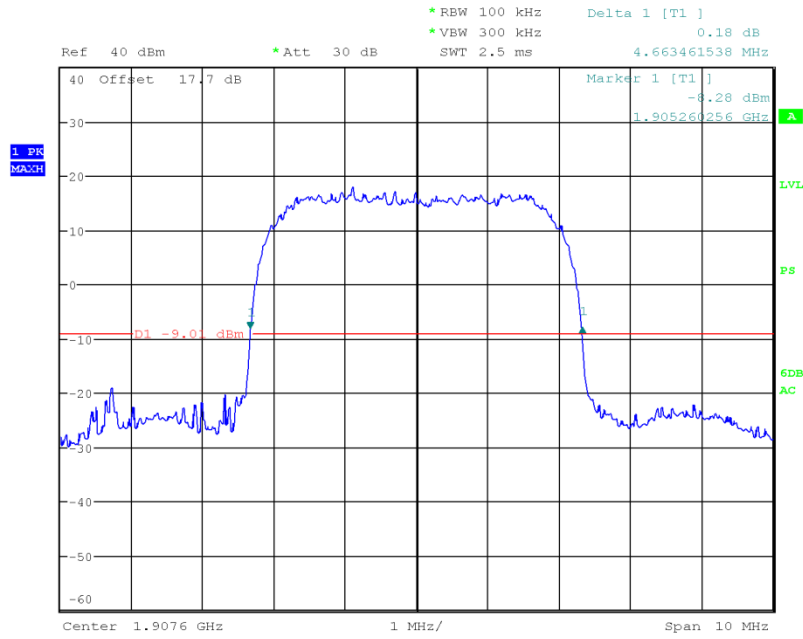


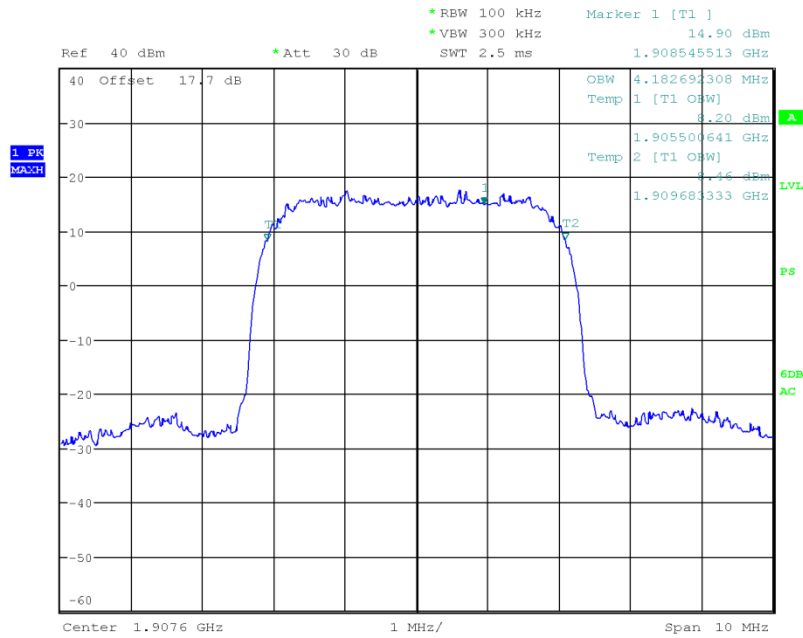


HSDPA PCS High Channel -26dB BW



Date: 3.JUL.2012 11:38:23

HSDPA PCS High Channel 99% BW

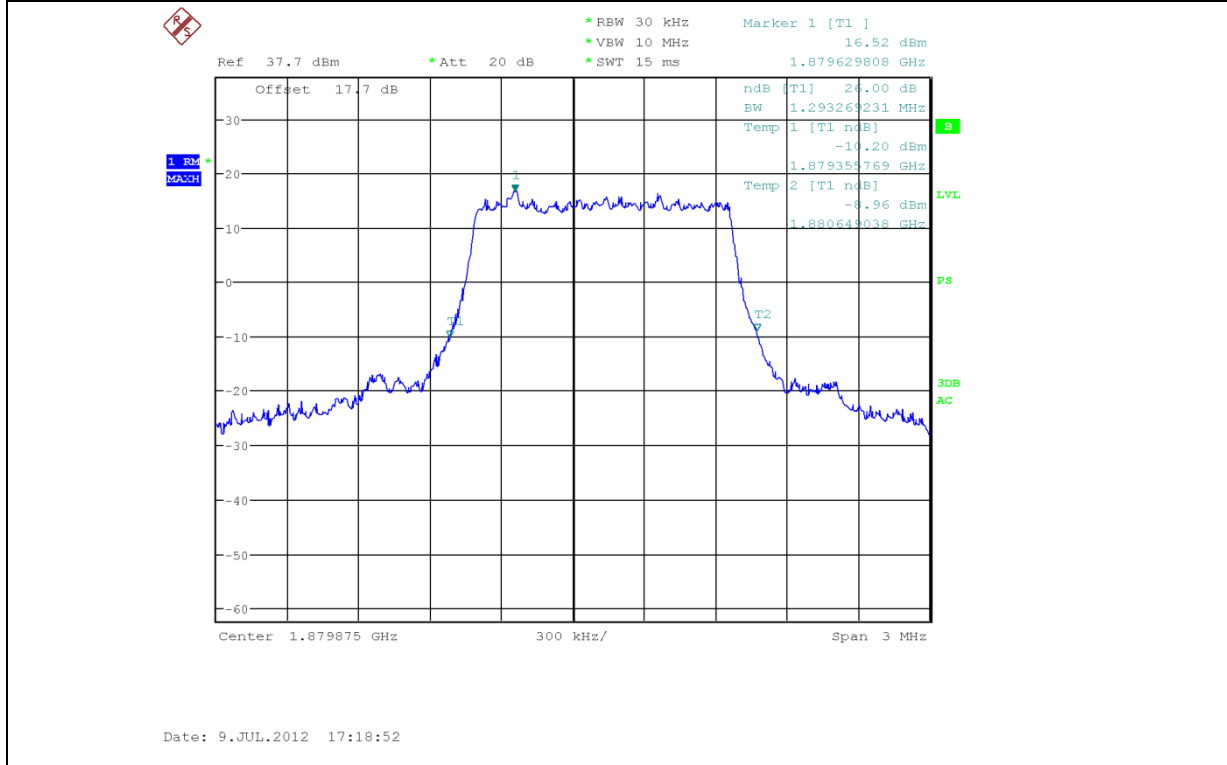


Date: 3.JUL.2012 11:41:43

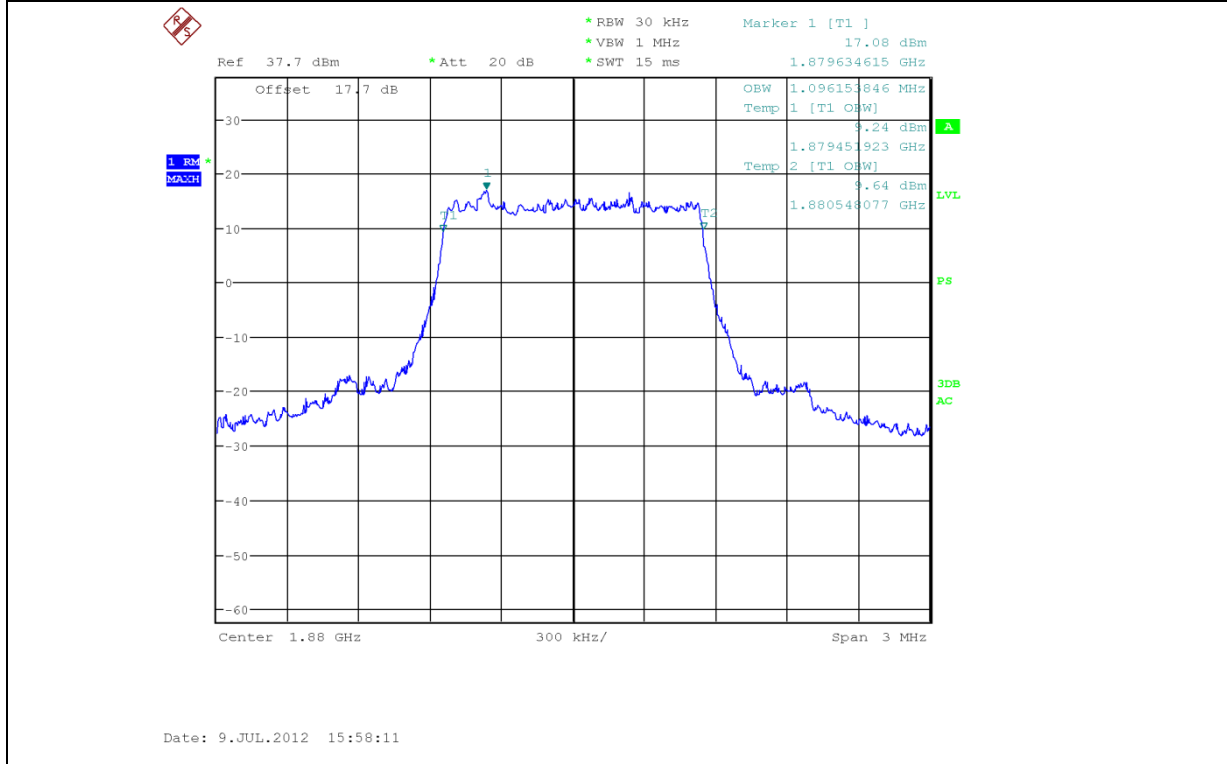


America

LTE Band 2 (1880MHz)(1.4MHz BW) QPSK -26dB BW



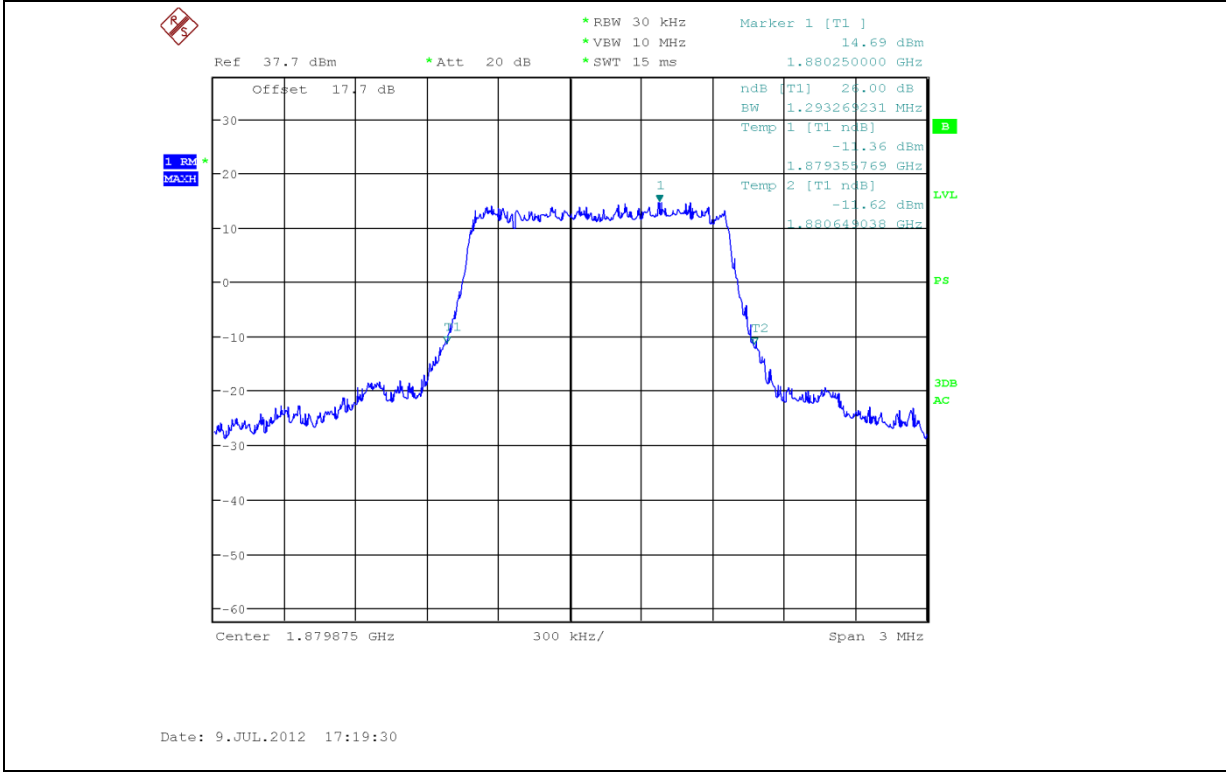
LTE Band 2 (1880MHz)(1.4MHz BW) QPSK 99% BW



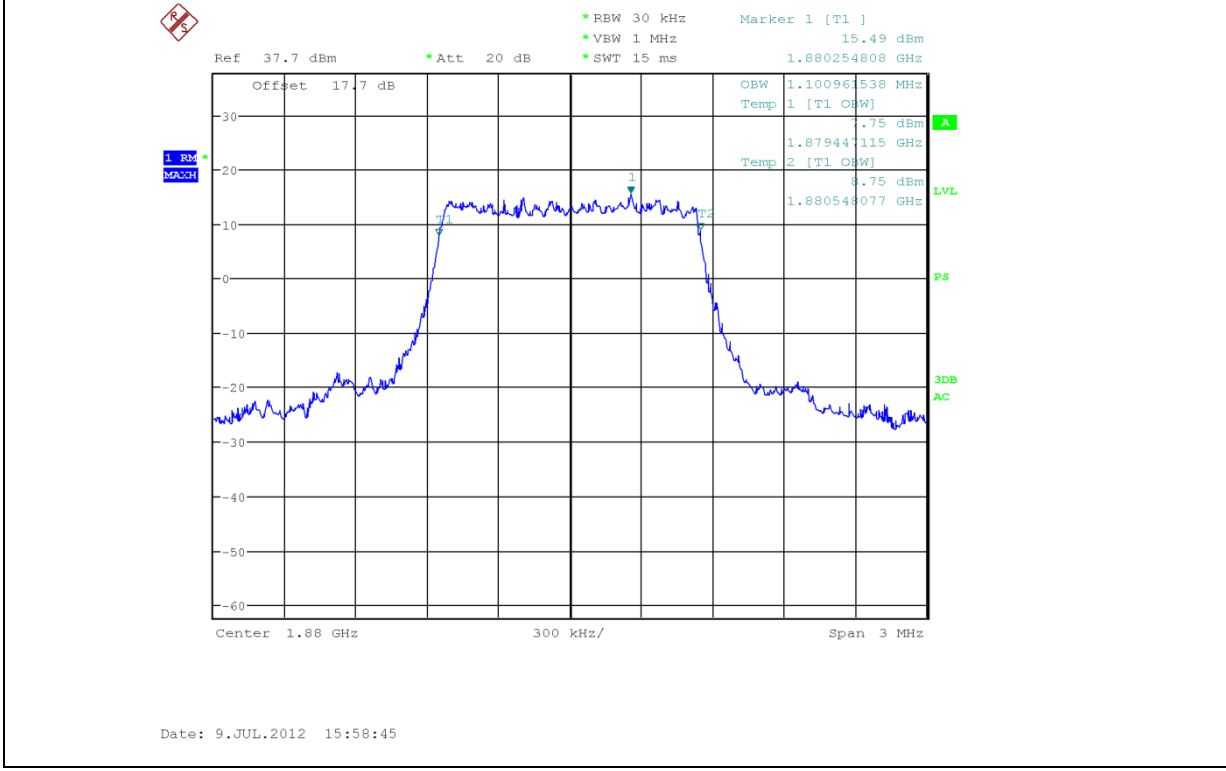


America

LTE Band 2 (1880MHz)(1.4MHz BW) 16-QAM -26dB BW



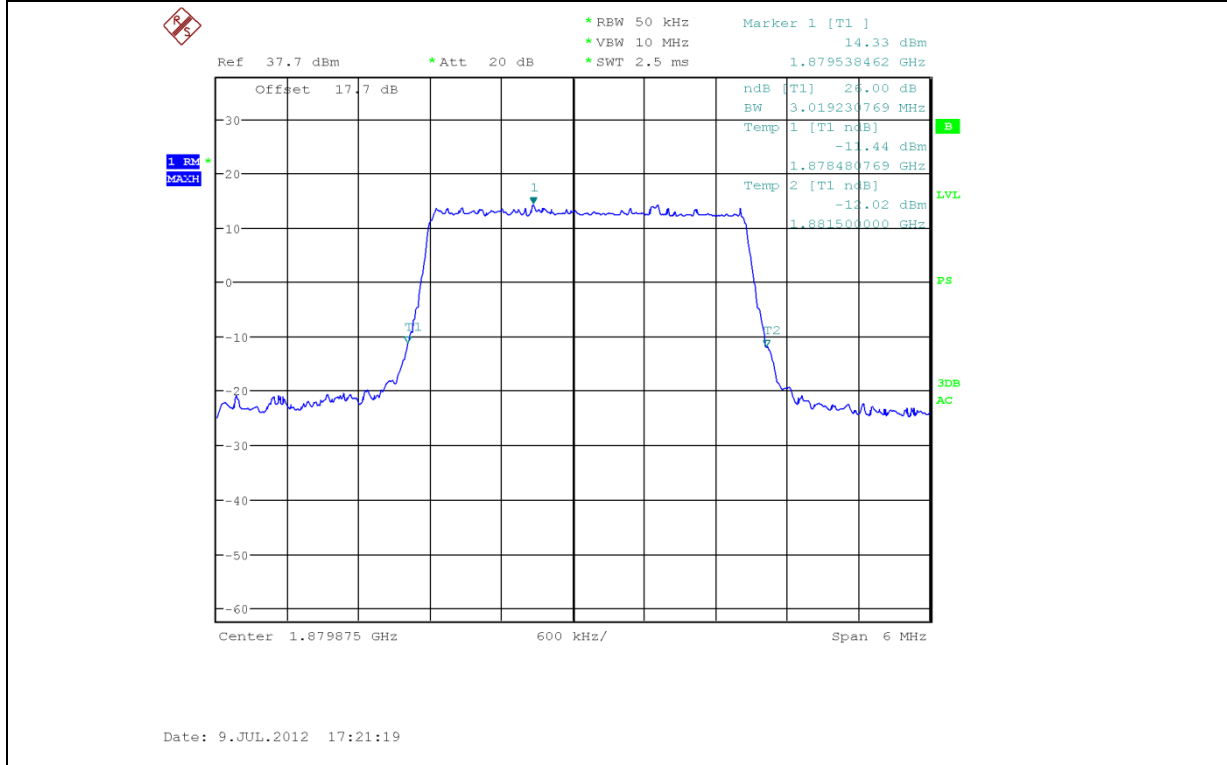
LTE Band 2 (1880MHz)(1.4MHz BW) 16-QAM 99% BW



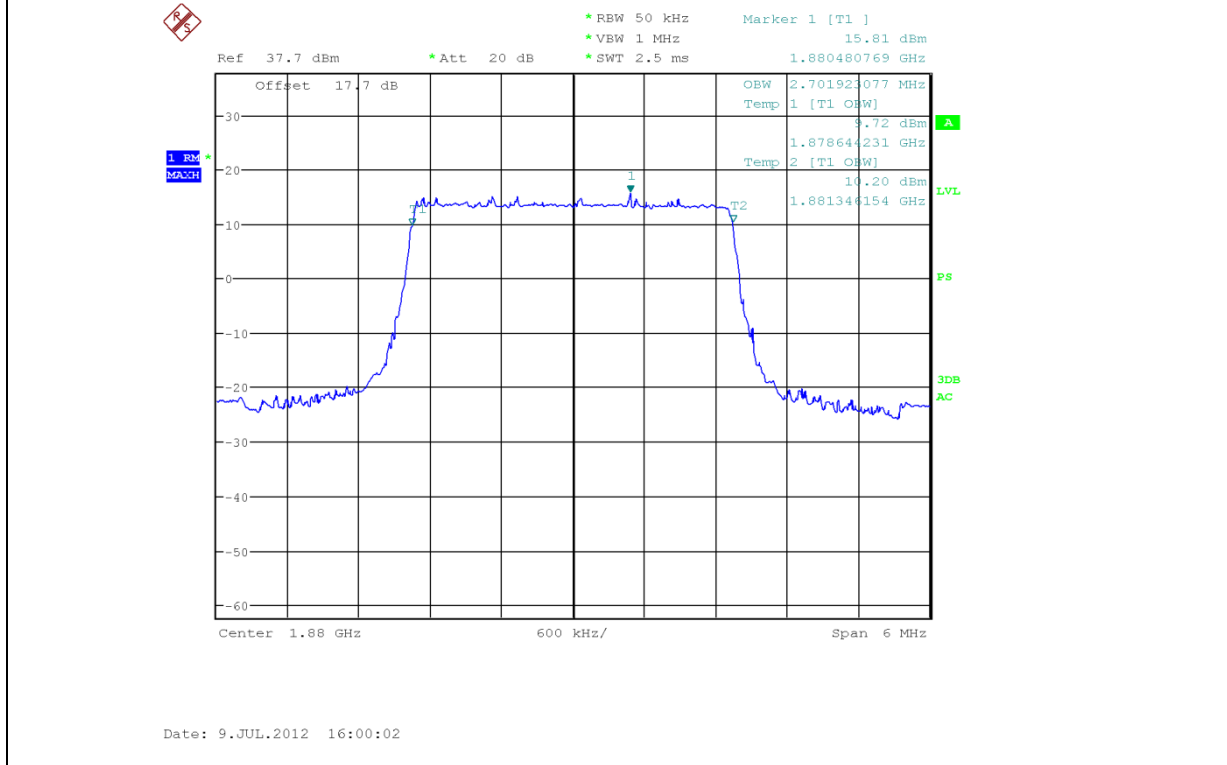


America

LTE Band 2 (1880MHz)(3MHz BW) QPSK -26dB BW



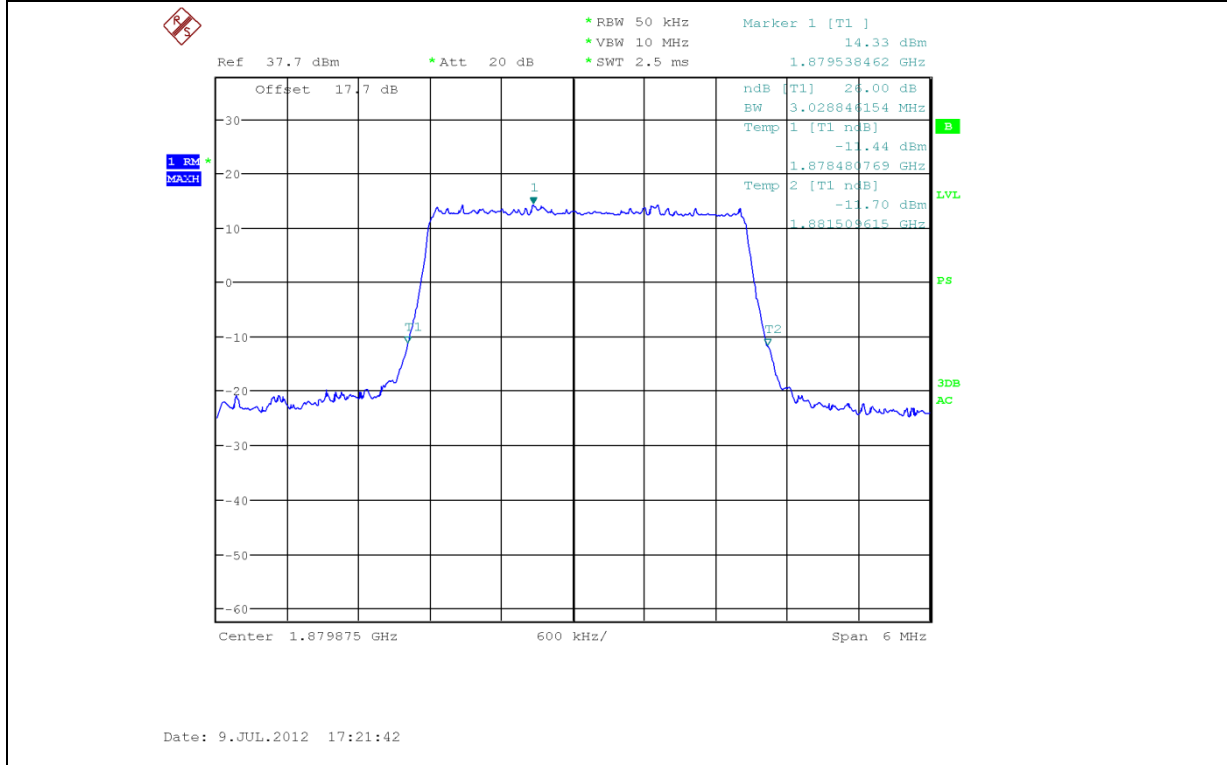
LTE Band 2 (1880MHz)(3MHz BW) QPSK 99% BW



