FCC 47 CFR PART 22 SUBPART H
FCC 47 CFR PART 24 SUBPART E
TEST REPORT

For

Product Name: 4G LTE Mobile Router
Brand Name: macaroon
Model No.: macaroon M1
Series Model.:N/A
FCC ID: 2AMIWM1
Test Report Number:
C170614R01-RP1

Issued for

Beijing ULINK Technology Co., Ltd.

East Area of 5F,No.16 Wangjing North Rd.,Chaoyang District,Beijing,China

Issued by

Compliance Certification Services Inc.

Kun shan Laboratory

No.10 Weiye Rd., Innovation park, Eco&Tec,
Development Zone, Kunshan City, Jiangsu, China

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TESTING CERT #2541.01

REVISION HISTORY

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	July 9, 2017	C170614R01-RP1	ALL	N/A

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1 TEST RESULT CERTIFICATION

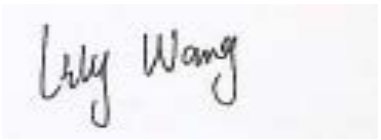
Product Name:	4G LTE Mobile Router
Trade Name:	macaroon
Model Name.:	macaroon M1
Series Model:	N/A
Applicant Discrepancy:	Initial
Device Category:	portable unit
Exposure Category:	GENERAL POPULATION/UNCONTROLLED EXPOSURE
Date of Test:	July 1, 2017~July 9, 2017
Applicant:	**Beijing ULINK Technology Co., Ltd.** East Area of 5F,No.16 Wangjing North Rd.,Chaoyang District,Beijing,China
Manufacturer:	**Beijing ULINK Technology Co., Ltd.** East Area of 5F,No.16 Wangjing North Rd.,Chaoyang District,Beijing,China
Application Type:	Certification

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 22 Subpart H FCC 47 CFR Part 24 Subpart E	No non-compliance noted

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule FCC PART 22 Subpart H and PART 24 Subpart E.

The test results of this report relate only to the tested sample identified in this report.

Approved by: ***Tested by:***



Jeff.Fang
RF Manager
Compliance Certification Services Inc.

James.Yan
Test Engineer
Compliance Certification Services Inc.

2 EUT DESCRIPTION

Product Name:	4G LTE Mobile Router
Brand Name:	macaroon
Model Name:	macaroon M1
Series Model:	N/A
Model Discrepancy:	N/A
Hardware Version	1.0
Software Version	V100
Power Supply:	Power Adapter： Model :TUUS050100-K00 Input: 100-240V~50/60Hz, 0.2A Output: 5V⎓1A Battery（rating）： capacity: 11.4WH 3.8V
Frequency Range:	GPRS/EGPRS 850: 824.20 ~ 848.80 MHz GPRS/EGPRS 1900: 1850.20 ~ 1909.80 MHz WCDMA/HSDPA/HSUPA Band II:1852.4~1907.6MHz WCDMA/HSDPA/HSUPA Band V:826.4~846.6 MHz
Peak Power:	GPRS 850: 32.50 dBm GPRS 1900:28.50 dBm EGPRS 850: 32.40 dBm EGPRS 1900:28.50 dBm WCDMA Band II: 26.26 dBm HSDPA Band II: 25.80 dBm HSUPA Band II: 25.91 dBm WCDMA Band V:26.99 dBm HSDPA Band V: 26.19 dBm HSUPA Band V: 27.57 dBm
Modulation Technique:	GPRS/EGPRS: GMSK WCDMA/HSDPA/HSUPA: QPSK
Antenna Gain:	GPRS/EGPRS 850/ WCDMA/HSDPA/HSUPA Band V :-5.42 dBi GPRS/EGPRS 1900/WCDMA/HSDPA/HSUPA Band II : -0.33 dBi
Antenna Type:	Internal Antenna

Remark:

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *This submittal(s) (test report) is intended for **FCC ID: 2AMIWM1** filing to comply with Part 22 and Part 24 of the FCC 47 CFR Rules.*

3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10 2013 and FCC CFR 47, Part 2, PART 22 SUBPART H and PART 24 SUBPART E

3.1. EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2. EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

3.3. GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.10 2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.10:2013.

3.4. DESCRIPTION OF TEST MODES

The EUT (model: macaroon M1) had been tested under operating condition.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

EUT staying in continuous transmitting mode was programmed.

GPRS/EGPRS / 850:
Channel Low (CH128), Channel Mid (CH190) and Channel High (CH251) were chosen for full testing.

GPRS/EGPRS / 1900:
Channel Low (CH512), Channel Mid (CH661) and Channel High (CH810) were chosen for full testing.

WCDMA/ HSDPA/ HSUPA Band II:
Channel Low (CH9262), Channel Mid (CH9400) and Channel High (CH9538) were chosen for full testing.

WCDMA/ HSDPA/ HSUPA Band V:
Channel Low (CH4132), Channel Mid (CH4183) and Channel High (CH4233) were chosen for full testing.

4 INSTRUMENT CALIBRATION

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2. MEASUREMENT EQUIPMENT USED

Conducted Emissions Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Data**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2016-9-10	2017-9-9
Spectrum Analyzer	RS	FSU26	200789	2016-7-21	2017-7-20
Power meter	Anritsu	ML2495A	1445010	2017-4-26	2018-4-25
Power sensor	Anritsu	MA2411B	1339220	2017-4-26	2018-4-25
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R	N.C.R
DC Power Supply	AGILENT	E3632A	MY50340053	N.C.R	N.C.R
Temp. / Humidity Gauge	Anymetre	TH603	CCS007	2016-11-1	2017-10-31
Test Software			EZ-EMC		

977 Chamber					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Data**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2016-9-10	2017-9-9
Spectrum Analyzer	RS	FSU26	200789	2016-7-21	2017-7-20
EMI Test Receiver	R&S	ESCI	101378	2017-1-5	2018-1-4
Pre-Amplfier	MITEQ	AMF-6F-260400-40-8P	1037496	2016-11-15	2017-11-14
Amplifier	MITEQ	JS41-00101800-32-10P	1675713	2016-7-21	2017-7-20
Broad-Band Horn Antenna	SCHWARZBECK	BBHA 9170	9170-515	2017-3-6	2018-3-5
Bilog Antenna	Sunol	JB1	A062604	2017-5-27	2018-5-26
Bilog Antenna	Sunol	JB1	A110204-1	2017-5-27	2018-5-26
Loop Antenna	Hengweiyi	39501C	2014012	2017-1-5	2018-1-4
Horn-antenna	SCHWARZBECK	9120D	D:266	2017-2-28	2018-2-27
Horn-antenna	SCHWARZBECK	9120D	D:267	2016-11-10	2017-11-9
Turn Table	CT	CT123	4165	N.C.R	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R	N.C.R
Controller	CT	CT1OO	95637	N.C.R	N.C.R
Test Software			EZ-EMC		

Conducted Emission					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Data**	**Calibration Due**
EMI TEST RECEIVER	R&S	ESCI	100781	2017-2-28	2018-2-27
V (V-LISN)	SCHWARZBECK	NNLK 8129	8129-143	2016-11-1	2017-10-31
TWO-LINE V-NETWORK	R&S	ENV216	101604	2016-11-1	2017-10-31
Pulse LIMITER	R&S	ESH3-Z2	100524	2017-1-5	2018-1-4
Test Software			EZ-EMC		

Remark: *Each piece of equipment is scheduled for calibration once a year.*

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	**Frequency**	***Uncertainty***
Conducted emissions	0.15MHz~30MHz	± 3.43 dB

Measurement	**Polarity**	**Frequency**	**Uncertainty**
Radiated emissions (below 1GHz)	H	30MHz ~ 200MHz	+/- 4.72dB
		200MHz ~1000MHz	+/- 4.72dB
	V	30MHz ~ 200MHz	+/- 4.83dB
		200MHz ~1000MHz	+/- 4.70dB
Radiated emissions (above 1GHz)	H	1000MHz ~5000MHz	+/- 3.94dB
		5000MHz ~6000MHz	+/- 3.94dB
	V	1000MHz ~5000MHz	+/- 3.94dB
		5000MHz ~6000MHz	+/- 3.94dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5 FACILITIES AND ACCREDITATIONS

5.1. FACILITIES

☒ No.10Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

5.2. EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3. TABLE OF ACCREDITATIONS AND LISTINGS

FCC –Designation Number: CN1172.

Compliance Certification Services Inc. Kun shan Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Designation Number: CN1172.

6 SETUP OF EQUIPMENT UNDER TEST

6.1. SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

6.2. SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	FCC ID	Series No.	Data Cable	Power Cord
N/A							

Remark:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

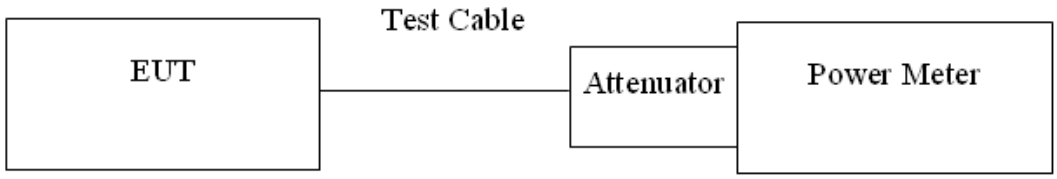
7 FCC PART 22 & 24 REQUIREMENTS

7.1. PEAK POWER

LIMIT

According to FCC §2.1046.

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

TEST RESULTS

No non-compliance noted.

Test Data

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)
GPRS 850	128	824.20	32.50
	190	836.60	32.30
	251	848.80	32.40
EGPRS 850	128	824.20	32.40
	190	836.60	32.30
	251	848.80	32.40

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)
GPRS 1900	512	1850.20	28.20
	661	1880.00	28.40
	810	1909.80	28.50
EGPRS 1900	512	1850.20	28.20
	661	1880.00	28.40
	810	1909.80	28.50

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)
WCDMA (BAND II)	9262	1852.4	25.62
	9400	1880.0	26.26
	9538	1907.6	25.98
HSDPA (BAND II)	9262	1852.4	24.87
	9400	1880.0	25.80
	9538	1907.6	25.44
HSUPA (BAND II)	9262	1852.4	25.18
	9400	1880.0	25.63
	9538	1907.6	25.91

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)
WCDMA (BAND V)	4132	826.40	26.99
	4182	836.60	26.69
	4233	846.60	25.94
HSDPA (BAND V)	4132	826.40	26.19
	4182	836.60	25.82
	4233	846.60	25.40
HSUPA (BAND V)	4132	826.40	27.57
	4182	836.60	26.54
	4233	846.60	25.70

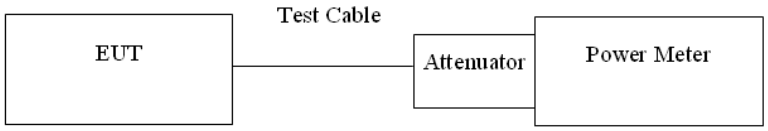
Remark: *The value of factor includes both the loss of cable and external attenuator*

7.2. AVERAGE POWER

LIMIT

For reporting purposes only.

TEST CONFIGURATION



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

TEST RESULTS

No non-compliance noted.

Test Data

Test Mode	CH	Frequency (MHz)	AV Power (dBm)
GPRS 850	128	824.20	32.10
	190	836.60	32.00
	251	848.80	32.00
EGPRS 850	128	824.20	32.00
	190	836.60	32.00
	251	848.80	32.00

Test Mode	CH	Frequency (MHz)	AV Power (dBm)
GPRS 1900	512	1850.20	27.80
	661	1880.00	28.00
	810	1909.80	28.20
EGPRS 1900	512	1850.20	27.80
	661	1880.00	28.00
	810	1909.80	28.10

Test Mode	CH	Frequency (MHz)	AV Power (dBm)
WCDMA (BAND II)	9262	1852.4	22.69
	9400	1880.0	22.72
	9538	1907.6	22.52
HSDPA (BAND II)	9262	1852.4	21.71
	9400	1880.0	21.60
	9538	1907.6	21.64
HSUPA (BAND II)	9262	1852.4	21.75
	9400	1880.0	21.82
	9538	1907.6	22.02

Test Mode	CH	Frequency (MHz)	AV Power (dBm)
WCDMA (BAND V)	4132	826.40	23.25
	4182	836.60	23.12
	4233	846.60	23.06
HSDPA (BAND V)	4132	826.40	22.30
	4182	836.60	22.16
	4233	846.60	22.11
HSUPA (BAND V)	4132	826.40	22.24
	4182	836.60	22.08
	4233	846.60	21.84

Remark: *The value of factor includes both the loss of cable and external attenuator*

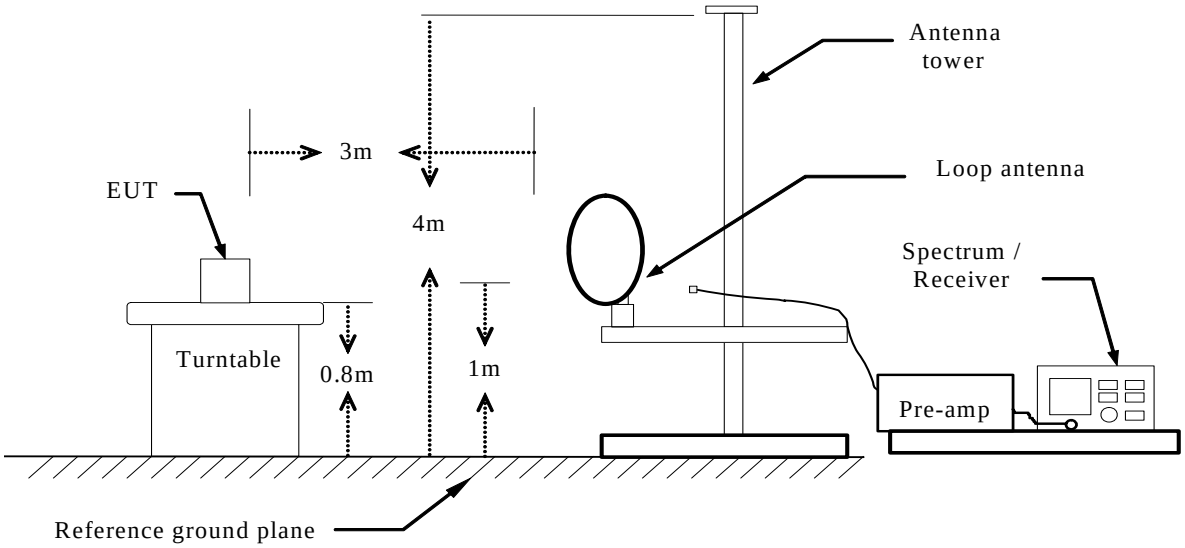
7.3. ERP & EIRP MEASUREMENT

LIMIT

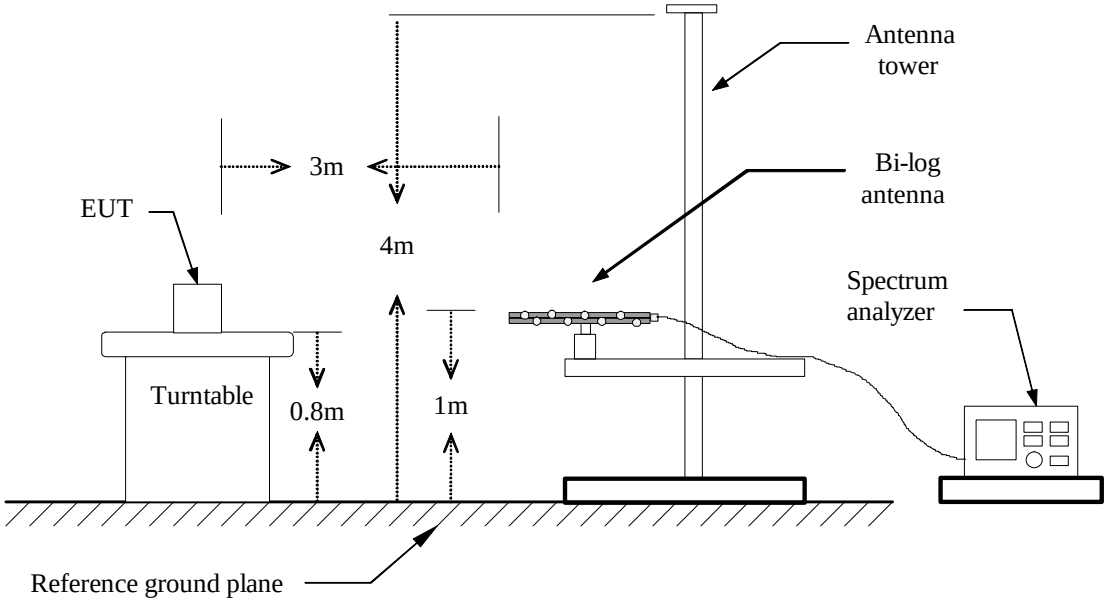
According to FCC §2.1046
FCC 22.913(a): The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts.
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

TEST CONFIGURATION

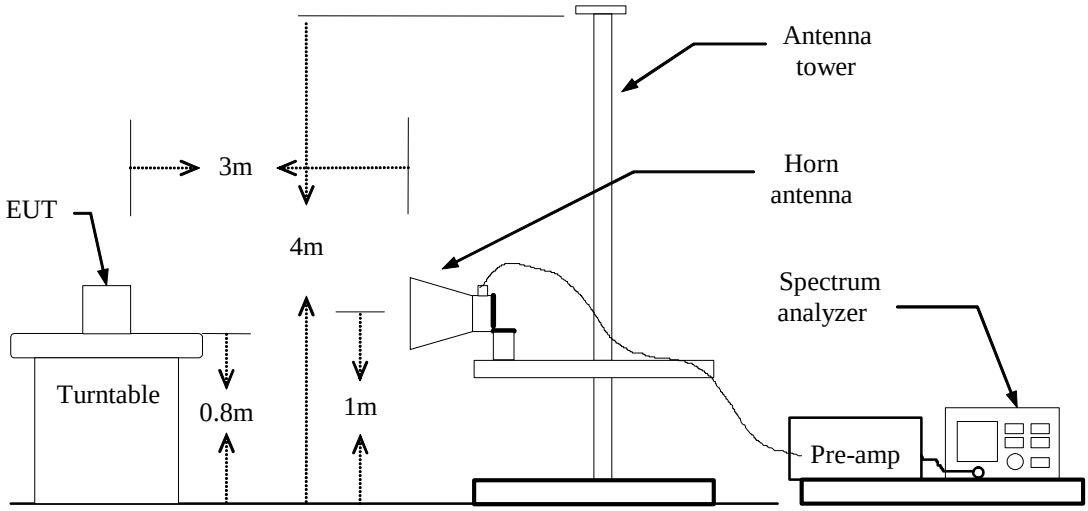
Below 30MHz



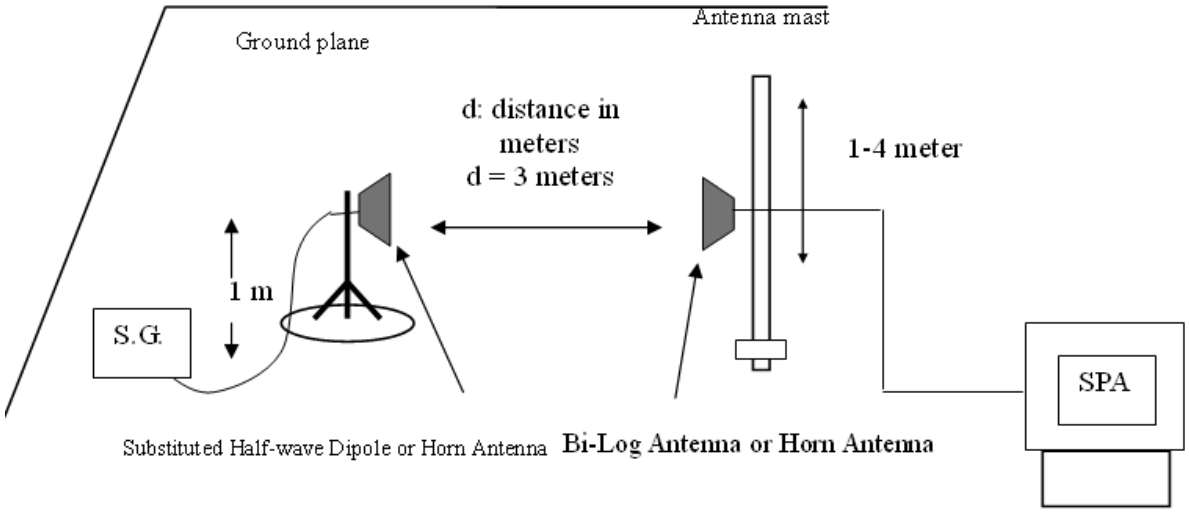
Below 1 GHz



Above 1 GHz



FOR SUBSTITUTED METHOD TEST SET-UP



TEST PROCEDURE

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 3MHz and the average bandwidth was set to 3MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable (dB)
EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

TEST RESULTS

No non-compliance noted.

GSM850 TEST DATA

Mode	Channel	Antenna Pol.	ERP	Limit(dBm)	Result
GPRS850	128	V	25.17	38.5	PASS
		H	25.87		
	190	V	24.82		
		H	24.90		
	251	V	24.44		
		H	25.19		
EGPRS850	128	V	24.95	38.5	PASS
		H	25.02		
	190	V	24.67		
		H	24.83		
	251	V	25.01		
		H	25.13		

GSM1900 TEST DATA

Mode	Channel	Antenna Pol.	EIRP	Limit(dBm)	Result
GPRS1900	512	V	26.94	33.0	PASS
		H	27.15		
	661	V	26.80		
		H	27.09		
	810	V	26.93		
		H	27.26		
EGPRS1900	512	V	26.87	33.0	PASS
		H	27.20		
	661	V	26.95		
		H	27.42		
	810	V	26.95		
		H	27.34		

WCDMA BAND II TEST DATA

Mode	Channel	Antenna Pol.	EIRP	Limit(dBm)	Result
WCDMA (BAND II)	9262	V	21.39	33.0	PASS
		H	23.68		
	9400	V	20.89		
		H	22.95		
	9538	V	20.51		
		H	23.14		
HSDPA (BAND II)	9262	V	21.32	33.0	PASS
		H	23.51		
	9400	V	20.94		
		H	23.54		
	9538	V	20.14		
		H	22.97		
HSUPA (BAND II)	9262	V	21.06	33.0	PASS
		H	22.97		
	9400	V	20.54		
		H	23.01		
	9538	V	21.06		
		H	23.94		

WCDMA BAND V TEST DATA

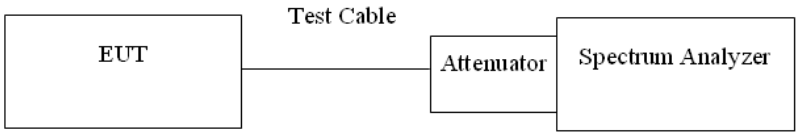
Mode	Channel	Antenna Pol.	ERP	Limit(dBm)	Result
WCDMA (BAND V)	4132	V	19.64	38.5	PASS
		H	20.21		
	4182	V	19.58		
		H	20.17		
	4233	V	19.02		
		H	20.11		
HSDPA (BAND V)	4132	V	19.55	38.5	PASS
		H	20.34		
	4182	V	19.03		
		H	19.92		
	4233	V	18.95		
		H	19.77		
HSUPA (BAND V)	4132	V	19.98	38.5	PASS
		H	21.03		
	4182	V	20.03		
		H	20.19		
	4233	V	19.64		
		H	20.20		

7.4. OCCUPIED BANDWIDTH MEASUREMENT

LIMIT

According to §FCC 2.1049.

TEST CONFIGURATION



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW is set to 3 times the RBW, -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

No non-compliance noted

Test Data

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
GPRS 850	128	824.20	243.5897
	190	836.60	243.5897
	251	848.80	243.5897
EGPRS 850	128	824.20	243.5897
	190	836.60	241.9872
	251	848.80	241.9872

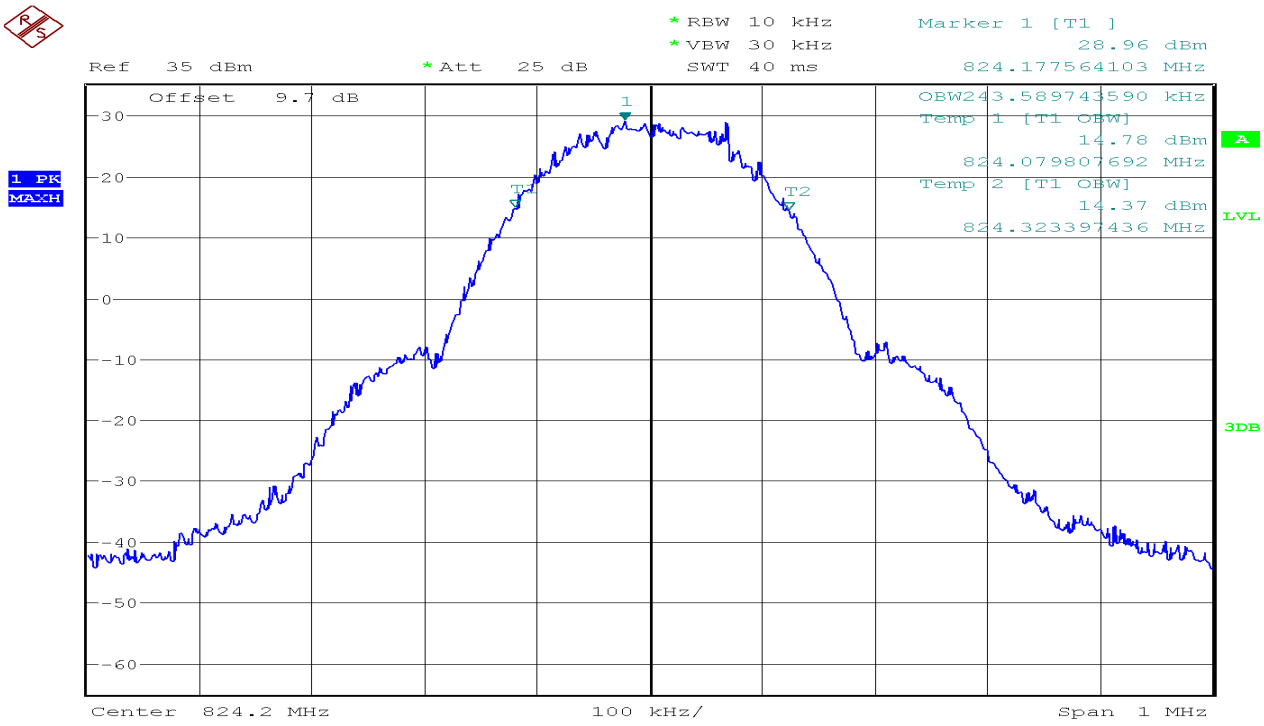
Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
GPRS 1900	512	1850.20	245.1923
	661	1880.00	243.5897
	810	1909.80	246.7949
EGPRS 1900	512	1850.20	243.5897
	661	1880.00	243.5897
	810	1909.80	245.1923

Test Mode	CH	Frequency (MHz)	99% Bandwidth (MHz)	26dB Bandwidth MHz
WCDMA (Band II)	9262	1852.4	4.135	4.760
	9400	1880.0	4.135	4.728
	9538	1907.6	4.151	4.712
HSDPA (BAND II)	9262	1852.4	4.135	4.744
	9400	1880.0	4.135	4.744
	9538	1907.6	4.135	4.744
HSUPA (BAND II)	9262	1852.4	4.135	4.744
	9400	1880.0	4.135	4.760
	9538	1907.6	4.135	4.760

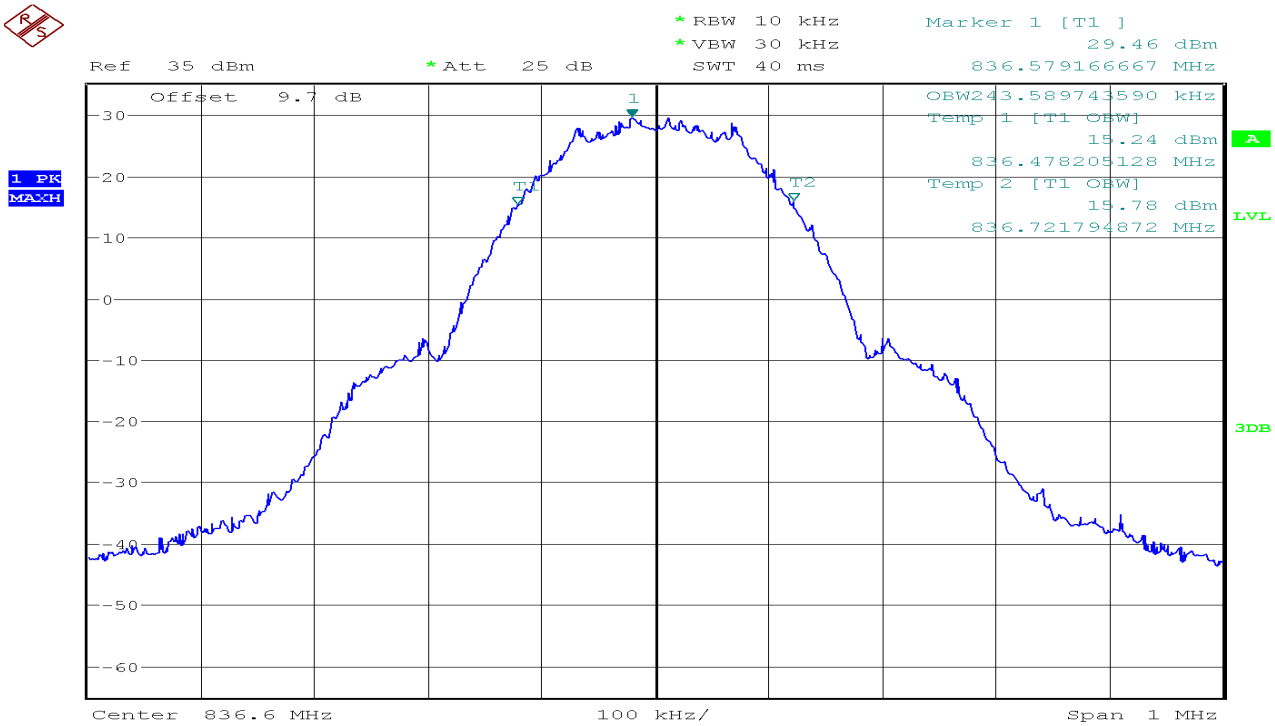
Test Mode	CH	Frequency (MHz)	99% Bandwidth (MHz)	26dB Bandwidth MHz
WCDMA (Band V)	4132	826.40	4.119	4.728
	4182	836.60	4.135	4.728
	4233	846.60	4.135	4.712
HSDPA (BAND V)	4132	826.40	4.135	4.760
	4182	836.60	4.135	4.712
	4233	846.60	4.119	4.728
HSUPA (BAND V)	4132	826.40	4.135	4.744
	4182	836.60	4.135	4.712
	4233	846.60	4.135	4.728

Test Plot

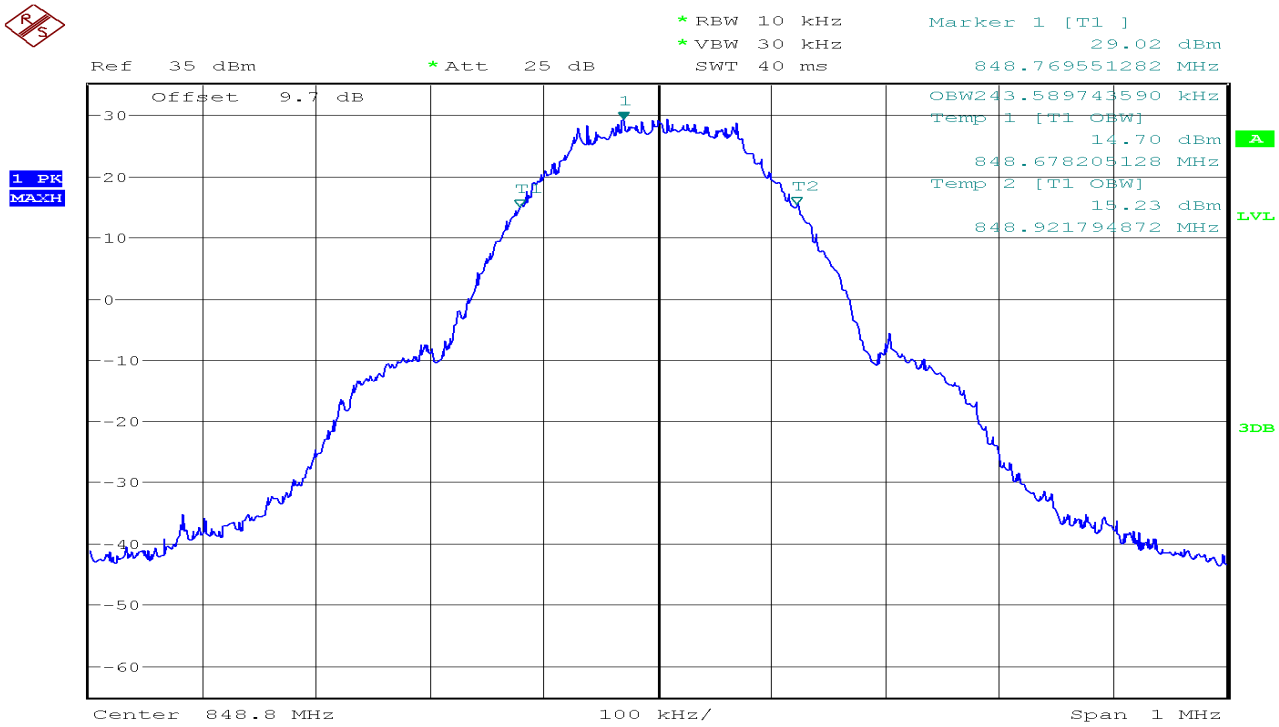
GPRS 850 (CH Low)



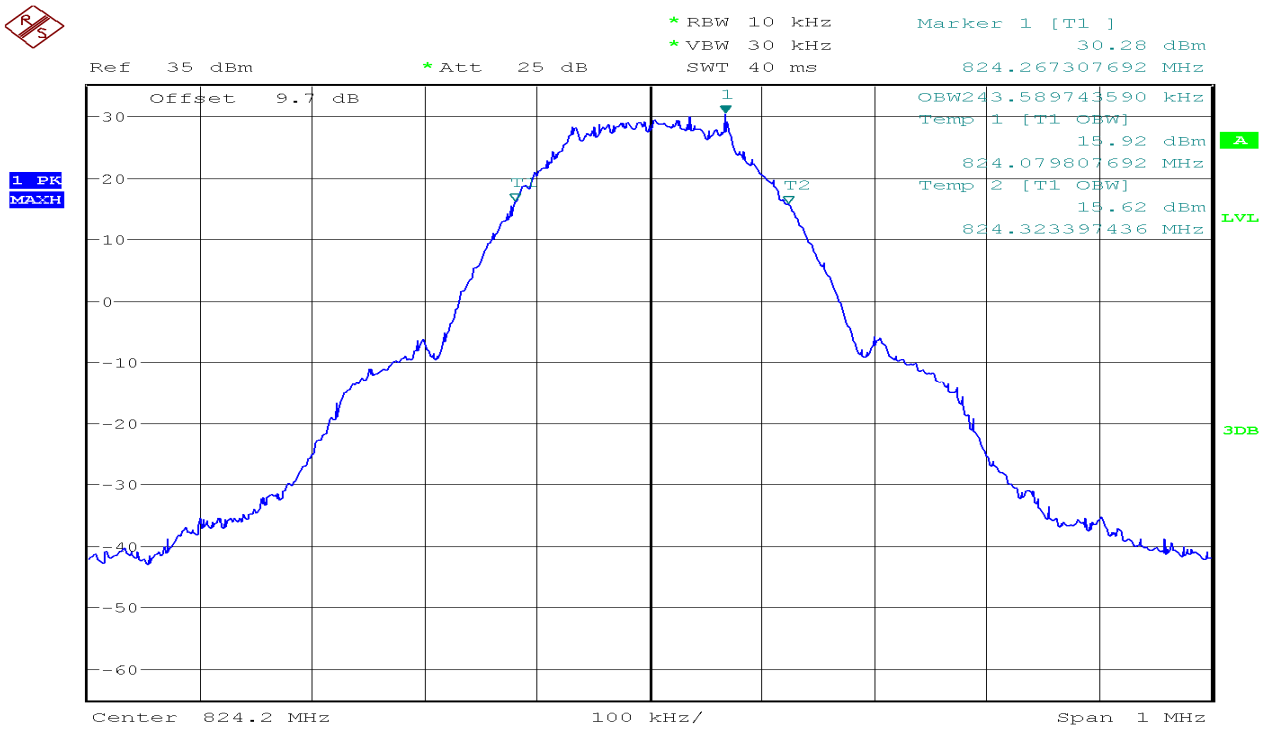
GPRS 850 (CH Mid)



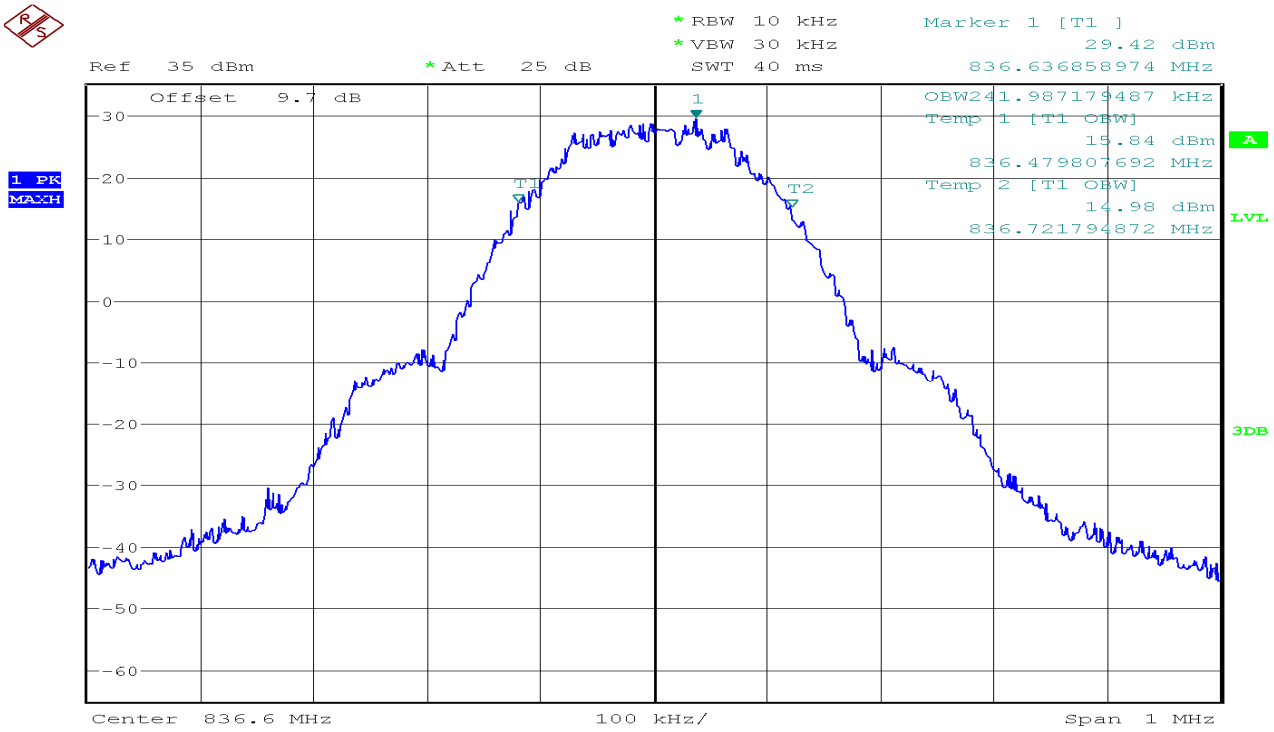
GPRS 850(CH High)



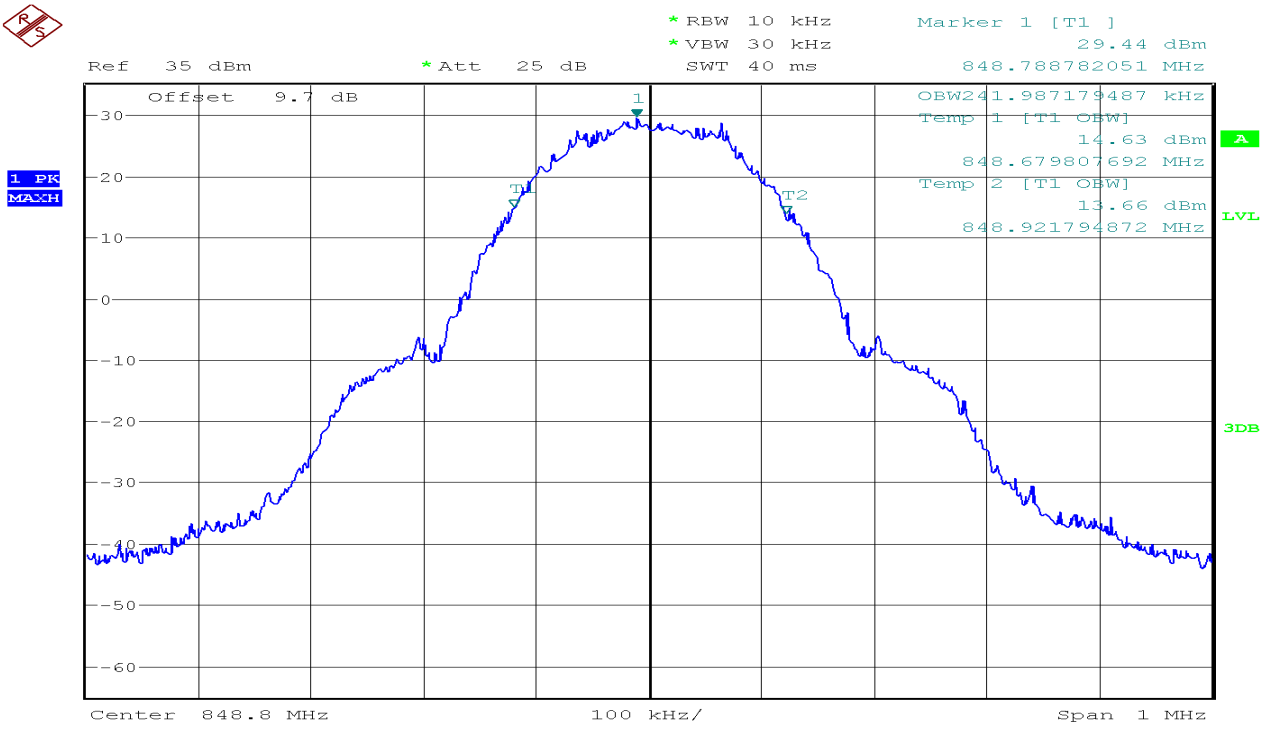
EGPRS 850 (CH Low)



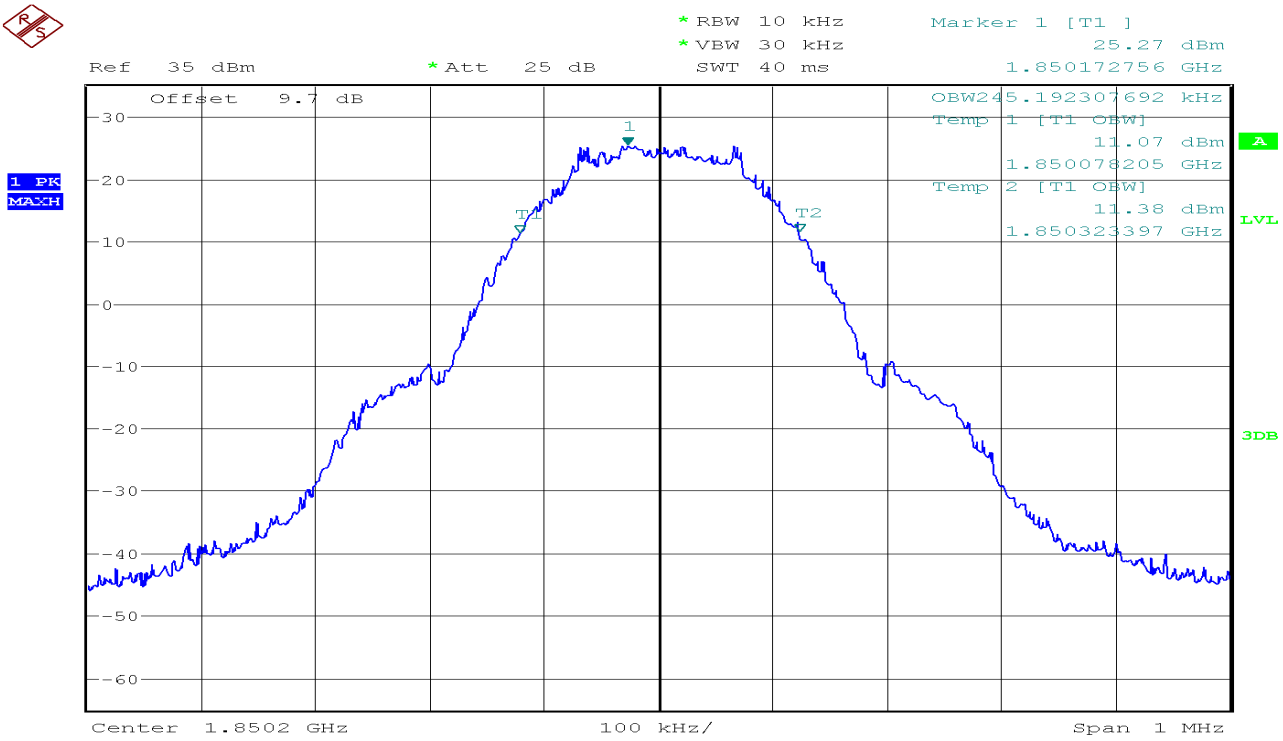
EGPRS 850 (CH Mid)



