

**FCC LISTED, REGISTRATION  
NUMBER: 905266**

**IC LISTED REGISTRATION NUMBER  
IC 4621**

**AT4 wireless, S.A.**

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**TEST REPORT**

**REFERENCE STANDARD:**

**USA FCC Part 22 & Part 24**

**CANADA IC RSS-132, RSS-133**

<b>NIE</b> ..... :	28940RET.001
Approved by (name / position & signature) .....	J.C. Soler / Consultant .....
Elaboration date .....	07/07/2009
<b>Identification of item tested</b> .....	GSM / UMTS PHONE
Brand name .....	---
Model and/or type reference .....	P7000
Serial number .....	IMEI: 000000000000307
Other identification of the product .....	FCC ID: JYCP7000
Features .....	3.7 Li-ion rechargeable battery, GSM Quad band, UMTS bands II and V
Description .....	GSM / UMTS phone
<b>Applicant</b> .....	Pantech Co., Ltd
Address.....	Pantech Bldg, 1-2, DMC, Sangam-dong, Mapogo, 121-792 Seoul, Korea
CIF/NIF/Passport.....	---
Contact person:	Mr. B.W. Kim
Telephone / Fax.....	Phone: +82- (0) 2-2030-1200 / Fax: +82- (0) 2-2030-2519
e-mail: .....	---
<b>Test samples supplier</b> .....	Same as applicant
<b>Manufacturer</b> .....	Same as applicant

**Test method requested** ..... : See Standard  
**Standard** ..... : USA FCC Part 22 10-1-08 Edition/ CANADA IC RSS-132 Issue 2, Sep. 2005:  
 Clause 22.913/RSS-132 Clause 4.4: RF output power (radiated)  
 Clause 22.917/RSS-132 Clause 4.5: Radiated emissions  
 USA FCC Part 24 10-1-08 Edition/CANADA IC RSS-133 Issue 5, Feb. 2009:  
 Clause 24.232/RSS-133 Clause 6.4: RF output power (radiated)  
 Clause 24.238/RSS-133 Clause 6.5: Radiated emissions  
**Test procedure** ..... : 1. PEET000: Medidas de equipos radioeléctricos en condiciones radiadas.  
**Non-standardized test method** ..... : N/A  
**Used instrumentation** ..... :

		Last Cal.	Cal. due date
1.	Semianechoic Absorber Lined Chamber IR 11. BS	N.A.	N.A.
2.	Control Chamber IR 12.BC	N.A.	N.A.
3.	Hybrid Bilog antenna Sunol Sciences Corporation JB6	2008-10	2012-03
4.	Antenna mast EM 1072 NMT	N.A.	N.A.
5.	Rotating table EM 1084-4. ON	N.A.	N.A.
6.	Double-ridge Guide Horn antenna 1-18 GHz HP 11966E	2008-03	2011-03
7.	Double-ridge Guide Horn antenna 18-40 GHz Agilent 119665J	2008-09	2011-09
8.	EMI Test Receiver R&S ESIB26	2007-08	2009-08
9.	Universal Radio communication Tester R&S CMU200	2009-02	2011-02
10.	Multi Device Controller EMCO 2090	N.A.	N.A.
11.	Spectrum Analyzer R&S ESU40	2007-11	2009-11
12.	Power amplifier ENI 603L-1471	2008-01	2010-01
13.	Log-Periodic antenna R&S HL 040	2007-07	2010-07
14.	RF generator Agilent ESG E4438C	2008-09	2010-09

**Report template No.** ..... : FDT08\_11

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### Competences and guarantees

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.

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 measurement equipment.

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

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

### General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on 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 previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

### Uncertainty

Uncertainty (factor k=2) was calculated according to the AT4 wireless internal document PODT000.

### Usage of samples

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

Sample M/01 is composed of the following elements

<u>Control No.</u>	<u>Description</u>	<u>Model</u>	<u>Serial No.</u>	<u>Date of reception</u>
29994/31	Mobile phone	P7000	IMEI: 000000000000307	29/06/2009

1. Sample M/01 has undergone the test(s) specified in subclause "Test method requested".

### Testing period

The performed test started on 2009-07-03 and finished on. 2009-07-06.

The tests have been performed at AT4 wireless.

## Environmental conditions

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

Temperature	Min. = 23 °C Max. = 24 °C
Relative humidity	Min. = 51 % Max. = 53 %
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. = 23 °C Max. = 24 °C
Relative humidity	Min. = 51 % Max. = 53 %
Air pressure	Min. = 1020 mbar Max. = 1021 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 homogeneity	More than 75% of illuminated surface is between 0 and 6 dB (26 MHz to 1000 MHz).

### Summary

Considering the results of the performed test according to standards USA FCC Part 22 and Part 24 and Canada IC RSS-132 and RSS-133, the item under test is **IN COMPLIANCE** with the requested specifications specified in the standard.

NOTE: The results presented in this Test Report apply only to the particular item under test established in page 1 of this document, as presented for test on the date(s) shown in section, "USAGE OF SAMPLES, TESTING PERIOD AND ENVIRONMENTAL CONDITIONS".

### Remarks and comments

1. HSDPA modulation mode has not been tested to prove USA FCC Part 22 and Part 24 and Canada IC RSS-132 and RSS-133 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 and Part 24 and IC RSS-132 and RSS-133 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.

2. Only radiated test was requested.

3. Test not requested.

### Testing verdicts

Not applicable .....: NA

Pass .....: P

Fail .....: F

Not measured .....: NM

FCC PART 22/IC RSS-132 PARAGRAPH	VERDICT			
	NA	P	F	NM
Clause 22.913/RSS-132 Clause 4.4: RF output power	p <sup>2</sup>			
Clause 2.1047/RSS-132 Clause 4.2: Modulation characteristics				NM <sup>3</sup>
Clause 22.355/RSS-132 Clause 4.3: Frequency stability				NM <sup>3</sup>
Clause 2.1049: Occupied Bandwidth				NM <sup>3</sup>
Clause 22.917/RSS-132 Clause 4.5: Spurious emissions at antenna terminals				NM <sup>3</sup>
Clause 22.917/RSS-132 Clause 4.5: Radiated emissions		P		

2, 3: See section "Remarks and comments"

FCC PART 24/IC RSS-133 PARAGRAPH	VERDICT			
	NA	P	F	NM
Clause 24.232/RSS-133 Clause 6.4: RF output power	p <sup>2</sup>			
Clause 2.1047/RSS-133 Clause 6.2: Modulation characteristics				NM <sup>3</sup>
Clause 24.235/RSS-133 Clause 6.3: Frequency stability				NM <sup>3</sup>
Clause 2.1049: Occupied Bandwidth				NM <sup>3</sup>
Clause 24.238/RSS-133 Clause 6.5: Spurious emissions at antenna terminals				NM <sup>3</sup>
Clause 24.238/RSS-133 Clause 6.5: Radiated emissions		P		

2, 3: See section "Remarks and comments"

## **APPENDIX A: Test results**

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## TEST RESULTS FOR FCC PART 22 AND IC RSS-132

### ***TEST CONDITIONS***

Power supply (V):

$$V_{\text{nom}} = 3.7 \text{ Vdc}$$

$$V_{\text{max}} = \text{N/A}$$

$$V_{\text{min}} = \text{N/A}$$

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

N/A: Not applicable

Type of power supply = Rechargeable Li-ion battery

Type of antenna = integral antenna

### TEST FREQUENCIES:

#### GSM/GPRS AND EDGE MODULATION

Lowest channel (128): 824.2 MHz

Middle channel (190): 836.6 MHz

Highest channel (251): 848.8 MHz

#### WCDMA MODULATION

Lowest channel (4132): 826.4 MHz

Middle channel (4182): 836.4 MHz

Highest channel (4233): 846.6 MHz

## ***RF Output Power (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

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

GSM/GPRS MODULATION

Substitution method data

Frequency (MHz) at max. reading	Max. Instrument reading (dBm)	Polarization	(1) RF Generator +power amplifier output (dBm)	(2) Cable loss (dB)	(3) Substitution antenna gain Gd (respect to $\lambda/2$ dipole) (dB)	E.R.P. (dBm) = (1) – (2) + (3)
824.1983	-10.87	Vertical	26.63	0.3	6.3	32.63
836.6002	-11.47	Vertical	26.63	0.3	6.2	32.53
848.7997	-12.70	Vertical	25.40	0.3	6.1	31.20

Channel	Lowest	Middle	Highest
Maximum peak power E.R.P. (dBm)	32.63	32.53	31.20
Maximum peak power (W)	1.83	1.79	1.32
Measurement uncertainty (dB)	± 3.8		

## EDGE MODULATION

### Substitution method data

Frequency (MHz) at max. reading	Max. Instrument reading (dBm)	Polarization	(1) RF Generator +power amplifier output (dBm)	(2) Cable loss (dB)	(3) Substitution antenna gain Gd (respect to $\lambda/2$ dipole) (dB)	E.R.P. (dBm) = (1) – (2) + (3)
824.1991	-10.93	Vertical	26.57	0.3	6.3	32.57
836.5983	-11.90	Vertical	26.20	0.3	6.2	32.10
848.7989	-12.71	Vertical	25.39	0.3	6.1	31.19

Channel	Lowest	Middle	Highest
Maximum peak power E.R.P. (dBm)	32.57	32.10	31.19
Maximum peak power (W)	1.81	1.62	1.31
Measurement uncertainty (dB)	± 3.8		

## WCDMA MODULATION

### Substitution method data

Frequency (MHz) at max. reading	Max. Instrument reading (dBm)	Polarization	(1) RF Generator +power amplifier output (dBm)	(2) Cable loss (dB)	(3) Substitution antenna gain Gd (respect to $\lambda/2$ dipole) (dB)	E.R.P. (dBm) = (1) – (2) + (3)
826.3993	-11.04	Vertical	26.46	0.3	6.3	32.46
836.4011	-11.94	Vertical	26.16	0.3	6.2	32.06
846.5997	-12.50	Vertical	25.60	0.3	6.1	31.40

Channel	Lowest	Middle	Highest
Maximum peak power E.R.P. (dBm)	32.46	32.06	31.40
Maximum peak power (W)	1.76	1.61	1.38
Measurement uncertainty (dB)	± 3.8		

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  $P_o$  transmitting power, the specified minimum attenuation becomes  $43+10\log (P_o)$ , and the level in dBm relative  $P_o$  becomes:

$$P_o \text{ (dBm)} - [43 + 10 \log (P_o \text{ in mwatts}) - 30] = - 13 \text{ dBm}$$

### RESULTS

#### GSM/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.**

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-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.