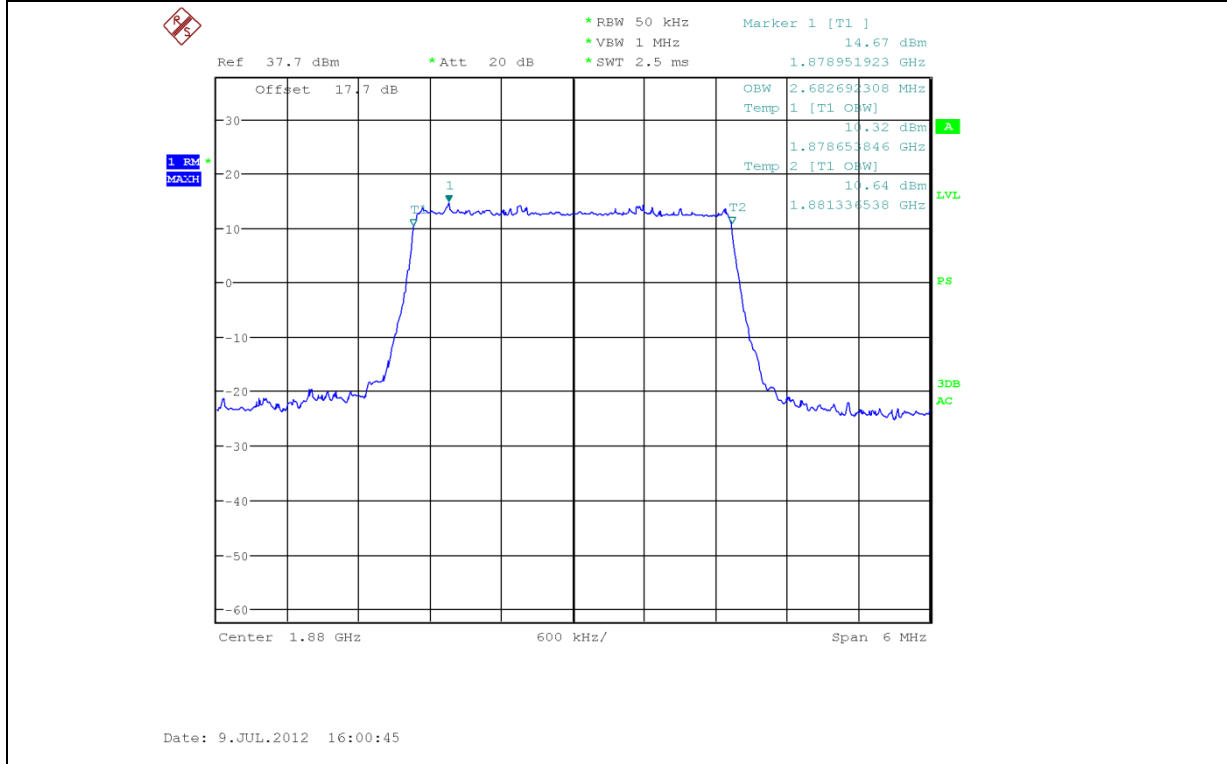


America

LTE Band 2 (1880MHz)(3MHz BW) 16-QAM -26dB BW



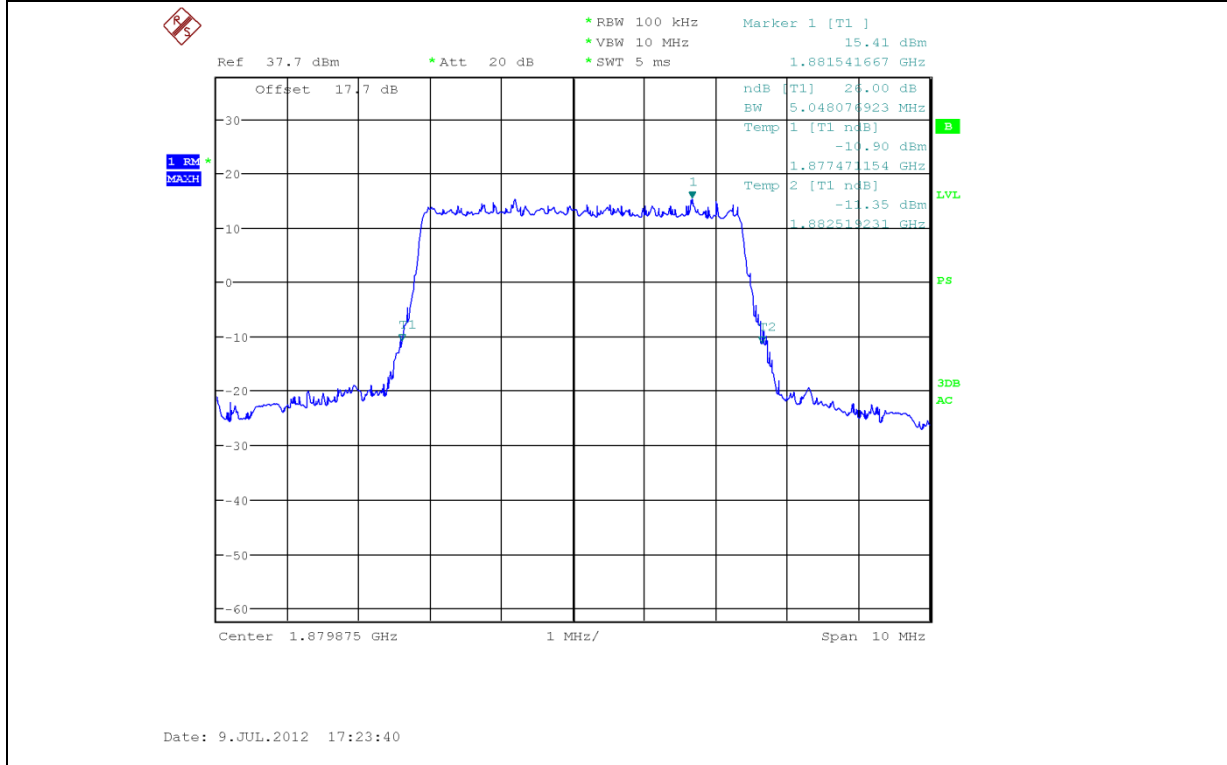
LTE Band 2 (1880MHz)(3MHz BW) 16-QAM 99% BW



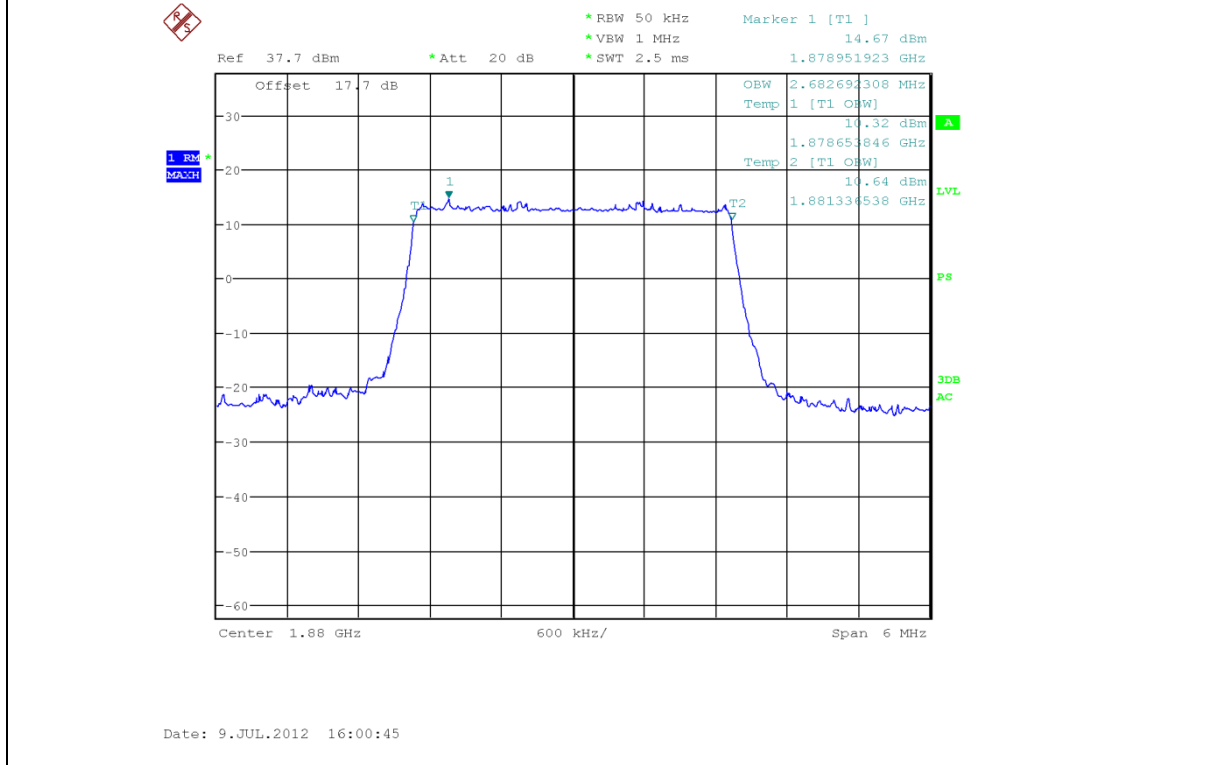


America

LTE Band 2 (1880MHz)(5MHz BW) QPSK -26dB BW



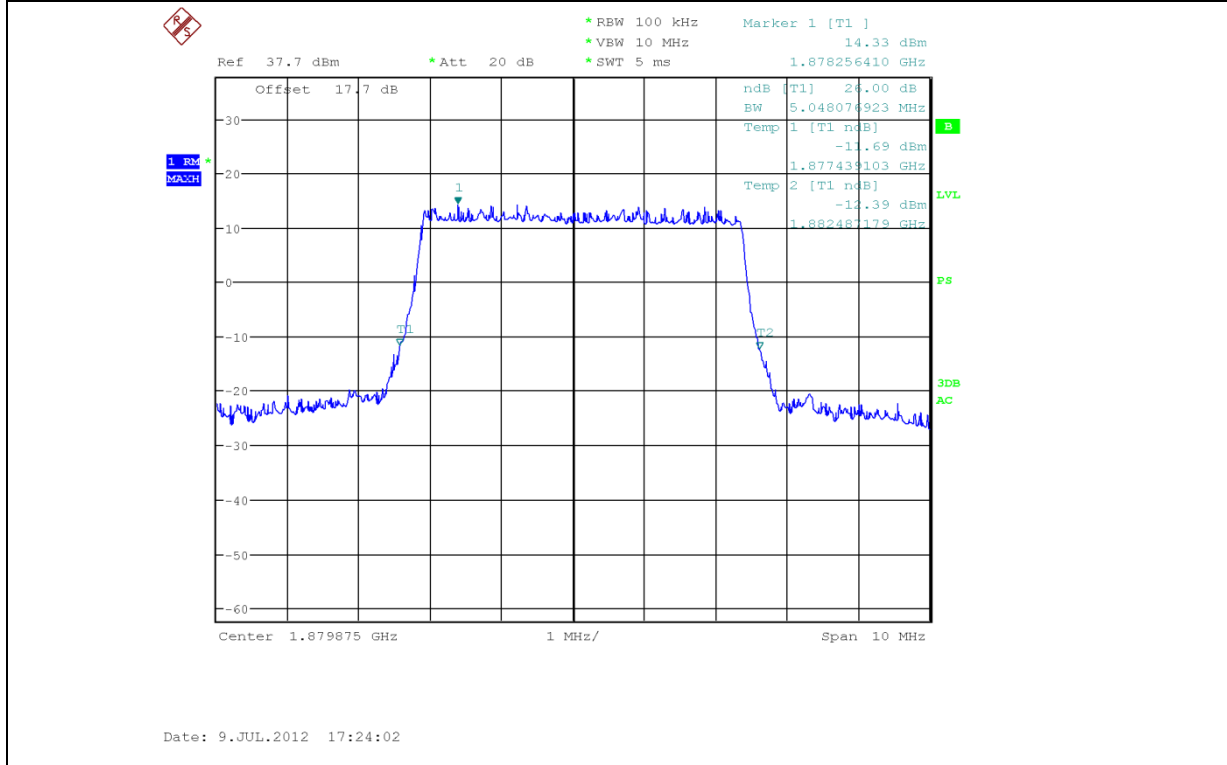
LTE Band 2 (1880MHz)(5MHz BW) QPSK 99% BW



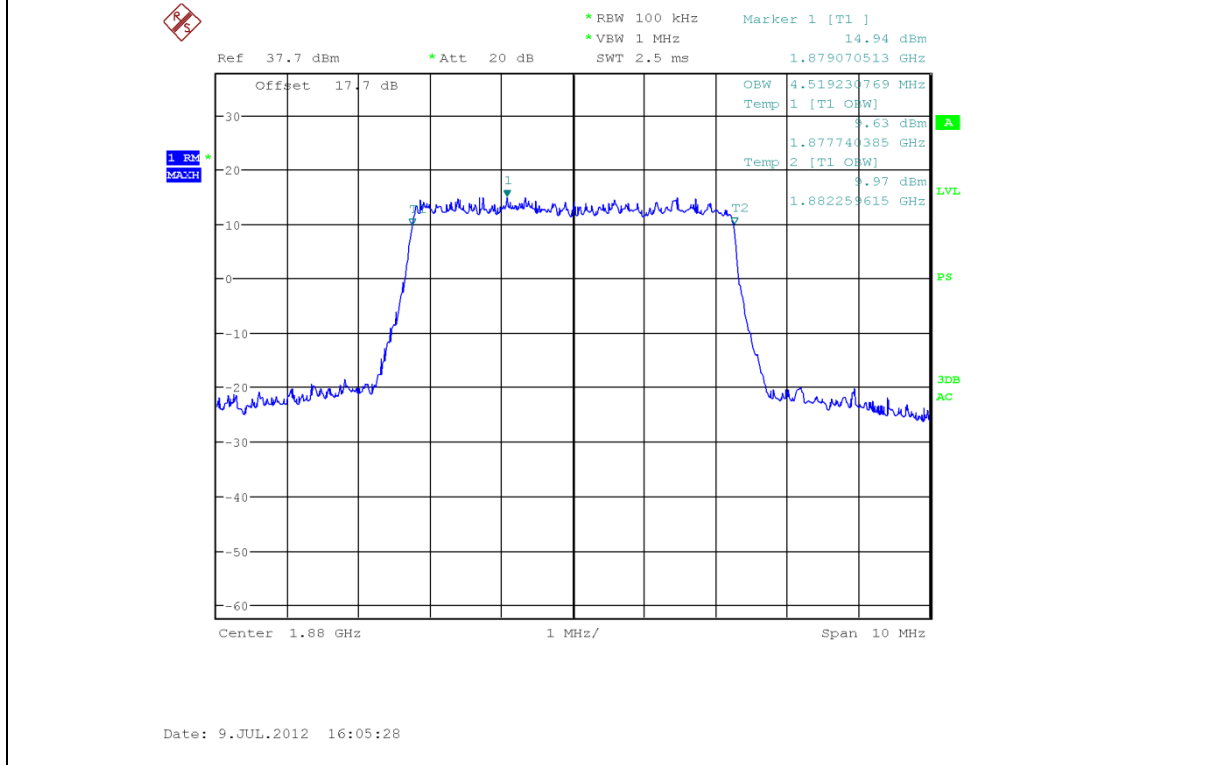


America

LTE Band 2 (1880MHz)(5MHz BW) 16-QAM -26dB BW



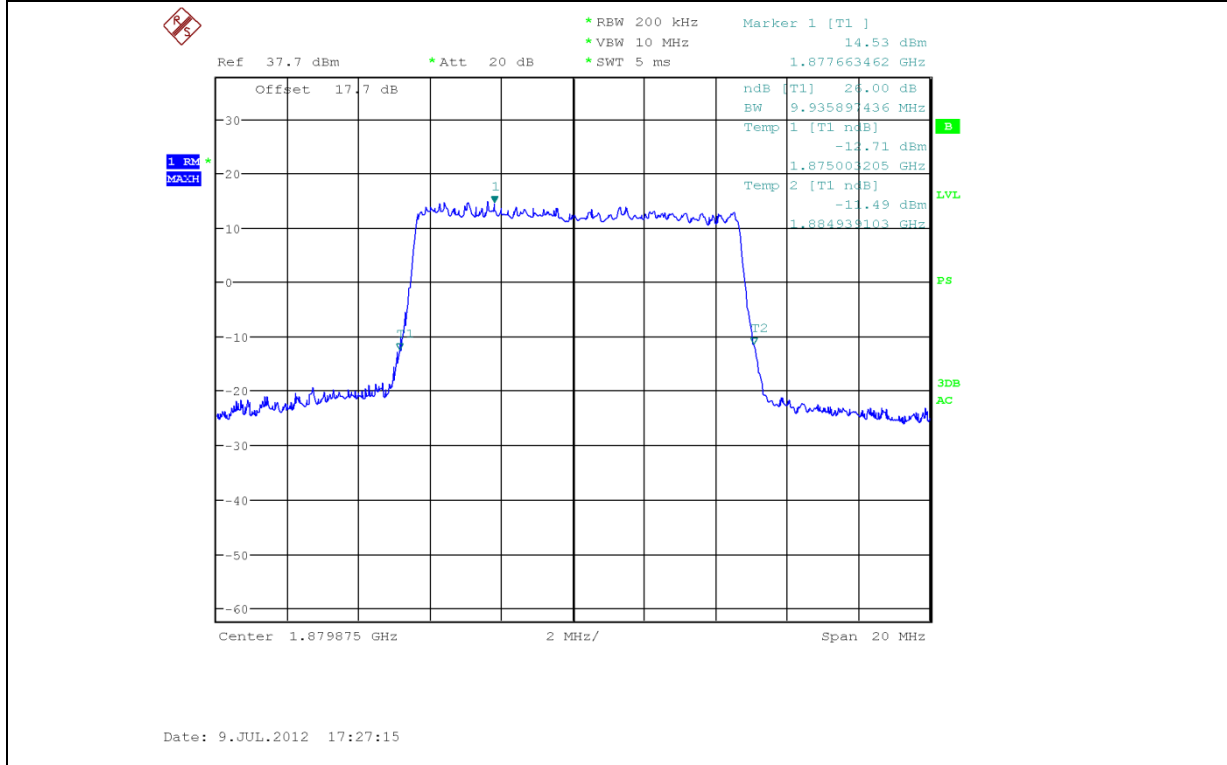
LTE Band 2 (1880MHz)(5MHz BW) 16-QAM 99% BW



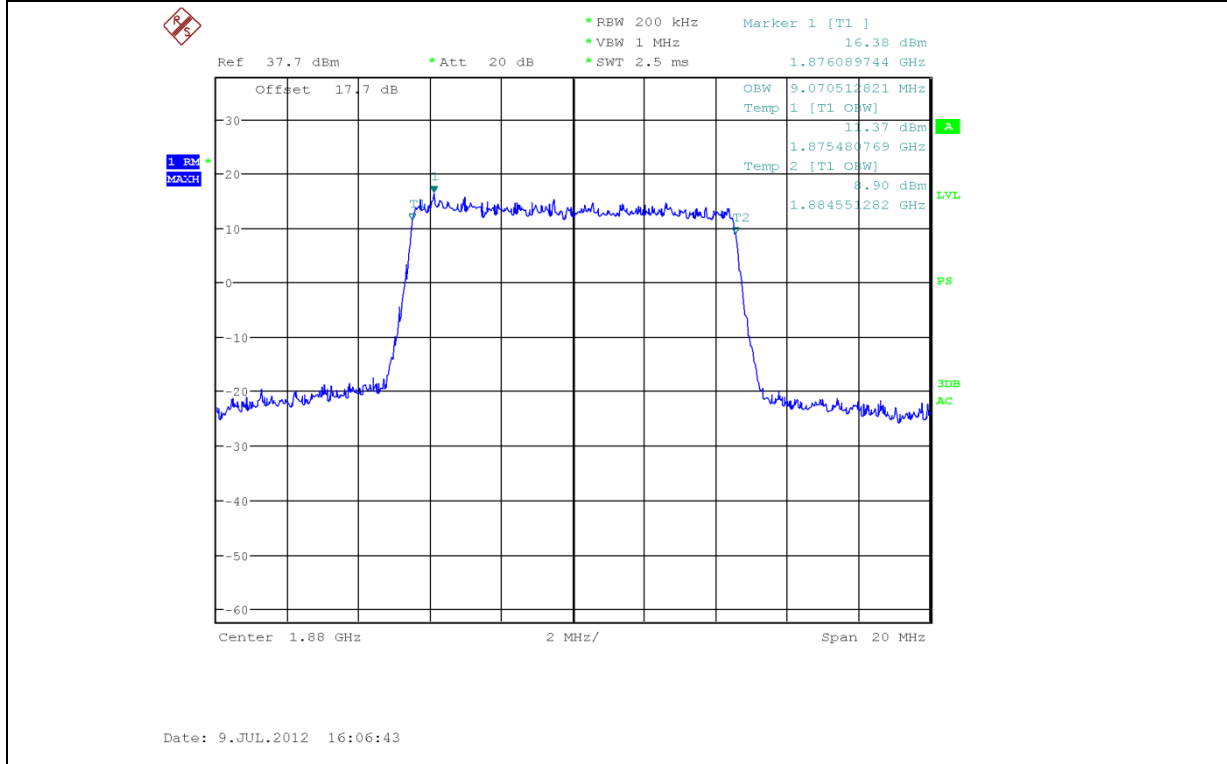


America

LTE Band 2 (1880MHz)(10MHz BW) QPSK -26dB BW



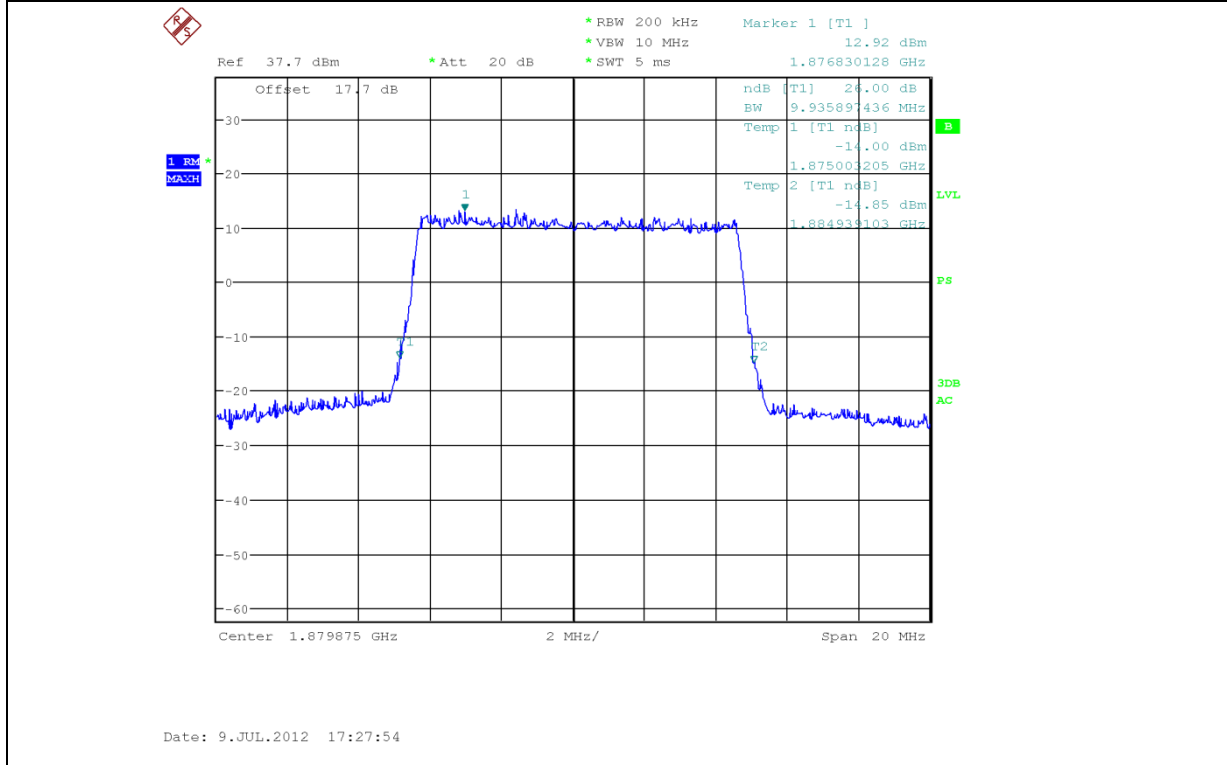
LTE Band 2 (1880MHz)(10MHz BW) QPSK 99% BW



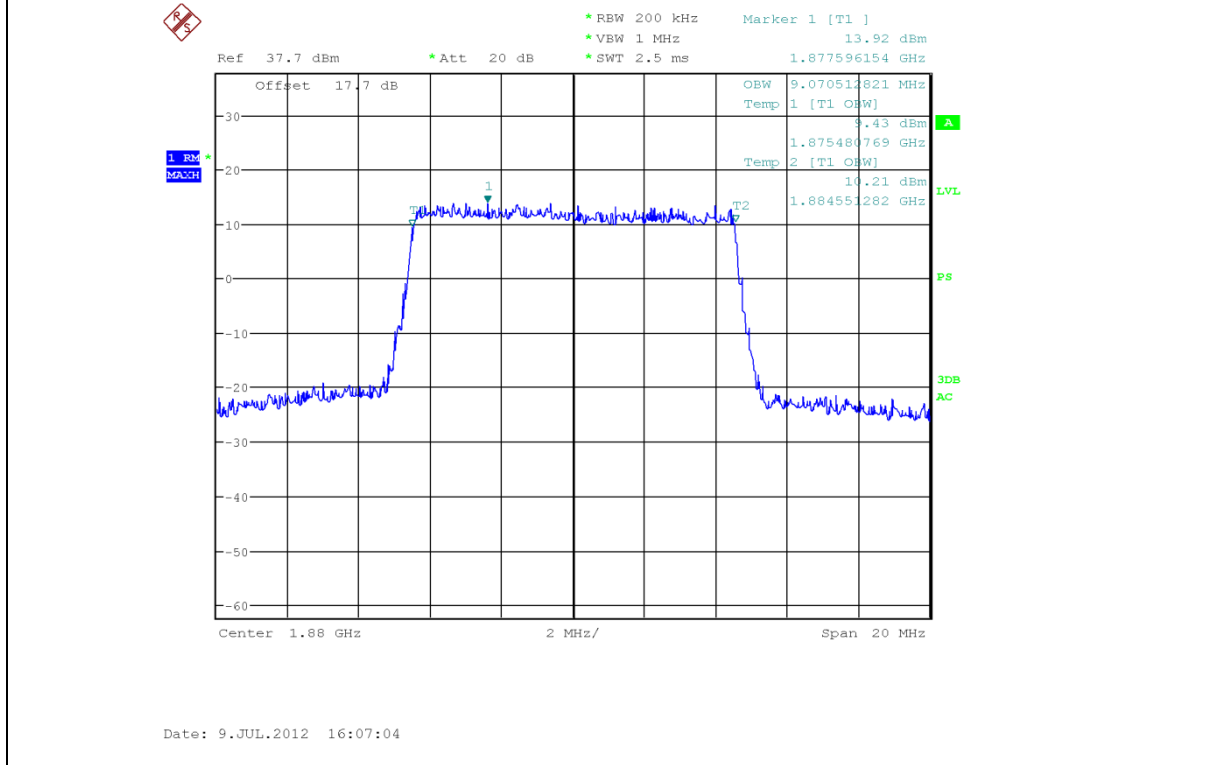


America

LTE Band 2 (1880MHz)(10MHz BW) 16-QAM -26dB BW



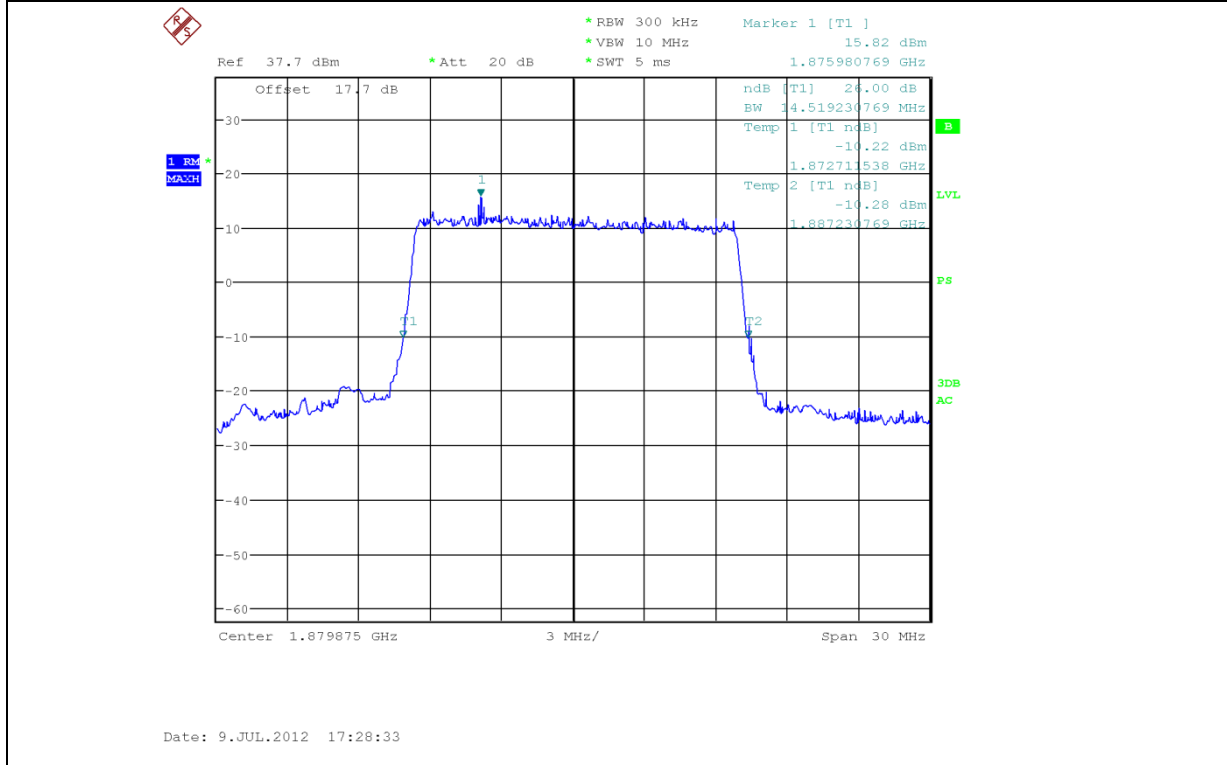
LTE Band 2 (1880MHz)(10MHz BW) 16-QAM 99% BW



