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FCC LISTED, REGISTRATION NUMBER: 720267

Test report No:

NIE: 45038RRF.003

Test report
REFERENCE STANDARD:
USA FCC Part 22

Identificación del objeto ensayado.....: Identification of item tested	Smartphone
Marca .....: Trade	YotaPhone
Modelo y/o referencia tipo .....: Model and /or type reference	YD201
Other identification of the product .....:	Commercial name: YOTAPHONE2 FCC ID: 2ADHW201
Final HW version .....:	P3
Final SW version .....:	3.57a
IMEI .....:	356431060204350
Características .....: Features	Bluetooth EDR+LE, WiFi b/g/n20, NFC and 2G/3G cellular
Peticionario .....: Applicant	YOTA DEVICES LTD Arch. Makariou & Kalograion, 4, Nicolaides Sea View City, 9th Floor, Flat/Offices 903 -904, Block A-B, 6016, Larnaca, Cyprus Contact person: Jukka Ollila Telephone: +35 8405433264 e-mail: jollila@yotadevices.com
Método de ensayo solicitado, norma.....: Test method requested, standard	USA FCC Part 22 10-01-14 Edition: 22.917. Radiated emissions Measurement Guidance 971168 D01 v02r01 for certification of Licensed Digital Transmitters
Resultado.....: Summary	IN COMPLIANCE
Aprobado por (nombre / cargo y firma) .....: Approved by (name / position & signature)	A. Llamas RF Lab. Manager
Fecha de realización .....: Date of issue	2015-03-06
Formato de informe No. .....: Report template No	FDT08_15

Firmado digitalmente por Alejandro Llamas Rodríguez
Fecha: 2015.03.06 14:49:38 +01'00'

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Competences and guarantees

AT4 wireless 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 conjuction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Registration Number: 720267.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance program 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.

The results presented in this Test Report apply only to the particular item under test established in this document.

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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.
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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:

Control Nº	Description	Model	Serial Nº	Date of reception
45038/006	Smartphone	YD201	IMEI: 356431060204350	2015-02-03

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

   All radiated tests indicated in appendix A.

Test sample description

The test sample consists of a smartphone with Bluetooth EDR+LE, WiFi b/g/n20, NFC and 2G/3G cellular.

Test samples supplier

YOTA DEVICES LTD

Arch. Makariou & Kalograion, 4, Nicolaides Sea View City,

9th Floor, Flat/Offices 903 -904, Block A-B, 6016, Larnaca, Cyprus

Contact person: Jukka Ollila

Telephone: +35 8405433264

e-mail: jollila@yotadevices.com

Testing period

The performed test started on 2015-02-09 and finished on the same day.

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. = 20.36 ºC Max. = 23.07 ºC
Relative humidity	Min. = 30.25 % Max. = 32.40 %
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 0,5 Ω

In the semianechoic chamber the following limits were not exceeded during the test.

Temperature	Min. = 19.43 ºC Max. = 22.11 ºC
Relative humidity	Min. = 37.00 % Max. = 37.95 %
Air pressure	Min. = 1014 mbar Max. = 1015 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).

Remarks and comments

1: Used instrumentation.

Radiated Measurements

		Last Cal. date	Cal. due date
1.	Semianechoic Absorber Lined Chamber ETS FACT3 200STP	N.A.	N.A.
2.	BiconicalLog antenna ETS LINDGREN 3142E	2014/03	2017/03
3.	Multi Device Controller EMCO 2090	N.A.	N.A.
4.	Double-ridge Guide Horn antenna 1-18 GHz SCHWARZBECK BBHA 9120 D	2013/11	2016/11
5.	EMI Test Receiver R&S ESU 26	2013/08	2015/08
6.	Spectrum analyser Rohde & Schwarz FSW50	2013/10	2015/10
7.	RF pre-amplifier 10 MHz-6 GHz SCHWARZBECK BBV9743	2014/02	2015/02
8.	RF pre-amplifier Miteq AFS5-04001300-15-10P-6.	2014/05	2016/05
9.	Wideband Radio communication Tester R&S CMW500	2014/02	2016/02

2. GSM mode has not been tested to prove USA FCC Part 22 compliance because the modulation scheme and the power maximum levels are the same as for GPRS mode.

Taking into account the above comments, testing in GSM mode is redundant for FCC Parts 22 as it is the same as GPRS mode. GPRS mode has been tested as indicated on the present test report.

3. HSDPA modulation mode has not been tested to prove USA FCC Part 22 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 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.

4. Test not requested. The device is based on previous certified equipment.

Testing verdicts

Not applicable ..... :	N/A
Pass ..... :	P
Fail ..... :	F
Not measured ..... :	N/M

FCC PART 22 PARAGRAPH	VERDICT			
	NA	**P**	**F**	**NM**
Clause 22.913: RF output power				NM[4]
Clause 2.1047: Modulation characteristics				NM[4]
Clause 22.355: Frequency stability				NM[4]
Clause 2.1049: Occupied Bandwidth				NM[4]
Clause 22.917: Spurious emissions at antenna terminals				NM[4]
Clause 22.917: Radiated emissions		P		

4: See section “Remarks and comments”.

Appendix A – Test result for FCC Part 22

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TEST RESULTS FOR FCC PART 22

TEST CONDITIONS

Power supply (V):

V_{nom} = 3.8 Vdc

V_{max} = N/A

V_{min} = 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 battery

Type of antenna = Internal 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

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 meters 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 emission is 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 AND EDGE MODULATION

A preliminary scan determined the GPRS modulation as the worst case. The following tables and plots show the results for GPRS modulation. The slots configuration for the uplink was set to provide the maximum output power.

1. CHANNEL: LOWEST

Frequency range 30 MHz-1000 MHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

Frequency range 1 GHz-12.75 GHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

2. CHANNEL: MIDDLE

Frequency range 30 MHz-1000 MHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

Frequency range 1 GHz-12.75 GHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

3. CHANNEL: HIGHEST

Frequency range 30 MHz-1000 MHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

Frequency range 1 GHz-12.75 GHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

WCDMA AND HSUPA MODULATION

A preliminary scan determined the WCDMA modulation as the worst case. The following tables and plots show the results for WCDMA modulation.

