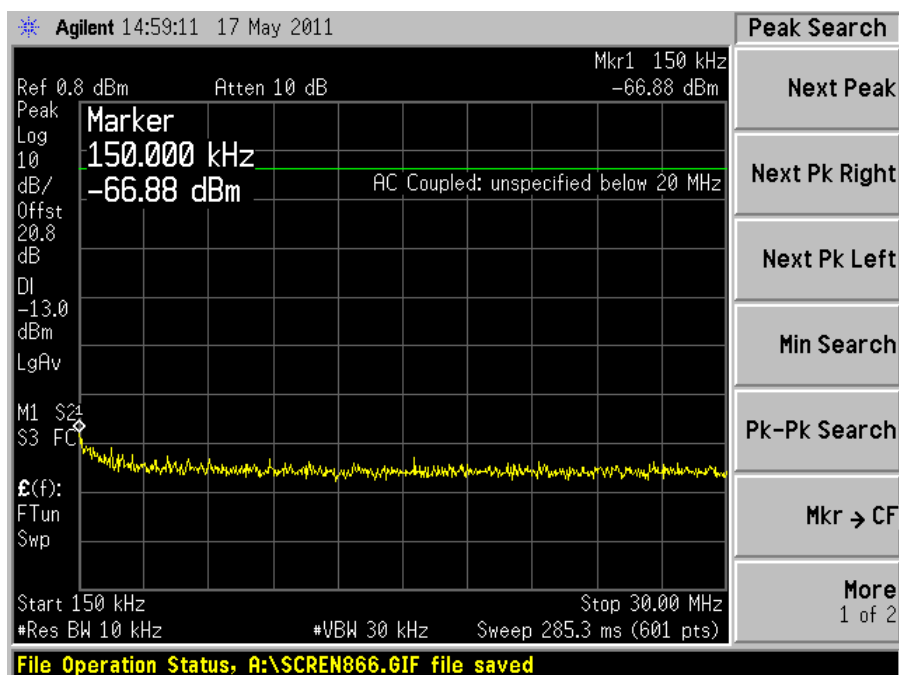
Uplink:

Two tone Inter modulation (Low Band edge), unmodulated

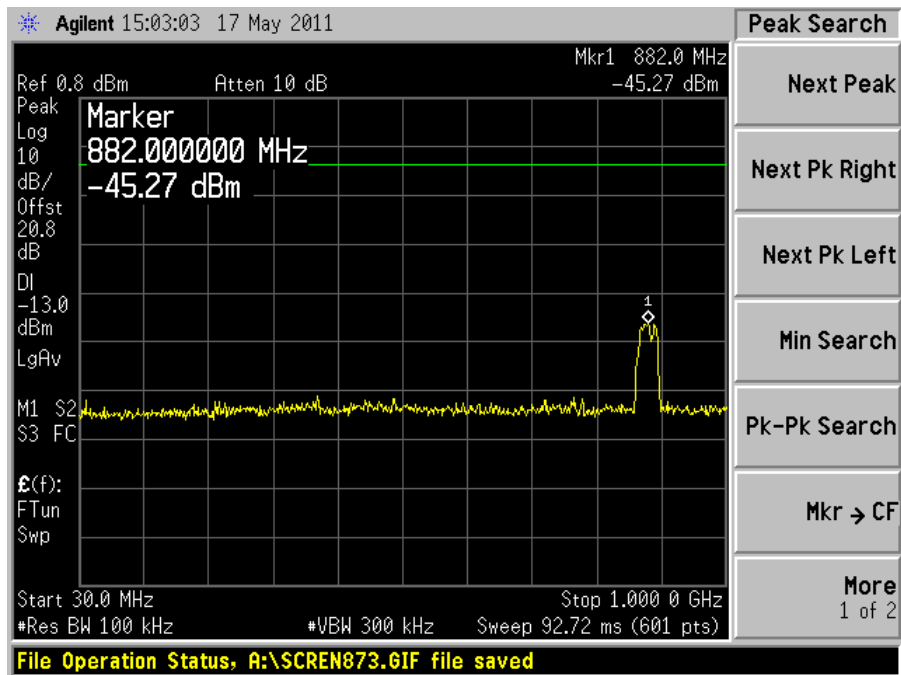


Two tone Inter modulation (High Band edge), unmodulated

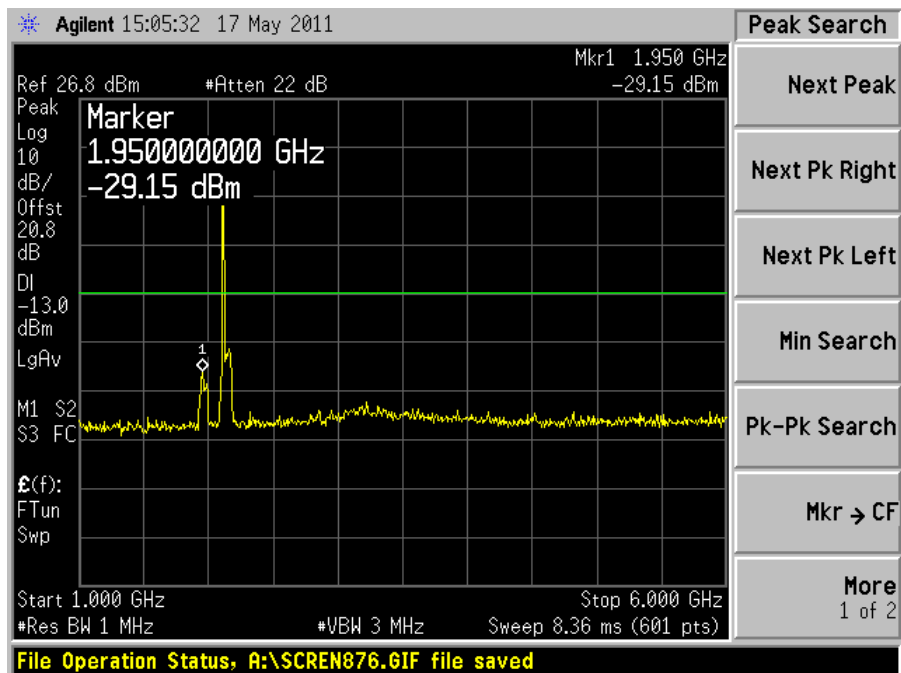


Downlink mode:**9-150 kHz - Low Channel****150 kHz – 30 MHz - Low Channel**

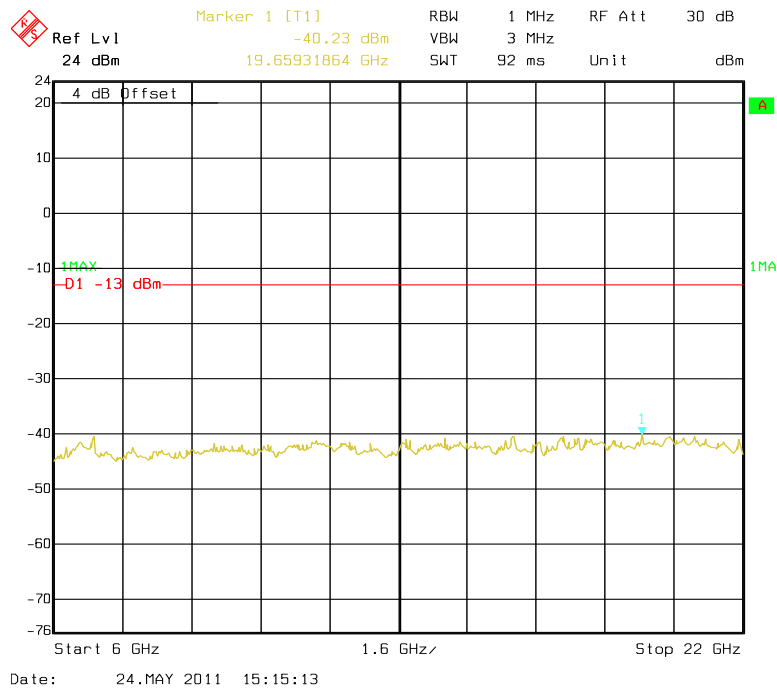
30 – 1000 MHz - Low Channel



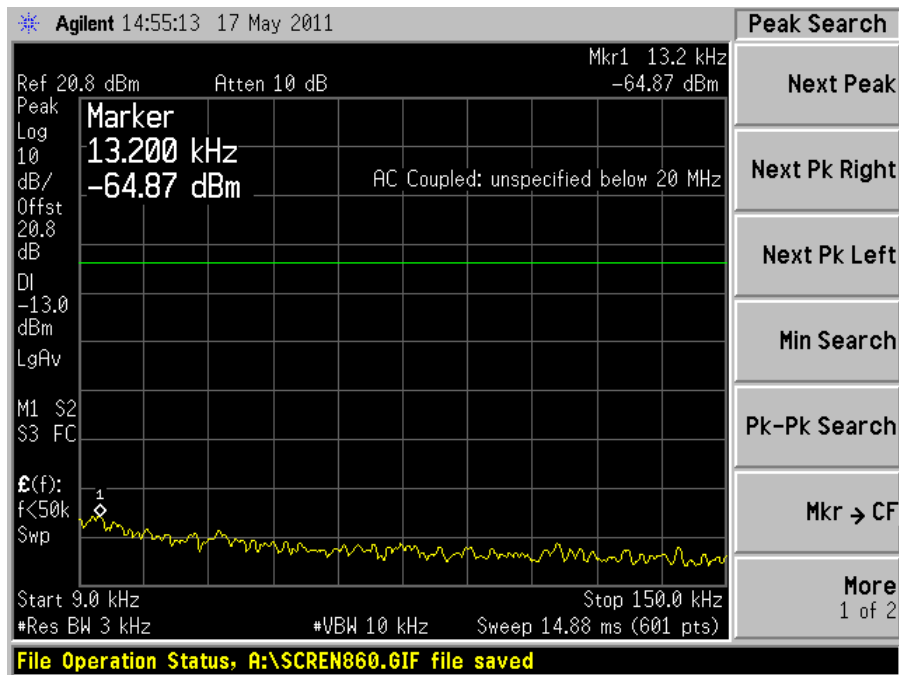
1 – 6 GHz - Low Channel



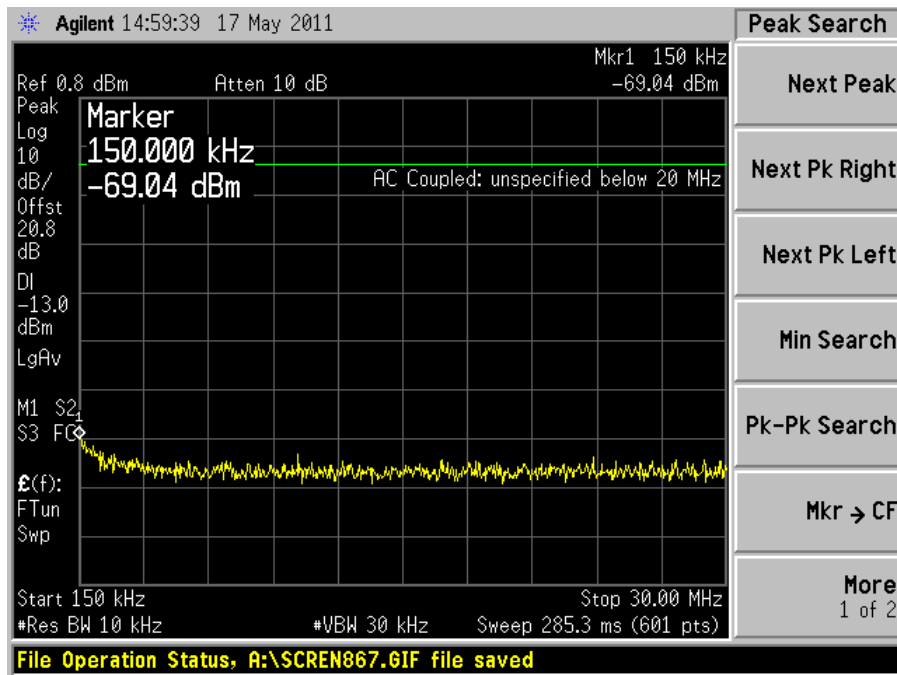
6 – 22 GHz - Low Channel



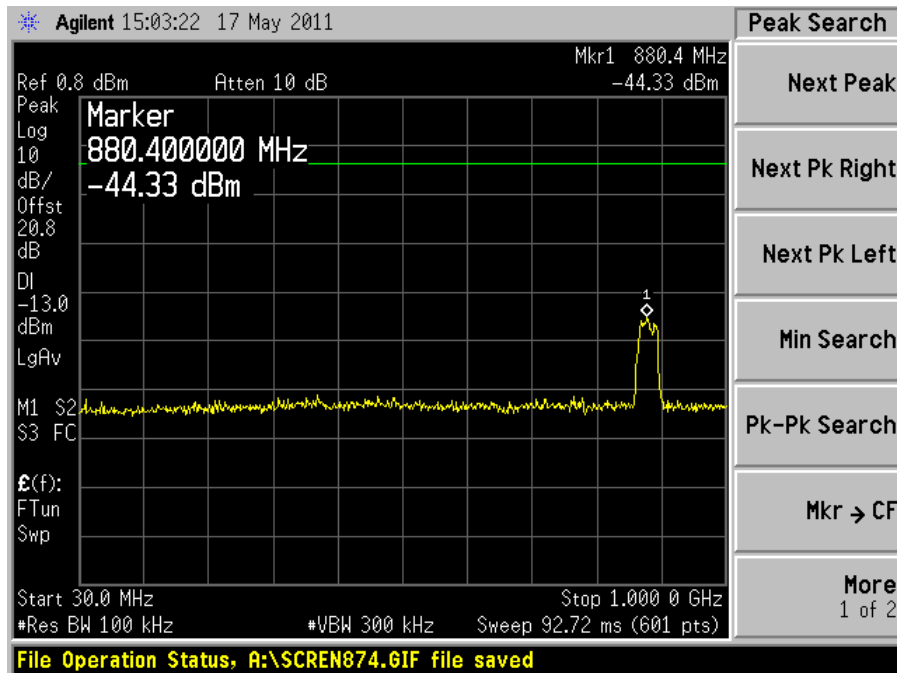
9-150 kHz - Middle Channel



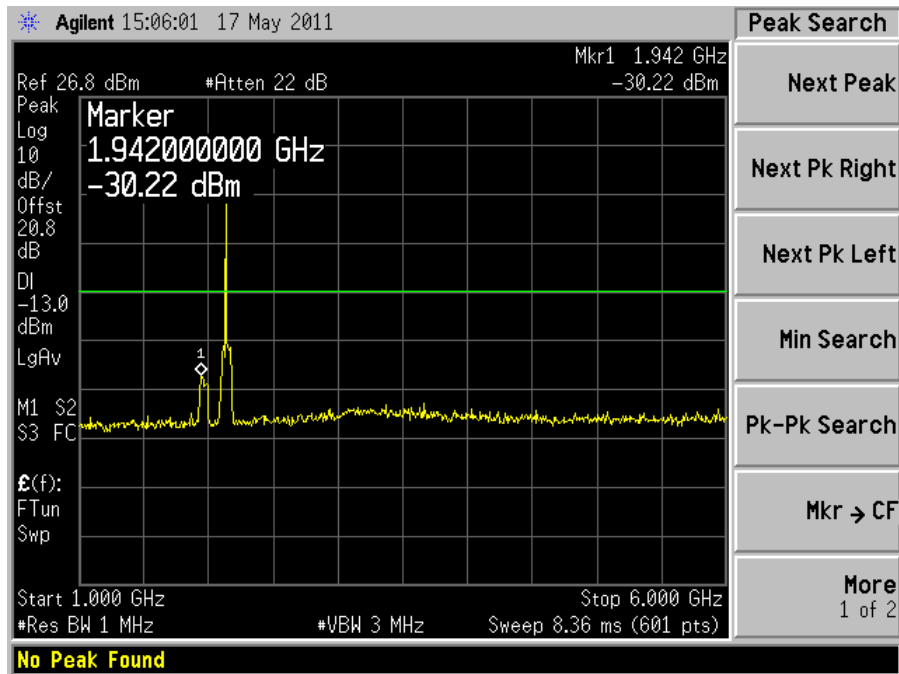
