



RF Test Report

Product Name: cdma2000 Digital Mobile Phone

Model Number: HUAWEI M866, M866

Report No: SYBH(Z-RF)005052012-2003

FCC ID: QISM866

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1 General Information

1.1 Applied Standard	
Applied Rules:	47 CFR FCC Part 2, 2010.Subpart J 47 CFR FCC Part 24, 2010.Subpart E ANSI/TIA 603C:2004
1.2 Test Location	
Test Location 1:	Reliability Laboratory of Huawei Technologies Co., Ltd.
Address:	Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China
1.3 Test Environment Condition	
Ambient Temperature:	20 – 25 °C
Ambient Relative Humidity:	45 – 55 %
Atmospheric Pressure:	101 kPa

2 Summary

Table 1 Summary of results

PCS Band			
Test Case	FCC Part No.	Requirements	Result
Transmitter Output Power	2.1046 & 24.232	Peak EIRP not exceed 2 W Peak-to-average ratio not exceed 13 dB	Pass
Modulation Characteristics	2.1047	Digital modulation	Pass
Occupied Bandwidth	2.1049	(Not specified)	Pass
Band Edges Compliance	2.1051 & 24.238	Below -13 dBm/1%*EBW, in 1 MHz range	Pass
Spurious Emission at Antenna Terminals	2.1051 & 24.238	Below -13 dBm/1 kHz, 9 kHz to 150 kHz Below -13 dBm/10 kHz, 150 kHz to 30 MHz Below -13 dBm/1 MHz, 30 MHz to 10 th harmonics	Pass
Field Strength of Spurious Radiation	2.1053 & 24.238	Below -13 dBm/1 MHz	Pass
Frequency Stability	2.1055 & 24.235	Stay within the authorized frequency block	Pass

3 Product Description

3.1 Production Information

3.1.1 General Description

cdma2000 Digital Mobile Phone HUAWEI M866, M866 is subscriber equipment in the CDMA/EVDO system. The frequency band is US Cellular and N. American PCS and AWS, But only N. American PCS Band test data in the report. The Mobile Phone implements such functions as RF signal receiving/transmitting, CDMA2000 1x and 1XEV-DO protocol processing, voice, MMS service, GPS, AGPS and WIFI etc. Externally it provides micro SD card interface, earphone port (to provide voice service). It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

The difference between M866 and H866C is showed in the following table.

	HUAWEI M866, M866	HUAWEI H866C, H866C
supports bands	BC0, BC1 and BC15.	BC0, BC1
FLASH	the same	the same
PCB	the same	the same
Appearance	the same	the same
Bluetooth mode	the same	the same
WLAN mode	the same	the same
BT/ WLAN antenna	the same	the same
GSM/ WCDMA antenna	the same	the same
External camera	the same	the same
internal camera	the same	the same
Adapter	the same	the same
Battery	the same	the same
Chipset	the same	the same
Memory	the same	the same
Form factor	Bar type, Internal antenna	Bar type, Internal antenna
RF Parameter	the same	the same
BT RF Parameter	the same	the same
Dimension	the same	the same
Weight	the same	the same
Bluetooth	the same	the same
External camera	the same	the same
Main Frequency NV	The same NV in the same band	The same NV in the same band

BT conducted power	the same	the same
WIFI conducted power	the same	the same

The M866 CDMA BC0/BC1,BT/WIFI band test data refer to H866C.

3.1.2 Board

Table 1 Board Information

cdma2000 Digital Mobile Phone		
HUAWEI M866, M866		
Main board		
Software Version	Hardware Version	S/N
M866V100R001C289B815	HC1C8655M	N3L01A9242600128

3.1.3 Adapter

AC/DCAdapter Model	HW-050100U1W
Manufacturer	Huawei Technologies Co., Ltd.
Input Voltage	~100-240V 50/60Hz 0.2A
Output Voltage	5V  1A
Rated Power	5W

3.1.4 Battery Technical Data

Name	Manufacture	Description
Rechargeable Li-ion	Huawei Technologies Co., Ltd.	Battery Model: HB5K1H Rated capacity: 1400mAh Nominal Voltage:  +3.7V Charging Voltage:  +4.2V

4 Test Description

4.1 Supported Frequency Range

Characteristics	Description
Downlink	1930 to 1990 MHz
Uplink	1850 to 1910MHz

4.2 Transmitter / Receiver Characteristics

Characteristics	Description
System Type	CDMA
TX Output Power (per Antenna Port)	CDMA system: 24 dBm
Channel Spacing(s) / Bandwidth(s)	CDMA system: 1.23 MHz (Celluar band) 1.25 MHz (Other than Cellular band)
Designation of Emissions	CDMA system: 1M29F9W (Celluar band) 1M29F9W (Other than Cellular band)

4.3 Antenna Gain

Antenna Gain(dBi)	-0.7
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4.4 Power Supply

	Description
Power Supply Type	Directly Connected to DC /AC Power Supply
Input to EUT (DC power)	DC Voltage Nominal: \pm +3.7V DC Voltage Range: \pm +3.6 V to +4.2V
Input to EUT (AC power)	AC Voltage Nominal: ~ 120V (50/60 Hz) AC Voltage Range: ~ 100V-240V

5 General Test Conditions / Configurations

5.1 RF Channels under Test

Test Mode	TX / RX	RF Channel		
		Bottom (B)	Middle (M)	Top (T)
TM1/TM3/ Subtype 0/ Subtype 2	TX	Channel 25	Channel 600	Channel 1175
		1851.25MHz	1880.0MHz	1908.75MHz
	RX	Channel 25	Channel 600	Channel 1175
		1931.25MHz	1960.0MHz	1988.75MHz

5.2 Test Modes

Test Mode	Test Modes Description
TM1/TM3	CDMA2000 1x
Subtype 0/ Subtype 2	CDMA2000 1x EV-DO

5.3 Test Environments

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Temperature	TN	Ambient
Voltage	VL	3.6V
	VN	3.7V
	VH	4.2V

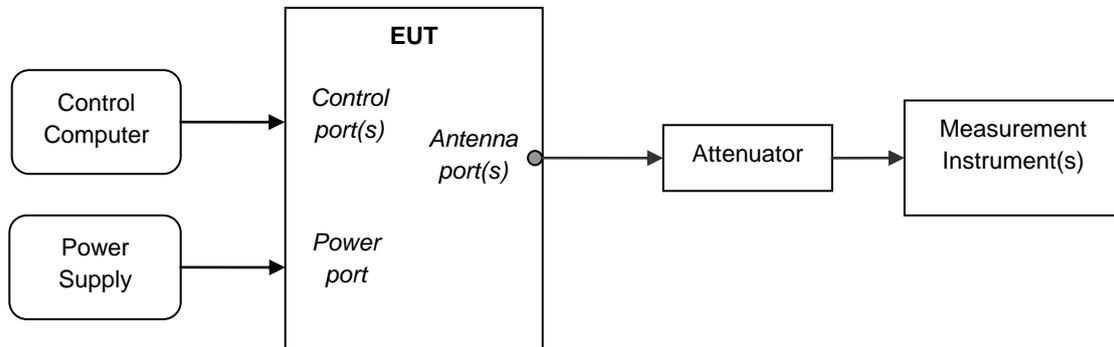
NOTE: VL= lower extreme test voltages
 VN= nominal voltage
 VH= upper extreme test voltage
 TN= normal temperature

5.4 Test Setups

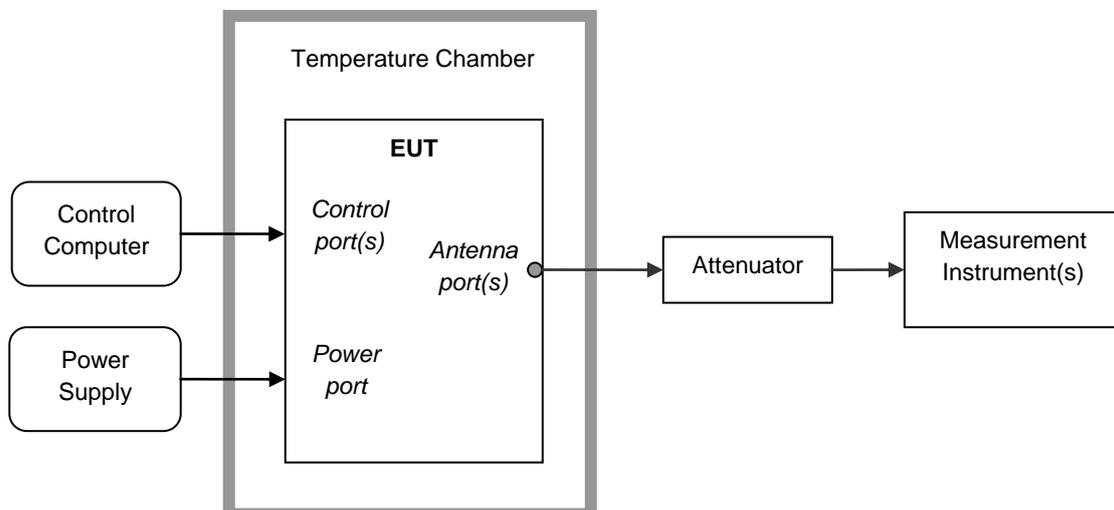
5.4.1 General Test Setup Configurations

Configuration	Description
Test Antenna Ports	Until otherwise declared, all TX tests are ONLY performed at the main Transmitter antenna port (e.g. TRXA, TXA and so on) of the EUT, and all RX tests are ONLY performed at the main Receiver antenna port (e.g. TRXA, RXA and so on) of the EUT.
Multiple RF Sources	Other than the tested RF source of the EUT, other RF source(s) are disabled or shutdown during measurements.

5.4.2 Test Setup 1



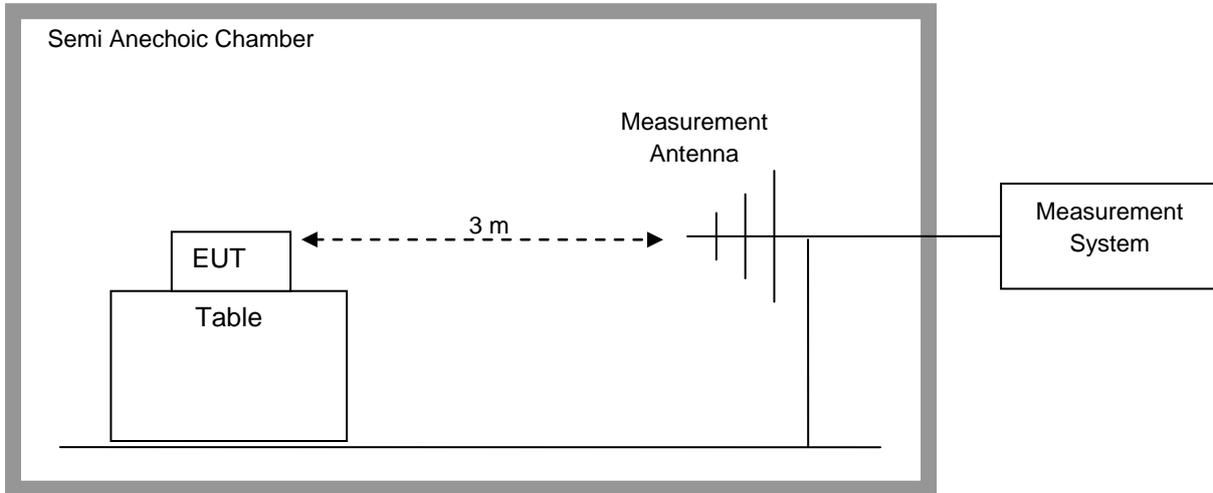
5.4.3 Test Setup 2



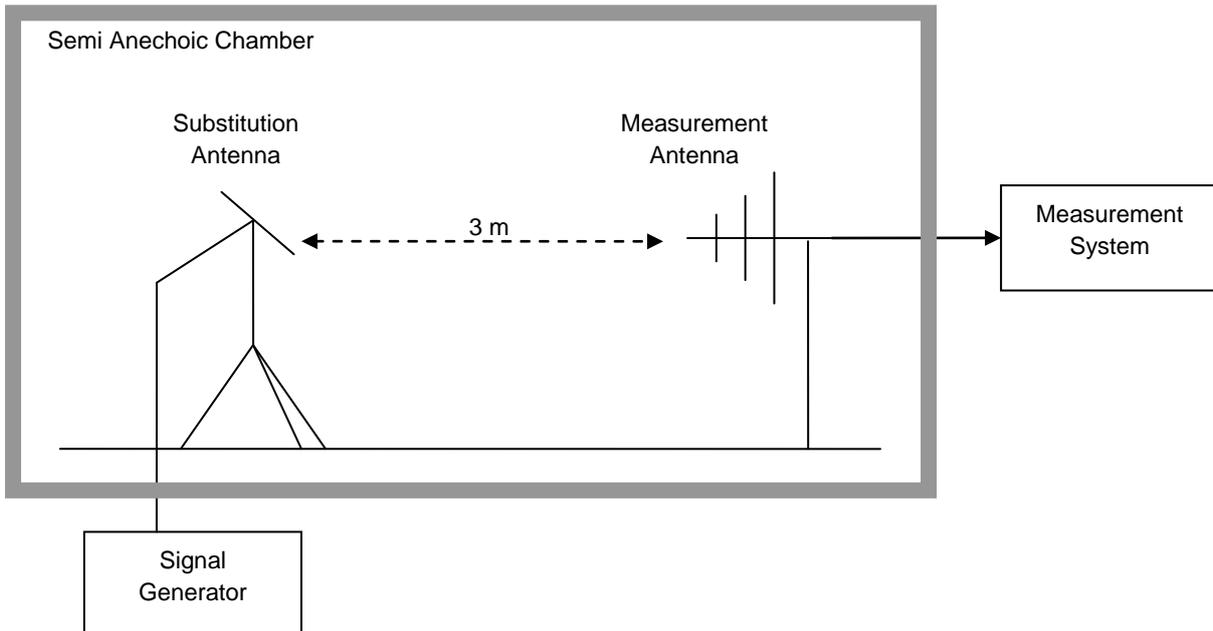
5.4.4 Test Setup 3

NOTE: Efficient Isotropic Radiated Power (EIRP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave dipole antennas.

Step 1: Pre-test



Step 2: Substitution method to verify the maximum EIRP



5.5 Test Conditions

Test Case	Test Conditions	
Transmitter Output Power	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1& Test Setup 3
	Detector	RMS
	RF Channels (TX)	B, M, T
	Test Mode	TM1/TM3/ Subtype 0/ Subtype 2
Modulation Characteristics	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	RF Channels (TX)	M
	Test Mode	TM1/TM3/ Subtype 0/ Subtype 2
Occupied Bandwidth	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	PK
	RF Channels (TX)	B, M, T
	Test Mode	TM1/TM3/ Subtype 0/ Subtype 2
Band Edges Compliance	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	RMS
	RF Channels (TX)	B, T
	Test Mode	TM1/TM3/ Subtype 0/ Subtype 2
Spurious Emission at Antenna Terminals	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	PK
	RF Channels (TX)	B, M,T
	Test Mode	TM1/TM3/ Subtype 0/ Subtype 2
Field Strength of Spurious Radiation	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 3
	Detector	PK
	RF Channels (TX)	M
	Test Mode	TM1/TM3/ Subtype 0/ Subtype 2
Frequency Stability	Test Configuration	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage; (2) 85%, 100% and 115% of Rated Voltage at Ambient Temperature.



Test Case	Test Conditions	
	Test Setup	Test Setup 2
	RF Channels (TX)	M
	Test Mode	TM1/TM3/ Subtype 0/ Subtype 2

6 Main Test Instruments

Table 2 Main Test Equipments

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until
Power supply	KEITHLEY	2303	1288003	Sep.27,2012
Universal Radio Communication Tester	R&S	CMU200	117341	Jan.12.2013
Universal Radio Communication Tester	Agilent	E5515C	MY50260239	Aug.31,2012
Spectrum Analyzer	Agilent	E4440A	MY49420179	Jul.17,2012
Signal Analyzer	R&S	FSQ31	200021	Sep.27,2012
Temperature Chamber	WEISS	WKL64	24600294	Feb.13,2013
Signal generator	Agilent	E8257D	MY49281095	Jul.09.2012
Test receiver	R&S	ESU26	100150	May.29.2012
Tunable Dipole	Schwarzbeck	D69250-UHAP/D69250-VHAP	919/1009	Jan.29.2013
Tunable Dipole	Schwarzbeck	D69250-UHAP/D69250-VHAP	979/917	Jan.29.2013
Horn Antenna	R & S	HF906	100683	May.14, 2013
Horn Antenna	R & S	HF906	100684	Jul.01, 2012
Broadband Antenna	Schwarzbeck	VULB 9163	9163-357	May.14, 2013
Broadband Antenna	Schwarzbeck	VULB 9163	9163-356	May.14, 2013
Universal Radio Communication Tester	R & S	CMW500	20347676	Sep.07,2012
Universal Radio Communication Tester	Anritsu	MT8820C	6200971028	May.04, 2012

7 Test Results

No.	Test Item	Test Result
1	Transmitter Output Power	Appendix A
2	Modulation Characteristics	Appendix B
3	Occupied Bandwidth	Appendix C
4	Band Edges Compliance	Appendix D
5	Spurious Emission at Antenna Terminals	Appendix E
6	Field Strength of Spurious Radiation	Appendix F
7	Frequency Stability	Appendix G
8	Photos of Radiated Spurious Emissions	Appendix H

NOTE: The Appendix H only photos of Radiated Spurious Emissions, no test data.



8 Measurement Uncertainty

For a 95% confidence level (k=2), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

Test Item		Extended Uncertainty
Transmitter Output Power	Power (dBm)	U =0.39 dB
Occupied Bandwidth	Magnitude (%)	U=0.2%
Band Edge Compliance	Disturbance Power (dBm)	U=2.0 dB
Conducted Spurious Emissions	Disturbance Power (dBm)	U=2.0 dB
Field Strength of Spurious Radiation	ERP (dBm)	U=4.6 dB (30 MHz – 1GHz) U=3.0 dB (above 1 GHz)
Frequency Stability	Frequency Accuracy (ppm)	U=0.21 ppm

-----The END-----



Appendix A

Transmitter Output Power According to FCC Part 2.1046 & Part24.232



Conducted Power of Transmitter

Table 1 Measurement Results

TEST CONDITIONS (TN/VN)	RF Output Power(Conducted)					
	Channel 25(B) 1851.25MHz		Channel 600(M) 1880.0MHz		Channel 1175(T) 1908.75MHz	
	dBm		dBm		dBm	
	Measured	Limit	Measured	Limit	Measured	Limit
TM1	23.32	33.0	23.15	33.0	23.13	33.0
TM3	23.35	33.0	23.14	33.0	23.12	33.0
Subtype 0	23.15	33.0	22.94	33.0	22.95	33.0
Subtype 2	23.28	33.0	23.15	33.0	23.16	33.0



Peak-to-Average Ratio

Table 1 Measurement Results(CDMA)

TEST CONDITIONS (TN/VN)						
	Channel 25(B) 1851.25MHz		Channel 600(M) 1880.0MHz		Channel 1175(T) 1908.75MHz	
	dB		dB		dB	
	Measure d	Limit	Measure d	Limit	Measure d	Limit
TM1	6.52	13.0	6.63	13.0	6.51	13.0
TM3	6.48	13.0	6.49	13.0	6.49	13.0
Subtype 0	6.43	13.0	6.53	13.0	6.44	13.0
Subtype 2	6.37	13.0	6.49	13.0	6.46	13.0



Test Plot of Peak-to-Average Ratio

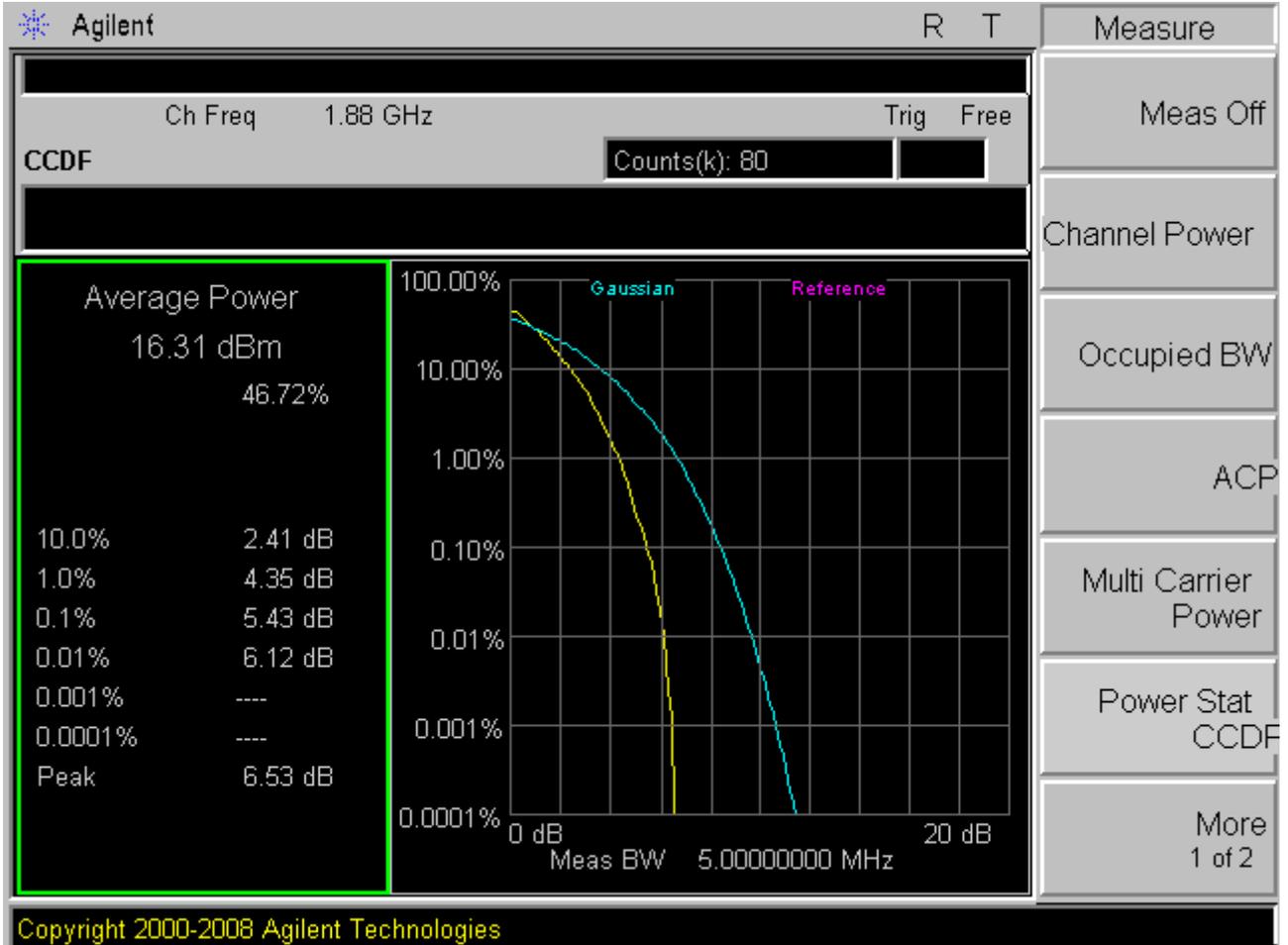
Note: All relevant operation modes have been tested, and the worst case Plot is included in this report.

CDMA





EVDO





Effective Isotropic Radiated Power of Transmitter (EIRP)

Table 2 Substitution Results

Test Mode	Freq. [MHz]	Meas. Level [dBm]	Substitution Antenna Type	SGP [dBm]	Substitution Gain [dBi]	Cable Loss [dB]	Substitution Level (EIRP) [dBm]	FCC limit [dBm]	Result
TM1	1851.25	22.62	Horn Ant.	19.23	4.5	1	22.73	33	Pass
TM1	1880.0	22.45	Horn Ant.	19.01	4.5	1	22.51	33	Pass
TM1	1908.75	22.43	Horn Ant.	18.72	4.8	1	22.52	33	Pass
TM3	1851.25	22.65	Horn Ant.	19.26	4.5	1	22.76	33	Pass
TM3	1880.0	22.44	Horn Ant.	19.06	4.5	1	22.56	33	Pass
TM3	1908.75	22.42	Horn Ant.	18.84	4.8	1	22.64	33	Pass
Subtype 0	1851.25	22.45	Horn Ant.	19.11	4.5	1	22.61	33	Pass
Subtype 0	1880.0	22.24	Horn Ant.	18.85	4.5	1	22.35	33	Pass
Subtype 0	1908.75	22.25	Horn Ant.	18.58	4.8	1	22.38	33	Pass
Subtype 2	1851.25	22.58	Horn Ant.	19.16	4.5	1	22.66	33	Pass
Subtype 2	1880.0	22.45	Horn Ant.	19.19	4.5	1	22.69	33	Pass
Subtype 2	1908.75	22.46	Horn Ant.	18.79	4.8	1	22.59	33	Pass

Note: a, For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should take to calculate it,

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP=Signal Generator Level

-----The END-----



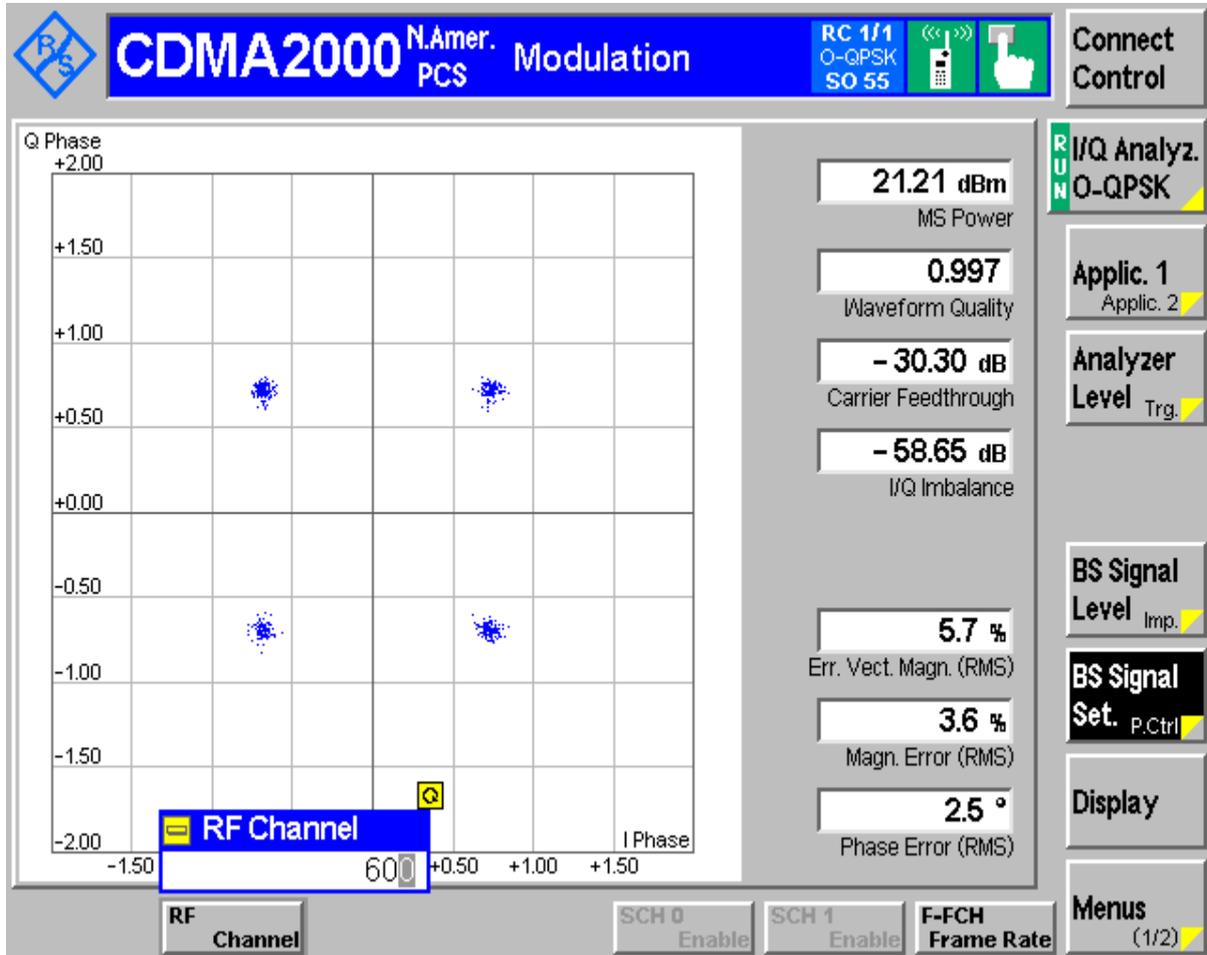
Appendix B

Modulation Characteristics

According to FCC Part 2.1047& Part 24 Subpart E

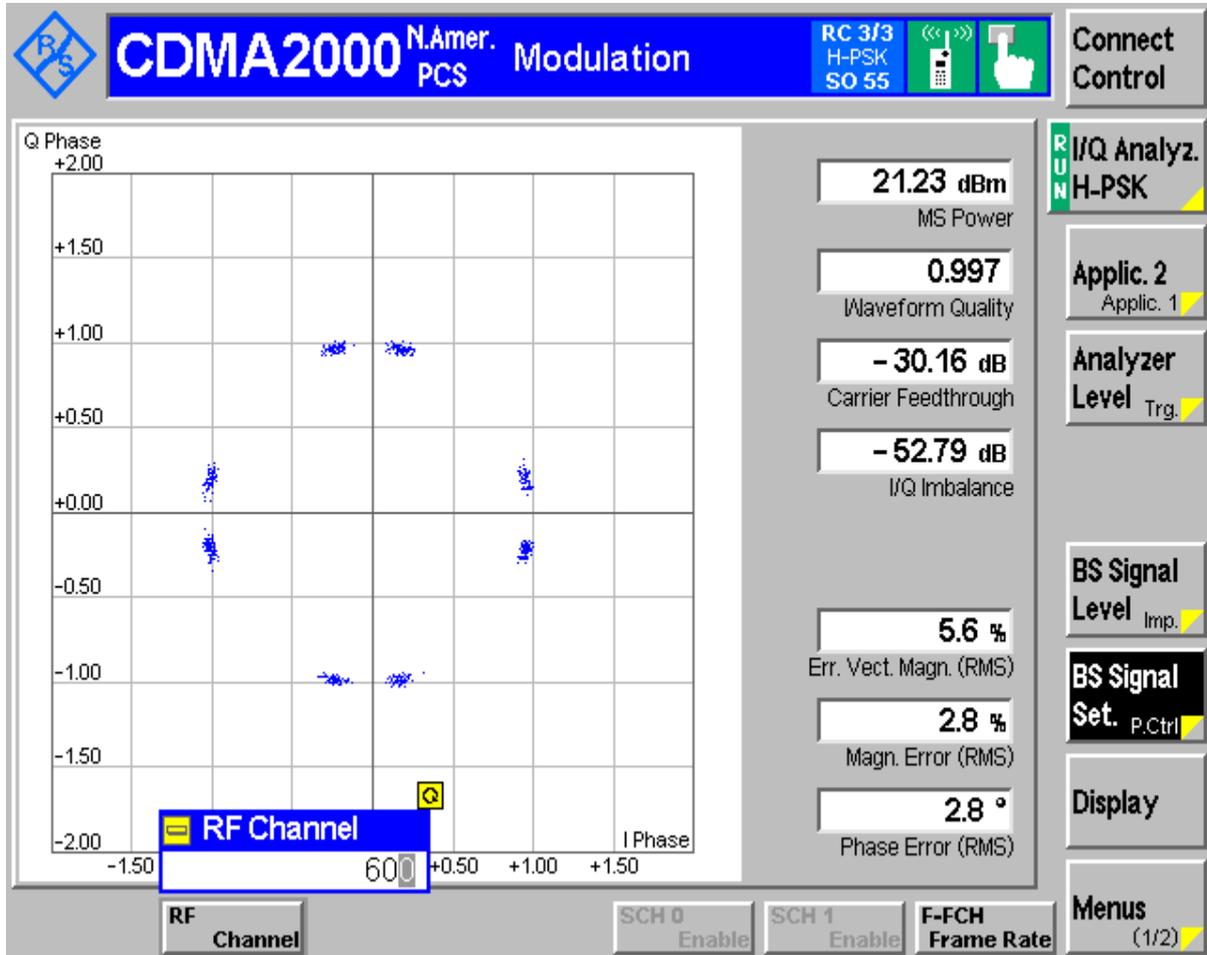


Channel 600 (TM1)



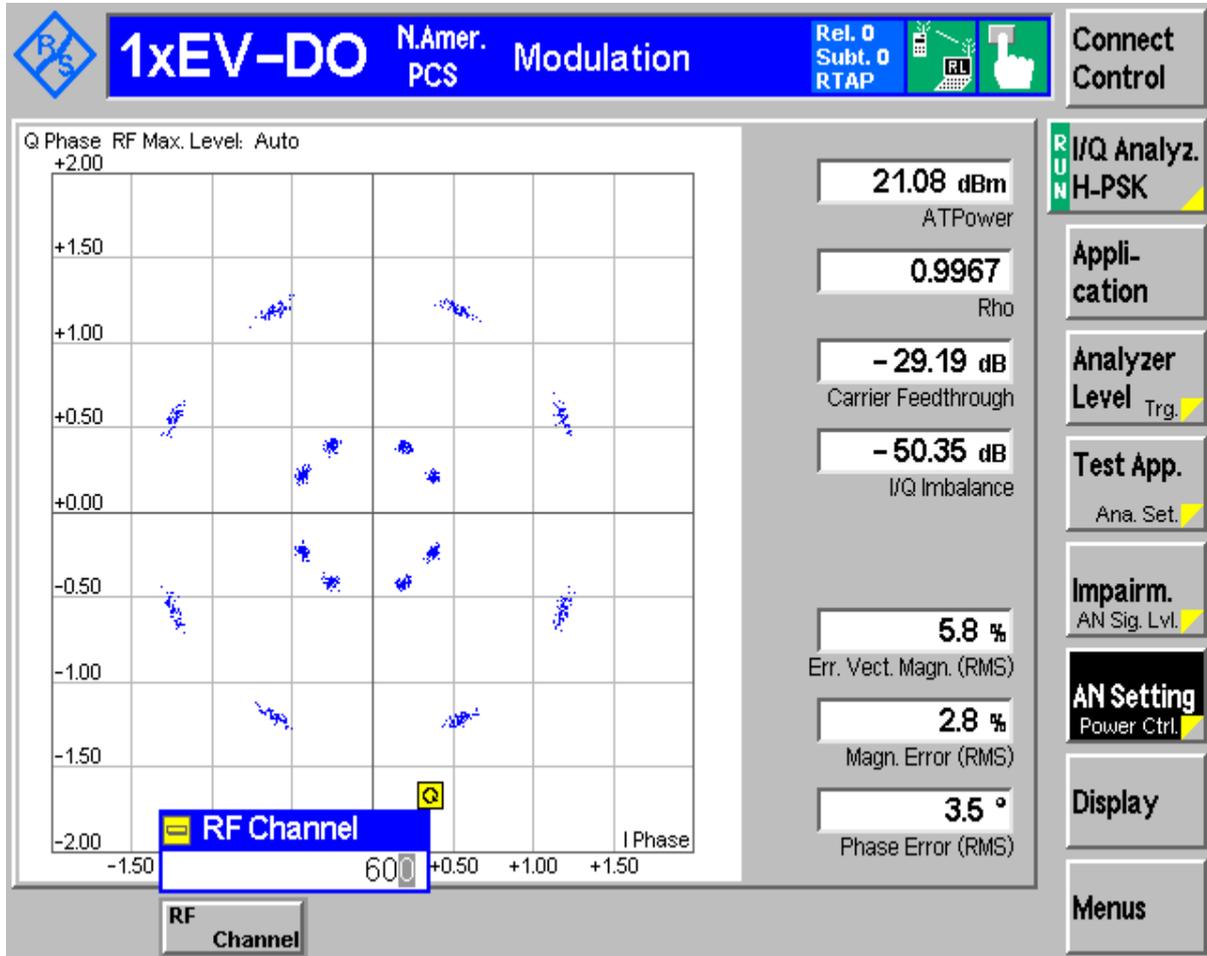


Channel 600 (TM3)