1. CHANNEL: LOWEST

Frequency range 30 MHz-1000 MHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

Frequency range 1 GHz-12.75 GHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

2. CHANNEL: MIDDLE

Frequency range 30 MHz-1000 MHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

Frequency range 1 GHz-12.75 GHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

3. CHANNEL: HIGHEST

Frequency range 30 MHz-1000 MHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

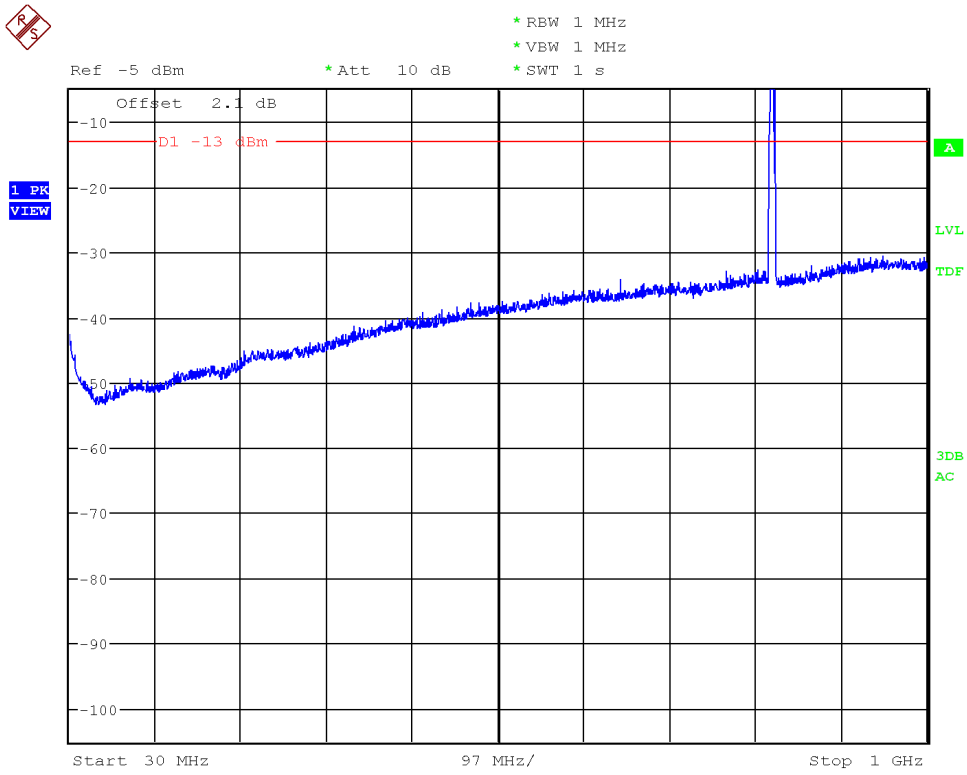
Frequency range 1 GHz-12.75 GHz.
No radiated spurious signals were detected at less than 20 dB respect to the limit.

Verdict: PASS

FREQUENCY RANGE 30 MHz-1000 MHz.

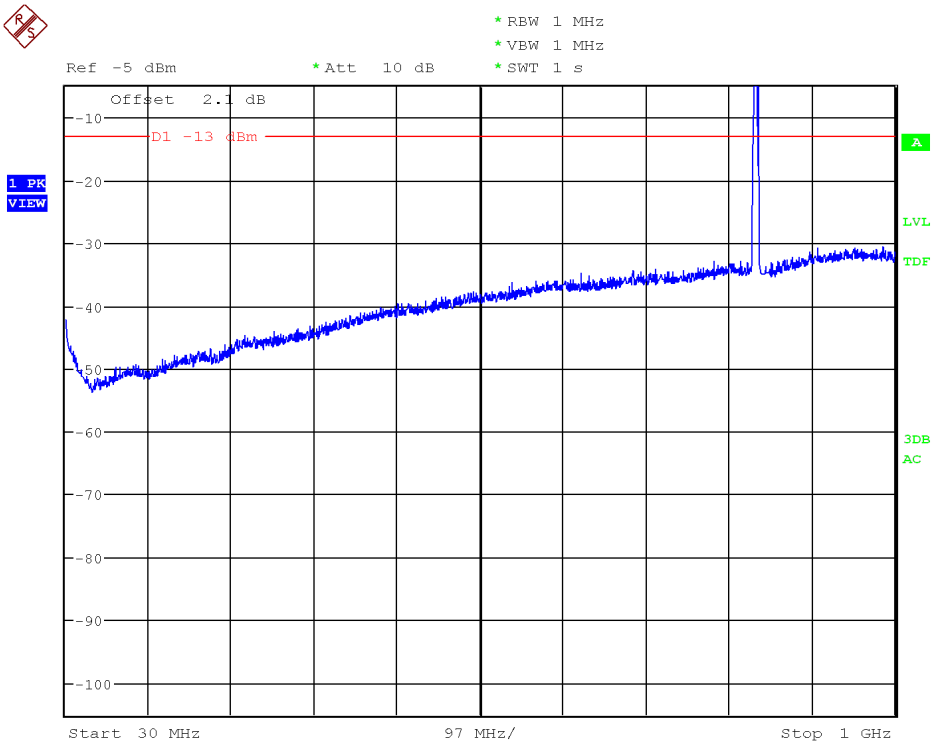
GPRS MODULATION

CHANNEL: LOWEST



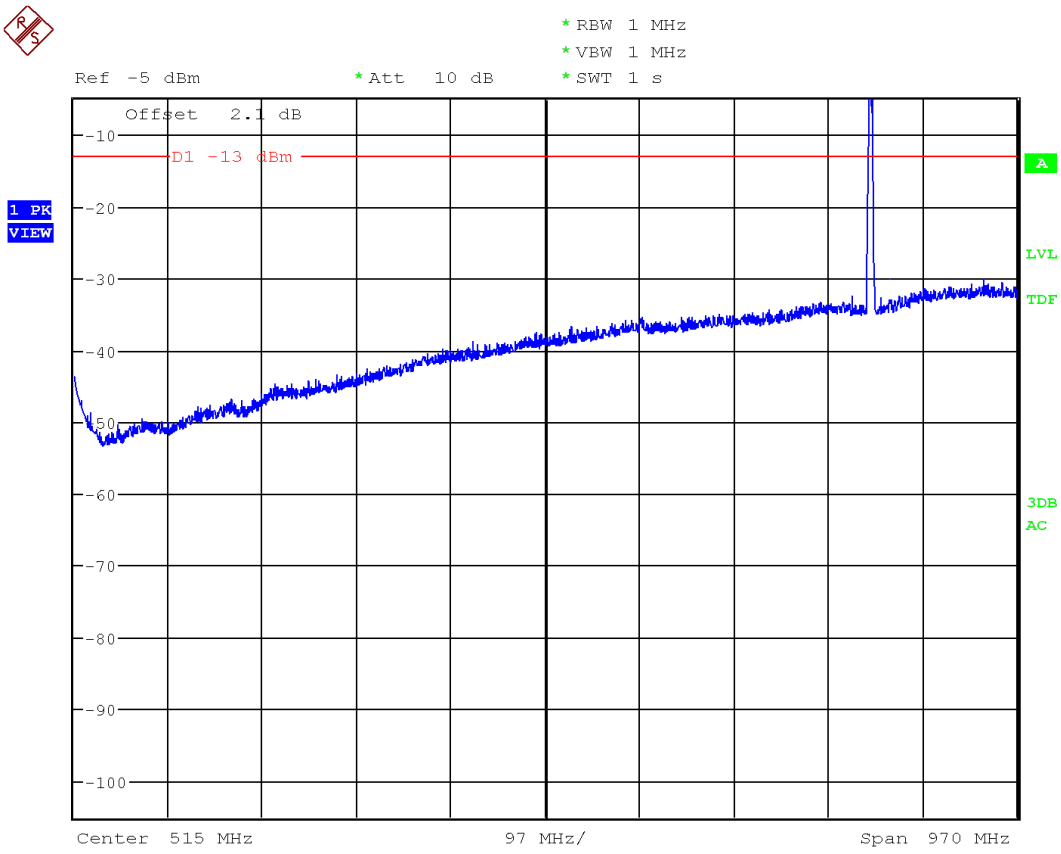
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



