FCC LISTED,
REGISTRATION
NUMBER: 905266

IC LISTED,
REGISTRATION
NUMBER: IC 4621

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Folio 133 Hoja MA3729

TEST REPORT

Report No.: 26877RET

TEST NAME: FCC PART 22, PART 24

Product	:	HSPA Modem
Trade Mark	:	Traveller
Model/type Ref.	:	D303
Manufacturer	:	GIANT ELECTRONICS LTD.
Requested by	:	GIANT ELECTRONICS LTD.
Other identification of the product	:	FCC ID: K7GD303 Serial number: 35300702000065
Standard(s)	:	FCC Part 22 & 24

This test report includes 3 annexes and therefore the total number of pages is 140

INDEX

1. COMPETENCE AND GUARANTEES

Centro de Tecnología de las Comunicaciones (AT4 wireless), S.A. is a laboratory with a measurement facility in compliance with the requirements of Section 2.948 of the FCC rules and has been added to the list of facilities whose measurements data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Registration Number: 905266.

Centro de Tecnología de las Comunicaciones (AT4 wireless), S.A. is a laboratory with a measurement site in compliance with the requirements of RSS 212, Issue 1 (Provisional) and has been added to the list of filed sites of the Canadian Certification and Engineering Bureau. Reference File Number: IC 4621.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance programme for its measuring equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of measurements and tests performed to the item under test on the date and under the conditions stated on the report and is based on the knowledge and technical facilities available at AT4 wireless at the time of execution of the test.

AT4 wireless is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the item under test and the results of the test.

2. GENERAL CONDITIONS

1. This report only refers to the item that has undergone the test.
2. This report does not constitute or imply by its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without written approval of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of AT4 wireless and the Accreditation Bodies.

3. CHARACTERISTICS OF THE TEST

3.1 TEST REQUESTED

Radio measurements according to FCC parts 22 and 24 for HSPA Modem.

3.2 REQUIREMENTS AND METHOD

The test has been carried out according to the following documents and standards:

1. FCC part 22.
2. FCC part 24.

Radiated testing was performed in AT4 wireless' semi-anechoic chamber. This site has been fully described in a report submitted to the FCC and was accepted in a letter dated July 25, 2002. Radiated measurements were made in accordance with the general procedures of ANSI C63.4: 2003 and substitution method according to TIA/EIA 603-C: 2004.

Uncertainty (factor k=2) was calculated according to the following wireless's internal documents:

1. PODT000: Procedimiento para el cálculo de incertidumbres de medida

The instrumentation used to perform the testing is listed below:

1. Semianechoic Absorber Lined Chamber IR 11. BS.
2. Control Chamber IR 12.BC.
3. Spectrum Analyzer Agilent E4440A.
4. Bilog antenna CHASE CBL6111.
5. Antenna tripod EMCO 11968C.
6. Antenna mast EM 1072 NMT.
7. Rotating table EM 1084-4. ON.
8. Double-ridge Guide Horn antenna 1-18 GHz HP 11966E.
9. Double-ridge Guide Horn antenna 18-40 GHz Agilent 119665J.
10. RF pre-amplifier Miteq AFS5-04001300-15-10P-6.
11. RF pre-amplifier Miteq JS4-12002600-30-5A.
12. EMI Test Receiver R&S ESIB26.
13. Universal Radio communication Tester R&S CMU200.
14. Power splitter Picosecond 5333.
15. 10 dB attenuator Weinschel 75A-10-11.
16. Multi Device Controller EMCO 2090.
17. Climatic chamber HERAEUS VM 07/100.
18. DC Power supply R & S NGPE 40/40.
19. Spectrum Analyzer R&S ESU40.
20. Wireless Communication Test Set Agilent 8960.

4. IDENTIFICATION DATA SUPPLIED BY THE APPLICANT

Identification data in this section has been supplied by the client.

4.1 APPLICANT

Name or Company: GIANT ELECTRONICS LTD.

Address: Elite Industrial Building, 135-137 Hoi Bun Road, Kwun Tong.

City: Hong Kong

Postal code: ---- **Country:** CHINA

Telephone: +852 2951 1323 **Fax:** +852 2343 6224

4.2 REPRESENTATIVE

Name: Derek Shek /Program Manager

4.3 TEST SAMPLES SUPPLIER

Name or Company: GIANT ELECTRONICS LTD.

Address: Same as indicated in point 4.1.

Samples undergoing test have been selected by: **the client.**

4.4 IDENTIFICATION OF ITEM/ITEMS TESTED

Product: HSPA MODEM

Trade mark: Traveller **Model:** D303

Other identification of the product: FCC ID: K7GD303

HW version: KEPC-D303M-03.0 **SW version:** 1.04

Manufacturer: GIANT ELECTRONICS LTD.

Description: A device can access internet via GSM/UMTS network, download speed can reach 7.2Mbits/s and upload speed is 2Mbits/s.

5. USAGE OF SAMPLES, PERIOD OF TESTING AND ENVIRONMENTAL CONDITIONS

5.1 USAGE OF SAMPLES

Sample M/01 is formed by the following elements:

Control No.	Description	Model	Serial No.	Date of reception
26877/32	HSPA Modem	D303	35300702000065	01/04/2008

1. Sample M/01 has undergone following test(s).

   All tests indicated in annexes A and B.

5.2 PERIOD OF TESTING

The performed test started on 2008-04-10 and finished on 2008-04-22.

The tests as detailed in this report have been performed at AT4 wireless.

5.3 ENVIROMENTAL CONDITIONS

In the control chamber the following limits were not exceeded during the test:

Temperature	Min. = 25 ºC Max. = 26 ºC
Relative humidity	Min. = 52 % Max. = 52 %
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 0,5 Ω

In the semianechoic chamber (21 meters x 11 meters x 8 meters) the following limits were not exceeded during the test.

Temperature	Min. = 25 ºC Max. = 26 ºC
Relative humidity	Min. = 52 % Max. = 52 %
Air pressure	Min. = 1020 mbar Max. = 1020 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 0,5 Ω
Normal site attenuation (NSA)	< ±4 dB at 10 m distance between item under test and receiver antenna, (30 MHz to 1000 MHz)
Field homogenousity	More than 75% of illuminated surface is between 0 and 6 dB (26 MHz to 1000 MHz).

In the chamber for conducted measurements the following limits were no exceeded during the test:

Temperature	Min. = 25 ºC Max. = 25 ºC
Relative humidity	Min. = 50 % Max. = 50 %
Air pressure	Min. = 1020 mbar Max. = 1020 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 0,5 Ω

6. TEST RESULTS

Abbreviations used in the VERDICT column of the following tables are:

P Pass

F Fail

NA not applicable

NM not measured

FCC PART 22 PARAGRAPH	VERDICT			
	NA	P	F	NM
Clause 22.913: RF output power		P		
Clause 2.1055: Frequency stability		P		
Clause 22.917: Spurious emissions at antenna terminals		P		
Clause 22.917: Spurious emissions at antenna terminals at Block Edges		P		
Clause 22.917: Radiated emissions		P		

FCC PART 24 PARAGRAPH	VERDICT			
	NA	P	F	NM
Clause 24.232: RF output power		P		
Clause 24.235: Frequency stability		P		
Clause 24.238: Spurious emissions at antenna terminals		P		
Clause 24.238: Spurious emissions at antenna terminals at Block Edges		P		
Clause 24.238: Radiated emissions		P		

7. REMARKS AND COMMENTS

HSDPA modulation mode has not been tested to prove FCC 22 and 24 compliance because it is an improved mode of operation only for Downlink (UE reception), but using the normal WCDMA mode for UL (Up Link, UE transmission). Therefore HSDPA has no associated a Power class or modulation scheme different than WCDMA mode for the UL transmission.

Taking into account the above comments, testing in HSDPA modulation mode is redundant for FCC parts 22/24 as it is the same as WCDMA mode as long as UE transmission is concerned. WCDMA modulation mode has been tested as indicated on the present test report.

8. SUMMARY

Based on the results of the performed test, stated in annex A the item under test is **IN COMPLIANCE** with the specifications listed in section 3.1 “TEST REQUESTED”.

NOTE: The results presented in this Test Report apply only to the particular item under test declared in section 4.4 “IDENTIFICATION OF ITEM/ITEMS TESTED” of this document, as presented for test on the date(s) declared in section 5, “USAGE OF SAMPLES, PERIOD OF TESTING AND ENVIRONMENTAL CONDITIONS”.

ANNEX A

TEST RESULTS FOR FCC PART 22

Report No: 26877RET

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TEST CONDITIONS

Power supply (V):

V_{nom} = 5.0 Vdc

V_{max} = Not declared

V_{min} = Not declared

The subscripts nom, min and max indicates voltage test conditions (nominal, minimum and maximum respectively, as declared by the applicant).

Type of power supply = DC Voltage from USB port

Type of antenna = Integral antenna

TEST FREQUENCIES:

GPRS AND EDGE MODULATION

Lowest channel (128): 824.2 MHz

Middle channel (190): 836.6 MHz

Highest channel (251): 848.8 MHz

WCDMA AND HSUPA MODULATION

Lowest channel (4132): 826.4 MHz

Middle channel (4182): 836.4 MHz

Highest channel (4233): 846.6 MHz

RF Output Power (conducted and E.R.P.)

SPECIFICATION

§2.1046 and 22.913.

The Effective Radiated Power (E.R.P.) of mobile transmitter and auxiliary test transmitter must not exceed 7 Watts (38.45 dBm).

METHOD

The conducted RF output power measurements were made at the RF output terminals of the EUT using an attenuator, power splitter and spectrum analyser. The EUT was controlled via the Universal Radio Communication tester R&S CMU200 (for modulations GPRS, EDGE and WCDMA) selecting maximum transmission power of the EUT and different modes of modulation. For modulation HSUPA the Wireless Communication Test Set Agilent 8960 was used

For radiated measurements the EUT was placed on a 1 m high non-conductive stand inside an anechoic chamber. The measuring antenna was placed at 3 m distance and the maximum field strength was measured for the three channels. The EUT was controlled via the Universal Radio Communication tester R&S CMU200 or the Wireless Communication Test Set Agilent 8960 selecting maximum transmission power of the EUT and different modes of modulation.

The Effective Radiated Power (E.R.P.) is obtained by using the Substitution Method according to ANSI/TIA/EIA-603-C: 2004.

RESULTS

MAXIMUM OUTPUT POWER (CONDUCTED). See plots in next pages.

GPRS MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	30.37	30.98	31.64
Maximum peak power (W)	1.09	1.25	1.46
Measurement uncertainty (dB)	±0.5		

EDGE MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	29.33	29.73	30.47
Maximum peak power (W)	0.86	0.94	1.11
Measurement uncertainty (dB)	±0.5		

WCDMA MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	24.74	25.12	25.62
Maximum peak power (W)	0.30	0.33	0.36
Measurement uncertainty (dB)	±0.5		

HSUPA MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	27.23	27.53	27.42
Maximum peak power (W)	0.53	0.57	0.55
Measurement uncertainty (dB)	±0.5		

MAXIMUM EFFECTIVE RADIATED POWER E.R.P. (RADIATED).

GPRS MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	31.3	31.7	33.1
Maximum peak power (W)	1.35	1.48	2.04
Measurement uncertainty (dB)	± 3.8		

RBW= 1 MHz VBW = 3 MHz

EDGE MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	33.2	33.5	33.7
Maximum peak power (W)	2.09	2.24	2.34
Measurement uncertainty (dB)	± 3.8		

RBW= 1 MHz VBW = 3 MHz

WCDMA MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	27.7	27.5	26.1
Maximum peak power (W)	0.59	0.56	0.41
Measurement uncertainty (dB)	± 3.8		

RBW= 10 MHz VBW = 10 MHz

HSUPA MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	28.1	27.8	26.8
Maximum peak power (W)	0.65	0.60	0.48
Measurement uncertainty (dB)	± 3.8		

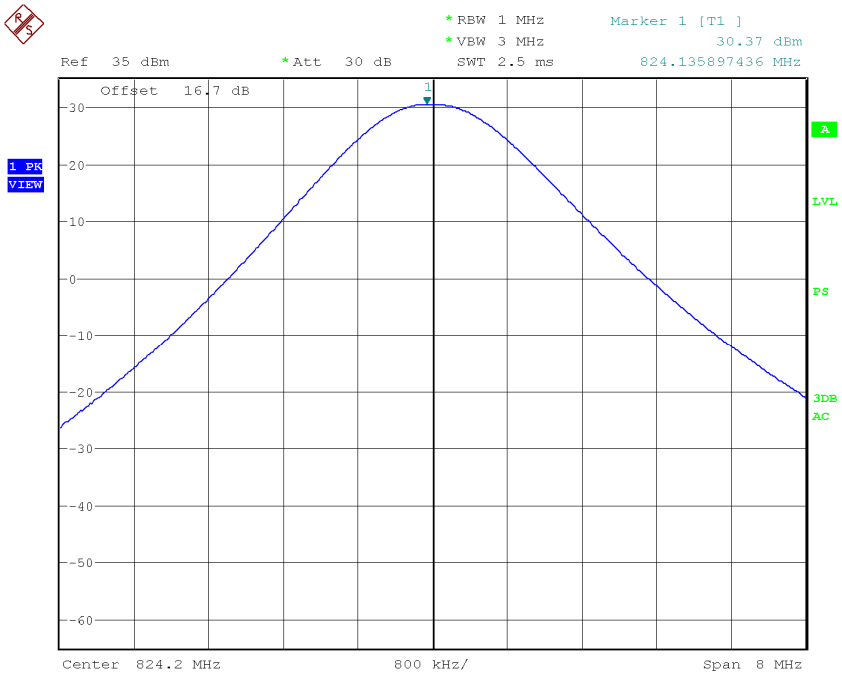
RBW= 10 MHz VBW = 10 MHz

Verdict: PASS

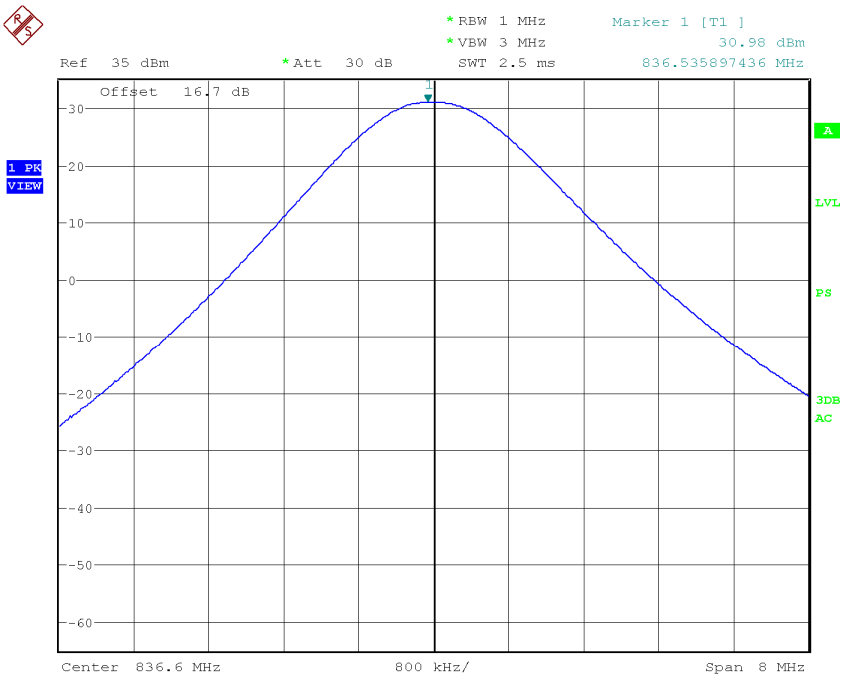
PEAK OUTPUT POWER (CONDUCTED).

GPRS MODULATION

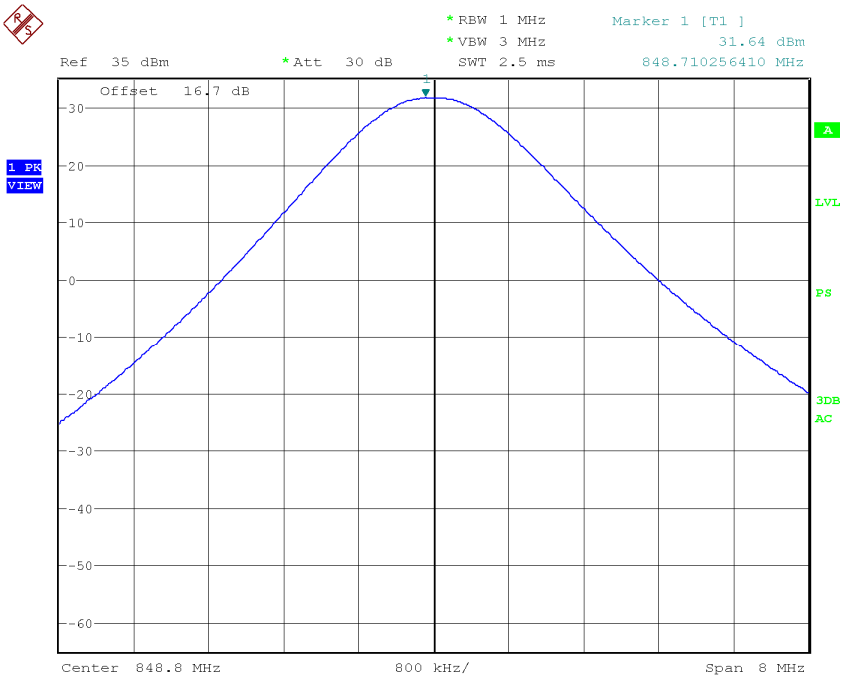
Lowest Channel.



Middle Channel.

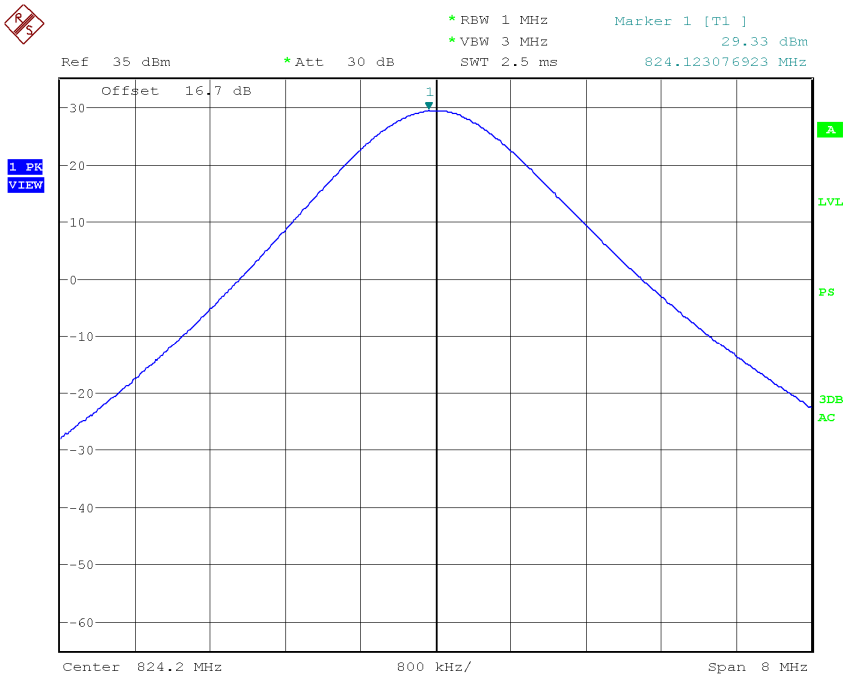


Highest Channel.

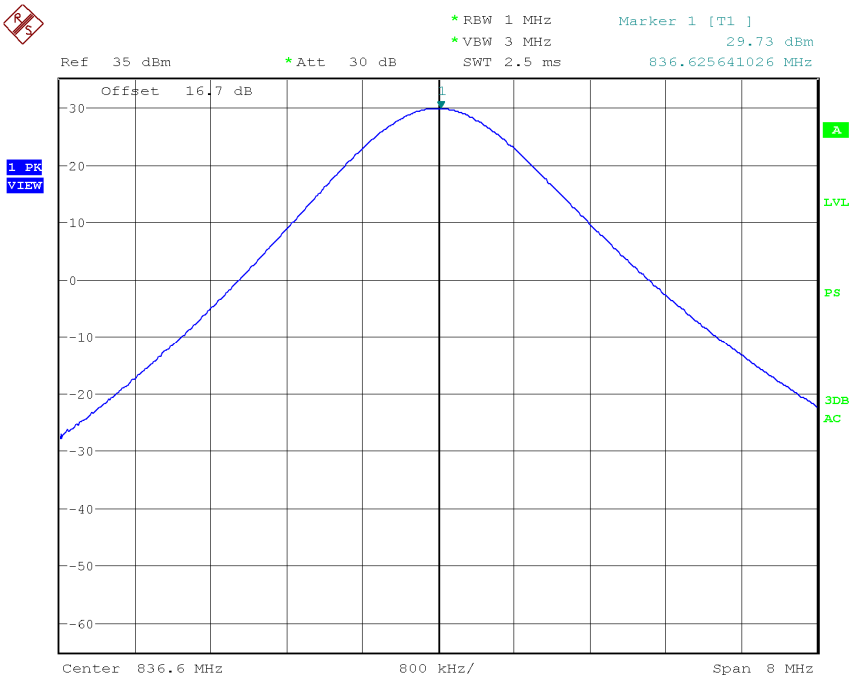


EDGE MODULATION

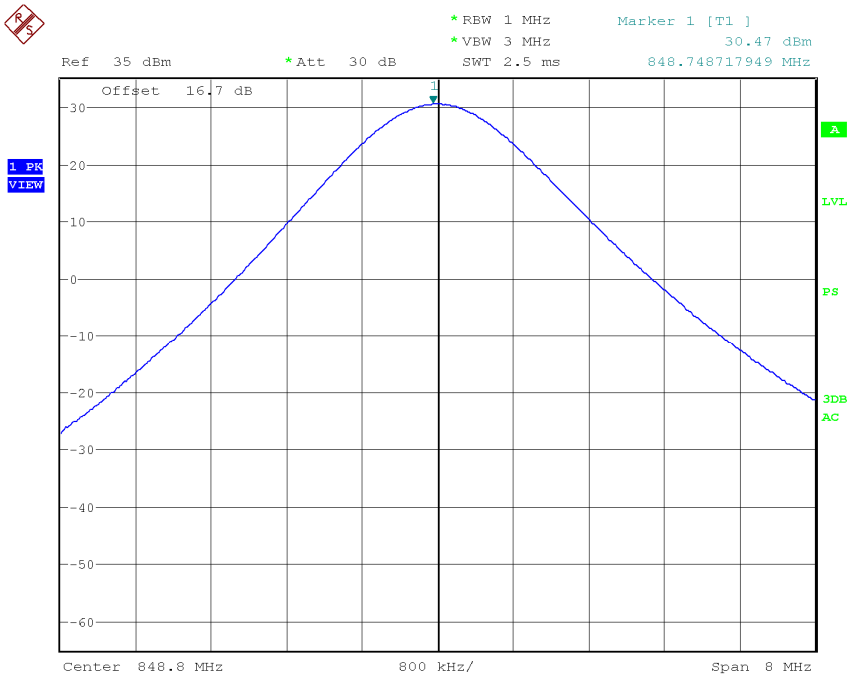
Lowest Channel.



Middle Channel.

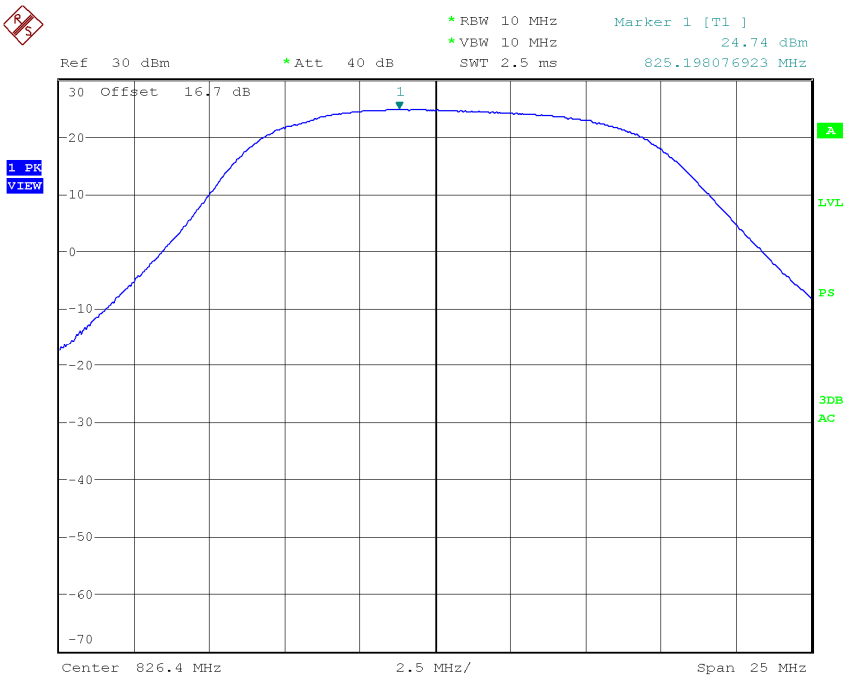


Highest Channel.

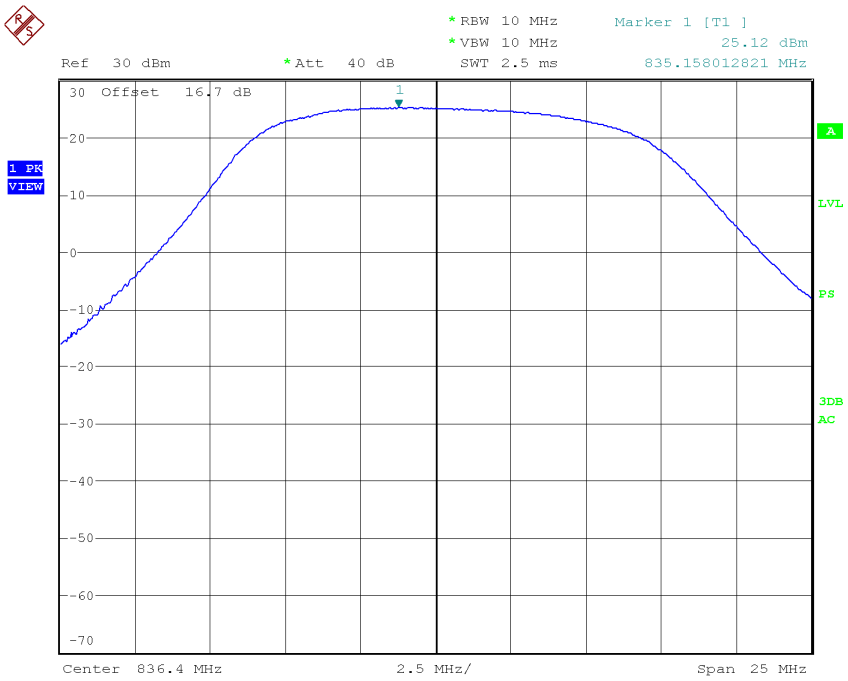


WCDMA MODULATION

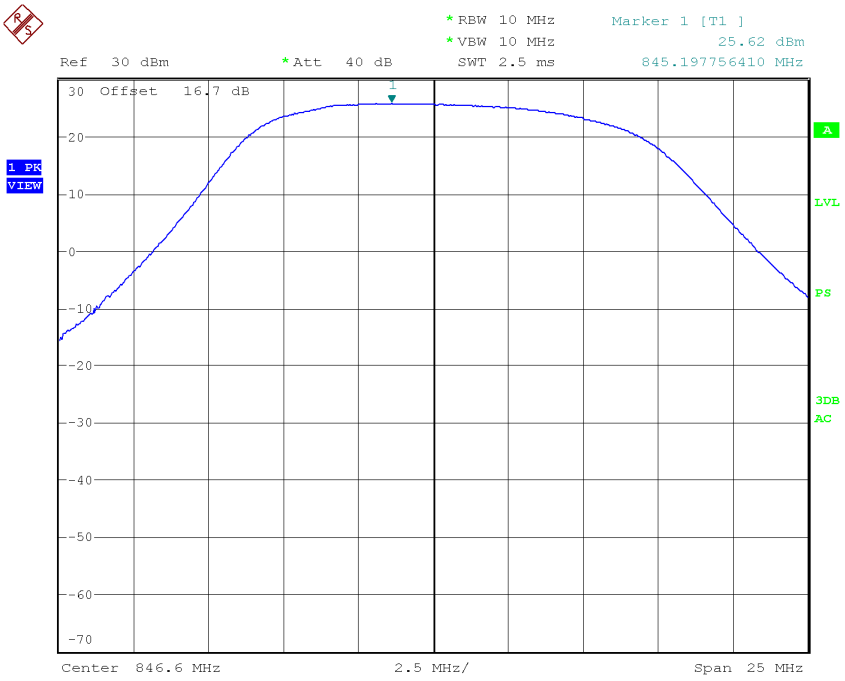
Lowest Channel.



Middle Channel.

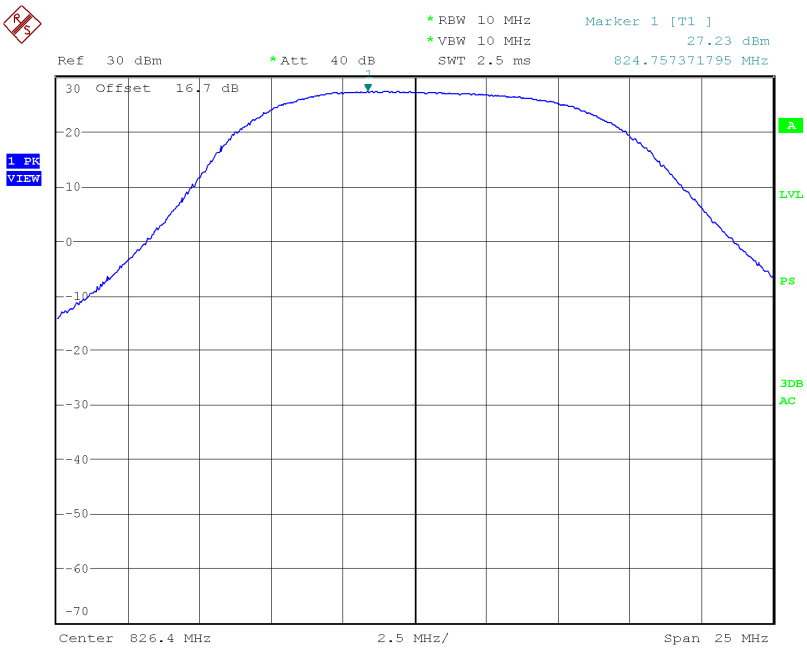


Highest Channel.

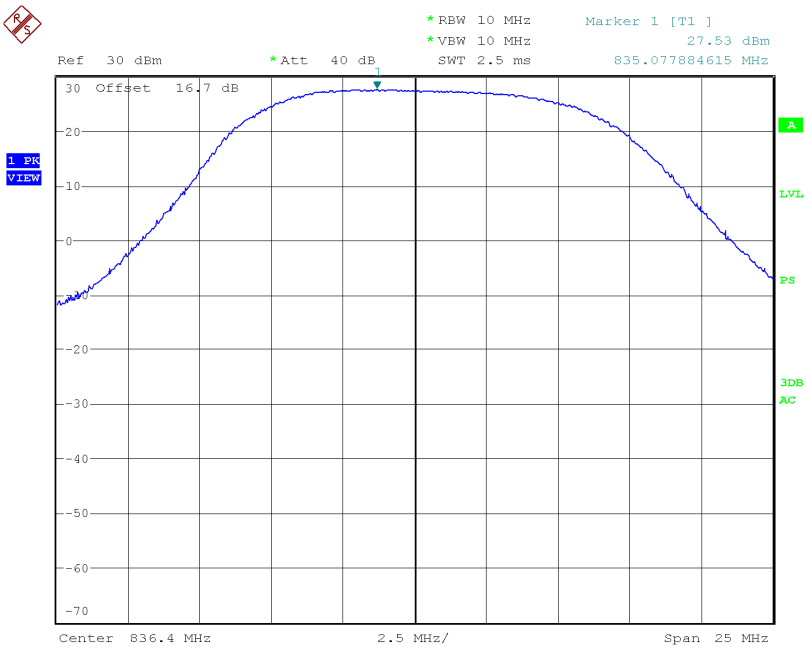


HSUPA MODULATION

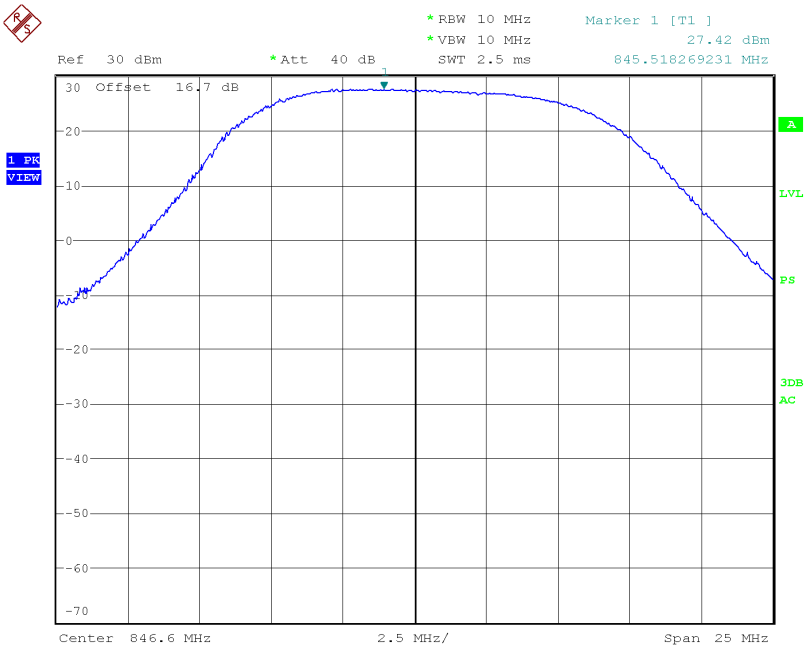
Lowest Channel



Middle Channel



Highest Channel



Modulation Characteristics

SPECIFICATION

§2.1047

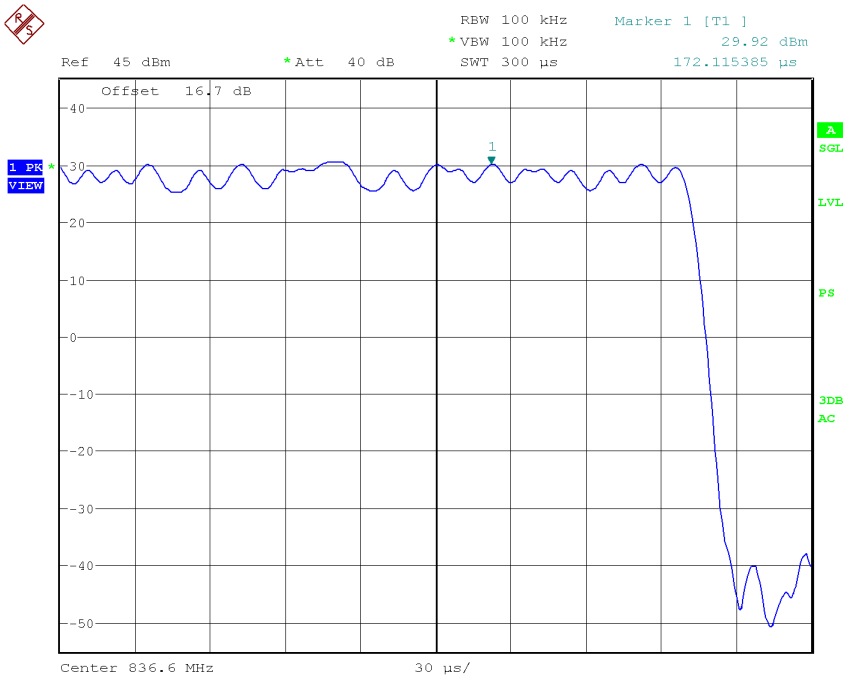
METHOD

The EUT operates with GPRS (GMSK), EDGE (8-PSK), WCDMA/HSUPA (QPSK) modes, in which the information is digitised and coded into a bit stream.

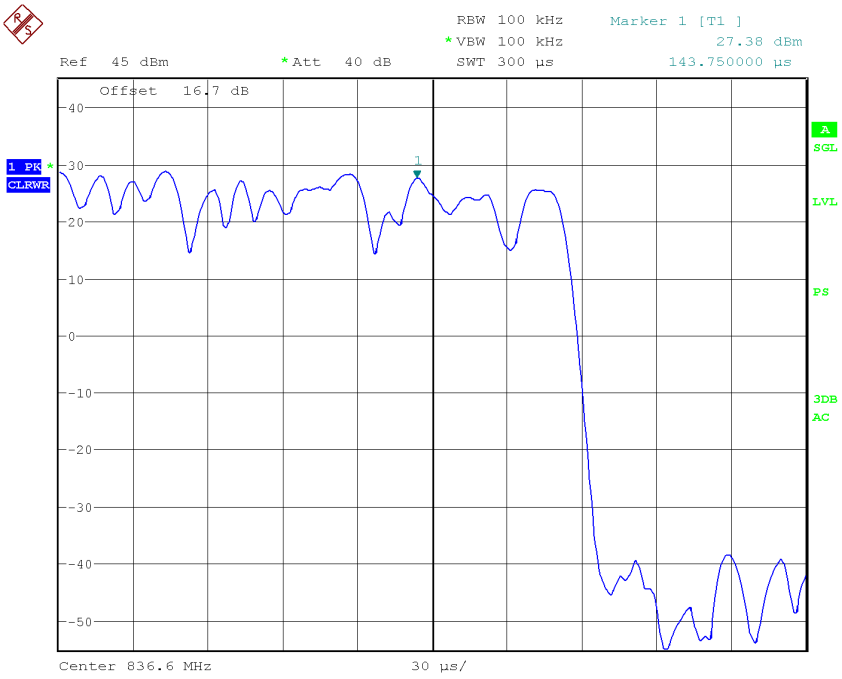
RESULTS

The following plot shows the modulation schemes in the EUT.

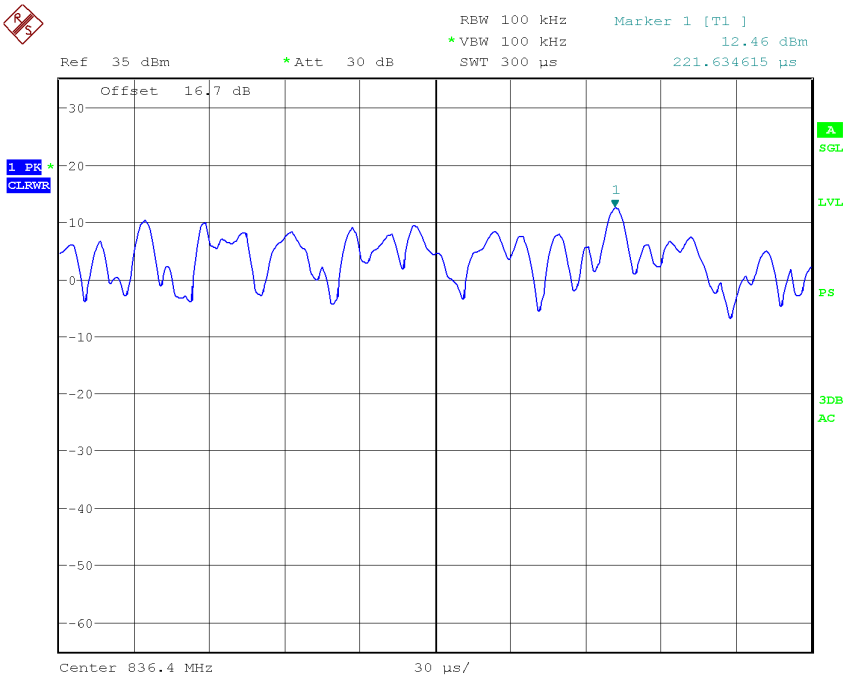
GPRS MODULATION



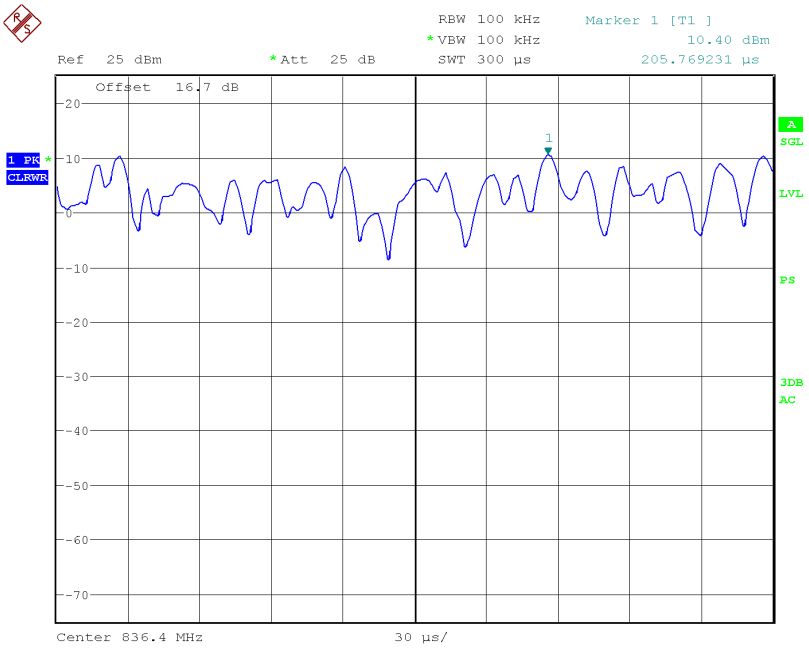
EDGE MODULATION



WCDMA MODULATION



HSUPA MODULATION



Frequency Stability

SPECIFICATION

§2.1055

METHOD

The frequency tolerance measurements over temperature variations were made over the temperature range of –30ºC to +50ºC. The EUT was placed inside a climatic chamber and the temperature was raised hourly in 10ºC steps from –30ºC up to +50ºC.

The EUT was set in "call mode" in the middle channel using the Universal Radio Communication tester R&S CMU200 (for modulations GPRS, EDGE and WCDMA/HSUPA) and the maximum frequency error was measured using the frequency meter of CMU200.

RESULTS

Frequency stability over temperature variations.

GPRS MODULATION

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-41	-0.0490	-0.00000490
+40	-22	-0.0263	-0.00000263
+30	-41	-0.0490	-0.00000490
+20	41	0.0490	0.00000490
+10	-36	-0.0430	-0.00000430
0	39	0.0466	0.00000466
-10	25	0.0299	0.00000299
-20	-12	-0.0143	-0.00000143
-30	31	0.0371	0.00000371

EDGE MODULATION

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	43	0.0514	0.00000514
+40	39	0.0466	0.00000466
+30	42	0.0502	0.00000502
+20	35	0.0418	0.00000418
+10	32	0.0383	0.00000383
0	-18	-0.0215	-0.00000215
-10	18	0.0215	0.00000215
-20	20	0.0239	0.00000239
-30	-18	-0.0215	-0.00000215

WCDMA/HSUPA MODULATION (measured in WCDMA mode)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	27	0.0323	0.00000323
+40	14	0.0167	0.00000167
+30	26	0.0311	0.00000311
+20	30	0.0359	0.00000359
+10	50	0.0598	0.00000598
0	32	0.0383	0.00000383
-10	30	0.0359	0.00000359
-20	29	0.0347	0.00000347
-30	-22	-0.0263	-0.00000263

Occupied Bandwidth

SPECIFICATION

§2.1049

METHOD

The EUT was configured to transmit a modulated carrier signal. An IF bandwidth of 3 kHz was used to determined the occupied bandwidth of the modulated emission for GPRS and EDGE modulation and 50 kHz for WCDMA and HSUPA modulation.