150 kHz – 30 MHz - Middle Channel



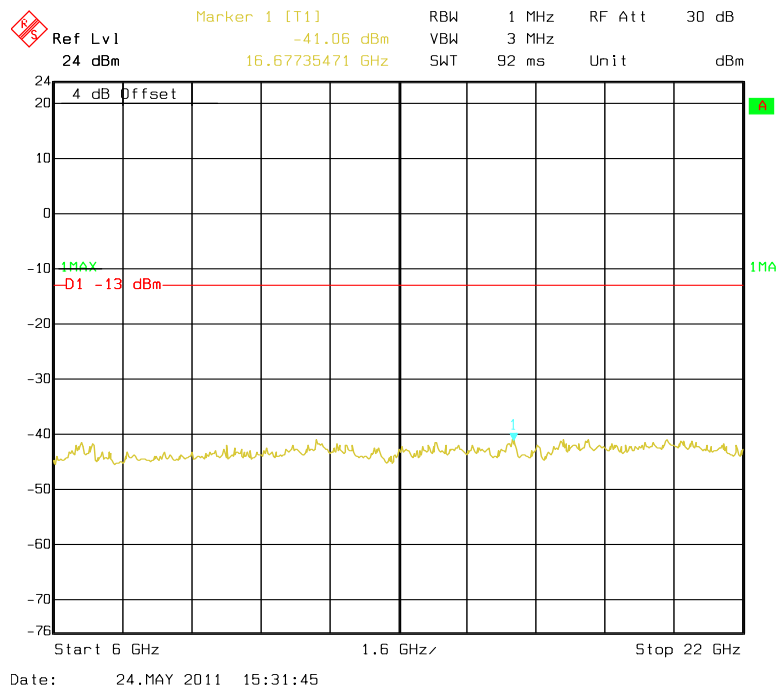
30 – 1000 MHz - Middle Channel



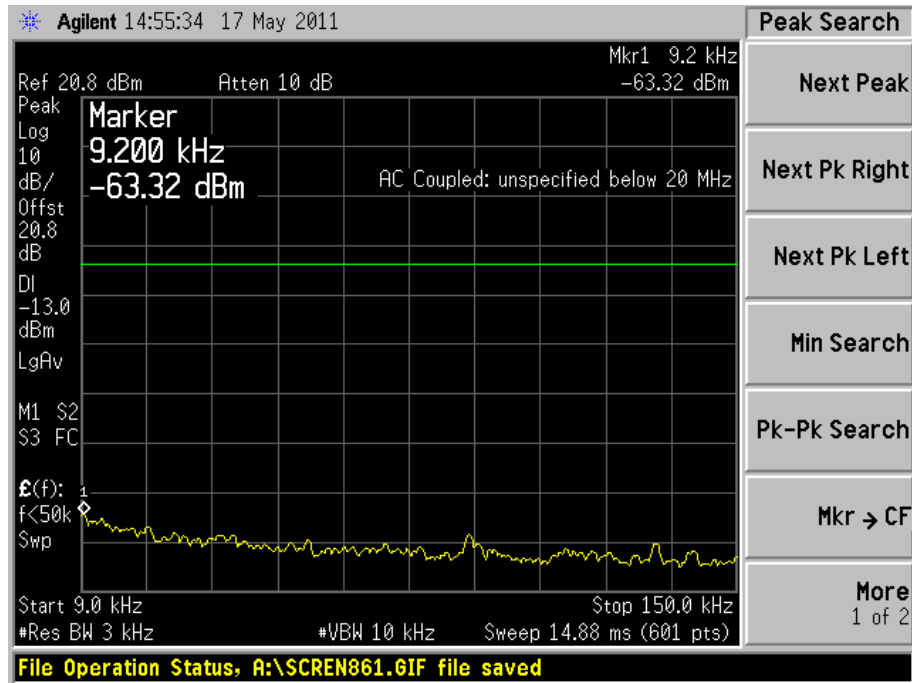
1 – 6 GHz - Middle Channel



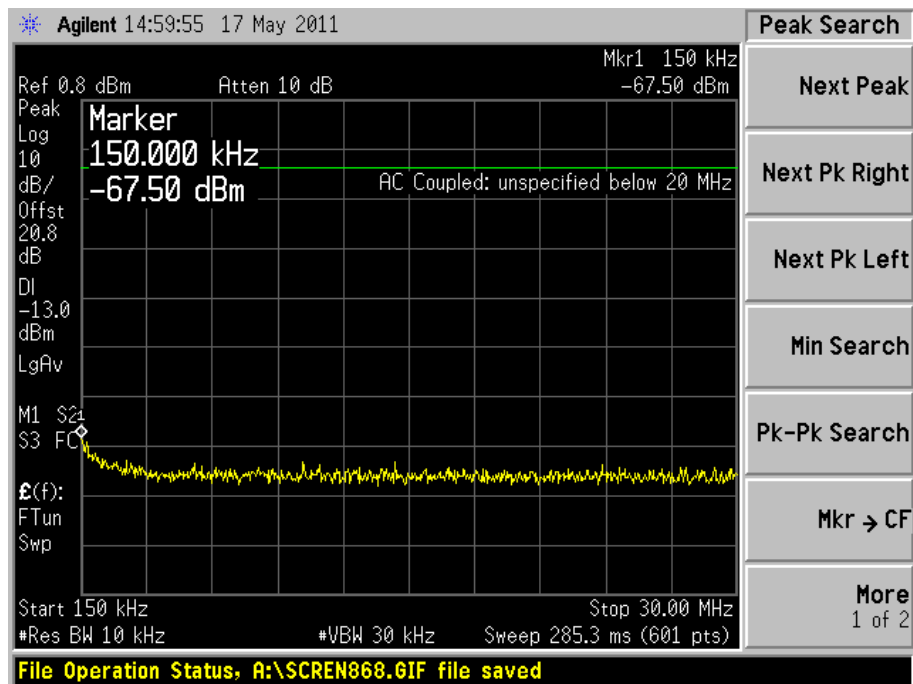
6 – 22 GHz - Middle Channel



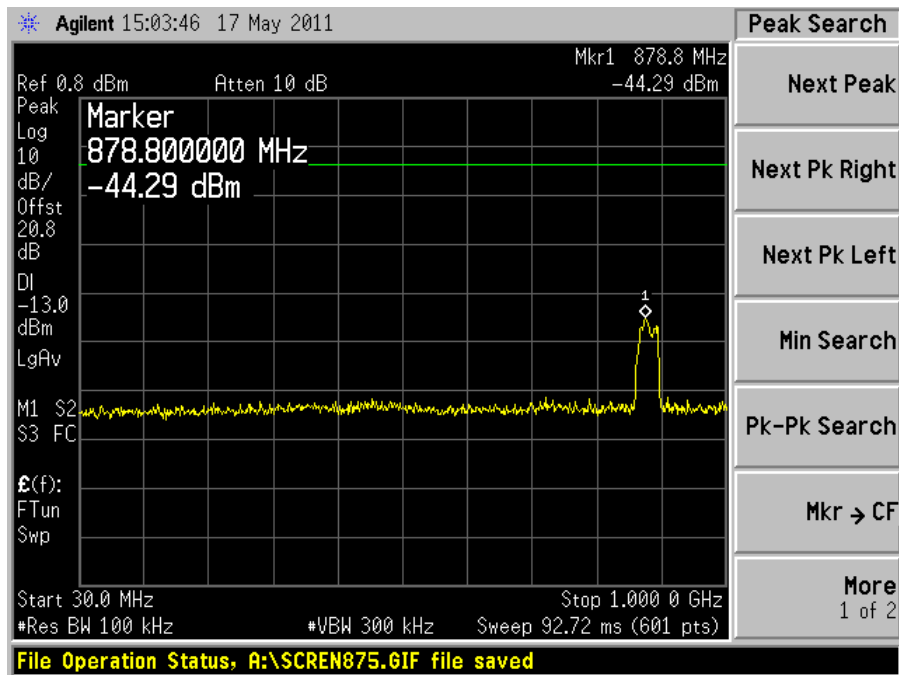
9-150 kHz – High Channel



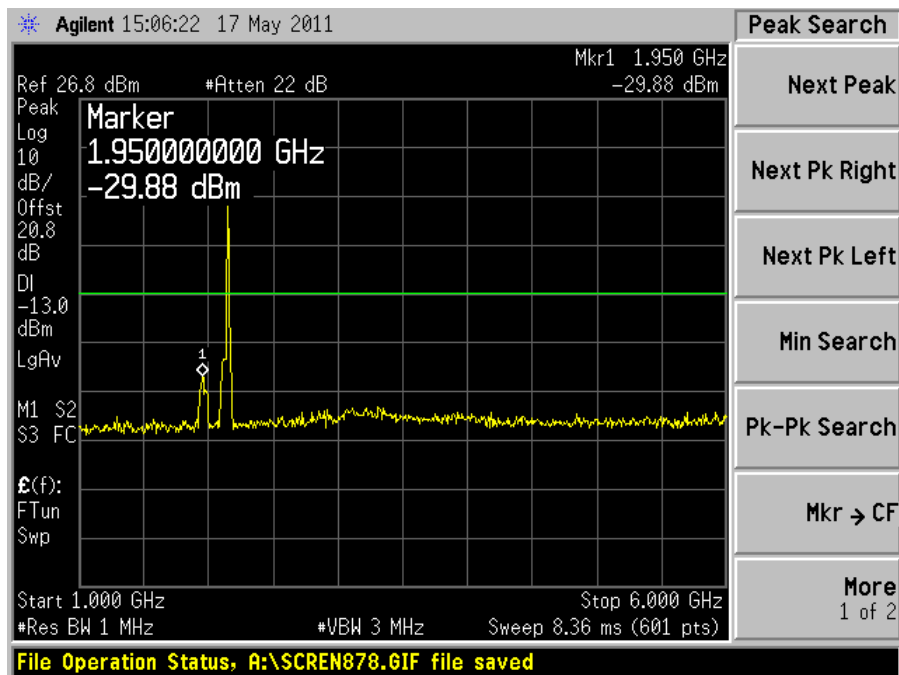
150 kHz – 30 MHz - High Channel



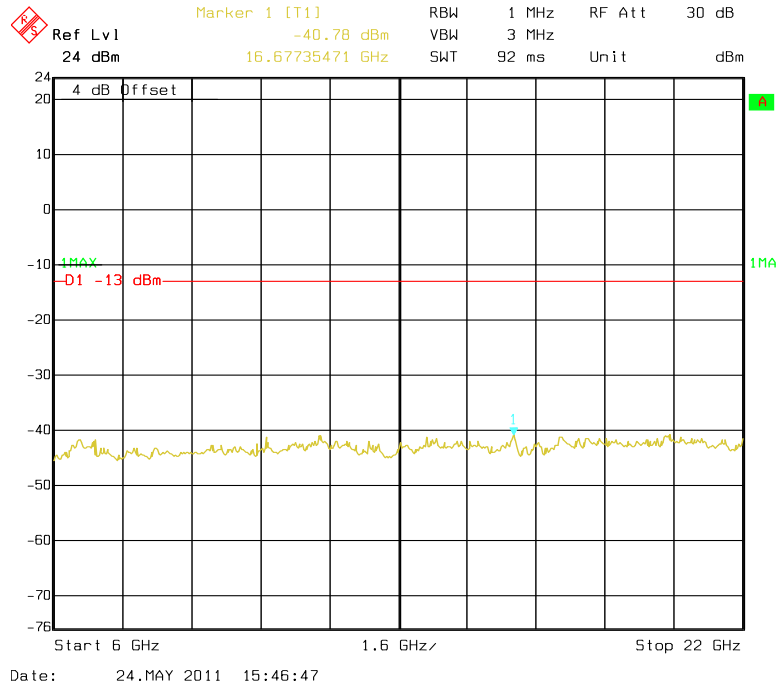
30 – 1000 MHz - High Channel



1 – 6 GHz - High Channel

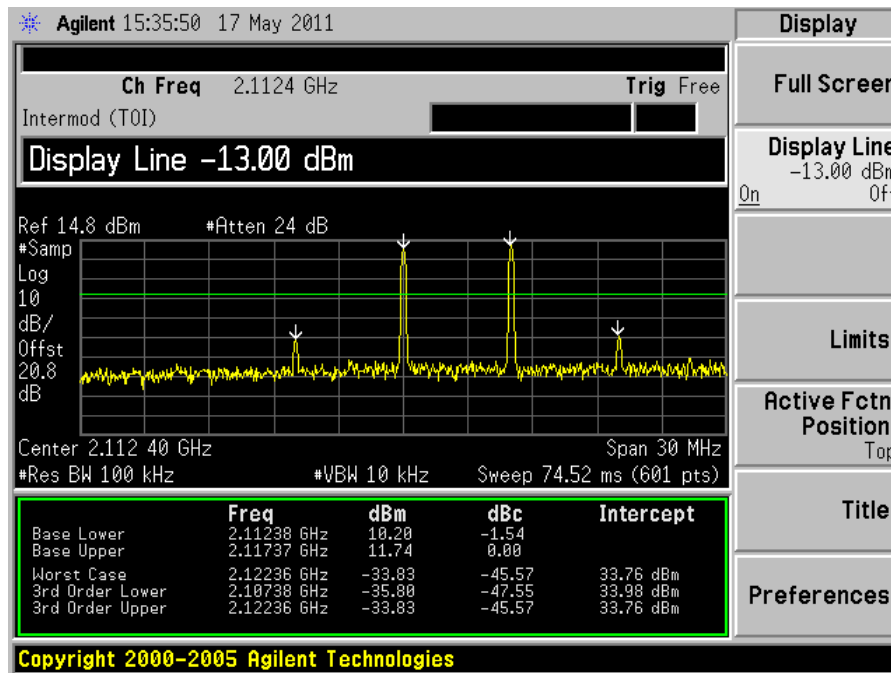


6 – 22 GHz - High Channel

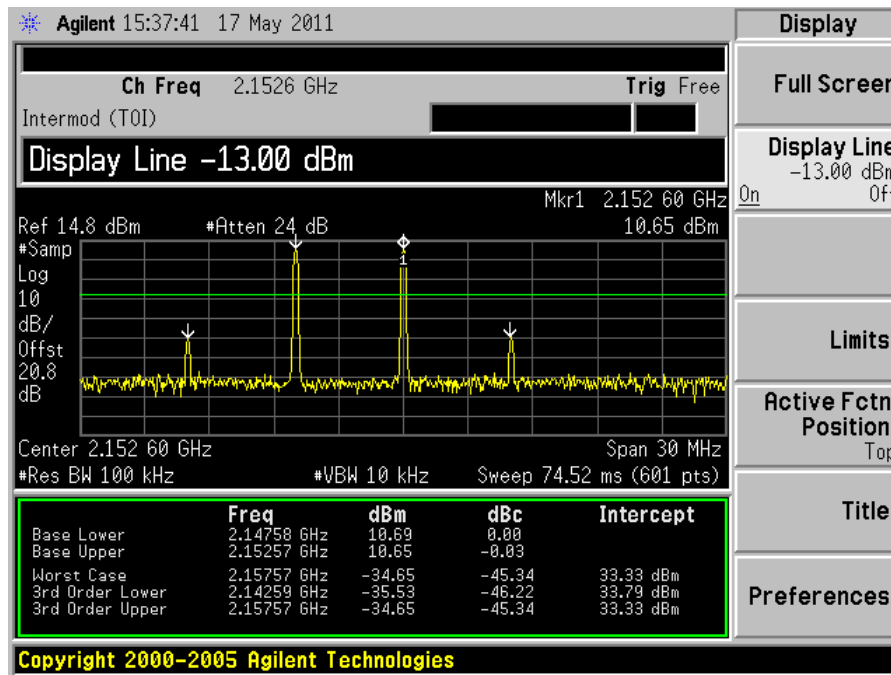


Downlink:

Two tone Inter modulation (Low Band edge), unmodulated



Two tone Inter modulation (High Band edge), unmodulated



FCC §2.1053, §22.917, §24.238 & §27.53- SPURIOUS RADIATED EMISSIONS

Applicable Standards

FCC § 2.1053, §22.917, § 24.238 and §37.53.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = $10 \lg (\text{TXpwr in Watts}/0.001)$ – the absolute level

Spurious attenuation limit in dB = $43 + 10 \text{ Log}_{10} (\text{power out in Watts})$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-03-11	2012-03-11
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
HP	Signal Generator	HP8657A	2849U00982	2010-10-28	2011-10-27
HP	Amplifier	HP8447D	2944A09795	2010-08-02	2011-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2011-04-11	2012-04-10
COM POWER	Dipole Antenna	AD-100	041000	2011-04-25	2012-04-25
A.H. System	Horn Antenna	SAS-200/571	135	2011-03-77	2012-03-06
Agilent	ESG-D Series Signal Generator	E4432B	GB40051703	2010-11-20	2011-11-19

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Phoenix Liu on 2011-05-22 to 2011-6-22.

Test mode: Transmitting

Note: GMSK & 8PSK (depend on free scan we select GMSK as the worse result)

Cellular Band (Part 22H)

Below 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
Middle Channel (Uplink)											
36.31	50.32	152	1.5	V	36.31	-51.3	0	0.46	-51.76	-13	38.76
36.31	47.46	171	1.3	H	36.31	-53.2	0	0.46	-53.66	-13	40.66
187.62	45.51	213	1.6	V	187.62	-55.1	0	0.76	-55.86	-13	42.86
187.62	43.24	249	1.2	H	187.62	-56.2	0	0.76	-56.96	-13	43.96
Middle Channel (Downlink)											
87.48	37.48	187	1.4	H	87.48	-62.9	0	0.54	-63.44	-13	50.44
87.48	38.26	122	1.5	V	87.48	-63.2	0	0.54	-63.74	-13	50.74
108.32	36.74	72	1.5	H	108.32	-63.8	0	0.63	-64.43	-13	51.43
108.32	37.21	243	1.2	V	108.32	-64.3	0	0.63	-64.93	-13	51.93

Above 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
Middle Channel (Uplink)											
1673.2	53.62	187	1.4	V	1673.2	-46.1	6.2	2.40	-42.30	-13	29.30
1673.2	51.36	352	1.8	H	1673.2	-49.5	6.2	2.40	-45.70	-13	32.70
Middle Channel (Downlink)											
1763.2	50.97	286	1.4	V	1763.2	-48.7	6.2	2.58	-45.08	-13	32.08
1763.2	49.84	157	1.6	H	1763.2	-50.2	6.2	2.58	-46.58	-13	33.58

PCS Band (Part 24E)

Below 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
Middle Channel (Uplink)											
42.61	38.61	187	1.4	V	42.61	-63.1	0	0.48	-63.58	-13	50.58
42.61	36.84	352	1.8	H	42.61	-63.9	0	0.48	-64.38	-13	51.38
118.72	34.53	294	1.8	H	118.72	-66.1	0	0.65	-66.75	-13	53.75
118.72	34.71	188	1.5	V	118.72	-66.9	0	0.65	-67.55	-13	54.55
Middle Channel (Downlink)											
42.61	39.96	246	1.6	H	42.61	-60.8	0	0.48	-61.28	-13	48.28
42.61	40.35	193	1.5	V	42.61	-61.4	0	0.48	-61.88	-13	48.88
98.87	35.47	174	1.6	H	98.87	-65.2	0	0.62	-65.82	-13	52.82
98.87	36.29	83	1.2	V	98.87	-65.4	0	0.62	-66.02	-13	53.02

Above 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
Middle Channel (Uplink)											
3760	47.51	193	1.5	V	3760	-45.2	6.9	3.25	-41.55	-13	28.55
3760	45.42	246	1.6	H	3760	-48.1	6.9	3.25	-44.45	-13	31.45
Middle Channel (Downlink)											
3920	45.36	117	1.5	V	3920	-47.3	6.7	3.63	-44.23	-13	31.23
3920	43.74	181	1.3	H	3920	-49.7	6.7	3.63	-46.63	-13	33.63

CDMA:

Cellular Band (Part 22H)

Below 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
Middle Channel (Uplink)											
36.31	49.34	152	1.5	V	36.31	-52.0	0	0.46	-52.46	-13	39.46
36.31	46.32	171	1.3	H	36.31	-53.9	0	0.46	-54.36	-13	41.36
188.56	44.44	213	1.6	V	188.56	-55.8	0	0.76	-56.56	-13	43.56
188.56	42.13	249	1.2	H	188.56	-56.9	0	0.76	-57.66	-13	44.66
Middle Channel (Downlink)											
87.48	38.24	174	1.3	H	87.48	-62.6	0	0.54	-63.14	-13	50.14
87.48	39.02	109	1.2	V	87.48	-62.9	0	0.54	-63.44	-13	50.44
110.25	37.5	59	1.2	H	110.25	-63.5	0	0.63	-64.13	-13	51.13
110.25	37.97	230	1.1	V	110.25	-64.0	0	0.63	-64.63	-13	51.63

Above 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
Middle Channel (Uplink)											
1673.2	55.12	180	1.4	V	1673.2	-45.2	6.2	2.4	-41.4	-13	28.4
1673.2	52.86	350	1.8	H	1673.2	-48.6	6.2	2.4	-44.8	-13	31.8
Middle Channel (Downlink)											
1763.2	51.23	280	1.2	V	1763.2	-48.8	6.2	2.58	-45.18	-13	32.18
1763.2	50.45	150	1.5	H	1763.2	-50.4	6.2	2.58	-46.78	-13	33.78

PCS Band (Part 24E)

Below 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
Middle Channel (Uplink)											
42.61	40.21	176	1.2	V	42.61	-62	0	0.48	-62.48	-13	49.48
42.61	38.44	341	1.5	H	42.61	-62.8	0	0.48	-63.28	-13	50.28
112.34	36.13	283	1.5	H	112.34	-65	0	0.65	-65.65	-13	52.65
112.34	36.31	177	1.4	V	112.34	-65.8	0	0.65	-66.45	-13	53.45
Middle Channel (Downlink)											
42.61	38.98	204	1.6	H	42.61	-61.4	0	0.48	-61.88	-13	48.88
42.61	39.37	151	1.5	V	42.61	-62	0	0.48	-62.48	-13	49.48
110.42	34.49	132	1.6	H	110.42	-65.8	0	0.62	-66.42	-13	53.42
110.42	35.31	41	1.2	V	110.42	-66	0	0.62	-66.62	-13	53.62

Above 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
Middle Channel (Uplink)											
3760	49.91	180	1.6	V	3760	-43.5	6.9	3.25	-39.85	-13	26.85
3760	47.82	212	1.7	H	3760	-46.4	6.9	3.25	-42.75	-13	29.75
Middle Channel (Downlink)											
3920	46.9	110	1.5	V	3920	-46.4	6.7	3.63	-43.33	-13	30.33
3920	45.28	180	1.3	H	3920	-48.8	6.7	3.63	-45.73	-13	32.73

WCDMA AWS Band (Part 27)

Below 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
Middle Channel (Uplink)											
100.33	37.84	234	1.8	H	100.33	-62.5	0	0.62	-63.12	-13	50.12
100.33	39.03	126	1.8	V	100.33	-62.6	0	0.62	-63.22	-13	50.22
137.67	34.58	260	1.1	V	137.67	-66.7	0	0.71	-67.41	-13	54.41
137.67	32.32	284	1.5	H	137.67	-68.1	0	0.71	-68.81	-13	55.81
Middle Channel (Downlink)											
98.67	41.16	157	1.2	V	98.67	-60.3	0	0.62	-60.92	-13	47.92
98.67	39.84	176	1.8	H	98.67	-60.9	0	0.62	-61.52	-13	48.52
141.79	35.24	204	1.7	V	141.79	-66.4	0	0.72	-67.12	-13	54.12
141.79	33.09	138	1.5	H	141.79	-67.3	0	0.72	-68.02	-13	55.02

Above 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
Middle Channel (Uplink)											
3464.8	46.61	63	1.5	V	3464.8	-46.2	6.7	3.04	-42.54	-13	29.54
3464.8	44.97	312	1.4	H	3464.8	-48.6	6.7	3.04	-44.94	-13	31.94
Middle Channel (Downlink)											
4264.8	43.58	186	1.3	V	4264.8	-47.9	7.6	3.92	-44.22	-13	31.22
4264.8	42.83	241	1.7	H	4264.8	-49.4	7.6	3.92	-45.72	-13	32.72

FCC §22.917(a), §24.238(a) & §27.53 - BAND EDGES

Applicable Standards

According to FCC § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

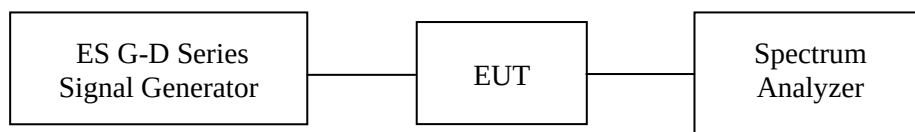
According to FCC §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to FCC § 27.53, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor at least $43 + 10 \log(P)$ dB.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency, RBW set to 10 kHz.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2010-11-11	2011-11-10
Agilent	PSA Series Spectrum Analyzer	E4443A	MY45300749	2011-01-07	2012-01-06
Agilent	ESG-D Series Signal Generator	E4432B	GB40051703	2010-11-20	2011-11-19