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

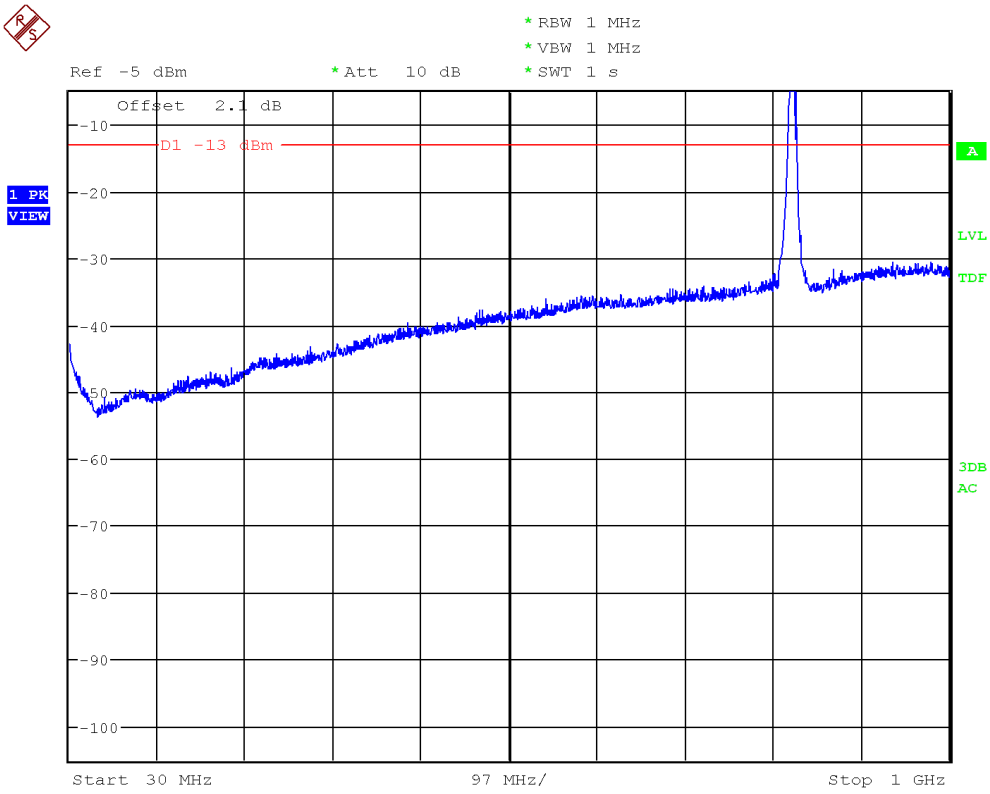
CHANNEL: HIGHEST



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

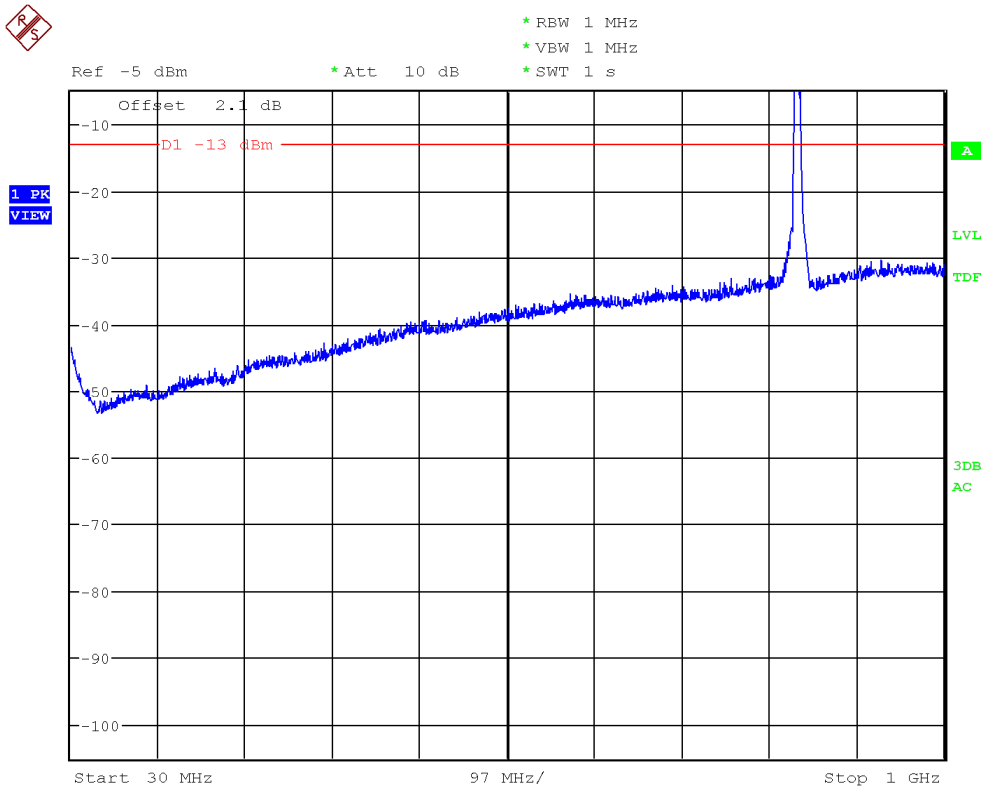
WCDMA MODULATION

CHANNEL: LOWEST



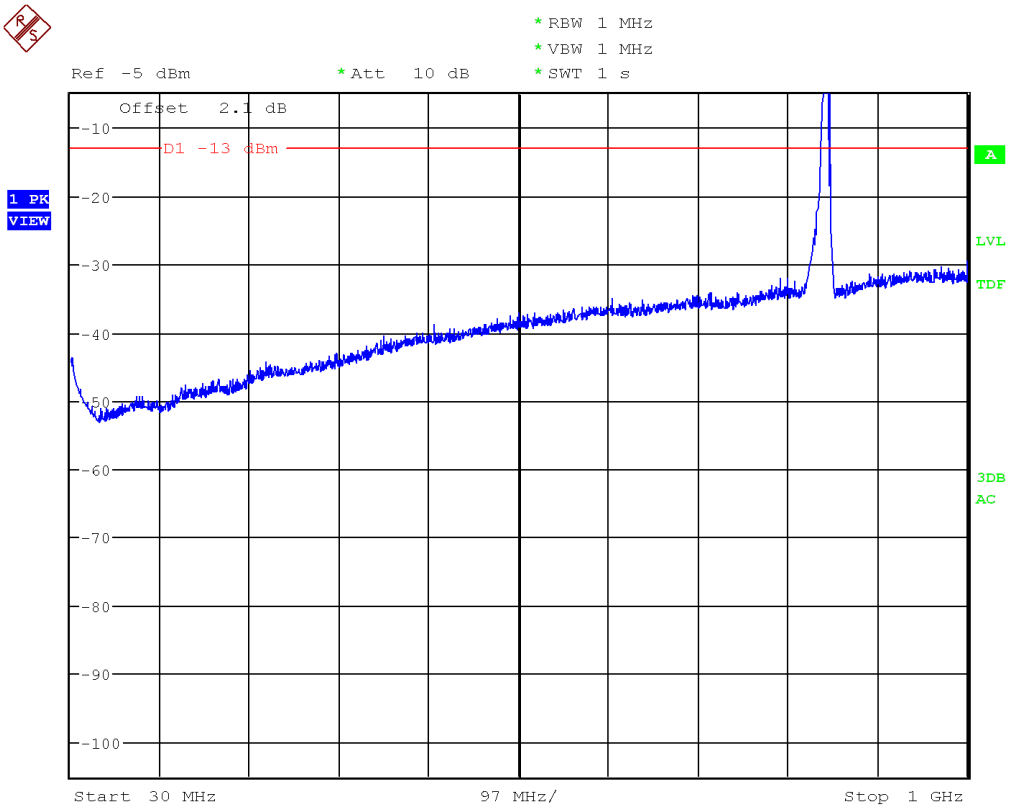
Note: The peak above the limit is the carrier frequency.

CHANNEL: MIDDLE



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

CHANNEL: HIGHEST

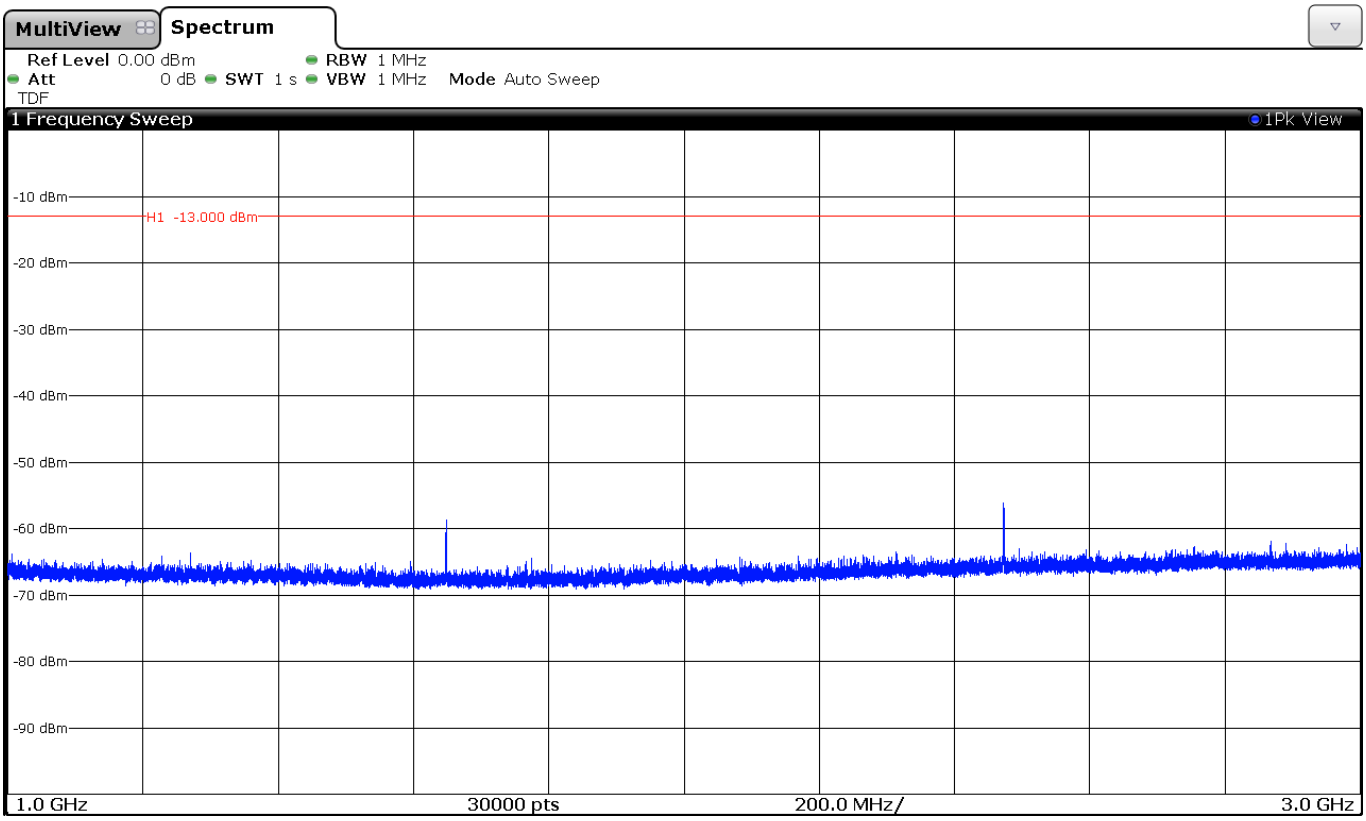


Note: The peak above the limit is the carrier frequency.