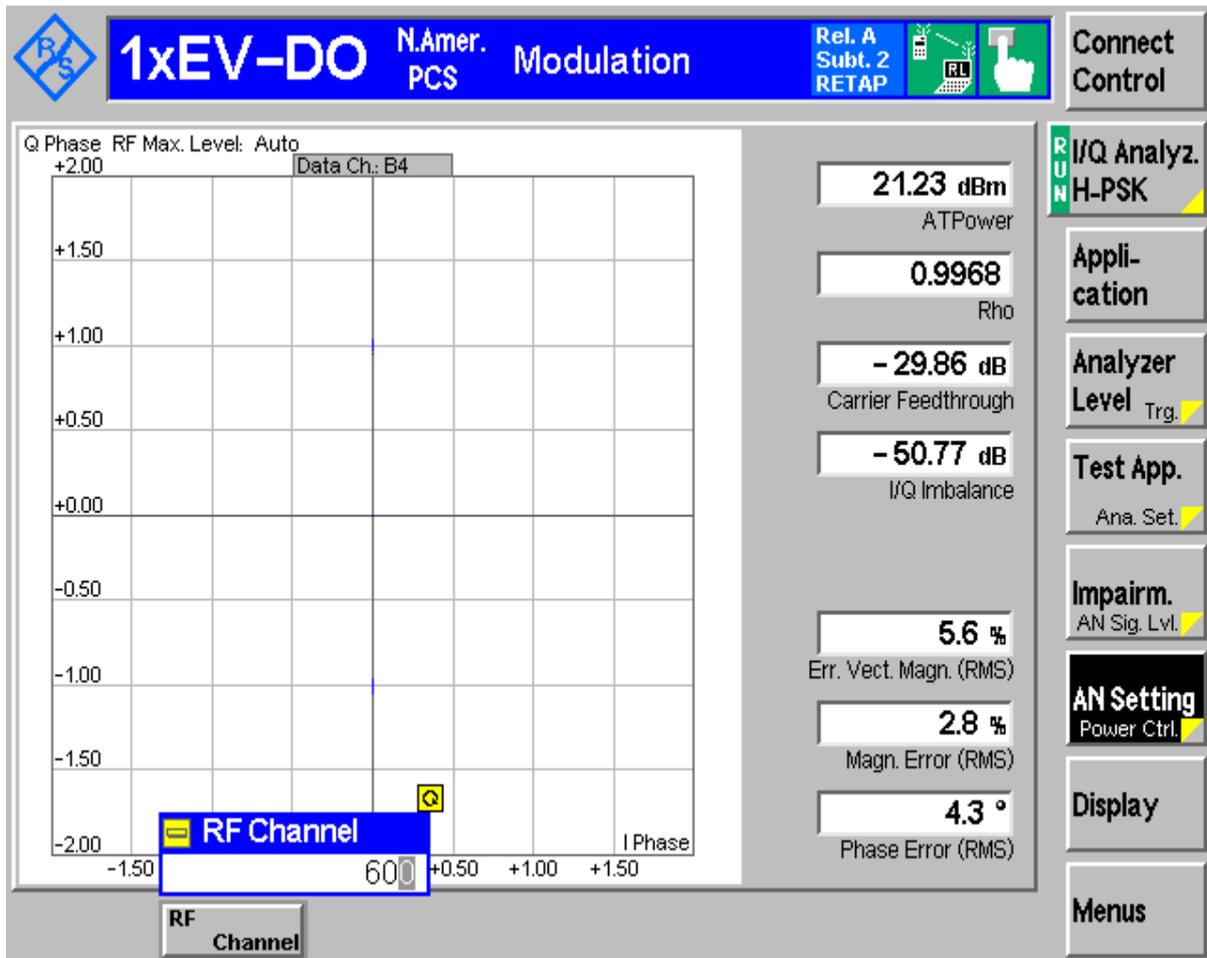
Channel600 (Subtype 0)
(HPSK)





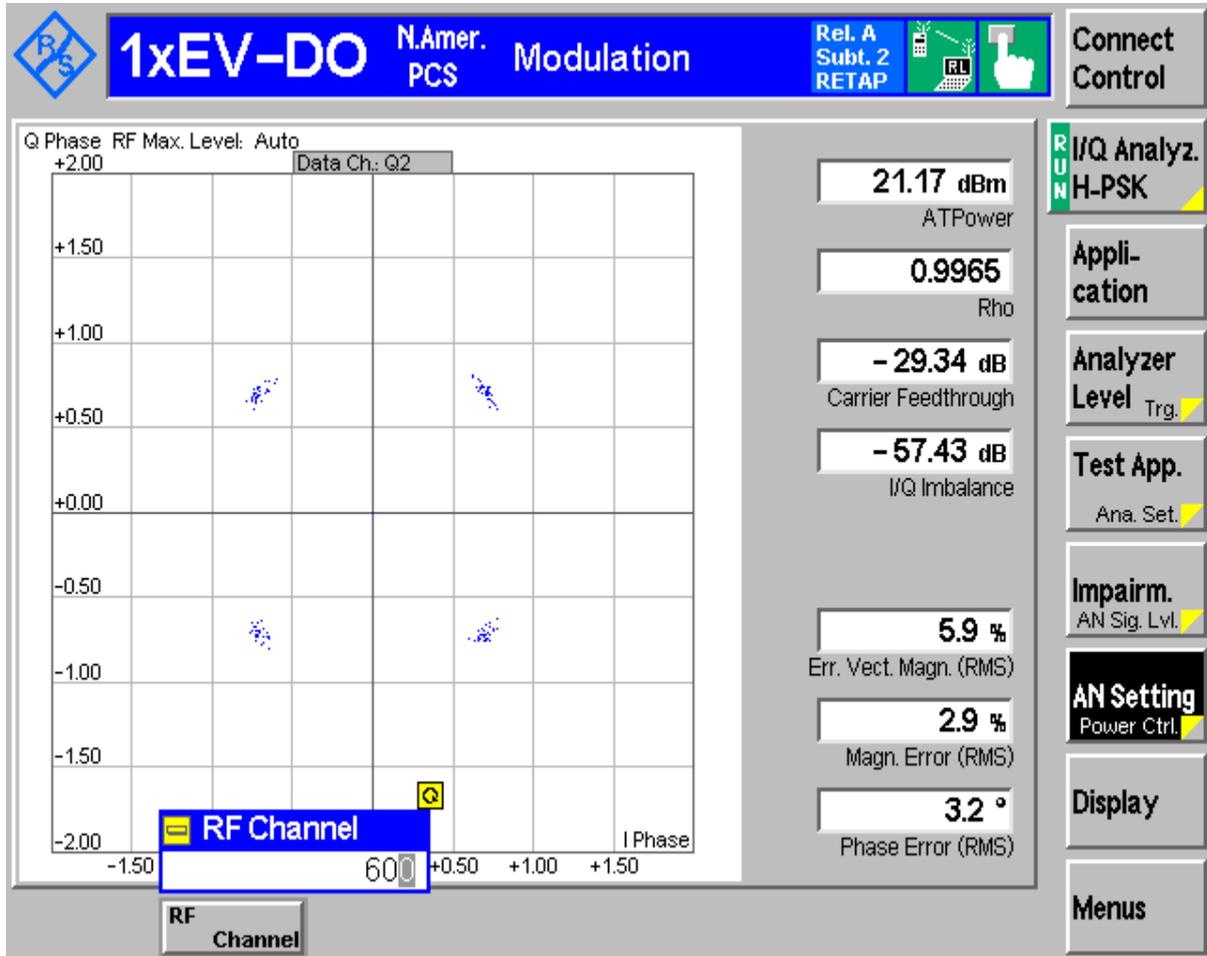
Channel600 (Subtype 2)

The R-Data packet size determines the modulation format:
R-Data Pkt Size (256 bits)
(BPSK)



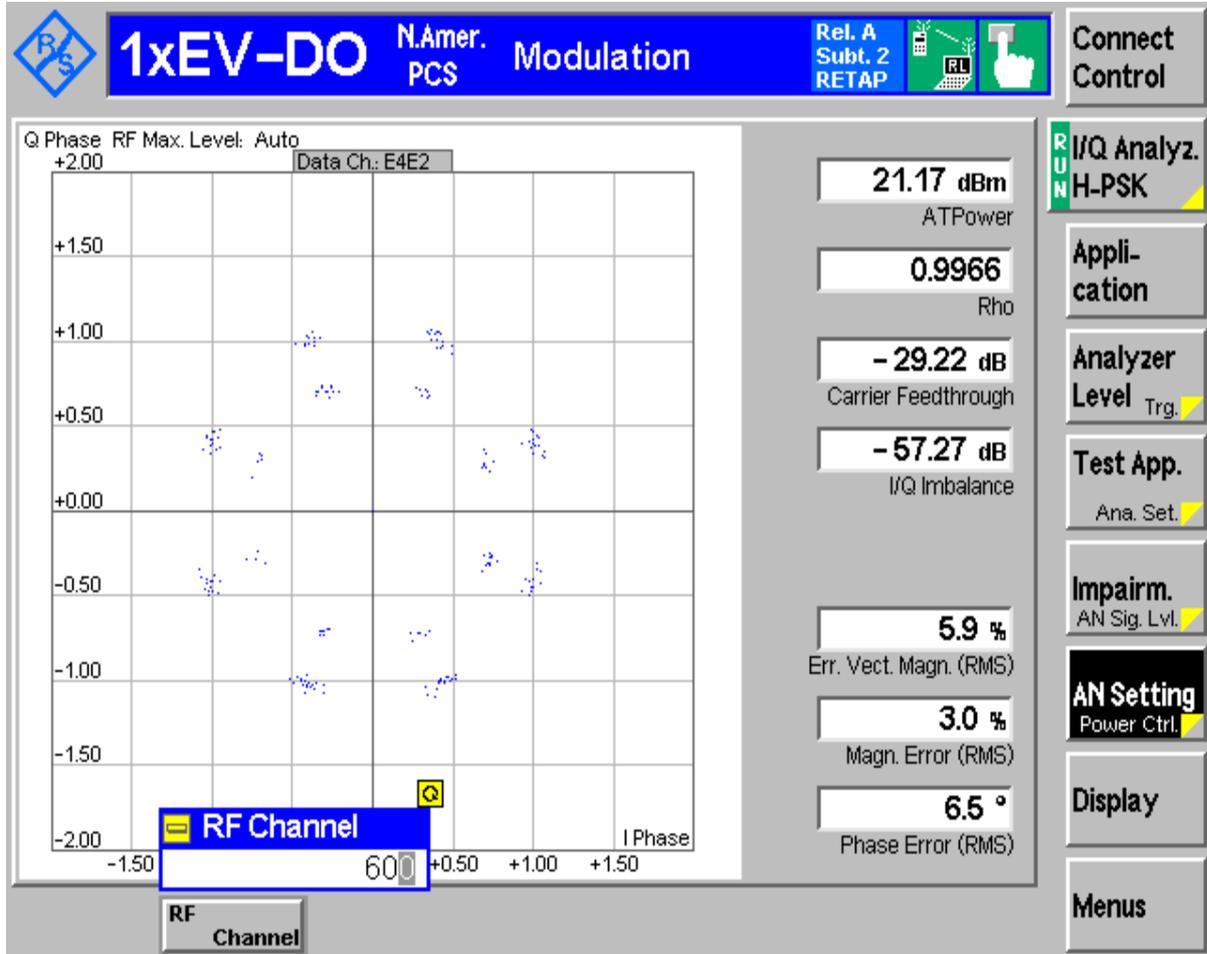


R-Data Pkt Size (4096 bits)
(QPSK)





R-Data Pkt Size (12288 bits)
(8PSK)



-----The END-----



Appendix C

Occupied Bandwidth

According to FCC part 2.1049 & Part 24 Subpart E

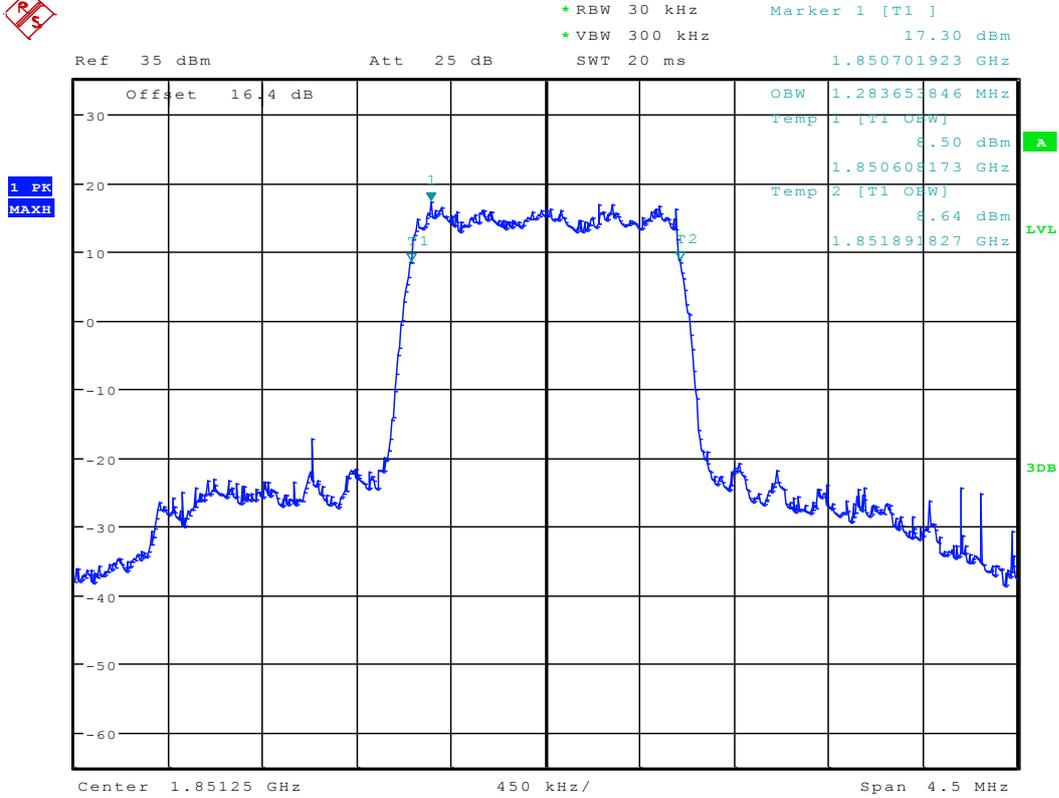


Result Table

Test Mode	RF Channel	Occupied Bandwidth [MHz]	Verdict
TM1	B	1.284	Pass
	M	1.284	Pass
	T	1.284	Pass
TM3	B	1.284	Pass
	M	1.291	Pass
	T	1.284	Pass
Subtype 0	B	1.280	Pass
	M	1.280	Pass
	T	1.274	Pass
Subtype 2	B	1.280	Pass
	M	1.286	Pass
	T	1.280	Pass



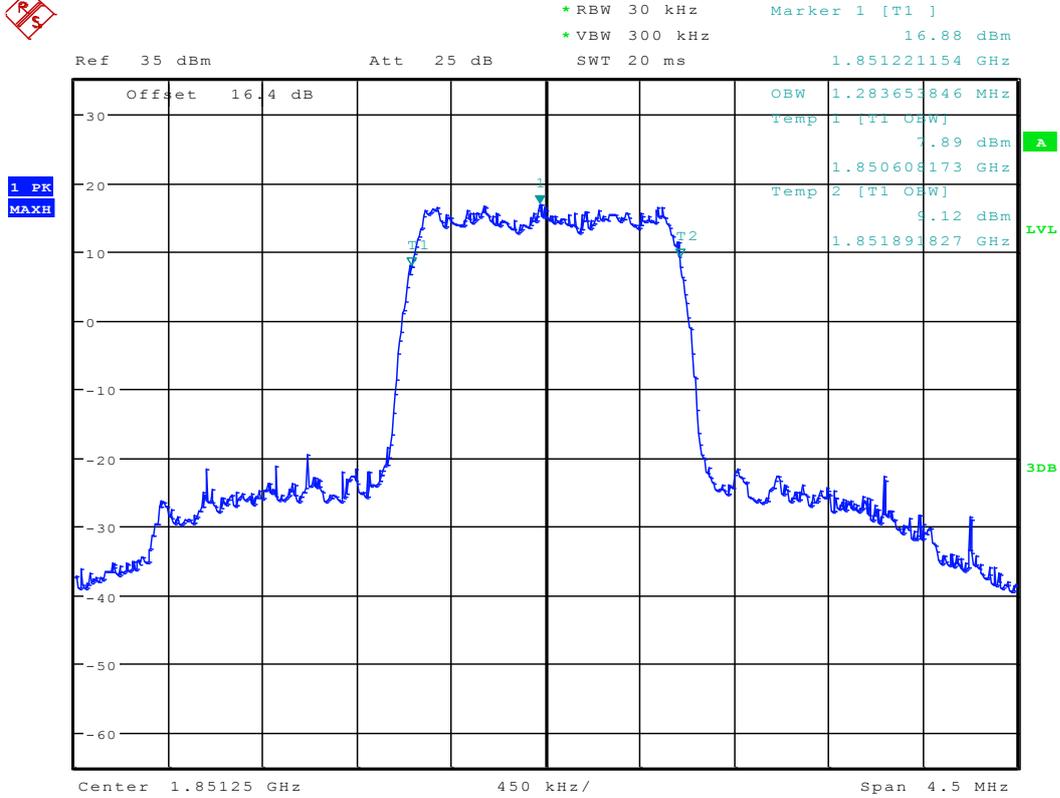
Channel 25 (TM1)



Date: 27.APR.2012 01:17:09



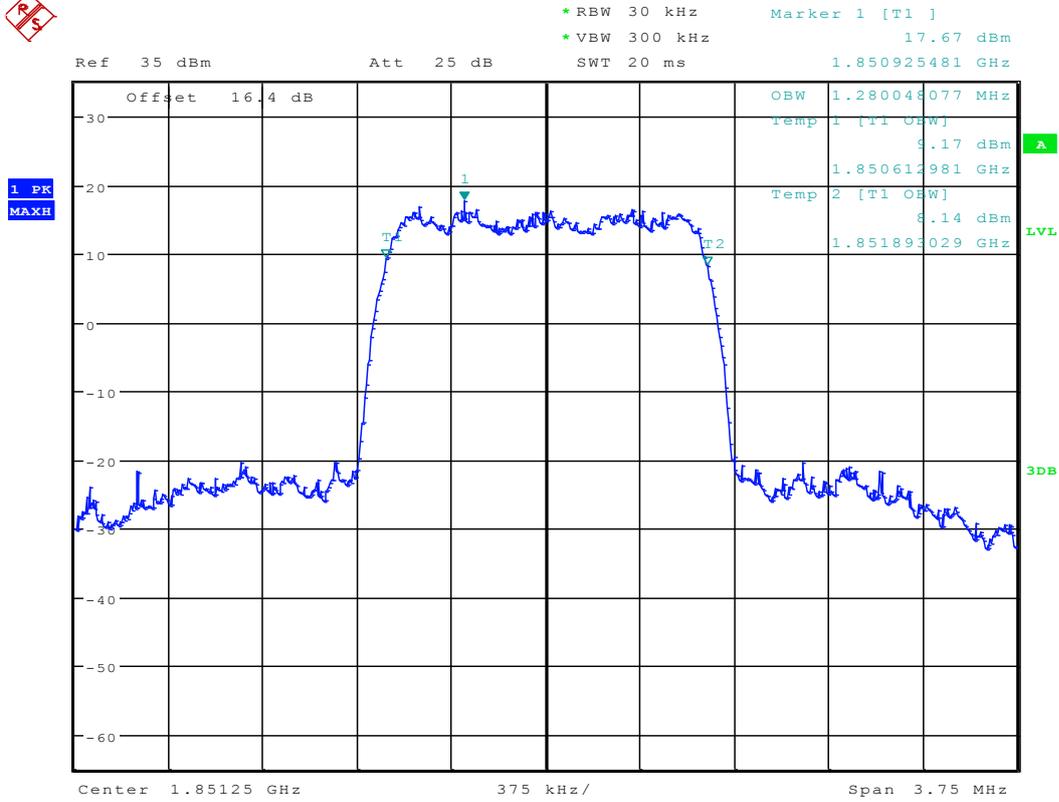
Channel 25 (TM3)



Date: 27.APR.2012 01:17:52



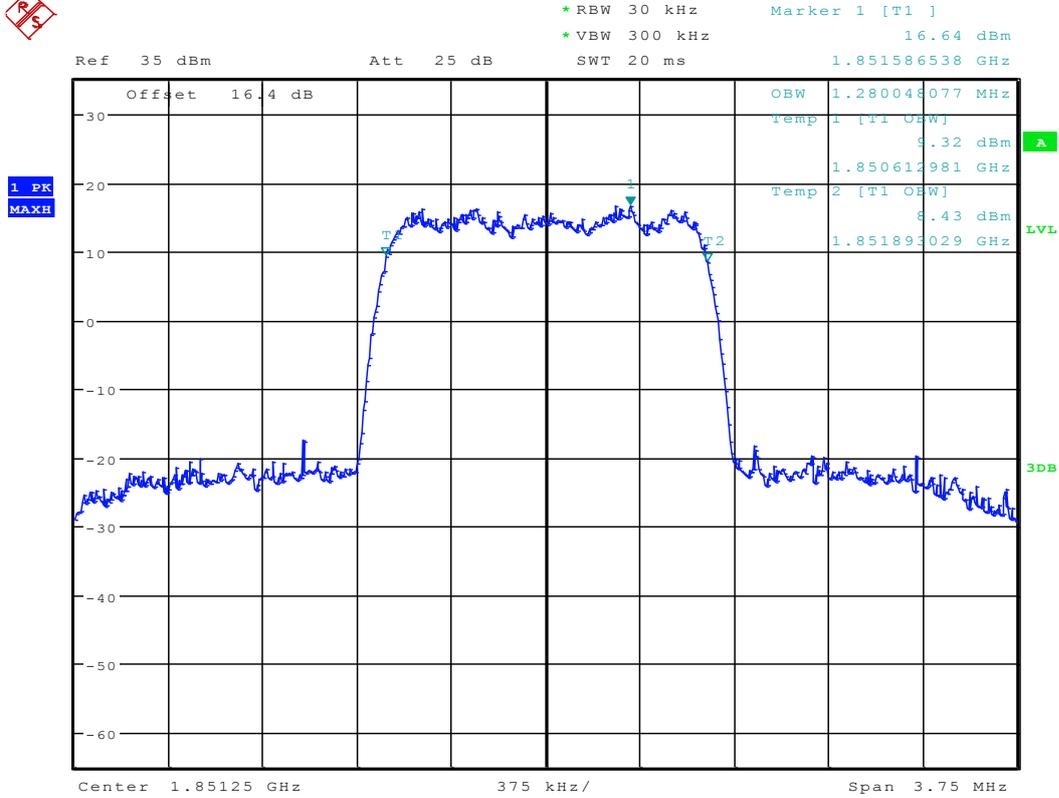
Channel 25(EVDO subtype 0)



Date: 27.APR.2012 01:22:18



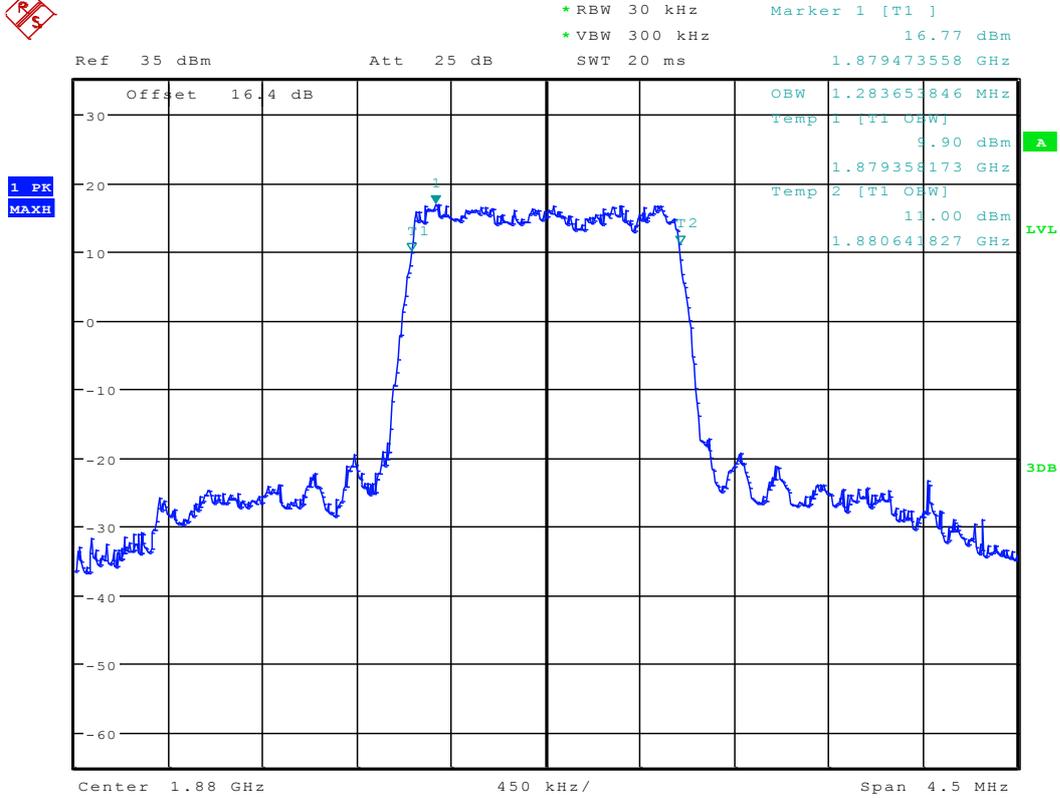
Channel 25 (EVDO Subtype 2)



Date: 27.APR.2012 01:27:18



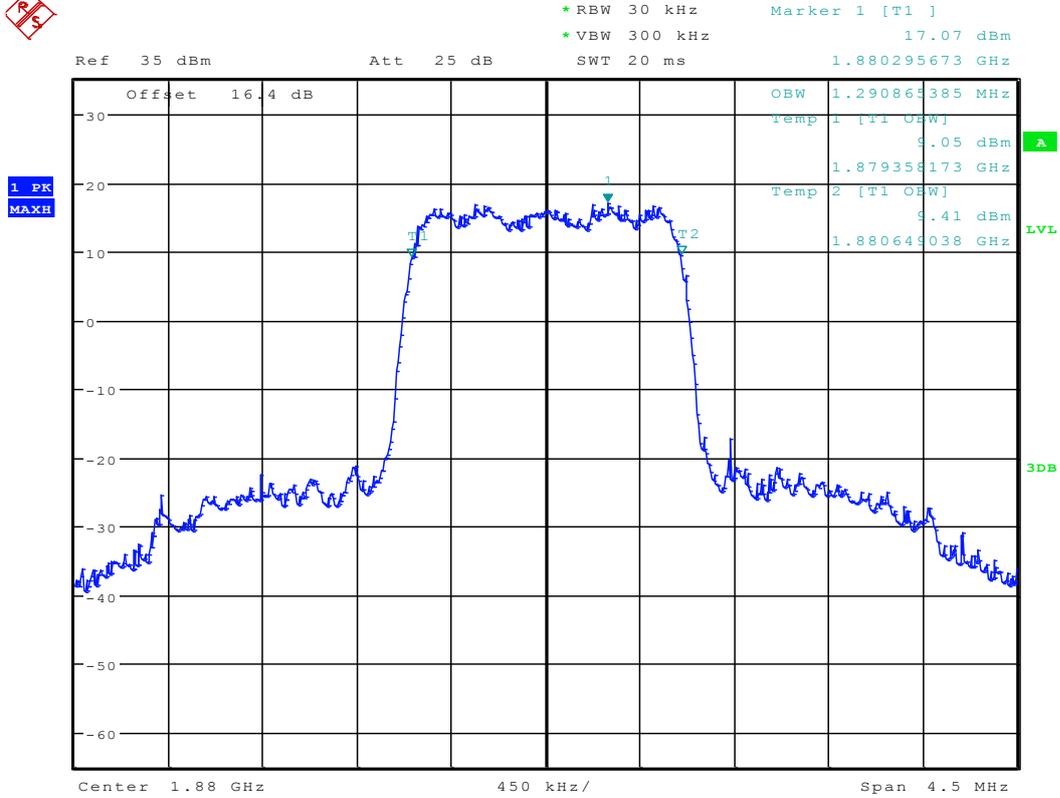
Channel 600(TM1)



Date: 27.APR.2012 01:17:23



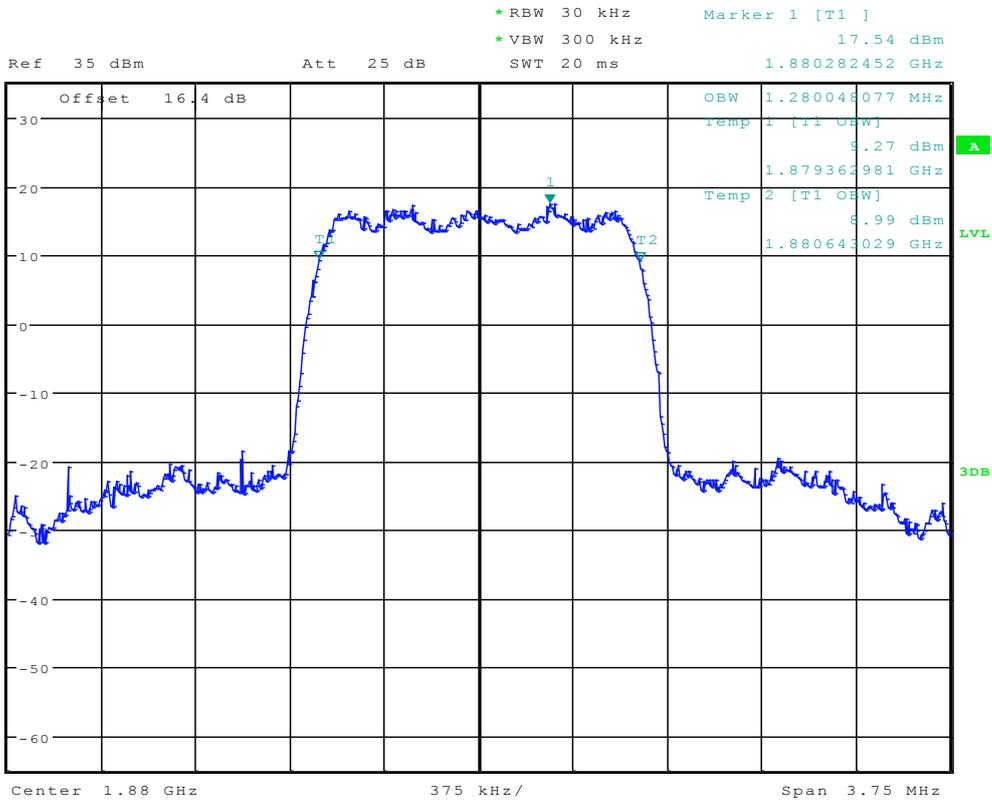
Channel 600(TM3)



Date: 27.APR.2012 01:18:06



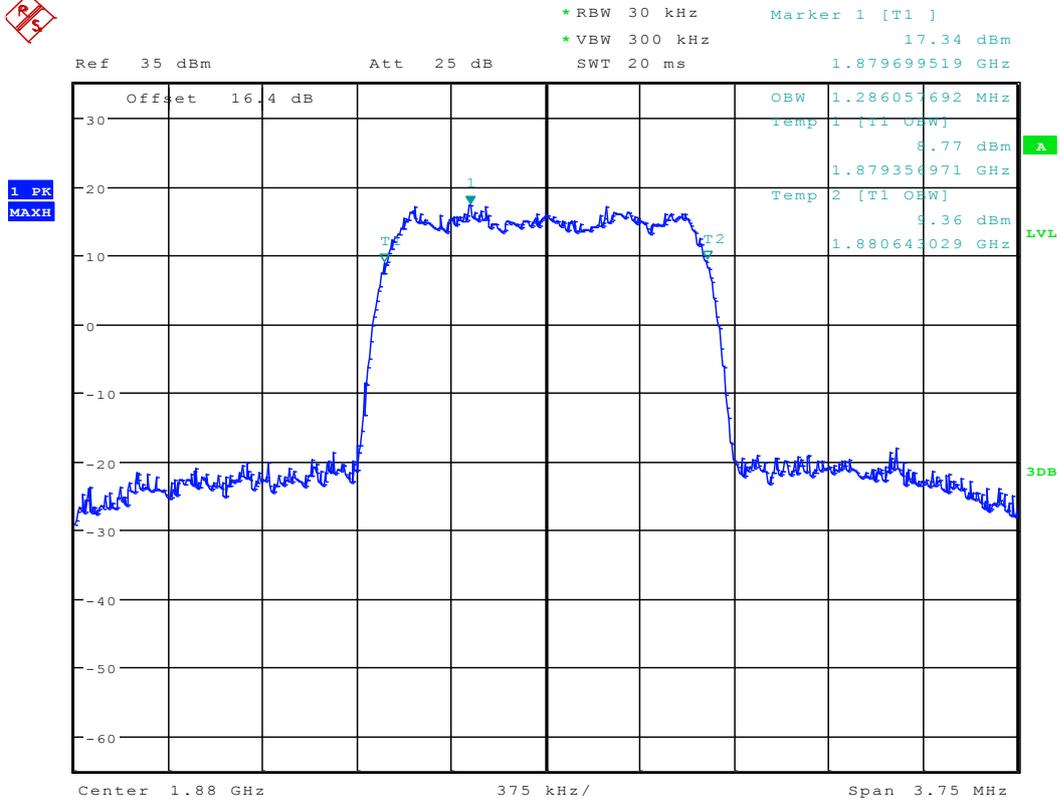
Channel 600 (EVDO subtype 0)