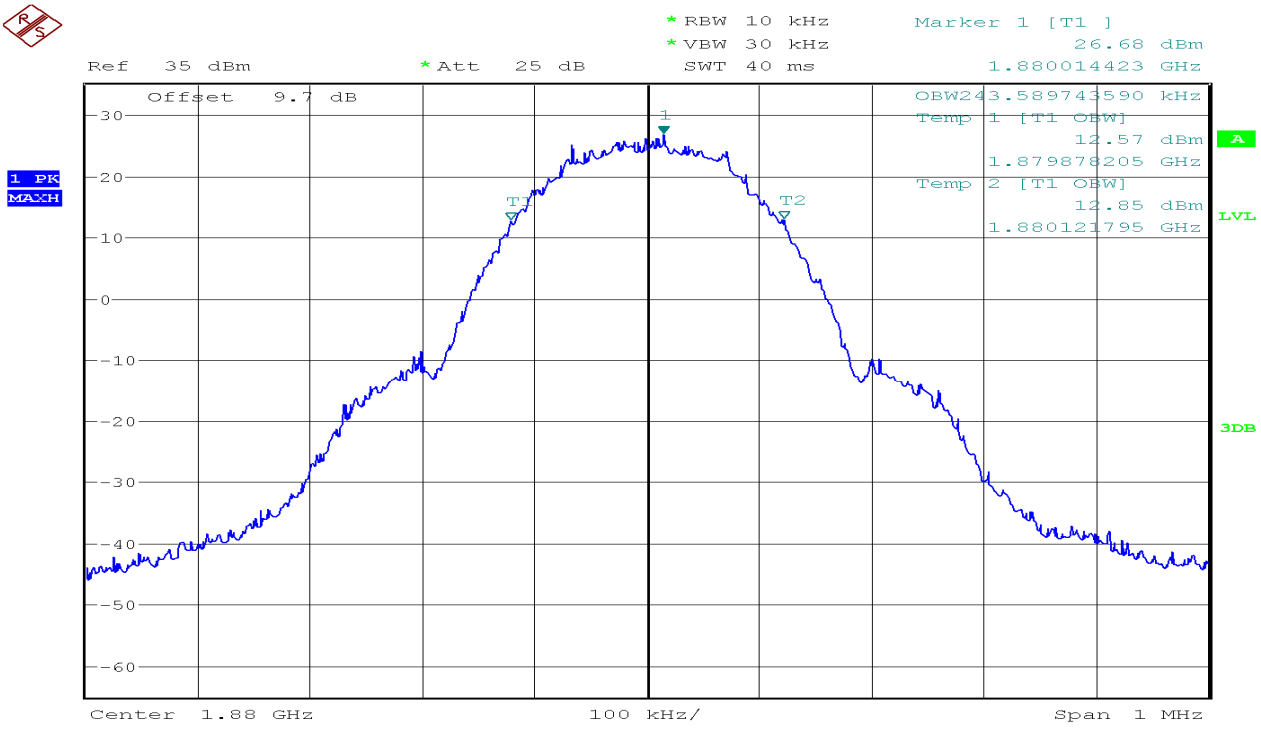
EGPRS 850(CH High)



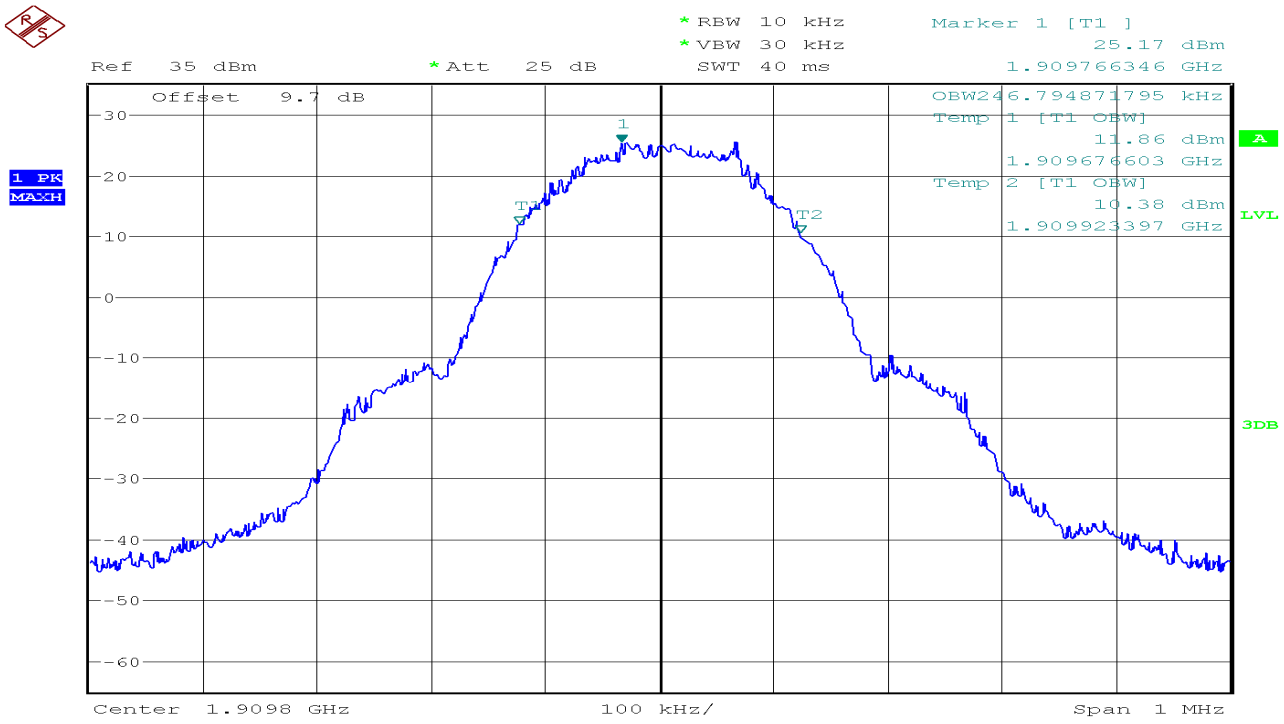
GPRS 1900 (CH Low)



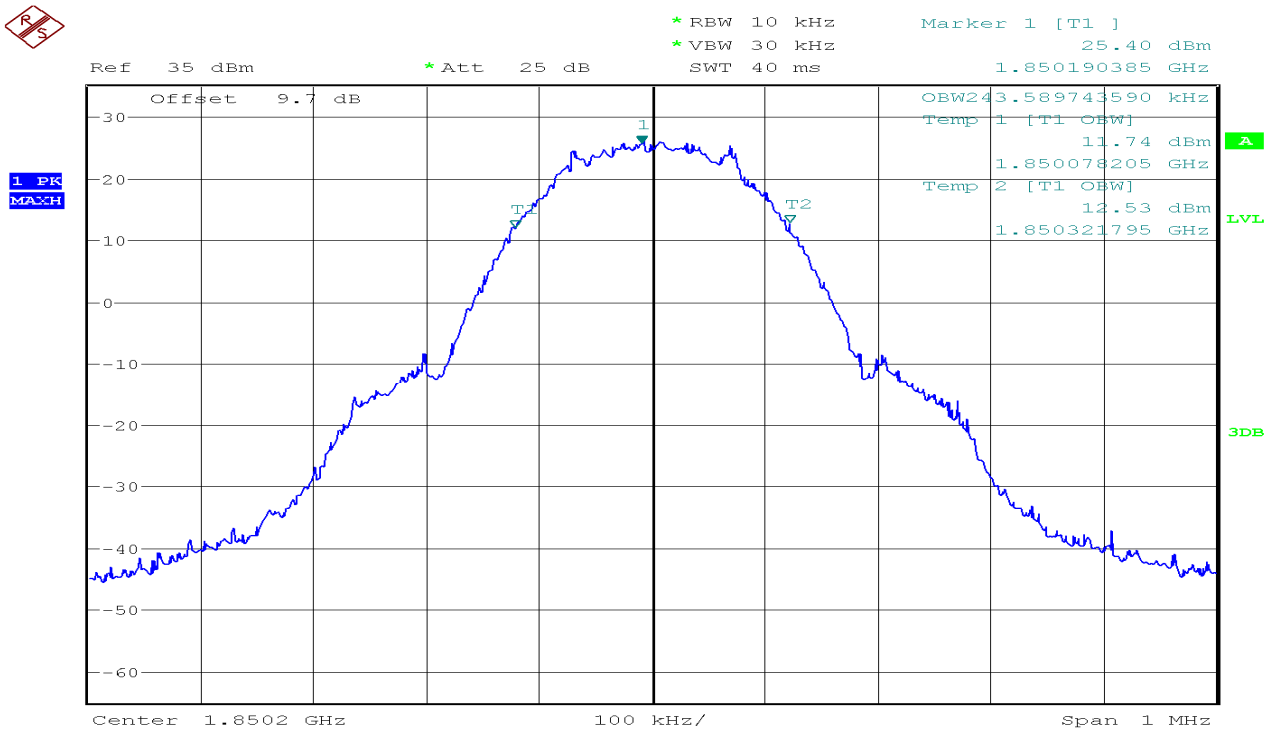
GPRS 1900 (CH Mid)



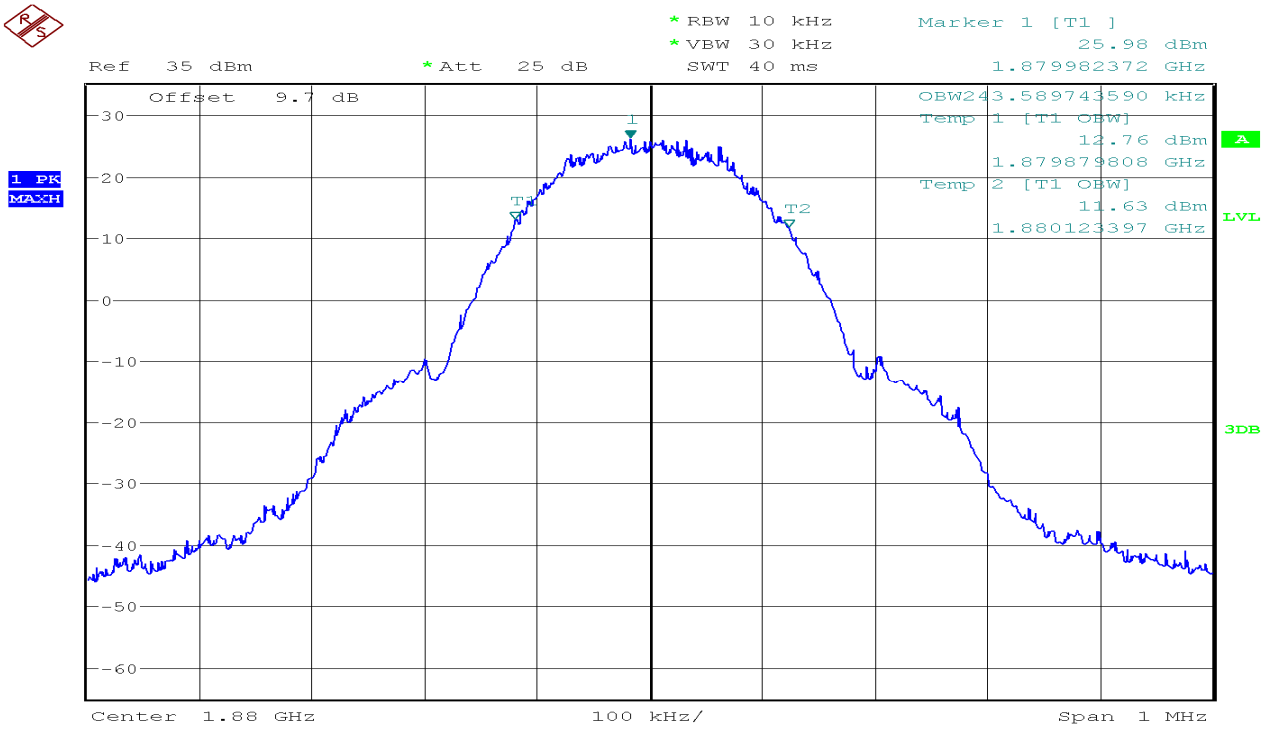
GPRS 1900 (CH High)



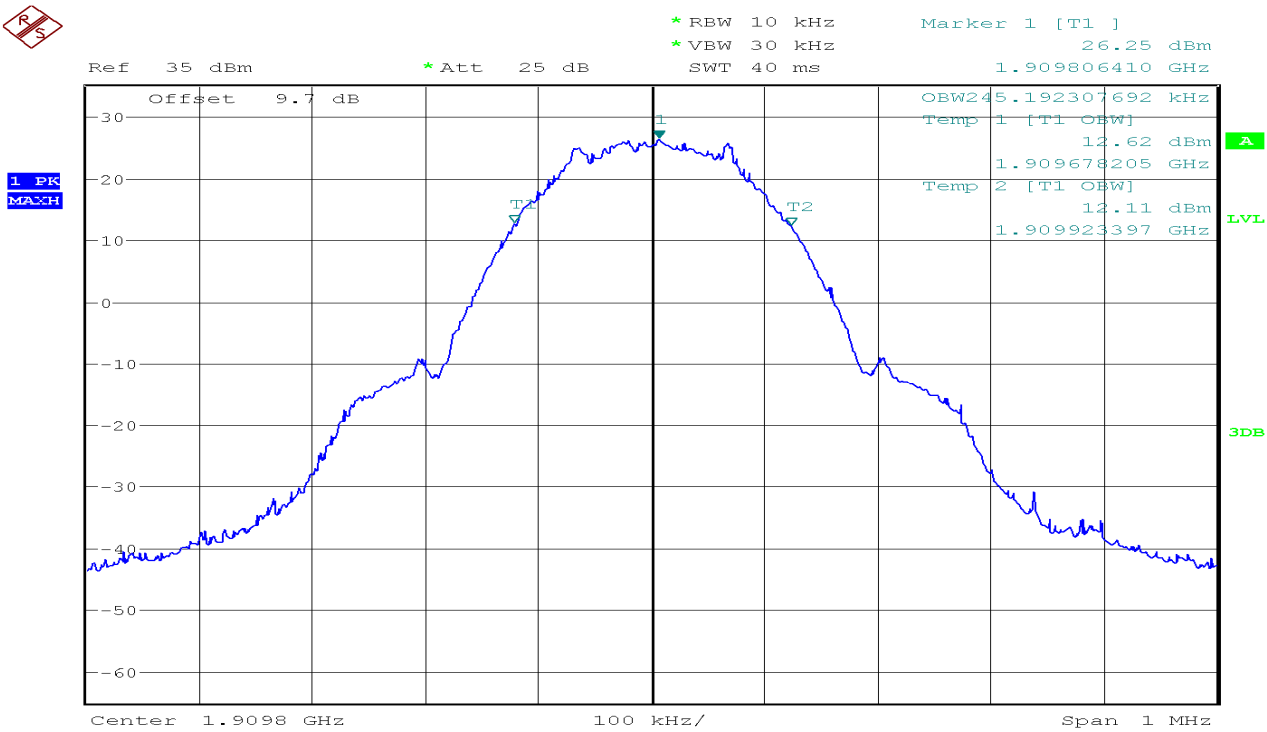
EGPRS 1900 (CH Low)



EGPRS 1900 (CH Mid)

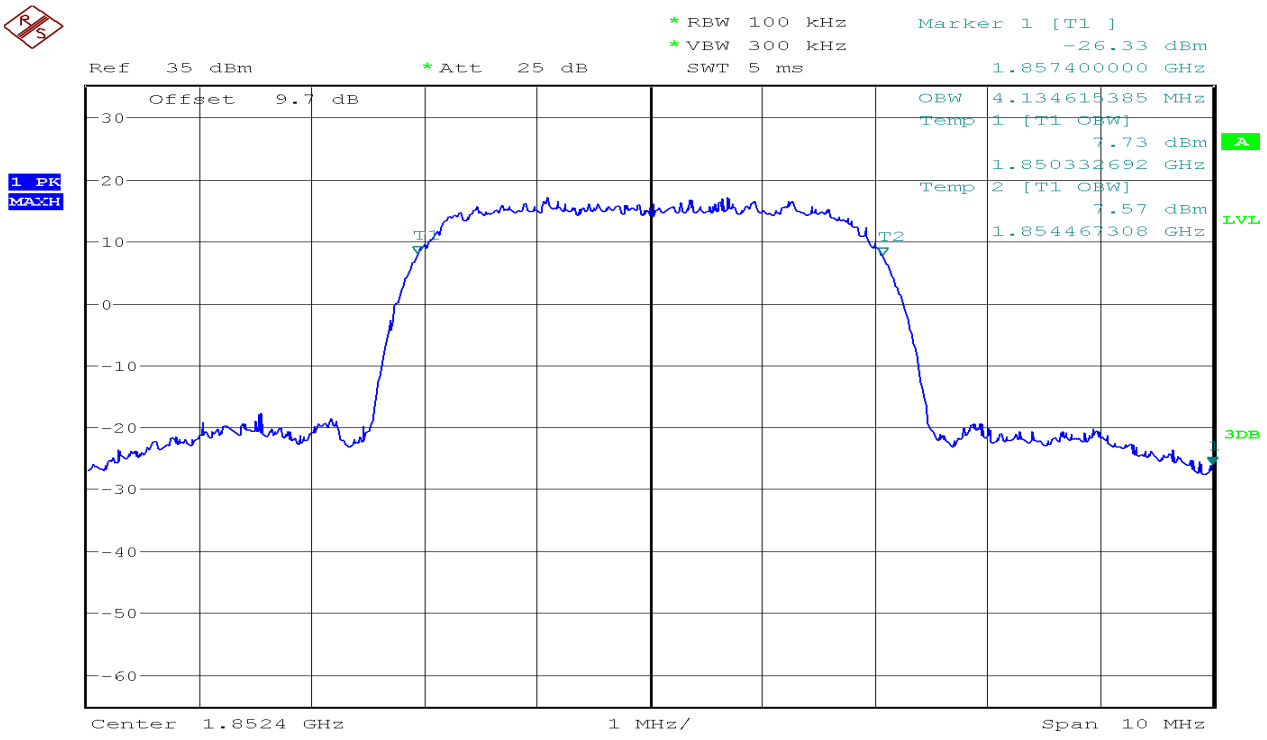


EGPRS 1900 (CH High)

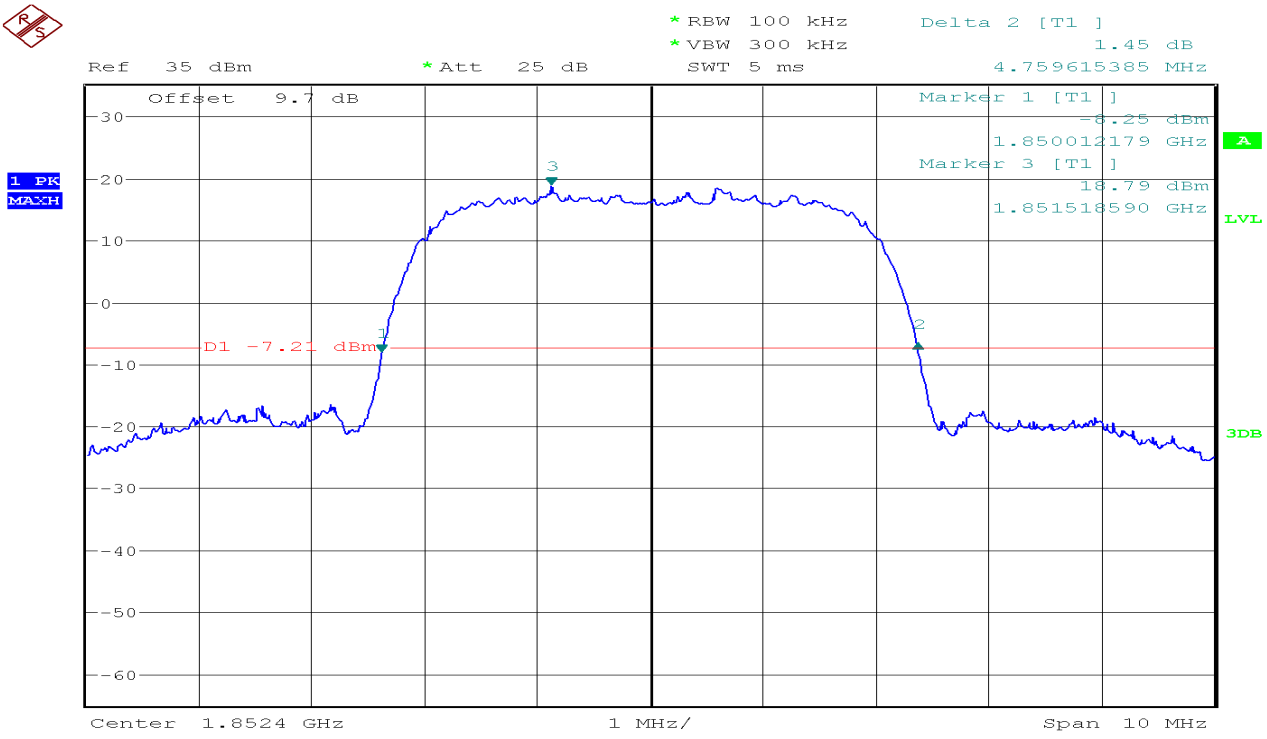


WCDMA Band II (CH Low)

99% Bandwidth



26dB Bandwidth



WCDMA Band II (CH Mid)

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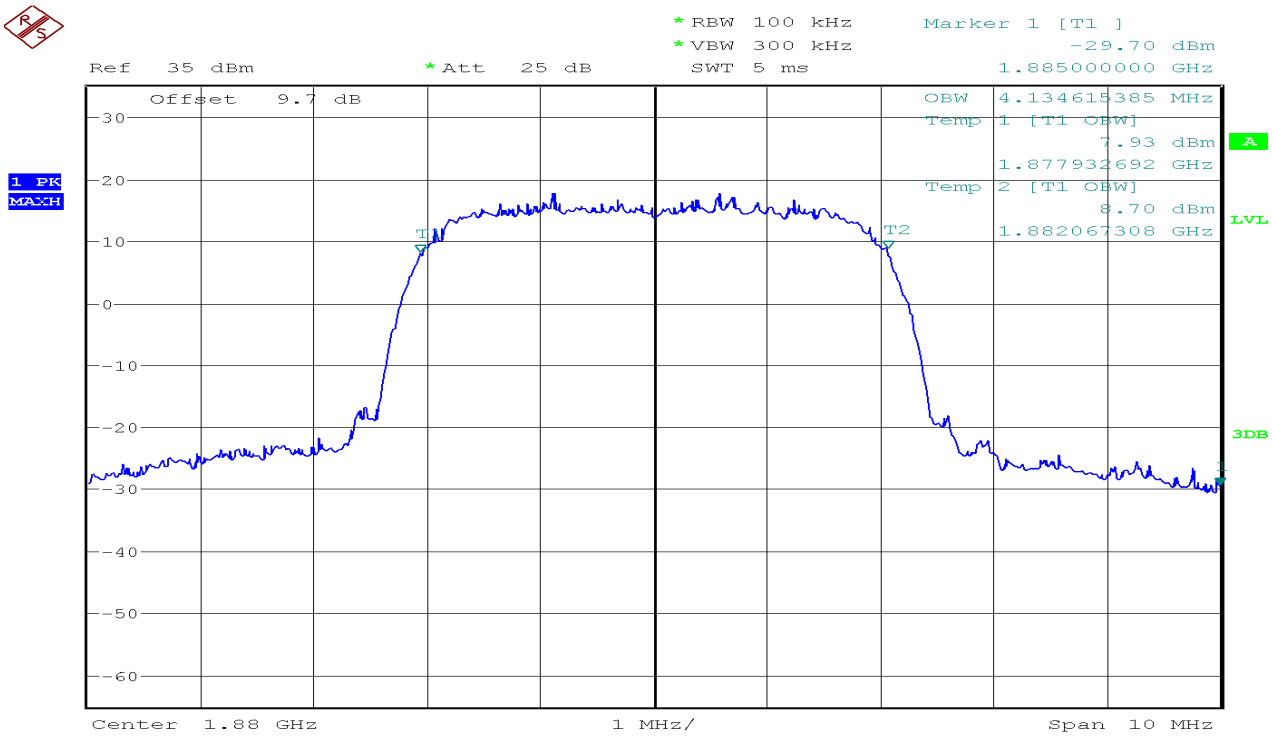
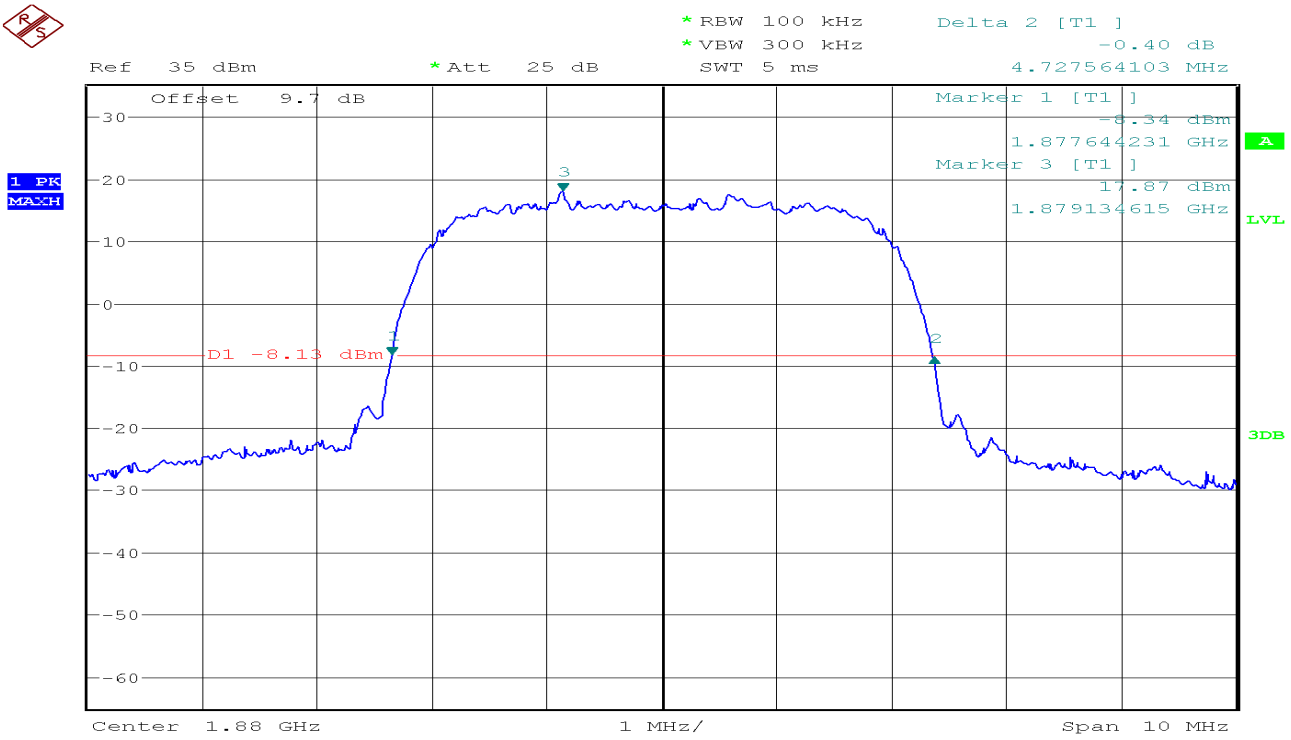
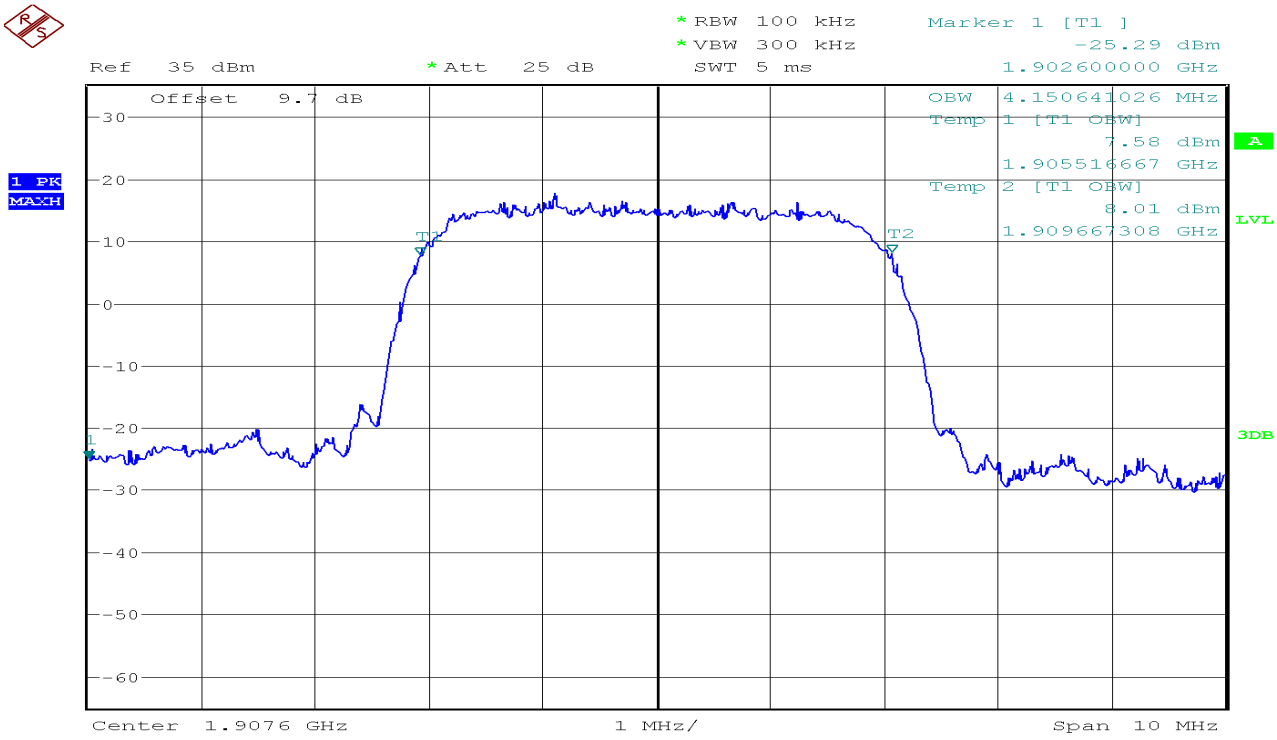


26dB Bandwidth

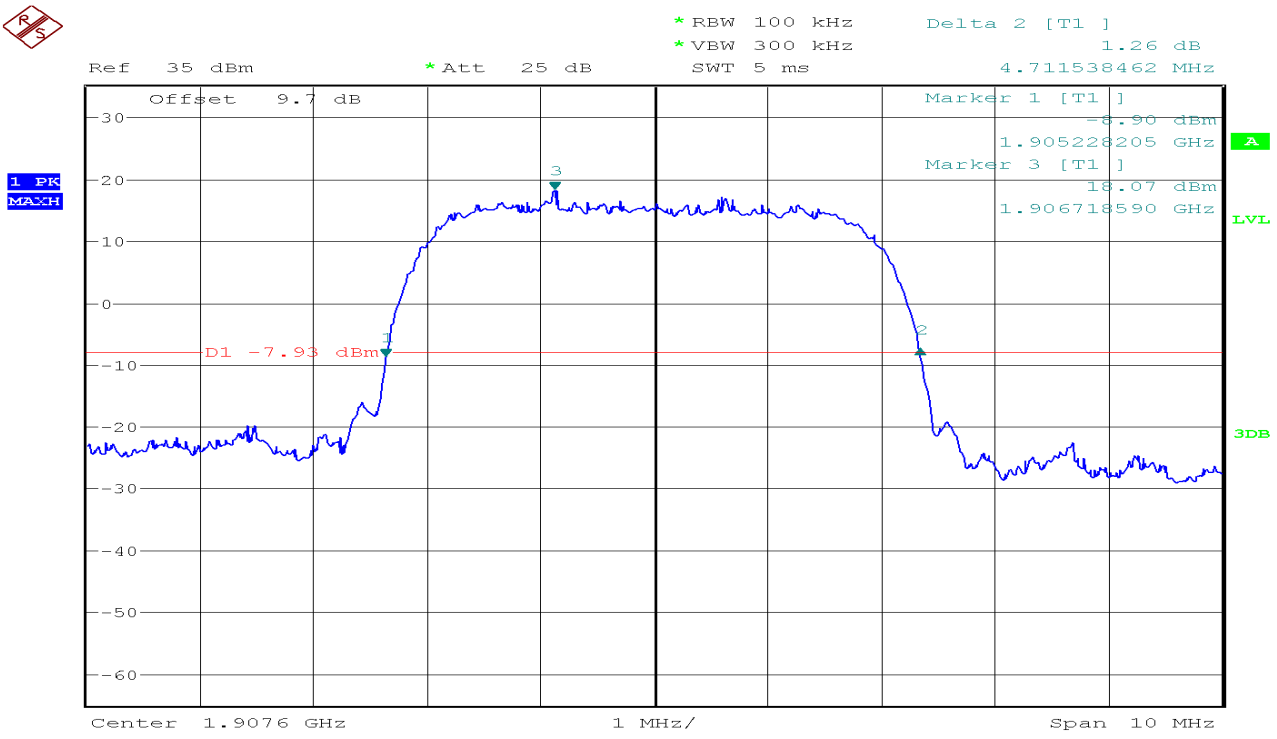


WCDMA Band II (CH High)

99% Bandwidth

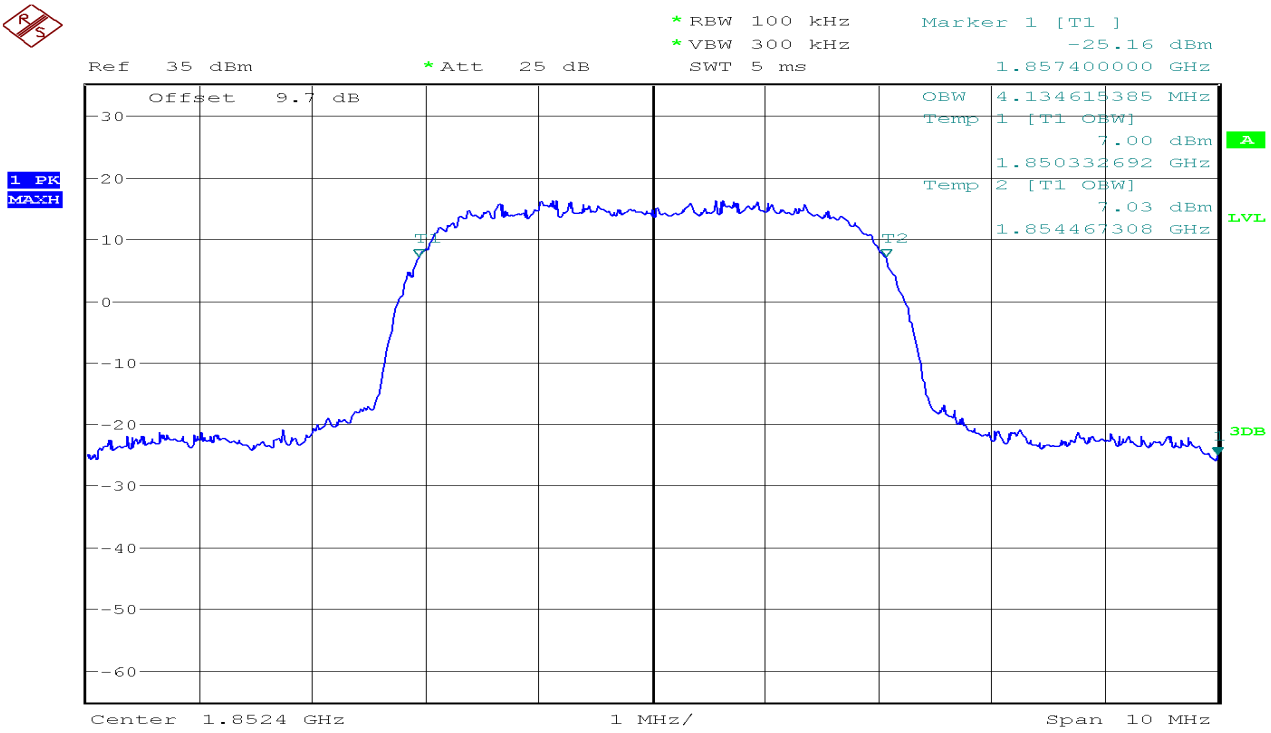


26dB Bandwidth

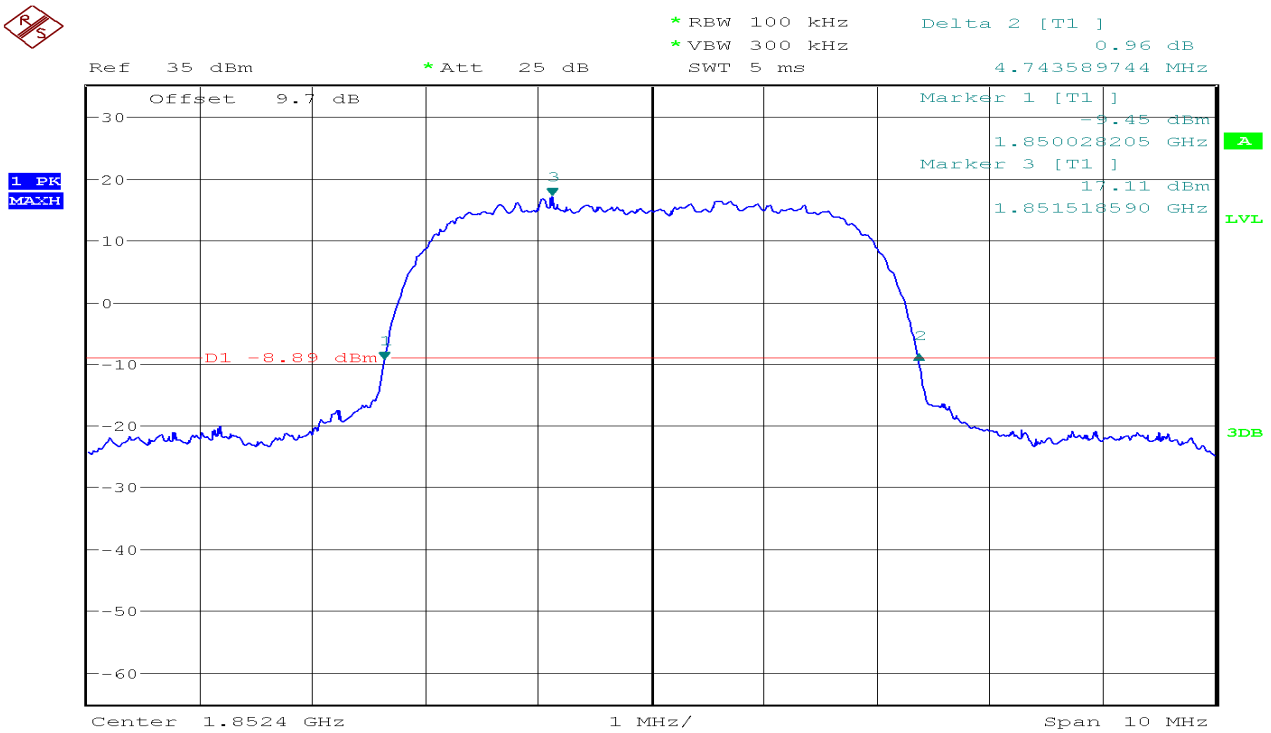


HSDPA Band II (CH Low)

99% Bandwidth

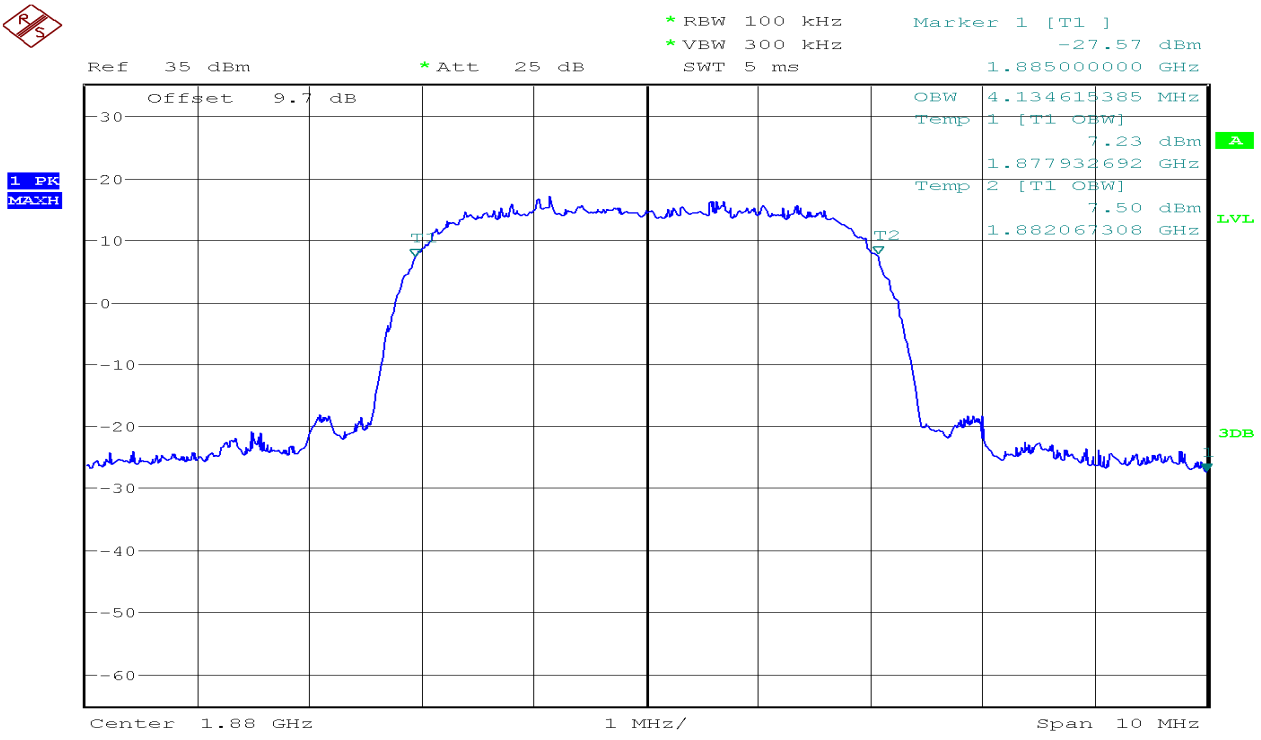


26dB Bandwidth

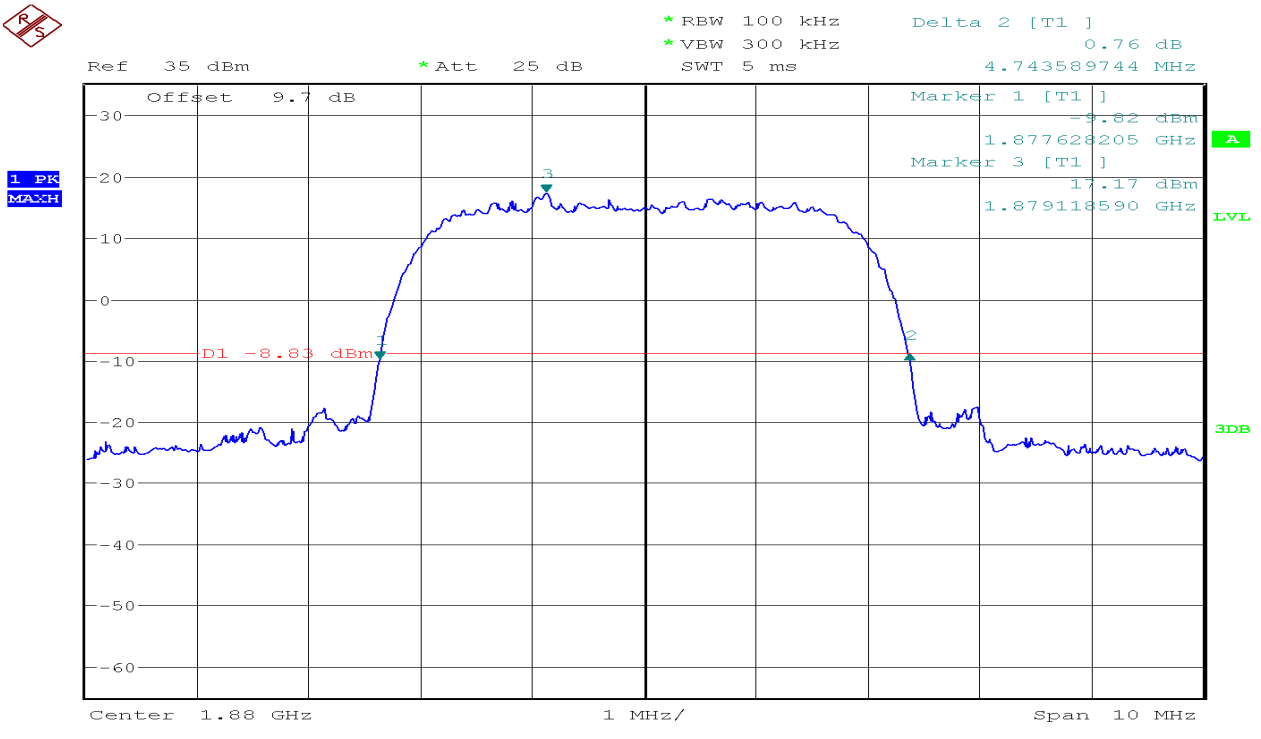


HSDPA Band II (CH Mid)