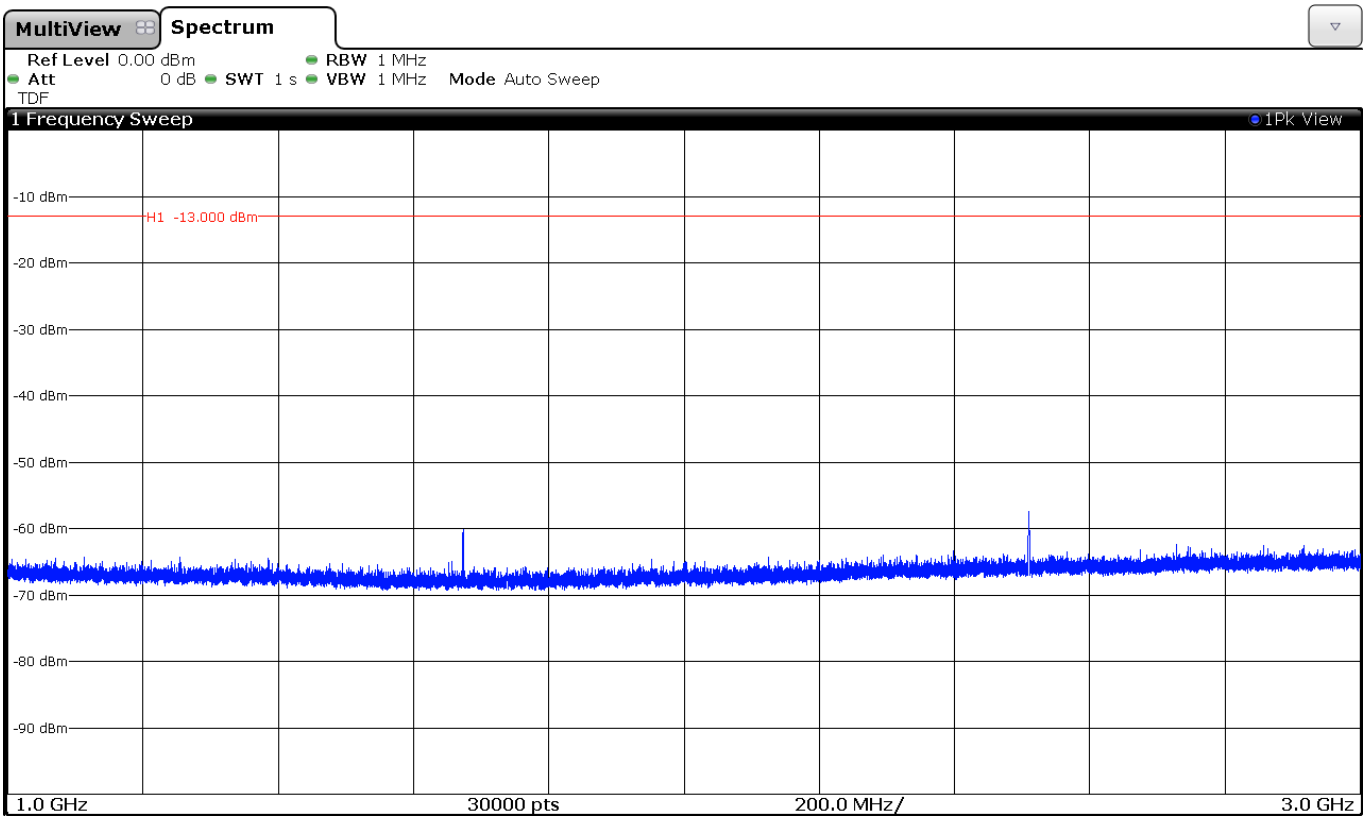
FREQUENCY RANGE 1 GHz to 3 GHz.