Date: 27.APR.2012 01:22:32



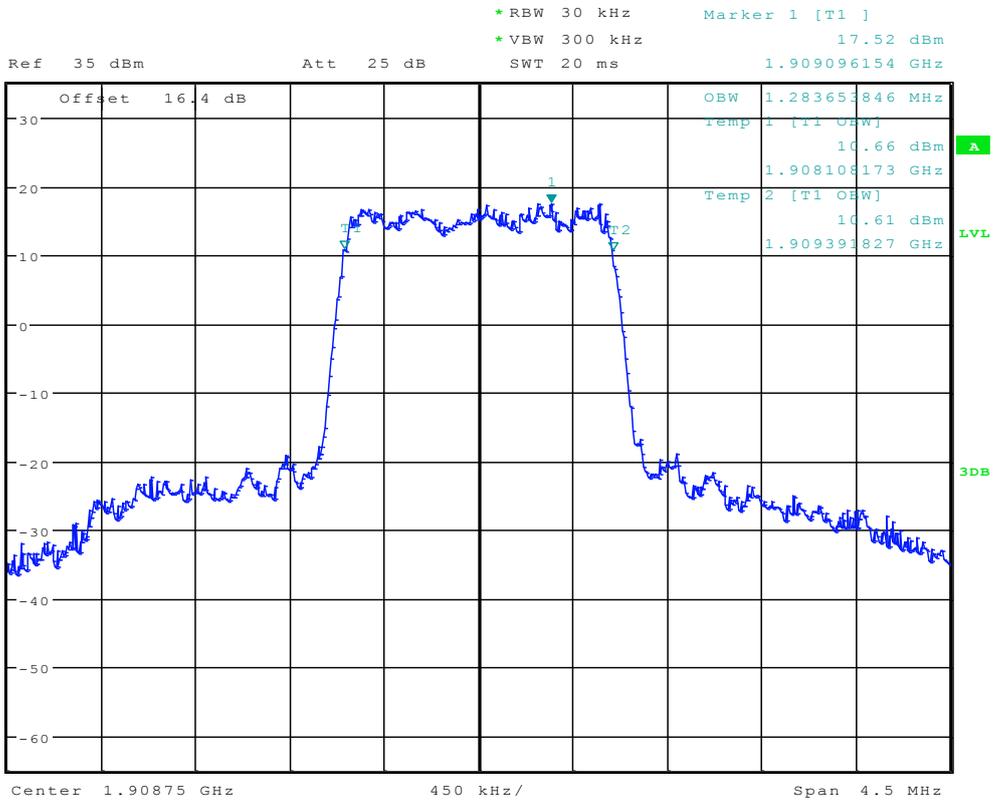
Channel 600 (EVDO subtype 2)



Date: 27.APR.2012 01:27:30



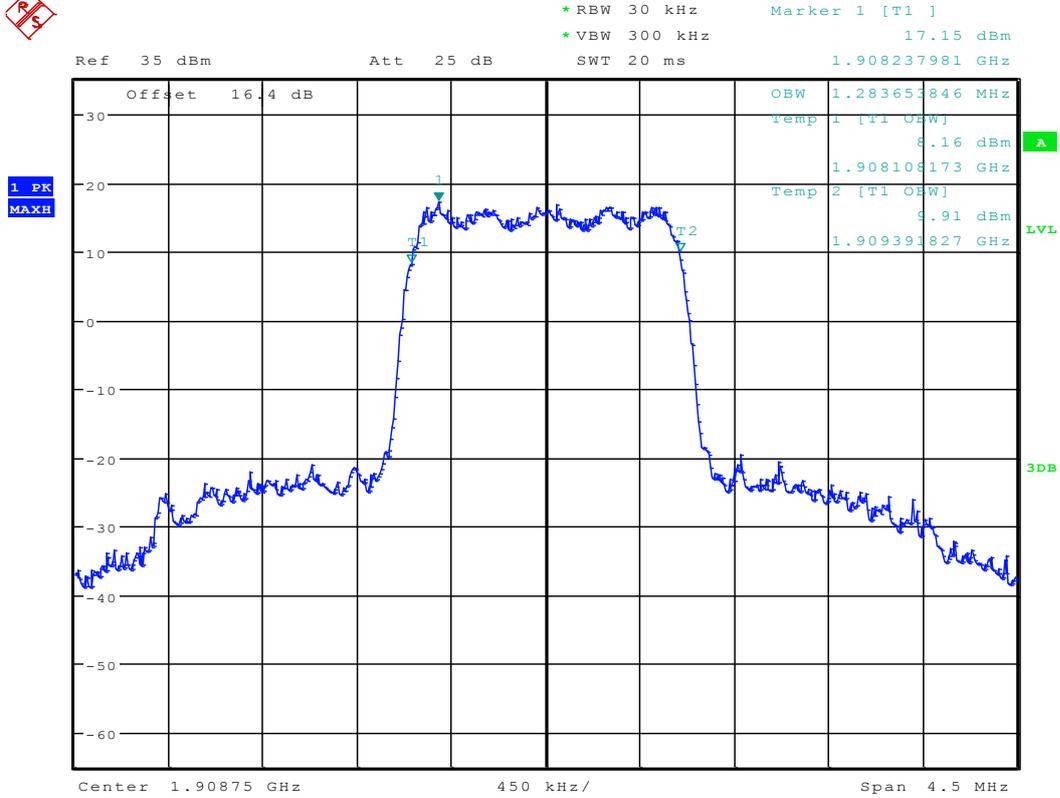
Channel 1175 (TM1)



Date: 27.APR.2012 01:17:37



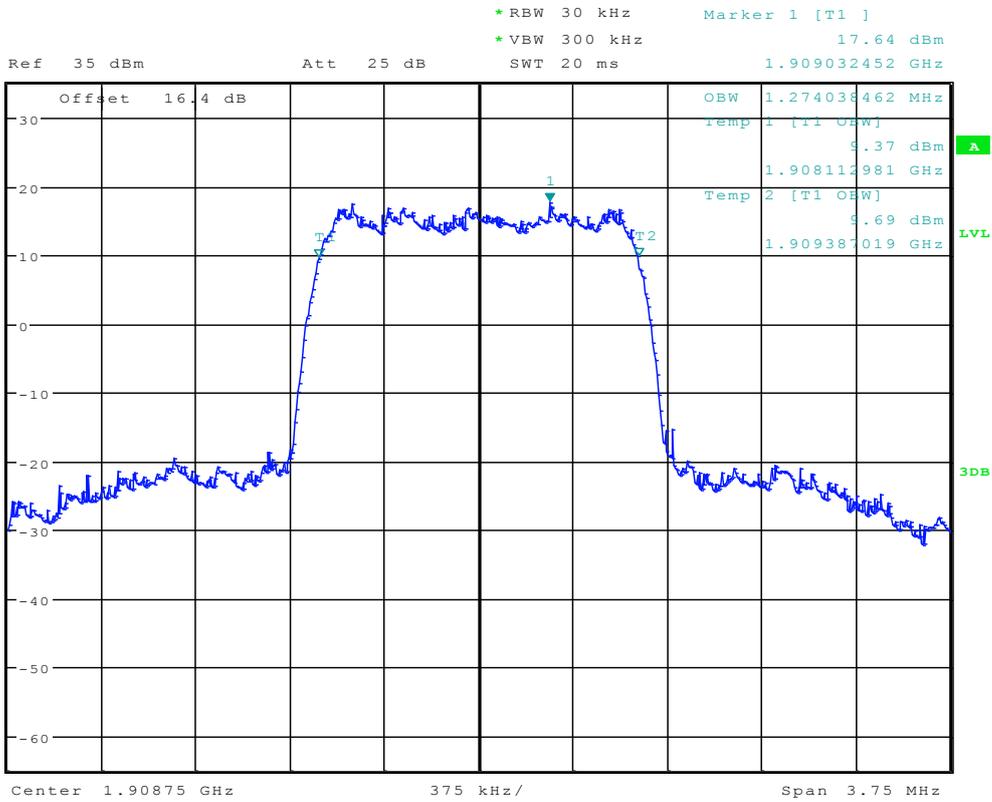
Channel 1175(TM3)



Date: 27.APR.2012 01:18:20



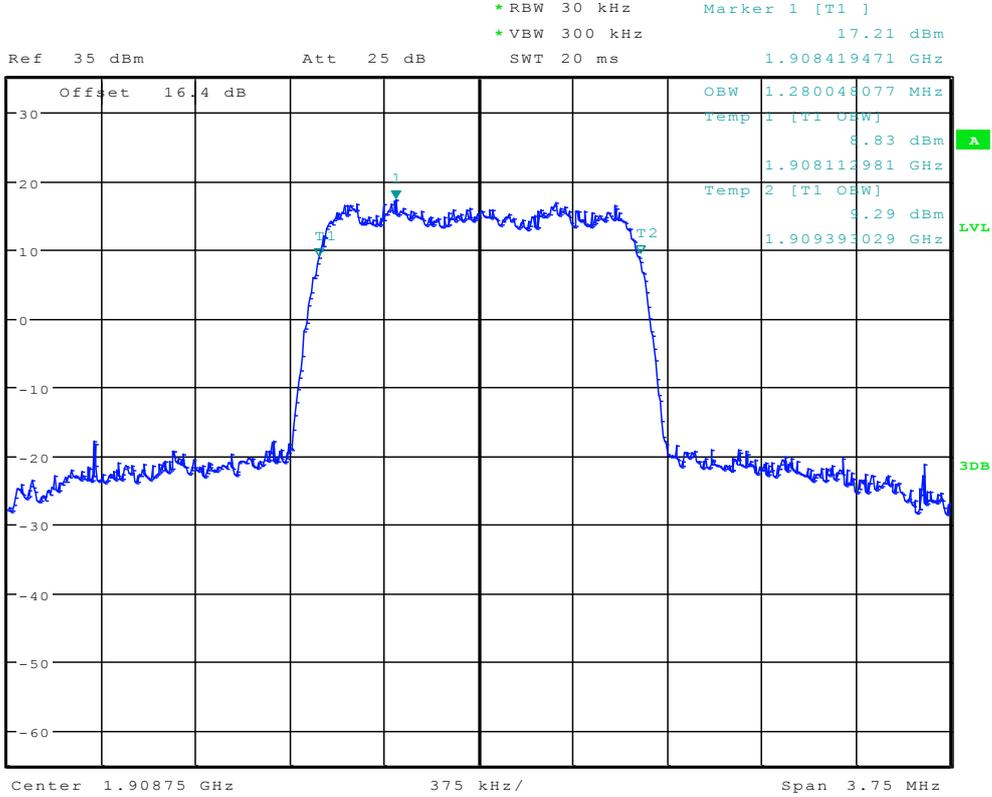
Channel 1175 (EVDO subtype 0)



Date: 27.APR.2012 01:22:45



Channel 1175 (EVDO subtype 2)



Date: 27.APR.2012 01:27:41

-----The END-----



Appendix D

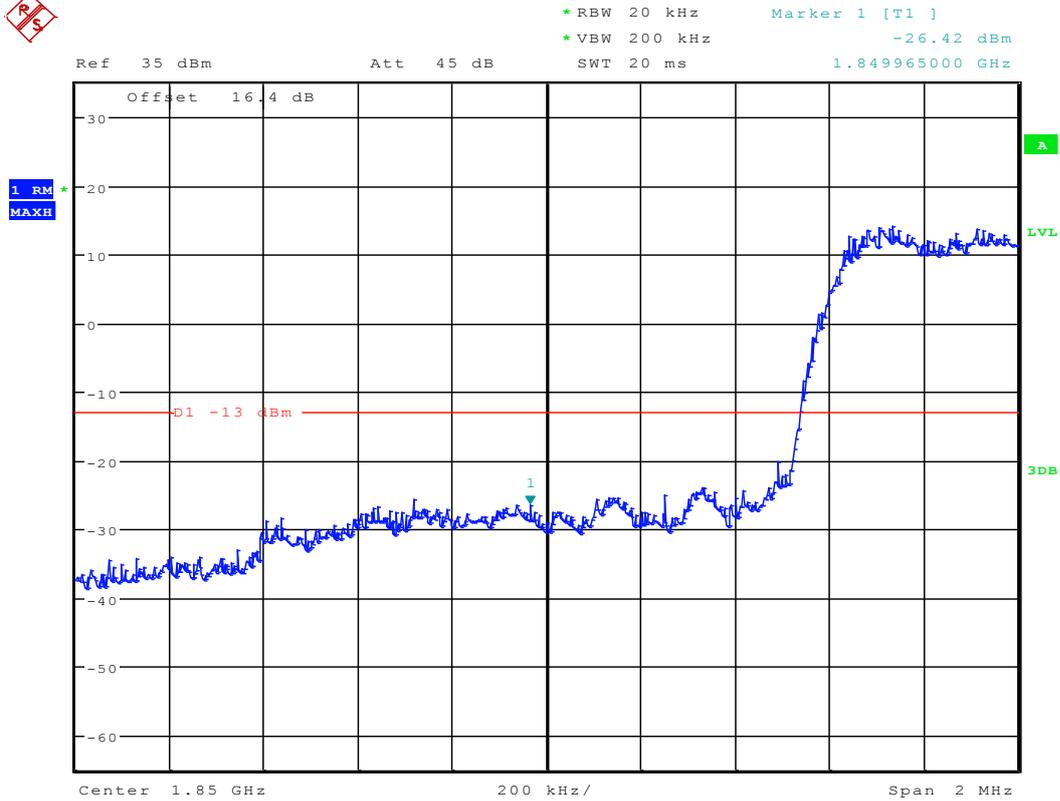
Band Edges Compliance According to FCC Part 2.1051 & 24.238



TM1

Left Edge (1850 MHz)

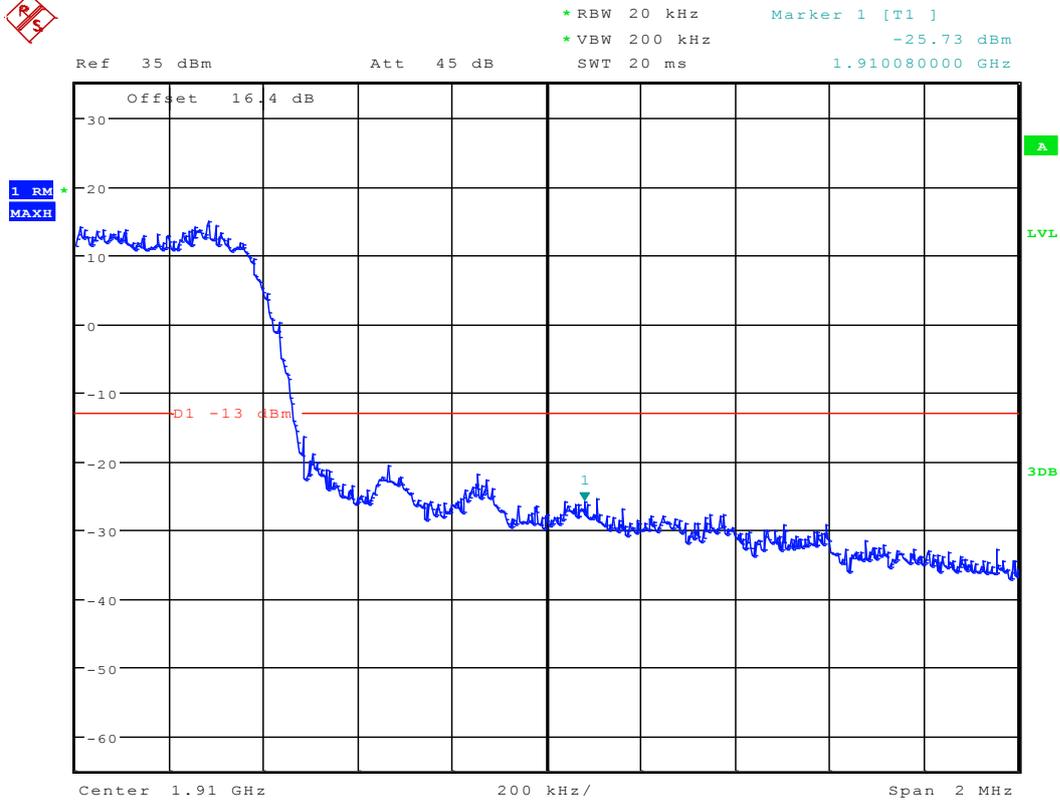
Channel 25



Date: 27.APR.2012 01:16:10



Right Edge (1910MHz) Channel 1175



Date: 27.APR.2012 01:16:24



TM3

Left Edge (1850 MHz)

Channel 25

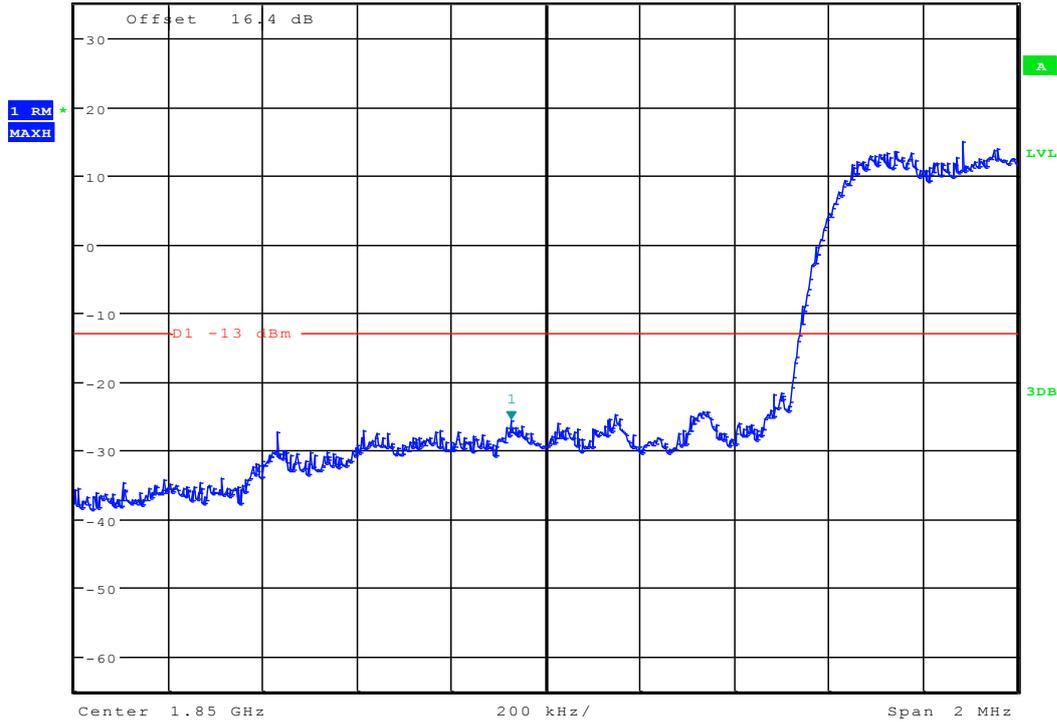


Ref 35 dBm Att 45 dB *RBW 20 kHz *VBW 200 kHz SWT 20 ms

Marker 1 [T1]

-25.54 dBm

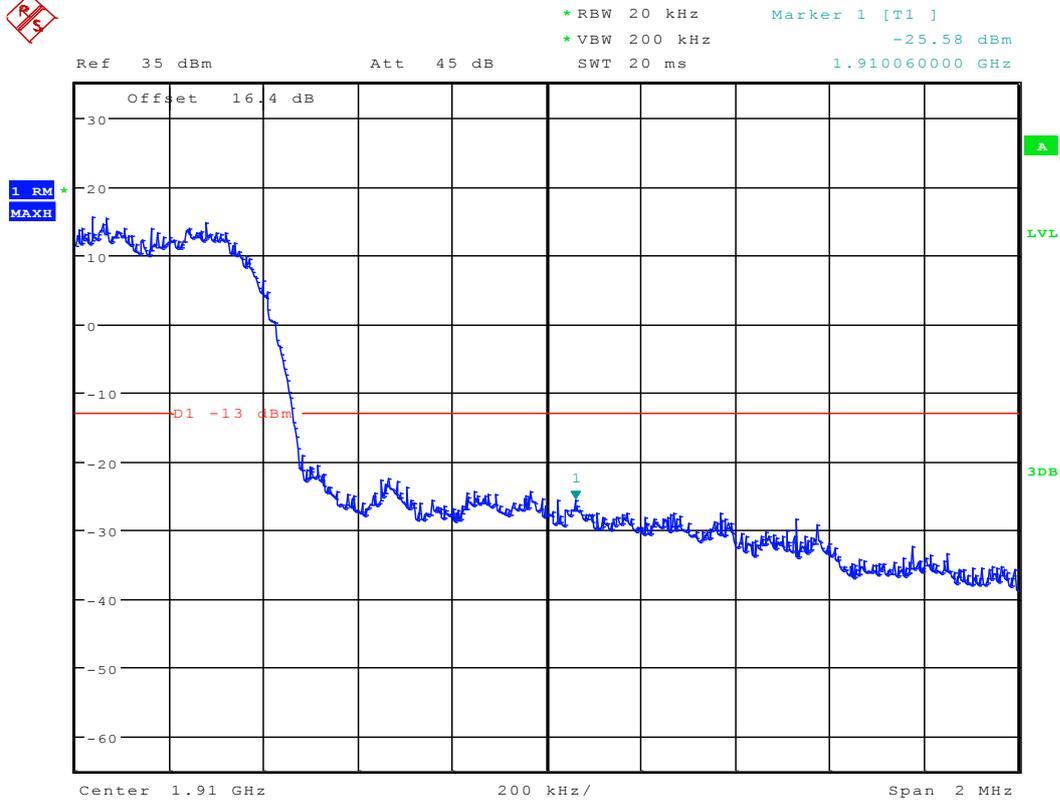
1.849925000 GHz



Date: 27.APR.2012 01:16:39



Right Edge (1910MHz) Channel 1175



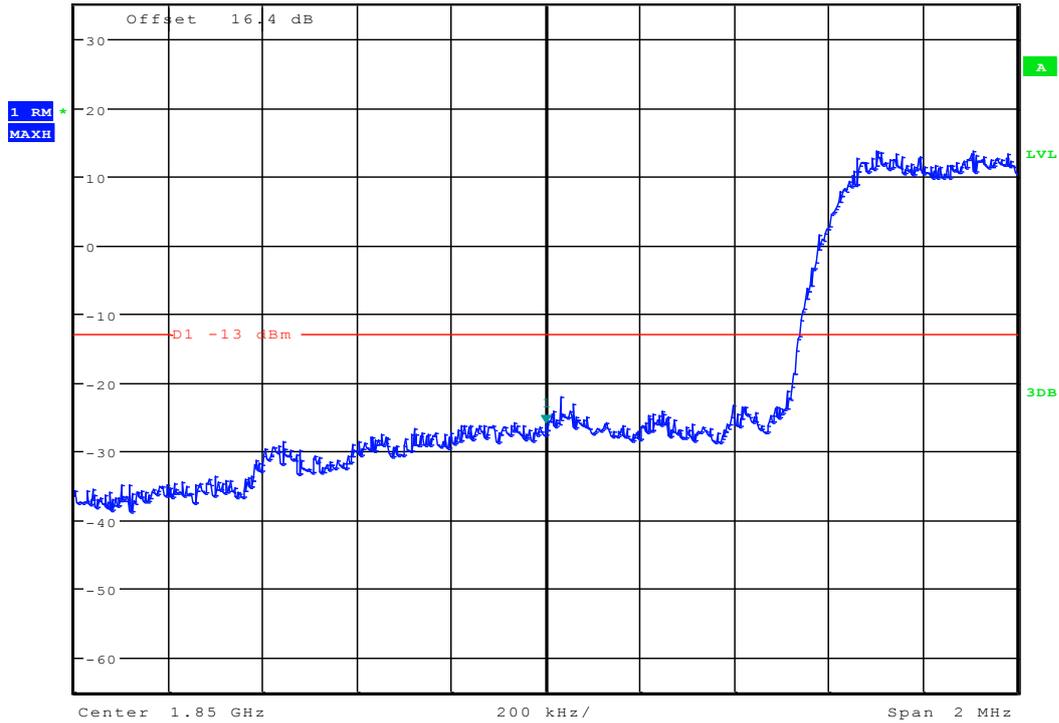
Date: 27.APR.2012 01:16:54



EVDO subtype 0 Left Edge (1850 MHz) Channel 25



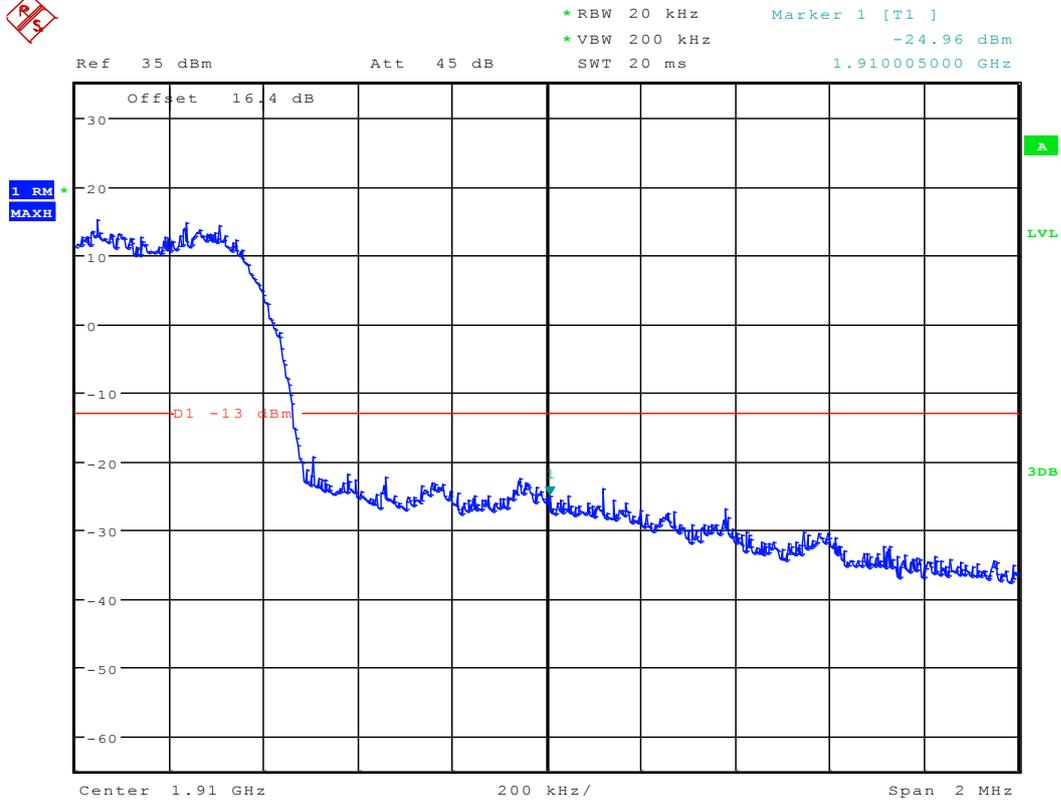
Ref 35 dBm Att 45 dB *RBW 20 kHz *VBW 200 kHz SWT 20 ms Marker 1 [T1]
-25.99 dBm
1.850000000 GHz



Date: 27.APR.2012 01:21:48



Right Edge (1910MHz) Channel 1175

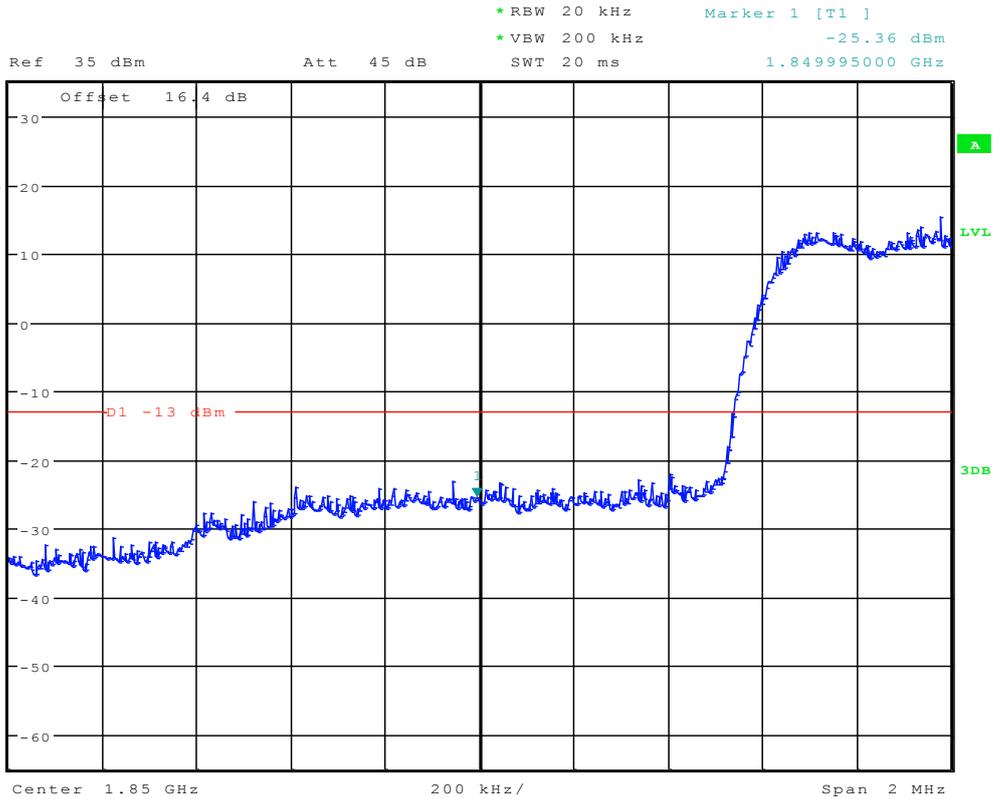


Date: 27.APR.2012 01:22:02



EVDO subtype 2

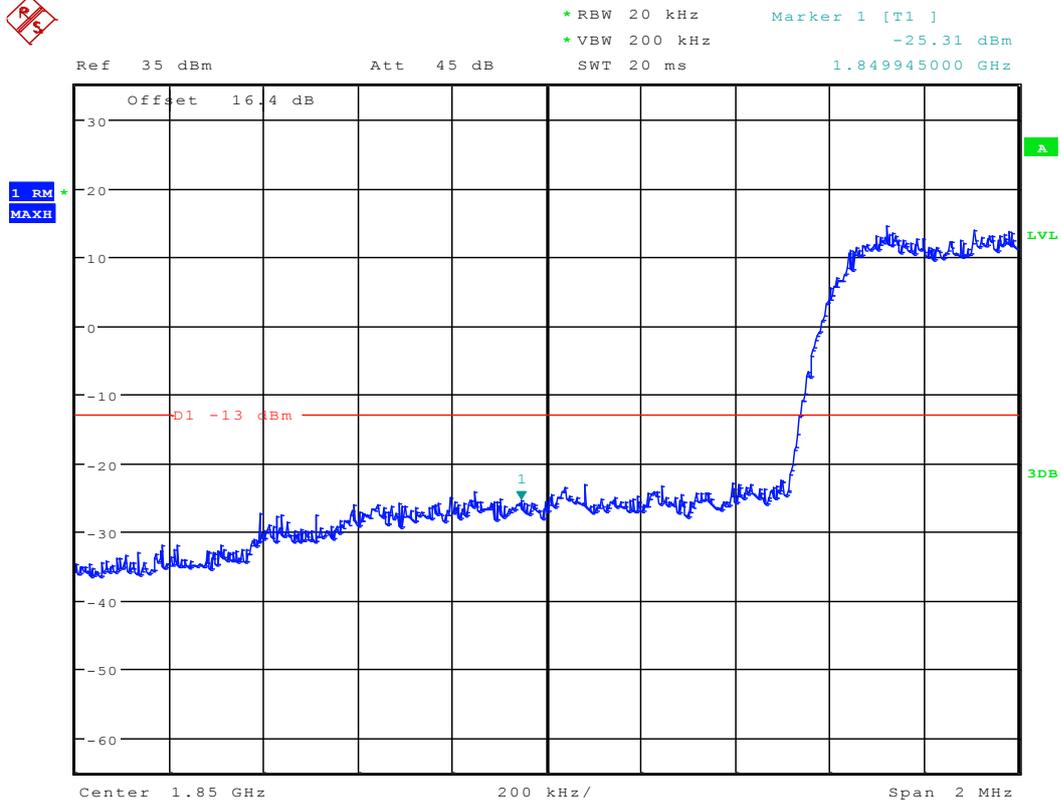
Modulation: BPSK
Left Edge (1850 MHz)
Channel 25