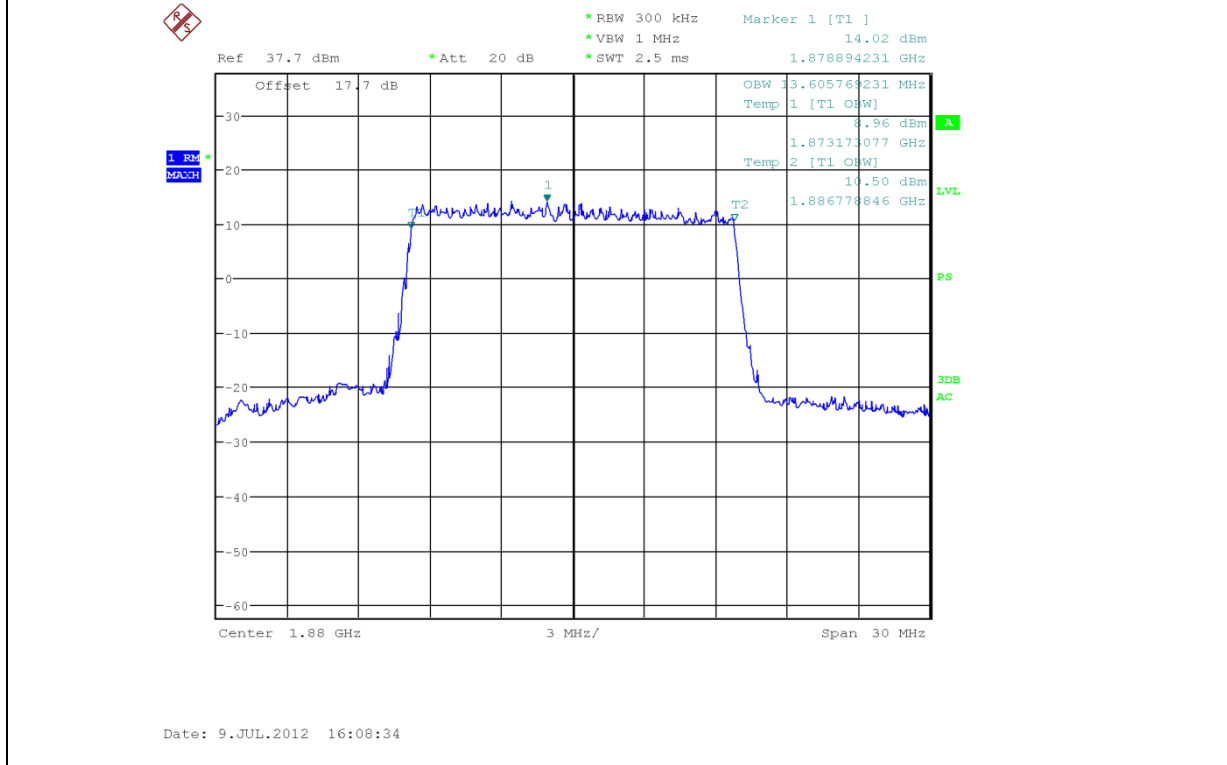


America

LTE Band 2 (1880MHz)(15MHz BW) QPSK -26dB BW



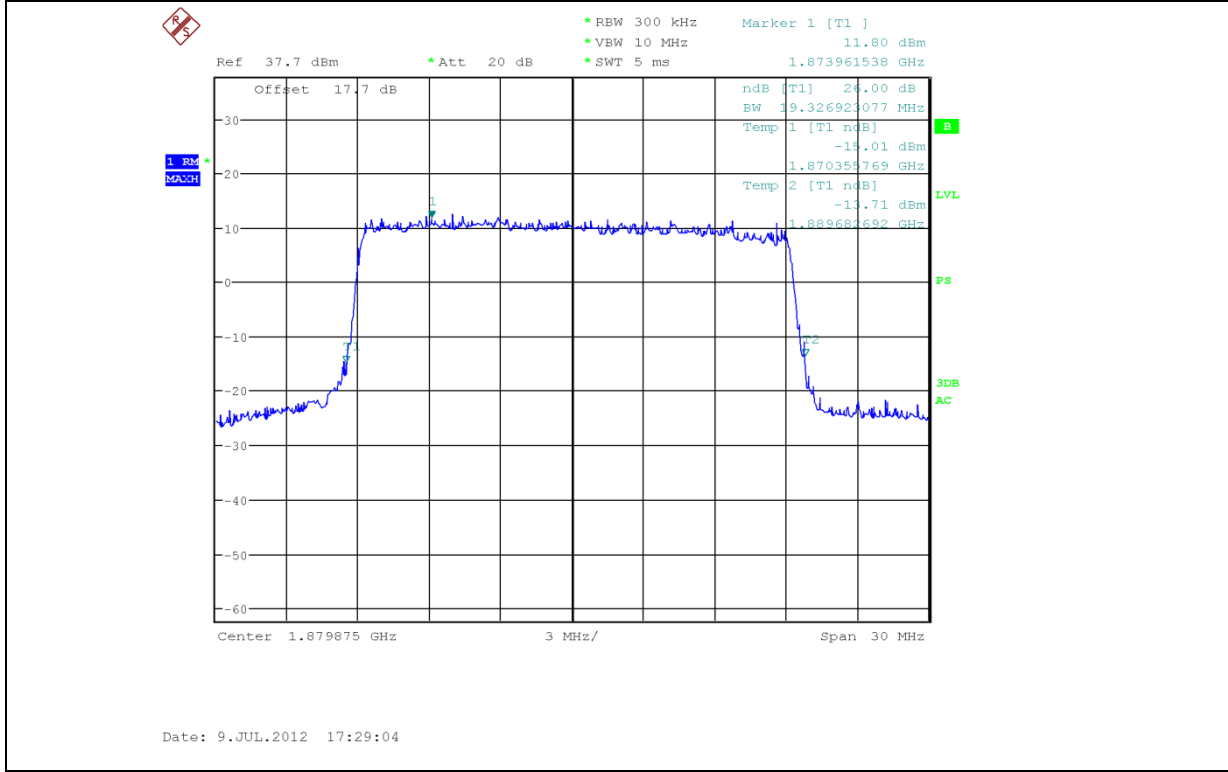
LTE Band 2 (1880MHz)(15MHz BW) QPSK 99% BW



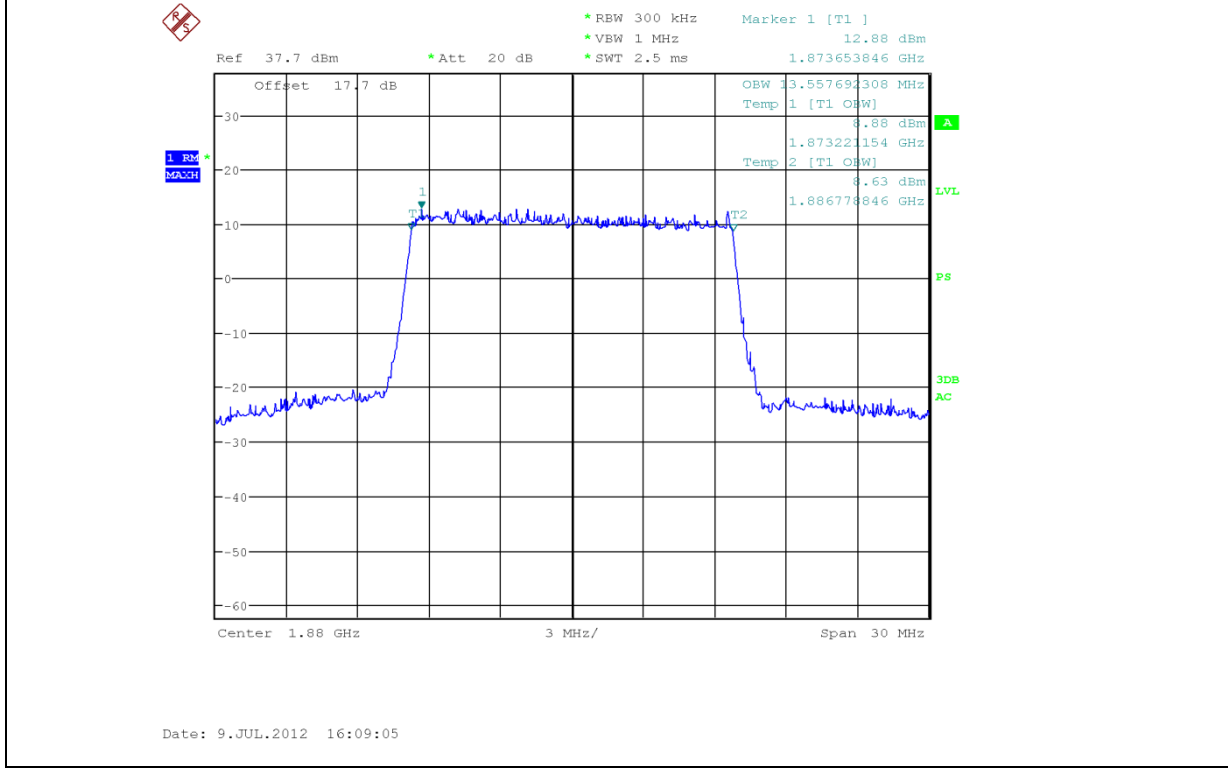


America

LTE Band 2 (1880MHz)(15MHz BW) 16-QAM -26dB BW



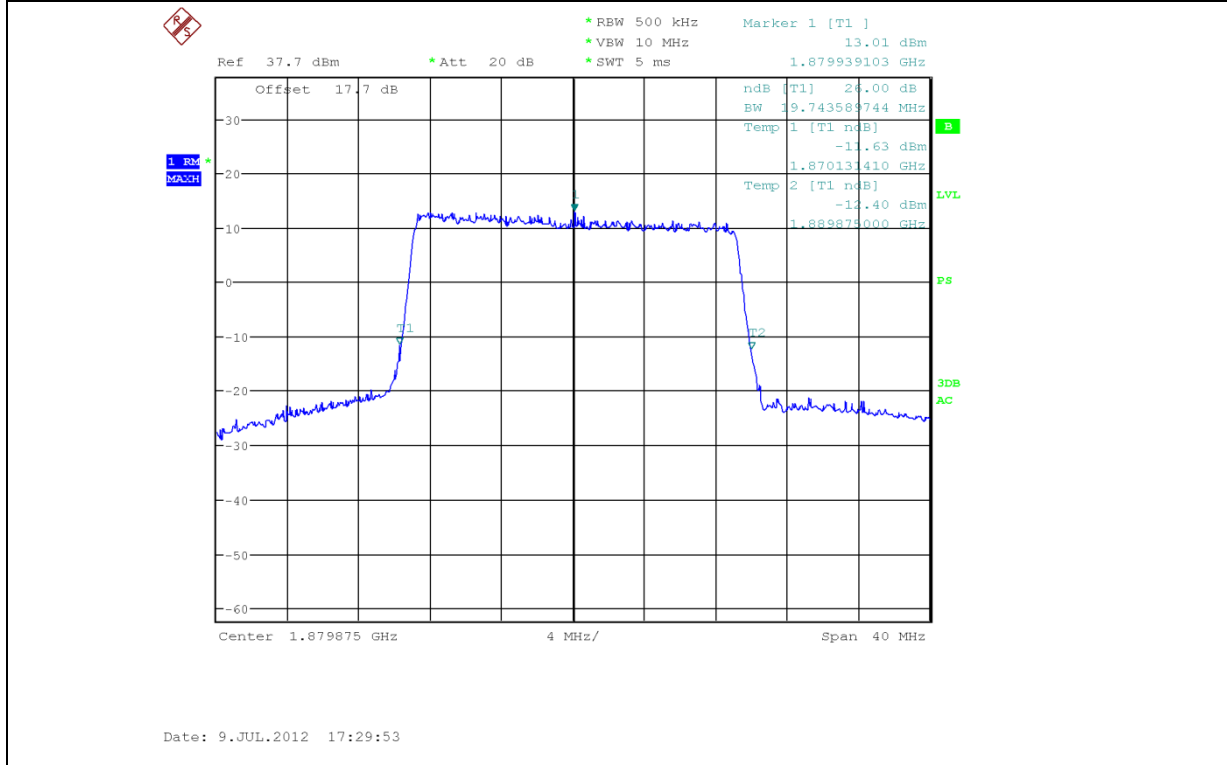
LTE Band 2 (1880MHz)(15MHz BW) 16-QAM 99% BW



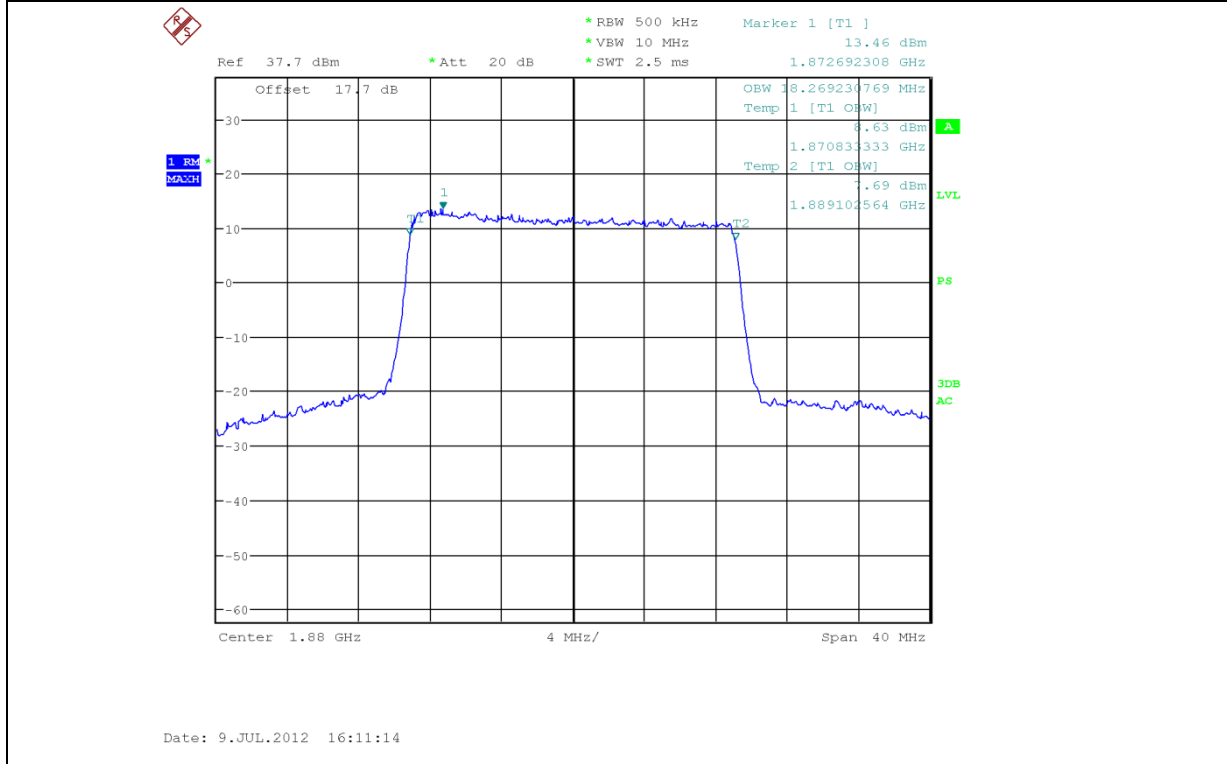


America

LTE Band 2 (1880MHz)(20MHz BW) QPSK -26dB BW



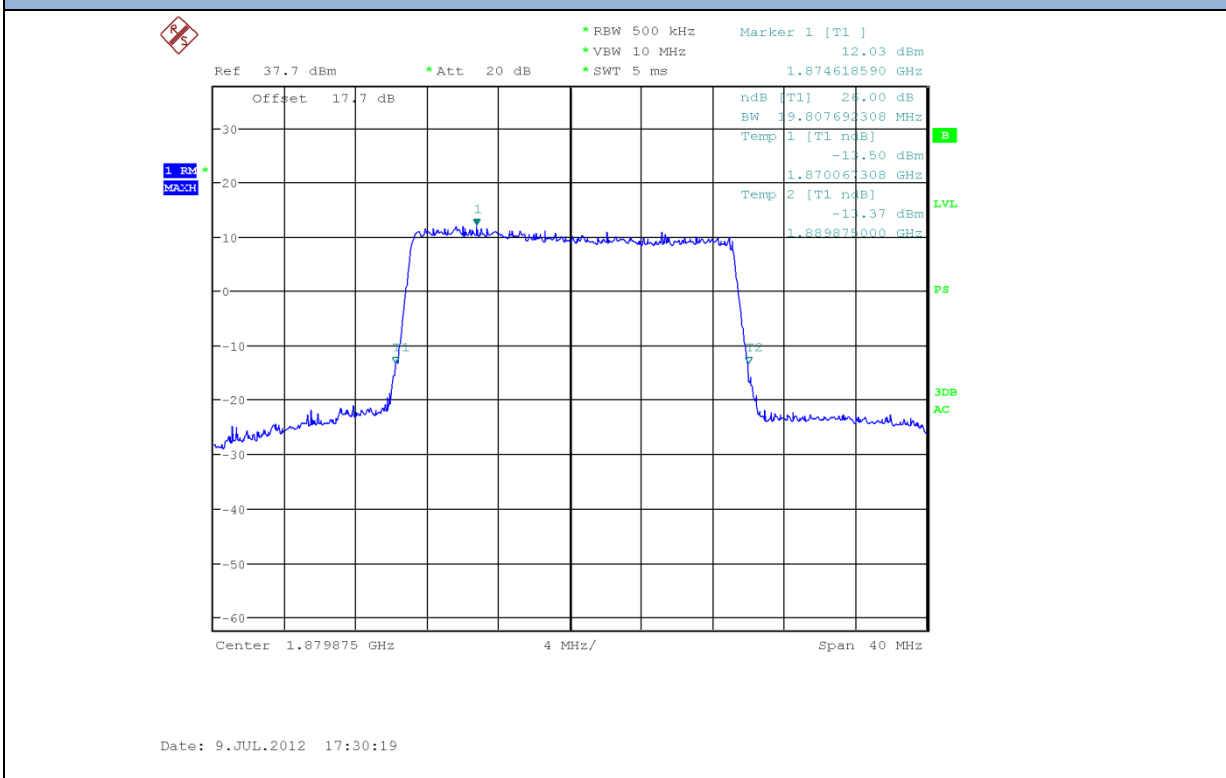
LTE Band 2 (1880MHz)(20MHz BW) QPSK 99% BW





America

LTE Band 2 (1880MHz)(20MHz BW) 16-QAM -26dB BW



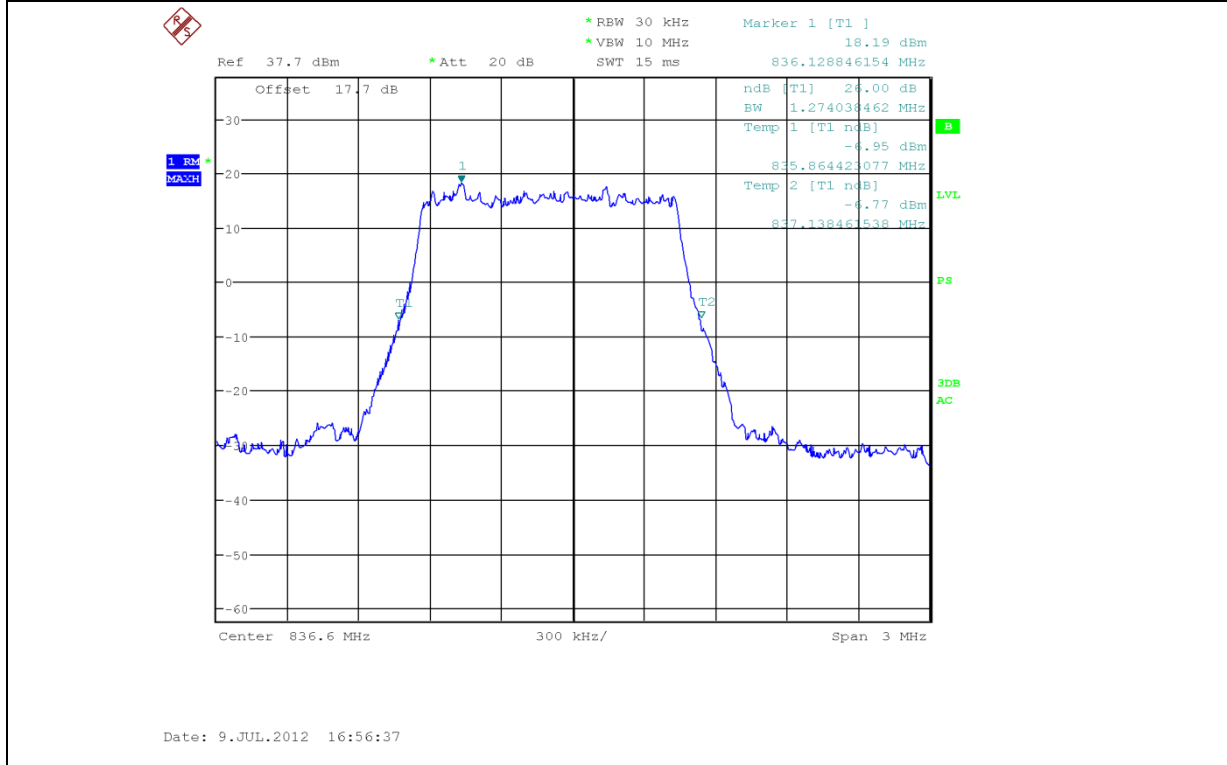
LTE Band 2 (1880MHz)(20MHz BW) 16-QAM 99% BW



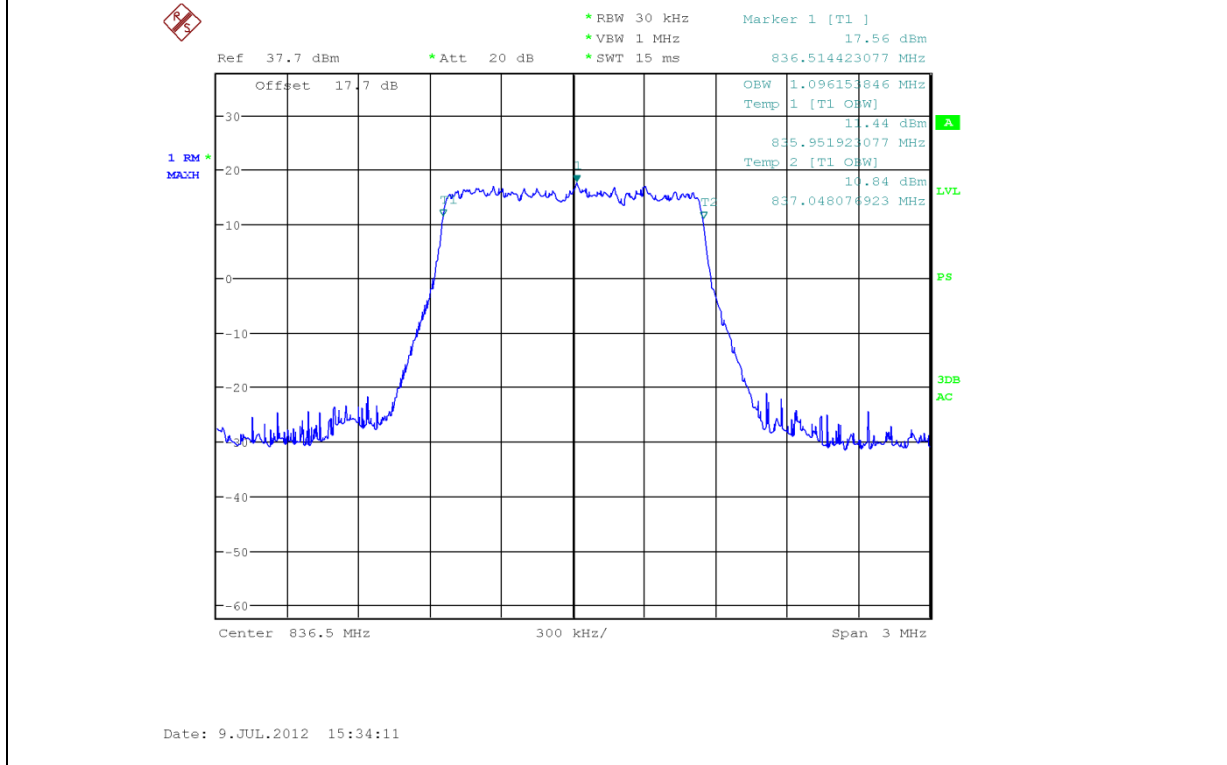


America

LTE Band 5 (836.5MHz)(1.4MHz BW) QPSK -26dB BW



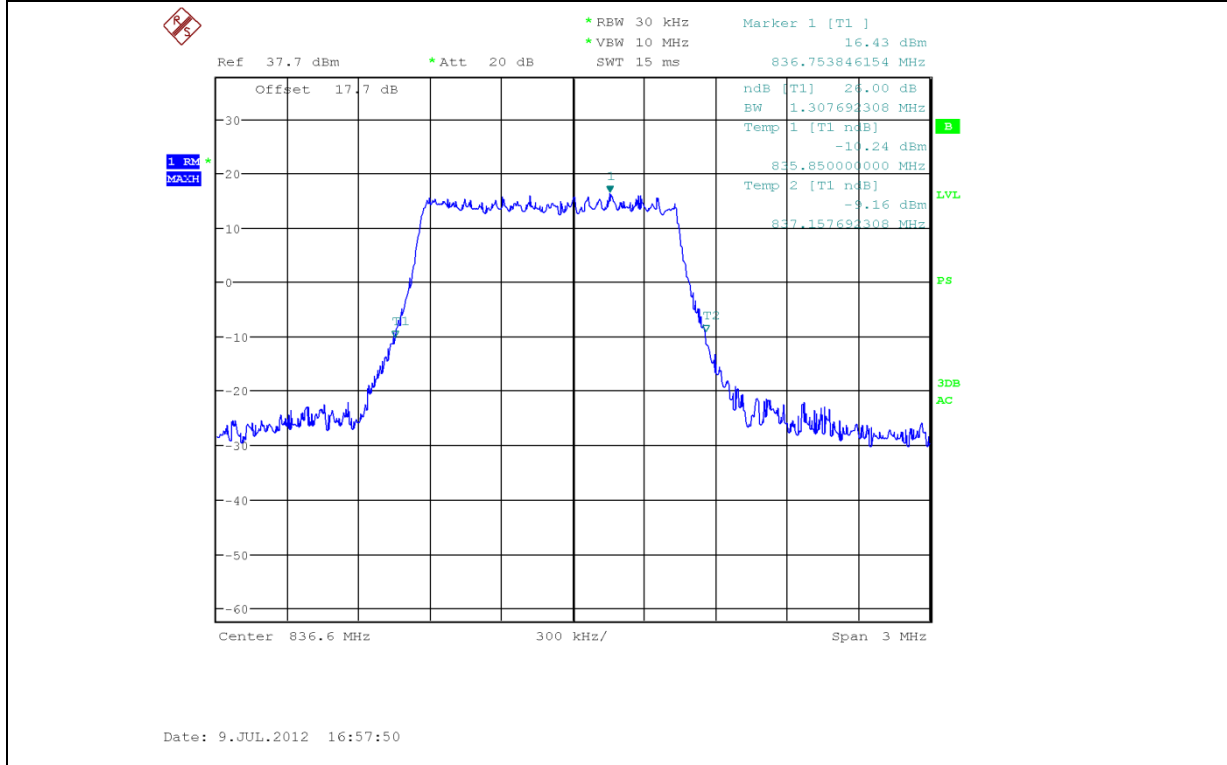
LTE Band 5 (836.5MHz)(1.4MHz BW) QPSK 99% BW