GPRS MODULATION

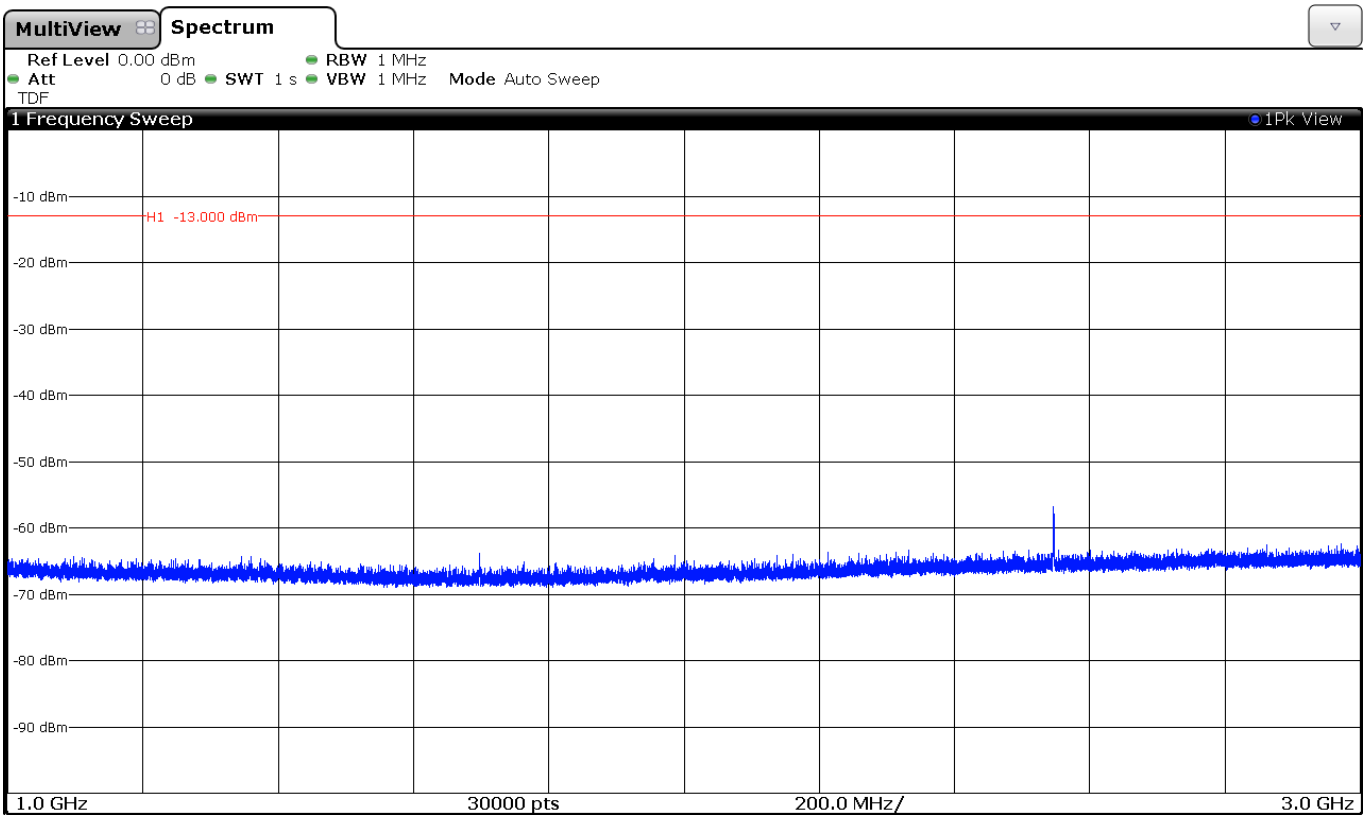
CHANNEL: LOWEST



CHANNEL: MIDDLE

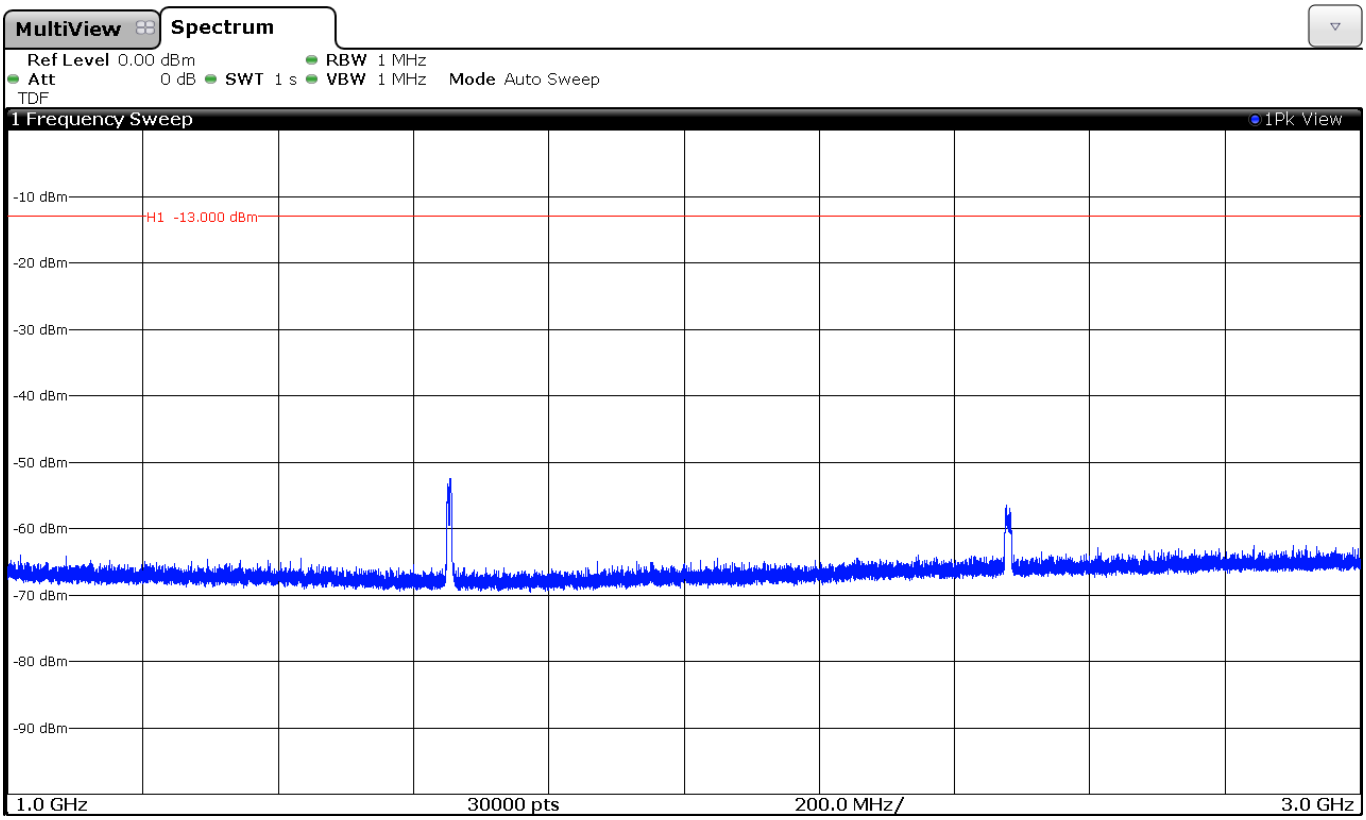