RESULTS

GPRS MODULATION

Channel	Lowest	Middle	Highest
99% Occupied bandwidth (kHz)	277.2	288.5	270.8
-26 dBc bandwidth (kHz)	322.1	323.7	317.3
Measurement uncertainty (kHz)	<±6.5		

EDGE MODULATION

Channel	Lowest	Middle	Highest
99% Occupied bandwidth (kHz)	277.2	282.1	283.6
-26 dBc bandwidth (kHz)	310.9	310.9	315.7
Measurement uncertainty (kHz)	<±6.5		

WCDMA MODULATION

Channel	Lowest	Middle	Highest
99% Occupied bandwidth (kHz)	4653.8	4653.8	4666.7
-26 dBc bandwidth (kHz)	4782.1	4794.9	4807.7
Measurement uncertainty (kHz)	<±52		

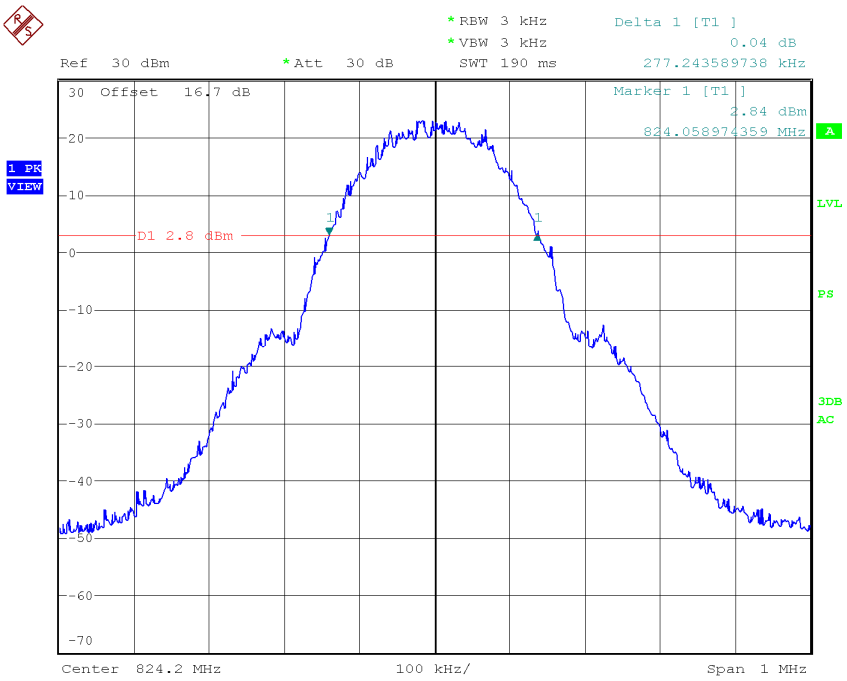
HSUPA MODULATION

Channel	Lowest	Middle	Highest
99% Occupied bandwidth (kHz)	4666.7	4628.2	4679.5
-26 dBc bandwidth (kHz)	4833.3	4846.1	4846.1
Measurement uncertainty (kHz)	<±52		

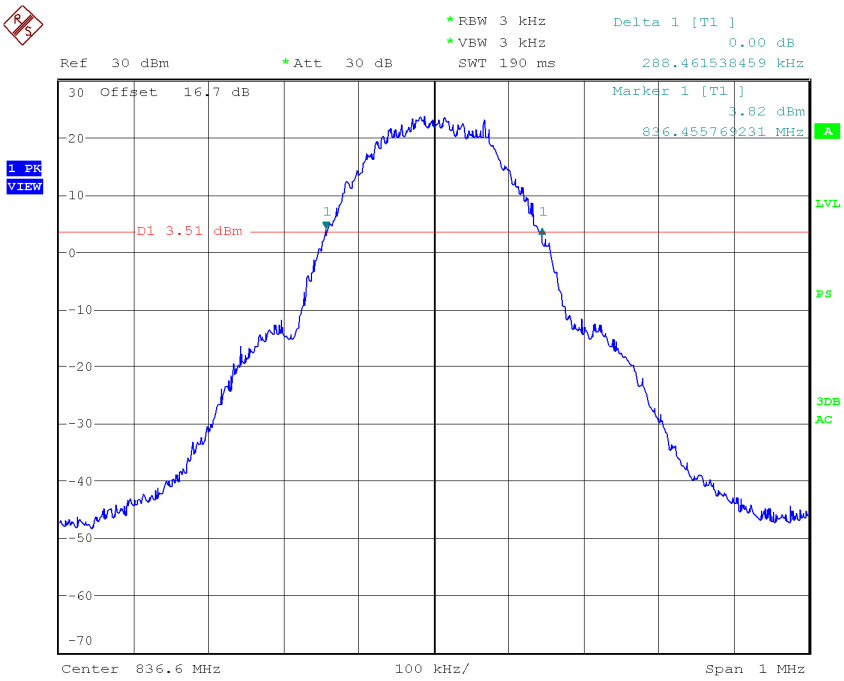
99% OCCUPIED BANDWIDTH

GPRS MODULATION

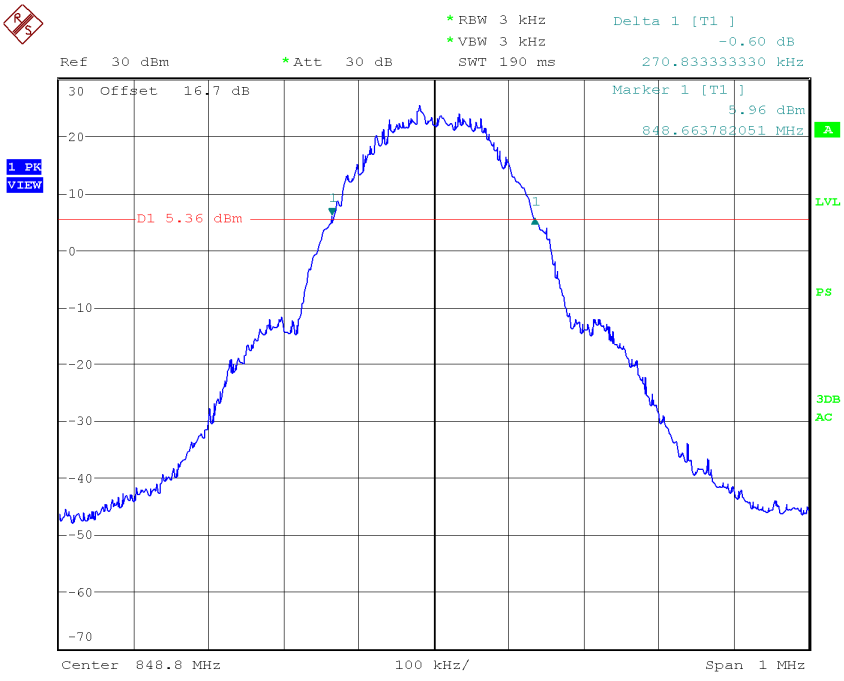
Lowest Channel



Middle Channel

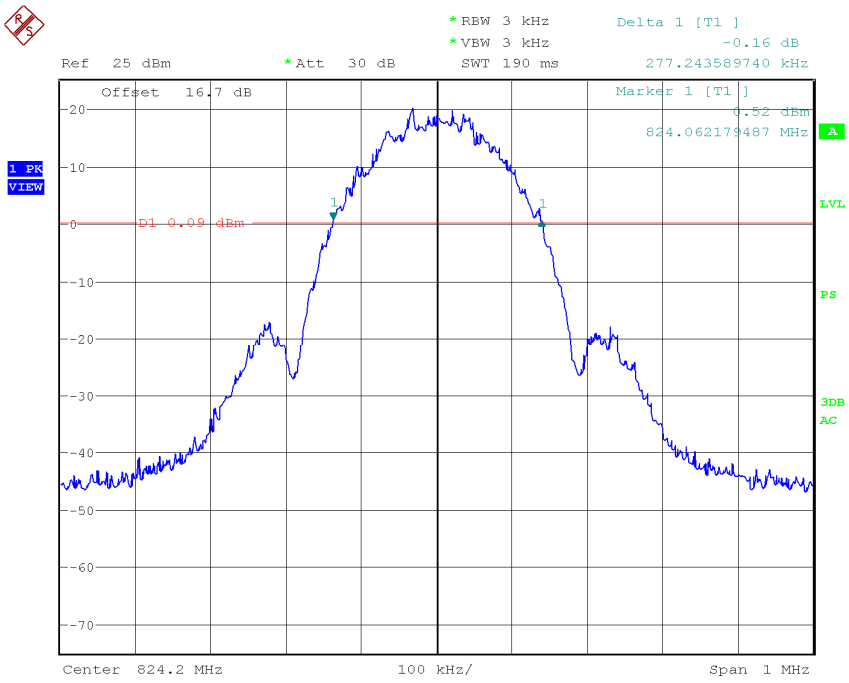


Highest Channel

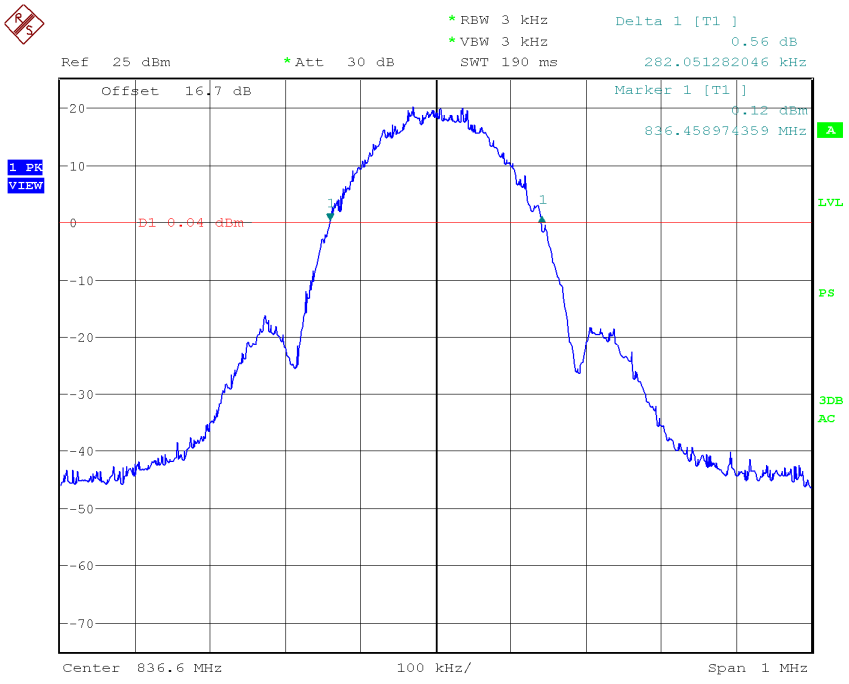


EDGE MODULATION

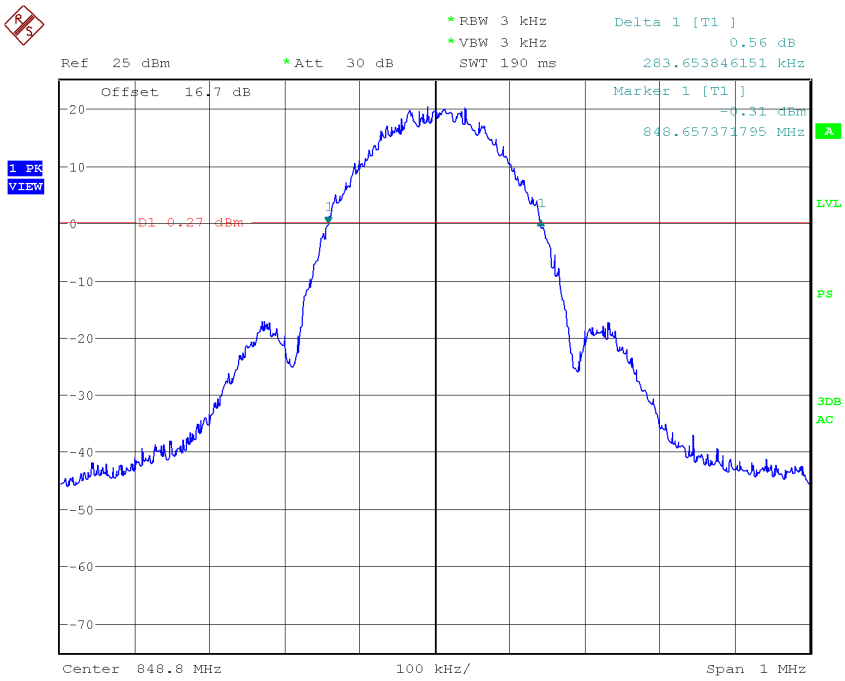
Lowest Channel



Middle Channel

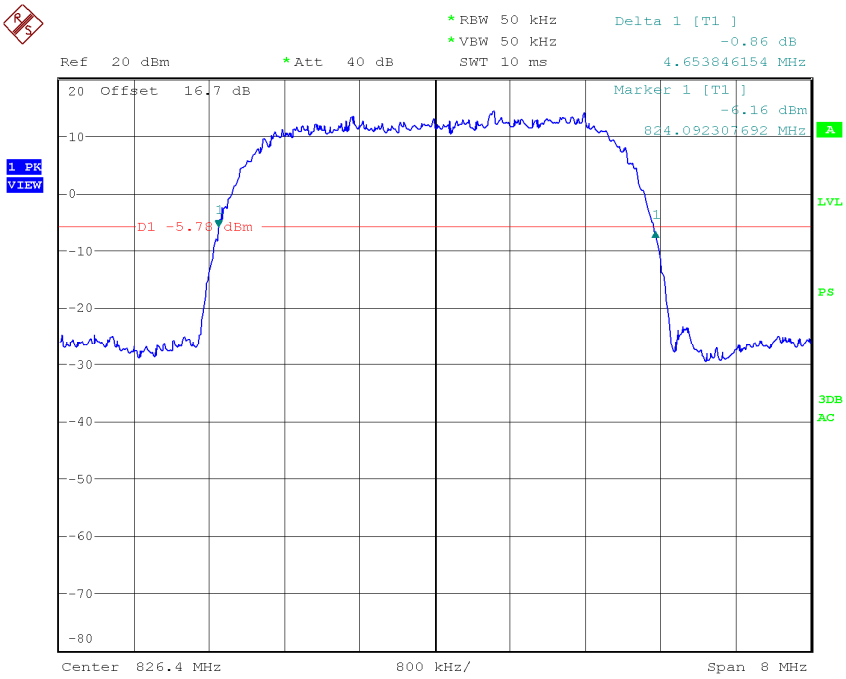


Highest Channel

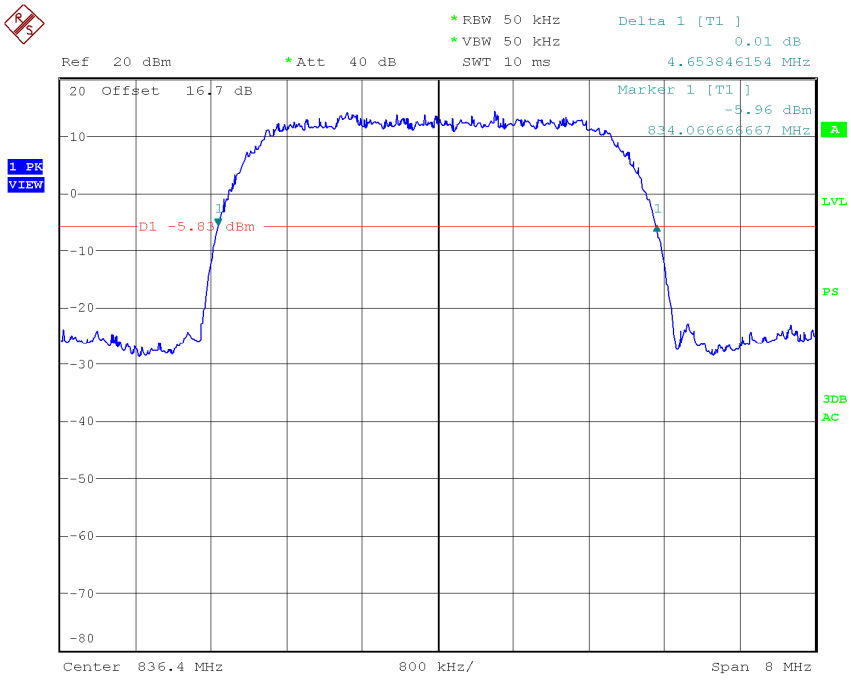


WCDMA MODULATION

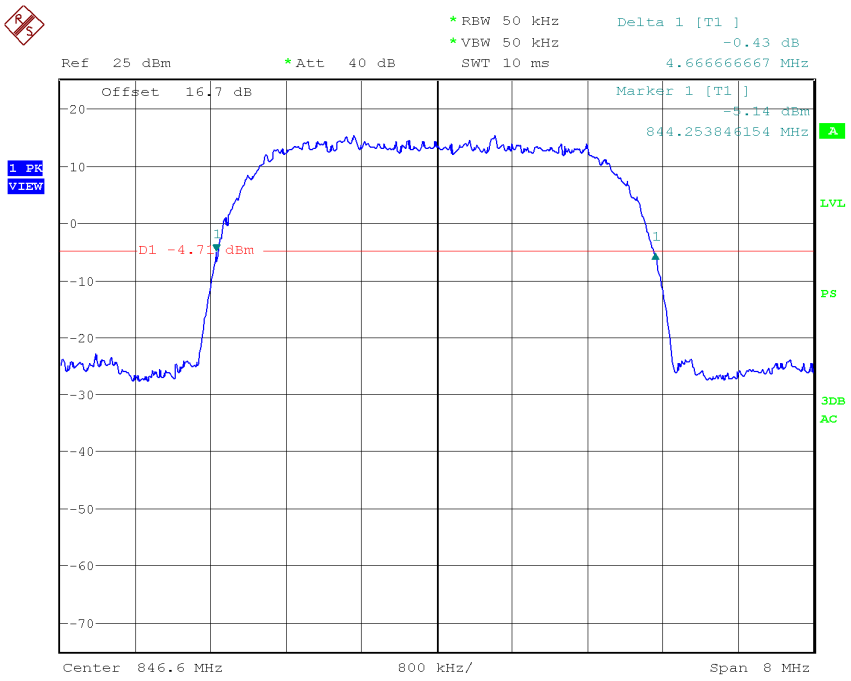
Lowest Channel



Middle Channel

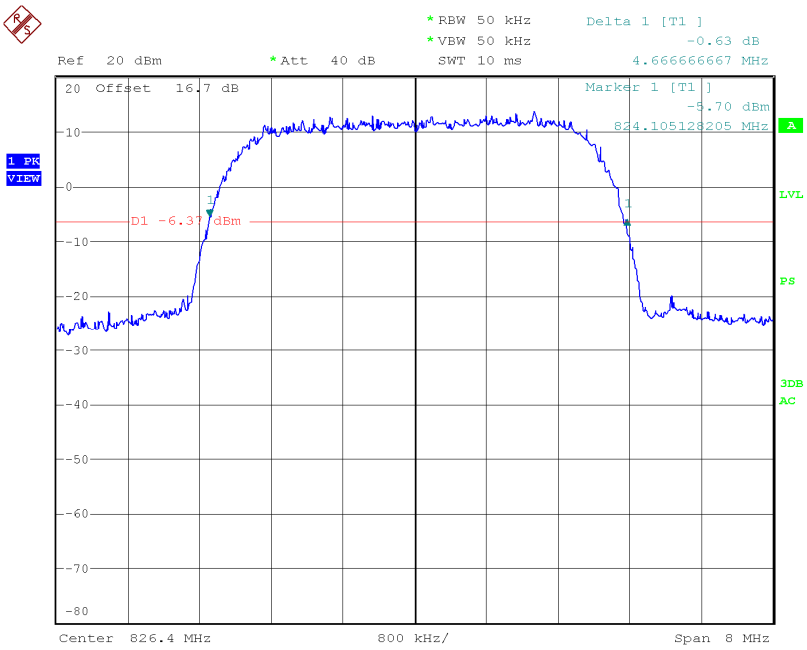


Highest Channel

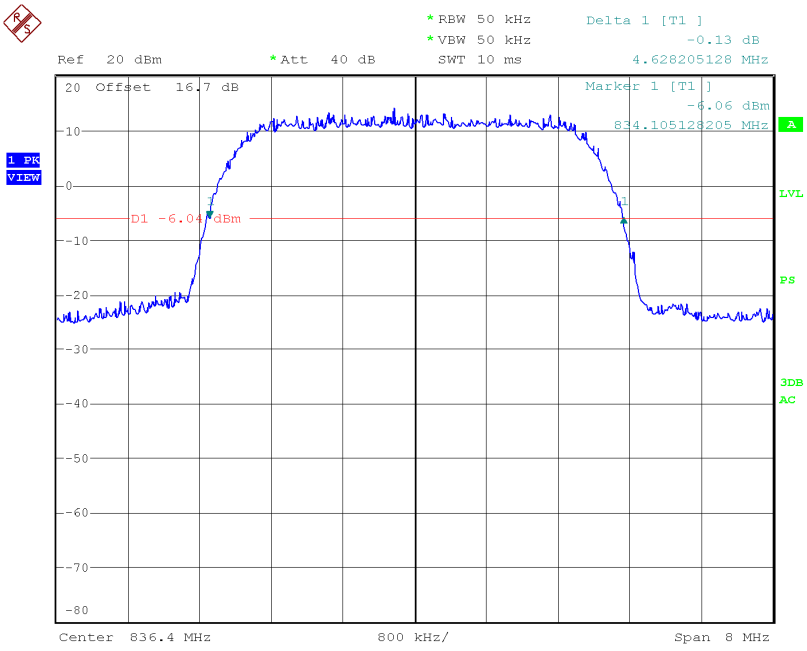


HSUPA MODULATION

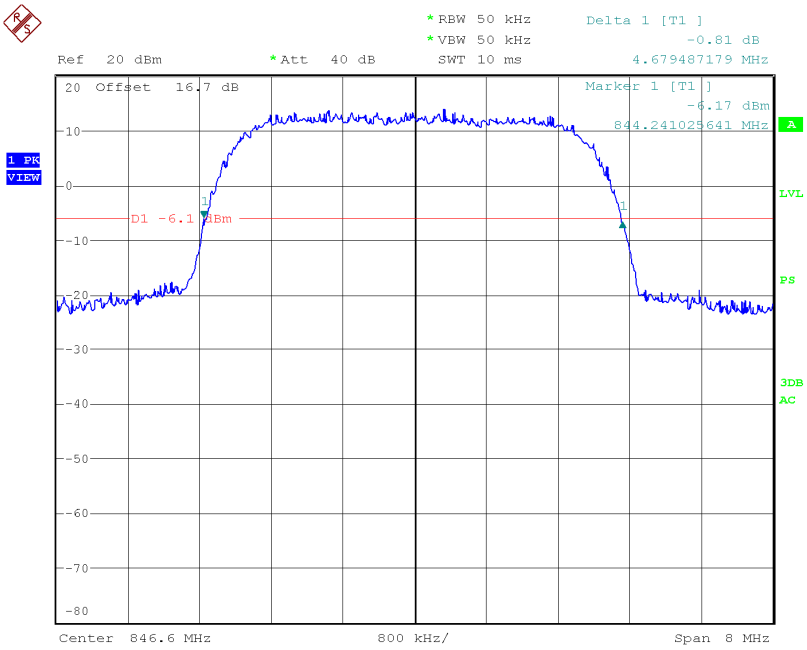
Lowest Channel



Middle Channel



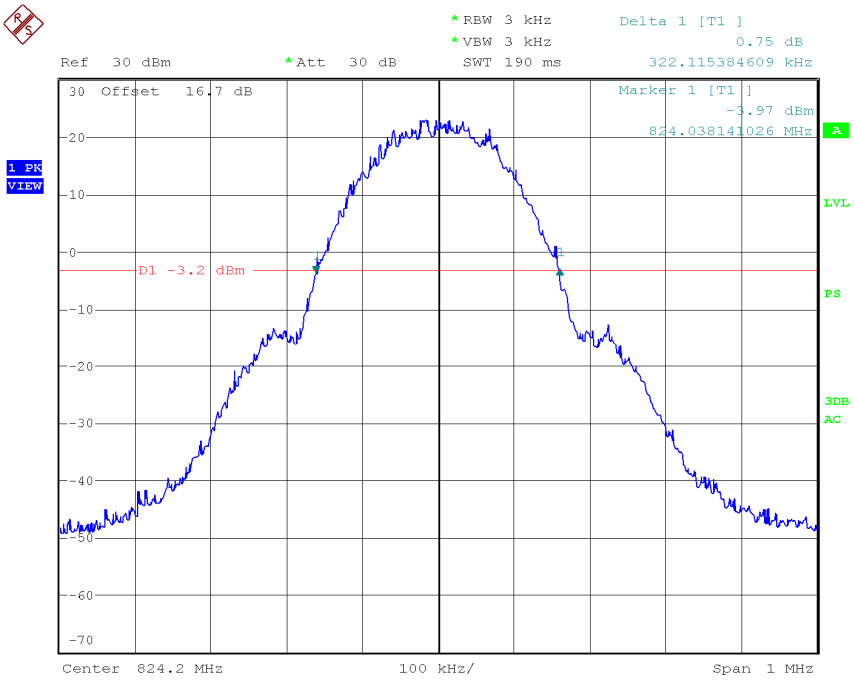
Highest Channel



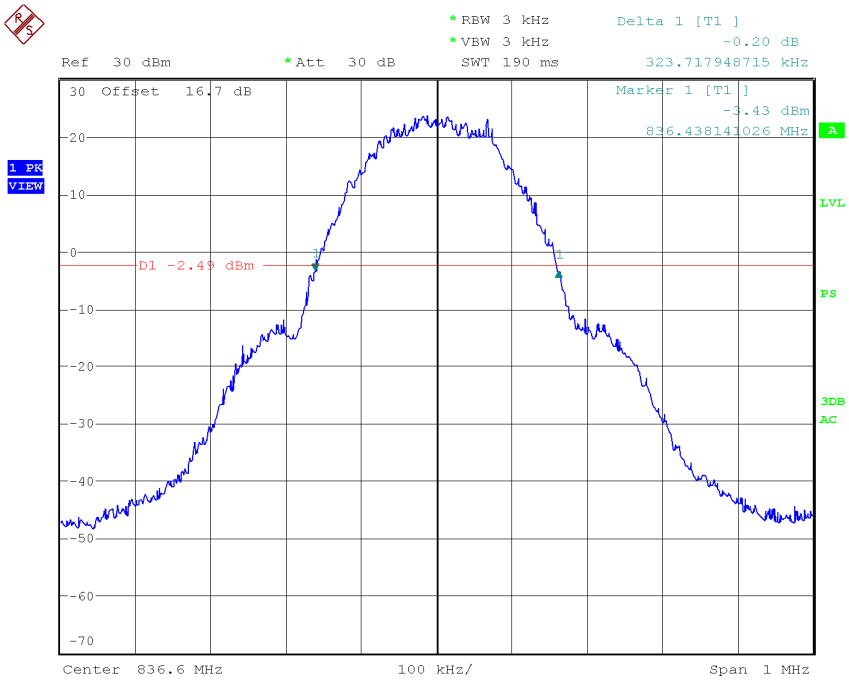
-26 dBc BANDWIDTH

GPRS MODULATION

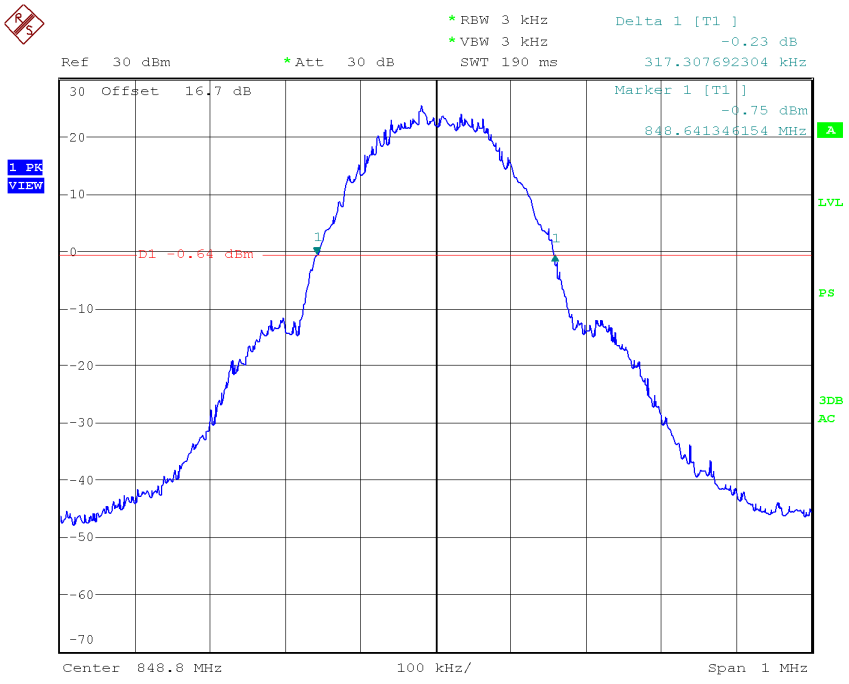
Lowest Channel



Middle Channel

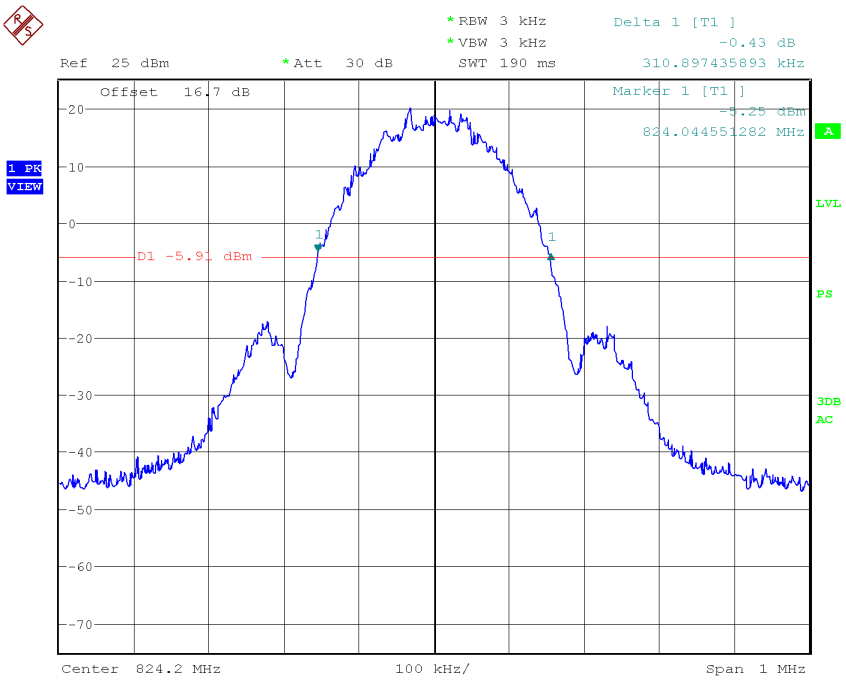


Highest Channel

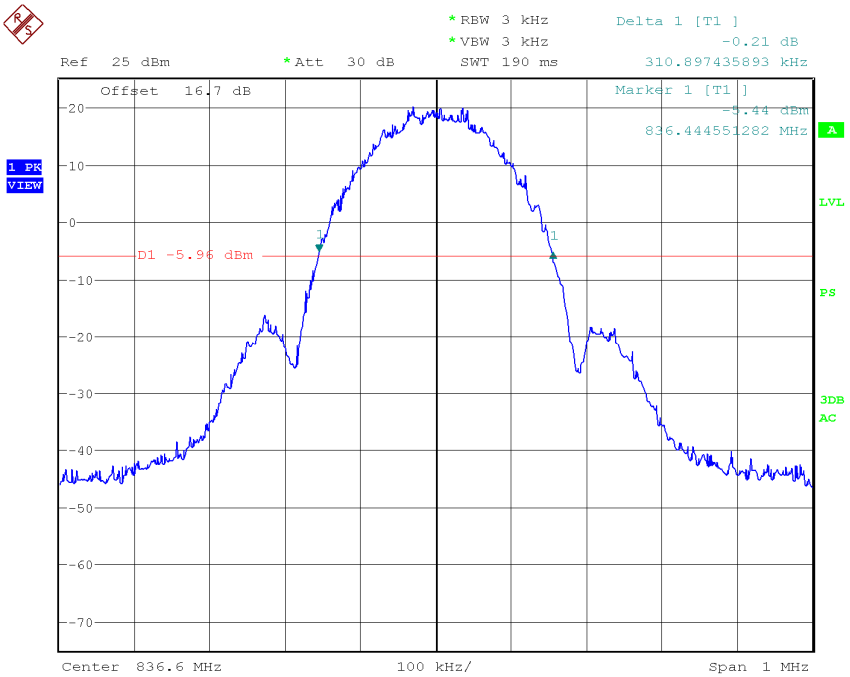


EDGE MODULATION

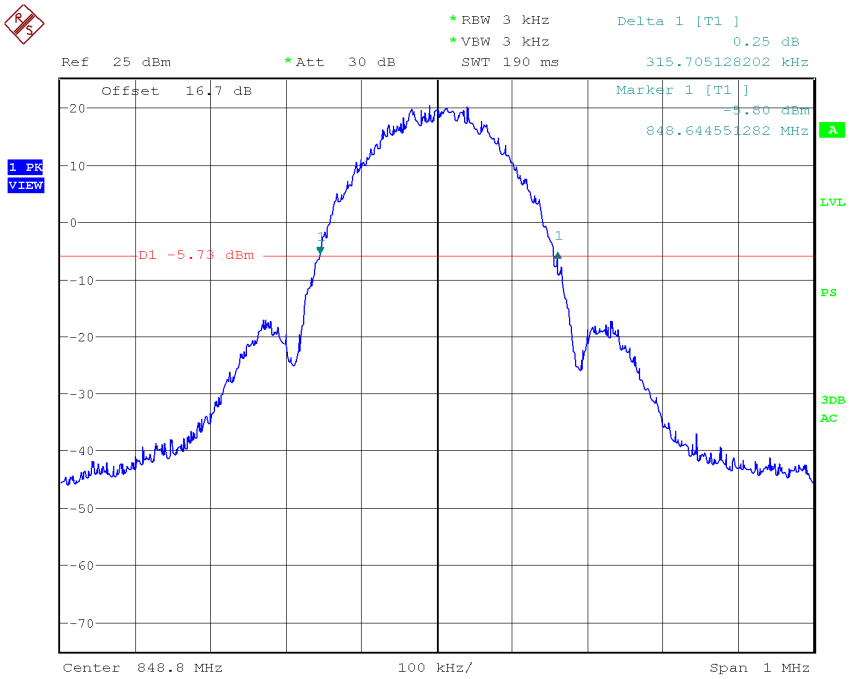
Lowest Channel



Middle Channel

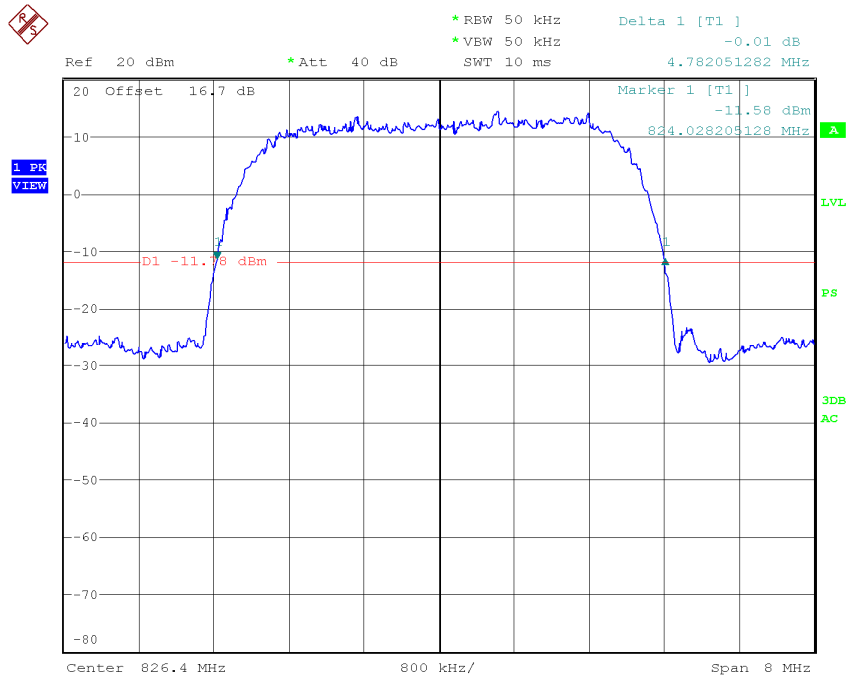


Highest Channel

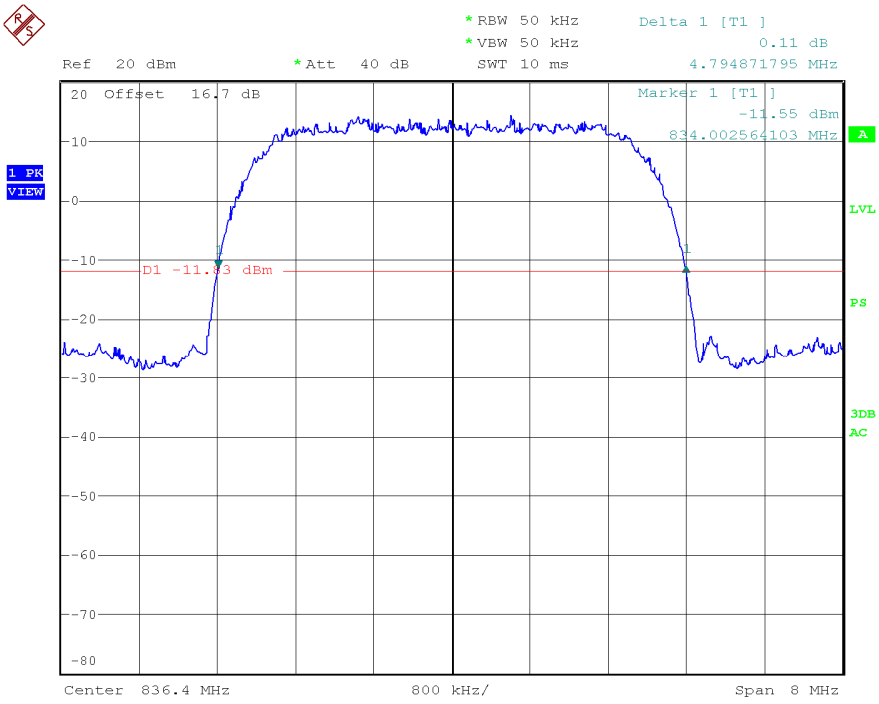


WCDMA MODULATION

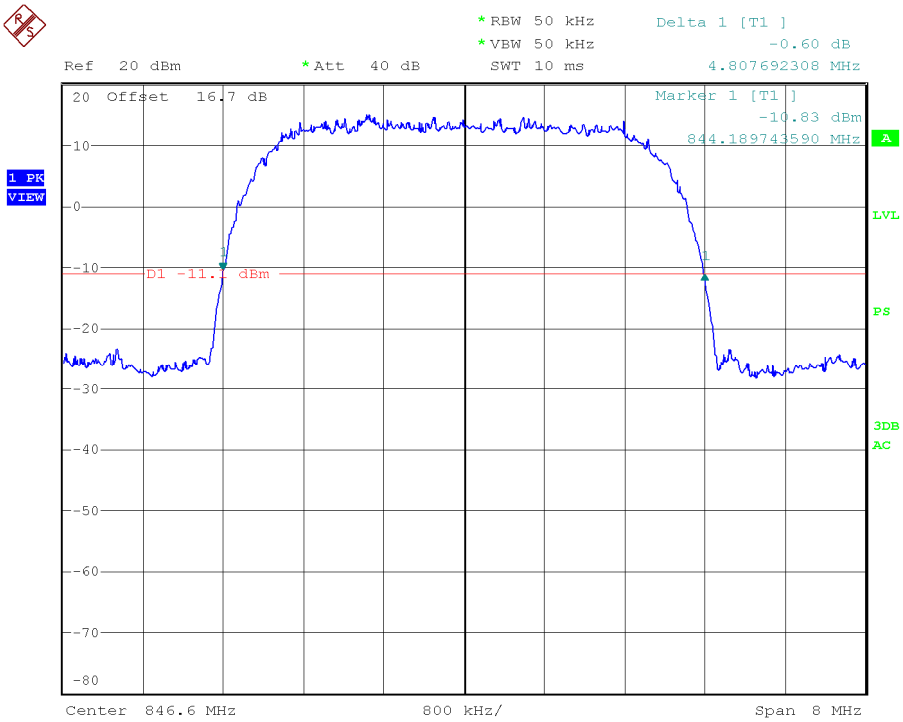
Lowest Channel



Middle Channel

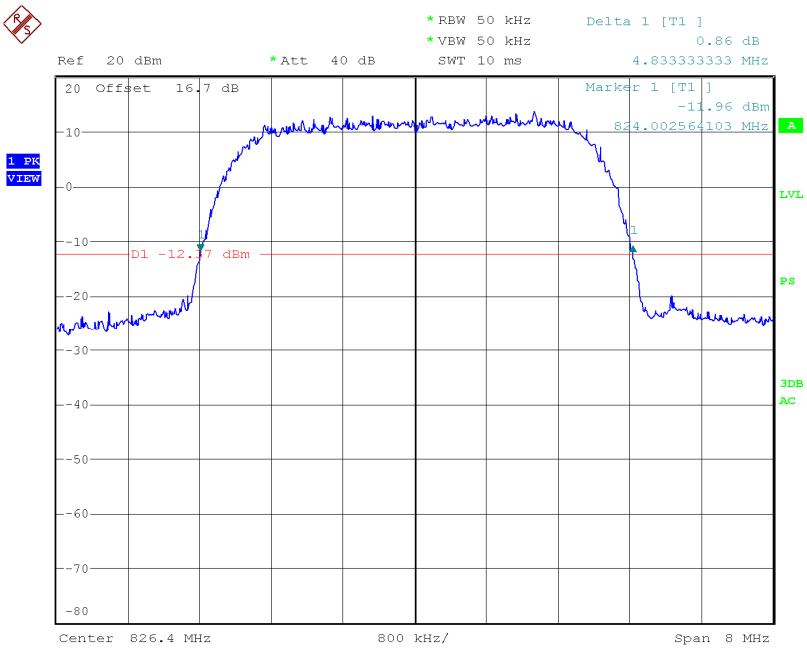


Highest Channel

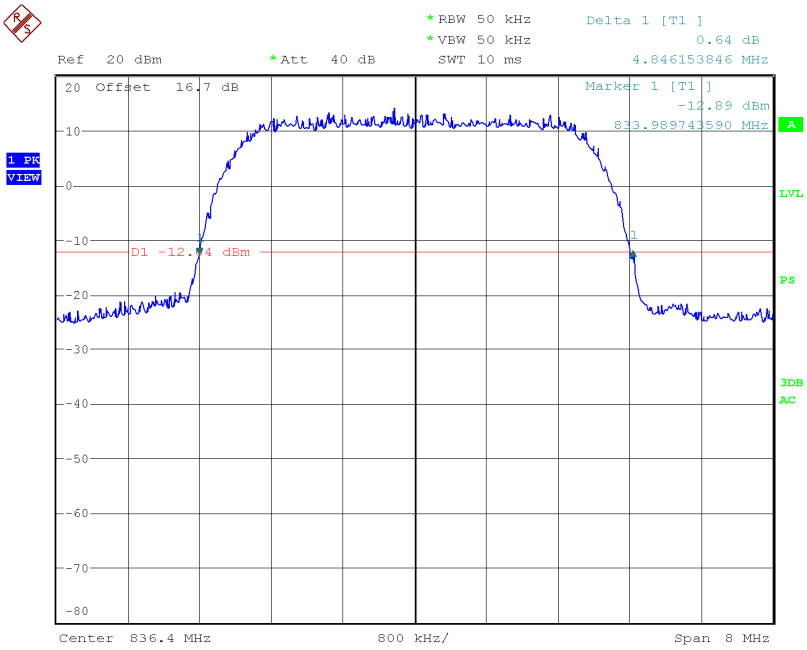


HSUPA MODULATION

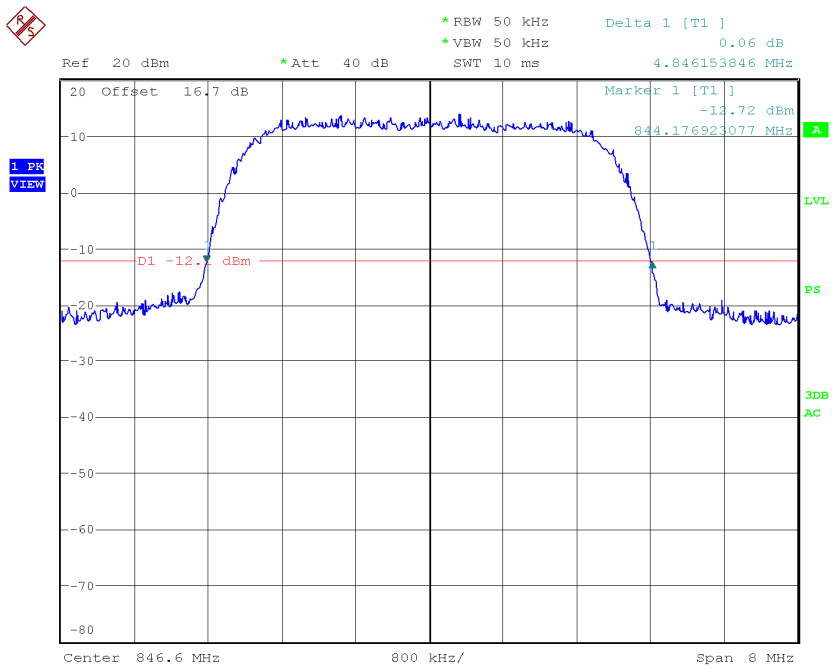
Lowest Channel



Middle Channel



Highest Channel



Spurious emissions at antenna terminals

SPECIFICATION

§2.1051 and §22.917

METHOD

The EUT RF output connector was connected to an spectrum analyser using an 50 ohm attenuator and the resolution bandwidth of the spectrum analyser was set to at least 100 kHz. The spectrum was investigated from 30 MHz to 10 GHz.