Date: 27.APR.2012 01:35:41



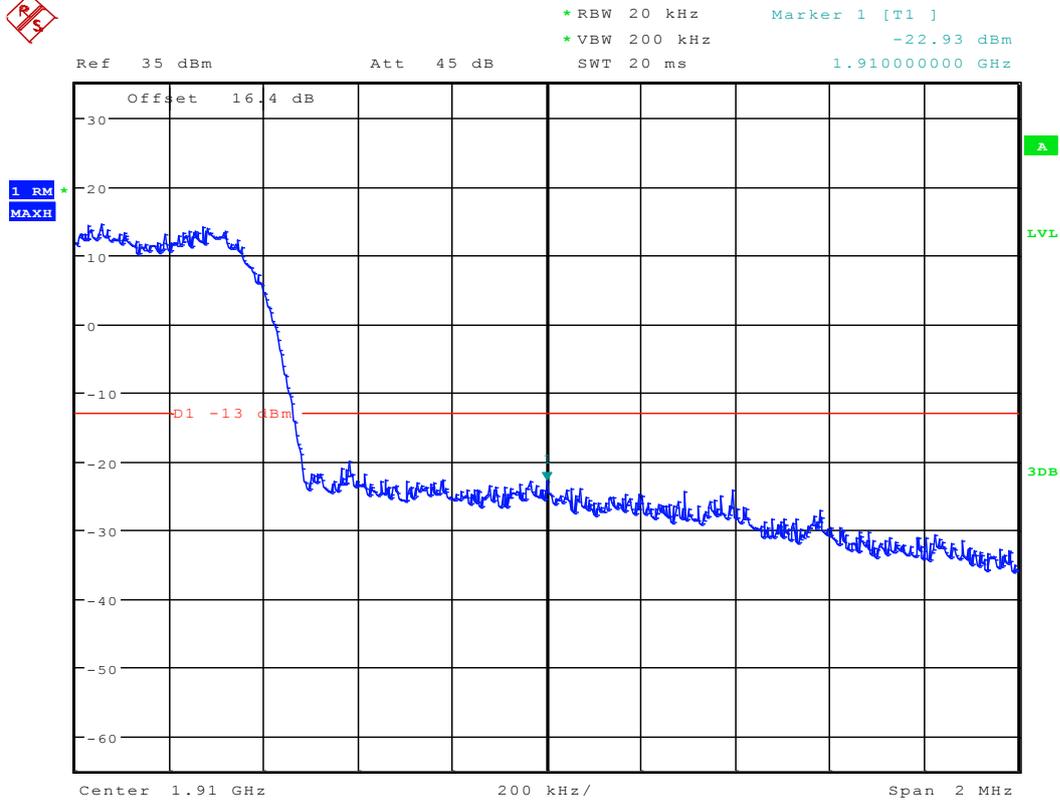
Modulation: QPSK
Left Edge (1850 MHz)
Channel 25



Date: 27.APR.2012 01:36:08



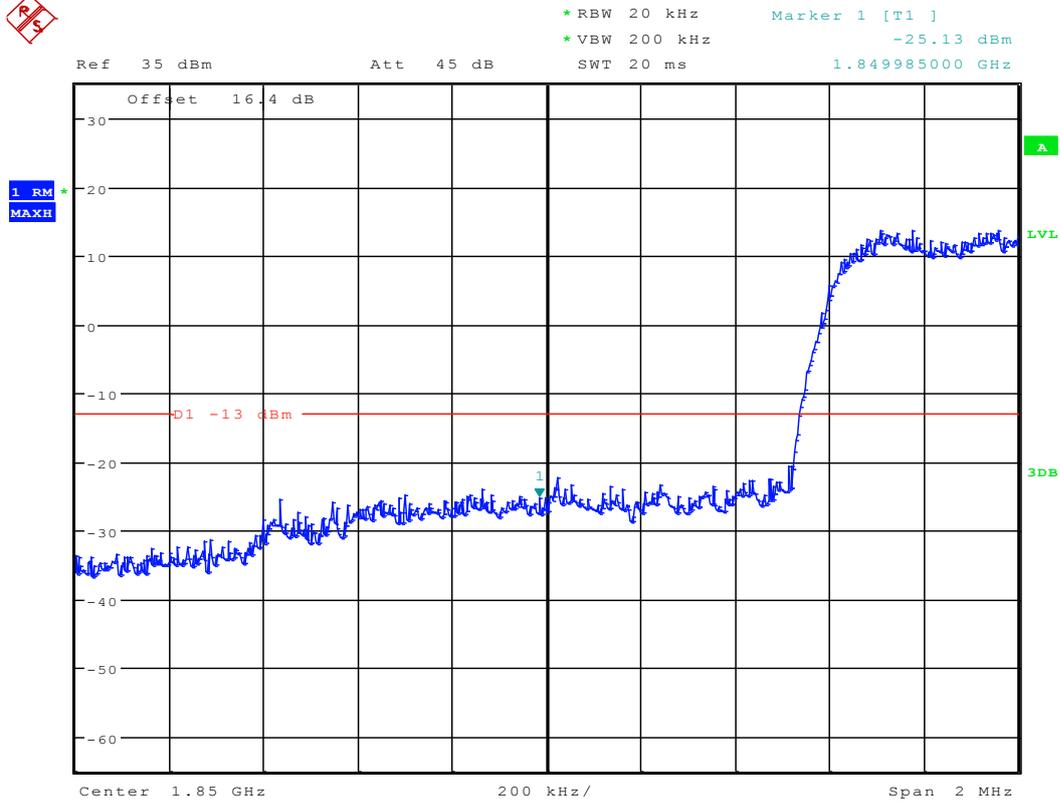
Right Edge (1910MHz) Channel 1175



Date: 27.APR.2012 01:36:22



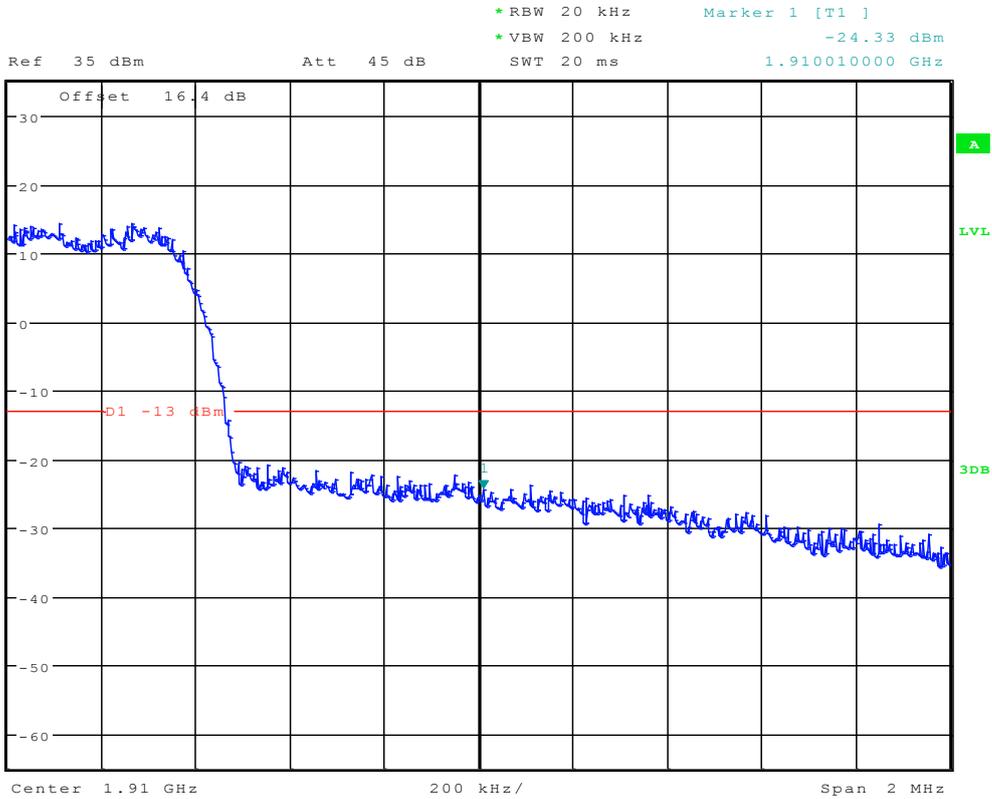
Modulation: 8PSK
Left Edge (1850 MHz)
Channel 25



Date: 27.APR.2012 01:36:36



Right Edge (1910MHz) Channel 1175



Date: 27.APR.2012 01:36:49

-----The END-----



Appendix E

Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & 24.238



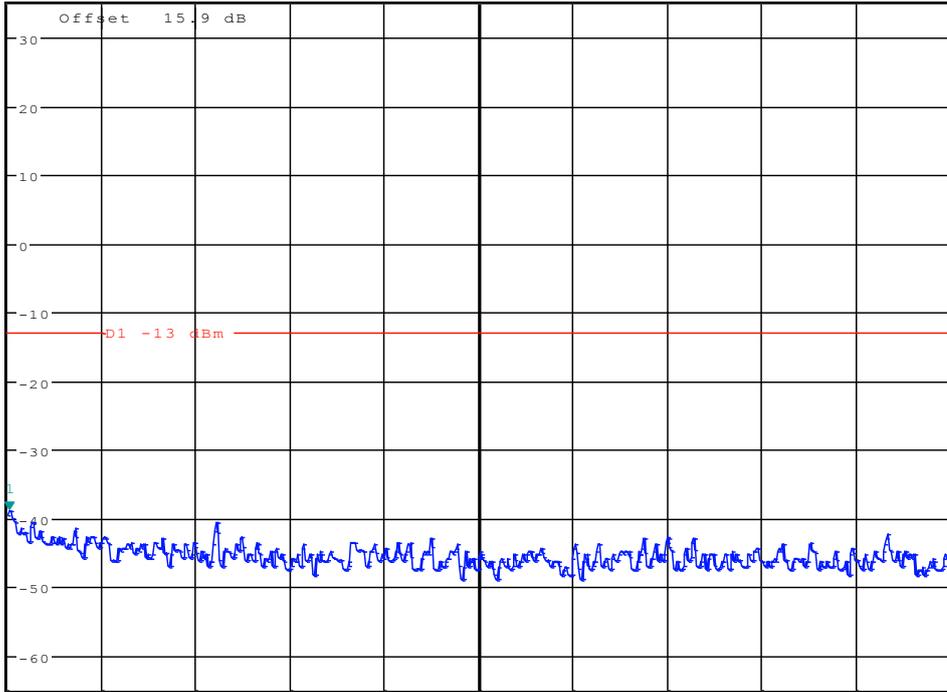
TM1

Channel 25



*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -38.87 dBm
SWT 145 ms 9.225961538 kHz

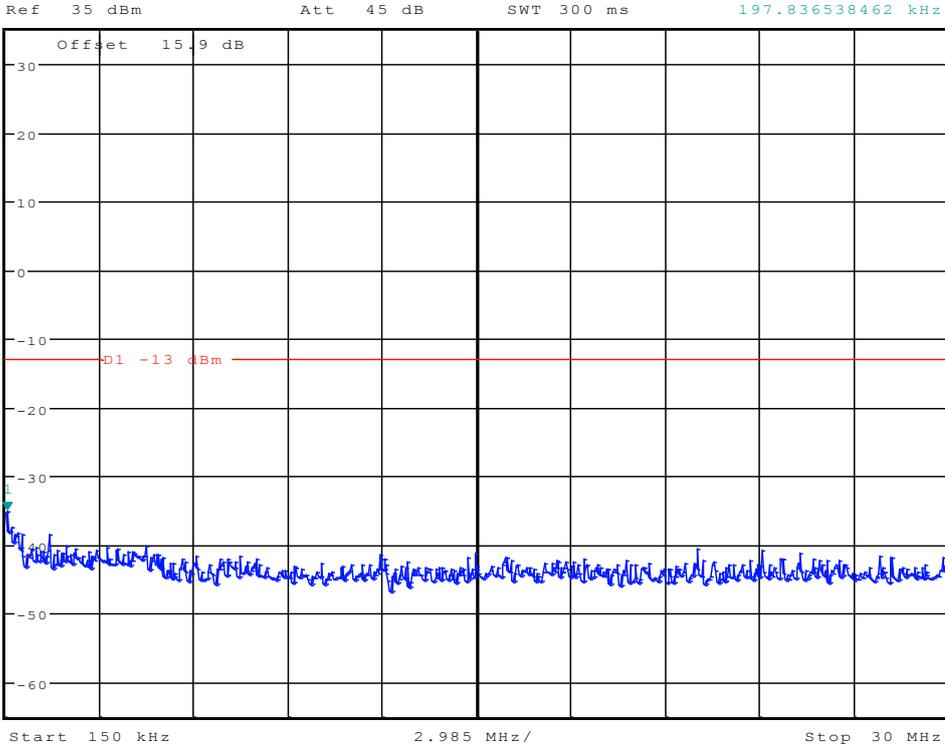
Ref 35 dBm Att 45 dB



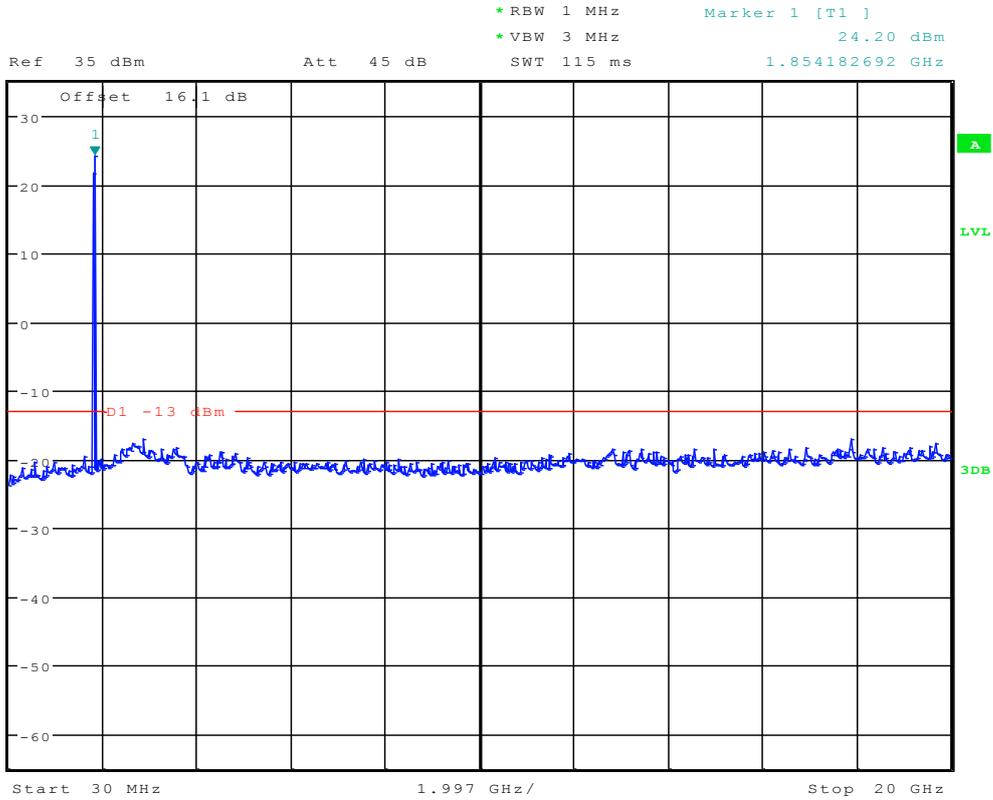
Date: 27.APR.2012 01:18:31



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -35.09 dBm
SWT 300 ms 197.836538462 kHz



Date: 27.APR.2012 01:18:56



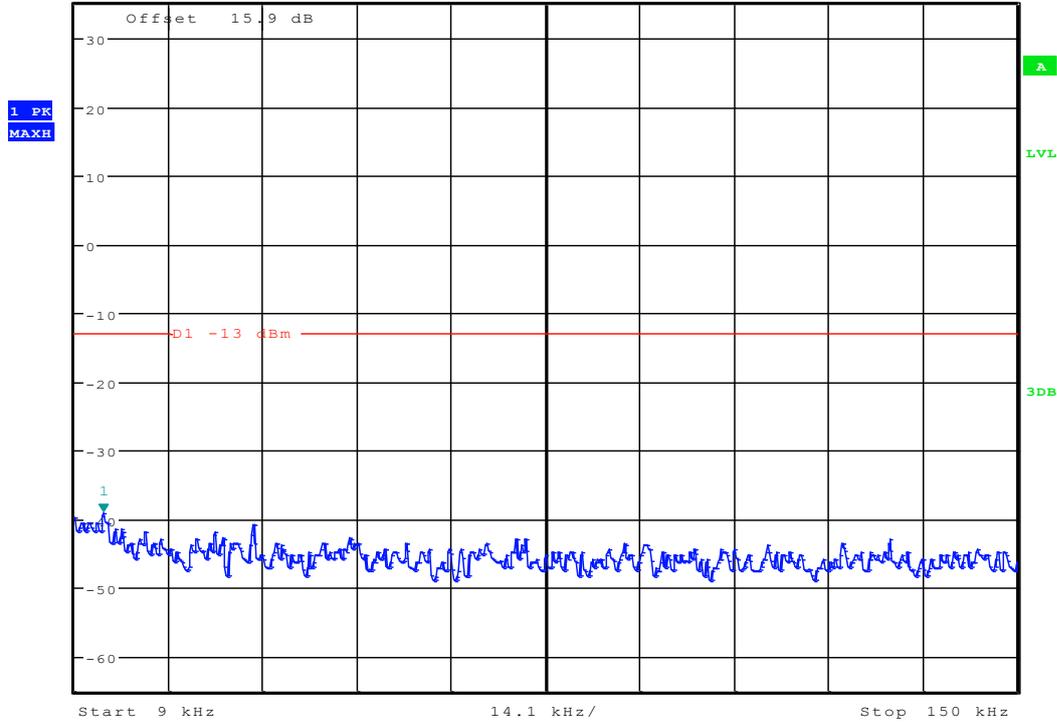
Date: 27.APR.2012 01:19:22



Channel 600



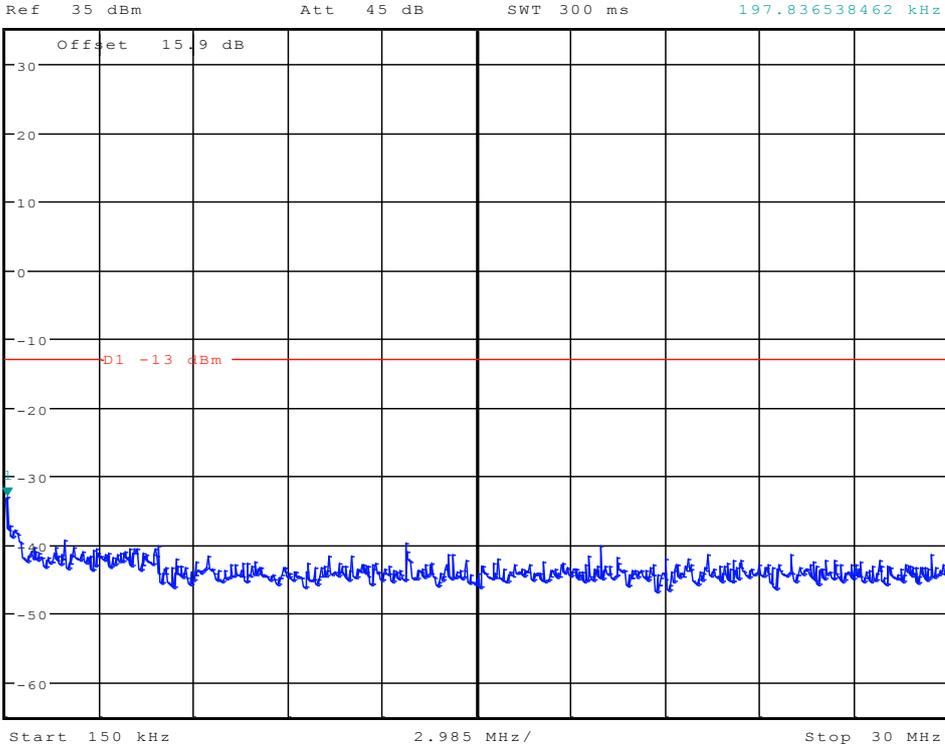
* RBW 1 kHz Marker 1 [T1]
 * VBW 10 kHz -39.08 dBm
 Ref 35 dBm Att 45 dB SWT 145 ms 13.293269231 kHz



Date: 27.APR.2012 01:18:39



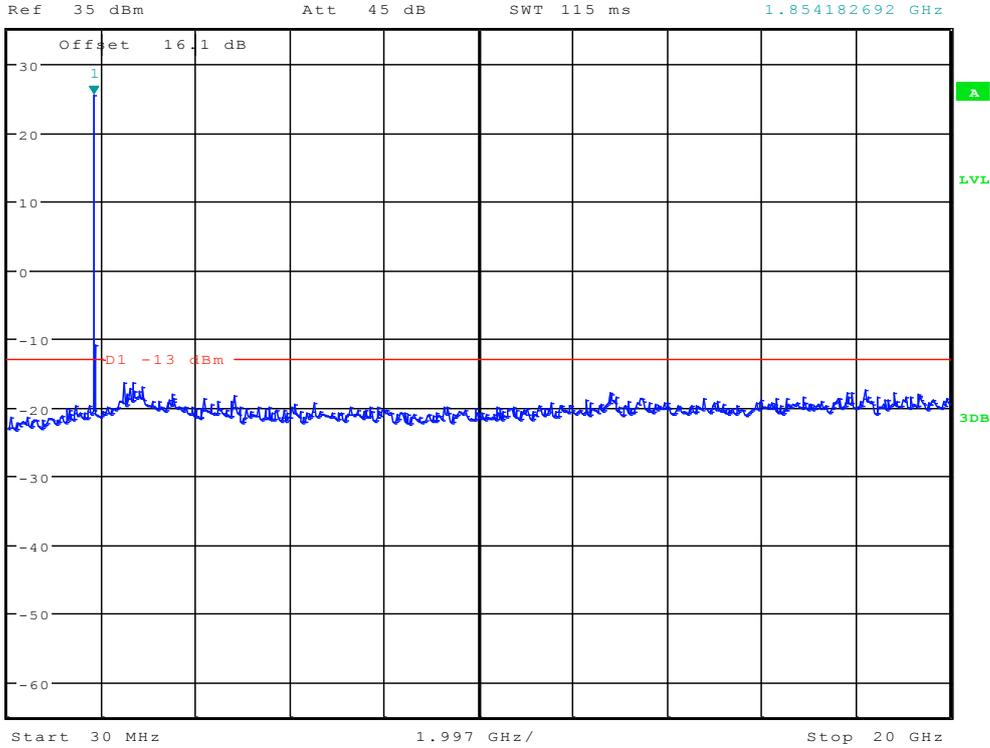
* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -32.95 dBm
SWT 300 ms 197.836538462 kHz



Date: 27.APR.2012 01:19:05



* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 25.34 dBm
SWT 115 ms 1.854182692 GHz



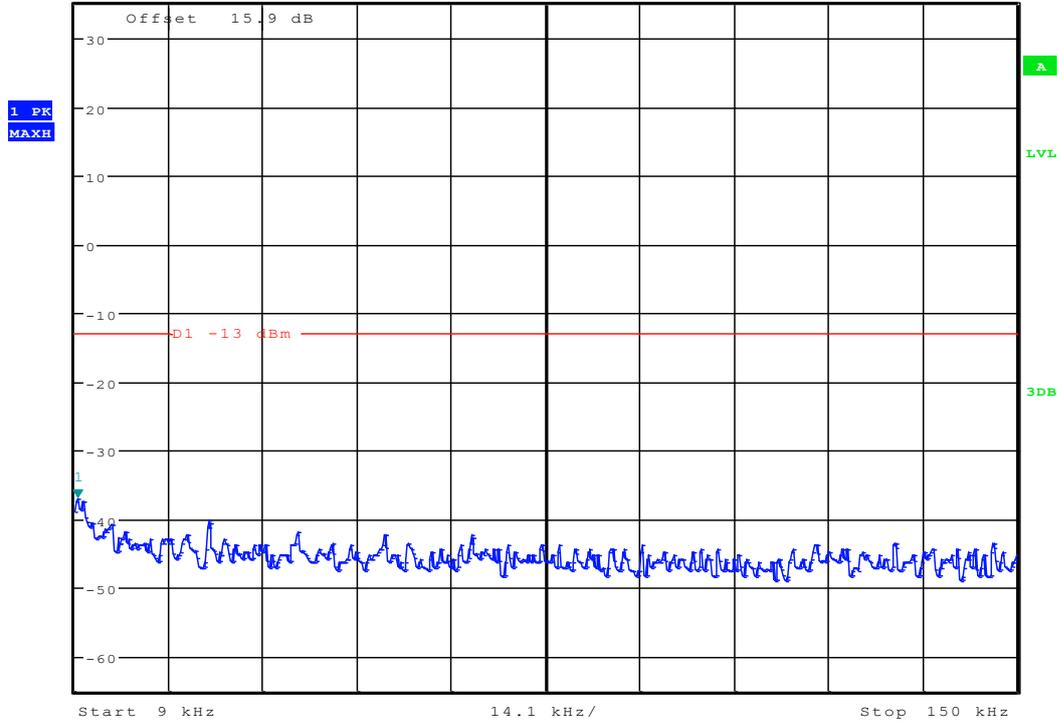
Date: 27.APR.2012 01:19:31



Channel 1175



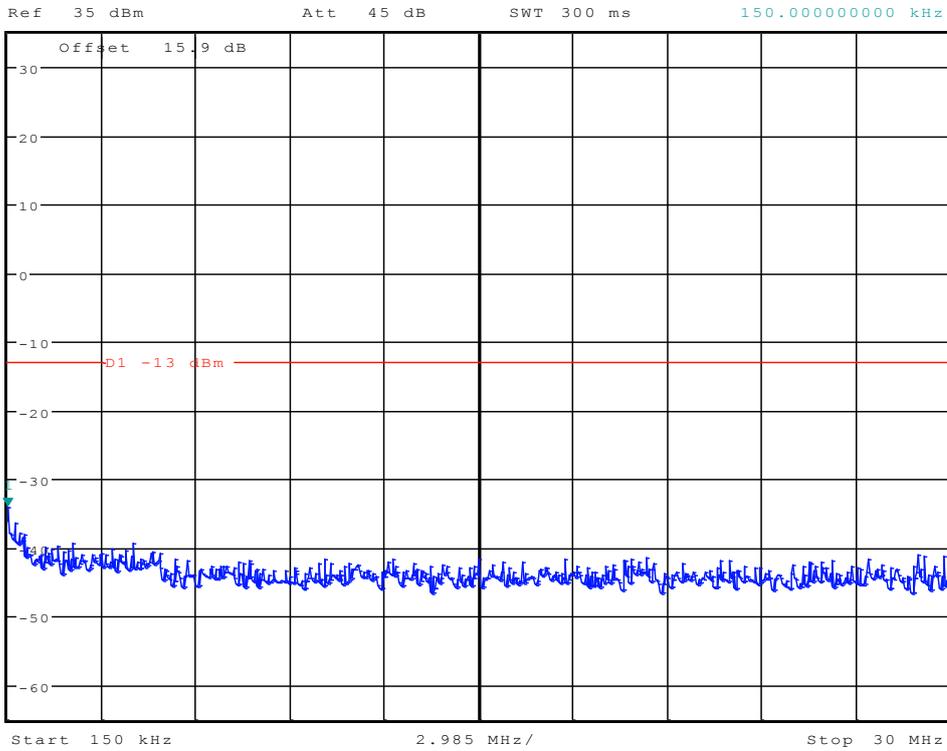
*RBW 1 kHz Marker 1 [T1]
 *VBW 10 kHz -37.06 dBm
 Ref 35 dBm Att 45 dB SWT 145 ms 9.451923077 kHz



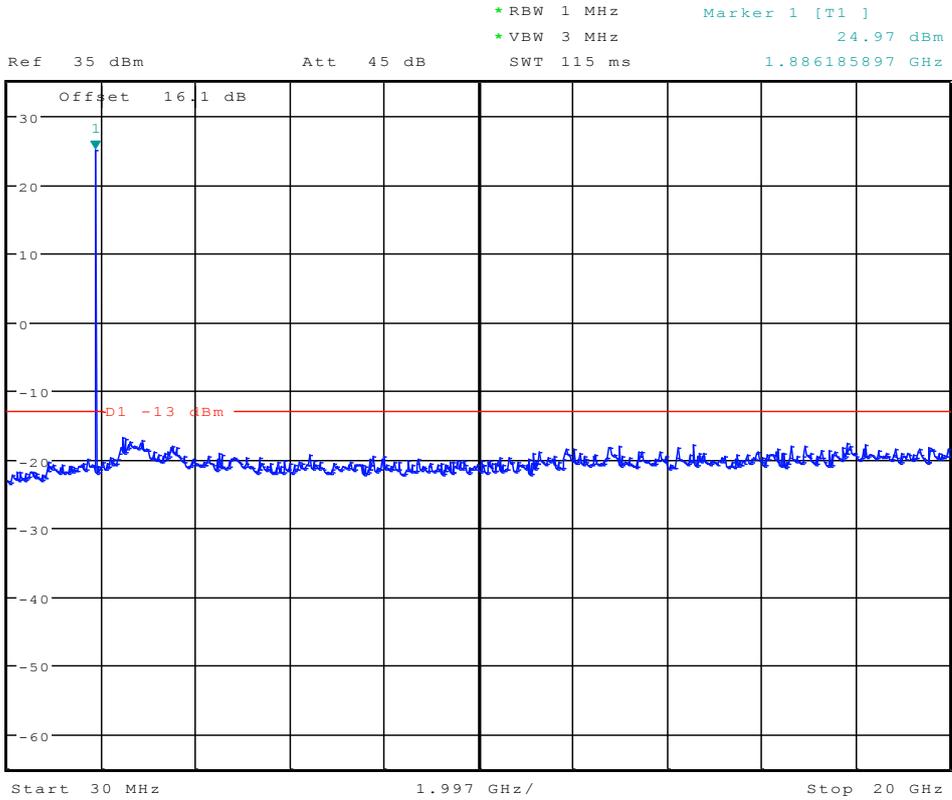
Date: 27.APR.2012 01:18:47



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -34.04 dBm
SWT 300 ms 150.00000000 kHz



Date: 27.APR.2012 01:19:13



Date: 27.APR.2012 01:19:39

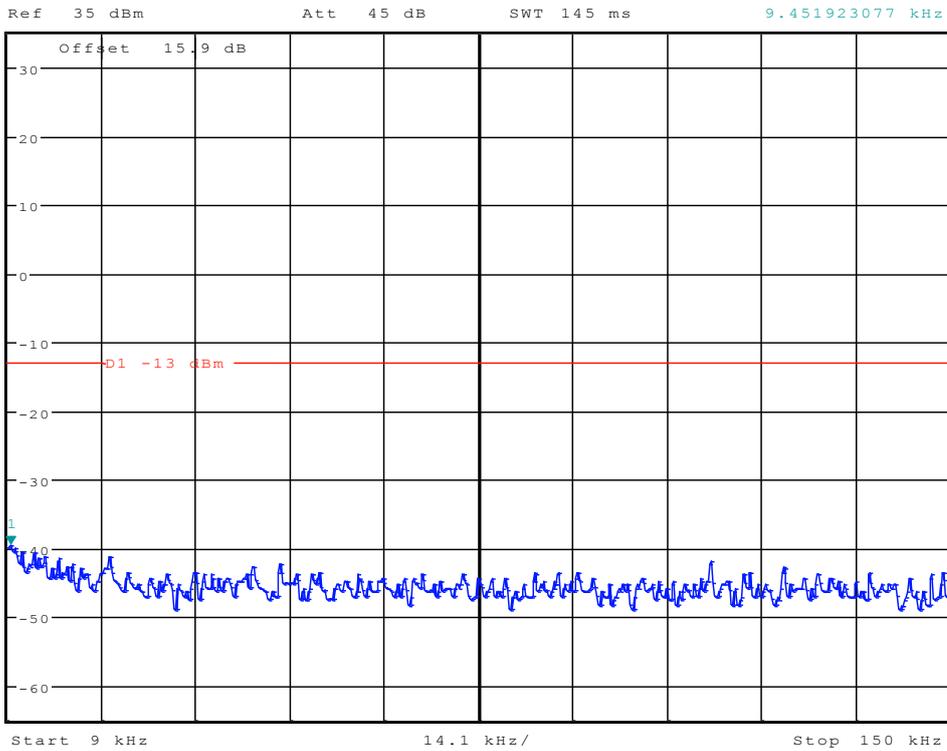


TM3

Channel 25



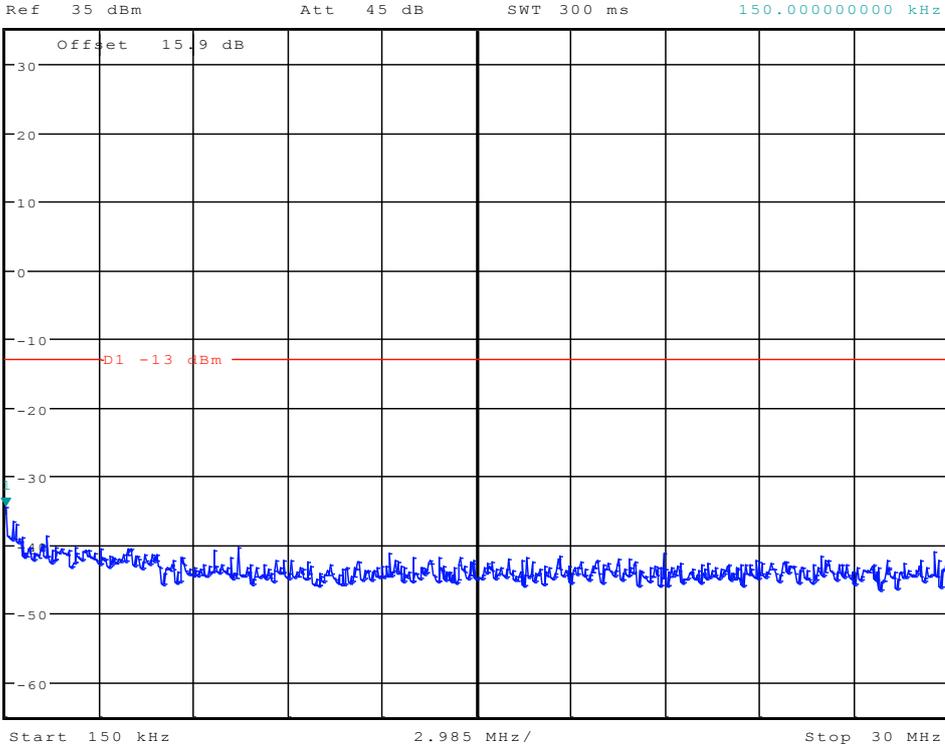
*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -39.39 dBm
SWT 145 ms 9.451923077 kHz