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

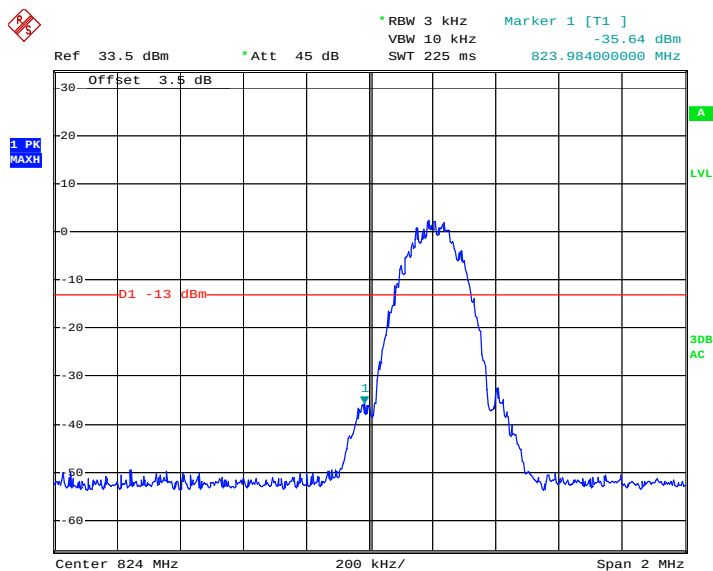
Test Data

Environmental Conditions

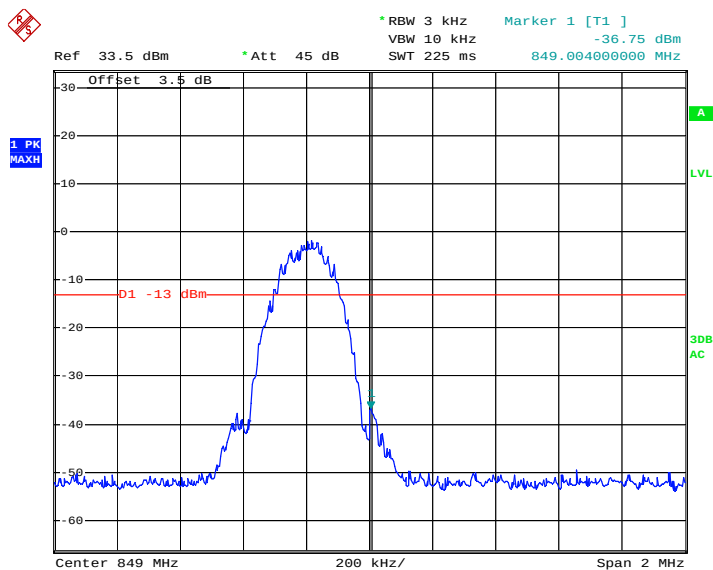
Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Phoenix Liu on 2011-05-09 to 2011-6-22.

Please refer to the following tables and plots.