CHANNEL: HIGHEST

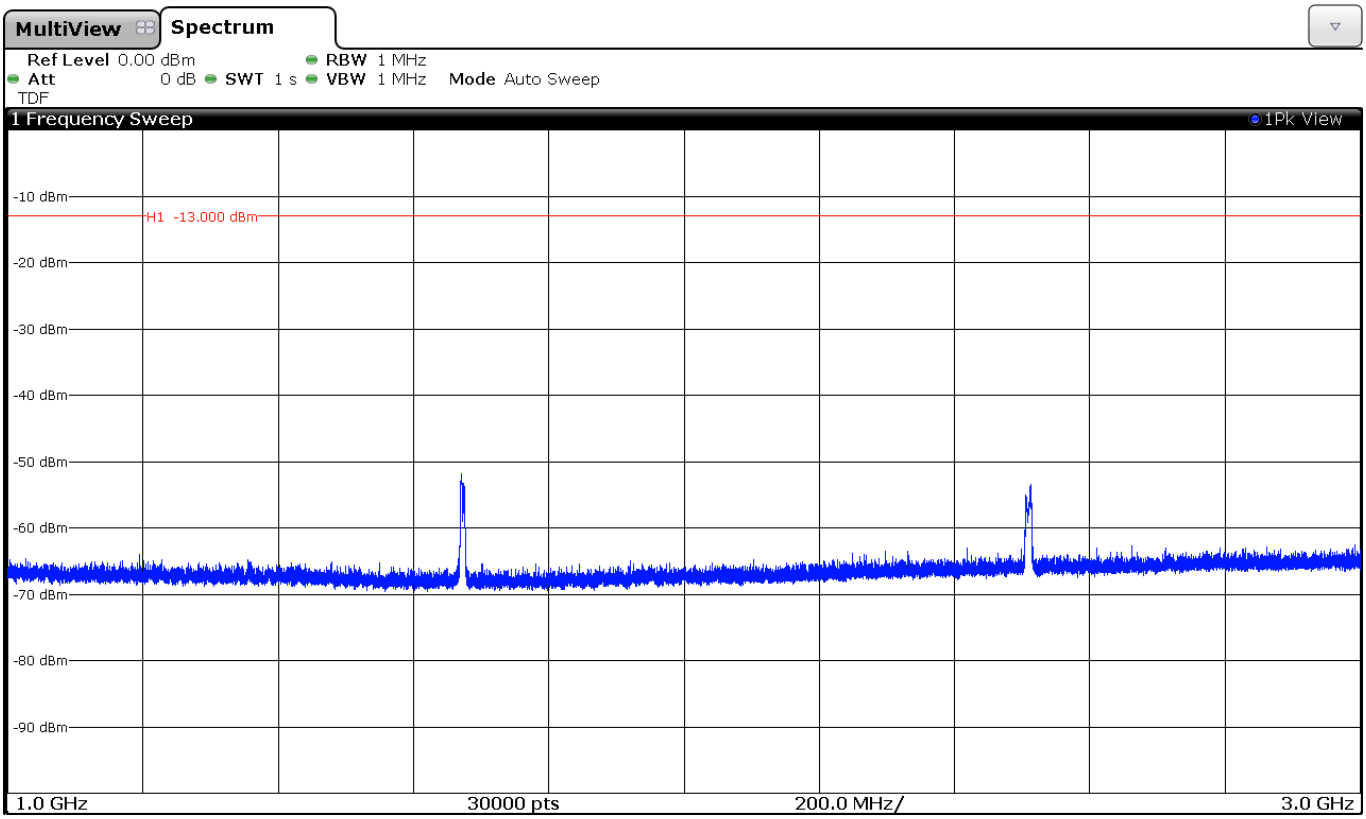


WCDMA MODULATION

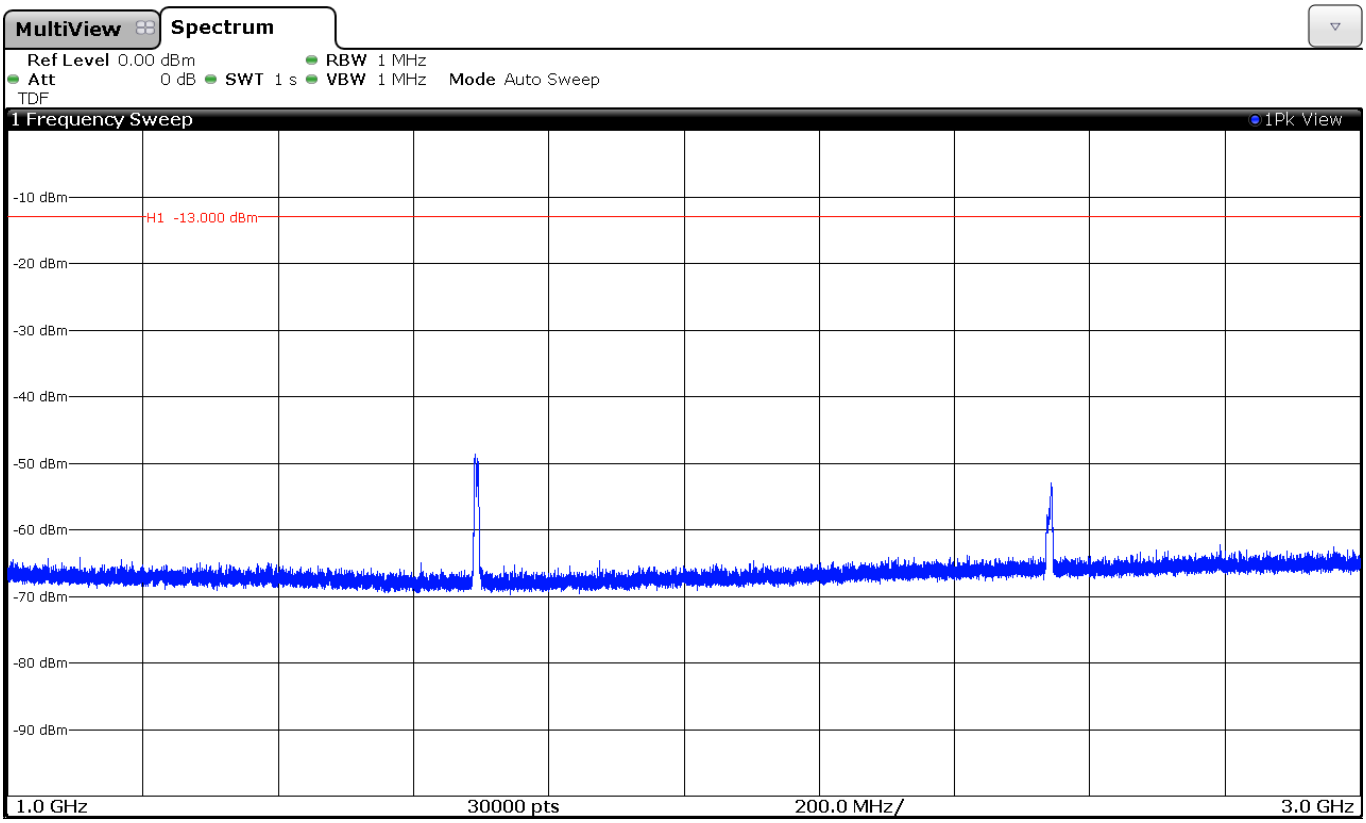