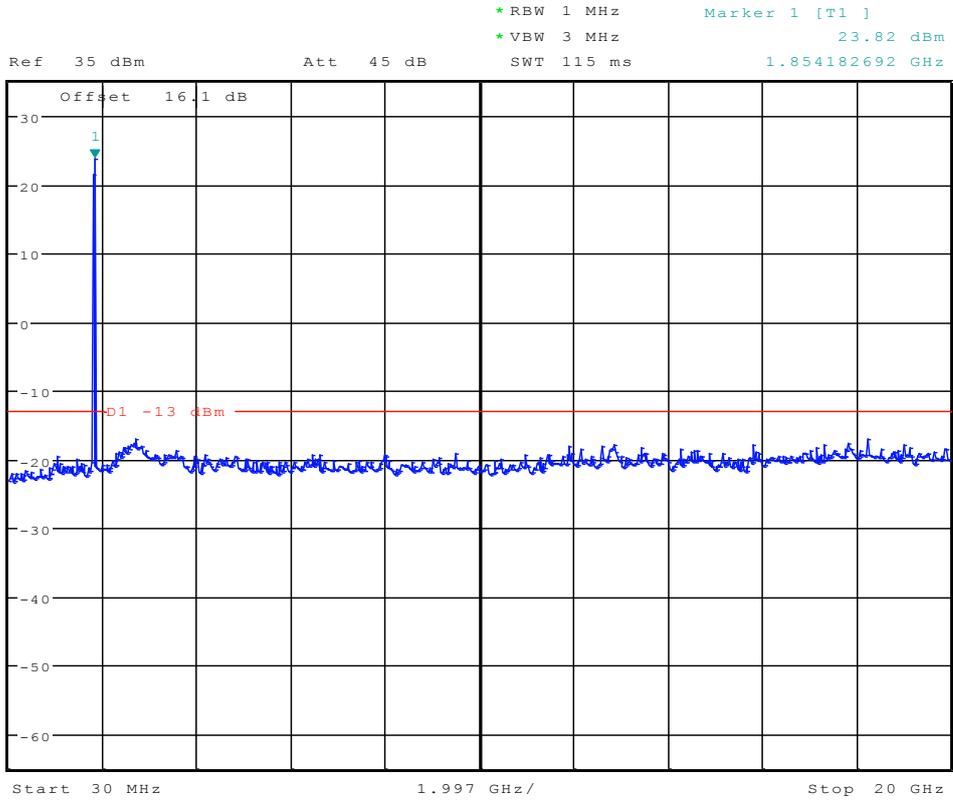
Date: 27.APR.2012 01:19:49



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -34.52 dBm
SWT 300 ms 150.00000000 kHz



Date: 27.APR.2012 01:20:15



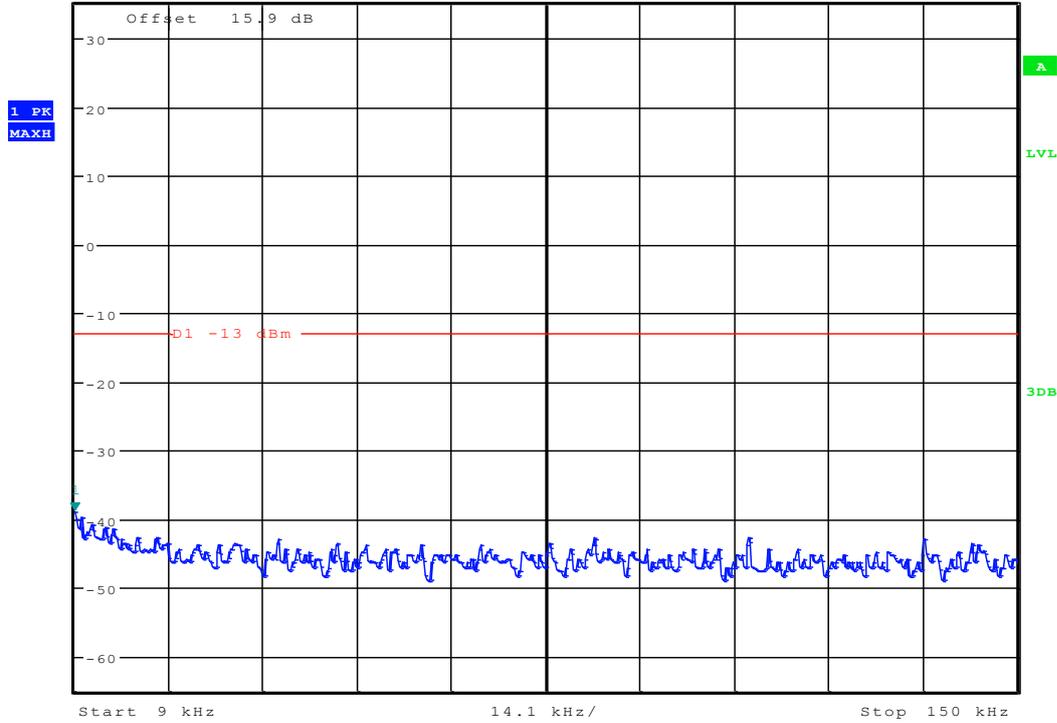
Date: 27.APR.2012 01:20:41



Channel 600



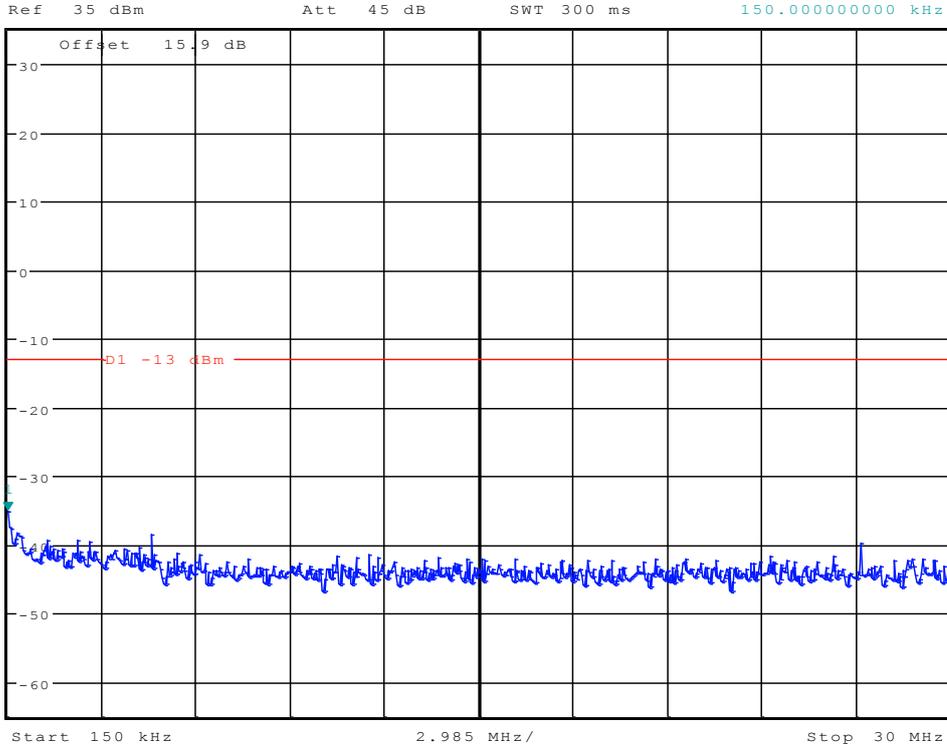
Ref 35 dBm Att 45 dB *RBW 1 kHz *VBW 10 kHz SWT 145 ms
Marker 1 [T1] -38.87 dBm
9.000000000 kHz



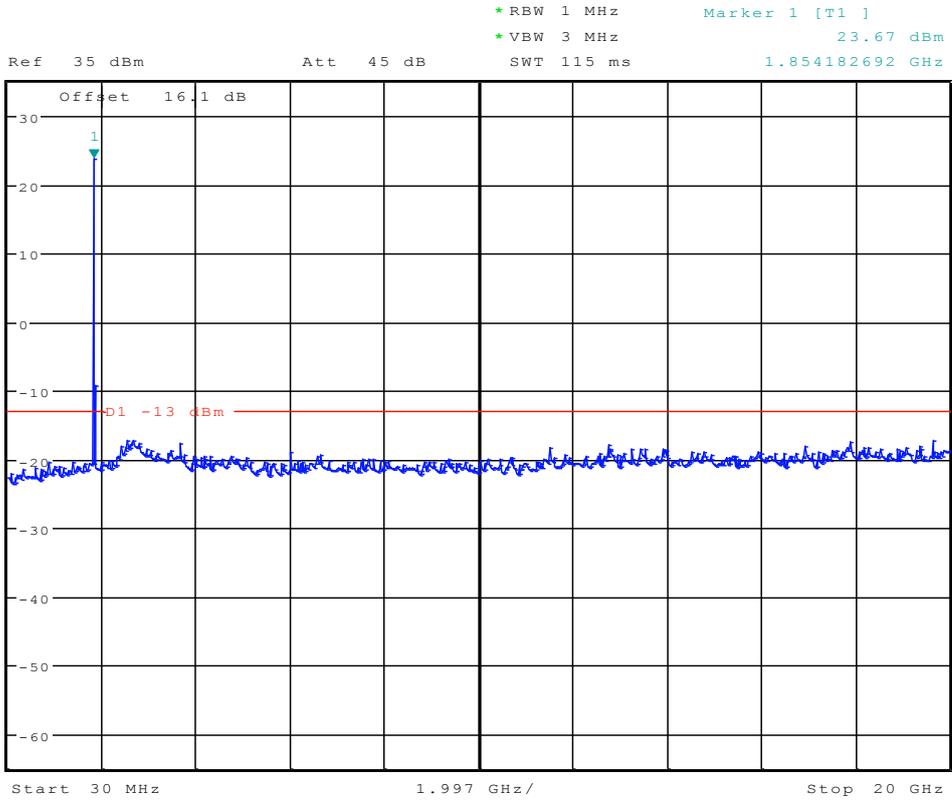
Date: 27.APR.2012 01:19:58



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -35.02 dBm
SWT 300 ms 150.00000000 kHz



Date: 27.APR.2012 01:20:23



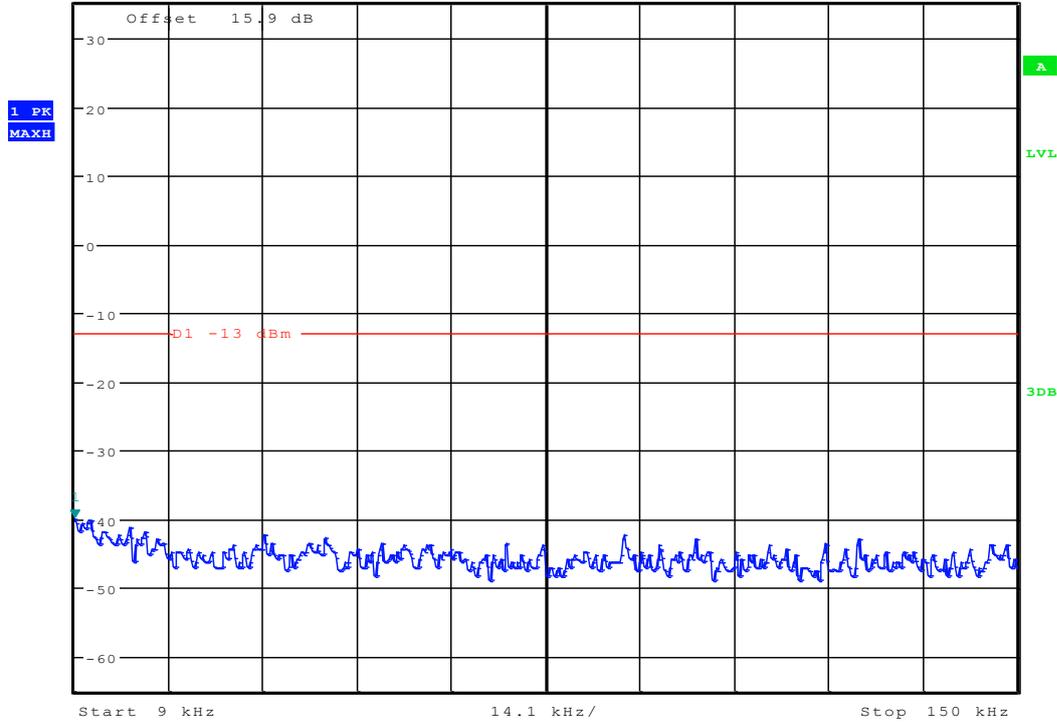
Date: 27.APR.2012 01:20:49



Channel 1175



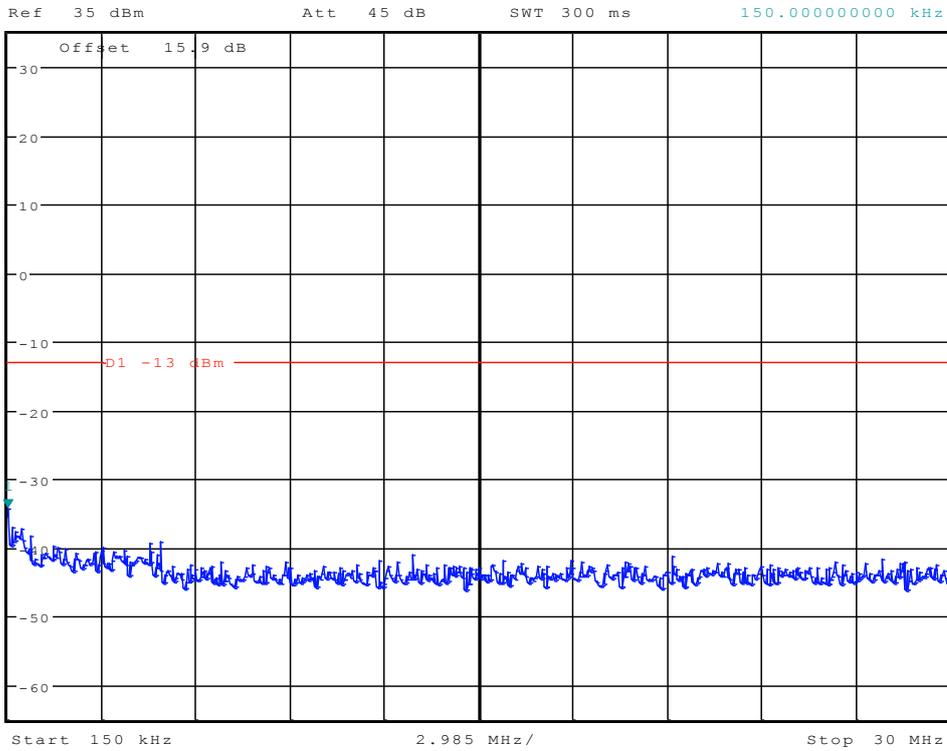
* RBW 1 kHz Marker 1 [T1]
 * VBW 10 kHz -39.95 dBm
 Ref 35 dBm Att 45 dB SWT 145 ms 9.000000000 kHz



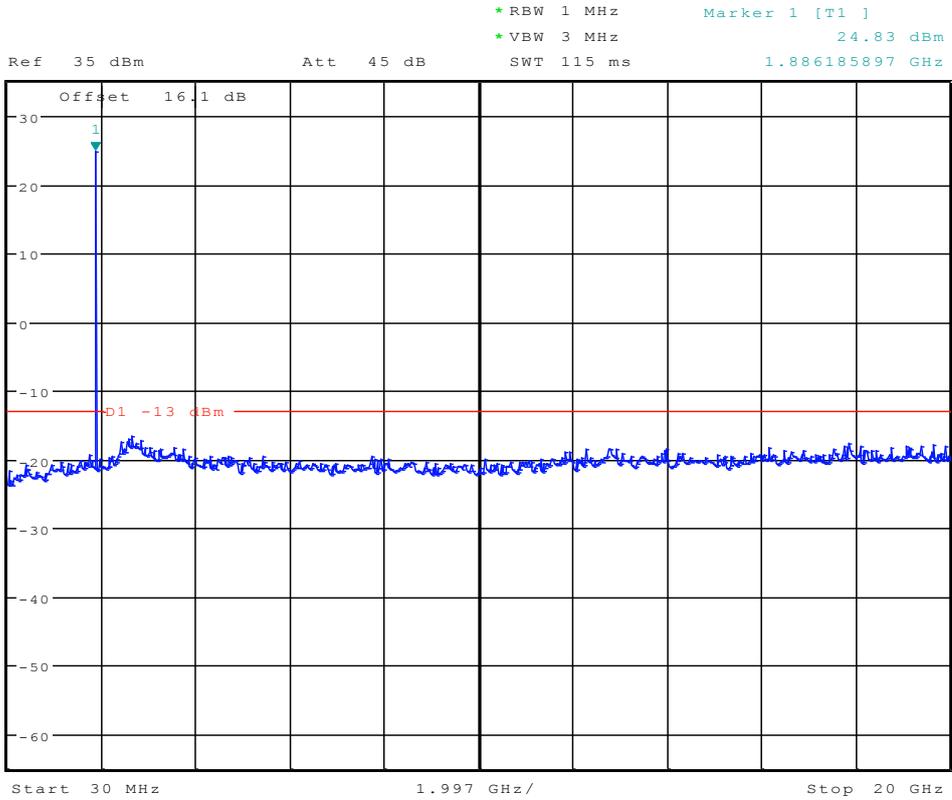
Date: 27.APR.2012 01:20:06



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -34.22 dBm
SWT 300 ms 150.00000000 kHz



Date: 27.APR.2012 01:20:32



Date: 27.APR.2012 01:20:58

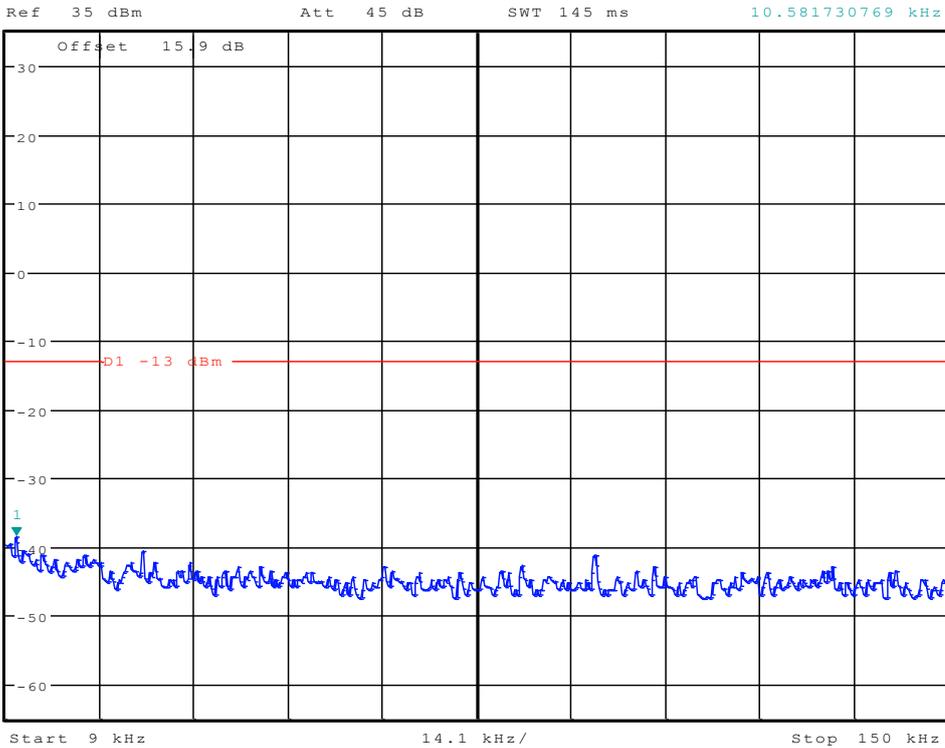


EVDO subtype 0 Channel 25



* RBW 1 kHz
* VBW 10 kHz
SWT 145 ms

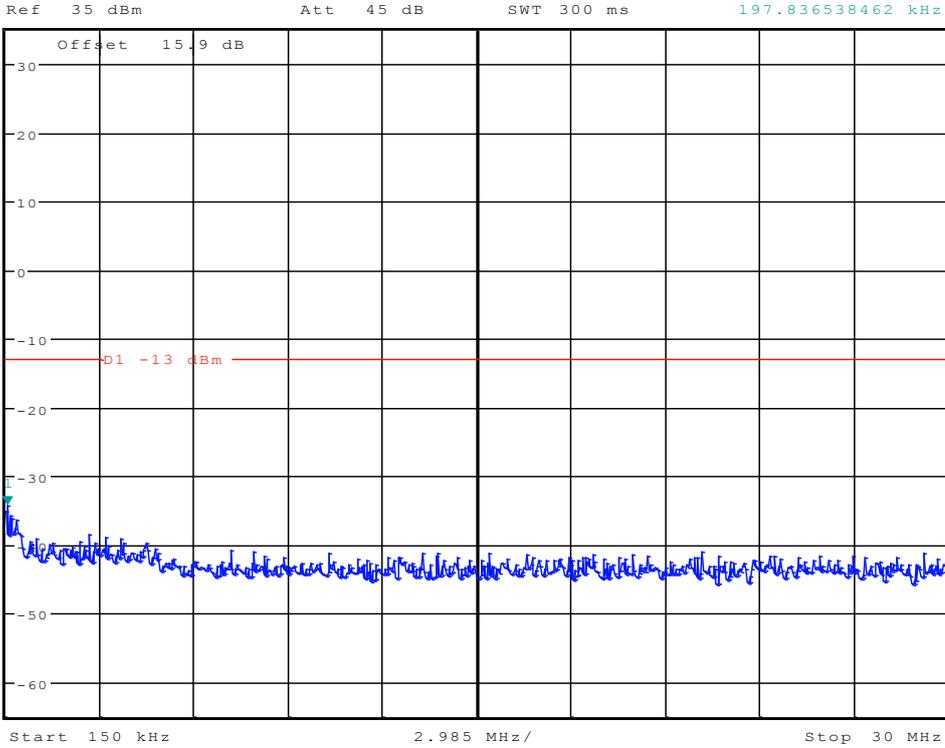
Marker 1 [T1]
-38.38 dBm
10.581730769 kHz



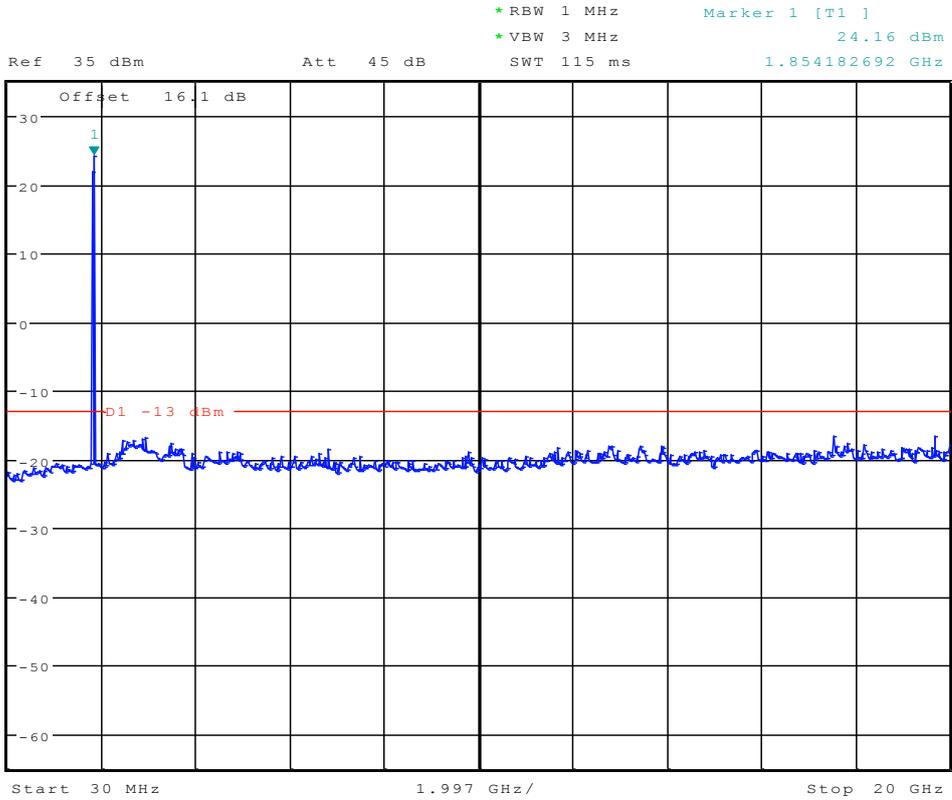
Date: 27.APR.2012 01:23:03



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -34.22 dBm
SWT 300 ms 197.836538462 kHz



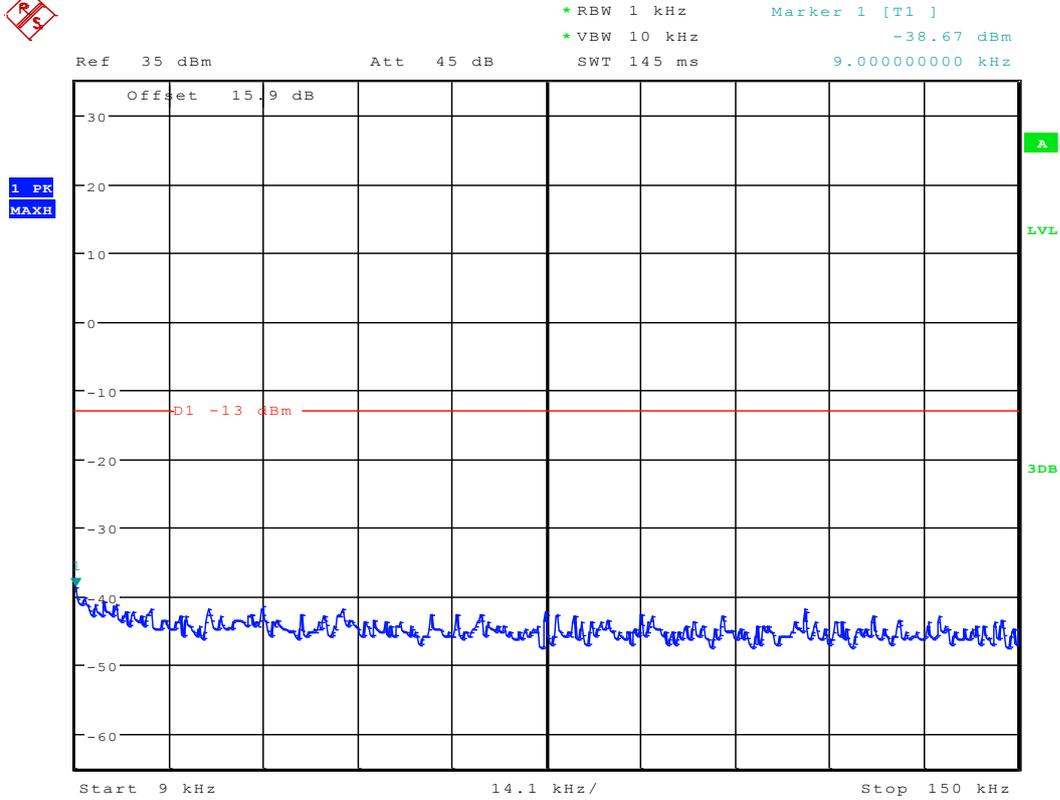
Date: 27.APR.2012 01:23:46



Date: 27.APR.2012 01:24:30



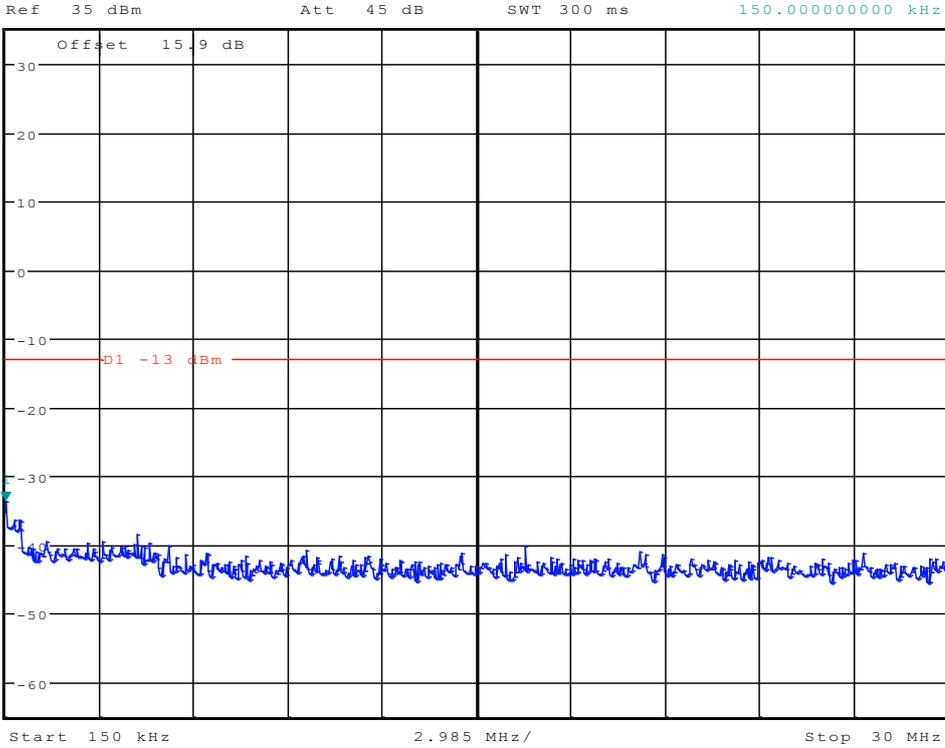
Channel 600



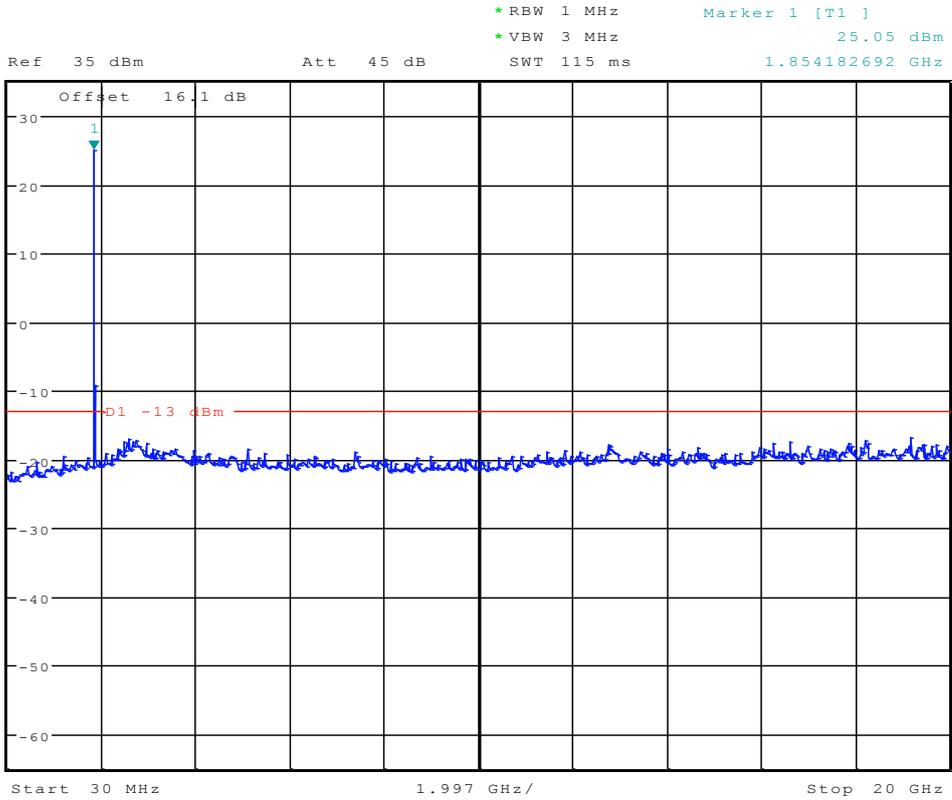
Date: 27.APR.2012 01:23:17



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -33.53 dBm
SWT 300 ms 150.00000000 kHz



Date: 27.APR.2012 01:24:01



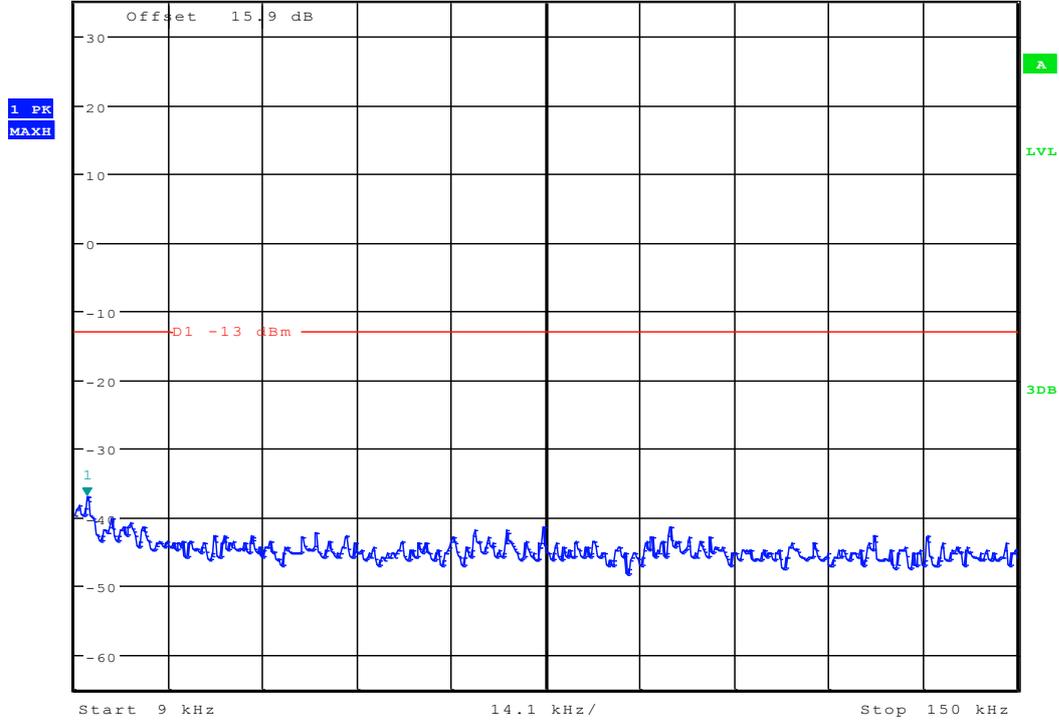
Date: 27.APR.2012 01:24:45



Channel 1175



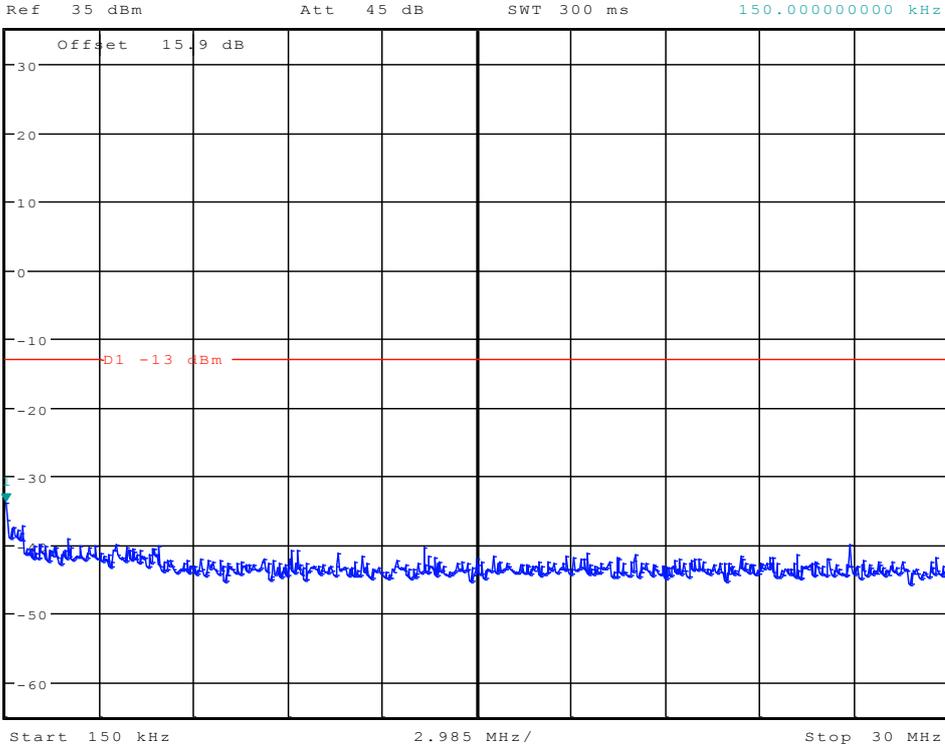
*RBW 1 kHz Marker 1 [T1]
 *VBW 10 kHz -37.06 dBm
 Ref 35 dBm Att 45 dB SWT 145 ms 10.807692308 kHz