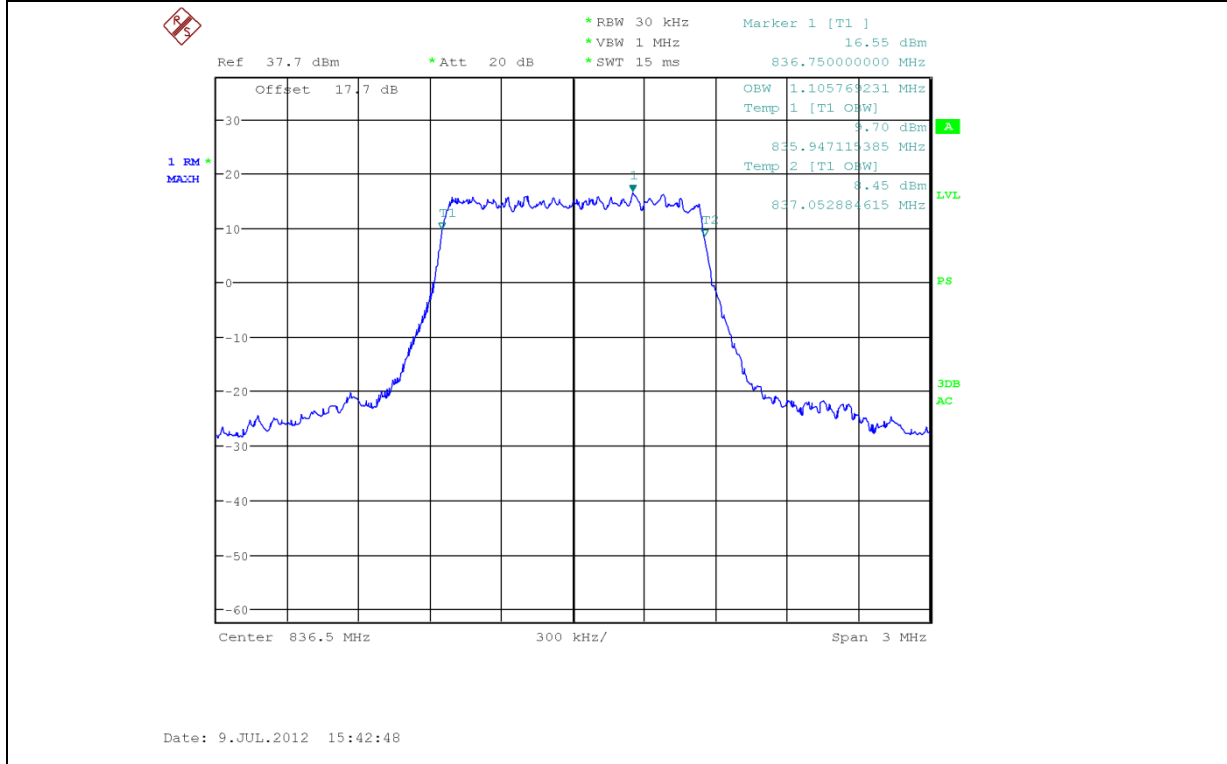


America

LTE Band 5 (836.5MHz)(1.4MHz BW) QAM -26dB BW

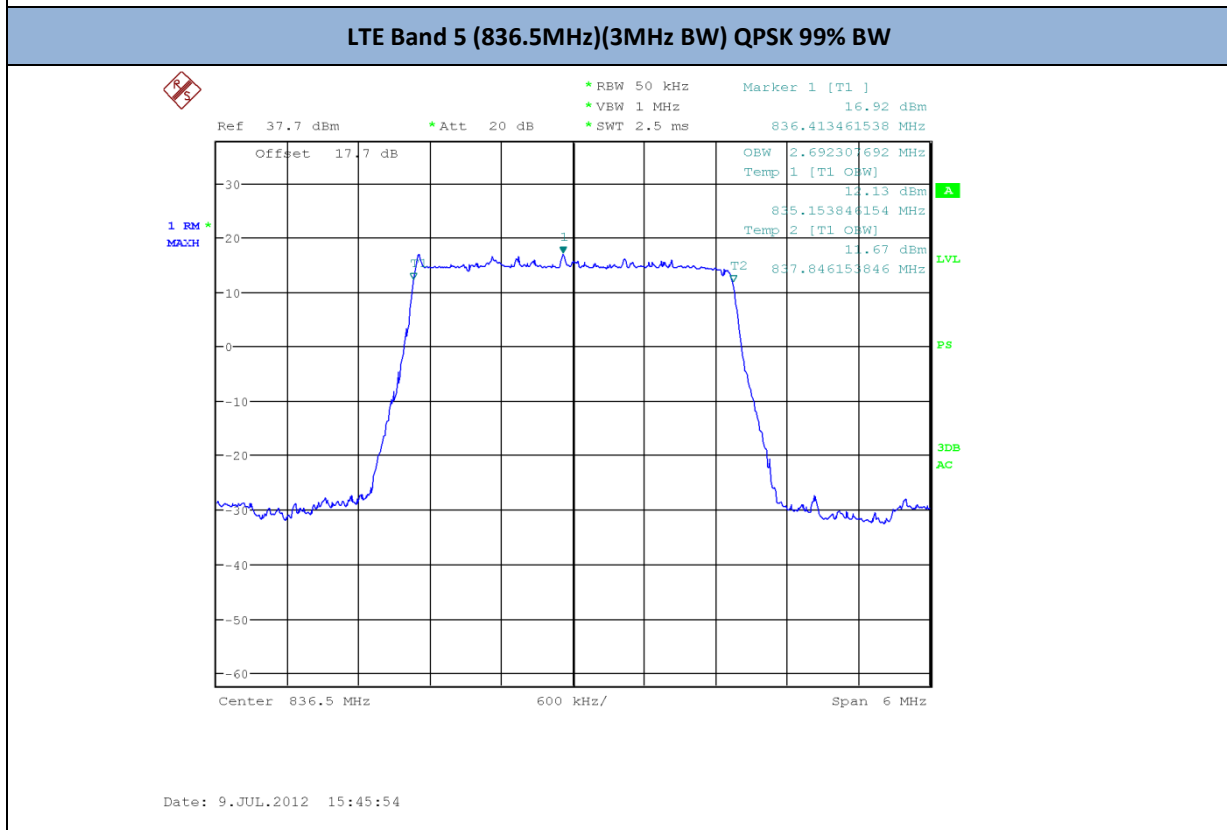
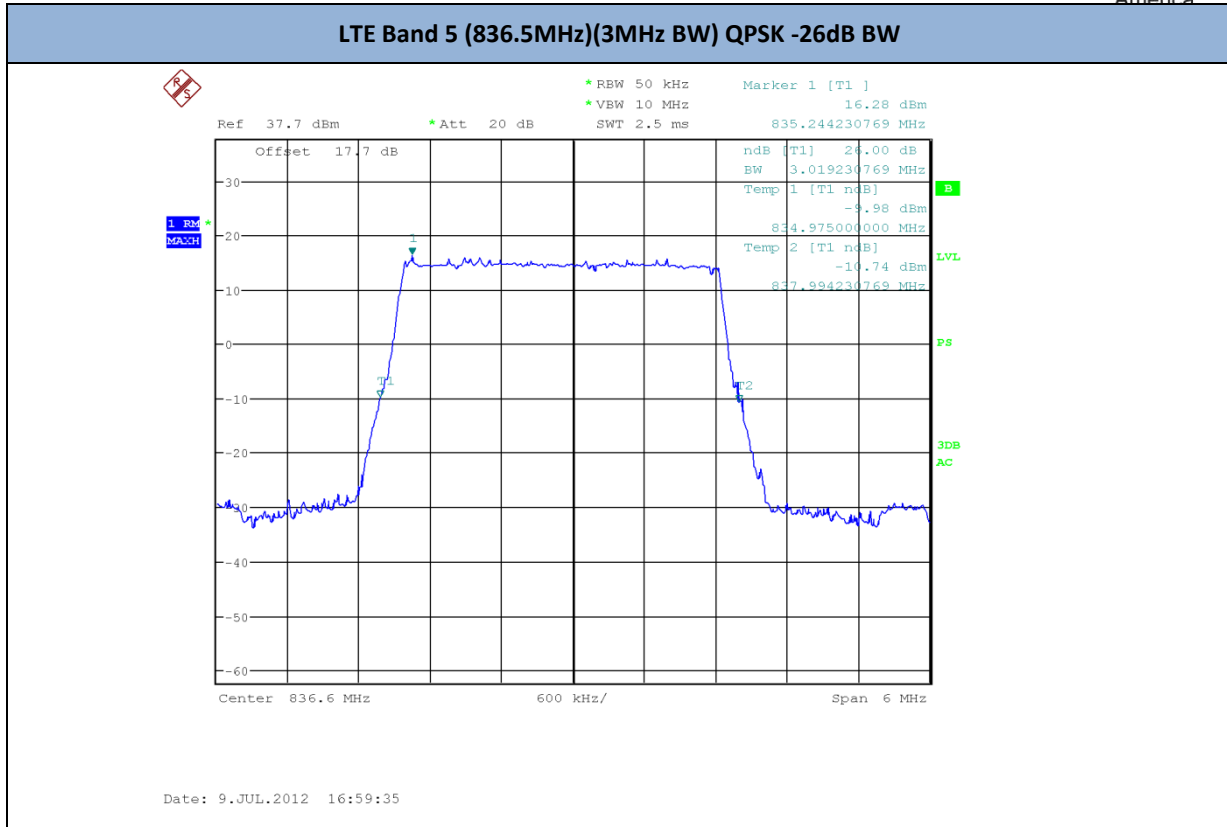


LTE Band 5 (836.5MHz)(1.4MHz BW) 16-QAM 99% BW





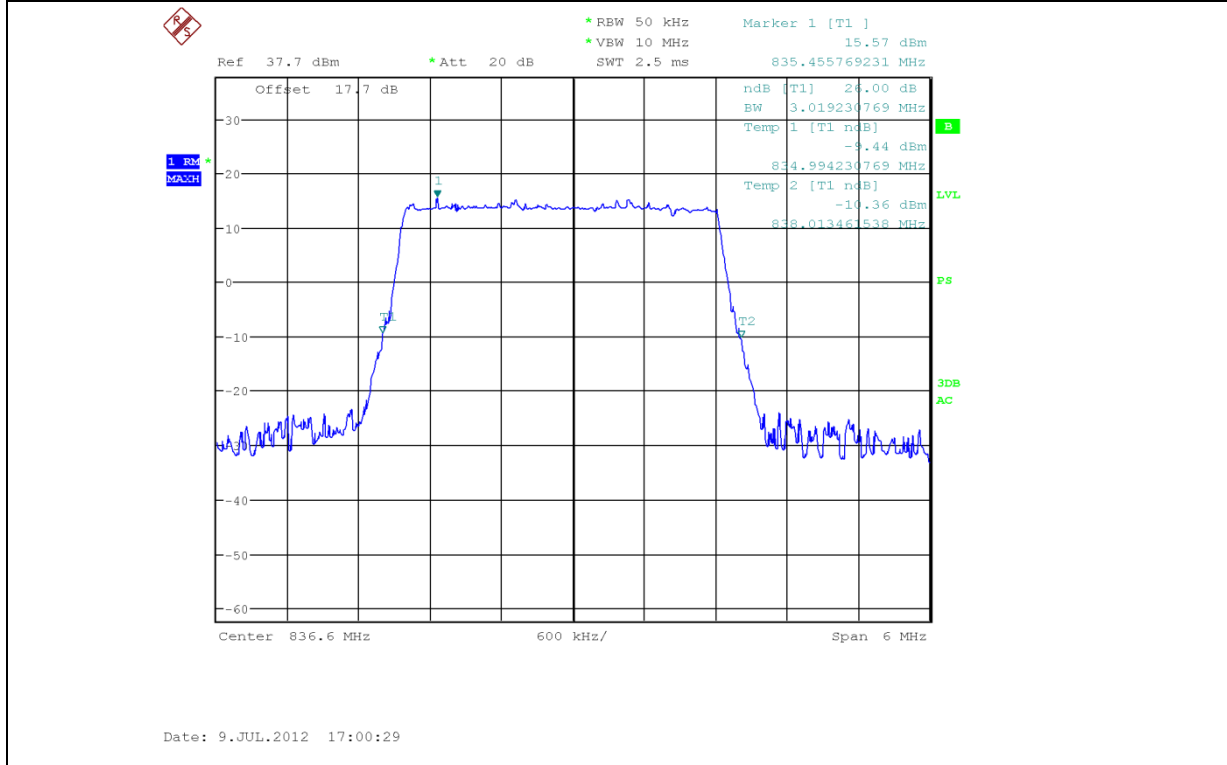
America



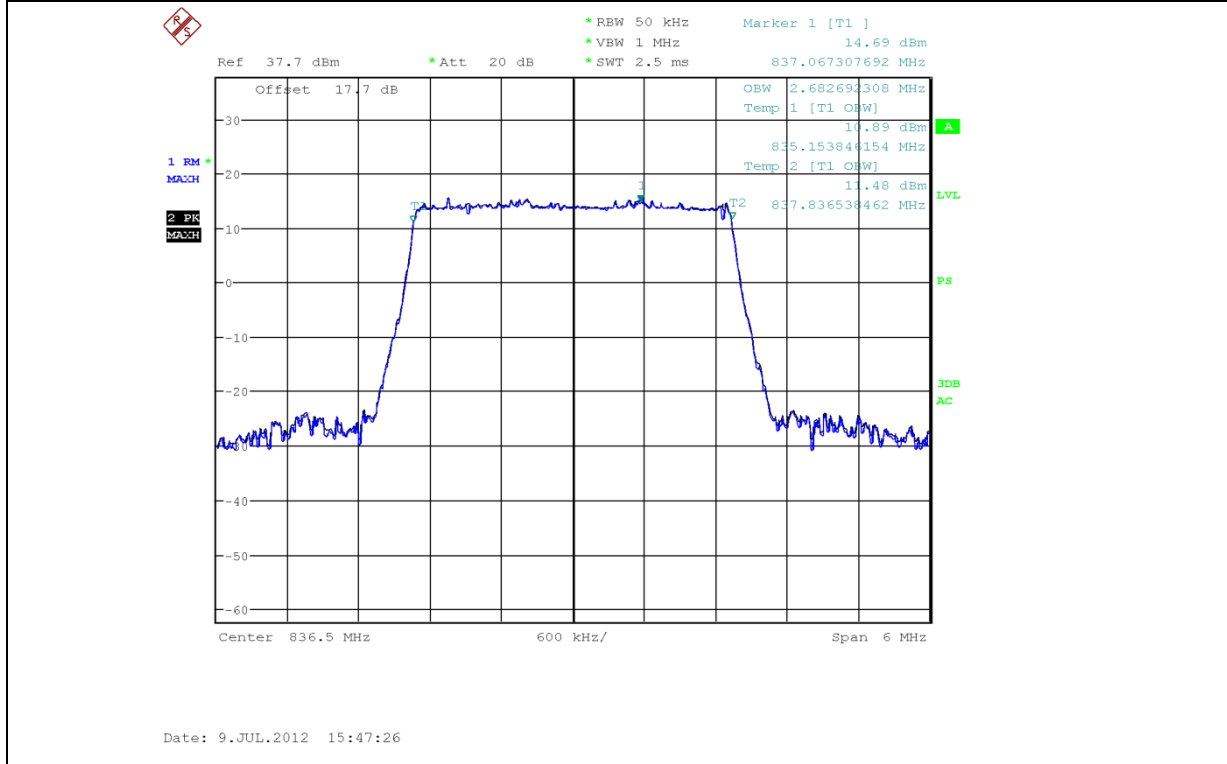


America

LTE Band 5 (836.5MHz)(3MHz BW) QAM -26dB BW

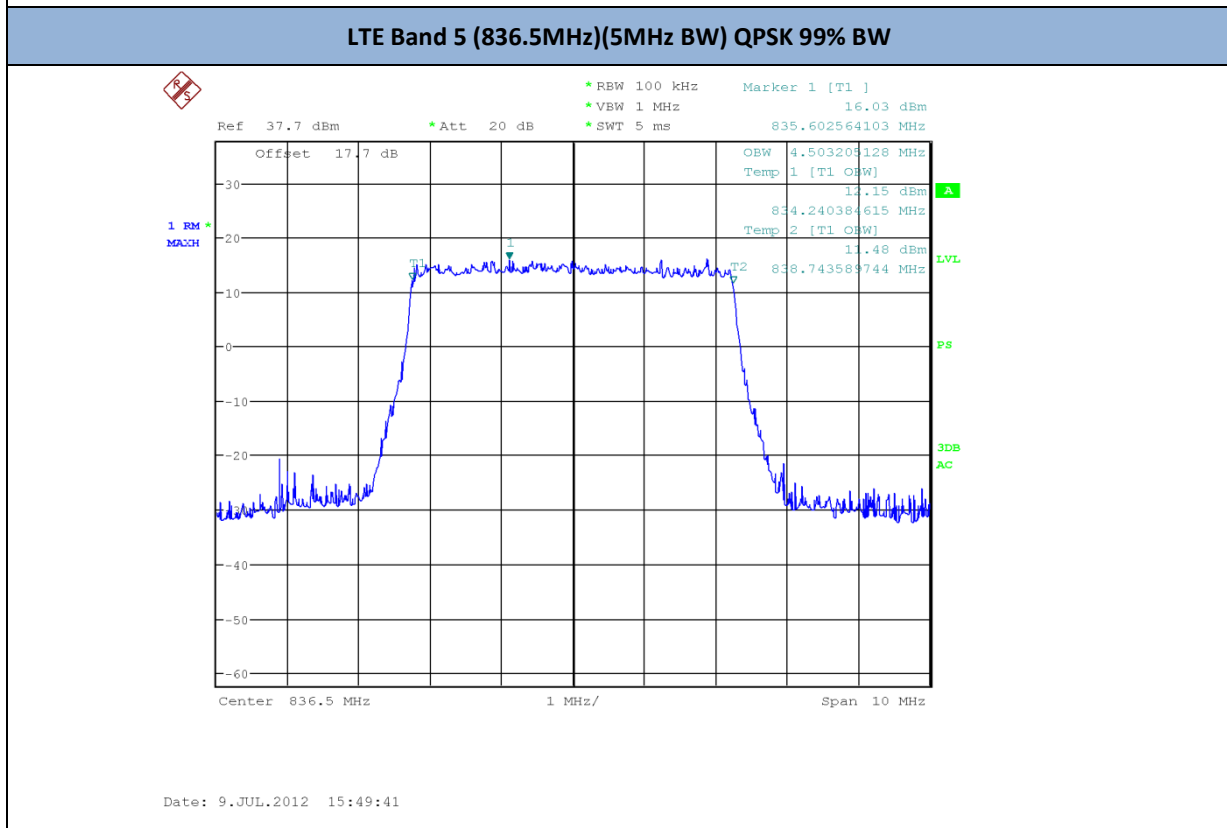
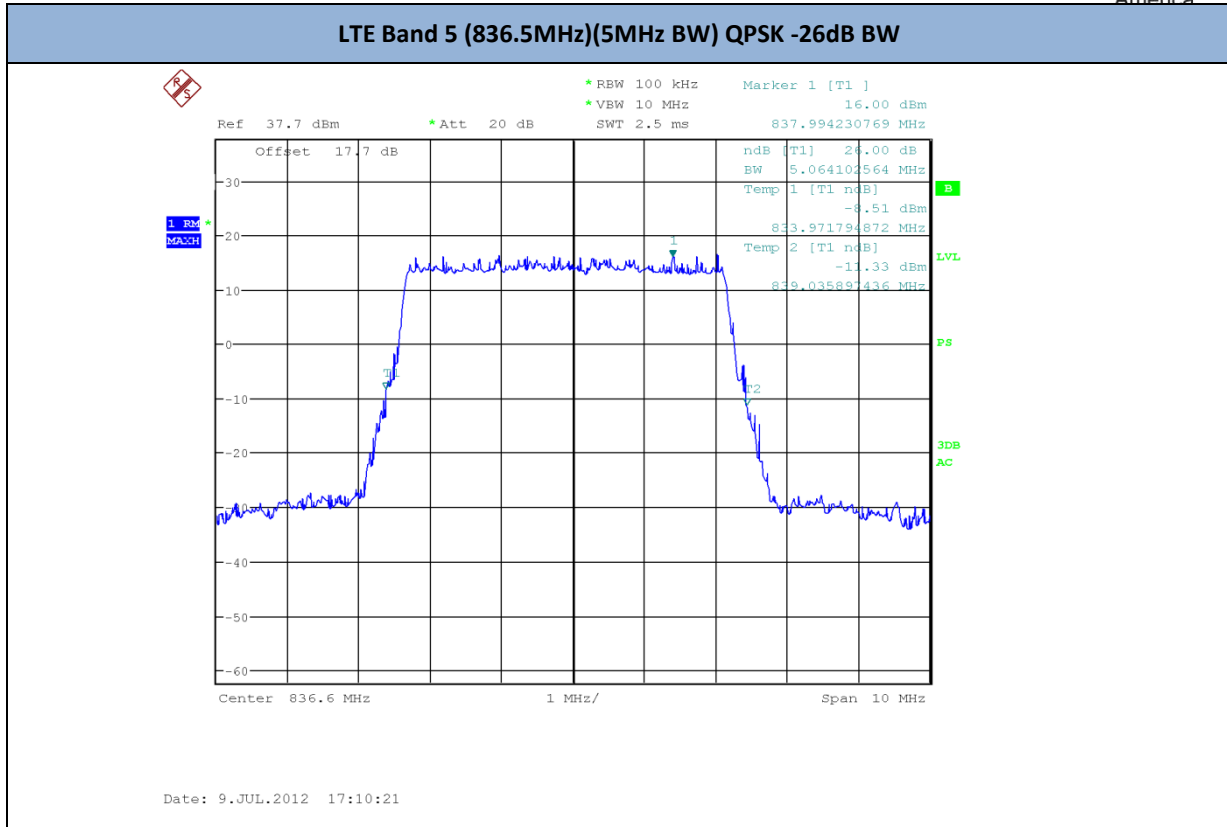