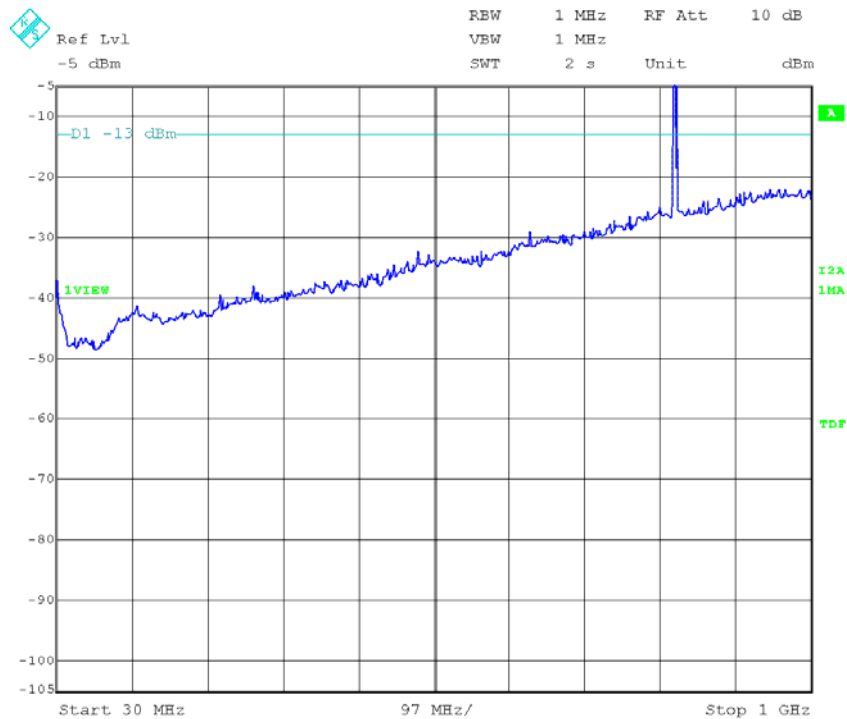
**Frequency range 1 GHz-12.75 GHz.**

No spurious signals were found in all the range.

GSM/GPRS MODULATION

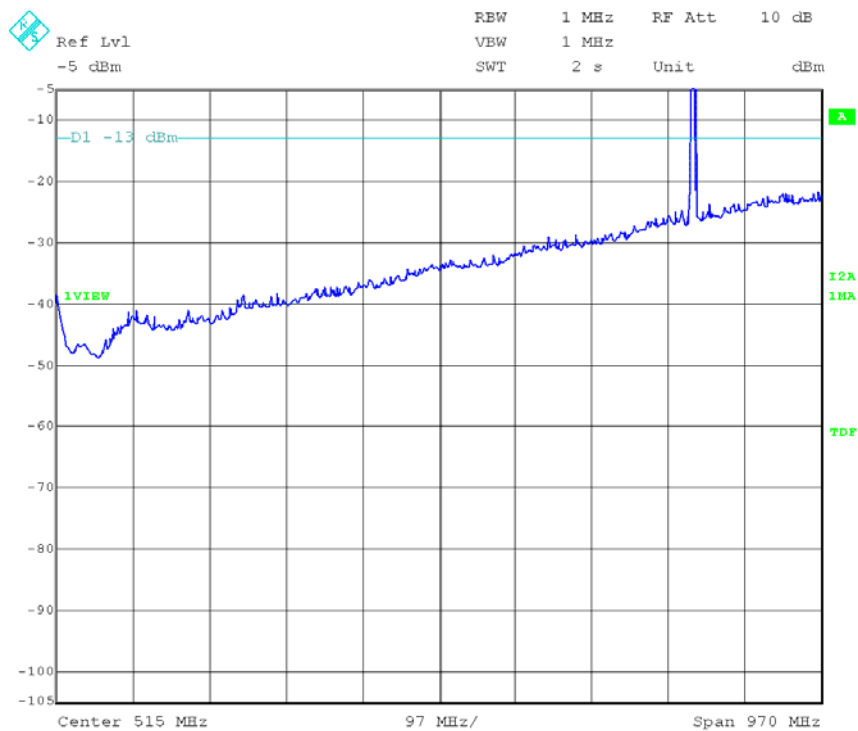
FREQUENCY RANGE 30 MHz-1000 MHz.

CHANNEL: LOWEST



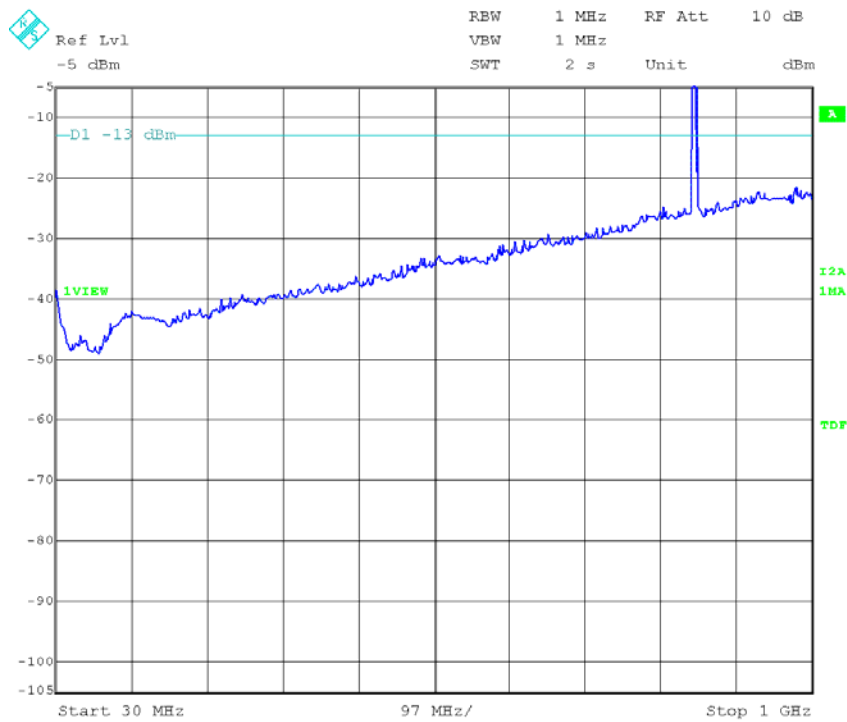
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



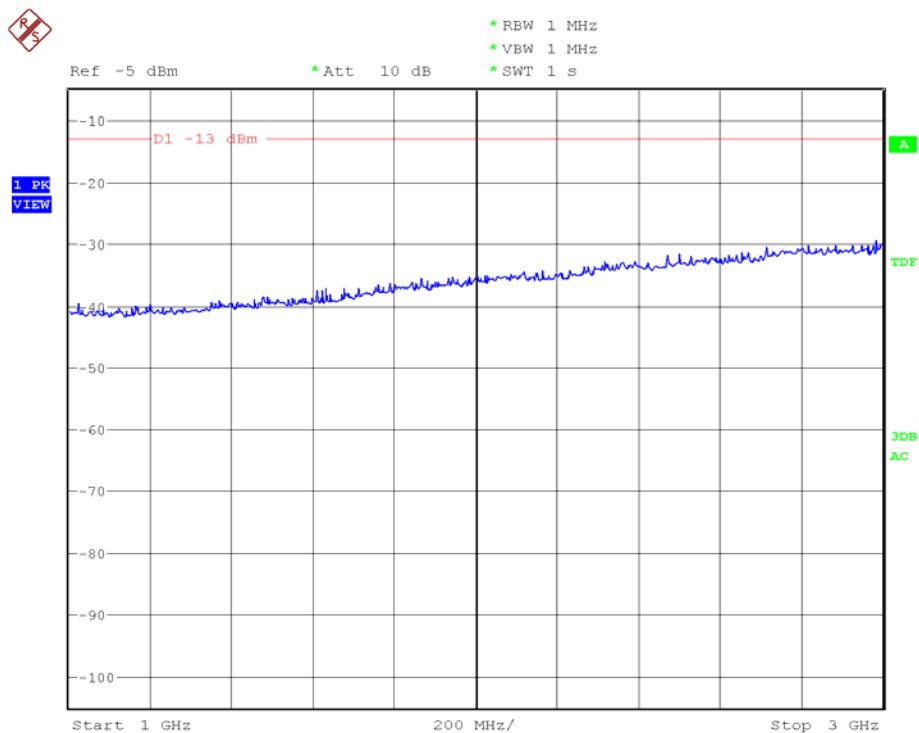
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



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

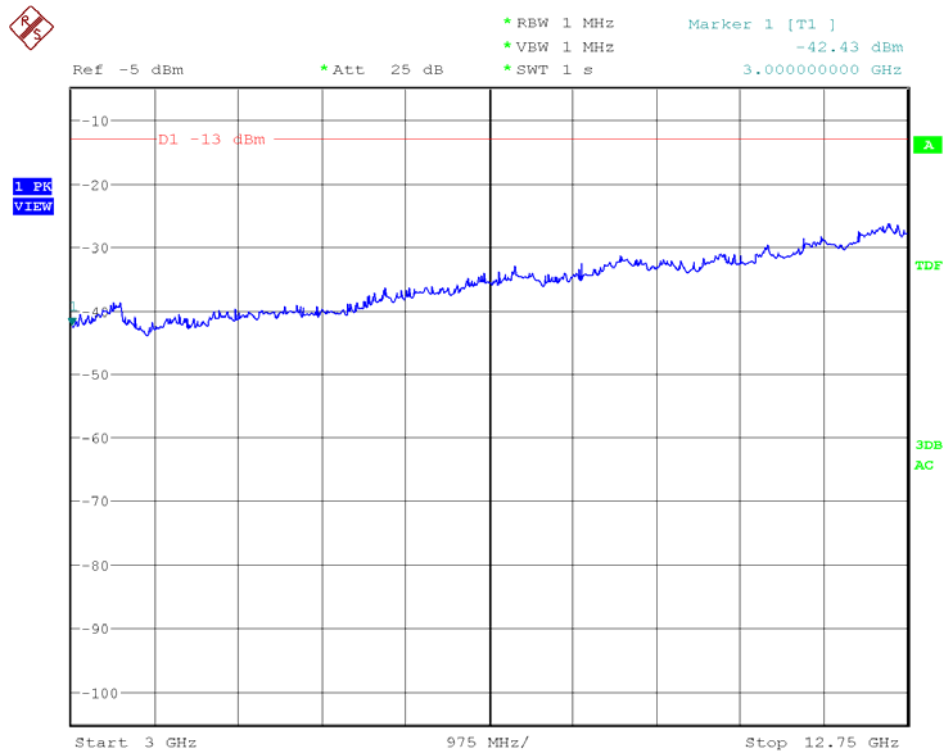
FREQUENCY RANGE 1 GHz to 3 GHz.



(This plot is valid for all three channels)



FREQUENCY RANGE 3 GHz to 12.75 GHz.

