



FCC Test Report

Product Name: EV-DO Rev.A Rotatable USB Stick

Model Number: EC168

Report No: SYBH(R) 0302082008-2

FCC ID: QISEC168

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| | |
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REPORT ON FCC Test of HUAWEI EC168 EV-DO Rev.A Rotatable
USB Stick

M/N: EC168

Report No: SYBH(R)0302082008-2

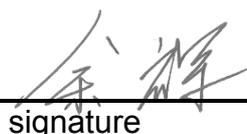
REGULATION **FCC CFR47 Part 2: Subpart J;**
FCC CFR47 Part 22: Subpart H;

CONCLUSION **PASS**

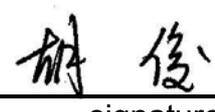
General Manager 2008.9.25 张兴海
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1 Summary

The table below summarizes the measurements and results for the HUAWEI EC168 CDMA EV-DO Rev.A 800M USB Stick. Detailed results and descriptions are shown in the following pages.

Table 1 Summary of results

| FCC Measurement Specification | FCC Limits Part(s) | Description | Result |
|--------------------------------------|---------------------------|---|---------------|
| 2.1046 | 22.913 | Effective Radiated Power of Transmitter | PASS |
| 2.1047 | | Modulation Characteristics | PASS |
| 2.1049 | | Occupied Bandwidth | PASS |
| 2.1051 | 22.917 | Band Edges compliance | PASS |
| 2.1051 | 22.917 | Spurious Emission at Antenna Terminal | PASS |
| 2.1053 | 22.917 | Radiated Spurious Emission | PASS |
| 2.1055 | 22.355 | Frequency Stability | PASS |

Note: The Radiated Spurious Emissions' test results are shown in the EMC report.



2 Product Description

2.1 Production Information

2.1.1 General Description

HUAWEI EC168 CDMA EV-DO Rev.A USB Stick is a subscriber equipment in the CDMA 1X and CDMA2000 1xEV-DO Rev. A system, Supporting 800 MHz/1900 MHz frequency band. The USB Stick implements such functions as RF signal receiving / Transmitting, CDMA protocol processing, CDMA2000 1xEV-DO Rev. A protocol processing, high-rate packet data services etc. The USB Stick uses QSC6085 chipset and Zero-IF technologies.

2.1.2 Support function and Service

The USB Stick support the function and service as follows:

Table 2 Service and Test mode List

| Service Name | Characteristic | Corresponding Test Mode | Note (Corresponding coding and transmission rates) |
|--------------|-----------------------------|-------------------------|---|
| data and SMS | Modulation: QPSK | TM1 | |
| data and SMS | Modulation: HPSK | TM3 | |
| Data(EV-DO) | Default Access Channel MAC | Subtype 0 | Modulation: HPSK |
| data(EV-DO) | Enhanced Access Channel MAC | Subtype 2 | <p>The R-Data packet size determines the modulation format,</p> <p>R-Data Packet Size: 128, 256, 512, 768 or 1024 Modulation: BPSK</p> <p>R-Data Packet Size: 1536 , 2048, 3072, 4096, 6144 or 8192 Modulation: QPSK</p> <p>R-Data Packet Size: 12288 Modulation: 8-PSK</p> |

Note: *The test conditions and settings are defined in ANSI/TIA-98-E section 1.3, 3GPP2 C.S0033.



2.2 Modification Information

For original equipment, following table is not application.

Table 3 Modification Information

| Model Number | Board/Module | Original Version | New Version | Modify Information |
|-----------------|--------------|------------------|-------------|--------------------|
| Not applicable! | | | | |



3 Test Site Description

The test site of:

Huawei Technologies Co. Ltd.
P.O. Box 518129
Huawei base, bantian,
Longgang District, Shenzhen, China

3.1 Testing Period

The test have been performed during the period of

Aug.5, 2007 to Sep. 25, 2008

3.2 General Set up Description

The USB Stick works on Cellular Band, and supports the CDMA2000 1x standard and the CDMA2000 1xEV-DO Rev. A standard. During this measurement, the USB Stick works in CDMA / EV-DO mode and Cellular Band.

CDMA MODE:

TM1: Forward Traffic Channel Radio Configuration 1, Reverse Traffic Channel Radio Configuration 1
TM3: Forward Traffic Channel Radio Configuration 3, Reverse Traffic Channel Radio Configuration 3

| Parameter | Units | Value |
|--------------------------------------|--------------|-------|
| \hat{I}_{or} | dBm/1.23 MHz | -104 |
| $\frac{\text{Pilot } E_c}{I_{or}}$ | dB | -7 |
| $\frac{\text{Traffic } E_c}{I_{or}}$ | dB | -7.4 |

EVDO MODE:

Current Physical Layer Subtype:

Subtype 0* indicates that the protocol subtype assigned to the Access Channel MAC protocol is Default Access Channel MAC and its Subtype ID number is 0x0000.

Subtype 2* indicates that the protocol subtype assigned to the Access Channel MAC protocol is Enhanced Access Channel MAC and its Subtype ID number is 0x0002

Note: *The test settings are defined in 3GPP2 C.S0033



4 Product Description

4.1 Technical Characteristics

4.1.1 Frequency Range

Table 4 Frequency Range

| | |
|----------------|----------------|
| Uplink band: | 824 to 849 MHz |
| Downlink band: | 869 to 894 MHz |

4.1.2 Channel Spacing / Separation

Table 5 Channel Spacing / Separation

| | |
|---------------------|----------|
| Channel spacing: | 30 kHz |
| Channel separation: | 1.23 MHz |

4.1.3 Type of Emission

Table 6 Type of Emission

| | |
|-----------------------|---------|
| Emission Designation: | 1M25F9W |
|-----------------------|---------|

According to CFR 47 (FCC) part 2, subpart C, section 2.201 and 2.202

4.1.4 Environmental Requirements

Table 7 Environmental Requirements

| | |
|----------------------|---------|
| Minimum temperature: | - 10 °C |
| Maximum temperature: | + 55 °C |
| Relative Humidity: | 5%-95% |

4.1.5 Power Source

Table 8 Power Source

| | |
|---------------------|---|
| DC voltage nominal: |  +5.0V; Supplied by USB port of Notebook |
| DC voltage range |  +4.75-5.25V |
| DC current maximal: | 500mA |

4.1.6 Tune-up Procedure

According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (9).

Please reference the document Tune-up Procedure in TCF.

4.1.7 Applied DC Voltages and Currents

According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (8).

The voltage and current in the final RF stage is:

Table 9 Applied RF module DC Voltages and Currents

| | |
|----------|---|
| Voltage: |  +2.8V |
| Current: | 150mA According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (8) |



4.2 EUT Identification List

4.2.1 Board Information

Table 10 Board Information

| 800MHz USB STICK | | |
|-------------------------------------|------------------|----------|
| EC168 | | |
| Board and Module | | |
| Equipment Designation / Description | Serial Number | Remarks |
| Main board | KW2AC10871400152 | CE35TCPU |

4.2.2 Adapter Technical Data

Not Applicable.

4.2.3 Battery Technical Data

Not Applicable.

4.2.4 FCC Identification

Grantee Code: QIS
Product Code: EC168
FCC Identification: QISEC168



5 Main Test Instruments

Table 11 Main Test Equipments

| Equipment Description | Manufacturer | Model | Serial Number | Calibrated until (MM.DD.YYYY) |
|--------------------------------------|--------------|-------------------------|----------------|-------------------------------|
| Test Receiver Display Unit | R&S | ESMI 804.8932.52 | 829214/011 | 04.22.2009 |
| Test Receiver RF Unit | R&S | ESMI 1032.5640.53 | 829550/008 | 04.22.2009 |
| Receiver | R&S | ESIB 26 | 100318 | 05.21.2009 |
| Receiver | R&S | ESCS30 | 830245/018 | 05.29.2009 |
| Pre-Amplifier | Agilent | 8447D | 2944A10146 | 05.21.2009 |
| Pre-Amplifier | Agilent | 83017A | 3950M00246 | 05.21.2009 |
| Loop Antenna | Schwarzbeck | FMZB1516 | 1516115 | 05.29.2009 |
| BiLog Antenna | Schaffner | CBL 6112B | 2747 | 02.25.2009 |
| BiLog Antenna | Schaffner | CBL 6112B | 2536 | 06.07.2009 |
| Horn Antenna | ETS-Lindgren | 3117 | 00062549 | 06.05.2009 |
| Horn Antenna | ETS-Lindgren | 3116 | 00031541 | 03.20.2009 |
| Dipole | Schwarzbeck | D69250-UHAP/D69250-VHAP | 979/917 | 08.27.2009 |
| Signal Generator | R&S | SMT06 | 830264/009 | 09.29.2009 |
| Signal Generator | R&S | SMR 40 | 100325 | 08.09.2009 |
| Artificial Mains Network | R&S | ENV4200 | 100001 | 07.20.2009 |
| Power Supply | Keithley | 2306 | 1045337 | 08.14.2009 |
| Climate Chamber | WEISS | WK11-180 | 58226049470010 | 12.09.2009 |
| Universal Radio Communication Tester | R&S | CMU200 | 108522 | 01.01.2009 |
| Universal Radio Communication Tester | Agilent | 8960 | GB46490162 | 6.24.2009 |
| Vector Signal Generator | R&S | SMU200A | 101394 | 9.29.2009 |
| Signal Analyzer | R&S | FSU26 | 1166.1660K26 | 8.21.2009 |
| Power Divider | R&S | 11667B | F048AXH049 | 5.23.2009 |



6 Transmitter Measurements

6.1 Effective Radiated Power of Transmitter (ERP)

6.1.1 Test Conditions

Table 12 Test Conditions

| | |
|----------------------|--|
| Preconditioning: | 0.5 hour |
| Measured at: | enclosure |
| Ambient temperature: | 23.5°C |
| Relative humidity: | 55% |
| Test Configurations: | CDMA TM1 and TM3 at frequency B, M,T EVDO Subtype 0 and Subtype 2 at frequency B, M,T |

6.1.2 Test Specifications and Limits

6.1.2.1 Specification

CFR 47 (FCC) part 2.1046 and part 22.913

6.1.2.2 Supporting Standards

Table 13 Supporting Standards:

| | |
|---------------------|--|
| ANSI/TIA-603-C:2004 | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards |
| ANSI/TIA-98-E: 2003 | Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations |

6.1.2.3 Limits

Compliance with part 22.913, in no any case may the peak power of a mobile station transmitter exceed 7 W. The calculated longitude ERP by following formula: $ERP(dBm) = 10 * \log(ERP_{in\ mwatts})$.

Table 14 Limits

| | |
|------------------------------|------------|
| Maximum Output Power (Watts) | < 7 Watts |
| Maximum Output Power (dBm) | < 38.5 dBm |

6.1.3 Test Method and Setup

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, ERP shall be measured when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect the USB Stick to the wireless communication tester Agilent 8960 via the air interface. The band class is set as US Cellular.

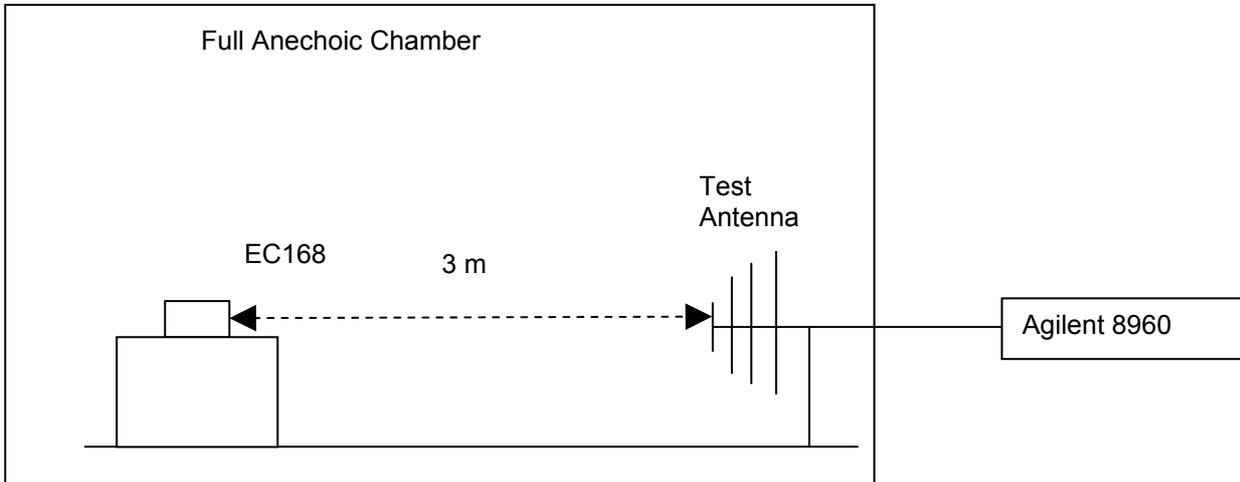
(b) Test the Radiated maximum output power by the Agilent 8960 received from test antenna.

(c) Use substitution method to verify the maximum output power. The EUT is substituted by a dipole antenna. The dipole is connected to a signal generator. And then adjust the output level of the signal

generator to get the same received power recorded in step (b) on Agilent 8960, and record the power level of Signal Generator. Of course, the cable loss at the test frequency should be compensated.

Test setup

Step 1: Pre-test



Step 2: Substitution method to verify the maximum ERP

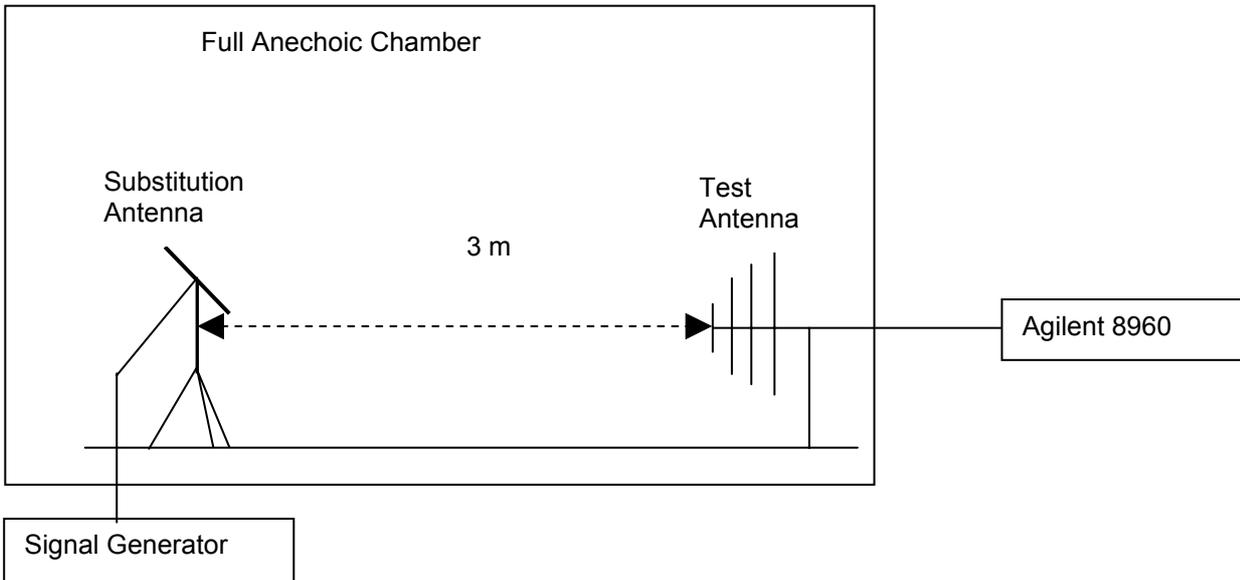


Figure 1. Test Set-up

NOTE: Effective radiated power (ERP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave dipole antennas.

6.1.4 Measurement Results

Table 15 Measurement Results

| TEST CONDITIONS | RF Output Power | | |
|-----------------|-----------------------------|-----------------------------|-----------------------------|
| | Channel 1013(B) 824.7MHz | Channel 384(M) 836.52MHz | Channel 777(T) 848.31MHz |
| | | | |



| | | dBm | | dBm | | dBm | |
|-----------|---|----------|-------|----------|-------|----------|-------|
| | | Measured | Limit | Measured | Limit | Measured | Limit |
| TM1 | T _{nom} (25 °C) V _{nom} (5.0V) | 26.02 | 38.5 | 25.93 | 38.5 | 26.05 | 38.5 |
| TM3 | T _{nom} (25 °C) V _{nom} (5.0V) | 26.03 | 38.5 | 25.98 | 38.5 | 26.04 | 38.5 |
| Subtype 0 | T _{nom} (25 °C) V _{nom} (5.0V) | 26.03 | 38.5 | 25.94 | 38.5 | 26.05 | 38.5 |
| Subtype 2 | T _{nom} (25 °C) V _{nom} (5.0V) | 26.01 | 38.5 | 25.85 | 38.5 | 25.92 | 38.5 |

6.1.4.1 Substitution Results

Table 16 Substitution Results

| Test Mode | Freq. [MHz] | Meas. Level [dBm] | Substitution Antenna Type | SGP [dBm] | Substitution Gain [dBd] | Cable Loss [dB] | Substitution Level (ERP) [dBm] | Limit [dBm] | Result |
|-----------|-------------|-------------------|---------------------------|--------------|-------------------------|-----------------|--------------------------------|-------------|-------------|
| TM1 | 824.7 | 26.02 | Dipole Ant. | 30.55 | -4.02 | 0.6 | 25.93 | 38.5 | Pass |
| TM1 | 836.52 | 25.93 | Dipole Ant. | 30.26 | -3.88 | 0.6 | 25.78 | 38.5 | Pass |
| TM1 | 848.31 | 26.05 | Dipole Ant. | 30.56 | -4.02 | 0.6 | 25.94 | 38.5 | Pass |
| TM3 | 824.7 | 26.03 | Dipole Ant. | 30.43 | -4.02 | 0.6 | 25.81 | 38.5 | Pass |
| TM3 | 836.52 | 25.98 | Dipole Ant. | 30.13 | -3.88 | 0.6 | 25.65 | 38.5 | Pass |
| TM3 | 848.31 | 26.04 | Dipole Ant. | 30.55 | -4.02 | 0.6 | 25.93 | 38.5 | Pass |
| Subtype 0 | 824.7 | 26.03 | Dipole Ant. | 30.54 | -4.02 | 0.6 | 25.92 | 38.5 | Pass |
| Subtype 0 | 836.52 | 25.94 | Dipole Ant. | 30.22 | -3.88 | 0.6 | 25.74 | 38.5 | Pass |
| Subtype 0 | 848.31 | 26.05 | Dipole Ant. | 30.35 | -4.02 | 0.6 | 25.73 | 38.5 | Pass |
| Subtype 2 | 824.7 | 26.01 | Dipole Ant. | 30.44 | -4.02 | 0.6 | 25.82 | 38.5 | Pass |
| Subtype 2 | 836.52 | 25.85 | Dipole Ant. | 30.26 | -3.88 | 0.6 | 25.78 | 38.5 | Pass |
| Subtype 2 | 848.31 | 25.92 | Dipole Ant. | 30.47 | -4.02 | 0.6 | 25.85 | 38.5 | Pass |

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



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

NOTE: SGP- Signal Generator Level

b, A CDMA signal with bandwidth of 1.23MHz is created by the vector generator R&S SMU200A.

c, RBW=10kHz, VBW=300kHz, and integrated by the instrument to 1.23MHz.

6.1.5 Conclusion

The equipment **PASSED** the requirement of this clause.

6.2 Conducted Power of Transmitter

6.2.1 Test Conditions

Table 17 Test Conditions

| | |
|----------------------|---|
| Preconditioning: | 0.5 hour |
| Measured at: | antenna connector |
| Ambient temperature: | 23.5°C |
| Relative humidity: | 55% |
| Test Configurations: | CDMA TM1 and TM3 at frequency B,M,T EVDO Subtype 0 and Subtype 2 at frequency B,M ,T |

6.2.2 Test Specifications and Limits

6.2.2.1 Specification

CFR 47 (FCC) part 2.1046 and part 22.913

6.2.2.2 Supporting Standards

Table 18 Supporting Standards:

| | |
|---------------------|--|
| ANSI/TIA-603-C:2004 | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards |
| ANSI/TIA-98-E: 2003 | Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations |

6.2.2.3 Limits

Compliance with part 22.913, in no any case may the peak power of a mobile station transmitter exceed 7 W. The calculated longitude ERP by following formula:

$$ERP(\text{dBm}) = 10 \cdot \log(ERP_{\text{in mwatts}})$$

And for conducted power, we can use Antenna Gain to calculate the limit. So the conducted power:

$$P_{\text{cod}}(\text{dBm}) = ERP(\text{dBm}) - \text{Gain}(\text{dBd})$$

$$\text{and Gain}(\text{dBd}) = \text{Gain}(\text{dBi}) - 2.15\text{dB}$$

Table 19 Limits

| | |
|--------------------------------------|--------------------|
| Maximum Output Power (Watts) | < 7 Watts=38.5 dBm |
| Antenna Gain(dBd): | 1.91dBd |
| Maximum Conducted Output Power (dBm) | < 36.59 dBm |

6.2.3 Test Method and Setup

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, ERP shall be measured when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect the USB Stick to the wireless communication tester CMU200 via the antenna connector. The band class is set as US Cellular.

(b) Test the Conducted maximum output power by the CMU200.

Test setup

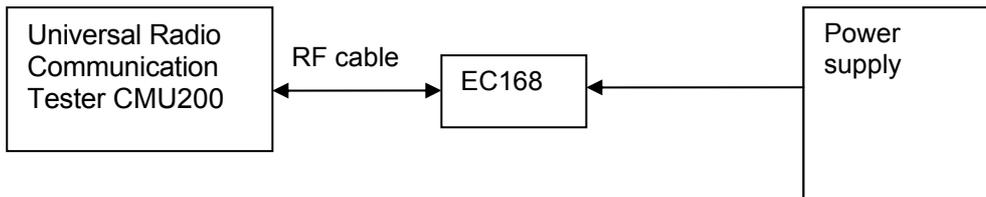


Figure 2. Test Set-up

6.2.4 Measurement Results

Table 20 Measurement Results

| TEST CONDITIONS | | RF Output Power | | | | | |
|-----------------|---|-----------------------------|-------|-----------------------------|-------|-----------------------------|-------|
| | | Channel 1013(B) 824.7MHz | | Channel 384(M) 836.52MHz | | Channel 777(T) 848.31MHz | |
| | | dBm | | dBm | | dBm | |
| | | Measured | Limit | Measured | Limit | Measured | Limit |
| TM1 | T _{nom} (25 °C) V _{nom} (5.0V) | 24.11 | 36.59 | 24.02 | 36.59 | 24.14 | 36.59 |
| TM3 | T _{nom} (25 °C) V _{nom} (5.0V) | 24.12 | 36.59 | 24.07 | 36.59 | 24.13 | 36.59 |
| Subtype 0 | T _{nom} (25 °C) V _{nom} (5.0V) | 24.12 | 36.59 | 24.03 | 36.59 | 24.14 | 36.59 |
| Subtype 2 | T _{nom} (25 °C) V _{nom} (5.0V) | 24.10 | 36.59 | 23.94 | 36.59 | 24.01 | 36.59 |

6.2.5 Conclusion

The equipment **PASSED** the requirement of this clause.

6.3 Modulation Characteristics

6.3.1 Test Conditions

Table 21 Test Conditions

| | |
|----------------------|--|
| Preconditioning: | 0.5 hour |
| Measured at: | Antenna connector |
| Ambient temperature: | 22 °C |
| Relative humidity: | 52 % |
| Test Configurations: | CDMA mode TM1 and TM3 at frequency M EVDO mode Subtype 0 and Subtype 2 at frequency M |

6.3.2 Test Specifications and Limits

6.3.2.1 Specification

CFR 47 (FCC) part 2.1047 and part 22 subpart H.

6.3.2.2 Supporting Standards

Table 22 Supporting Standards:

| | |
|----------------------|---|
| ANSI/TIA-603-C: 2004 | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards |
| ANSI/TIA-98-E: 2003 | Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations. |

6.3.2.3 Limits

No specific modulation characteristics requirement limits in part 2.1047 and part 22 subpart H.

Table 23 Limits

| | |
|--------|----------------|
| Limits | Not applicable |
|--------|----------------|

6.3.3 Test Method and Setup

Connect the USB STICK to Universal Radio Communication Tester CMU200 via the antenna connector. The band class is set as US Cellular; the USB STICK's output is matched with 50 Ω loads, test method was according to ANSI/TIA-98-E. The waveform quality and constellation of the USB STICK were tested.

Test setup

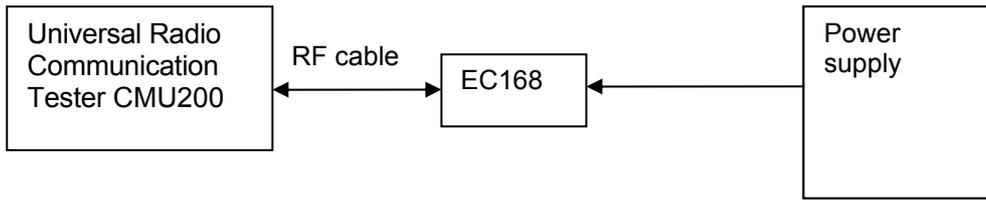


Figure 3. Test Set-up

6.3.4 Measurement Results

Table 24 Measurement Results

| TEST CONDITIONS | | Modulation Characteristic | |
|--------------------------|-------------------------|---------------------------|-----------------------|
| | | Channel384(M) | |
| | | 836.52MHz | |
| | | Measured | |
| | | CDMA Mode | EVDO Mode |
| | | TM1 & TM3 | Subtype 0 & Subtype 2 |
| T _{nom} (25 °C) | V _{nom} (5.0V) | Refer to Appendix A | Refer to Appendix A |
| | | | |

6.3.5 Conclusion

The equipment **PASSED** the requirement of this clause.

For the measurement results refer to appendix A.

6.4 Occupied Bandwidth

6.4.1 Test Conditions

Table 25 Test Conditions

| | |
|----------------------|---|
| Preconditioning: | 0.5 hour |
| Measured at: | Antenna connector |
| Ambient temperature: | 25 °C |
| Relative humidity: | 55 % |
| Test Configurations: | CDMA TM1 and TM3 at frequency B,M ,T EVDO Mode Subtype 0 and Subtype 2 at frequency B,M ,T |

6.4.2 Test Specifications and Limits

6.4.2.1 Specification

CFR 47 (FCC) part 2.1049 and part 22 subpart H.

6.4.2.2 Supporting Standards

Table 26 Supporting Standards:

| | |
|----------------------|---|
| ANSI/TIA-603-C: 2004 | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards |
| ANSI/TIA-98-E: 2003 | Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations. |

6.4.2.3 Limits

No specific occupied bandwidth requirement in part 22 subpart H, but the occupied bandwidth was defined in part 2.1049: the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

Table 27 Limits

| | |
|-------------------------------|------------------------|
| Upper /lower frequency limits | 0.5% of the mean power |
|-------------------------------|------------------------|

6.4.3 Test Method and Setup

USB Stick was connected to the wireless signal analyzer R&S FSU26 via the one RF connector. The band class is set as US Cellular; USB Stick was controlled to transmit maximum power. Measure and record the occupied bandwidth of the USB Stick by the R&S FSU26.

The OBW, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

Refer to 47CFR part2.1049 section (g)&(h).

(g) Transmitter in which the modulating base band comprises not more than three independent channels - when modulated by the full complement of signals for which the transmitter is rated. The

level of modulation for each channel should be set to that prescribed in rule parts applicable to the services for which the transmitter is intended. If specific modulation levels are not set forth in the rules, the tests should provide the manufacturer's maximum rated condition.

(h) Transmitters employing digital modulation techniques - when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudorandom generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at discretion of the user.

Measurement bandwidth (RBW): 30 kHz (Resolution bandwidth)
Video bandwidth (VBW): 300 kHz

Test Set-up

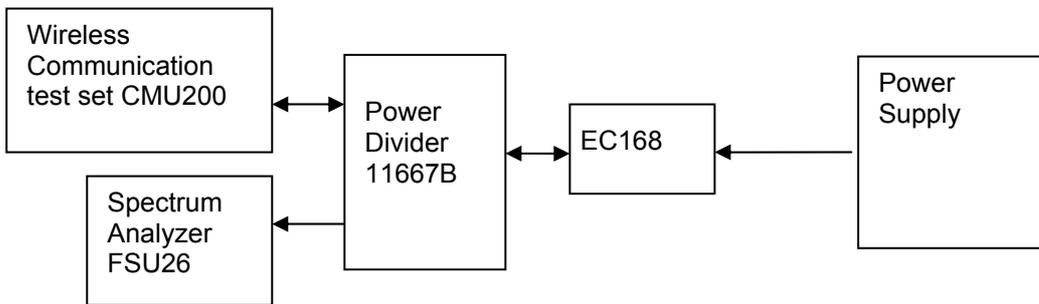


Figure 4. Test Set-up

6.4.4 Measurement Results

Table 28 Measurement Results

| TEST CONDITIONS | | Occupied Bandwidth | | | | | | | | | | | |
|-----------------------------|----------------------------|------------------------------|------|-----------|-----------|-----------------------------|------|-----------|-----------|----------------------------|------|-----------|-----------|
| | | Channel1013 (B) 824.70MHz | | | | Channel384 (M) 836.52MHz | | | | Channel777(T) 848.31MHz | | | |
| | | Measured (MHz) | | | | Measured (MHz) | | | | Measured (MHz) | | | |
| | | CDMA | | EVDO | | CDMA | | EVDO | | CDMA | | EVDO | |
| | | TM1 | TM3 | Subtype 0 | Subtype 2 | TM1 | TM3 | Subtype 0 | Subtype 2 | TM1 | TM3 | Subtype 0 | Subtype 2 |
| T _{nom} (25 °C) | V _{nom} (5.0V) | 1.28 | 1.28 | 1.29 | 1.28 | 1.28 | 1.28 | 1.29 | 1.28 | 1.28 | 1.28 | 1.29 | 1.28 |



6.4.5 Conclusion

The equipment **PASSED** the requirement of this clause.
For the measurement results refer to appendix B.



6.5 Band Edges Compliance

6.5.1 Test Conditions

Table 29 Test Conditions

| | |
|----------------------|---|
| Preconditioning: | 0.5 hour |
| Measured at: | Antenna connector |
| Ambient temperature: | 23.5°C |
| Relative humidity: | 55 % |
| Test Configurations: | CDMA TM1 and TM3 at frequency B,T EVDO Mode Subtype 0 and Subtype 2 at frequency B,T |

6.5.2 Test Specifications and Limits

6.5.2.1 Specification

CFR 47 (FCC) part 2.1051 and part 22.917

6.5.2.2 Supporting Standards

Table 30 Supporting Standards:

| | |
|----------------------|---|
| ANSI/TIA-603-C: 2004 | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards |
| ANSI/TIA-98-E: 2003 | Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations. |

6.5.2.3 Limits

Compliance with 22.917, all spurious emission must be attenuated below the transmitter power by at least $43 + 10 \log_{10} P$. (Whereas P is the rated power of the EUT).

Table 31 Limits

| | |
|-----------------------|--|
| Rated Power: | 24 dBm |
| Required attenuation: | $43 + 10 \log(0.25) = 37$, 24 dBm – 37 dB |
| Absolute level | - 13 dBm |

6.5.3 Test Method and Setup

USB Stick was connected to the wireless signal analyzer R&S FSU26 via the one RF connector, the band class is set as Cellular. USB Stick was controlled to transmit maximum power. Measure and record band edges compliance of the USB Stick by the R&S FSU26.

Measurement bandwidth (RBW): 20 kHz (Resolution bandwidth)
Video bandwidth (VBW): 200 kHz

Test Set-up

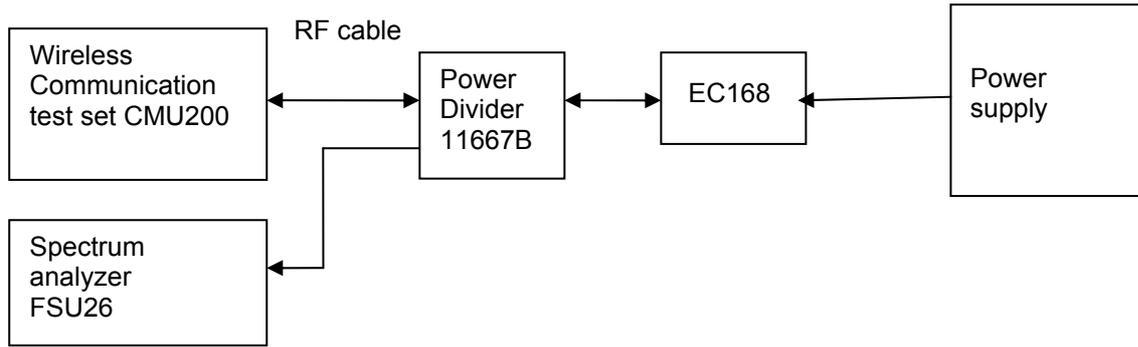


Figure 5. Test Set-up

6.5.4 Measurement Results

Table 32 Measurement Results outside Band Edges-- Single Carrier

| Band | Frequency of Band edges [MHz] | Channel Number | Test Mode | Power [dBm] | Spurious Level measured [dBm] | FCC limit | Result |
|-------------|---|----------------|-----------|-------------|-------------------------------|-----------|--------|
| US Cellular | $T_{nom} (25\text{ }^{\circ}\text{C}), V_{nom} (5.0\text{V})$ | | | | | | |
| | 824 | 1013 (B) | TM1 & TM3 | 24 | <-13(See appendix C) | - 13 dBm | Pass |
| | 869 | 777 (T) | TM1 & TM3 | 24 | <-13(See appendix C) | - 13 dBm | Pass |

| Band | Frequency of Band edges [MHz] | Channel Number | Test Mode | Power [dBm] | Spurious Level measured [dBm] | FCC limit | Result |
|-------------|---|----------------|-----------------------|-------------|-------------------------------|-----------|--------|
| US Cellular | $T_{nom} (25\text{ }^{\circ}\text{C}), V_{nom} (5.0\text{V})$ | | | | | | |
| | 824 | 1013 (B) | Subtype 0 & Subtype 2 | 24 | <-13(See appendix C) | - 13 dBm | Pass |
| | 869 | 777 (T) | Subtype 0 & Subtype 2 | 24 | <-13(See appendix C) | - 13 dBm | Pass |

6.5.5 Conclusion

The equipment **PASSED** the requirement of this clause.
For the measurement results refer to appendix C.

6.6 Spurious Emission at Antenna Terminal

6.6.1 Test Conditions

Table 33 Test Conditions

| | |
|----------------------|---|
| Preconditioning: | 0.5 hour |
| Measured at: | Antenna connector |
| Ambient temperature: | 20°C |
| Relative humidity: | 50 % |
| Test Configurations: | CDMA TM1 and TM3 at frequency B,M,T EVDO Mode Subtype 0 and Subtype 2 at frequency B,M,T |

6.6.2 Test Specifications and Limits

6.6.2.1 Specification

CFR 47 (FCC) part 2.1051 and part 22.917

6.6.2.2 Supporting Standards

Table 34 Supporting Standards:

| | |
|----------------------|---|
| ANSI/TIA-603-C: 2004 | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards |
| ANSI/TIA-98-E: 2003 | Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations. |

6.6.2.3 Limits

Compliance with part 22.917, all spurious emission must be attenuated below the transmitter power by at least $43 + 10 \log_{10} P$. (Whereas P is the rated power of the EUT).

Table 35 Limits

| | |
|-----------------------|--|
| Rated Power: | 24 dBm |
| Required attenuation: | $43 + 10 \log(0.25) = 37$, 24 dBm – 37 dB |
| Absolute level | - 13 dBm |

6.6.3 Test Method and Setup

USB Stick was connected to the wireless signal analyzer R&S FSU26 via the one RF connector, the band class is set as US Cellular. USB Stick was controlled to transmit maximum power. Measure and record the Conducted Spurious Emission of the USB Stick by the R&S FSU26

According to part 22.917, the defined measurement bandwidth as following:

22.917(b) Measurement procedure: Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater.

Measurement bandwidth (RBW) for 9 kHz up to 150kHz: 1 kHz;
Measurement bandwidth (RBW) for 150kHz up to 30MHz: 10kHz;

Measurement bandwidth (RBW) for 30MHz up to 1GHz: 100kHz;
Measurement bandwidth (RBW) for 1GHz up to 12.75GHz: 1MHz;

Test Set-up

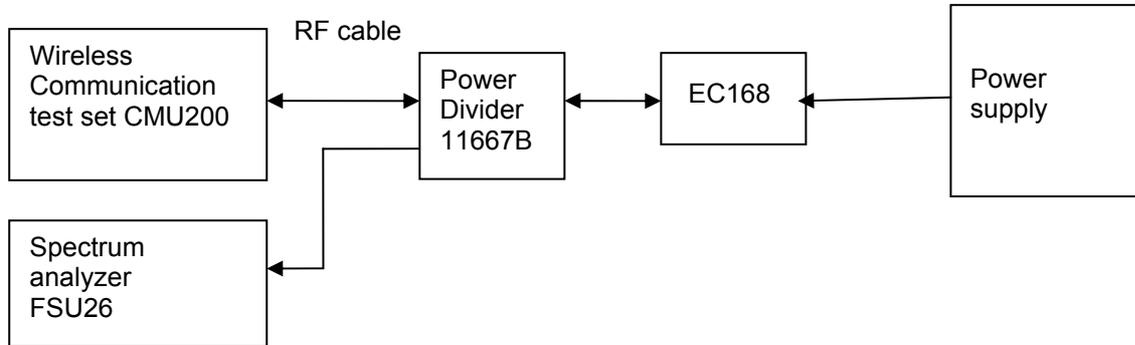


Figure 6. Test Set-up

6.6.4 Measurement Results

Table 36 Measurement Results

| Channel Number | Test Mode | Test Range (Frequency) | Output Power [dBm] | Spurious Level measured [dBm] | FCC limit | Result |
|-----------------|-----------|------------------------|--------------------|-------------------------------|-----------|--------|
| Channel 1013(B) | TM1 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |
| | TM3 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |
| | Subtype 0 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |
| | Subtype 2 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |
| Channel 384 (M) | TM1 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |
| | TM3 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |
| | Subtype 0 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |
| | Subtype 2 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |
| Channel 777 (T) | TM1 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |
| | TM3 | 9 kHz | 24 | <- 13 dBm | - 13 dBm | Pass |

dBm



| | | | | | | |
|--|--------------|--------------------|----|-------------------------------|-------------|------|
| | | ~12.75GHz | | (See appendix D) | | |
| | Subtype 0 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |
| | Subtype 2 | 9 kHz ~12.75GHz | 24 | <- 13 dBm (See appendix D) | - 13 dBm | Pass |

6.6.5 Conclusion

The equipment **PASSED** the requirement of this clause.
For the measurement results refer to appendix D.

6.7 Frequency Stability

6.7.1 Test Conditions

Table 37 Test Conditions

| | |
|----------------------|---|
| Preconditioning: | 0.5 hour |
| Measured at: | Antenna connector |
| Ambient temperature: | 25 °C |
| Relative humidity: | 55 % |
| Test Configurations: | CDMA TM1 and TM3 at frequency M EVDO Mode Subtype 0 and Subtype 2 at frequency M |

6.7.2 Test Specifications and Limits

6.7.2.1 Specification

CFR 47 (FCC) part 2.1055 and part 22.355

6.7.2.2 Supporting Standards

Table 38 Supporting Standards:

| | |
|----------------------|---|
| ANSI/TIA-603-C: 2004 | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards |
| ANSI/TIA-98E: 2003 | Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations. |

6.7.2.3 Limits

According to part 22.355, from 821MHz to 896MHz, for mobile device, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances 2.5ppm.