LTE Band 5 (836.5MHz)(3MHz BW) 16-QAM 99% BW





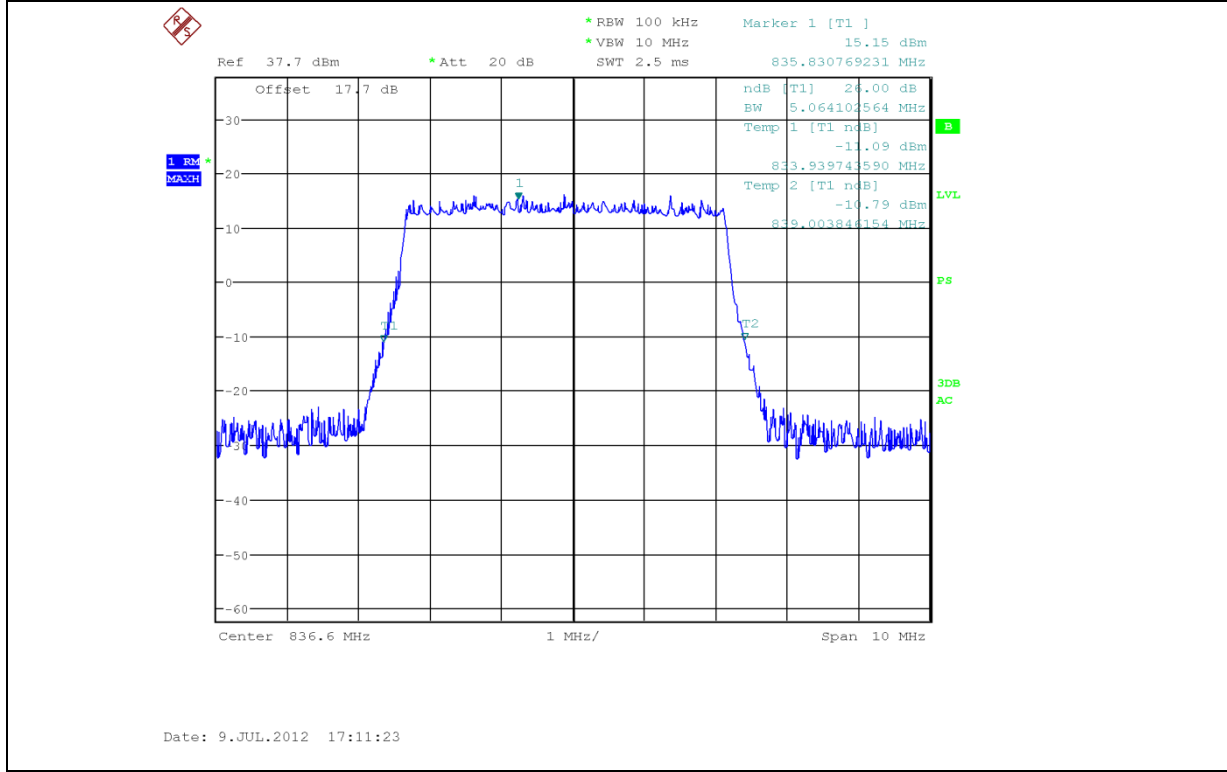
America



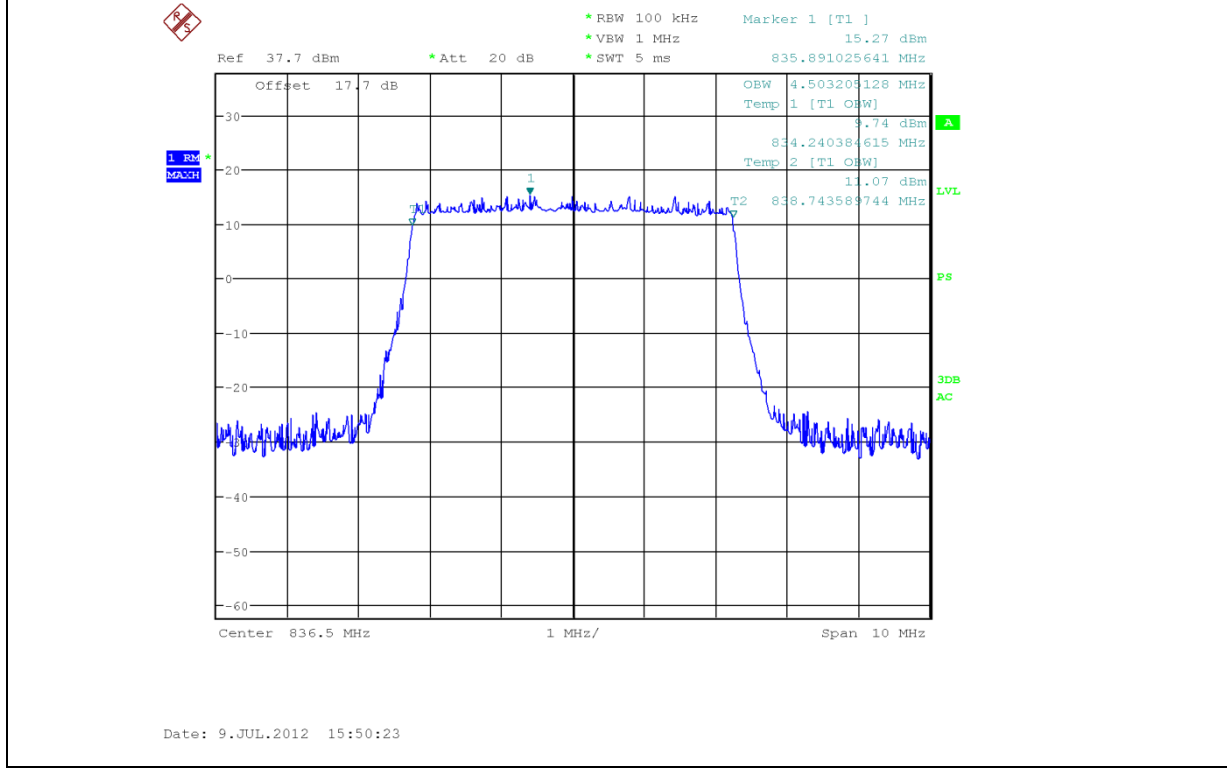


America

LTE Band 5 (836.5MHz)(5MHz BW) QAM -26dB BW



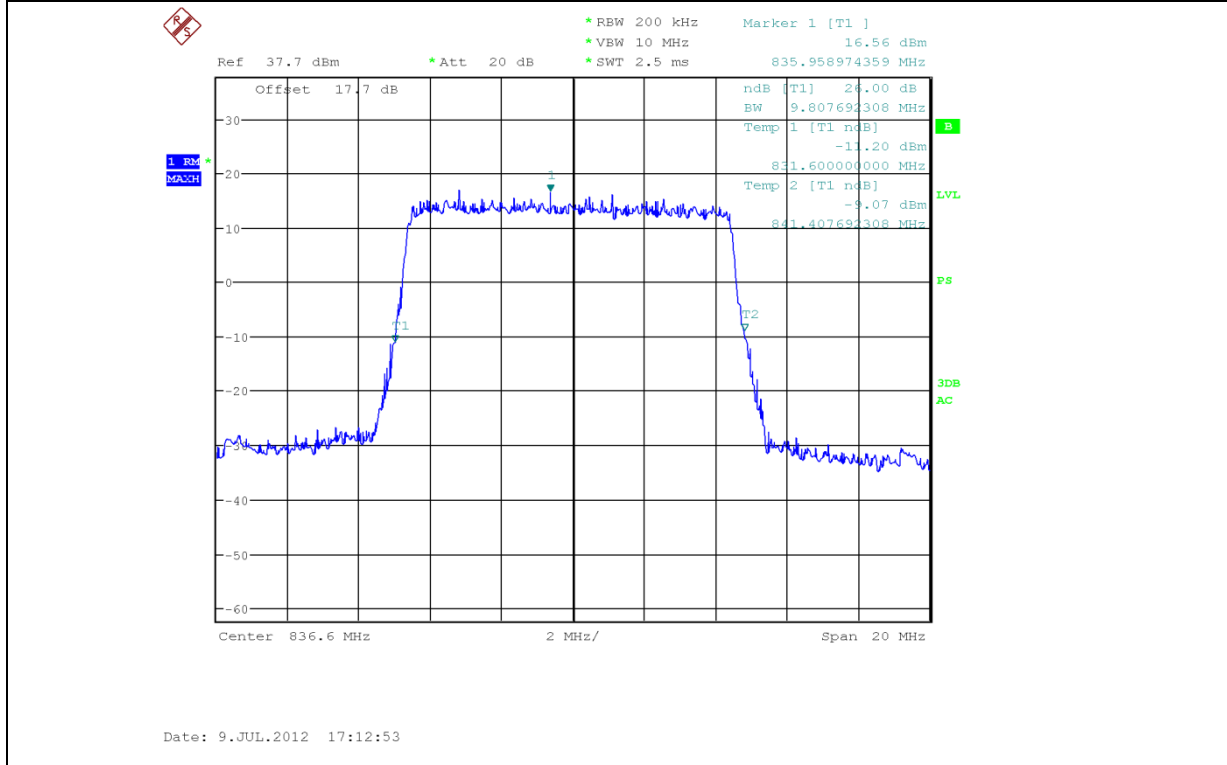
LTE Band 5 (836.5MHz)(5MHz BW) 16-QAM 99% BW



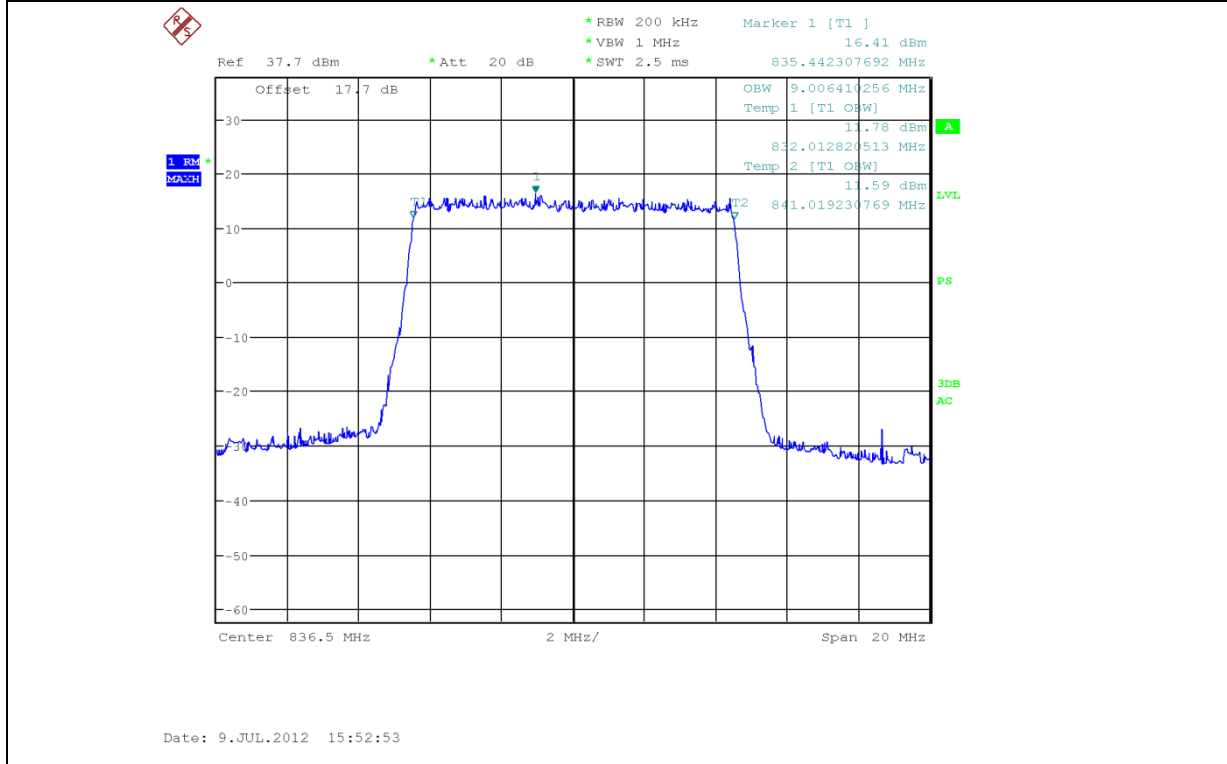


America

LTE Band 5 (836.5MHz)(10MHz BW) QPSK -26dB BW



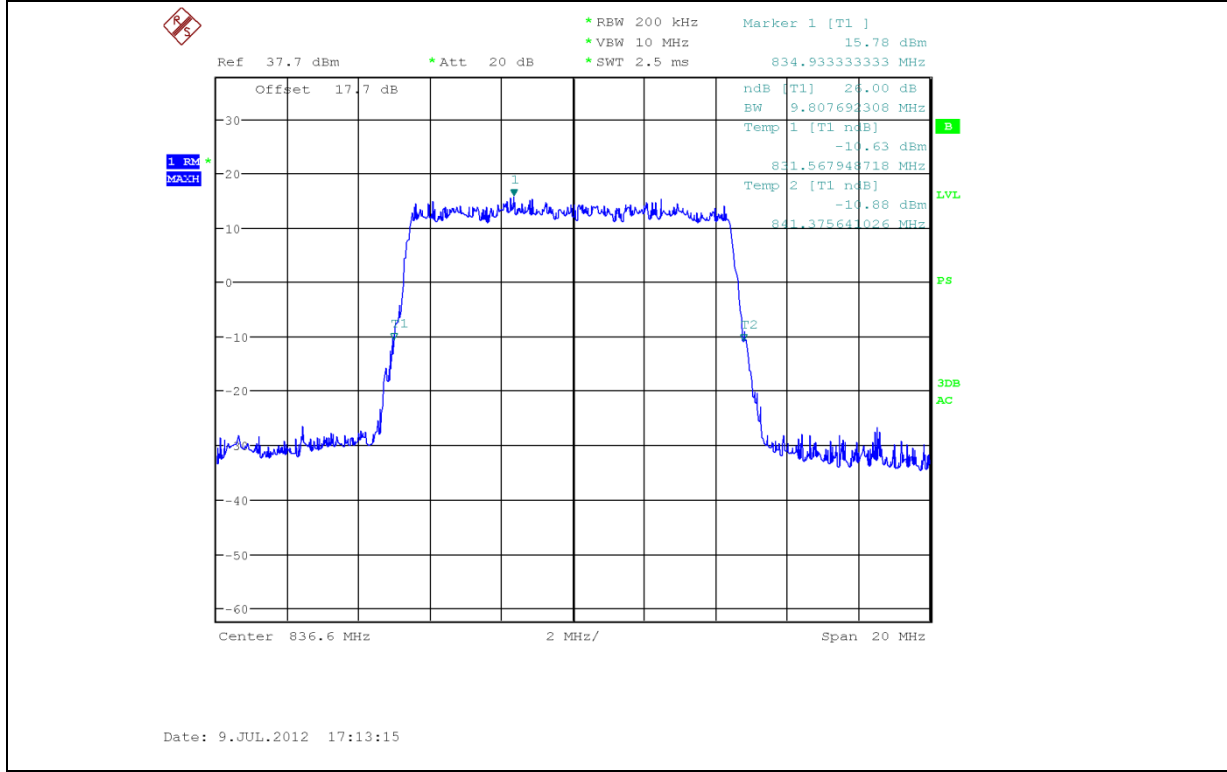
LTE Band 5 (836.5MHz)(10MHz BW) QPSK 99% BW



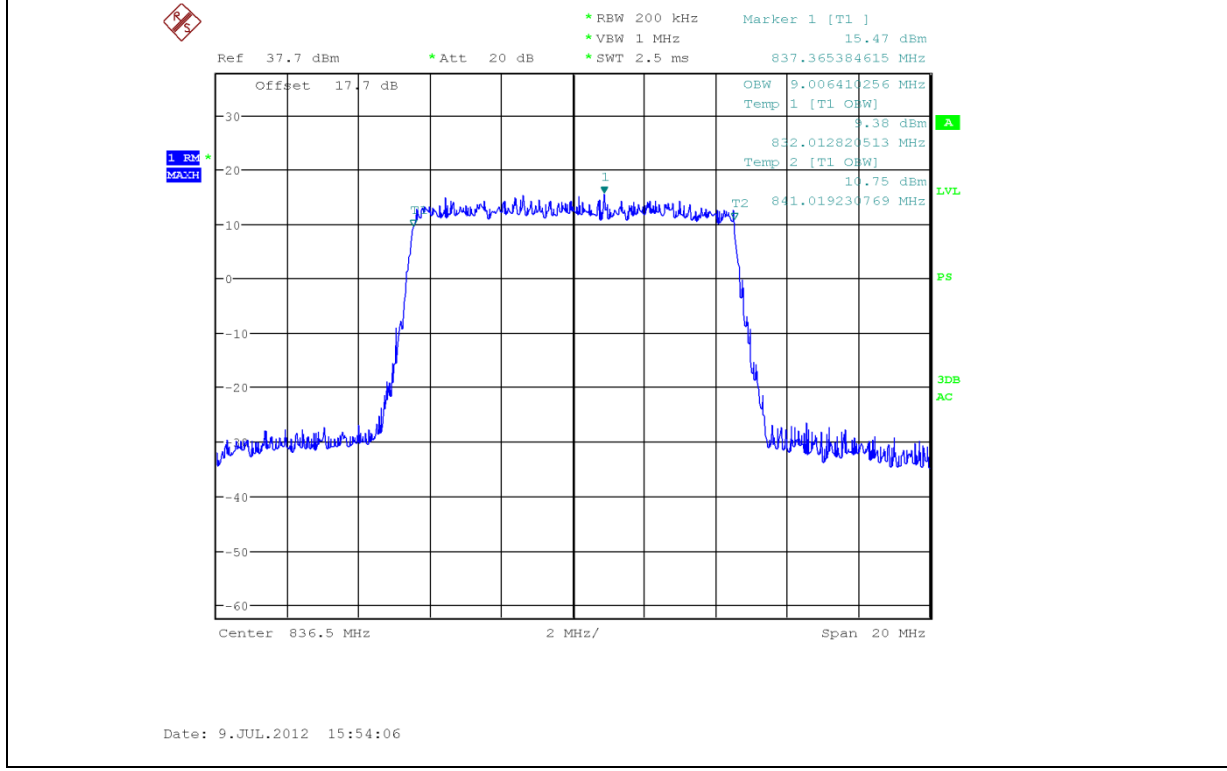


America

LTE Band 5 (836.5MHz)(10MHz BW) QAM -26dB BW



LTE Band 5 (836.5MHz)(10MHz BW) 16-QAM 99% BW





2.5 PEAK-AVERAGE RATIO

2.5.1 Specification Reference

Part 24 Subpart E §24.232(d)

2.5.2 Standard Applicable

Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB

2.5.3 Equipment Under Test and Modification State

Serial No: SA310512700012 / Default Test Configuration

2.5.4 Date of Test/Initial of test personnel who performed the test

July 2 &3, 2012/FC

2.5.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.6 Environmental Conditions

Ambient Temperature	24.1°C
Relative Humidity	42.6%
ATM Pressure	100.3 kPa

2.5.7 Additional Observations

- This is a conducted test. Test procedure is per Section 3.0 of KDB971168 (D01 Power Meas License Digital Systems v01).
- Measurement was done using the Spectrum Analyzer's Complementary Cumulative Distribution Function (CCDF) measurement profile. The built-in function is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth (crest factor or peak-to-average ratio) The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signals spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth.



- All channels based from worst case configuration were verified. Only the worst channel and configuration presented.
- There are no measured PAPR levels greater than 13dB. EUT complies.

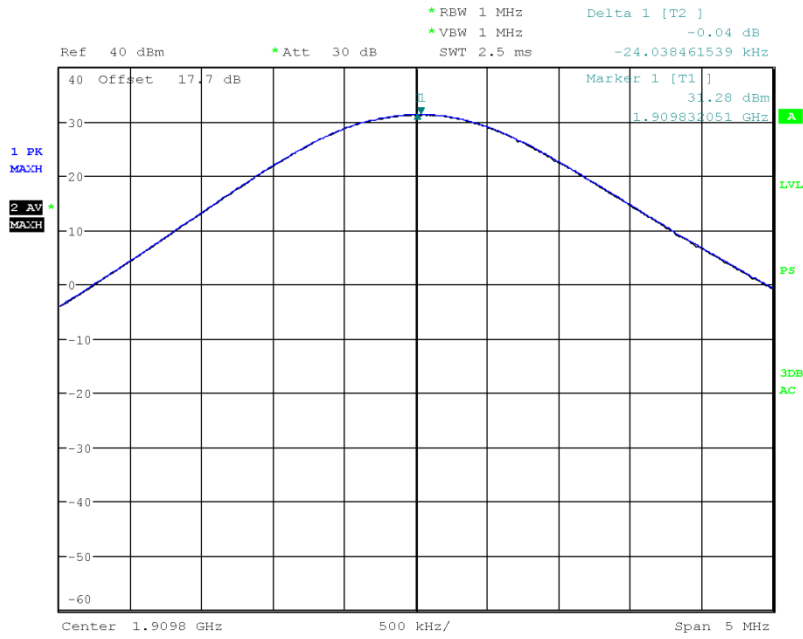
2.5.8 Test Results

The Worst case measured PARP level was LTE Band 2 and was measured at 7.99dB. It was operating at 1880 MHz using 16QAM with a 20MHz BW

See attached plots.

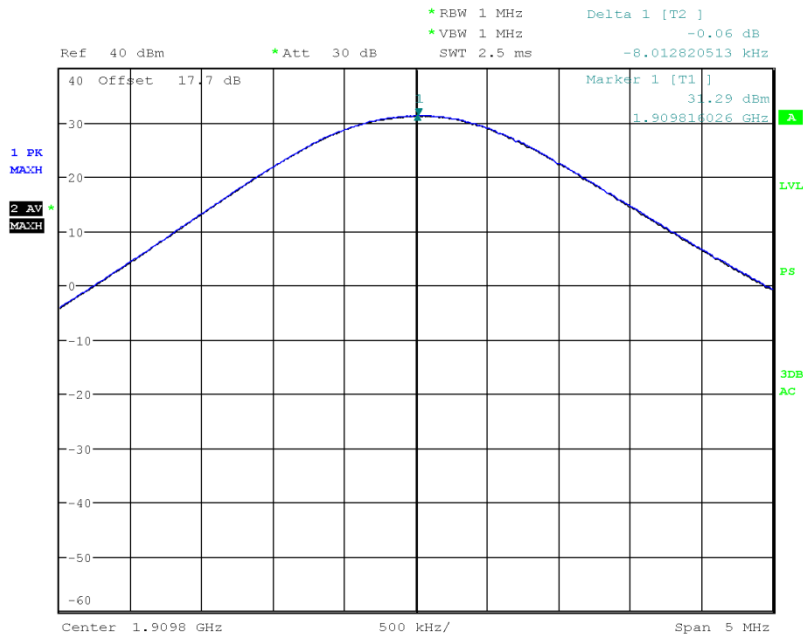


GSM1900

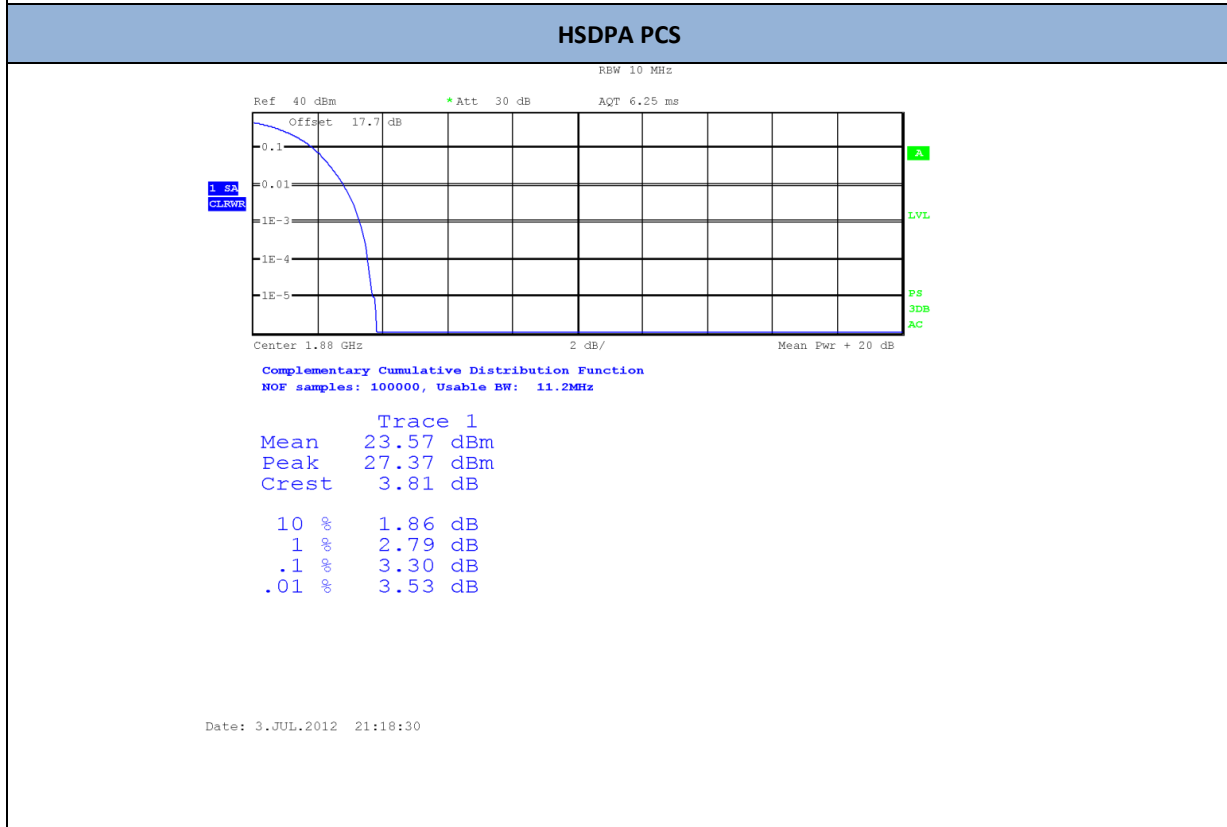
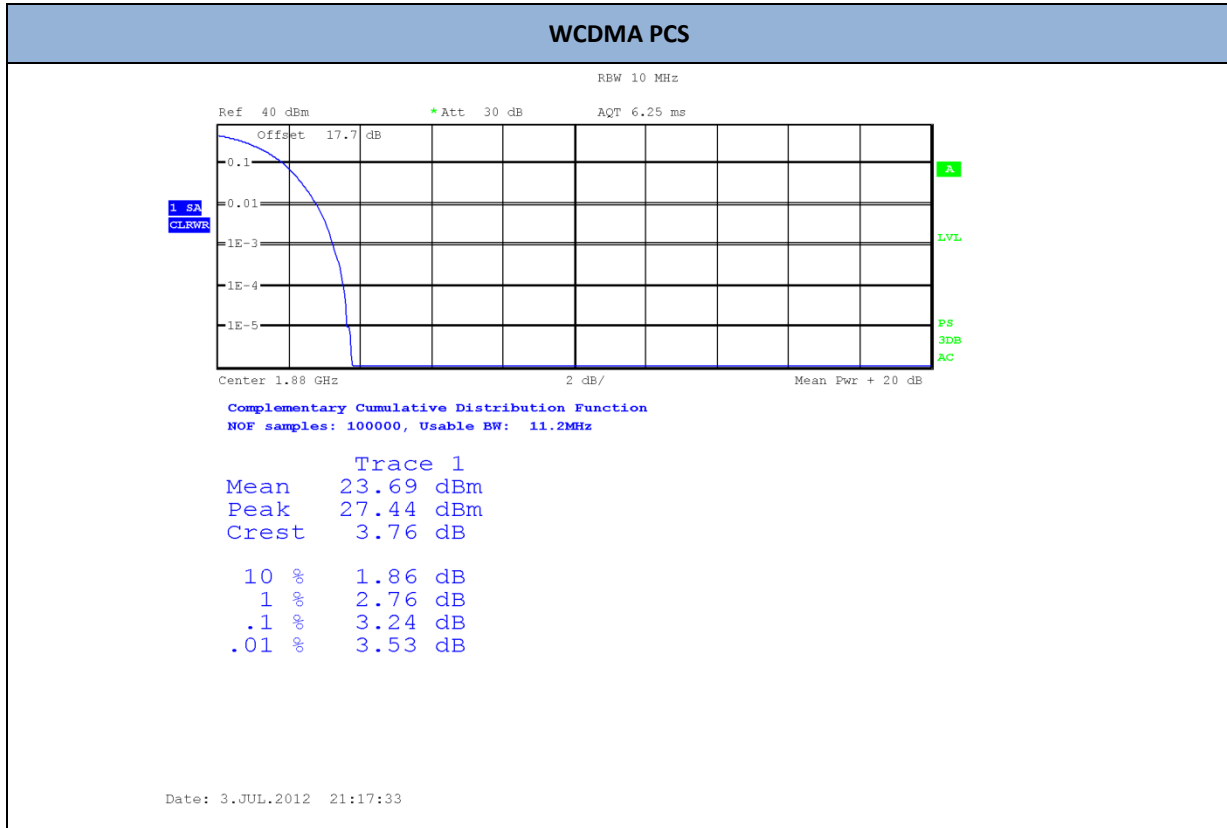