GMSK Mode:**Cellular Band (Part 22H):****Uplink****GMSK, Lowest Channel**

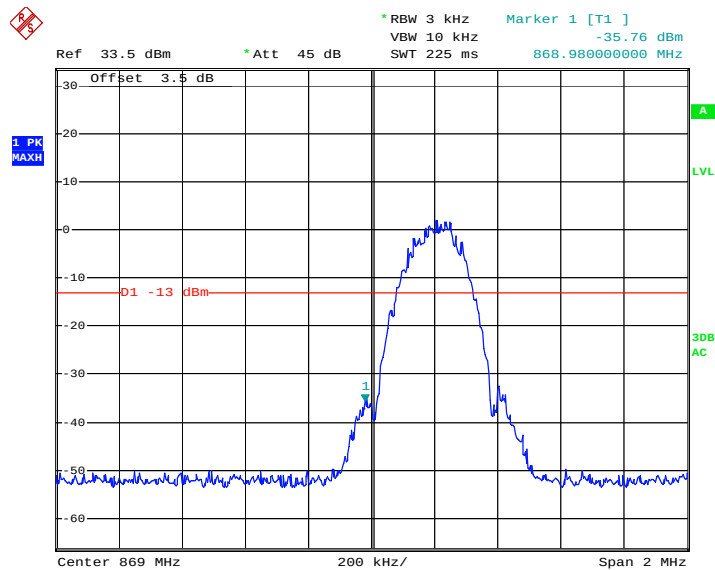
Date: 9.MAY.2011 15:31:40

GMSK, Highest Channel

Date: 9.MAY.2011 15:33:00

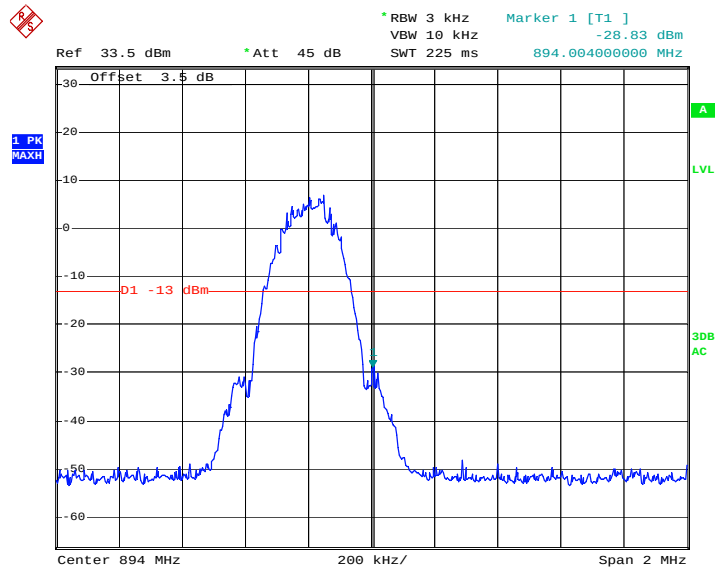
Downlink

GMSK, Lowest Channel

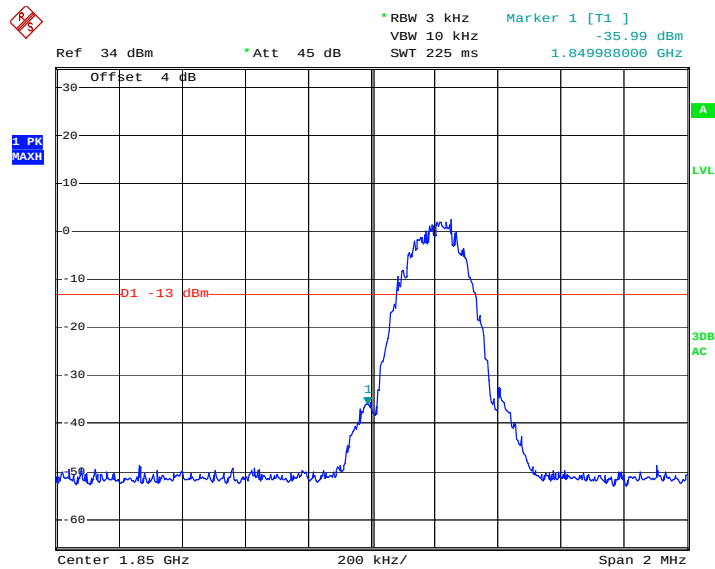


Date: 9.MAY.2011 15:19:37

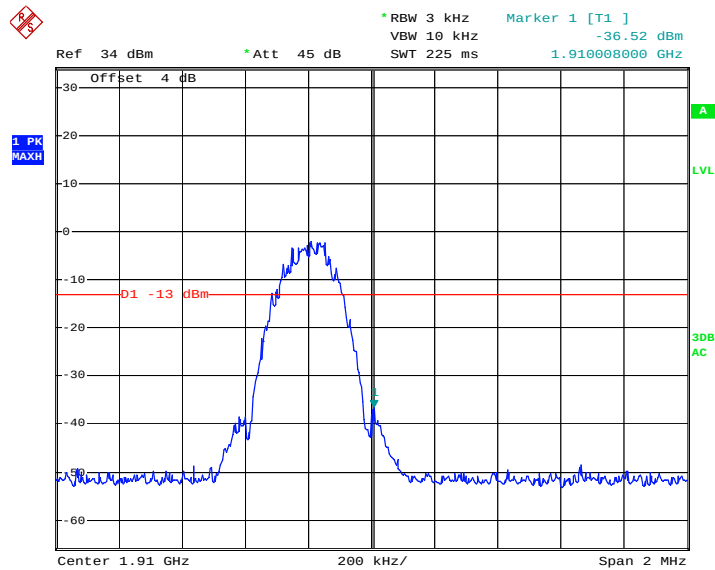
GMSK, Highest Channel



Date: 9.MAY.2011 15:20:23

PCS Band (Part 24E):**Uplink****GMSK, Lowest Channel**

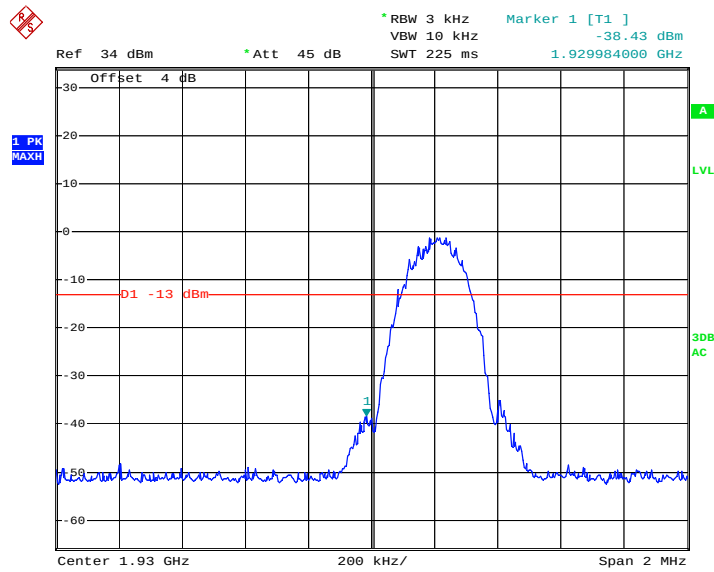
Date: 9.MAY.2011 15:36:02

GMSK, Highest Channel

Date: 9.MAY.2011 15:37:10

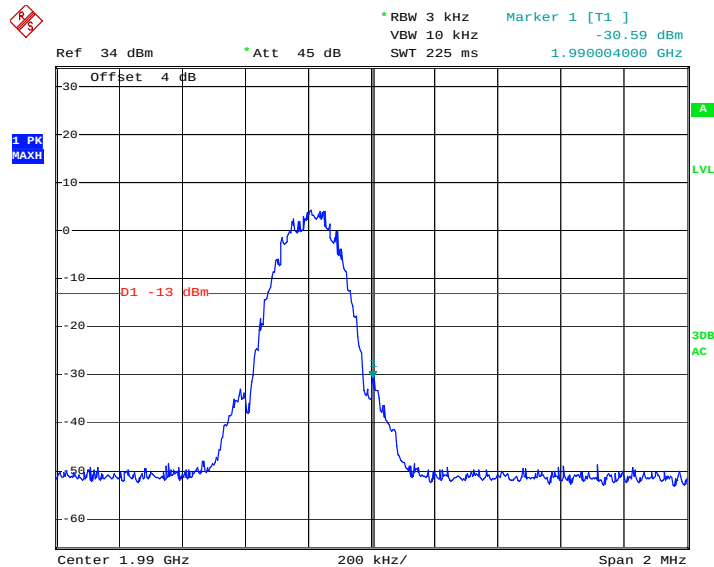
Downlink

GMSK, Lowest Channel

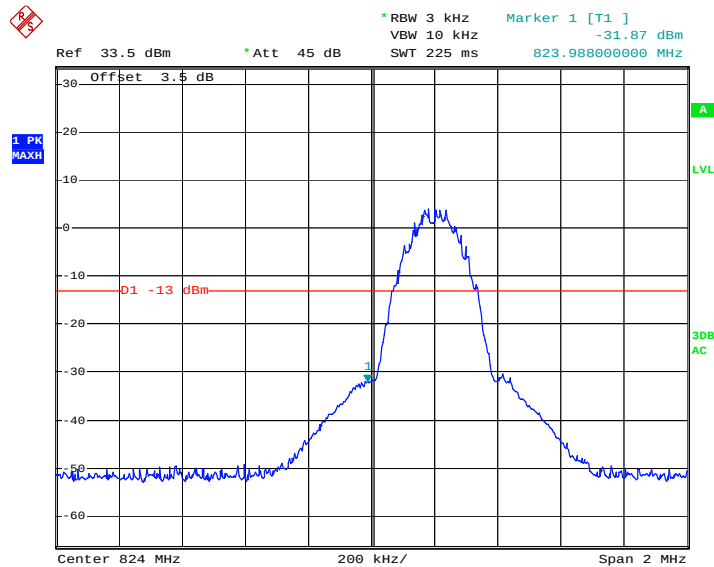


Date: 9.MAY.2011 15:17:19

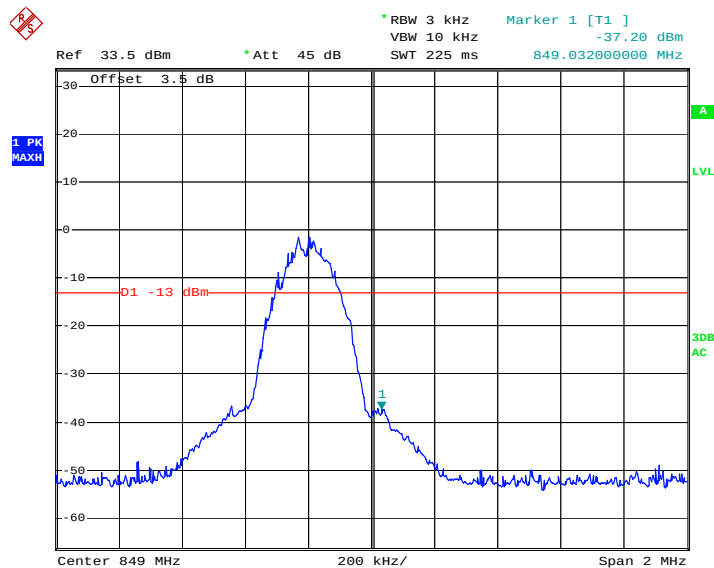
GMSK, Highest Channel



Date: 9.MAY.2011 15:18:23

8PSK Mode:**Cellular Band (Part 22H):****Uplink****8PSK, Lowest Channel**

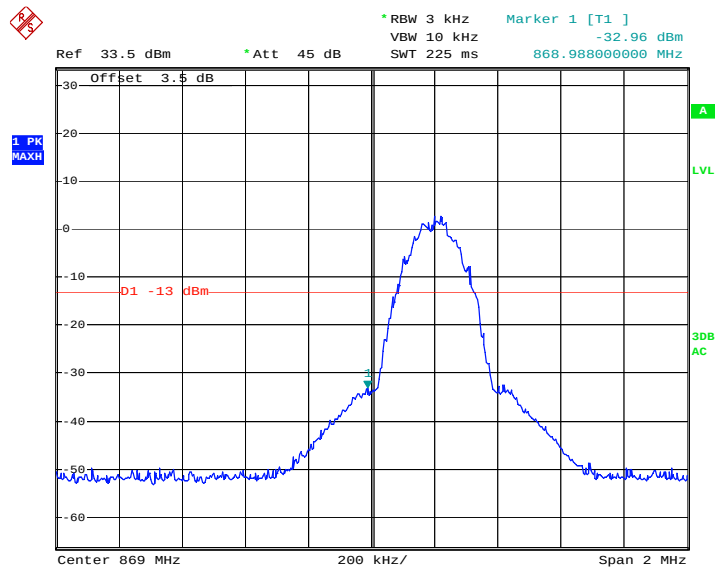
Date: 9.MAY.2011 15:30:50

8PSK, Highest Channel

Date: 9.MAY.2011 15:33:49

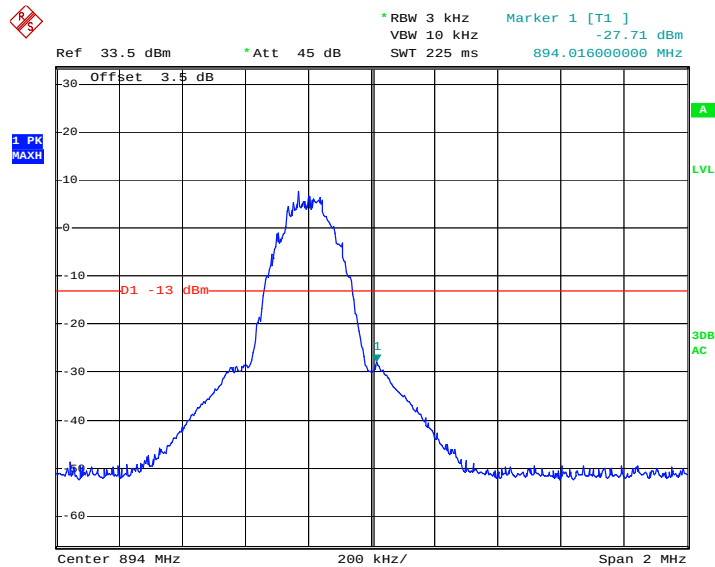
Downlink

8PSK, Lowest Channel



Date: 9.MAY.2011 15:23:46

8PSK, Highest Channel

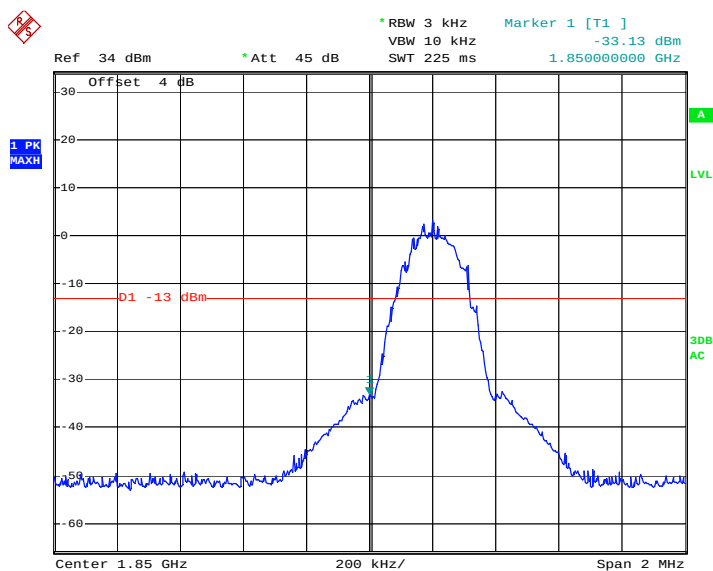


Date: 9.MAY.2011 15:22:07

PCS Band (Part 24E):