6.7.3 Test Method and Setup

The frequency stability shall be measured with variation of ambient temperature as follows:

- (1) From -30 ° to +50 ° centigrade for all equipment except that specified in subparagraphs
- (2) and (3) of paragraph 2.1055

(a) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10° centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short-term transient effects on the frequency of the transmitter due to keying (except for broadcast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test.

(b) The frequency stability shall be measured with variation of primary supply voltage as follows:

- (1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
- (2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point, which shall be specified by the manufacturer.
- (3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter

keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

(c) When deemed necessary, the Commission may require tests of frequency stability under conditions in addition to those specifically set out in paragraphs (a), (b), (c) of this section. (For example, measurements showing the effect of proximity to large metal objects, or of various types of antennas, may be required for portable equipment.)

The EUT can only work in such extreme voltage 4.75V and 5.25V, so here the EUT is tested in the 4.75V and 5.25V.

Test Set up

Connect the USB Stick to the Wireless Communication test set CMU200 via the connector. Then measure the frequency error by the Wireless Communication test set CMU200. The USB Stick's output is matched with a 50 Ω loads.

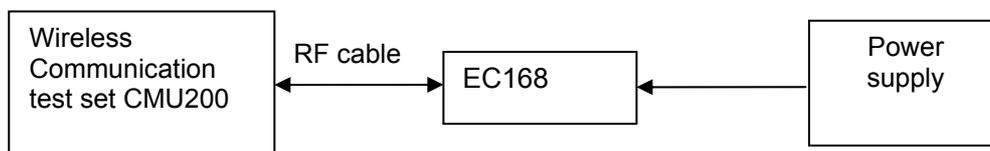


Figure 7. Test Set up

6.7.4 Measurement Results

6.7.4.1 Measurement Results vs. Variation of Temperature

- TM1, 5.0V DC Channel No.384(836.52MHz)

Table 39 Measurement Results vs. Variation of Temperature – TM1

| Temperature | Power (dBm) | Nominal Frequency (MHz) | Measured Frequency Error(Hz) | Result |
|-------------|-------------|-------------------------|------------------------------|--------|
| -30 °C | 24.11 | 836.52 | 8 | Pass |
| -20 °C | 24.00 | 836.52 | -4 | Pass |
| -10 °C | 23.92 | 836.52 | 4 | Pass |
| 0 °C | 24.24 | 836.52 | 3 | Pass |
| +10 °C | 24.11 | 836.52 | -1 | Pass |
| +20 °C | 24.12 | 836.52 | -2 | Pass |
| +30 °C | 24.09 | 836.52 | -4 | Pass |
| +40 °C | 24.21 | 836.52 | 3 | Pass |
| +50 °C | 24.11 | 836.52 | -9 | Pass |

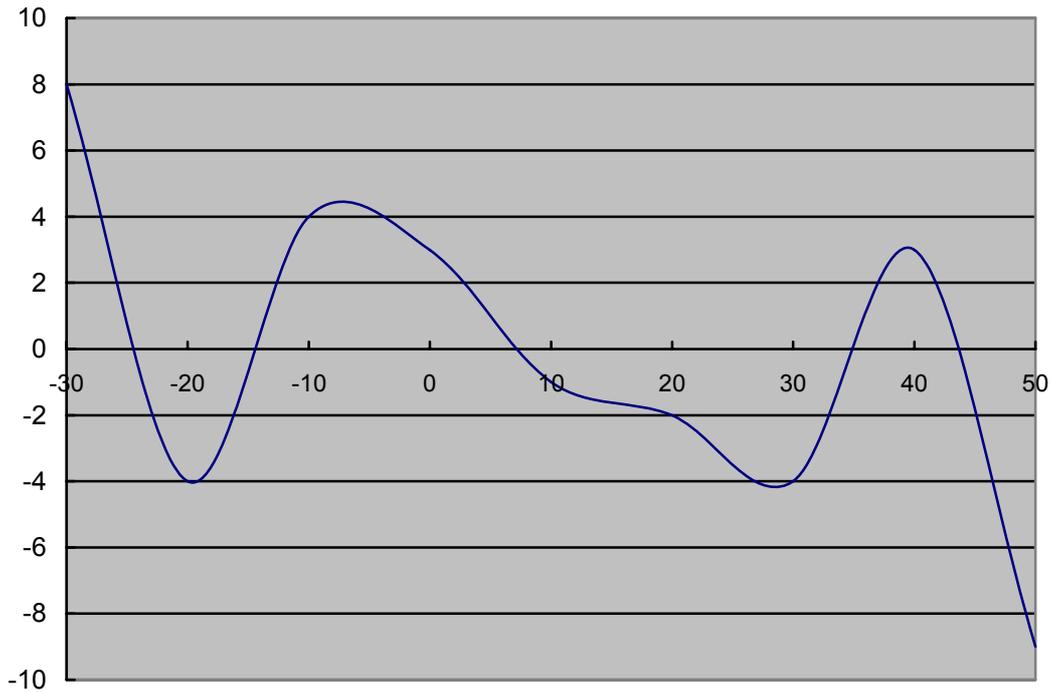


Figure 8. TM1 Test Graph

- **TM3, 5.0V DC Channel No.384(836.52MHz)**

Table 40 Measurement Results vs. Variation of Temperature—TM3

| Temperature | Power (dBm) | Nominal Frequency (MHz) | Measured Frequency Error(Hz) | Result |
|-------------|-------------|-------------------------|------------------------------|--------|
| -30 °C | 23.92 | 836.52 | 9 | Pass |
| -20 °C | 23.86 | 836.52 | -7 | Pass |
| -10 °C | 23.98 | 836.52 | -8 | Pass |
| 0 °C | 23.90 | 836.52 | 5 | Pass |
| +10 °C | 24.04 | 836.52 | 6 | Pass |
| +20 °C | 23.91 | 836.52 | -2 | Pass |
| +30 °C | 24.19 | 836.52 | 7 | Pass |
| +40 °C | 23.91 | 836.52 | 5 | Pass |
| +50 °C | 24.26 | 836.52 | 10 | Pass |

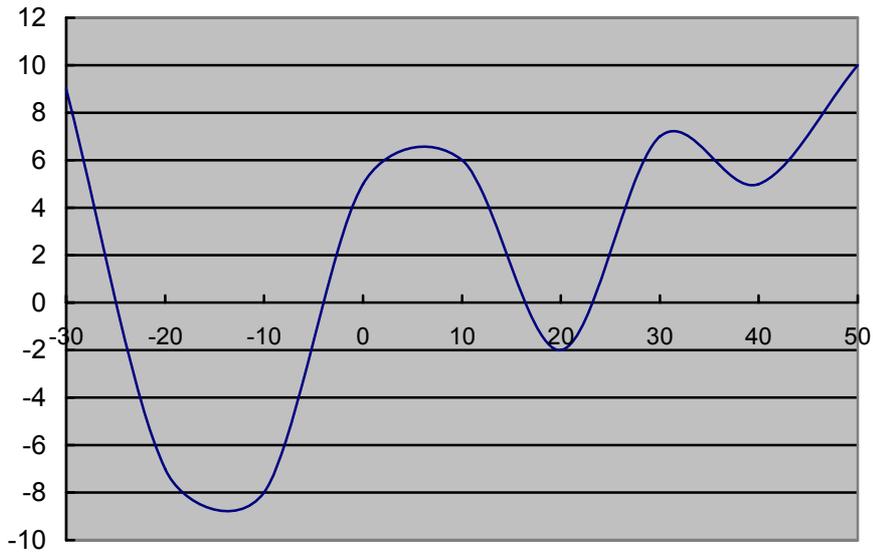


Figure 9. TM3 Test Graph

- Subtype 0, 5.0V DC Channel No. **384(836.52MHz)**

Table 41 Measurement Results vs. Variation of Temperature—EVDO

| Temperature | Power (dBm) | Nominal Frequency (MHz) | Measured Frequency Error(Hz) | Result |
|-------------|-------------|-------------------------|------------------------------|--------|
| -30 °C | 23.08 | 836.52 | 11 | Pass |
| -20 °C | 23.11 | 836.52 | 7 | Pass |
| -10 °C | 23.28 | 836.52 | -8 | Pass |
| 0 °C | 23.36 | 836.52 | 9 | Pass |
| +10 °C | 24.34 | 836.52 | 6 | Pass |
| +20 °C | 23.45 | 836.52 | 2 | Pass |
| +30 °C | 23.48 | 836.52 | 6 | Pass |
| +40 °C | 23.32 | 836.52 | 7 | Pass |
| +50 °C | 23.10 | 836.52 | -10 | Pass |

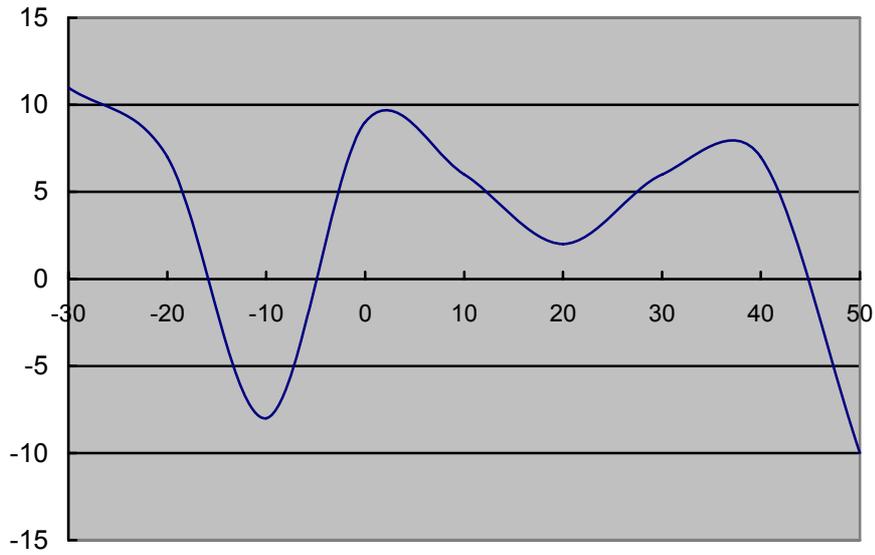


Figure 10. TM3 Test Graph

- Subtype 2, 5.0V DC Channel No. **384(836.52MHz)**

Table 42 Measurement Results vs. Variation of Temperature—EVDO

| Temperature | Power (dBm) | Nominal Frequency (MHz) | Measured Frequency Error(Hz) | Result |
|-------------|-------------|-------------------------|------------------------------|--------|
| -30 °C | 23.92 | 836.52 | -12 | Pass |
| -20 °C | 24.05 | 836.52 | 7 | Pass |
| -10 °C | 24.10 | 836.52 | -8 | Pass |
| 0 °C | 23.98 | 836.52 | 5 | Pass |
| +10 °C | 24.18 | 836.52 | 8 | Pass |
| +20 °C | 24.05 | 836.52 | 1 | Pass |
| +30 °C | 24.27 | 836.52 | - 5 | Pass |
| +40 °C | 23.86 | 836.52 | 12 | Pass |
| +50 °C | 23.90 | 836.52 | -15 | Pass |

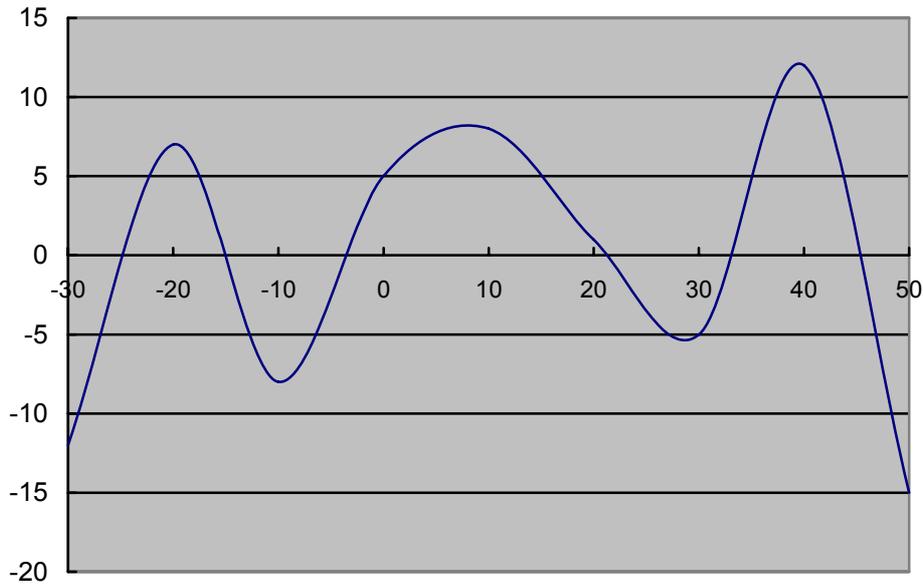


Figure 11. TM3 Test Graph

6.7.4.2 Measurement Results vs. Variation of Voltage

- TM1, 25 °C ,Channel No. **384(836.52MHz)**

Table 43 Measurement Results vs. Variation of Voltage—TM1

| Voltage | Power (dBm) | Nominal Frequency (MHz) | Measured Frequency Error(Hz) | Result |
|---------|-------------|-------------------------|------------------------------|--------|
| 4.75 | 24.10 | 836.52 | 5 | Pass |
| 5.0 | 23.92 | 836.52 | 2 | Pass |
| 5.25 | 24.19 | 836.52 | -3 | Pass |

- TM3, 25 °C ,Channel No. **384(836.52MHz)**

Table 44 Measurement Results vs. Variation of Voltage—TM3

| Voltage | Power (dBm) | Nominal Frequency (MHz) | Measured Frequency Error(Hz) | Result |
|---------|-------------|-------------------------|------------------------------|--------|
| 4.75 | 23.97 | 836.52 | 5 | Pass |
| 5.0 | 24.16 | 836.52 | 1 | Pass |
| 5.25 | 24.02 | 836.52 | 6 | Pass |

- Subtype 0 , 25 °C ,Channel No. **384(836.52MHz)**

Table 45 Measurement Results vs. Variation of Voltage –EVDO

| Voltage | Power (dBm) | Nominal Frequency (MHz) | Measured Frequency Error(Hz) | Result |
|---------|-------------|-------------------------|------------------------------|--------|
| 4.75 | 24.10 | 836.52 | 7 | Pass |
| 5.0 | 23.94 | 836.52 | 5 | Pass |
| 5.25 | 23.91 | 836.52 | -9 | Pass |

- Subtype 2 , 25 °C ,Channel No. **384(836.52MHz)**

Table 46 Measurement Results vs. Variation of Voltage –EVDO

| Voltage | Power (dBm) | Nominal Frequency (MHz) | Measured Frequency Error(Hz) | Result |
|---------|-------------|-------------------------|------------------------------|--------|
| 4.75 | 24.06 | 836.52 | 5 | Pass |
| 5.0 | 24.11 | 836.52 | 9 | Pass |
| 5.25 | 24.14 | 836.52 | 2 | Pass |

6.7.5 Conclusion

The equipment **PASSED** the requirement of this clause.



7 Appendixes

| | | |
|------------|---|----------|
| Appendix A | Measurement Results Modulation Characteristics | 7 pages |
| Appendix B | Measurement Results Occupied Bandwidth | 13 pages |
| Appendix C | Measurement Results Band Edges | 13 pages |
| Appendix D | Measurement Results Spurious Emission at Antenna Terminal | 73 pages |



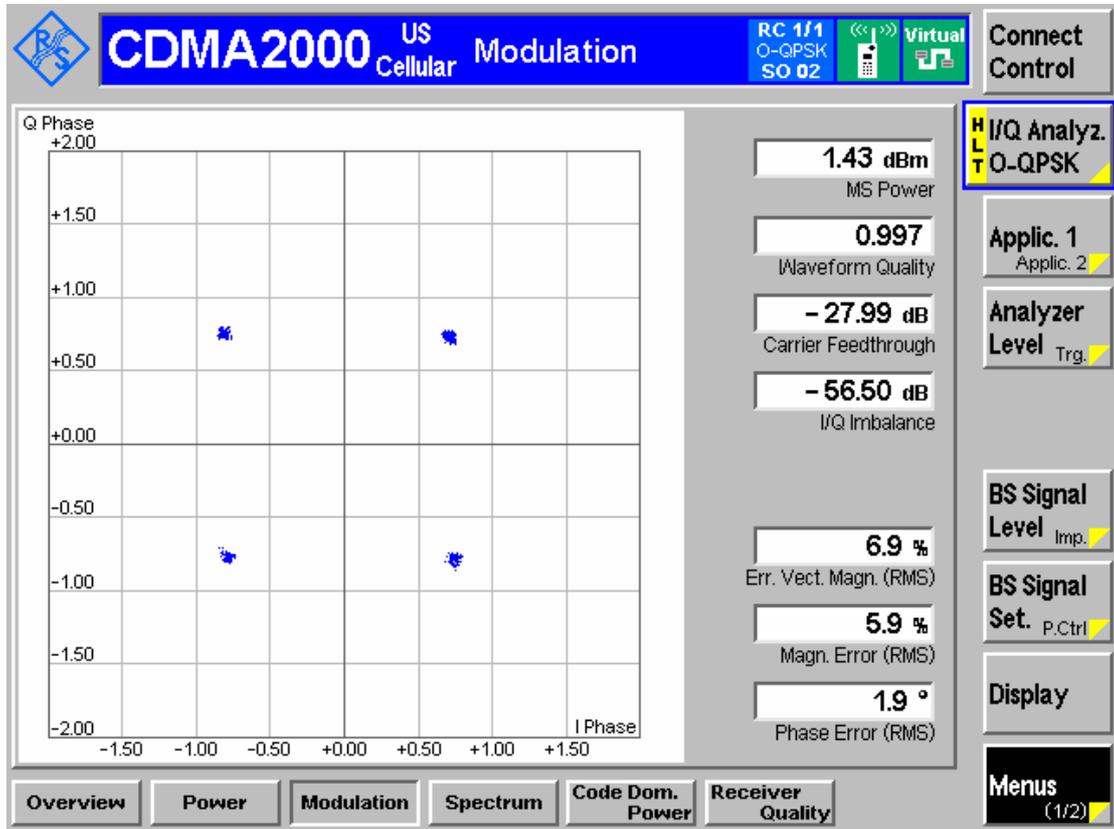
Appendix A

Modulation Characteristics

According to FCC Part 2.1047 & Part 22 Subpart H

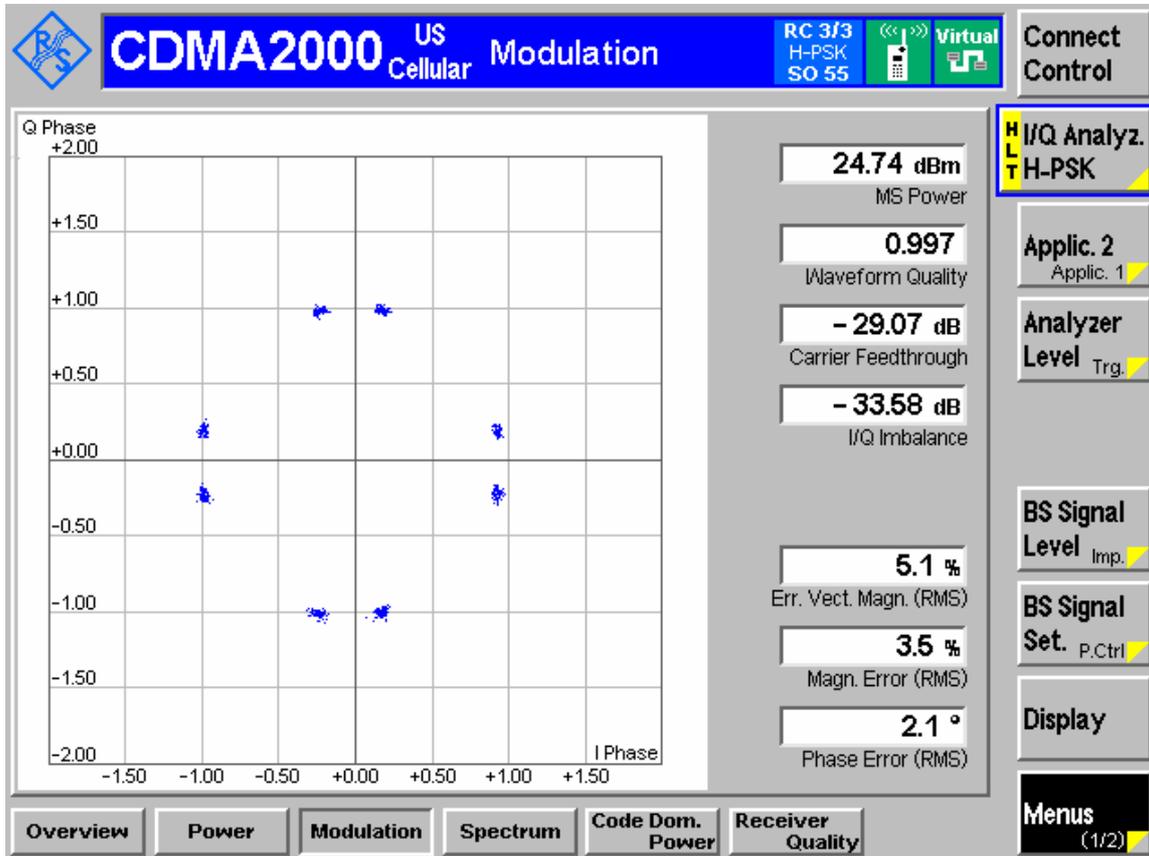


Channel 384 (TM1)



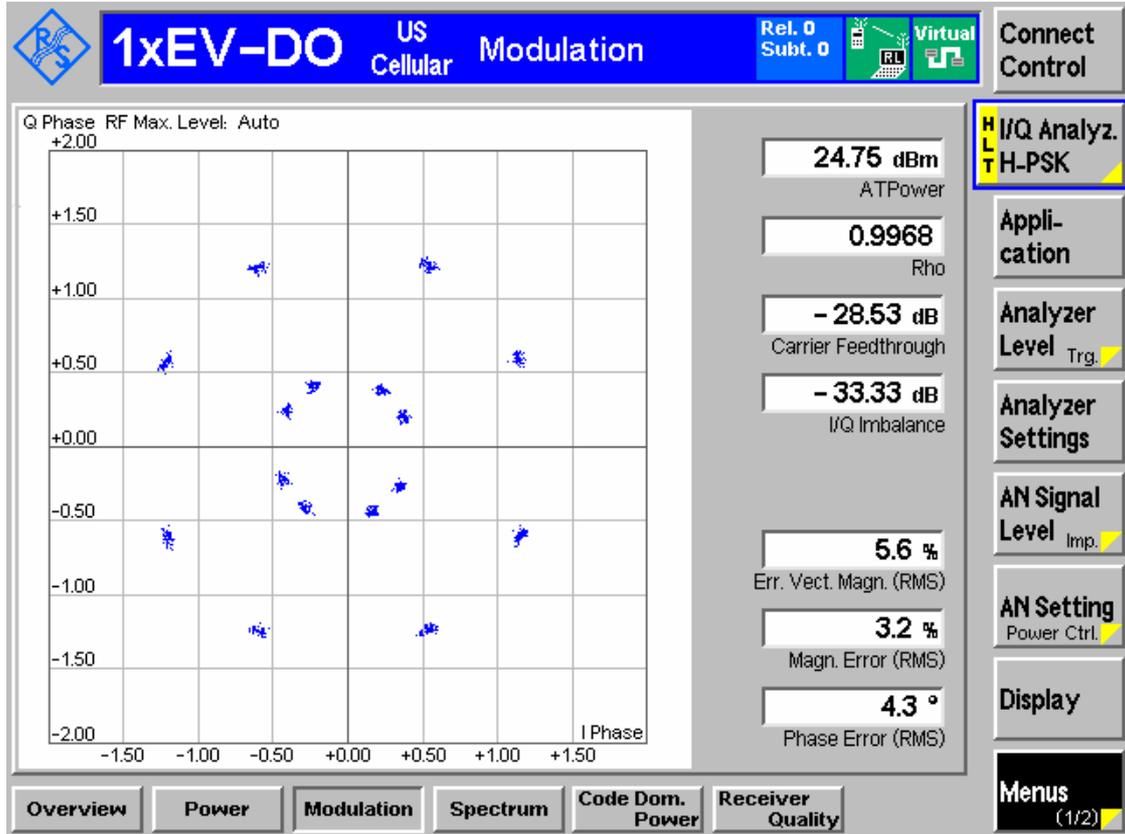


Channel 384 (TM3)





Channel 384 (Subtype 0) (HPSK)

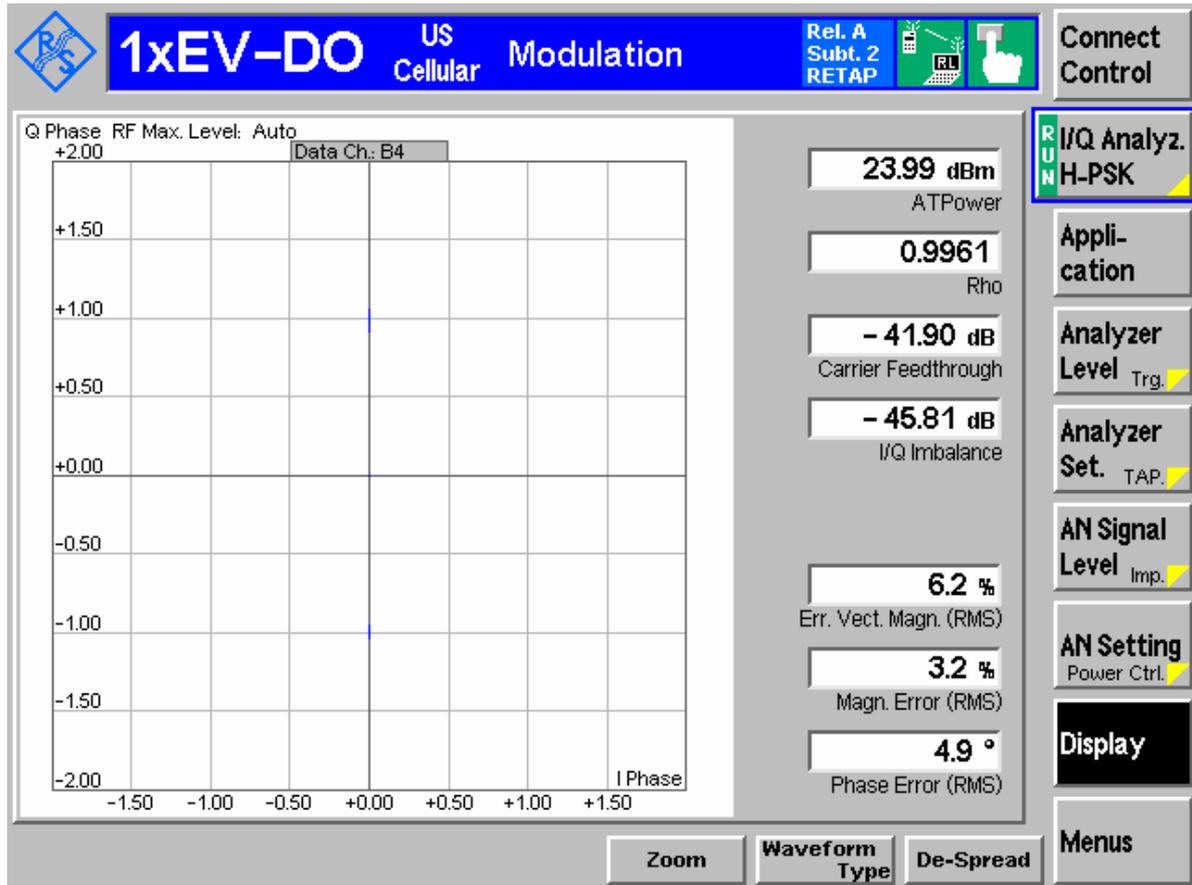




Channel 384 (Subtype 2)

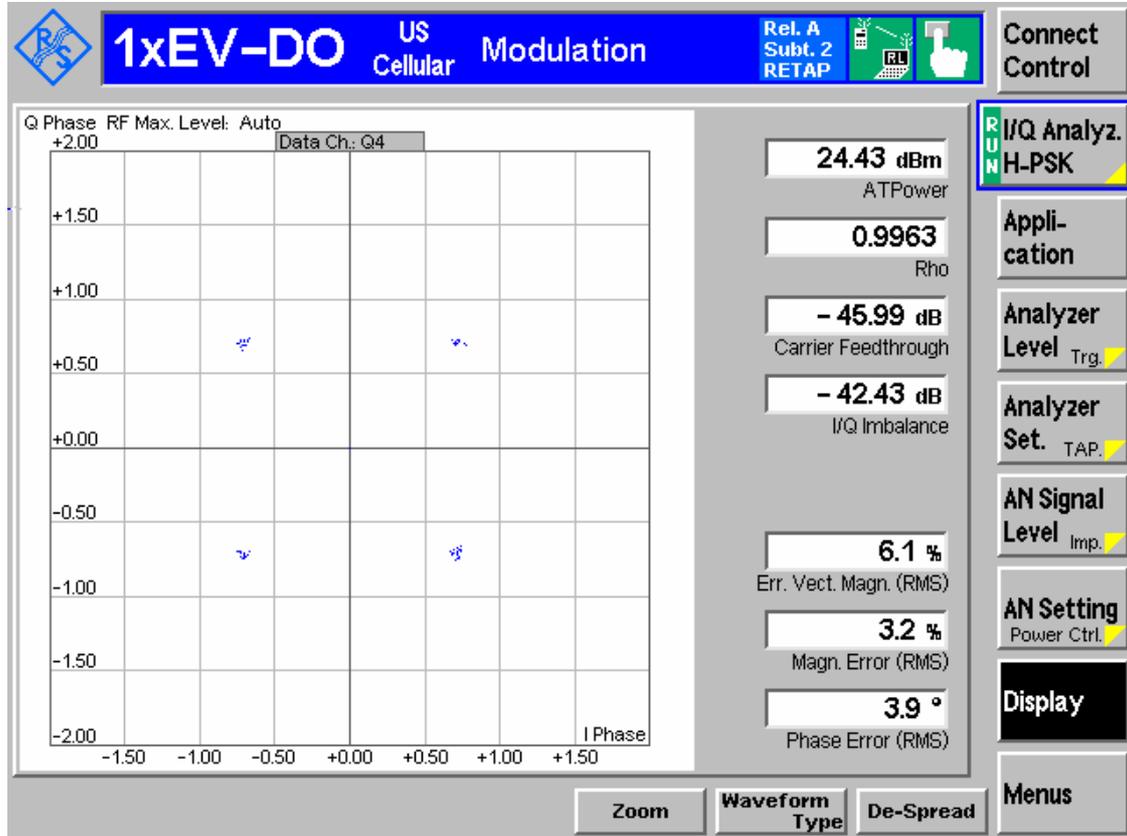
The R-Data packet size determines the modulation format:

R-Data Pkt Size (256 bits) (BPSK)



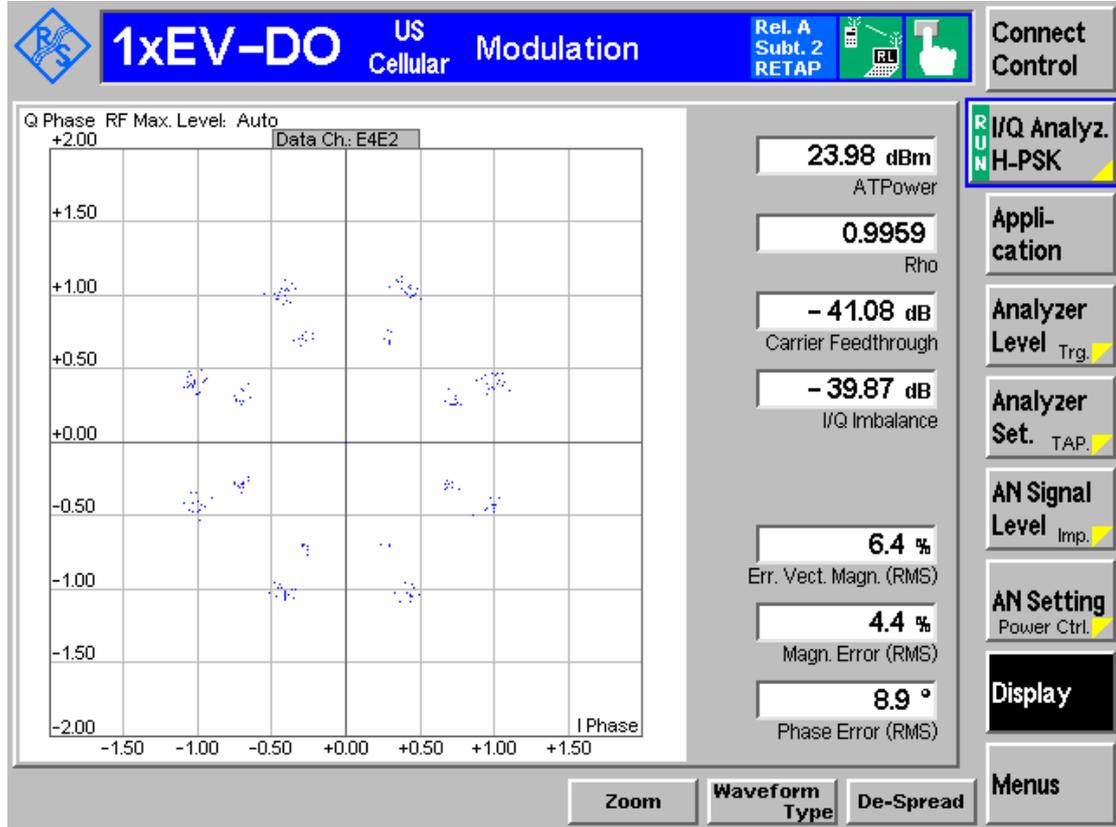


R-Data Pkt Size (4096 bits) (QPSK)





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





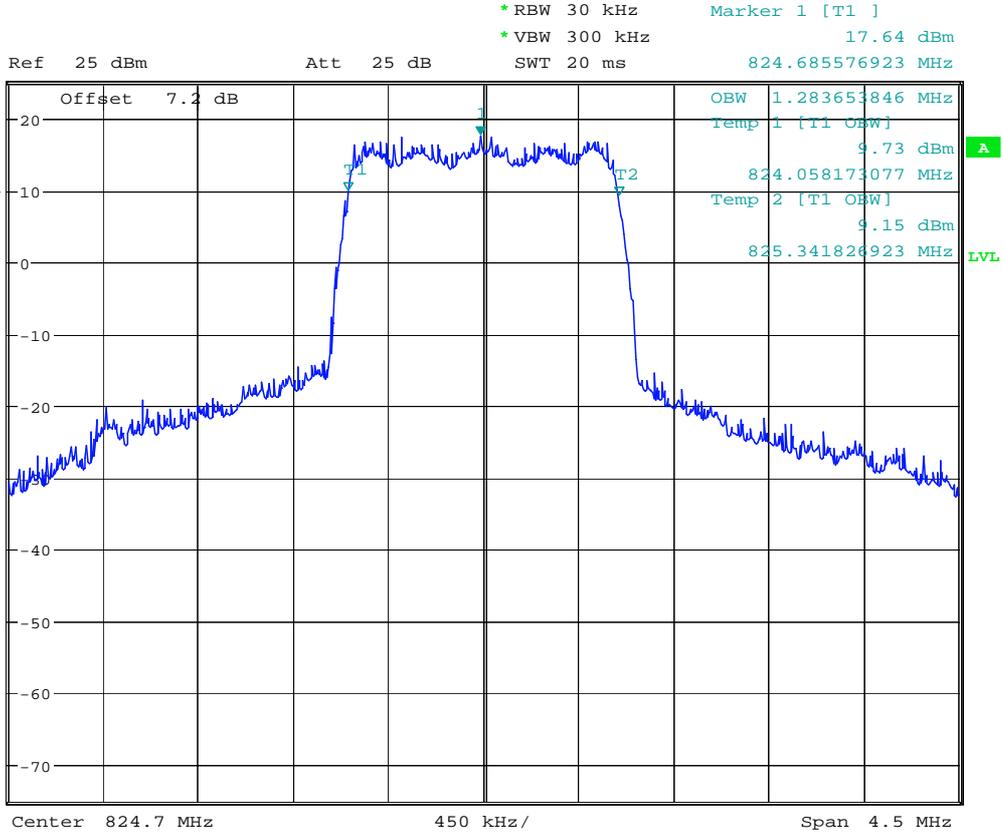
Appendix B

Occupied Bandwidth

According to FCC Part 2.1049 & Part 22 Subpart H



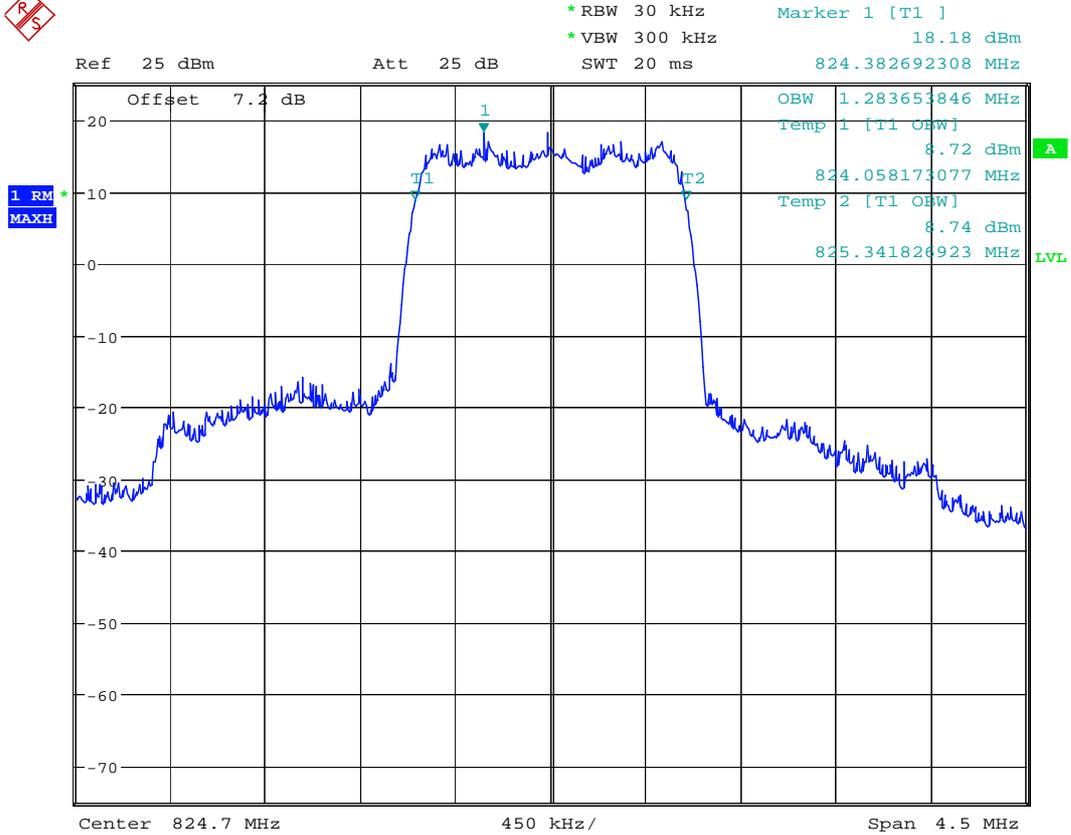
Channel 1013 (TM1)