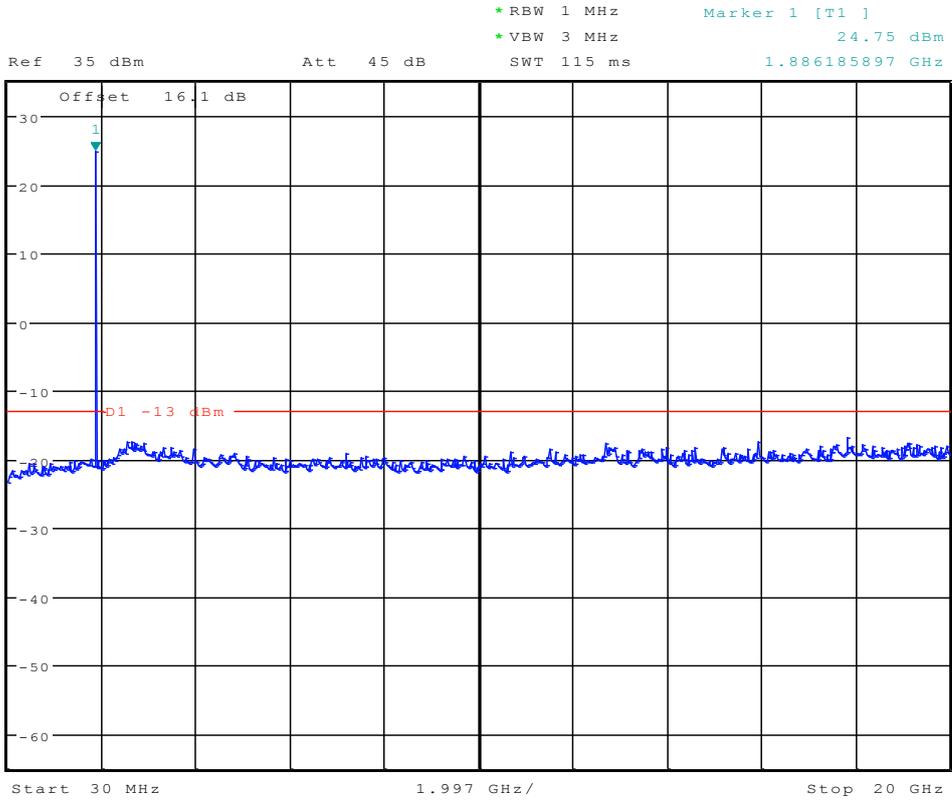
Date: 27.APR.2012 01:23:32



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -33.76 dBm
SWT 300 ms 150.000000000 kHz



Date: 27.APR.2012 01:24:15



Date: 27.APR.2012 01:24:59



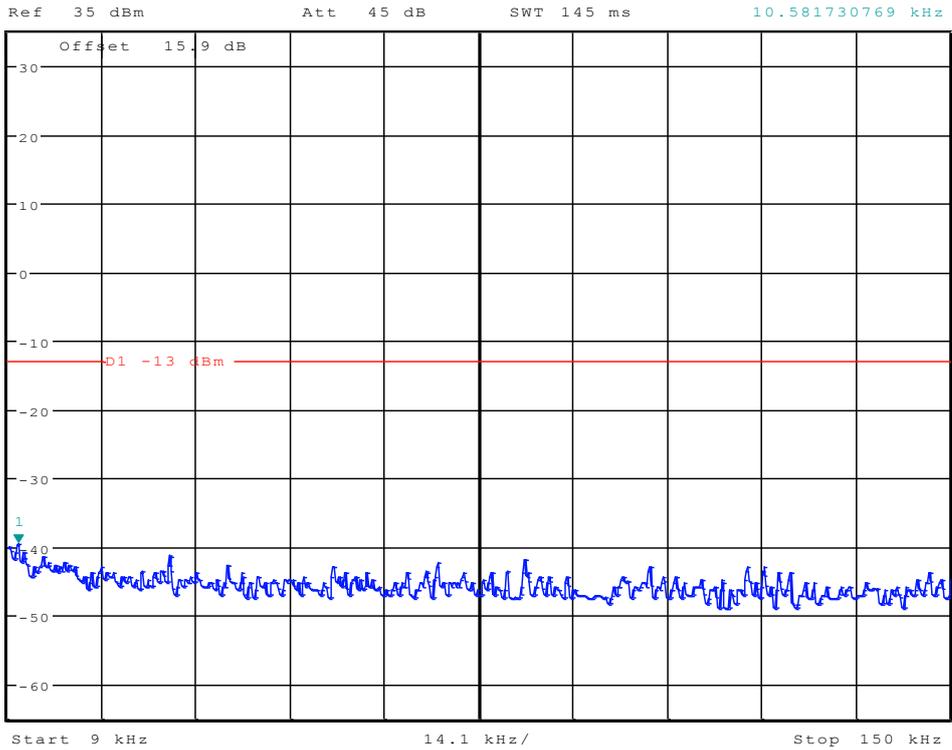
EVDO subtype 2

Modulation: BPSK

Channel 25



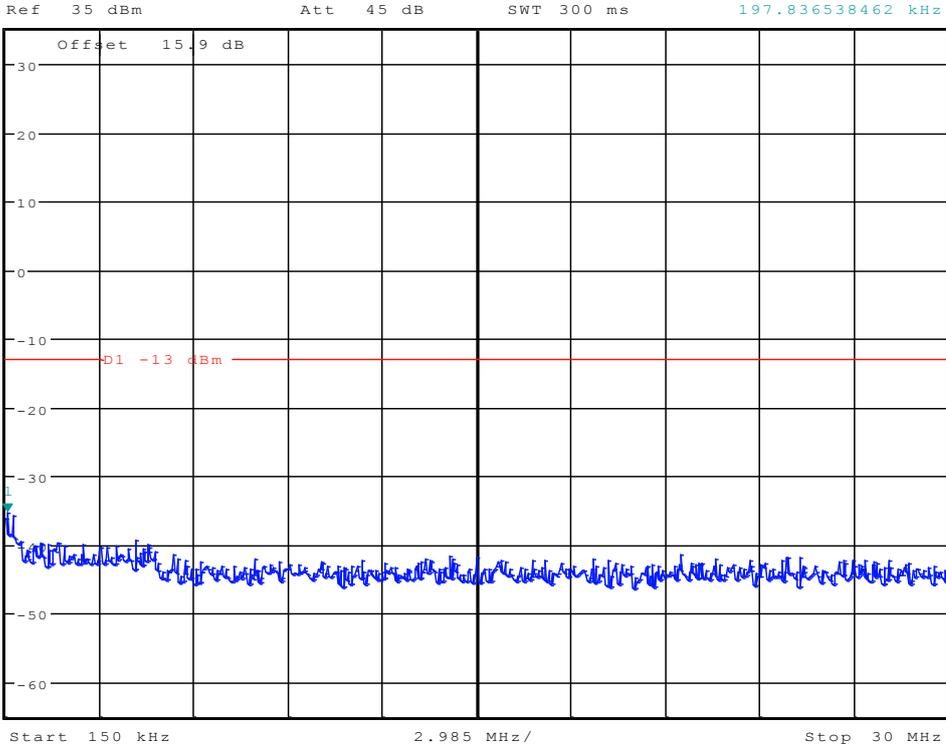
*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -39.39 dBm
SWT 145 ms 10.581730769 kHz



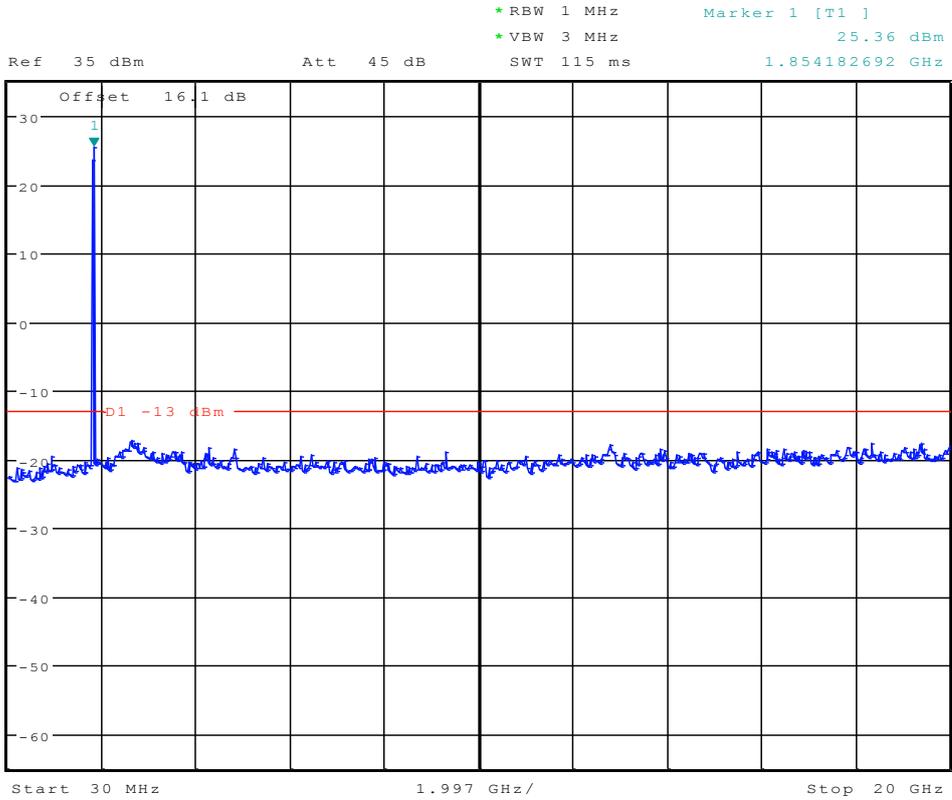
Date: 27.APR.2012 01:29:02



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -35.22 dBm
SWT 300 ms 197.836538462 kHz



Date: 27.APR.2012 01:29:27



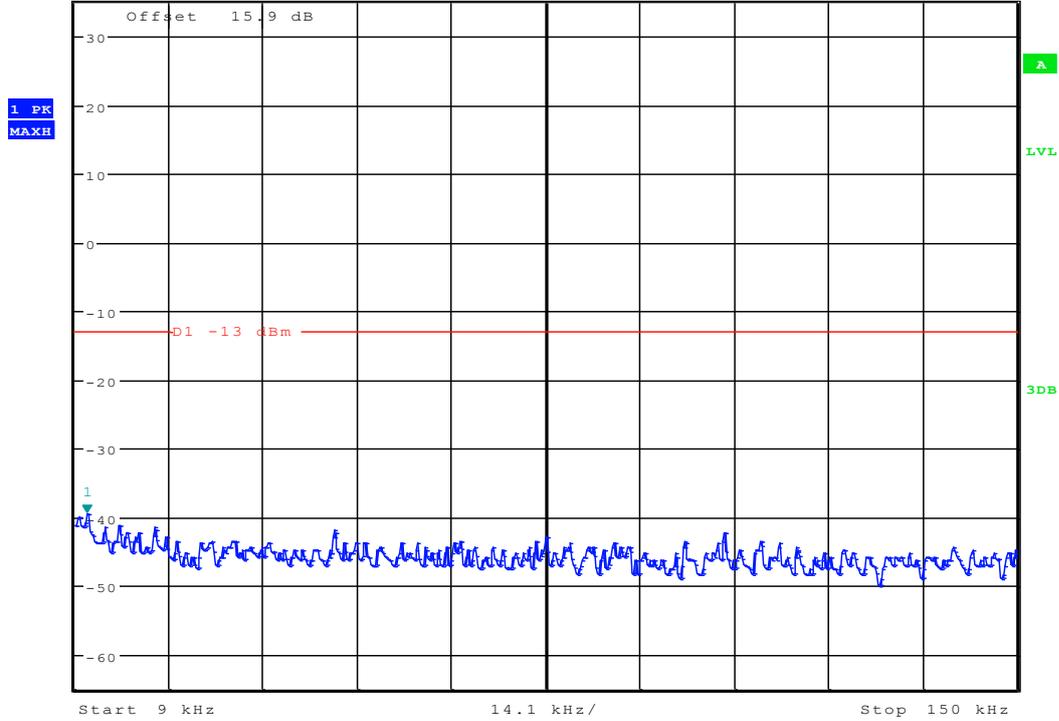
Date: 27.APR.2012 01:29:53



Channel 600



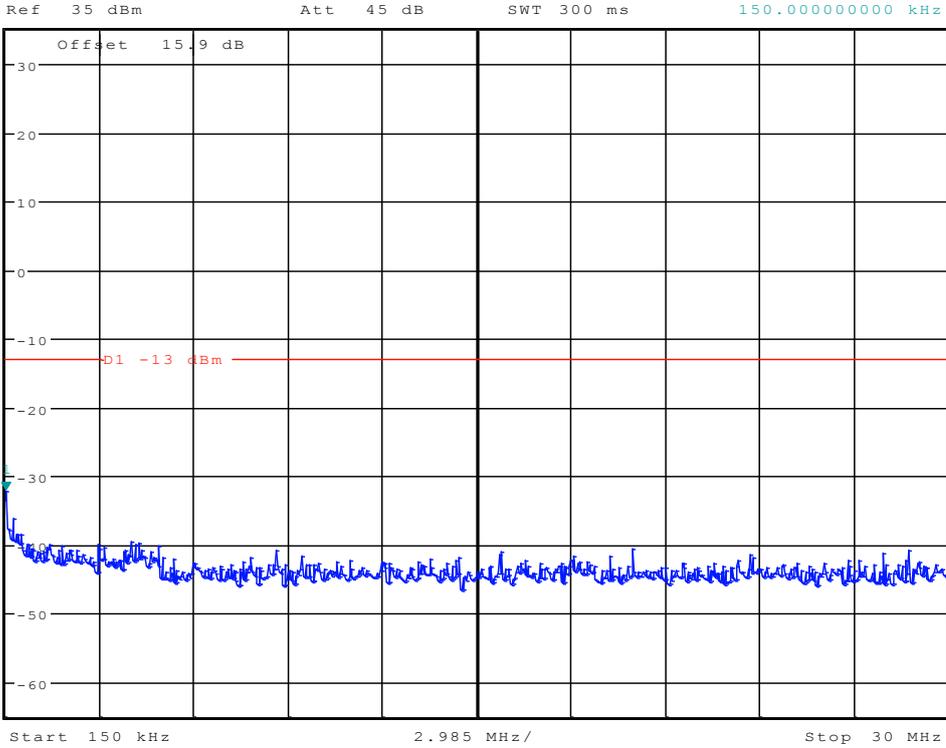
*RBW 1 kHz Marker 1 [T1]
 *VBW 10 kHz -39.39 dBm
 Ref 35 dBm Att 45 dB SWT 145 ms 10.807692308 kHz



Date: 27.APR.2012 01:29:10



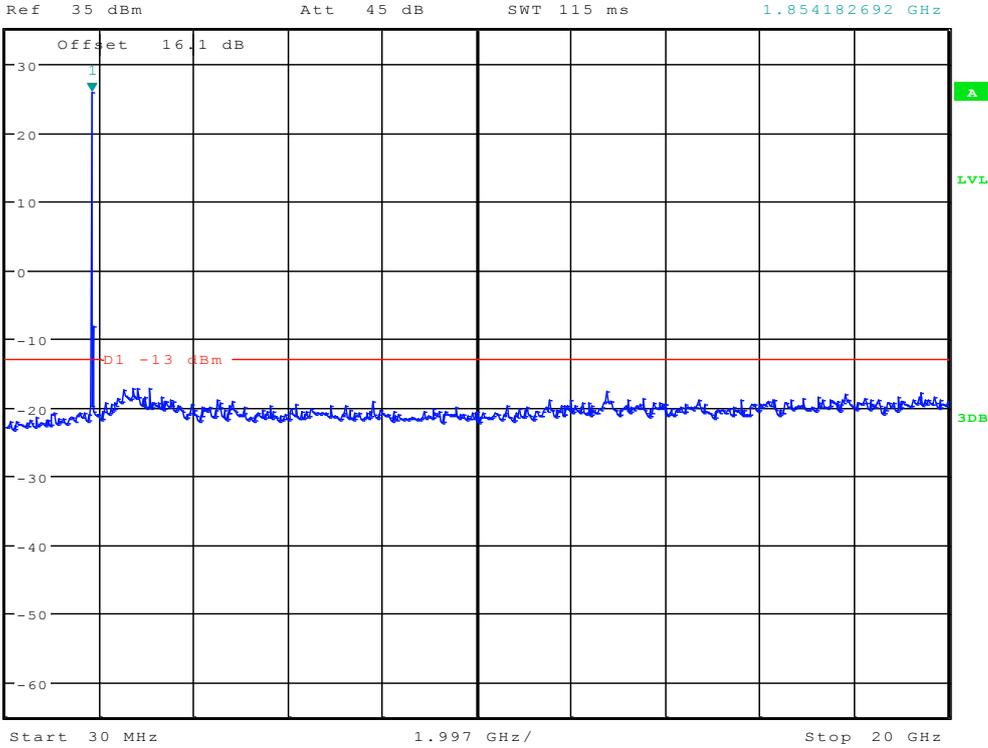
* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -32.22 dBm
SWT 300 ms 150.000000000 kHz



Date: 27.APR.2012 01:29:36



* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 25.76 dBm
SWT 115 ms 1.854182692 GHz



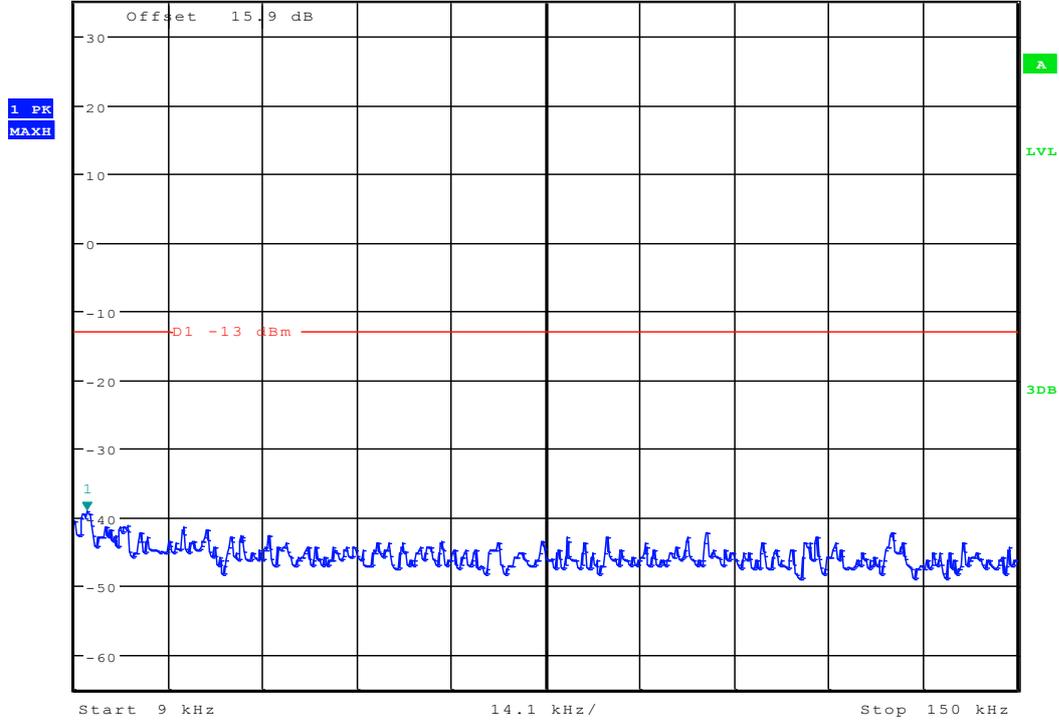
Date: 27.APR.2012 01:30:02



Channel 1175



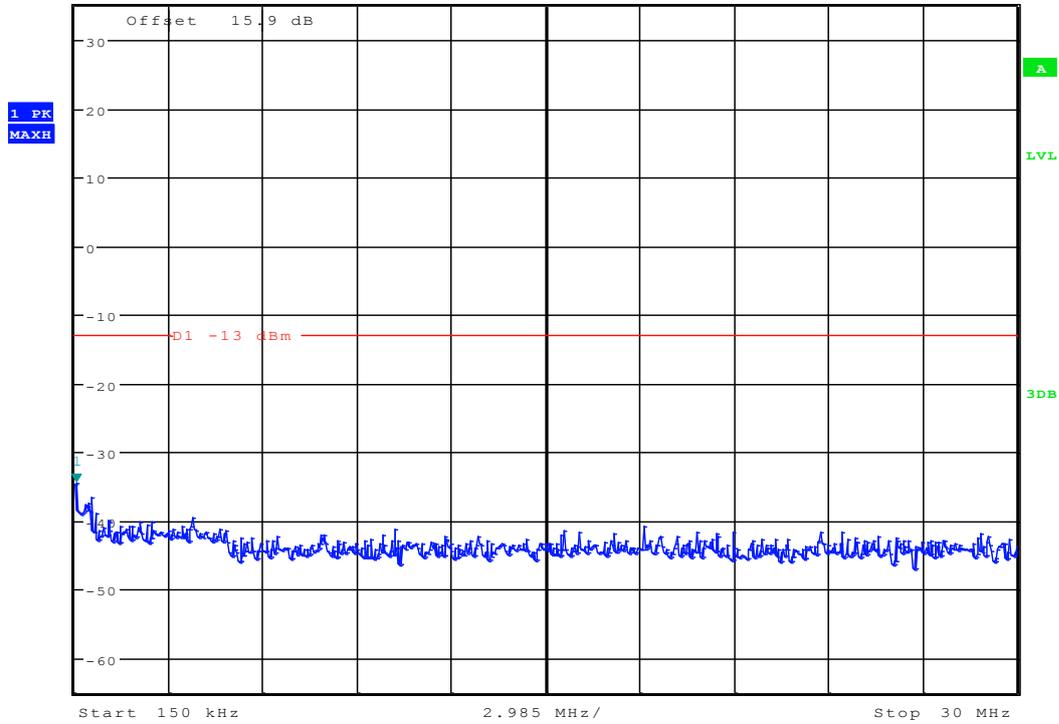
*RBW 1 kHz Marker 1 [T1]
 *VBW 10 kHz -39.08 dBm
 Ref 35 dBm Att 45 dB SWT 145 ms 10.807692308 kHz



Date: 27.APR.2012 01:29:19



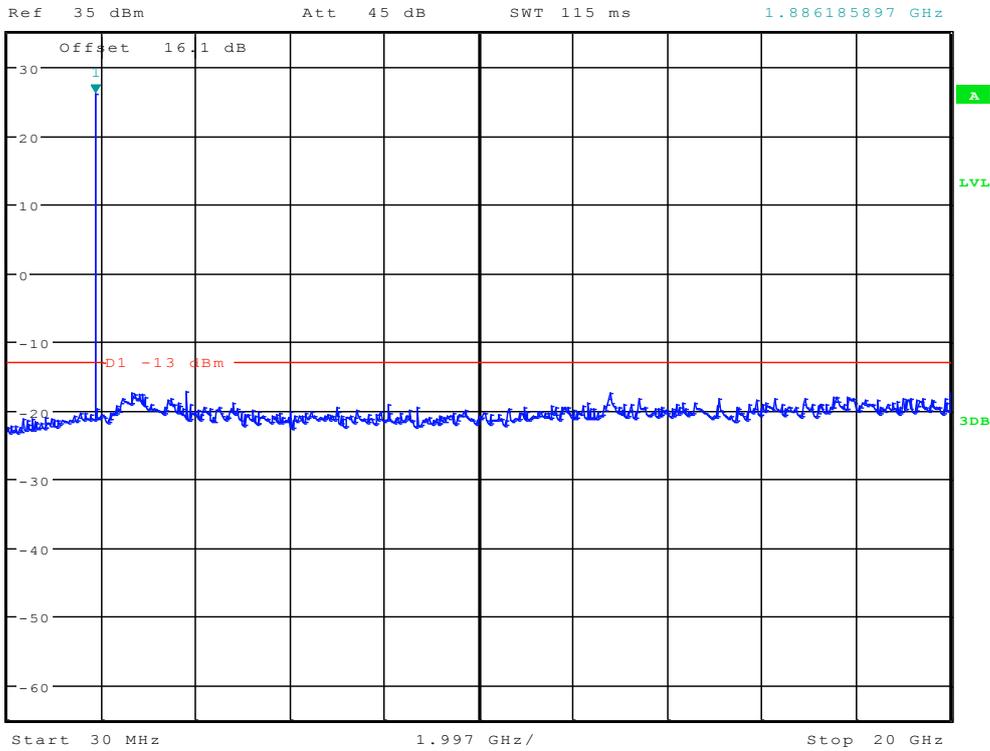
* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -34.34 dBm
Ref 35 dBm Att 45 dB SWT 300 ms 197.836538462 kHz



Date: 27.APR.2012 01:29:44



* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 26.08 dBm
SWT 115 ms 1.886185897 GHz



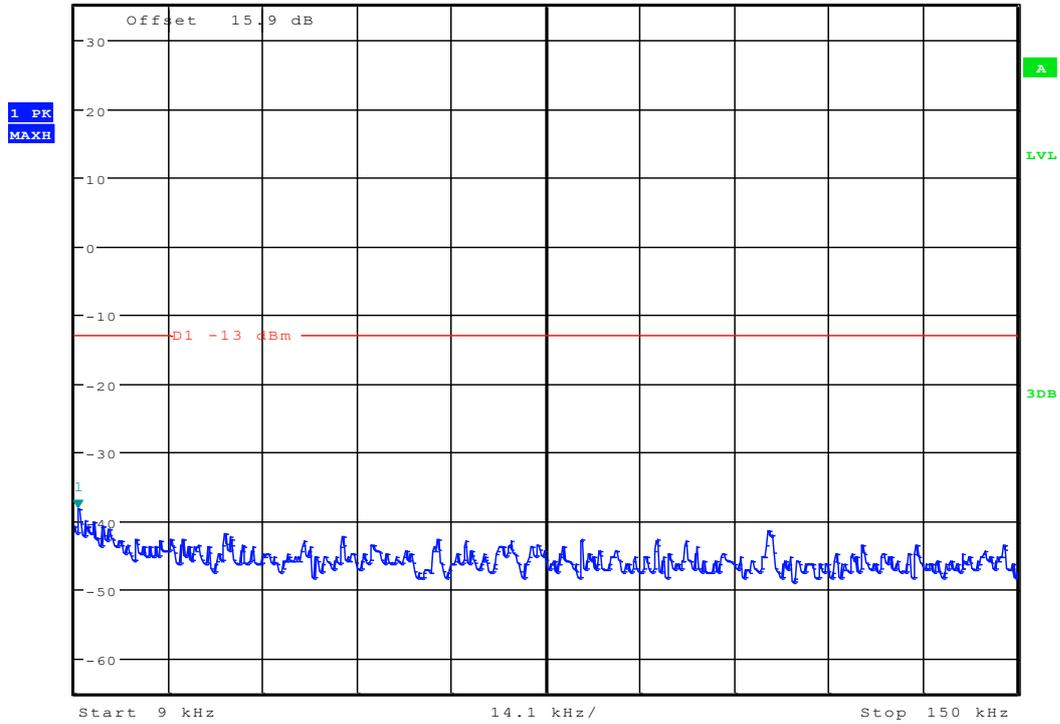
Date: 27.APR.2012 01:30:10



Modulation: QPSK
Channel 25



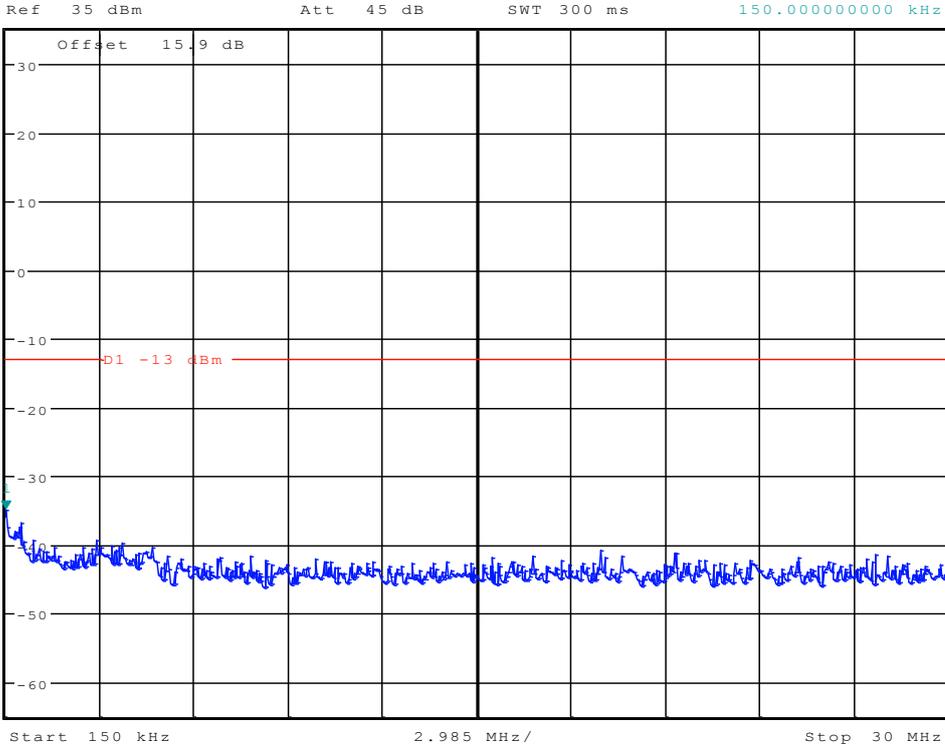
Ref 35 dBm Att 45 dB *RBW 1 kHz Marker 1 [T1] -38.19 dBm
*VBW 10 kHz SWT 145 ms 9.451923077 kHz



Date: 27.APR.2012 01:30:19



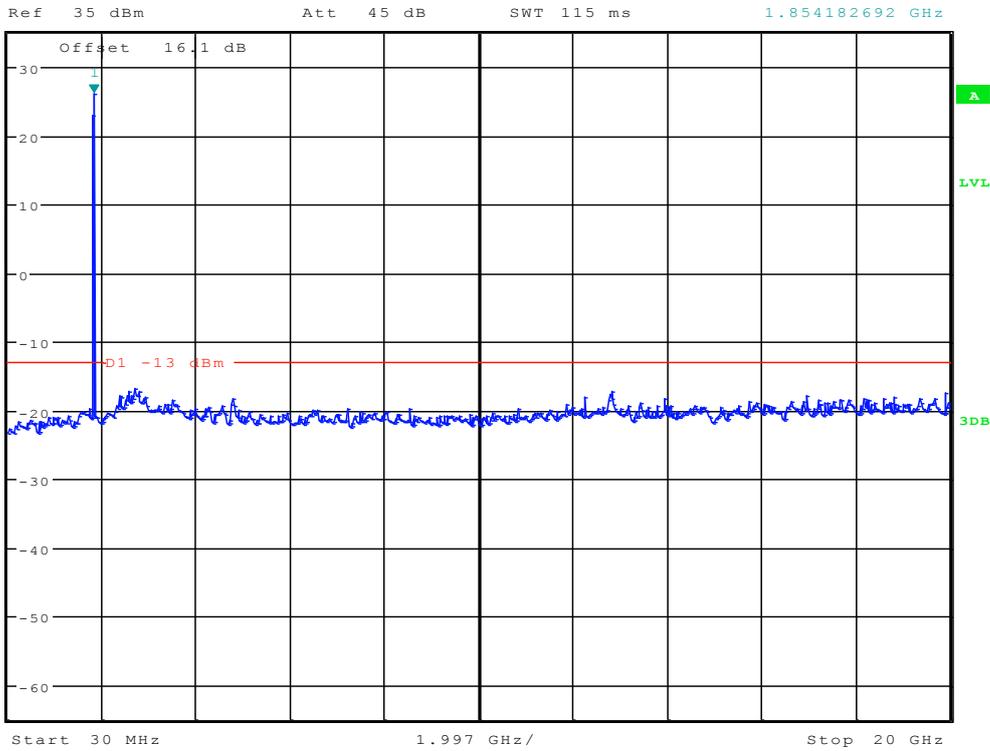
* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -34.96 dBm
SWT 300 ms 150.000000000 kHz



Date: 27.APR.2012 01:30:44



* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 26.04 dBm
SWT 115 ms 1.854182692 GHz