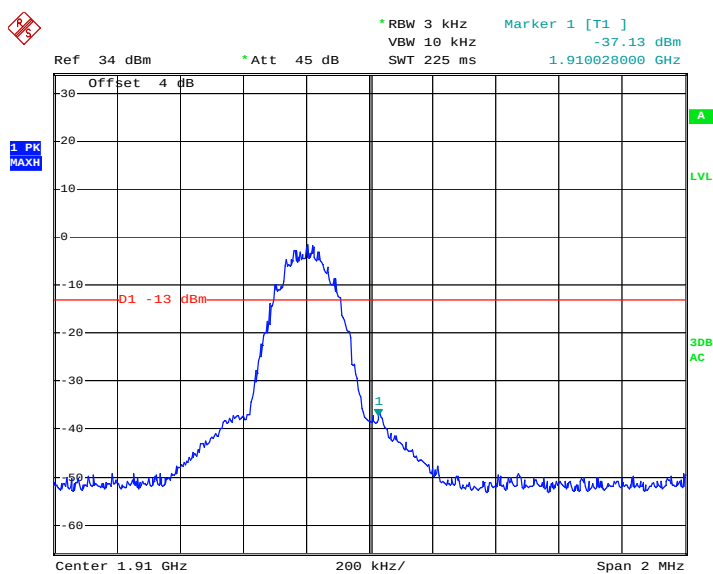
Uplink

8PSK, Lowest Channel



Date: 9.MAY.2011 15:35:04

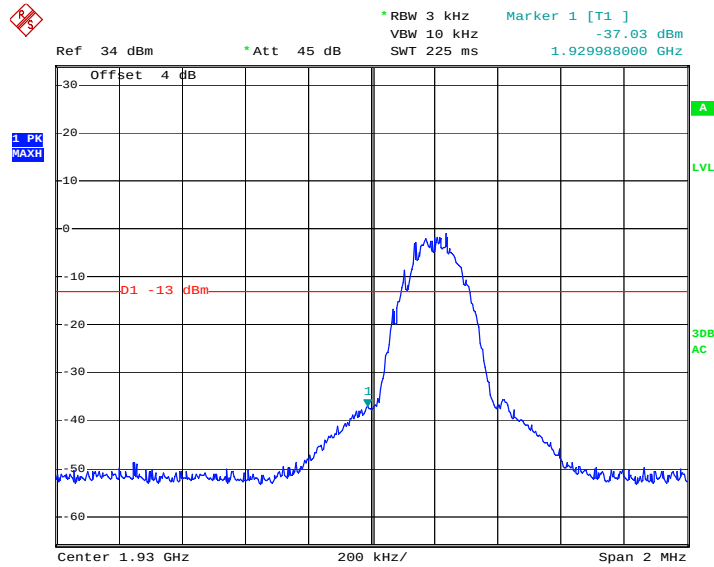
8PSK, Highest Channel



Date: 9.MAY.2011 15:38:03

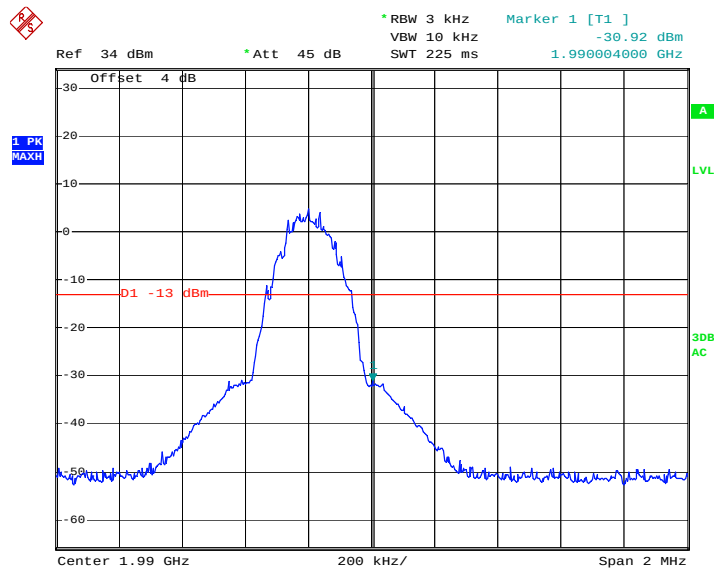
Downlink

8PSK, Lowest Channel

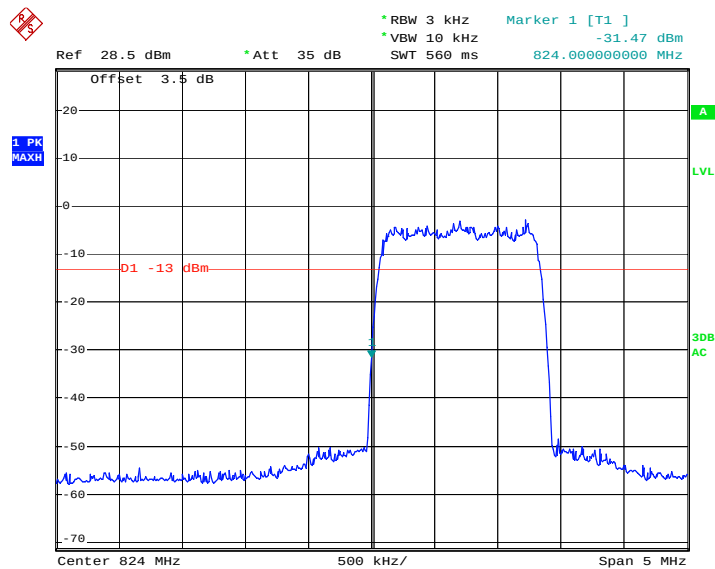


Date: 9.MAY.2011 15:24:57

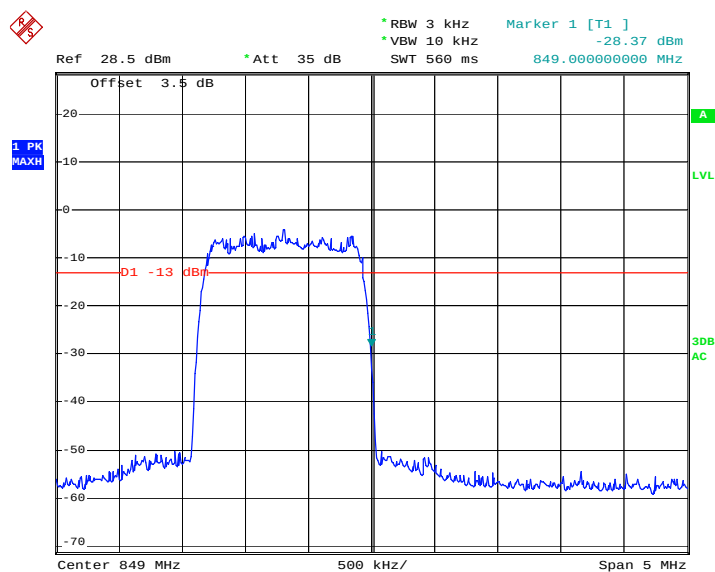
8PSK, Highest Channel



Date: 9.MAY.2011 15:26:00

CDMA:**Cellular Band (Part 22H):****Uplink****CDMA2000, Lowest Channel**

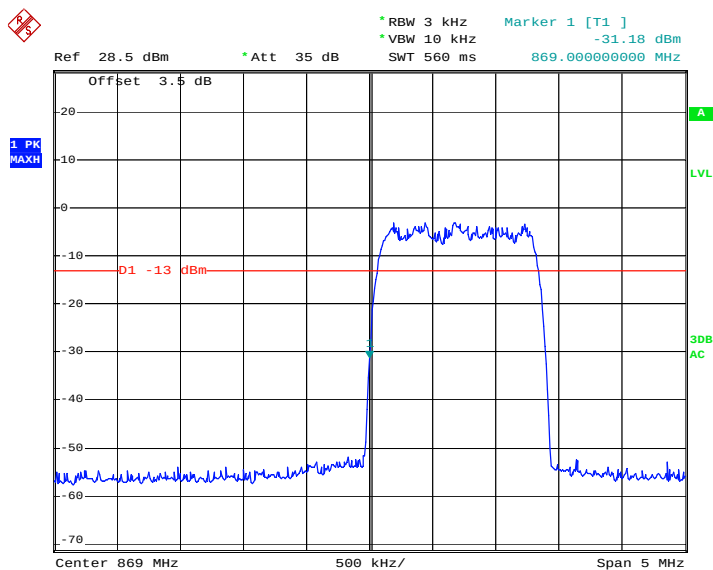
Date: 16.JUN.2011 17:44:37

CDMA2000, Highest Channel

Date: 16.JUN.2011 17:46:12

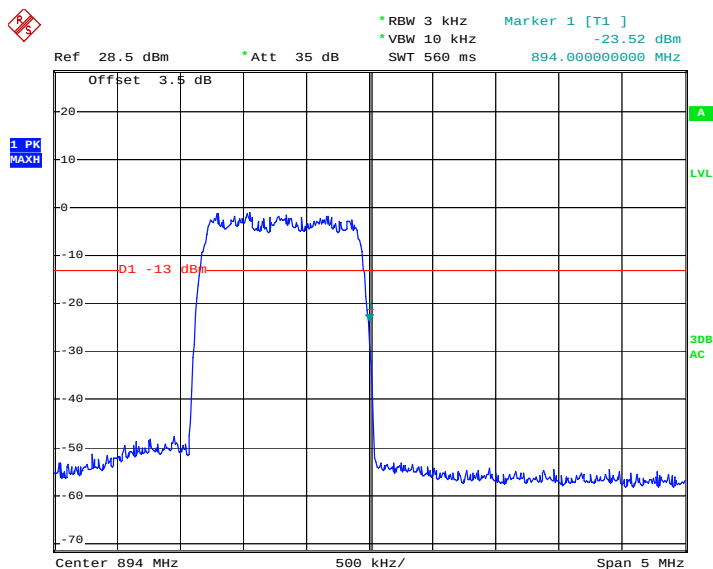
Downlink

CDMA2000, Lowest Channel

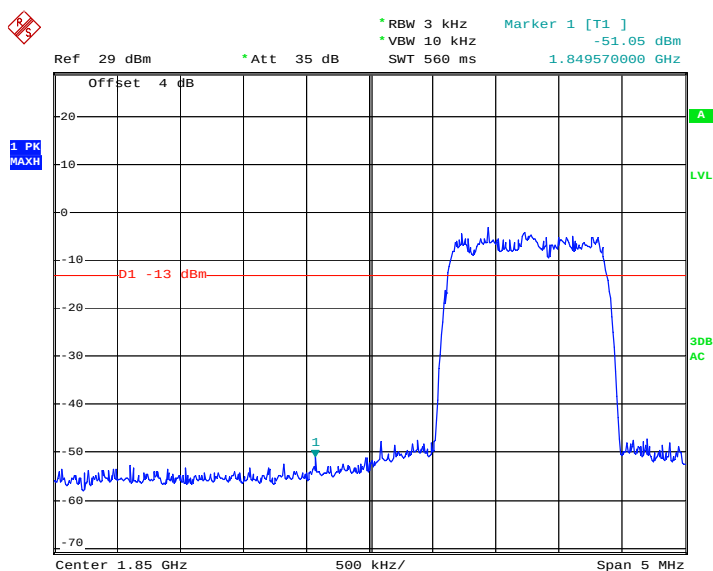


Date: 16.JUN.2011 18:11:23