Date: 19.AUG.2008 18:07:18



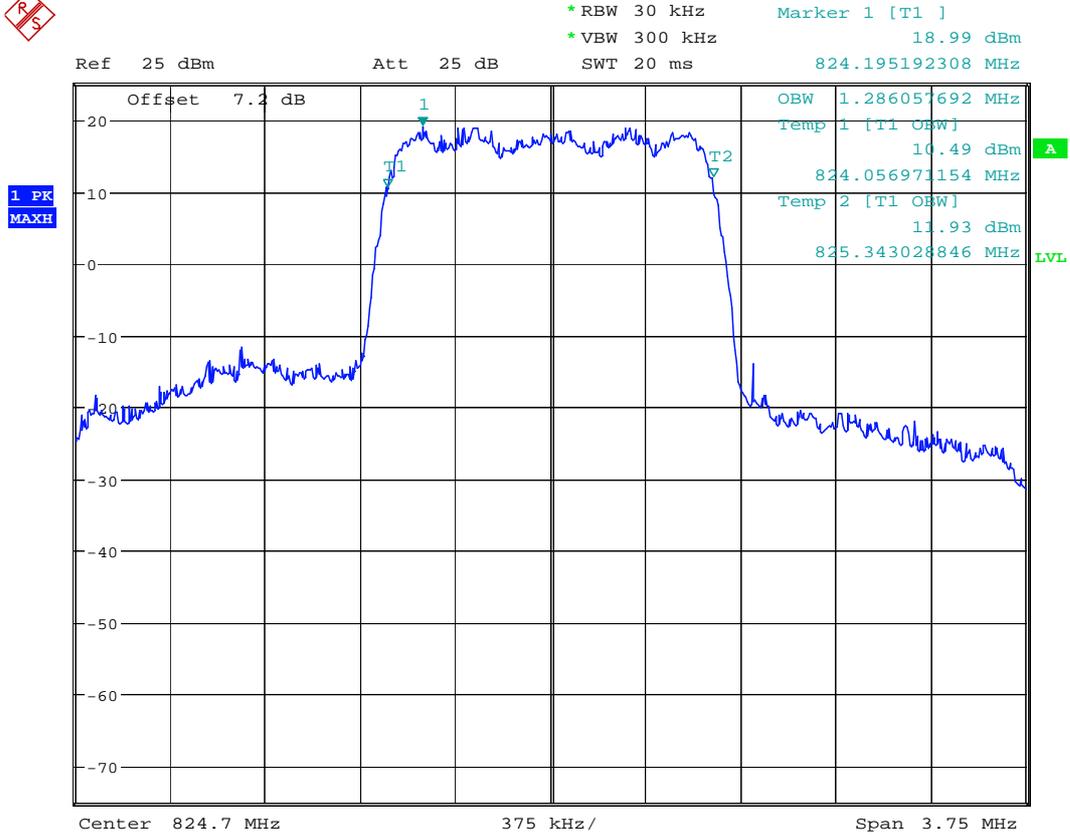
Channel 1013 (TM3)



Date: 19.AUG.2008 18:08:02



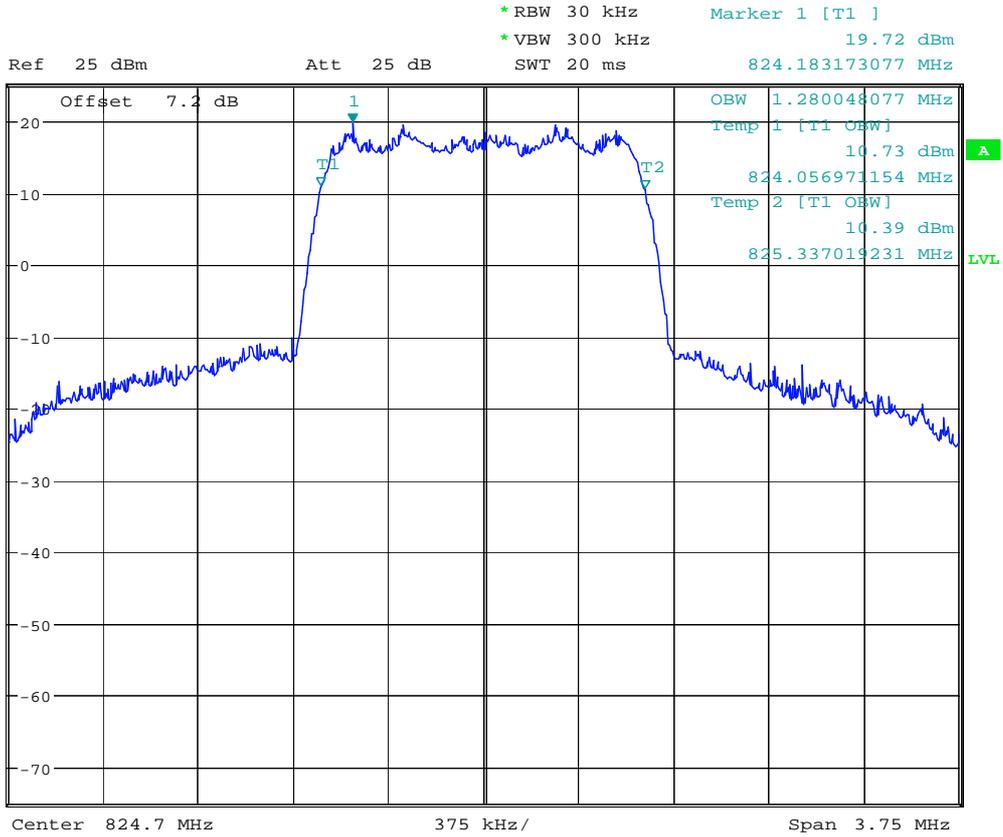
Channel 1013 (EVDO subtype 0)



Date: 19.AUG.2008 18:18:56



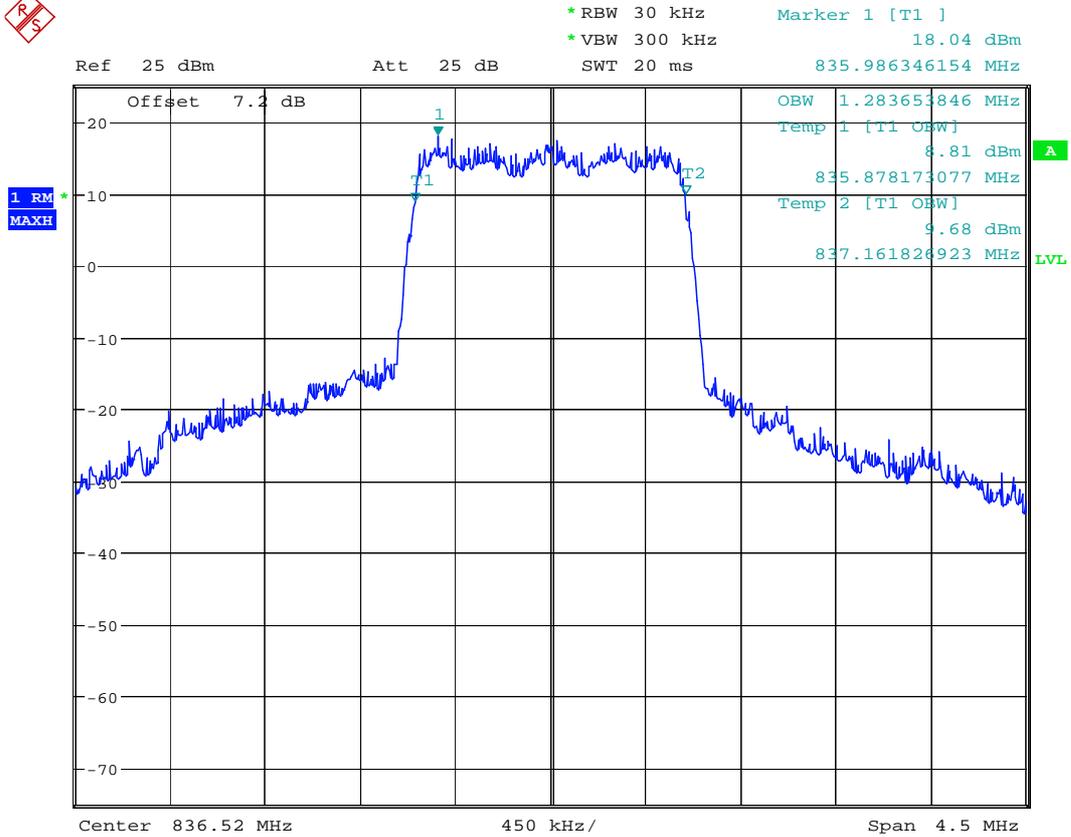
Channel 1013 (EVDO subtype 2)



Date: 23.AUG.2008 14:22:38



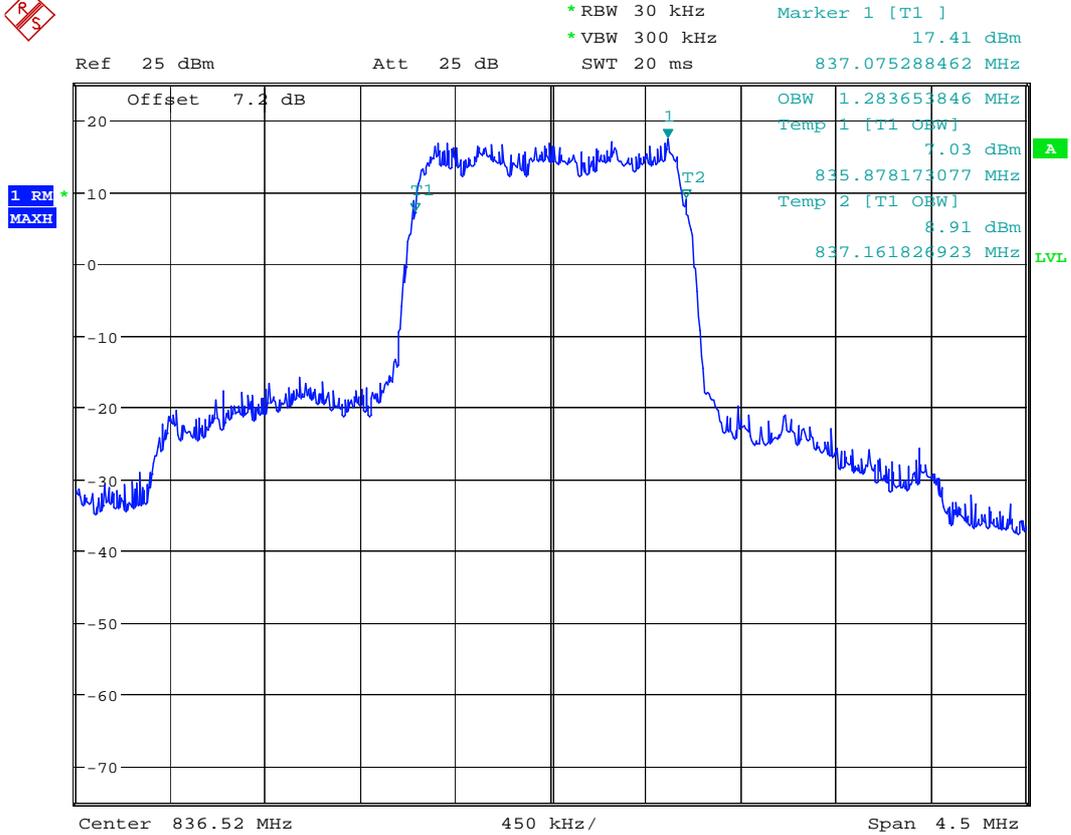
Channel 384 (TM1)



Date: 19.AUG.2008 18:07:32



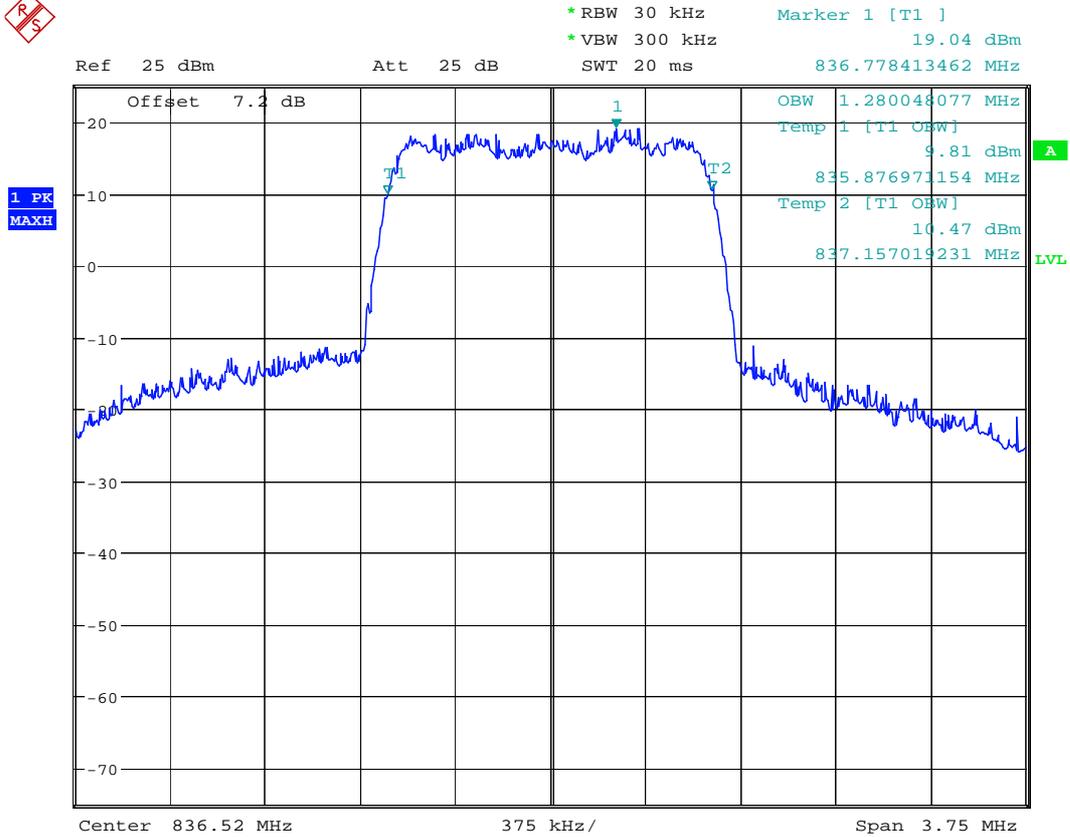
Channel 384 (TM3)



Date: 19.AUG.2008 18:08:16



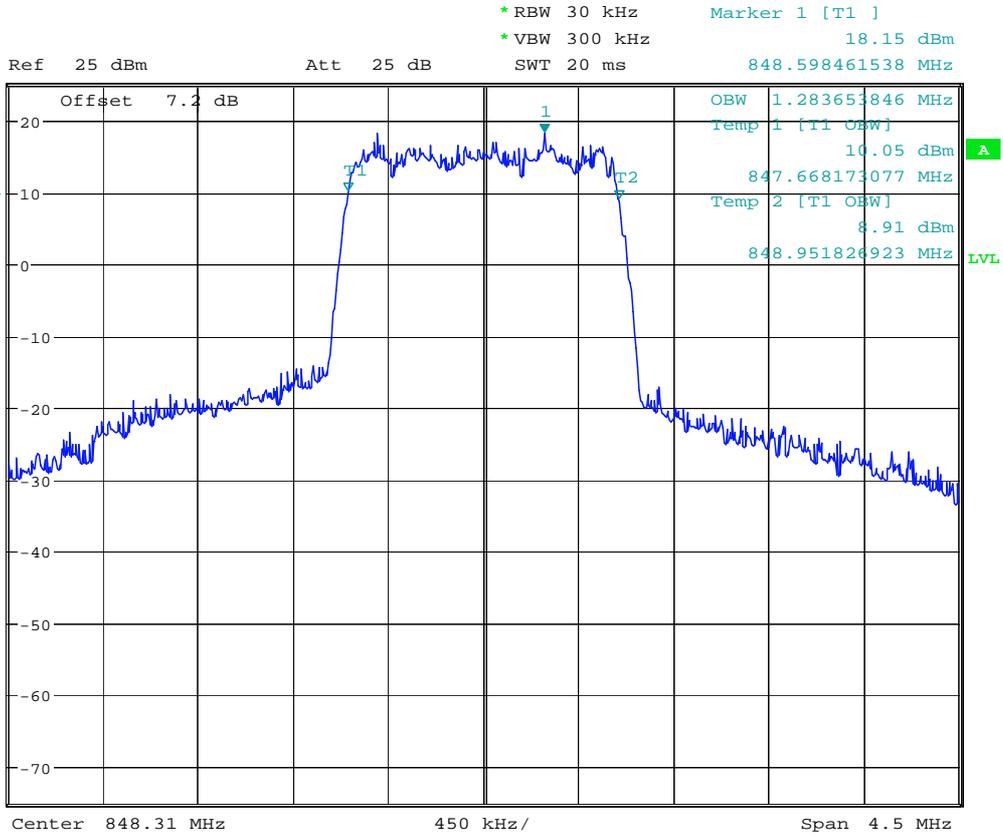
Channel 384 (EVDO Subtype 2)



Date: 23.AUG.2008 14:22:50



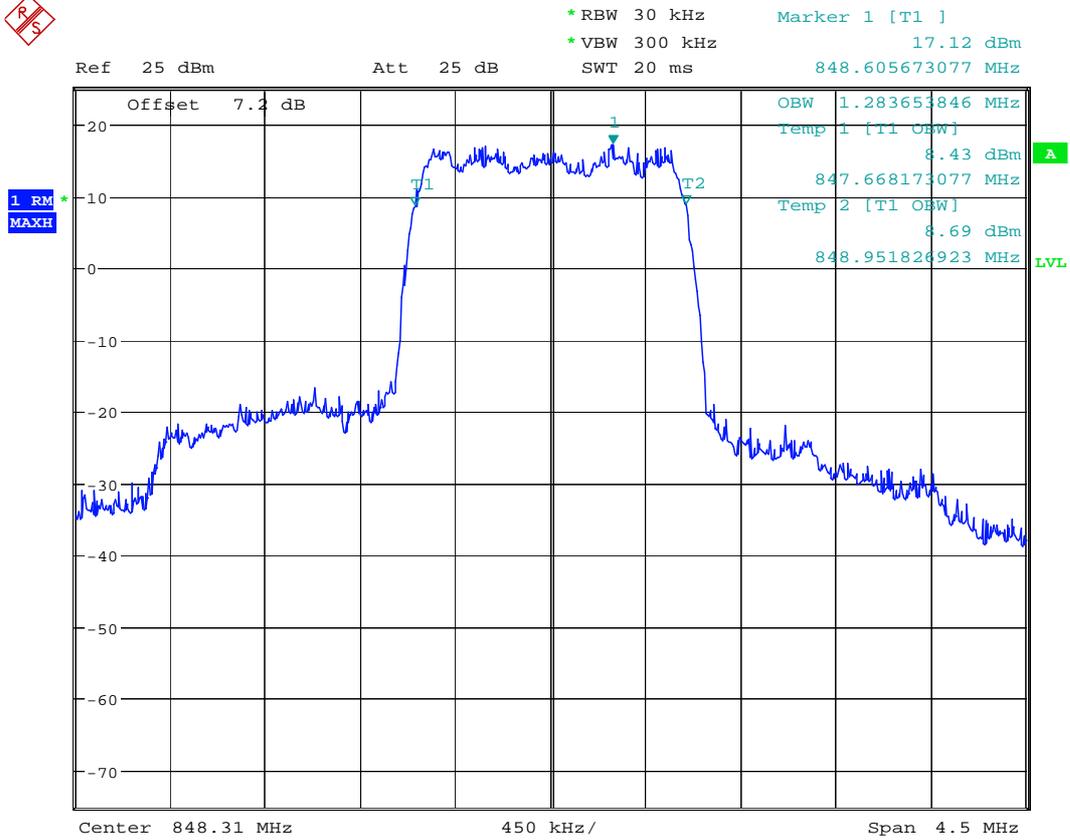
Channel 777 (TM1)



Date: 19.AUG.2008 18:07:46



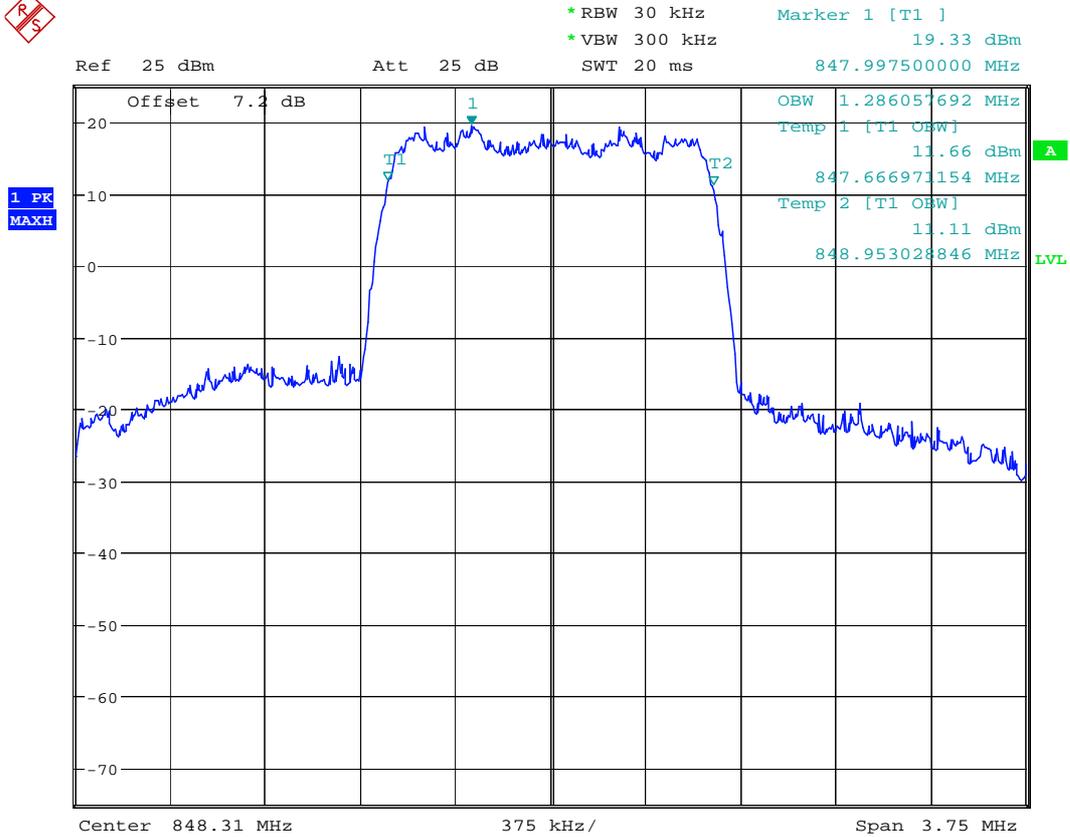
Channel 777 (TM3)



Date: 19.AUG.2008 18:08:30



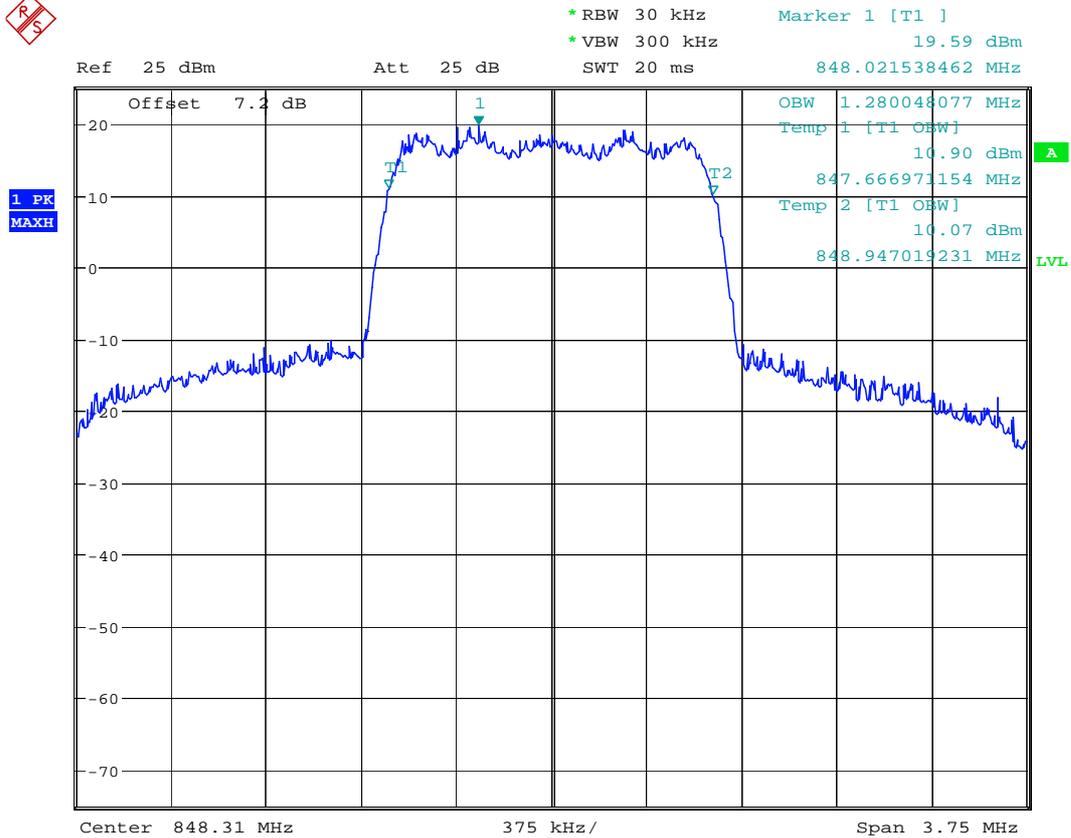
Channel 777 (EVDO subtype 0)



Date: 19.AUG.2008 18:19:23



Channel 777 (EVDO Subtype 2)