99% Bandwidth

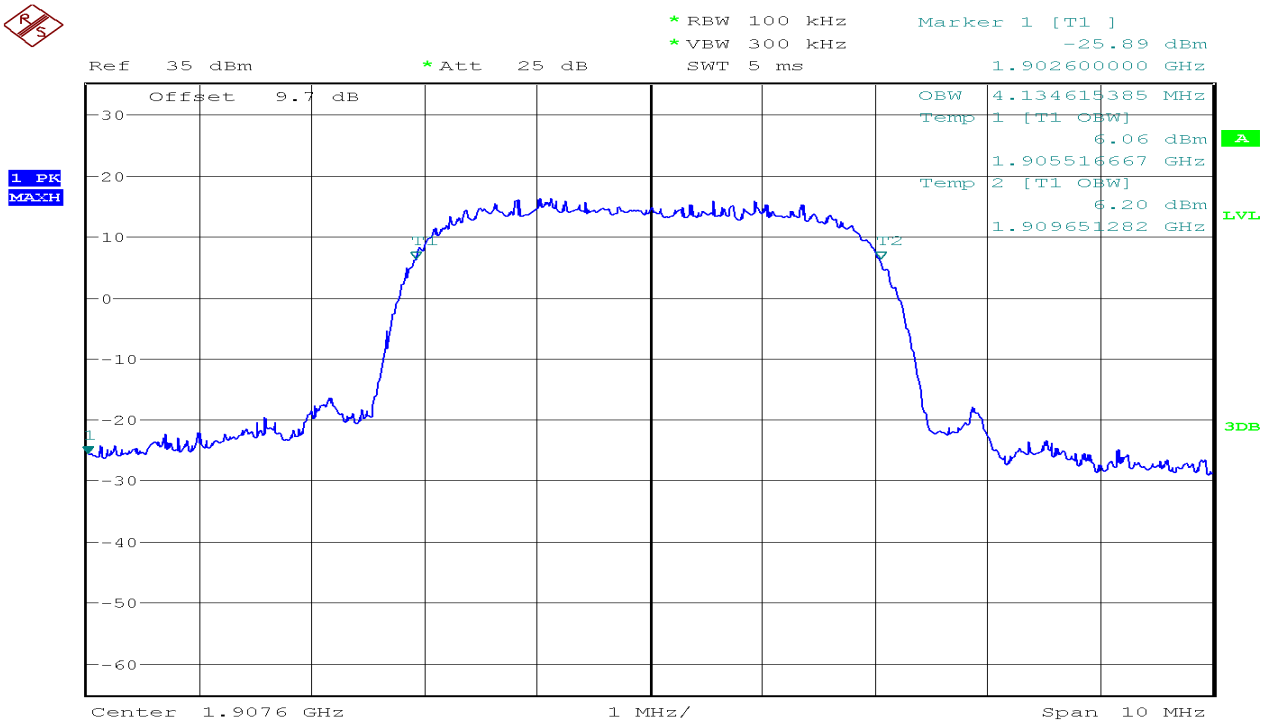


26dB Bandwidth

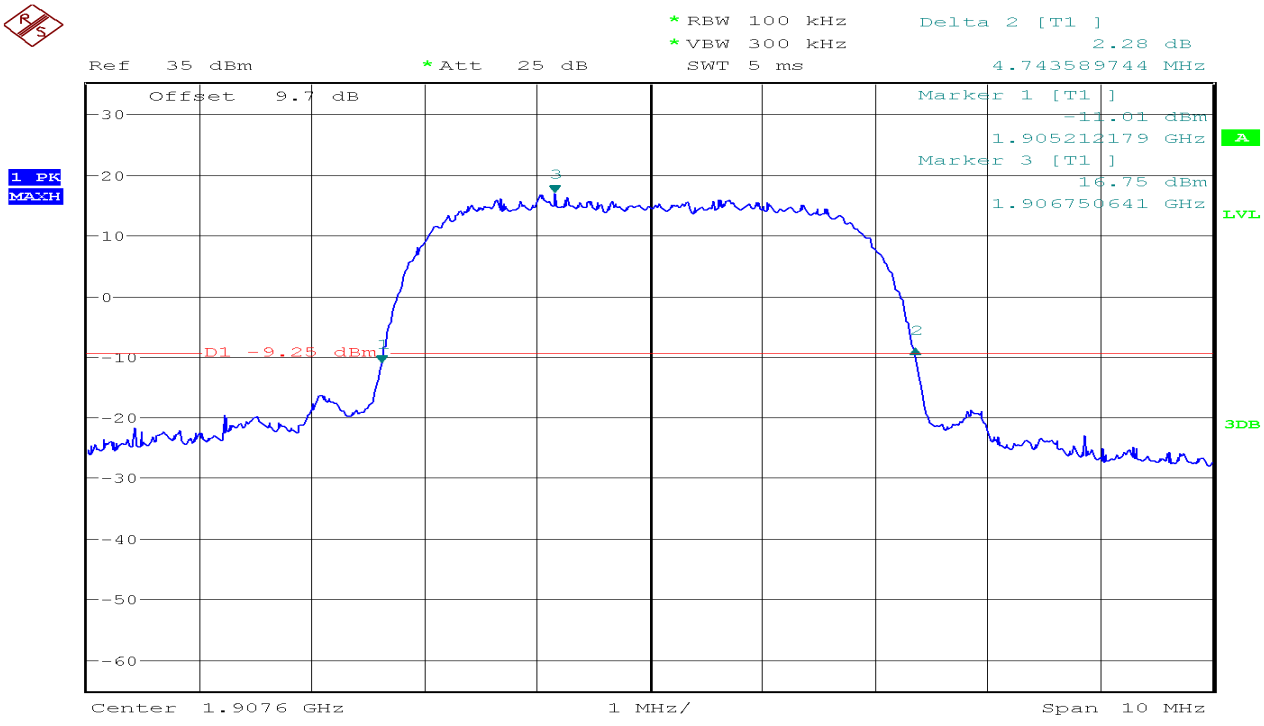


HSDPA Band II (CH High)

99% Bandwidth

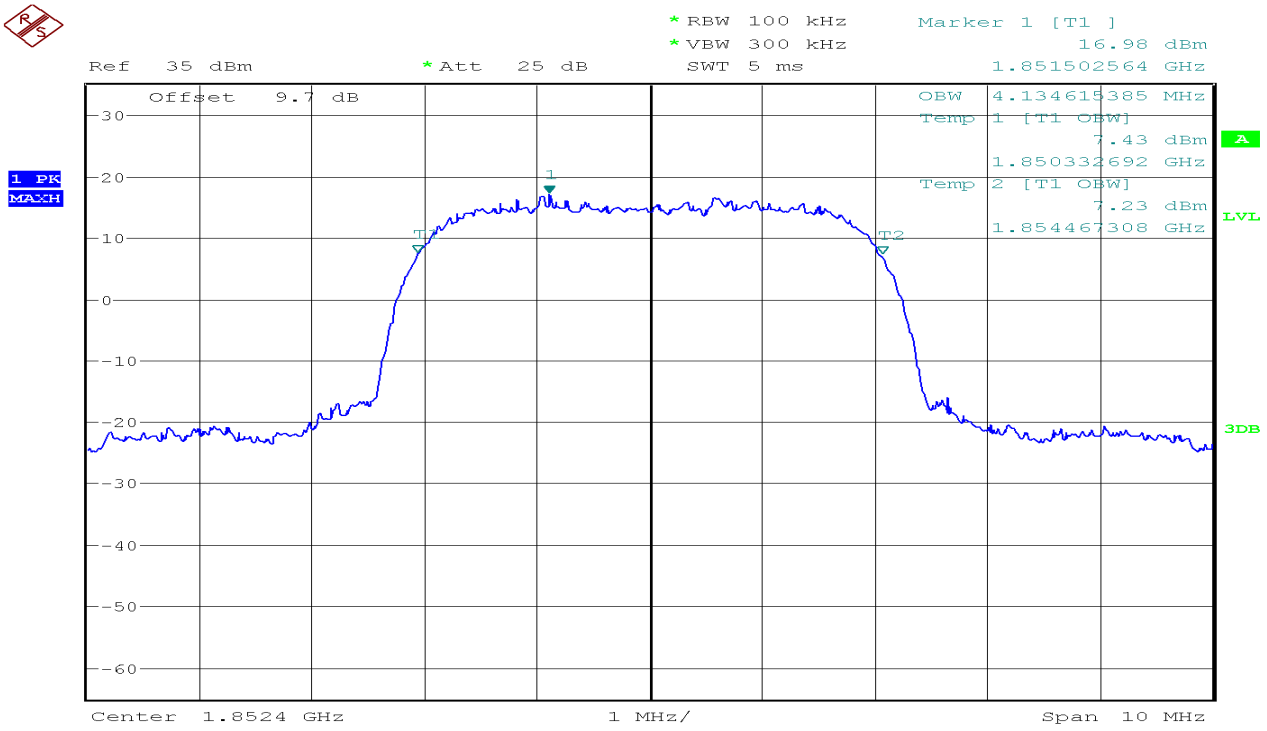


26dB Bandwidth



HSUPA Band II (CH Low)

99% Bandwidth



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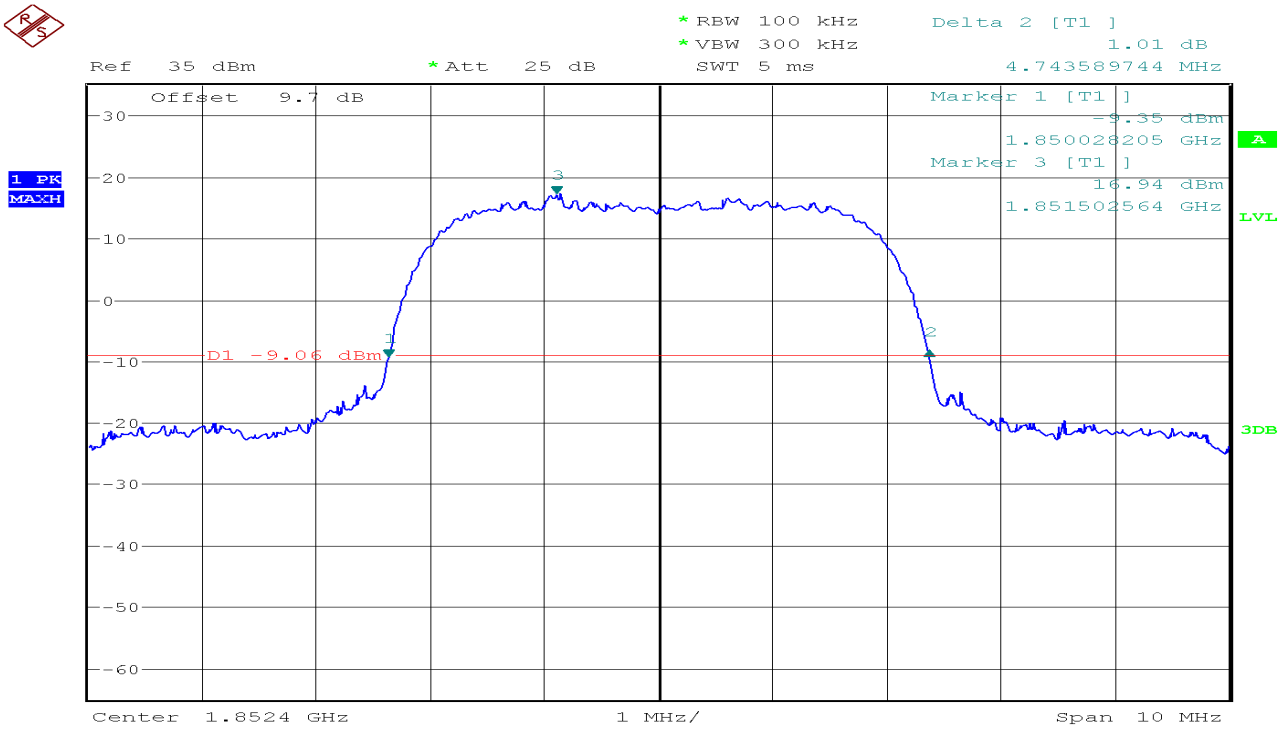

HSUPA Band II (CH Mid)

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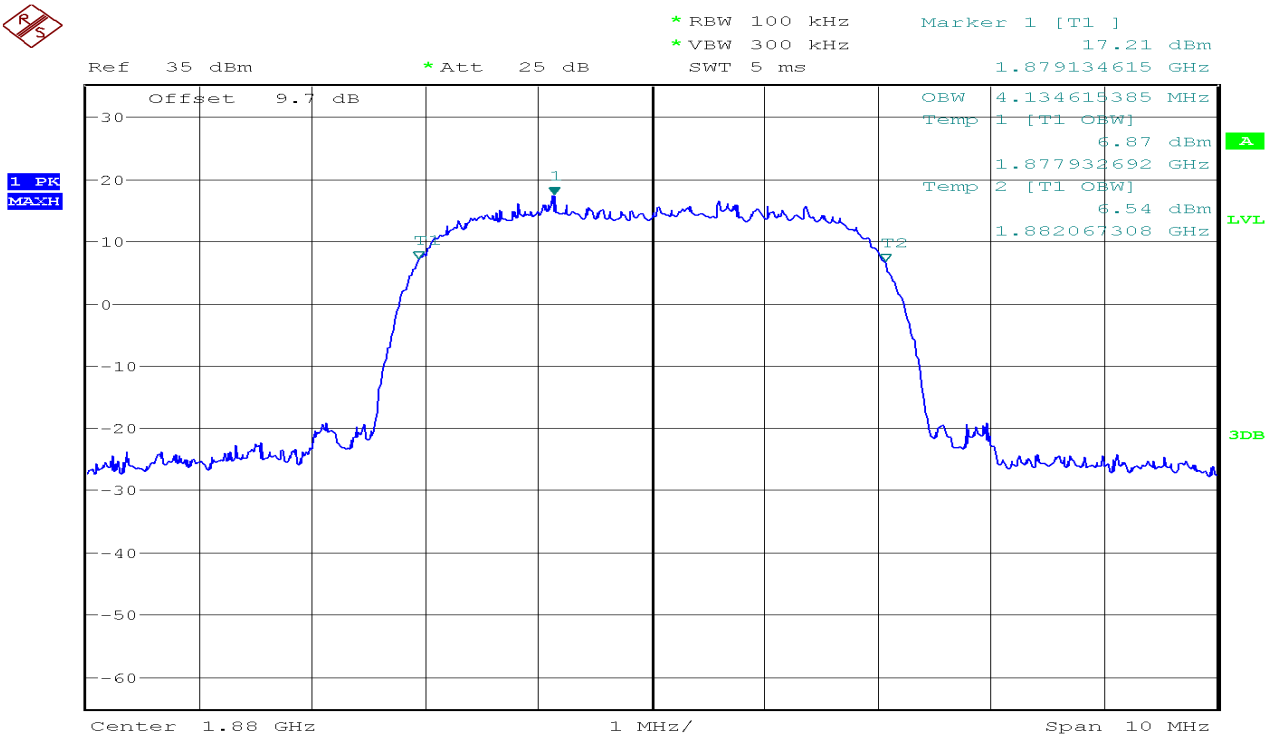

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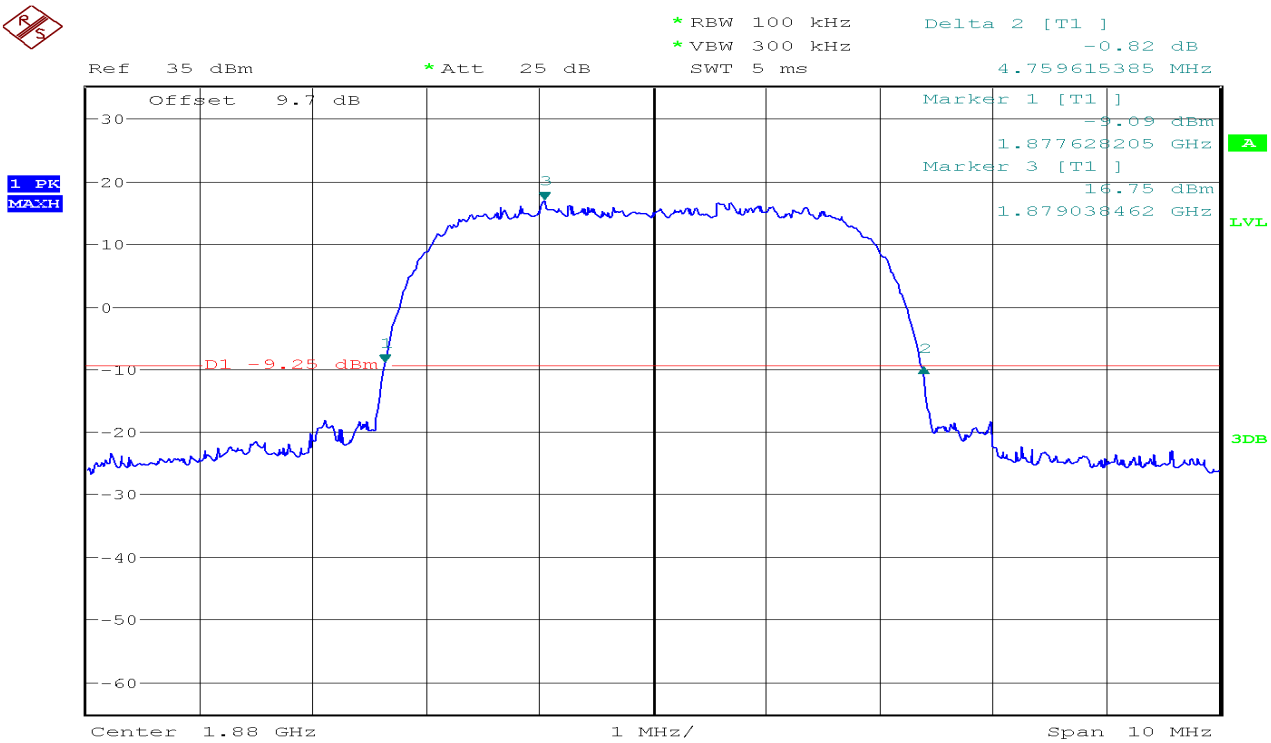
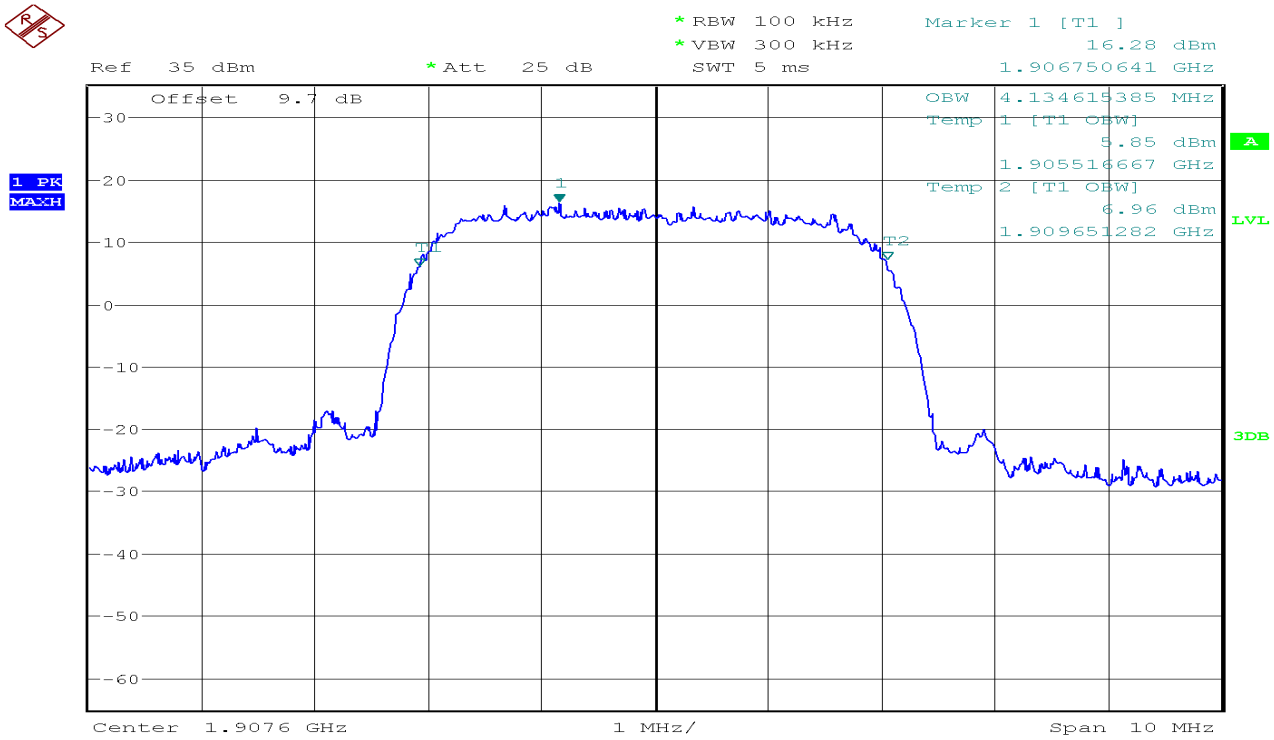
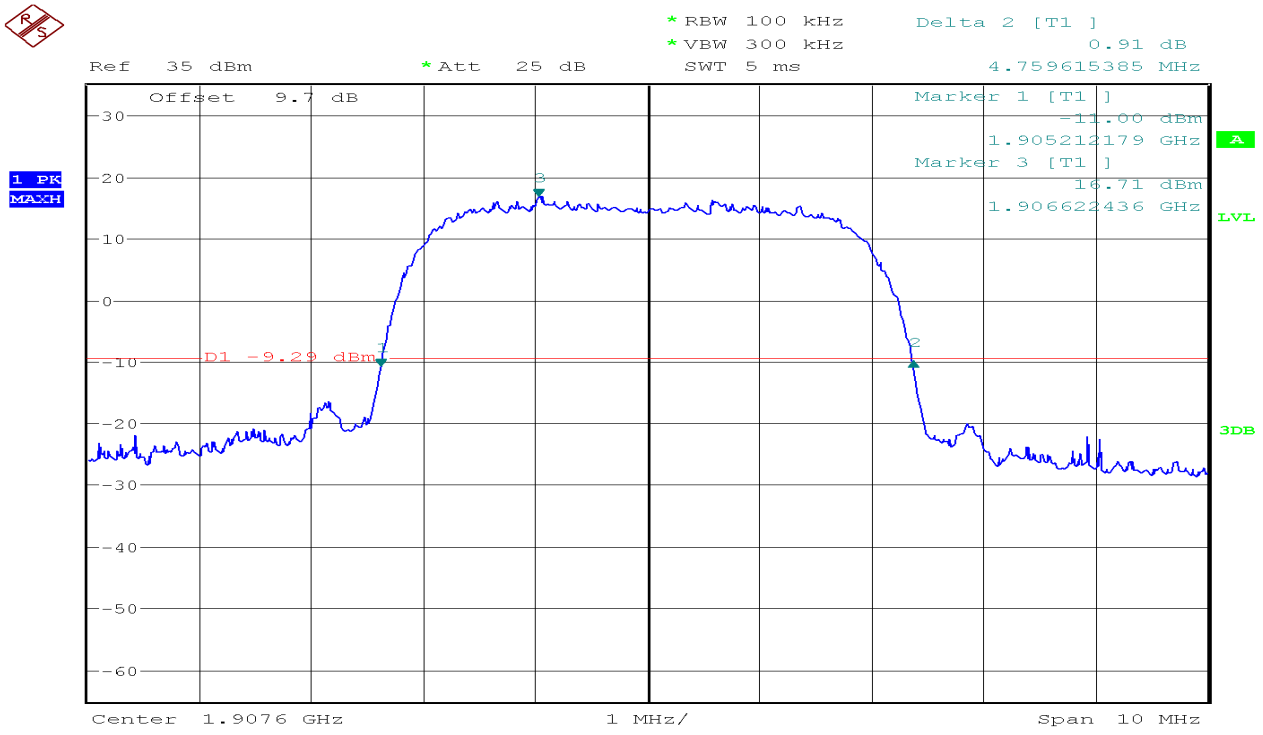


HSUPA Band II (CH High)

99% Bandwidth

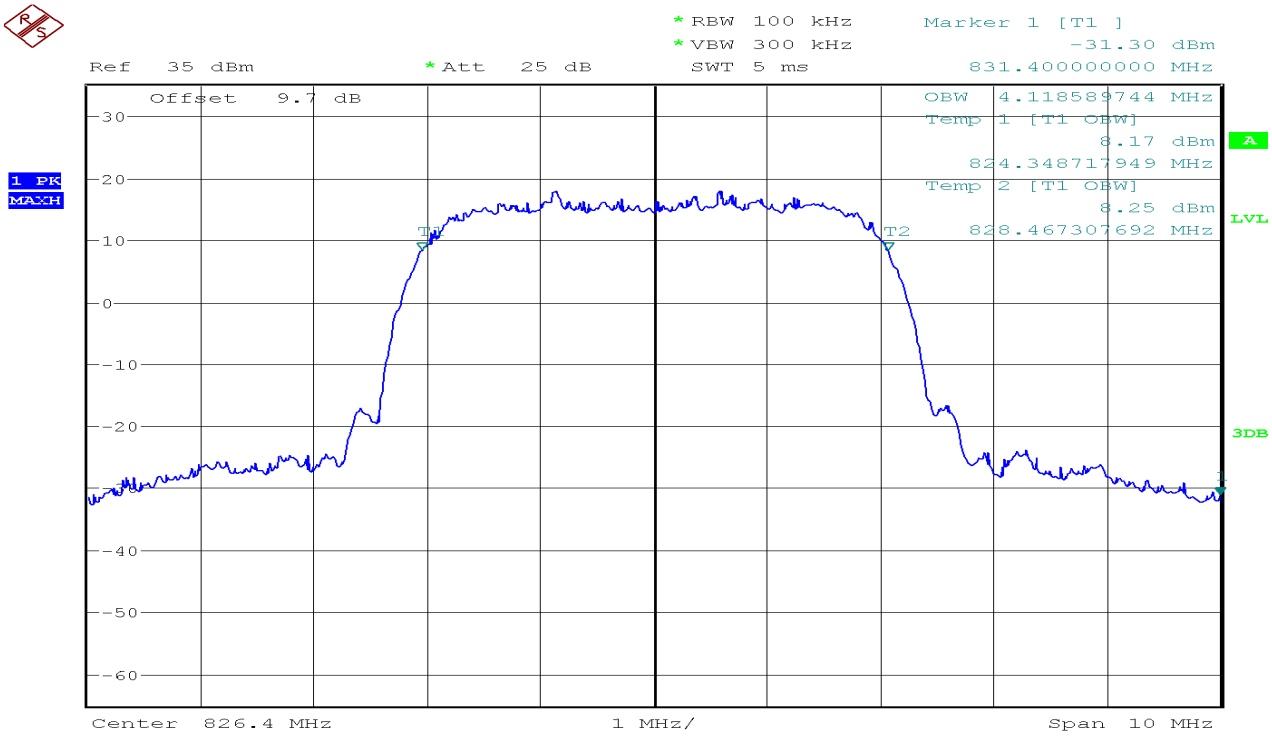


26dB Bandwidth



WCDMA Band V (CH Low)

99% Bandwidth



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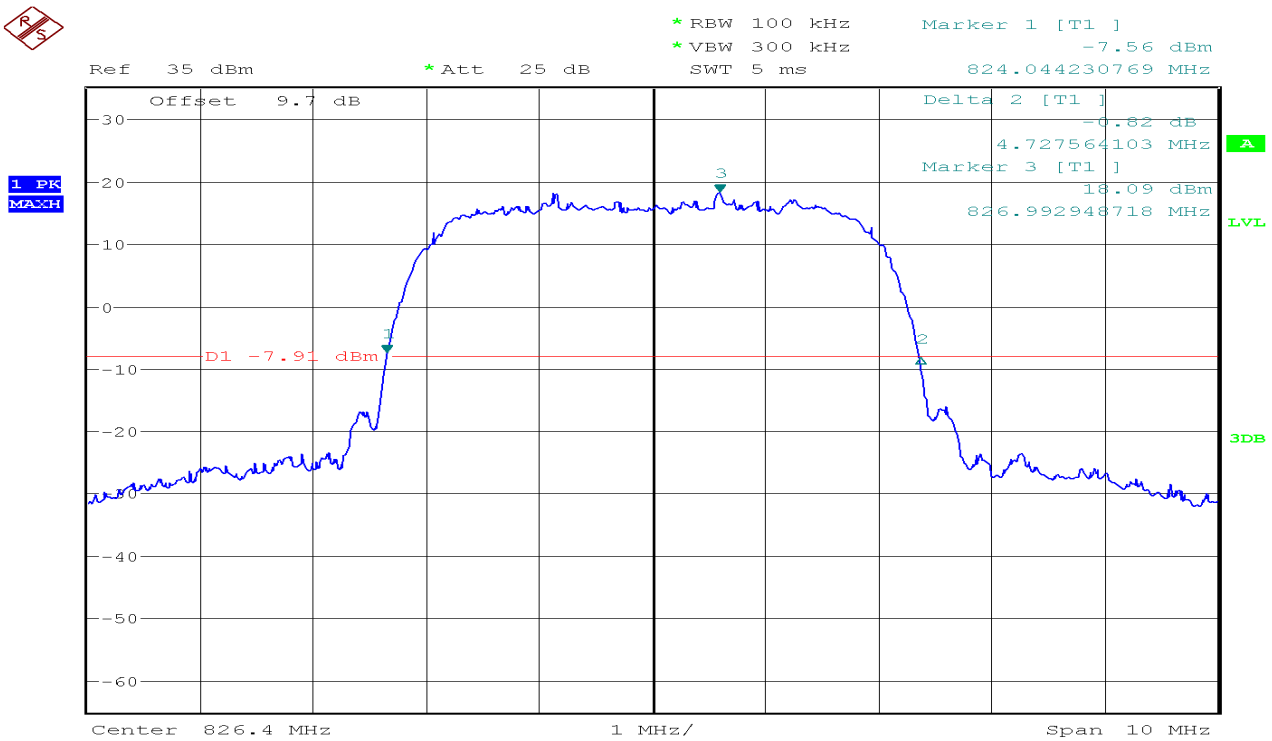
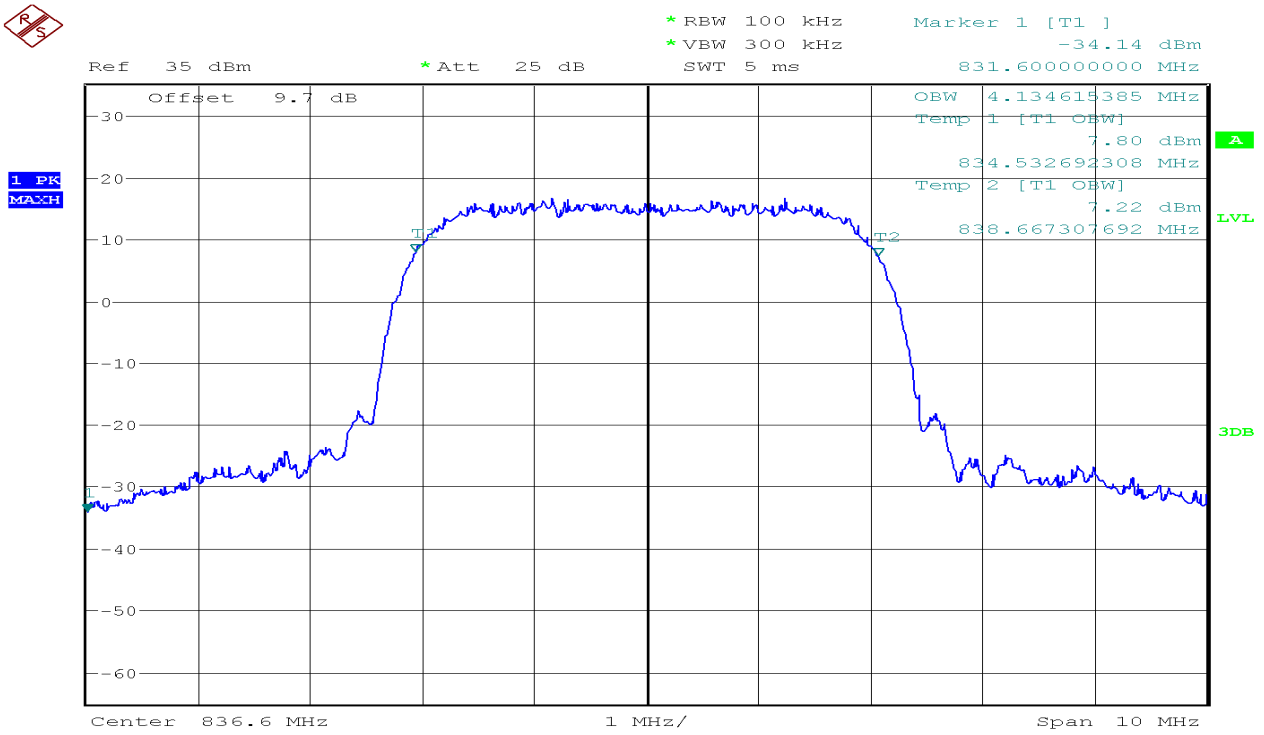
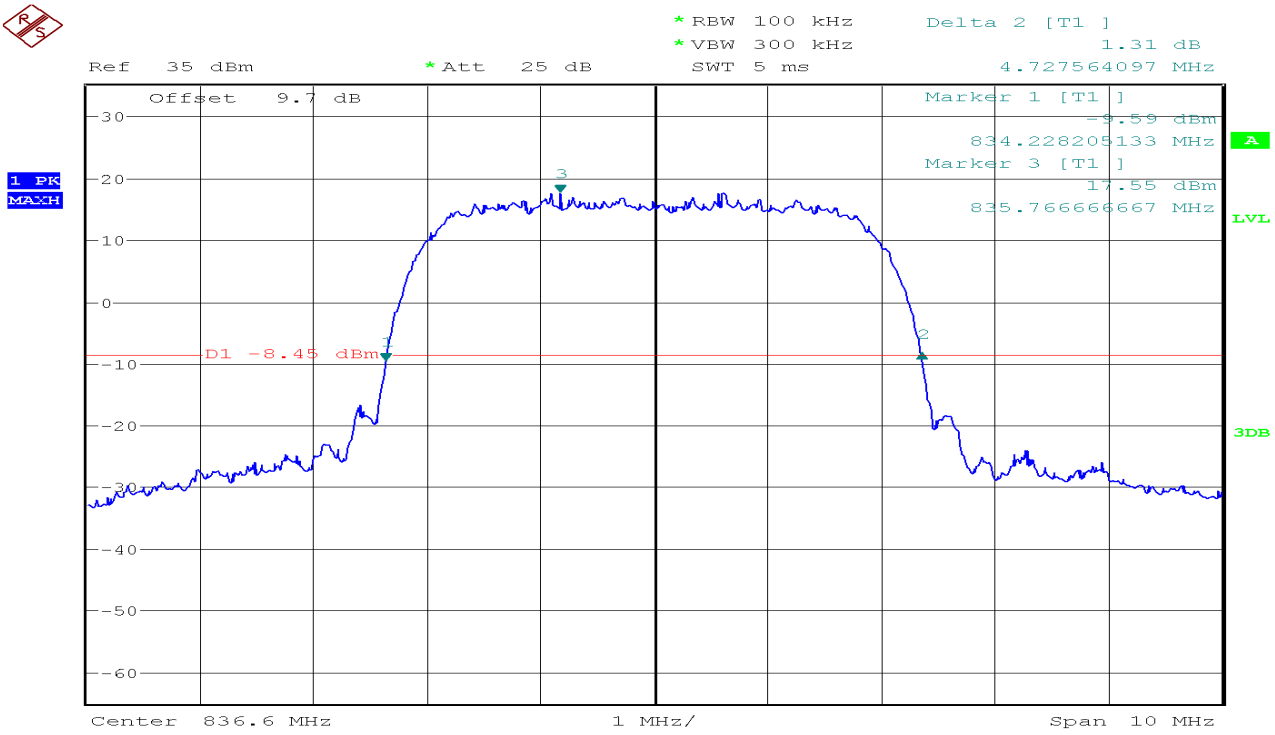


WCDMA Band V (CH Mid)

99% Bandwidth

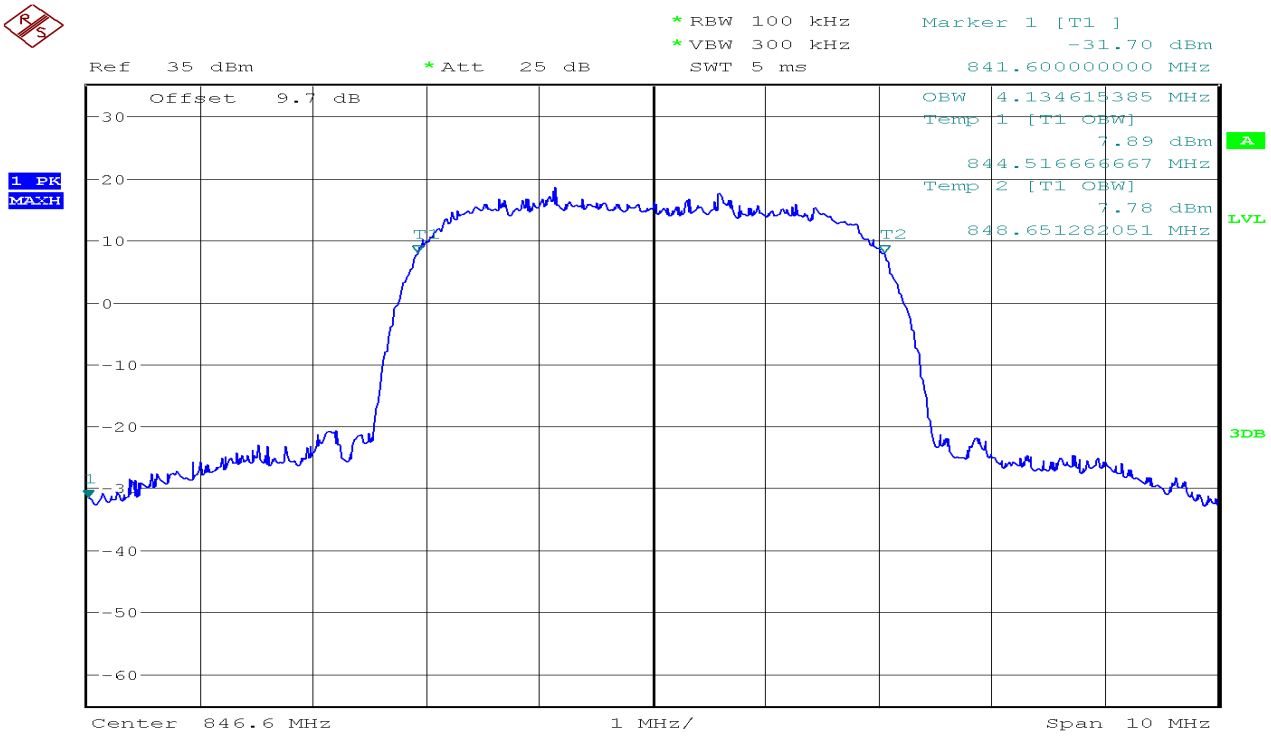


26dB Bandwidth

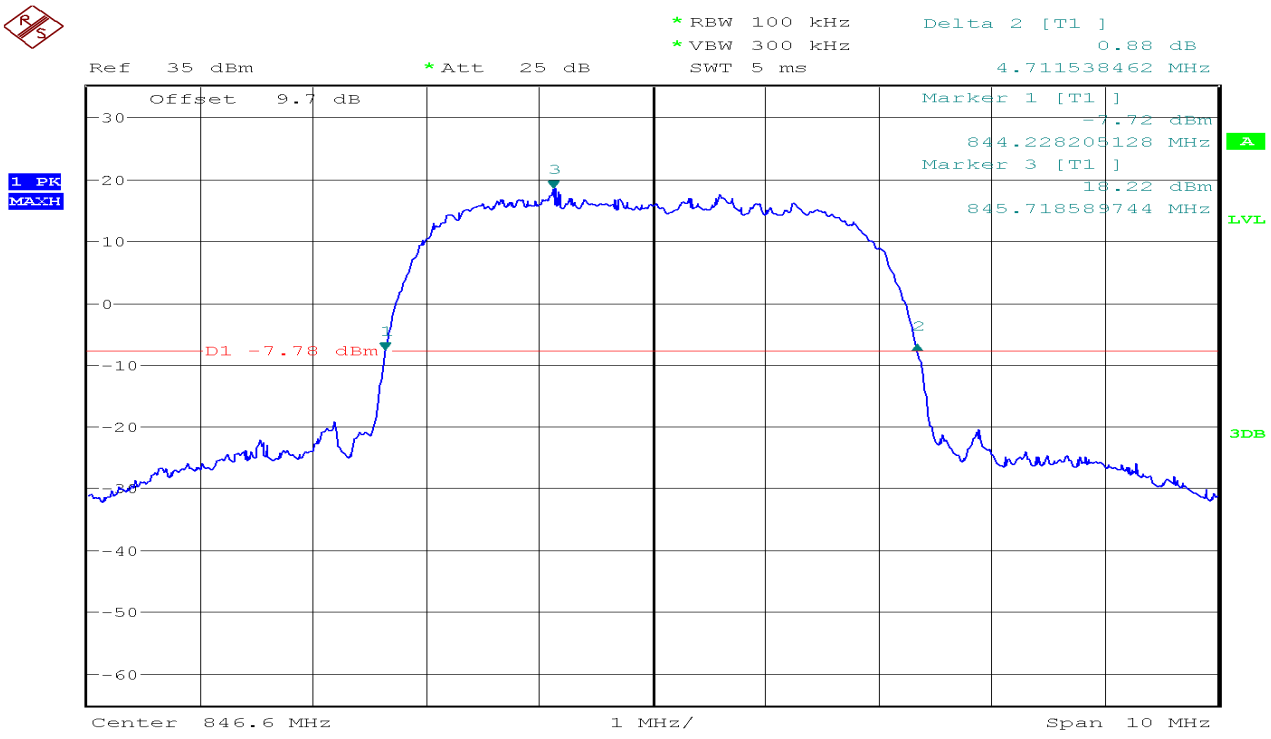


WCDMA Band V (CH High)

99% Bandwidth

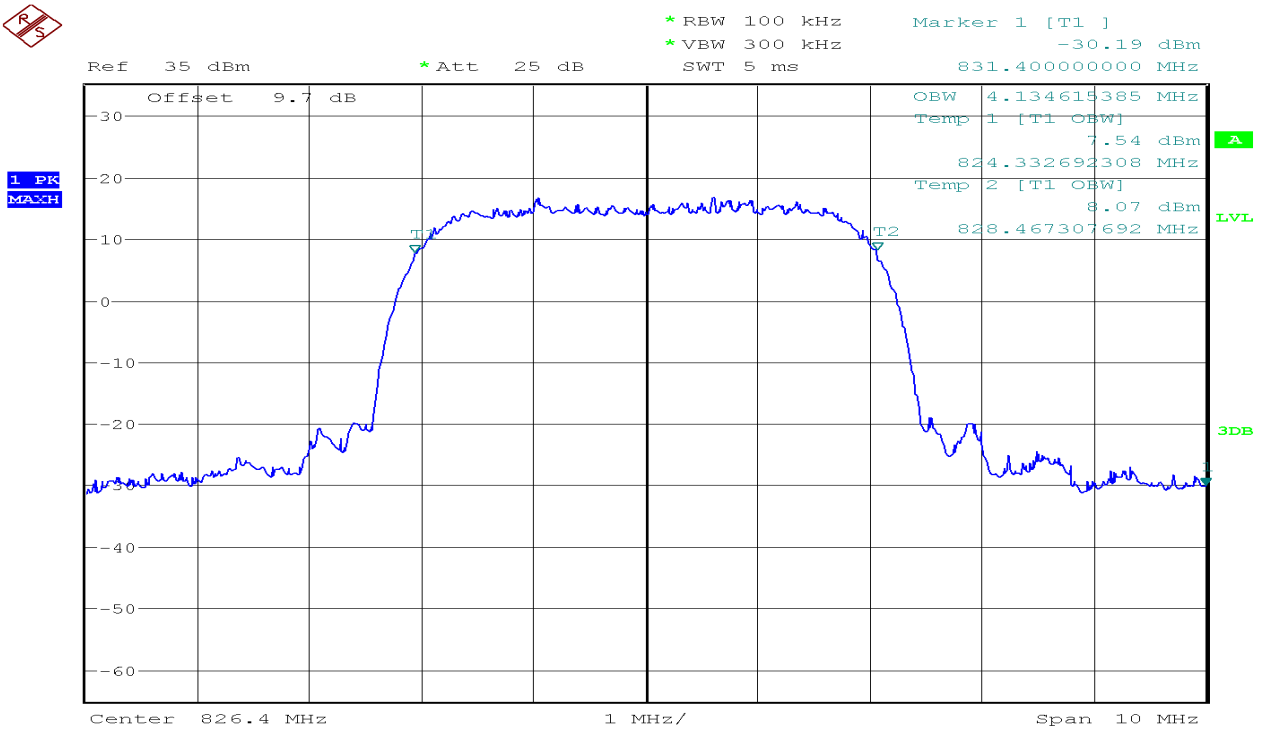


26dB Bandwidth

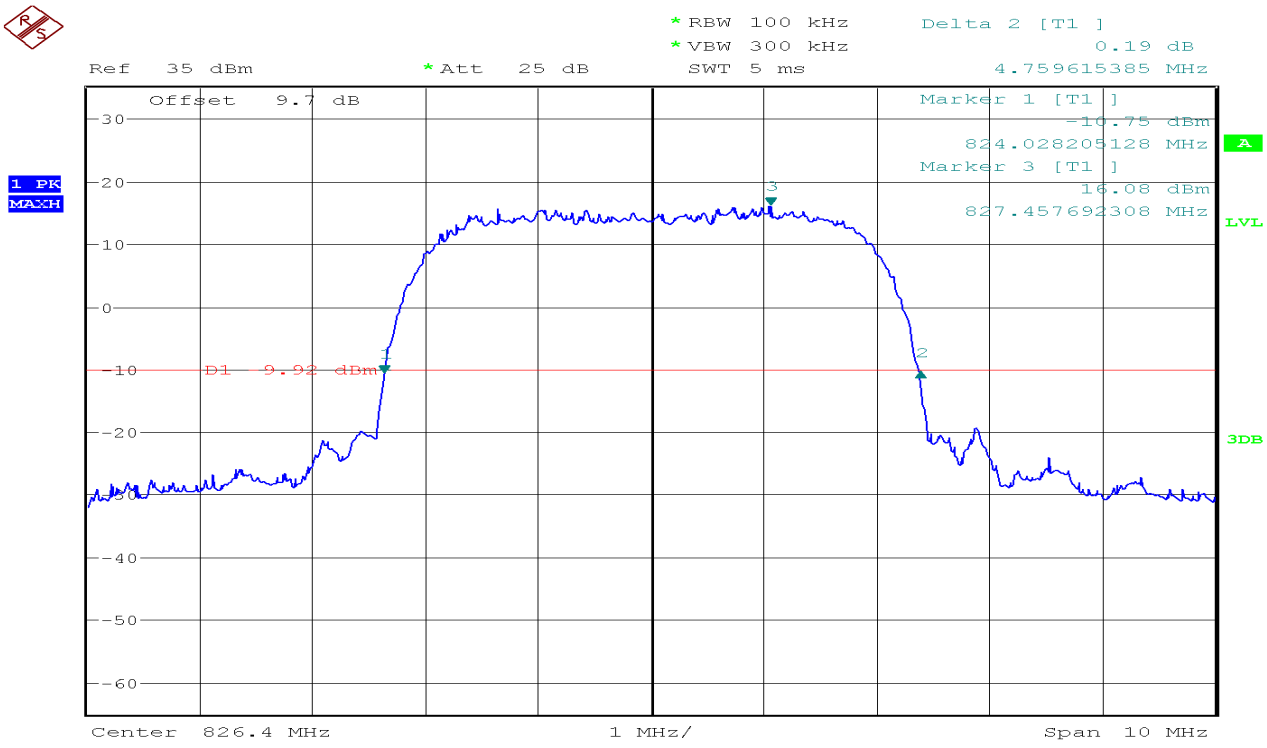


HSDPA Band V (CH Low)