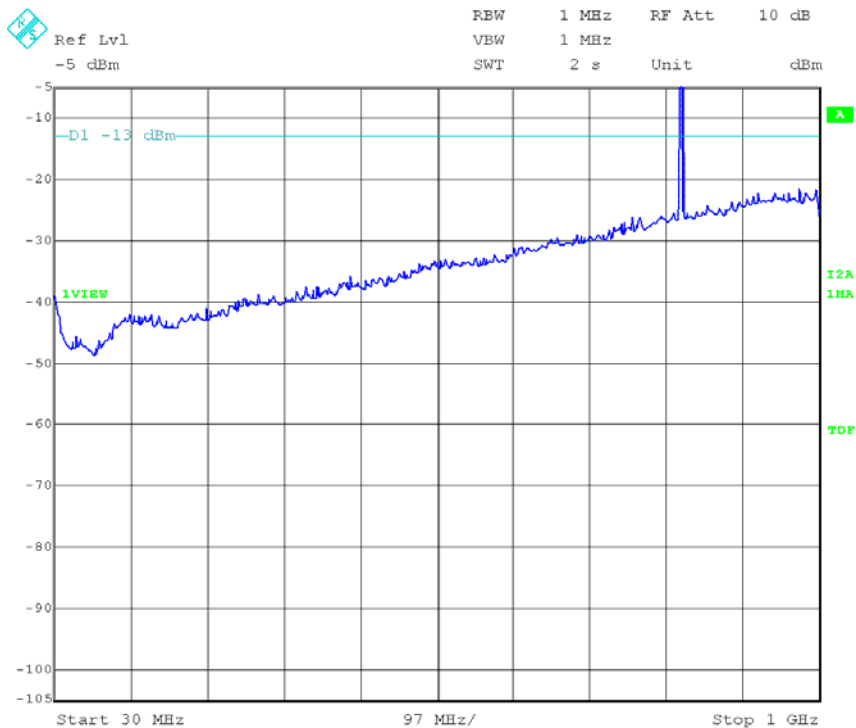


(This plot is valid for all three channels)

EDGE MODULATION

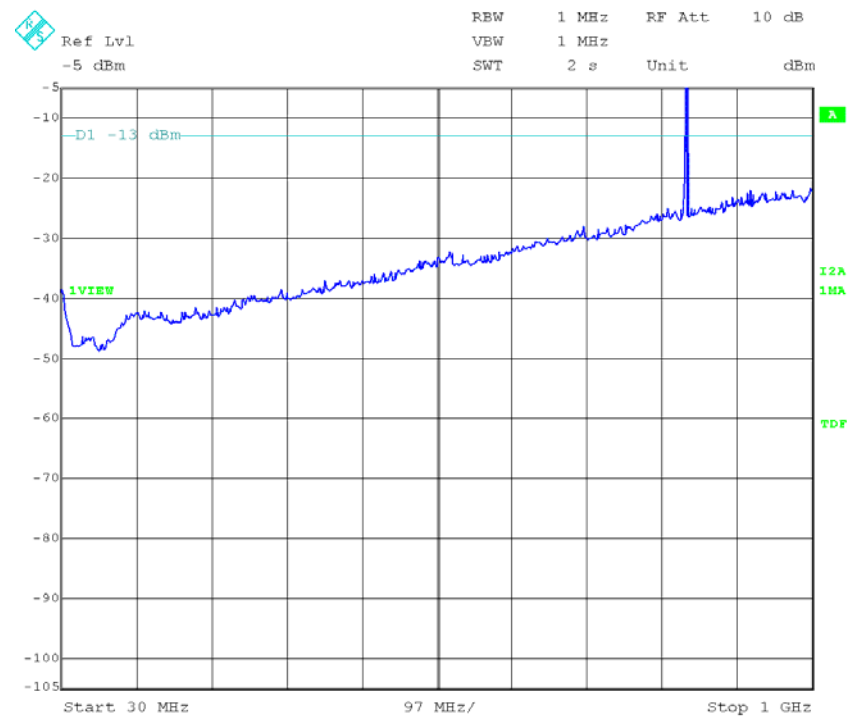
FREQUENCY RANGE 30 MHz-1000 MHz.

CHANNEL: LOWEST



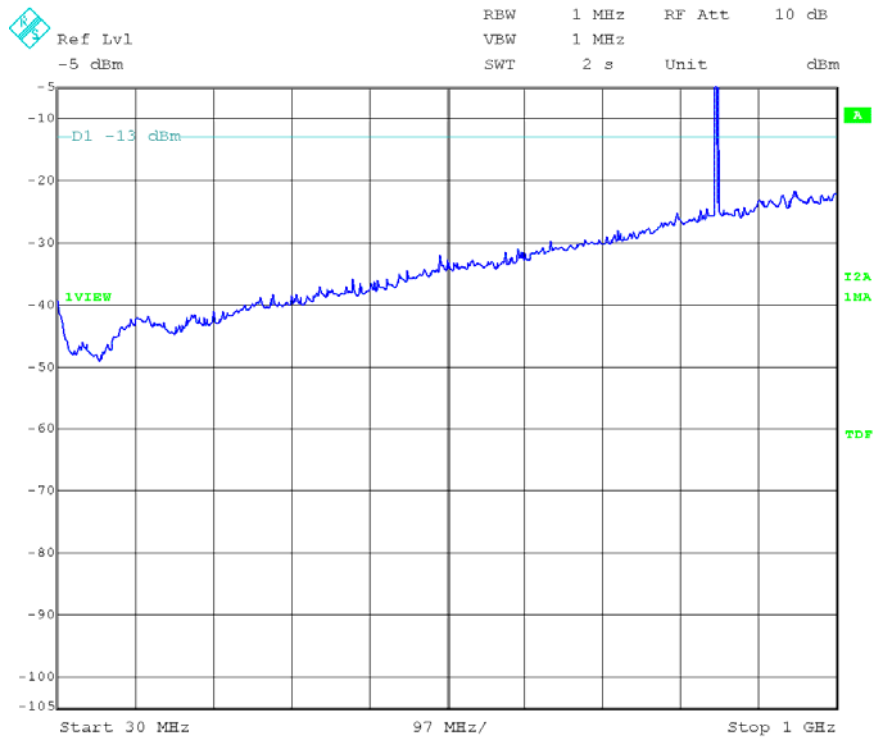
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



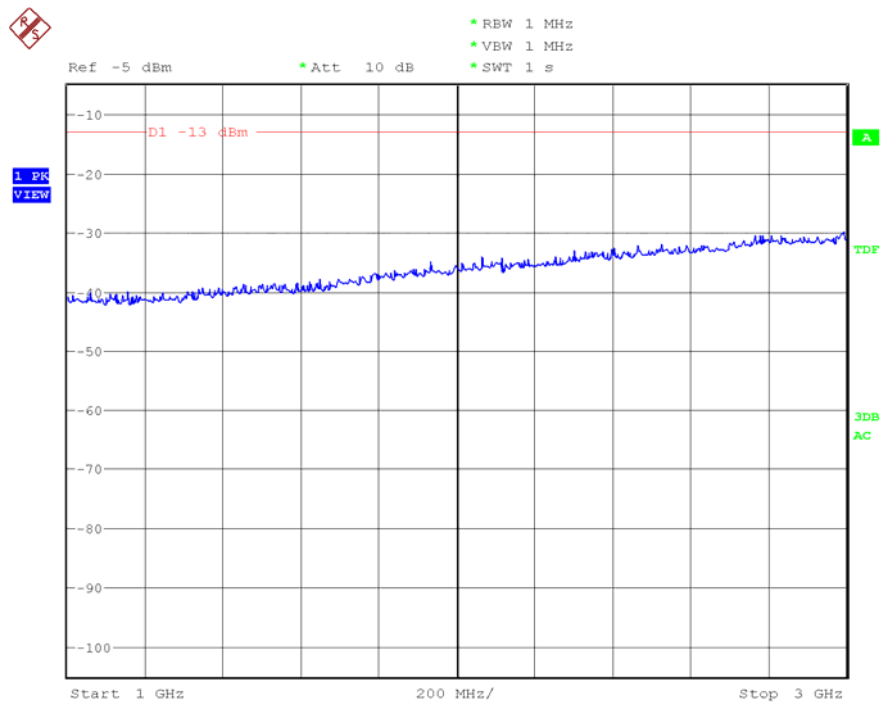
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



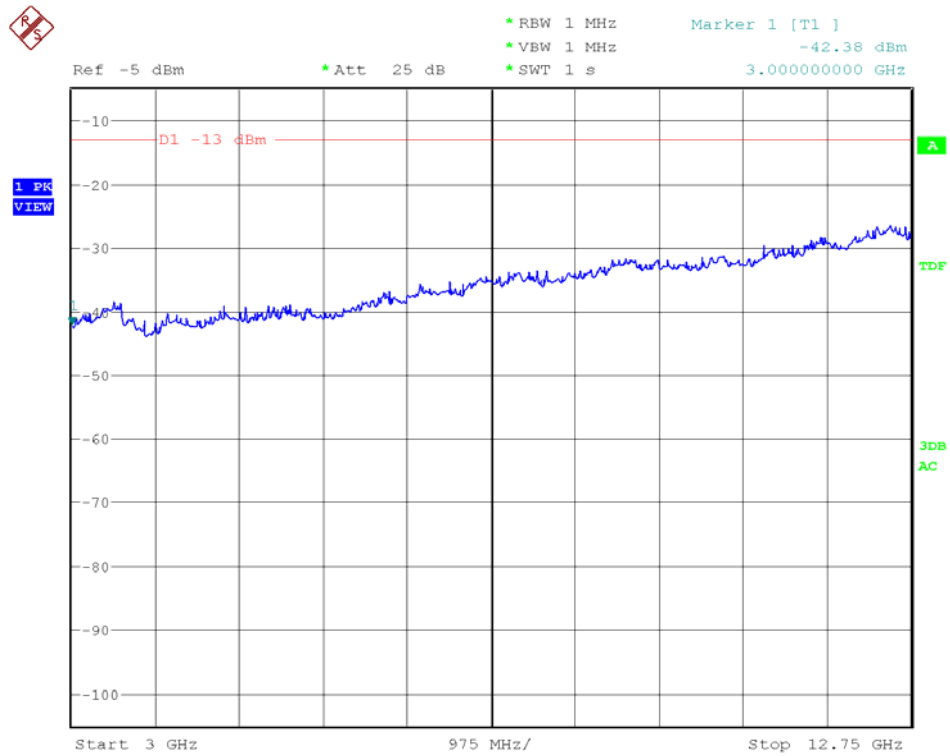
Note: The peak above the limit is the carrier frequency.

FREQUENCY RANGE 1 GHz to 3 GHz.



(This plot is valid for all three channels)

FREQUENCY RANGE 3 GHz to 12.75 GHz.