Date: 23.AUG.2008 14:23:02



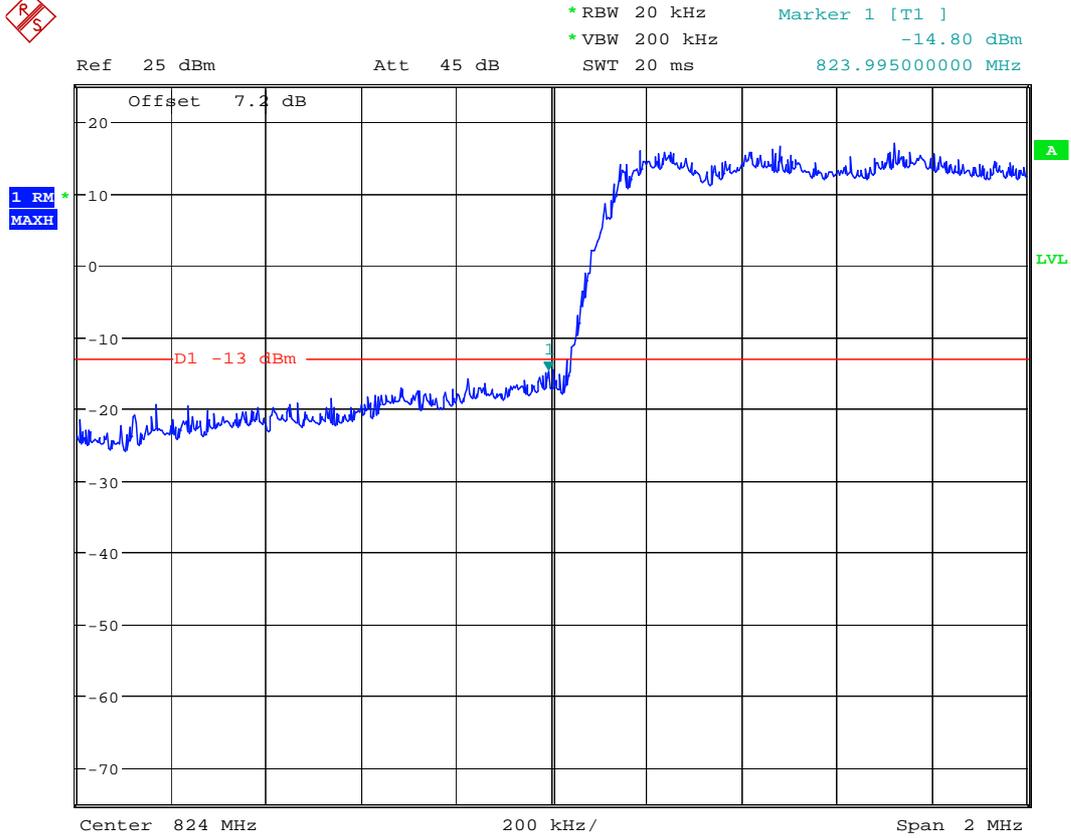
Appendix C

Band Edges Compliance According to FCC Part 2.1051 & 22.917



TM1

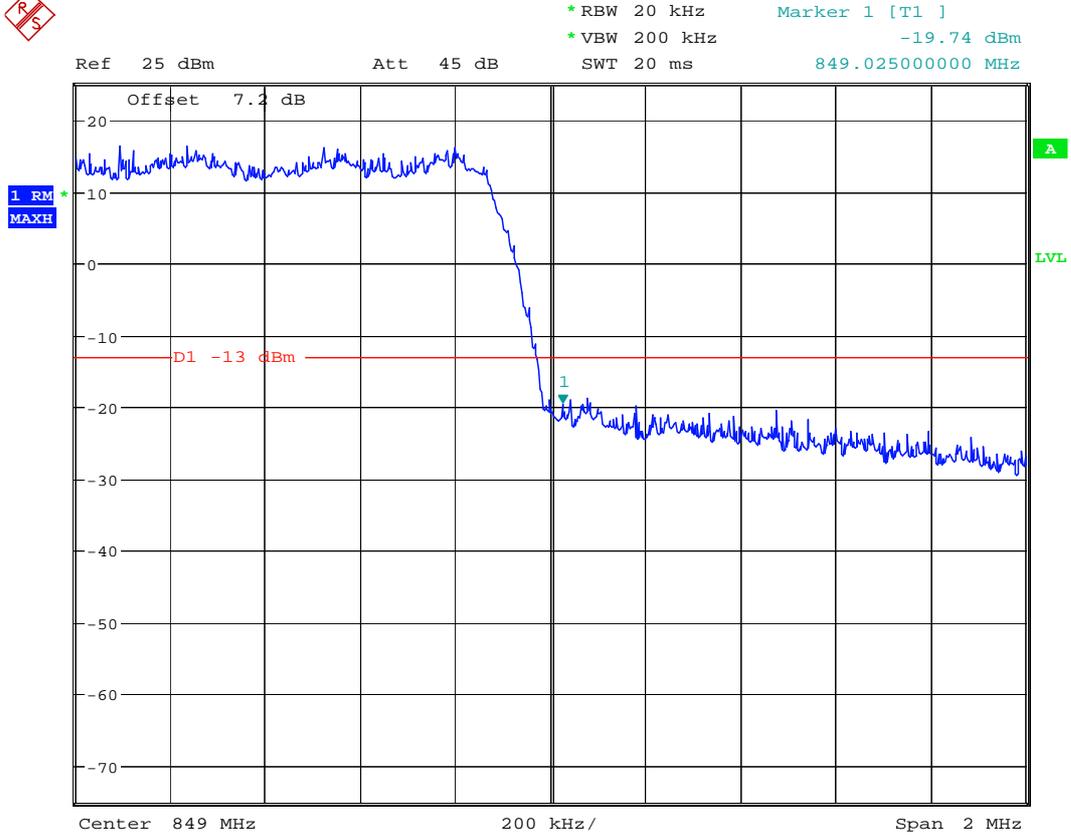
Left Edge (824 MHz) Channel 1013



Date: 19.AUG.2008 18:14:59



Right Edge (849MHz) Channel 777

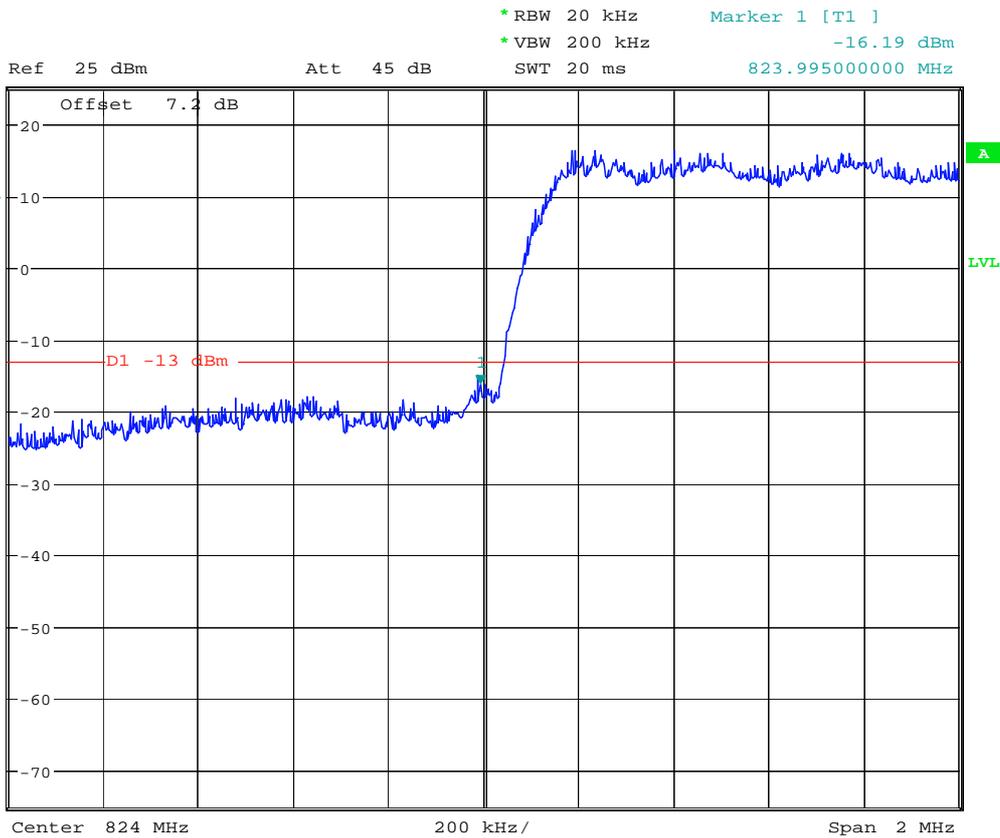


Date: 19.AUG.2008 18:15:14



TM3

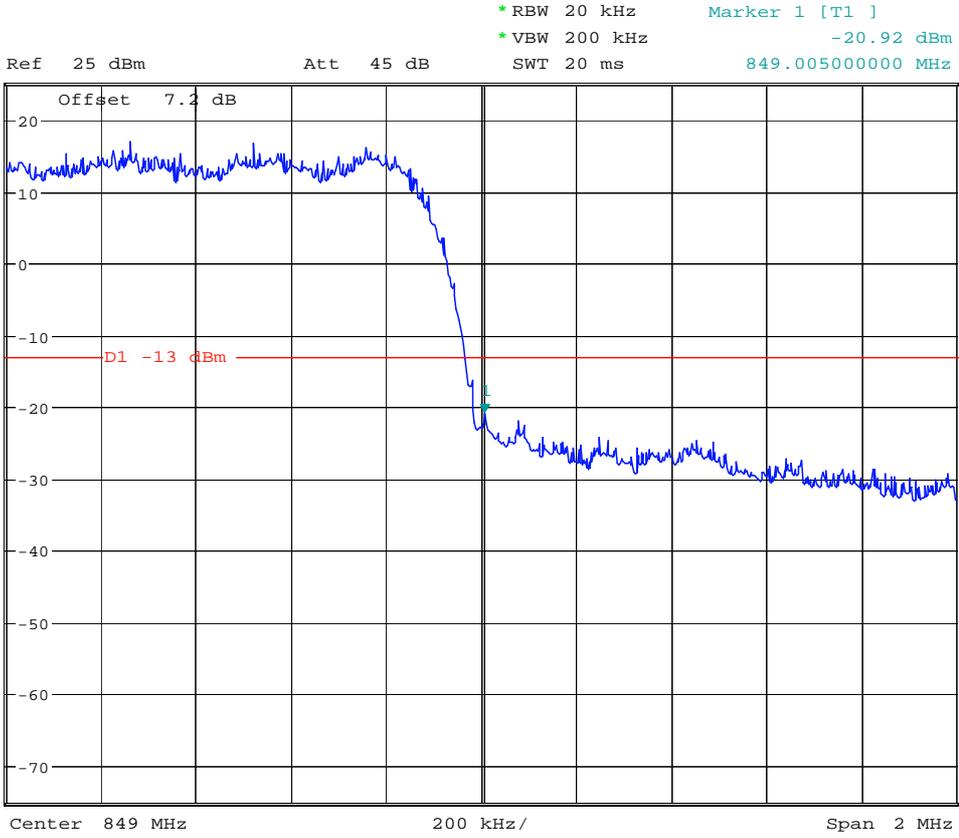
Left Edge (824 MHz) Channel 1013



Date: 19.AUG.2008 18:15:30



Right Edge (849MHz) Channel 777

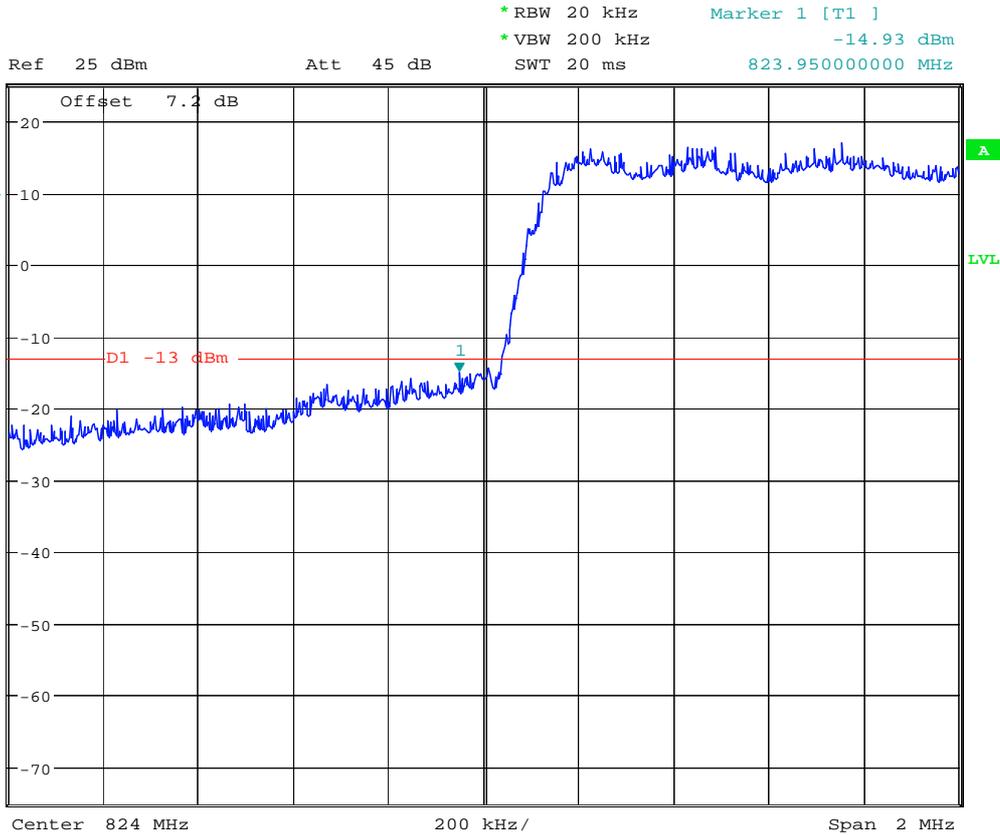


Date: 19.AUG.2008 18:15:45



EVDO Subtype 0

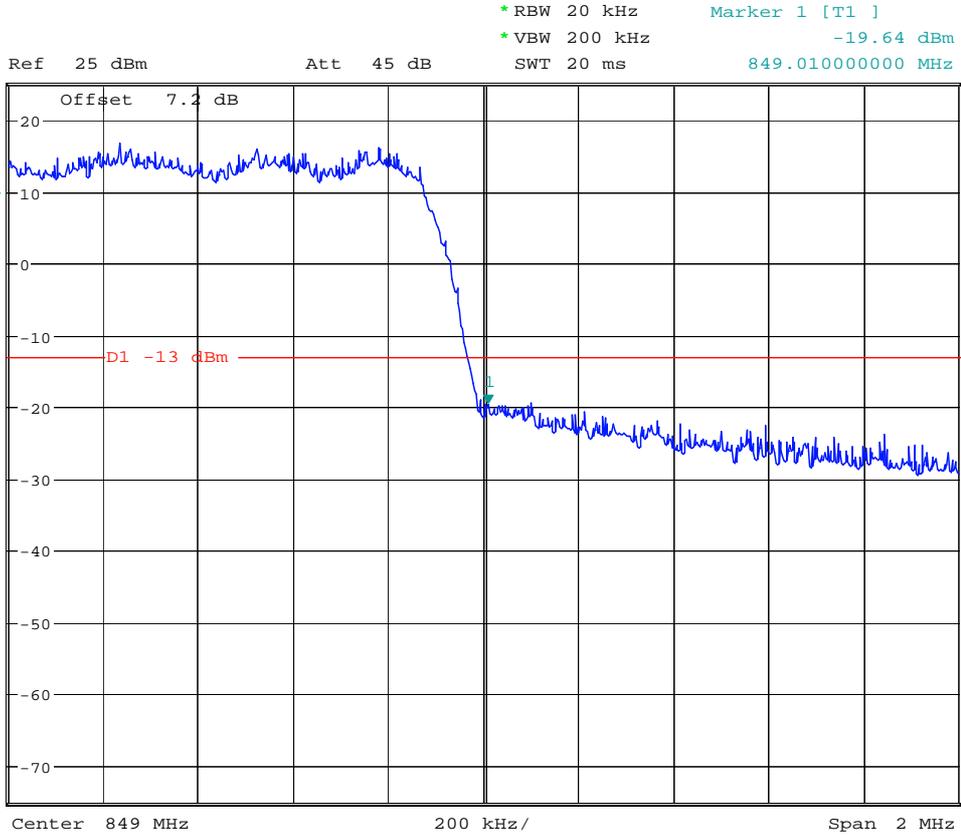
Left Edge (824 MHz) Channel 1013



Date: 23.AUG.2008 14:48:16



Right Edge (849MHz) Channel 777



Date: 23.AUG.2008 14:48:31



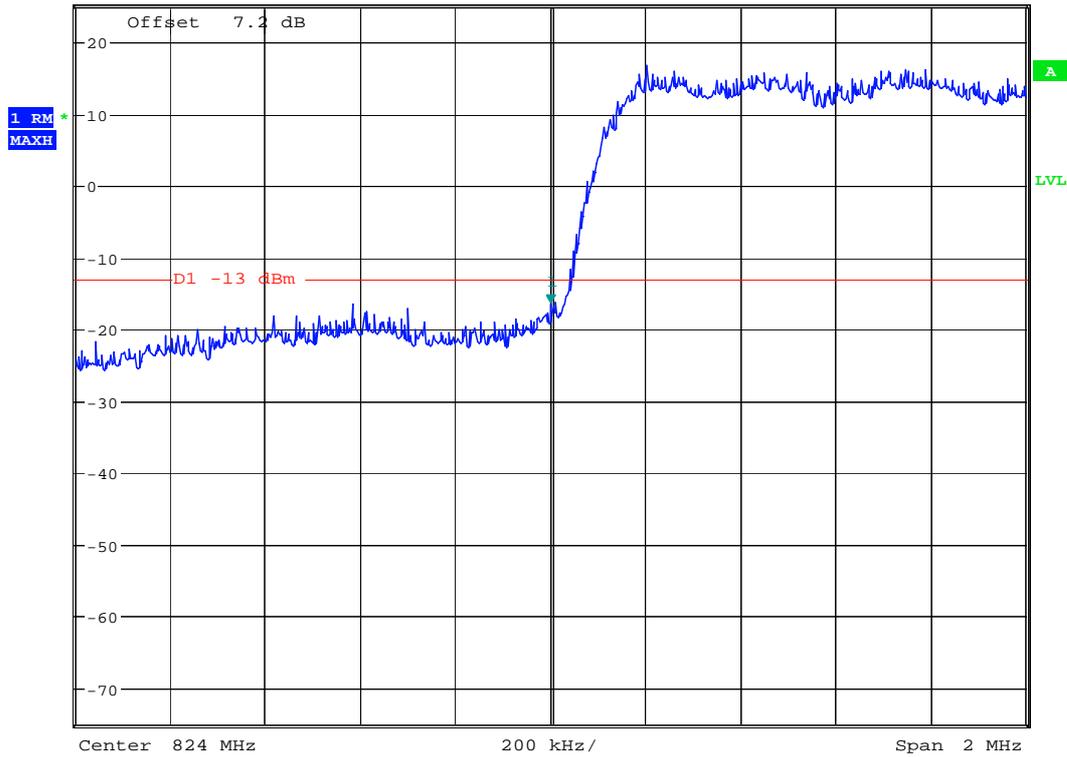
EVDO Subtype 2

Modulation: BPSK

Left Edge (824 MHz) Channel 1013



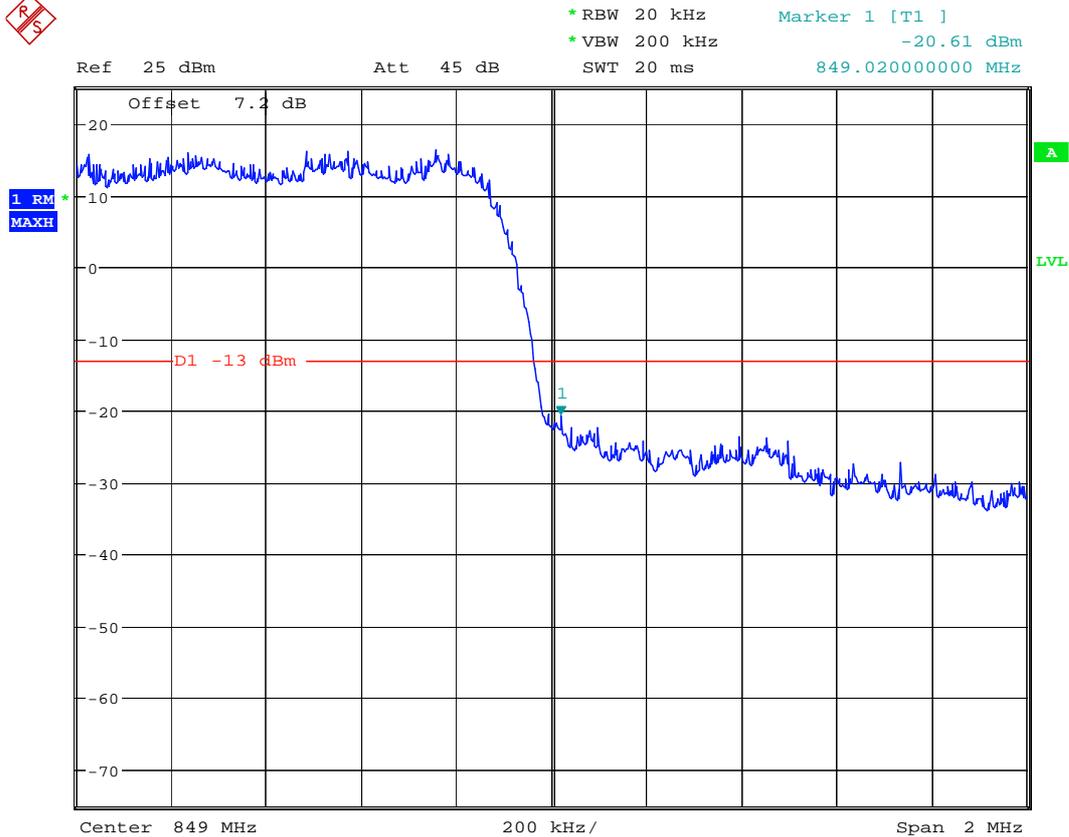
Ref 25 dBm Att 45 dB SWT 20 ms
*RBW 20 kHz *VBW 200 kHz
Marker 1 [T1] -16.59 dBm
824.000000000 MHz



Date: 23.AUG.2008 14:48:47



Right Edge (849MHz) Channel 777

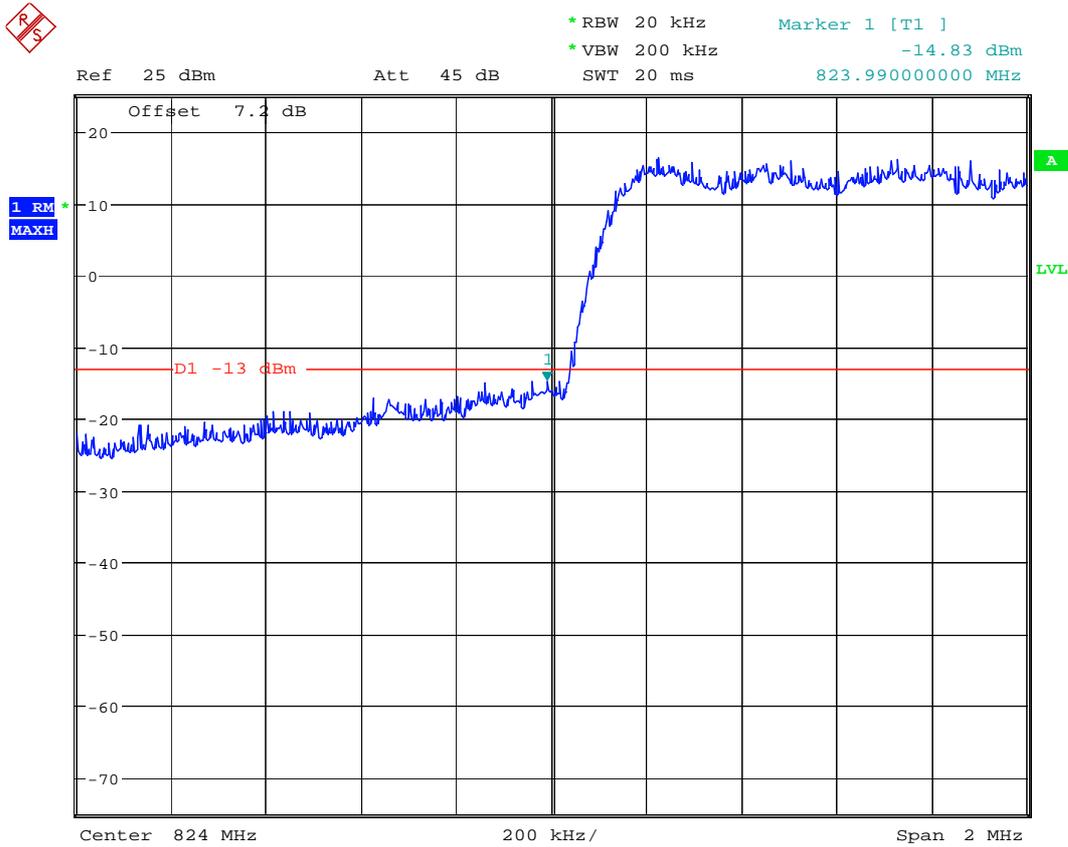


Date: 23.AUG.2008 14:49:02



Modulation: QPSK

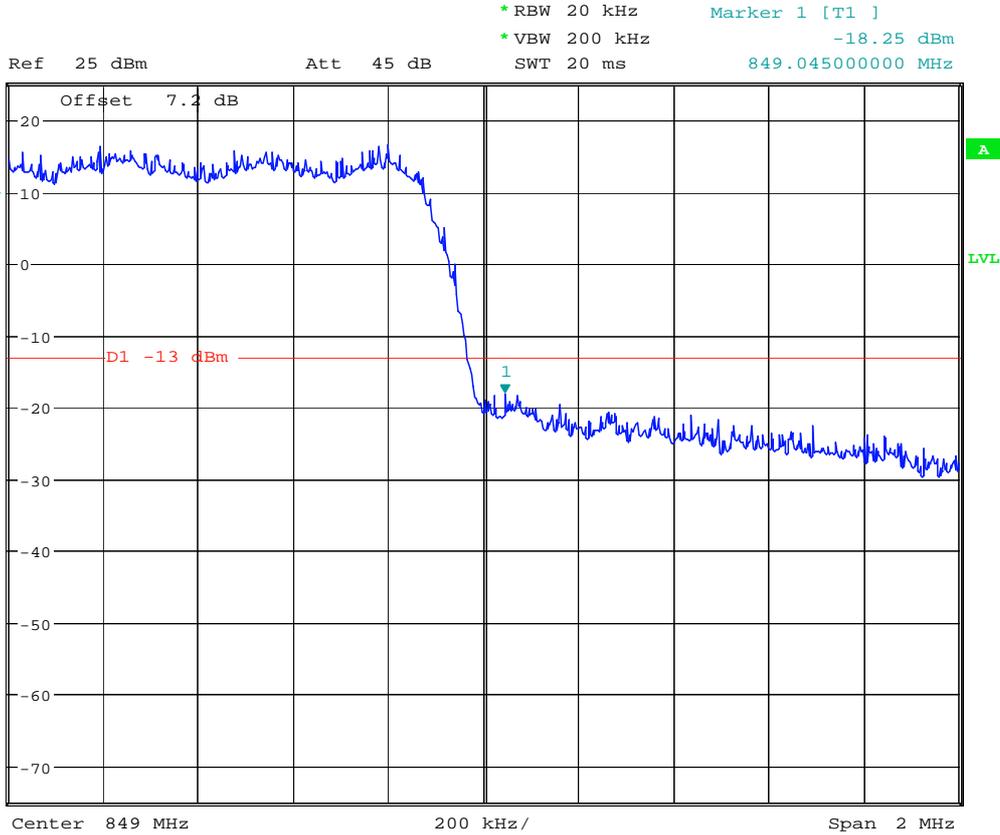
**Left Edge (824 MHz)
Channel 1013**



Date: 23.AUG.2008 14:52:12



Right Edge (849MHz) Channel 777



Date: 23.AUG.2008 14:52:27

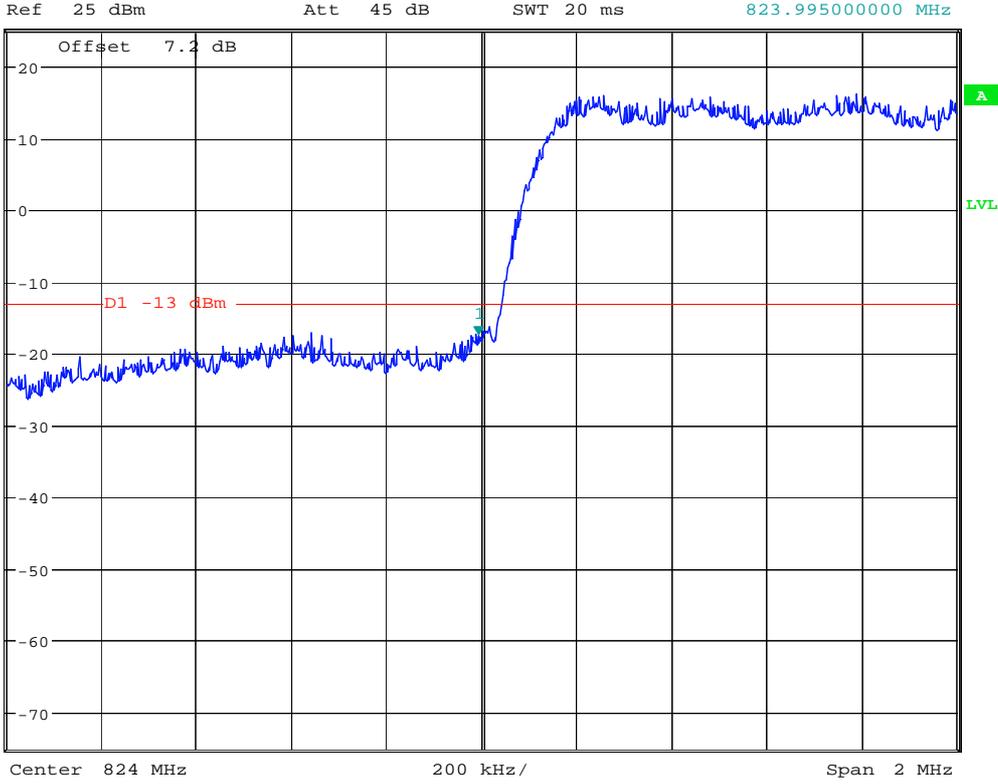


Modulation: 8PSK

**Left Edge (824 MHz)
Channel 1013**



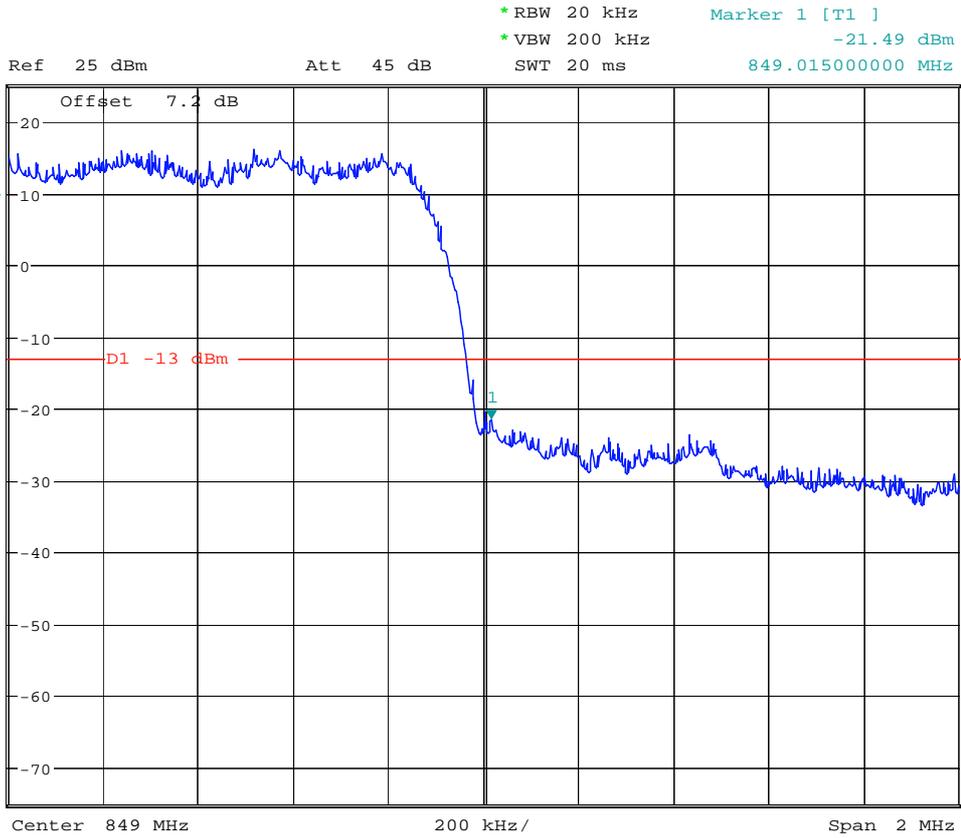
*RBW 20 kHz Marker 1 [T1]
*VBW 200 kHz -17.57 dBm
SWT 20 ms 823.995000000 MHz



Date: 23.AUG.2008 14:52:43



Right Edge (849MHz) Channel 777



Date: 23.AUG.2008 14:52:58



Appendix D

Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & 22.917

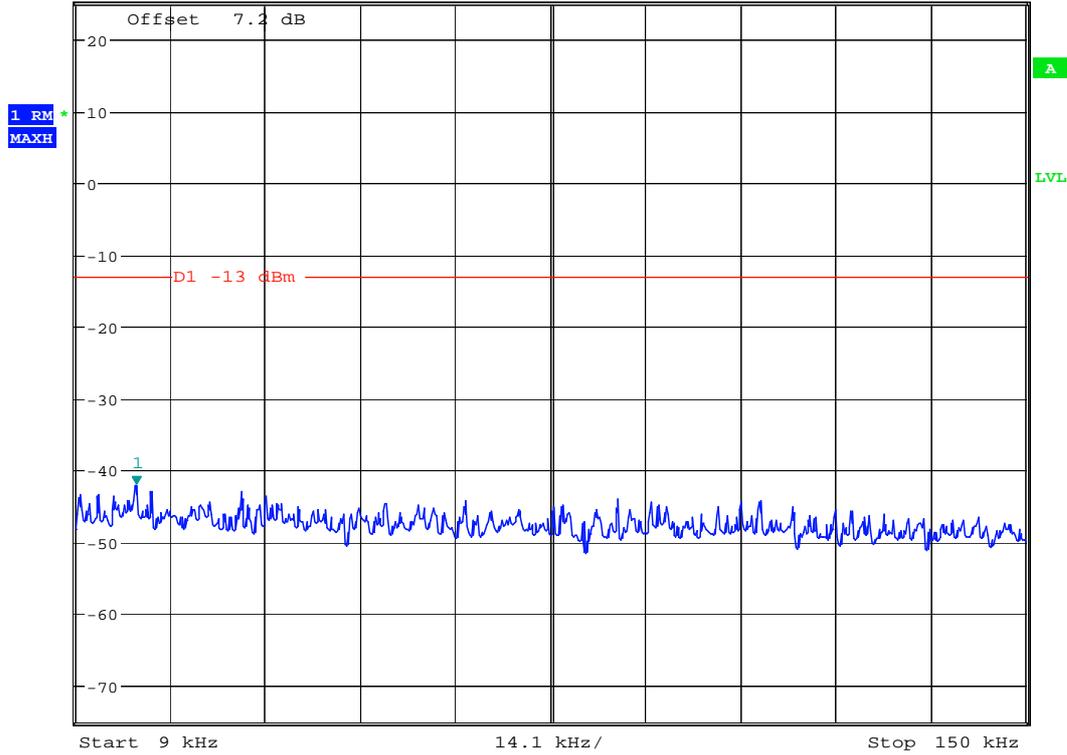


TM1

Channel 1013



Ref 25 dBm Att 45 dB *RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -42.11 dBm
SWT 145 ms 18.038461538 kHz



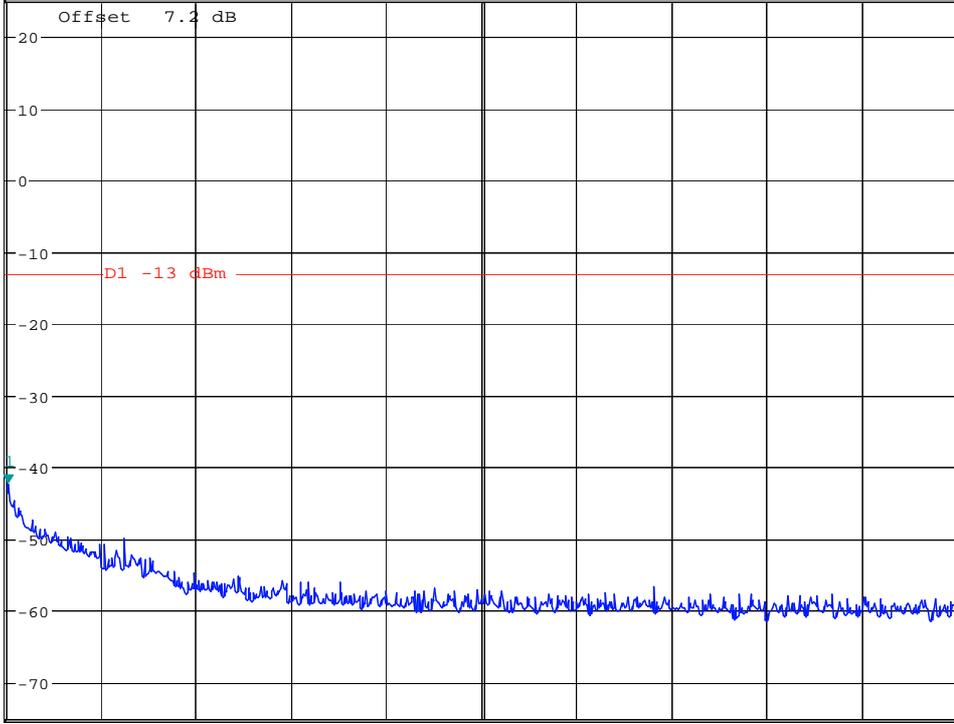
Date: 19.AUG.2008 18:11:19



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -42.35 dBm
SWT 300 ms 197.836538462 kHz

Ref 25 dBm

Att 45 dB



Start 150 kHz

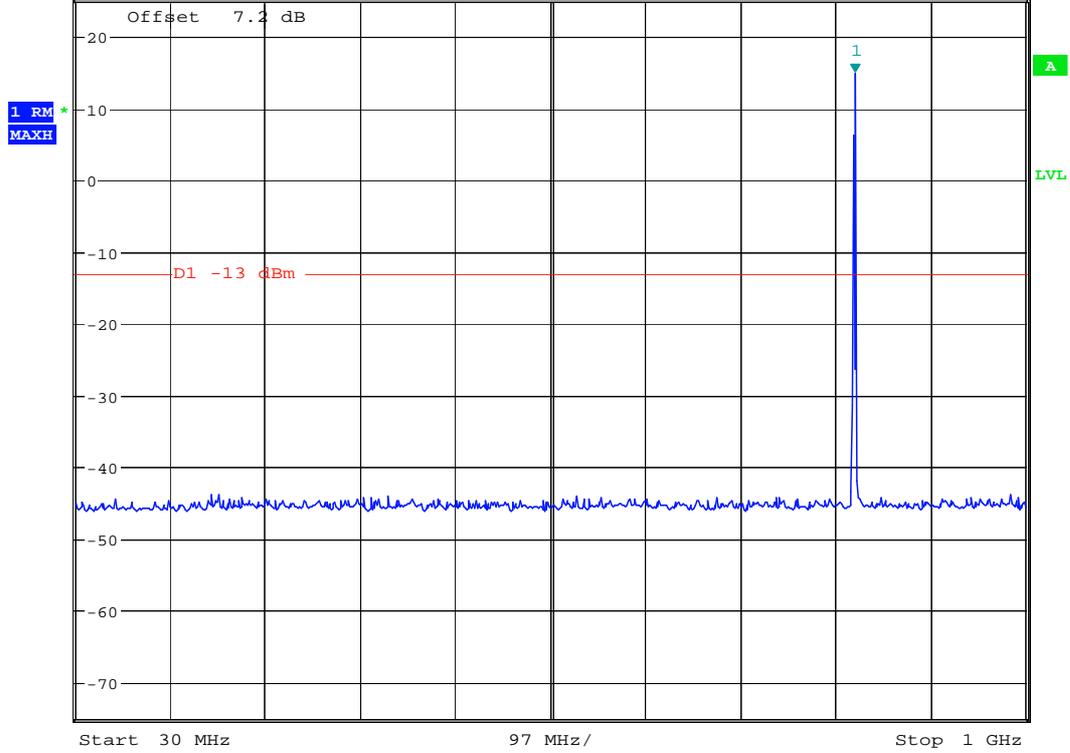
2.985 MHz/

Stop 30 MHz

Date: 19.AUG.2008 18:11:46



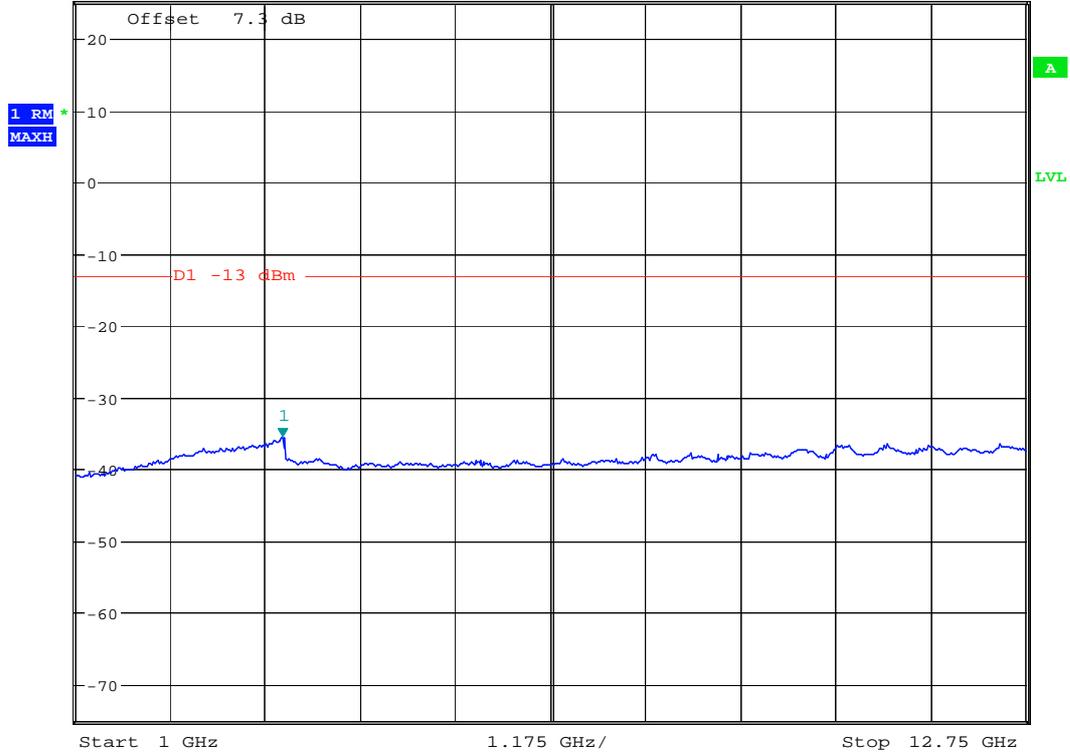
Ref 25 dBm Att 45 dB *RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 14.89 dBm
SWT 100 ms 825.897435897 MHz



Date: 19.AUG.2008 18:12:12



Ref 25 dBm Att 45 dB SWT 70 ms
*RBW 1 MHz *VBW 3 MHz
Marker 1 [T1] -35.53 dBm
3.560897436 GHz



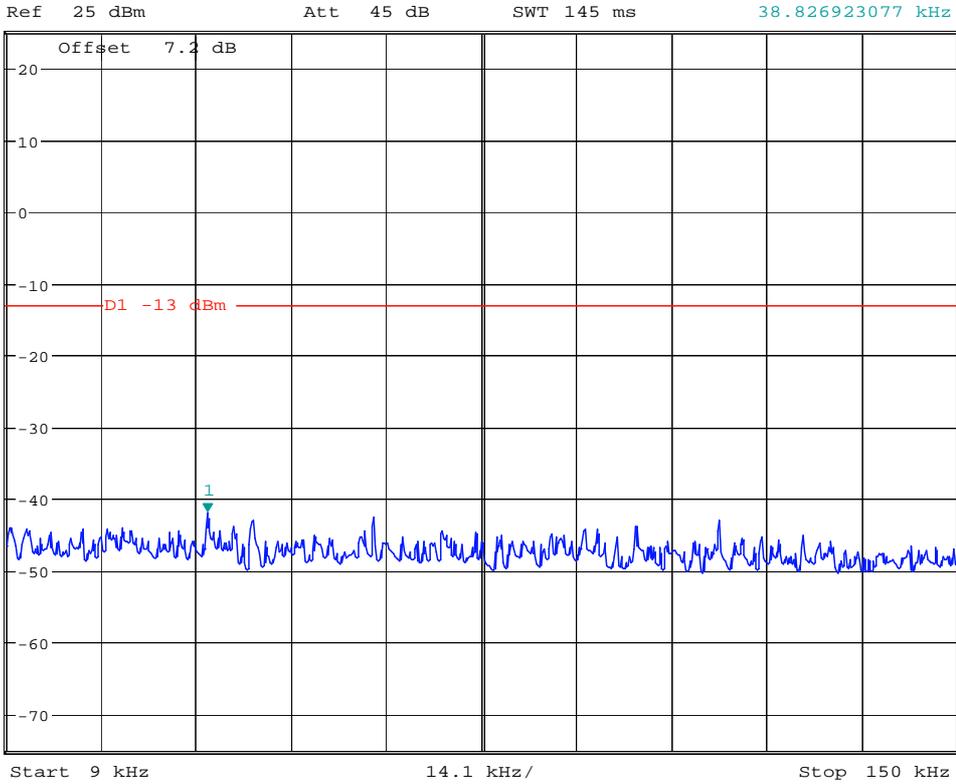
Date: 19.AUG.2008 18:12:38



Channel 384



*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -41.93 dBm
38.826923077 kHz



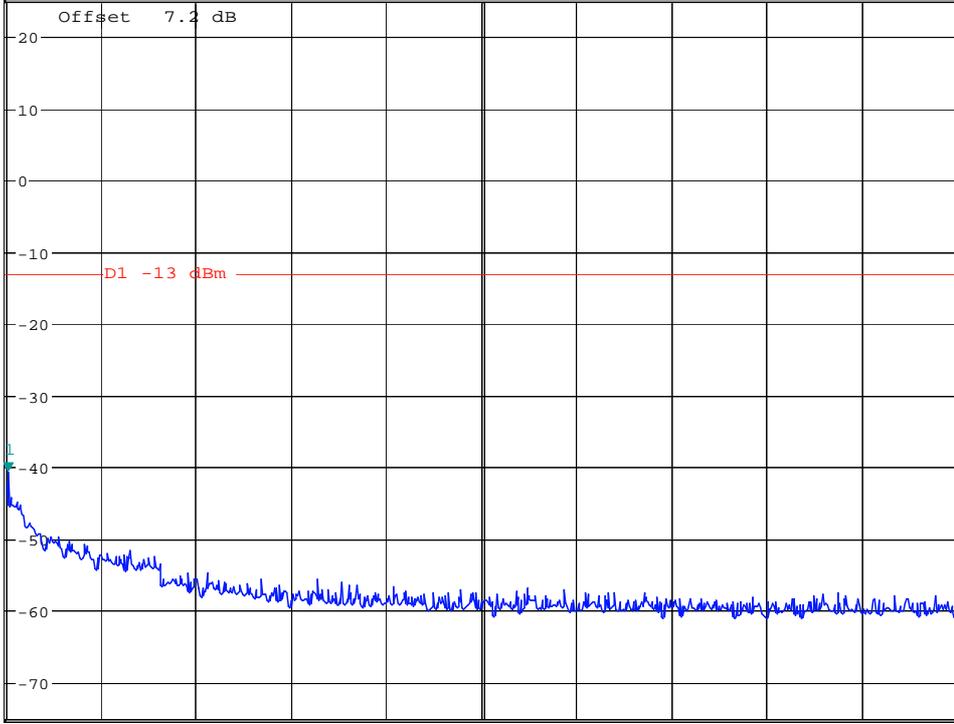
Date: 19.AUG.2008 18:11:28



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -40.62 dBm
SWT 300 ms 197.836538462 kHz

Ref 25 dBm

Att 45 dB



Start 150 kHz

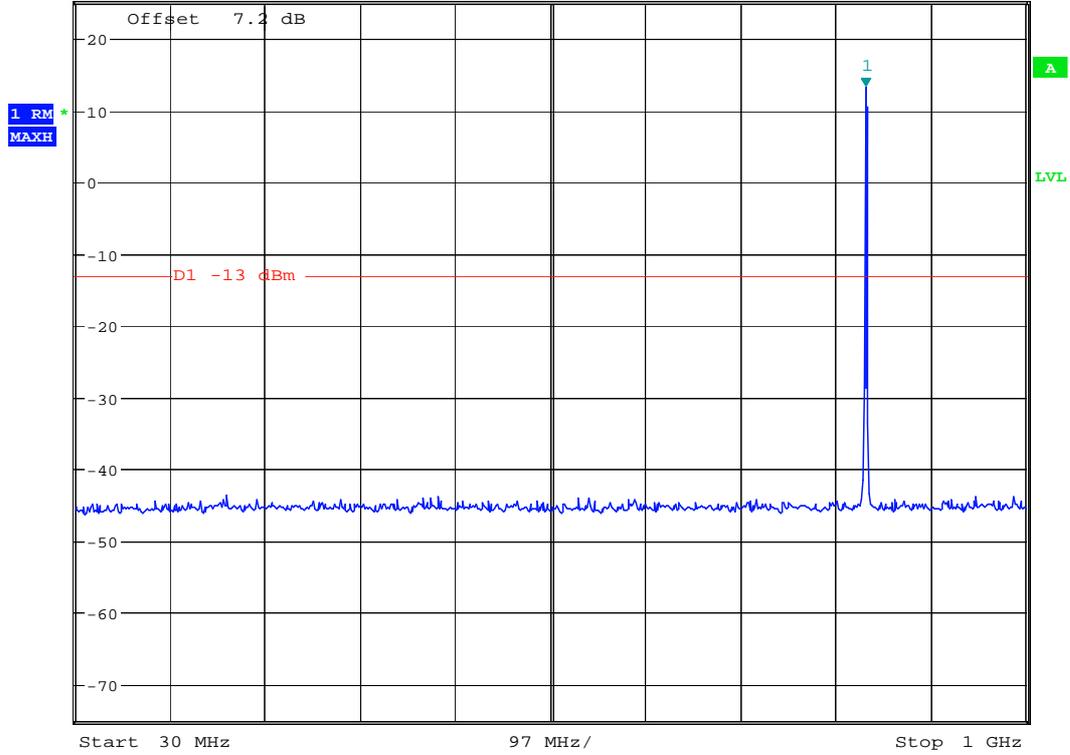
2.985 MHz/

Stop 30 MHz

Date: 19.AUG.2008 18:11:54



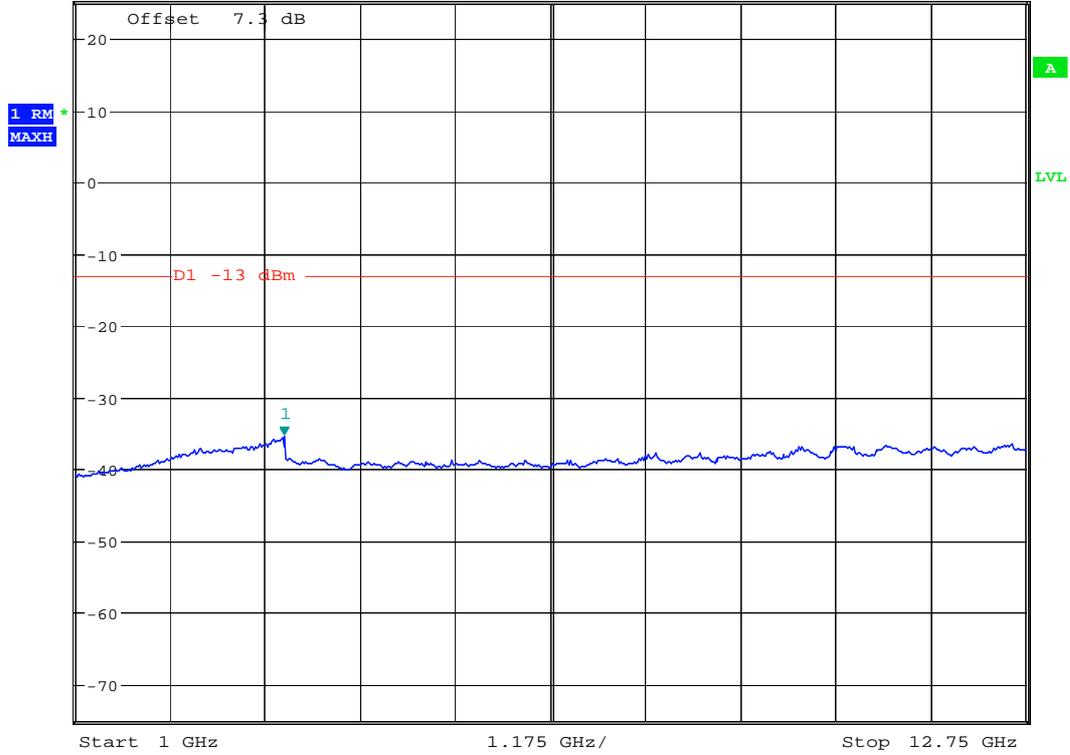
Ref 25 dBm Att 45 dB *RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 13.04 dBm
SWT 100 ms 836.778846154 MHz