The reading of the spectrum analyser is corrected with the attenuation loss of connection between output terminal of EUT and input of the spectrum analyser.

Measurement Limit**:**

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB, P in watts.
At Po transmitting power, the specified minimum attenuation becomes 43+10log (Po), and the level in dBm relative Po becomes:

Po (dBm) – [43 + 10 log (Po in mwatts) - 30] = - 13 dBm

RESULTS (see plots in next pages)

GPRS MODULATION

1. CHANNEL: LOWEST
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

No spurious signals were found in all the range.

EDGE MODULATION

1. CHANNEL: LOWEST
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

No spurious signals were found in all the range.

WCDMA MODULATION

1. CHANNEL: LOWEST
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

No spurious signals were found in all the range.

HSUPA MODULATION

1. CHANNEL: LOWEST
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

No spurious signals were found in all the range.

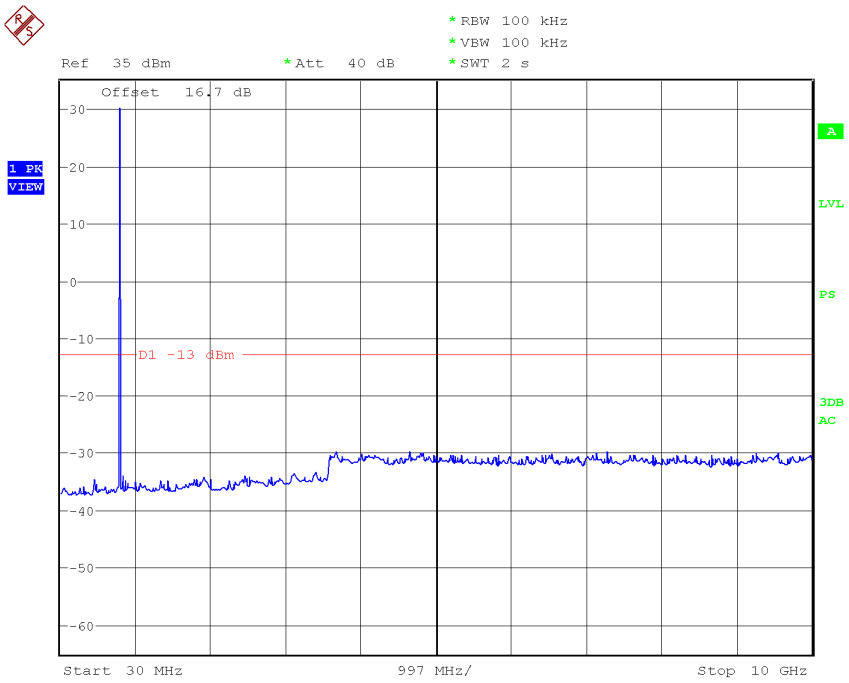
3. CHANNEL: HIGHEST

No spurious signals were found in all the range.

Verdict: PASS

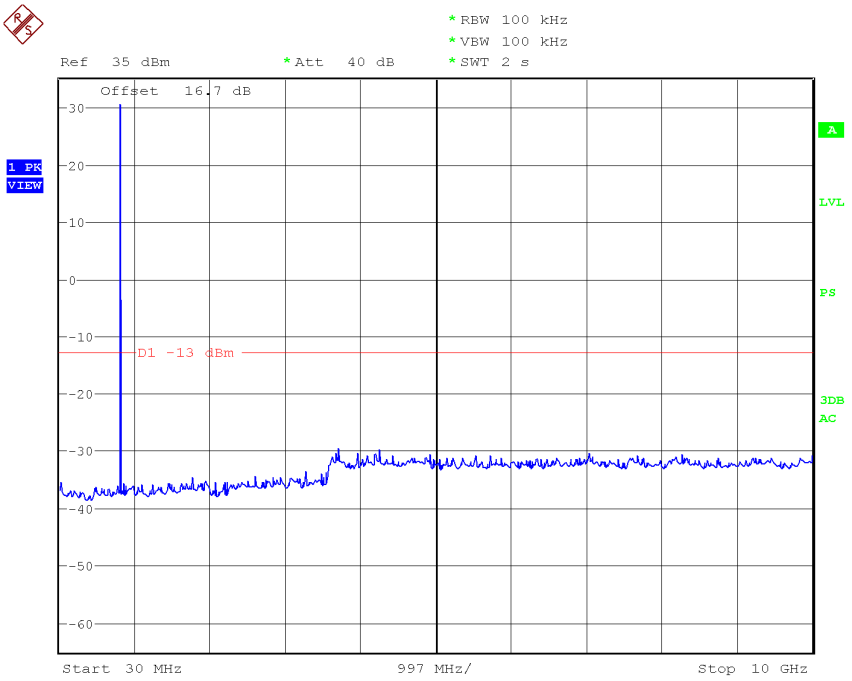
GPRS MODULATION

1. CHANNEL: LOWEST



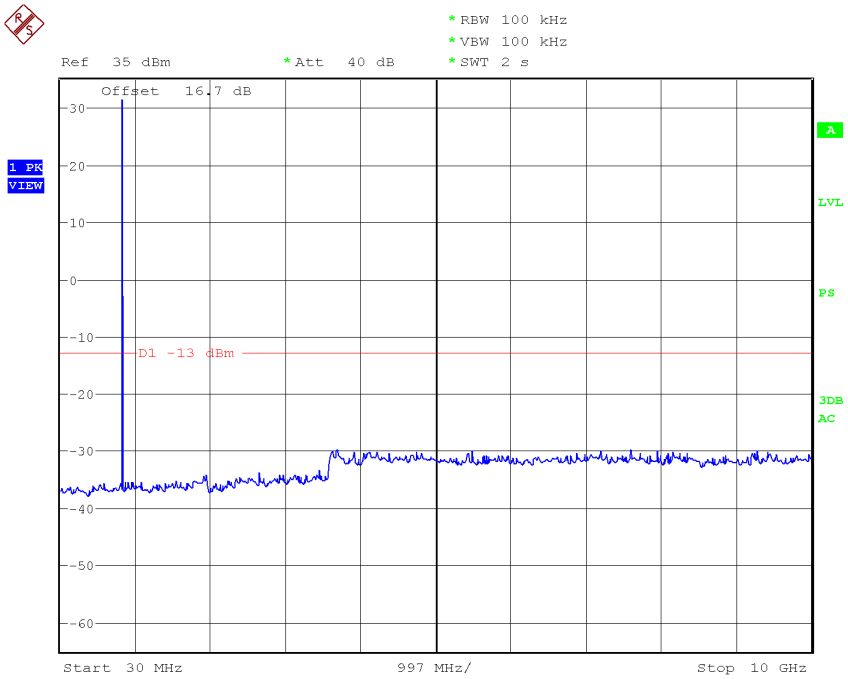
Note: The peak above the limit is the carrier frequency.

2. CHANNEL: MIDDLE



Note: The peak above the limit is the carrier frequency.

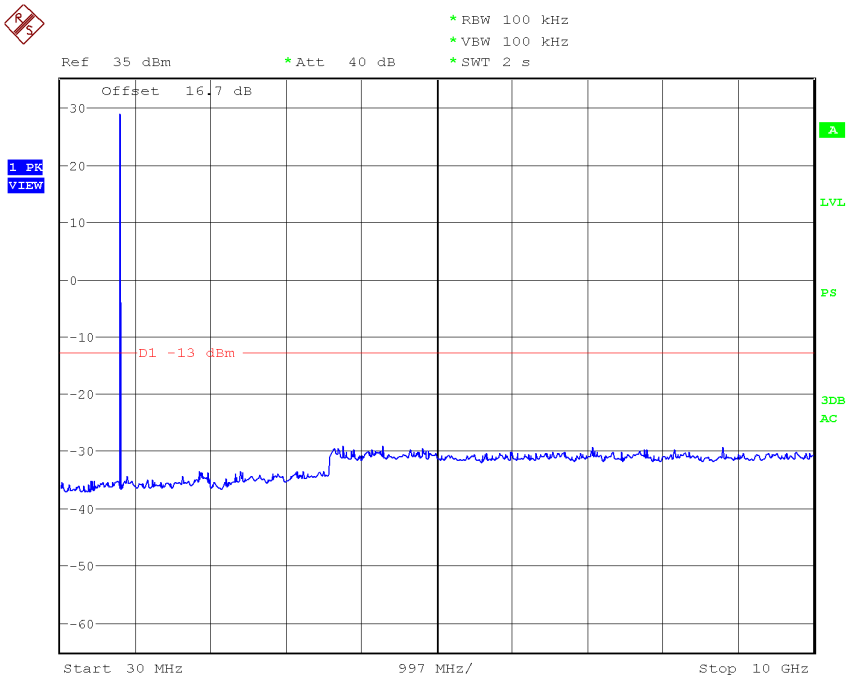
3. CHANNEL: HIGHEST



Note: The peak above the limit is the carrier frequency.

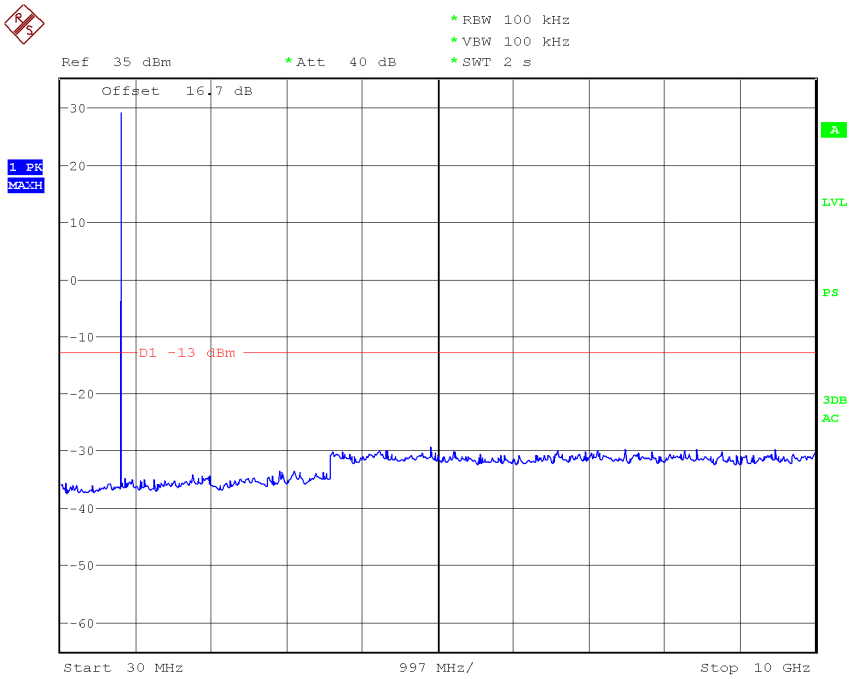
EDGE MODULATION

1. CHANNEL: LOWEST



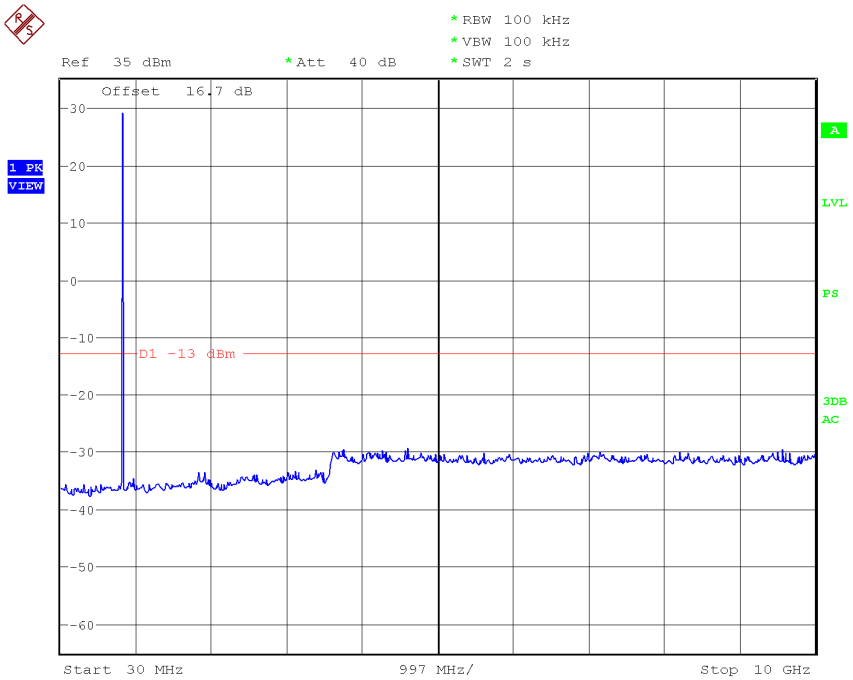
Note: The peak above the limit is the carrier frequency.

2. CHANNEL: MIDDLE



Note: The peak above the limit is the carrier frequency.

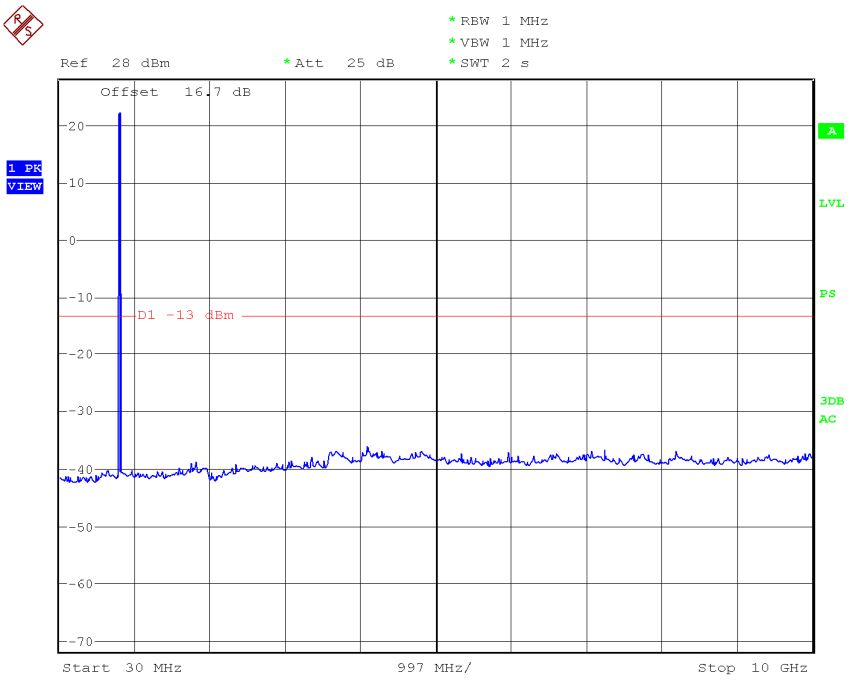
3. CHANNEL: HIGHEST



Note: The peak above the limit is the carrier frequency.

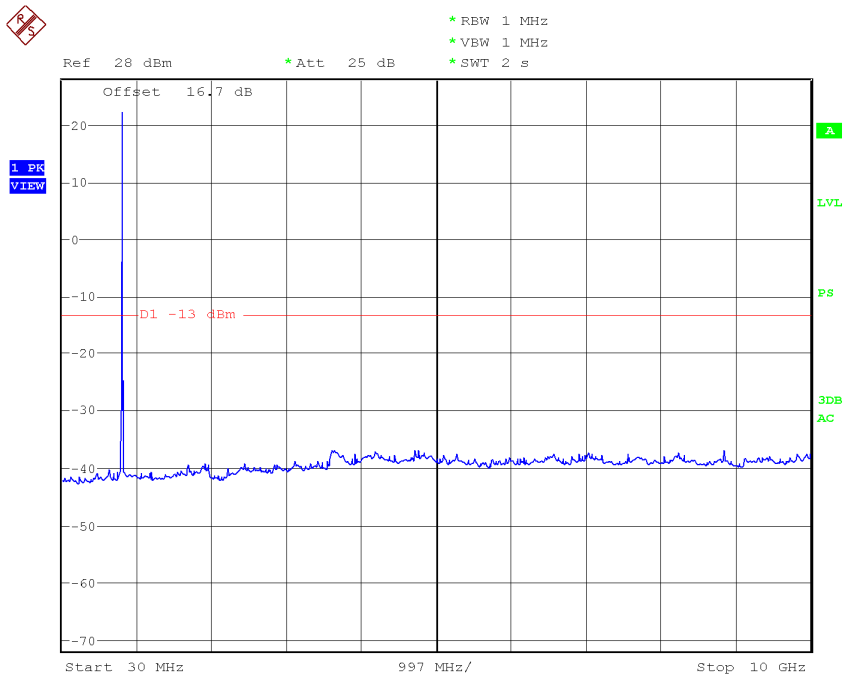
WCDMA MODULATION

1. CHANNEL: LOWEST



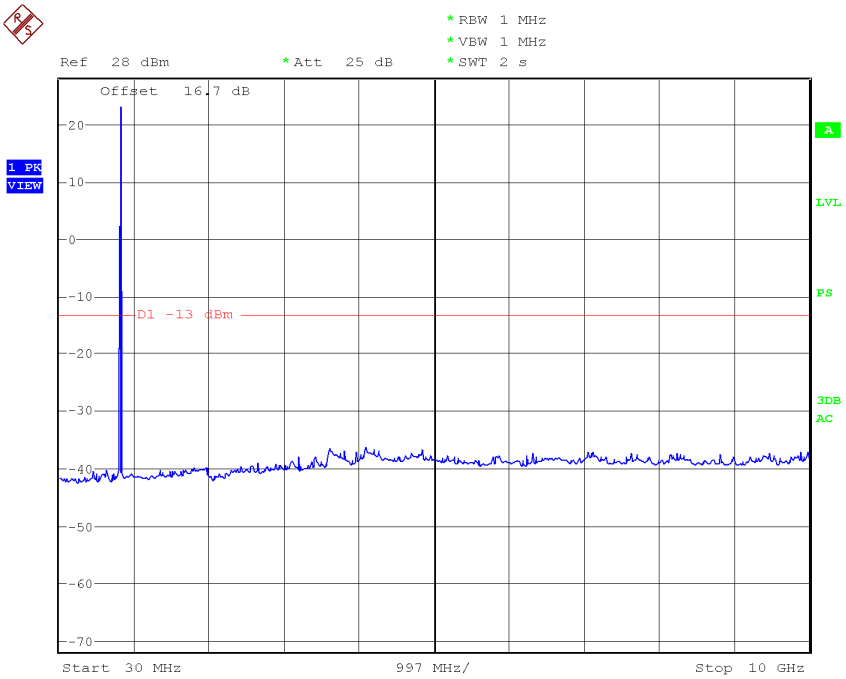
Note: The peak above the limit is the carrier frequency.

2. CHANNEL: MIDDLE



Note: The peak above the limit is the carrier frequency.

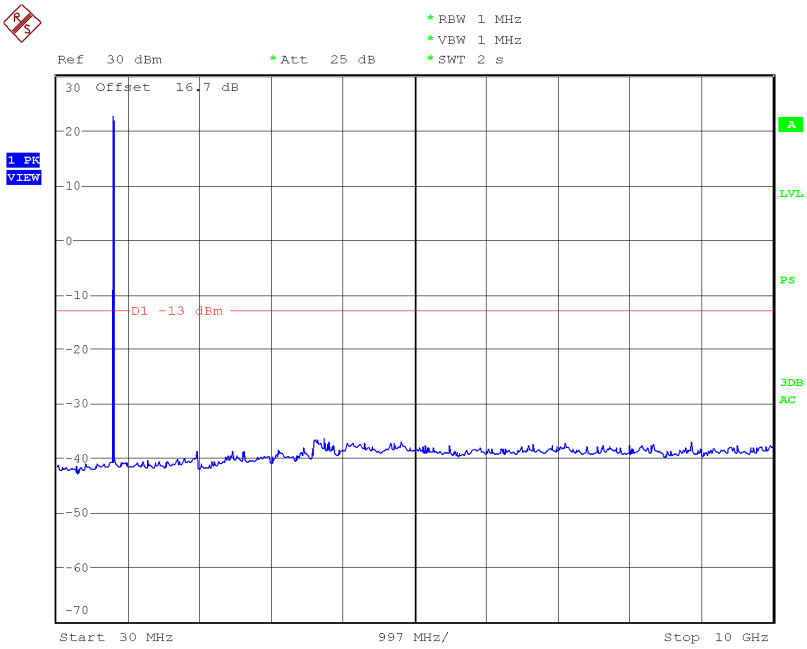
3. CHANNEL: HIGHEST



Note: The peak above the limit is the carrier frequency.

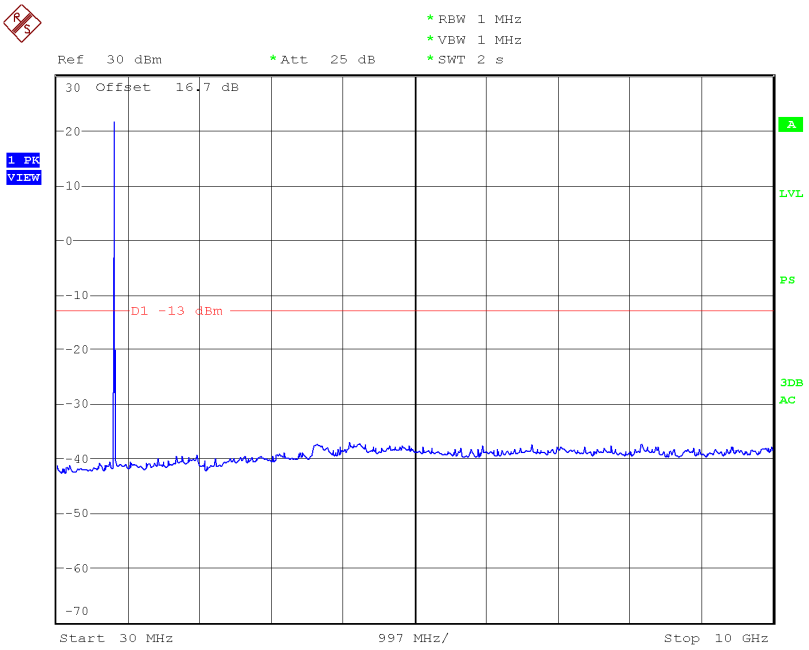
HSUPA MODULATION

1. CHANNEL: LOWEST



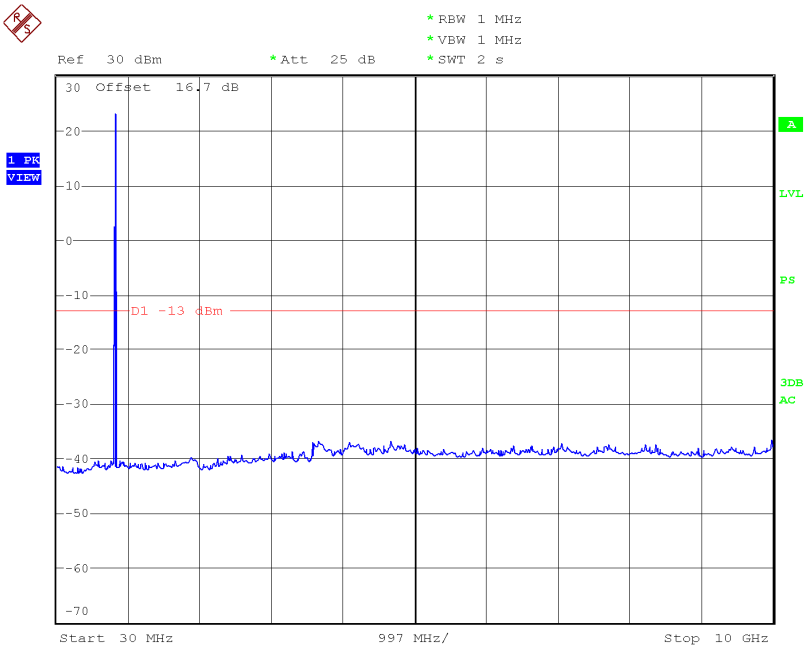
Note: The peak above the limit is the carrier frequency.

2. CHANNEL: MIDDLE



Note: The peak above the limit is the carrier frequency.

3. CHANNEL: HIGHEST



Note: The peak above the limit is the carrier frequency.

SPECIFICATION

§2.1051 and §22.917

METHOD

As indicated in FCC part 22, in the 1 MHz bands immediately outside and adjacent to the frequency block or band a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A resolution bandwidth of 3.3 kHz was used for GPRS and EDGE modulations, and 51 kHz for WCDMA and HSUPA modulations.

Measurement Limit**:**

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB, P in watts.
At Po transmitting power, the specified minimum attenuation becomes 43+10log (Po), and the level in dBm relative Po becomes:

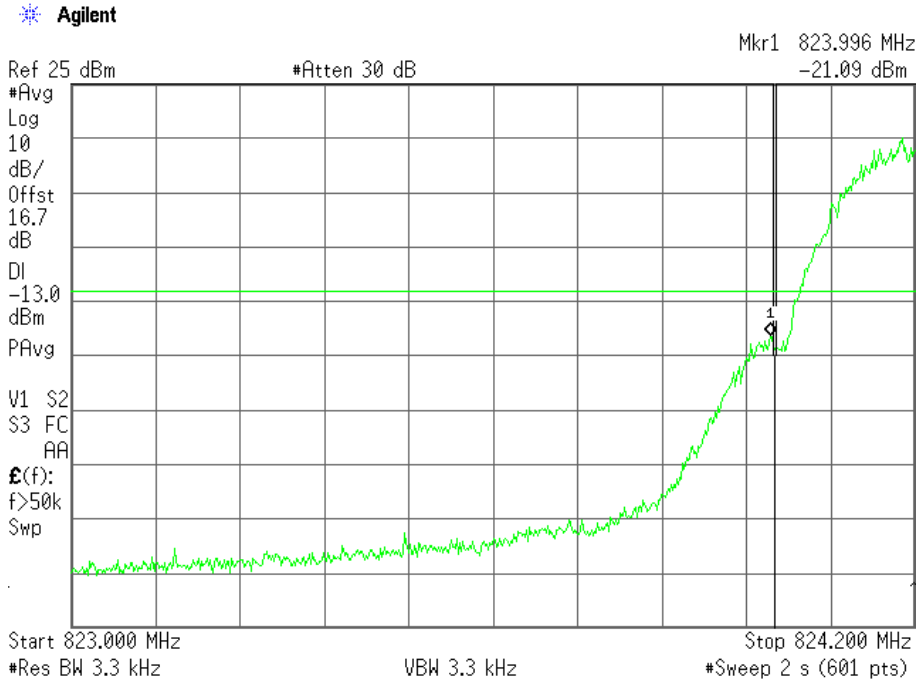
Po (dBm) – [43 + 10 log (Po in mwatts) - 30] = - 13 dBm

RESULTS (see plots in next pages)

Measurement uncertainty = ±1.57 dB.

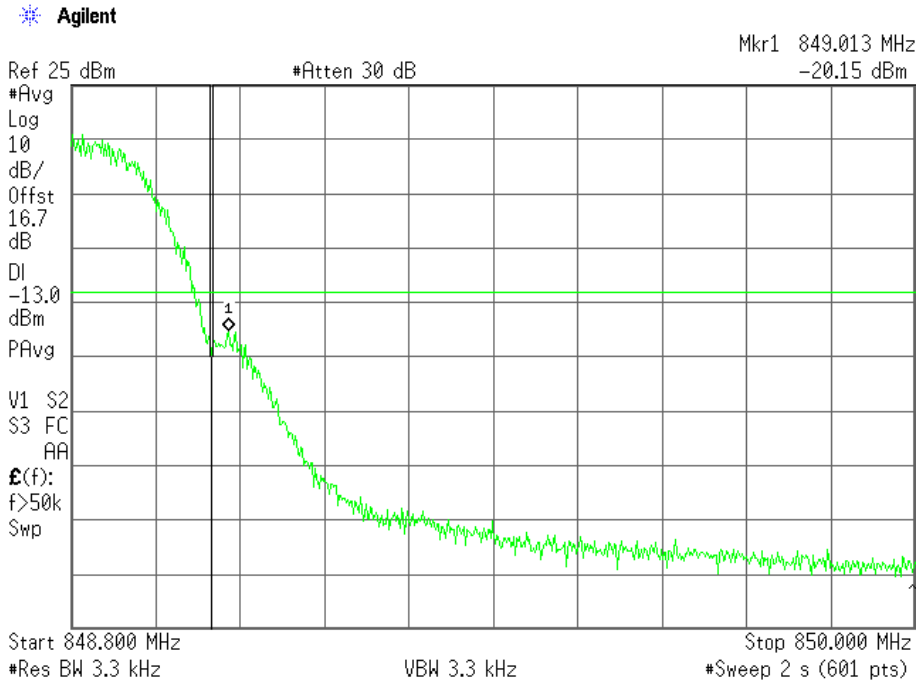
GPRS MODULATION

CHANNEL LOWEST



NOTE: The equipment transmits at the maximum output power

CHANNEL HIGHEST

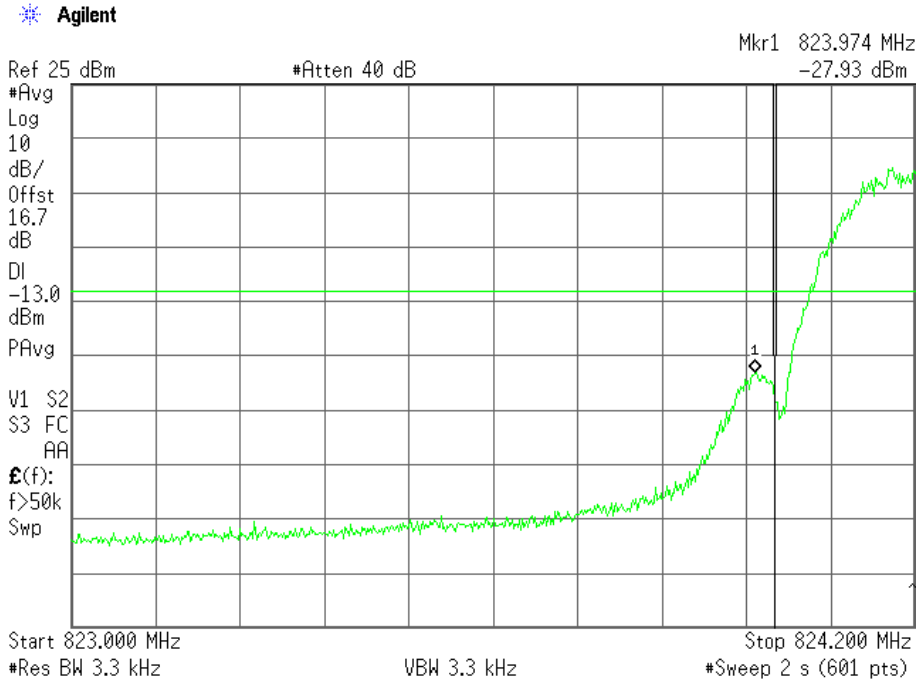


NOTE: The equipment transmits at the maximum output power

Verdict: PASS

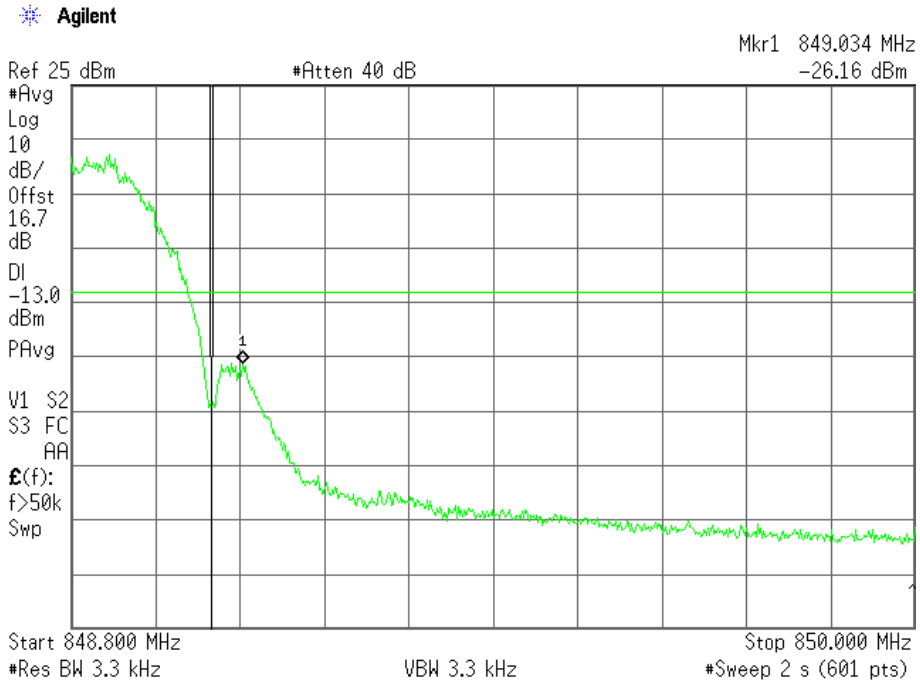
EDGE MODULATION

CHANNEL LOWEST



NOTE: The equipment transmits at the maximum output power

CHANNEL HIGHEST

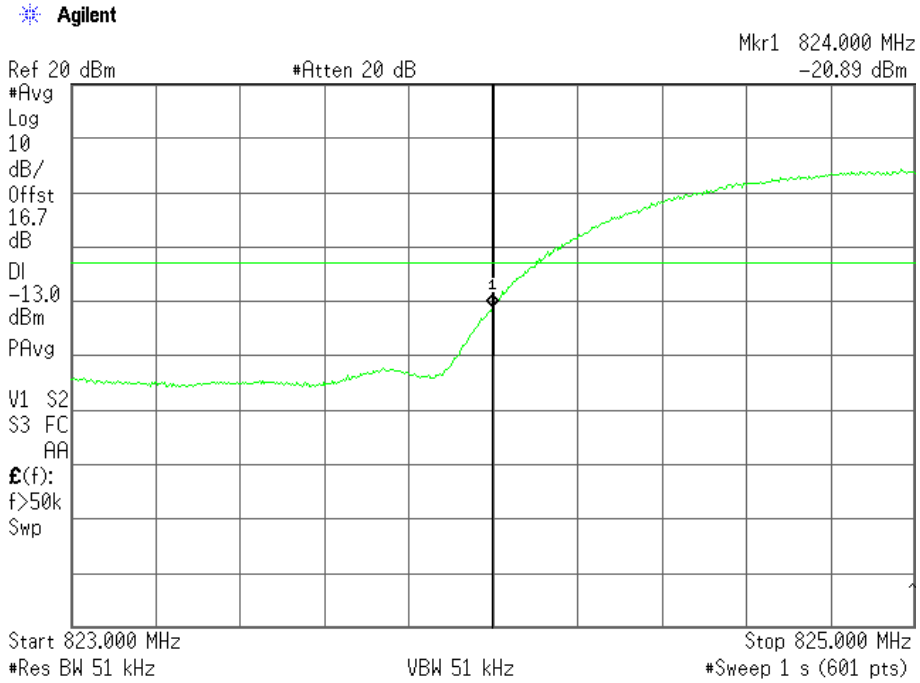


NOTE: The equipment transmits at the maximum output power

Verdict: PASS

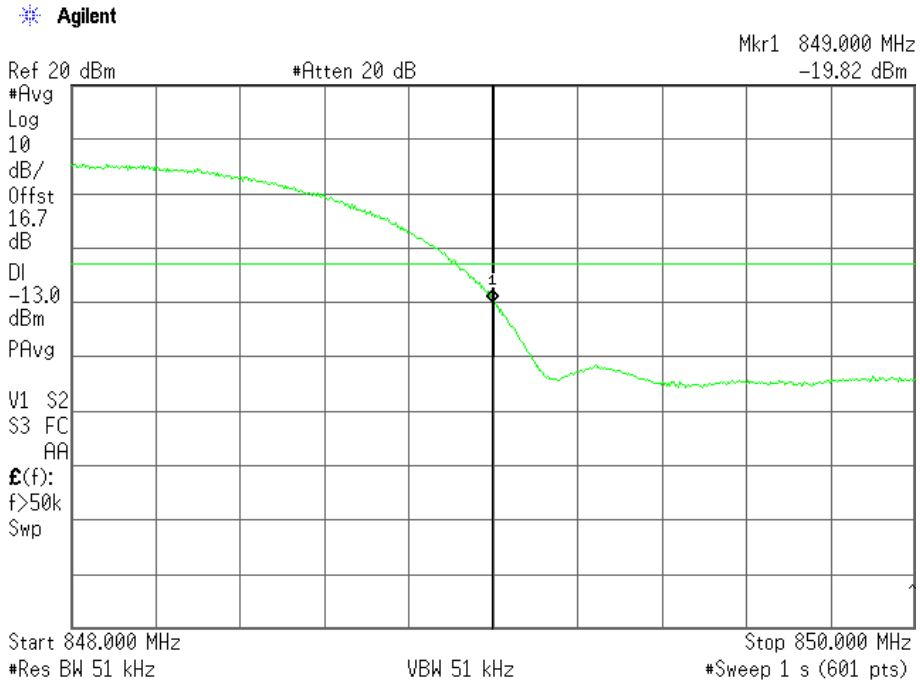
WCDMA MODULATION

CHANNEL LOWEST



NOTE: The equipment transmits at the maximum output power

CHANNEL HIGHEST

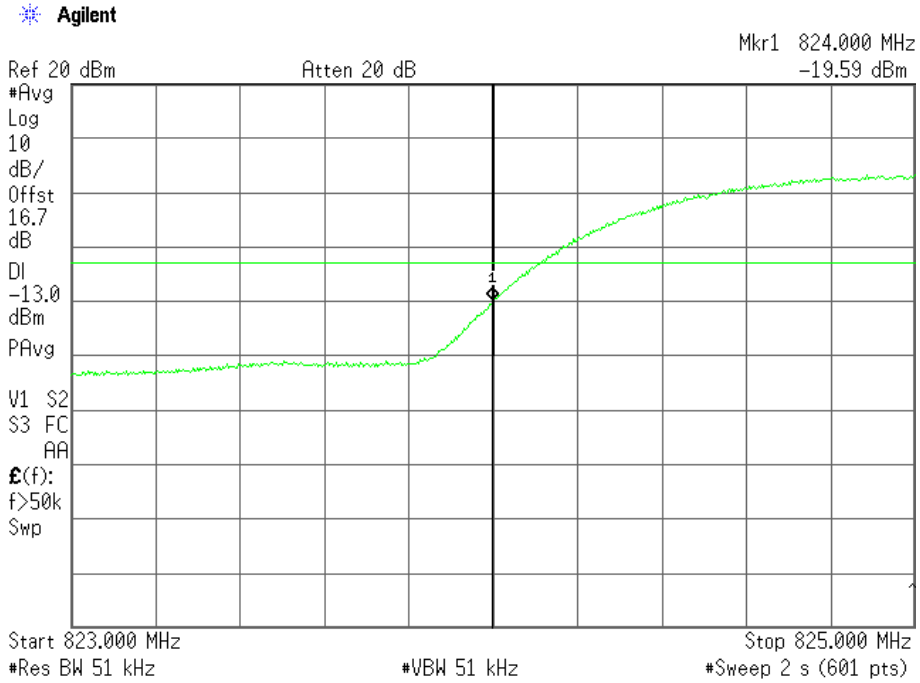


NOTE: The equipment transmits at the maximum output power

Verdict: PASS

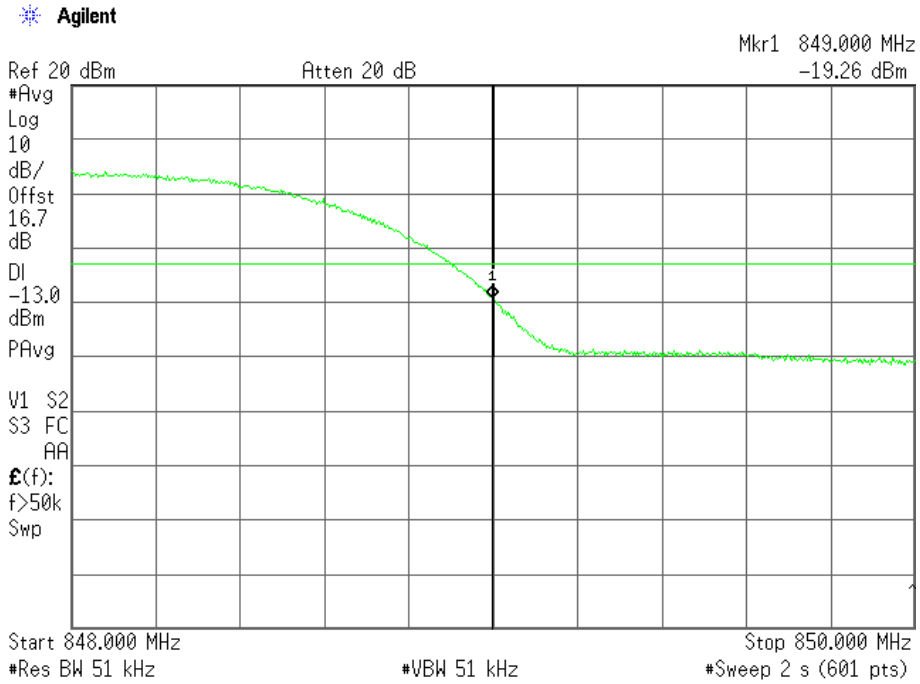
HSUPA MODULATION

CHANNEL LOWEST



NOTE: The equipment transmits at the maximum output power

CHANNEL HIGHEST



NOTE: The equipment transmits at the maximum output power

Verdict: PASS

Radiated emissions

SPECIFICATION

§ 22.917

METHOD

The measurement was performed with the EUT inside an anechoic chamber. The spectrum was scanned from 30 MHz to at least the 10th harmonic of the highest frequency generated within the equipment.

The EUT was placed on a 1 meter high non-conductive stand at a 3 meter distance from the measuring antenna for measurements below 1 GHz and at 1 m distance for measurements above 1 GHz.

Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum meter reading was recorded. The radiated emissions were measured with peak detector and 1 MHz bandwidth.

Each detected emissions were substituted by the Substitution method, in accordance with the ANSI/TIA/EIA-603-C: 2004.

Measurement Limit**:**

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB, P in watts.
At Po transmitting power, the specified minimum attenuation becomes 43+10log (Po), and the level in dBm relative Po becomes:

Po (dBm) – [43 + 10 log (Po in mwatts) - 30] = - 13 dBm

RESULTS

GPRS MODULATION

1. CHANNEL: LOWEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.
No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.

Carrier level (dBm) = 33.1

Spurious frequency (MHz)	Level (dBm)	Polarization	Attenuation below carrier (dBc)	Measurement Uncertainty (dB)
1697.5839	-31.28	Horizontal	64.38	±4.0
2546.5282	-29.21	Horizontal	62.31	±4.0

EDGE MODULATION

1. CHANNEL: LOWEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.
No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.
No spurious signals were found in all the range.

WCDMA MODULATION

1. CHANNEL: LOWEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.
No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.

No spurious signals were found in all the range.

HSUPA MODULATION

1. CHANNEL: LOWEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.
No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-12.75 GHz.