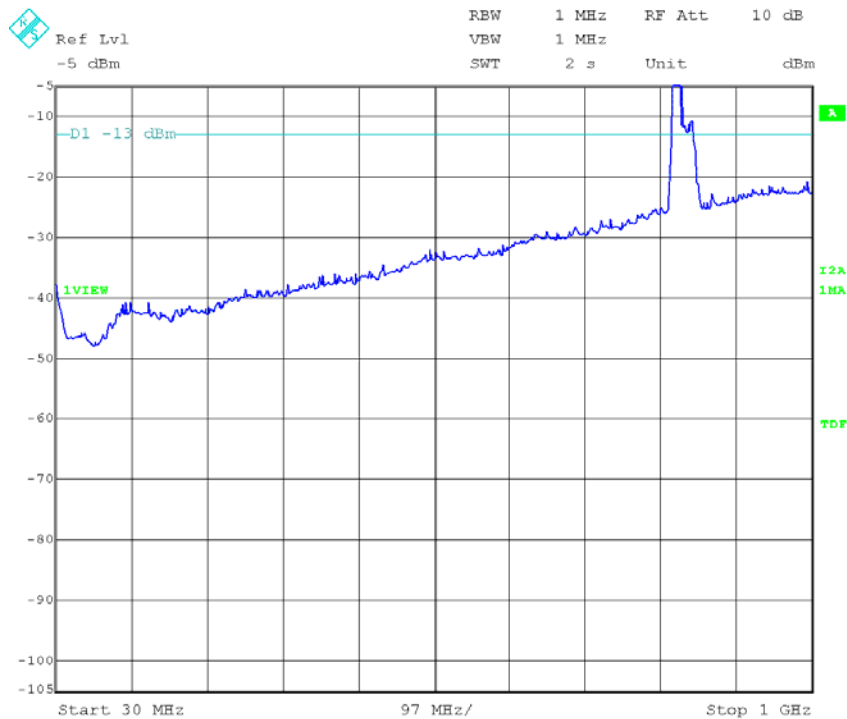


(This plot is valid for all three channels)

WCDMA MODULATION

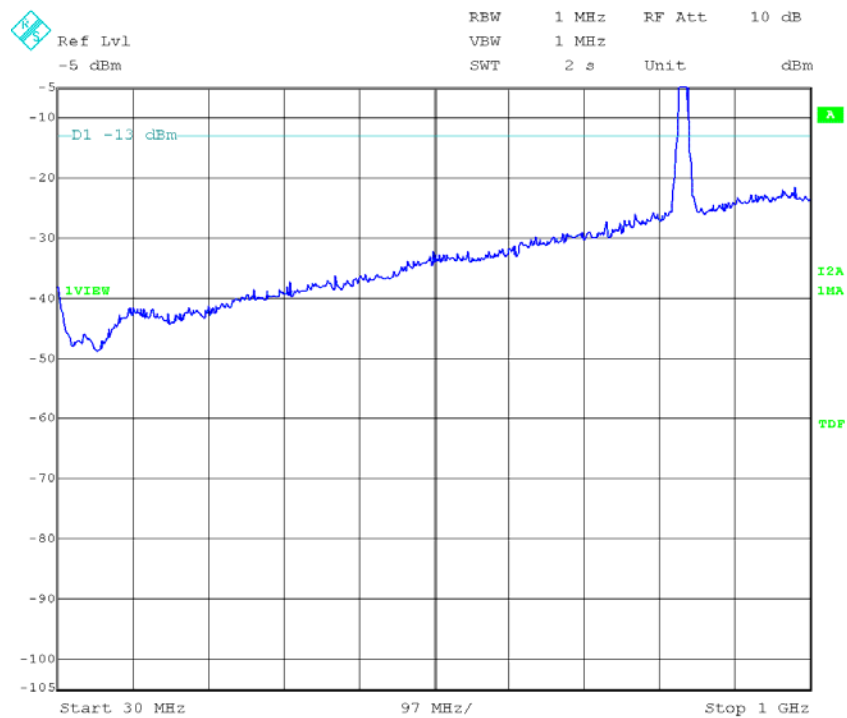
FREQUENCY RANGE 30 MHz-1000 MHz.

CHANNEL: LOWEST



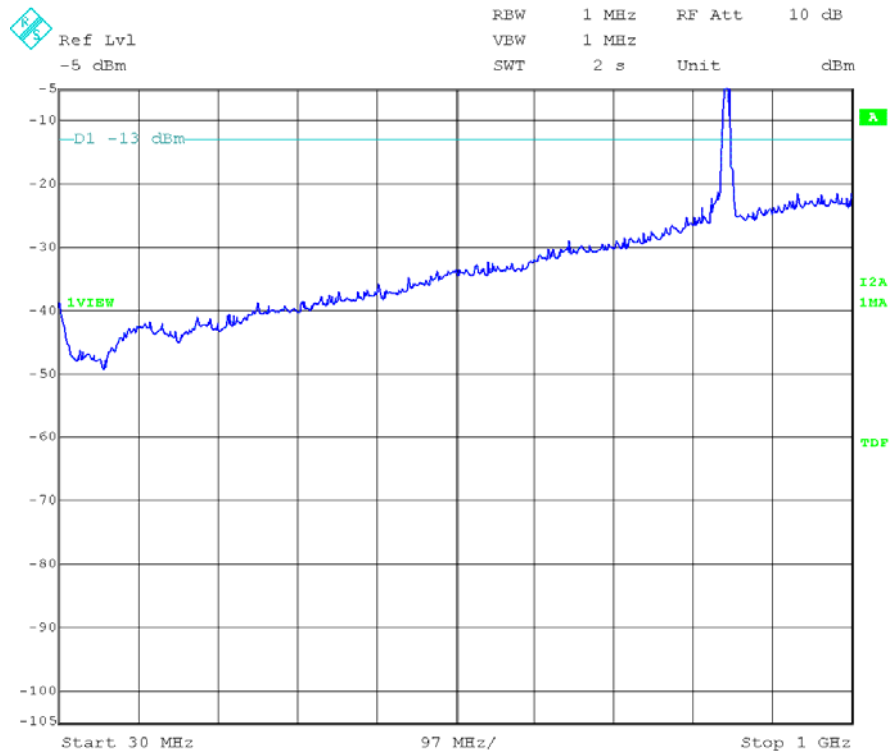
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



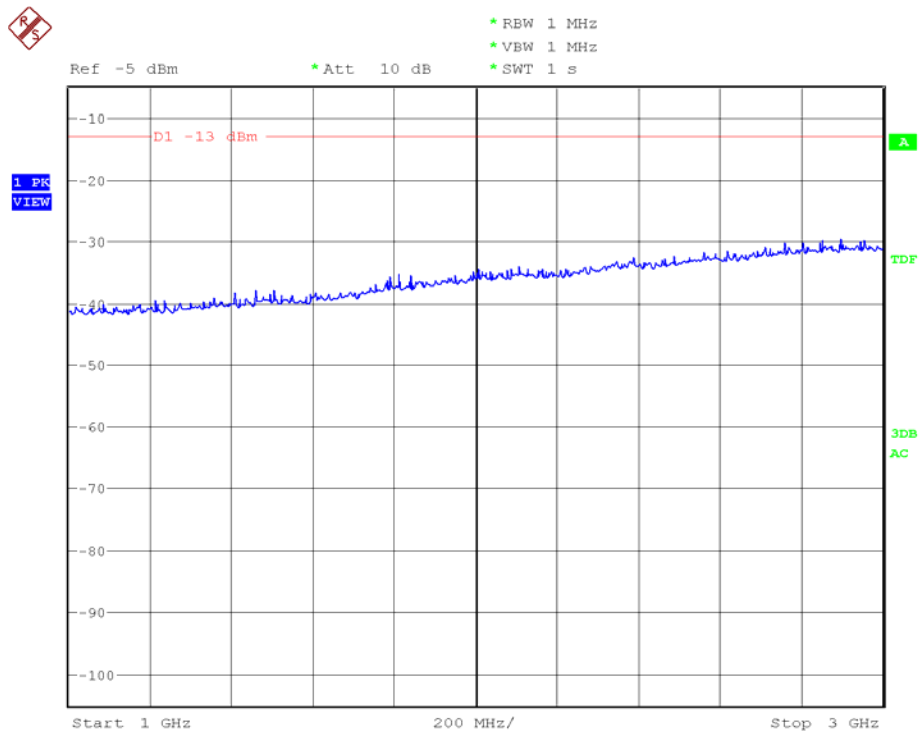
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



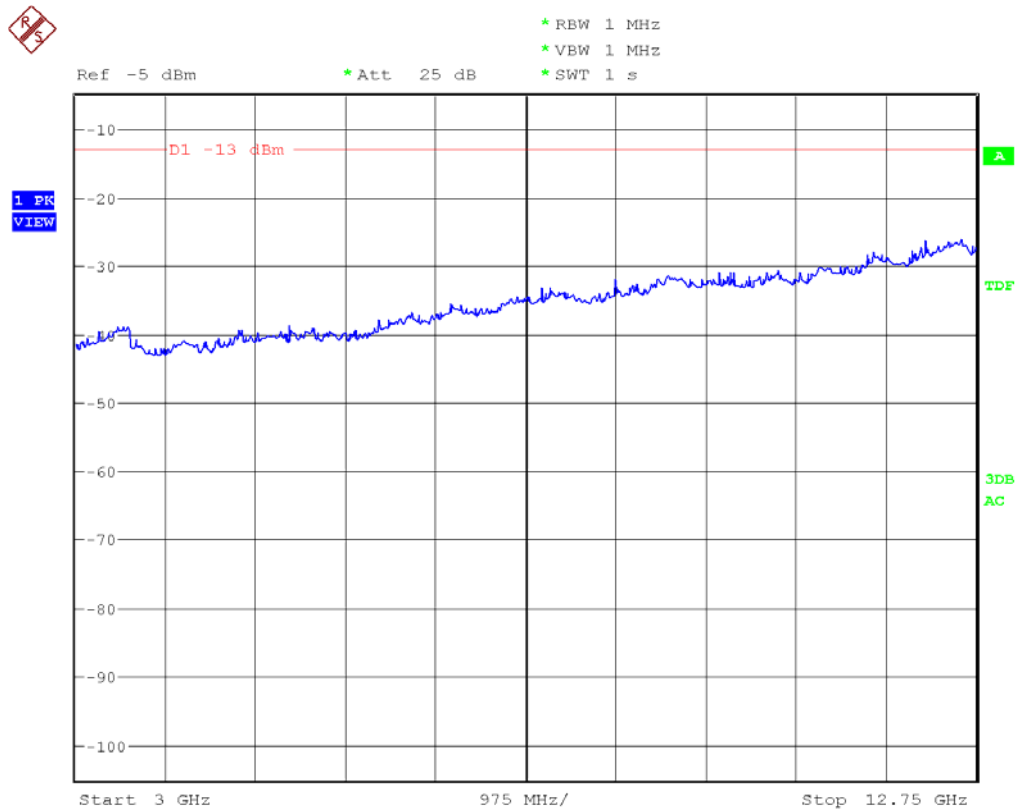
Note: The peak above the limit is the carrier frequency.