Date: 2.JUL.2012 14:41:43

EDGE1900



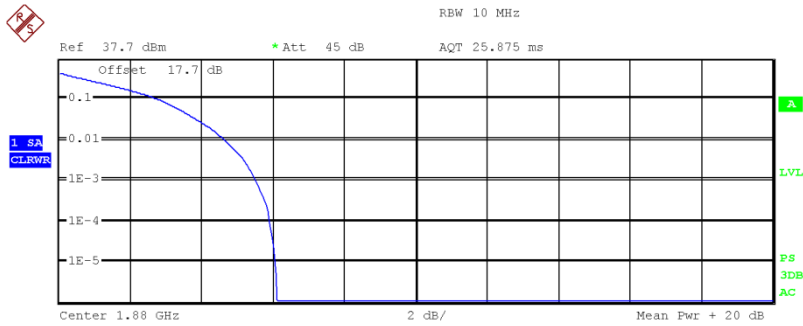
Date: 2.JUL.2012 14:43:12





America

BAND 2 (1.4MHz BW Freq. 1880MHz) QPSK



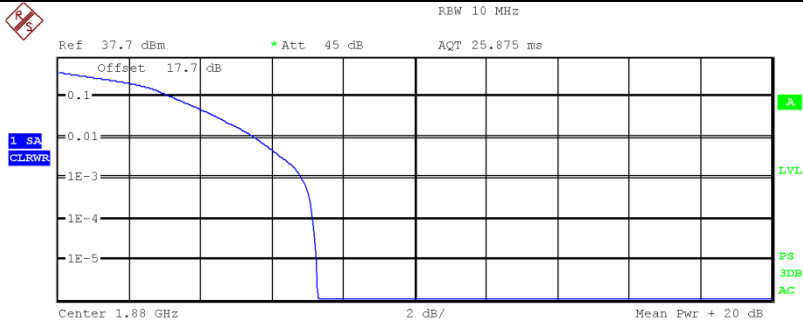
Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

Trace 1

Mean	22.47 dBm
Peak	28.58 dBm
Crest	6.11 dB
10 %	2.79 dB
1 %	4.62 dB
.1 %	5.51 dB
.01 %	5.90 dB

Date: 9.JUL.2012 18:34:17

BAND 2 (1.4MHz BW Freq. 1880MHz) 16QAM



Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

Trace 1

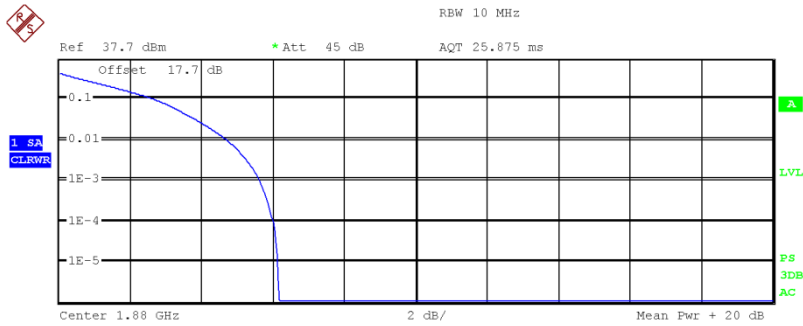
Mean	21.47 dBm
Peak	28.79 dBm
Crest	7.32 dB
10 %	3.21 dB
1 %	5.51 dB
.1 %	6.83 dB
.01 %	7.15 dB

Date: 9.JUL.2012 18:34:51



America

BAND 2 (3MHz BW Freq. 1880MHz) QPSK

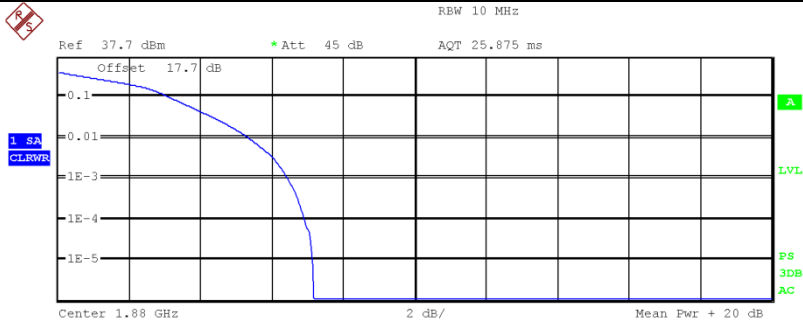


Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

Trace 1	
Mean	22.42 dBm
Peak	28.58 dBm
Crest	6.15 dB
10 %	2.69 dB
1 %	4.68 dB
.1 %	5.61 dB
.01 %	6.03 dB

Date: 9.JUL.2012 18:35:05

BAND 2 (3MHz BW Freq. 1880MHz) 16QAM



Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

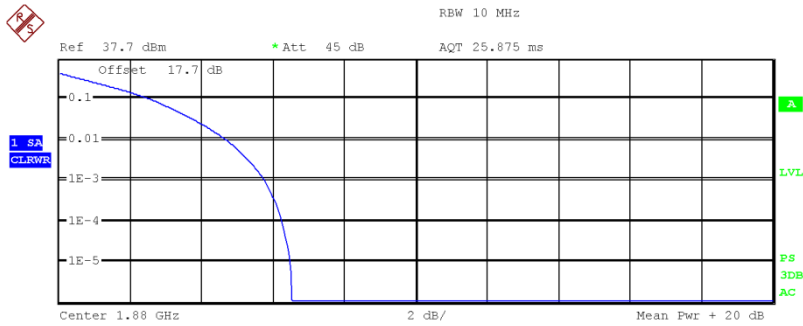
Trace 1	
Mean	21.48 dBm
Peak	28.65 dBm
Crest	7.17 dB
10 %	3.14 dB
1 %	5.32 dB
.1 %	6.44 dB
.01 %	6.92 dB

Date: 9.JUL.2012 18:35:15



America

BAND 2 (5MHz BW Freq. 1880MHz) QPSK



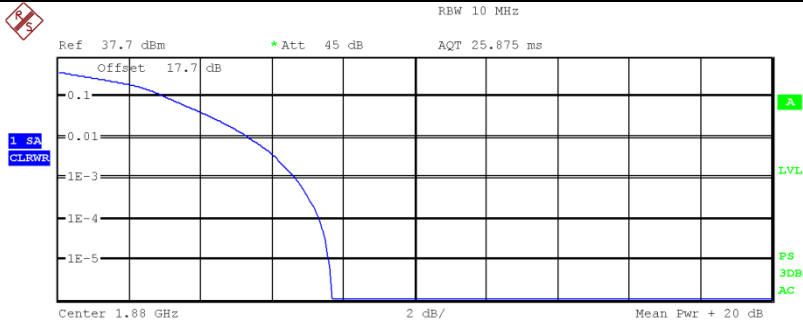
Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

Trace 1

Mean	22.19 dBm
Peak	28.72 dBm
Crest	6.53 dB
10 %	2.60 dB
1 %	4.68 dB
.1 %	5.77 dB
.01 %	6.25 dB

Date: 9.JUL.2012 18:47:44

BAND 2 (5MHz BW Freq. 1880MHz) 16QAM



Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

Trace 1

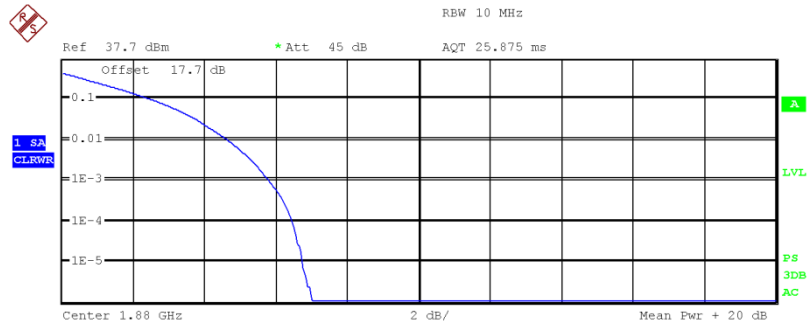
Mean	21.19 dBm
Peak	28.86 dBm
Crest	7.67 dB
10 %	3.04 dB
1 %	5.35 dB
.1 %	6.67 dB
.01 %	7.34 dB

Date: 9.JUL.2012 18:47:54



America

BAND 2 (10MHz BW Freq. 1880MHz) QPSK

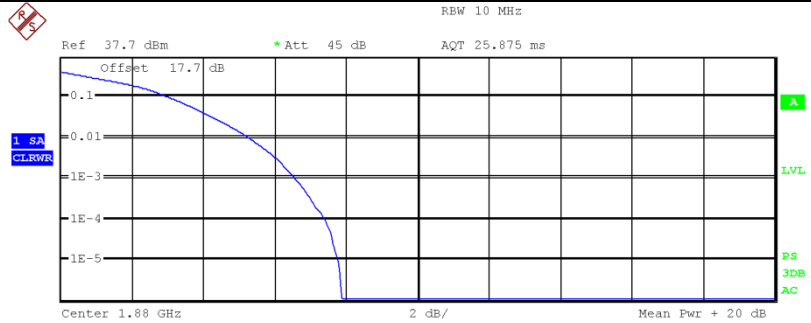


Center 1.88 GHz 2 dB/ Mean Pwr + 20 dB
 Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

Trace 1	
Mean	22.19 dBm
Peak	29.21 dBm
Crest	7.02 dB
10 %	2.50 dB
1 %	4.65 dB
.1 %	5.80 dB
.01 %	6.44 dB

Date: 9.JUL.2012 18:48:08

BAND 2 (10MHz BW Freq. 1880MHz) 16QAM



Center 1.88 GHz 2 dB/ Mean Pwr + 20 dB
 Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

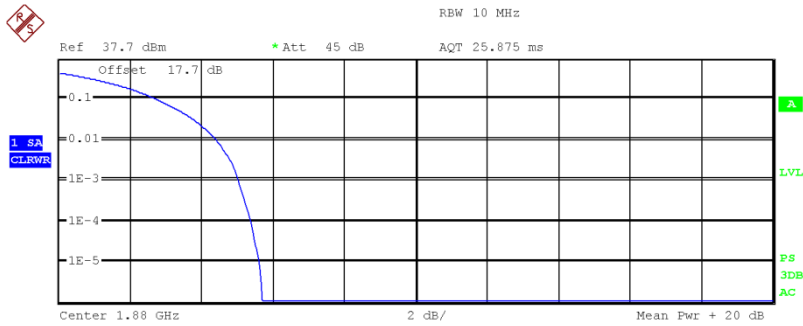
Trace 1	
Mean	21.17 dBm
Peak	29.07 dBm
Crest	7.90 dB
10 %	3.01 dB
1 %	5.26 dB
.1 %	6.54 dB
.01 %	7.40 dB

Date: 9.JUL.2012 18:48:17



America

BAND 2 (15MHz BW Freq. 1880MHz) QPSK



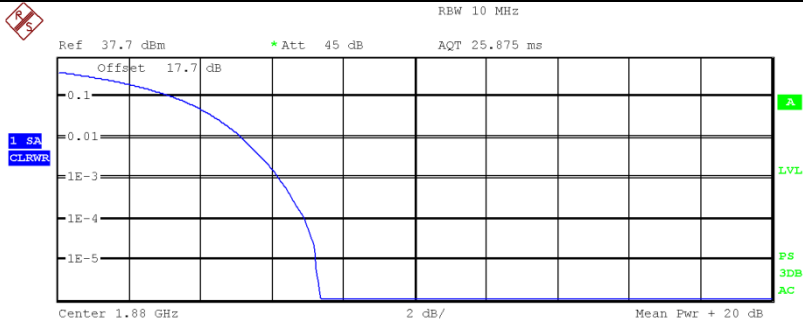
Center 1.88 GHz 2 dB/ Mean Pwr + 20 dB
 Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

Trace 1

Mean	21.40 dBm
Peak	27.10 dBm
Crest	5.69 dB
10 %	2.76 dB
1 %	4.39 dB
.1 %	5.03 dB
.01 %	5.38 dB

Date: 9.JUL.2012 18:48:32

BAND 2 (15MHz BW Freq. 1880MHz) 16QAM



Center 1.88 GHz 2 dB/ Mean Pwr + 20 dB
 Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

Trace 1

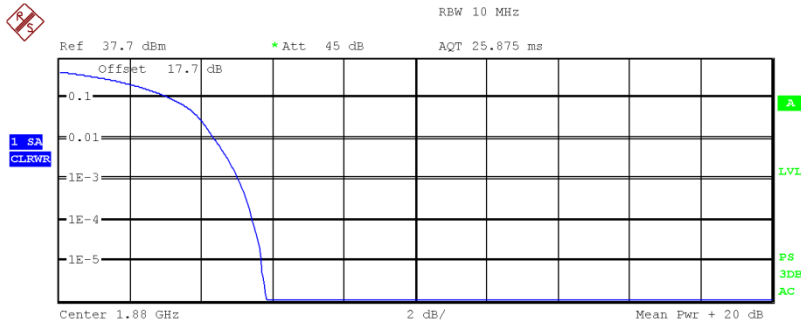
Mean	20.49 dBm
Peak	27.87 dBm
Crest	7.38 dB
10 %	3.27 dB
1 %	5.13 dB
.1 %	6.19 dB
.01 %	6.92 dB

Date: 9.JUL.2012 18:48:41



America

BAND 2 (20MHz BW Freq. 1880MHz) QPSK

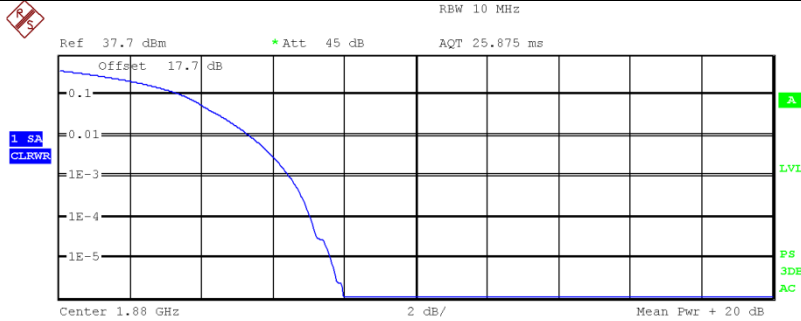


Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

Trace 1	
Mean	20.20 dBm
Peak	26.04 dBm
Crest	5.84 dB
10 %	3.14 dB
1 %	4.36 dB
.1 %	5.03 dB
.01 %	5.42 dB

Date: 9.JUL.2012 18:49:01

BAND 2 (20MHz BW Freq. 1880MHz) 16QAM



Complementary Cumulative Distribution Function
 NOF samples: 414000, Usable BW: 11.2MHz

Trace 1	
Mean	19.32 dBm
Peak	27.31 dBm
Crest	7.99 dB
10 %	3.46 dB
1 %	5.35 dB
.1 %	6.44 dB
.01 %	7.05 dB

Date: 9.JUL.2012 18:49:14



2.6 BAND EDGE/CONDUCTED SPURIOUS EMISSIONS

2.6.1 Specification Reference

Part 22 Subpart H §22.917(a) and Part 24 Subpart E §24.238(a)

2.6.2 Standard Applicable

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

2.6.3 Equipment Under Test and Modification State

Serial No: SA310512700012 / Default Test Configuration

2.6.4 Date of Test/Initial of test personnel who performed the test

July 2, 3, 4 and 9, 2012/JMG

2.6.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.6.6 Environmental Conditions

Ambient Temperature	24.1°C
Relative Humidity	42.6%
ATM Pressure	100.3 kPa

2.6.7 Additional Observations

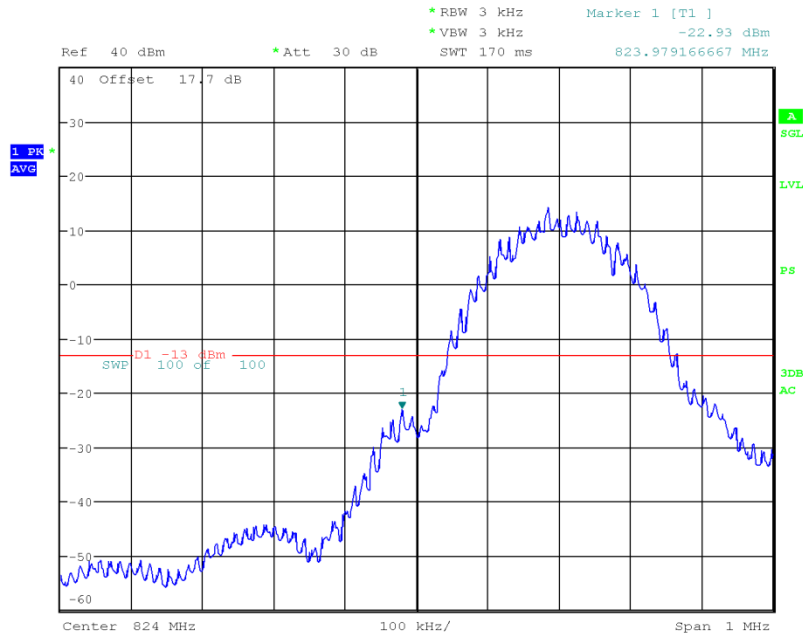
- This is a conducted test.
- The 17.7dB offset is from the power splitter, external attenuator and cable used.
- For band edge measurements, set RBW to 1% of the span.
- For both band edge and out of band emissions, set the limit to -13dBm.
- For LTE lower band edge measurement, 0 offset is utilized while the maximum allowable offset per channel bandwidth for upper band edge is used.
- All RB size available verified and the worst case size for band edge verification (LTE) presented in this test report.
- Only worst case configuration for all technologies presented in this test report.

2.6.8 Test Results

See attached plots.

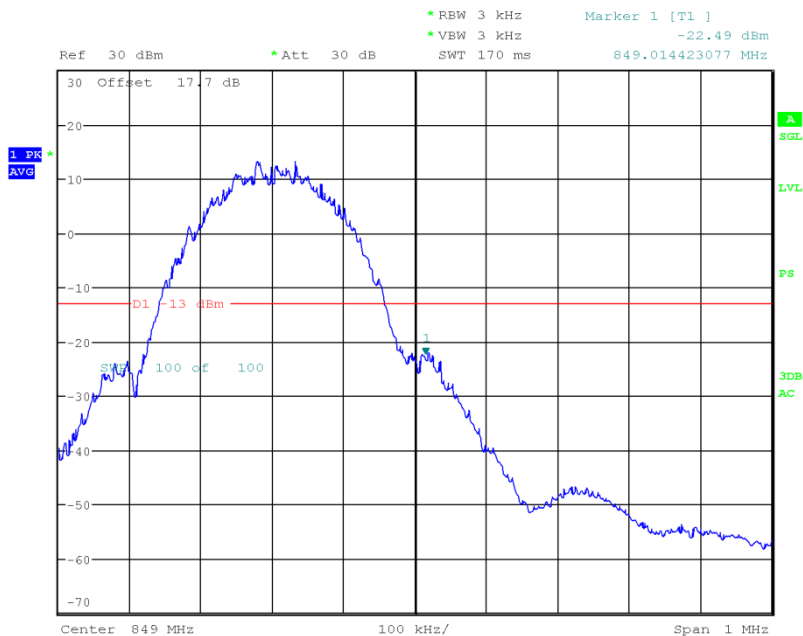


GSM850 Mode Band Edge @ 824MHz

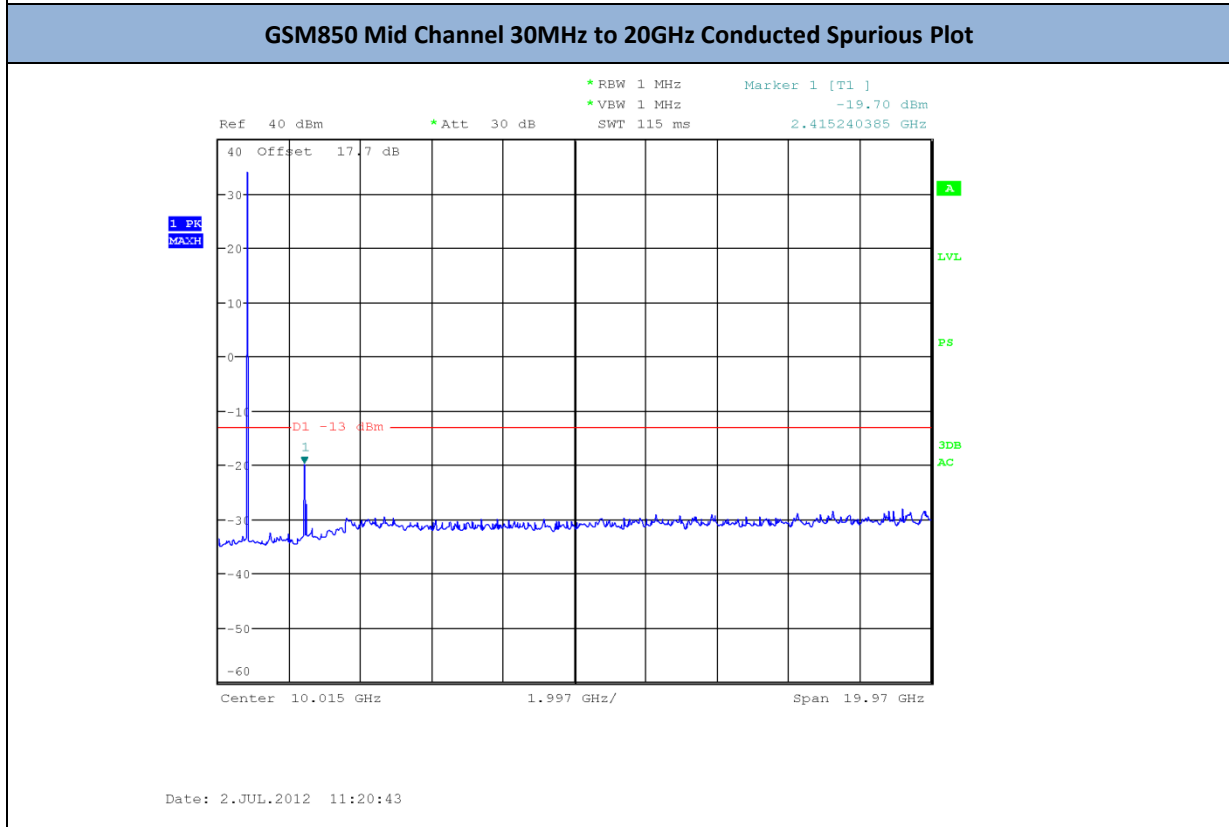
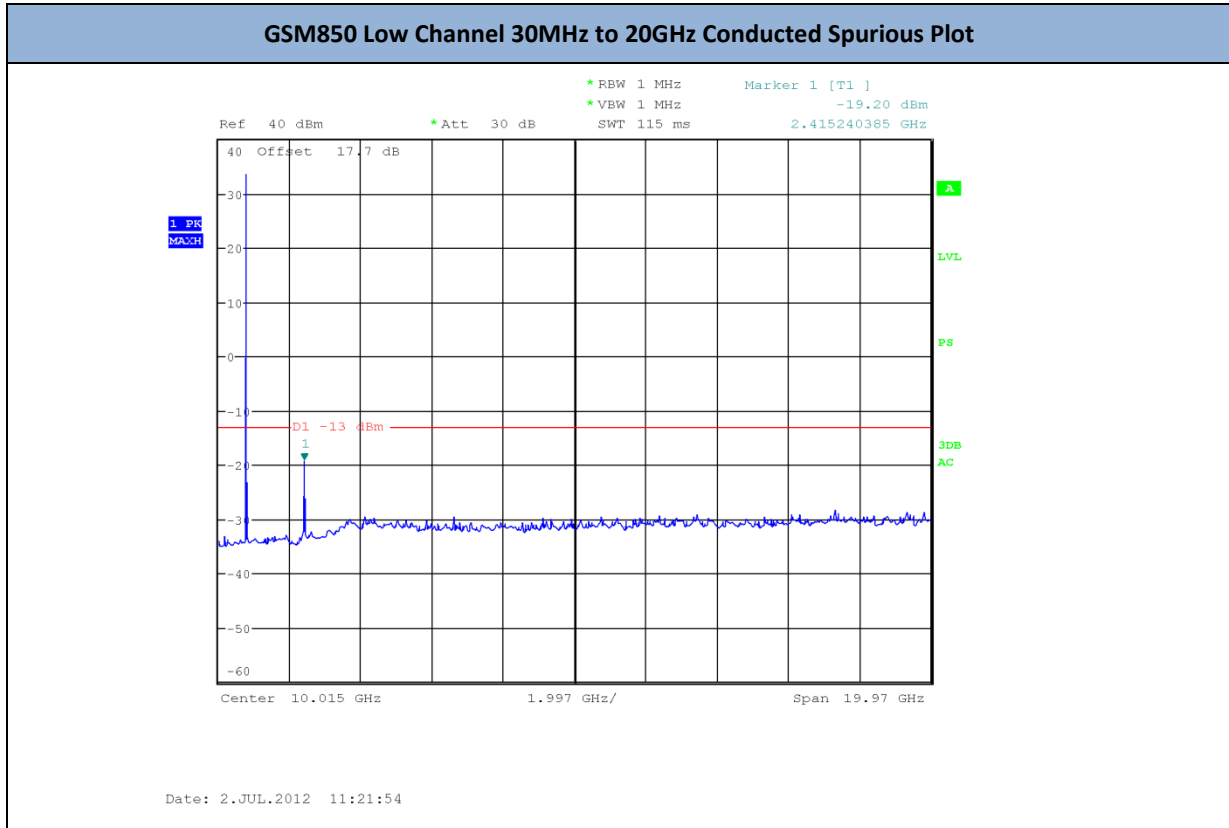


Date: 7.JUL.2012 12:07:15

GSM850 Mode Band Edge @ 849MHz

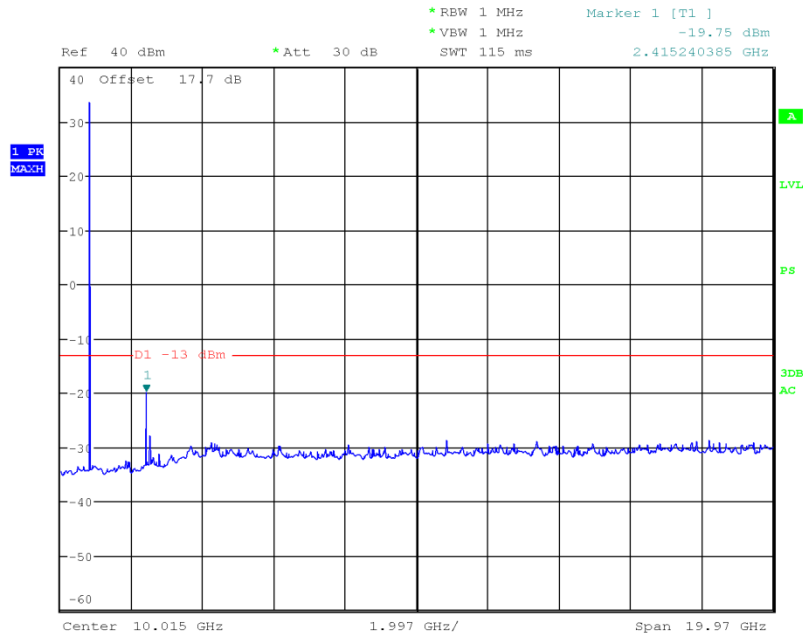


Date: 7.JUL.2012 12:04:56



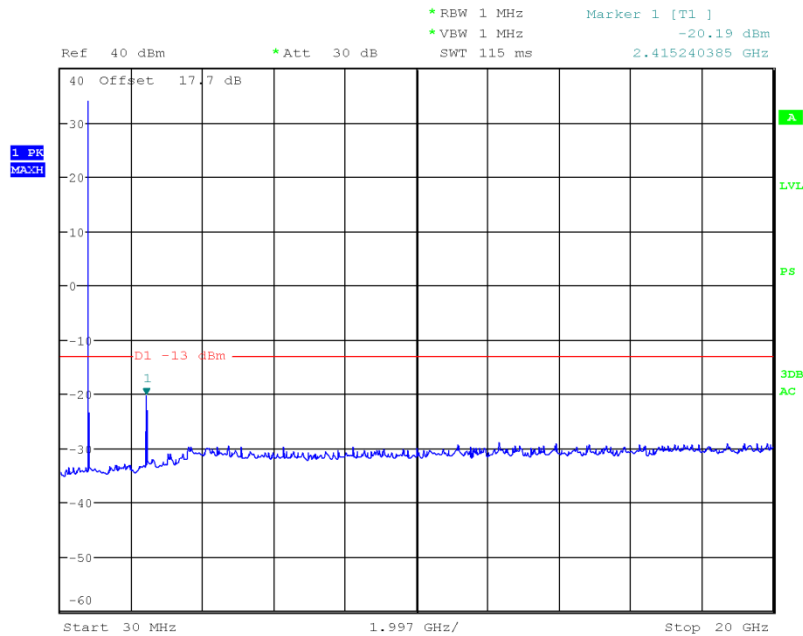


GSM850 High Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 2.JUL.2012 11:18:57