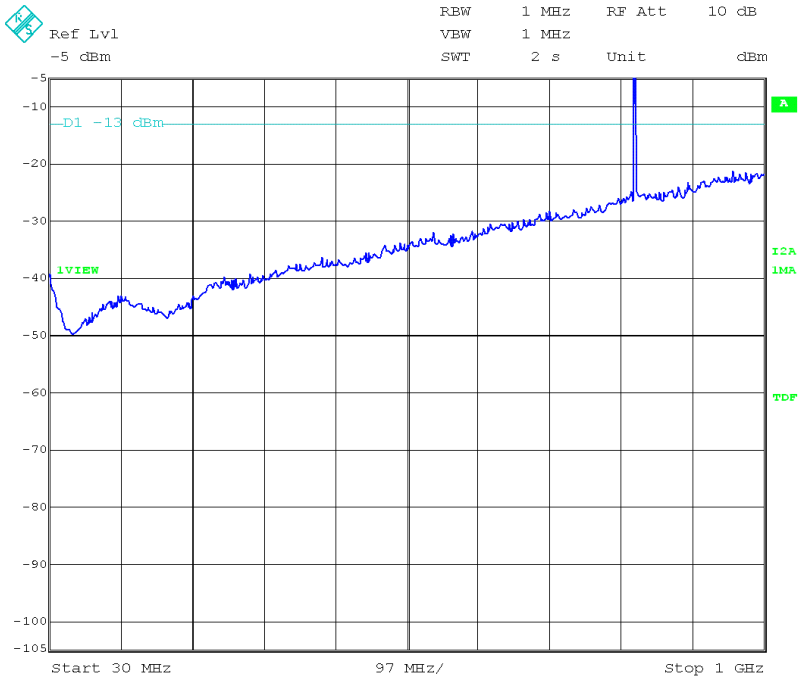
No spurious signals were found in all the range.

Verdict: PASS

GPRS MODULATION

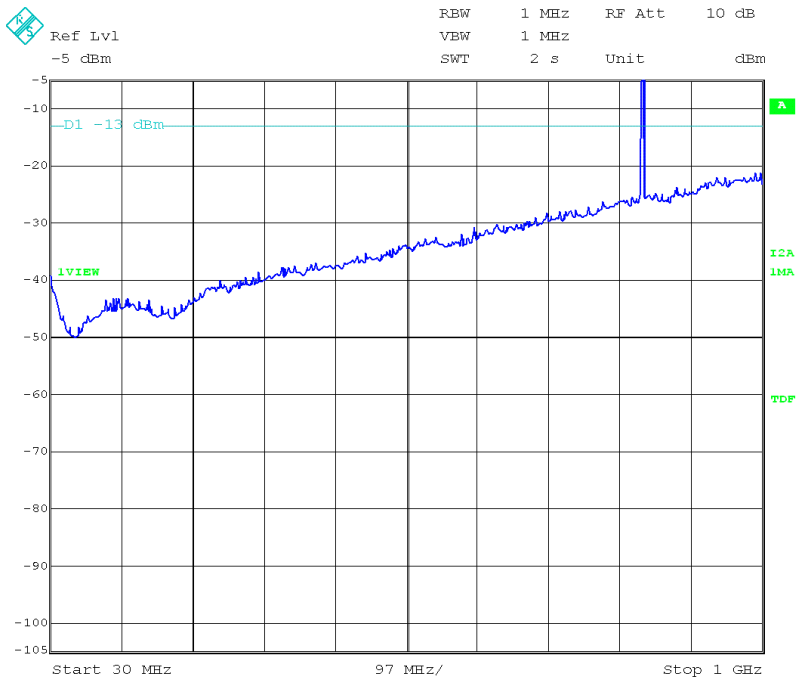
FREQUENCY RANGE 30 MHz-1000 MHz.

CHANNEL: LOWEST



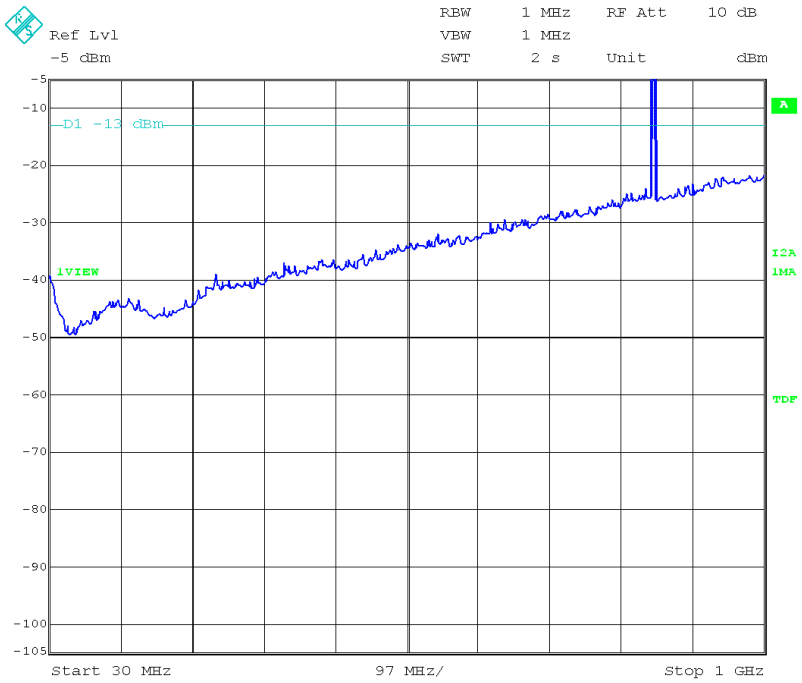
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



Note: The peak above the limit is the carrier frequency.

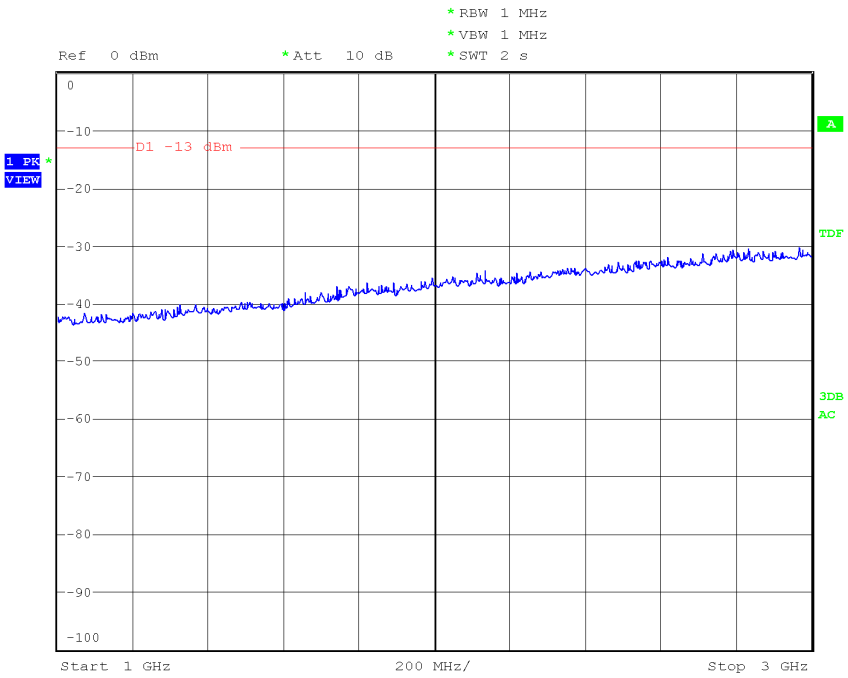
CHANNEL: HIGHEST



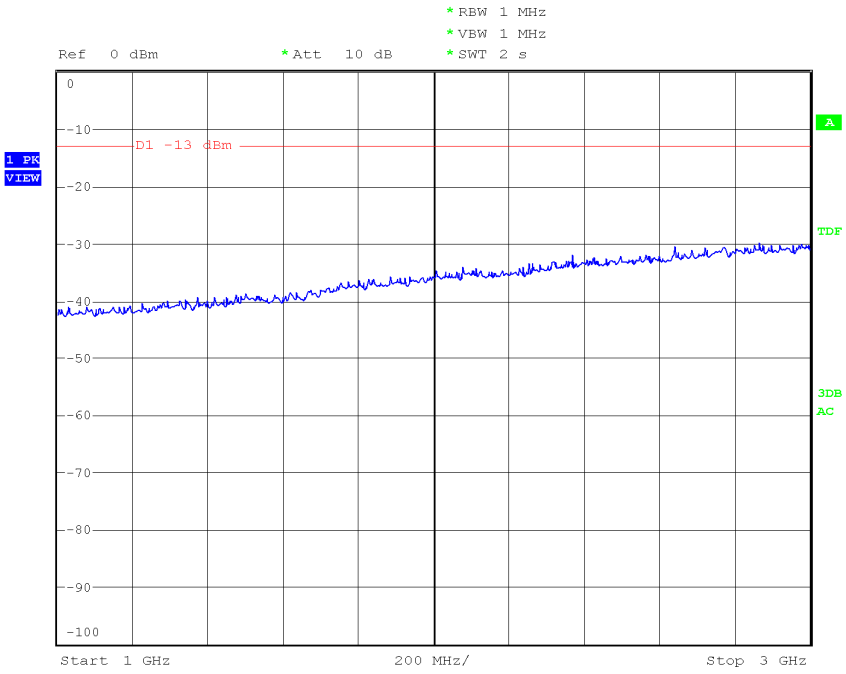
Note: The peak above the limit is the carrier frequency.

<u>FREQUENCY RANGE 1 GHz to 3 GHz.</u>

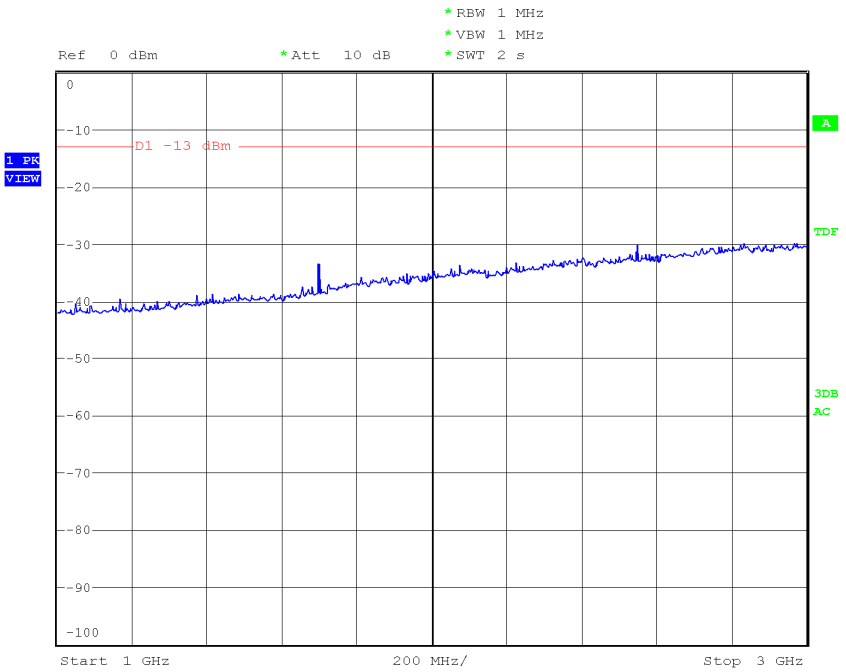
CHANNEL: LOWEST



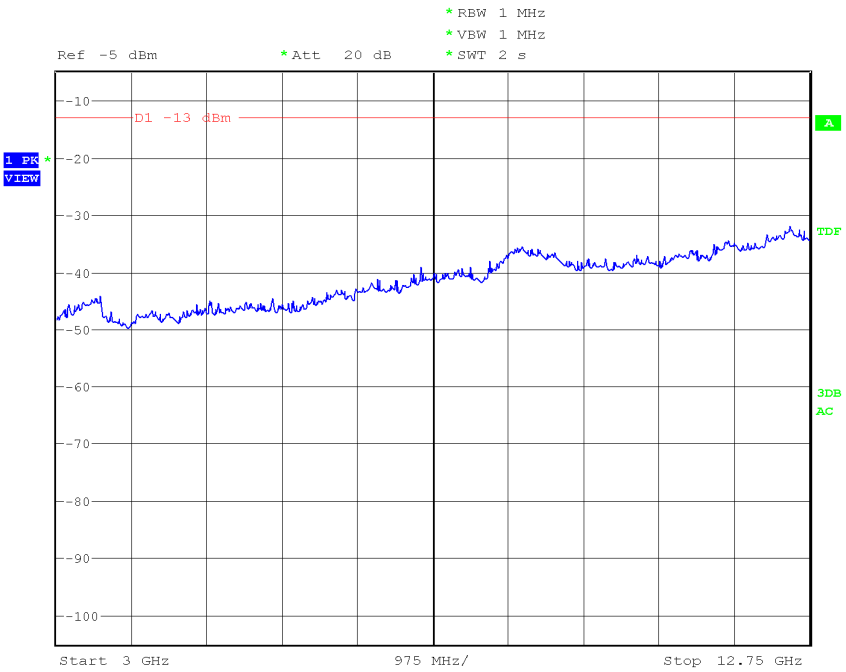
CHANNEL: MIDDLE



CHANNEL: HIGHEST



FREQUENCY RANGE 3 GHz to 12.75 GHz.

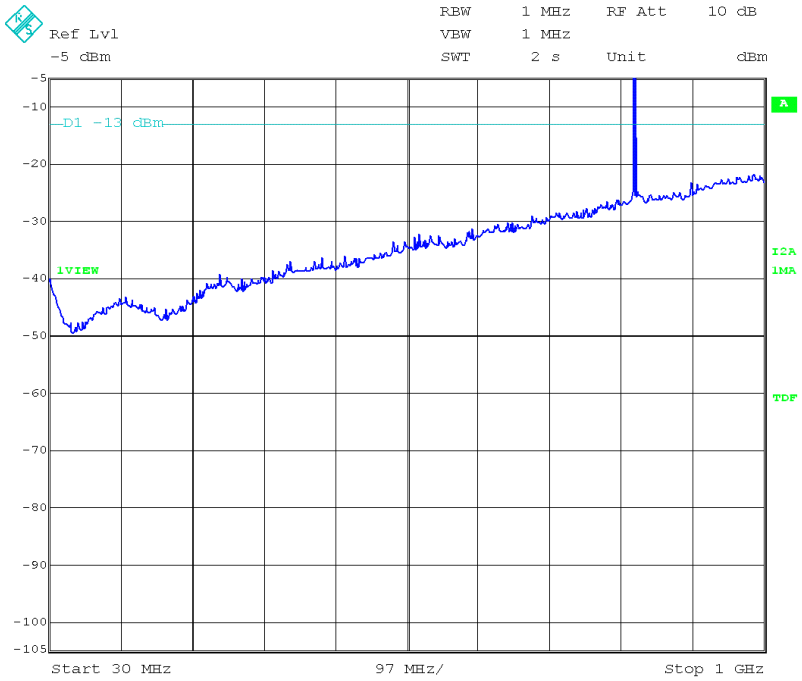


(This plot is valid for all three channels)

EDGE MODULATION

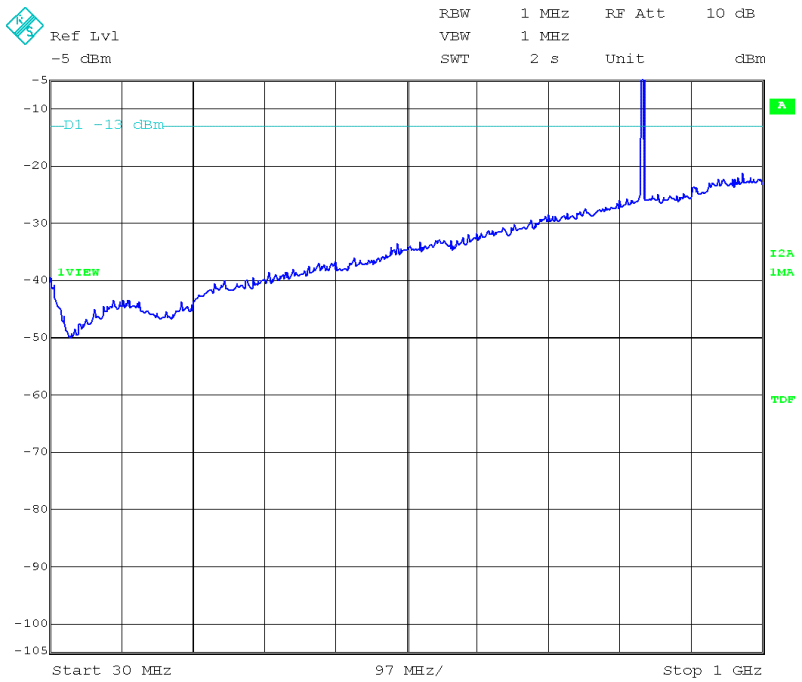
FREQUENCY RANGE 30 MHz-1000 MHz.

CHANNEL: LOWEST



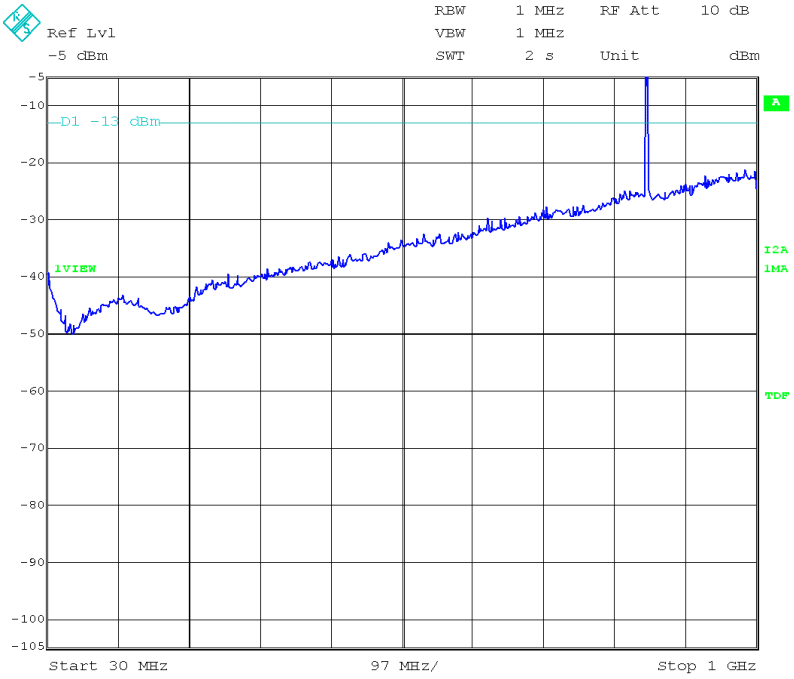
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



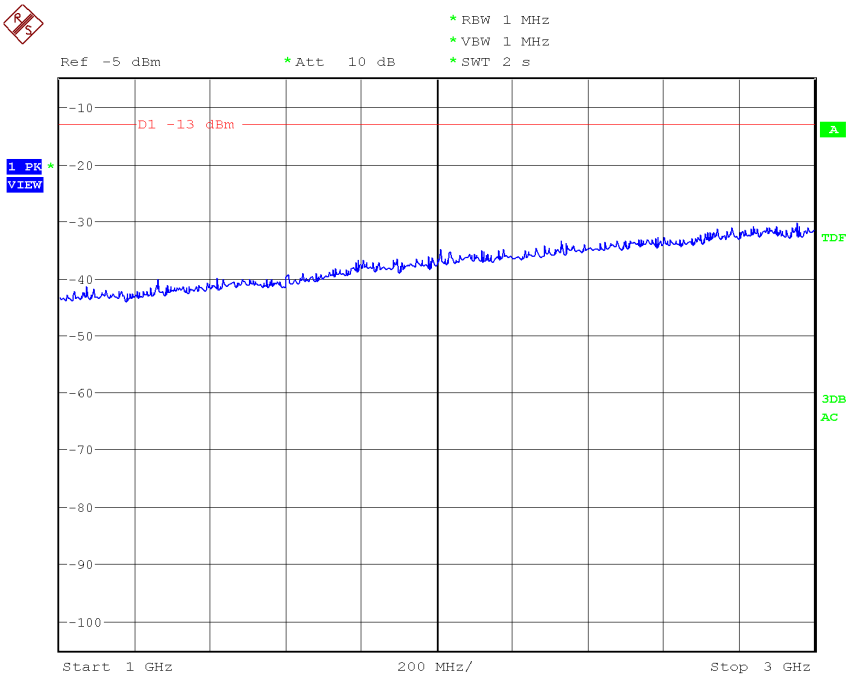
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



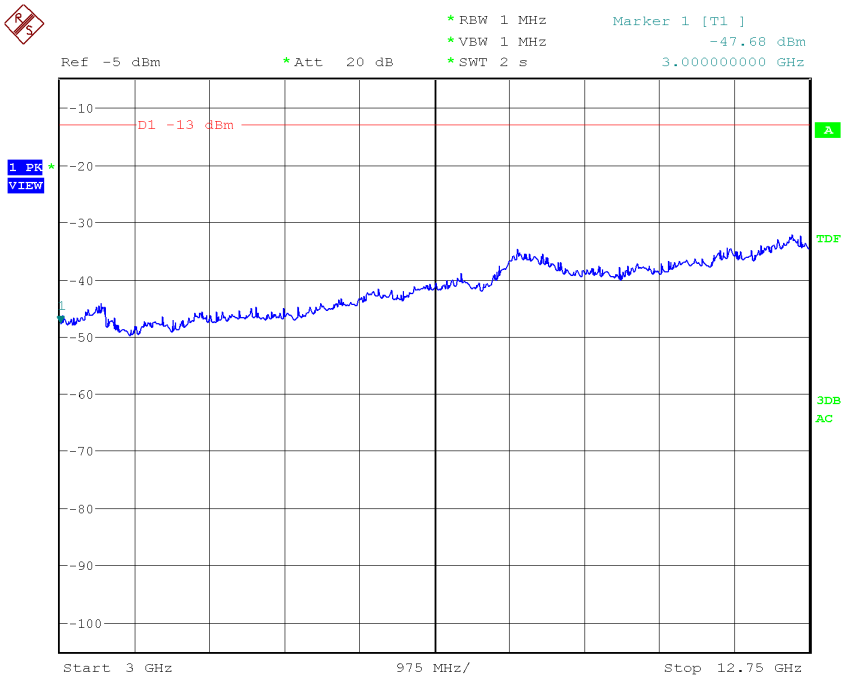
Note: The peak above the limit is the carrier frequency.

FREQUENCY RANGE 1 GHz to 3 GHz.



(This plot is valid for all three channels)

FREQUENCY RANGE 3 GHz to 12.75 GHz.

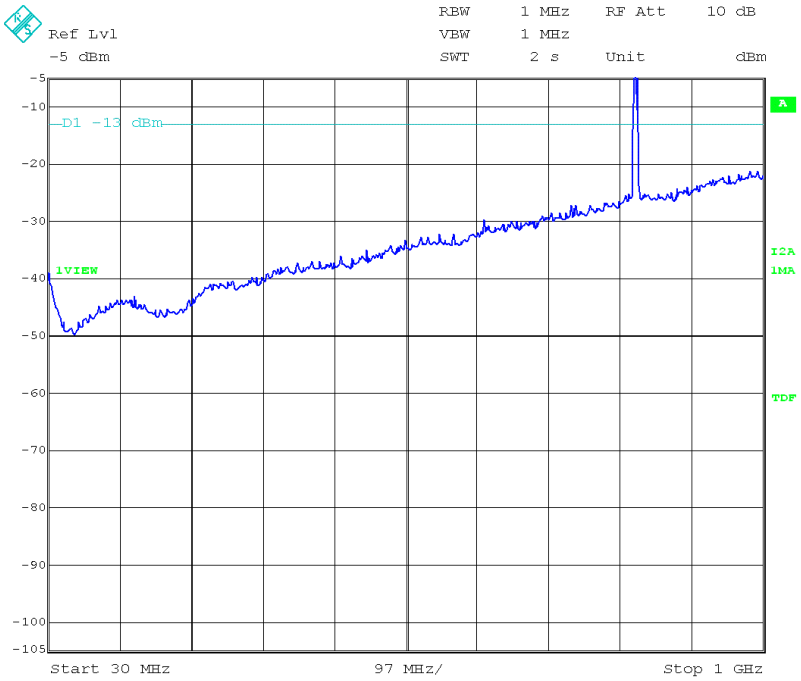


(This plot is valid for all three channels)

WCDMA MODULATION

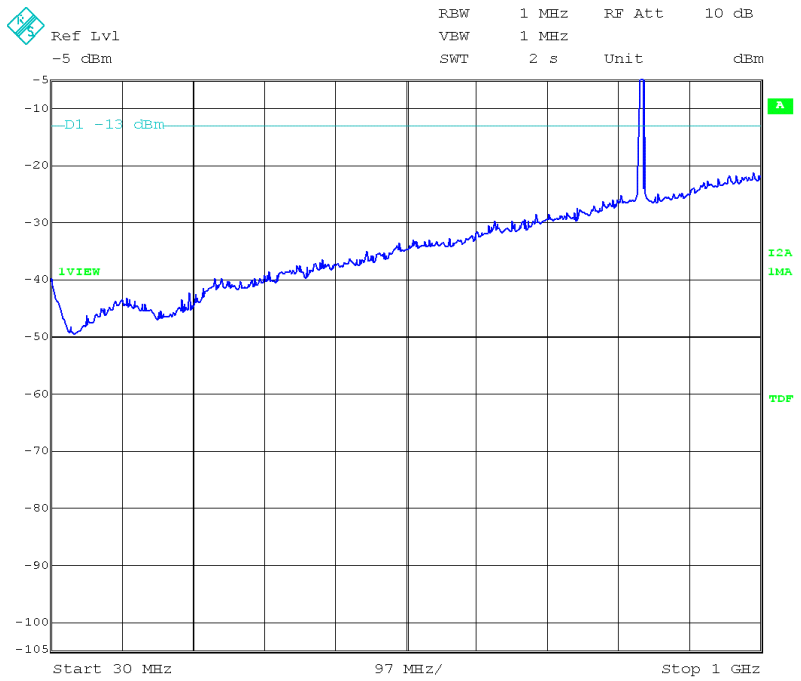
FREQUENCY RANGE 30 MHz-1000 MHz.

CHANNEL: LOWEST



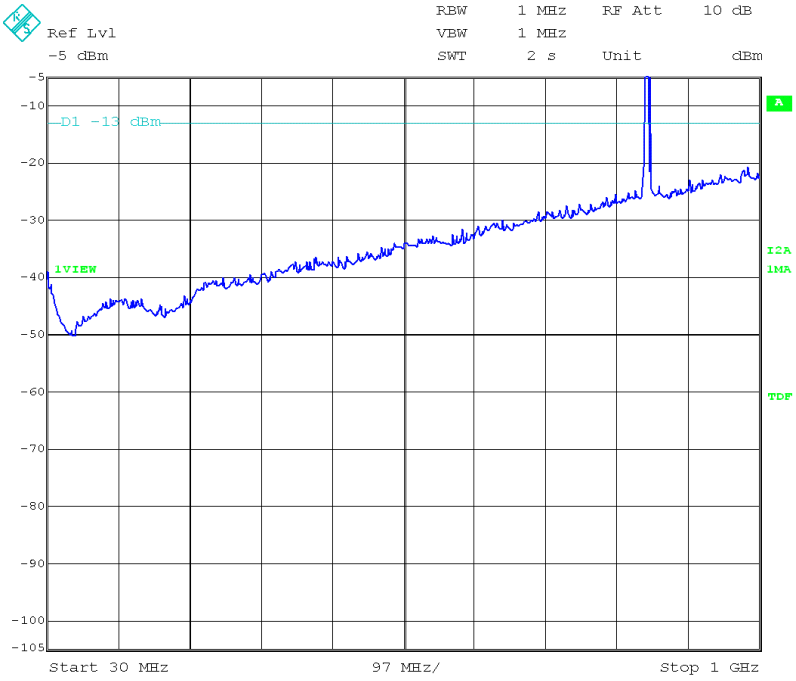
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



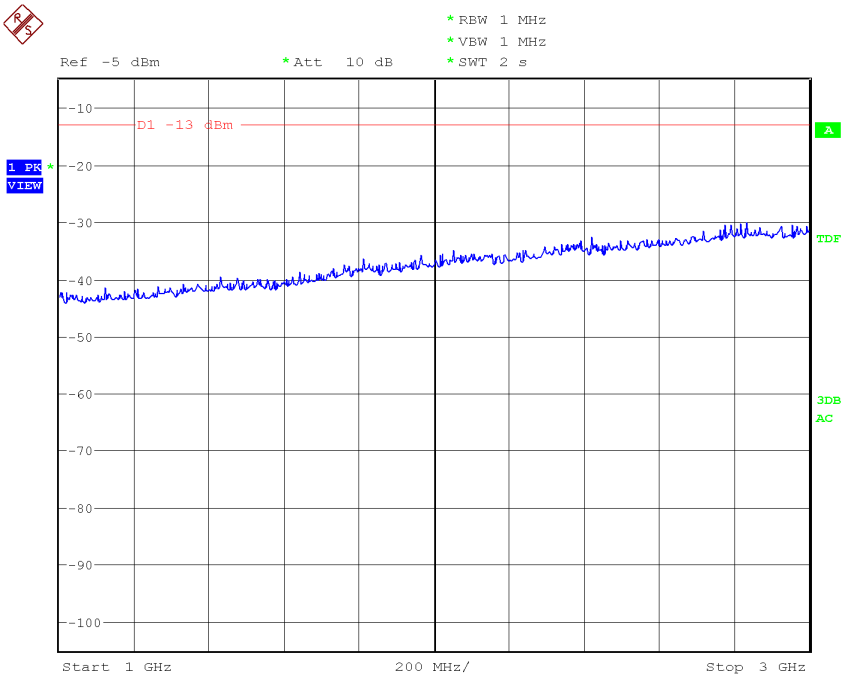
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



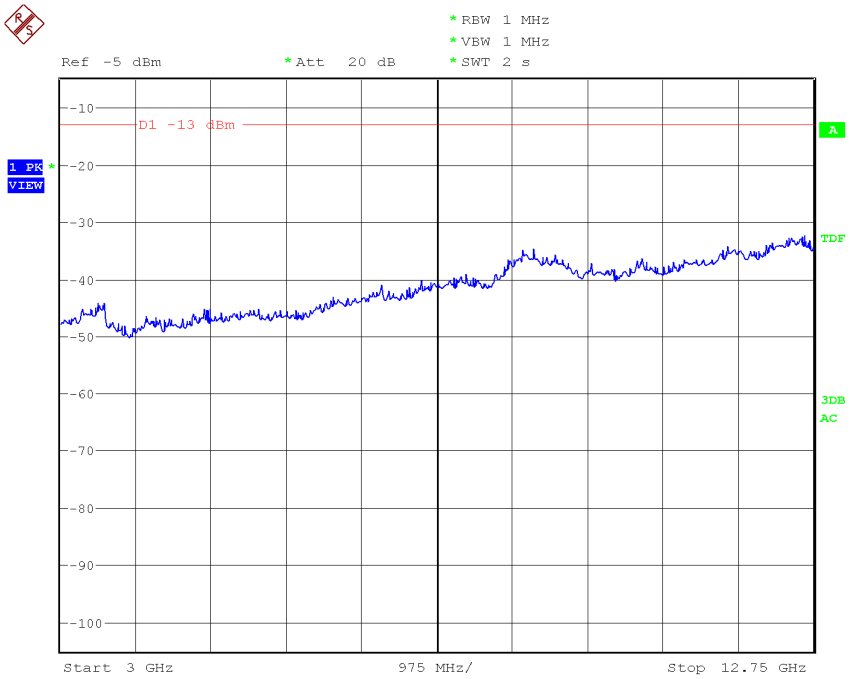
Note: The peak above the limit is the carrier frequency.

FREQUENCY RANGE 1 GHz to 3 GHz.



(This plot is valid for all three channels)

FREQUENCY RANGE 3 GHz to 12.75 GHz.

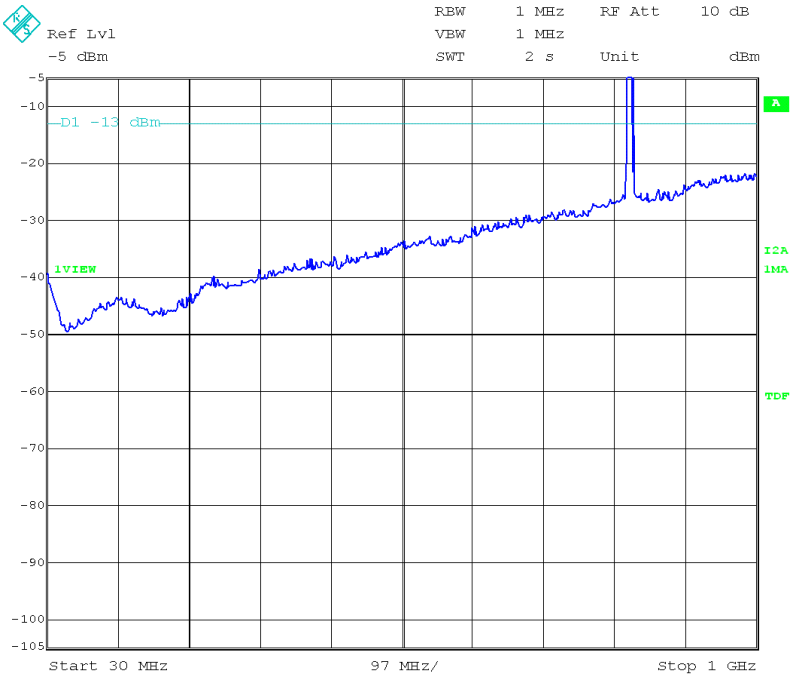


(This plot is valid for all three channels)

HSUPA MODULATION

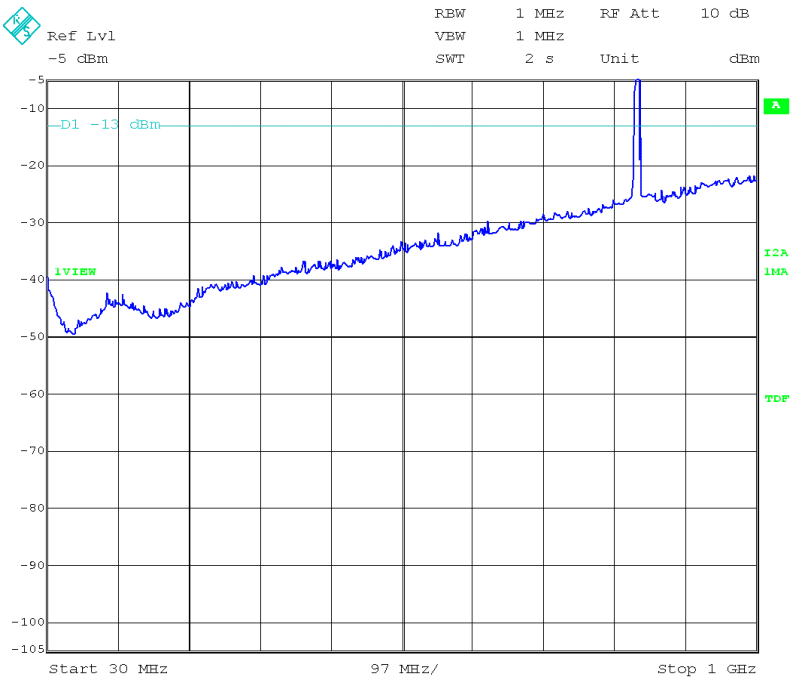
FREQUENCY RANGE 30 MHz-1000 MHz.

CHANNEL: LOWEST



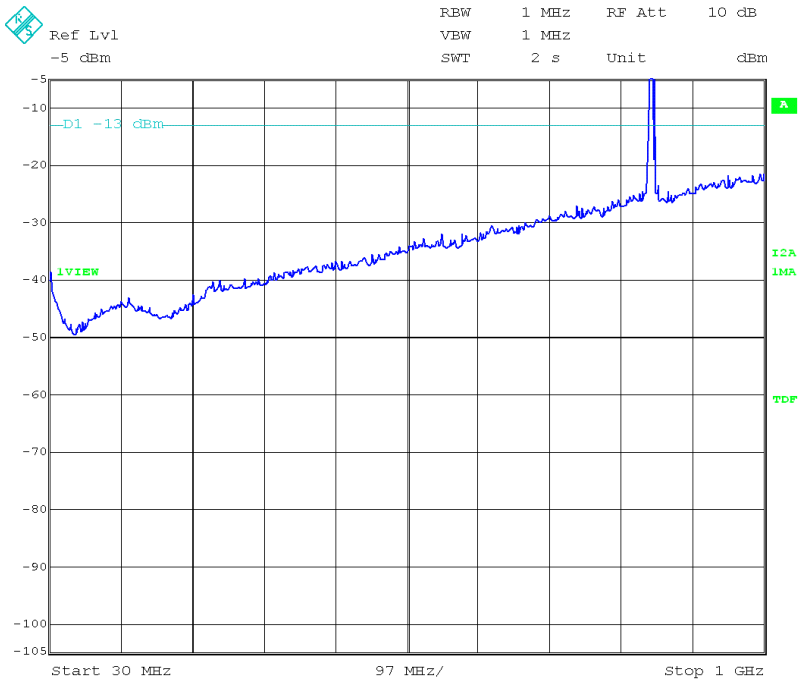
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



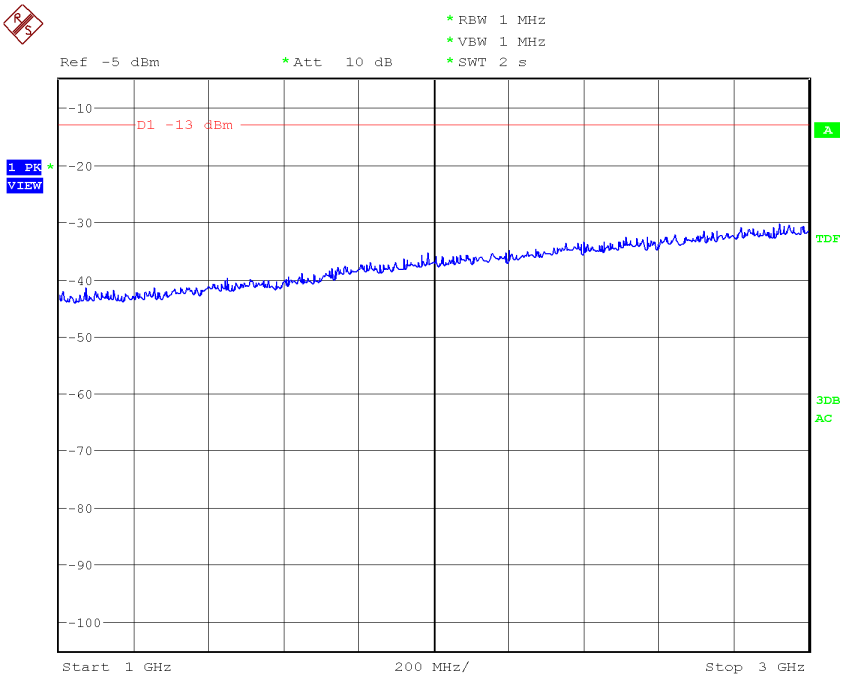
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



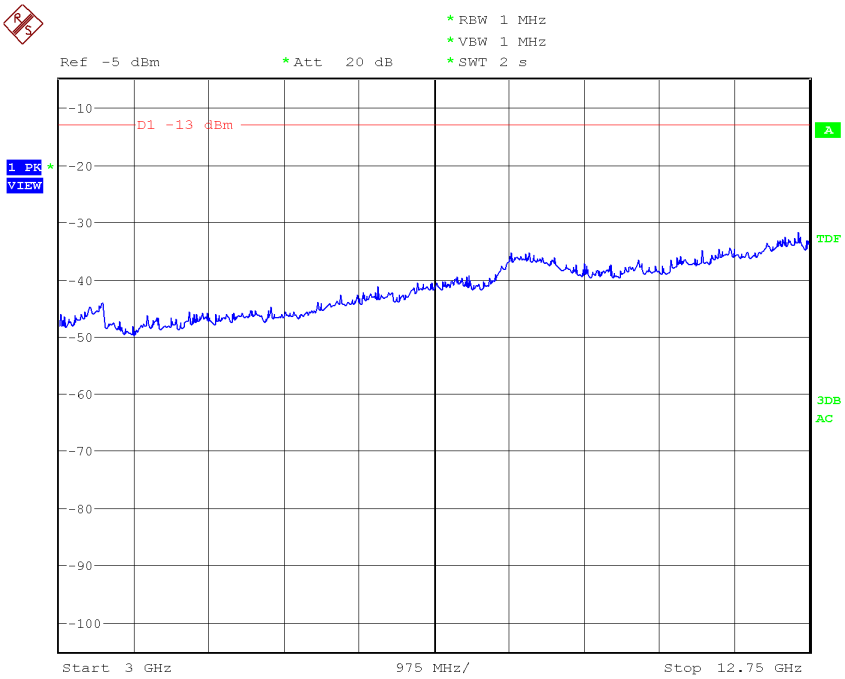
Note: The peak above the limit is the carrier frequency.

FREQUENCY RANGE 1 GHz to 3 GHz.



(This plot is valid for all three channels)

FREQUENCY RANGE 3 GHz to 12.75 GHz.



(This plot is valid for all three channels)

ANNEX B

TEST RESULTS FOR FCC PART 24

Report No: 26877RET

INDEX

Page

TEST CONDITIONS

Power supply (V):

V_{nom} = 5.0 Vdc

V_{max} = Not declared

V_{min} = Not declared

The subscripts nom, min and max indicates voltage test conditions (nominal, minimum and maximum respectively, as declared by the applicant).

Type of power supply = DC Voltage from USB port

Type of antenna = Integral antenna

TEST FREQUENCIES:

GPRS AND EDGE MODULATION

Lowest channel (512): 1850.2 MHz

Middle channel (662): 1880.2 MHz

Highest channel (810): 1909.8 MHz

WCDMA AND HSUPA MODULATION

Lowest channel (9262): 1852.4 MHz

Middle channel (9400): 1880,0 MHz

Highest channel (9538): 1907,6 MHz

RF Output Power (conducted and E.I.R.P.)

SPECIFICATION

§2.1046 and 24.232

Mobile/portable stations are limited to 2 Watts (33 dBm) Effective Isotropic Radiated Power (E.I.R.P.) peak power.

METHOD

The conducted RF output power measurements were made at the RF output terminals of the EUT using an attenuator, power splitter and spectrum analyser. The EUT was controlled via the Universal Radio Communication tester R&S CMU200 (for modulations GPRS, EDGE and WCDMA) selecting maximum transmission power of the EUT and different modes of modulation. For modulation HSUPA the Wireless Communication Test Set Agilent 8960 was used

For radiated measurements the EUT was placed on a 1 m high non-conductive stand inside an anechoic chamber. The measuring antenna was placed at 1 m distance and the maximum field strength was measured for the three channels. The EUT was controlled via the Universal Radio Communication tester R&S CMU200 or the Wireless Communication Test Set Agilent 8960 selecting maximum transmission power of the EUT and different modes of modulation.

The Effective Radiated Power (E.I.R.P.) is obtained by using the Substitution Method according to ANSI/TIA/EIA-603-C: 2004.

RESULTS

MAXIMUM OUTPUT POWER (CONDUCTED). See plots in next pages.

GPRS MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	30.17	29.83	29.63
Maximum peak power (W)	1.04	0.96	0.92
Measurement uncertainty (dB)	±0.5		

EDGE MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	28.97	28.88	28.60
Maximum peak power (W)	0.79	0.77	0.72
Measurement uncertainty (dB)	±0.5		

WCDMA MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	25.11	24.99	24.41
Maximum peak power (W)	0.32	0.32	0.28
Measurement uncertainty (dB)	±0.5		

HSUPA MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	26.38	26.02	25.53
Maximum peak power (W)	0.43	0.40	0.36
Measurement uncertainty (dB)	±0.5		

MAXIMUM EFFECTIVE ISOTROPIC RADIATED POWER E.I.R.P. (RADIATED).