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)

## TEST RESULTS FOR FCC PART 24 AND RSS-133

### ***TEST CONDITIONS***

Power supply (V):

$$V_{\text{nom}} = 3.7 \text{ Vdc}$$

$$V_{\text{max}} = \text{N/A}$$

$$V_{\text{min}} = \text{N/A}$$

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

N/A: Not applicable

Type of power supply = Rechargeable Li-ion battery

Type of antenna = integral antenna

#### TEST FREQUENCIES:

##### GSM/GPRS AND EDGE MODULATION

Lowest channel (512): 1850.2 MHz

Middle channel (662): 1880.2 MHz

Highest channel (810): 1909.8 MHz

##### WCDMA MODULATION

Lowest channel (9262): 1852.4 MHz

Middle channel (9400): 1880.0 MHz

Highest channel (9538): 1907.6 MHz



## *RF Output Power (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

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 selecting maximum transmission power of the EUT and different modes of modulation.

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

### RESULTS

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

#### GSM/GPRS MODULATION

Substitution method data

Frequency (MHz) at max. reading	Max. Instrument reading (dBm)	Polarization	(1) RF Generator +power amplifier output (dBm)	(2) Cable loss (dB)	(3) Substitution antenna gain $G_i$ (respect to isotropic radiator) (dB)	E.I.R.P. (dBm) = (1) - (2) + (3)
1850.1991	-0.84	Vertical	23.56	0.5	8.6	31.66
1880.2007	-1.93	Vertical	22.97	0.5	8.3	30.77
1909.7989	-2.96	Vertical	22.34	0.5	8.0	29.84

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	31.66	30.77	29.84
Maximum peak power (W)	1.46	1.19	0.96
Measurement uncertainty (dB)	$\pm 4.0$		

## EDGE MODULATION

### Substitution method data

Frequency (MHz) at max. reading	Max. Instrument reading (dBm)	Polarization	(1) RF Generator +power amplifier output (dBm)	(2) Cable loss (dB)	(3) Substitution antenna gain $G_i$ (respect to isotropic radiator) (dB)	E.I.R.P. (dBm) = (1) – (2) + (3)
1850.2009	-1.02	Vertical	23.38	0.5	8.6	31.48
1880.1996	-1.69	Vertical	23.21	0.5	8.3	31.01
1909.7997	-2.67	Vertical	22.63	0.5	8.0	30.13

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	31.48	31.01	30.13
Maximum peak power (W)	1.41	1.26	1.03
Measurement uncertainty (dB)	± 4.0		

## WCDMA MODULATION

### Substitution method data

Frequency (MHz) at max. reading	Max. Instrument reading (dBm)	Polarization	(1) Generator output (dBm)	(2) Cable loss (dB)	(3) Substitution antenna gain $G_i$ (respect to isotropic radiator) (dB)	E.I.R.P. (dBm) = (1) – (2) + (3)
1852.3989	-8.76	Vertical	15.64	0.5	8.6	23.74
1880.0103	-8.35	Vertical	16.55	0.5	8.3	24.35
1907.5987	-8.25	Vertical	17.05	0.5	8.0	24.55

Channel	Lowest	Middle	Highest
Maximum peak power (dBm)	23.74	24.35	24.55
Maximum peak power (W)	0.24	0.27	0.28
Measurement uncertainty (dB)	± 4.0		

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  $P_o$  transmitting power, the specified minimum attenuation becomes  $43+10\log (P_o)$ , and the level in dBm relative  $P_o$  becomes:

$$P_o \text{ (dBm)} - [43 + 10 \log (P_o \text{ in mwatts}) - 30] = - 13 \text{ dBm}$$

## RESULTS

### GSM/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.

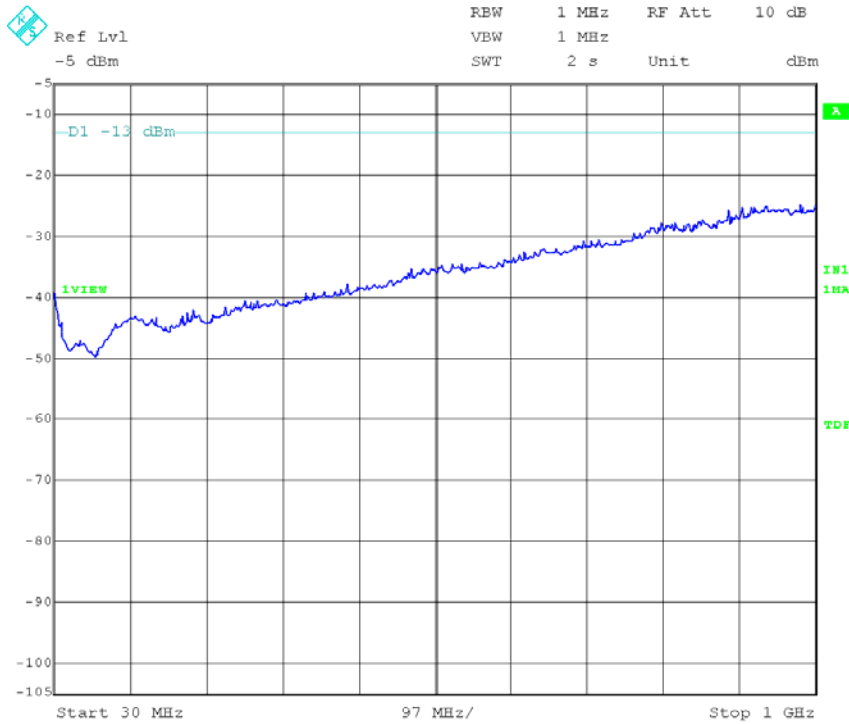
**Frequency range 1 GHz-20 GHz.**

No spurious signals were found in all the range.

Verdict: PASS

GSM/GPRS MODULATION

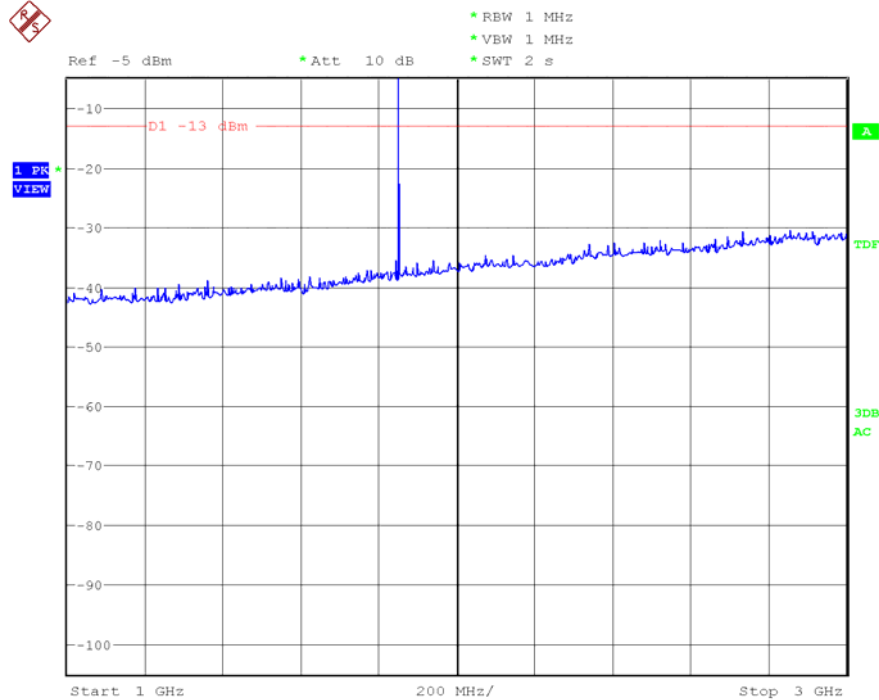
FREQUENCY RANGE 30 MHz-1000 MHz.



(This plot is valid for all three channels).

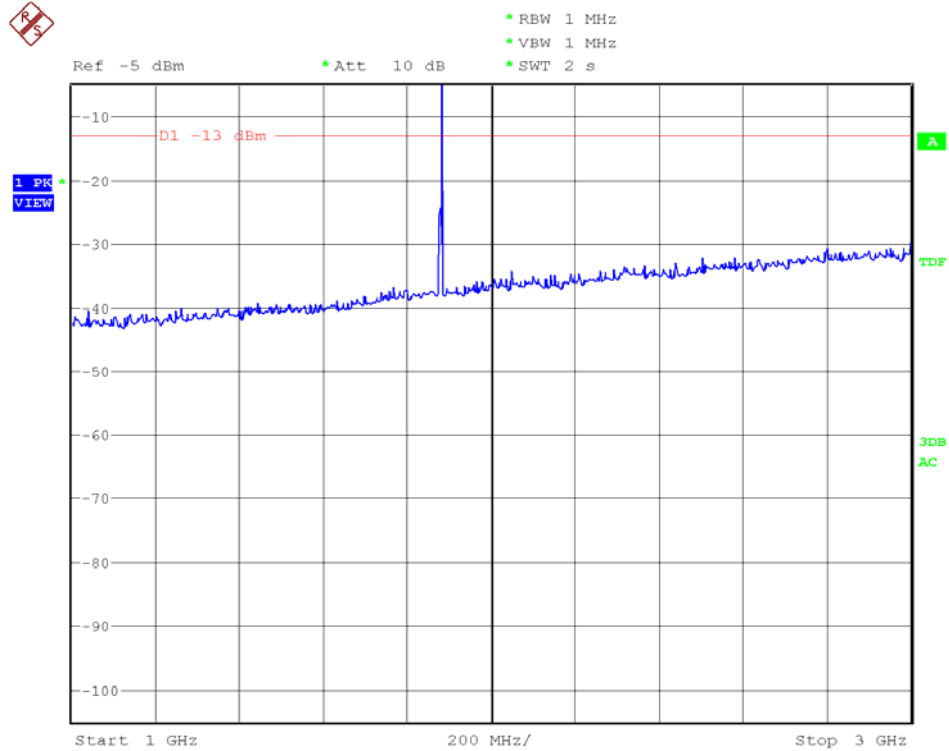
FREQUENCY RANGE 1 GHz to 3 GHz.