99% Bandwidth

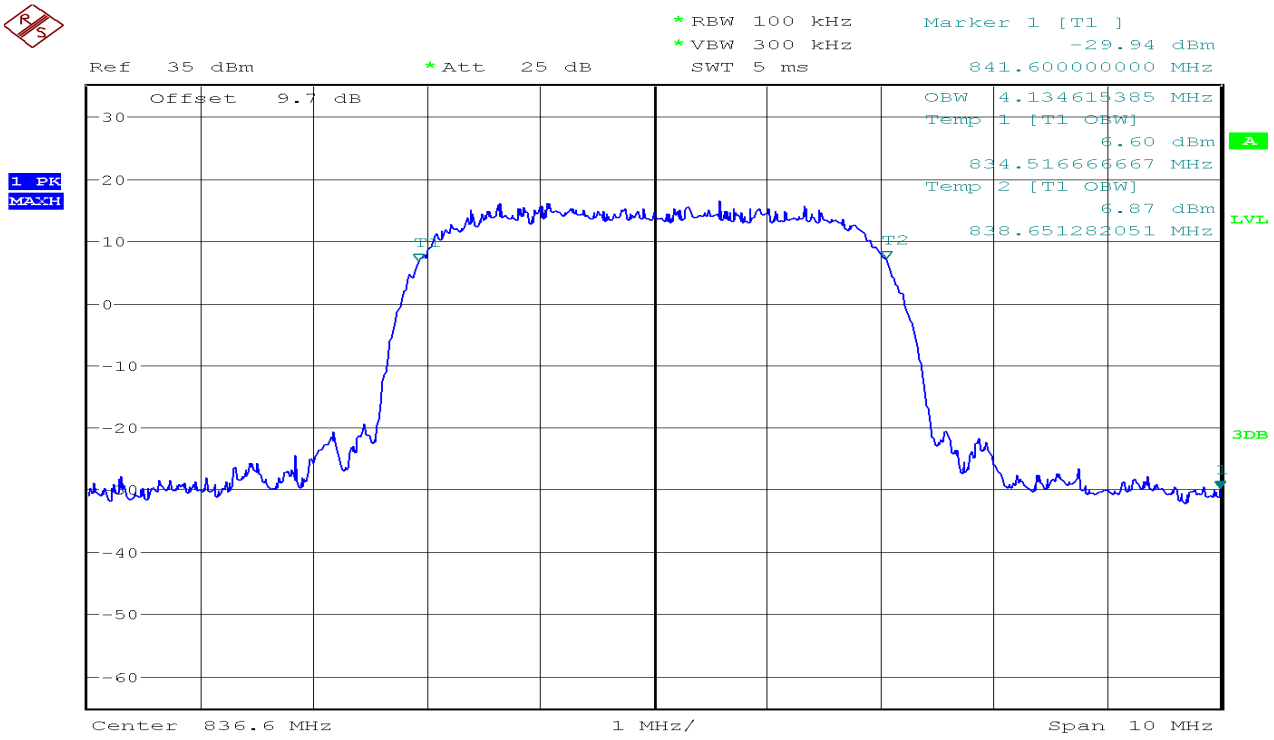


26dB Bandwidth

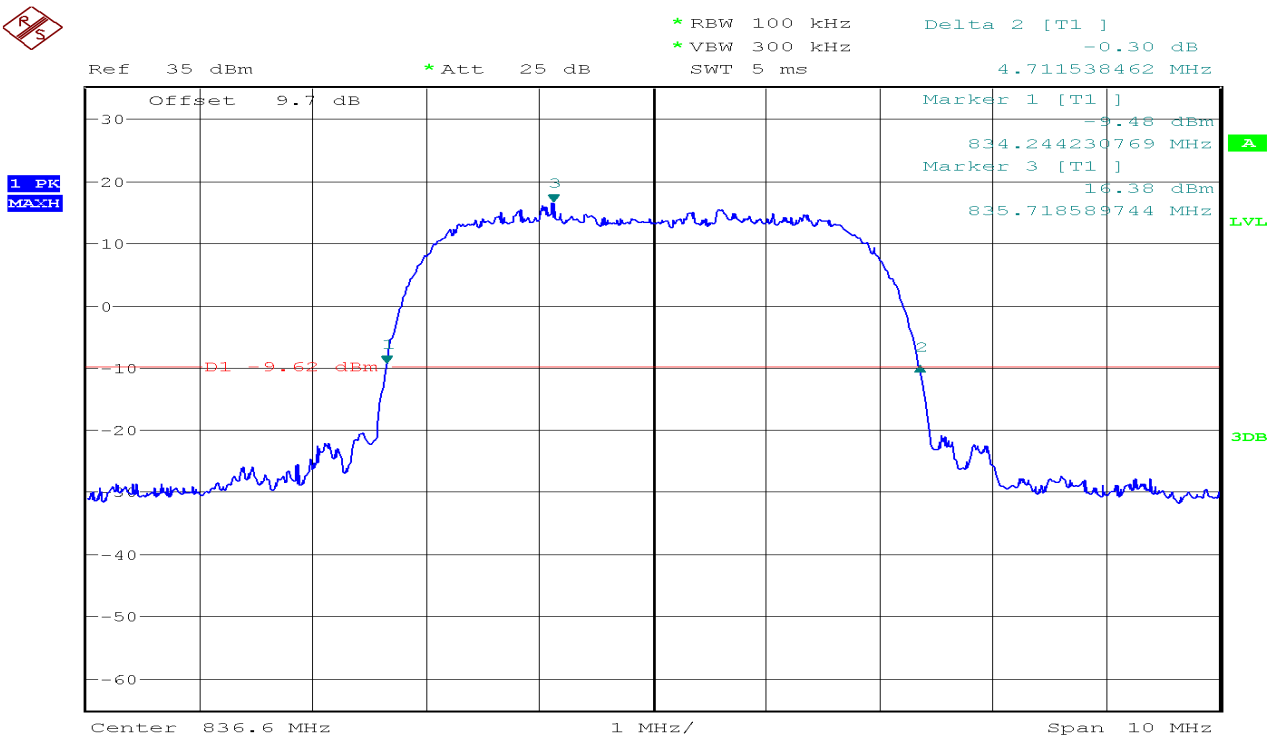


HSDPA Band V (CH Mid)

99% Bandwidth

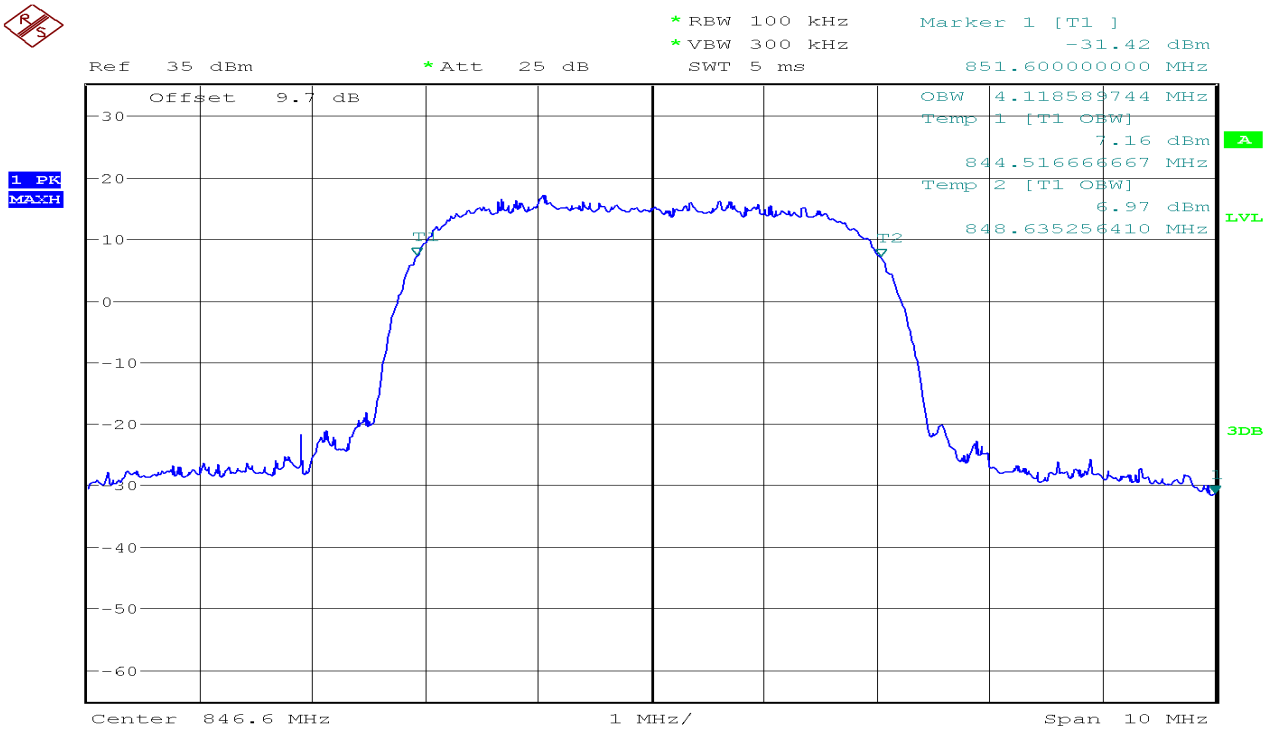


26dB Bandwidth

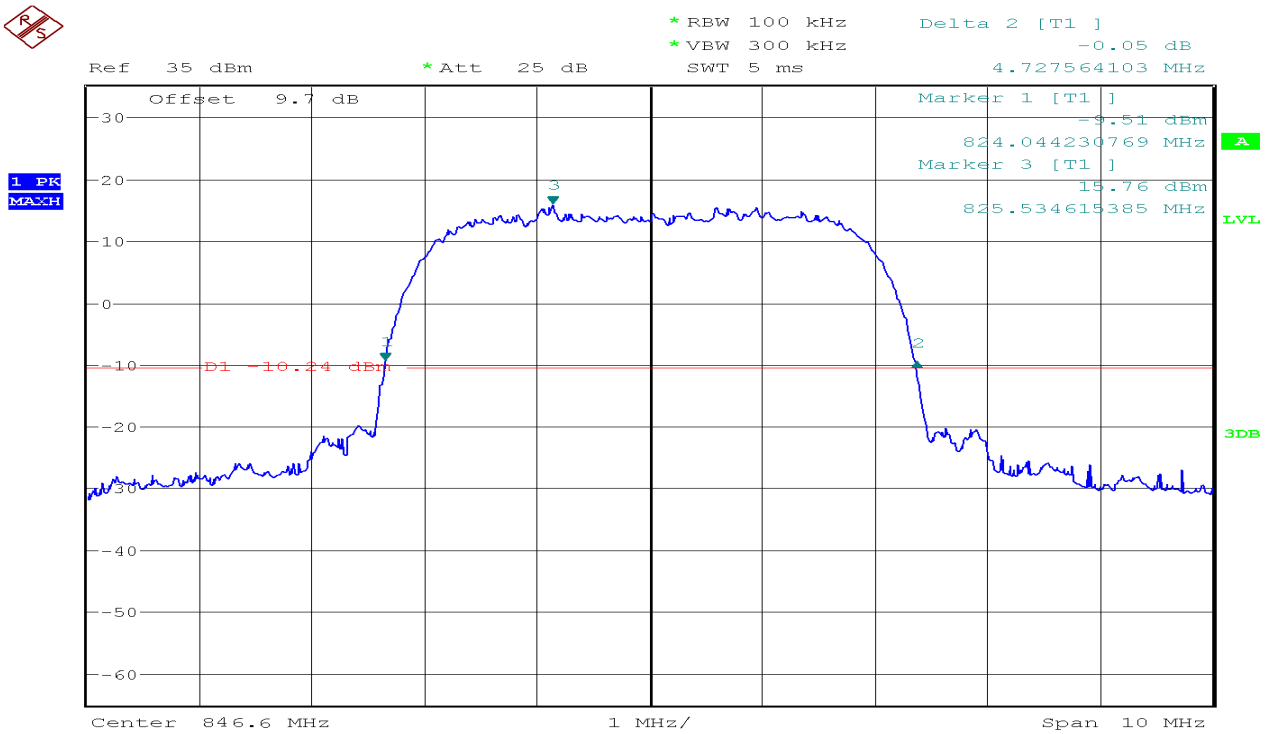


HSDPA Band V (CH High)

99% Bandwidth

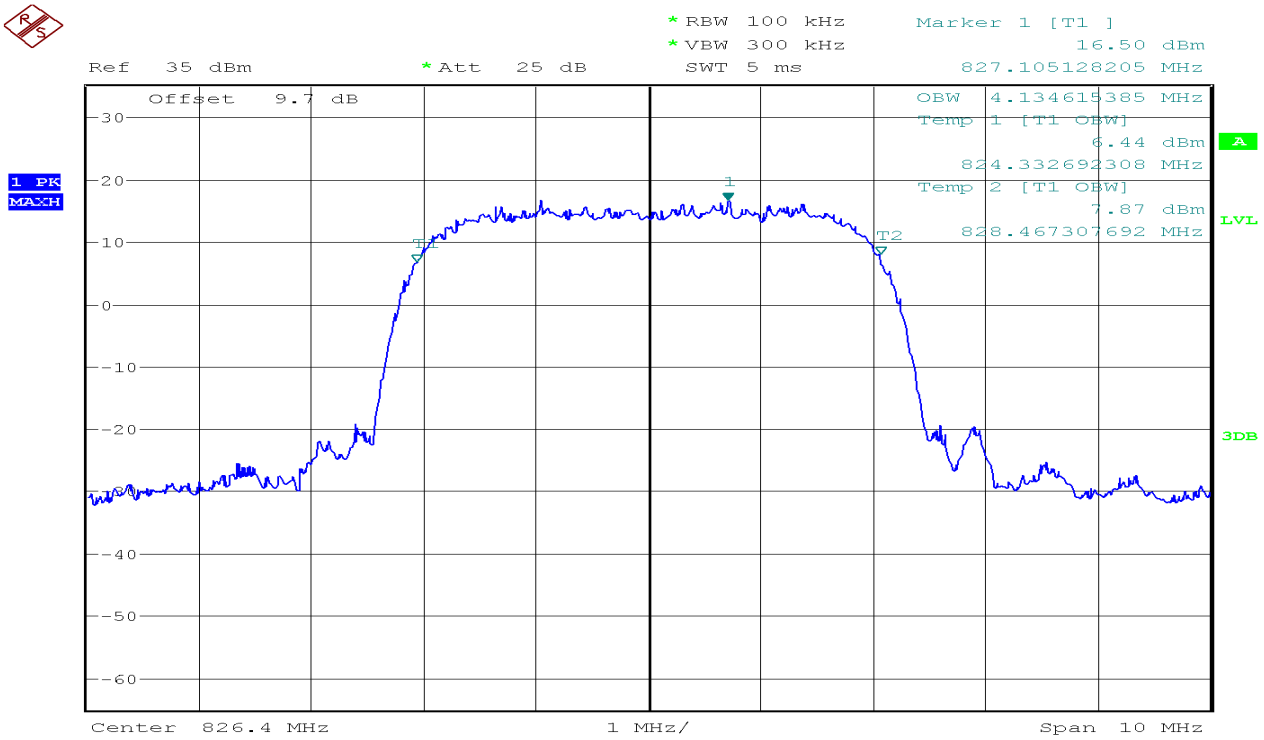


26dB Bandwidth

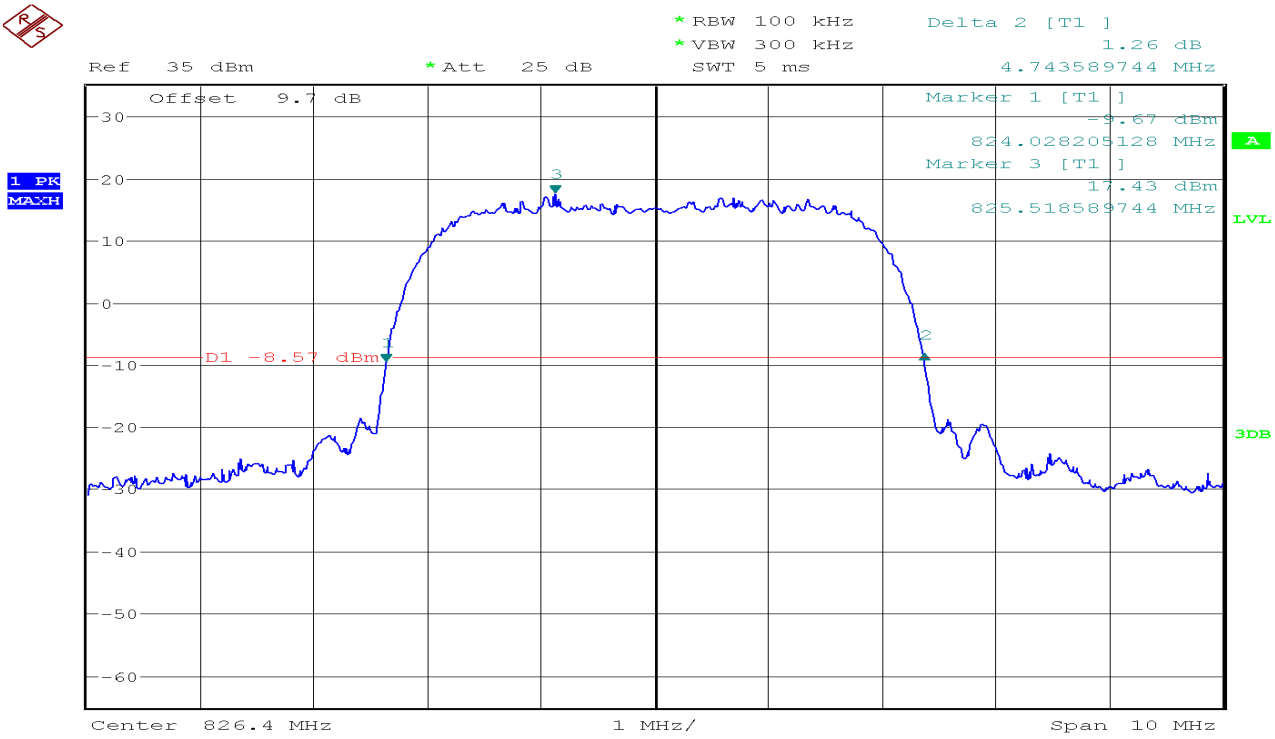


HSUPA Band V (CH Low)

99% Bandwidth

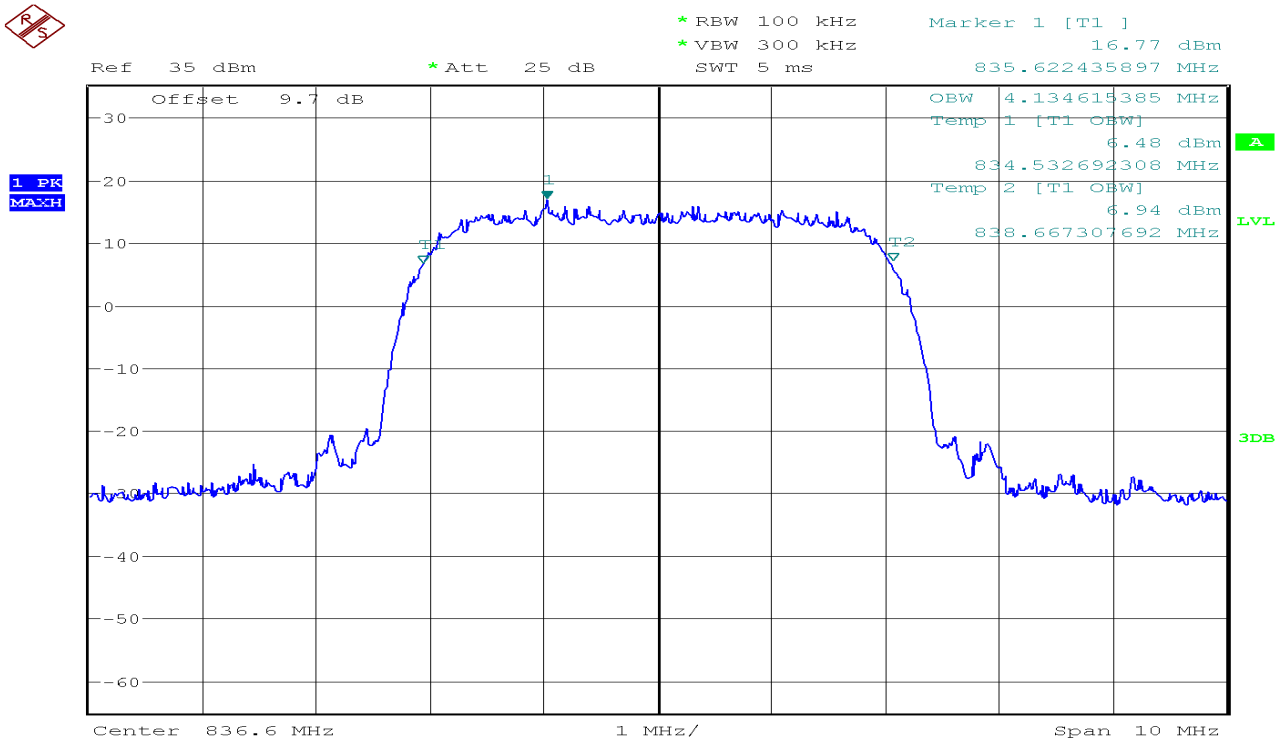


26dB Bandwidth

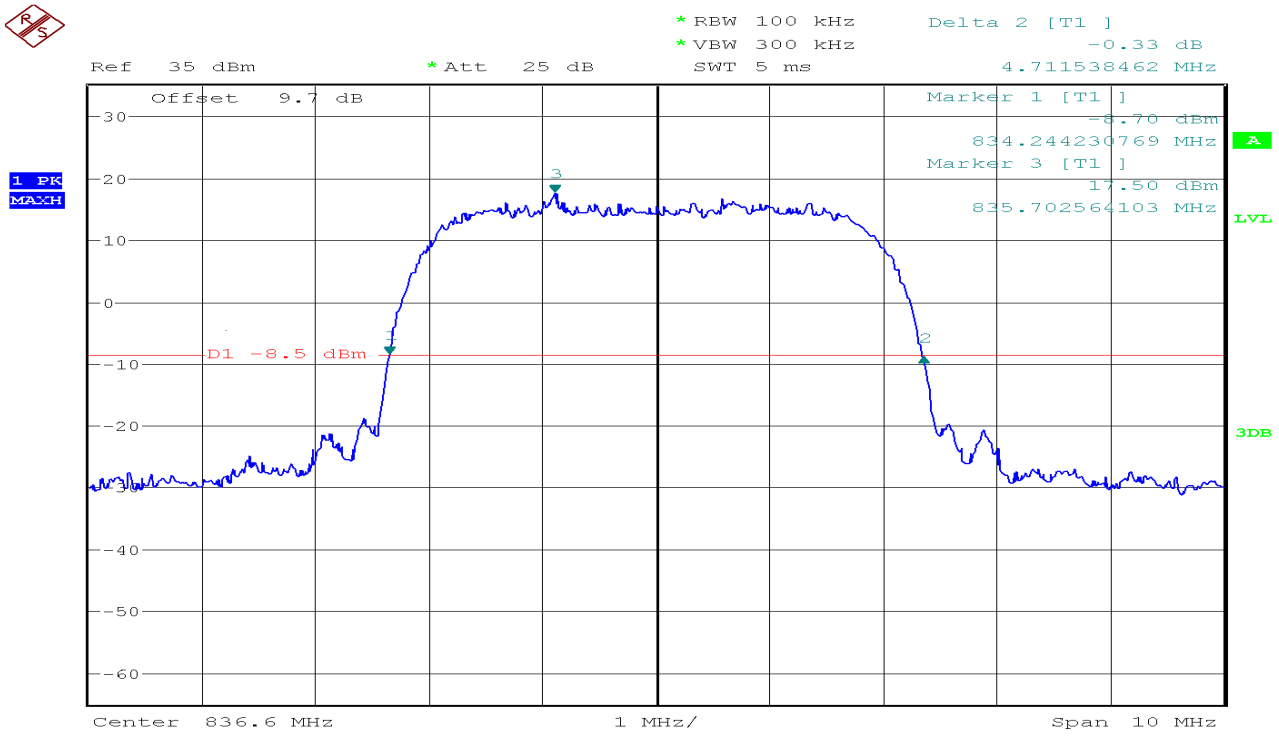


HSUPA Band V (CH Mid)

99% Bandwidth

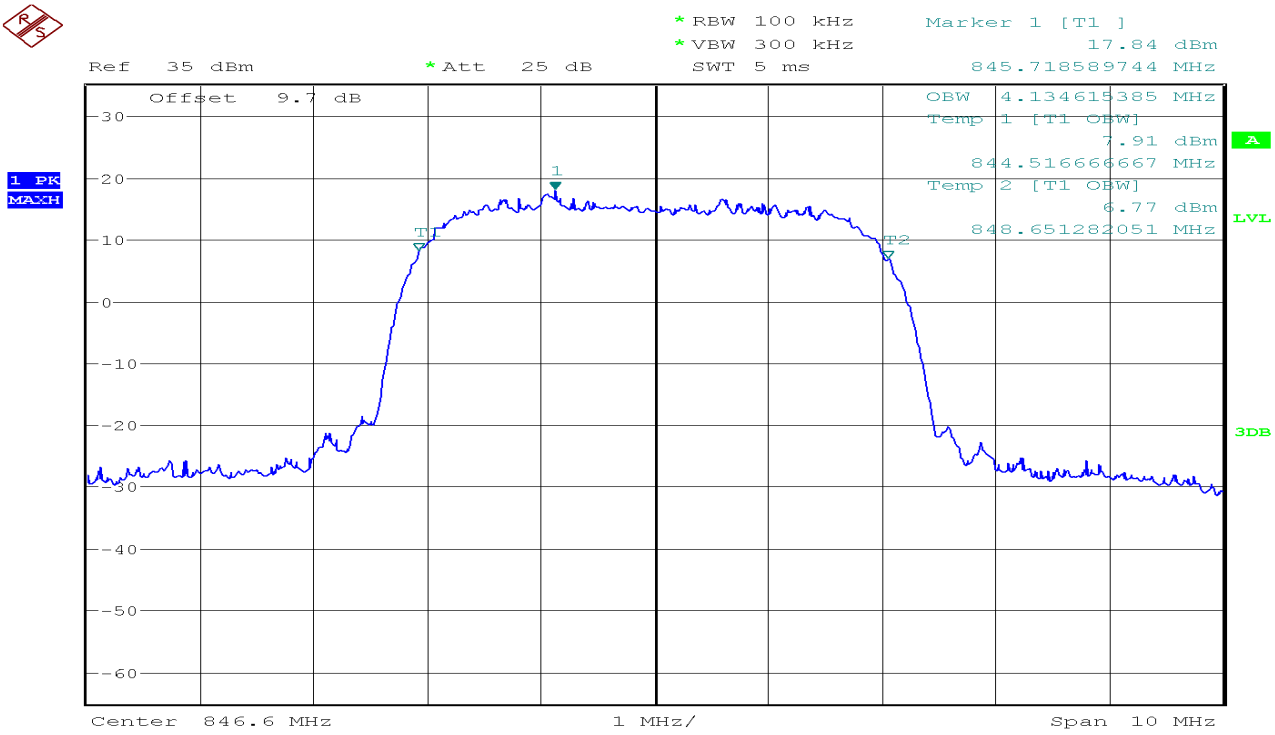


26dB Bandwidth

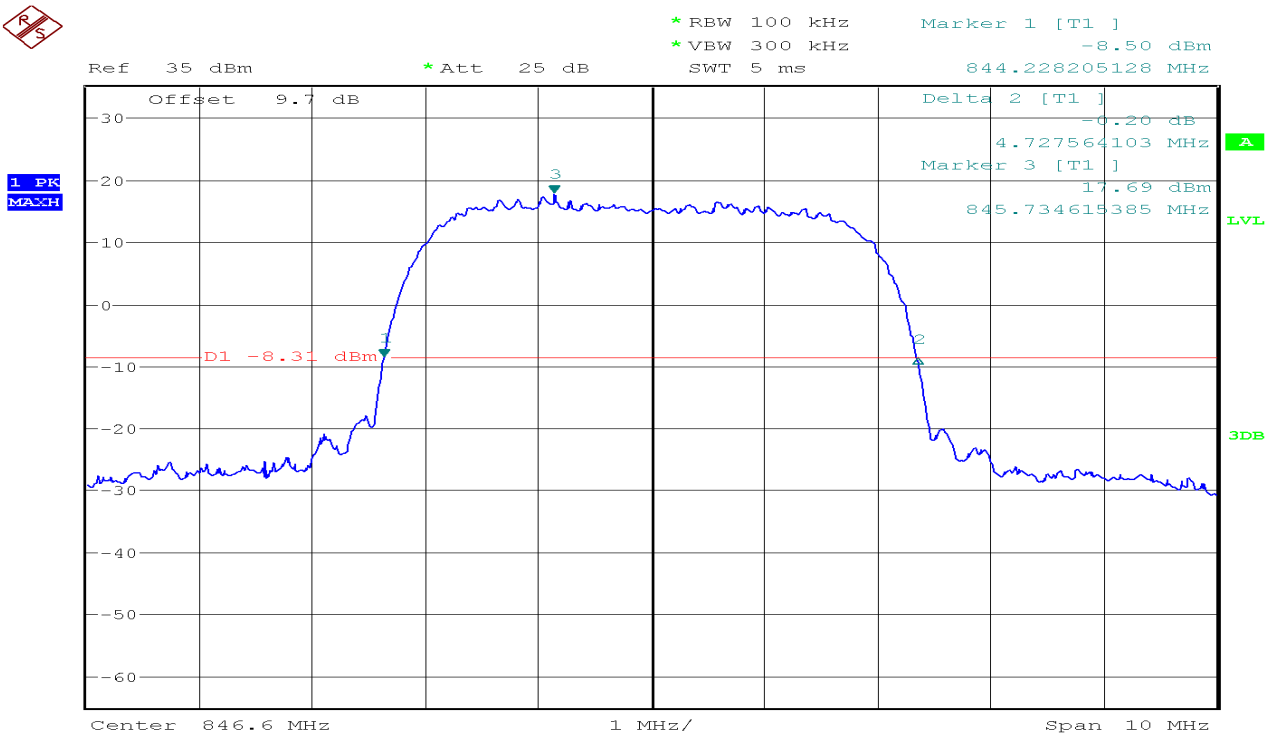


HSUPA Band V (CH High)

99% Bandwidth



26dB Bandwidth



7.5. OUT OF BAND EMISSION AT ANTENNA TERMINALS

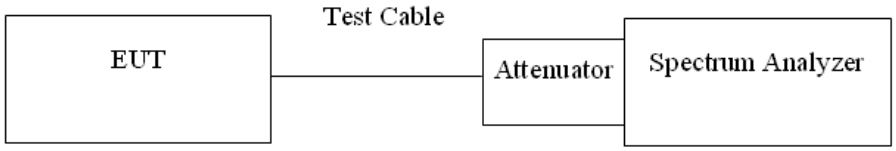
LIMIT

According to FCC §2.1051, FCC §22.917, FCC §24.238(a).

Out of Band Emissions: The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at lease 43 + 10 log P dB.

Mobile Emissions in Base Frequency Range: The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not exceed –80 dBm at the transmit antenna connector.
Band Edge Requirements: In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at lease 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission

TEST CONFIGURATION



TEST PROCEDURE

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

Band Edge Requirements (824 MHz and 849 MHz /1850MHz and 1910MHz): In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

TEST RESULTS

No non-compliance noted.

Test Data

Mode	CH	Location	Description
GPRS 850	128	Figure 1-1	Band Edge emissions
	251	Figure 1-2	Band Edge emissions

Mode	CH	Location	Description
EGPRS 850	128	Figure 2-1	Band Edge emissions
	251	Figure 2-2	Band Edge emissions

Mode	CH	Location	Description
GPRS 1900	512	Figure 3-1	Band Edge emissions
	810	Figure 3-2	Band Edge emissions

Mode	CH	Location	Description
EGPRS 1900	512	Figure 4-1	Band Edge emissions
	810	Figure 4-2	Band Edge emissions

Mode	CH	Location	Description
WCDMA (Band II)	9262	Figure 5-1	Band Edge emissions
	9538	Figure 5-2	Band Edge emissions

Mode	CH	Location	Description
HSDPA (Band II)	9262	Figure 6-1	Band Edge emissions
	9538	Figure 6-2	Band Edge emissions

Mode	CH	Location	Description
HSUPA (Band II)	9262	Figure 7-1	Band Edge emissions
	9538	Figure 7-2	Band Edge emissions

Mode	CH	Location	Description
WCDMA (Band V)	4132	Figure 8-1	Band Edge emissions
	4233	Figure 8-2	Band Edge emissions

Mode	CH	Location	Description
HSDPA (Band V)	4132	Figure 9-1	Band Edge emissions
	4233	Figure 9-2	Band Edge emissions

Mode	CH	Location	Description
HSUPA (Band V)	4132	Figure 10-1	Band Edge emissions
	4233	Figure 10-2	Band Edge emissions

Mode	CH	Location	Description
GPRS 850	128	Figure 11-1	Conducted spurious emissions, 30MHz - 9GHz
	190	Figure 11-2	Conducted spurious emissions, 30MHz - 9GHz
	251	Figure 11-3	Conducted spurious emissions, 30MHz - 9GHz

Mode	CH	Location	Description
EGPRS 850	128	Figure 12-1	Conducted spurious emissions, 30MHz - 9GHz
	190	Figure 12-2	Conducted spurious emissions, 30MHz - 9GHz
	251	Figure 12-3	Conducted spurious emissions, 30MHz - 9GHz

Mode	CH	Location	Description
GPRS 1900	512	Figure 13-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 13-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 13-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
EGPRS 1900	512	Figure 14-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 14-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 14-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
WCDMA (Band II)	9262	Figure 15-1	Conducted spurious emissions, 30MHz - 20GHz
	9400	Figure 15-2	Conducted spurious emissions, 30MHz - 20GHz
	9538	Figure 15-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
HSDPA (Band II)	9262	Figure 16-1	Conducted spurious emissions, 30MHz - 20GHz
	9400	Figure 16-2	Conducted spurious emissions, 30MHz - 20GHz
	9538	Figure 16-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
HSUPA (Band II)	9262	Figure 17-1	Conducted spurious emissions, 30MHz - 20GHz
	9400	Figure 17-2	Conducted spurious emissions, 30MHz - 20GHz
	9538	Figure 17-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
WCDMA (Band V)	4132	Figure 18-1	Conducted spurious emissions, 30MHz - 9GHz
	4182	Figure 18-2	Conducted spurious emissions, 30MHz - 9GHz
	4233	Figure 18-3	Conducted spurious emissions, 30MHz - 9GHz

Mode	CH	Location	Description
HSDPA (Band V)	4132	Figure 19-1	Conducted spurious emissions, 30MHz - 9GHz
	4182	Figure 19-2	Conducted spurious emissions, 30MHz - 9GHz
	4233	Figure 19-3	Conducted spurious emissions, 30MHz - 9GHz

Mode	CH	Location	Description
HSUPA (Band V)	4132	Figure 20-1	Conducted spurious emissions, 30MHz - 9GHz
	4182	Figure 20-2	Conducted spurious emissions, 30MHz - 9GHz
	4233	Figure 20-3	Conducted spurious emissions, 30MHz - 9GHz

Test Plot

GPRS 850

Figure 1-1: Band Edge emissions – GPRS CH Low

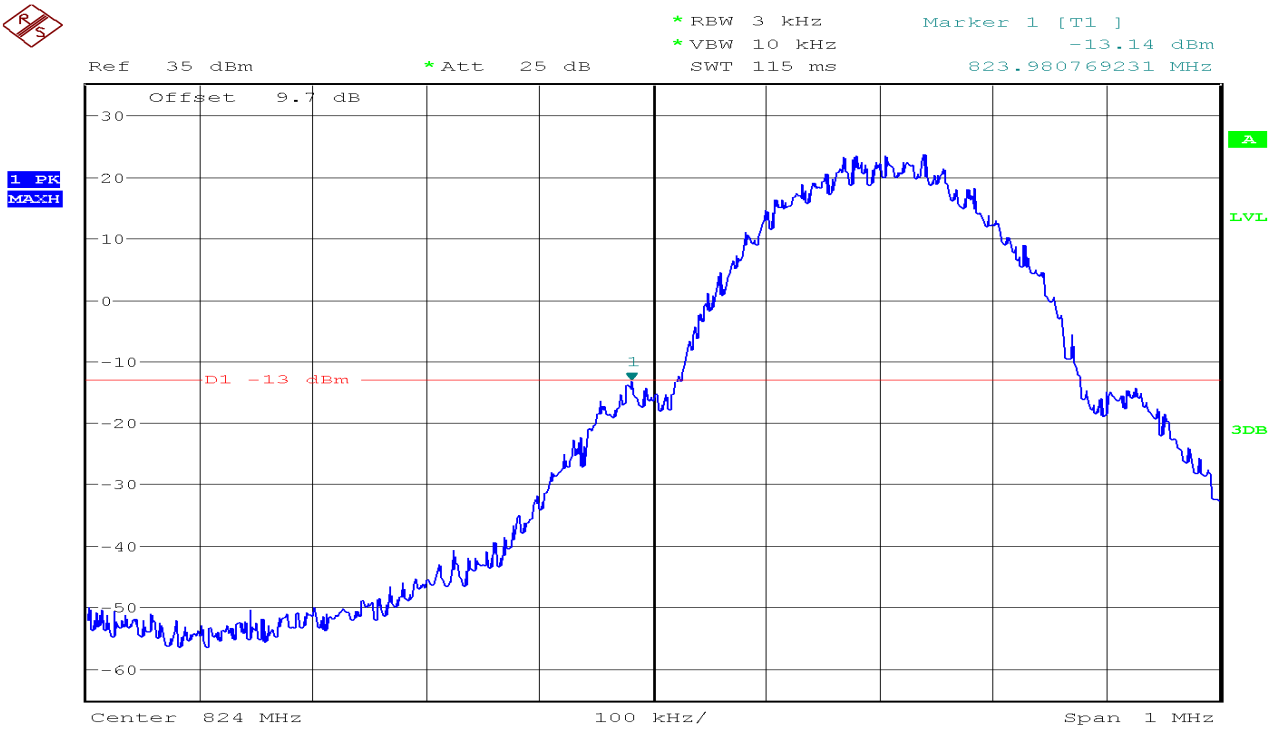
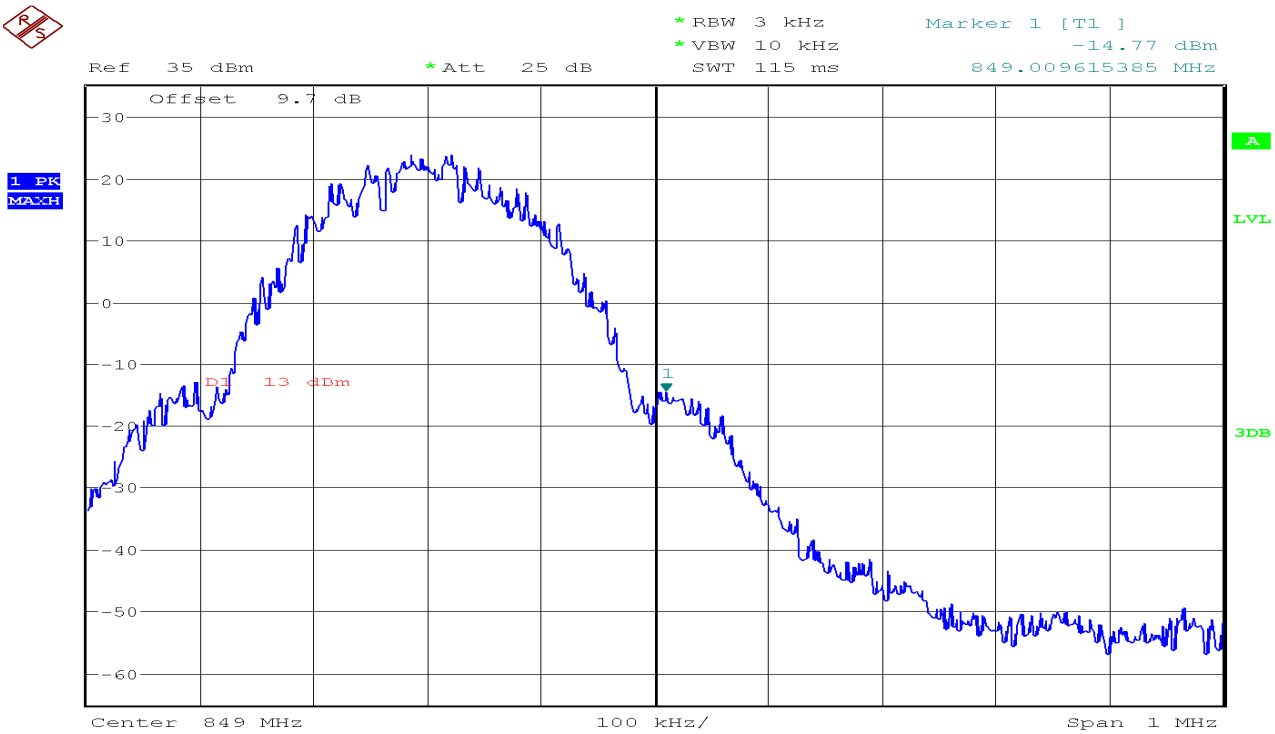


Figure 1-2: Band Edge emissions –GPRS CH High



EGPRS 850

Figure 2-1: Band Edge emissions –EGPRS CH Low

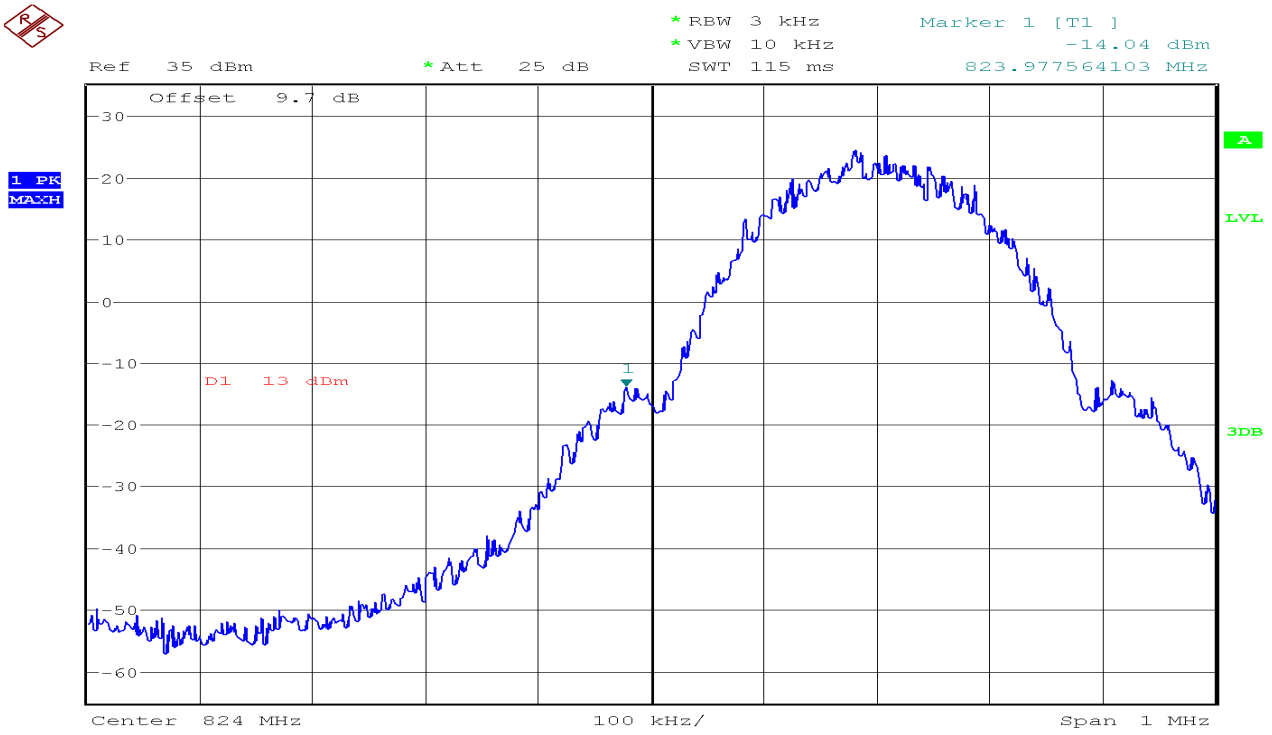
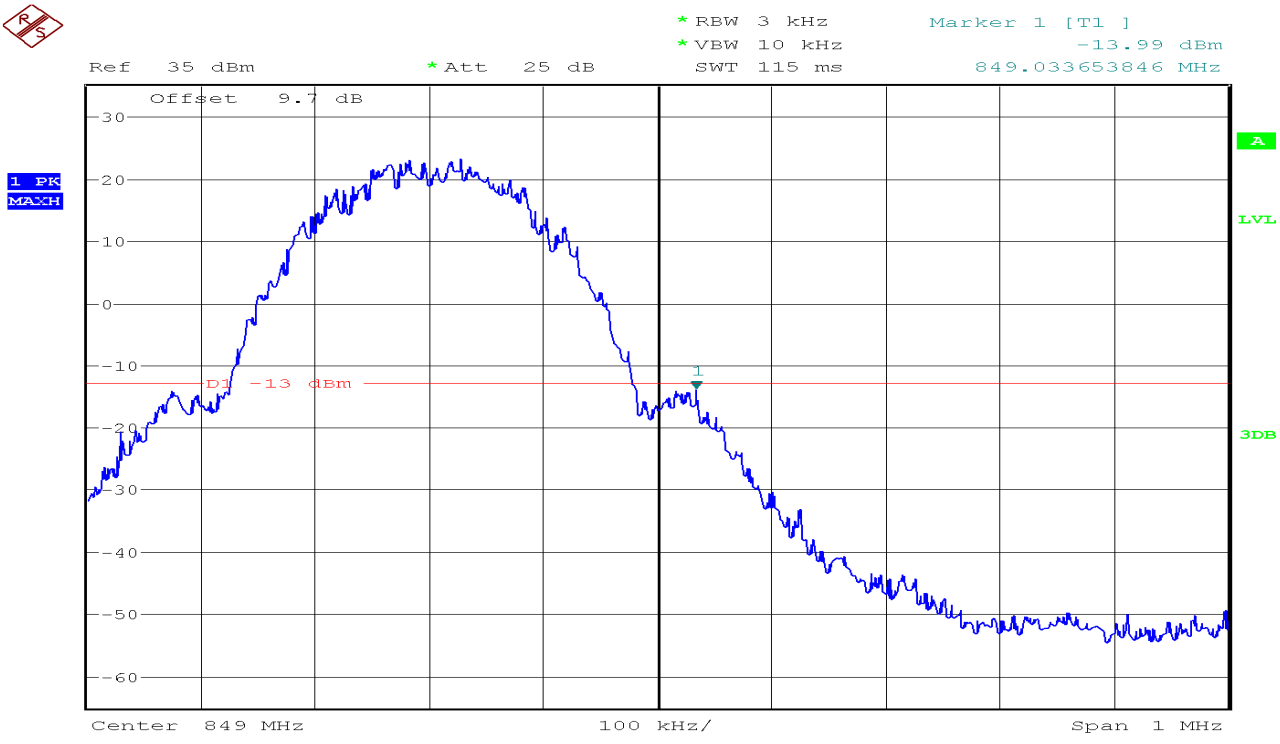