CHANNEL: LOWEST



CHANNEL: MIDDLE



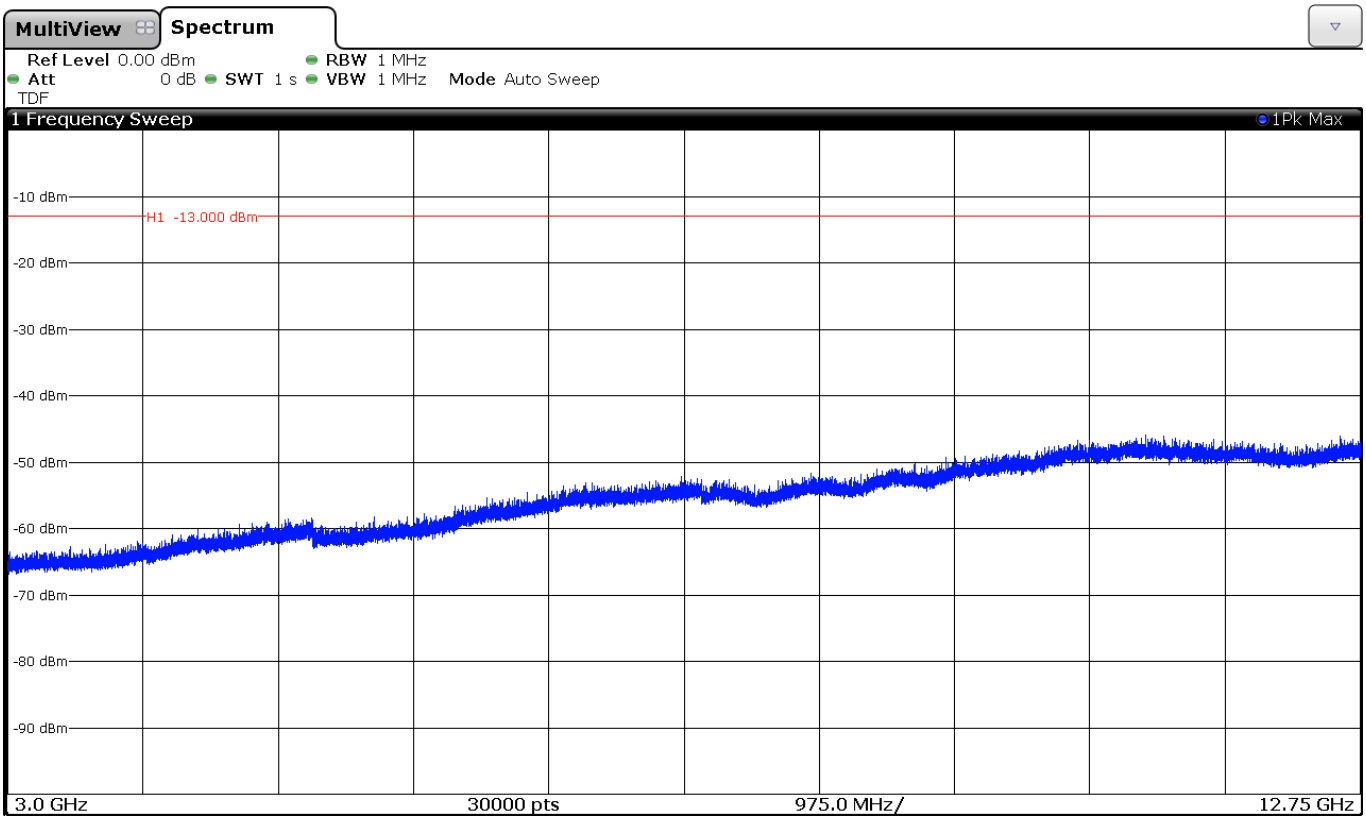
CHANNEL: HIGHEST



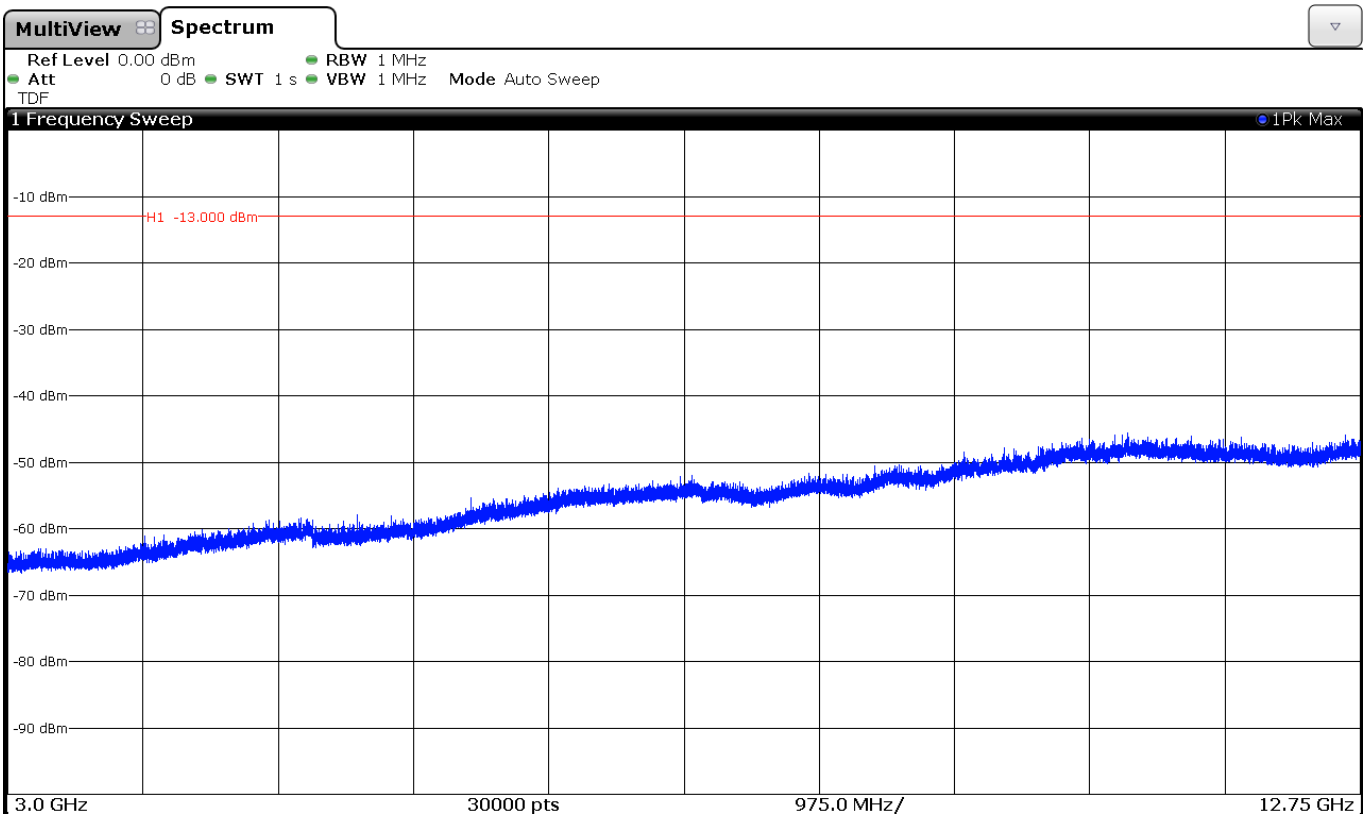