CHANNEL: LOWEST



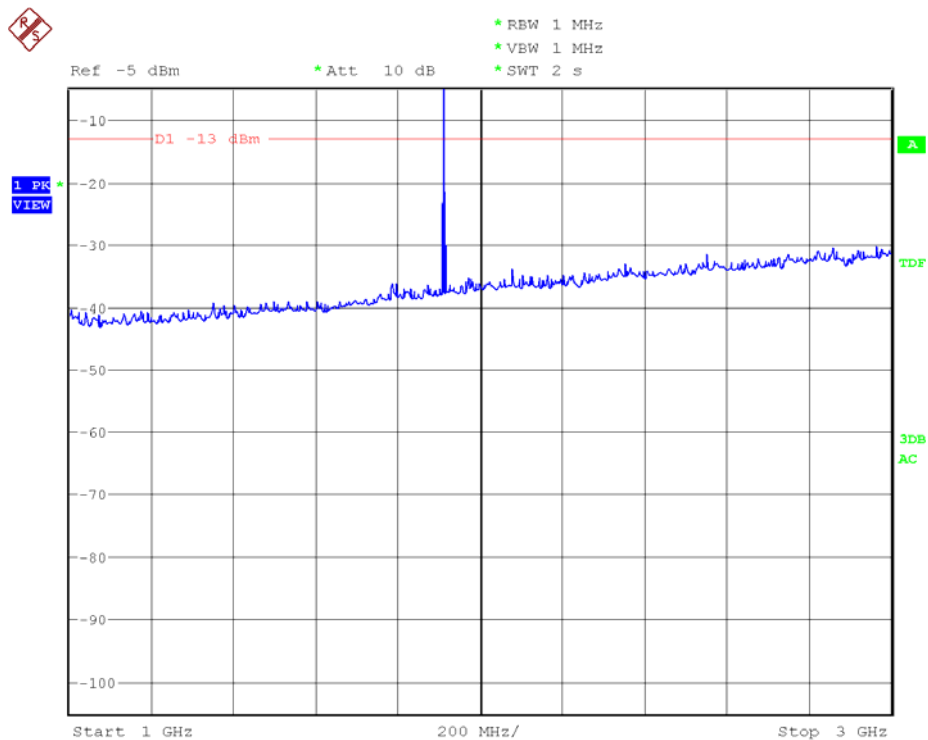
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



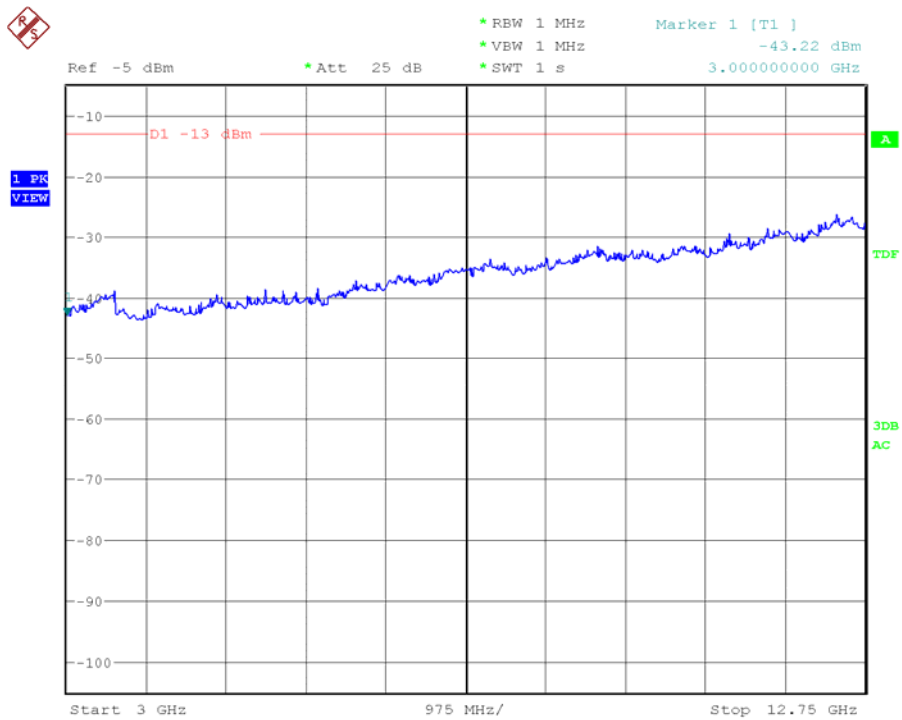
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



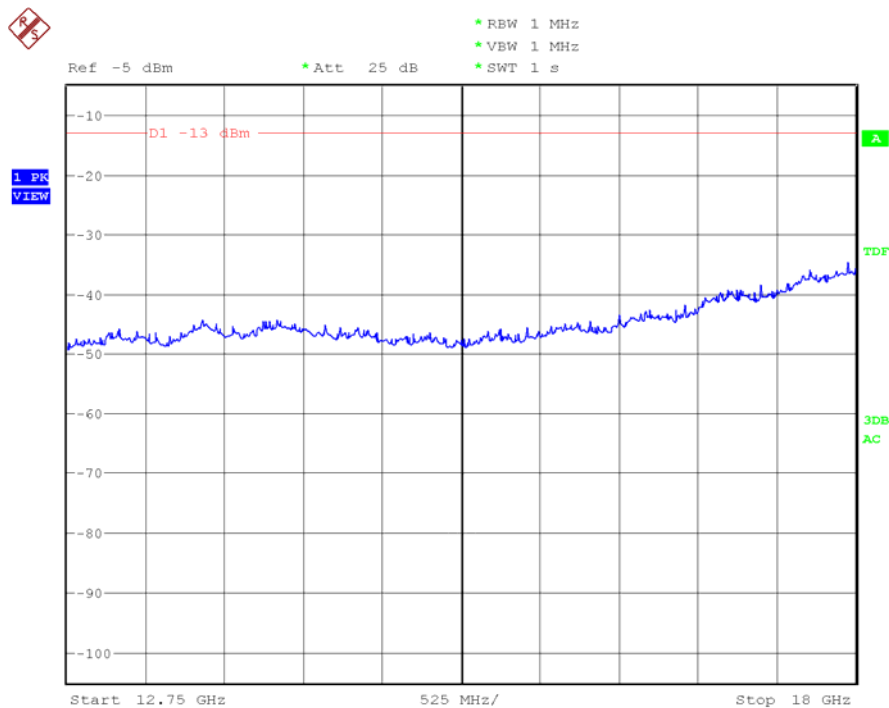
Note: The peak above the limit is the carrier frequency.

FREQUENCY RANGE 3 GHz to 12.75 GHz.



(This plot is valid for all three channels).

FREQUENCY RANGE 12.75 GHz TO 18 GHz.



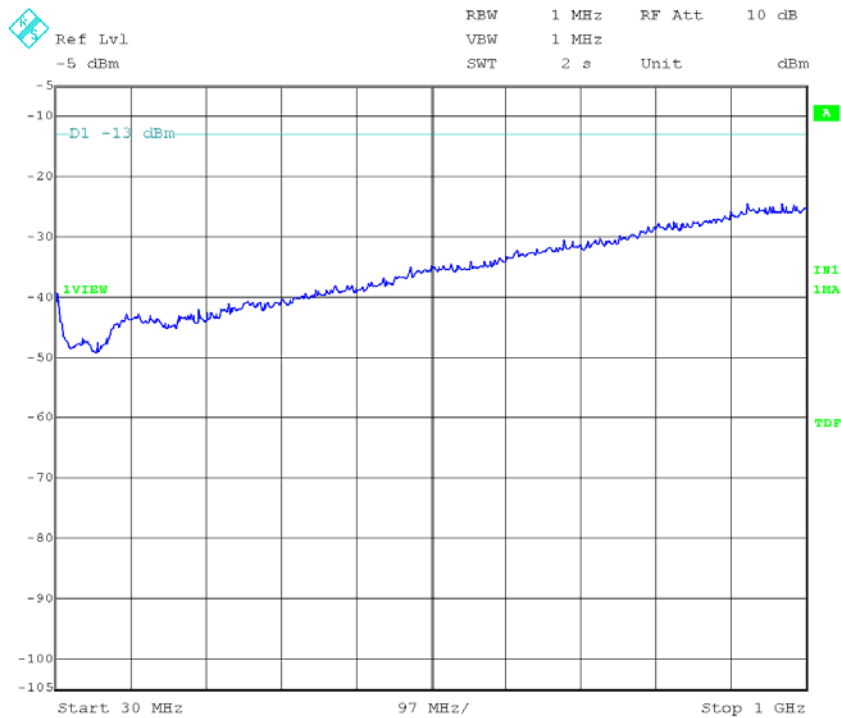
(This plot is valid for all three channels).





EDGE MODULATION

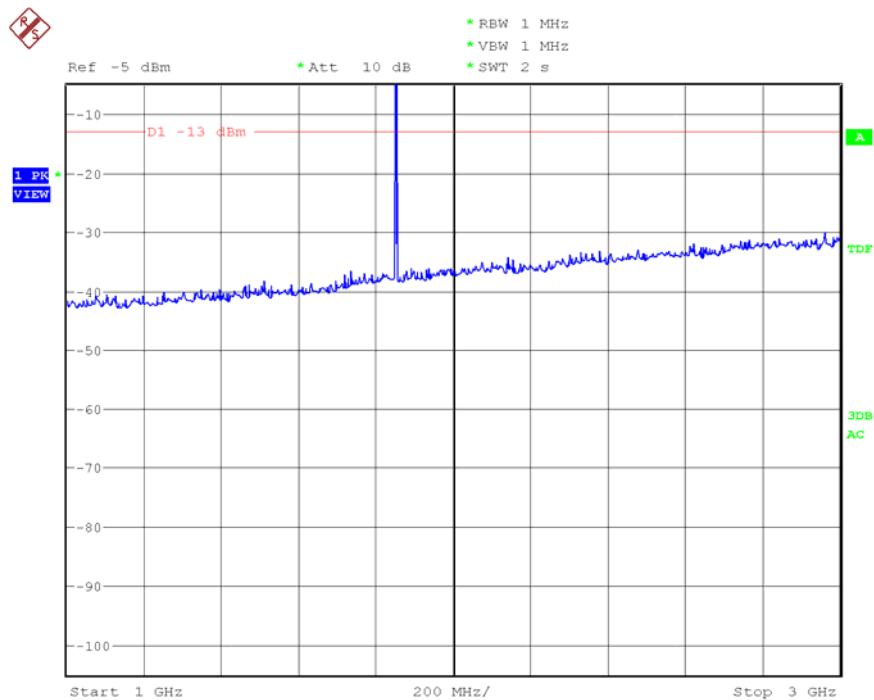
FREQUENCY RANGE 30 MHz-1000 MHz.



(This plot is valid for all three channels).

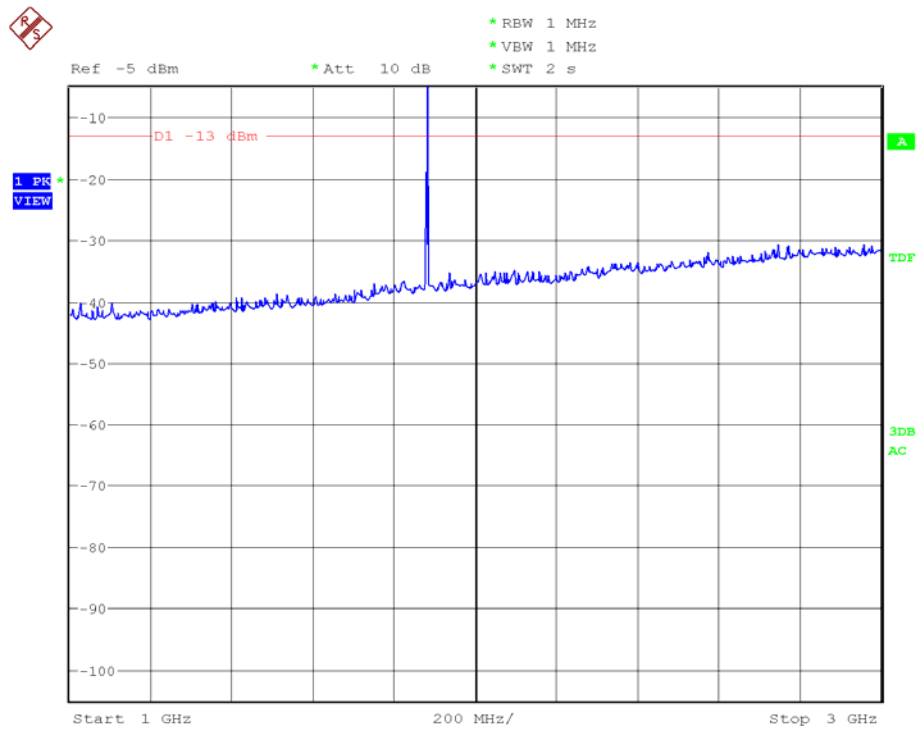
FREQUENCY RANGE 1 GHz to 3 GHz.