GPRS MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	29.11	28.6	28.0
Maximum peak power (W)	0.81	0.72	0.63
Measurement uncertainty (dB)	± 3.8		

RBW= 1 MHz VBW = 3 MHz

EDGE MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	29.9	29.7	28.8
Maximum peak power (W)	0.98	0.93	0.76
Measurement uncertainty (dB)	± 3.8		

RBW= 1 MHz VBW = 3 MHz

WCDMA MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	25	25.1	24.2
Maximum peak power (W)	0.32	0.32	0.26
Measurement uncertainty (dB)	± 3.8		

RBW= 10 MHz VBW = 10 MHz

HSUPA MODULATION

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	25.1	24.9	24.3
Maximum peak power (W)	0.32	0.31	0.27
Measurement uncertainty (dB)	± 3.8		

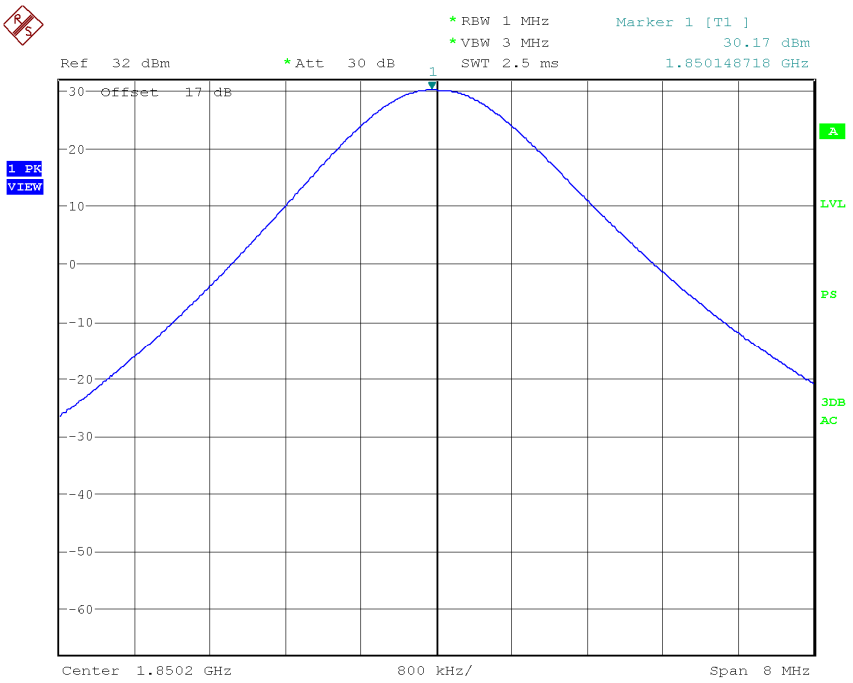
RBW= 10 MHz VBW = 10 MHz

Verdict: PASS

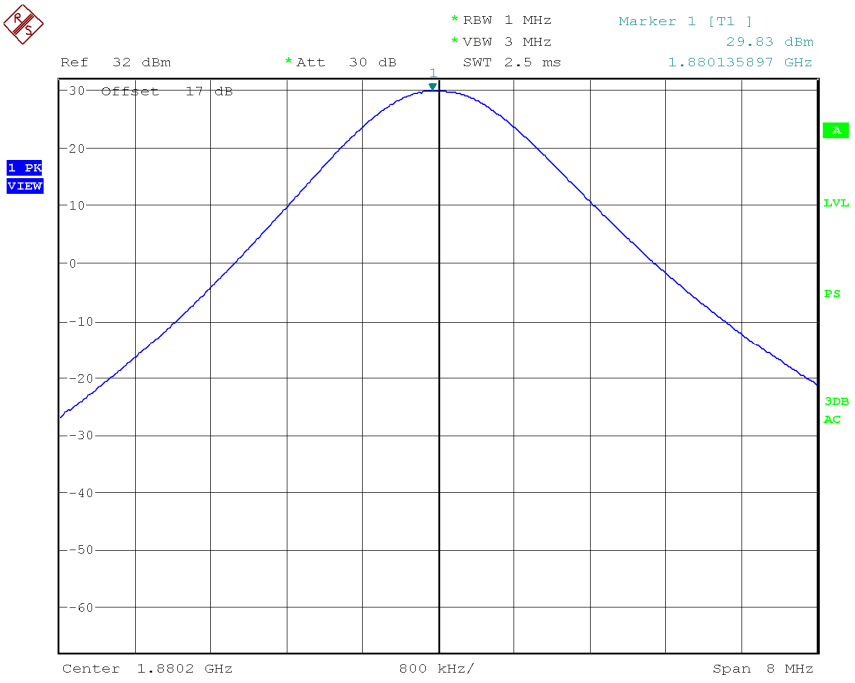
PEAK OUTPUT POWER (CONDUCTED).

GPRS MODULATION

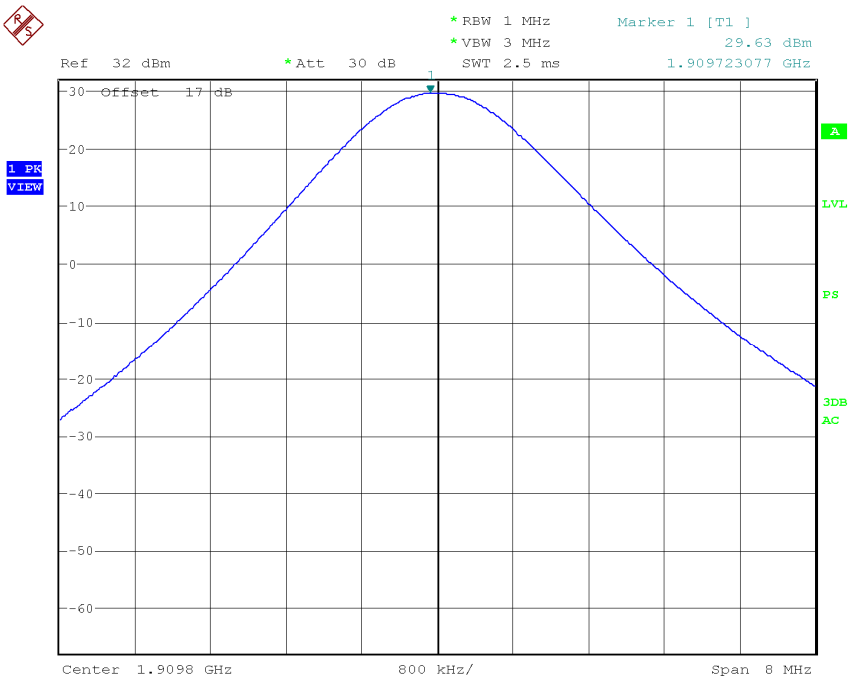
Lowest Channel.



Middle Channel.

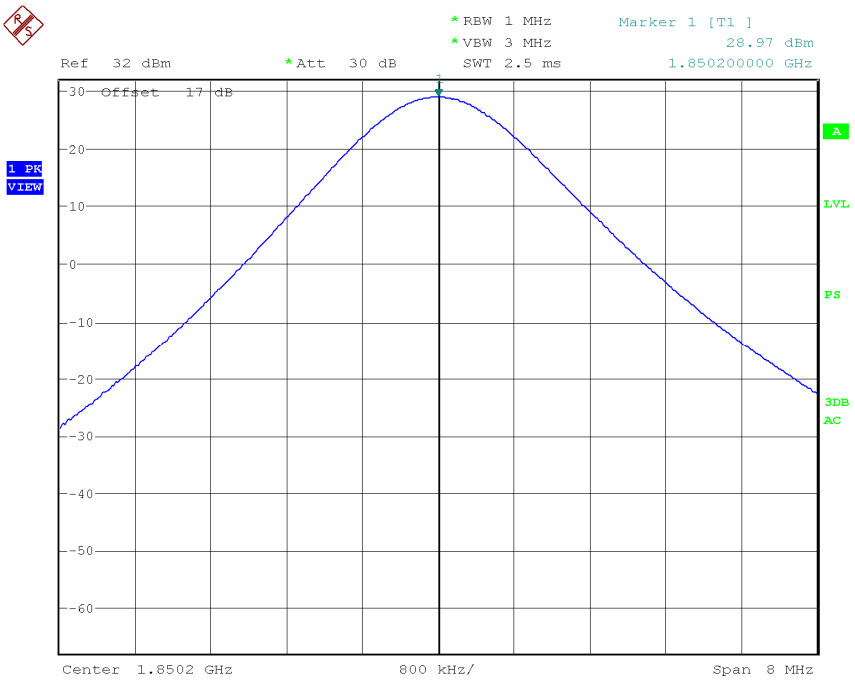


Highest Channel.

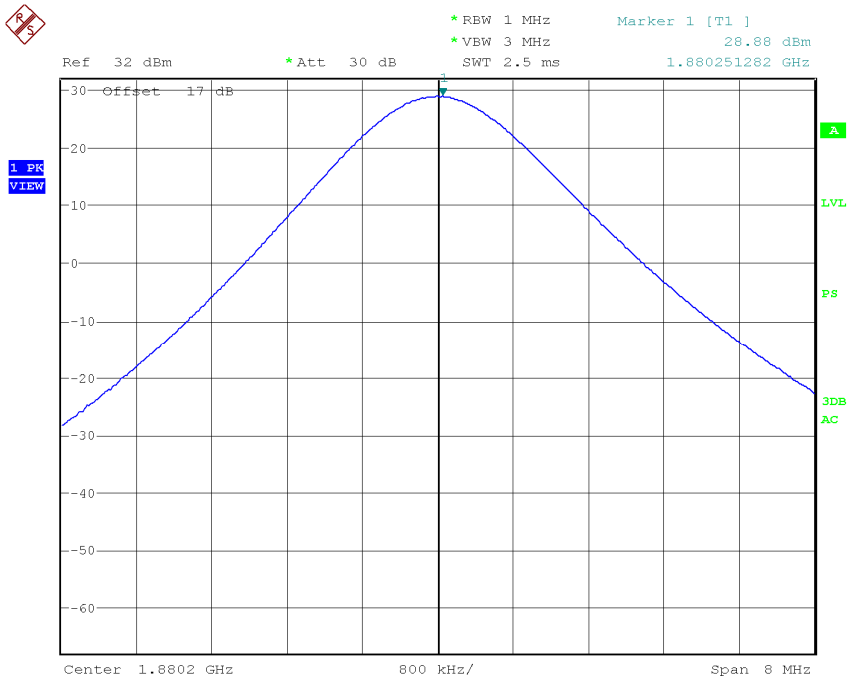


EDGE MODULATION

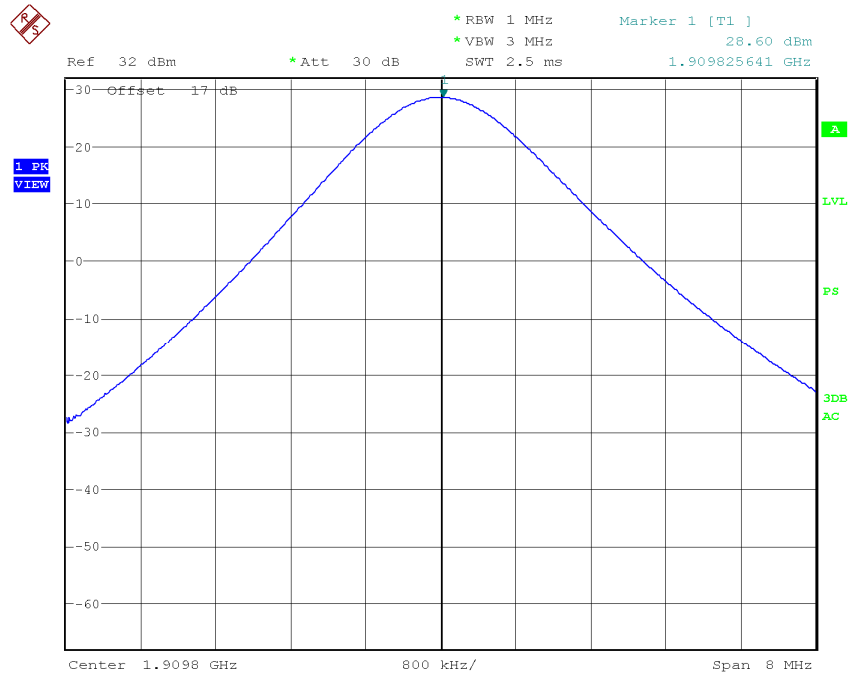
Lowest Channel.



Middle Channel.

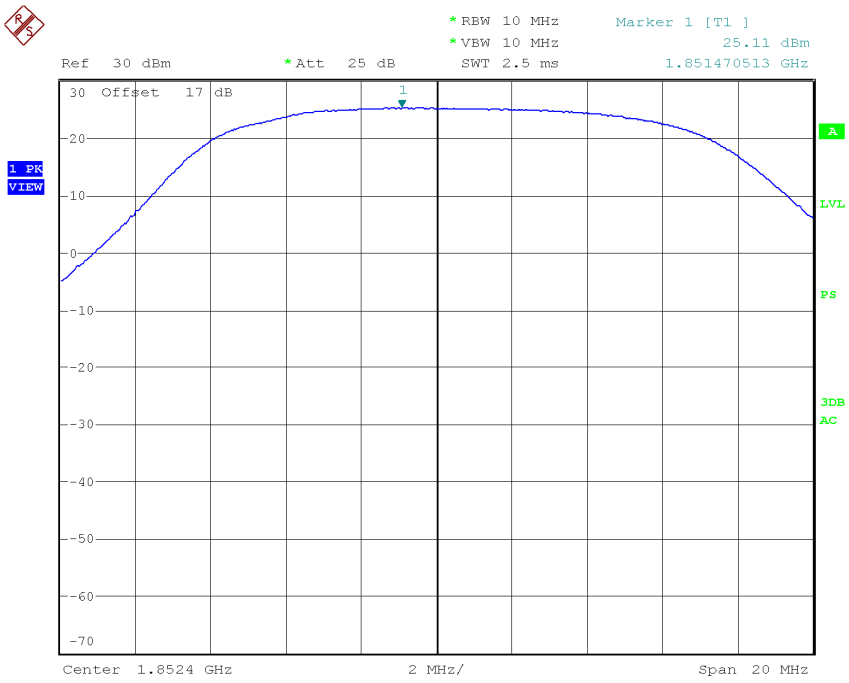


Highest Channel.

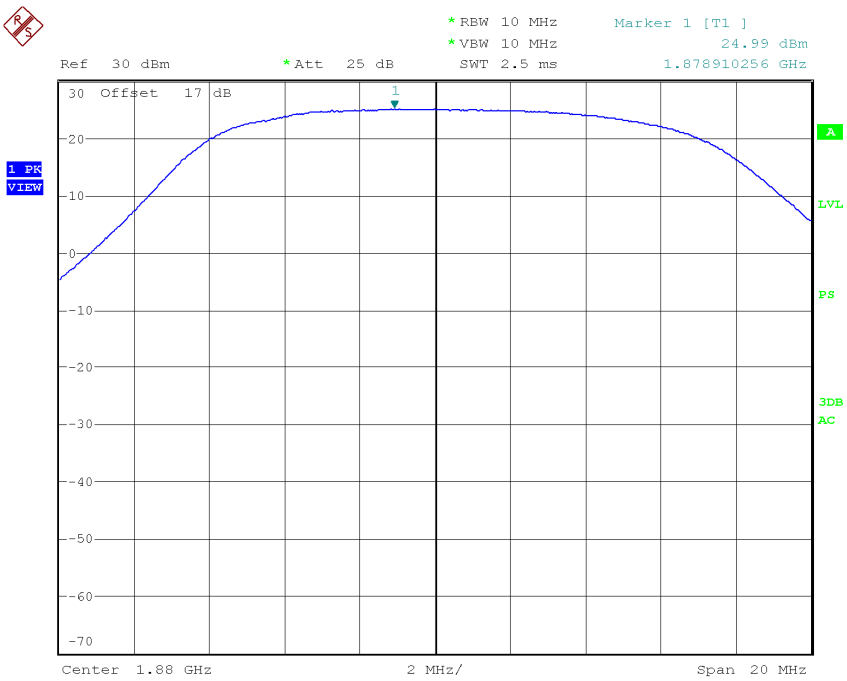


WCDMA MODULATION

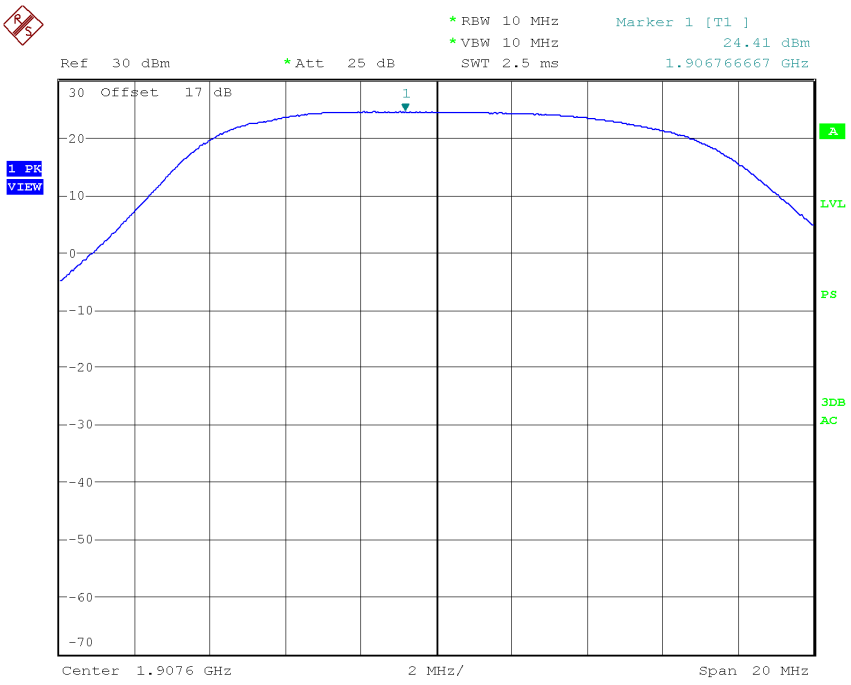
Lowest Channel.



Middle Channel.

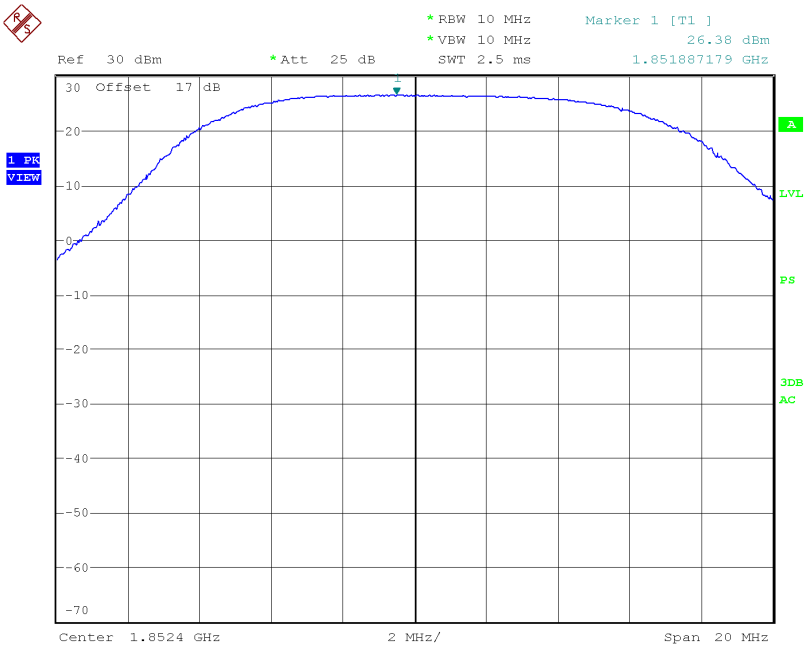


Highest Channel.

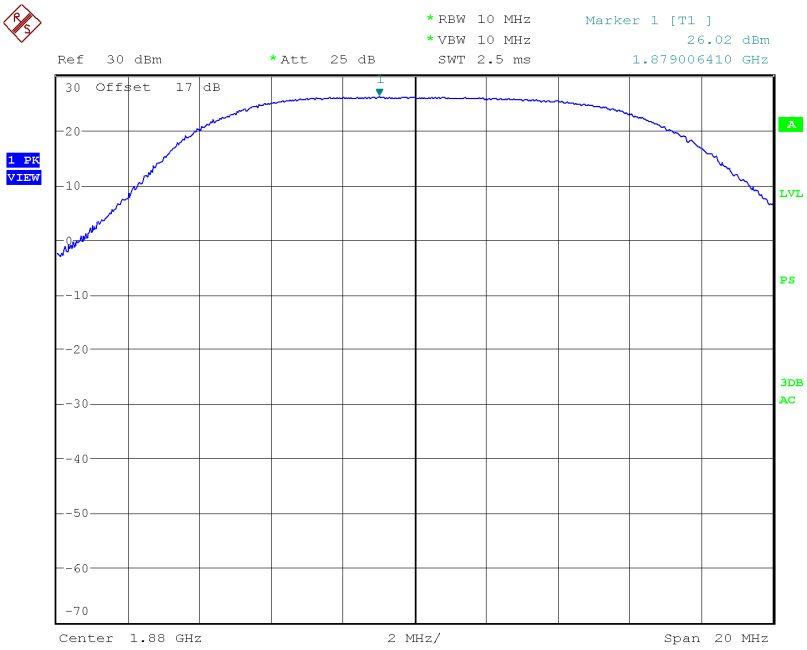


HSUPA MODULATION

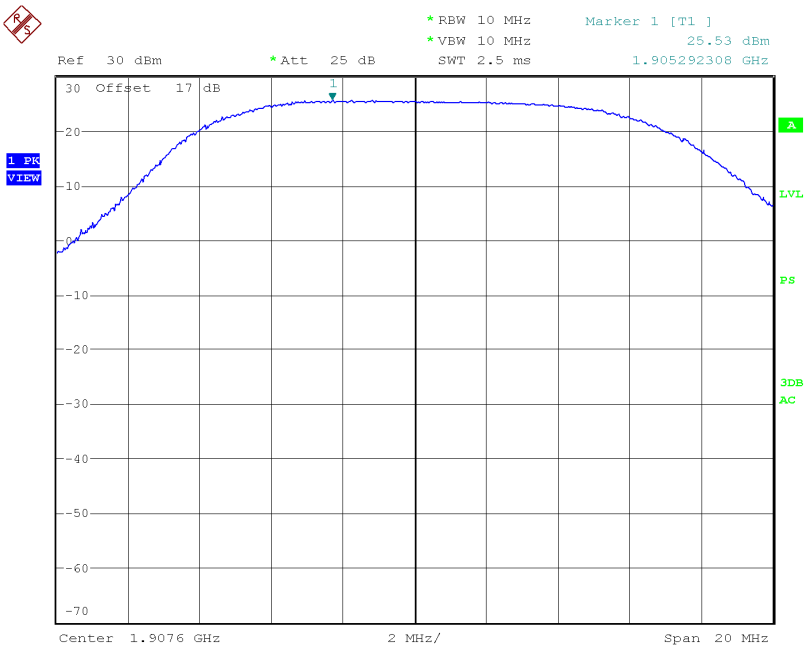
Lowest Channel.



Middle Channel.



Highest Channel.



Modulation Characteristics

SPECIFICATION

§2.1047

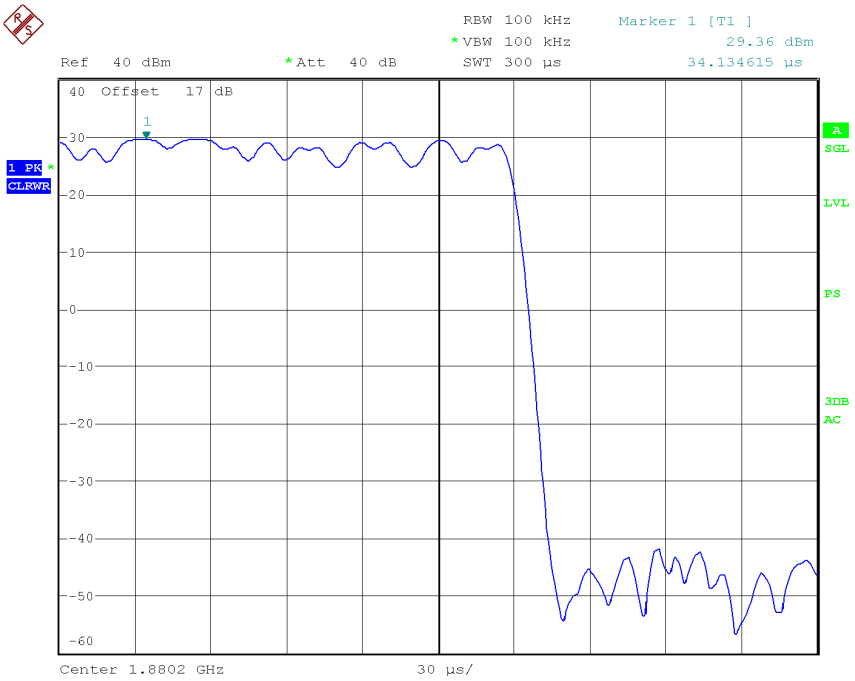
METHOD

The EUT operates with GPRS (GMSK), EDGE (8-PSK) and WCDMA/HSUPA(QPSK) modes, in which the information is digitised and coded into a bit stream.

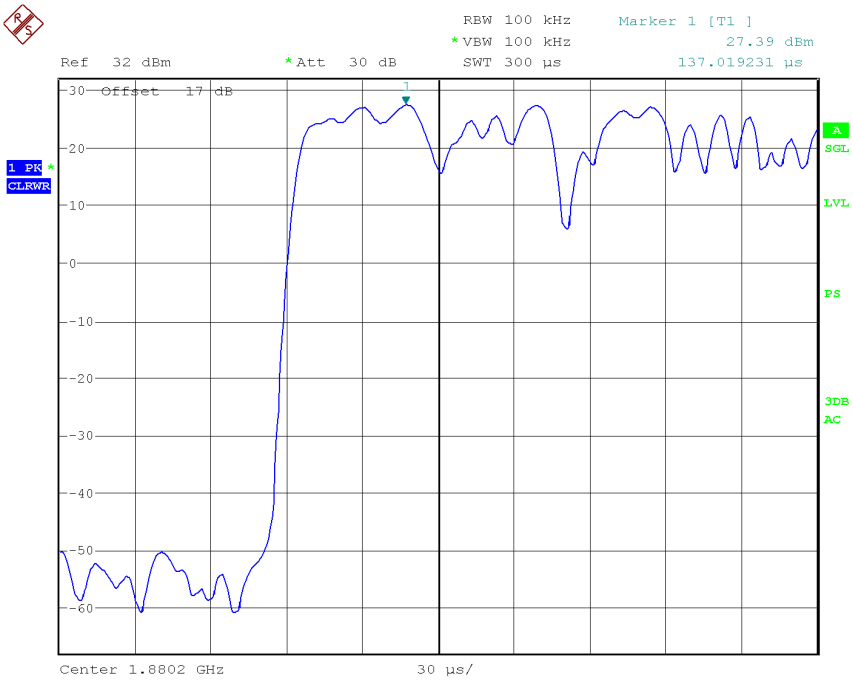
RESULTS

The following plot shows the modulation schemes in the EUT.

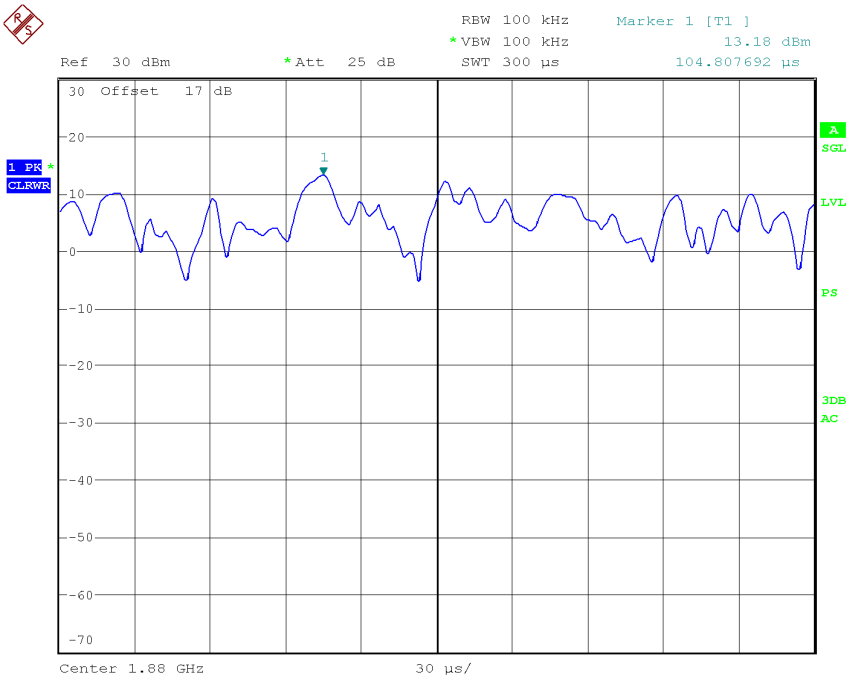
GPRS MODULATION



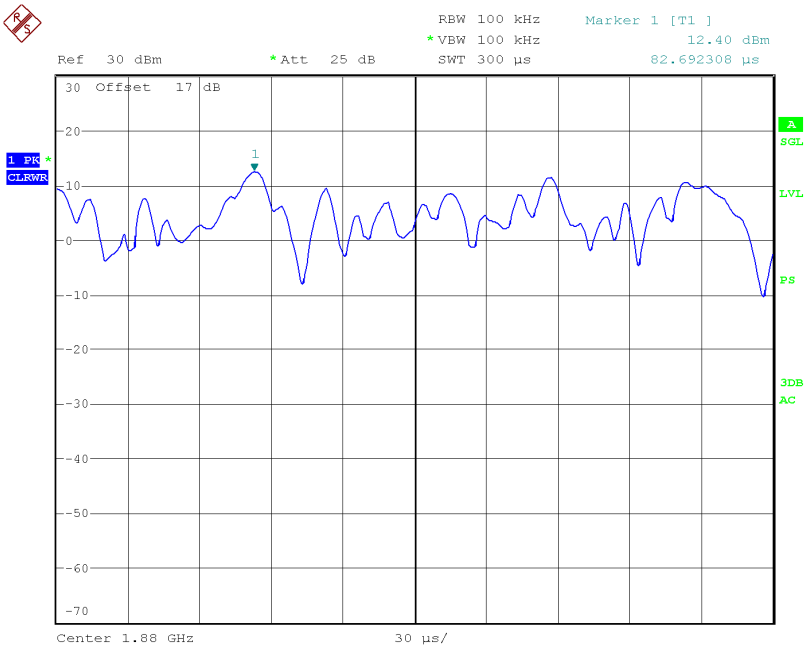
EDGE MODULATION



WCDMA MODULATION



HSUPA MODULATION



Frequency Stability

SPECIFICATION

§2.1055 and 24.235

METHOD

The frequency tolerance measurements over temperature variations were made over the temperature range of –30ºC to +50ºC. The EUT was placed inside a climatic chamber and the temperature was raised hourly in 10ºC steps from –30ºC up to +50ºC.

The EUT was set in "call mode" in the middle channel using the Universal Radio Communication tester R&S CMU200 (for modulations GPRS, EDGE and WCDMA/HSUPA) and the maximum frequency error was measured using the frequency meter of CMU200.

RESULTS

Frequency stability over temperature variations.

GPRS MODULATION

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-90	-0,0479	-0,00000479
+40	-48	-0,0255	-0,00000255
+30	-106	-0,0564	-0,00000564
+20	81	0,0431	0,00000431
+10	75	0,0399	0,00000399
0	76	0,0404	0,00000404
-10	-42	-0,0223	-0,00000223
-20	-47	-0,0250	-0,00000250
-30	-63	-0,0335	-0,00000335

EDGE MODULATION

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-55	-0,0293	-0,00000293
+40	-50	-0,0266	-0,00000266
+30	84	0,0447	0,00000447
+20	87	0,0463	0,00000463
+10	61	0,0324	0,00000324
0	57	0,0303	0,00000303
-10	23	0,0122	0,00000122
-20	-33	-0,0176	-0,00000176
-30	-44	-0,0234	-0,00000234

WCDMA/HSUPA MODULATION (measured in WCDMA mode)

Temperature (ºC)	Frequency Error (Hz)	Frequency Error (ppm)	Frequency Error (%)
+50	-86	-0,0457	-0,00000457
+40	65	0,0346	0,00000346
+30	-83	-0,0441	-0,00000441
+20	67	0,0356	0,00000356
+10	70	0,0372	0,00000372
0	-51	-0,0271	-0,00000271
-10	-48	-0,0255	-0,00000255
-20	40	0,0213	0,00000213
-30	46	0,0245	0,00000245

Occupied Bandwidth

SPECIFICATION

§2.1049

METHOD

The EUT was configured to transmit a modulated carrier signal. An IF bandwidth of 3 kHz was used to determined the occupied bandwidth of the modulated emission for GPRS and EDGE modulation and 50 kHz for WCDMA and HSUPA modulation.

RESULTS

GPRS MODULATION

Channel	Lowest	Middle	Highest
99% Occupied bandwidth (kHz)	280.4	275.6	272.4
-26 dBc bandwidth (kHz)	320.5	323.7	314.1
Measurement uncertainty (kHz)	<±6.5		

EDGE MODULATION

Channel	Lowest	Middle	Highest
99% Occupied bandwidth (kHz)	283.7	283.6	280.4
-26 dBc bandwidth (kHz)	315.7	323.7	314.1
Measurement uncertainty (kHz)	<±6.5		

WCDMA MODULATION

Channel	Lowest	Middle	Highest
99% Occupied bandwidth (kHz)	4653.8	4666.7	4641.0
-26 dBc bandwidth (kHz)	4807.7	4794.9	4807.7
Measurement uncertainty (kHz)	<±52		

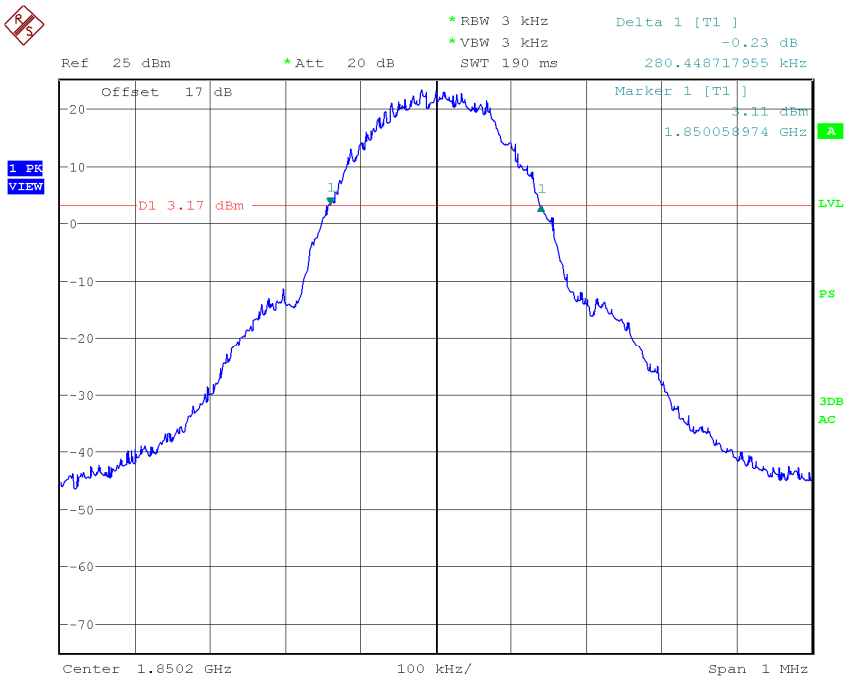
HSUPA MODULATION

Channel	Lowest	Middle	Highest
99% Occupied bandwidth (kHz)	4653.8	4679.5	4679.5
-26 dBc bandwidth (kHz)	4846.2	4871.8	4871.8
Measurement uncertainty (kHz)	<±52		