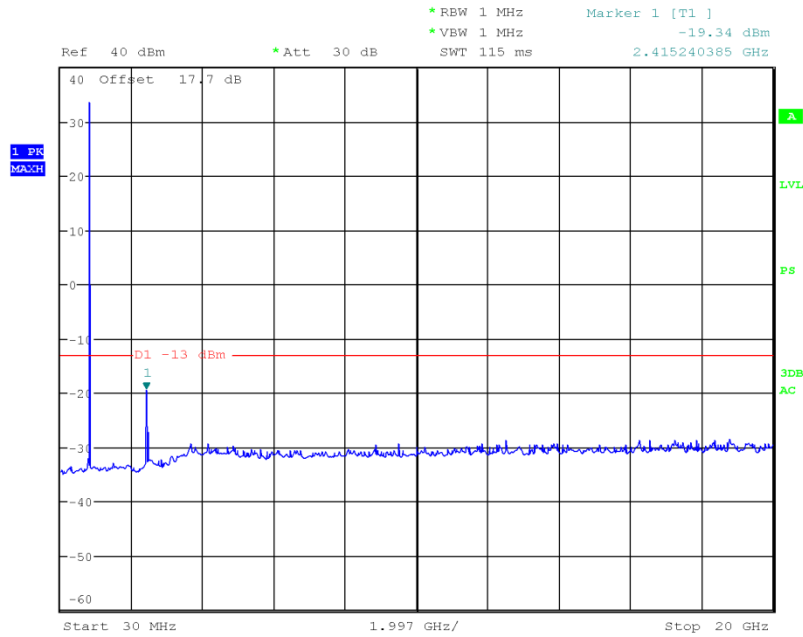
EDGE850 Low Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 2.JUL.2012 10:34:54

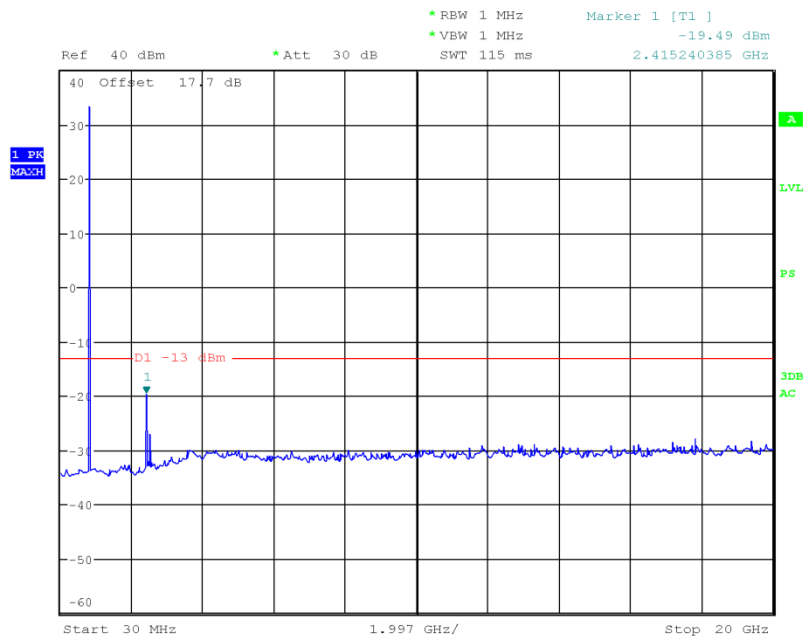


EDGE850 Mid Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 2.JUL.2012 10:36:31

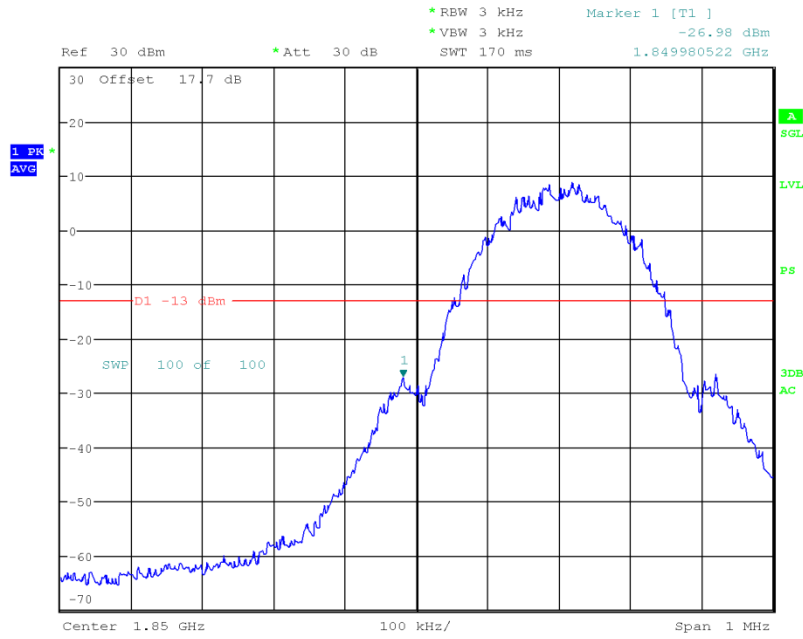
EDGE850 High Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 2.JUL.2012 10:38:14

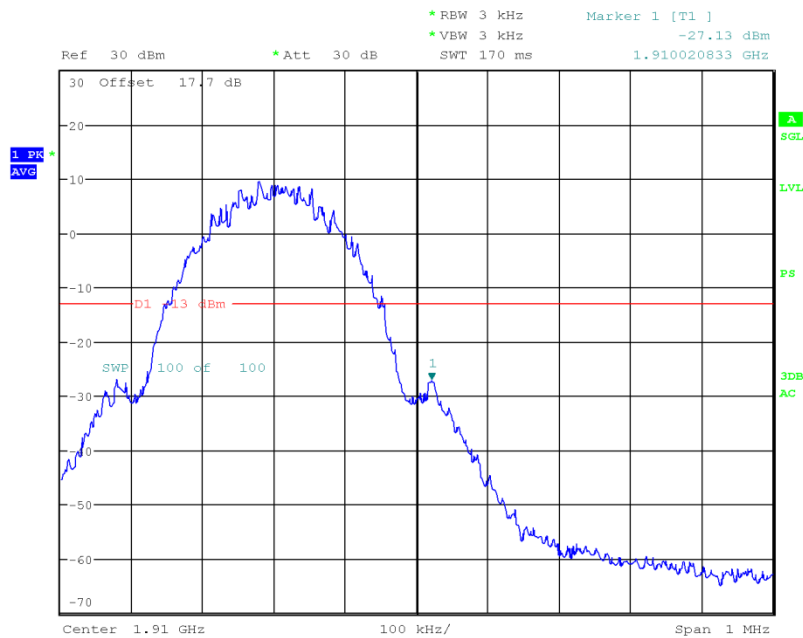


PCS GSM Mode Band Edge @ 1850MHz



Date: 7.JUL.2012 12:14:37

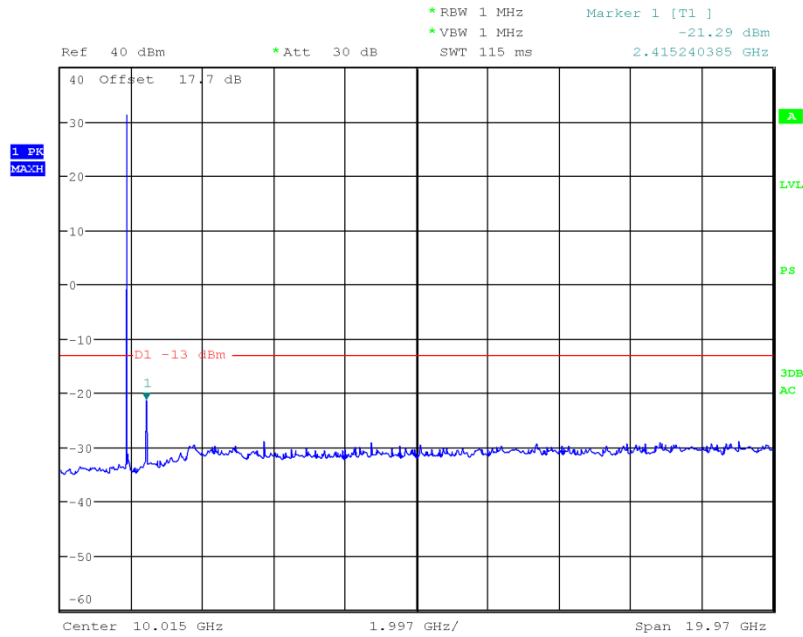
PCS GSM Mode Band Edge @ 1910MHz



Date: 7.JUL.2012 12:15:47

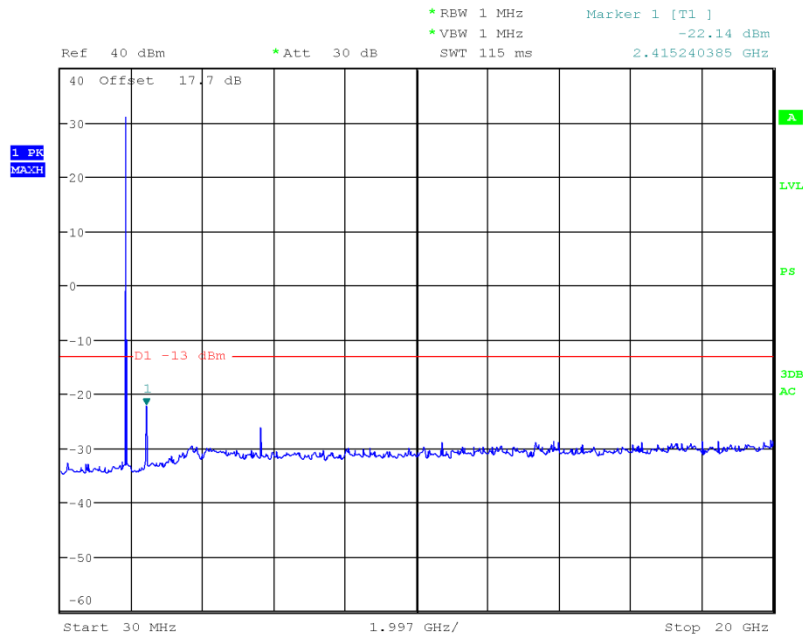


PCS GSM High Channel 30MHz to 20GHz Conducted Spurious Plot

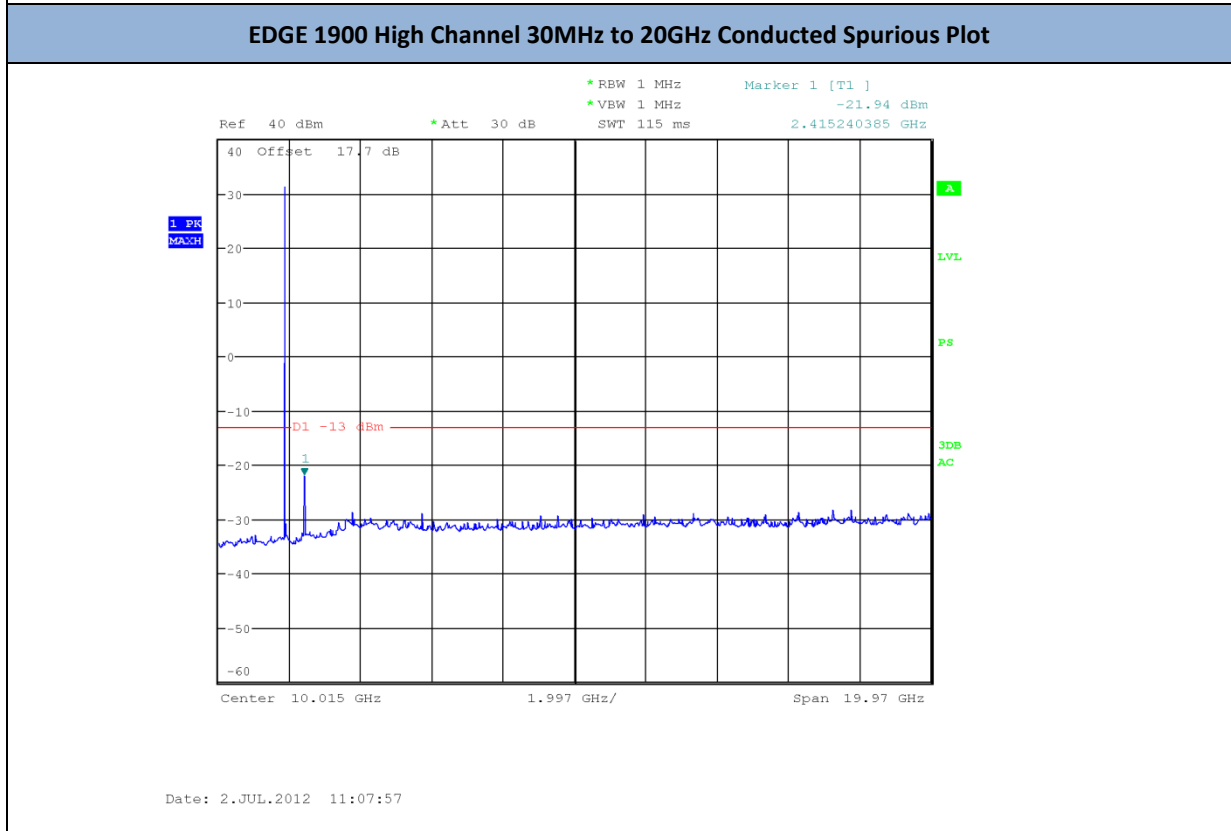
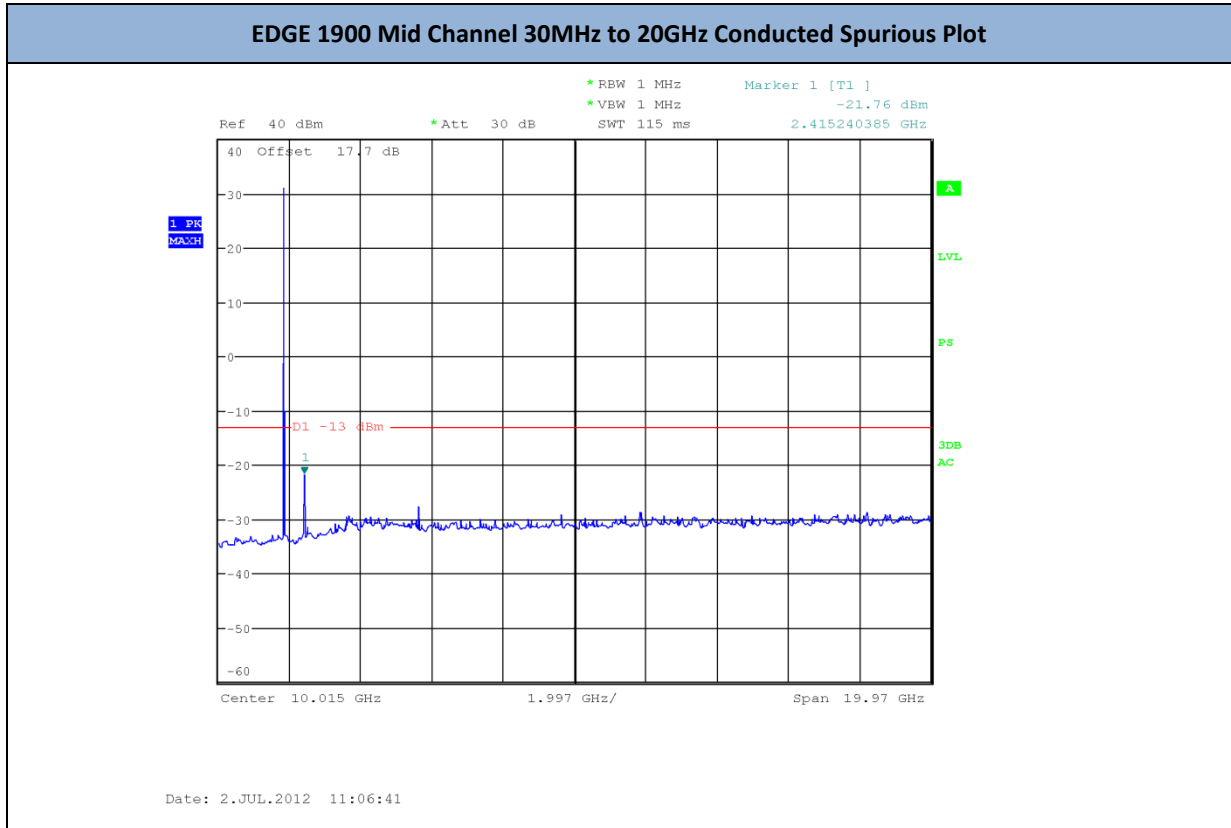


Date: 2.JUL.2012 11:15:35

EDGE 1900 Low Channel 30MHz to 20GHz Conducted Spurious Plot

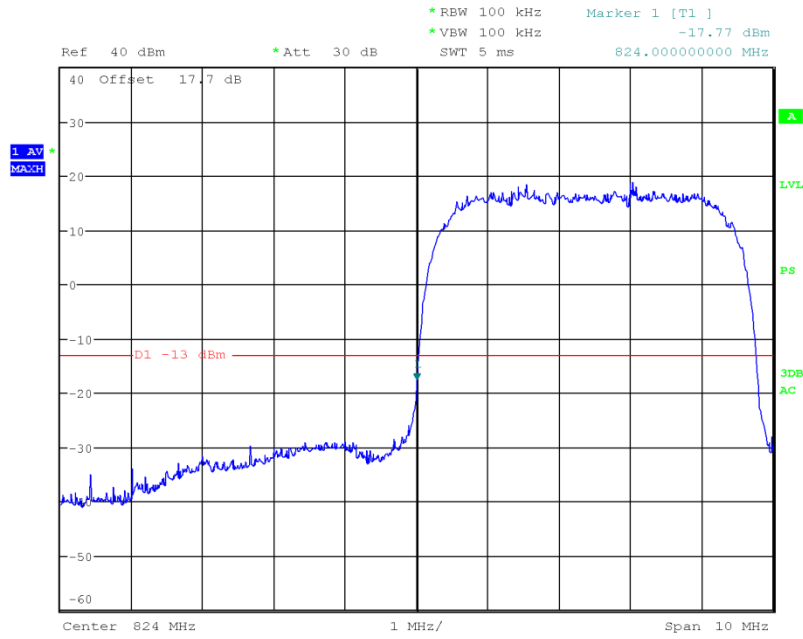


Date: 2.JUL.2012 11:05:09



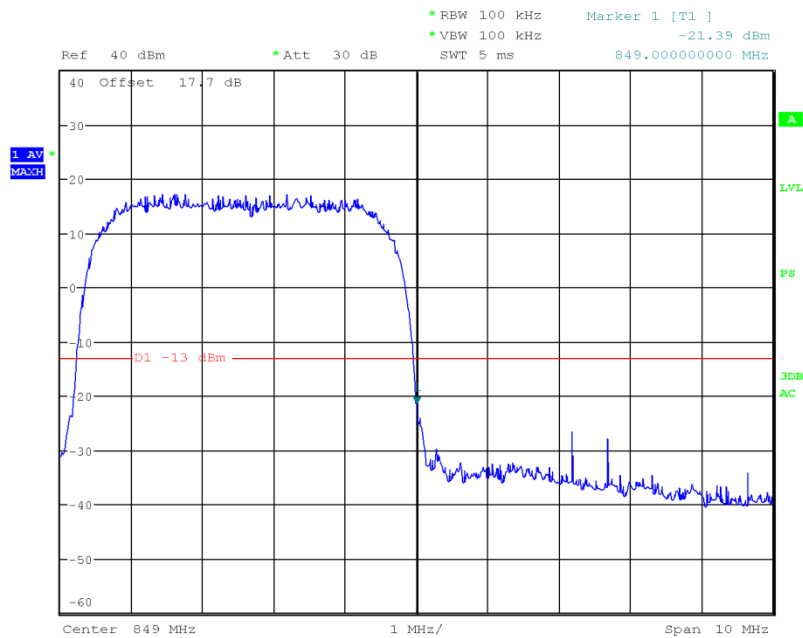


Cellular WCDMA Mode Band Edge @ 824MHz



Date: 4.JUL.2012 08:40:52

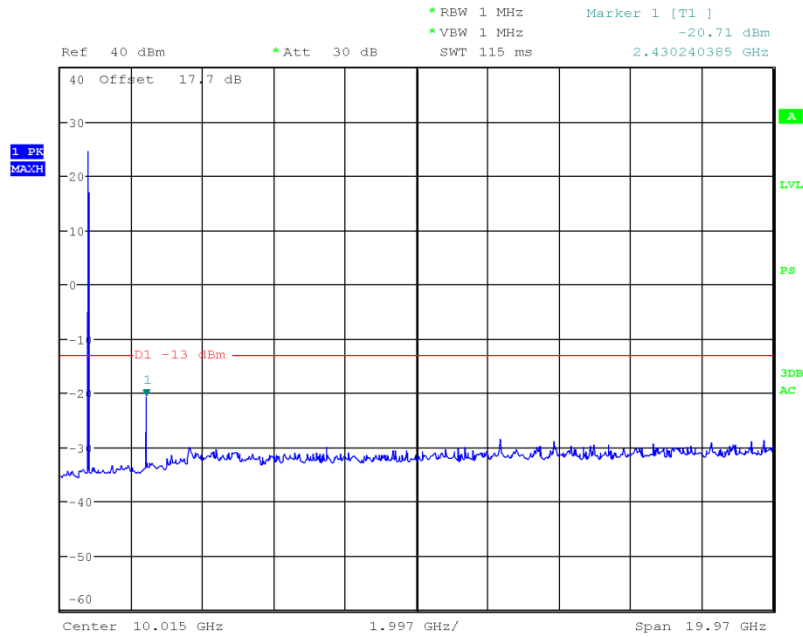
Cellular WCDMA Mode Band Edge @ 849MHz



Date: 4.JUL.2012 08:41:49

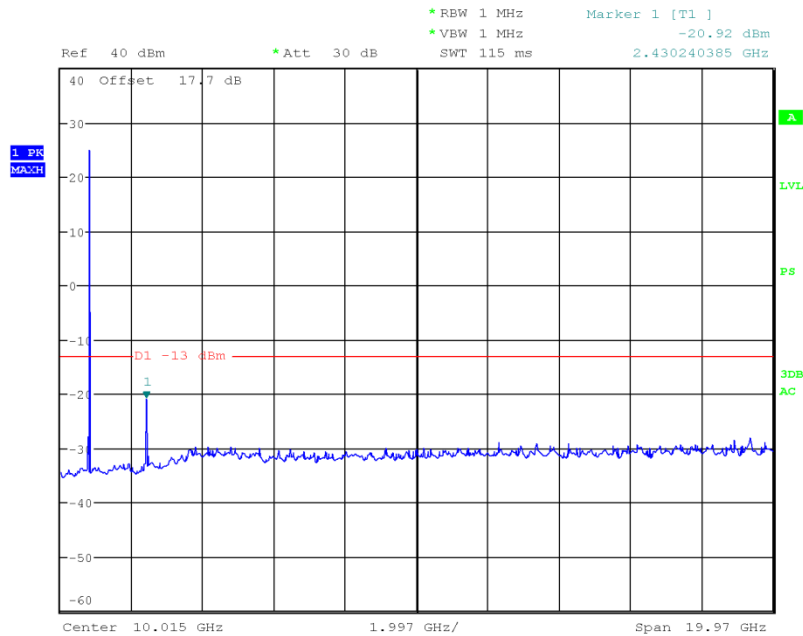


Cellular WCDMA Low Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 21:51:31

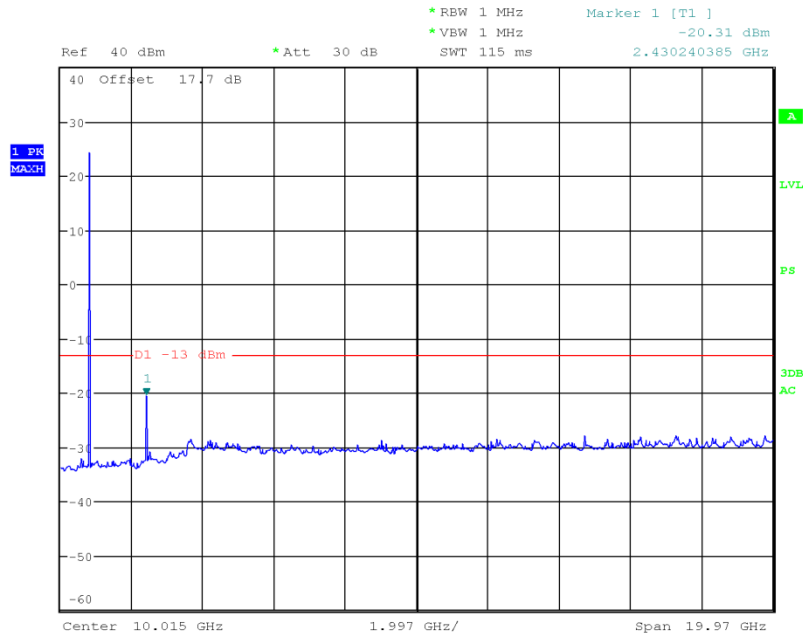
Cellular WCDMA Mid Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 21:52:20

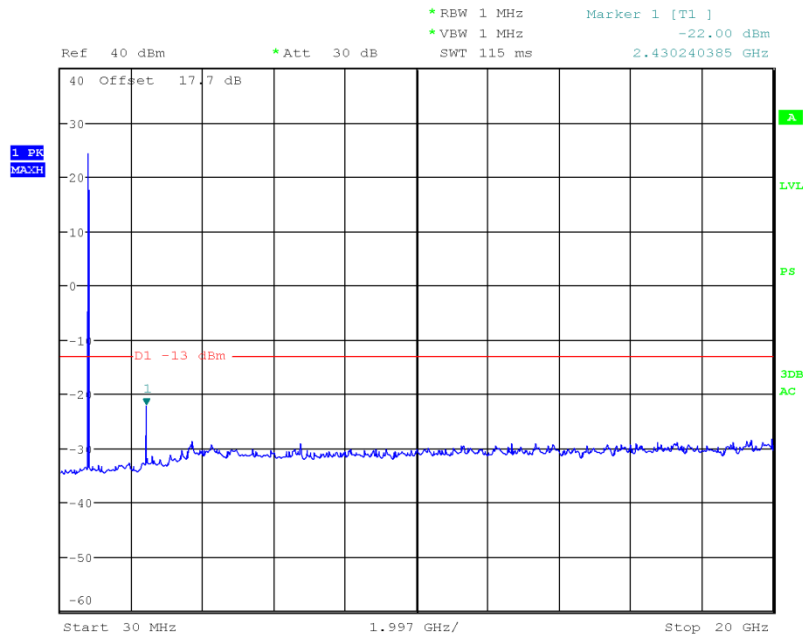


Cellular WCDMA High Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 22:01:58