Date: 27.APR.2012 01:31:10

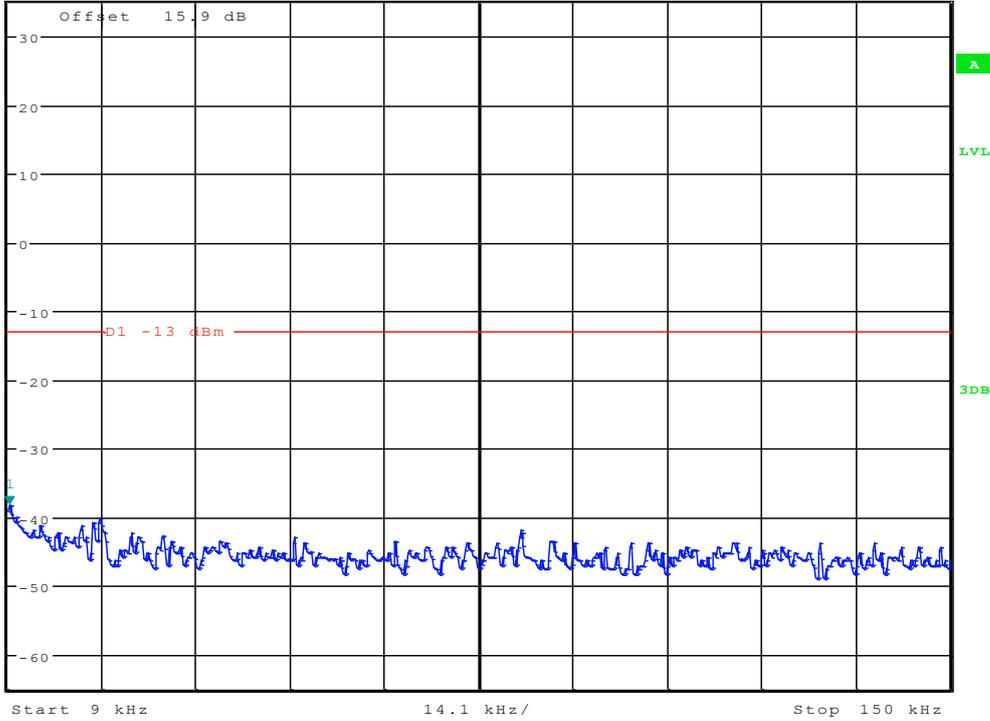


Channel 600



*RBW 1 kHz Marker 1 [T1]
 *VBW 10 kHz -38.19 dBm
 Ref 35 dBm Att 45 dB SWT 145 ms 9.225961538 kHz

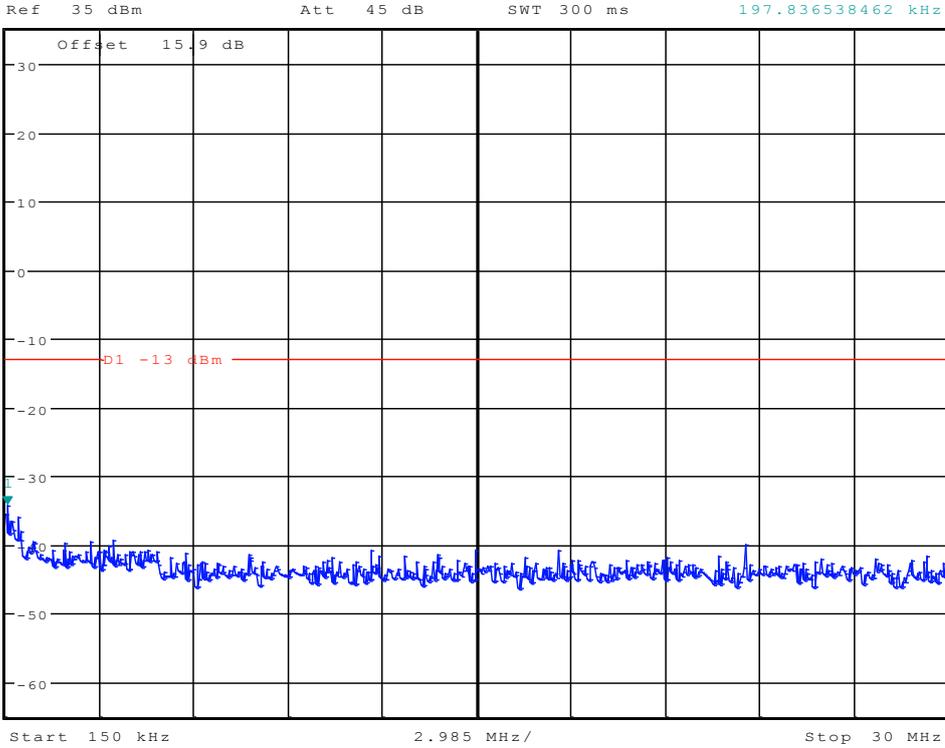
1 PK
MAXH



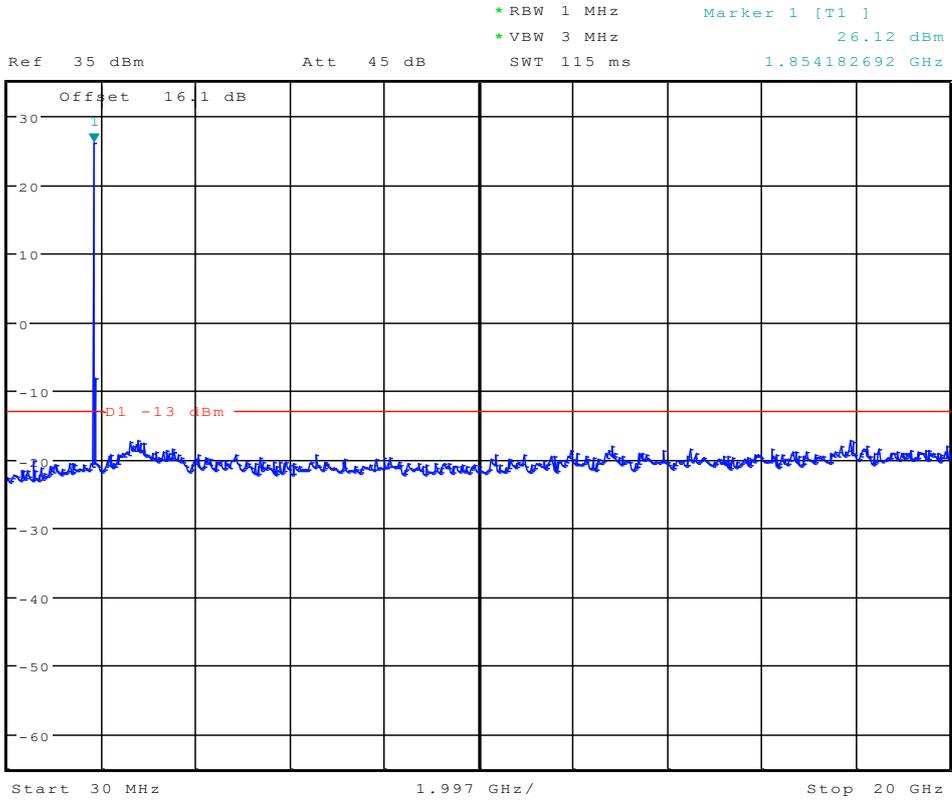
Date: 27.APR.2012 01:30:27



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -34.22 dBm
SWT 300 ms 197.836538462 kHz



Date: 27.APR.2012 01:30:53



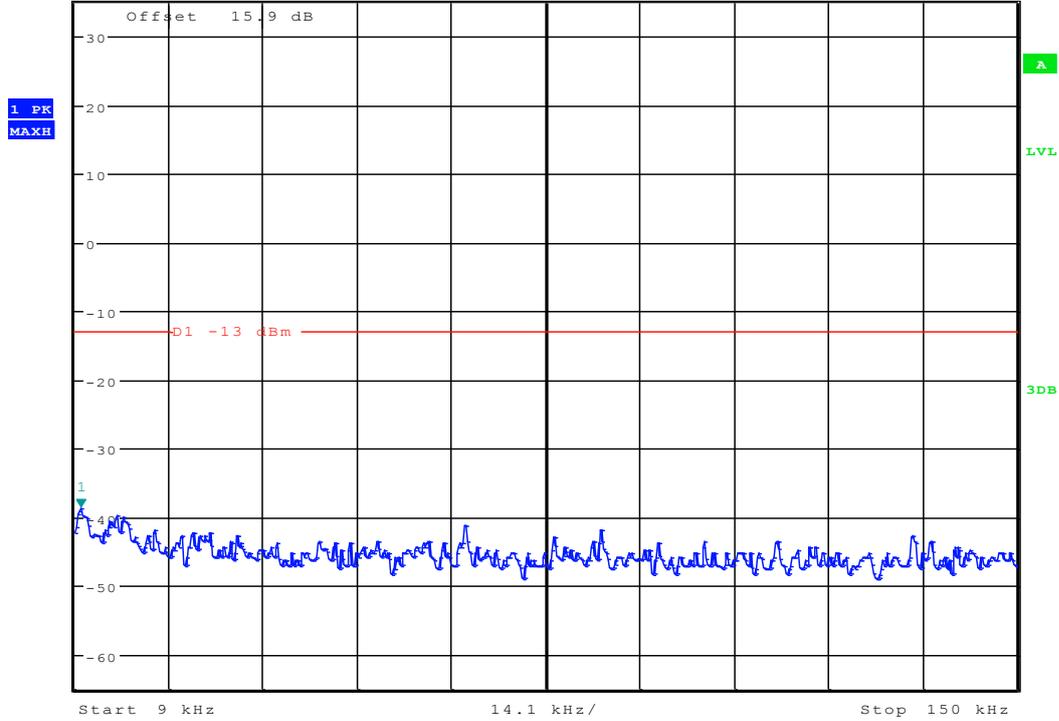
Date: 27.APR.2012 01:31:19



Channel 1175



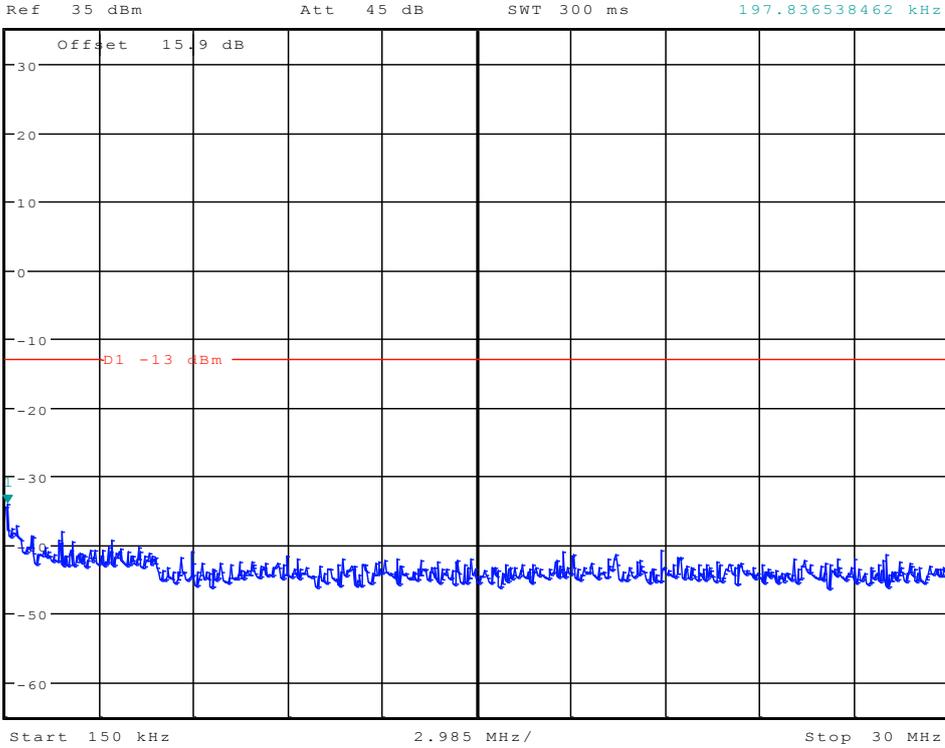
*RBW 1 kHz Marker 1 [T1]
 *VBW 10 kHz -38.67 dBm
 Ref 35 dBm Att 45 dB SWT 145 ms 9.903846154 kHz



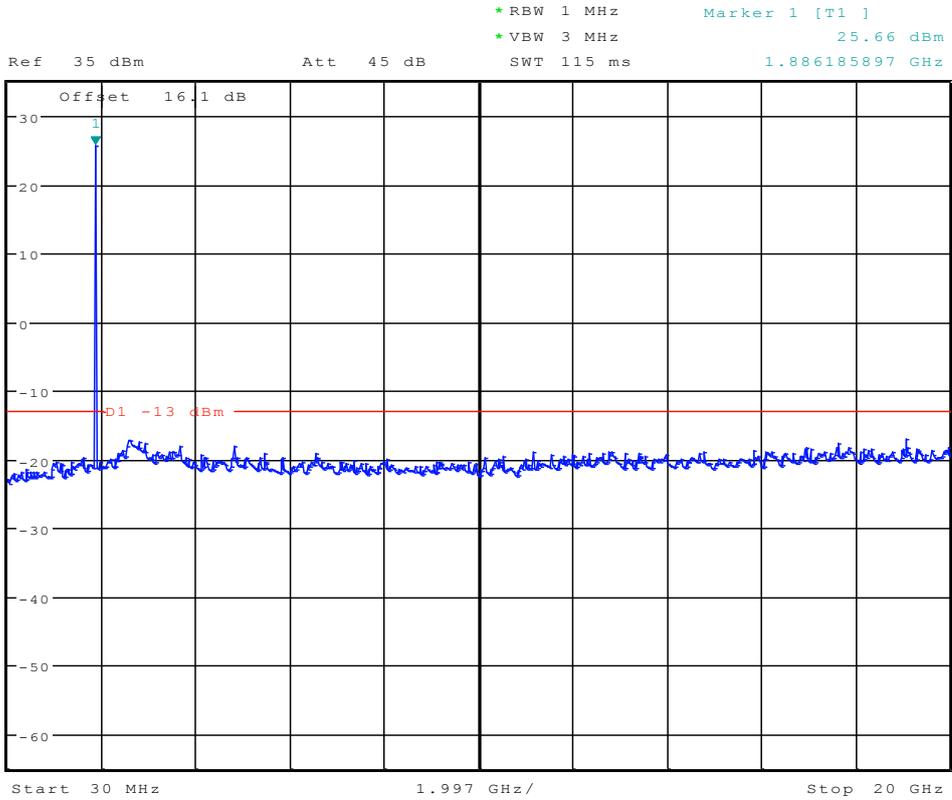
Date: 27.APR.2012 01:30:36



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -34.10 dBm
SWT 300 ms 197.836538462 kHz



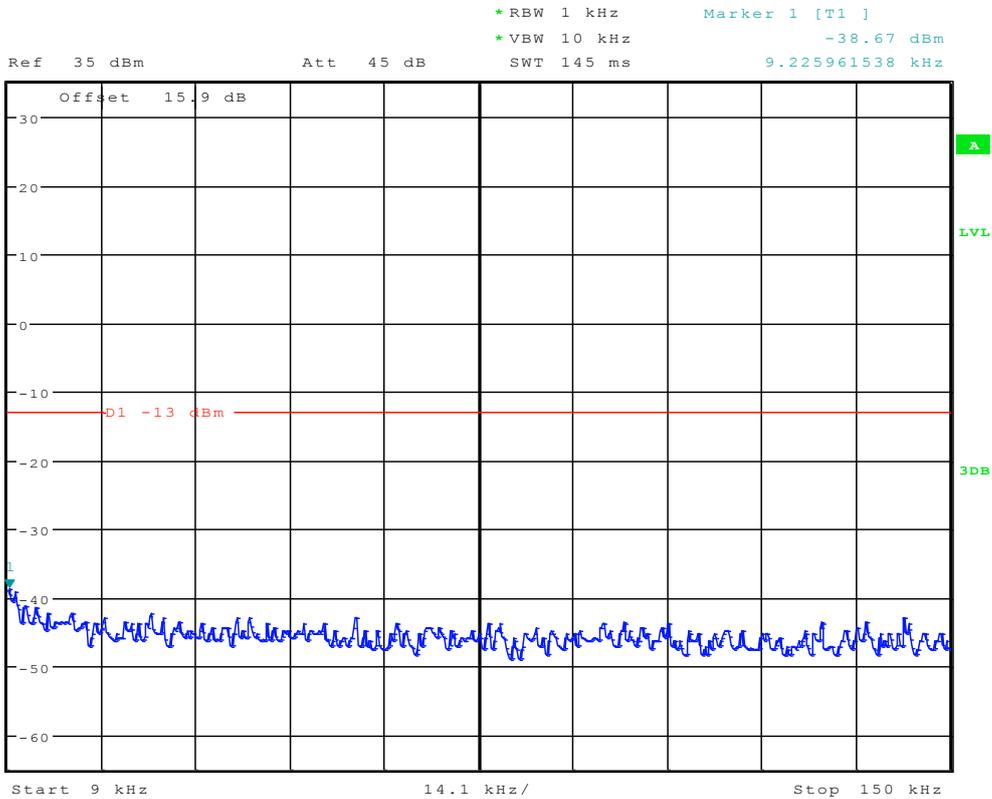
Date: 27.APR.2012 01:31:01



Date: 27.APR.2012 01:31:27



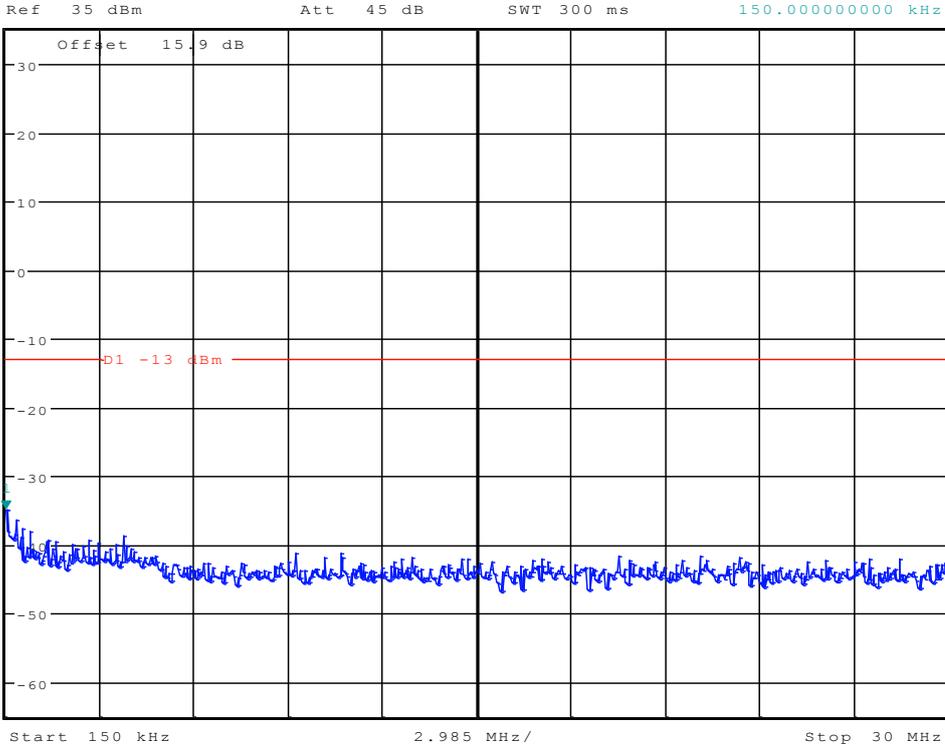
Modulation: 8PSK Channel 25



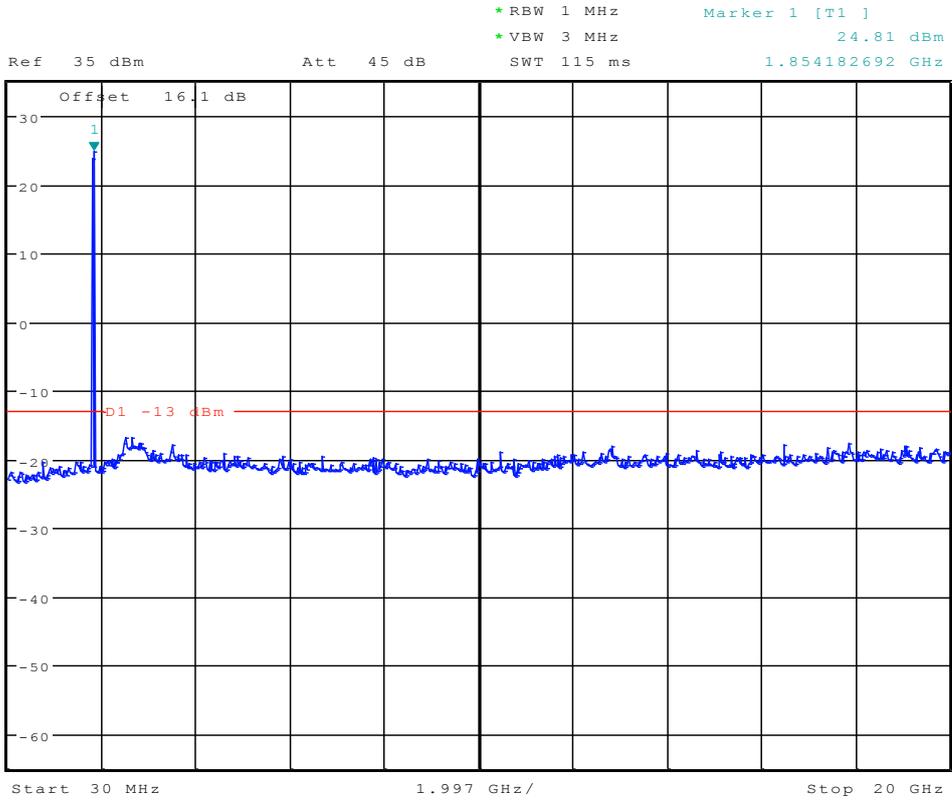
Date: 27.APR.2012 01:31:36



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -34.76 dBm
SWT 300 ms 150.000000000 kHz



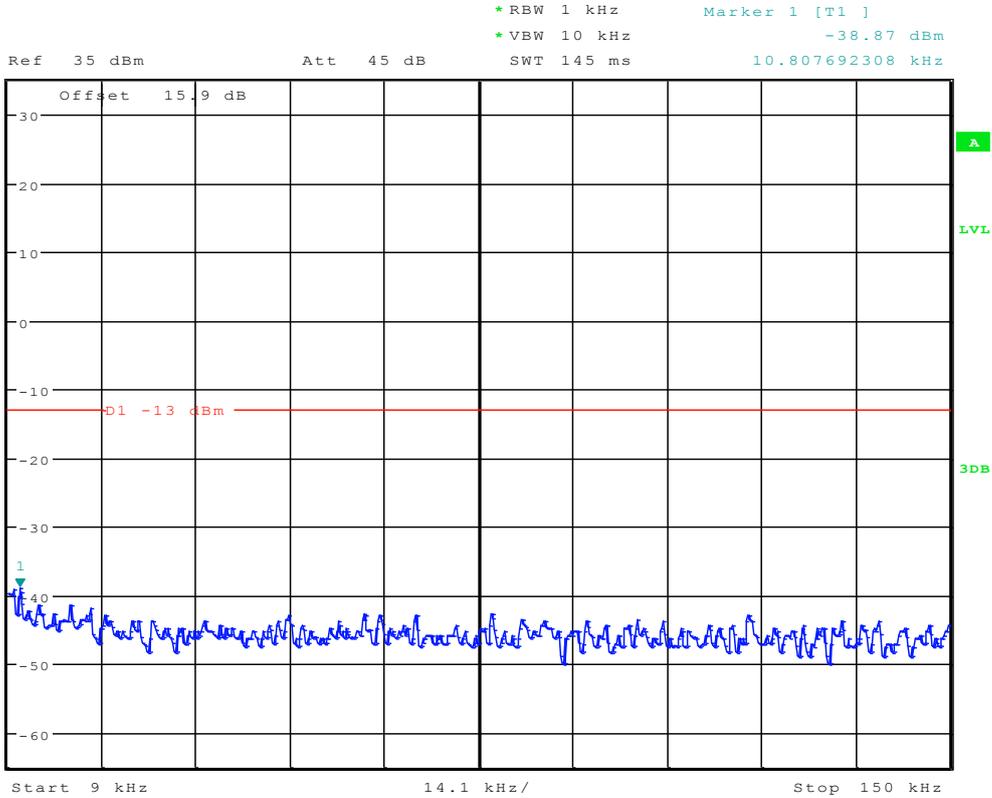
Date: 27.APR.2012 01:32:01



Date: 27.APR.2012 01:32:27



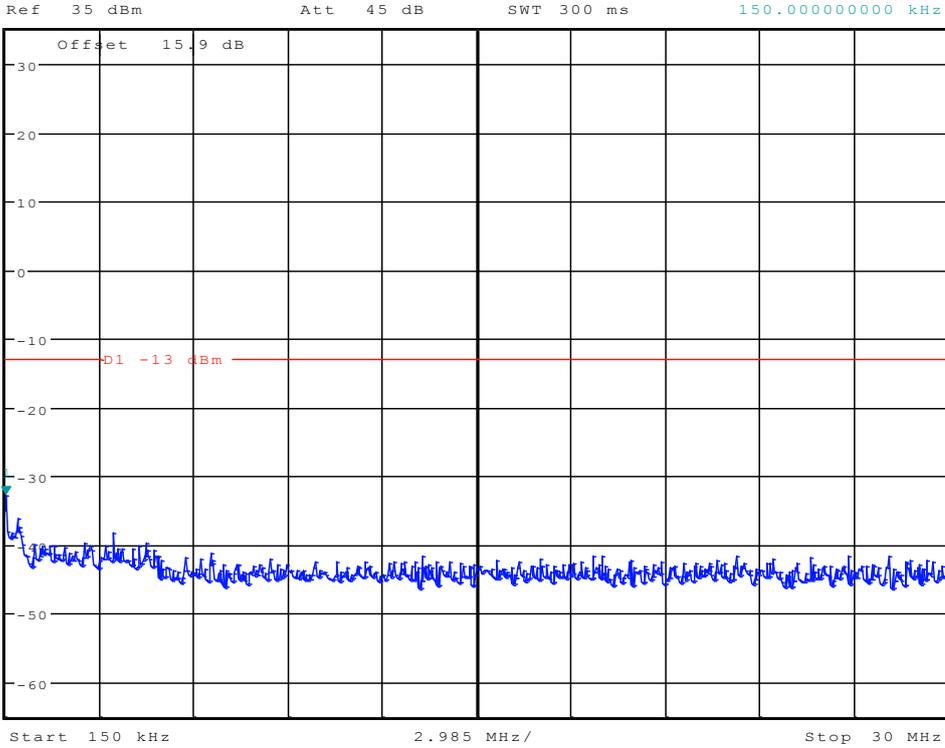
Channel 600



Date: 27.APR.2012 01:31:44



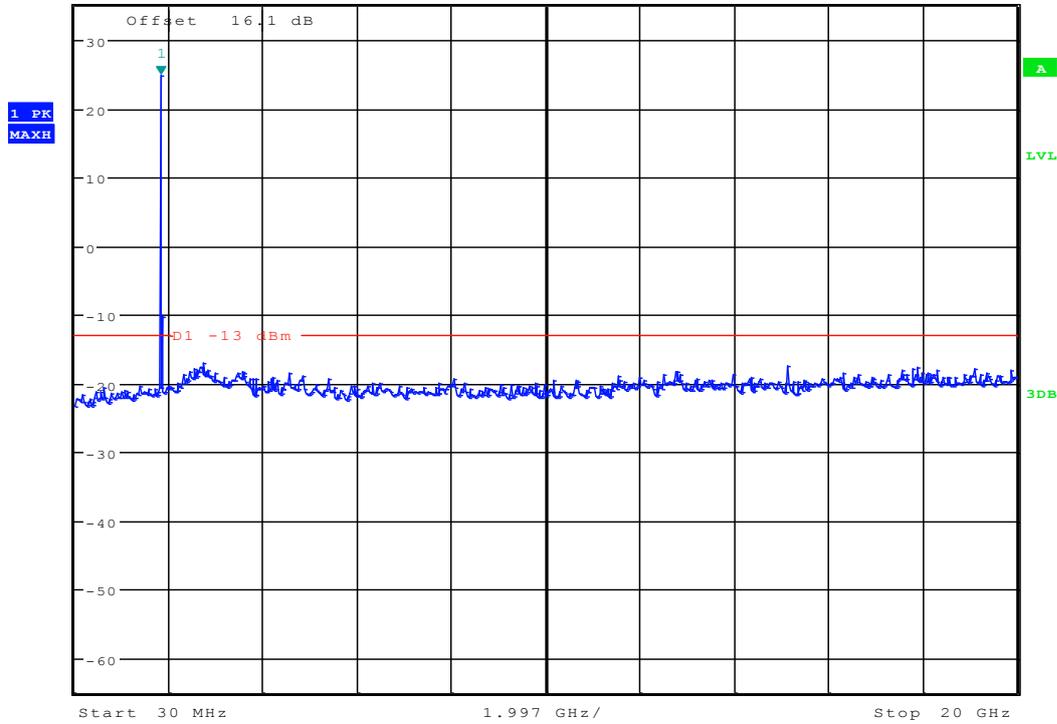
* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -32.75 dBm
SWT 300 ms 150.000000000 kHz



Date: 27.APR.2012 01:32:10



* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 24.86 dBm
Ref 35 dBm Att 45 dB SWT 115 ms 1.854182692 GHz



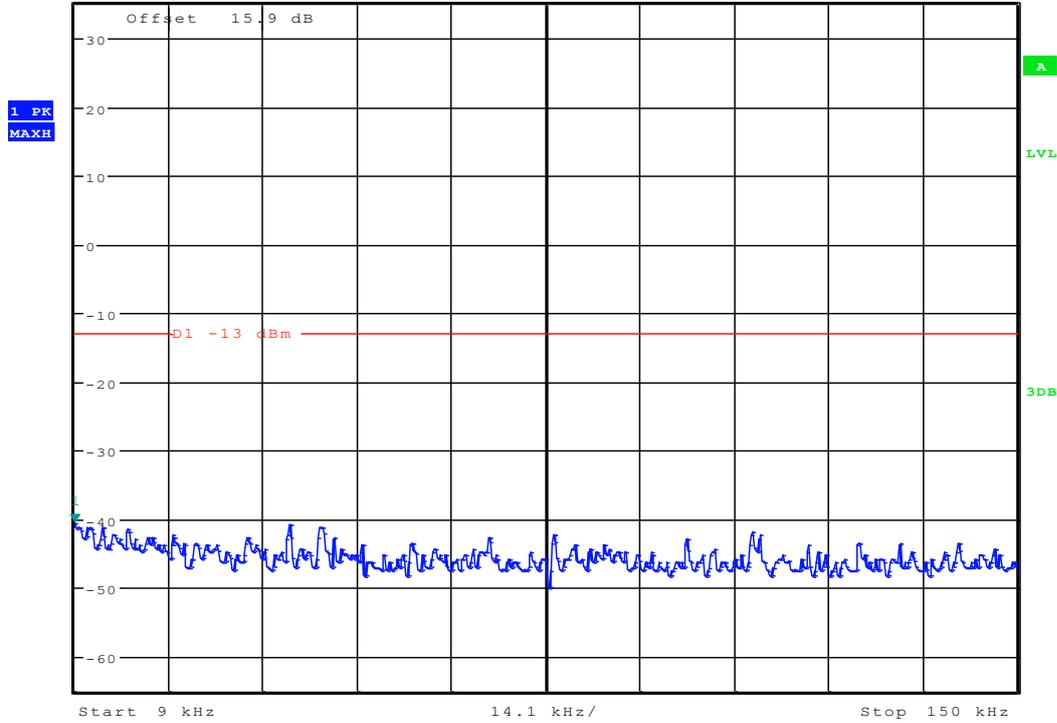
Date: 27.APR.2012 01:32:36



Channel 1175



Ref 35 dBm Att 45 dB SWT 145 ms
 *RBW 1 kHz *VBW 10 kHz
 Marker 1 [T1] -40.54 dBm
 9.000000000 kHz



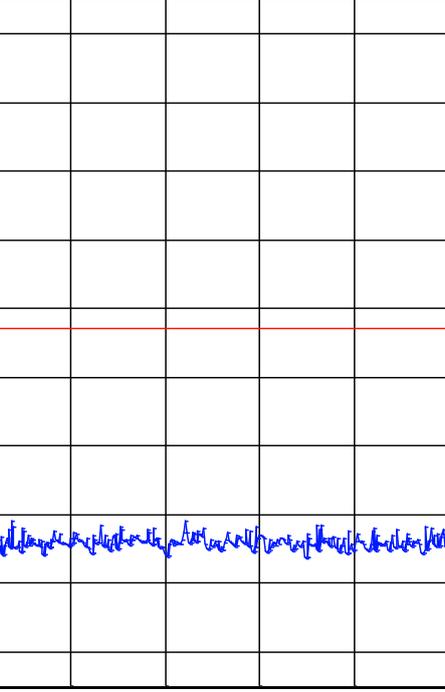
Date: 27.APR.2012 01:31:53



* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -34.10 dBm
SWT 300 ms 197.836538462 kHz

Ref 35 dBm

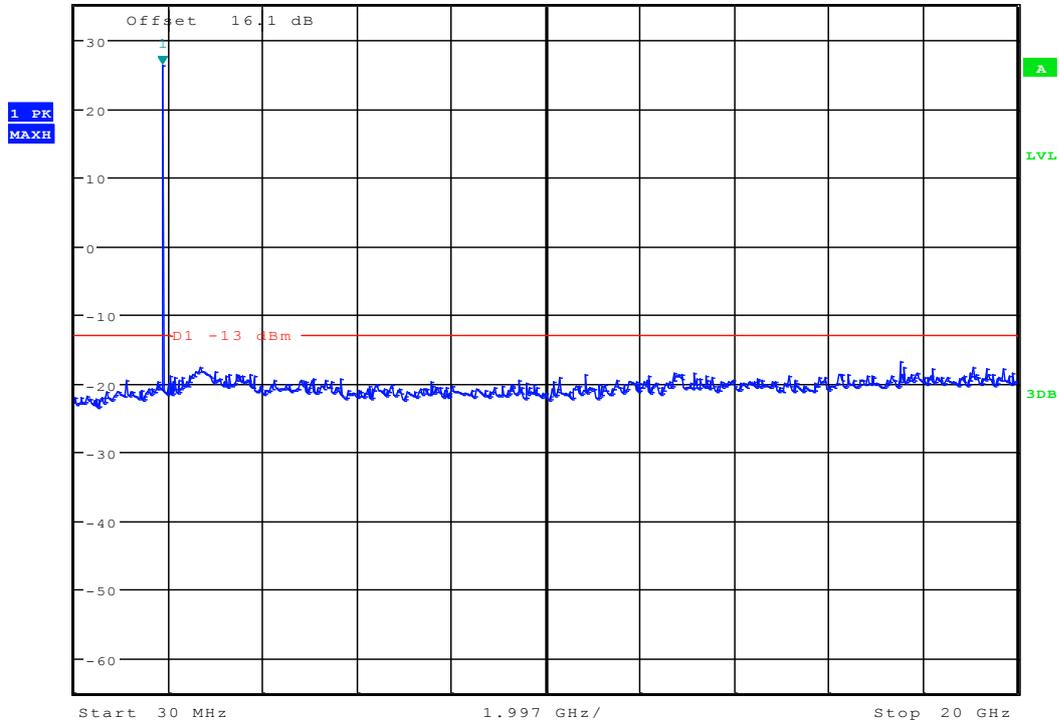
Att 45 dB



Date: 27.APR.2012 01:32:18



* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 26.26 dBm
Ref 35 dBm Att 45 dB SWT 115 ms 1.886185897 GHz