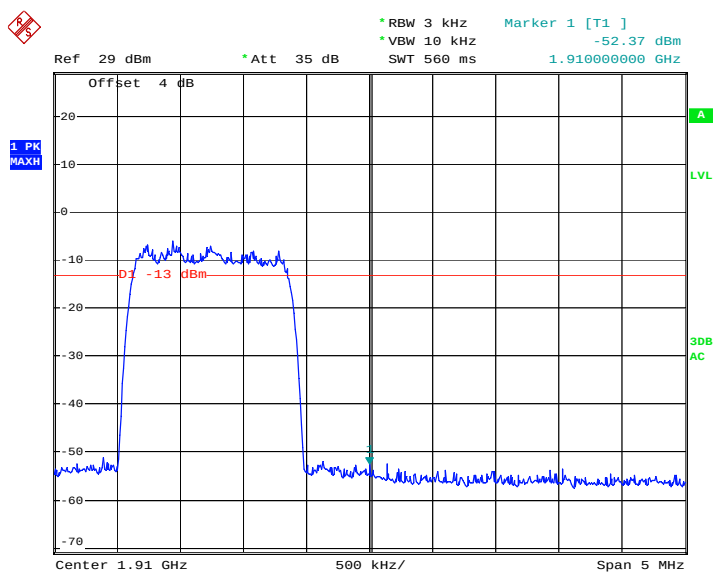
CDMA2000, Highest Channel



Date: 16.JUN.2011 18:12:22

PCS Band (Part 24E):**Uplink****CDMA2000, Lowest Channel**

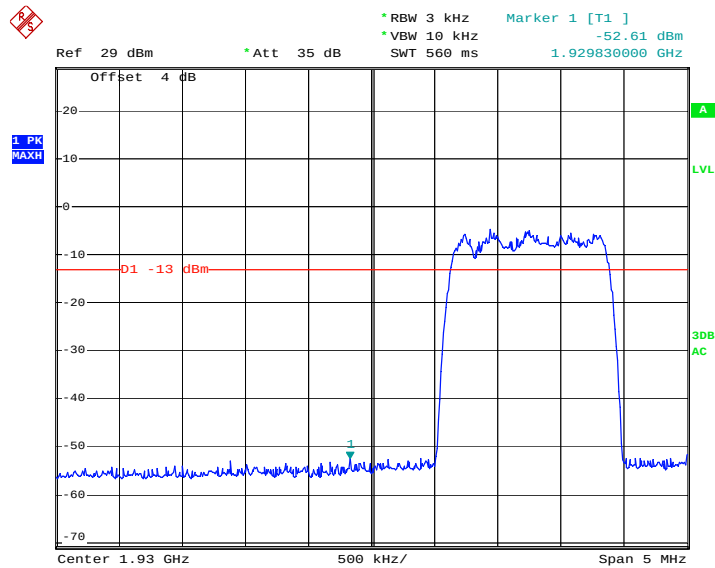
Date: 16.JUN.2011 18:28:57

CDMA2000, Highest Channel

Date: 16.JUN.2011 18:07:29

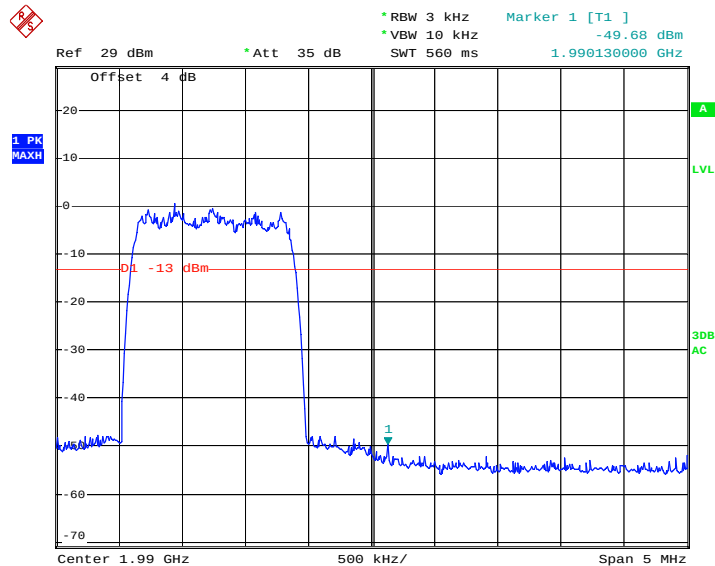
Downlink

CDMA2000, Lowest Channel

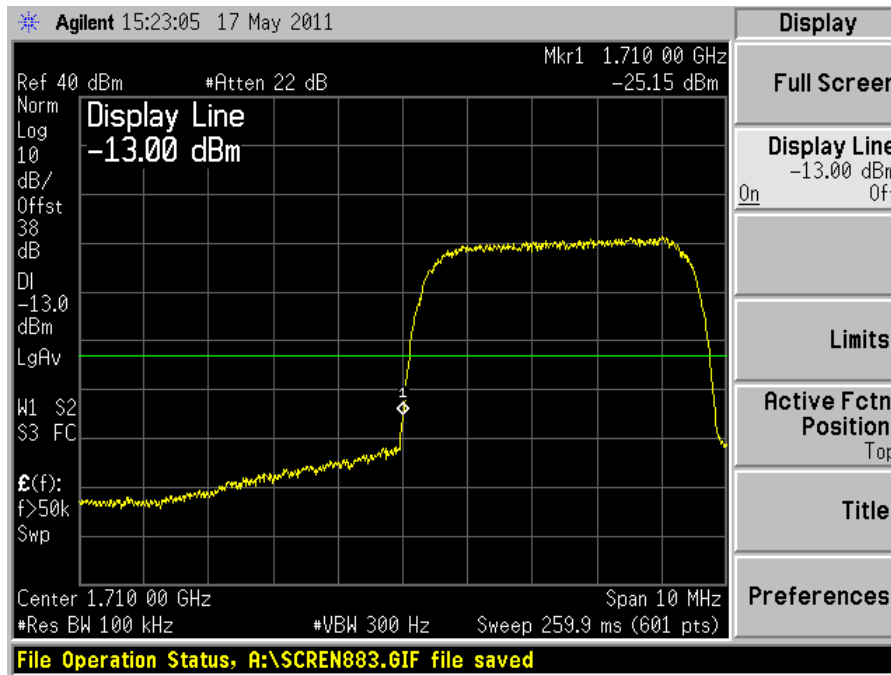
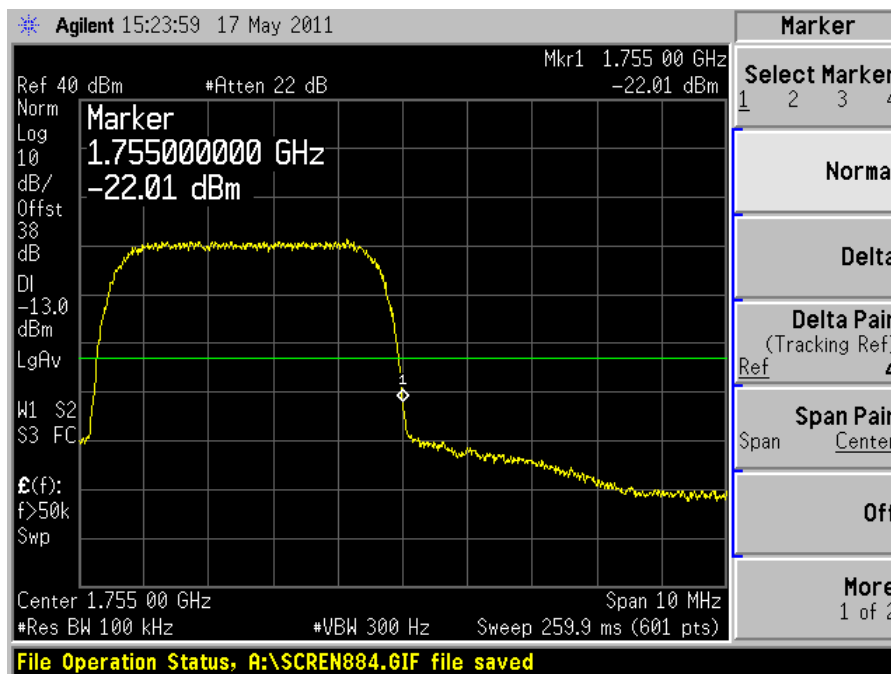


Date: 16.JUN.2011 18:14:44

CDMA2000, Highest Channel

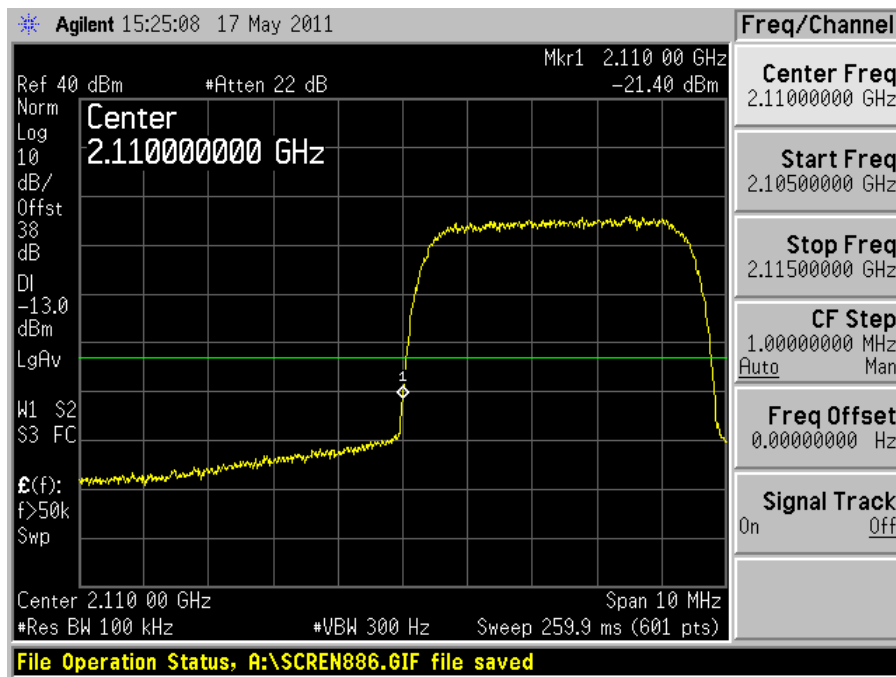


Date: 16.JUN.2011 18:16:15

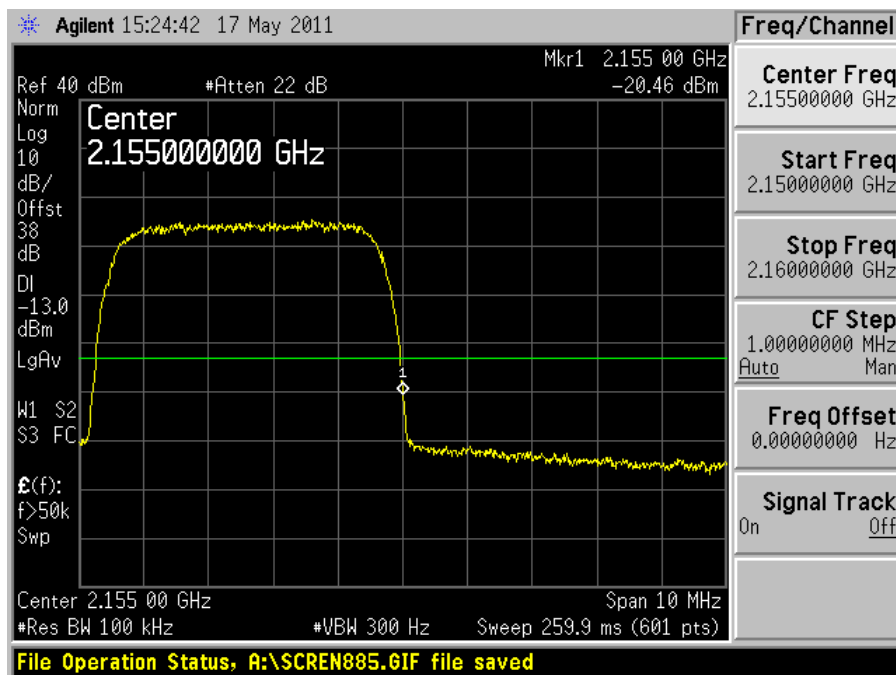
WCDMA AWS Band (Part 27):**Uplink****Lowest Channel****Highest Channel**

Downlink

Lowest Channel



Highest Channel



***** END OF REPORT *****