Date: 19.AUG.2008 18:12:21



Ref 25 dBm Att 45 dB SWT 70 ms
*RBW 1 MHz *VBW 3 MHz
Marker 1 [T1] -35.44 dBm
3.579727564 GHz



Date: 19.AUG.2008 18:12:47



Channel 777

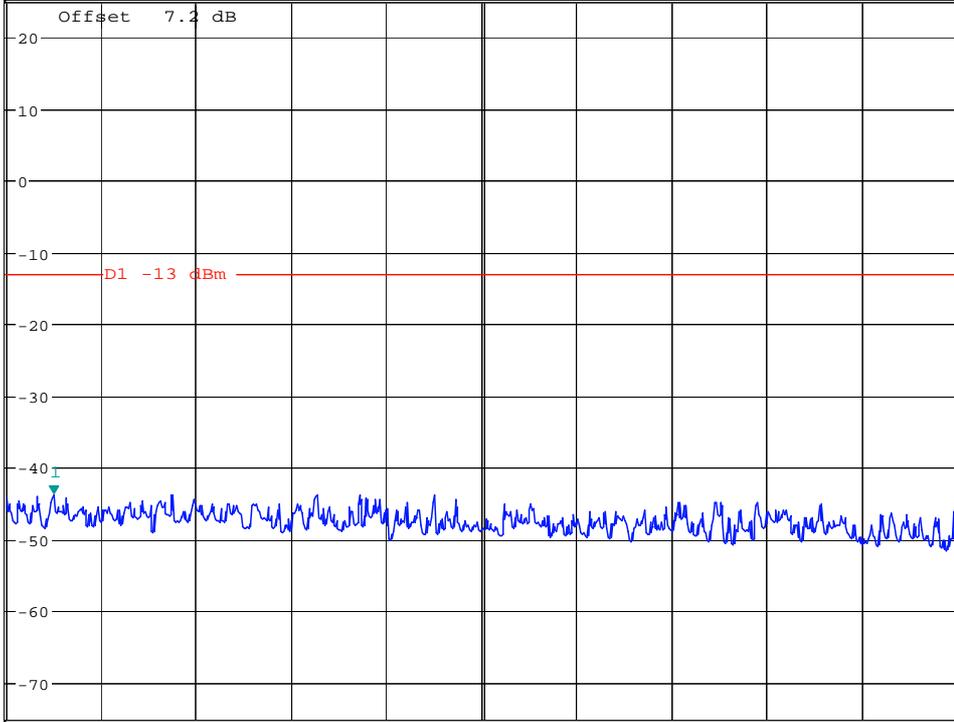


*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -43.70 dBm
SWT 145 ms 16.004807692 kHz

Ref 25 dBm

Att 45 dB

1 RM
MAXH



Start 9 kHz

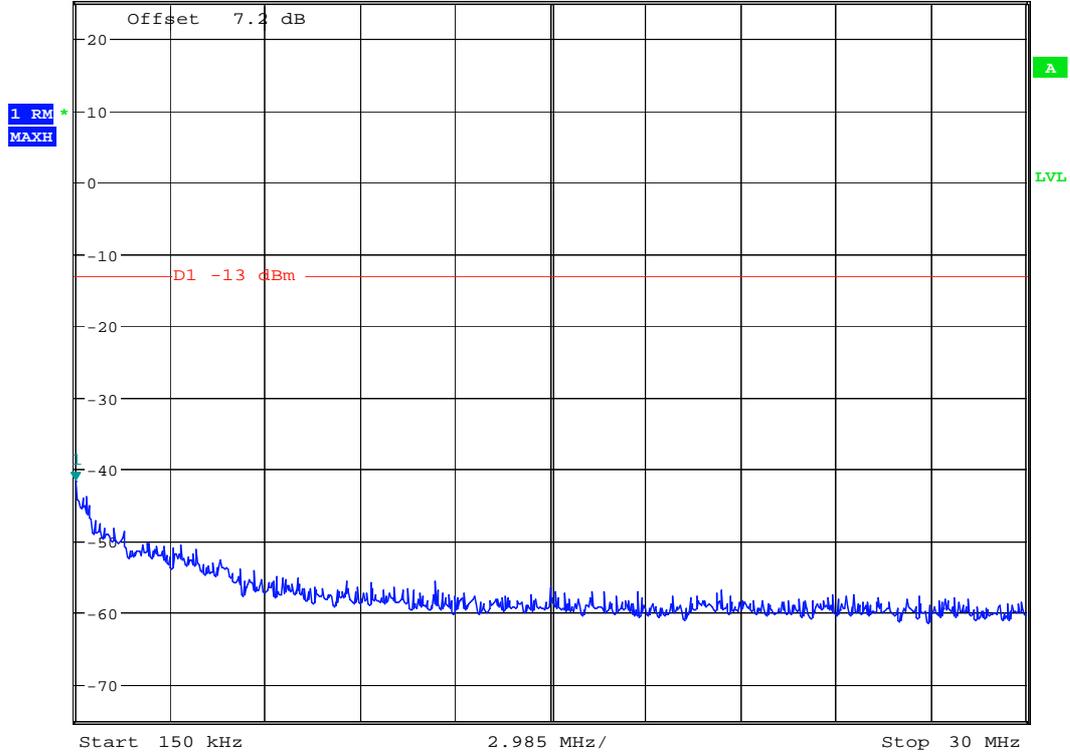
14.1 kHz/

Stop 150 kHz

Date: 19.AUG.2008 18:11:36



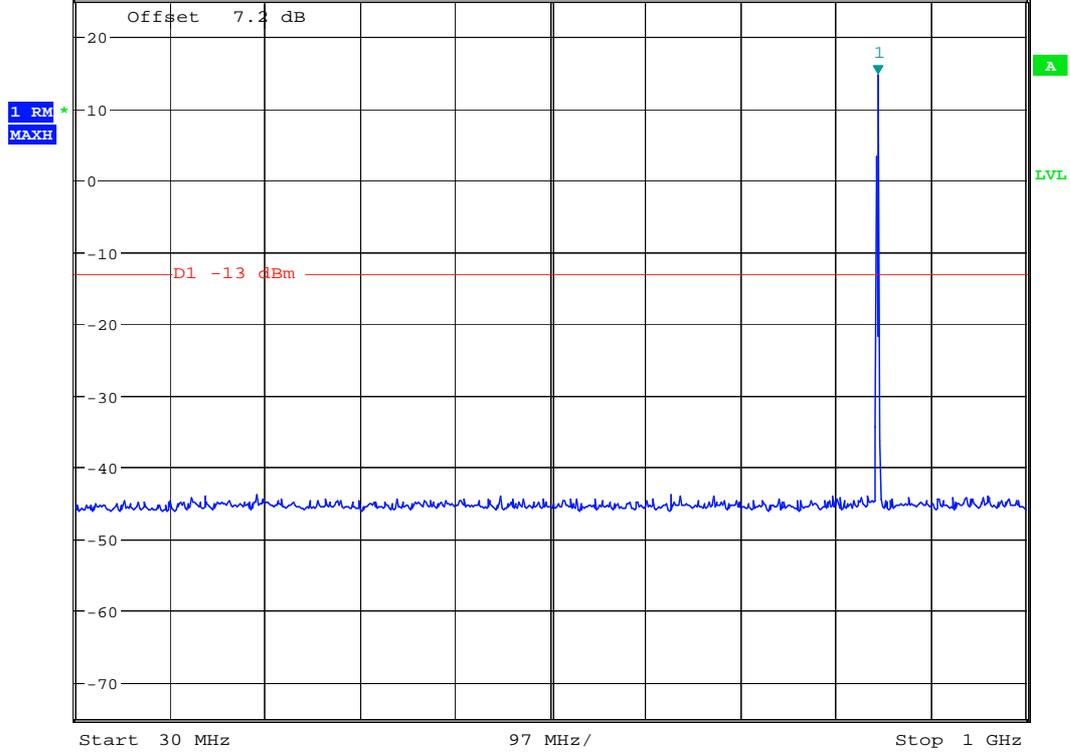
Ref 25 dBm Att 45 dB *RBW 10 kHz *VBW 30 kHz SWT 300 ms Marker 1 [T1]
-41.66 dBm
150.00000000 kHz



Date: 19.AUG.2008 18:12:03



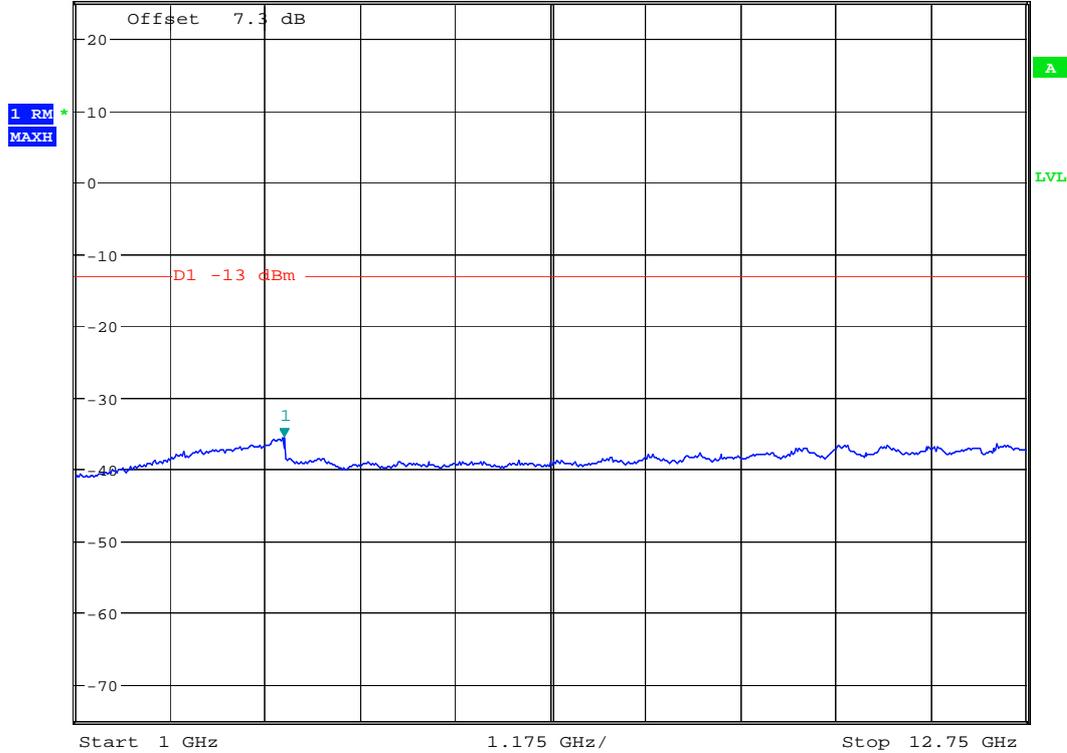
Ref 25 dBm Att 45 dB *RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 14.66 dBm
SWT 100 ms 849.214743590 MHz



Date: 19.AUG.2008 18:12:29



Ref 25 dBm Att 45 dB SWT 70 ms
*RBW 1 MHz *VBW 3 MHz
Marker 1 [T1] -35.61 dBm
3.579727564 GHz



Date: 19.AUG.2008 18:12:56

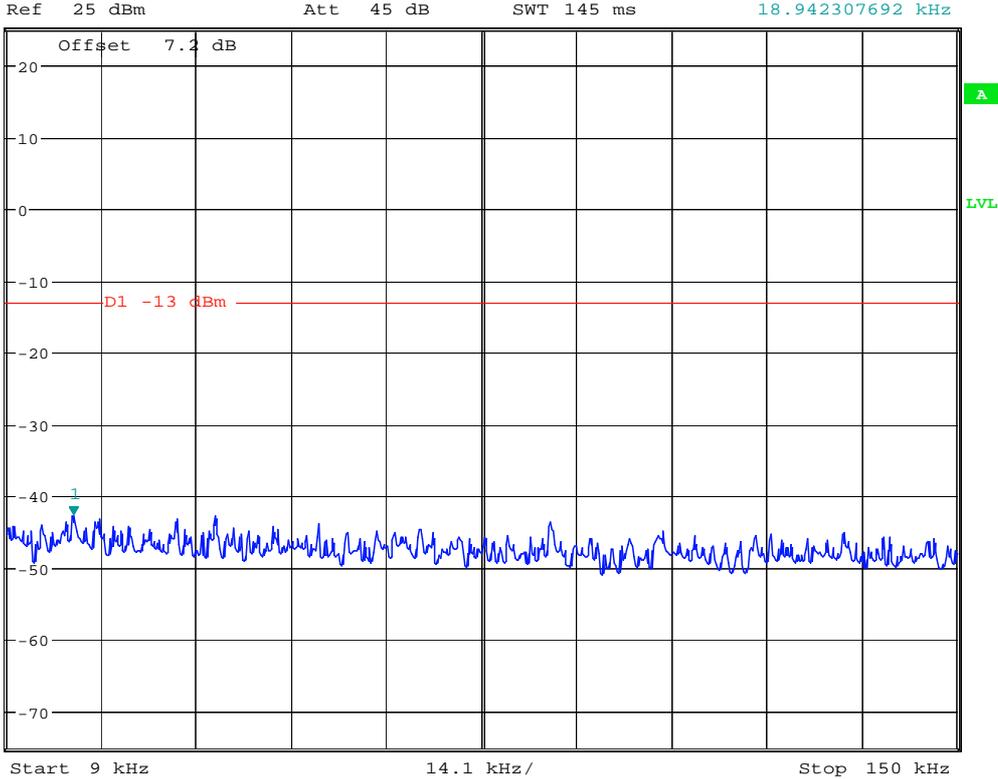


TM3

Channel 1013



*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -42.73 dBm
SWT 145 ms 18.942307692 kHz



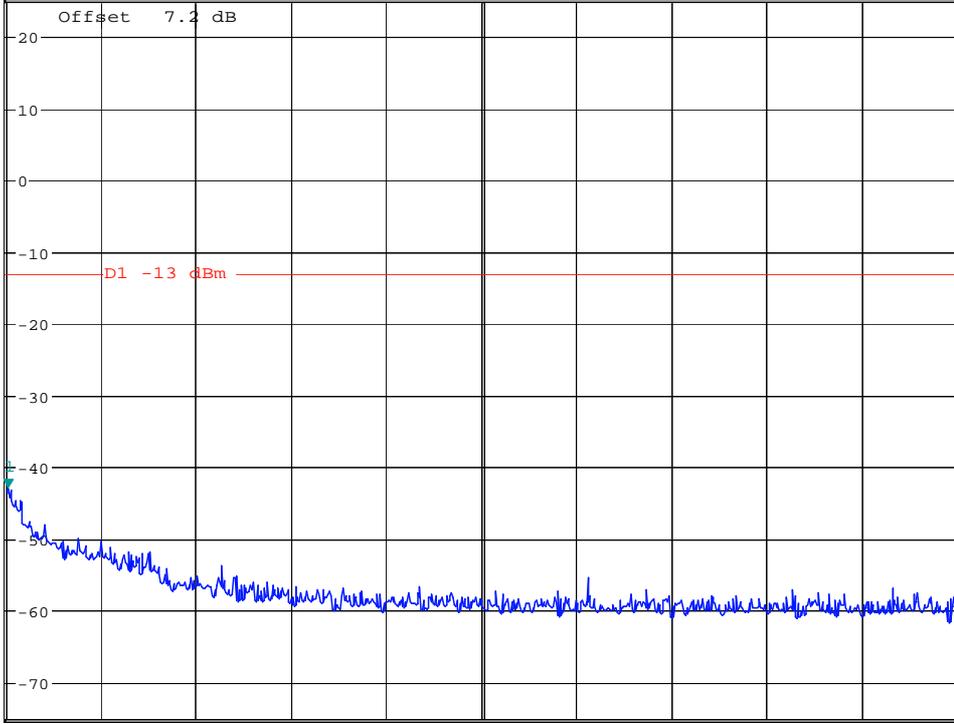
Date: 19.AUG.2008 18:13:06



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -43.07 dBm
SWT 300 ms 197.836538462 kHz

Ref 25 dBm

Att 45 dB



Start 150 kHz

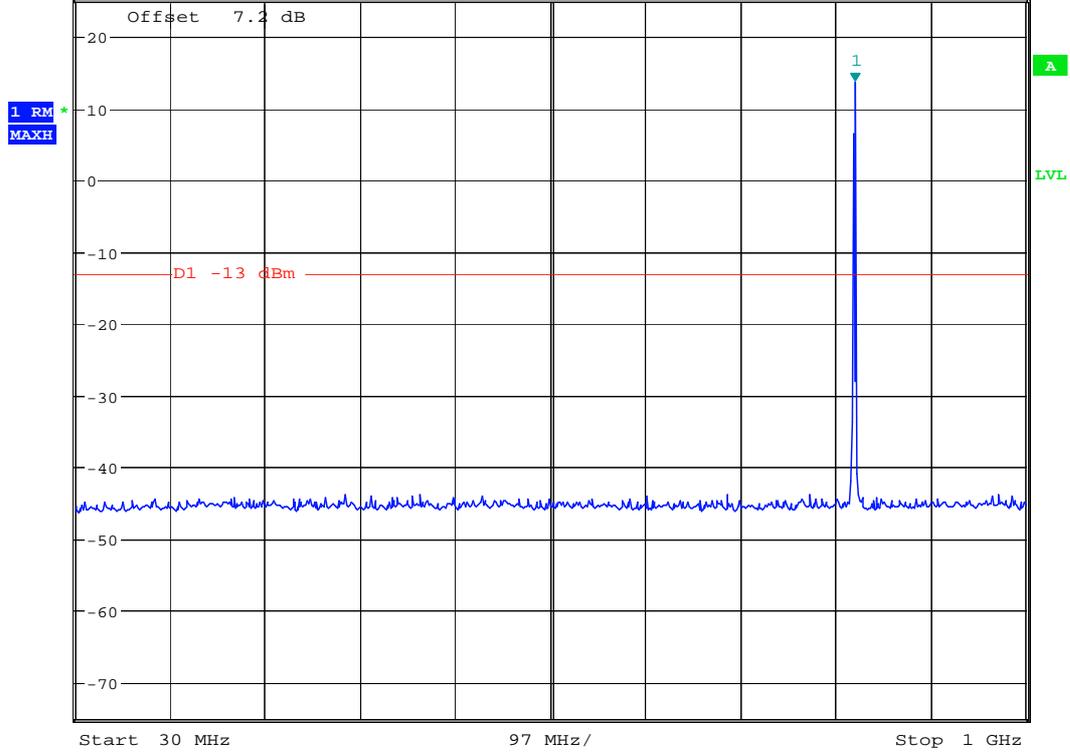
2.985 MHz/

Stop 30 MHz

Date: 19.AUG.2008 18:13:32



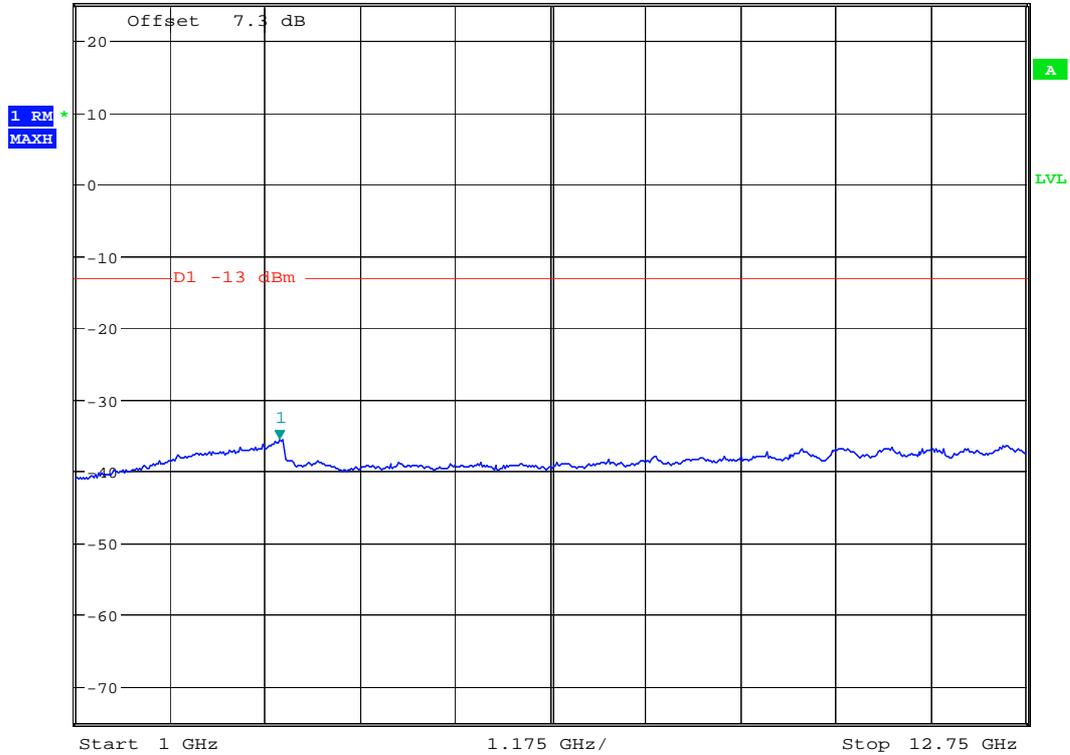
Ref 25 dBm Att 45 dB *RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 13.59 dBm
SWT 100 ms 825.897435897 MHz



Date: 19.AUG.2008 18:13:59



Ref 25 dBm Att 45 dB SWT 70 ms
*RBW 1 MHz *VBW 3 MHz
Marker 1 [T1] -35.67 dBm
3.523237179 GHz



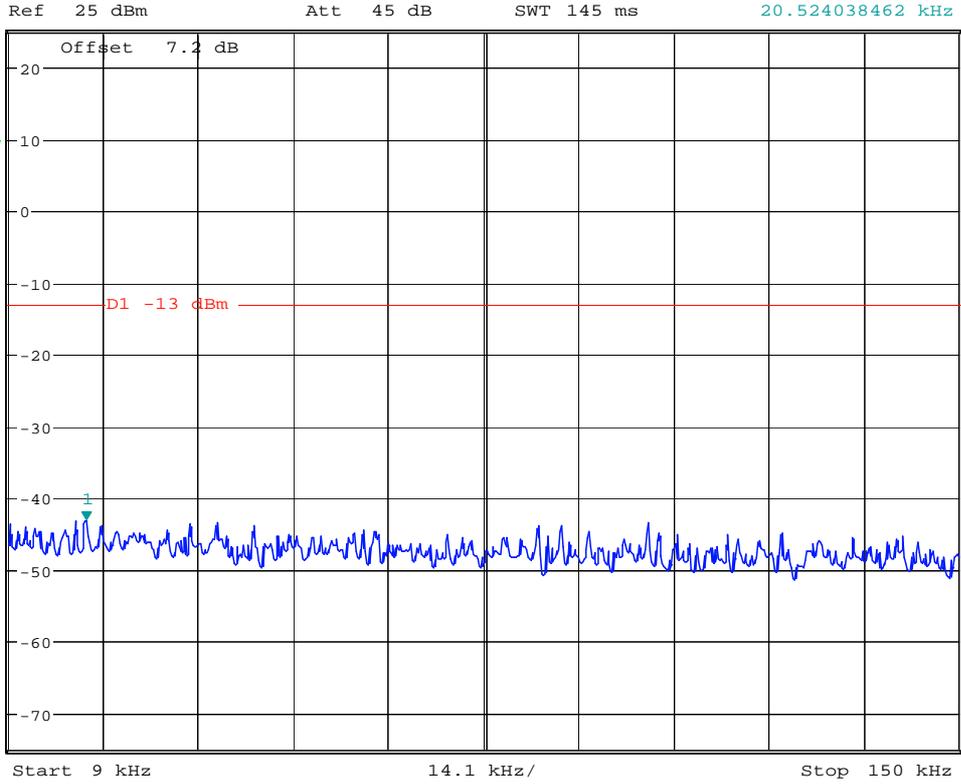
Date: 19.AUG.2008 18:14:25



Channel 384



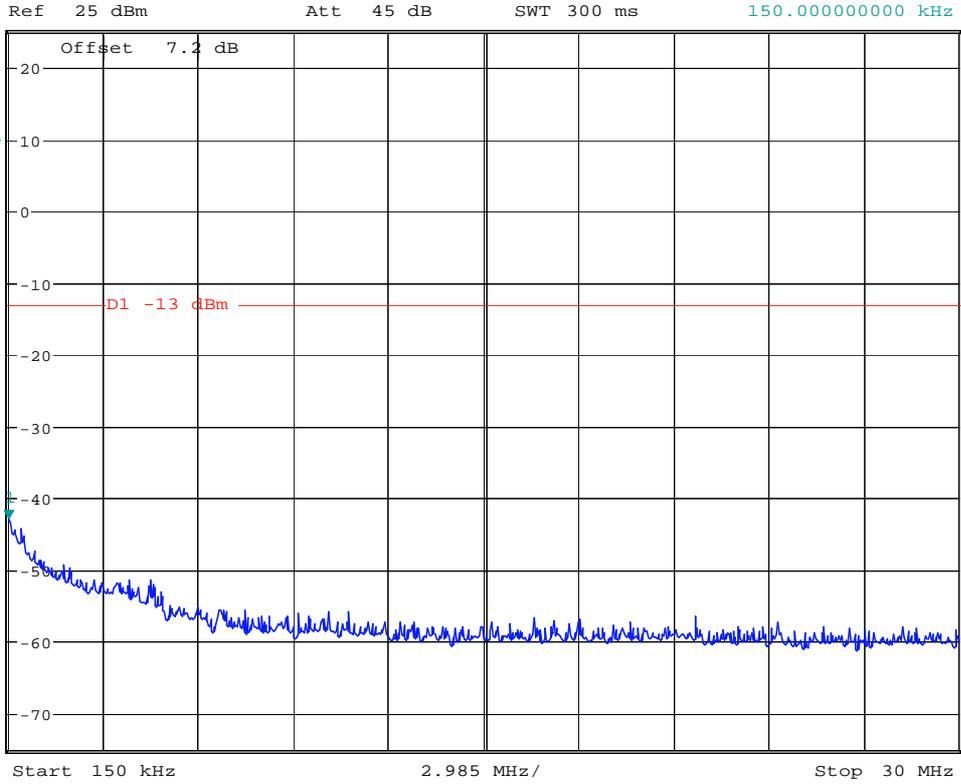
*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -43.21 dBm
SWT 145 ms 20.524038462 kHz



Date: 19.AUG.2008 18:13:15



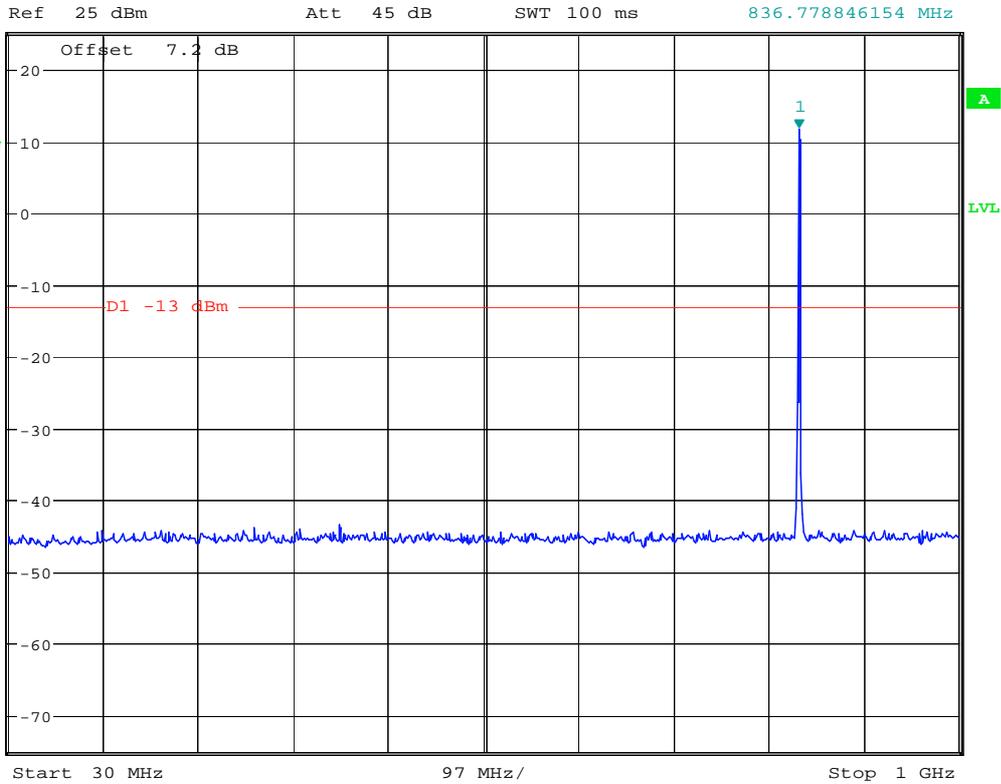
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -43.07 dBm
SWT 300 ms 150.00000000 kHz



Date: 19.AUG.2008 18:13:41



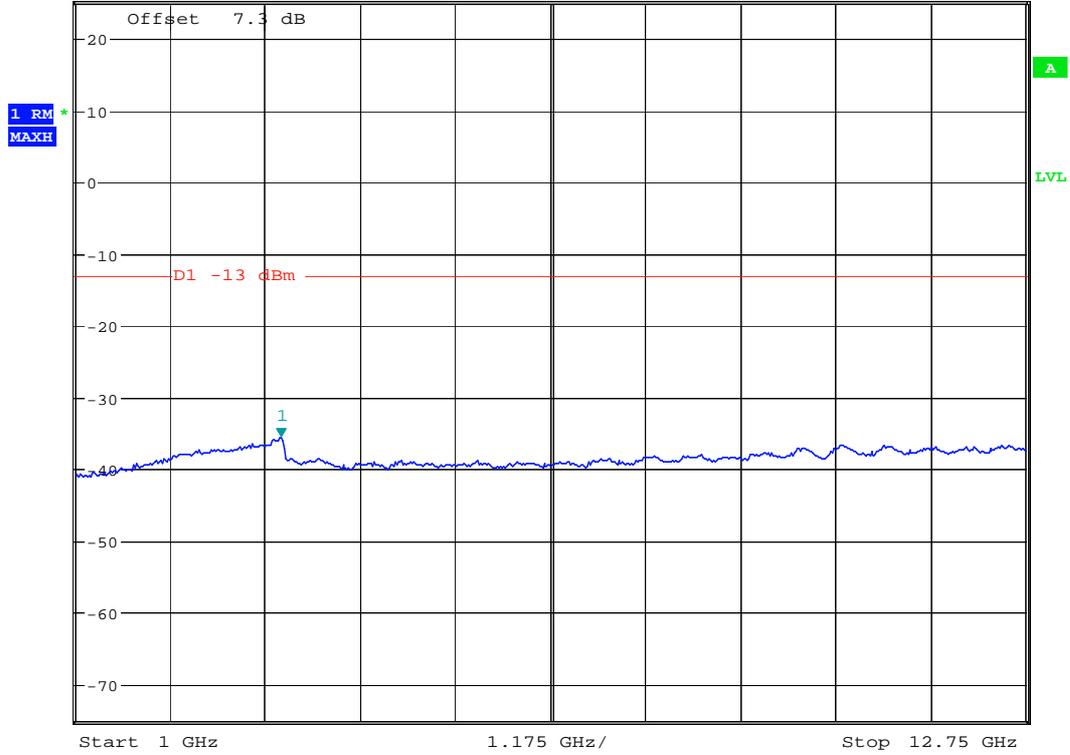
*RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 11.64 dBm
SWT 100 ms 836.778846154 MHz



Date: 19.AUG.2008 18:14:07



Ref 25 dBm Att 45 dB SWT 70 ms
*RBW 1 MHz *VBW 3 MHz
Marker 1 [T1] -35.66 dBm
3.542067308 GHz



Date: 19.AUG.2008 18:14:34



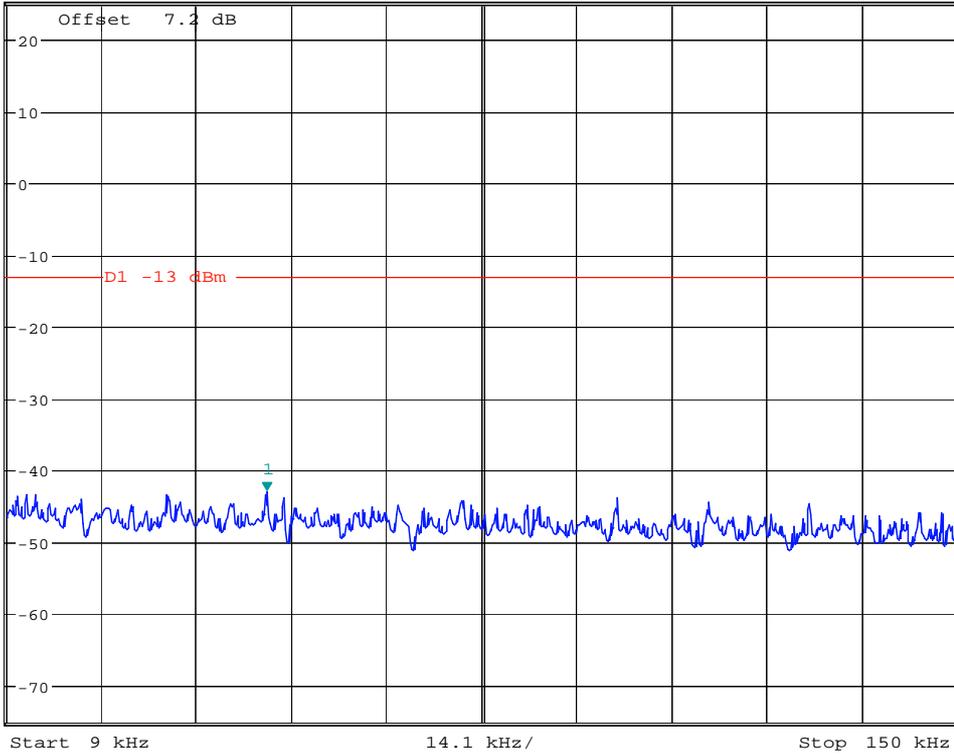
Channel 777



*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -43.06 dBm
SWT 145 ms 47.639423077 kHz

Ref 25 dBm

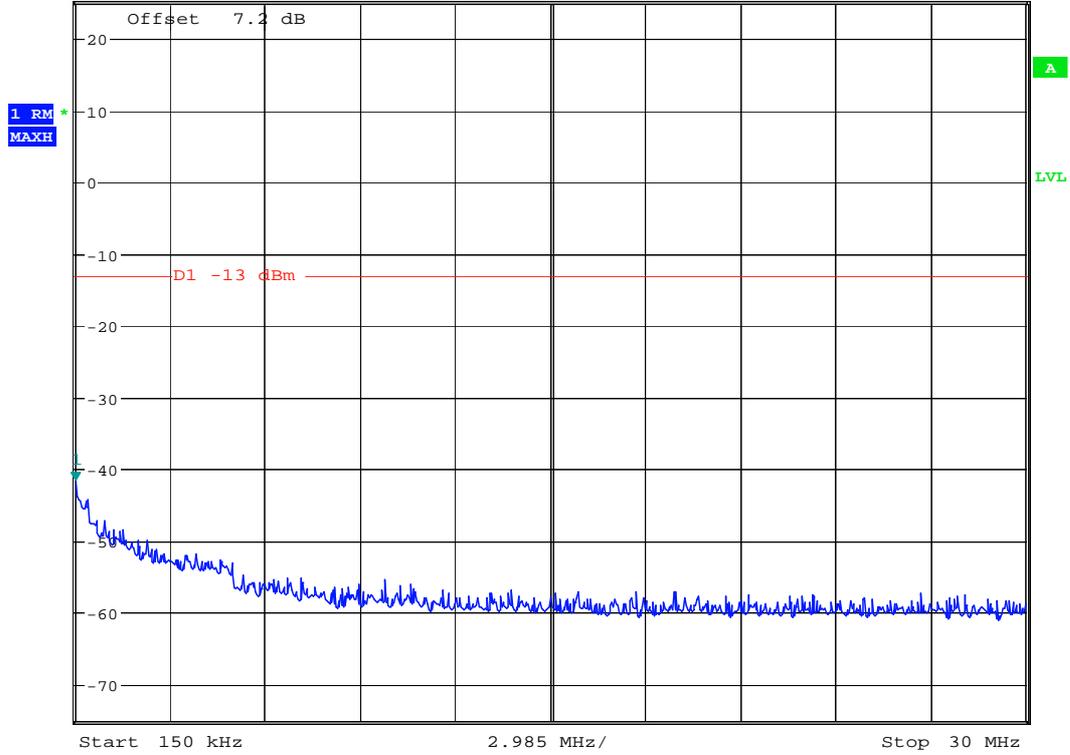
Att 45 dB



Date: 19.AUG.2008 18:13:23



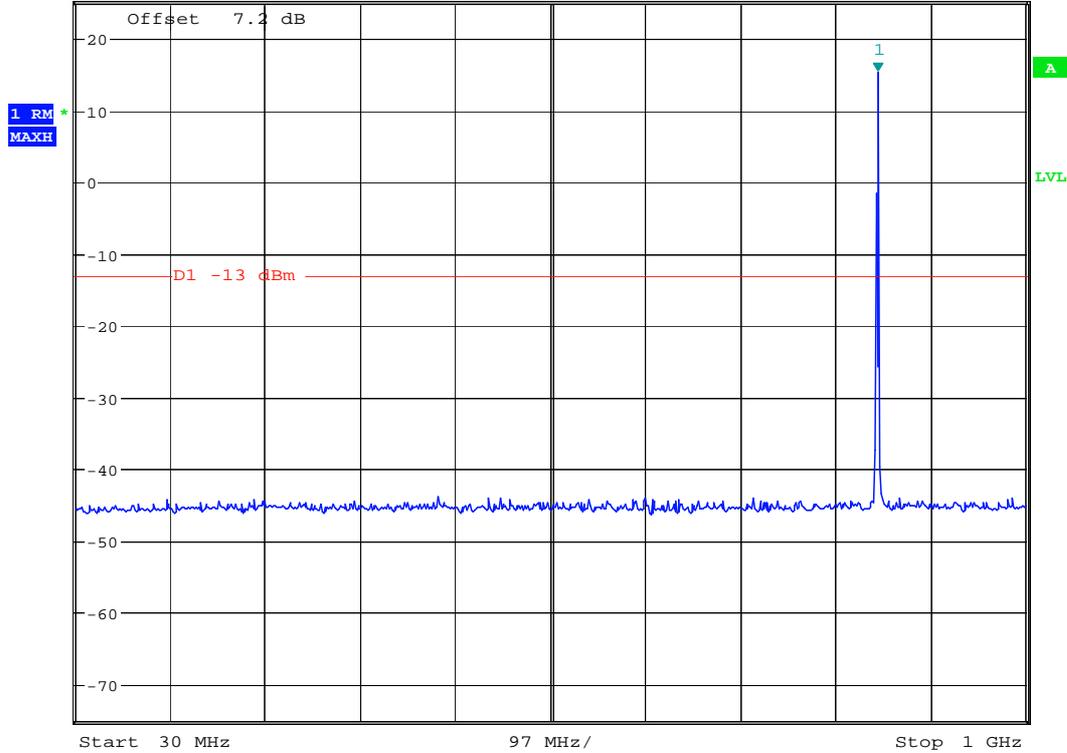
Ref 25 dBm Att 45 dB *RBW 10 kHz *VBW 30 kHz SWT 300 ms Marker 1 [T1]
-41.73 dBm
150.00000000 kHz