Figure 2-2: Band Edge emissions –EGPRS CH High



GPRS 1900

Figure 3-1: Band Edge emissions – GPRS CH Low

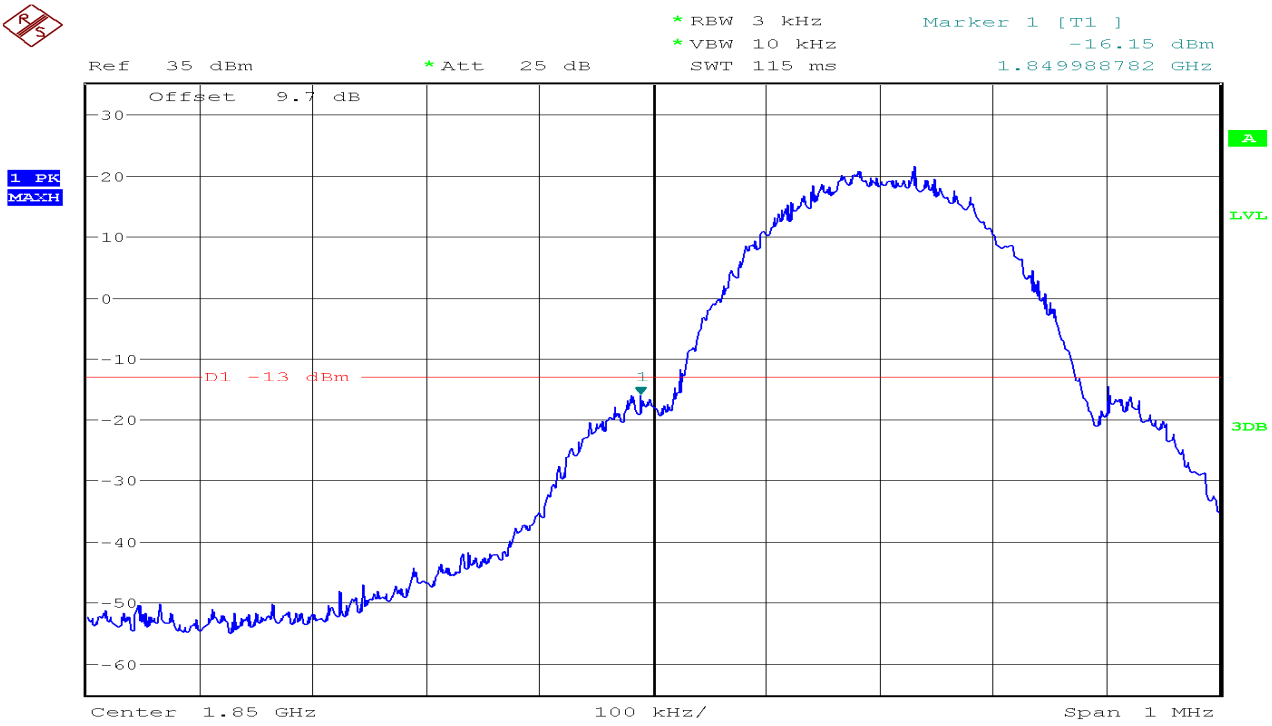
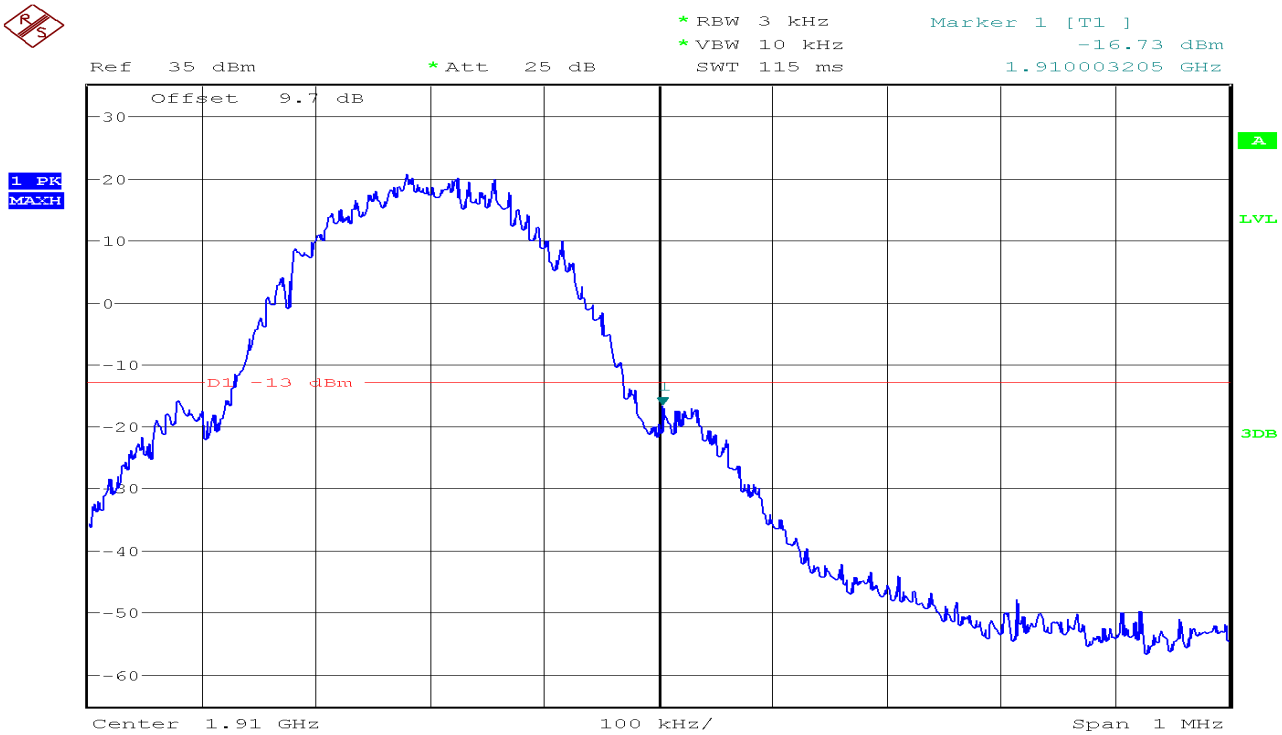


Figure 3-2: Band Edge emissions – GPRS CH High



EGPRS 1900

Figure 4-1: Band Edge emissions – EGPRS CH Low

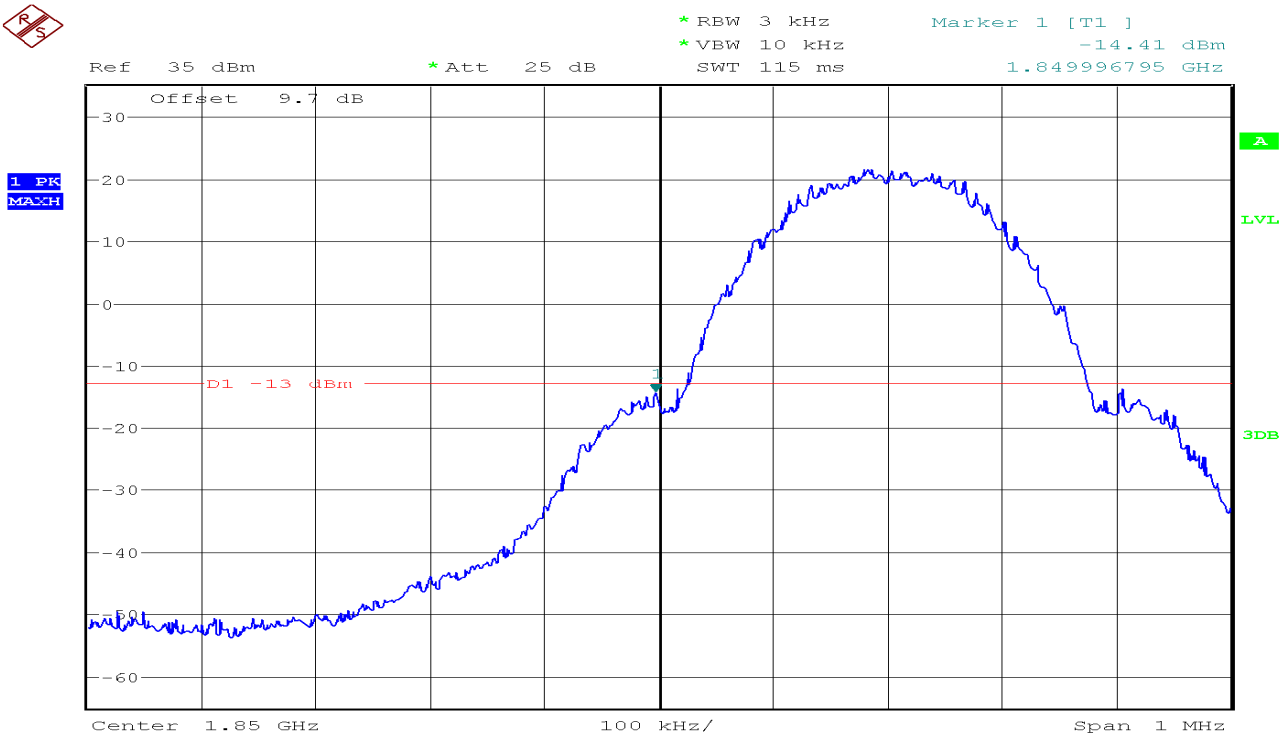
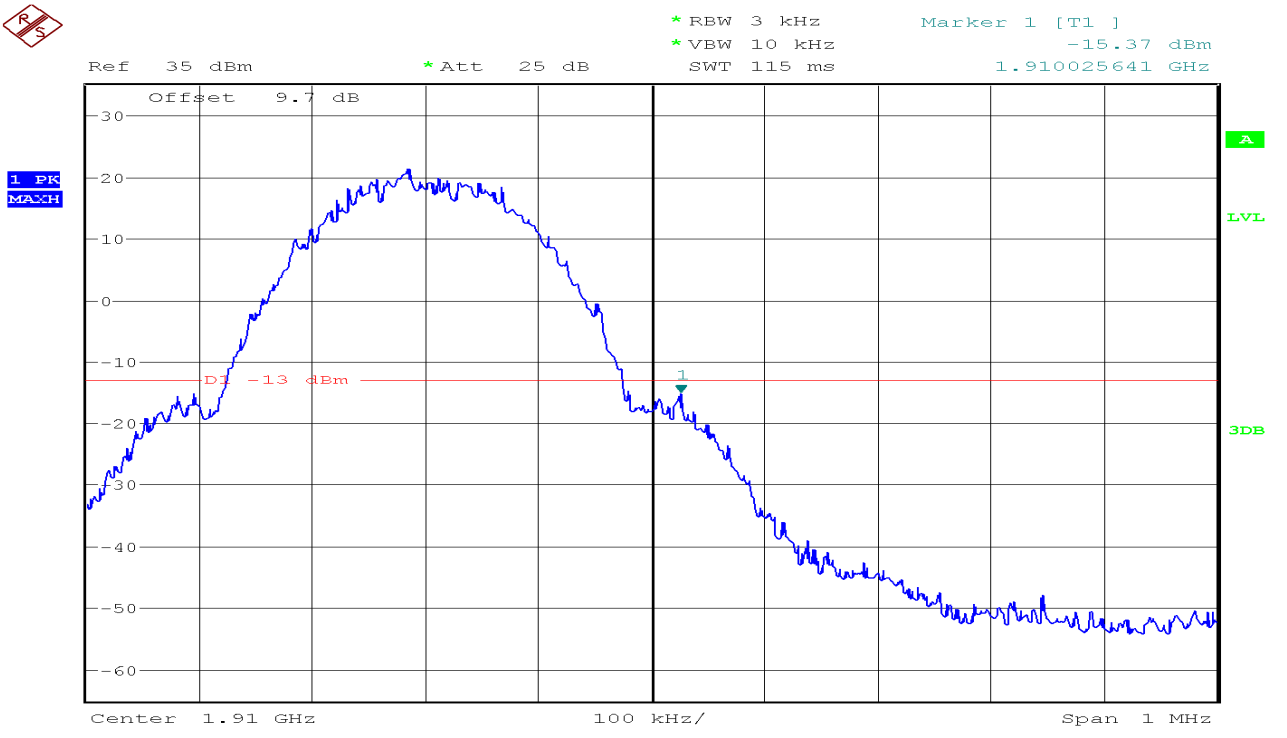


Figure 4-2: Band Edge emissions – EGPRS CH High



WCDMA Band II

Figure 5-1: Band Edge emissions –WCDMA CH Low

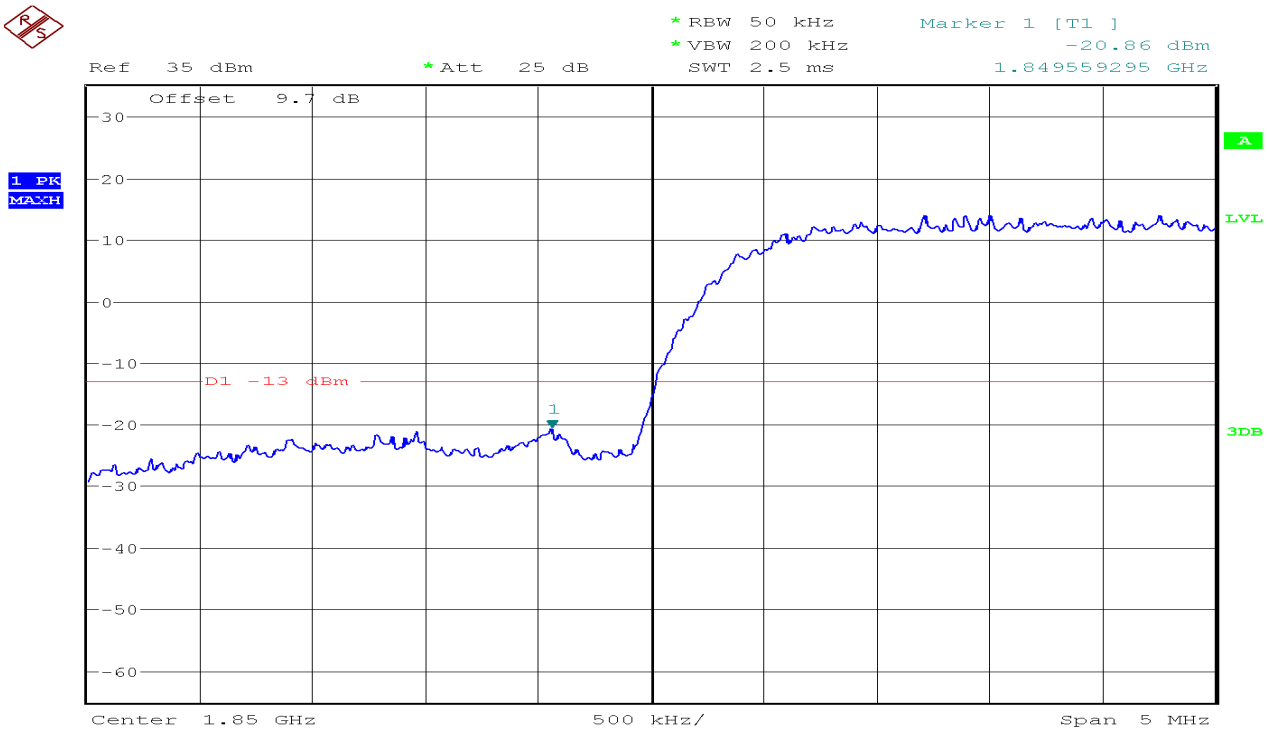
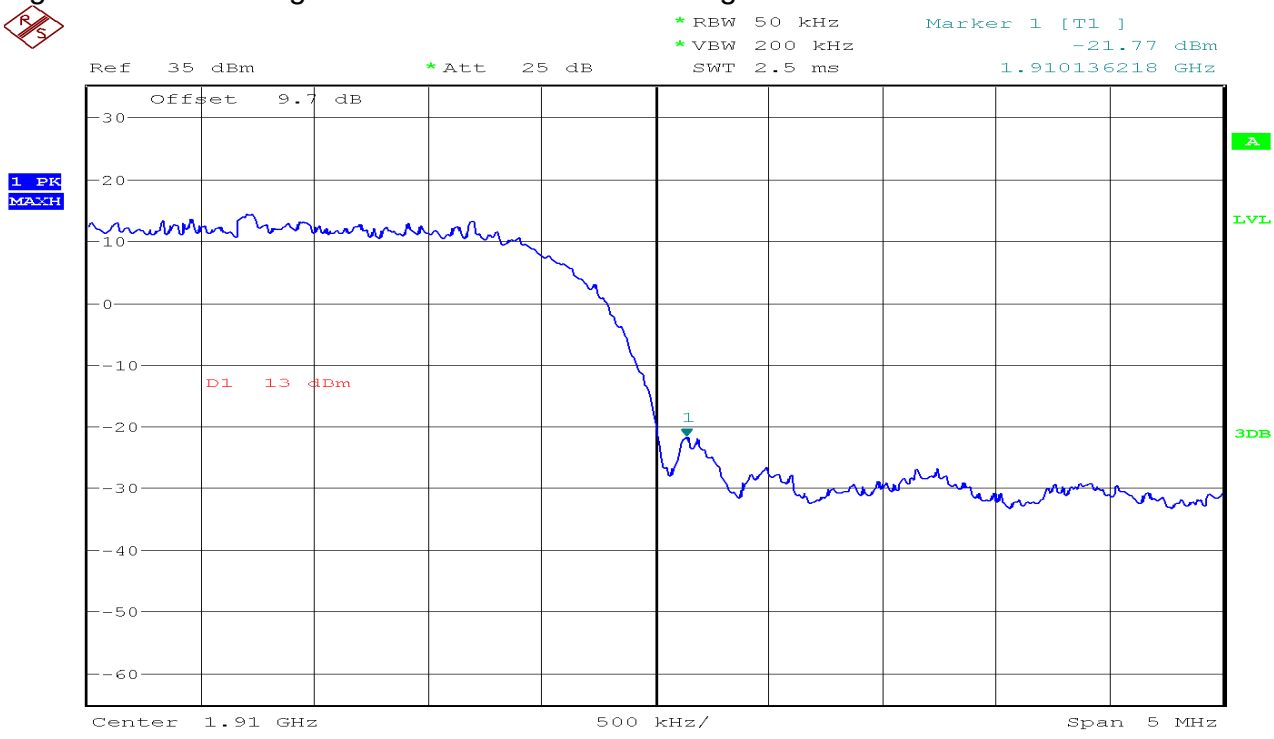


Figure 5-2: Band Edge emissions –WCDMA CH High



HSDPA Band II

Figure 6-1: Band Edge emissions –HSDPA CH Low

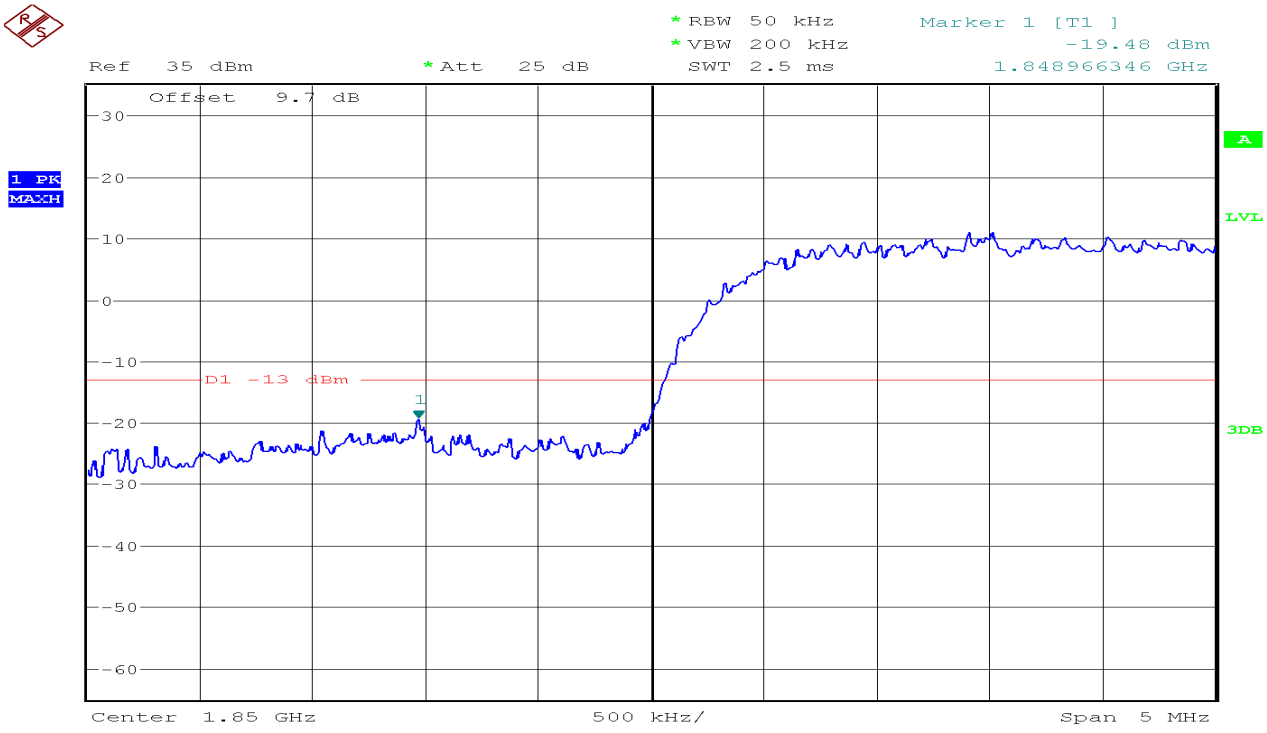
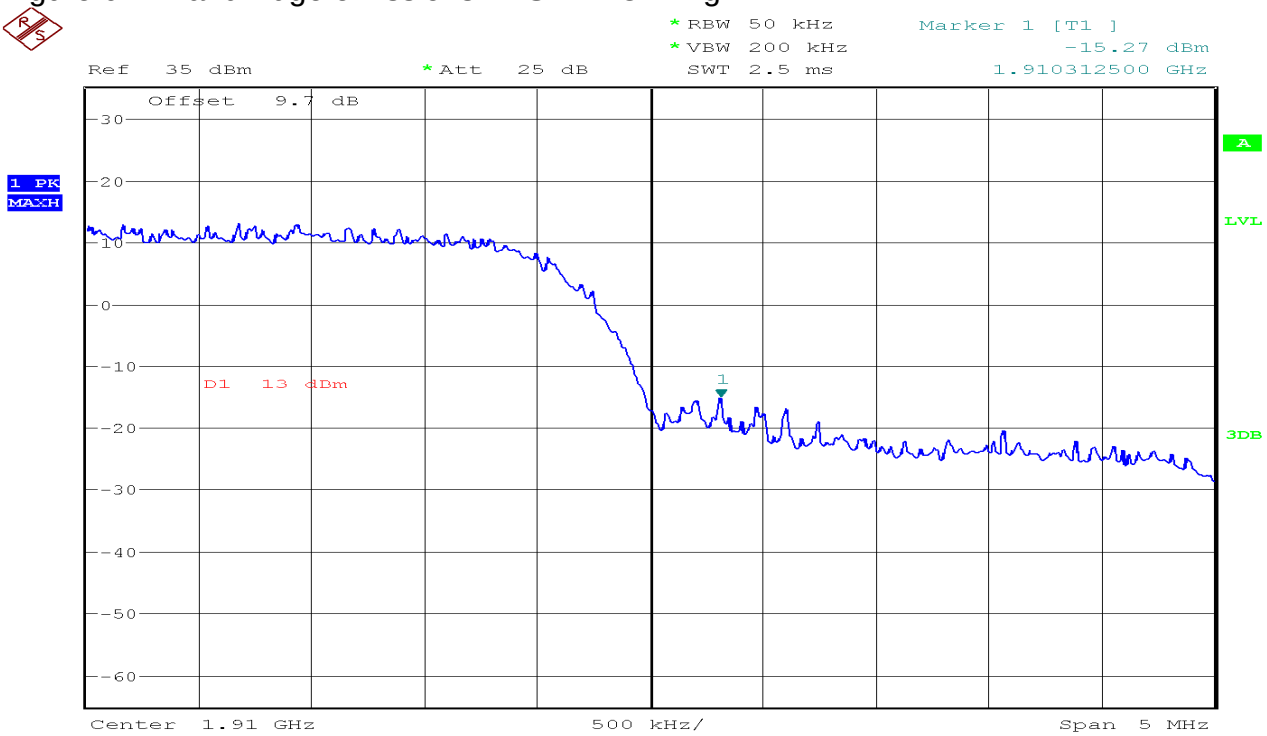


Figure 6-2: Band Edge emissions –HSDPA CH High



HSUPA Band II

Figure 7-1: Band Edge emissions –HSDPA CH Low

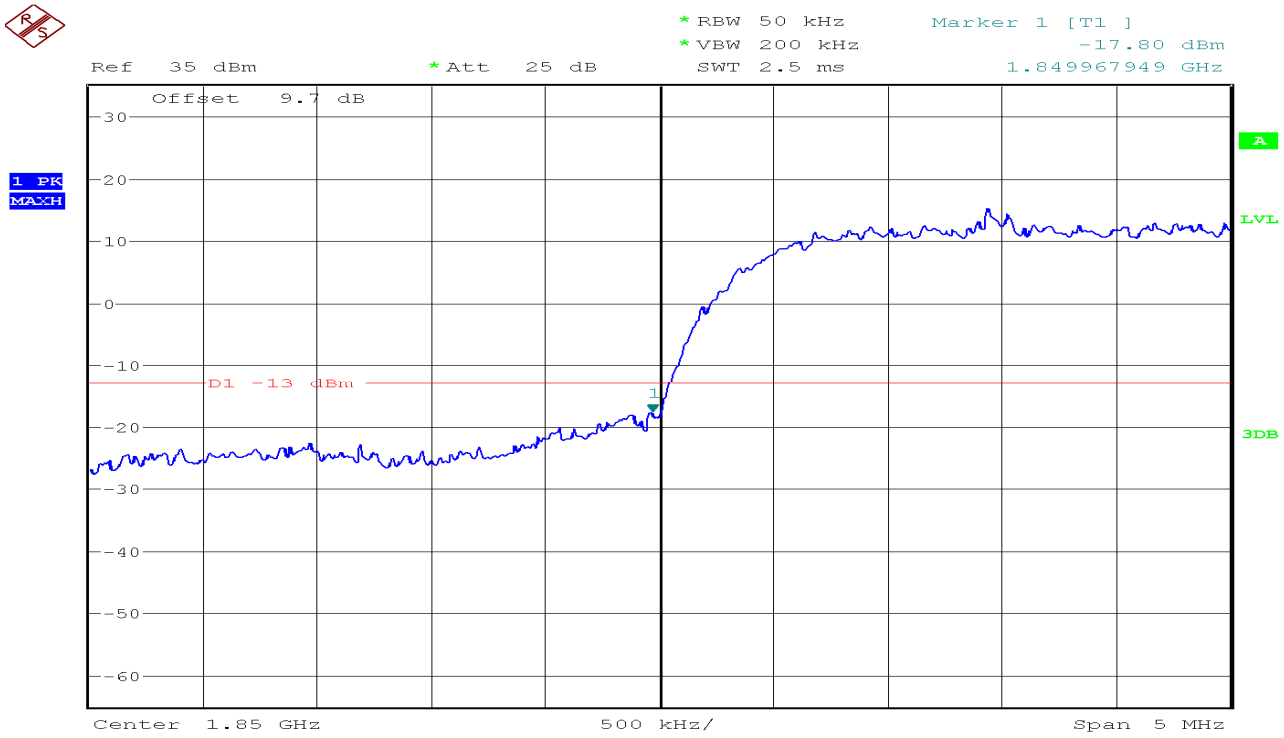
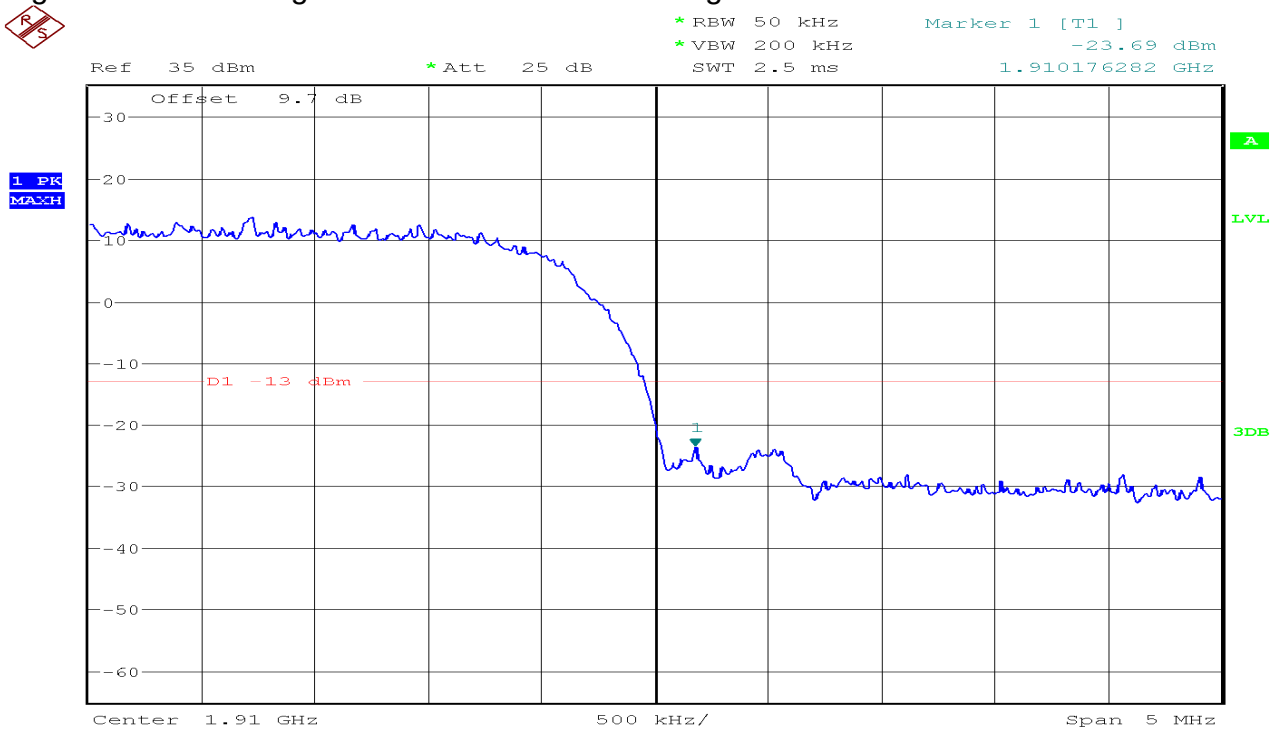


Figure 7-2: Band Edge emissions –HSDPA CH High



WCDMA Band V

Figure 8-1: Band Edge emissions –WCDMA CH Low

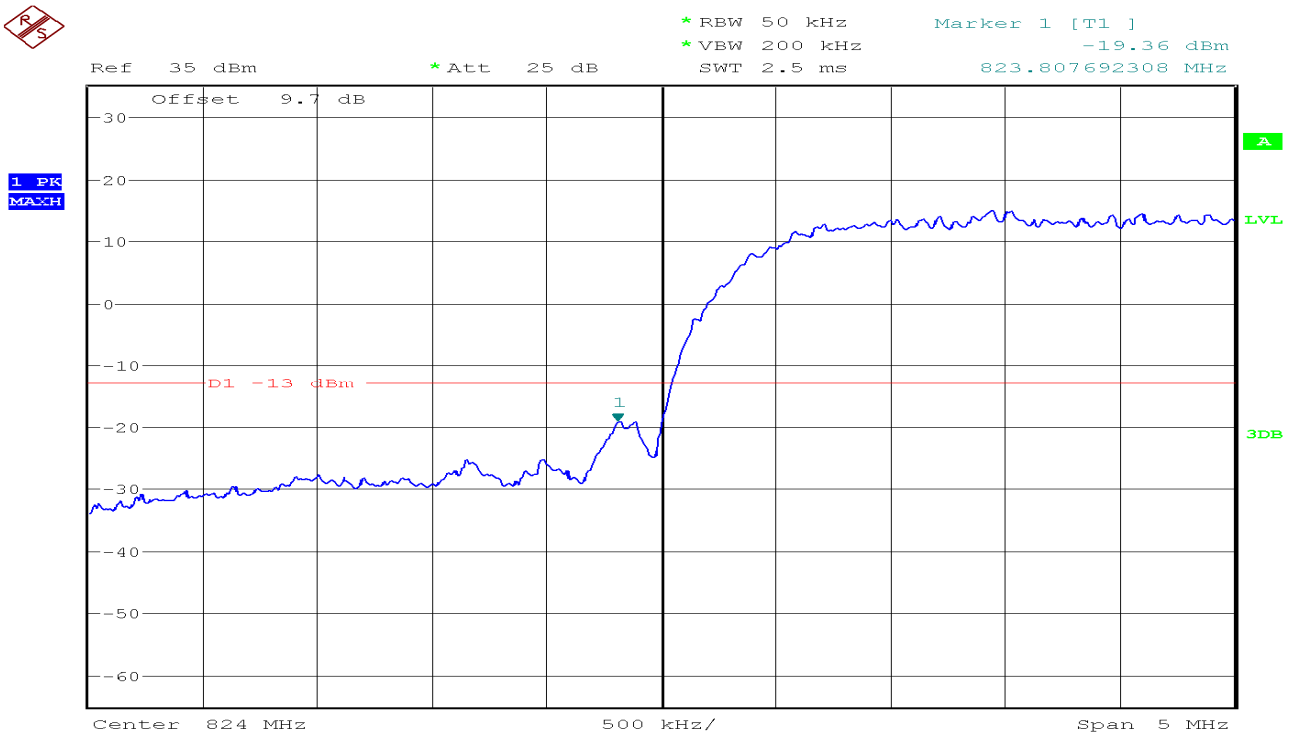
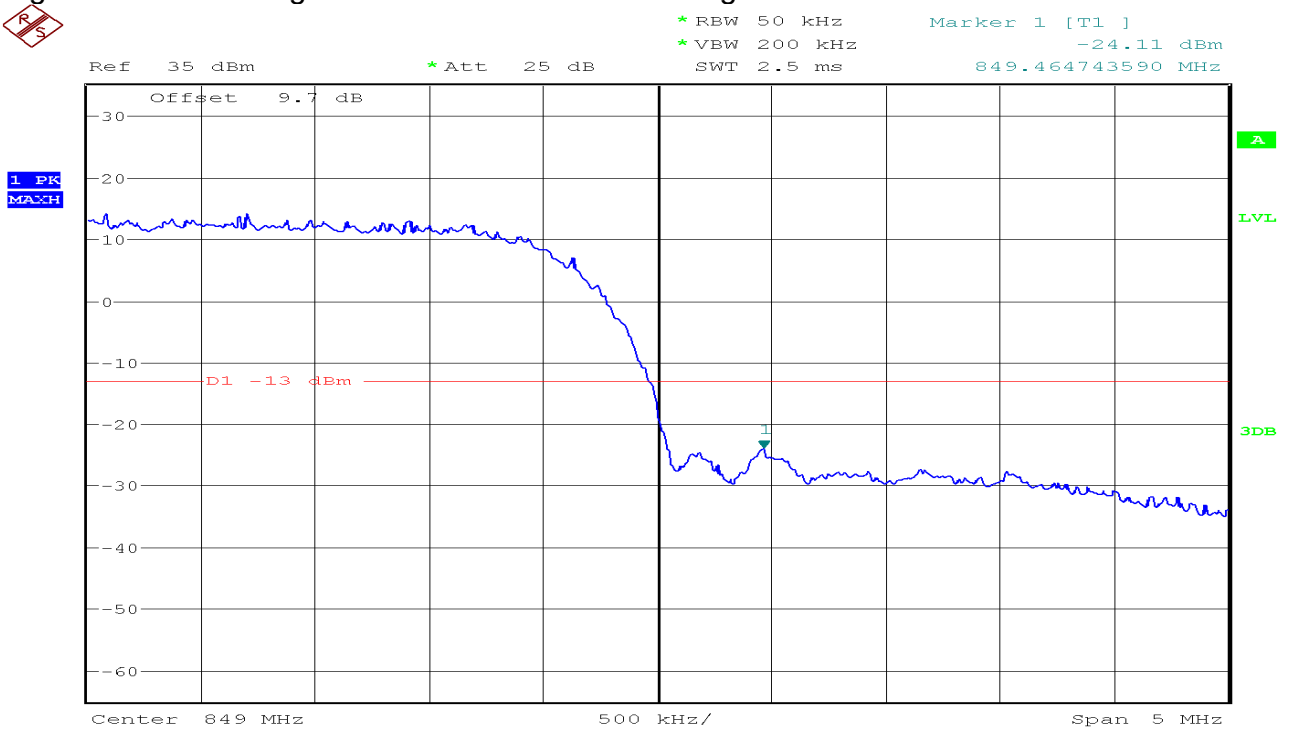


Figure 8-2: Band Edge emissions –WCDMA CH High



HSDPA Band V

Figure 9-1: Band Edge emissions –HSDPA CH Low

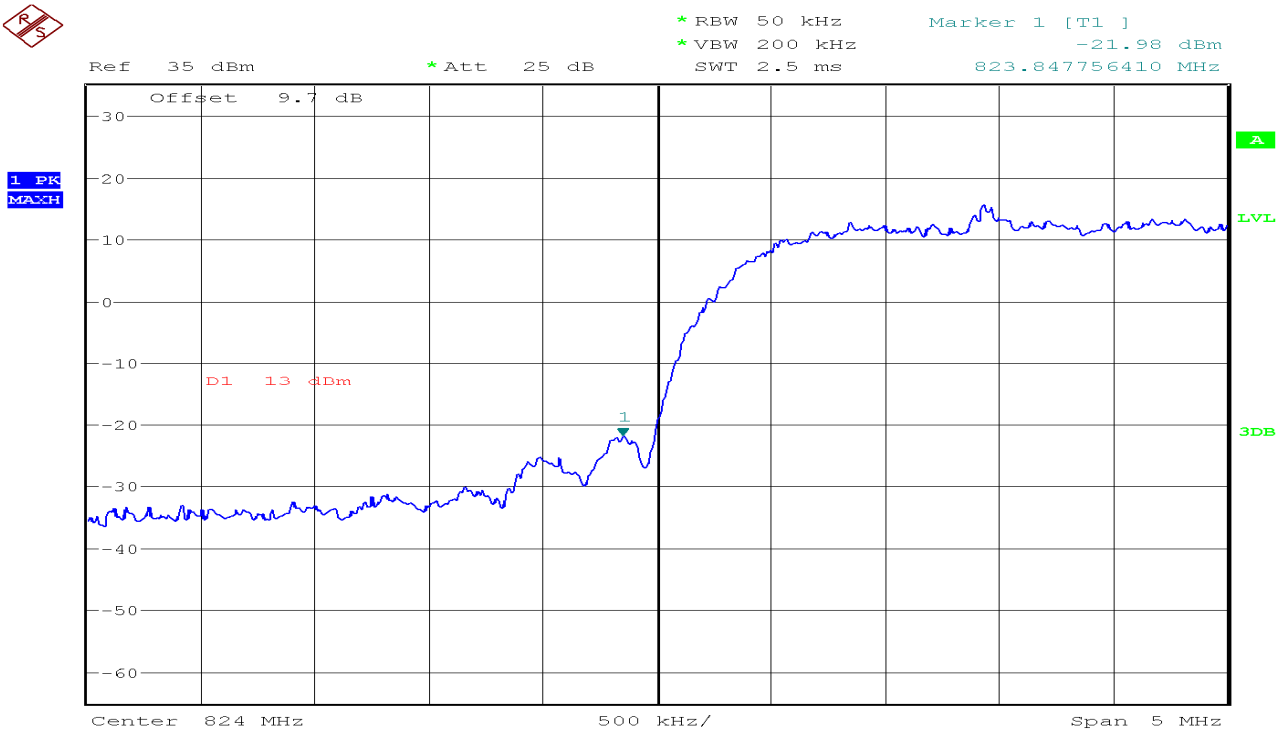
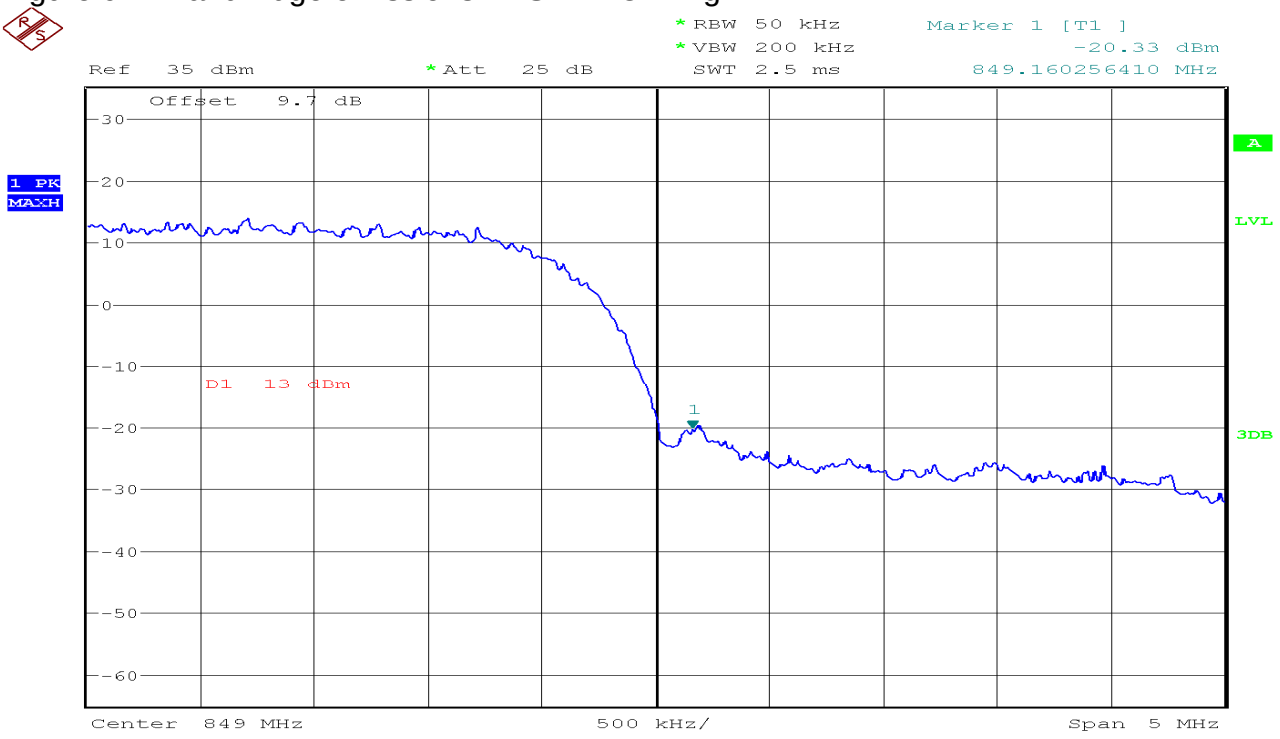