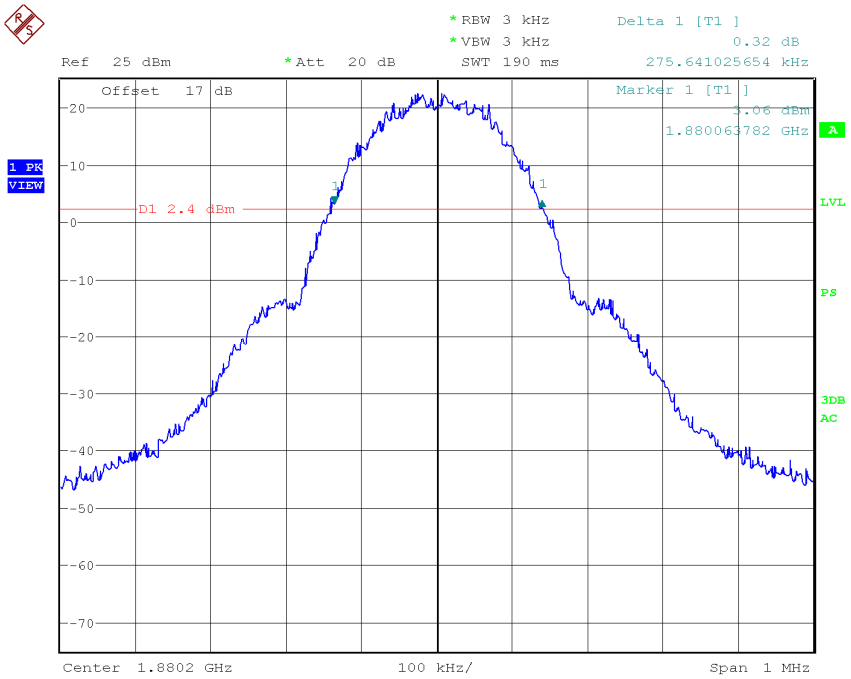
99% OCCUPIED BANDWIDTH

GPRS MODULATION

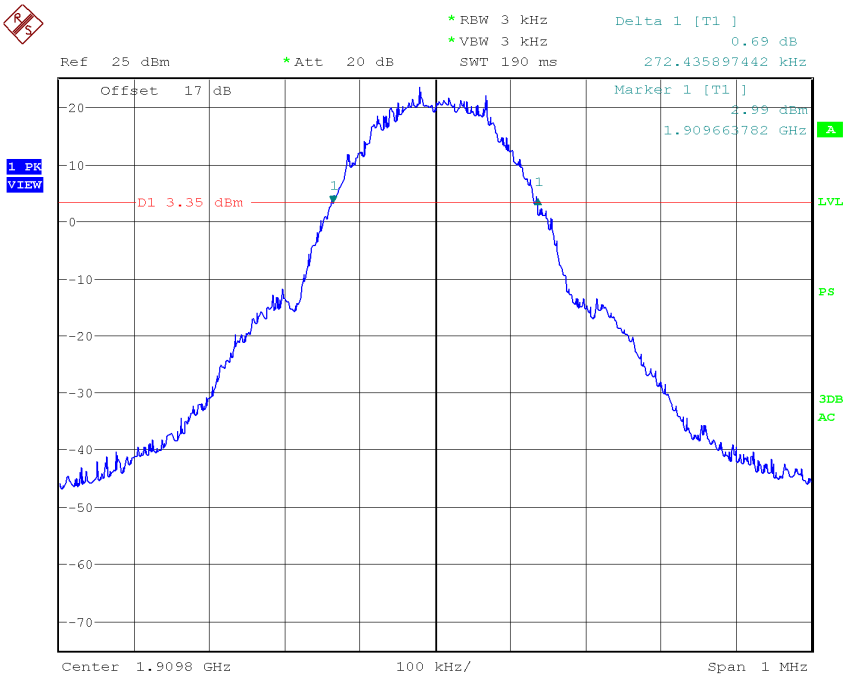
Lowest Channel



Middle Channel

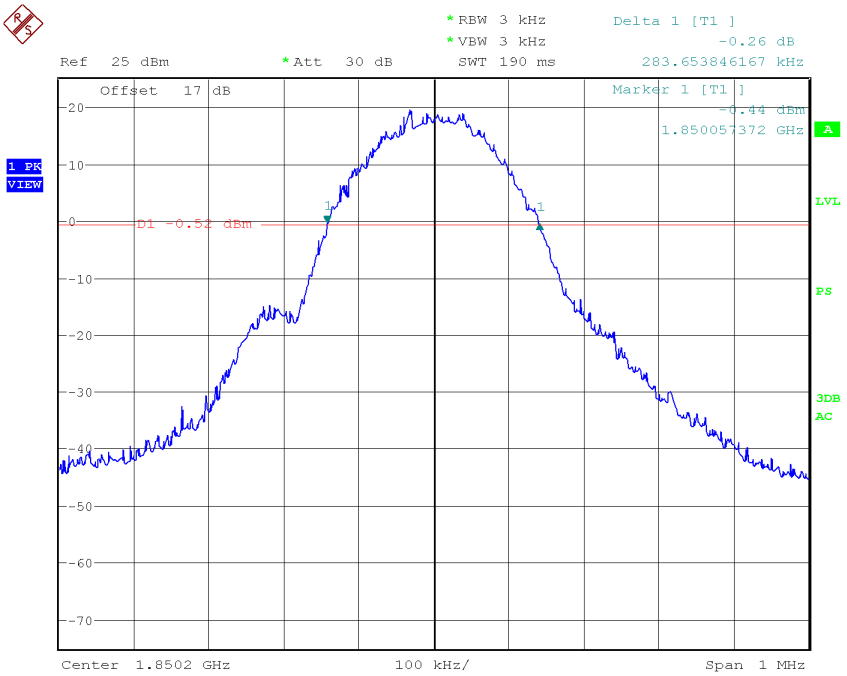


Highest Channel

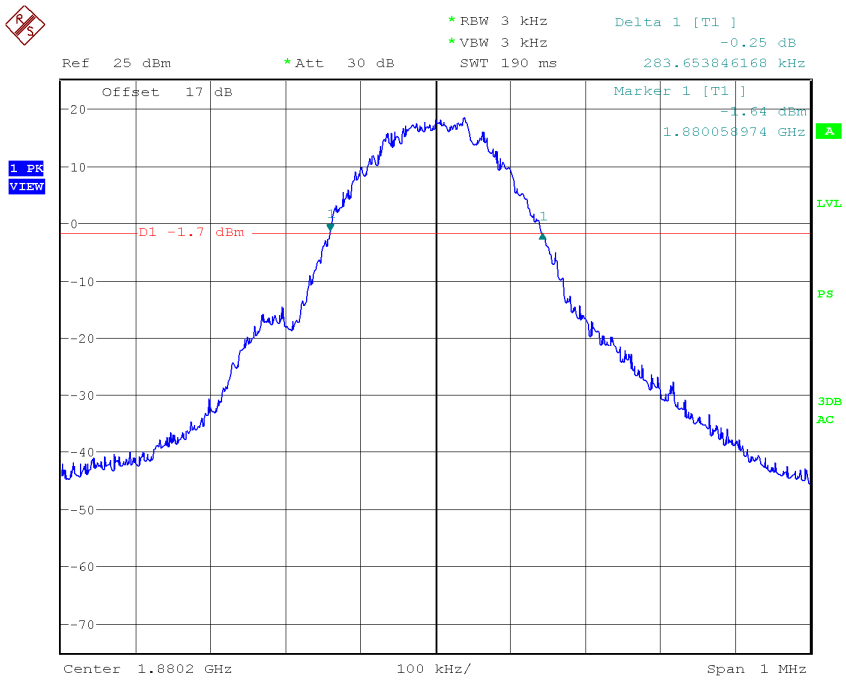


EDGE MODULATION

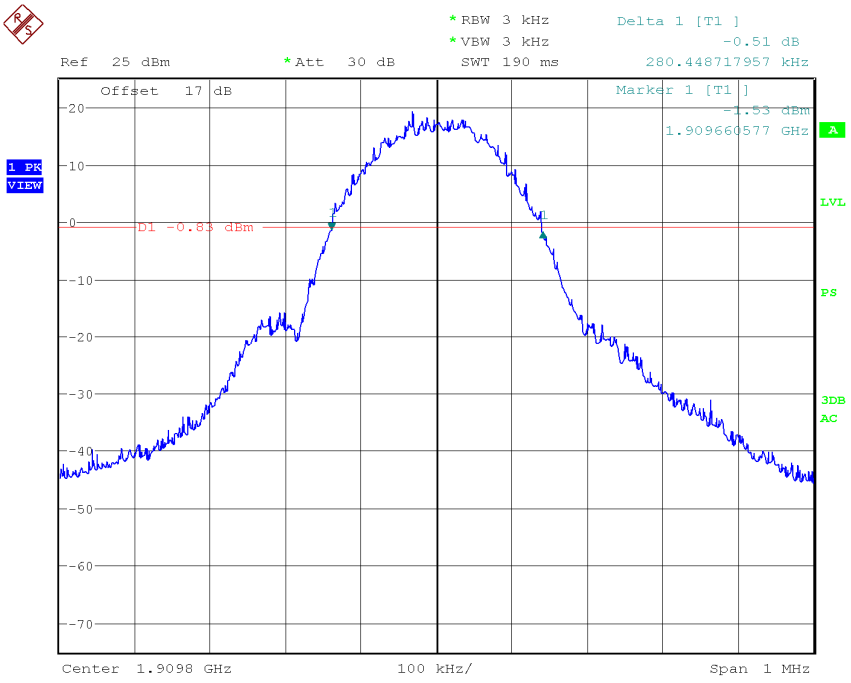
Lowest Channel



Middle Channel

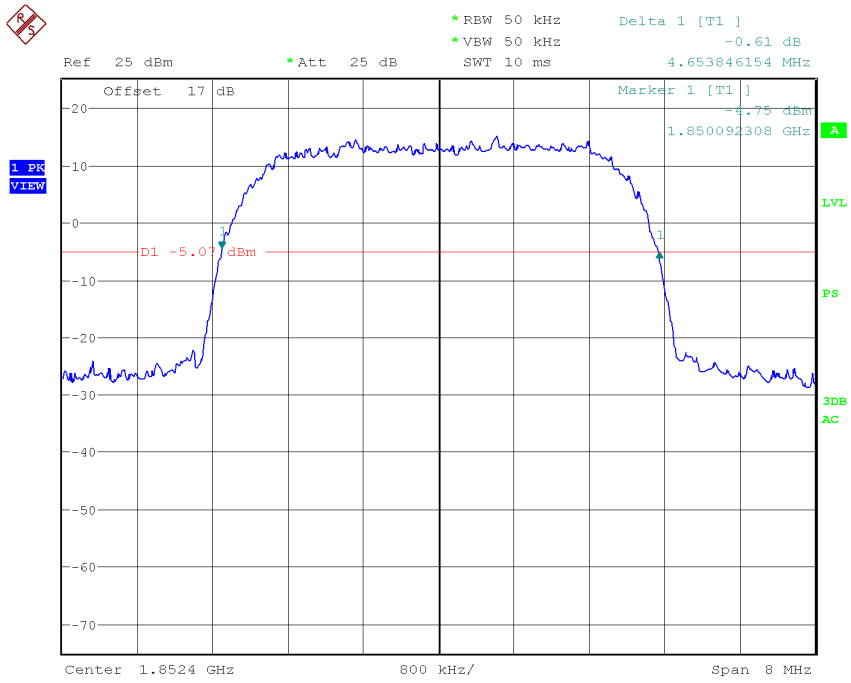


Highest Channel

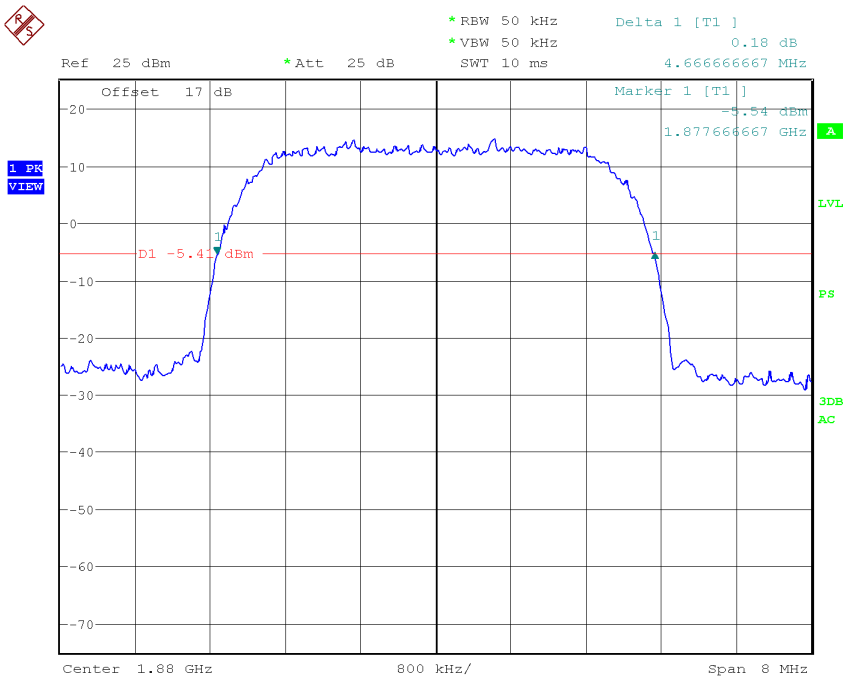


WCDMA MODULATION

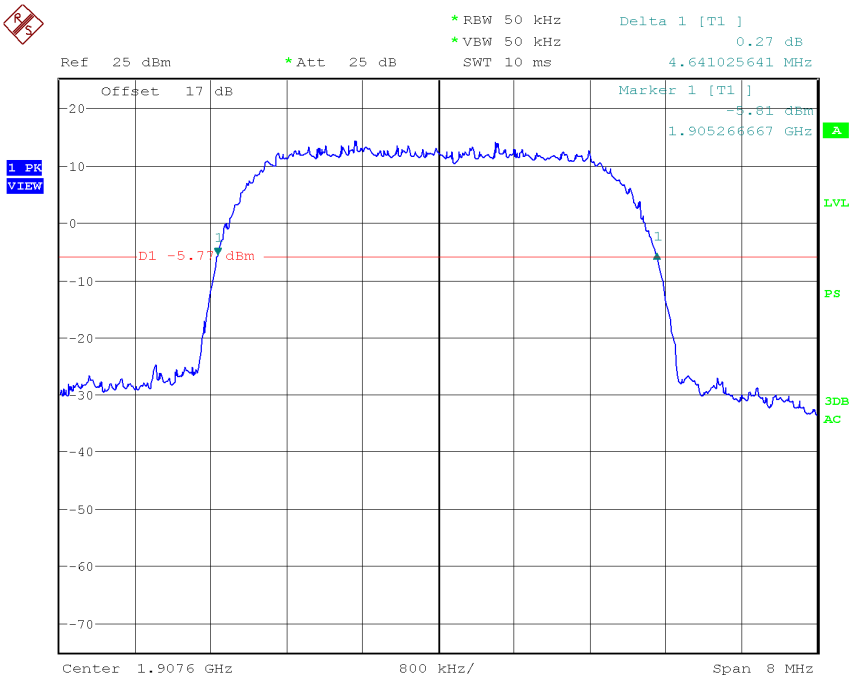
Lowest Channel



Middle Channel

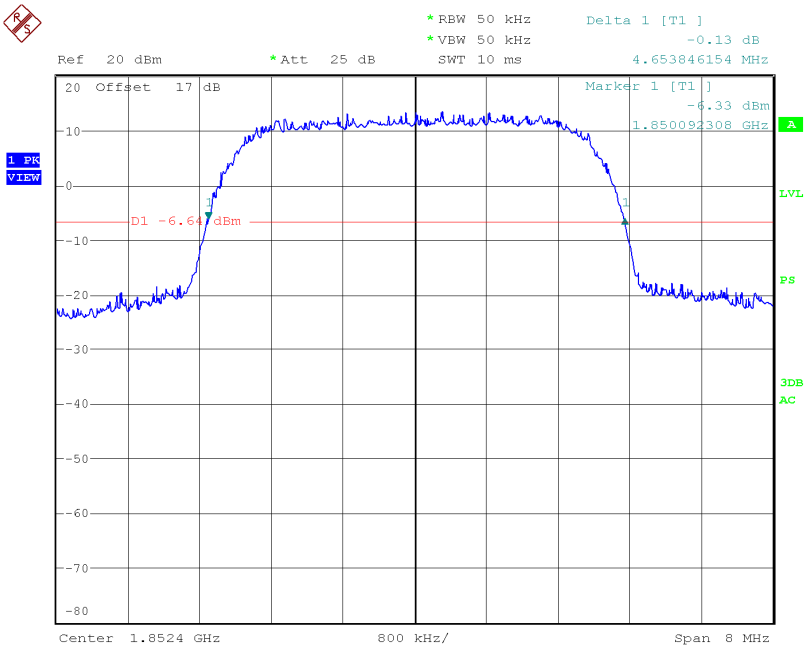


Highest Channel

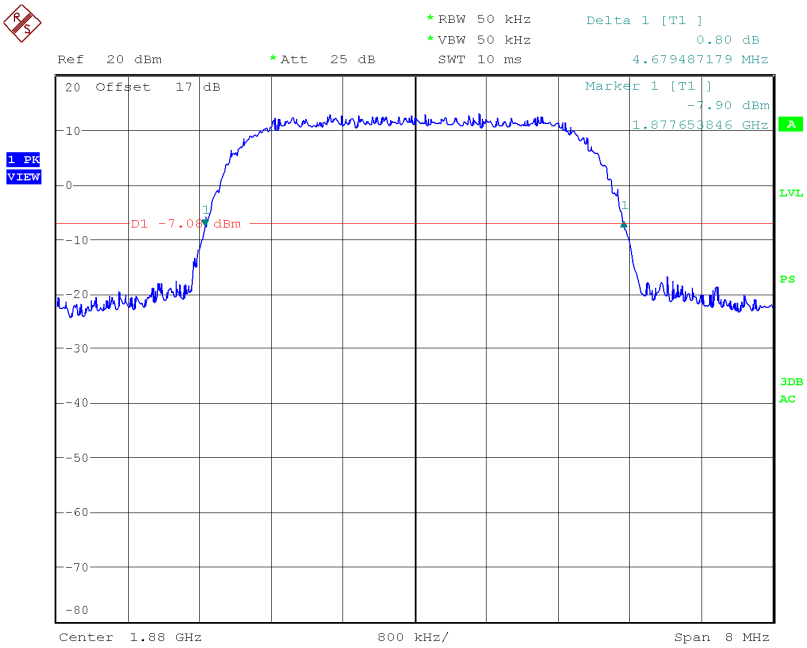


HSUPA MODULATION

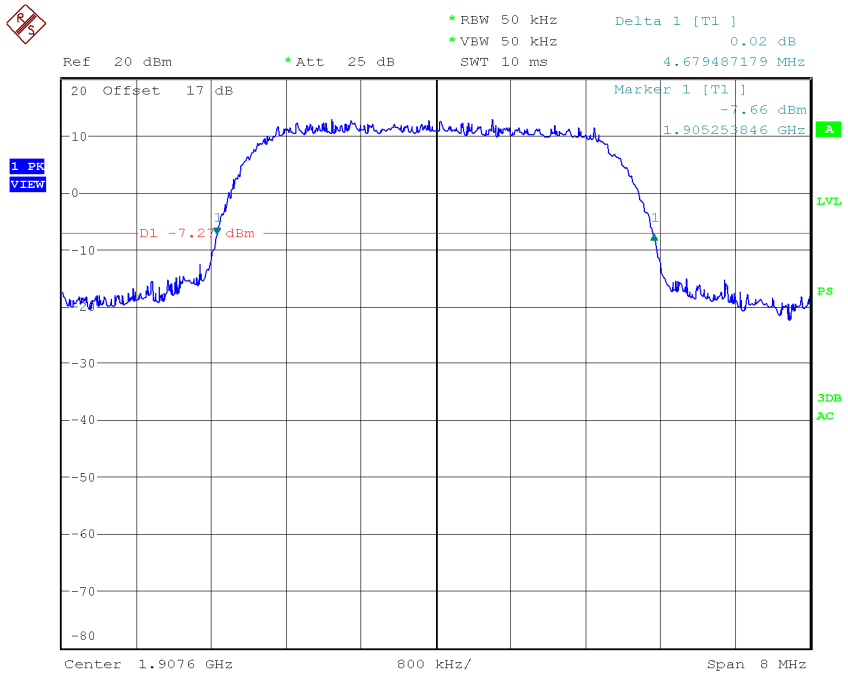
Lowest Channel



Middle Channel



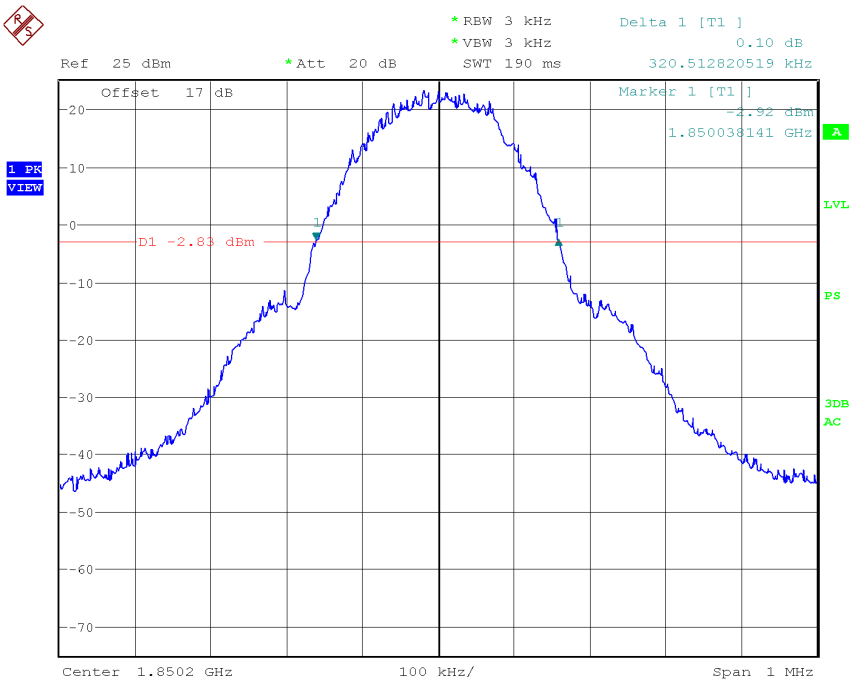
Highest Channel



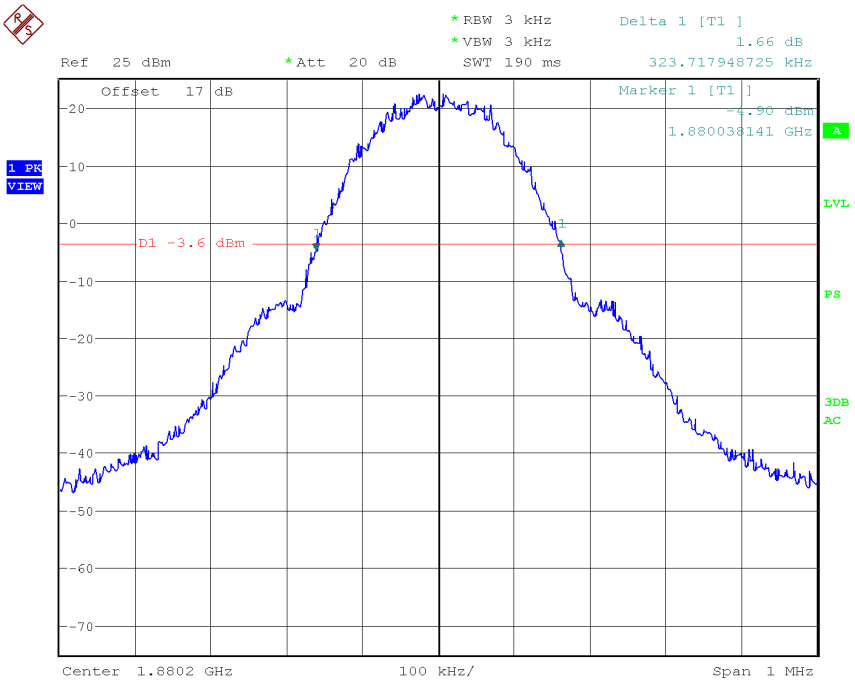
-26 dBc BANDWIDTH

GPRS MODULATION

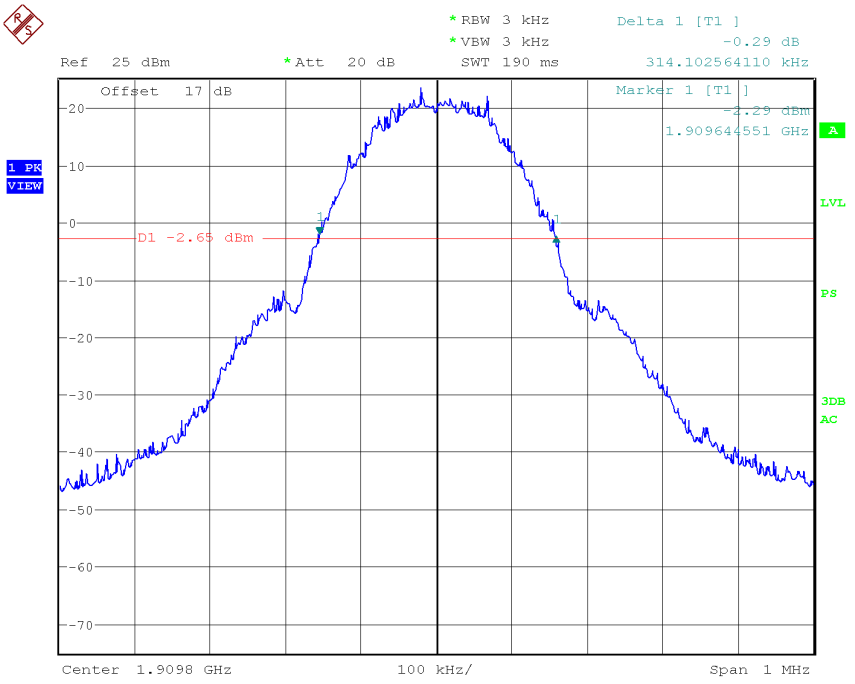
Lowest Channel



Middle Channel

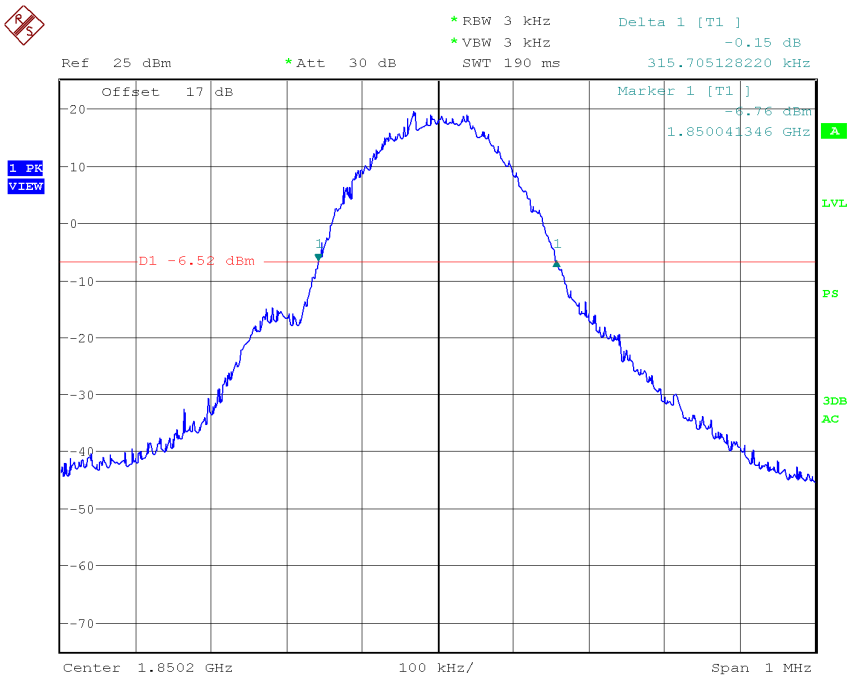


Highest Channel

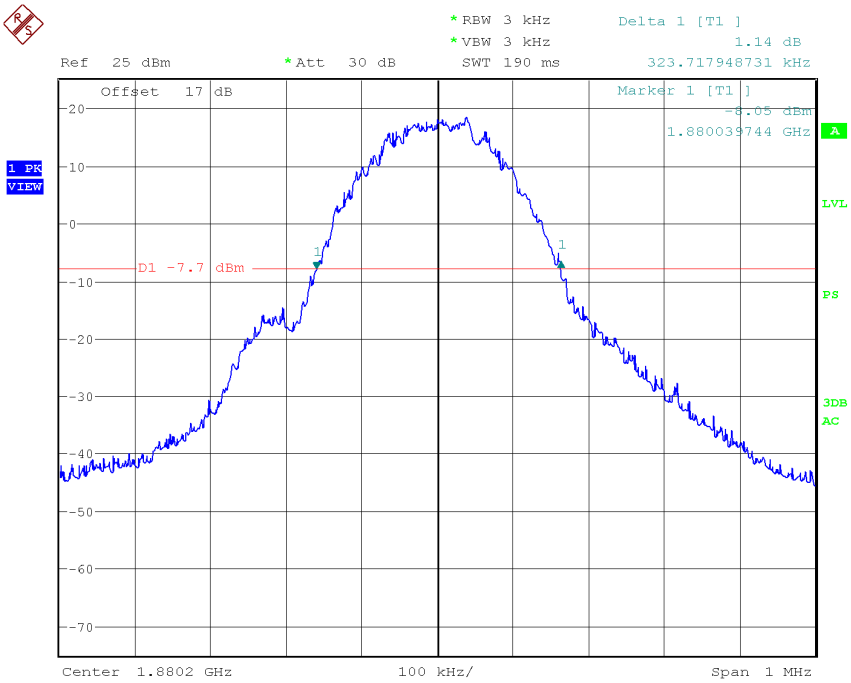


EDGE MODULATION

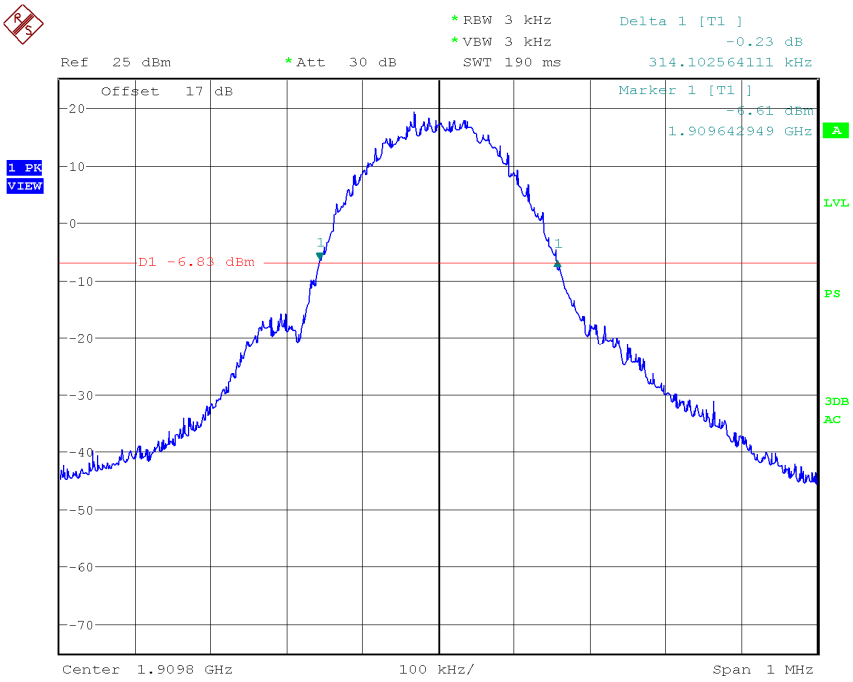
Lowest Channel



Middle Channel

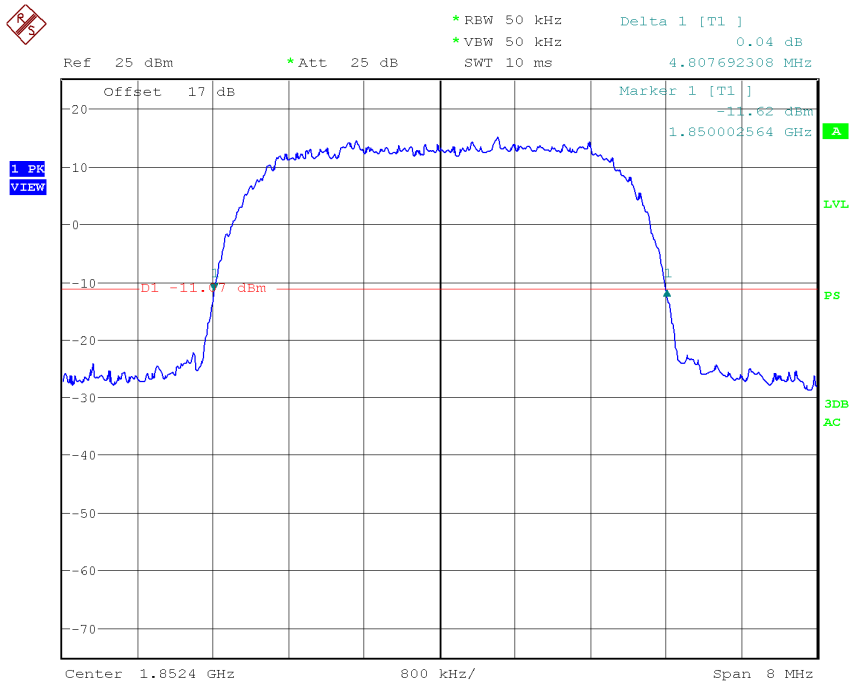


Highest Channel

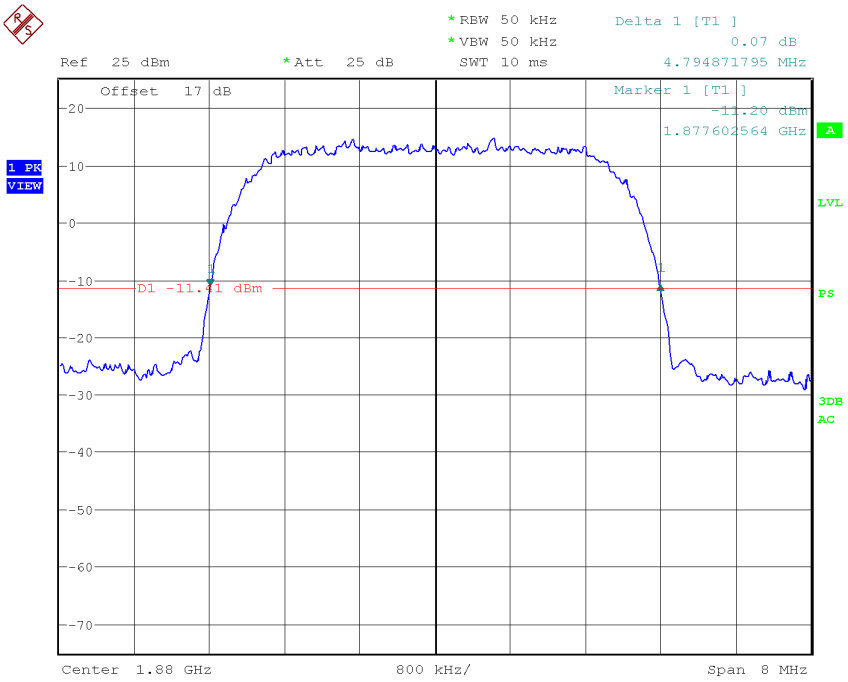


WCDMA MODULATION

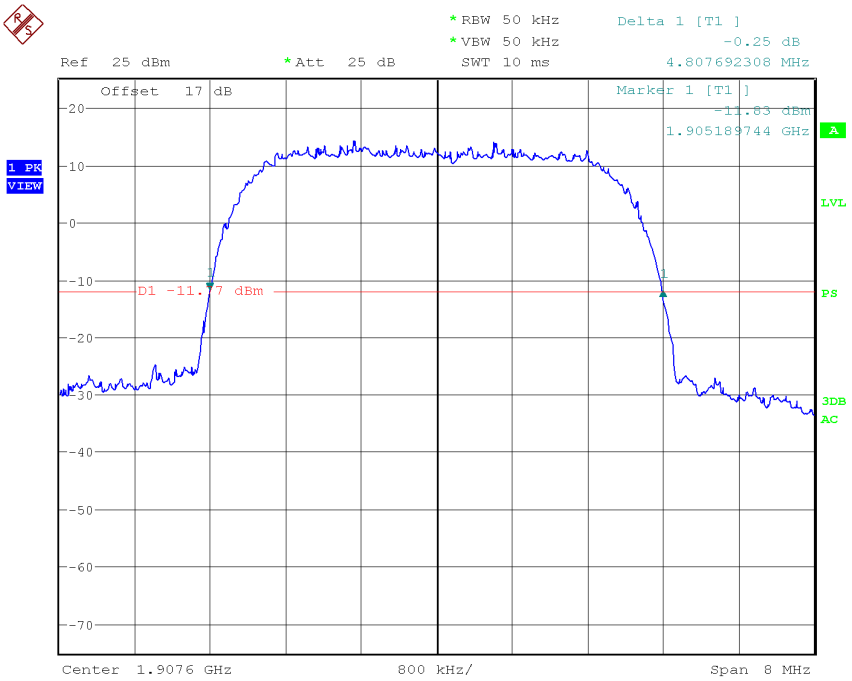
Lowest Channel



Middle Channel

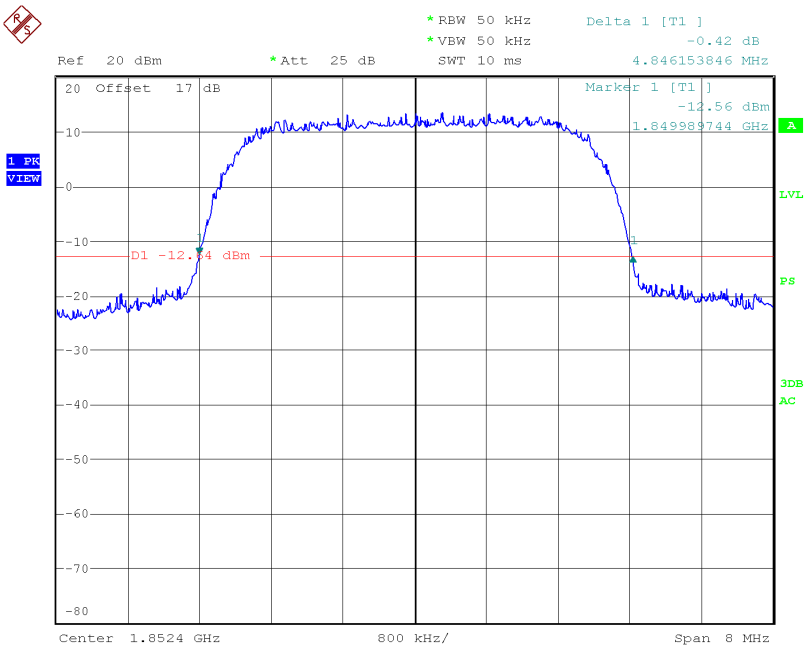


Highest Channel

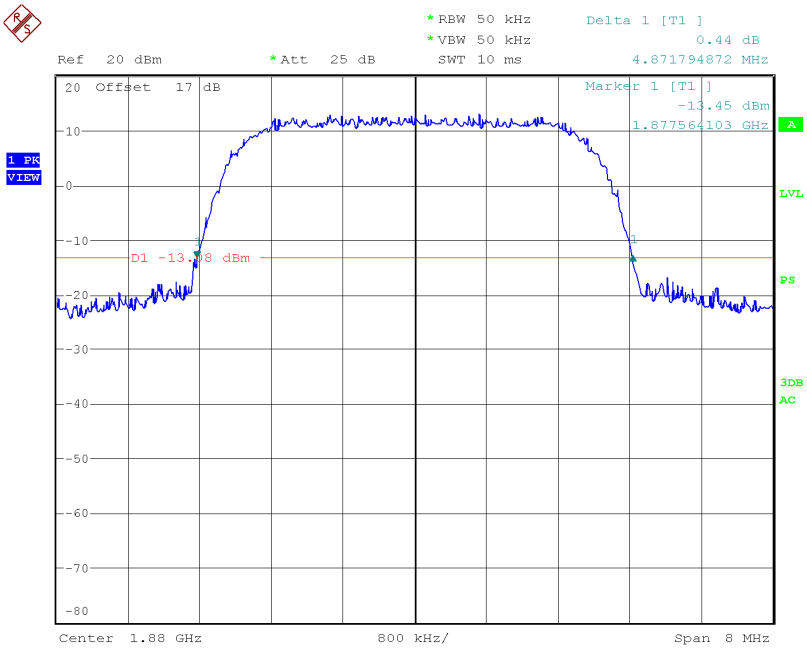


HSUPA MODULATION

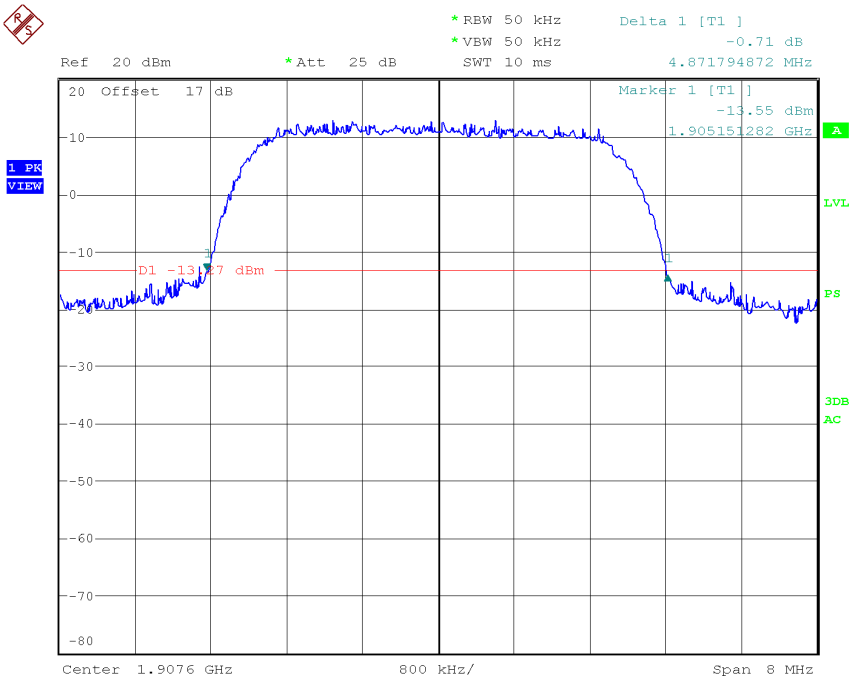
Lowest Channel



Middle Channel



Highest Channel



Spurious emissions at antenna terminals

SPECIFICATION

§2.1051 and §24.238

METHOD

The EUT RF output connector was connected to an spectrum analyser using an 50 ohm attenuator and the resolution bandwidth of the spectrum analyser was set to 1 MHz. The spectrum was investigated from 30 MHz to 20 GHz.

The reading of the spectrum analyser is corrected with the attenuation loss of connection between output terminal of EUT and input of the spectrum analyser.

Measurement Limit**:**

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB, P in watts.
At Po transmitting power, the specified minimum attenuation becomes 43+10log (Po), and the level in dBm relative Po becomes:

Po (dBm) – [43 + 10 log (Po in mwatts) - 30] = - 13 dBm

RESULTS (see plots in next pages)

GPRS MODULATION

1. CHANNEL: LOWEST
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

No spurious signals were found in all the range.

EDGE MODULATION

1. CHANNEL: LOWEST
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

No spurious signals were found in all the range.

WCDMA MODULATION

1. CHANNEL: LOWEST
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

No spurious signals were found in all the range.

HSUPA MODULATION

1. CHANNEL: LOWEST
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

No spurious signals were found in all the range.

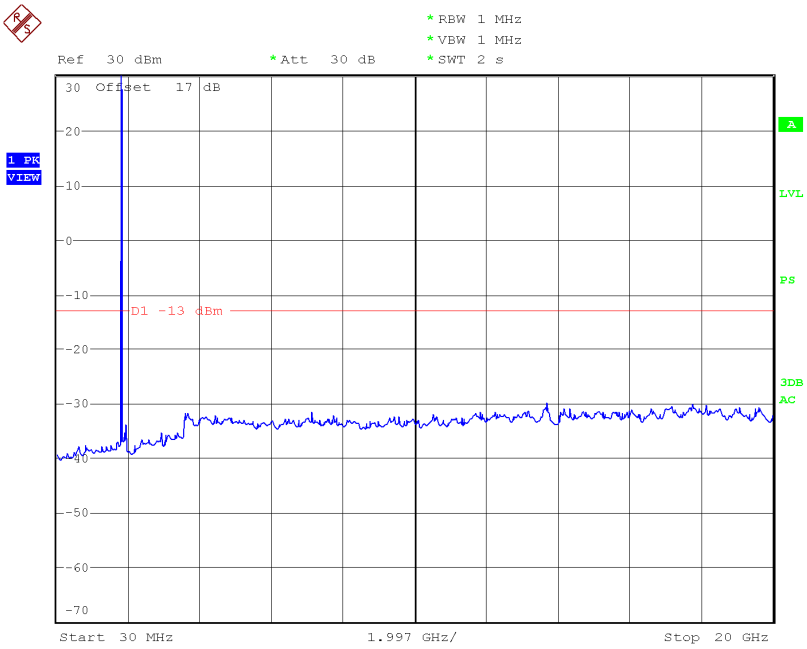
3. CHANNEL: HIGHEST

No spurious signals were found in all the range.

Verdict: PASS

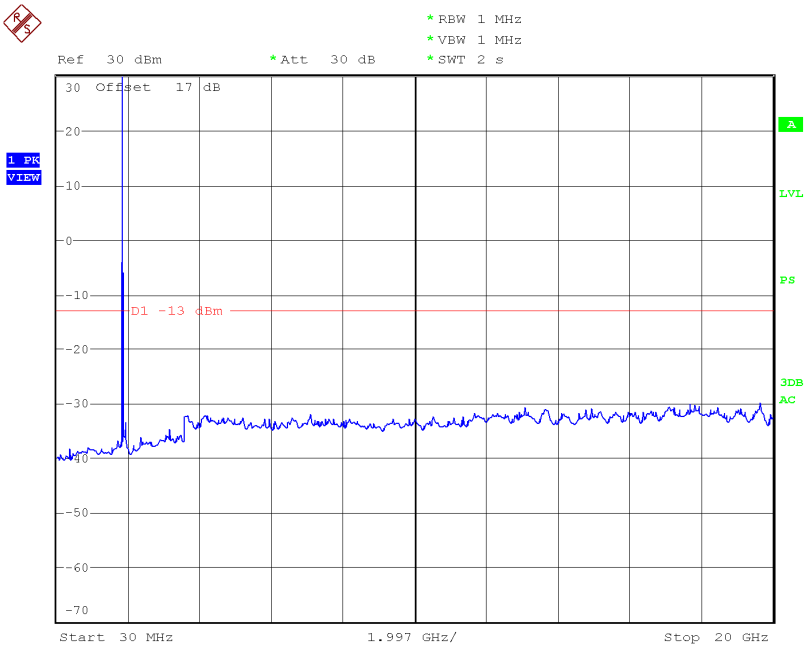
GPRS MODULATION

1. CHANNEL: LOWEST



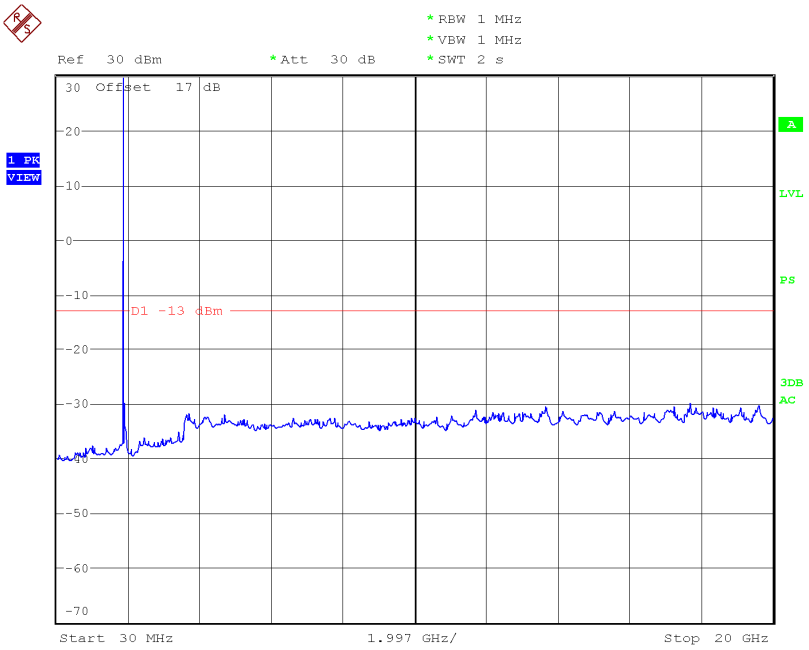
Note: The peak above the limit is the carrier frequency.

2. CHANNEL: MIDDLE



Note: The peak above the limit is the carrier frequency.

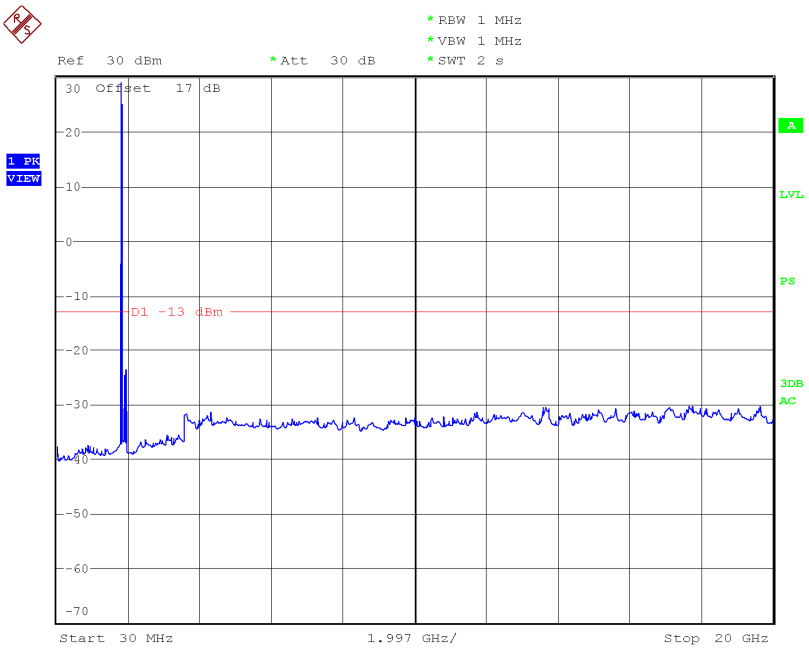
3. CHANNEL: HIGHEST



Note: The peak above the limit is the carrier frequency.