CHANNEL: LOWEST



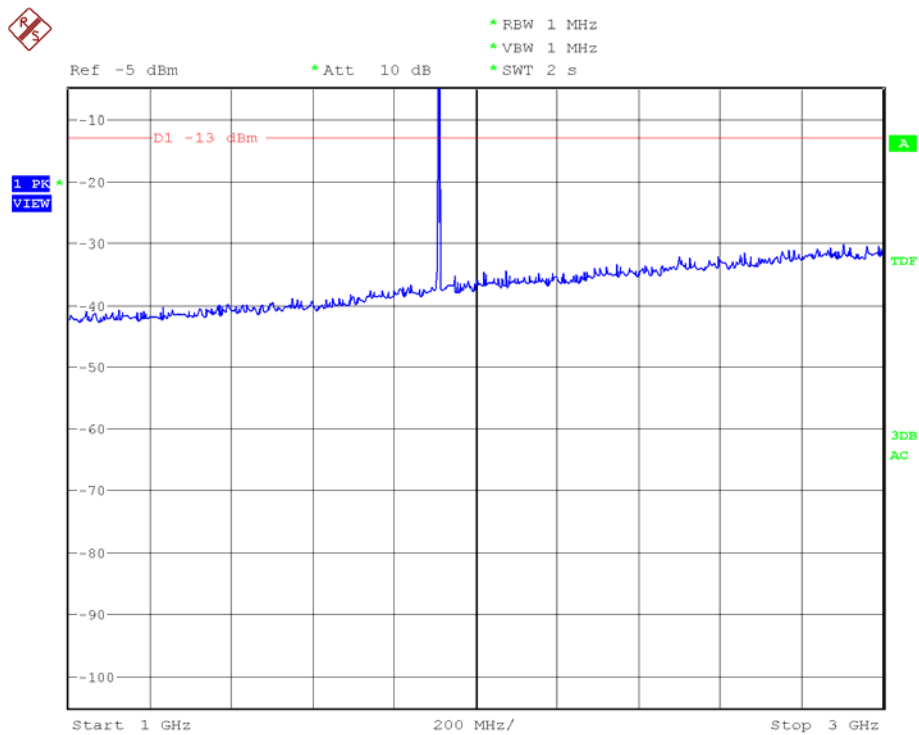
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



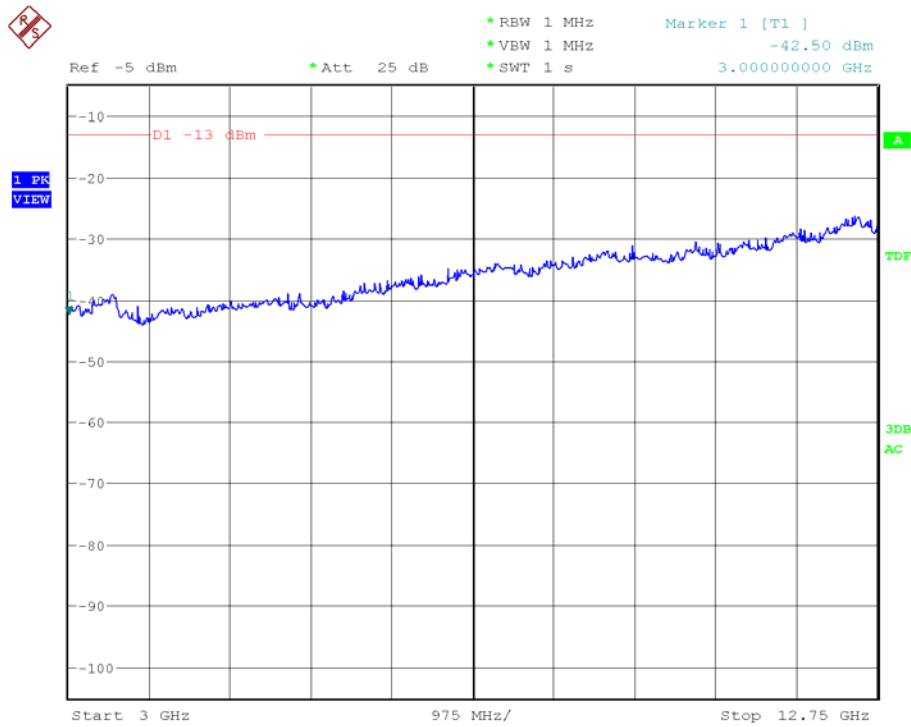
Note: The peak above the limit is the carrier frequency.

CHANNEL: HIGHEST



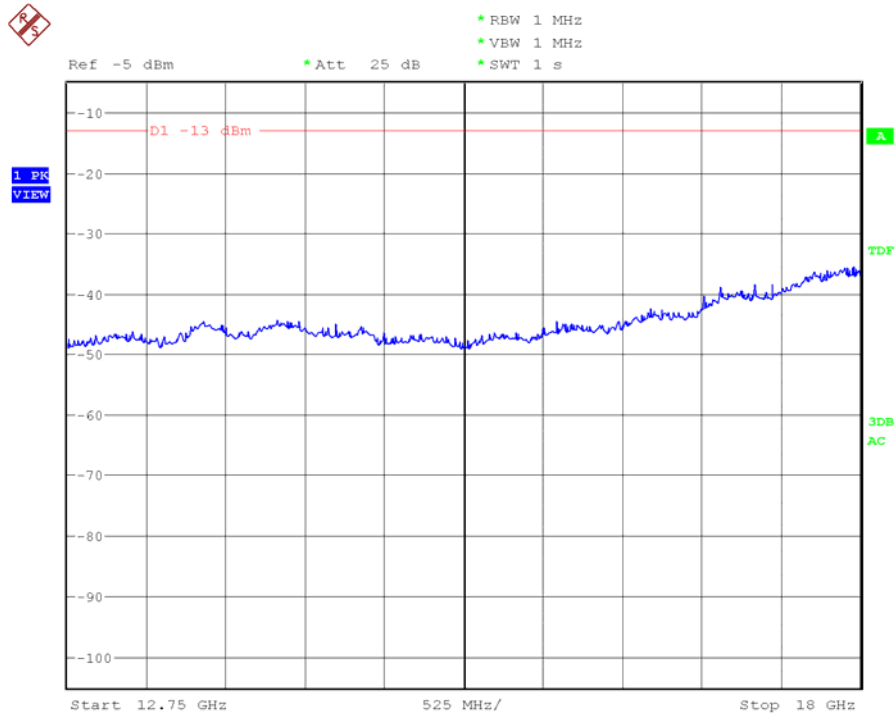
Note: The peak above the limit is the carrier frequency.

FREQUENCY RANGE 3 GHz to 12.75 GHz.



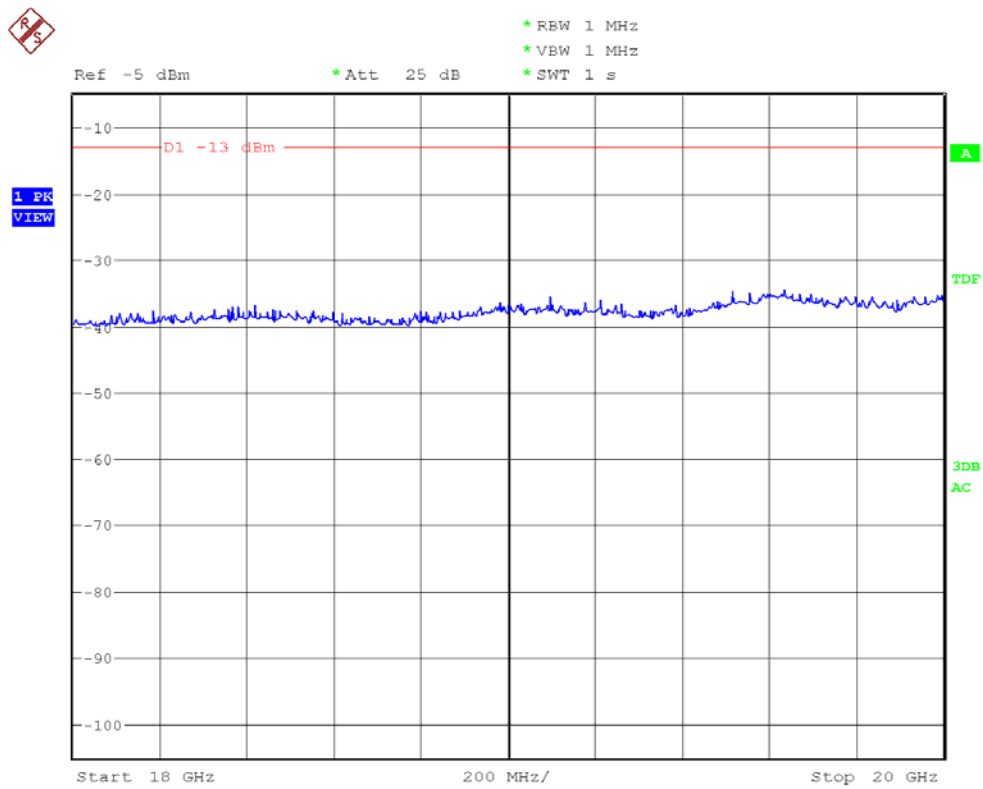
(This plot is valid for all three channels).

FREQUENCY RANGE 12.75 GHz TO 18 GHz.



(This plot is valid for all three channels).