Figure 9-2: Band Edge emissions –HSDPA CH High



HSUPA Band V

Figure 10-1: Band Edge emissions –HSDPA CH Low

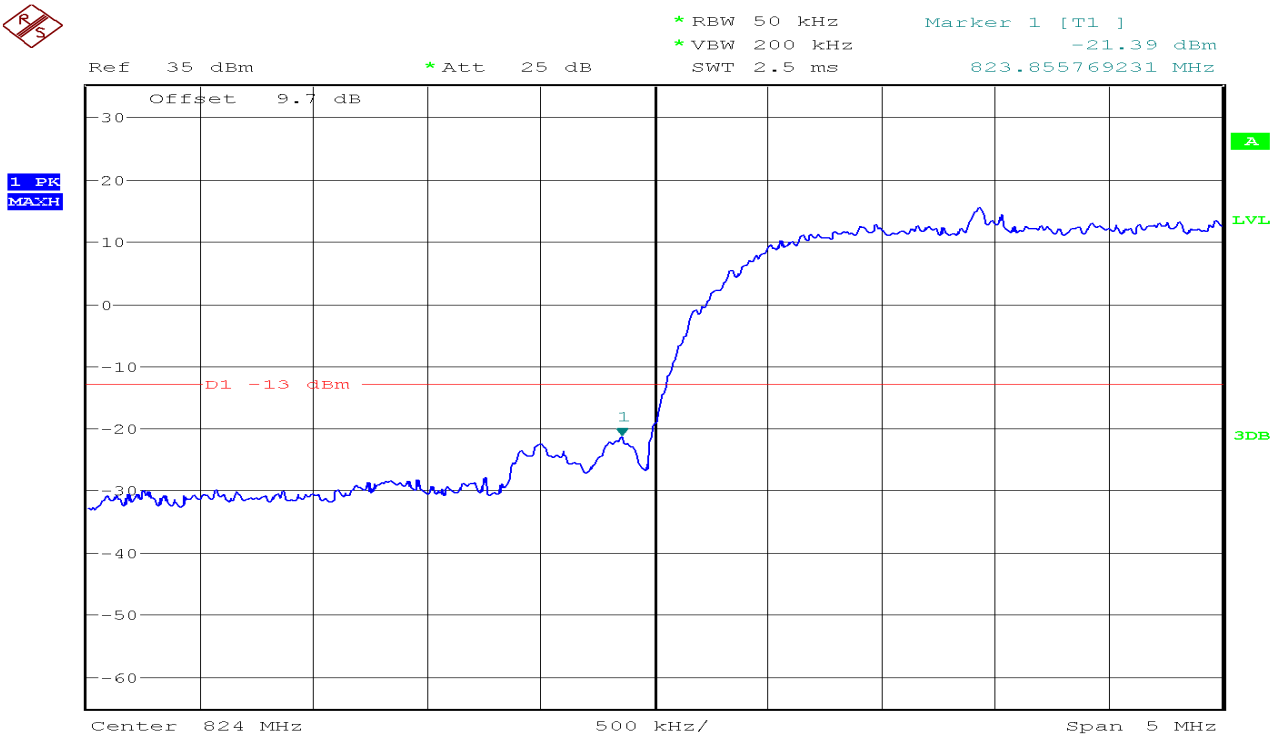
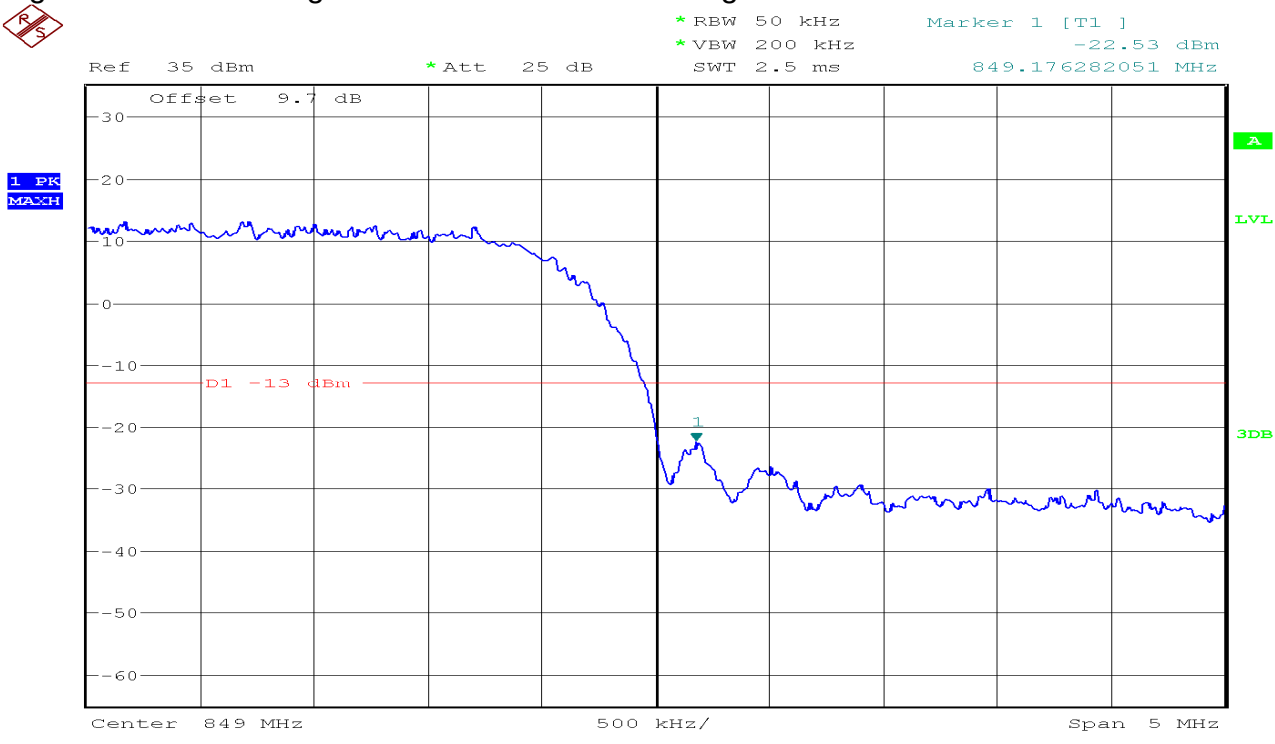


Figure 10-2: Band Edge emissions –HSDPA CH High



GPRS 850

Figure 11-1: Out of Band emission at antenna terminals – GPRS CH Low

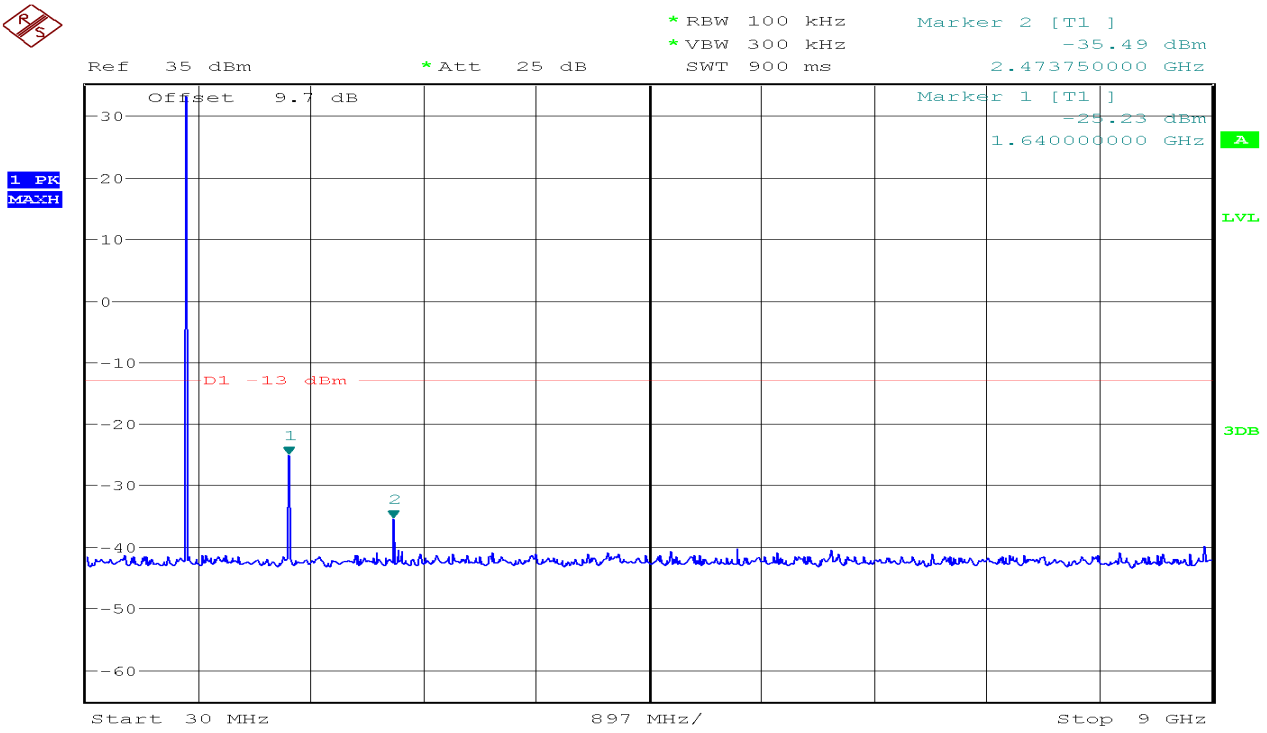


Figure 11-2: Out of Band emission at antenna terminals – GPRS CH Mid

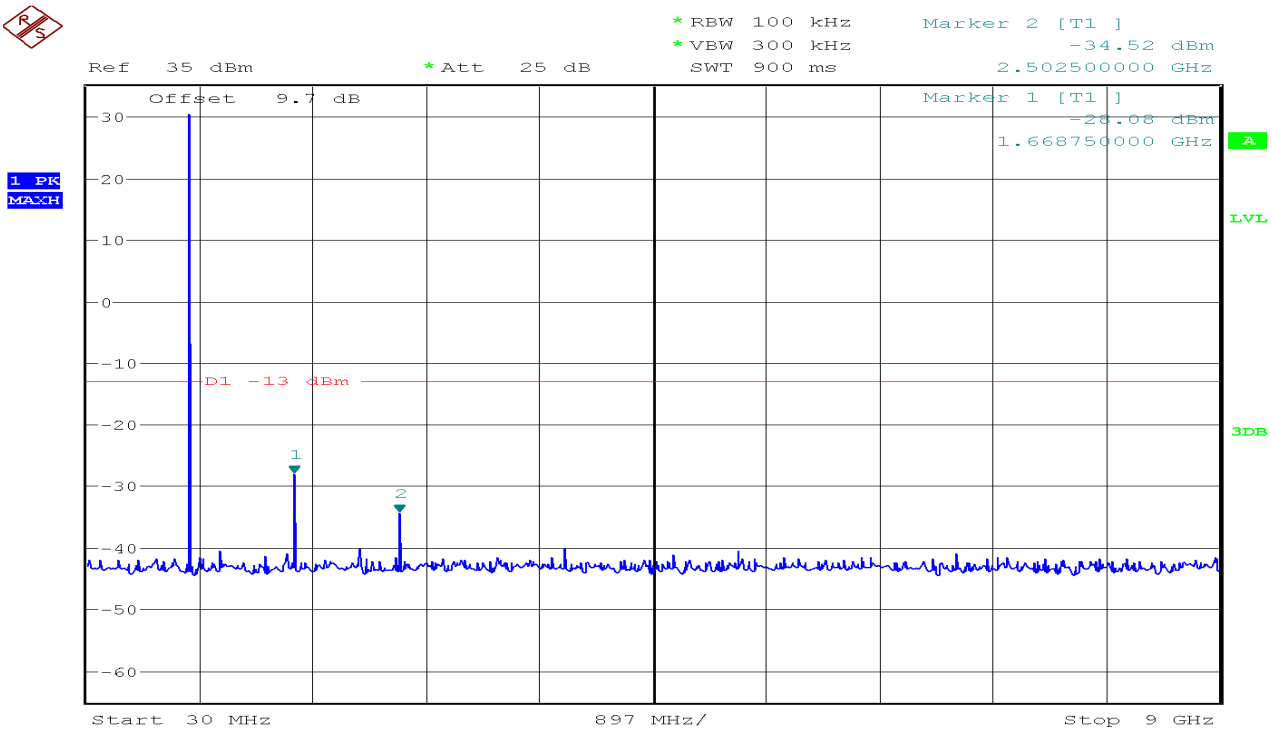
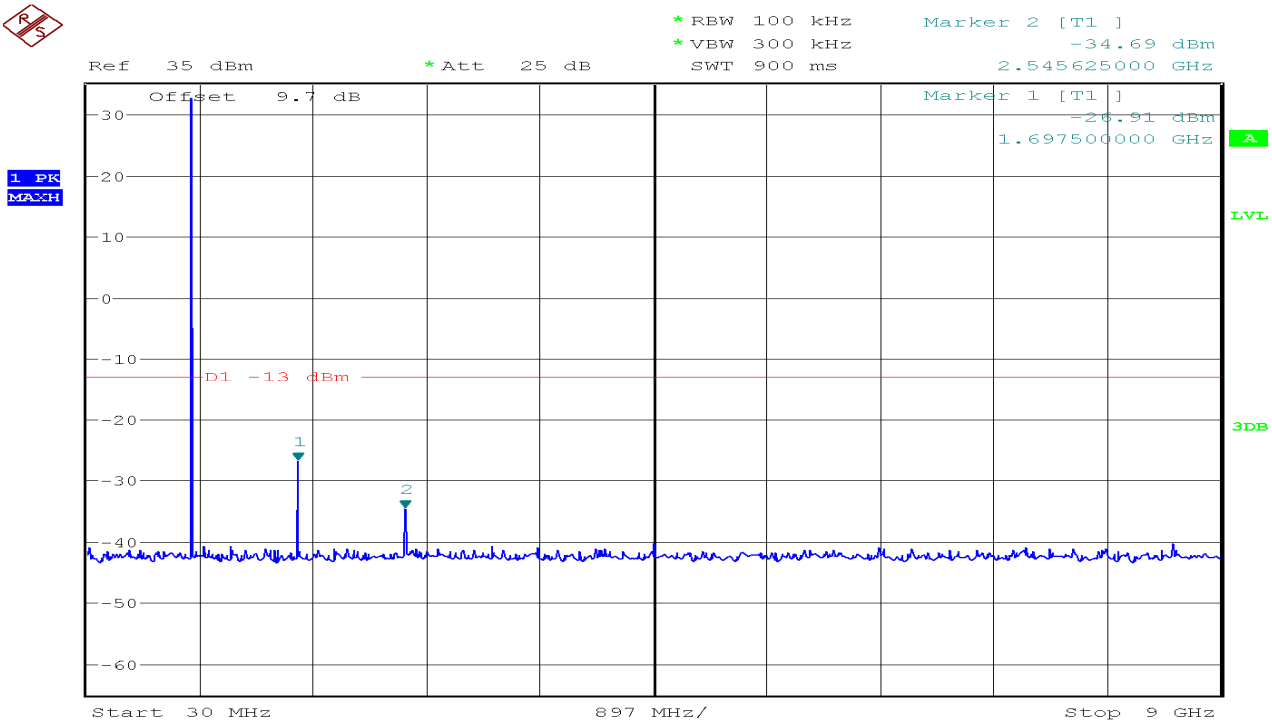


Figure 11-3: Out of Band emission at antenna terminals – GPRS CH High



EGPRS 850

Figure 12-1: Out of Band emission at antenna terminals – EGPRS CH Low

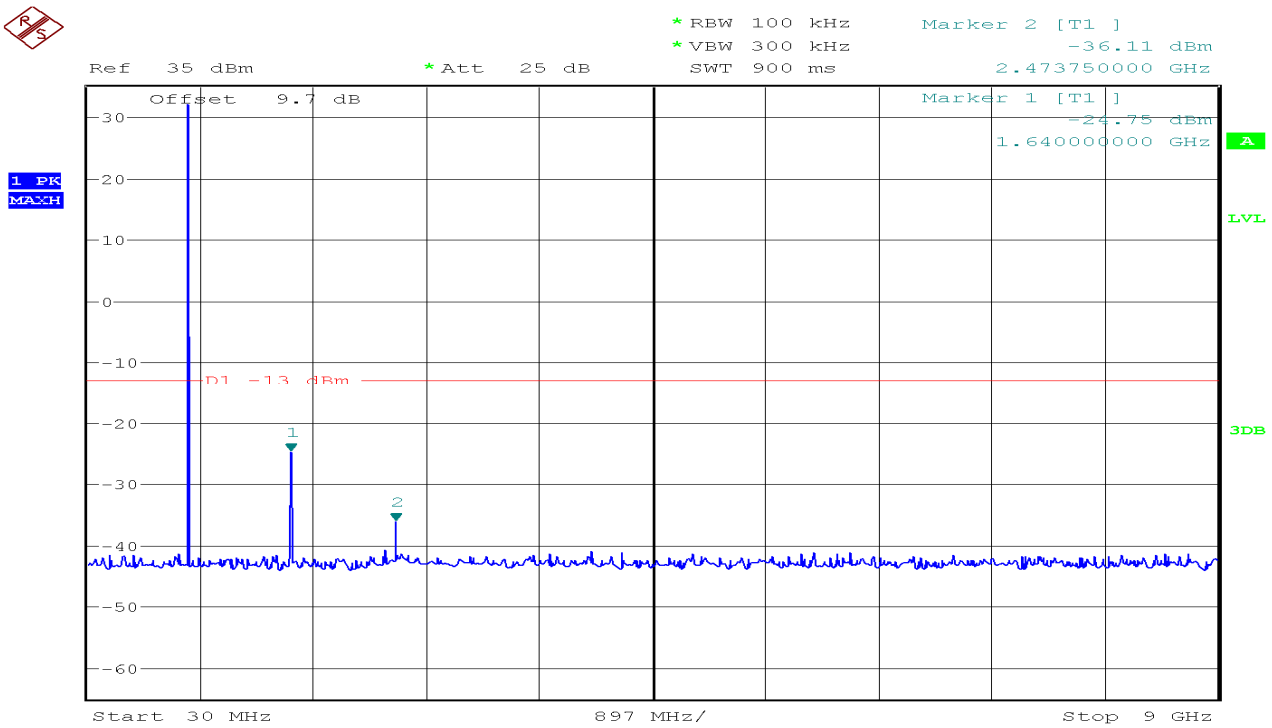


Figure 12-2: Out of Band emission at antenna terminals – EGPRS CH Mid

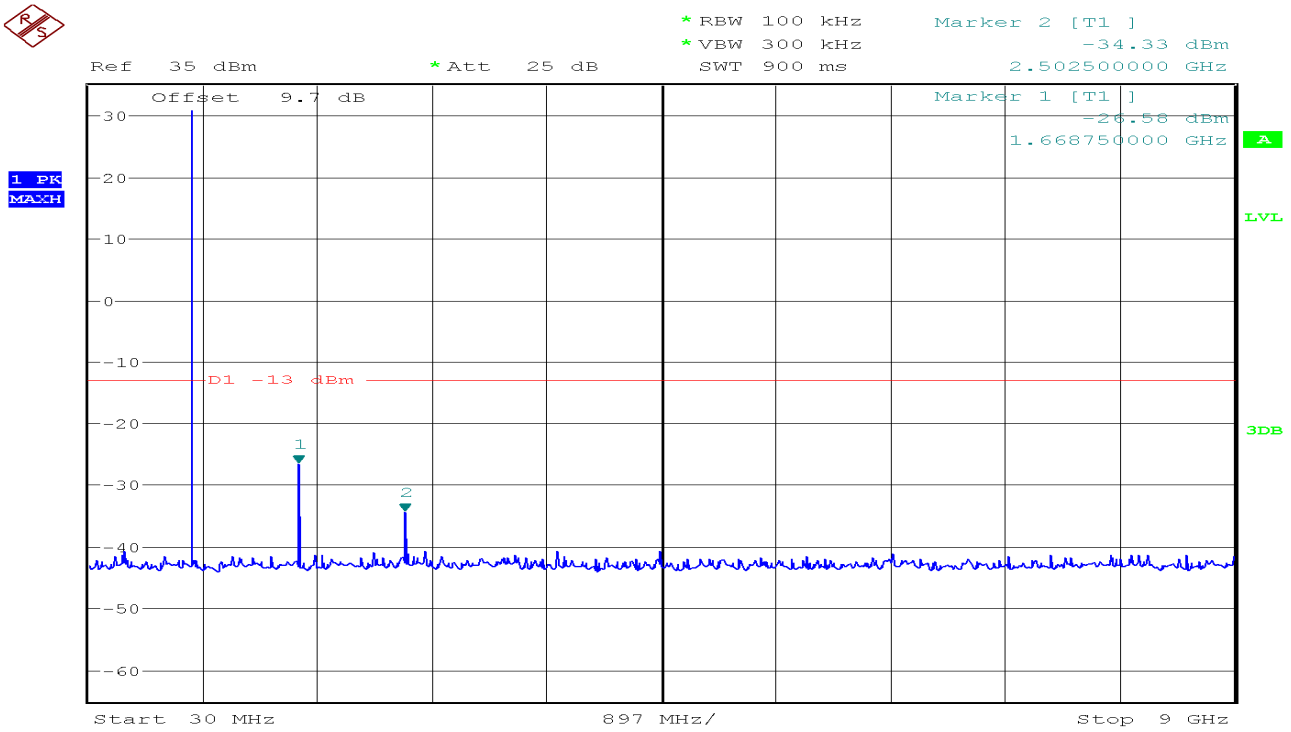
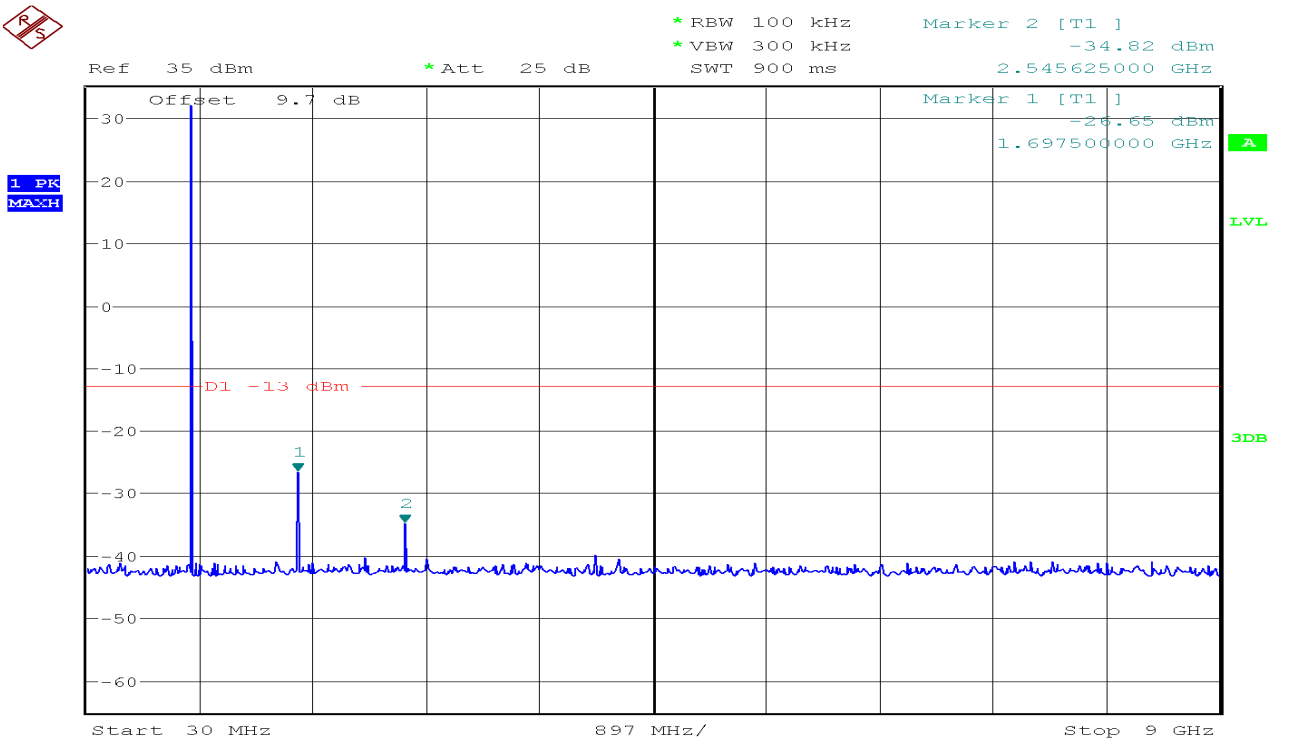


Figure 12-3: Out of Band emission at antenna terminals – EGPRS CH High



GPRS 1900

Figure 13-1: Out of Band emission at antenna terminals – GPRS CH Low

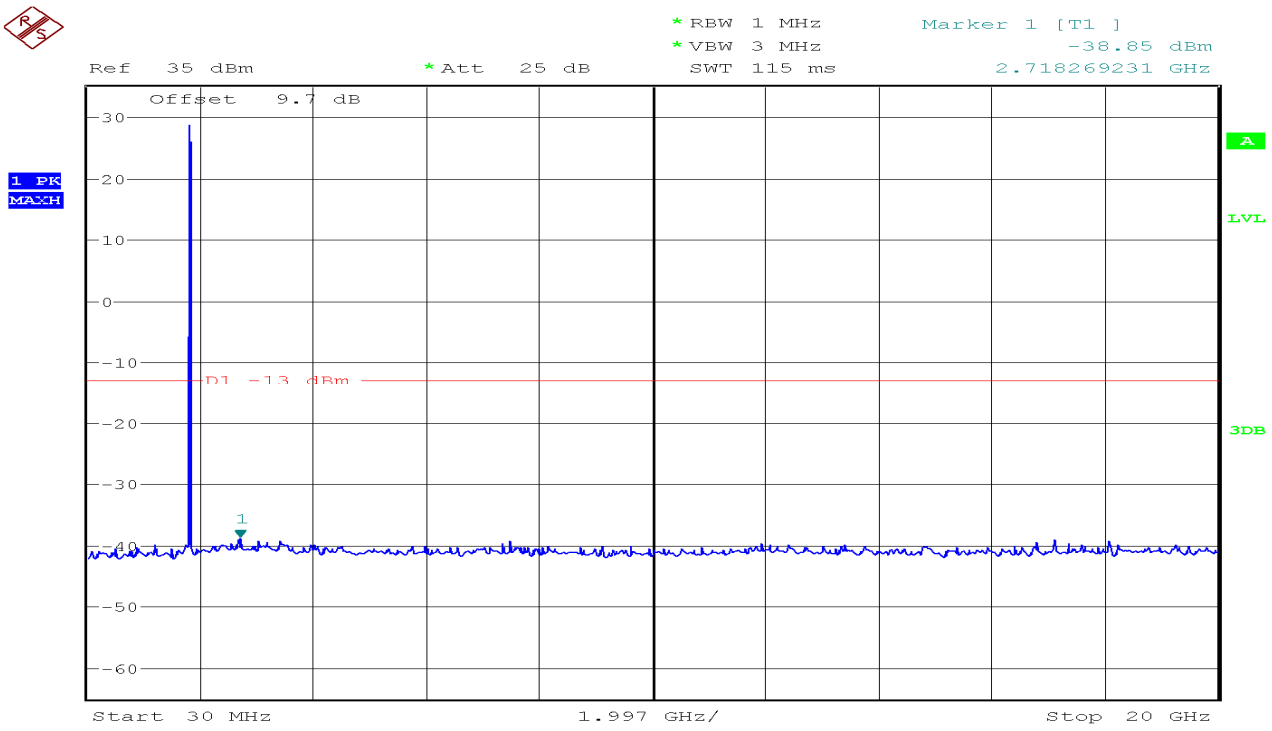


Figure 13-2: Out of Band emission at antenna terminals – GPRS CH Mid

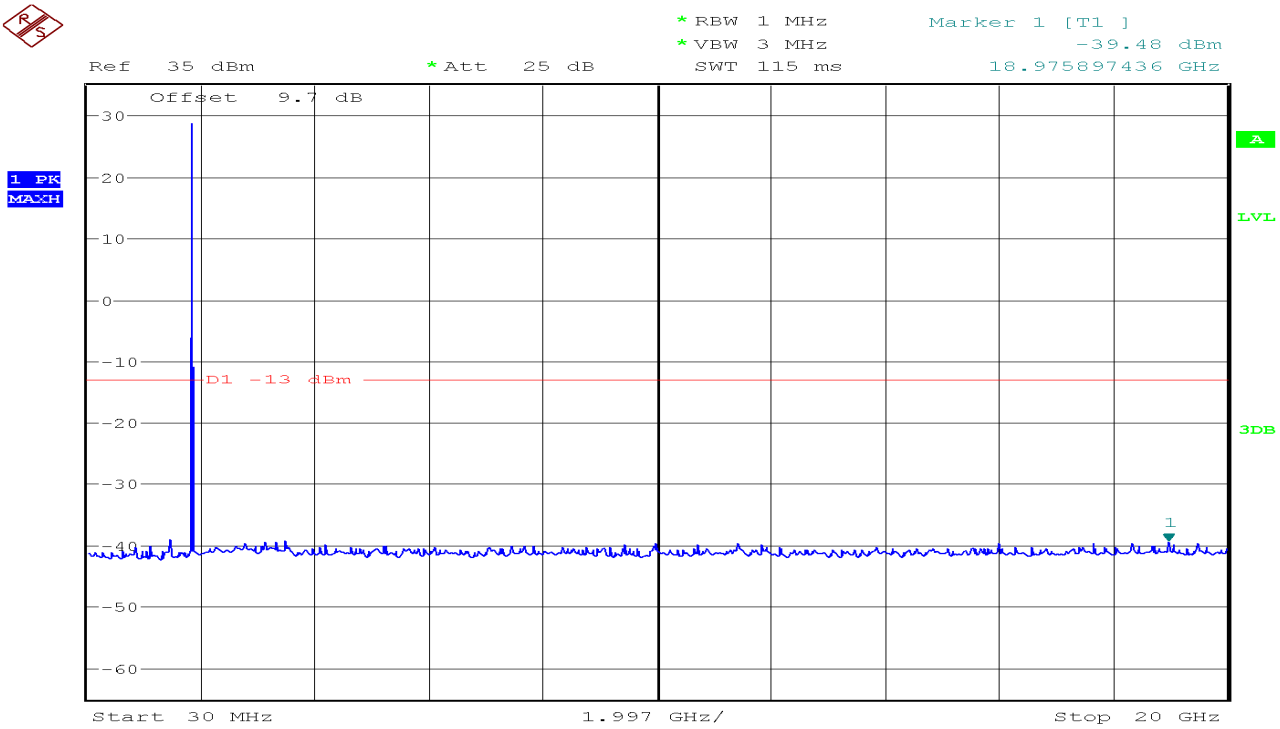
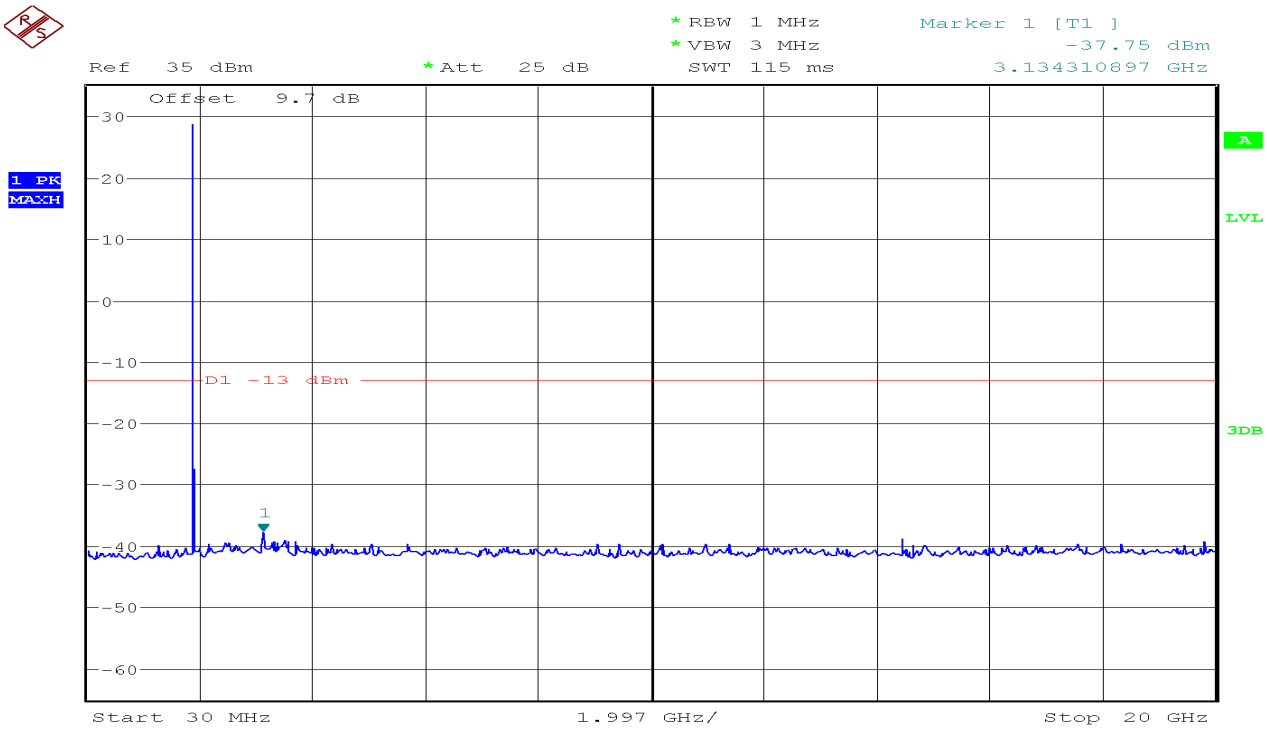


Figure 13-3: Out of Band emission at antenna terminals – GPRS CH High



EGPRS 1900

Figure 14-1: Out of Band emission at antenna terminals – EGPRS CH Low

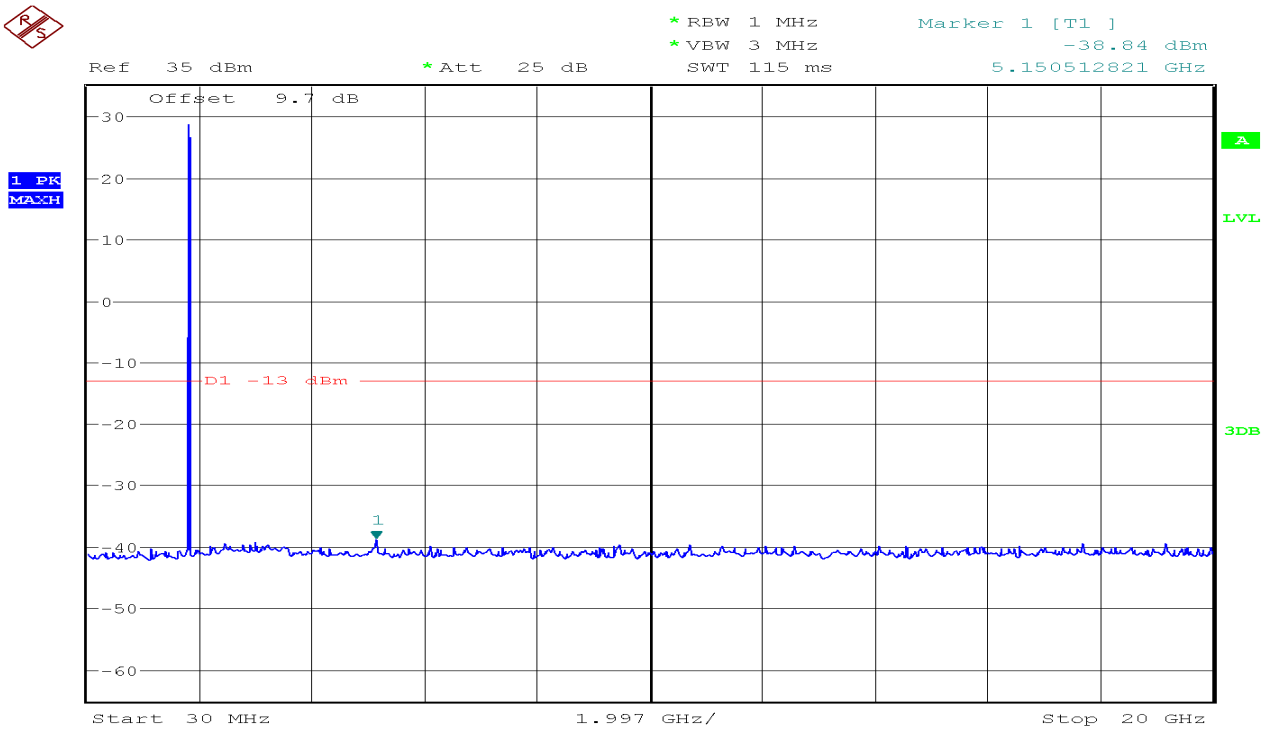


Figure 14-2: Out of Band emission at antenna terminals – EGPRS CH Mid

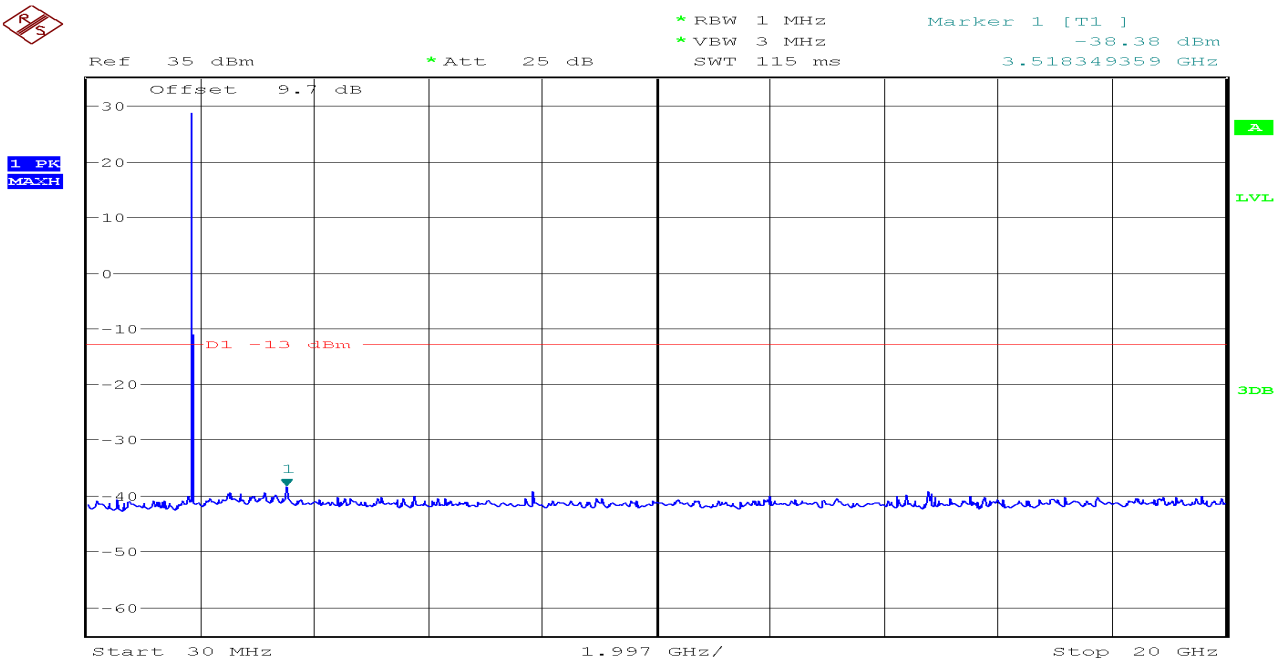
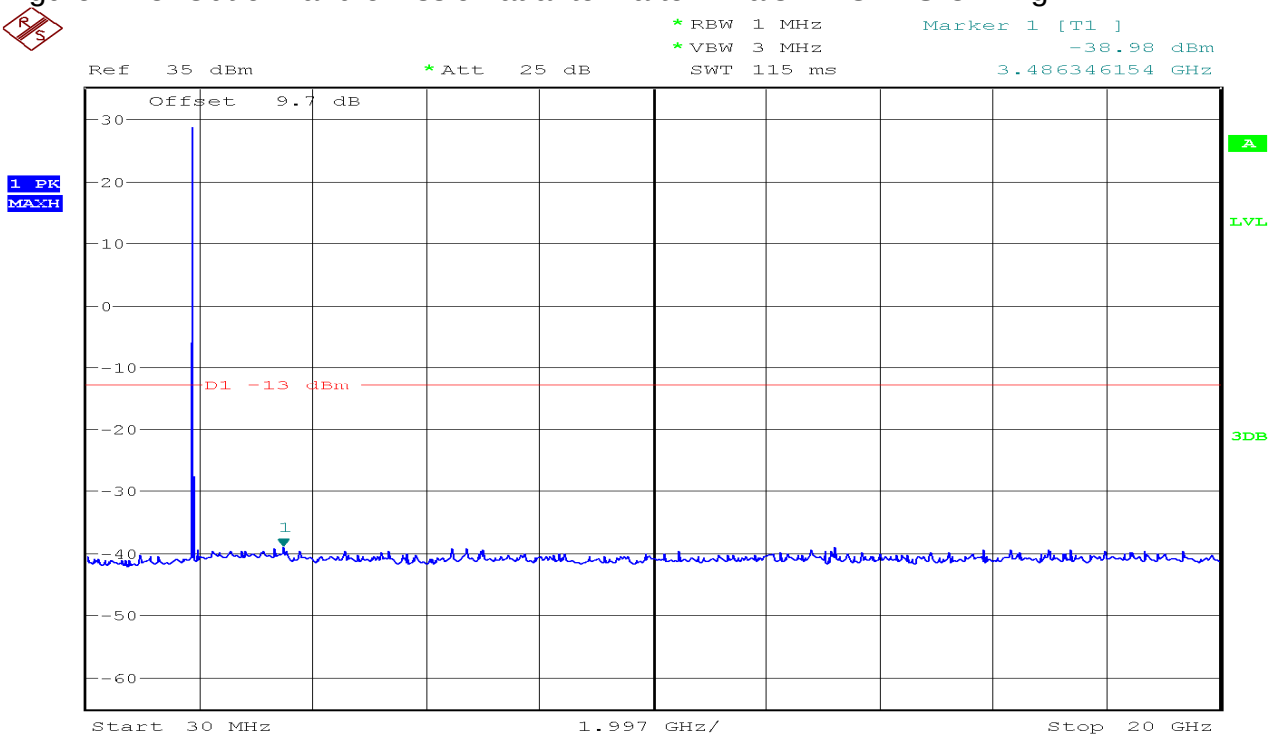


Figure 14-3: Out of Band emission at antenna terminals – EGPRS CH High



WCDMA Band II

Figure 15-1: Out of Band emission at antenna terminals – WCDMA CH Low

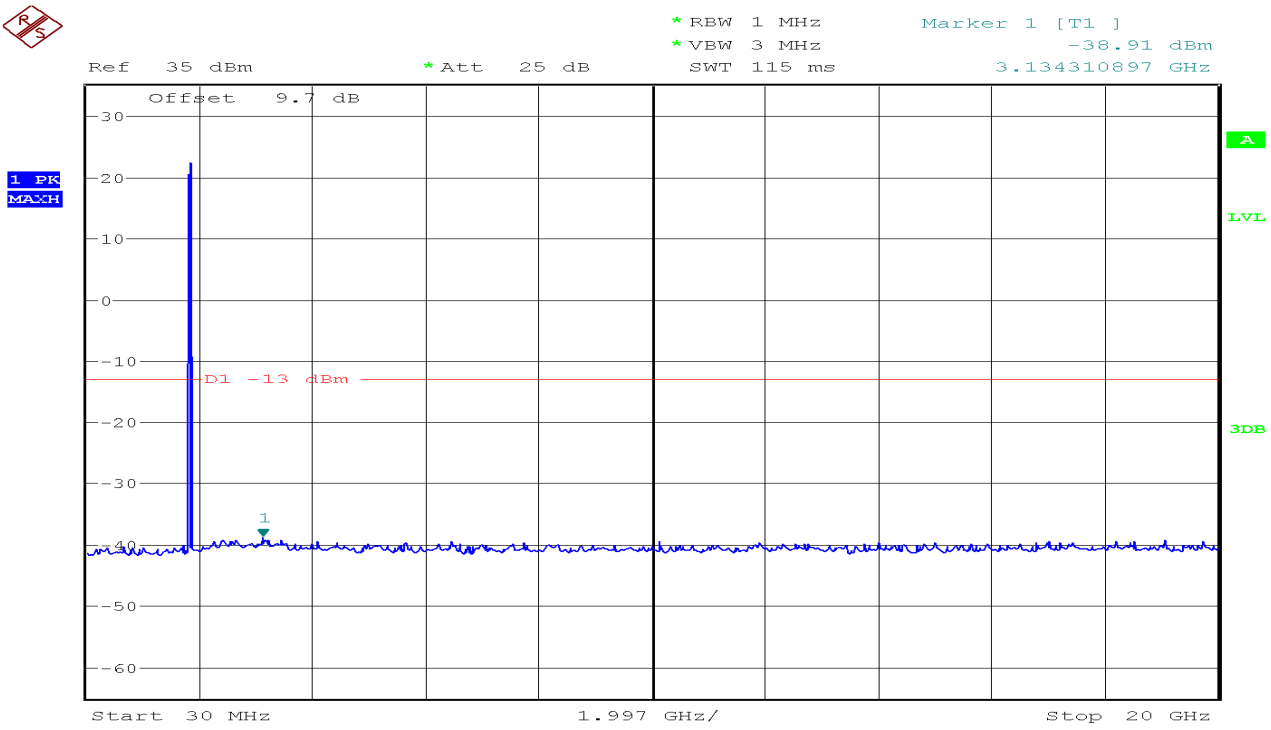


Figure 15-2: Out of Band emission at antenna terminals – WCDMA CH Mid

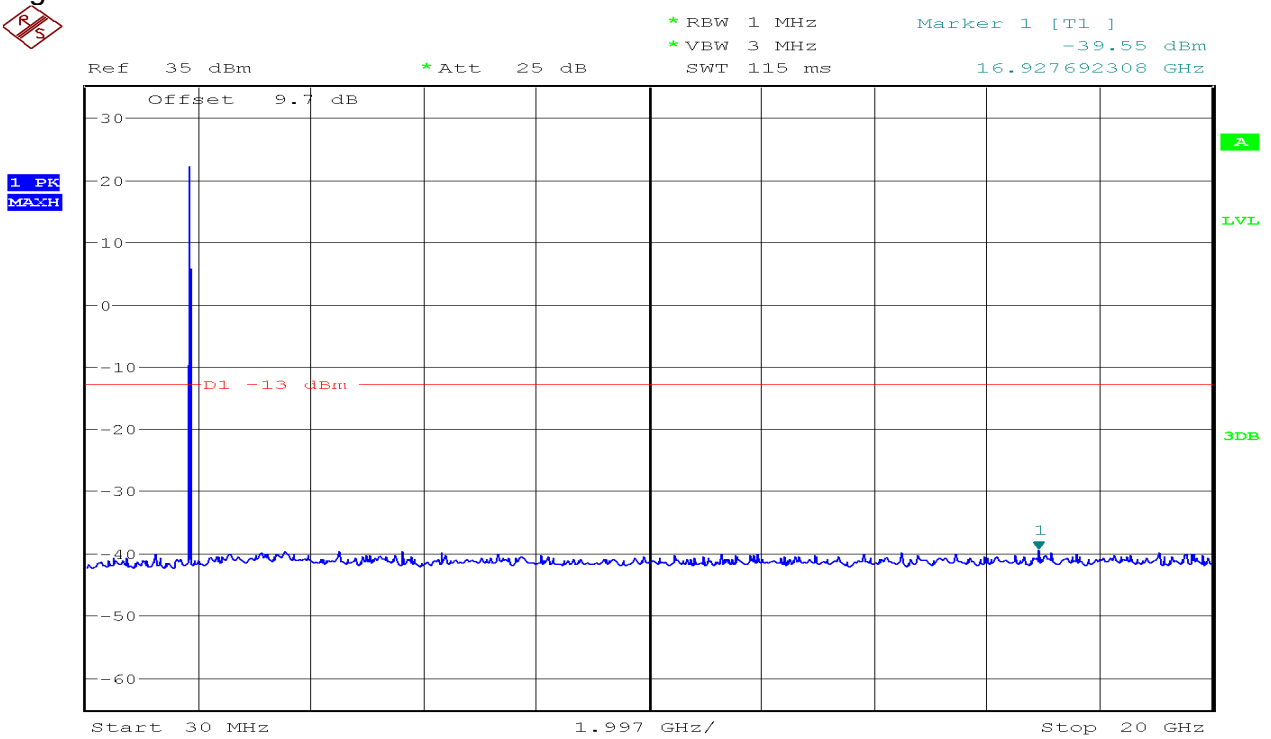
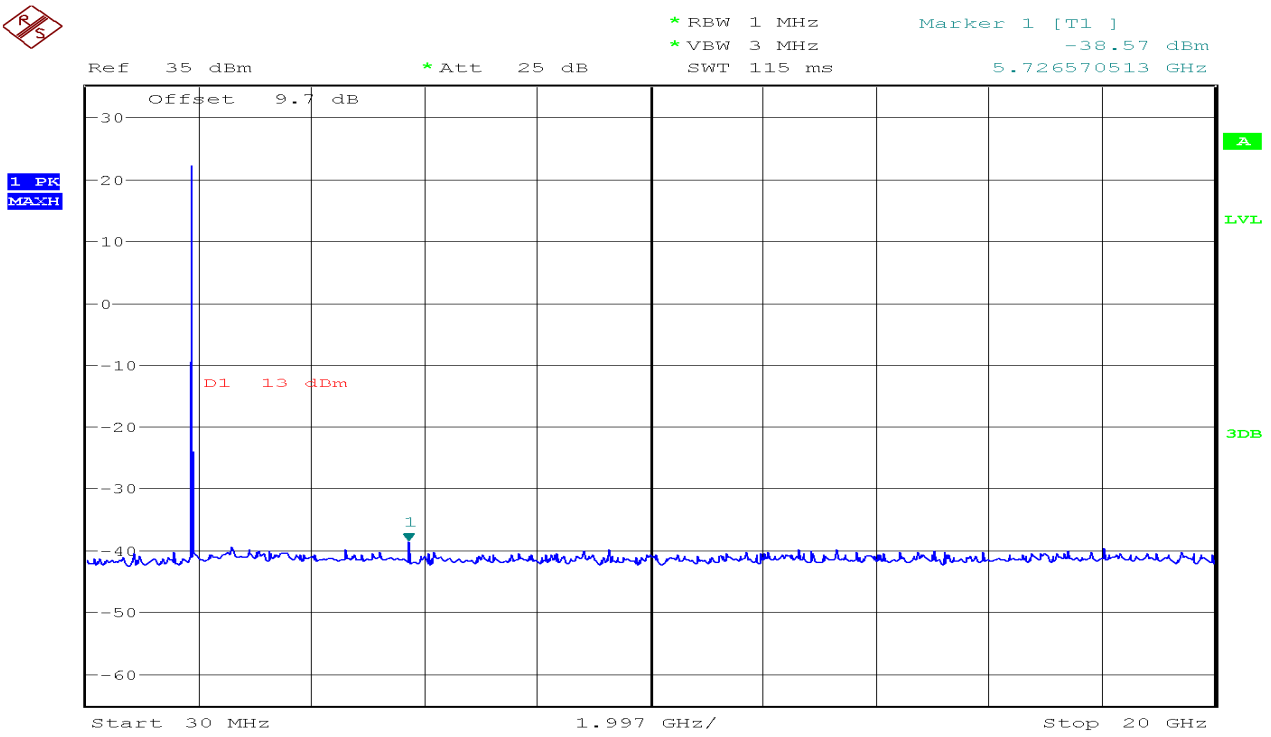