Date: 27.APR.2012 01:32:44

-----The END-----

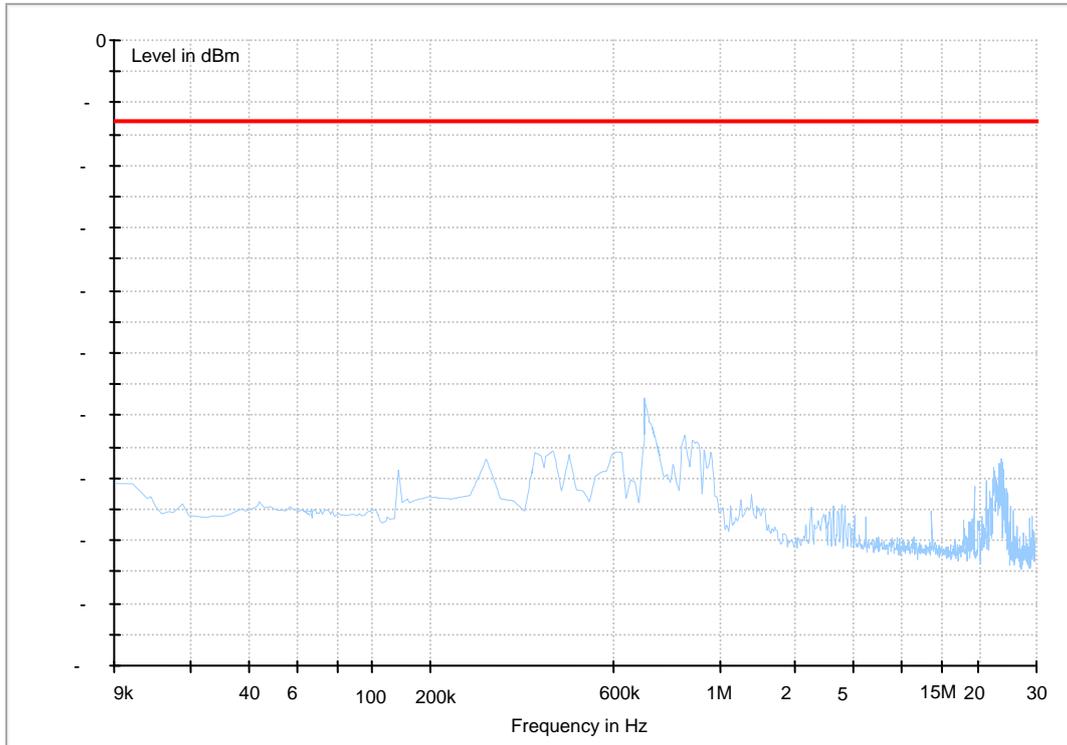


Appendix F

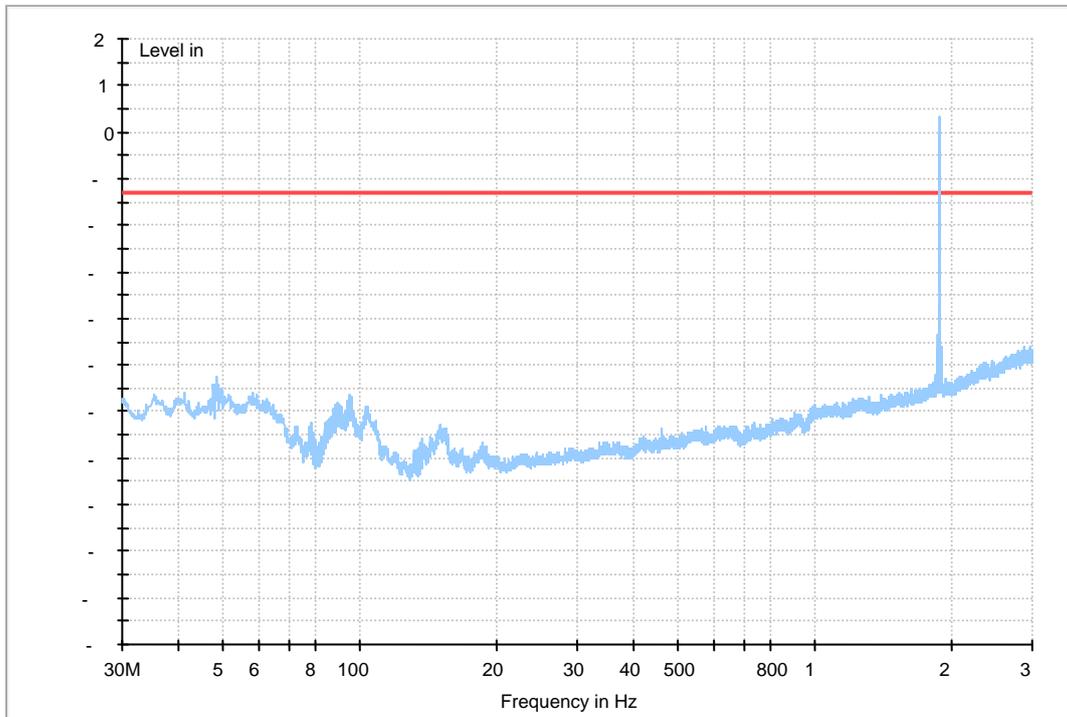
Radiated spurious emission

CDMA 1900

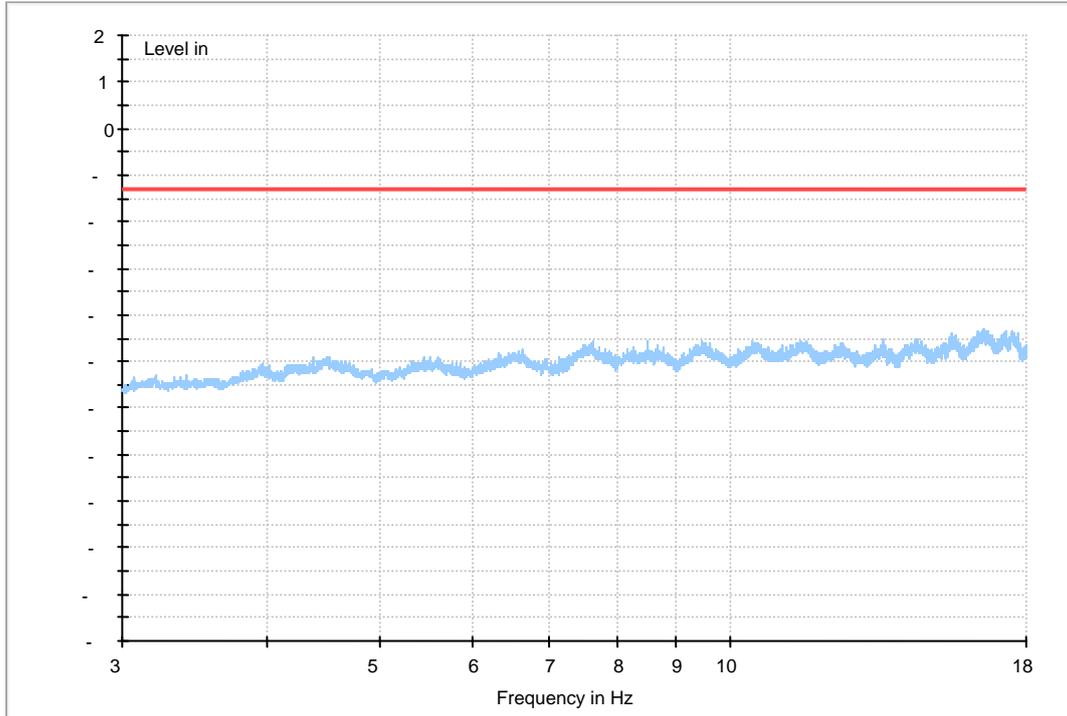
(9kHz-30MHz)



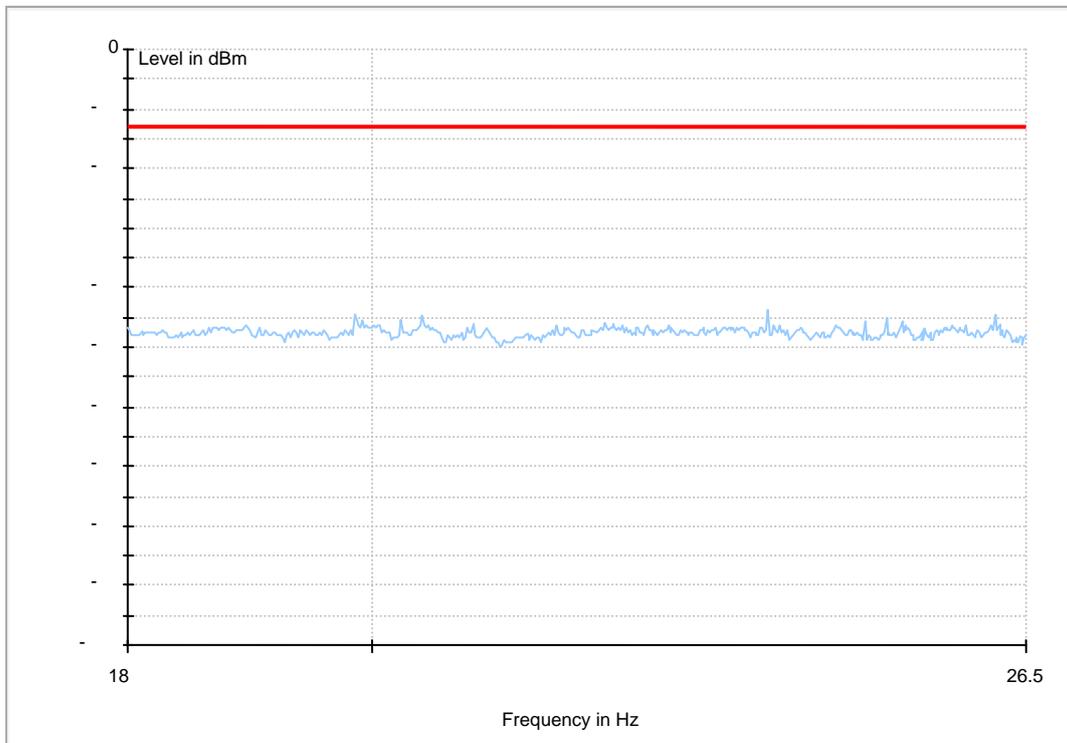
Traffic Mode (30MHz-3GHz)



Traffic Mode (3GHz-18GHz)

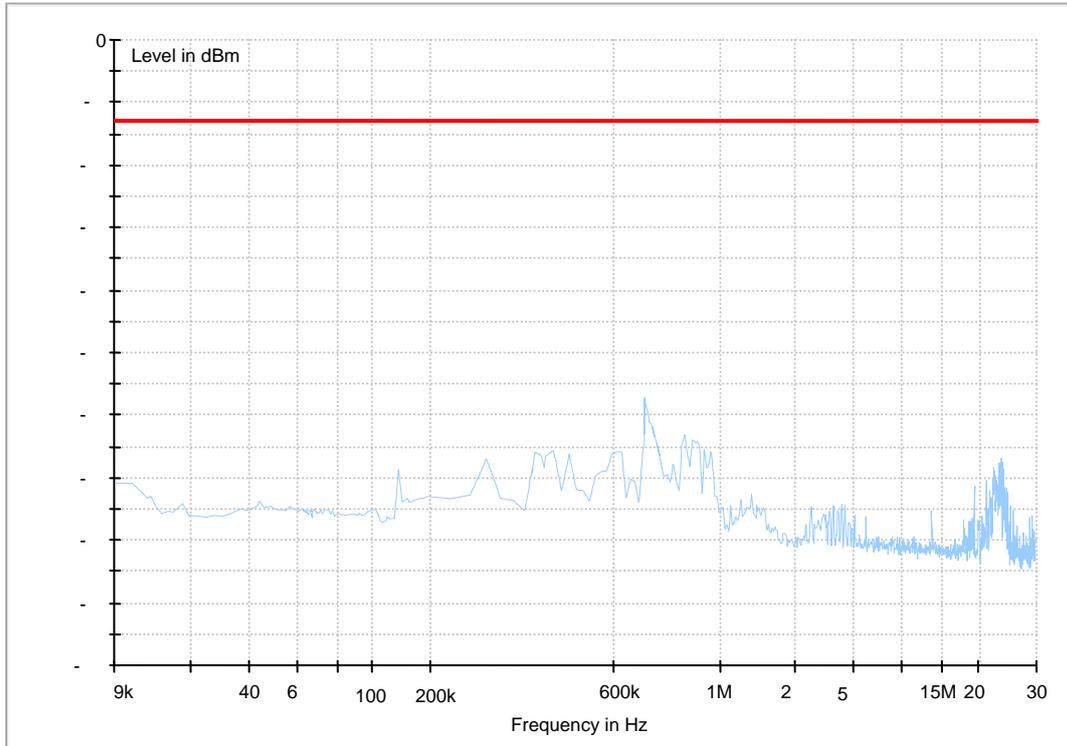


(18GHz-26.5GHz)

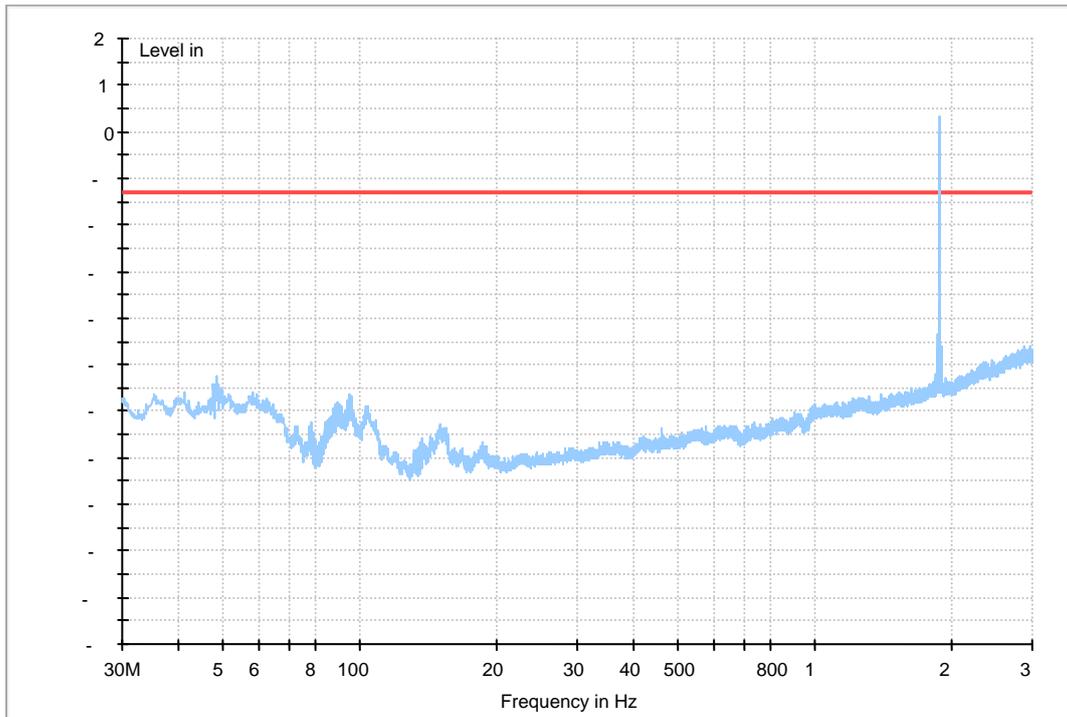


EVDO 1900 R.0

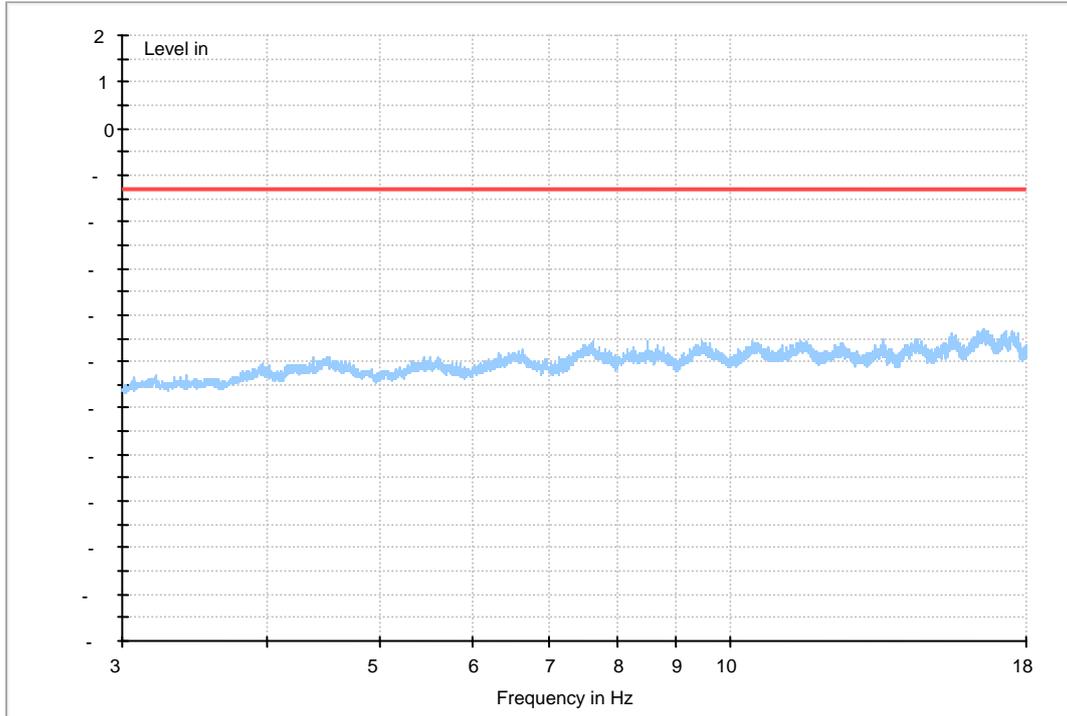
(9kHz-30MHz)



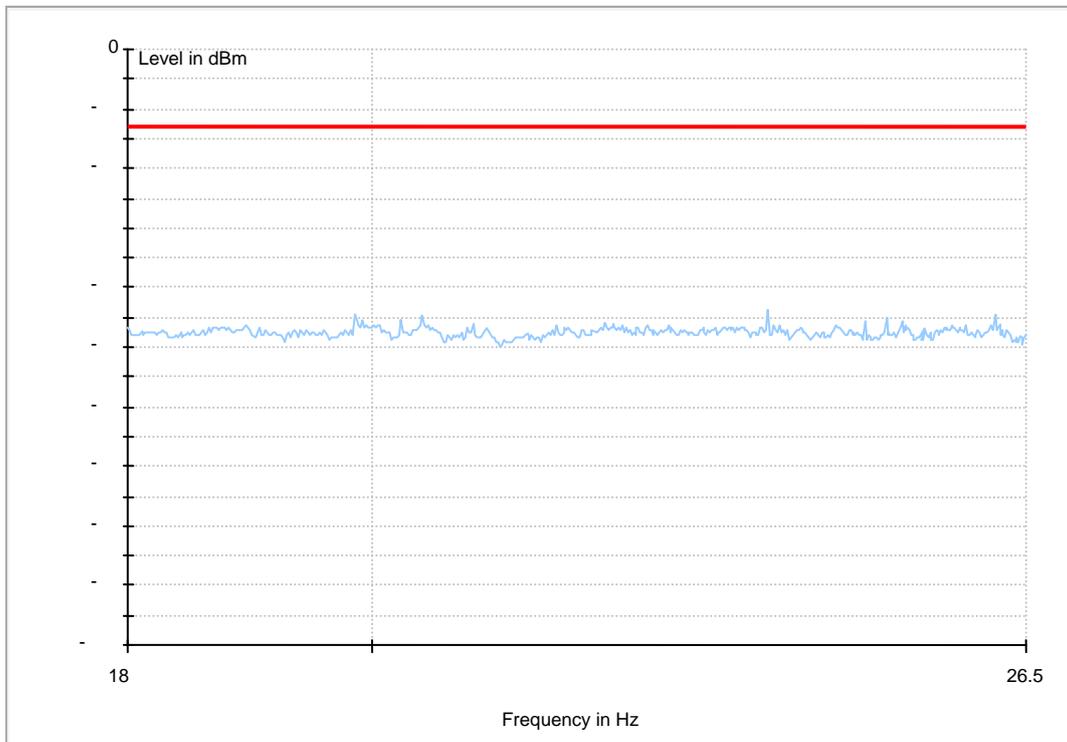
Traffic Mode (30MHz-3GHz)



Traffic Mode (3GHz-18GHz)

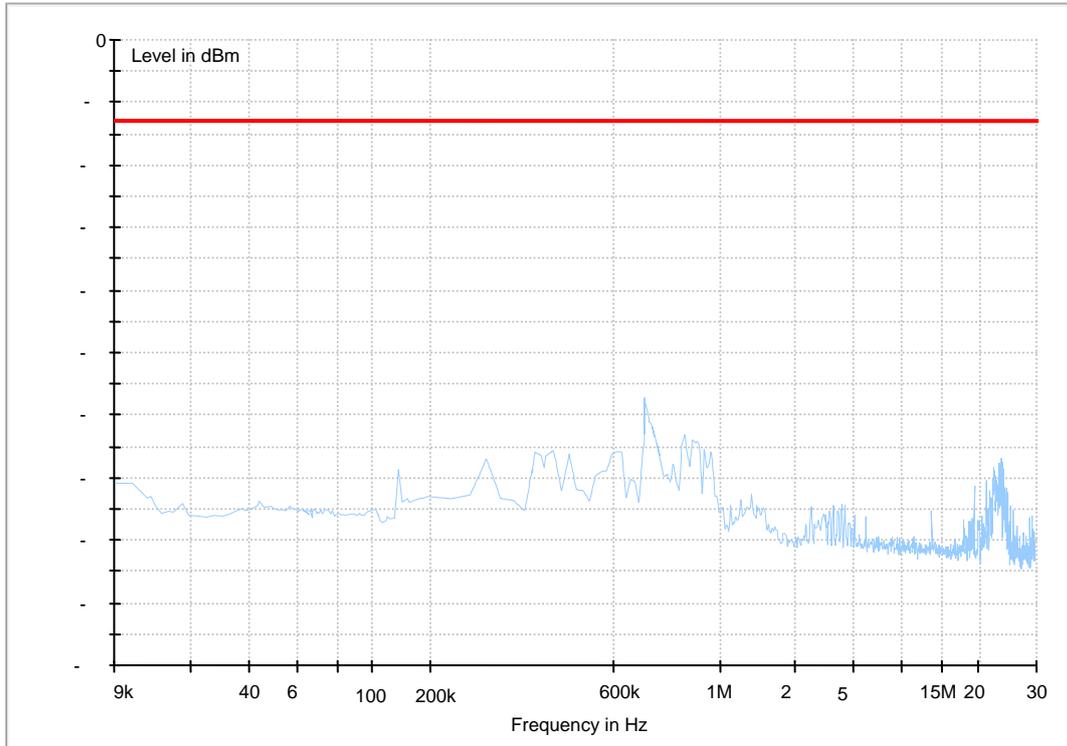


(18GHz-26.5GHz)

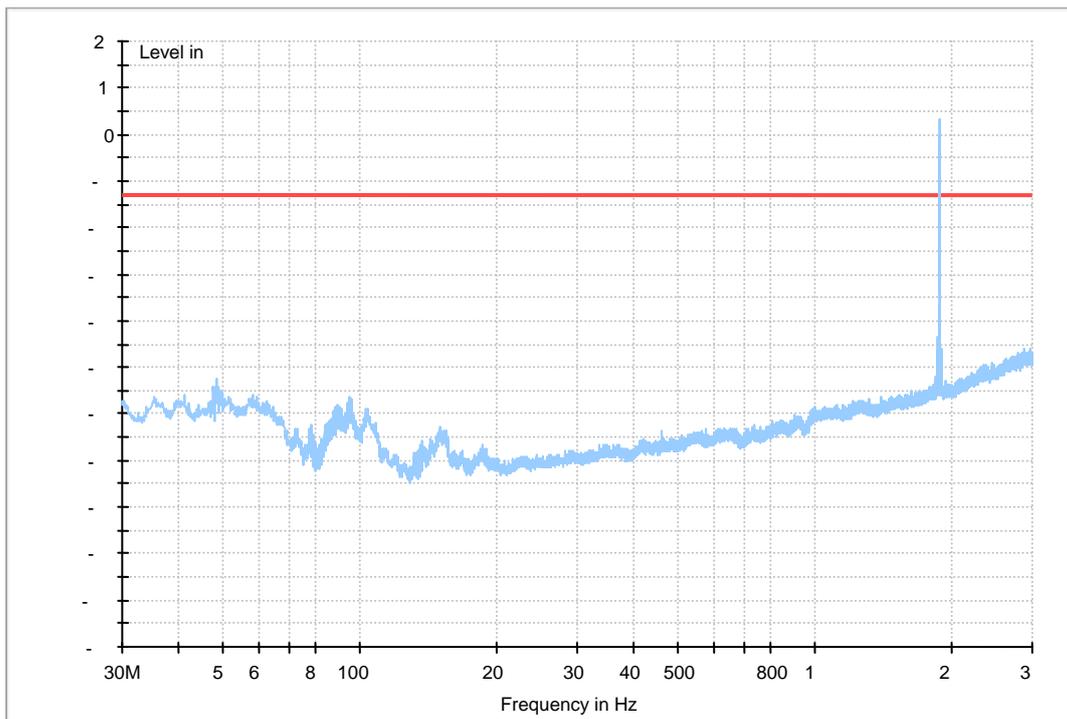


EVDO 1900 R.A

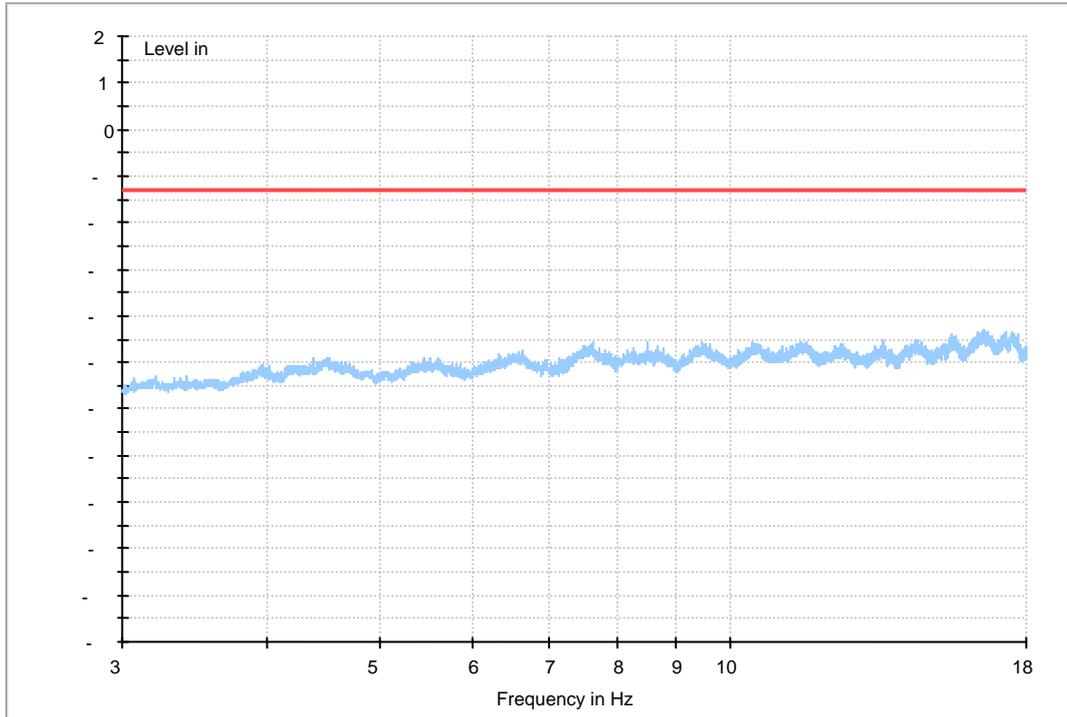
(9kHz-30MHz)



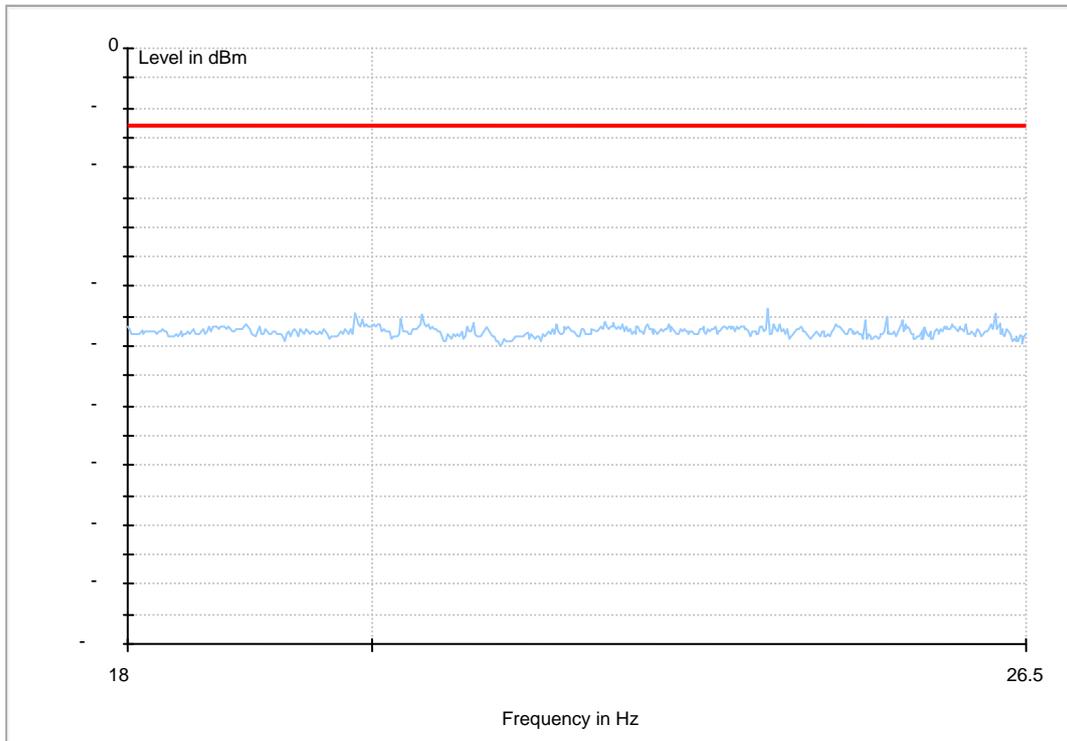
Traffic Mode (30MHz-3GHz)



Traffic Mode (3GHz-18GHz)



(18GHz-26.5GHz)



-----The END-----



Appendix G

Frequency Stability According to FCC Part 2.1055& Part 24.235



Frequency Error vs. Temperature:

Test Mode	RF Ch.	Volt.	Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 1	M	100%	-30 °C	12	0.0064	---	±2.5	Pass
			-20 °C	-10	-0.0053	---	±2.5	Pass
			-10 °C	-9	-0.0048	---	±2.5	Pass
			0 °C	7	0.0037	---	±2.5	Pass
			10 °C	-18	-0.0096	---	±2.5	Pass
			20 °C	-16	-0.0085	---	±2.5	Pass
			30 °C	19	0.0101	---	±2.5	Pass
			40 °C	-18	-0.0096	---	±2.5	Pass
			50 °C	-12	-0.0064	---	±2.5	Pass
TM 3	M	100%	-30 °C	11	0.0059	---	±2.5	Pass
			-20 °C	14	0.0074	---	±2.5	Pass
			-10 °C	-10	-0.0053	---	±2.5	Pass
			0 °C	-16	-0.0085	---	±2.5	Pass
			10 °C	18	0.0096	---	±2.5	Pass
			20 °C	-10	-0.0053	---	±2.5	Pass
			30 °C	9	0.0048	---	±2.5	Pass
			40 °C	-15	-0.0080	---	±2.5	Pass
			50 °C	-14	-0.0074	---	±2.5	Pass
Subtype 0	M	100%	-30 °C	8	0.0043	---	±2.5	Pass
			-20 °C	-10	-0.0053	---	±2.5	Pass
			-10 °C	-14	-0.0074	---	±2.5	Pass
			0 °C	15	0.0080	---	±2.5	Pass
			10 °C	16	0.0085	---	±2.5	Pass
			20 °C	-16	-0.0085	---	±2.5	Pass
			30 °C	-11	-0.0059	---	±2.5	Pass
			40 °C	7	0.0037	---	±2.5	Pass
			50 °C	-6	-0.0032	---	±2.5	Pass
Subtype 2	M	100%	-30 °C	8	0.0043	---	±2.5	Pass
			-20 °C	10	0.0053	---	±2.5	Pass
			-10 °C	-15	-0.0080	---	±2.5	Pass
			0 °C	-12	-0.0064	---	±2.5	Pass
			10 °C	14	0.0074	---	±2.5	Pass
			20 °C	18	0.0096	---	±2.5	Pass
			30 °C	-17	-0.0090	---	±2.5	Pass
			40 °C	-7	-0.0037	---	±2.5	Pass
			50 °C	13	0.0069	---	±2.5	Pass



Frequency Error vs. Voltage:

Test Mode	RF Ch.	Temp.	Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 1	M	20 °C	VL	20	0.0106	---	±2.5	Pass
			VN	-17	-0.0090	---	±2.5	Pass
			VH	9	0.0048	---	±2.5	Pass
TM 3	M	20 °C	VL	-14	-0.0074	---	±2.5	Pass
			VN	-11	-0.0059	---	±2.5	Pass
			VH	10	0.0053	---	±2.5	Pass
Subtype 0	M	20 °C	VL	-11	-0.0059	---	±2.5	Pass
			VN	12	0.0064	---	±2.5	Pass
			VH	-14	-0.0074	---	±2.5	Pass
Subtype 2	M	20 °C	VL	15	0.0080	---	±2.5	Pass
			VN	-18	-0.0096	---	±2.5	Pass
			VH	-15	-0.0080	---	±2.5	Pass

-----The END-----