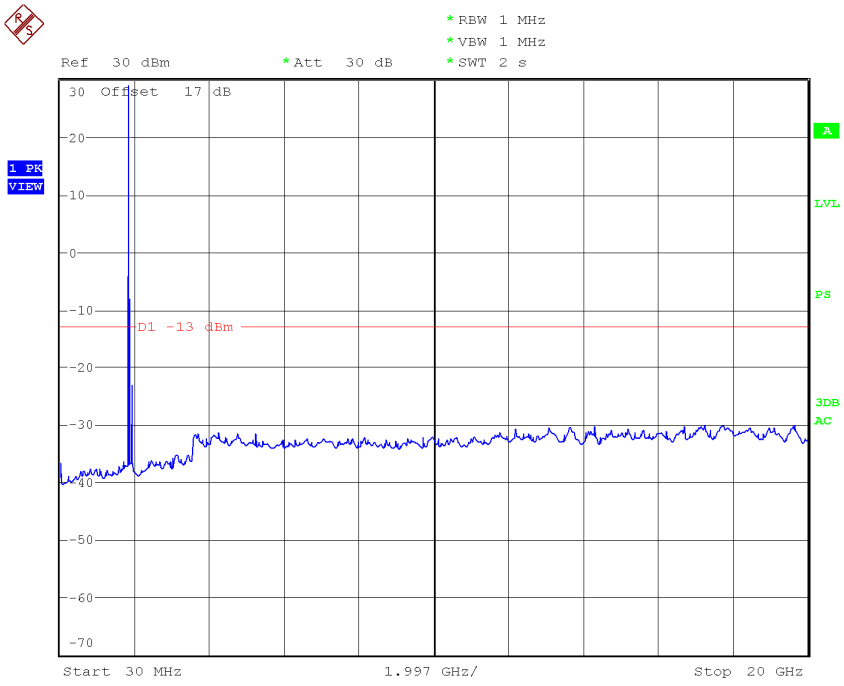
EDGE MODULATION

1. CHANNEL: LOWEST



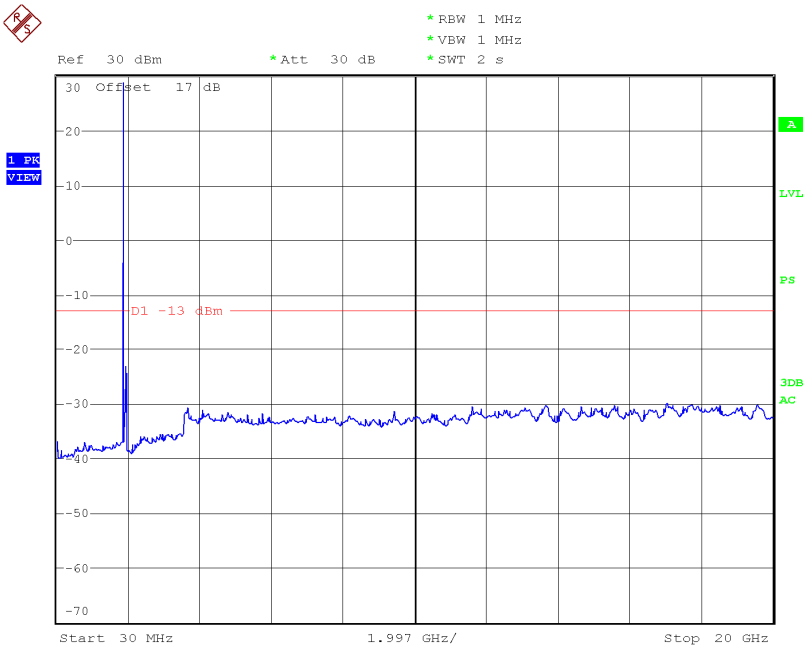
Note: The peak above the limit is the carrier frequency.

2. CHANNEL: MIDDLE



Note: The peak above the limit is the carrier frequency.

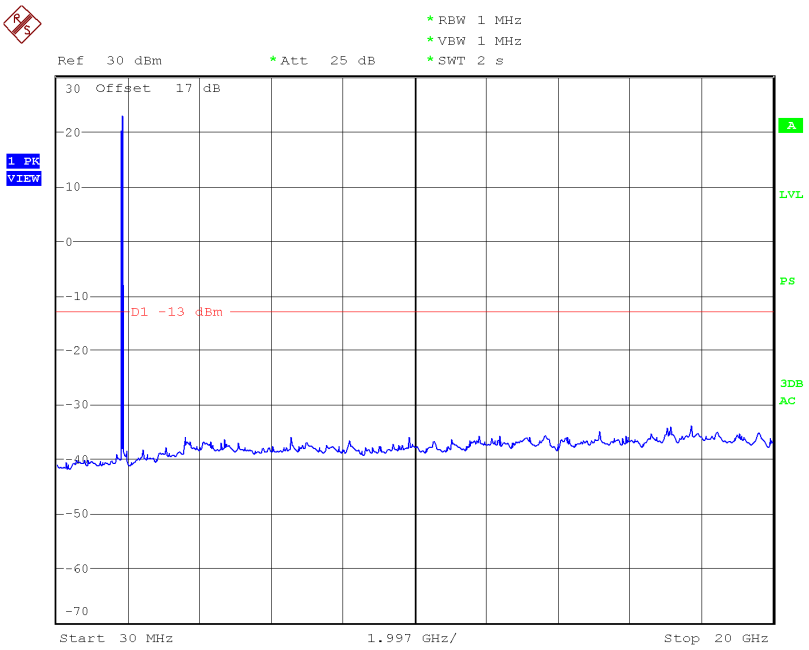
3. CHANNEL: HIGHEST



Note: The peak above the limit is the carrier frequency.

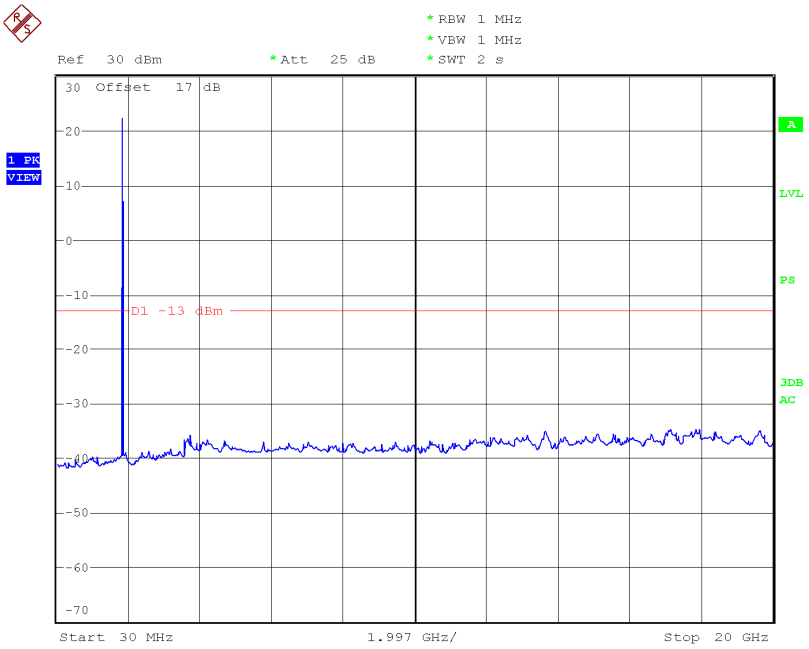
WCDMA MODULATION

1. CHANNEL: LOWEST



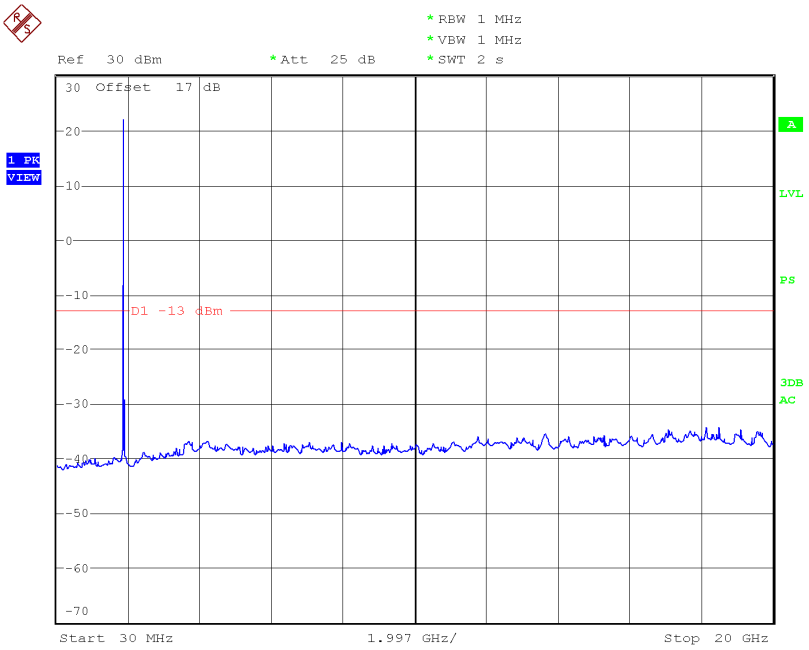
Note: The peak above the limit is the carrier frequency.

2. CHANNEL: MIDDLE



Note: The peak above the limit is the carrier frequency.

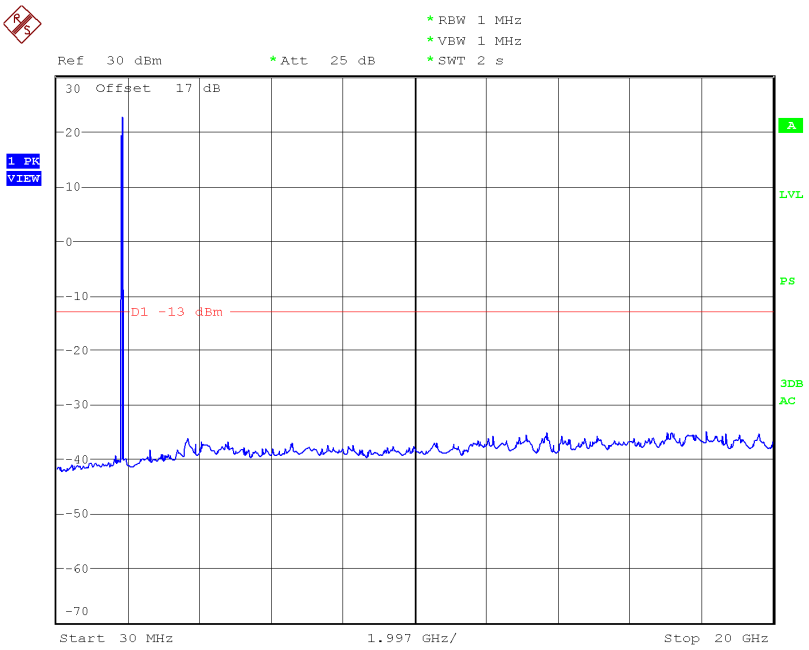
3. CHANNEL: HIGHEST



Note: The peak above the limit is the carrier frequency.

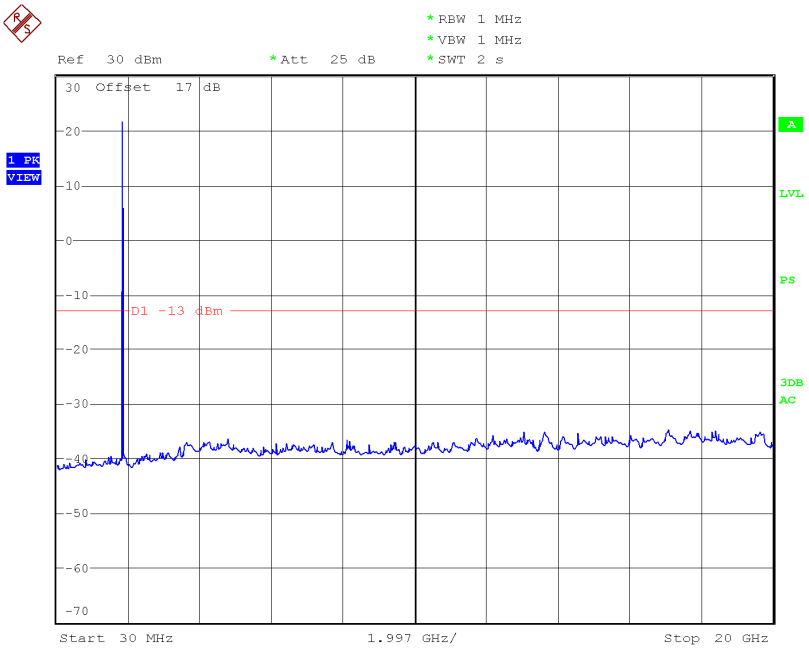
HSUPA MODULATION

1. CHANNEL: LOWEST



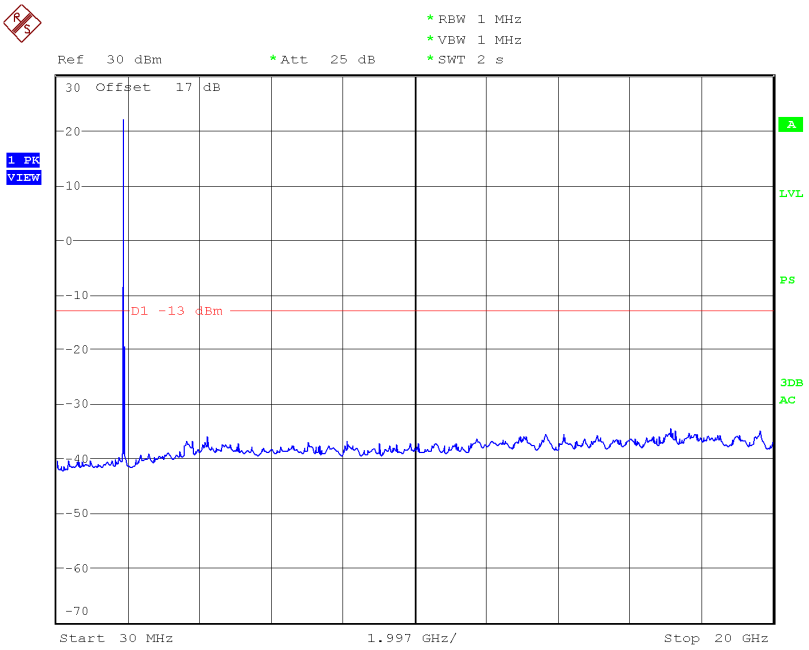
Note: The peak above the limit is the carrier frequency.

2. CHANNEL: MIDDLE



Note: The peak above the limit is the carrier frequency.

3. CHANNEL: HIGHEST



Note: The peak above the limit is the carrier frequency.

SPECIFICATION

§2.1051 and §24.238

METHOD

As indicated in FCC part 24, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A resolution bandwidth of 3.3 kHz was used for GPRS and EDGE modulations, and 51 kHz for WCDMA and HSUPA modulations.

Measurement Limit**:**

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB, P in watts.
At Po transmitting power, the specified minimum attenuation becomes 43+10log (Po), and the level in dBm relative Po becomes:

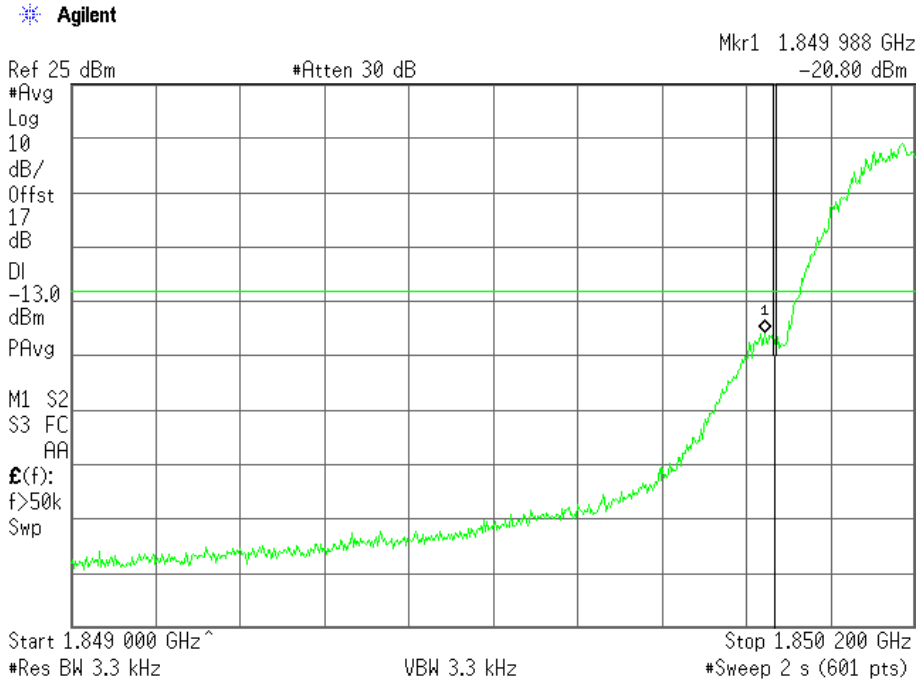
Po (dBm) – [43 + 10 log (Po in mwatts) - 30] = - 13 dBm

RESULTS (see plots in next pages)

Measurement uncertainty = ±1.57 dB.

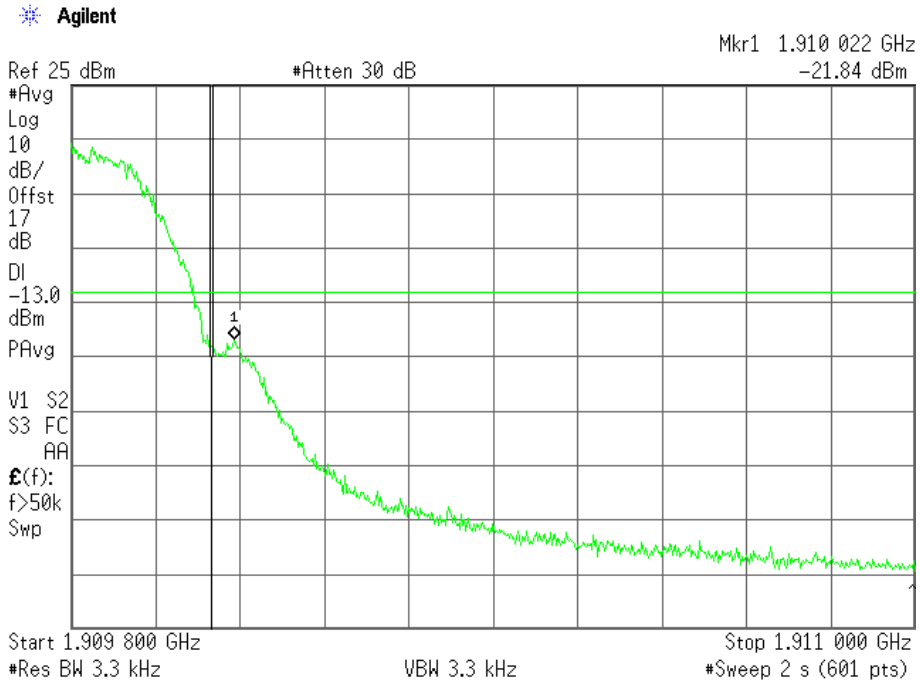
GPRS MODULATION

CHANNEL LOWEST



NOTE: The equipment transmits at the maximum output power

CHANNEL HIGHEST

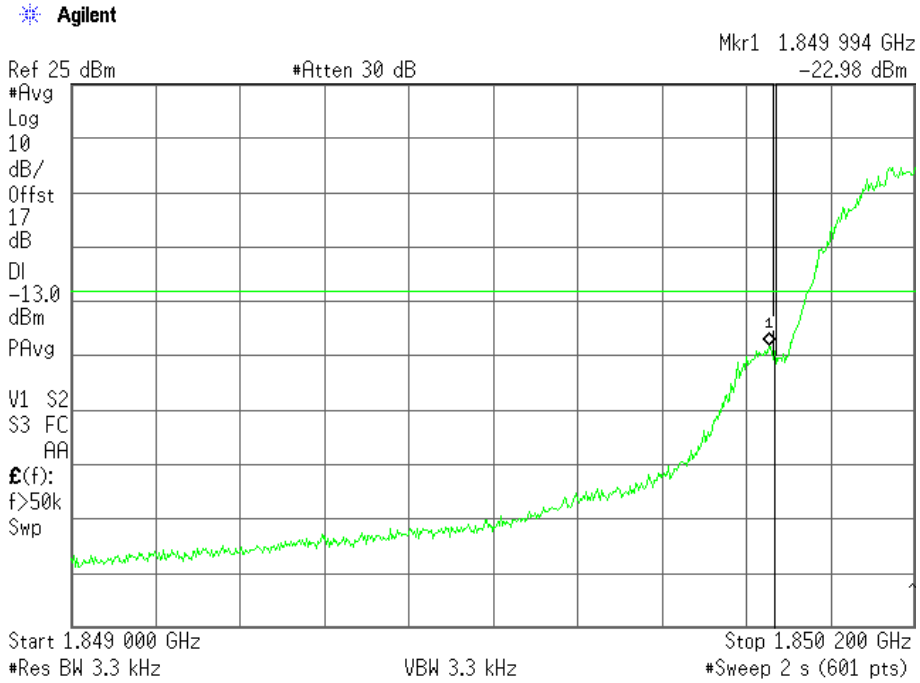


NOTE: The equipment transmits at the maximum output power

Verdict: PASS

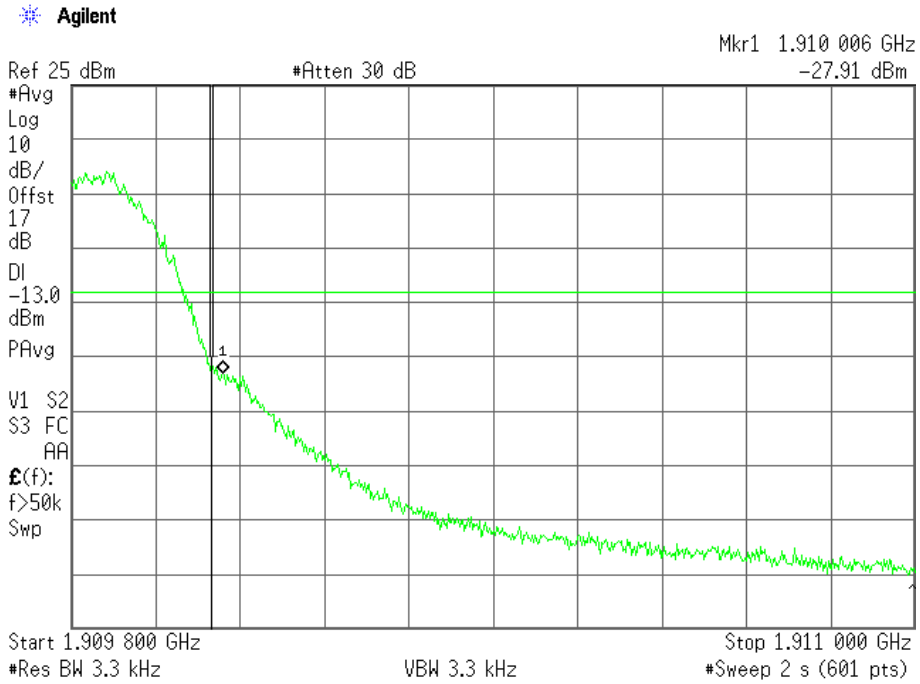
EDGE MODULATION

CHANNEL LOWEST



NOTE: The equipment transmits at the maximum output power

CHANNEL HIGHEST

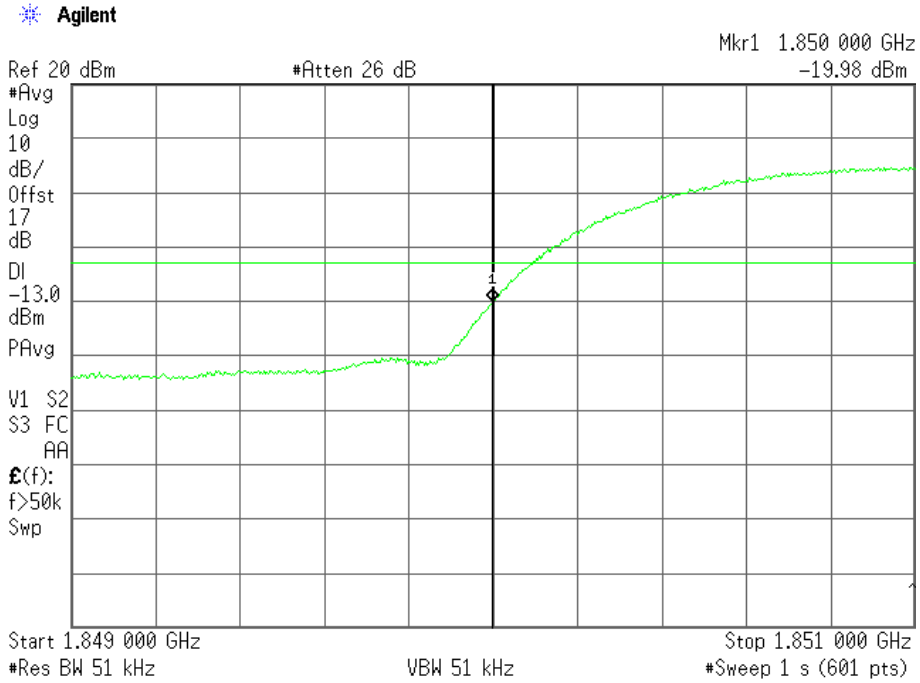


NOTE: The equipment transmits at the maximum output power

Verdict: PASS

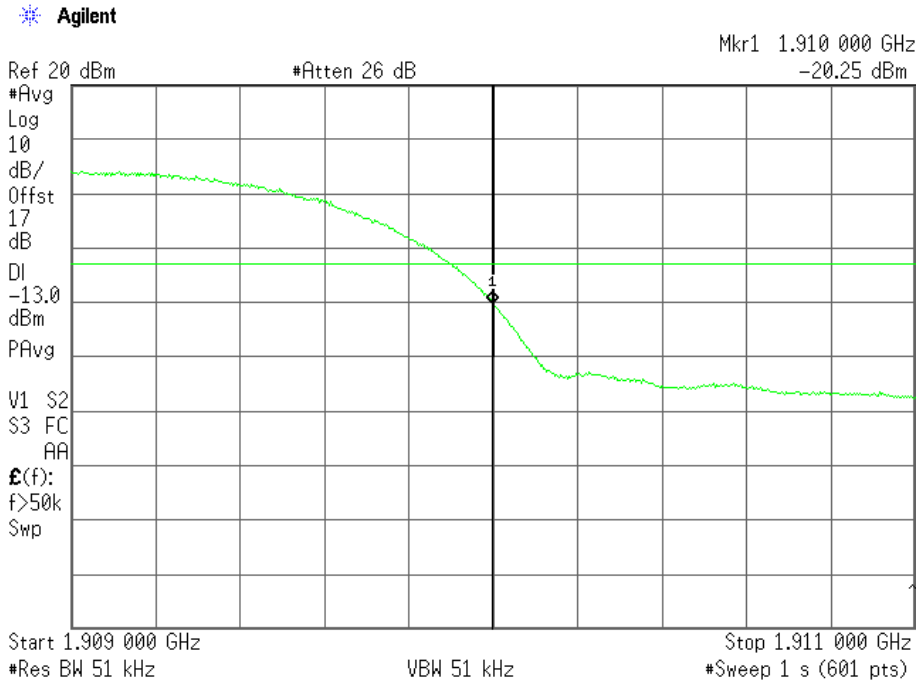
WCDMA MODULATION

CHANNEL LOWEST



NOTE: The equipment transmits at the maximum output power

CHANNEL HIGHEST

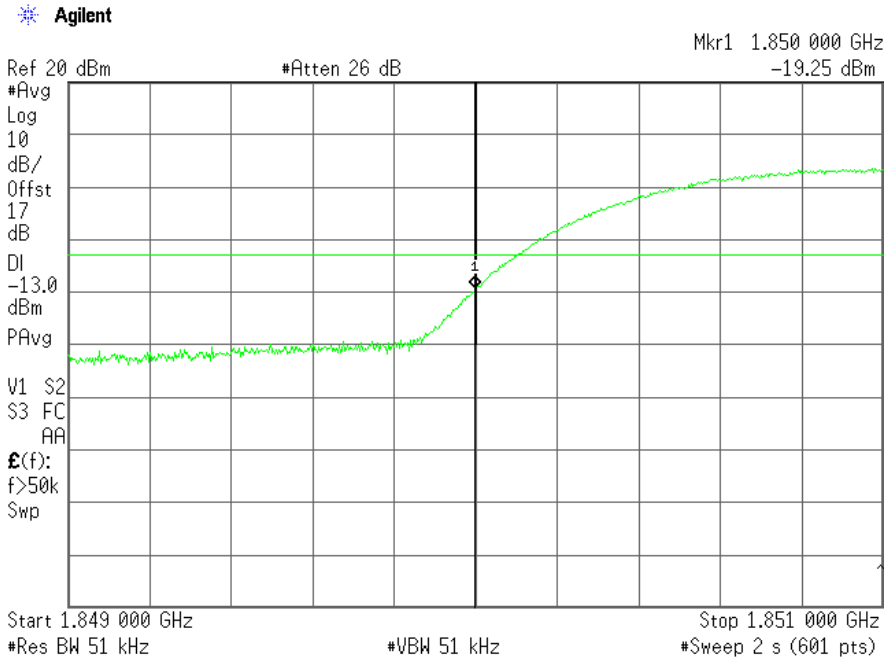


NOTE: The equipment transmits at the maximum output power

Verdict: PASS

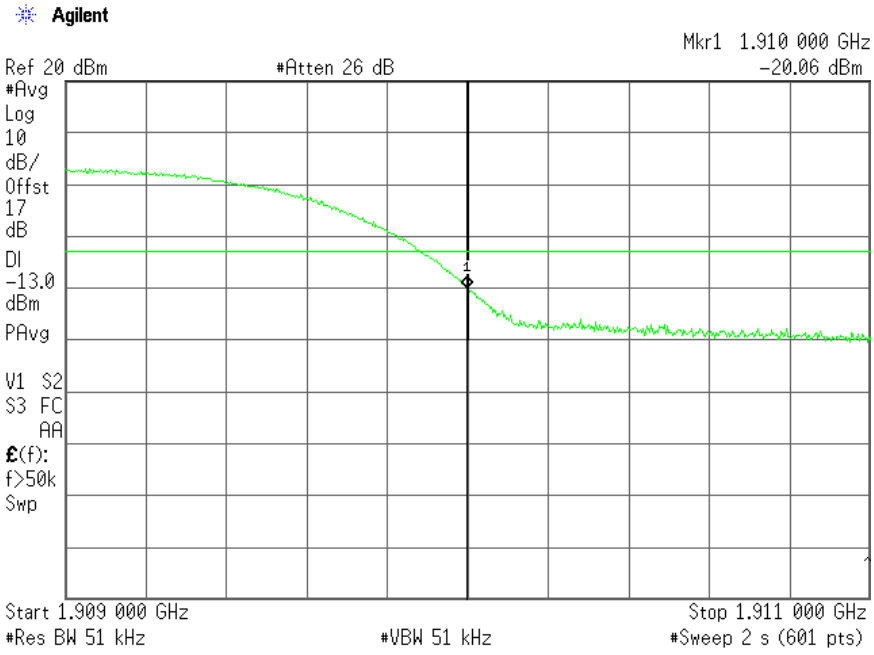
HSUPA MODULATION

CHANNEL LOWEST



NOTE: The equipment transmits at the maximum output power

CHANNEL HIGHEST



NOTE: The equipment transmits at the maximum output power

Verdict: PASS

Radiated emissions

SPECIFICATION

§ 24.238

METHOD

The measurement was performed with the EUT inside an anechoic chamber. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment.

The EUT was placed on a 1 meter high non-conductive stand at a 3 meter distance from the measuring antenna for measurements below 1 GHz and at 1 m distance for measurements above 1 GHz.

Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum meter reading was recorded. The radiated emissions were measured with peak detector and 1 MHz bandwidth.

Each detected emissions were substituted by the Substitution method, in accordance with the ANSI/TIA/EIA-603-C: 2004.

Measurement Limit**:**

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB, P in watts.
At Po transmitting power, the specified minimum attenuation becomes 43+10log (Po), and the level in dBm relative Po becomes:

Po (dBm) – [43 + 10 log (Po in mwatts) - 30] = - 13 dBm

RESULTS

GPRS MODULATION

1. CHANNEL: LOWEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

EDGE MODULATION

1. CHANNEL: LOWEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

WCDMA MODULATION

1. CHANNEL: LOWEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

HSUPA MODULATION

1. CHANNEL: LOWEST

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

2. CHANNEL: MIDDLE

Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

3. CHANNEL: HIGHEST

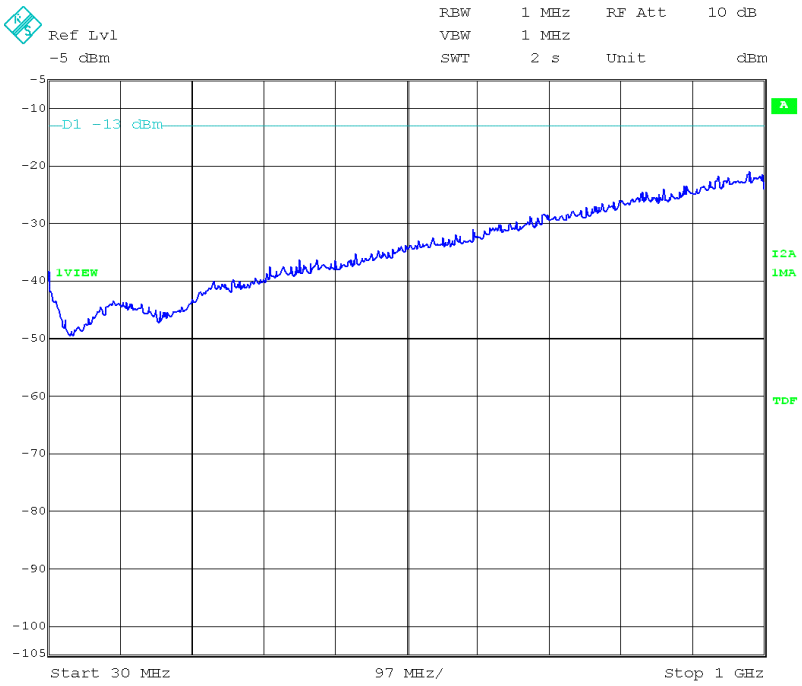
Frequency range 30 MHz-1000 MHz.
No spurious signals were found in all the range.

Frequency range 1 GHz-20 GHz.
No spurious signals were found in all the range.

Verdict: PASS

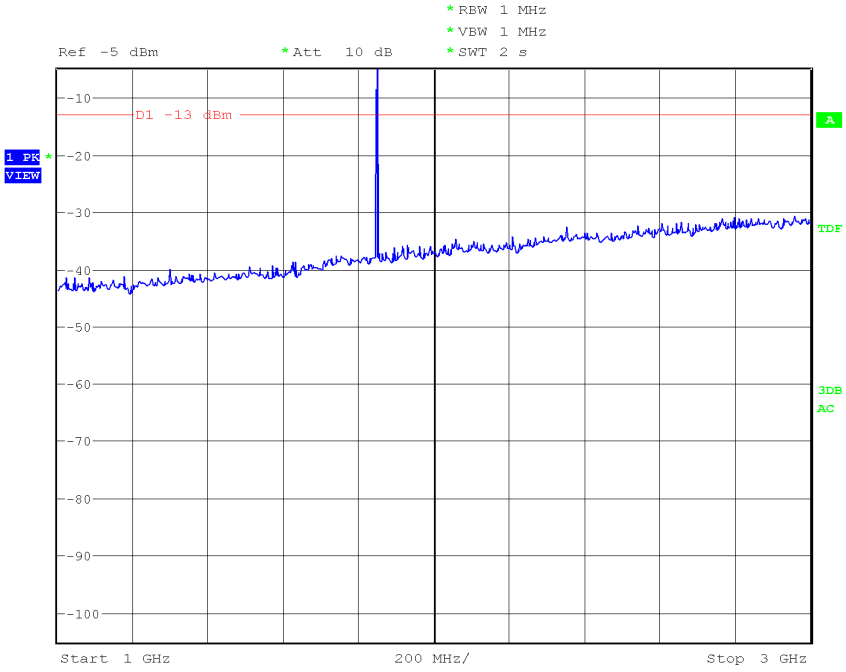
GPRS MODULATION

FREQUENCY RANGE 30 MHz-1000 MHz.



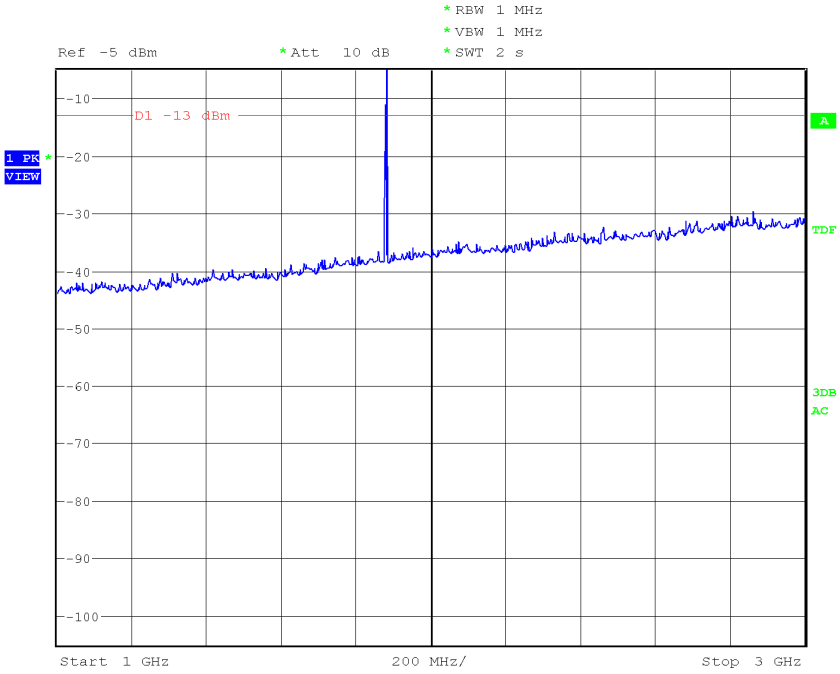
(This plot is valid for all three channels).

FREQUENCY RANGE 1 GHz to 3 GHz.
CHANNEL: LOWEST



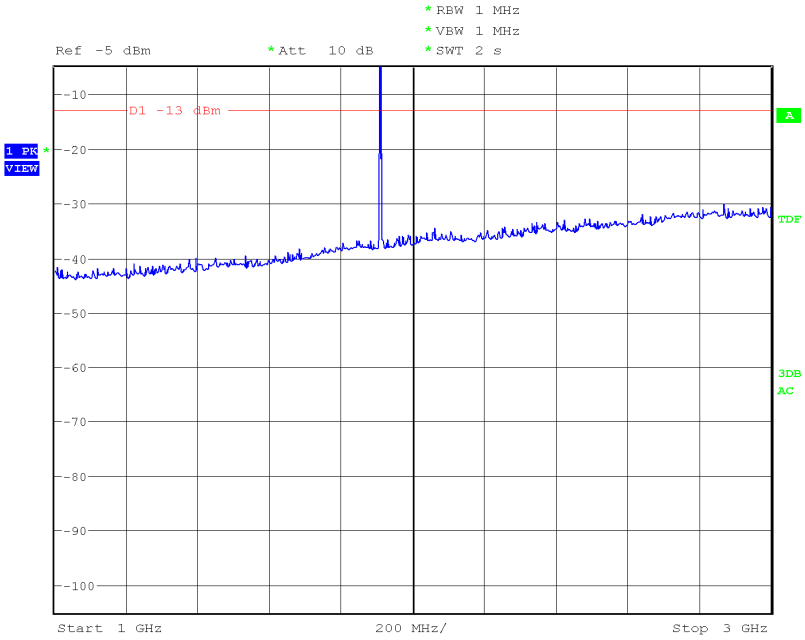
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



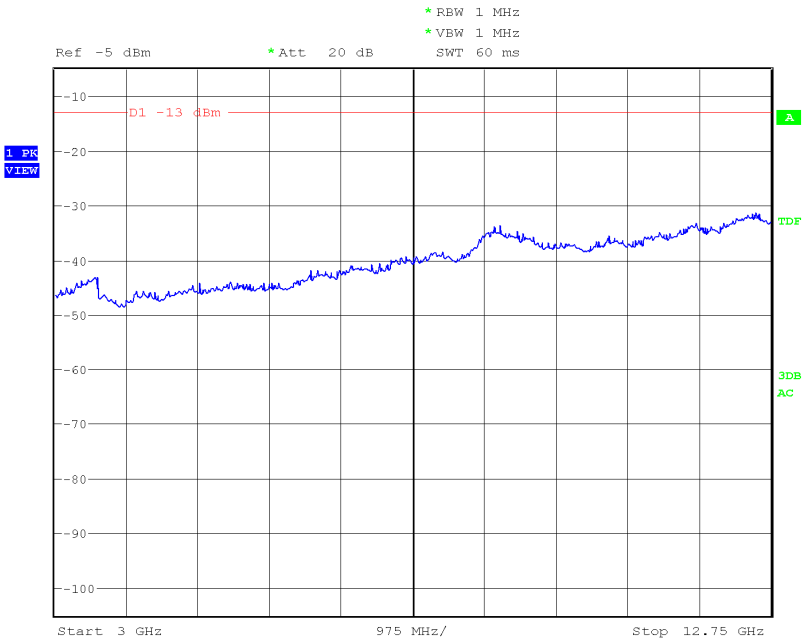
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



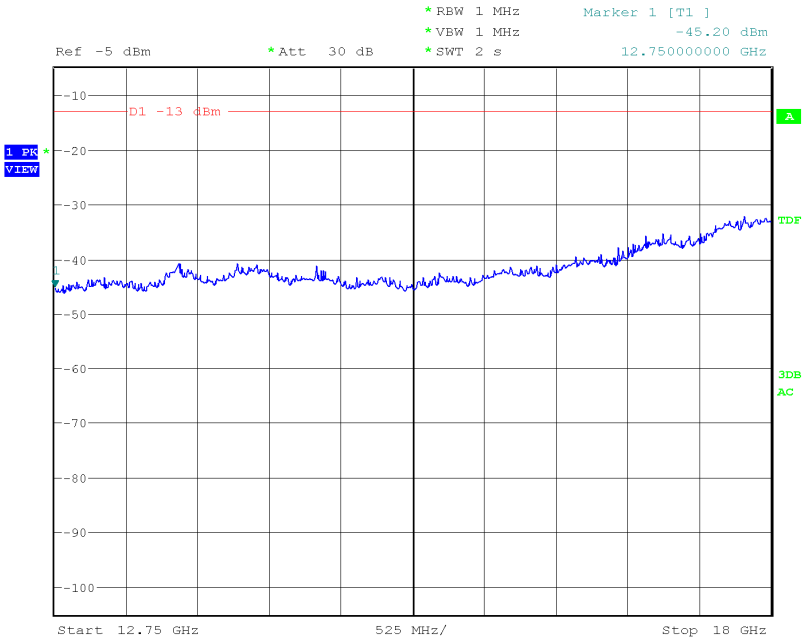
Note: The peak above the limit is the carrier frequency.

FREQUENCY RANGE 3 GHz to 12.75 GHz.



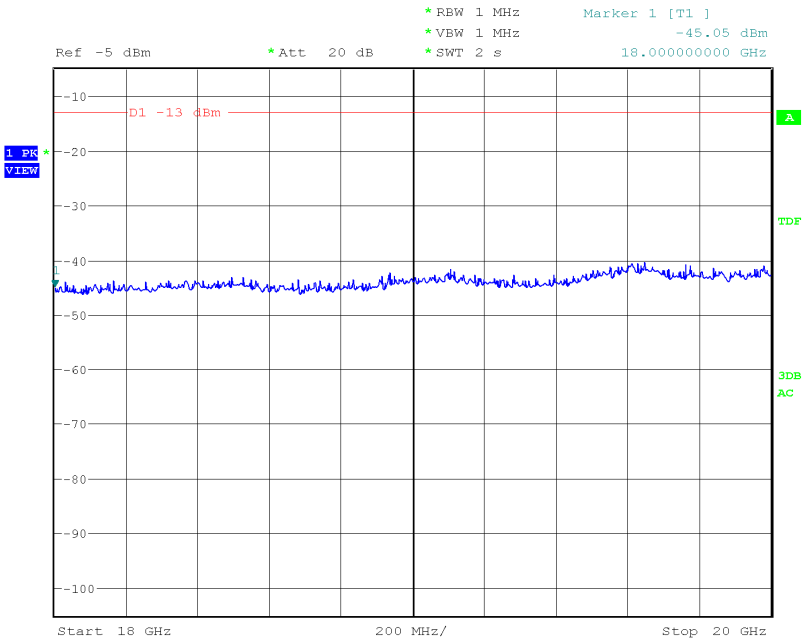
(This plot is valid for all three channels).

FREQUENCY RANGE 12.75 GHz TO 18 GHz.



(This plot is valid for all three channels).

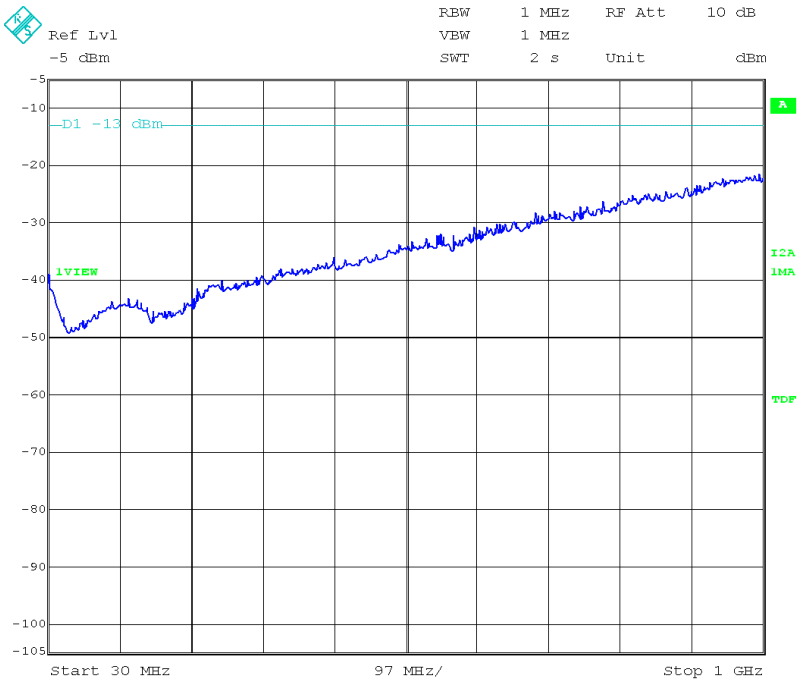
FREQUENCY RANGE 18 GHz TO 20 GHz.