Date: 19.AUG.2008 18:13:50



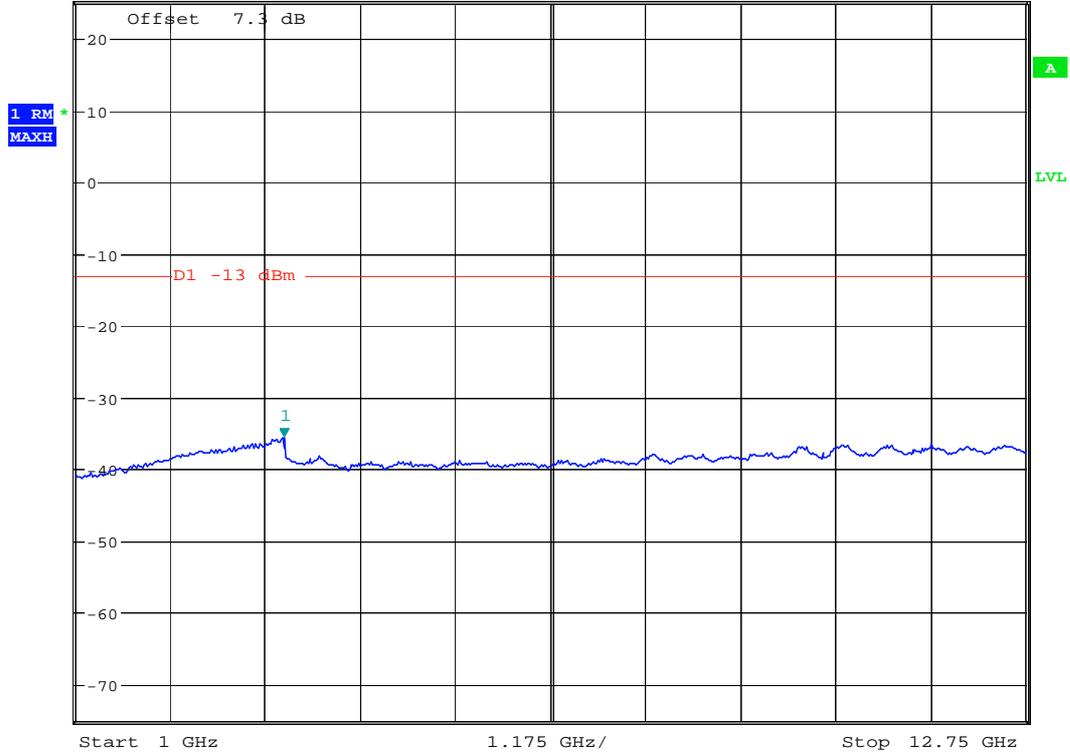
Ref 25 dBm Att 45 dB *RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 15.25 dBm
SWT 100 ms 849.214743590 MHz



Date: 19.AUG.2008 18:14:16



Ref 25 dBm Att 45 dB SWT 70 ms
*RBW 1 MHz *VBW 3 MHz
Marker 1 [T1] -35.53 dBm
3.579727564 GHz

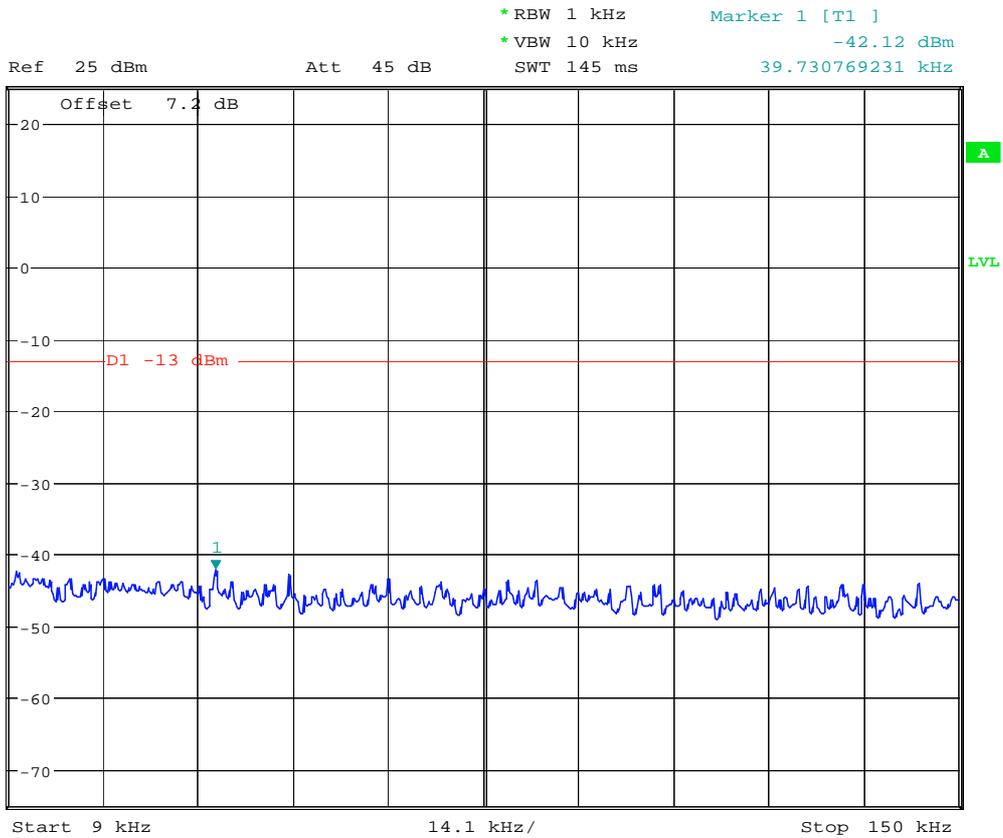


Date: 19.AUG.2008 18:14:42



EVDO subtype 0

Channel 1013



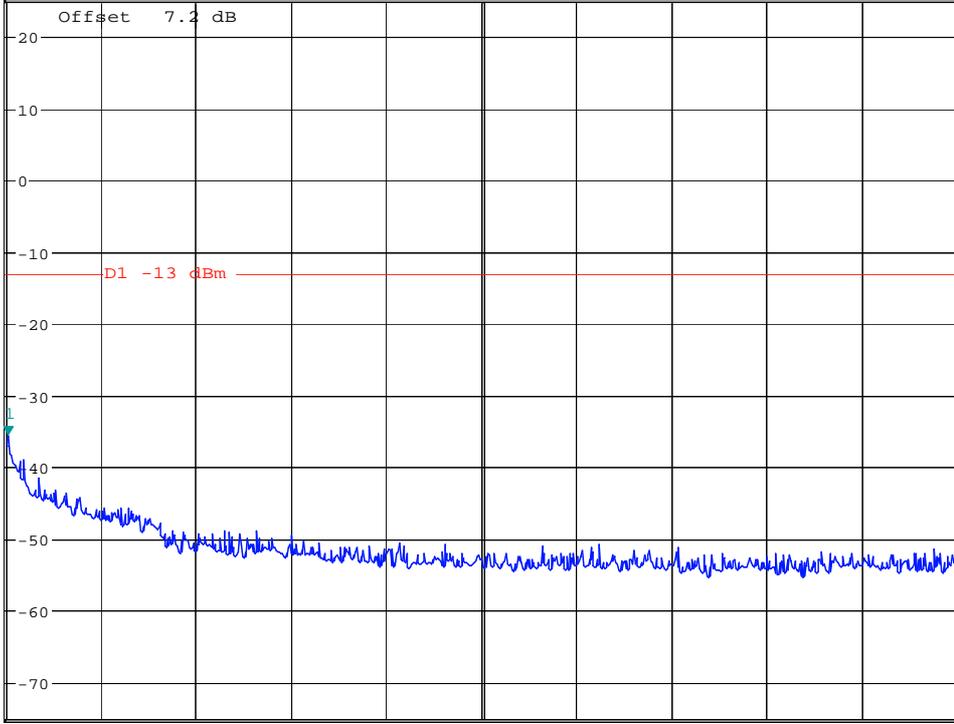
Date: 19.AUG.2008 18:19:46



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -35.58 dBm
SWT 300 ms 197.836538462 kHz

Ref 25 dBm

Att 45 dB

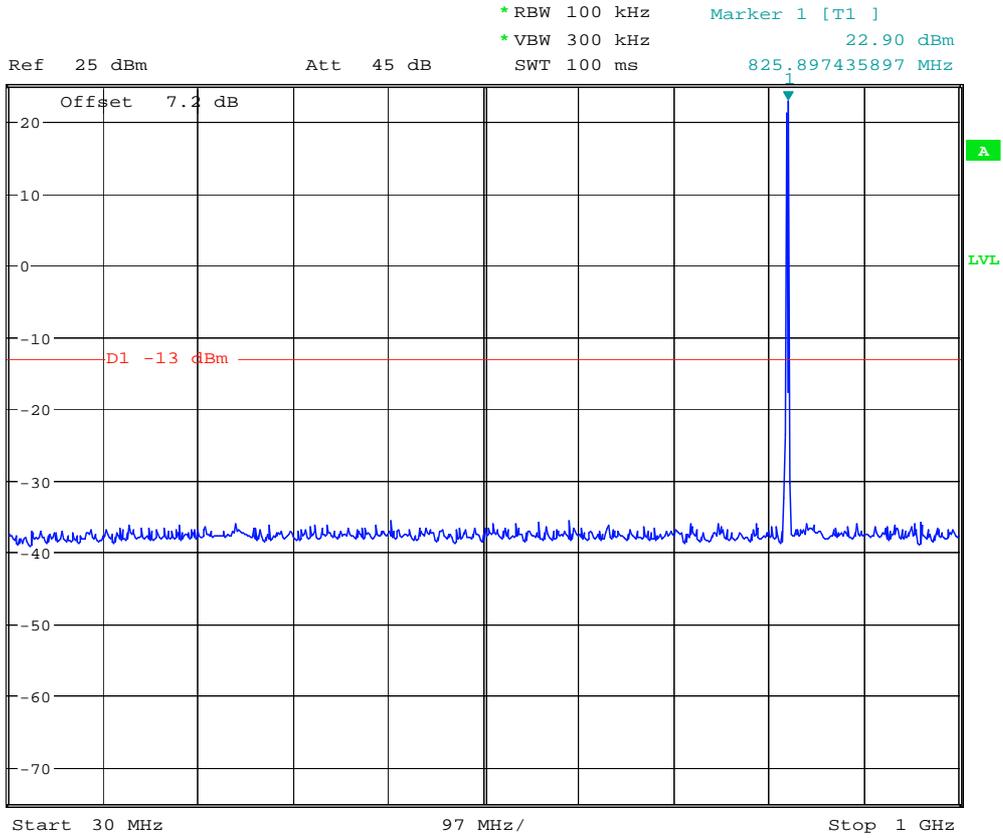


Start 150 kHz

2.985 MHz/

Stop 30 MHz

Date: 19.AUG.2008 18:20:30



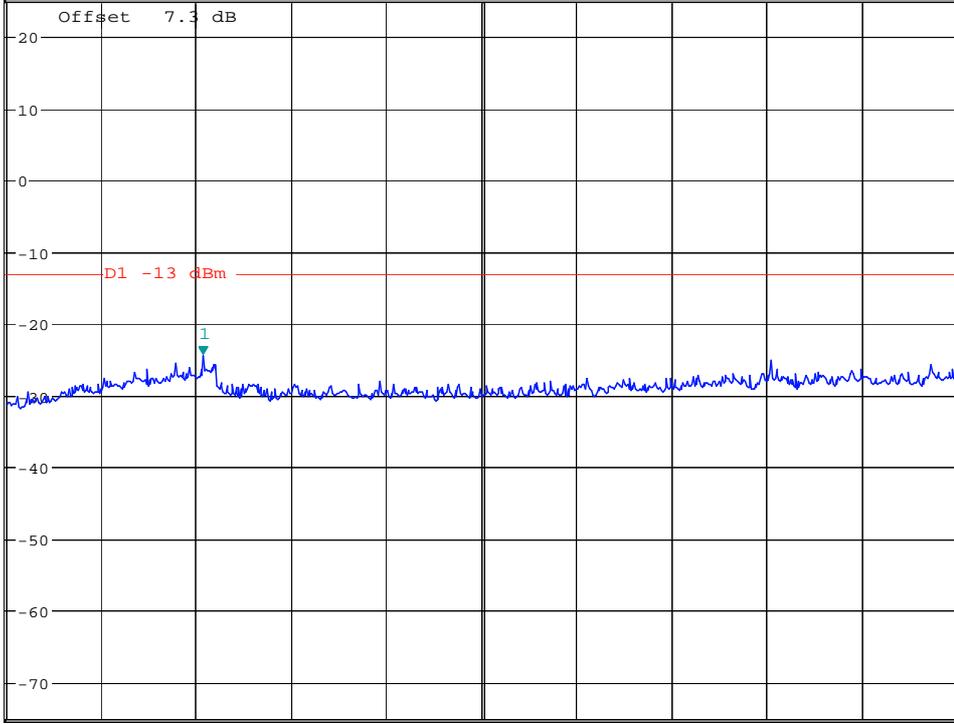
Date: 19.AUG.2008 18:21:14



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -24.43 dBm
SWT 70 ms 3.429086538 GHz

Ref 25 dBm

Att 45 dB



Start 1 GHz

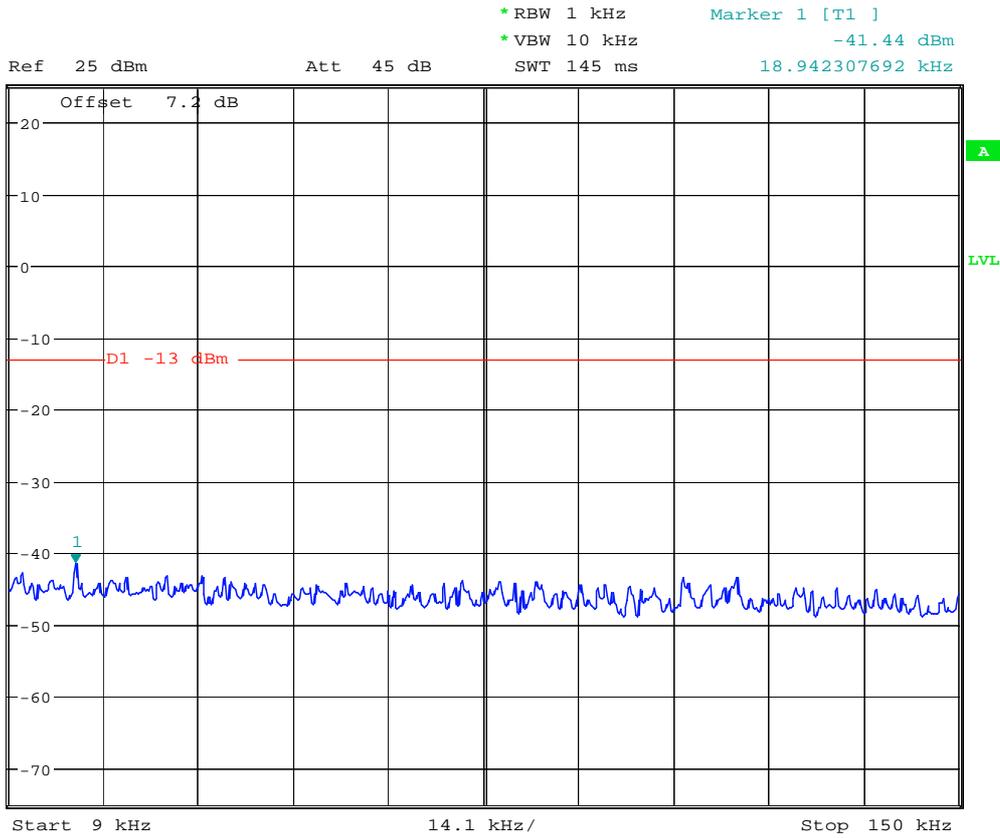
1.175 GHz/

Stop 12.75 GHz

Date: 19.AUG.2008 18:21:58



Channel 384



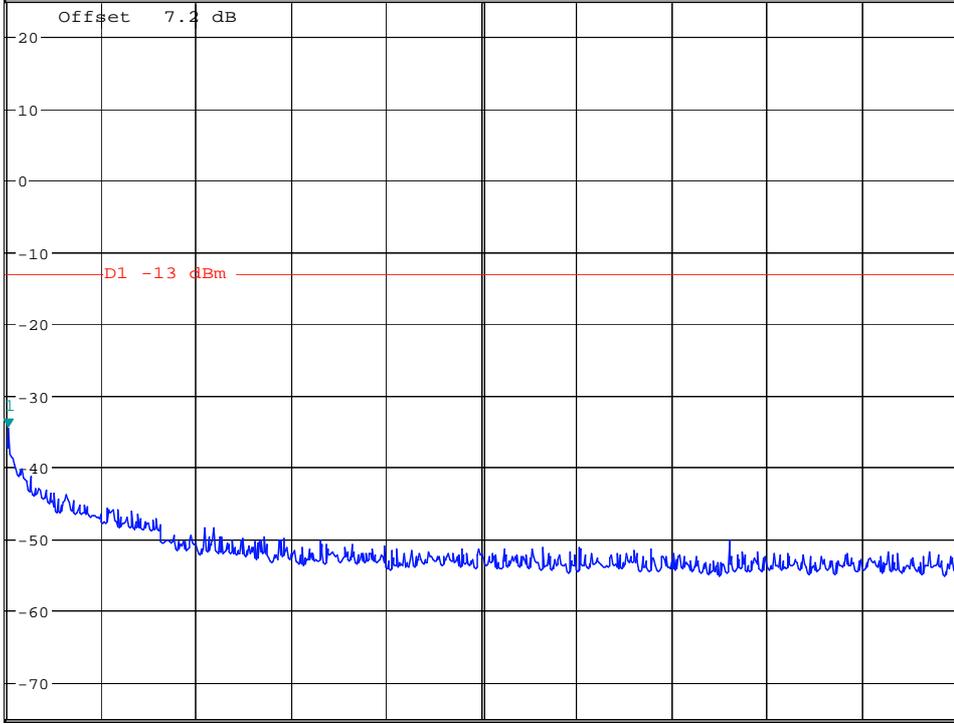
Date: 19.AUG.2008 18:20:01



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -34.46 dBm
SWT 300 ms 197.836538462 kHz

Ref 25 dBm

Att 45 dB

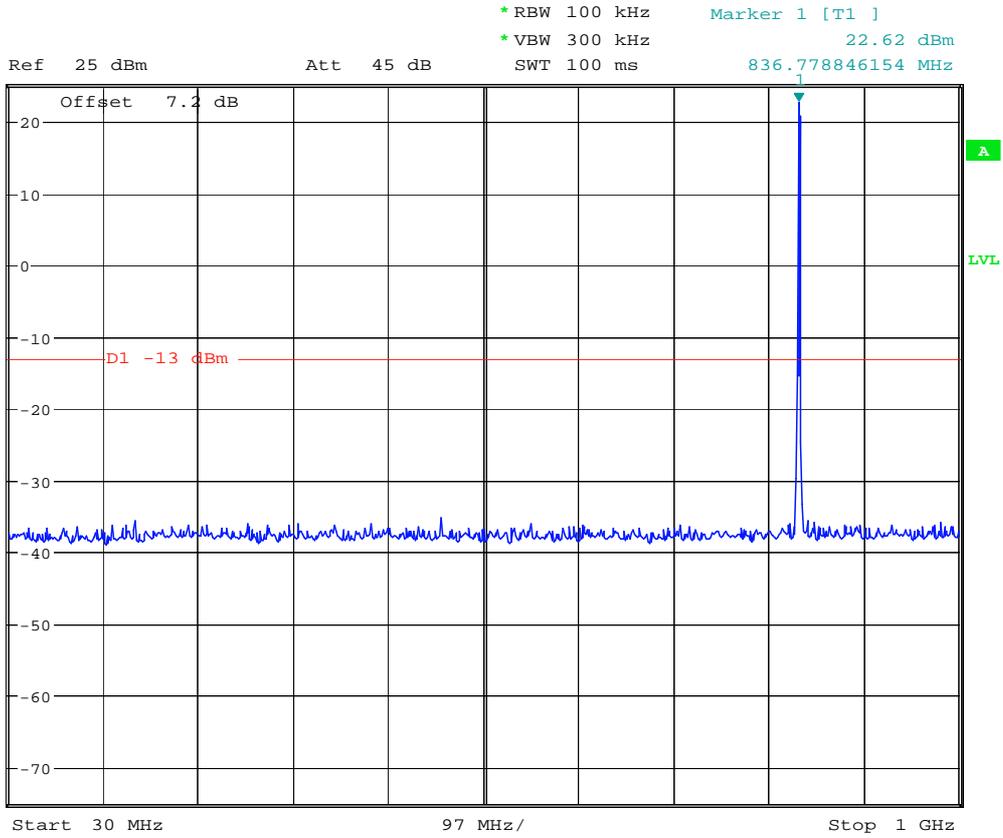


Start 150 kHz

2.985 MHz/

Stop 30 MHz

Date: 19.AUG.2008 18:20:45



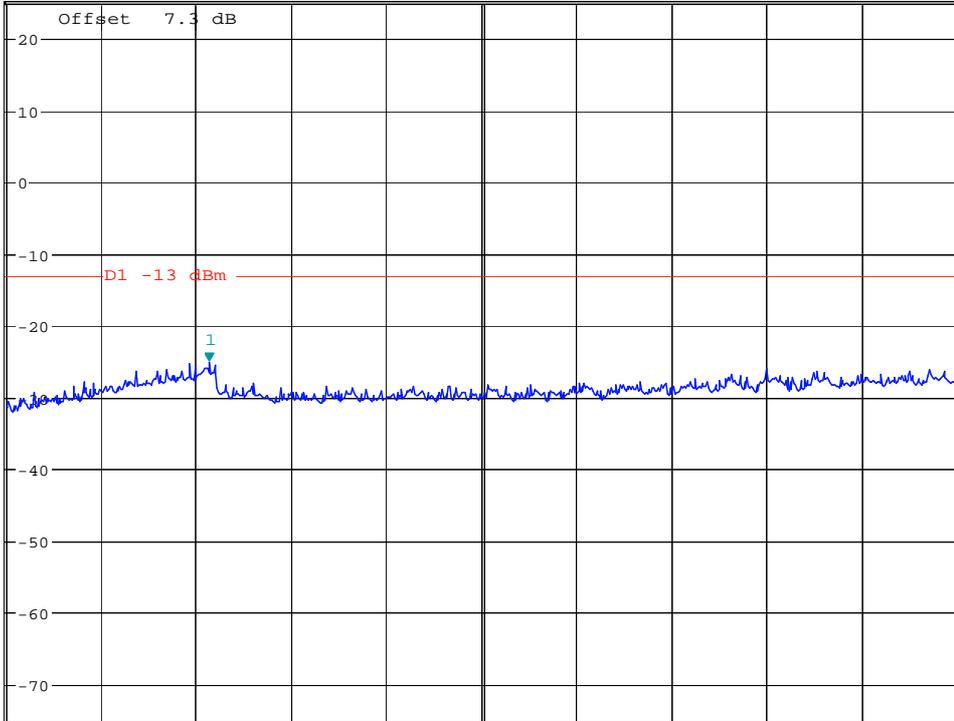
Date: 19.AUG.2008 18:21:28



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -25.06 dBm
SWT 70 ms 3.504407051 GHz

Ref 25 dBm

Att 45 dB



Start 1 GHz

1.175 GHz/

Stop 12.75 GHz

Date: 19.AUG.2008 18:22:12



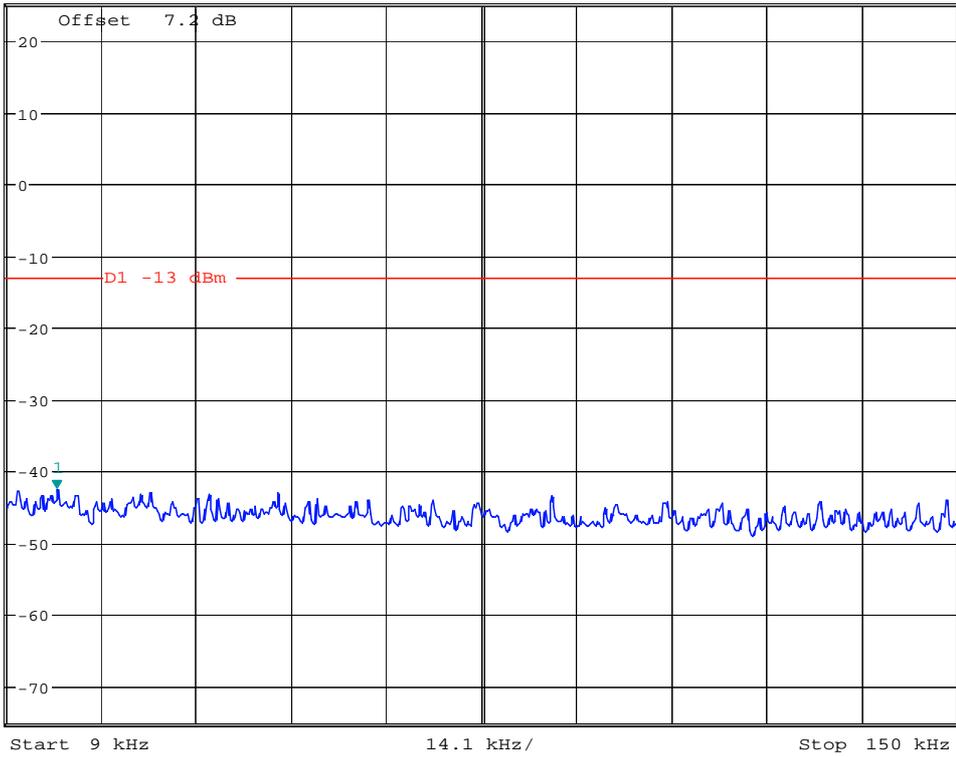
Channel 777



*RBW 1 kHz
*VBW 10 kHz
SWT 145 ms
Marker 1 [T1]
-42.56 dBm
16.456730769 kHz

Ref 25 dBm

Att 45 dB



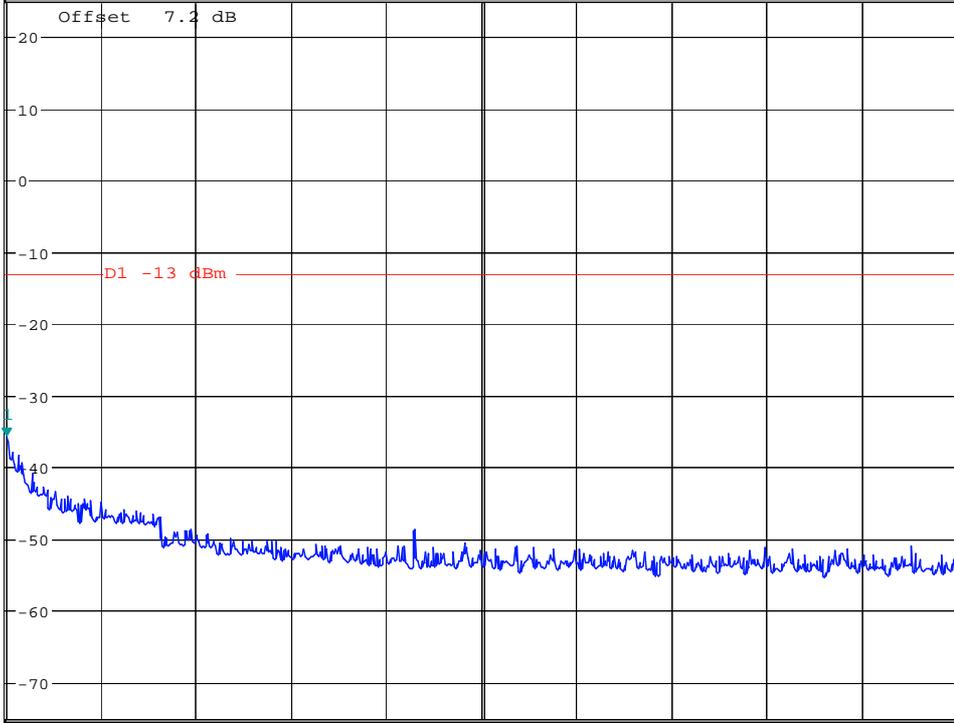
Date: 19.AUG.2008 18:20:15



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -35.83 dBm
SWT 300 ms 150.00000000 kHz

Ref 25 dBm

Att 45 dB

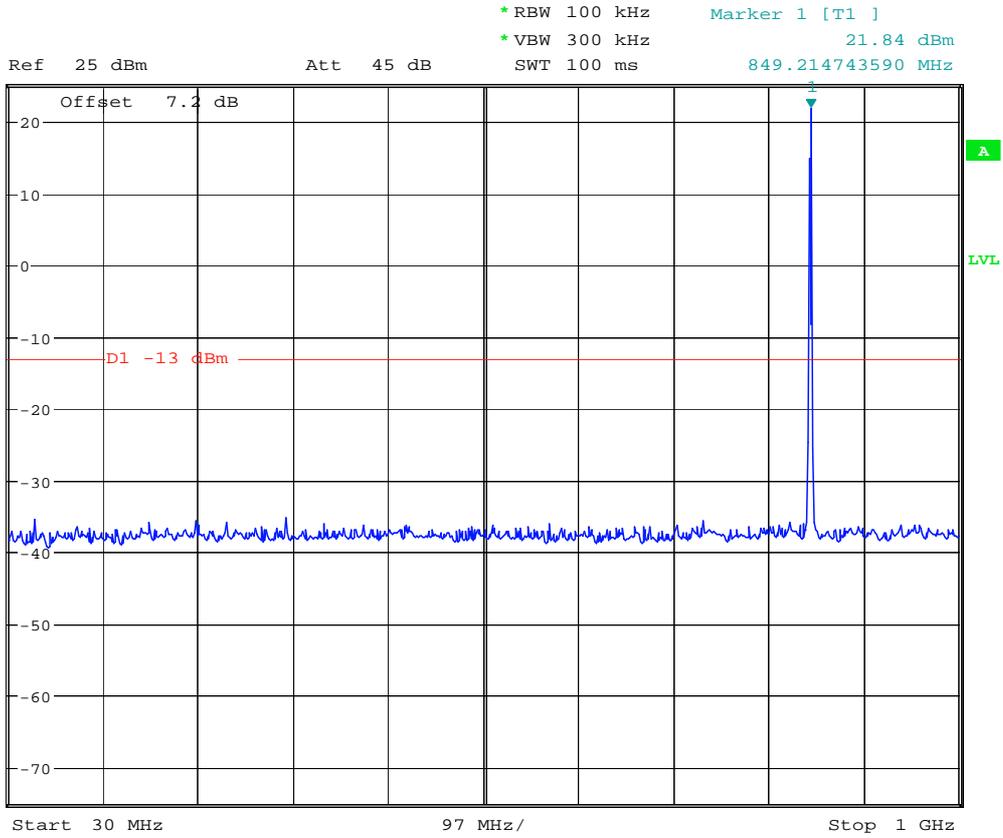


Start 150 kHz

2.985 MHz/

Stop 30 MHz

Date: 19.AUG.2008 18:20:59



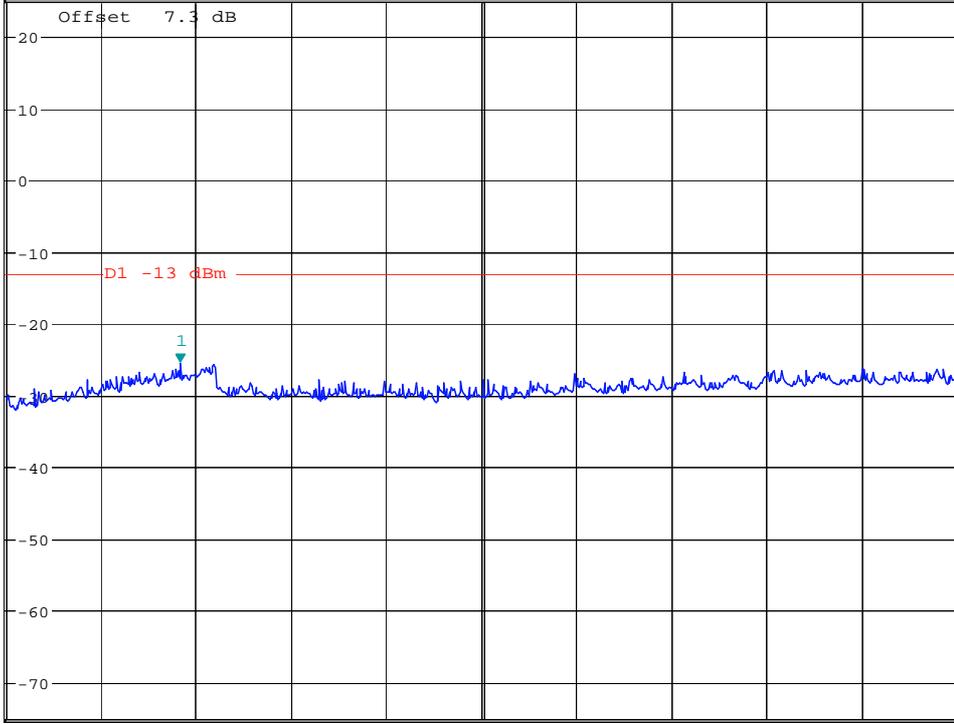
Date: 19.AUG.2008 18:21:43



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -25.61 dBm
SWT 70 ms 3.146634615 GHz

Ref 25 dBm

Att 45 dB



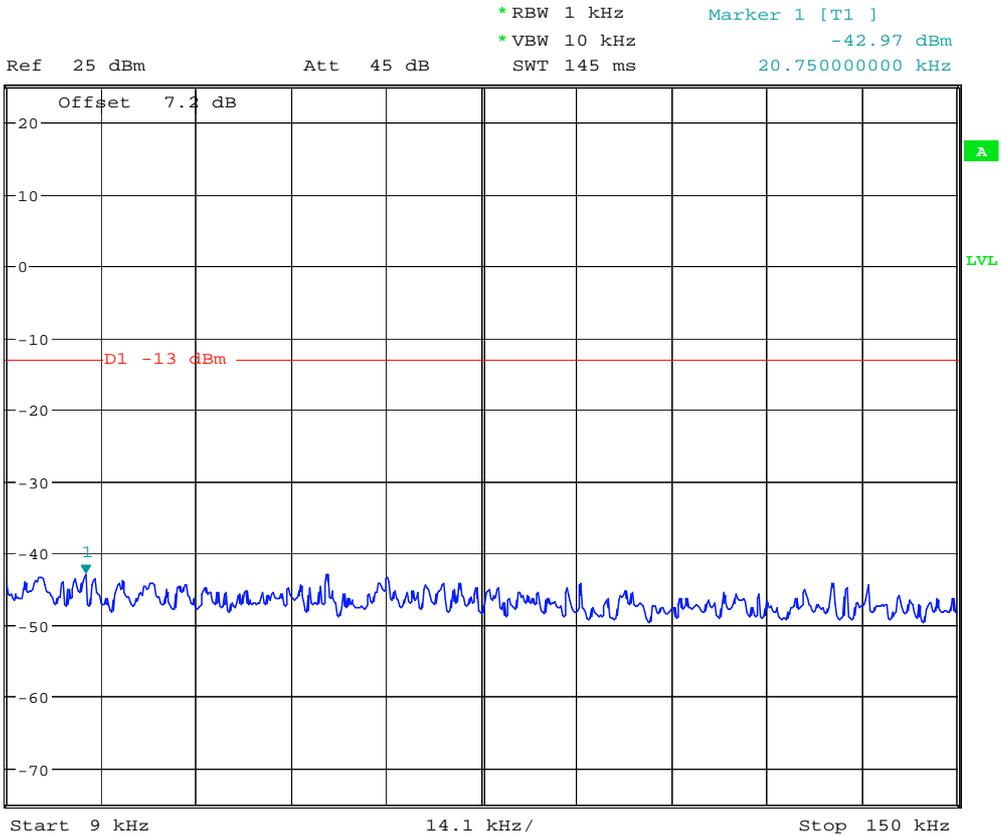
Date: 19.AUG.2008 18:22:27



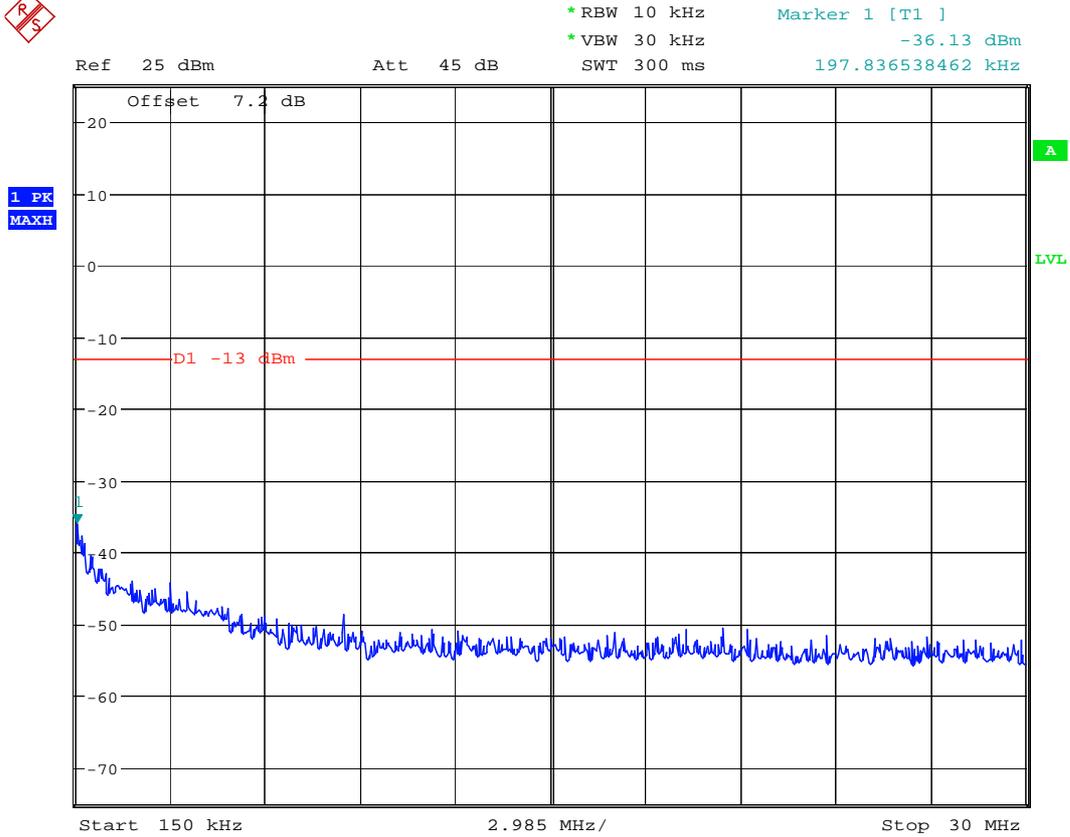
EVDO subtype 2

Modulation: BPSK

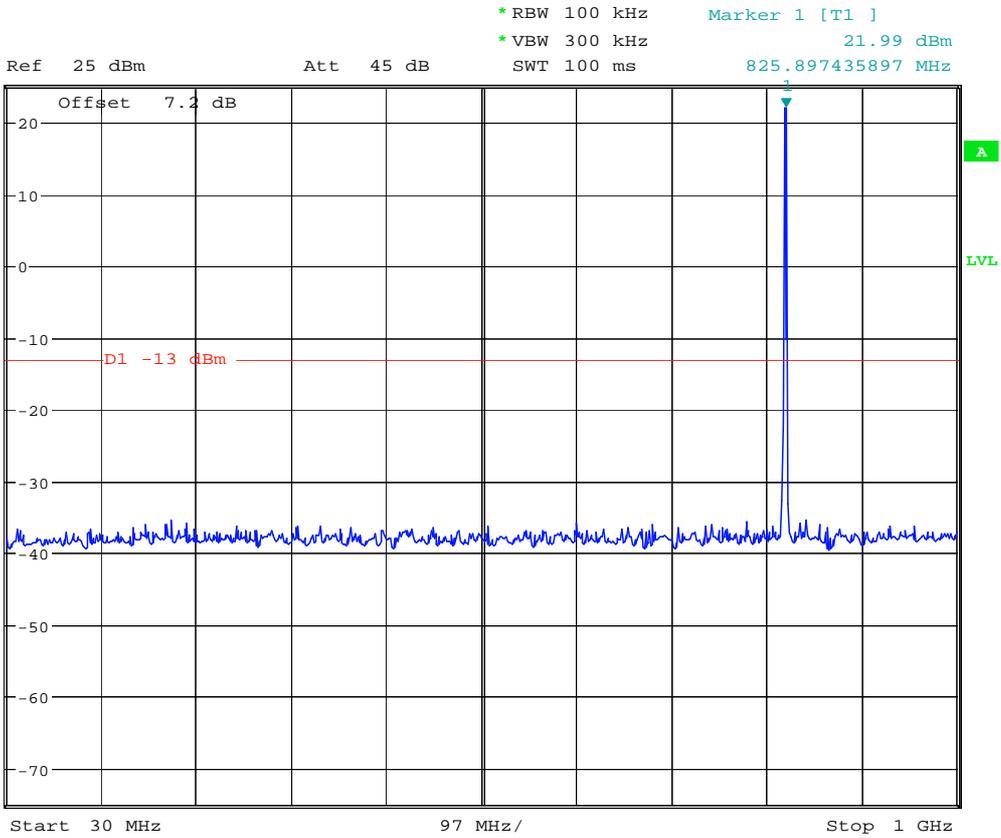
Channel 1013



Date: 23.AUG.2008 17:00:50



Date: 23.AUG.2008 17:01:16



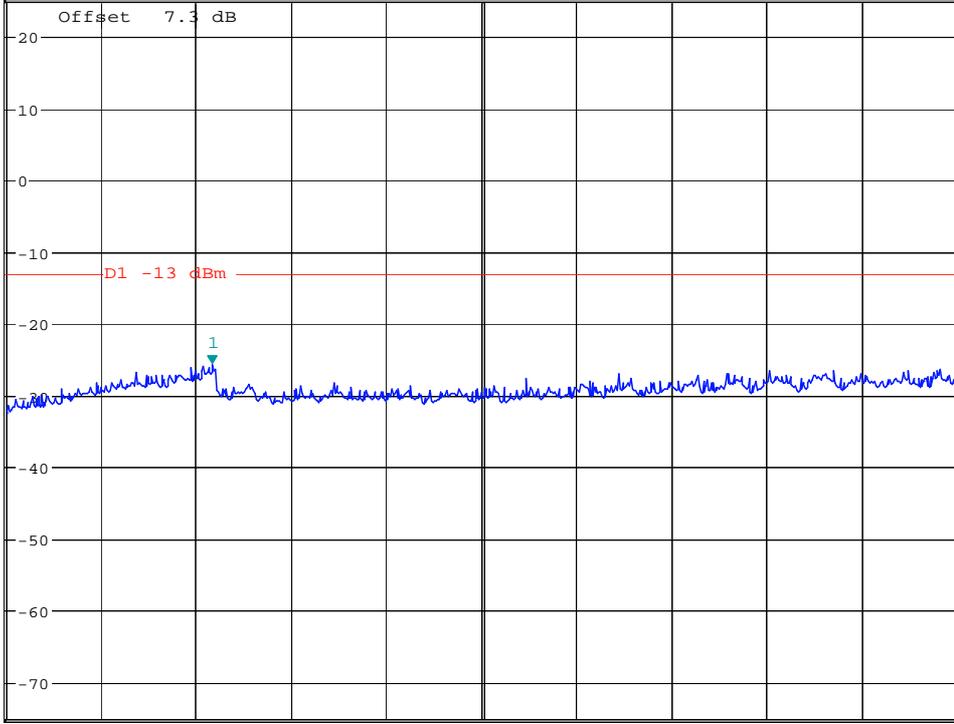
Date: 23.AUG.2008 17:01:42



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -25.78 dBm
SWT 70 ms 3.542067308 GHz