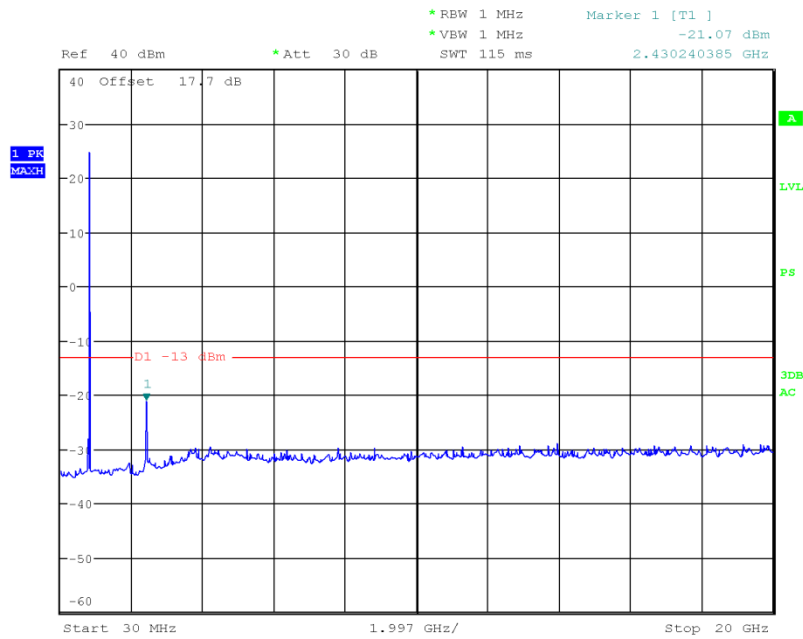
Cellular HSDPA Low Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 21:34:39

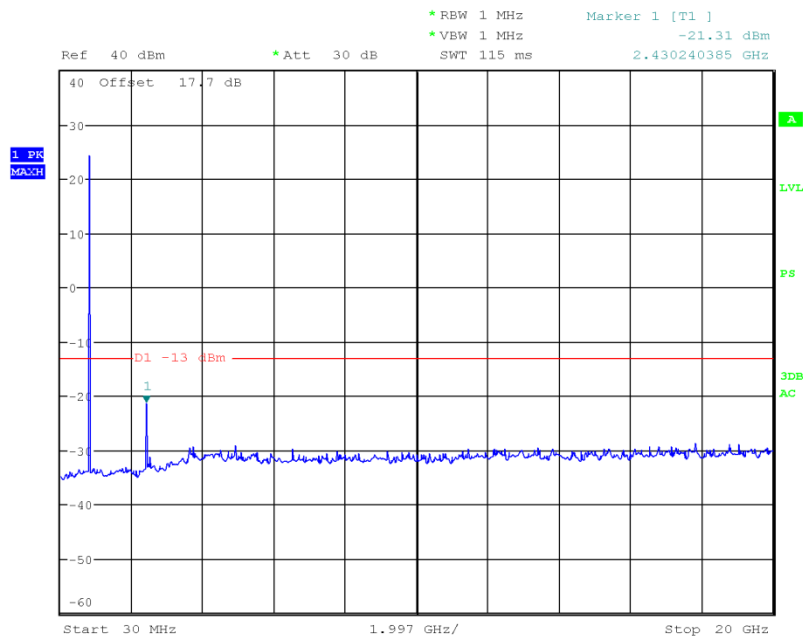


Cellular HSDPA Mid Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 21:35:31

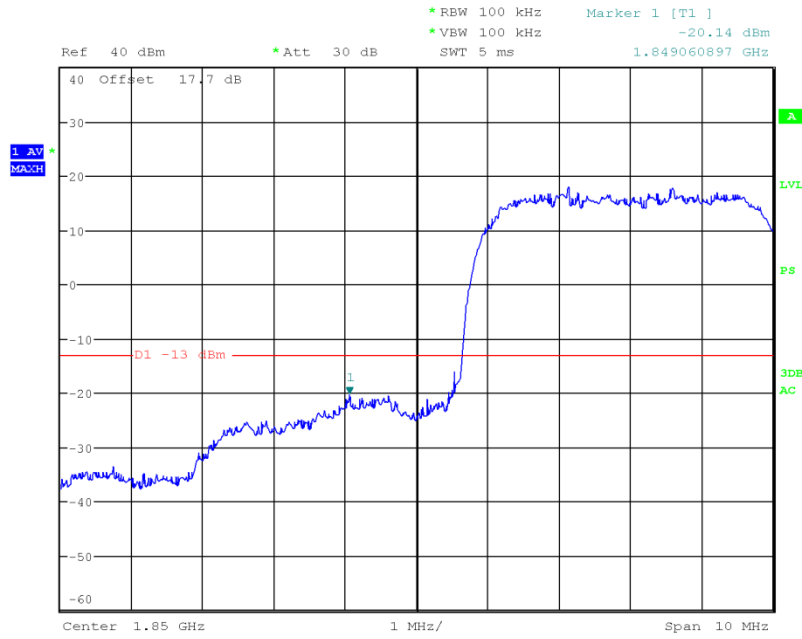
Cellular HSDPA High Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 21:36:17

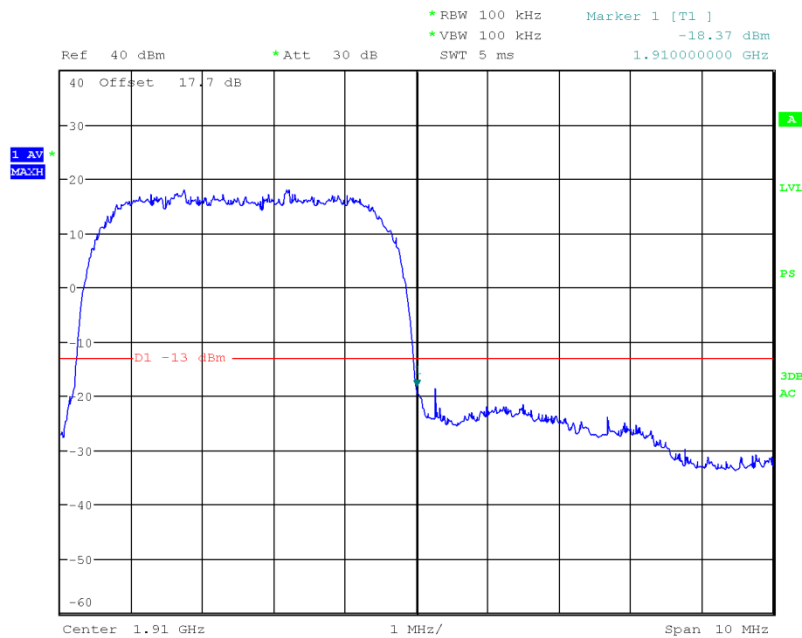


PCS WCDMA Mode Band Edge @ 1850MHz



Date: 4.JUL.2012 08:00:38

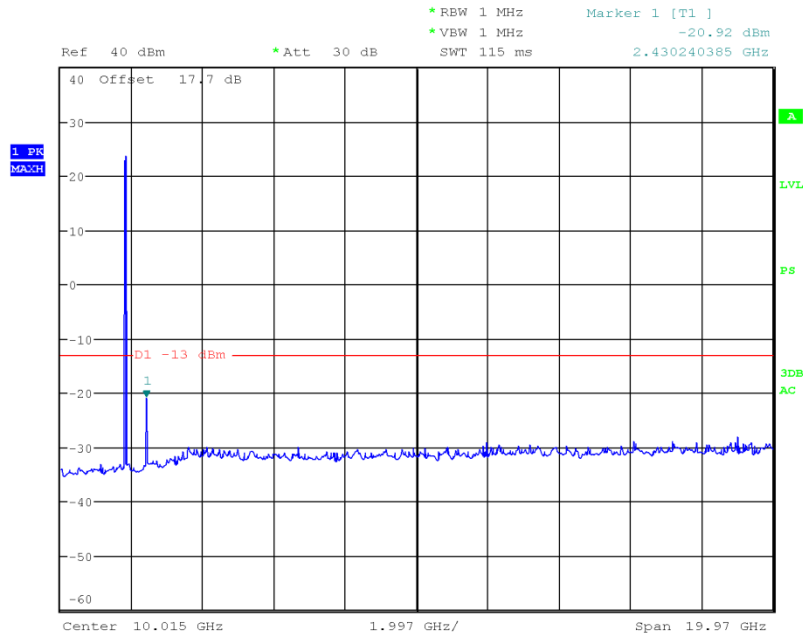
PCS WCDMA Mode Band Edge @ 1910MHz



Date: 4.JUL.2012 07:57:38

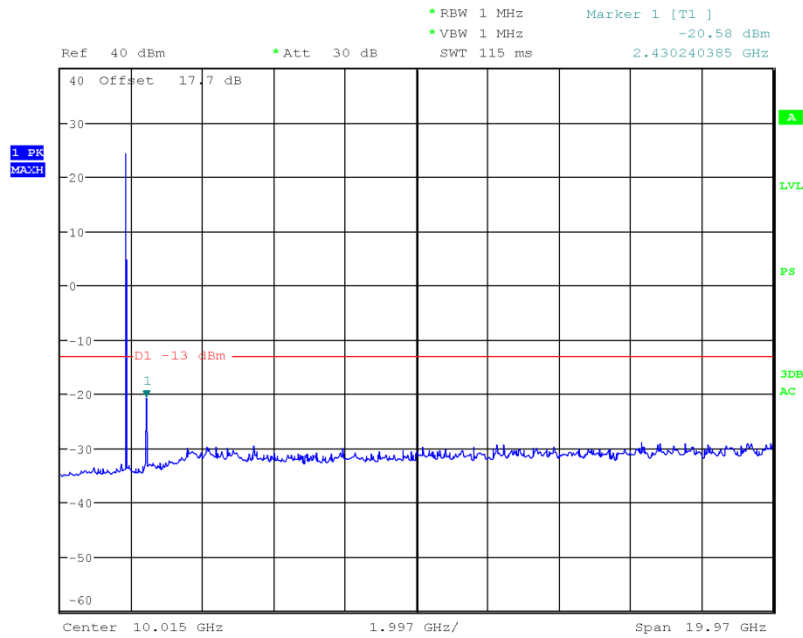


PCS WCDMA Low Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 22:02:42

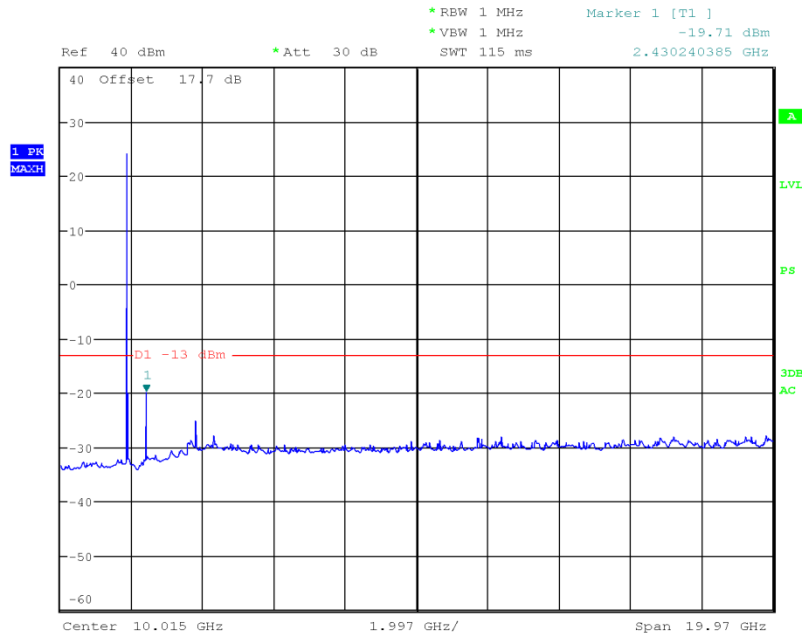
PCS WCDMA Mid Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 22:03:29

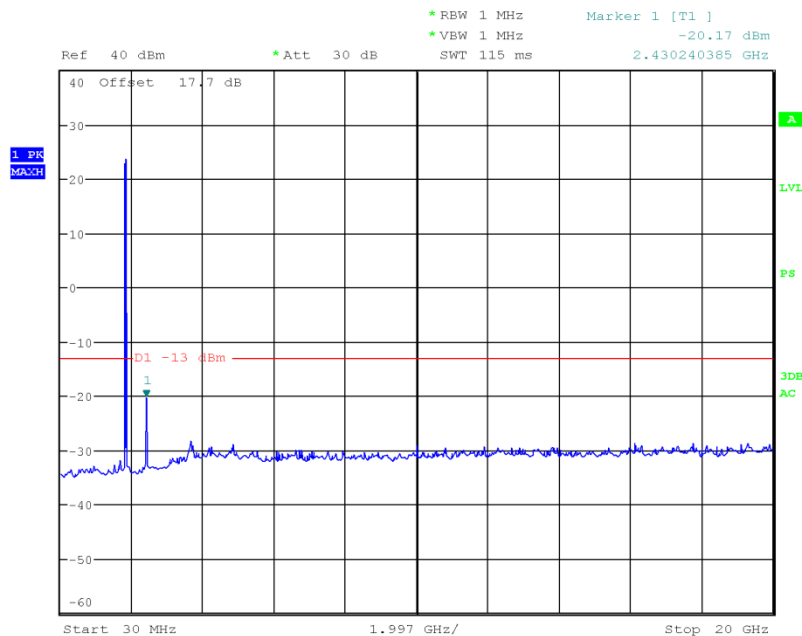


PCS WCDMA High Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 22:14:45

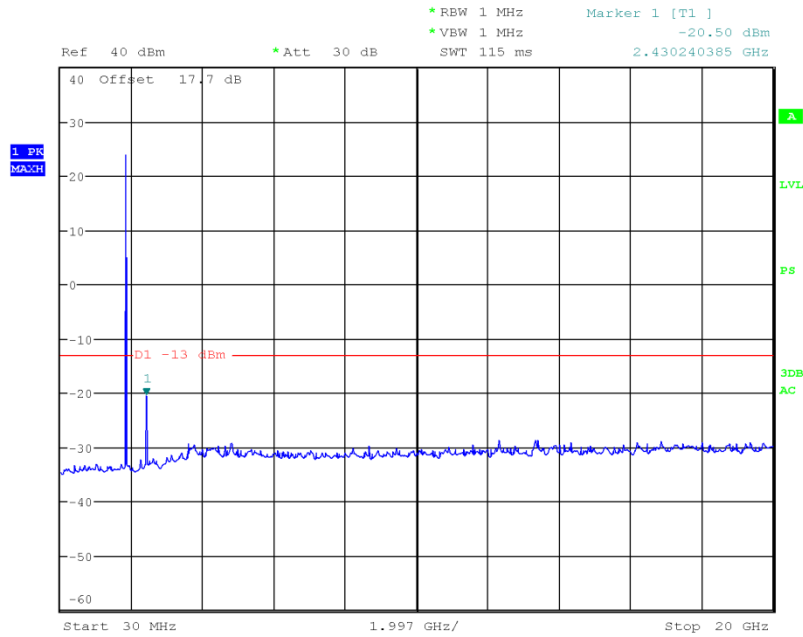
PCS HSDPA Low Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 21:31:01

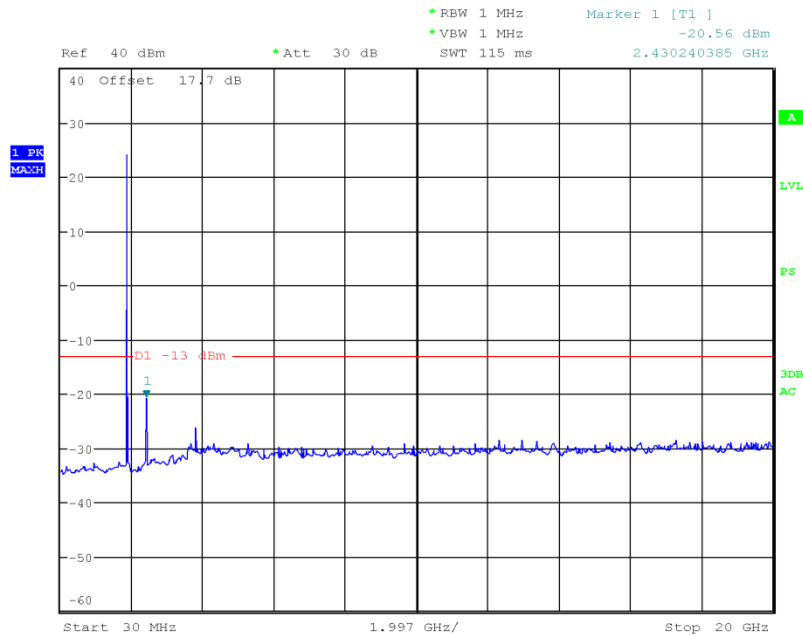


PCS HSDPA Mid Channel 30MHz to 20GHz Conducted Spurious Plot



Date: 3.JUL.2012 21:26:06

PCS HSDPA High Channel 30MHz to 20GHz Conducted Spurious Plot

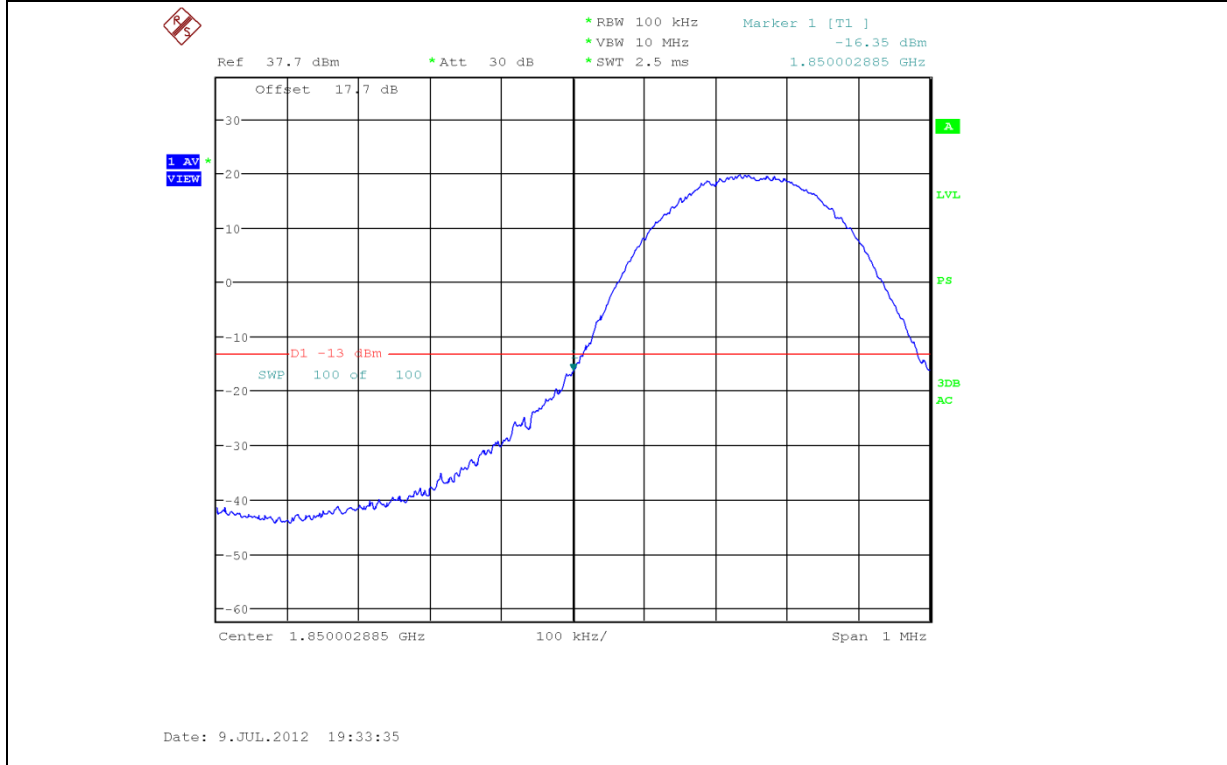


Date: 3.JUL.2012 21:28:37

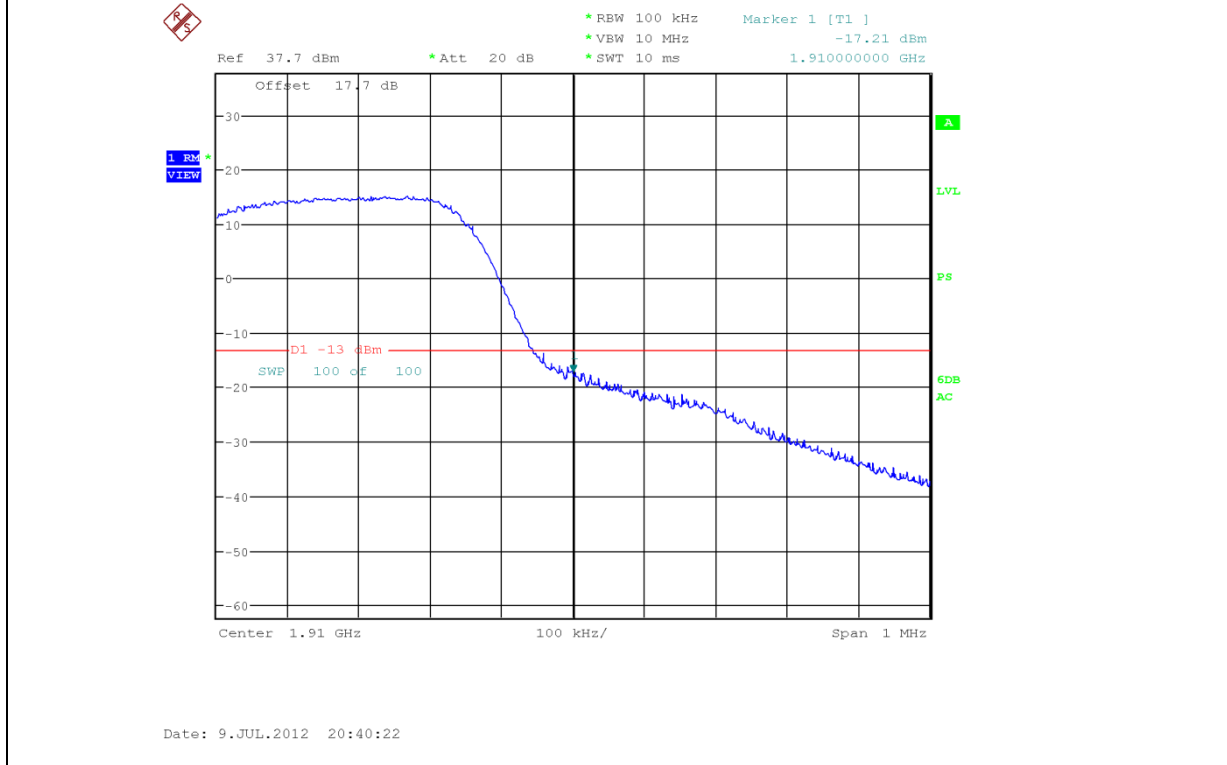


America

LTE 2 1.4MHz BW Mode QPSK RB 1/0 Lower Band Edge @ 1850.7MHz



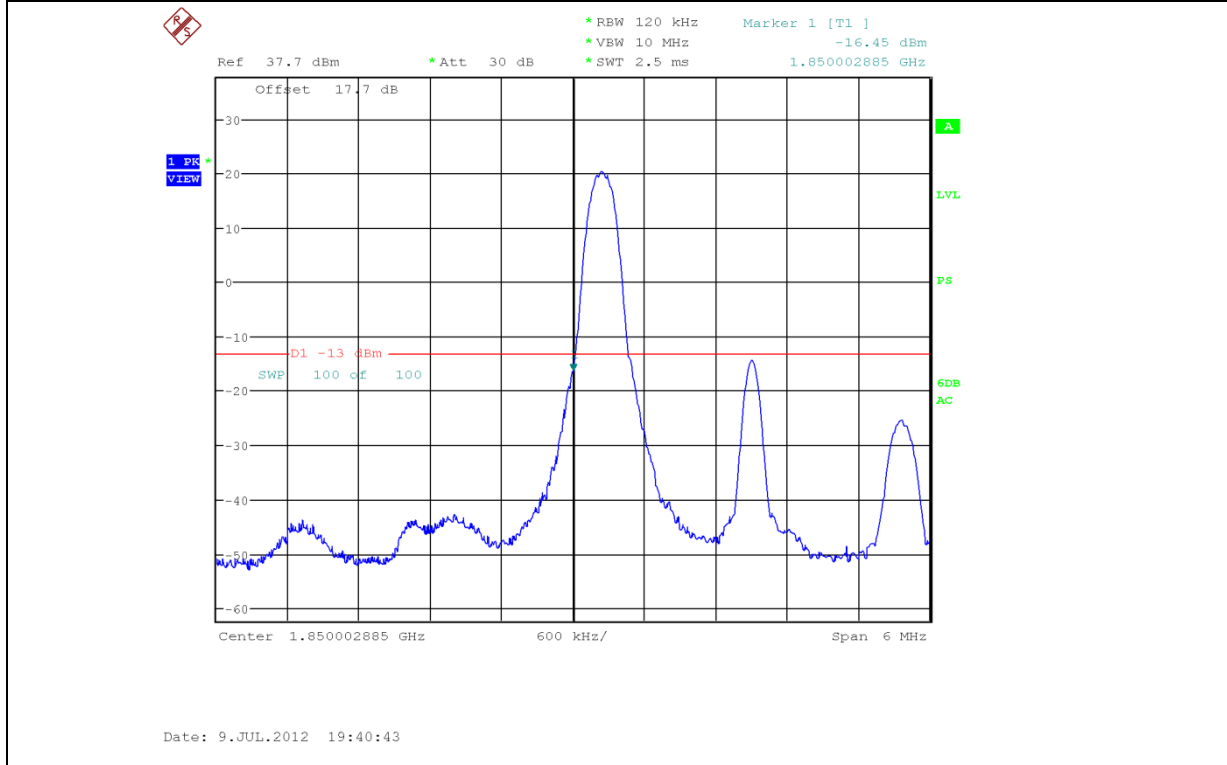
LTE 2 1.4MHz BW Mode QPSK RB 2/4 Higher Band Edge @ 1909.3MHz





America

LTE 2 3MHz BW Mode QPSK RB 1/0 Lower Band Edge @ 1851.5MHz



LTE 2 3MHz BW Mode QPSK RB 2/13 Higher Band Edge @ 1908.5MHz