(This plot is valid for all three channels).

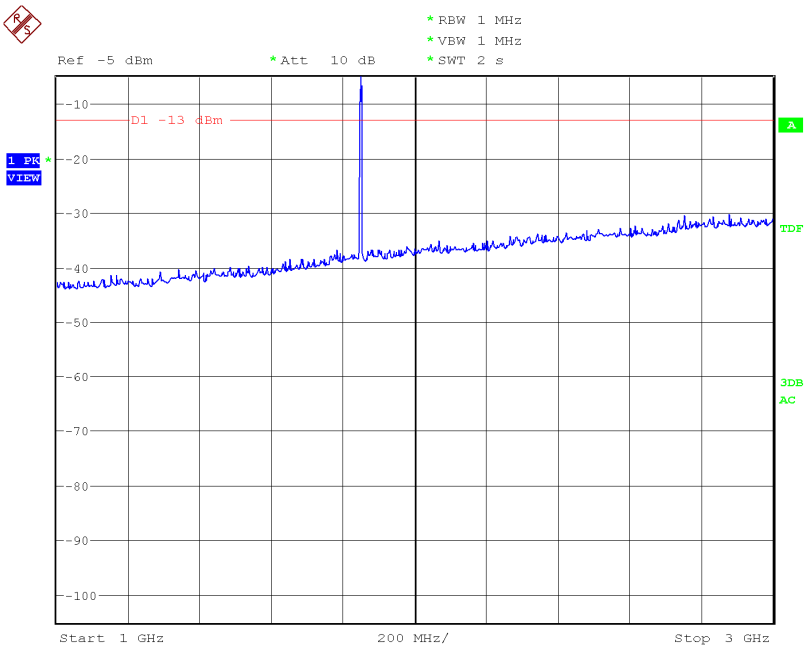
EDGE MODULATION

FREQUENCY RANGE 30 MHz-1000 MHz.



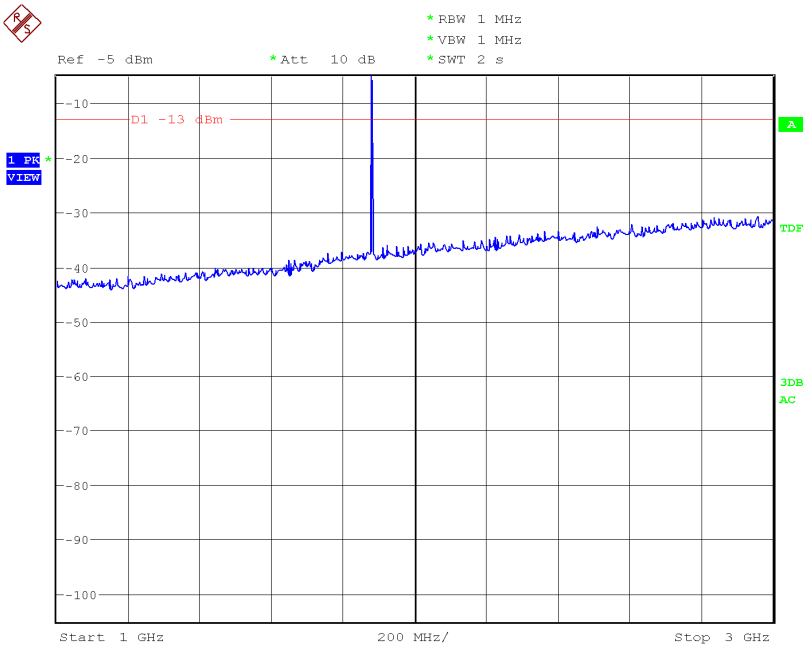
(This plot is valid for all three channels).

FREQUENCY RANGE 1 GHz to 3 GHz.
CHANNEL: LOWEST



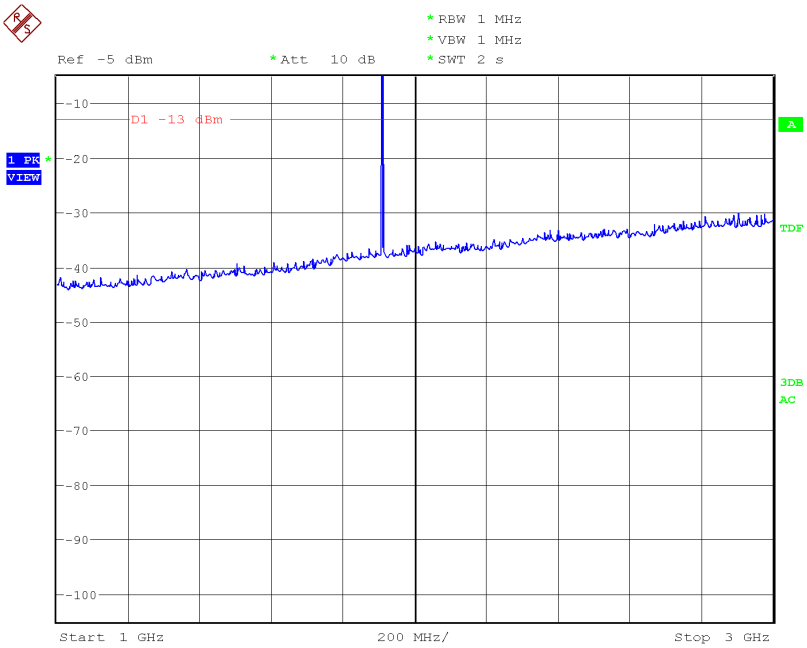
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



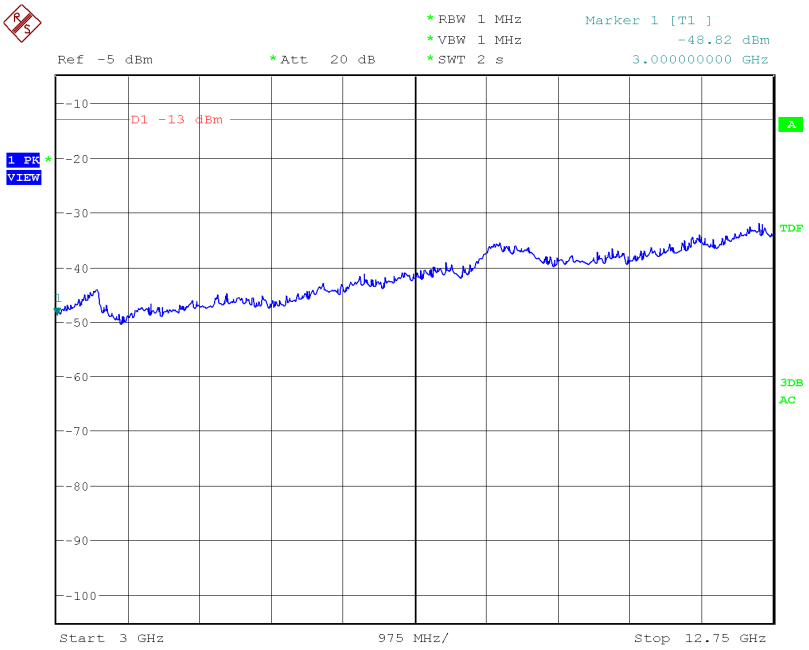
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



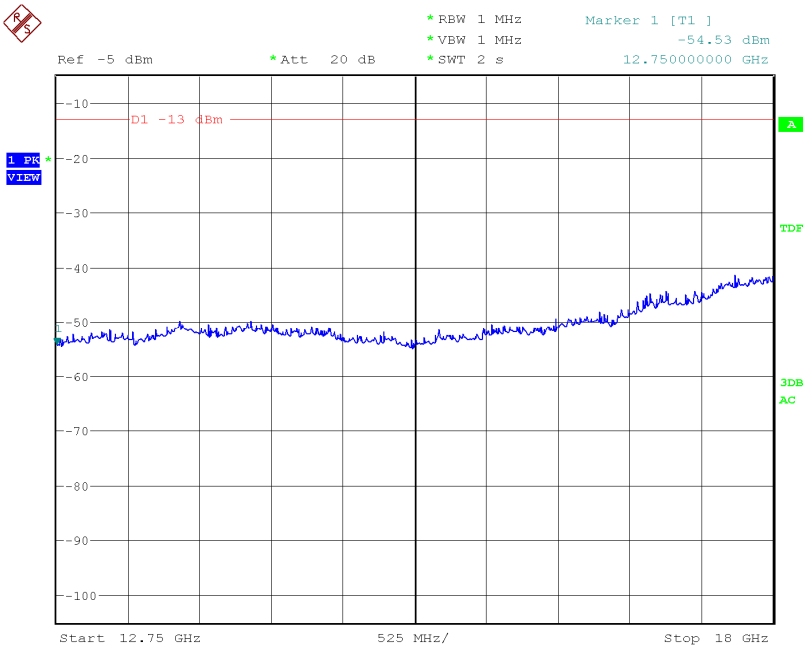
Note: The peak above the limit is the carrier frequency.

FREQUENCY RANGE 3 GHz to 12.75 GHz.



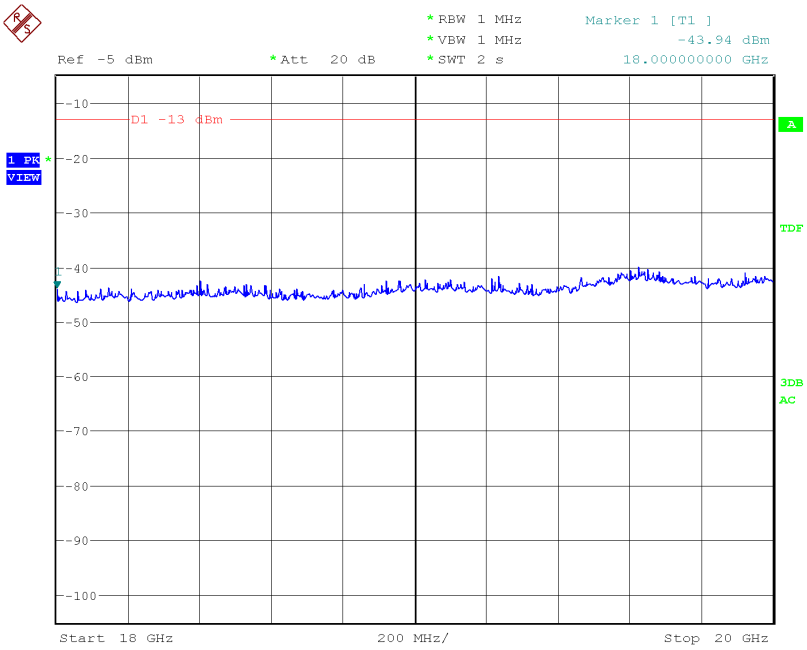
(This plot is valid for all three channels).

FREQUENCY RANGE 12.75 GHz TO 18 GHz.



(This plot is valid for all three channels).

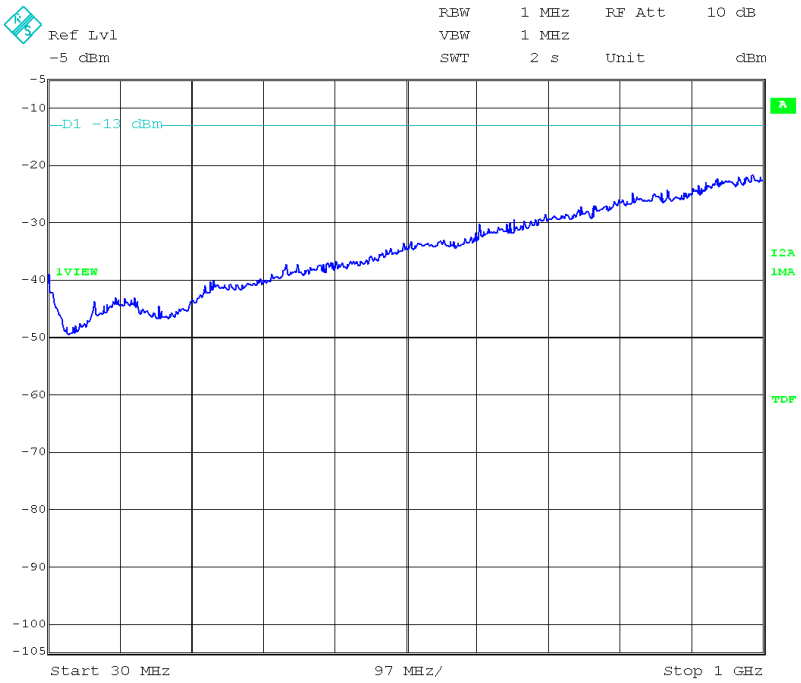
FREQUENCY RANGE 18 GHz TO 20 GHz.



(This plot is valid for all three channels).

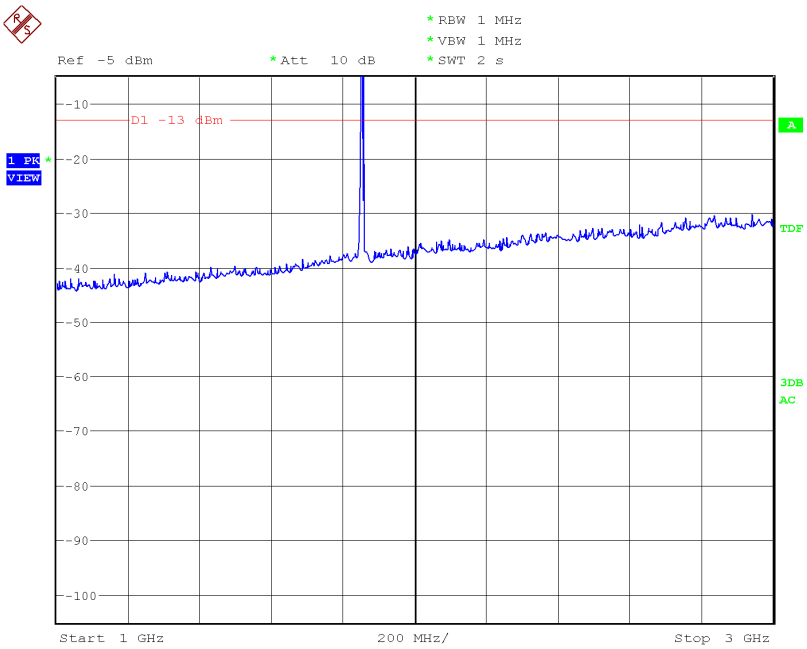
WCDMA MODULATION

FREQUENCY RANGE 30 MHz-1000 MHz.



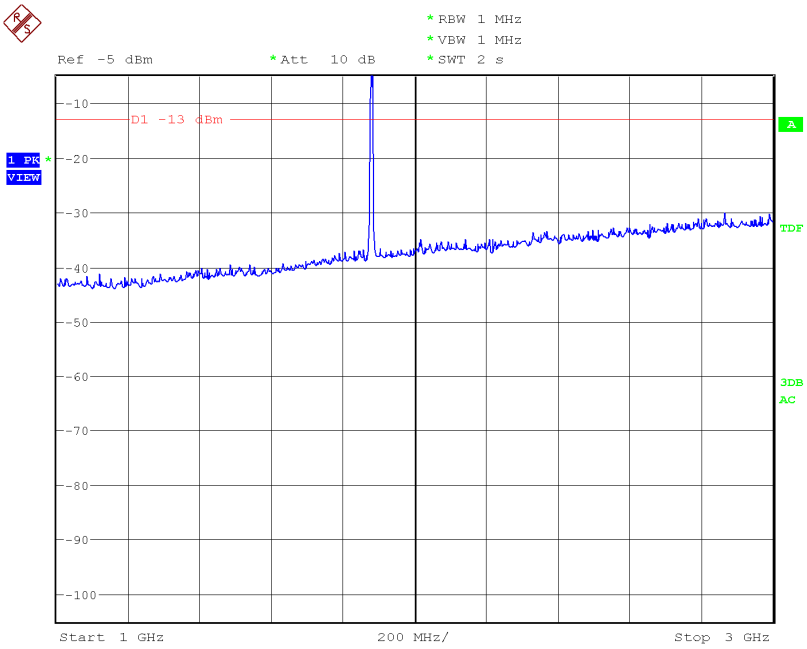
(This plot is valid for all three channels).

FREQUENCY RANGE 1 GHz to 3 GHz.
CHANNEL: LOWEST



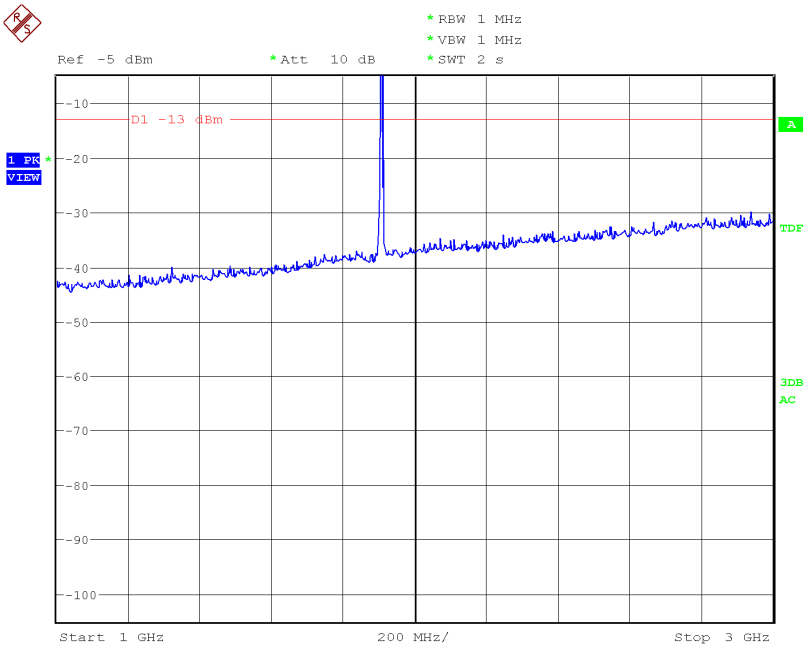
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



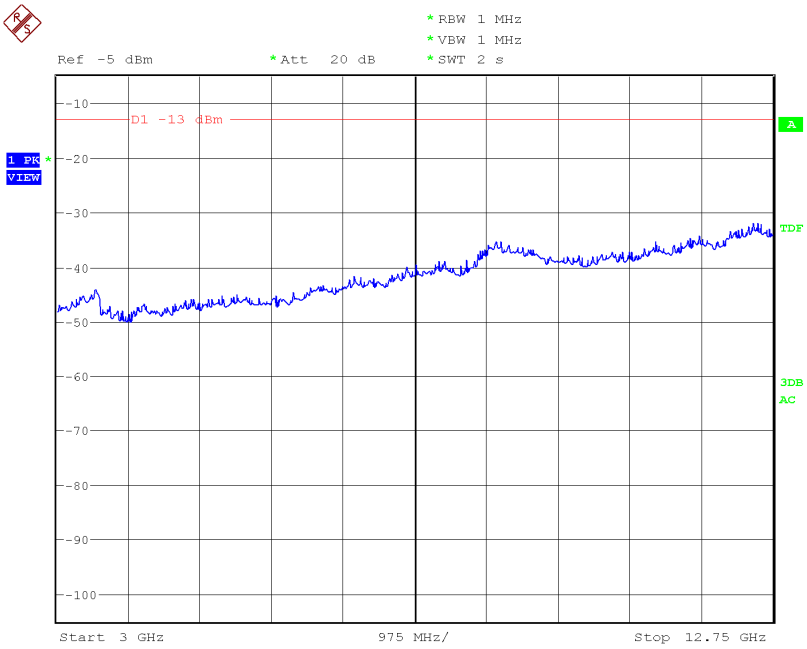
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



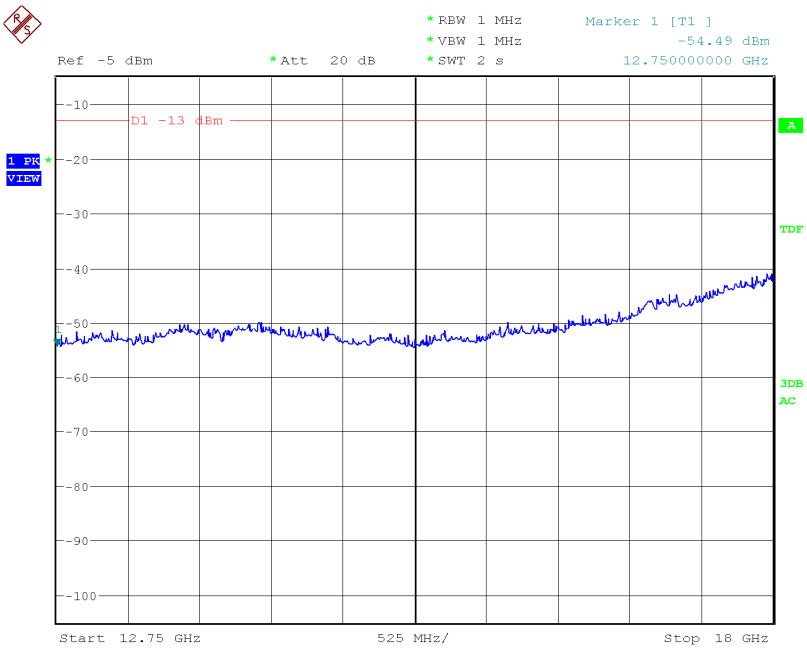
Note: The peak above the limit is the carrier frequency.

FREQUENCY RANGE 3 GHz to 12.75 GHz.



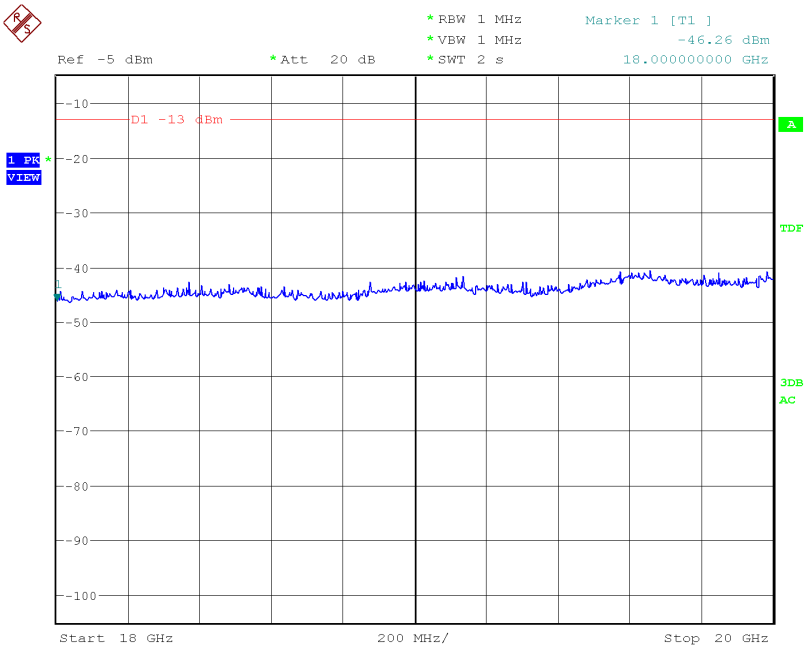
(This plot is valid for all three channels).

FREQUENCY RANGE 12.75 GHz TO 18 GHz.



(This plot is valid for all three channels).

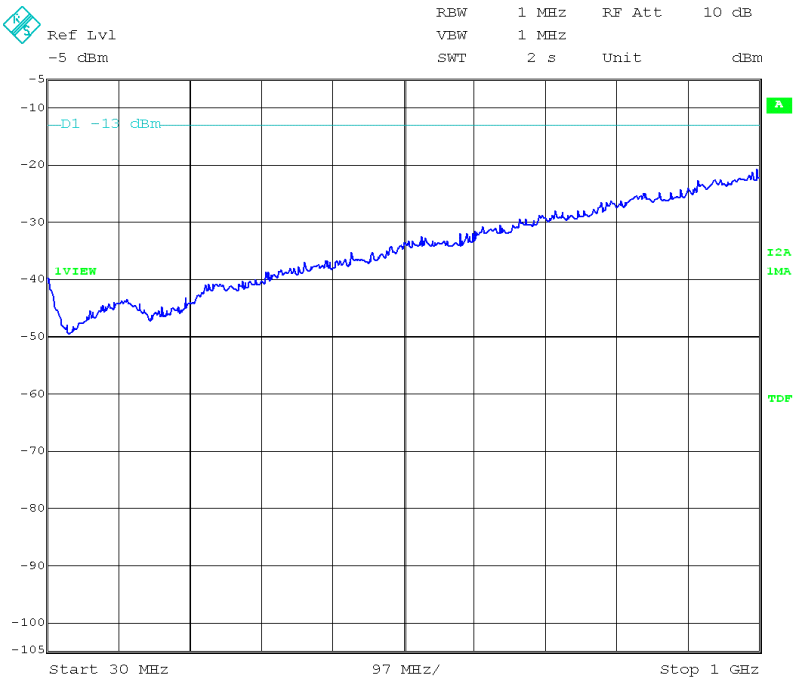
FREQUENCY RANGE 18 GHz TO 20 GHz.



(This plot is valid for all three channels).

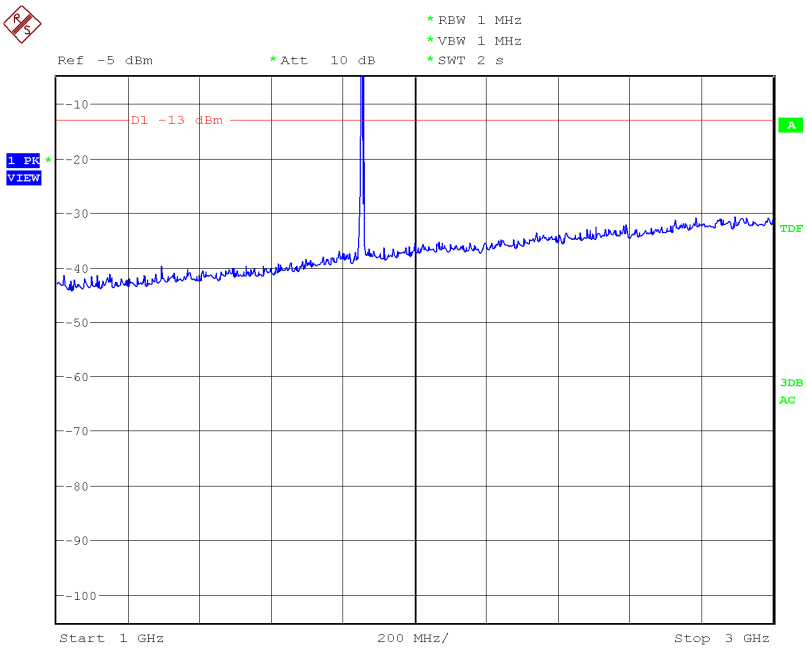
HSUPA MODULATION

FREQUENCY RANGE 30 MHz-1000 MHz.



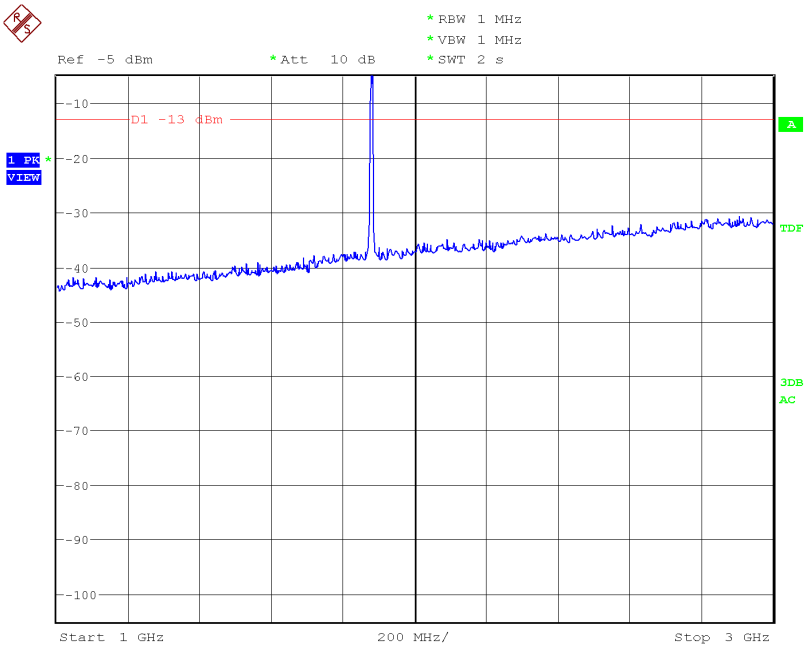
(This plot is valid for all three channels).

FREQUENCY RANGE 1 GHz to 3 GHz.
CHANNEL: LOWEST



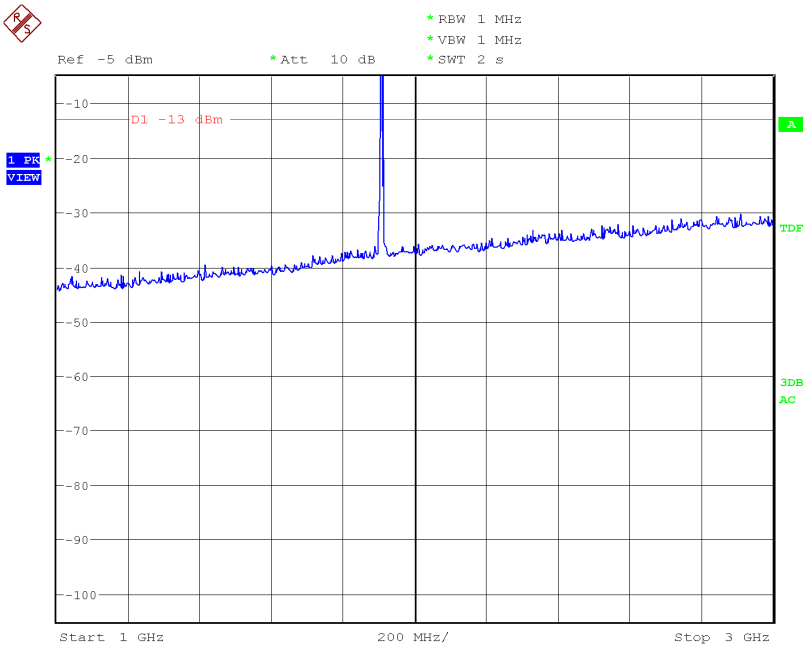
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



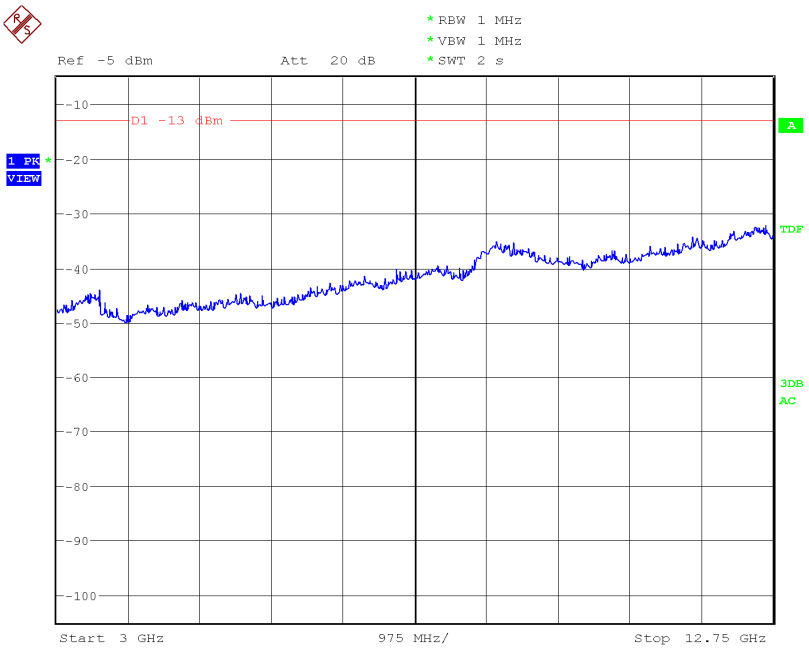
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



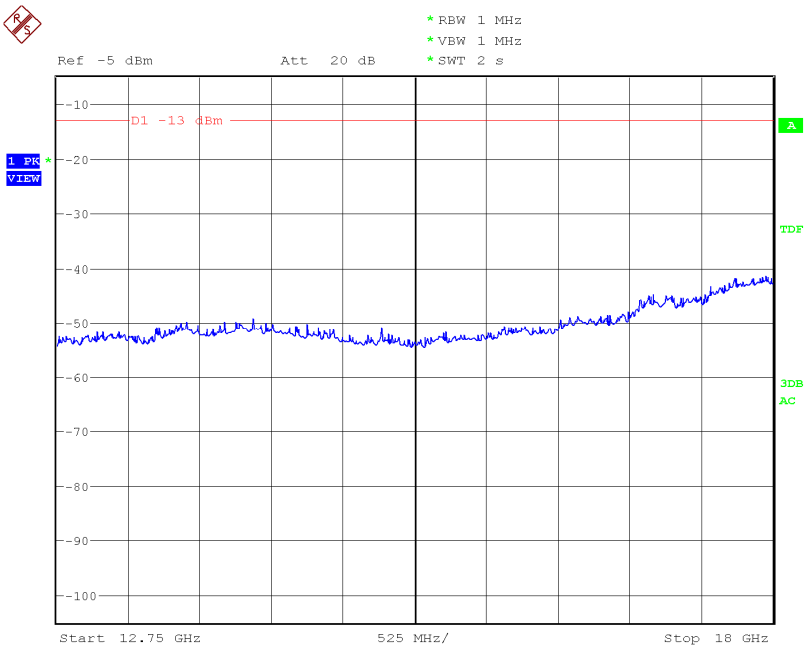
Note: The peak above the limit is the carrier frequency.

FREQUENCY RANGE 3 GHz to 12.75 GHz.



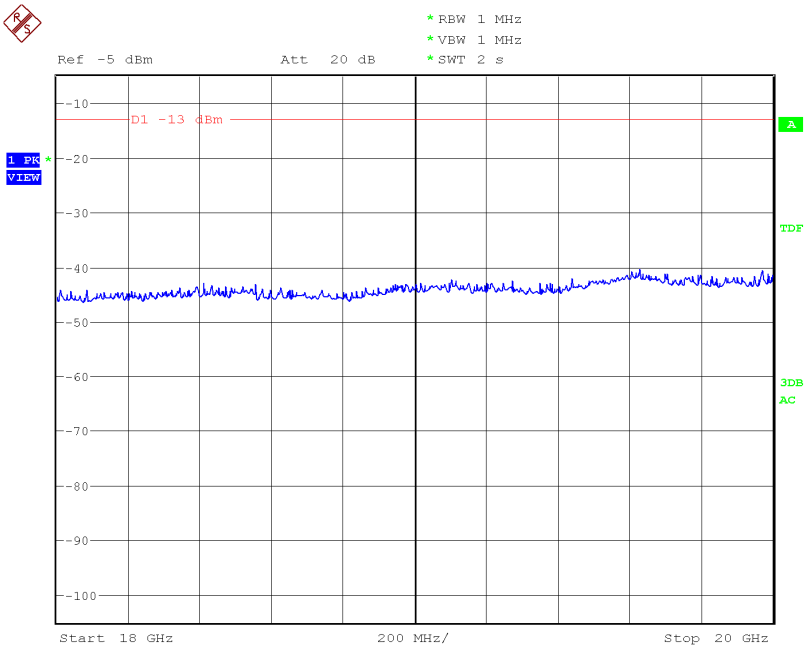
(This plot is valid for all three channels).

FREQUENCY RANGE 12.75 GHz TO 18 GHz.



(This plot is valid for all three channels).

FREQUENCY RANGE 18 GHz TO 20 GHz.



(This plot is valid for all three channels).

ANNEX C

PHOTOGRAPHS
(Number of photographs: 7)

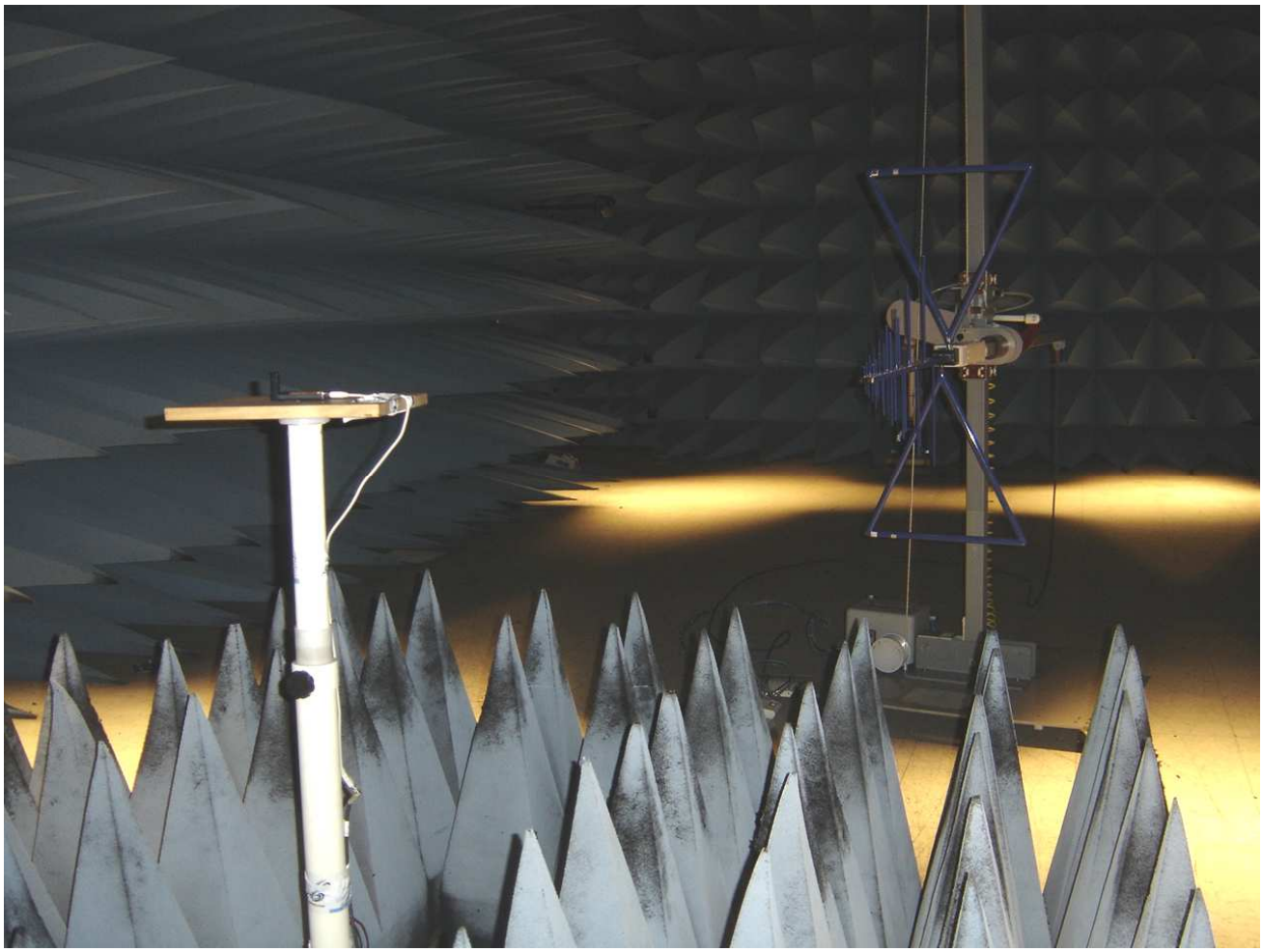
Report No.: 26877RET

1. Equipment (front view)

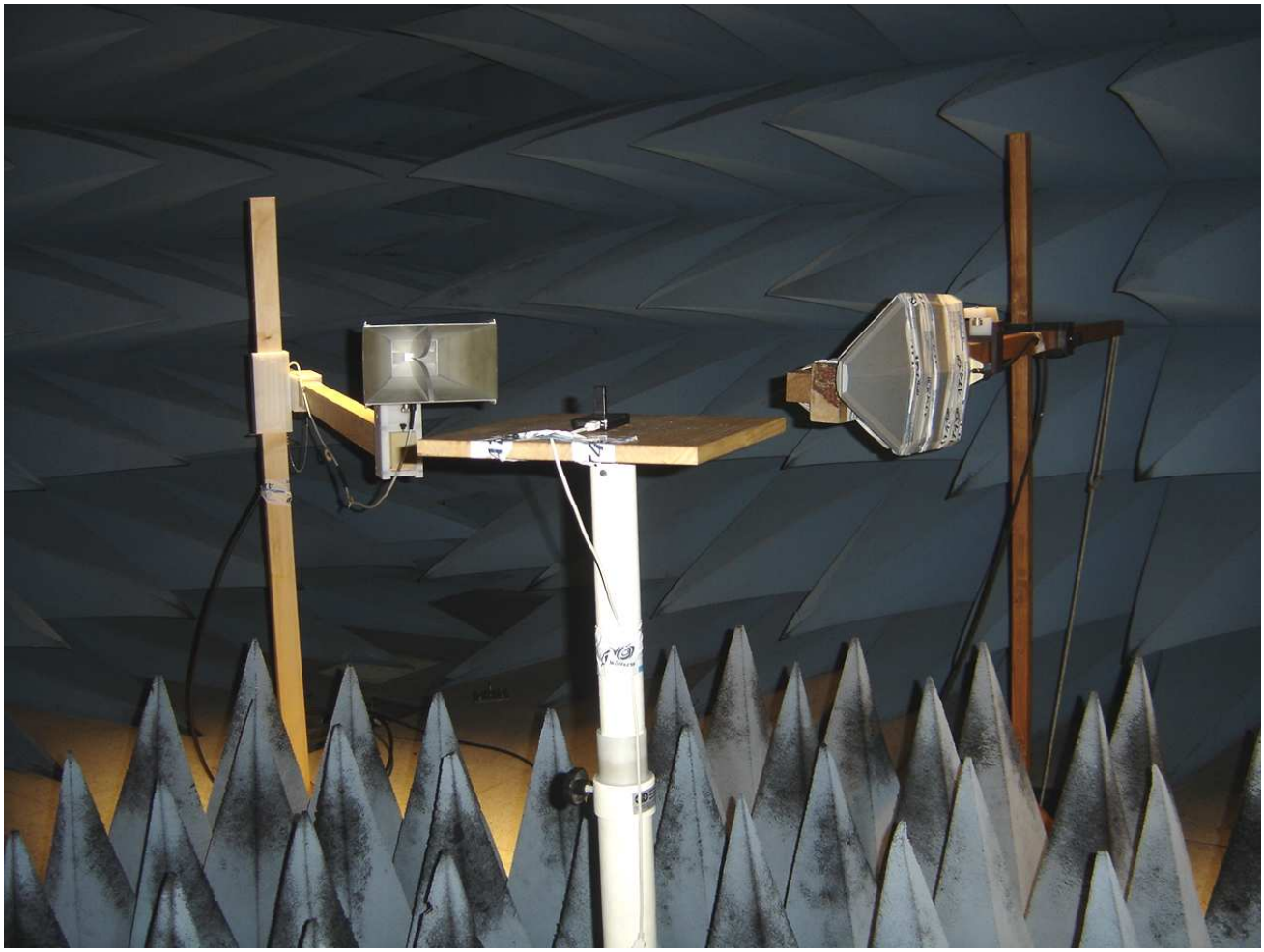
2. Equipment (back view)

4. General test set-up for radiated measurements.

5. Test set-up for radiated measurements below 1 GHz.



6. Test set-up for radiated measurements above 1 GHz.



7. Test set-up for conducted measurements.