Ref 25 dBm

Att 45 dB



Start 1 GHz

1.175 GHz/

Stop 12.75 GHz

Date: 23.AUG.2008 17:02:09



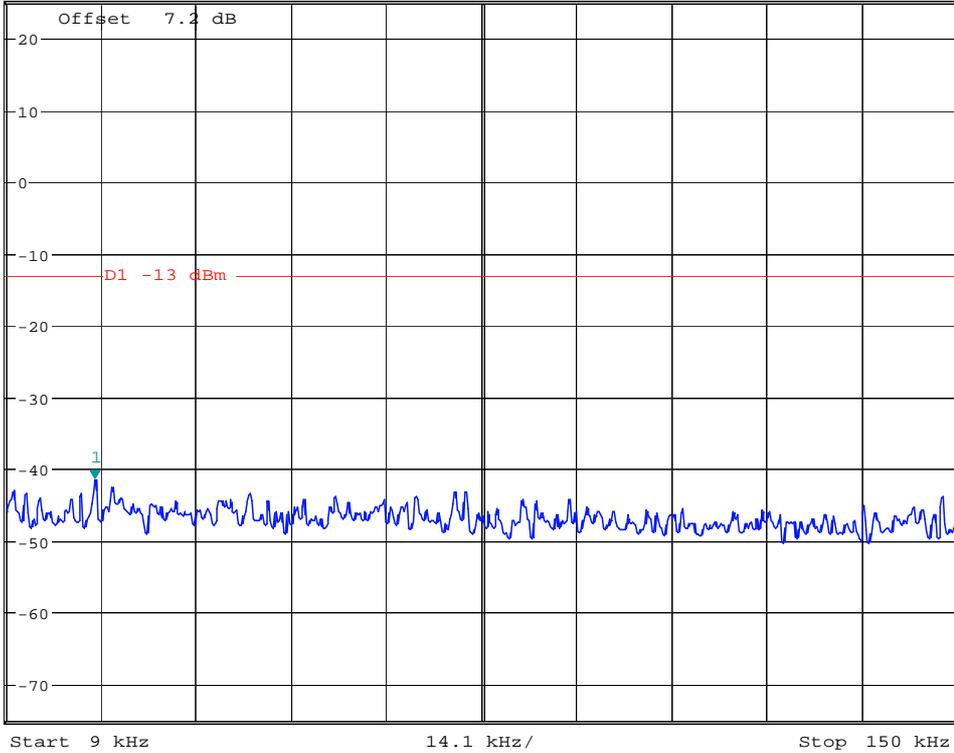
Channel 384



*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -41.55 dBm
SWT 145 ms 22.105769231 kHz

Ref 25 dBm

Att 45 dB



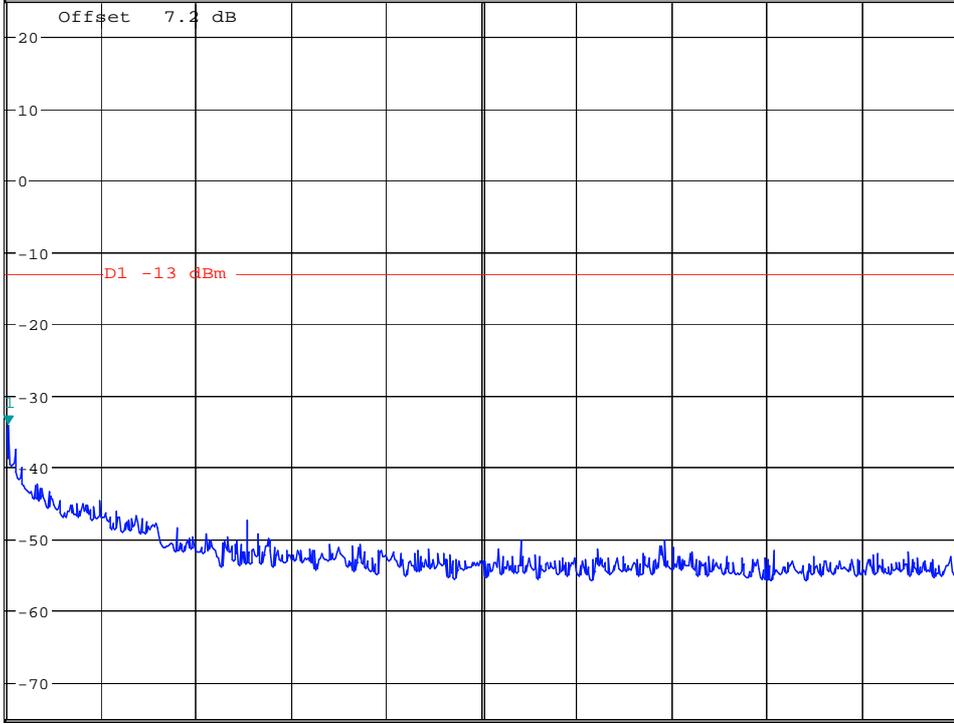
Date: 23.AUG.2008 17:00:58



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -34.13 dBm
SWT 300 ms 197.836538462 kHz

Ref 25 dBm

Att 45 dB

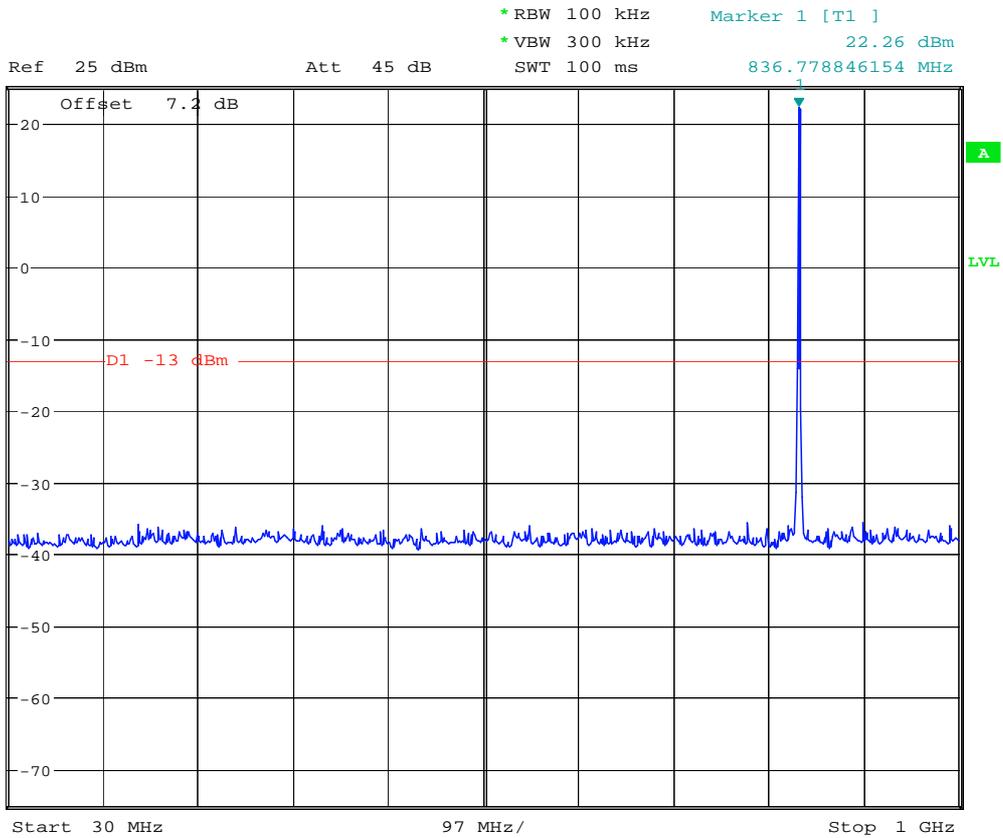


Start 150 kHz

2.985 MHz/

Stop 30 MHz

Date: 23.AUG.2008 17:01:24



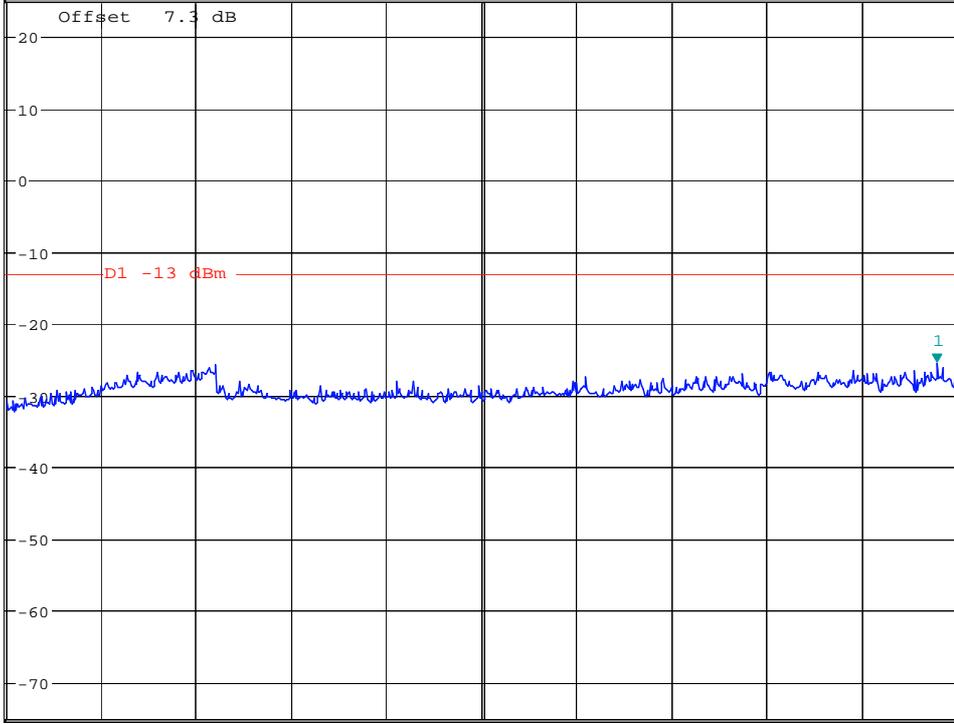
Date: 23.AUG.2008 17:01:51



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -25.56 dBm
SWT 70 ms 12.505208333 GHz

Ref 25 dBm

Att 45 dB



Start 1 GHz

1.175 GHz/

Stop 12.75 GHz

Date: 23.AUG.2008 17:02:17



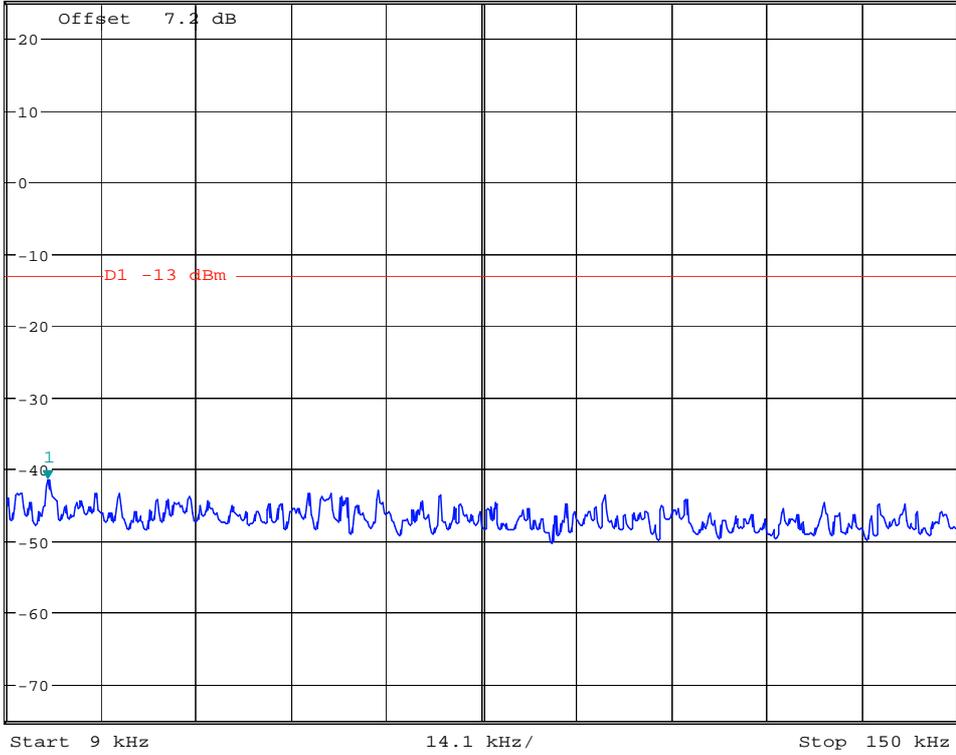
Channel 777



*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -41.55 dBm
SWT 145 ms 15.100961538 kHz

Ref 25 dBm

Att 45 dB



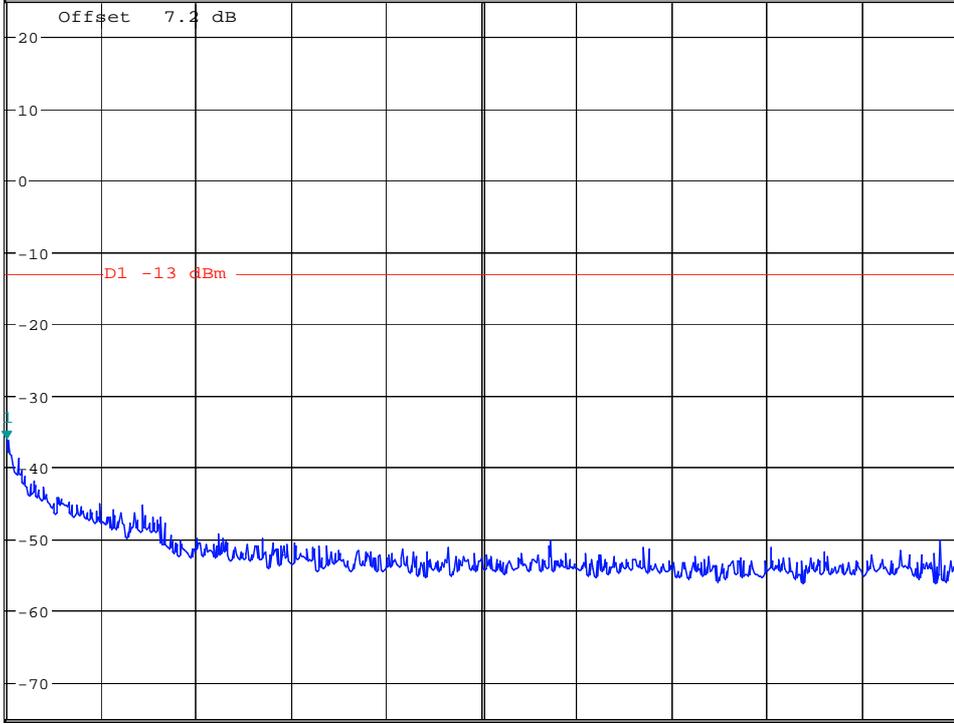
Date: 23.AUG.2008 17:01:07



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -36.26 dBm
SWT 300 ms 150.00000000 kHz

Ref 25 dBm

Att 45 dB



Start 150 kHz

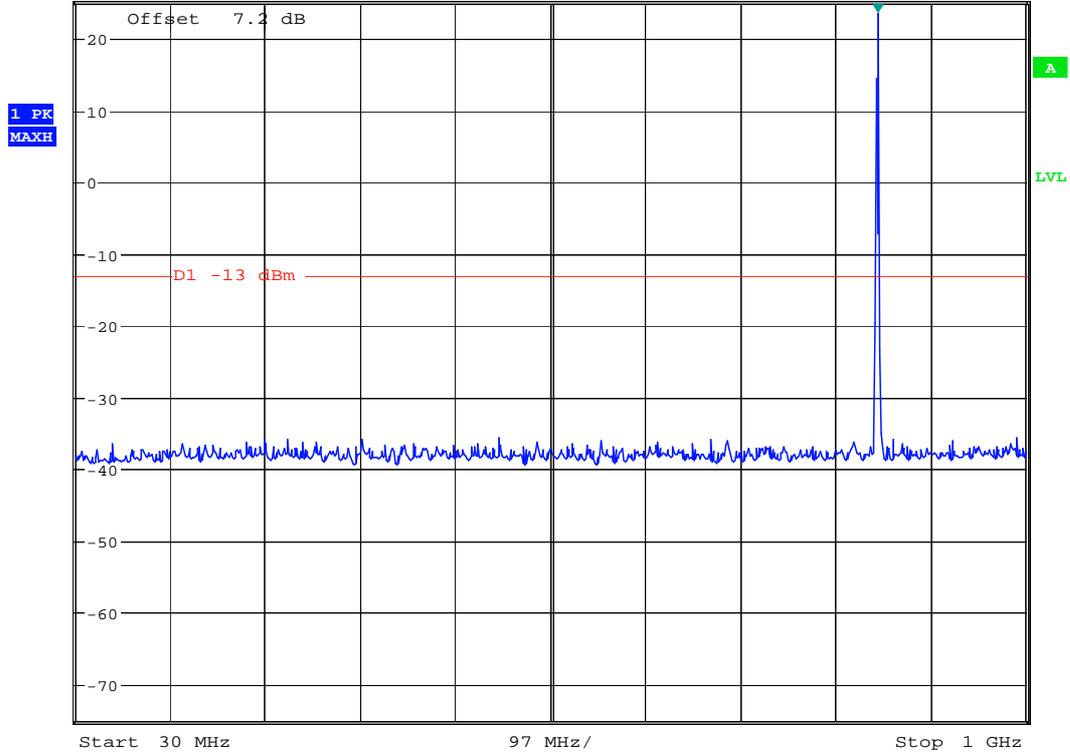
2.985 MHz/

Stop 30 MHz

Date: 23.AUG.2008 17:01:33



Ref 25 dBm Att 45 dB *RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 23.34 dBm
SWT 100 ms 849.214743590 MHz



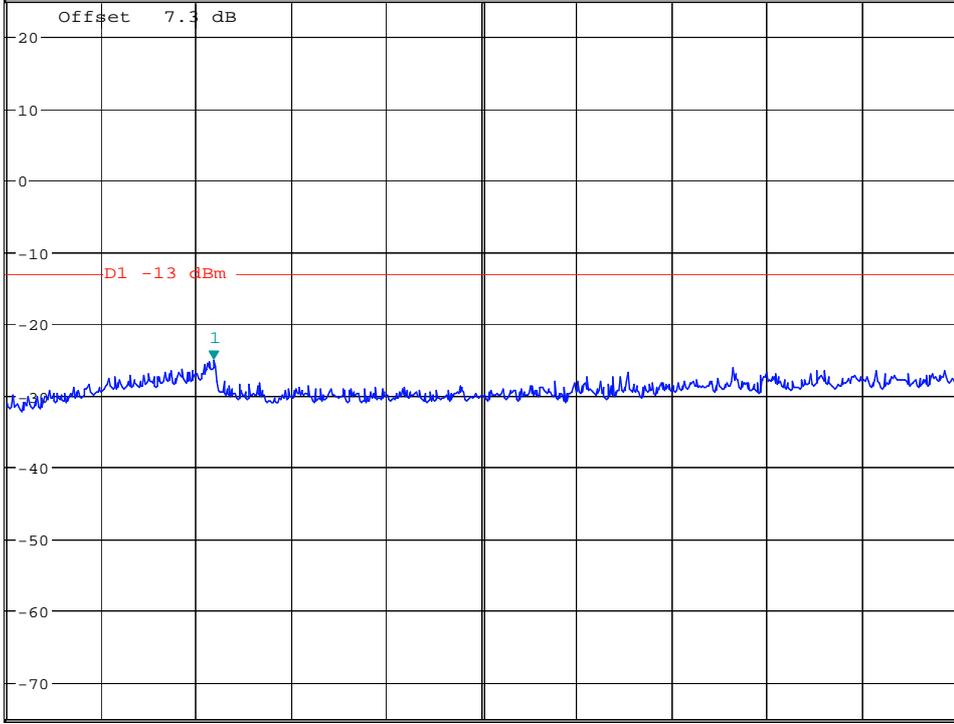
Date: 23.AUG.2008 17:02:00



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -25.09 dBm
SWT 70 ms 3.560897436 GHz

Ref 25 dBm

Att 45 dB



Start 1 GHz

1.175 GHz/

Stop 12.75 GHz

Date: 23.AUG.2008 17:02:26

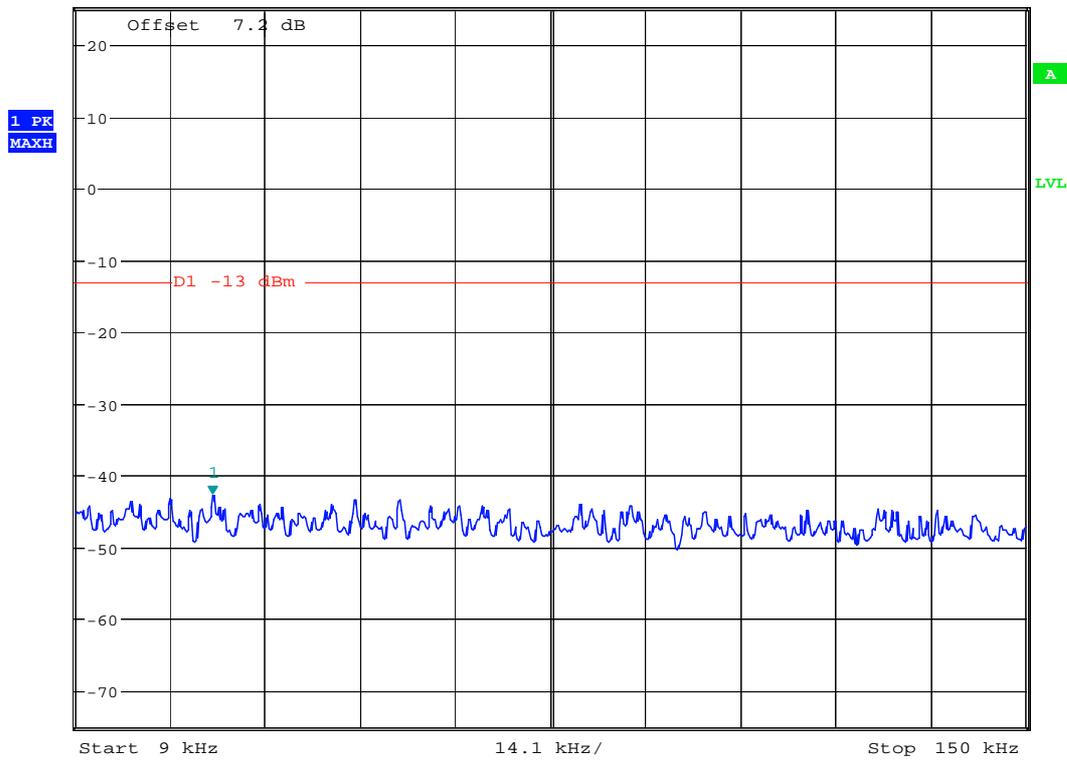


Modulation: QPSK

Channel 1013



*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -42.68 dBm
Ref 25 dBm Att 45 dB SWT 145 ms 29.336538462 kHz



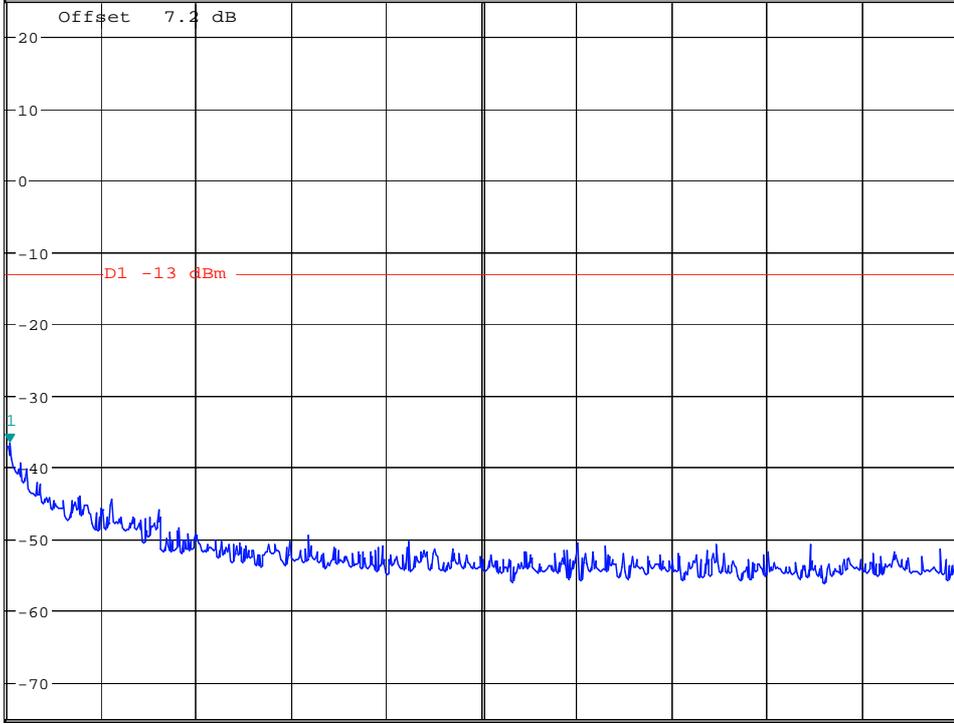
Date: 23.AUG.2008 17:02:35



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -36.74 dBm
SWT 300 ms 245.673076923 kHz

Ref 25 dBm

Att 45 dB

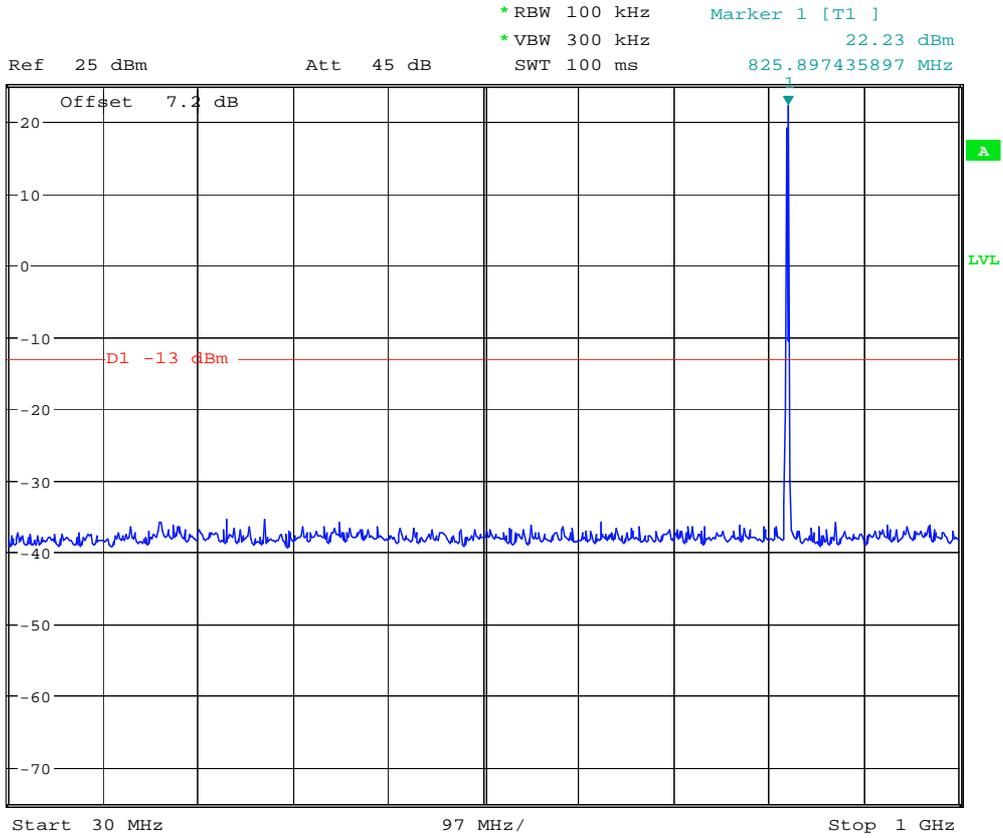


Start 150 kHz

2.985 MHz/

Stop 30 MHz

Date: 23.AUG.2008 17:03:01



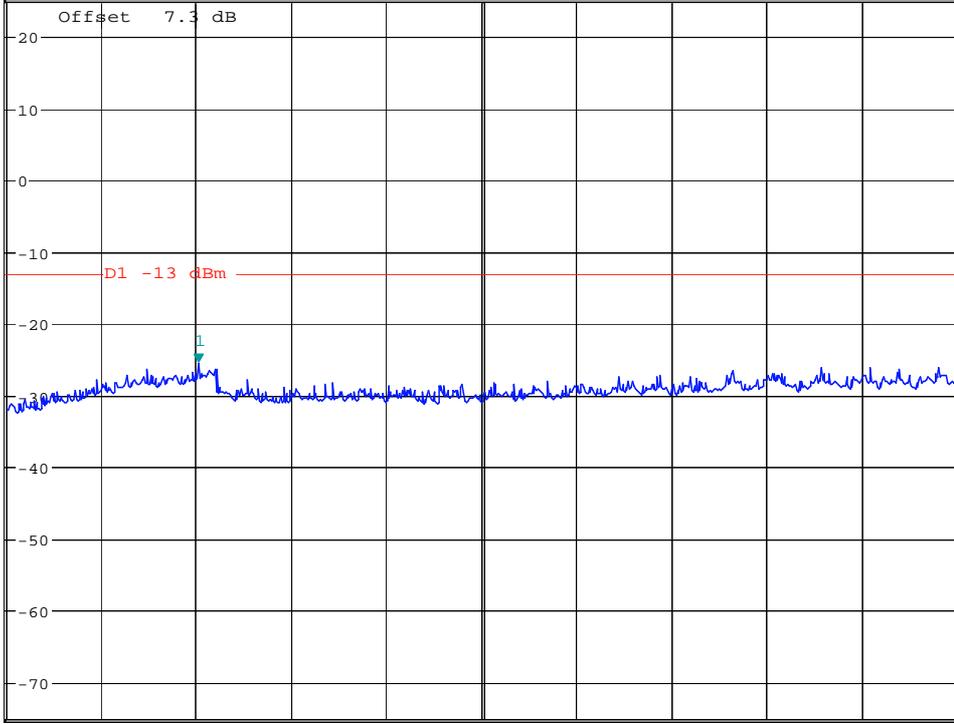
Date: 23.AUG.2008 17:03:28



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -25.62 dBm
SWT 70 ms 3.372596154 GHz

Ref 25 dBm

Att 45 dB



Start 1 GHz

1.175 GHz/

Stop 12.75 GHz

Date: 23.AUG.2008 17:03:54



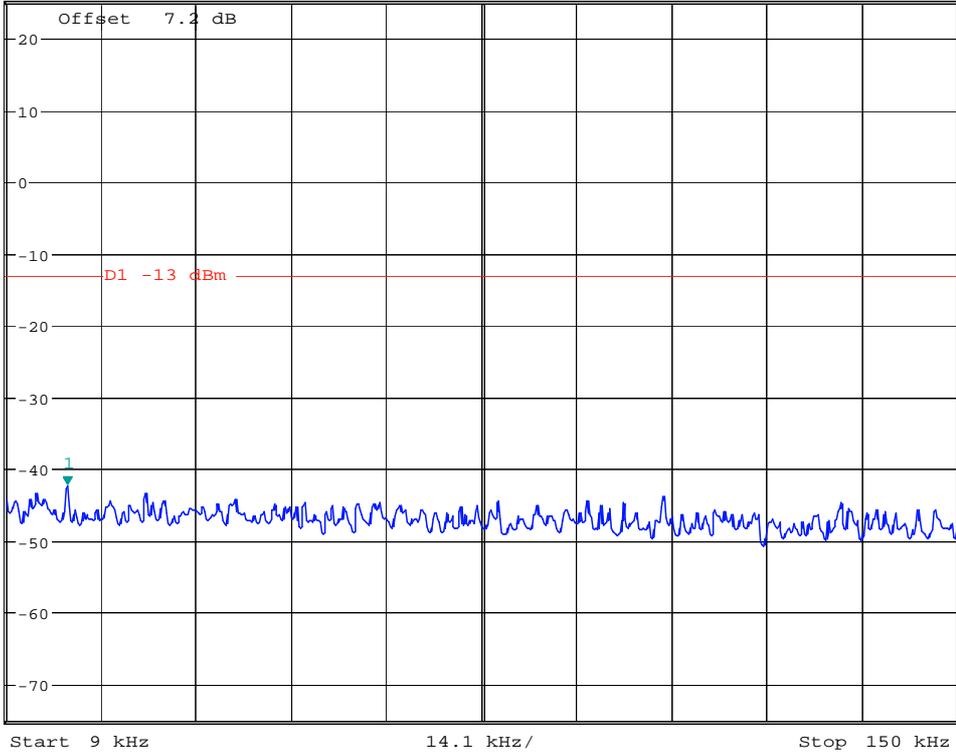
Channel 384



*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -42.23 dBm
SWT 145 ms 18.038461538 kHz

Ref 25 dBm

Att 45 dB



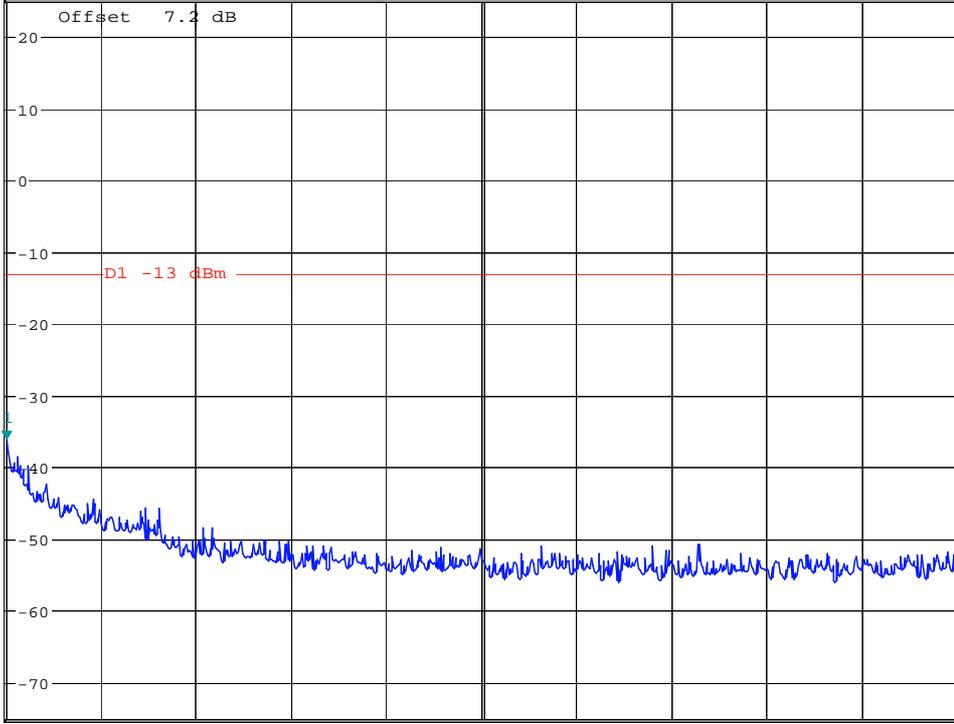
Date: 23.AUG.2008 17:02:44



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -36.26 dBm
SWT 300 ms 150.00000000 kHz