Figure 15-3: Out of Band emission at antenna terminals – WCDMA CH High



HSDPA Band II

Figure 16-1: Out of Band emission at antenna terminals – HSDPA CH Low

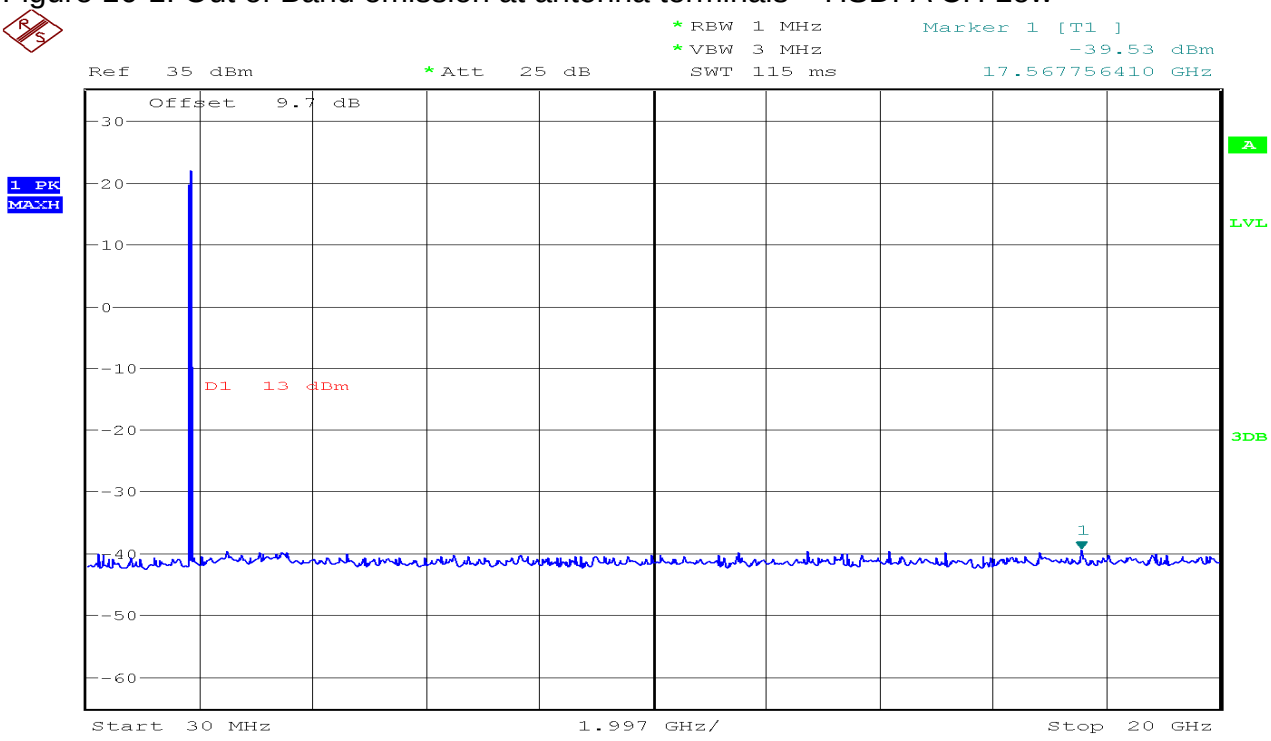


Figure 16-2: Out of Band emission at antenna terminals – HSDPA CH Mid

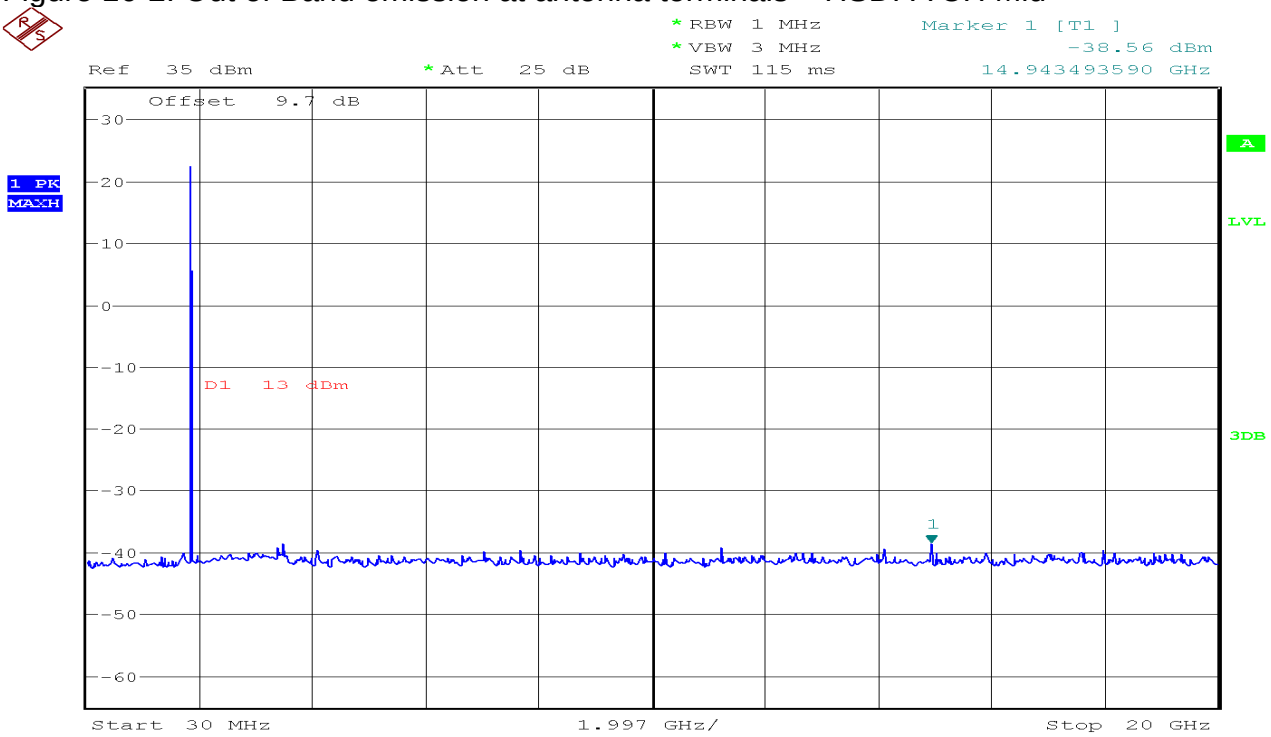
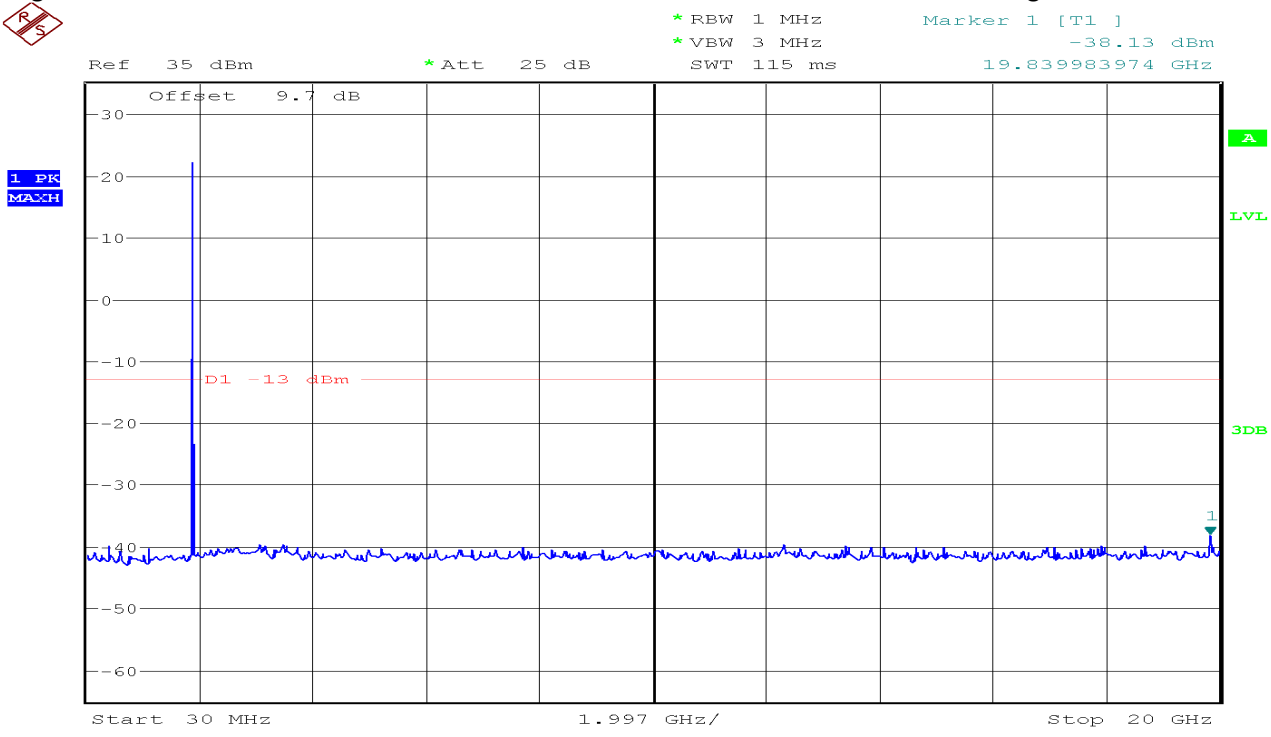


Figure 16-3: Out of Band emission at antenna terminals – HSDPA CH High



HSUPA Band II

Figure 17-1: Out of Band emission at antenna terminals – HSDPA CH Low

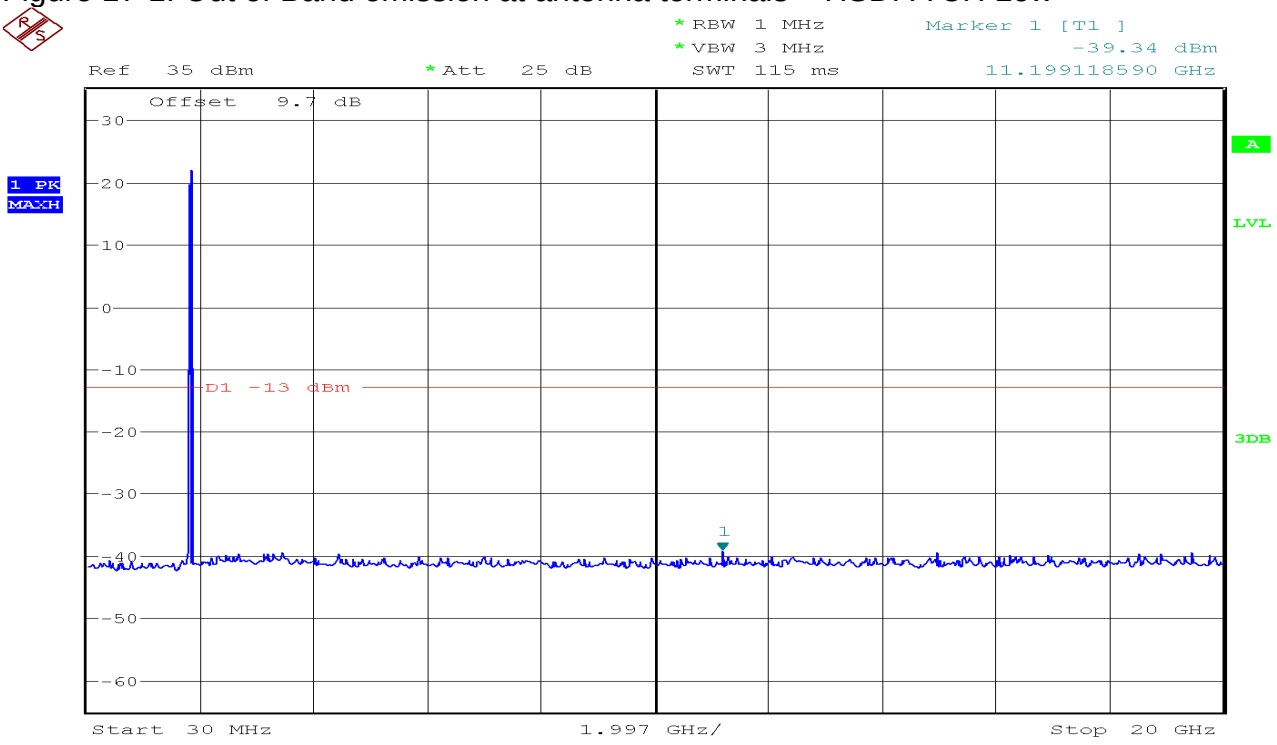


Figure 17-2: Out of Band emission at antenna terminals – HSDPA CH Mid

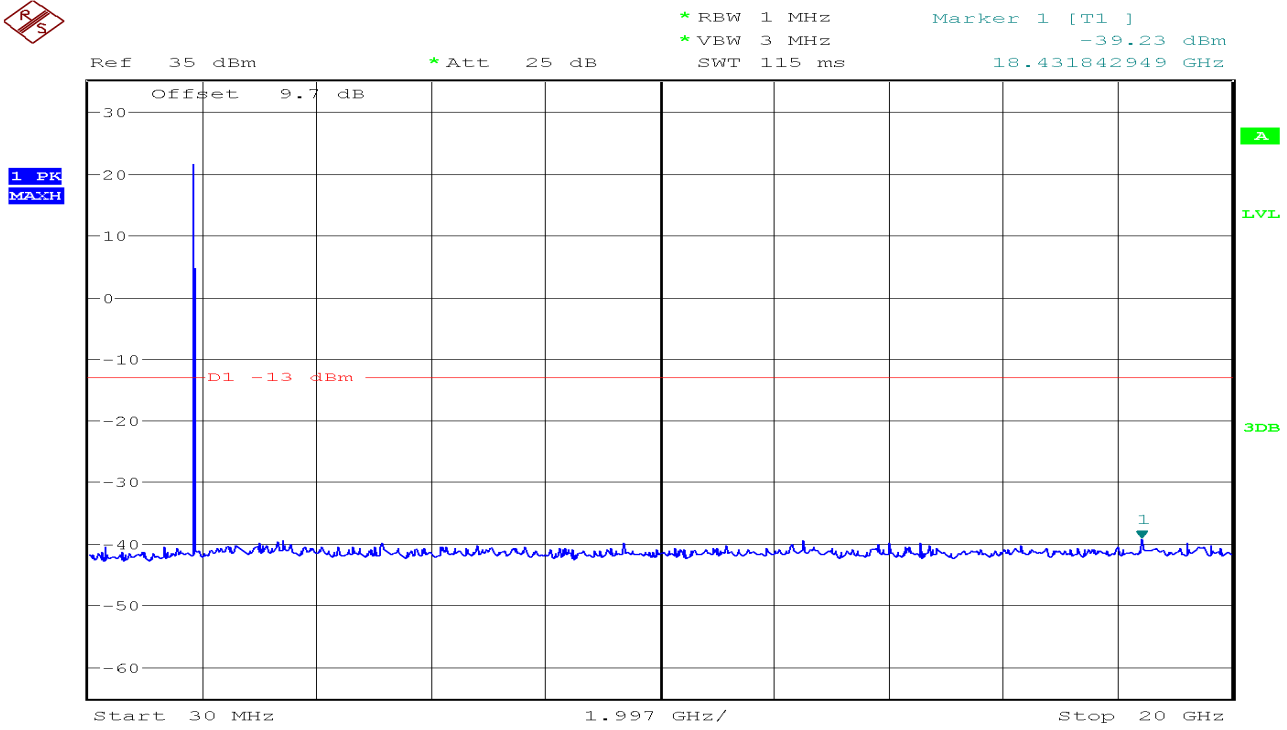
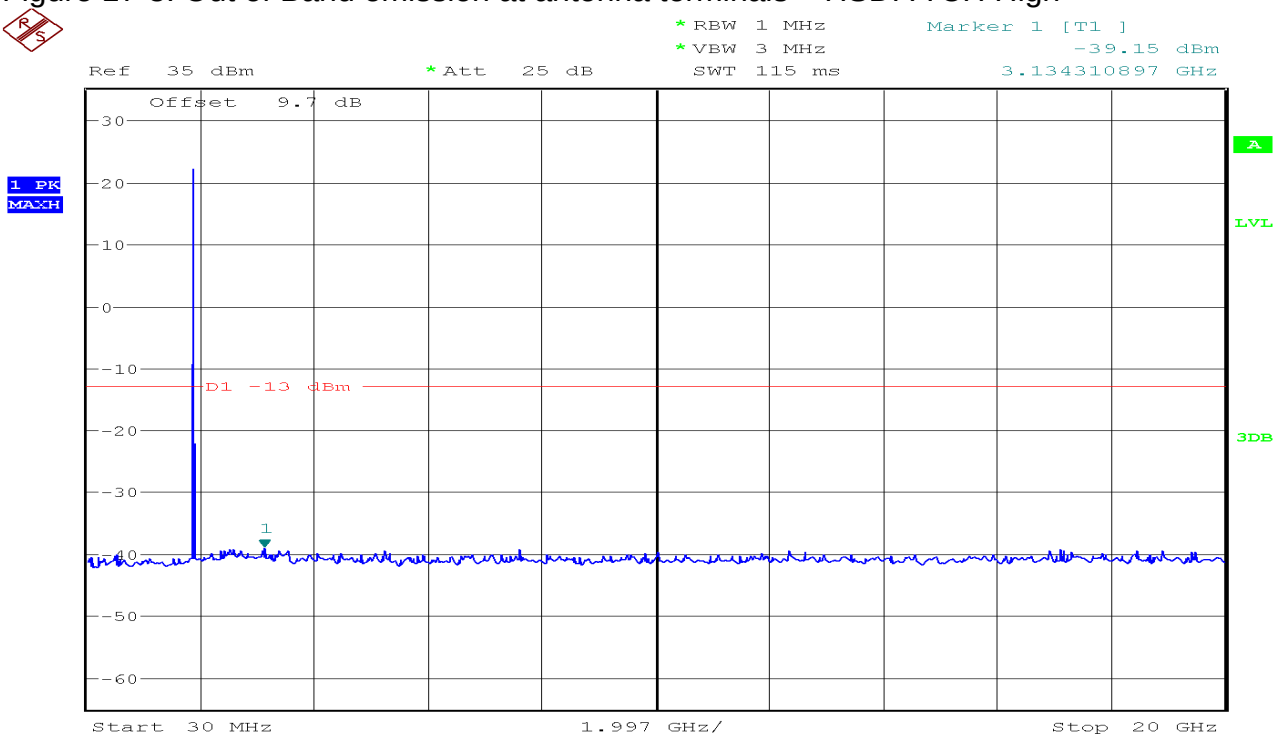


Figure 17-3: Out of Band emission at antenna terminals – HSDPA CH High



WCDMA Band V

Figure 18-1: Out of Band emission at antenna terminals – WCDMA CH Low

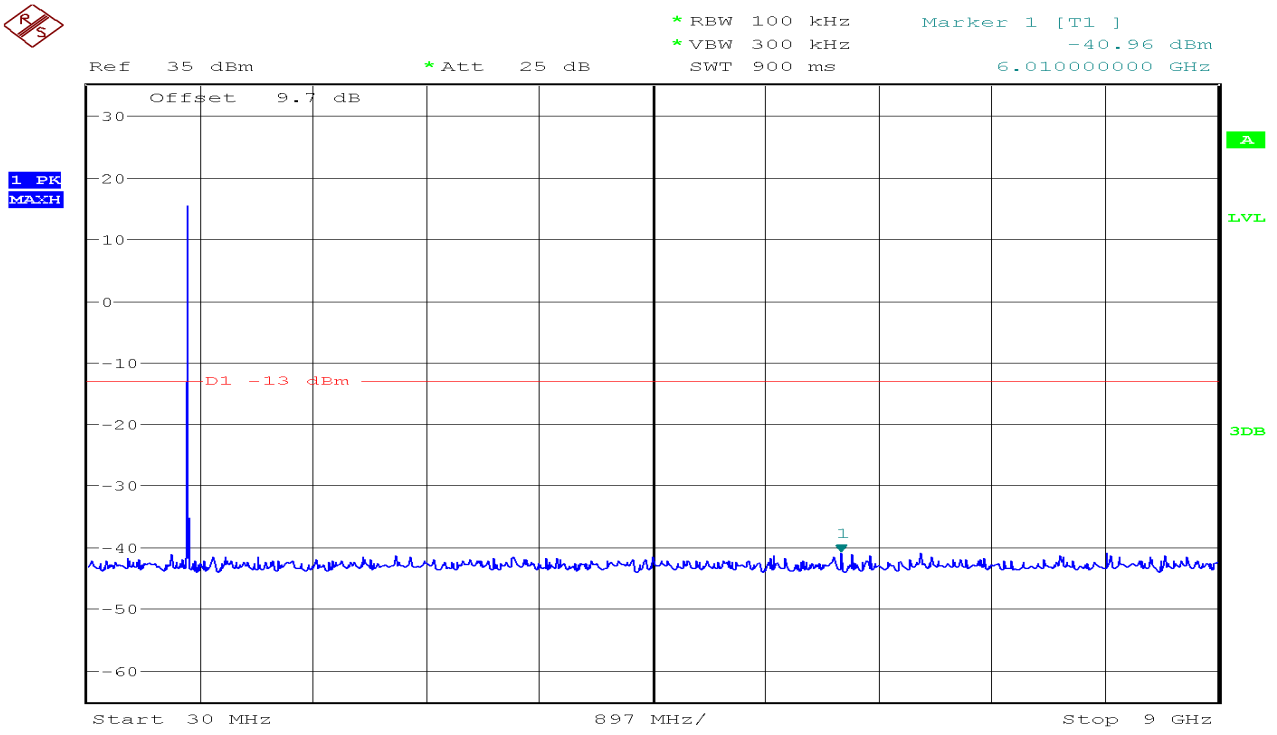


Figure 18-2: Out of Band emission at antenna terminals – WCDMA CH Mid

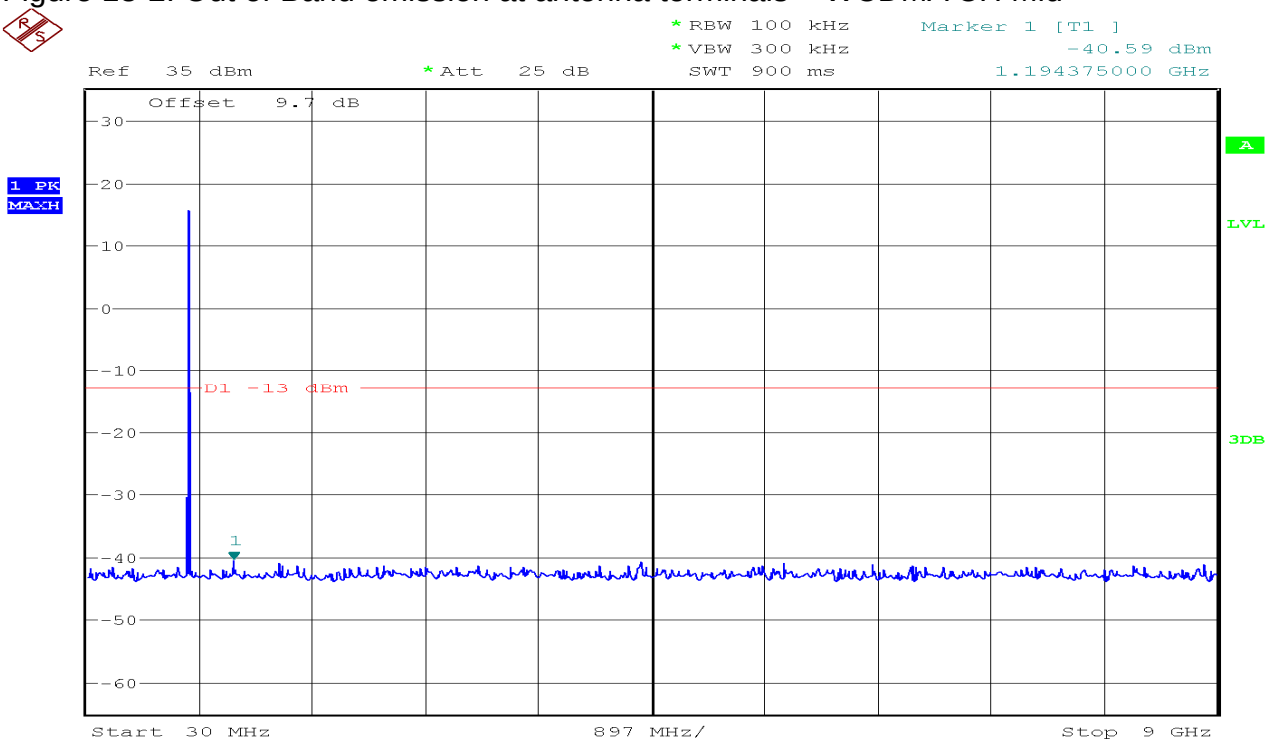
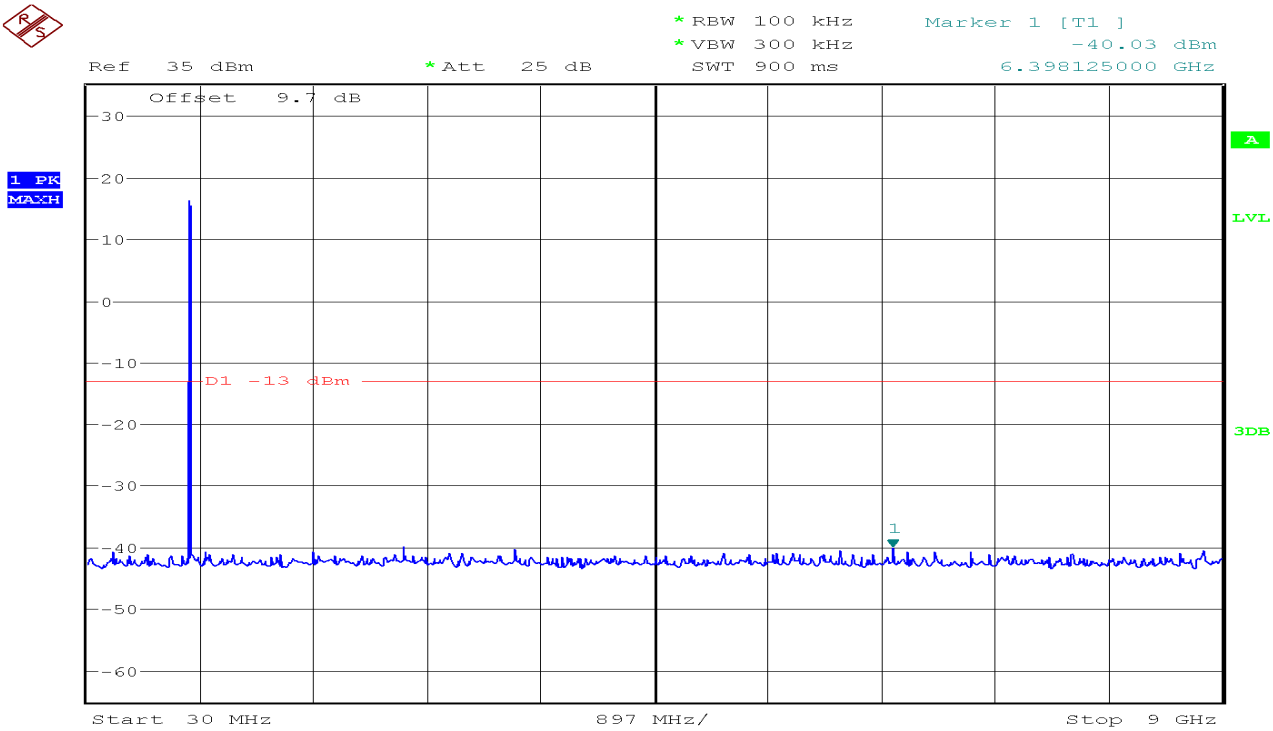


Figure 18-3: Out of Band emission at antenna terminals – WCDMA CH High



HSDPA Band V

Figure 19-1: Out of Band emission at antenna terminals – HSDPA CH Low

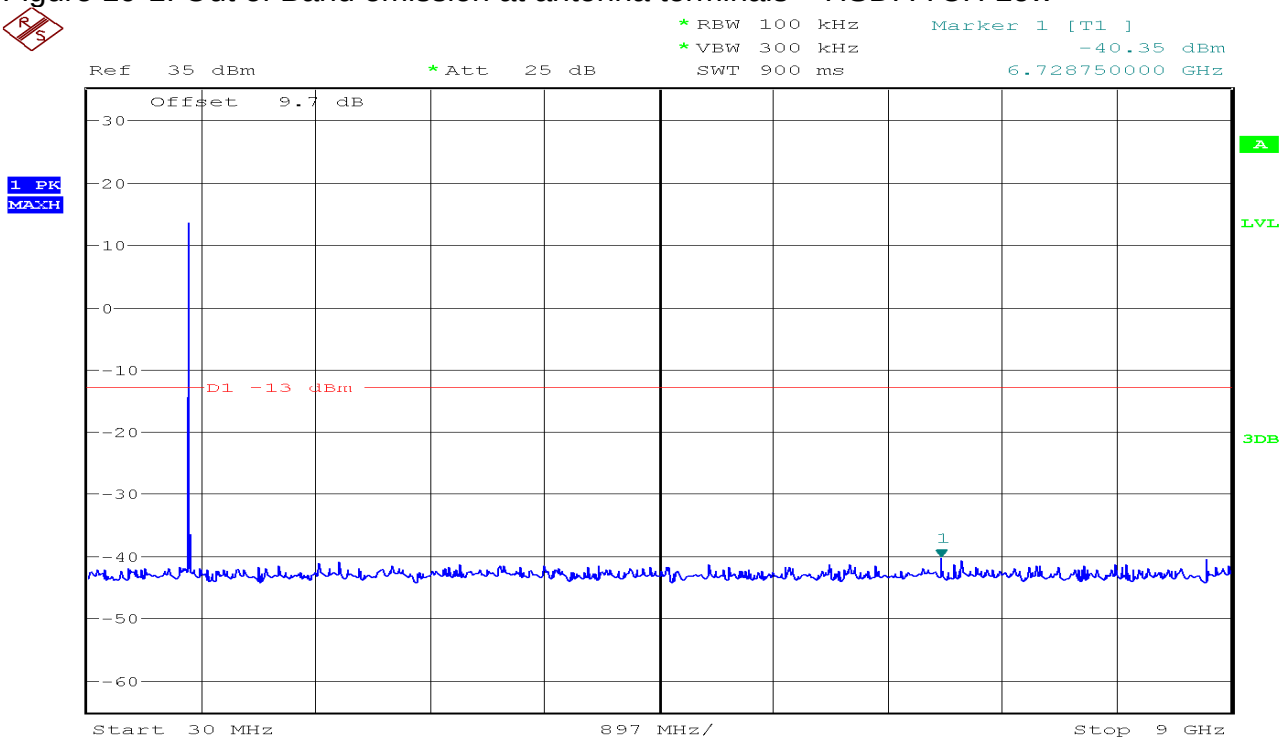


Figure 19-2: Out of Band emission at antenna terminals – HSDPA CH Mid

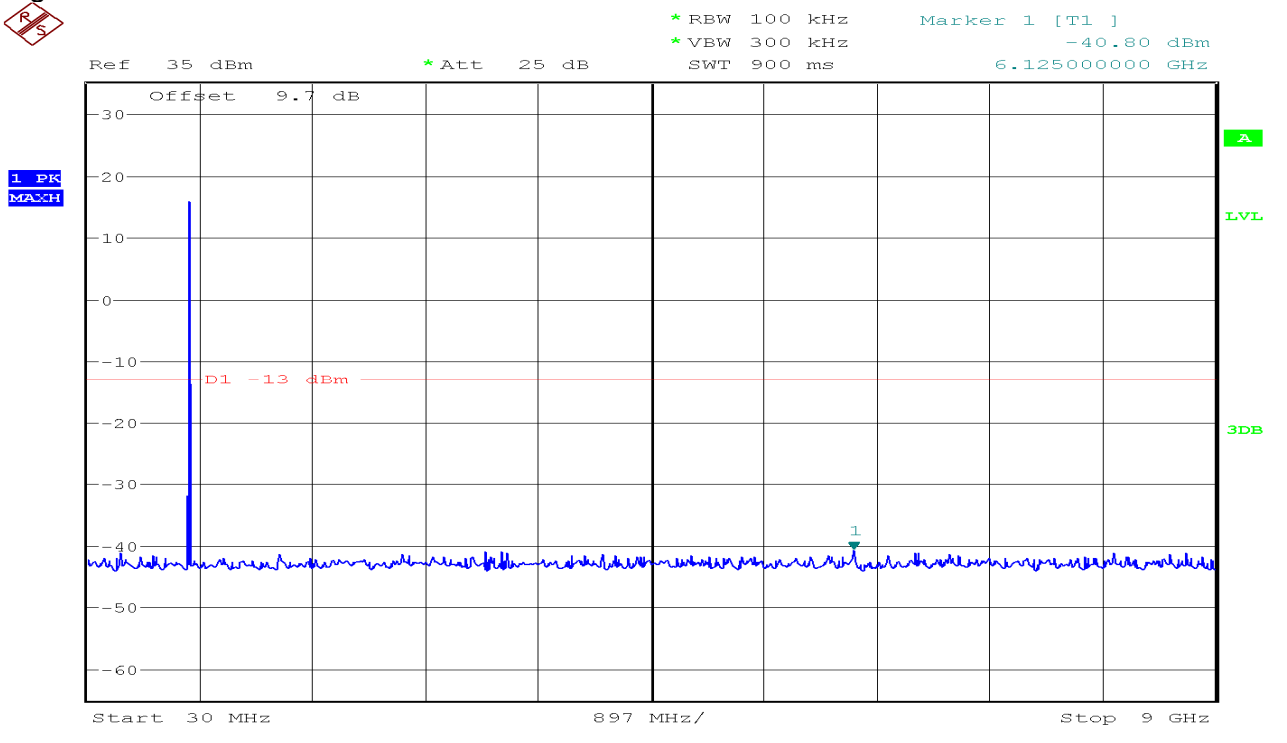
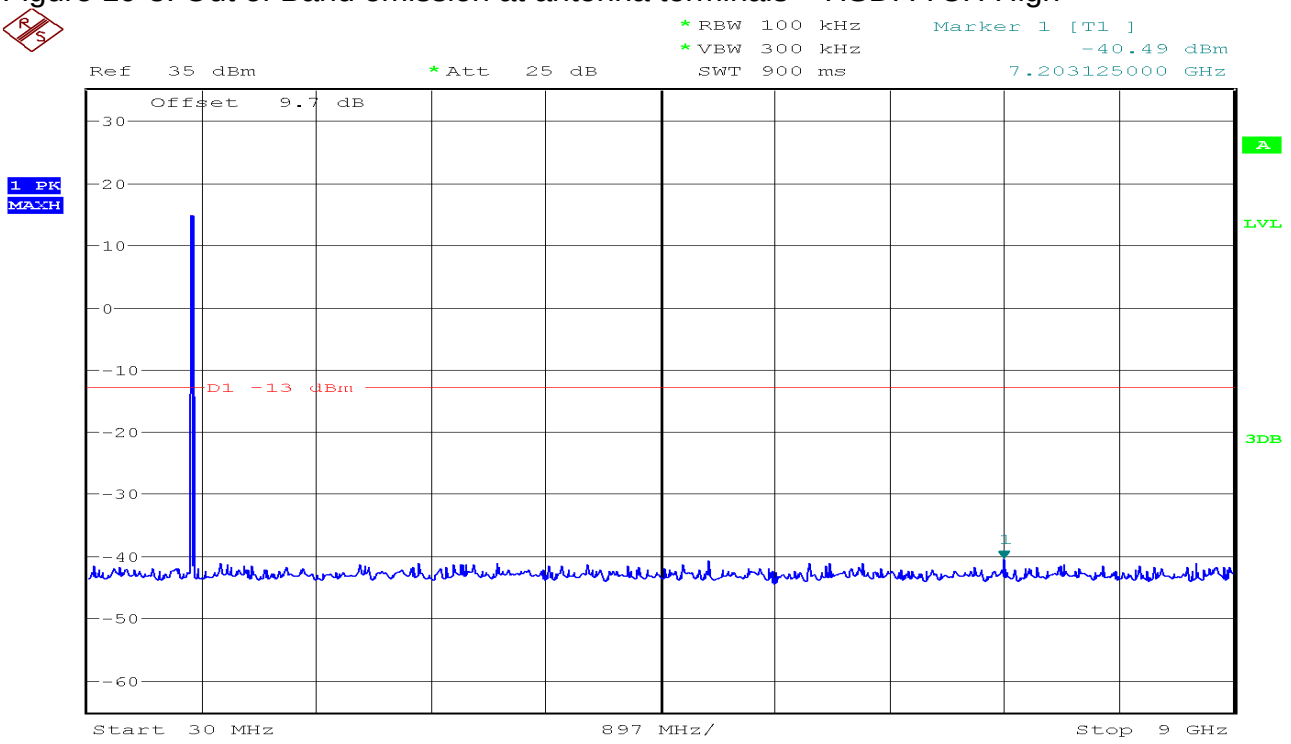


Figure 19-3: Out of Band emission at antenna terminals – HSDPA CH High



HSUPA Band V

Figure 20-1: Out of Band emission at antenna terminals – HSDPA CH Low

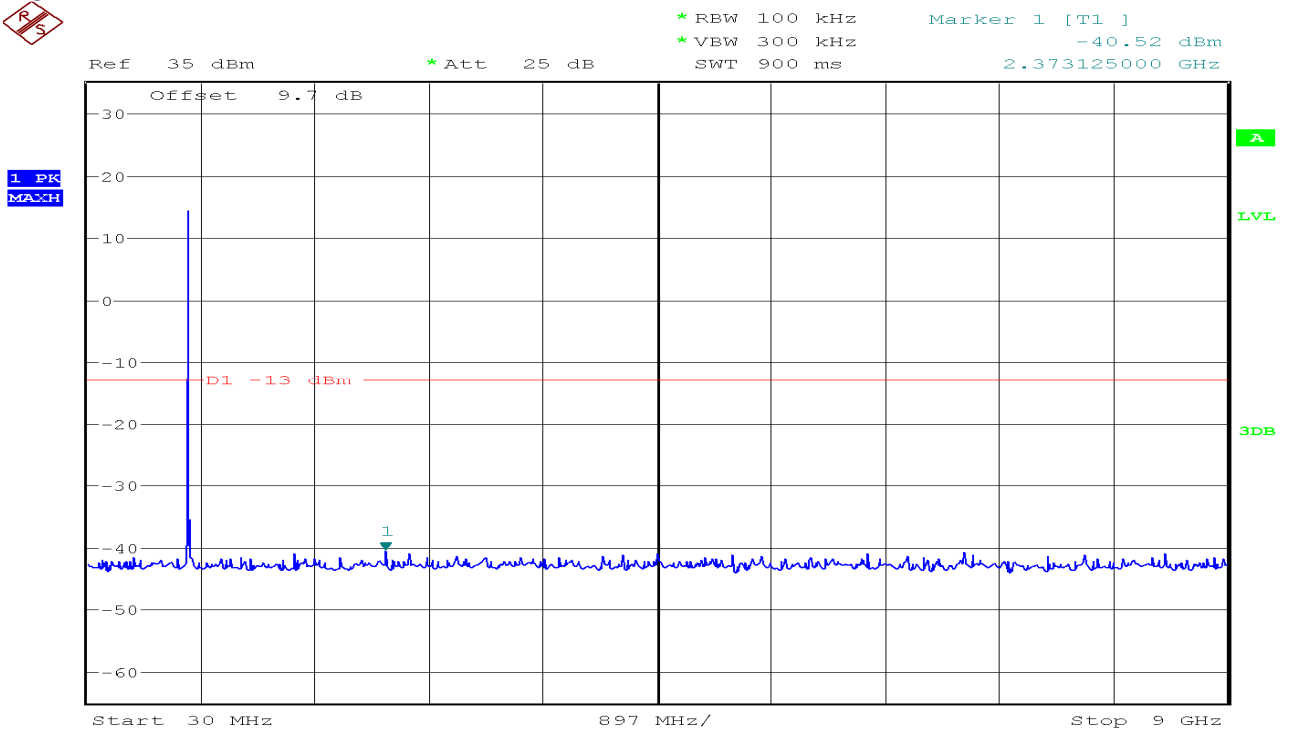


Figure 20-2: Out of Band emission at antenna terminals – HSDPA CH Mid

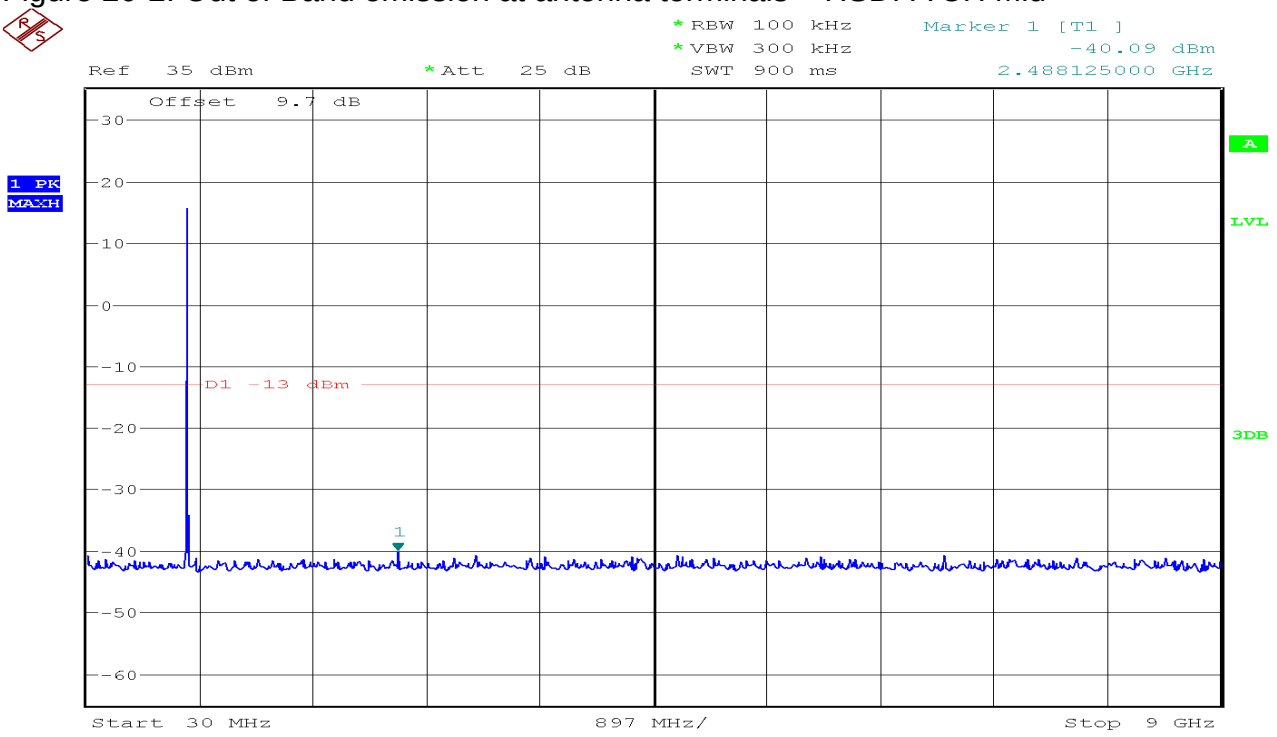
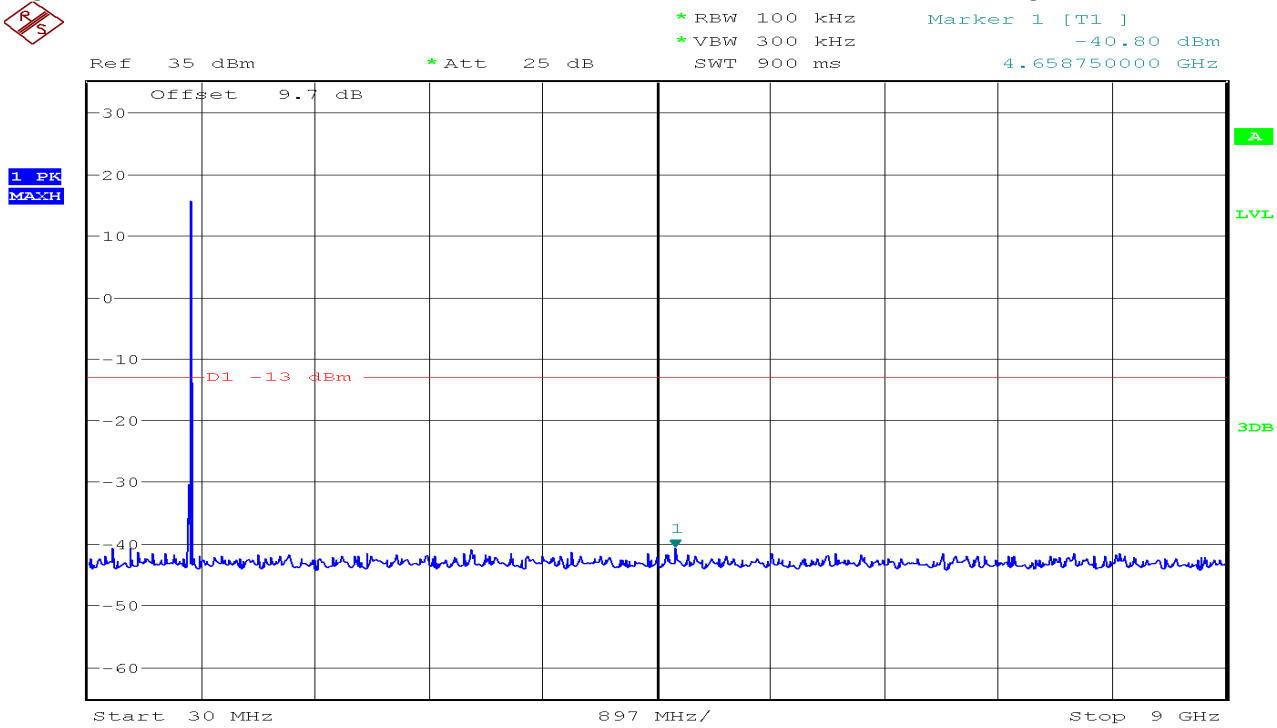