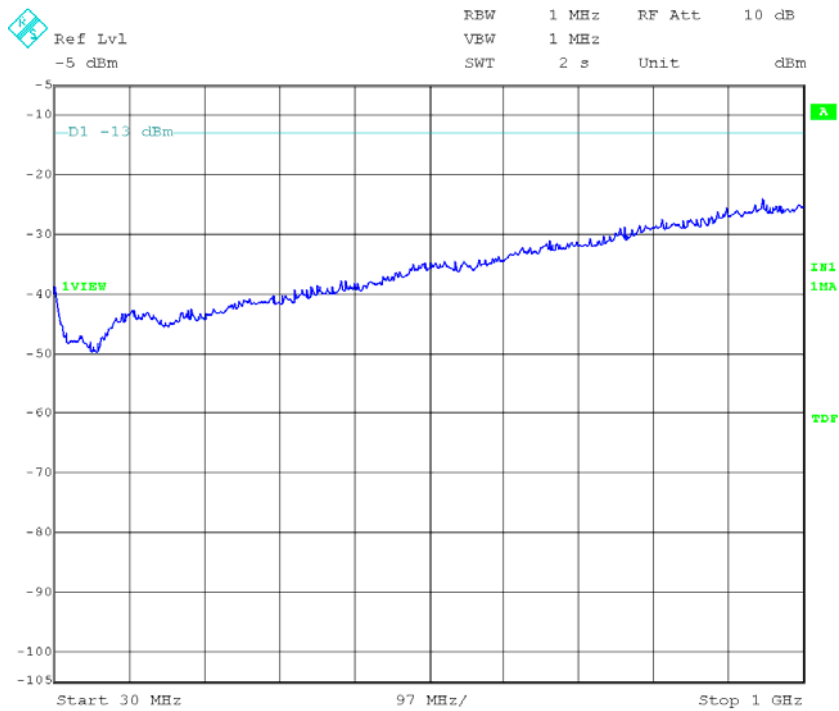
FREQUENCY RANGE 18 GHz TO 20 GHz.



(This plot is valid for all three channels).

WCDMA MODULATION

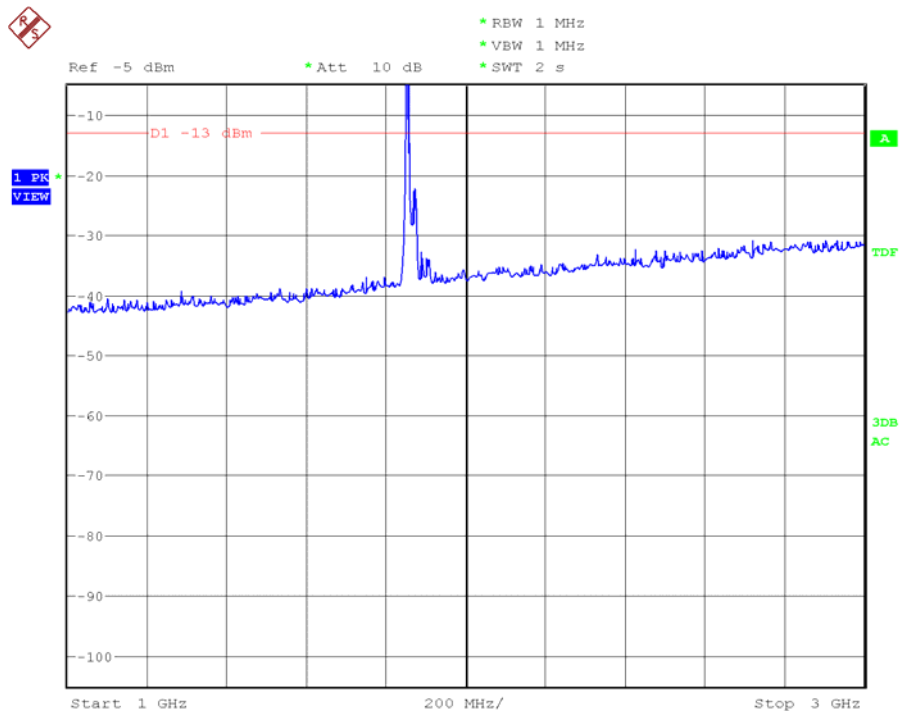
FREQUENCY RANGE 30 MHz-1000 MHz.



(This plot is valid for all three channels).

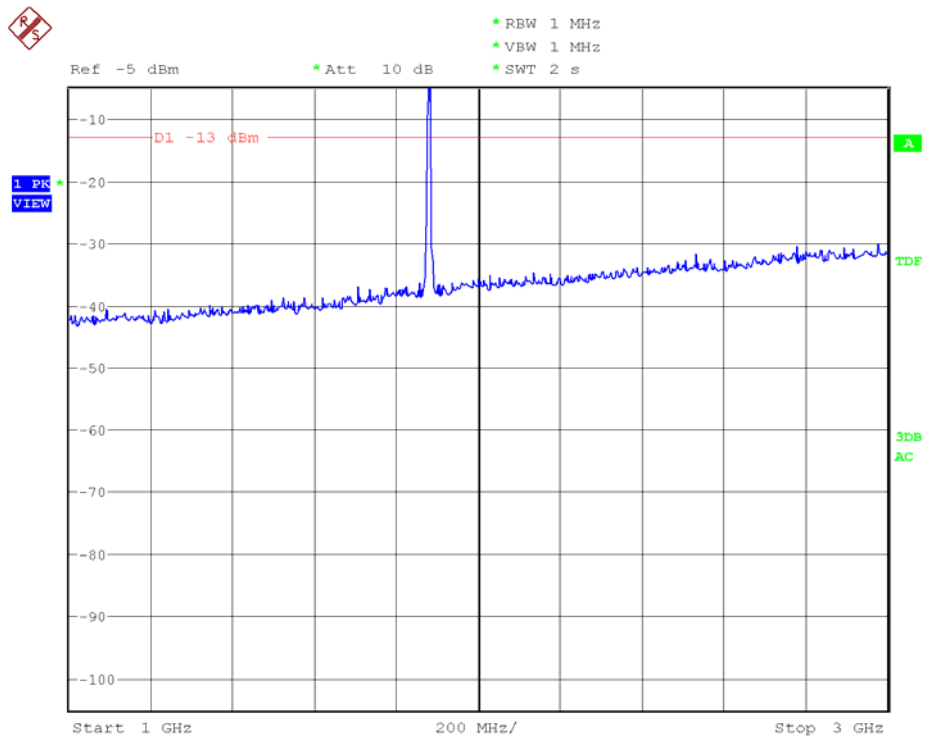
FREQUENCY RANGE 1 GHz to 3 GHz.

CHANNEL: LOWEST



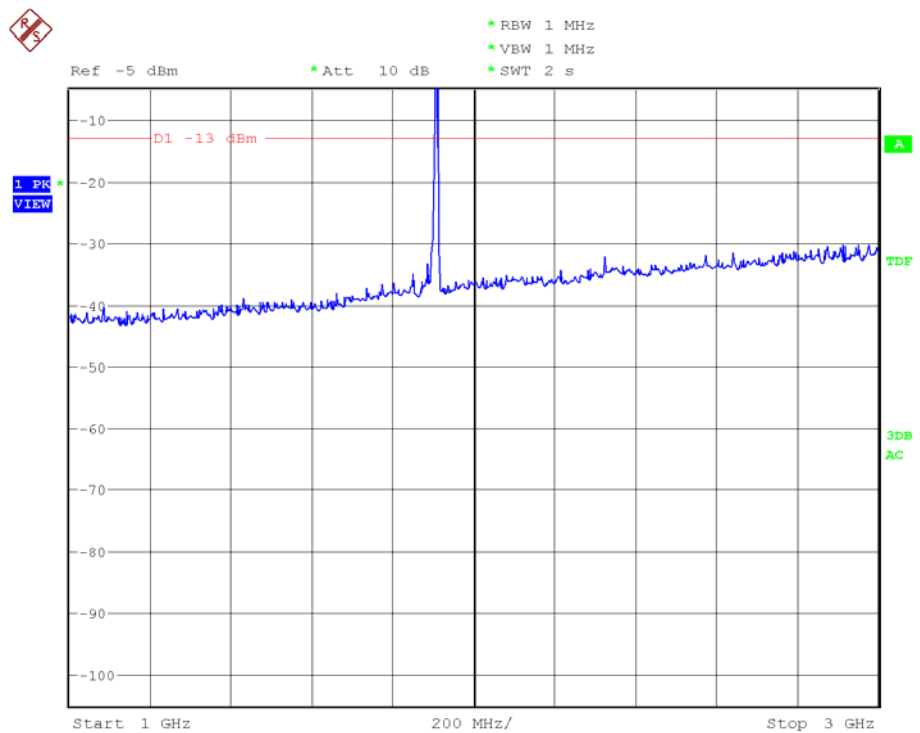
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



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

CHANNEL: HIGHEST

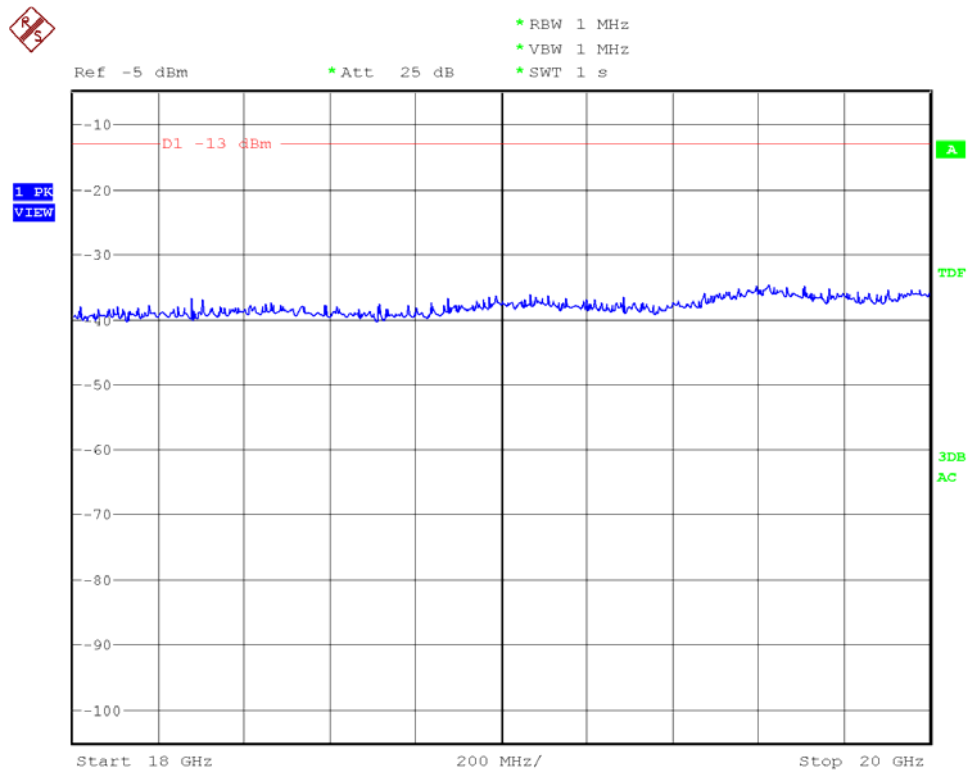


Note: The peak above the limit is the carrier frequency.





FREQUENCY RANGE 18 GHz TO 20 GHz.



(This plot is valid for all three channels).