Ref 25 dBm

Att 45 dB

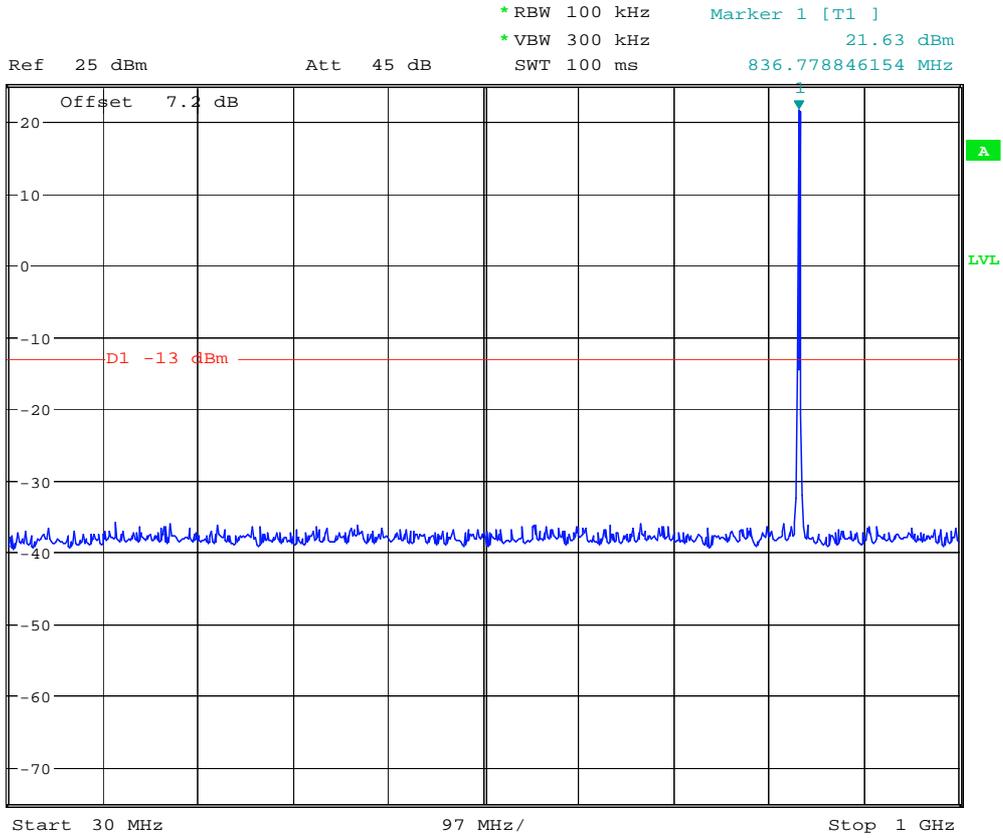


Start 150 kHz

2.985 MHz/

Stop 30 MHz

Date: 23.AUG.2008 17:03:10



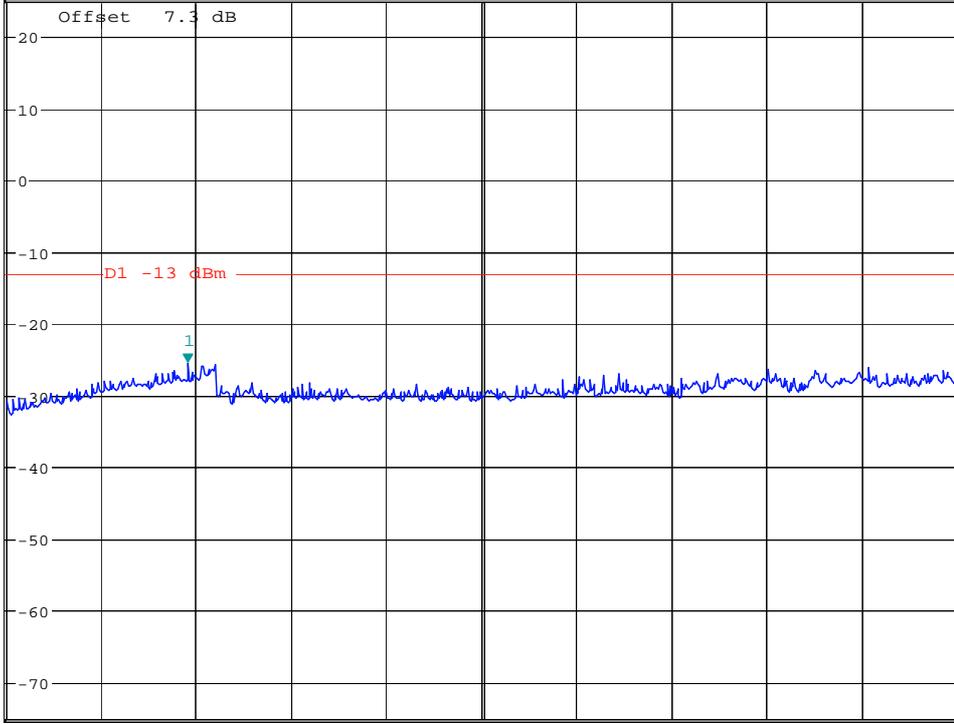
Date: 23.AUG.2008 17:03:36



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -25.45 dBm
SWT 70 ms 3.240785256 GHz

Ref 25 dBm

Att 45 dB



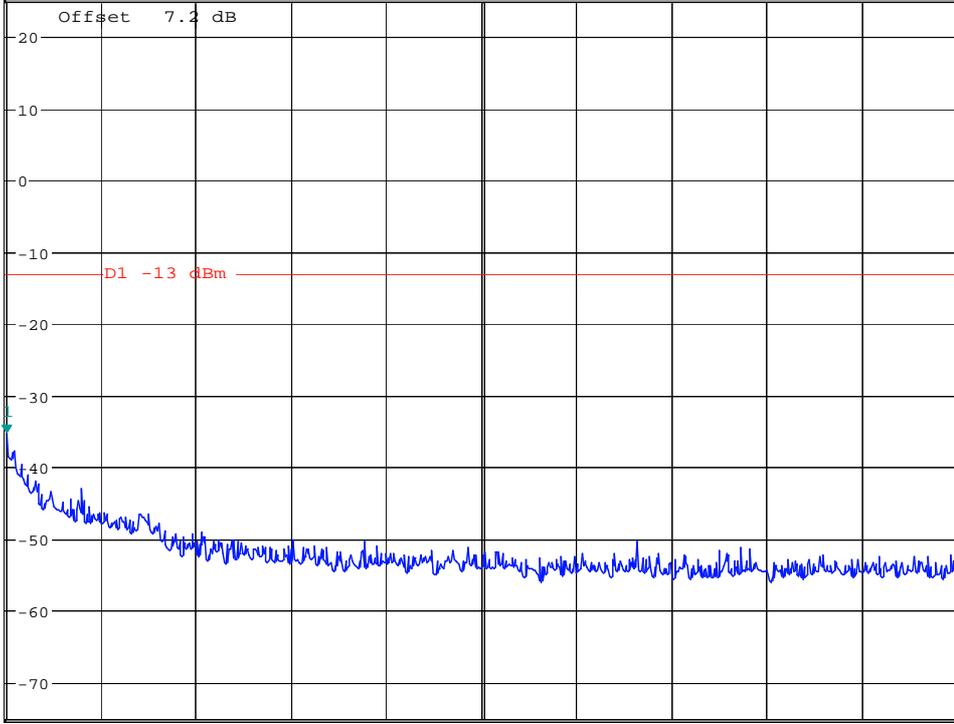
Date: 23.AUG.2008 17:04:03



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -35.30 dBm
SWT 300 ms 150.00000000 kHz

Ref 25 dBm

Att 45 dB

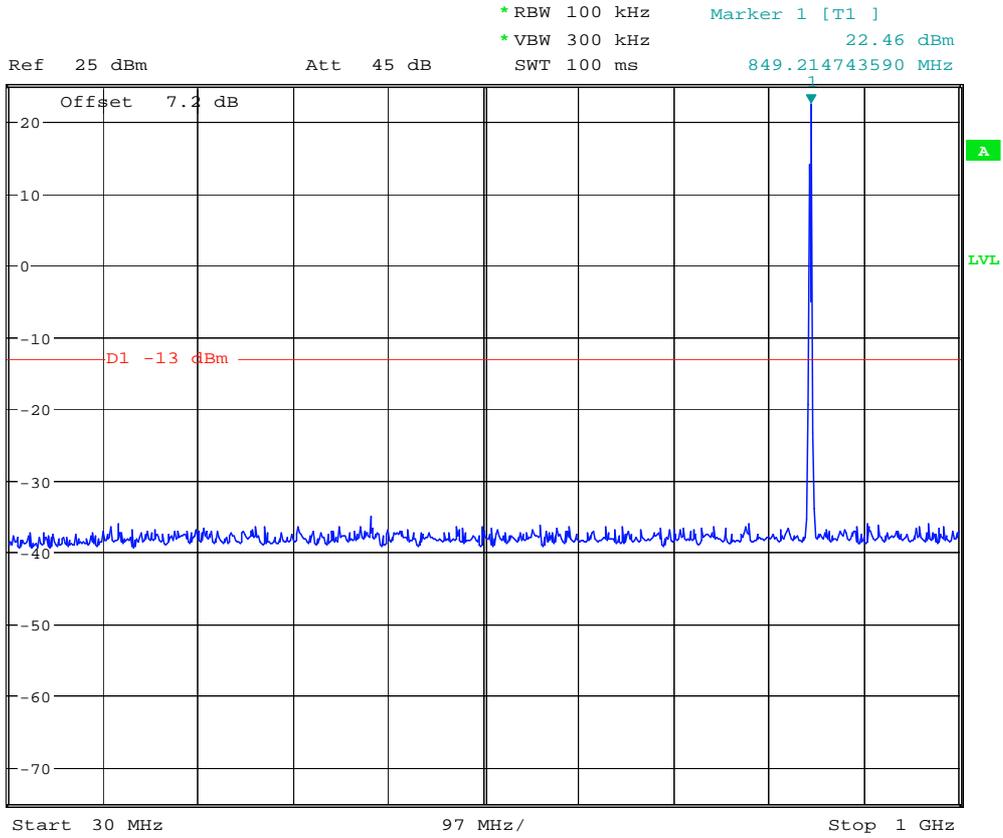


Start 150 kHz

2.985 MHz/

Stop 30 MHz

Date: 23.AUG.2008 17:03:19



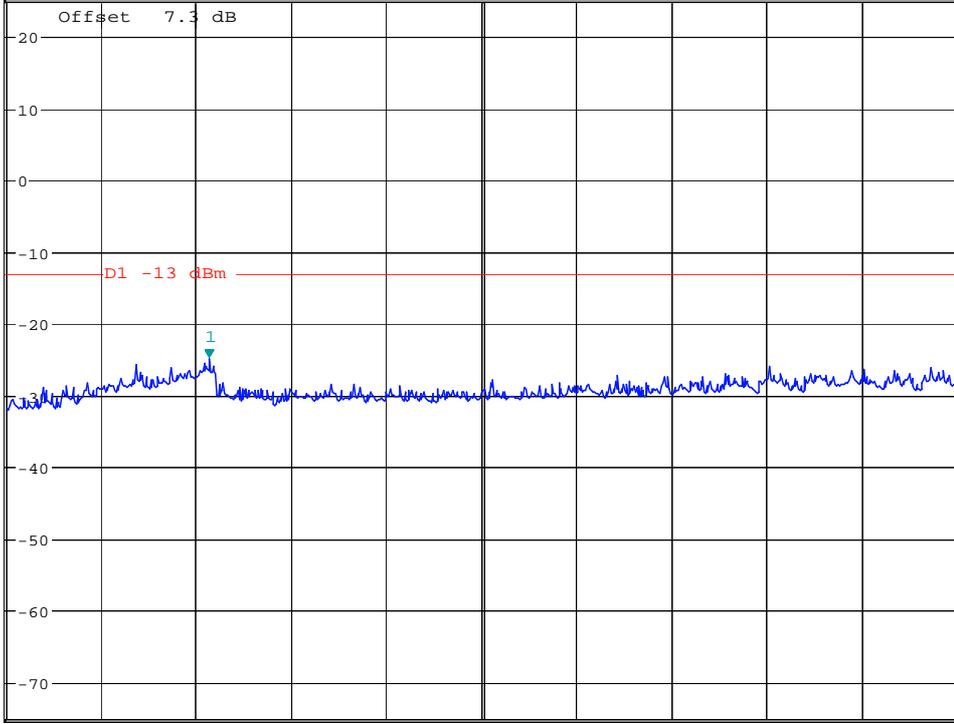
Date: 23.AUG.2008 17:03:45



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -24.84 dBm
SWT 70 ms 3.504407051 GHz

Ref 25 dBm

Att 45 dB



Start 1 GHz

1.175 GHz/

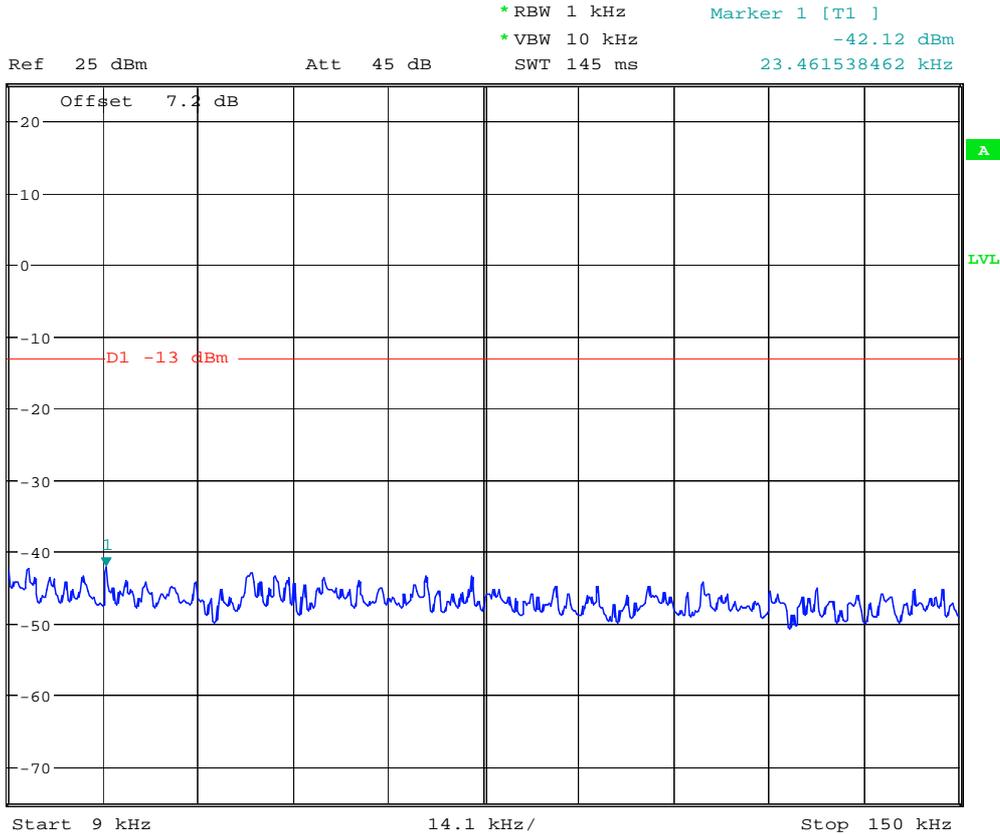
Stop 12.75 GHz

Date: 23.AUG.2008 17:04:11



Modulation: 8PSK

Channel 1013



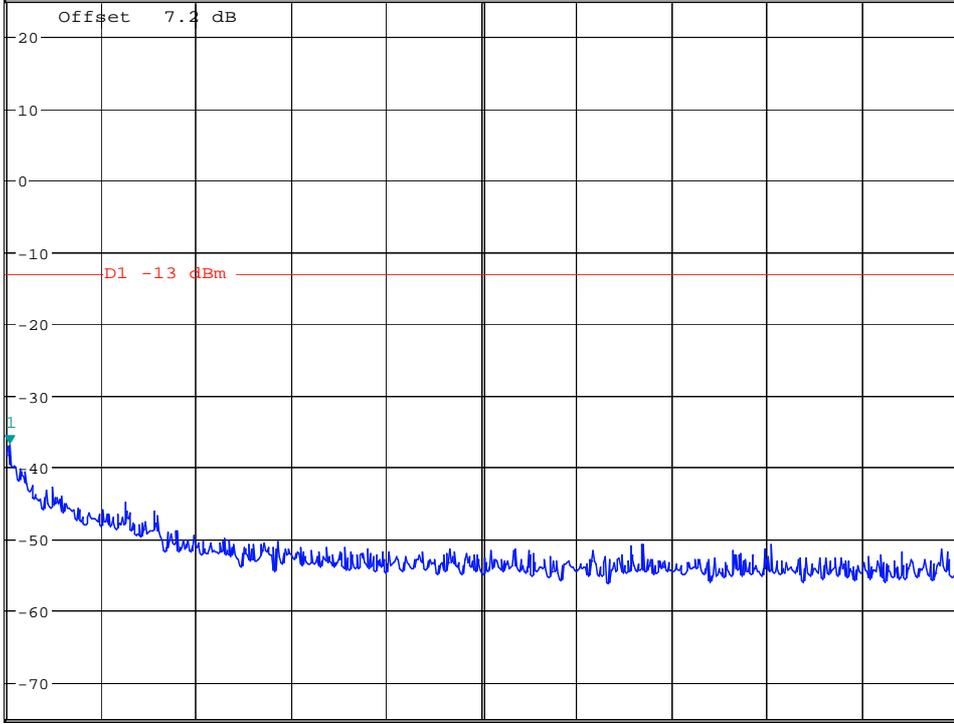
Date: 23.AUG.2008 17:04:20



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -36.91 dBm
SWT 300 ms 245.673076923 kHz

Ref 25 dBm

Att 45 dB



Start 150 kHz

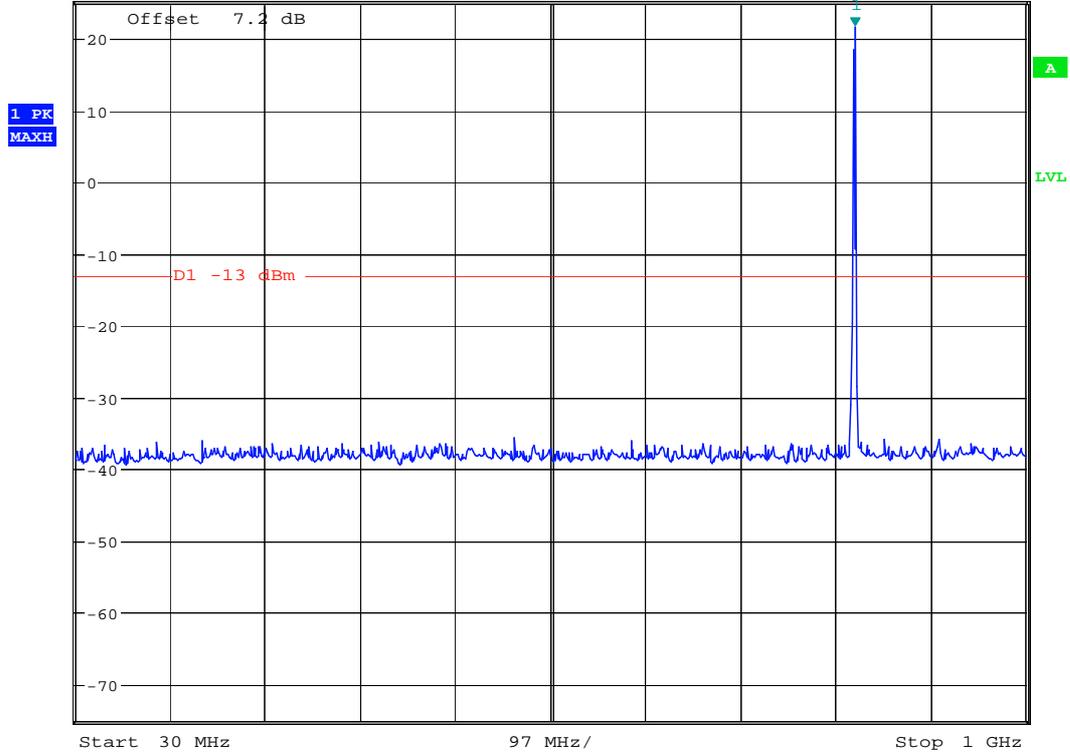
2.985 MHz/

Stop 30 MHz

Date: 23.AUG.2008 17:04:47



Ref 25 dBm Att 45 dB SWT 100 ms
*RBW 100 kHz *VBW 300 kHz
Marker 1 [T1] 21.49 dBm
825.897435897 MHz



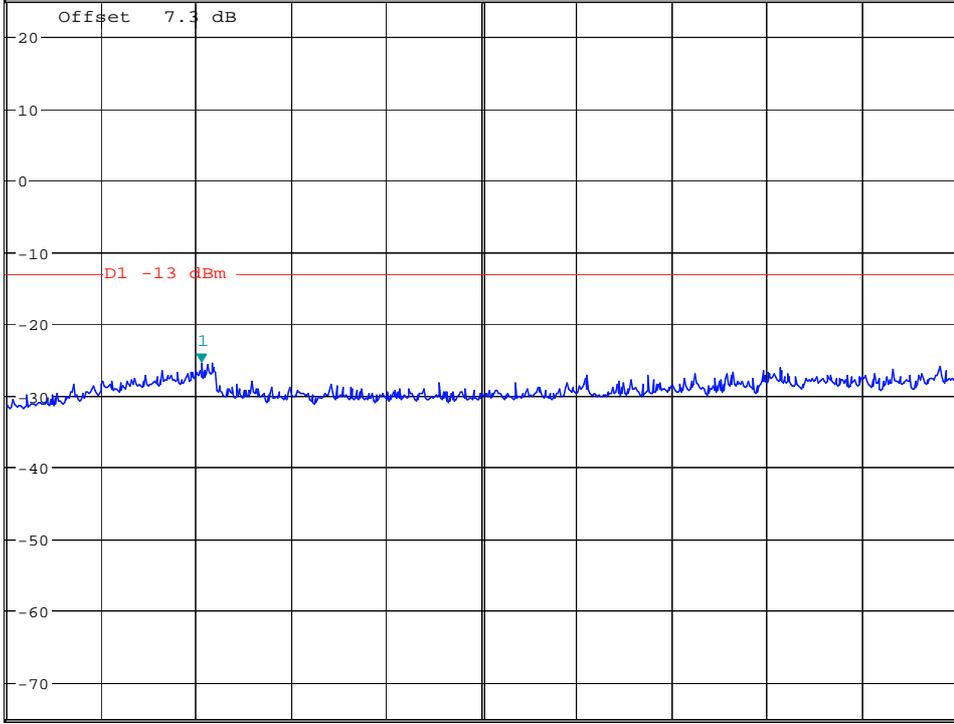
Date: 23.AUG.2008 17:05:13



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -25.49 dBm
SWT 70 ms 3.410256410 GHz

Ref 25 dBm

Att 45 dB



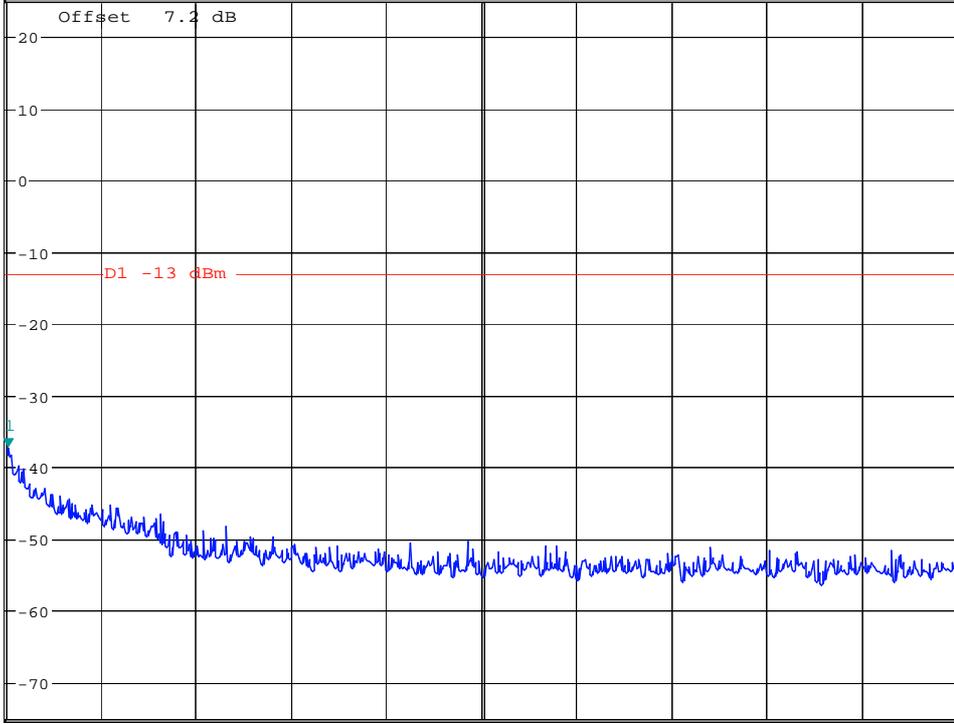
Date: 23.AUG.2008 17:05:40



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -37.31 dBm
SWT 300 ms 197.836538462 kHz

Ref 25 dBm

Att 45 dB

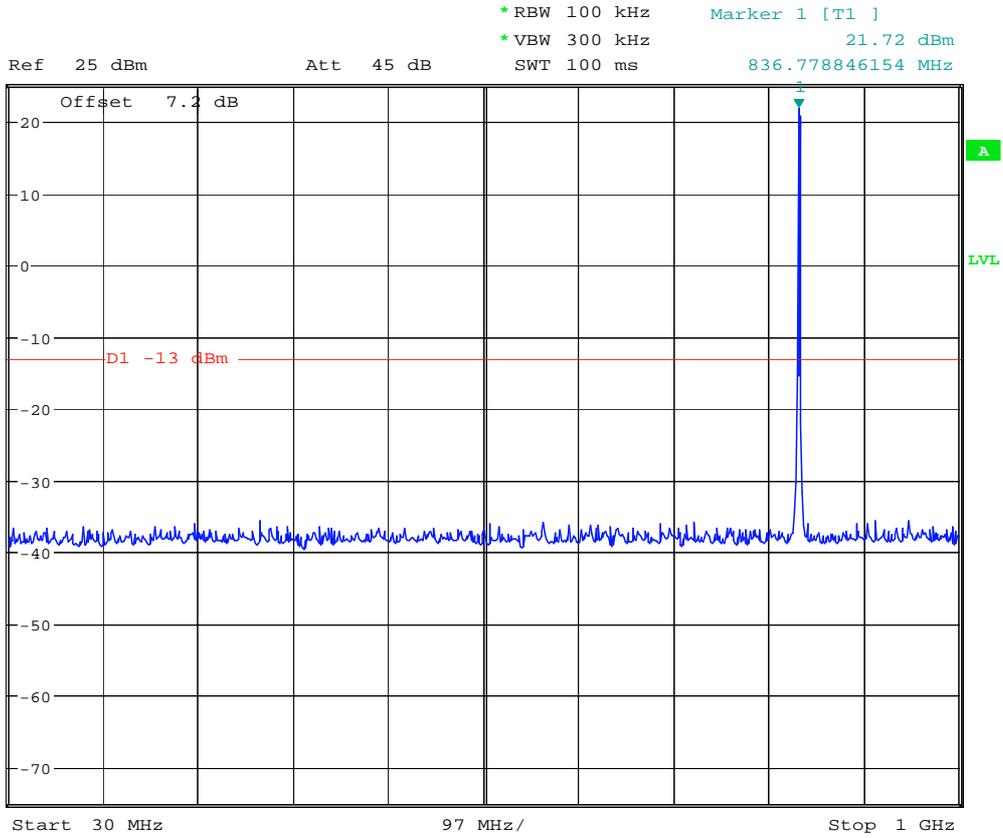


Start 150 kHz

2.985 MHz/

Stop 30 MHz

Date: 23.AUG.2008 17:04:55



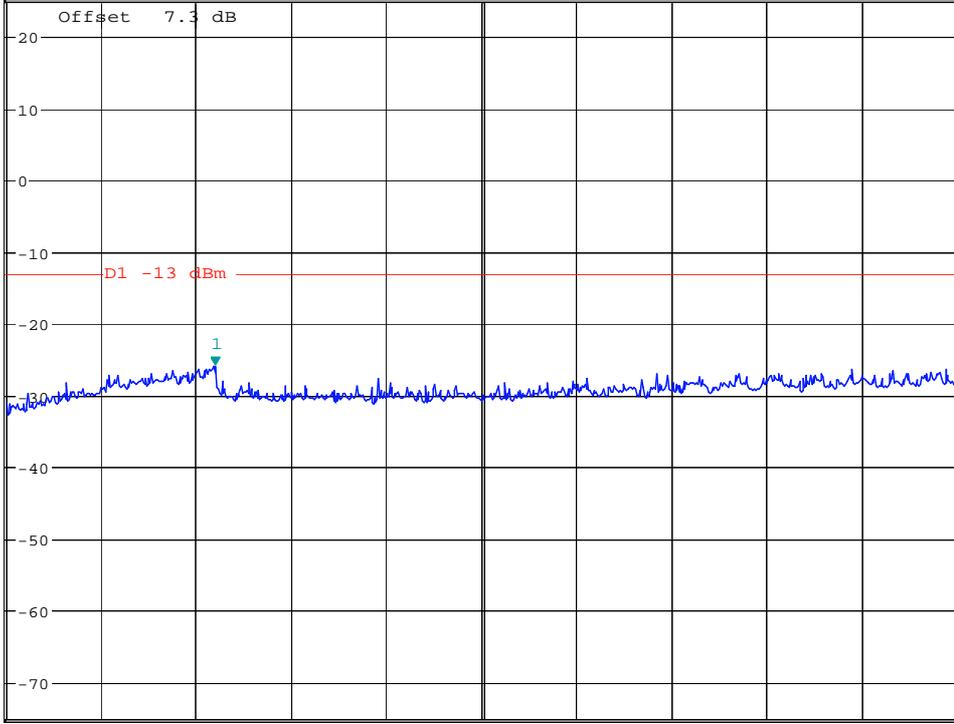
Date: 23.AUG.2008 17:05:22



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -25.99 dBm
SWT 70 ms 3.579727564 GHz

Ref 25 dBm

Att 45 dB



Start 1 GHz

1.175 GHz/

Stop 12.75 GHz

Date: 23.AUG.2008 17:05:48



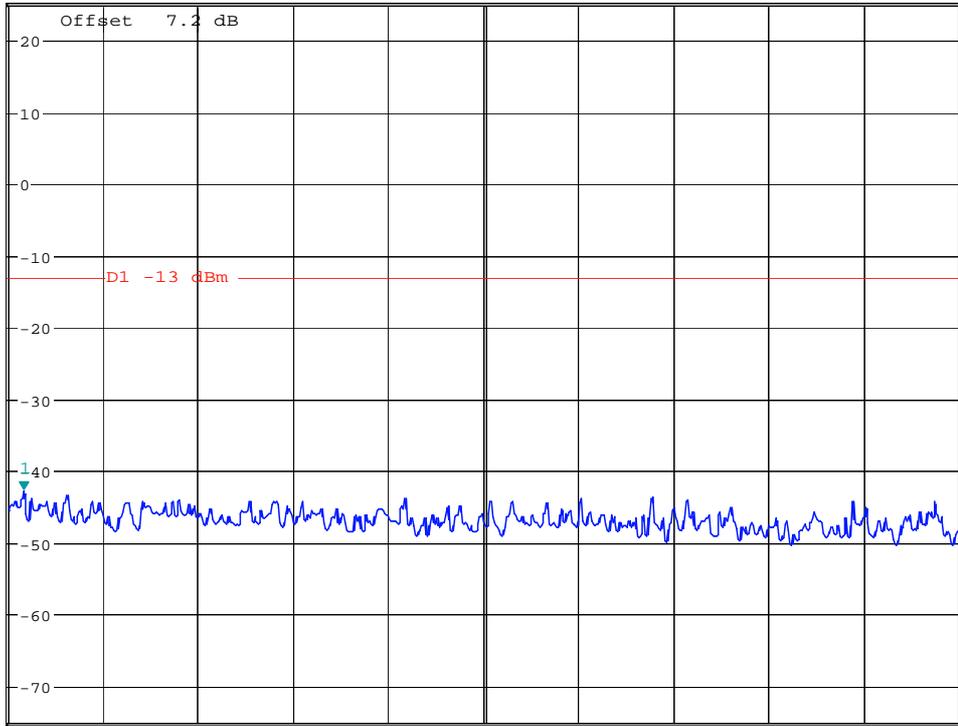
Channel 777



*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -42.85 dBm
SWT 145 ms 11.259615385 kHz

Ref 25 dBm

Att 45 dB



Start 9 kHz

14.1 kHz/

Stop 150 kHz

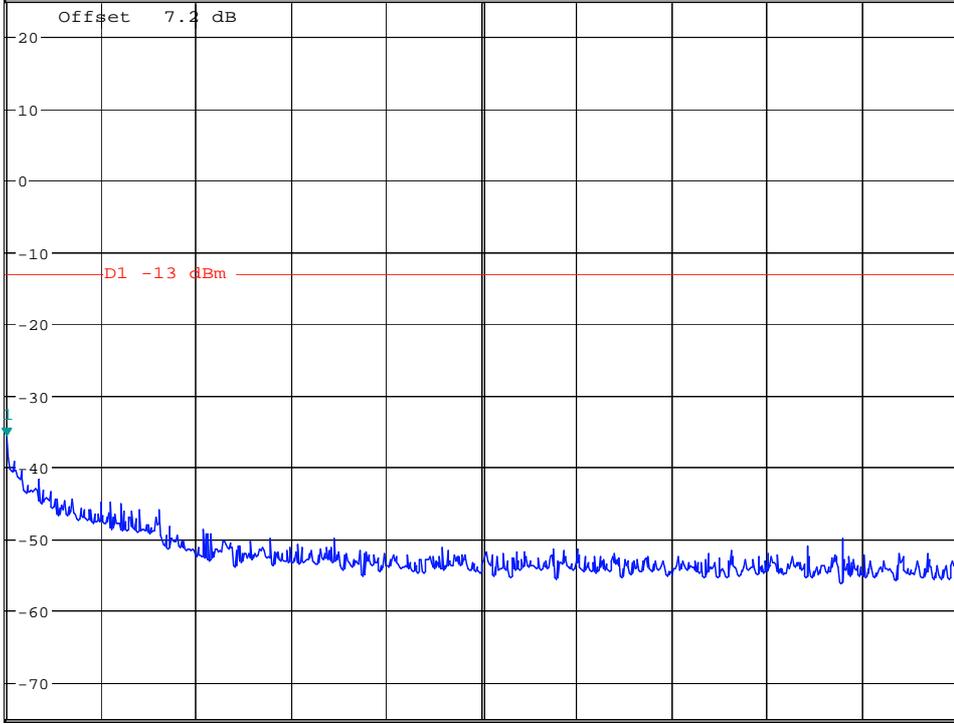
Date: 23.AUG.2008 17:04:38



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -35.83 dBm
SWT 300 ms 150.00000000 kHz

Ref 25 dBm

Att 45 dB



Start 150 kHz

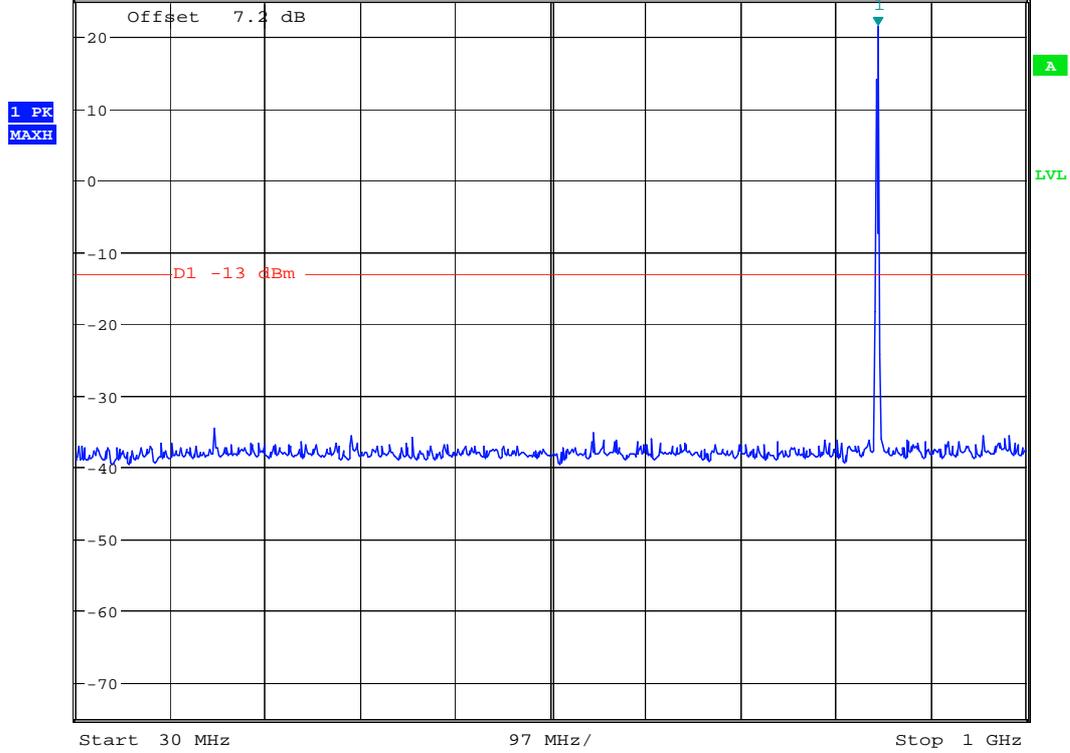
2.985 MHz/

Stop 30 MHz

Date: 23.AUG.2008 17:05:04



Ref 25 dBm Att 45 dB SWT 100 ms
*RBW 100 kHz *VBW 300 kHz
Marker 1 [T1] 21.40 dBm
849.214743590 MHz



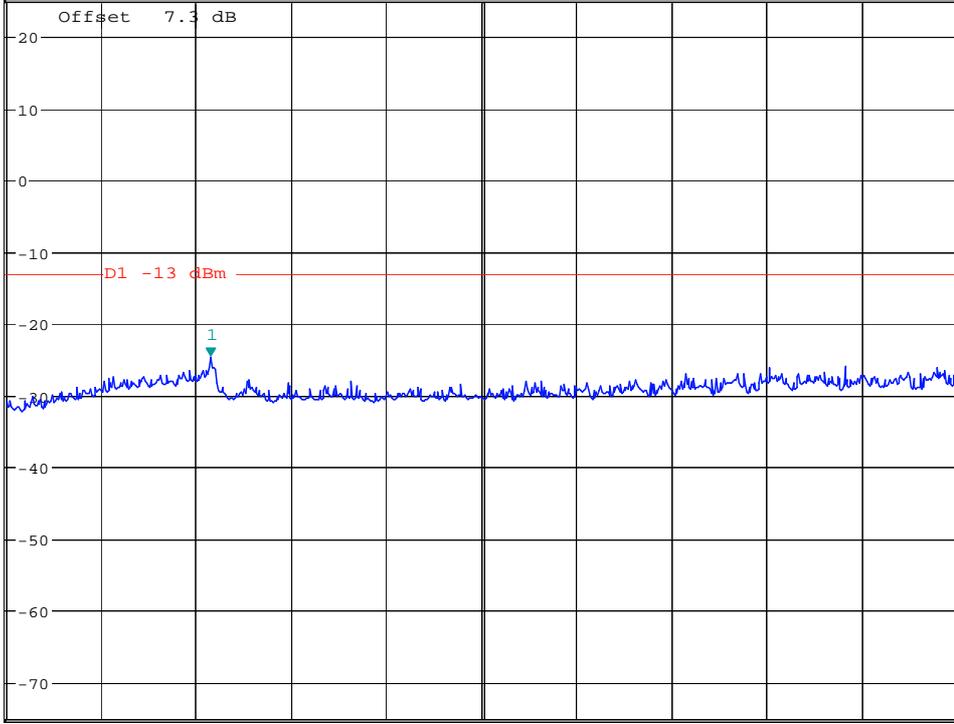
Date: 23.AUG.2008 17:05:30



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -24.72 dBm
SWT 70 ms 3.523237179 GHz

Ref 25 dBm

Att 45 dB



Start 1 GHz

1.175 GHz/

Stop 12.75 GHz

Date: 23.AUG.2008 17:05:57