Figure 20-3: Out of Band emission at antenna terminals – HSDPA CH High



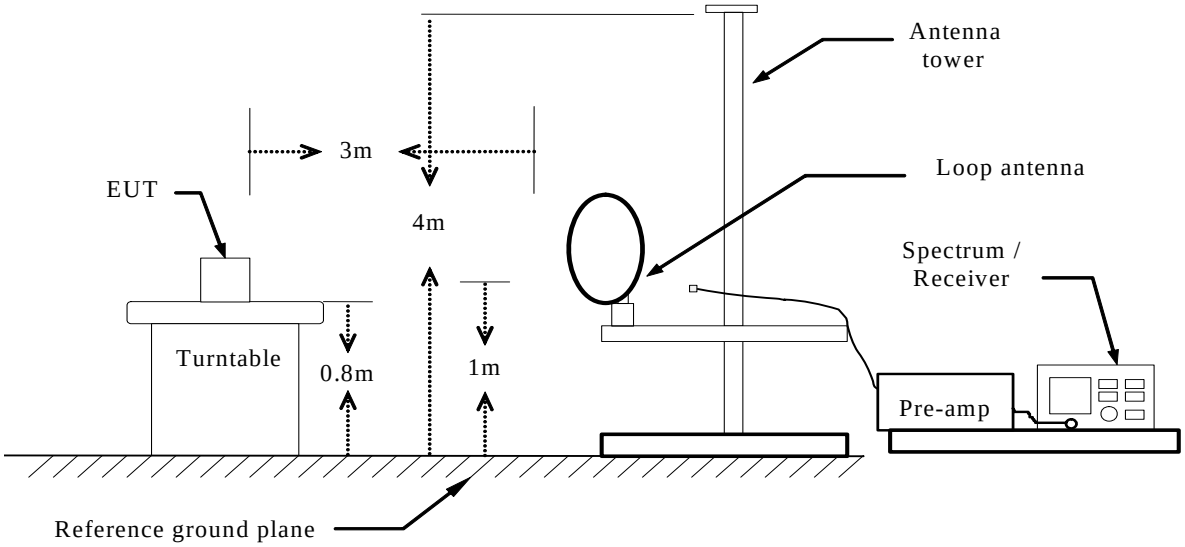
7.6. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

LIMIT

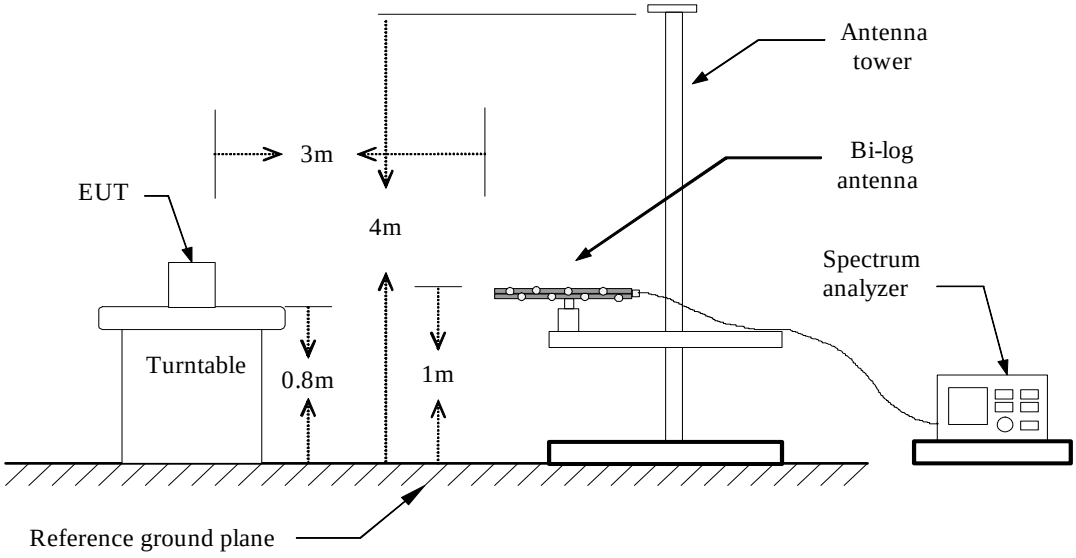
According to FCC §2.1053

TEST CONFIGURATION

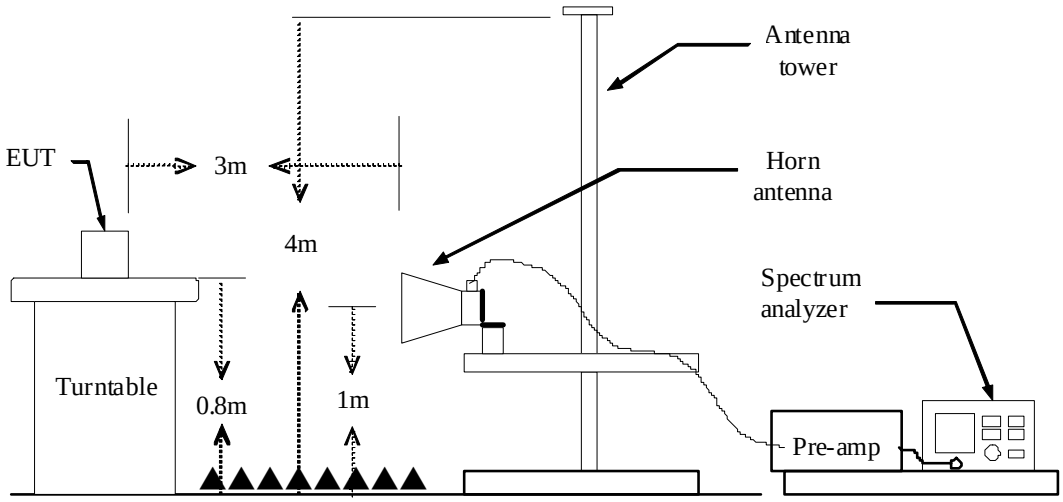
Below 30MHz



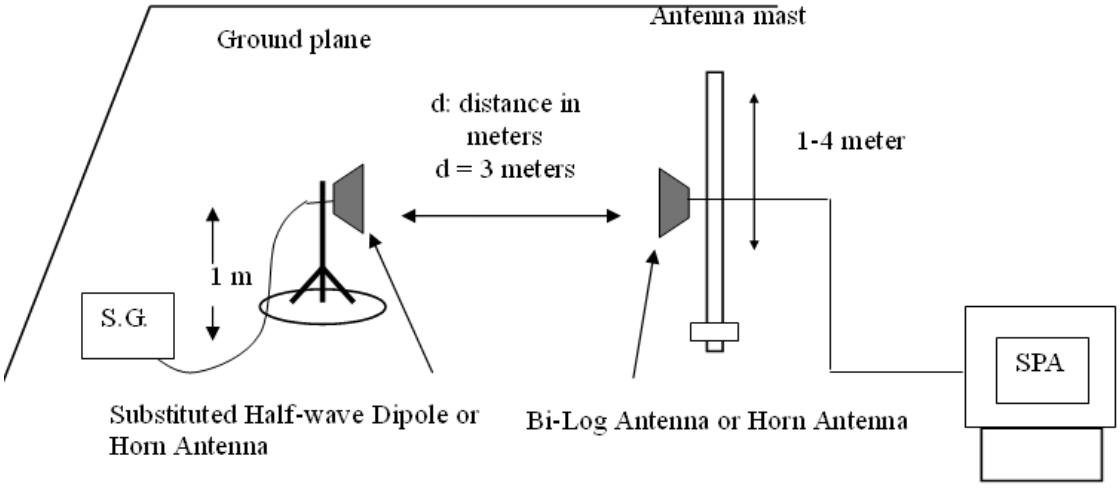
Below 1 GHz



Above 1 GHz



Substituted Method Test Set-up



TEST PROCEDURE

The EUT was placed on a non-conductive, the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

TEST RESULTS

Refer to the attached tabular data sheets.

Below 30MHz

The interference of the frequency value is lower than the limit below 20 db, measured as the background noise values and will not be recorded.

Radiated Spurious Emission Measurement Result / Below 1GHz

GPRS850					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
128	48.4300	Vertical	-62.17	-13.00	Pass
	213.3300	V	-62.39		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	45.5200	Horizontal	-60.89		
	199.7500	H	-63.50		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
190	54.2500	Vertical	-57.32	-13.00	Pass
	180.3500	V	-60.81		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	45.5200	Horizontal	-60.92		
	199.7500	H	-61.59		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
251	54.2500	Vertical	-54.12	-13.00	Pass
	213.3300	V	-58.16		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	45.5200	Horizontal	-64.38		
	199.7500	H	-60.95		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

EGPRS850					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
128	60.0700	Vertical	-63.57	-13.00	Pass
	267.6500	V	-67.06		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	48.4300	Horizontal	-63.21		
	480.0800	H	-69.05		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
190	576.1100	Vertical	-59.62	-13.00	Pass
	768.1700	V	-65.46		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	48.4300	Horizontal	-64.62		
	768.1700	H	-66.30		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
251	550.8900	Vertical	-62.64	-13.00	Pass
	607.1500	V	-66.48		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	576.1100	Horizontal	-62.39		
	768.1700	H	-61.05		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

GPRS1900					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
512	60.3500	Vertical	-62.03	-13.00	Pass
	128.6500	V	-66.50		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	34.2000	Horizontal	-60.89		
	124.5000	H	-68.22		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
661	54.2500	Vertical	-60.37	-13.00	Pass
	128.3400	V	-64.62		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	54.2500	Horizontal	-66.35		
	128.3400	H	-65.26		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
810	60.5000	Vertical	-64.59	-13.00	Pass
	128.4500	V	-62.49		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	45.5200	Horizontal	-63.46		
	199.7500	H	-65.19		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

EGPRS1900					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
512	400.5400	Vertical	-64.33	-13.00	Pass
	750.7100	V	-65.12		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	399.5700	Horizontal	-63.16		
	957.3200	H	-65.26		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
661	250.1900	Vertical	-58.49	-13.00	Pass
	665.3500	V	-60.49		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	250.1900	Horizontal	-62.40		
	500.4500	H	-67.64		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
810	232.7300	Vertical	-65.39	-13.00	Pass
	399.5700	V	-64.37		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	250.1900	Horizontal	-61.89		
	500.4500	H	-60.33		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:
1.The emission behaviour belongs to narrowband spurious emission.
2."--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band II					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
9262	74.3800	Vertical	-63.98	-13.00	Pass
	154.6600	V	-62.94		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	105.2600	Horizontal	-66.20		
	191.0200	H	-67.45		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9400	92.3000	Vertical	-63.55	-13.00	Pass
	156.2600	V	-60.64		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	92.7000	Horizontal	-66.95		
	238.2200	H	-64.32		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9538	65.0100	Vertical	-62.09	-13.00	Pass
	154.9000	V	-62.49		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	43.5200	Horizontal	-67.02		
	116.9800	H	-58.49		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band II HSDPA					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
9262	618.7900	Vertical	-57.32	-13.00	Pass
	816.6700	V	-50.12		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	110.5100	Horizontal	-63.01		
	497.5400	H	-64.38		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9400	500.4500	Vertical	-61.74	-13.00	Pass
	664.3800	V	-58.26		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	101.7800	Horizontal	-55.63		
	500.4500	H	-63.46		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9538	110.5100	Vertical	-65.91	-13.00	Pass
	497.5400	V	-54.05		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	93.0500	Horizontal	-59.43		
	119.2400	H	-63.15		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band II HSUPA					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
9262	110.5100	Vertical	-67.32	-13.00	Pass
	498.5100	V	-63.24		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	101.7800	Horizontal	-68.05		
	500.4500	H	-65.69		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9400	65.8900	Vertical	-61.74	-13.00	Pass
	108.5700	V	-63.45		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	134.7600	Horizontal	-64.29		
	158.0400	H	-65.34		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9538	100.8100	Vertical	-63.26	-13.00	Pass
	497.5400	V	-63.15		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	110.5100	Horizontal	-66.34		
	497.5400	H	-66.34		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:
1.The emission behaviour belongs to narrowband spurious emission.
2."--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band V					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
4132	104.6900	Vertical	-67.18	-13.00	Pass
	533.4300	V	-64.25		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	665.3500	Horizontal	-63.61		
	711.9100	H	-64.33		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4182	600.3600	Vertical	-55.03	-13.00	Pass
	665.3500	V	-60.59		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	711.9100	Horizontal	-63.19		
	800.1800	H	-64.12		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4233	533.4300	Vertical	-66.87	-13.00	Pass
	800.1800	V	-64.53		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	533.4300	Horizontal	-63.57		
	603.2700	H	-66.20		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band V HSDPA					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
4132	600.3600	Vertical	-63.14	-13.00	Pass
	666.3200	V	-65.10		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	103.7200	Horizontal	-68.12		
	146.4000	H	-63.52		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4182	170.6500	Vertical	-64.37	-13.00	Pass
	419.9400	V	-64.59		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	666.3200	Horizontal	-64.57		
	812.7900	H	-65.88		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4233	86.2600	Vertical	-65.88	-13.00	Pass
	170.6500	V	-64.82		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	99.8400	Horizontal	-64.26		
	600.3600	H	-65.75		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band V HSUPA					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
4132	291.9000	Vertical	-60.27	-13.00	Pass
	533.4300	V	-65.34		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	607.1500	Horizontal	-63.99		
	960.2300	H	-60.52		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4182	139.6100	Vertical	-67.93	-13.00	Pass
	291.9000	V	-64.23		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	81.4100	Horizontal	-66.24		
	139.6100	H	-65.34		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4233	81.4100	Vertical	-67.35	-13.00	Pass
	291.9000	V	-62.88		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	607.1500	Horizontal	-64.30		
	960.2300	H	-66.91		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:
1.The emission behaviour belongs to narrowband spurious emission.
2."--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

Radiated Spurious Emission Measurement Result / Above 1GHz

GPRS850					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
128	1066.000	Vertical	-48.70	-13.00	Pass
	1750.000	V	-48.74		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1066.000	Horizontal	-44.57		
	1600.000	H	-43.62		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
190	1720.000	Vertical	-42.59	-13.00	Pass
	3202.000	V	-39.64		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1066.000	Horizontal	-42.05		
	1600.000	H	-47.62		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
251	1720.000	Vertical	-47.86	-13.00	Pass
	3202.000	V	-42.03		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1066.000	Horizontal	-42.06		
	3202.000	H	-41.37		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

EGPRS850					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
128	1066.000	Vertical	-42.35	-13.00	Pass
	3202.000	V	-40.17		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1750.000	Horizontal	-45.22		
	3202.000	H	-34.16		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
190	1600.000	Vertical	-45.30	-13.00	Pass
	3745.000	V	-49.67		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1720.000	Horizontal	-43.56		
	3202.000	H	-40.12		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
251	1747.000	Vertical	-47.62	-13.00	Pass
	3202.000	V	-44.26		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1600.000	Horizontal	-45.26		
	3829.000	H	-39.64		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

GPRS1900					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
512	1255.000	Vertical	-39.67	-13.00	Pass
	3202.000	V	-44.21		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1600.000	Horizontal	-48.37		
	1867.000	H	-43.51		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
661	1867.000	Vertical	-34.67	-13.00	Pass
	3193.000	V	-43.65		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1066.000	Horizontal	-39.61		
	2134.000	H	-34.58		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
810	1600.000	Vertical	-43.59	-13.00	Pass
	1867.000	V	-44.36		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1066.000	Horizontal	-34.67		
	2134.000	H	-43.29		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

EGPRS1900					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
512	1066.000	Vertical	-40.29	-13.00	Pass
	2134.000	V	-38.31		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1867.000	Horizontal	-44.37		
	3202.000	H	-44.29		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
661	1066.000	Vertical	-46.38	-13.00	Pass
	2134.000	V	-44.26		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1066.000	Horizontal	-47.34		
	3202.000	H	-42.36		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
810	1066.000	Vertical	-46.37	-13.00	Pass
	1867.000	V	-34.29		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1066.000	Horizontal	-38.45		
	3202.000	H	-46.37		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:
1.The emission behaviour belongs to narrowband spurious emission.
2."--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band II					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
9262	1867.000	Vertical	-41.50	-13.00	Pass
	3202.000	V	-43.25		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1288.000	Horizontal	-40.34		
	3202.000	H	-39.11		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9400	1651.000	Vertical	-40.93	-13.00	Pass
	2053.000	V	-43.82		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1285.000	Horizontal	-40.21		
	3361.000	H	-50.23		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9538	1681.000	Vertical	-39.23	-13.00	Pass
	2083.000	V	-41.05		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1285.000	Horizontal	-40.33		
	3361.000	H	-40.57		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band II HSDPA					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
9262	1297.000	Vertical	-42.46	-13.00	Pass
	2845.000	V	-49.26		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1678.000	Horizontal	-48.38		
	2023.000	H	-42.15		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9400	1447.000	Vertical	-49.60	-13.00	Pass
	3187.000	V	-50.24		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	2053.000	Horizontal	-45.34		
	2110.000	H	-46.17		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9538	1489.000	Vertical	-48.19	-13.00	Pass
	3277.000	V	-43.46		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1264.000	Horizontal	-50.26		
	3493.000	H	-45.62		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band II HSUPA					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
9262	1678.000	Vertical	-44.61	-13.00	Pass
	2110.000	V	-48.37		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1600.000	Horizontal	-50.29		
	2023.000	H	-49.62		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9400	1600.000	Vertical	-43.64	-13.00	Pass
	3745.000	V	-44.67		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1600.000	Horizontal	-47.16		
	2110.000	H	-48.92		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
9538	1600.000	Vertical	-47.34	-13.00	Pass
	3745.000	V	-46.37		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1099.000	Horizontal	-50.34		
	3745.000	H	-43.65		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:
1.The emission behaviour belongs to narrowband spurious emission.
2."--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band V					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
4132	1747.000	Vertical	-49.30	-13.00	Pass
	3202.000	V	-46.37		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1720.000	Horizontal	-49.35		
	3202.000	H	-50.17		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4183	1021.000	Vertical	-52.16	-13.00	Pass
	1642.000	V	-44.10		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1009.000	Horizontal	-49.34		
	1720.000	H	-50.34		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4233	1021.000	Vertical	-46.49	-13.00	Pass
	3202.000	V	-50.34		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1021.000	Horizontal	-48.34		
	1720.000	H	-53.91		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band V HSDPA					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
4132	1144.000	Vertical	-48.32	-13.00	Pass
	1261.000	V	-46.37		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1720.000	Horizontal	-49.28		
	3202.000	H	-46.37		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4182	1066.000	Vertical	-45.34	-13.00	Pass
	1600.000	V	-44.37		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1009.000	Horizontal	-42.48		
	3202.000	H	-46.38		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4233	1021.000	Vertical	-46.23	-13.00	Pass
	1078.000	V	-51.67		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1600.000	Horizontal	-42.76		
	3202.000	H	-48.35		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. "--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

WCDMA Band V HSUPA					
Channel	Frequency(MHz)	Spurious emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
4132	1054.000	Vertical	-45.92	-13.00	Pass
	1261.000	V	-44.72		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1657.000	Horizontal	-53.20		
	3223.000	H	-50.36		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4182	1600.000	Vertical	-48.34	-13.00	Pass
	1999.000	V	-39.64		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1600.000	Horizontal	-40.32		
	1867.000	H	-48.39		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		
4233	1021.000	Vertical	-40.40	-13.00	Pass
	3745.000	V	-40.38		
	N/A	V	--		
	N/A	V	--		
	N/A	V	--		
	1600.000	Horizontal	-47.20		
	3745.000	H	-47.26		
	N/A	H	--		
	N/A	H	--		
	N/A	H	--		

Remark:
1.The emission behaviour belongs to narrowband spurious emission.
2."--"means that the emission level is too low to be measured,and the emission level is not exceed the value of -13dBm,and the result is less than the recorded reference levels,so the result is not recorded in the test report.

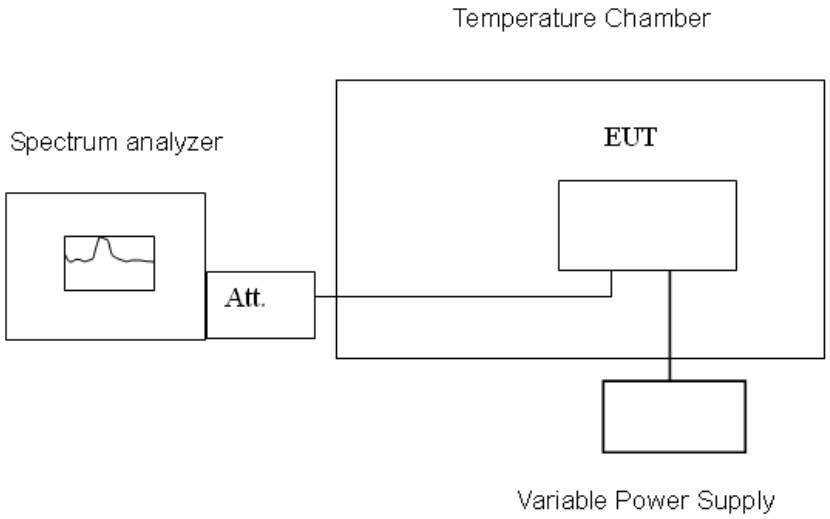
7.7. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235.

Frequency Tolerance: 2.5 ppm

TEST CONFIGURATION



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20^{o}C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –20^{o}C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10^{o}C increased per stage until the highest temperature of +65^{o}C reached.

TEST RESULTS

No non-compliance noted.

Reference Frequency: GPRS Mid Channel 836.6 MHz @ 25°C				
Limit: +/- 2.5 ppm = 2091.5 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	55	836600023	23	2091.5
	50	836600035	35	
	40	836600043	43	
	30	836600039	39	
	20	836599985	15	
	10	836600029	29	
	0	836600017	17	
	-5	836600013	13	
	-10	836600038	38	

Reference Frequency: EGPRS Mid Channel 836.6 MHz @ 25°C				
Limit: +/- 2.5 ppm = 2091.5 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	55	836600056	56	2091.5
	50	836600047	47	
	40	836600089	89	
	30	836600023	23	
	20	836599984	16	
	10	836600019	19	
	0	836600034	34	
	-5	836600064	64	
	-10	836600037	37	

Reference Frequency: GPRS Mid Channel 1880 MHz @ 25°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	55	1879999983	17	4700
	50	1879999972	28	
	40	1879999961	39	
	30	1879999974	26	
	20	1879999983	17	
	10	1879999980	20	
	0	1879999976	24	
	-5	1879999987	13	
	-10	1879999988	12	

Reference Frequency: EGPRS Mid Channel 1880 MHz @ 25°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	55	1879999985	15	4700
	50	1879999976	24	
	40	1879999983	17	
	30	1879999951	49	
	20	1879999978	22	
	10	1879999993	7	
	0	1879999977	23	
	-5	1879999981	19	
	-10	1879999965	35	

Reference Frequency: WCDMA Band II Mid Channel 1880 MHz @ 25°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	55	1879999968	32	4700
	50	1879999935	65	
	40	1879999954	46	
	30	1879999961	39	
	20	1879999970	30	
	10	1879999979	21	
	0	1879999984	16	
	-10	1879999973	27	

Reference Frequency: HSDPA Band II Mid Channel 1880 MHz @ 25°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	55	1879999979	21	4700
	50	1879999979	21	
	40	1879999983	17	
	30	1879999974	26	
	20	1879999985	15	
	10	1879999976	24	
	0	1879999989	11	
	-10	1879999981	19	

Reference Frequency: HSUPA Band II Mid Channel 1880 MHz @ 25°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	55	1879999962	38	4700
	50	1879999972	28	
	40	1879999980	20	
	30	1879999971	29	
	20	1879999986	14	
	10	1879999976	24	
	0	1879999991	9	
	-10	1879999986	14	

Reference Frequency: WCDMA Band V Mid Channel 836.6 MHz @ 25°C				
Limit: +/- 2.5 ppm = 2091.5 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	55	836599964	36	4700
	50	836599968	32	
	40	836599966	34	
	30	836599975	25	
	20	836599989	11	
	10	836599984	16	
	0	836599952	48	
	-10	836600021	21	

Reference Frequency: HSDPA Band V Mid Channel 836.6 MHz @ 25°C				
Limit: +/- 2.5 ppm = 2091.5 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	55	836599975	25	4700
	50	836599972	28	
	40	836599969	31	
	30	836599980	20	
	20	836599983	17	
	10	836599987	13	
	0	836599978	22	
	-10	836599974	26	

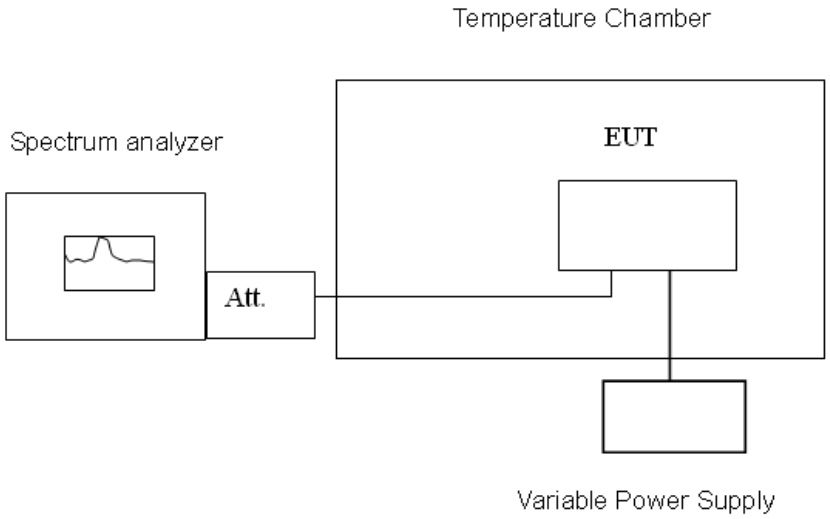
Reference Frequency: HSUPA Band V Mid Channel 836.6 MHz @ 25°C				
Limit: +/- 2.5 ppm = 2091.5 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	55	836599993	7	4700
	50	836599974	26	
	40	836599986	14	
	30	836599981	19	
	20	836599982	18	
	10	836599986	14	
	0	836599974	26	
	-10	836599979	21	

7.8. REQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235,

TEST CONFIGURATION



Remark: *Measurement setup for testing on Antenna connector.*

TEST PROCEDURE

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (± 10%) and endpoint, record the maximum frequency change.

TEST RESULTS

No non-compliance noted.

Reference Frequency: GPRS Mid Channel 836.6 MHz @ 25°C				
Limit: ± 2.5 ppm = 2091.5Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.4	25	836600031	31	2091.5
3.8		836600029	29	
4.2 end		836600033	33	

Reference Frequency: EGPRS Mid Channel 836.6 MHz @ 25°C				
Limit: ± 2.5 ppm = 2091.5Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.4	25	836600017	17	2091.5
3.8		836600045	45	
4.2 end		836600038	38	

Reference Frequency: GPRS Mid Channel 1880 MHz @ 25°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.4	25	1879999977	23	4700
3.8		1879999989	11	
4.2 end		1879999972	28	

Reference Frequency: EGPRS Mid Channel 1880 MHz @ 25°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.4	25	1879999970	30	4700
3.8		1879999989	11	
4.2 end		1879999977	23	

Reference Frequency: WCDMA Band II Mid Channel 1880 MHz @ 25°C				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.4	25	1879999965	35	4700
3.8		1879999983	17	
4.2 end		1879999965	35	

Reference Frequency: HSDPA Band II Mid Channel 1880 MHz @ 25°C				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.4	25	1879999971	29	4700
3.8		1879999986	14	
4.2 end		1879999984	16	

Reference Frequency: HSUPA Band II Mid Channel 1880 MHz @ 25°C				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.4	25	1879999968	32	4700
3.8		1879999980	20	
4.2 end		1879999976	24	

Reference Frequency: WCDMA Band V Mid Channel 836.6 MHz @ 25°C				
Limit: ± 2.5 ppm = 2091.5Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.4	25	836599975	25	2091.5
3.8		836599983	17	
4.2 end		836599986	14	

Reference Frequency: HSDPA Band V Mid Channel 836.6 MHz @ 25°C				
Limit: ± 2.5 ppm = 2091.5Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.4	25	836599983	17	2091.5
3.8		836599990	10	
4.2 end		836599967	33	

Reference Frequency: HSUPA Band V Mid Channel 836.6 MHz @ 25°C				
Limit: ± 2.5 ppm = 2091.5Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.4	25	836599985	15	2091.5
3.8		836599985	15	
4.2 end		836599976	24	

7.9. POWERLINE CONDUCTED EMISSIONS

LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

TEST CONFIGURATION

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

TEST PROCEDURE

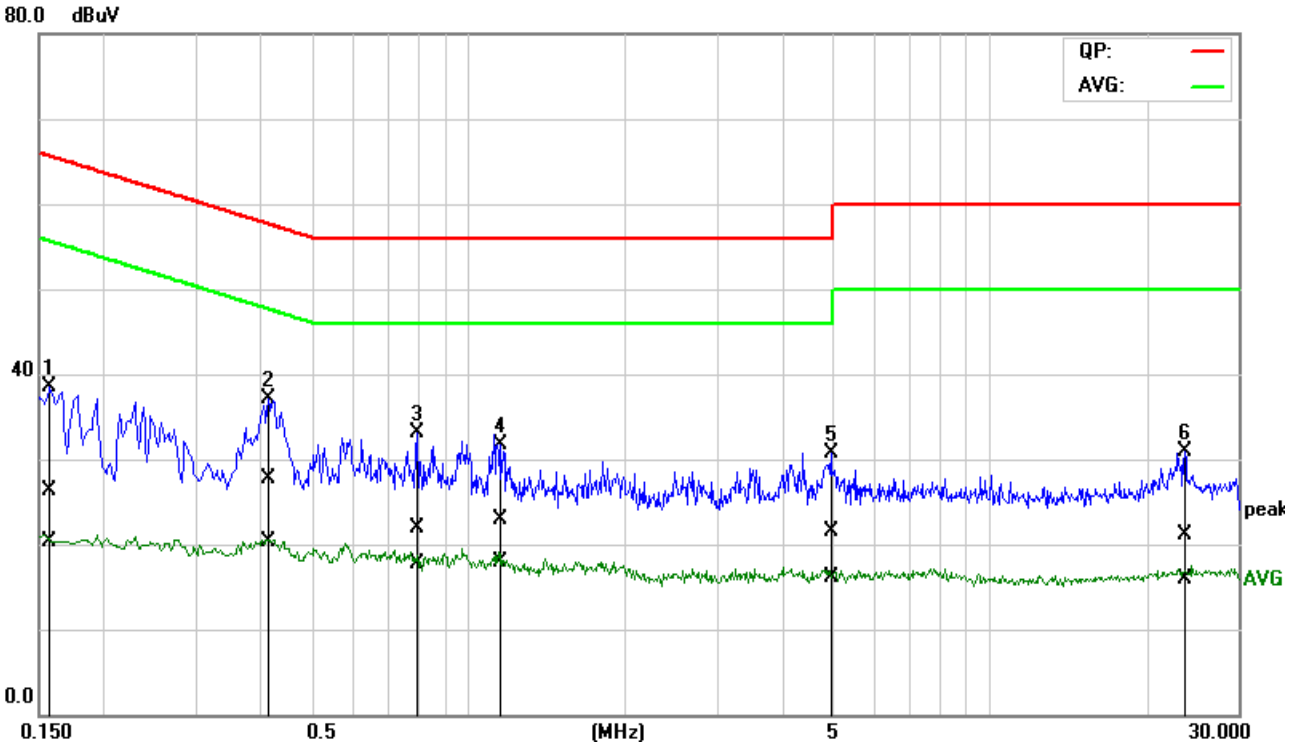
1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Job No.:	C170614R01	Date:	2017/7/1
Model No.:	macaroon M1	Time:	AM 10:12:25
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L1	Test Voltage:	AC 120V/60Hz
Model:		Description:	

L1

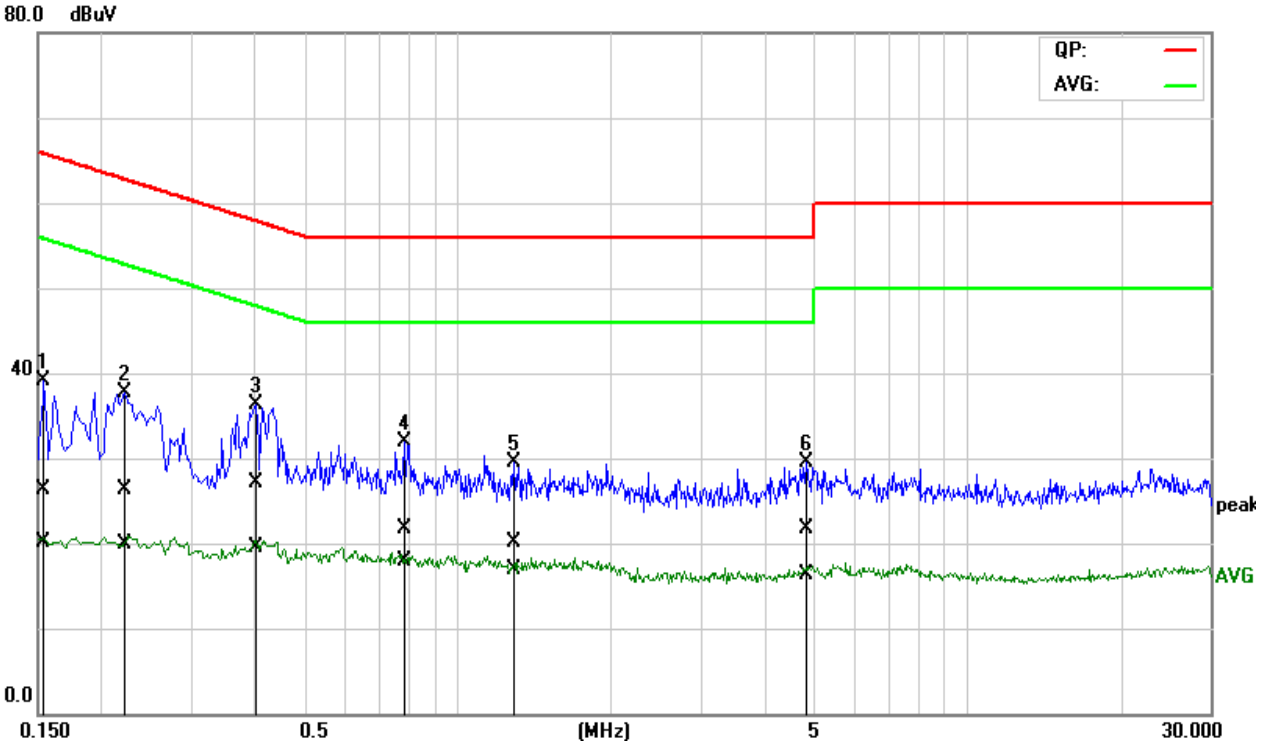


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1581	5.68	-0.33	20.58	26.26	20.25	65.56	55.56	-39.30	-35.31	Pass
2*	0.4145	7.14	-0.26	20.53	27.67	20.27	57.56	47.56	-29.89	-27.29	Pass
3	0.7927	1.34	-2.74	20.50	21.84	17.76	56.00	46.00	-34.16	-28.24	Pass
4	1.1601	2.52	-2.49	20.44	22.96	17.95	56.00	46.00	-33.04	-28.05	Pass
5	4.9717	0.93	-4.57	20.61	21.54	16.04	56.00	46.00	-34.46	-29.96	Pass
6	23.6432	0.33	-4.88	20.86	21.19	15.98	60.00	50.00	-38.81	-34.02	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Job No.:	C170614R01	Date:	2017/7/1
Model No.:	macaroon M1	Time:	AM 10:17:44
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L2	Test Voltage:	AC 120V/60Hz
Model:		Description:	

L2

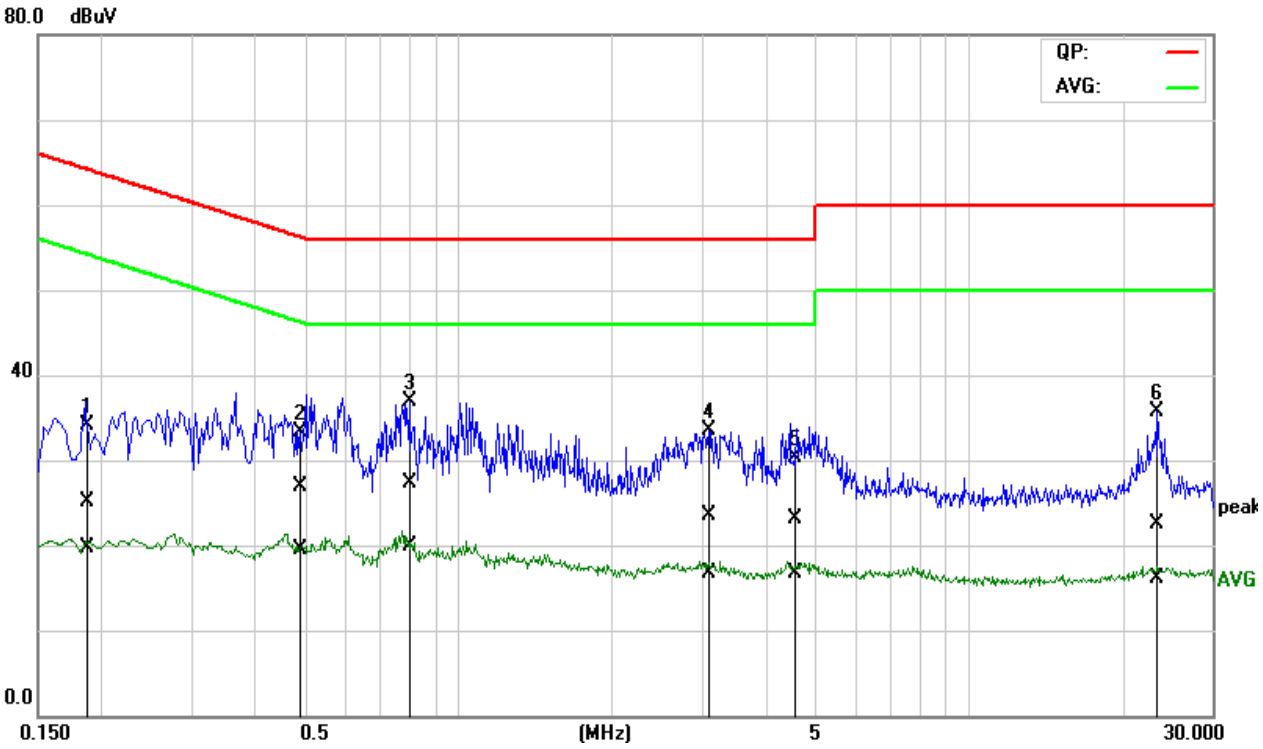


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1547	5.86	-0.26	20.36	26.22	20.10	65.74	55.74	-39.52	-35.64	Pass
2	0.2236	5.83	-0.49	20.42	26.25	19.93	62.68	52.68	-36.43	-32.75	Pass
3	0.4052	6.61	-1.05	20.46	27.07	19.41	57.75	47.75	-30.68	-28.34	Pass
4*	0.7867	1.30	-2.53	20.46	21.76	17.93	56.00	46.00	-34.24	-28.07	Pass
5	1.2947	-0.31	-3.50	20.47	20.16	16.97	56.00	46.00	-35.84	-29.03	Pass
6	4.8494	0.99	-4.36	20.74	21.73	16.38	56.00	46.00	-34.27	-29.62	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Job No.:	C170614R01	Date:	2017/7/1
Model No.:	macaroon M1	Time:	AM 10:02:30
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L1	Test Voltage:	AC 240V/60Hz
Model:		Description:	

L1

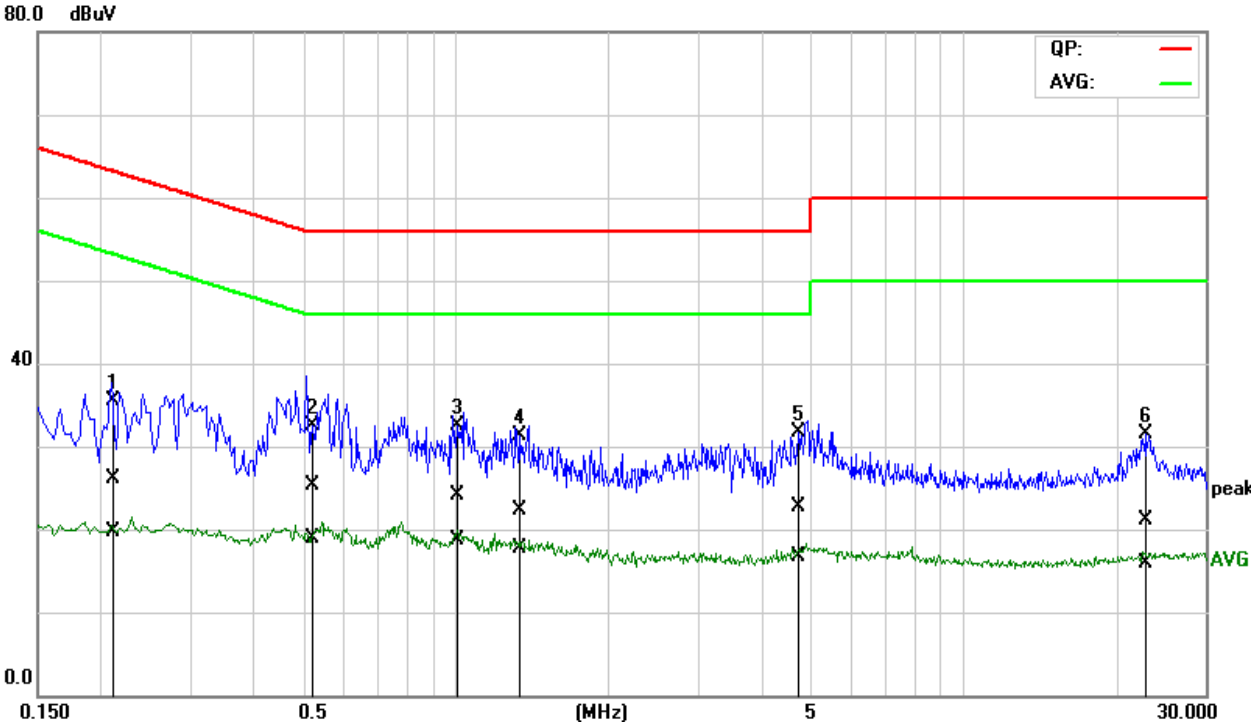


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1882	4.58	-0.76	20.53	25.11	19.77	64.12	54.12	-39.01	-34.35	Pass
2	0.4904	6.41	-1.07	20.49	26.90	19.42	56.16	46.16	-29.26	-26.74	Pass
3*	0.7947	6.74	-0.52	20.50	27.24	19.98	56.00	46.00	-28.76	-26.02	Pass
4	3.0876	2.93	-3.89	20.52	23.45	16.63	56.00	46.00	-32.55	-29.37	Pass
5	4.5040	2.44	-3.95	20.59	23.03	16.64	56.00	46.00	-32.97	-29.36	Pass
6	23.4295	1.72	-4.83	20.86	22.58	16.03	60.00	50.00	-37.42	-33.97	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Job No.:	C170614R01	Date:	2017/7/1
Model No.:	macaroon M1	Time:	AM 10:07:28
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	Lily.Wang
Line:	L2	Test Voltage:	AC 240V/60Hz
Model:		Description:	

L2



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.2121	5.79	-0.76	20.41	26.20	19.65	63.12	53.12	-36.92	-33.47	Pass
2*	0.5159	4.91	-1.63	20.45	25.36	18.82	56.00	46.00	-30.64	-27.18	Pass
3	1.0129	3.56	-1.80	20.45	24.01	18.65	56.00	46.00	-31.99	-27.35	Pass
4	1.3487	1.84	-2.81	20.48	22.32	17.67	56.00	46.00	-33.68	-28.33	Pass
5	4.7531	1.92	-3.99	20.73	22.65	16.74	56.00	46.00	-33.35	-29.26	Pass
6	22.9604	0.30	-5.06	20.87	21.17	15.81	60.00	50.00	-38.83	-34.19	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

*Re*mark:

1.The measuring frequencies range between 0.15 MHz and 30 MHz.

2.The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.

3."---" denotes the emission level was or more than 2dB below the Average limit, and no re-check was made.

4.The IF bandwidth of SPA between 0.15MHz and 30MHz was 10KHz. The IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz.

END OF REPORT