FREQUENCY RANGE 3 GHz to 12.75 GHz.

GPRS MODULATION

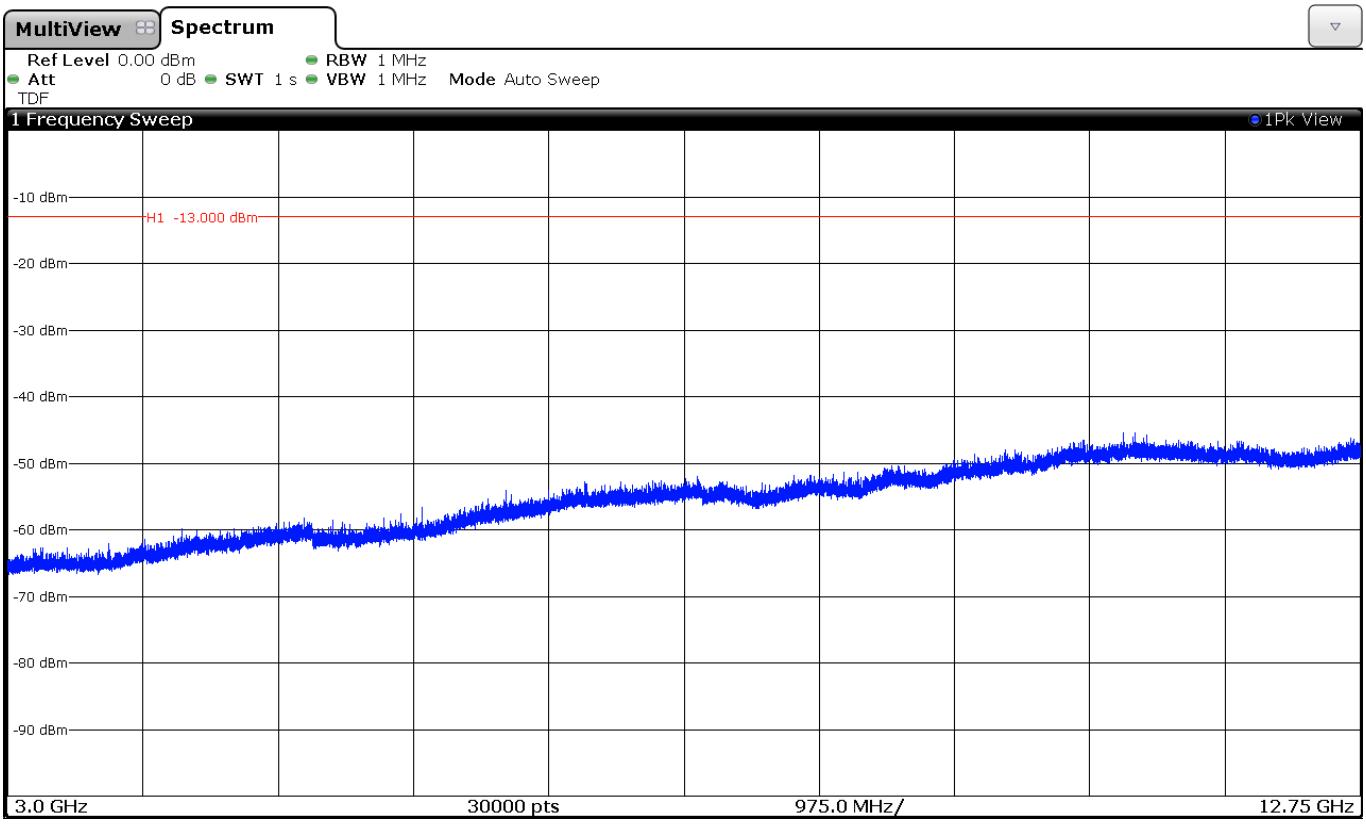
CHANNEL: LOWEST



CHANNEL: MIDDLE

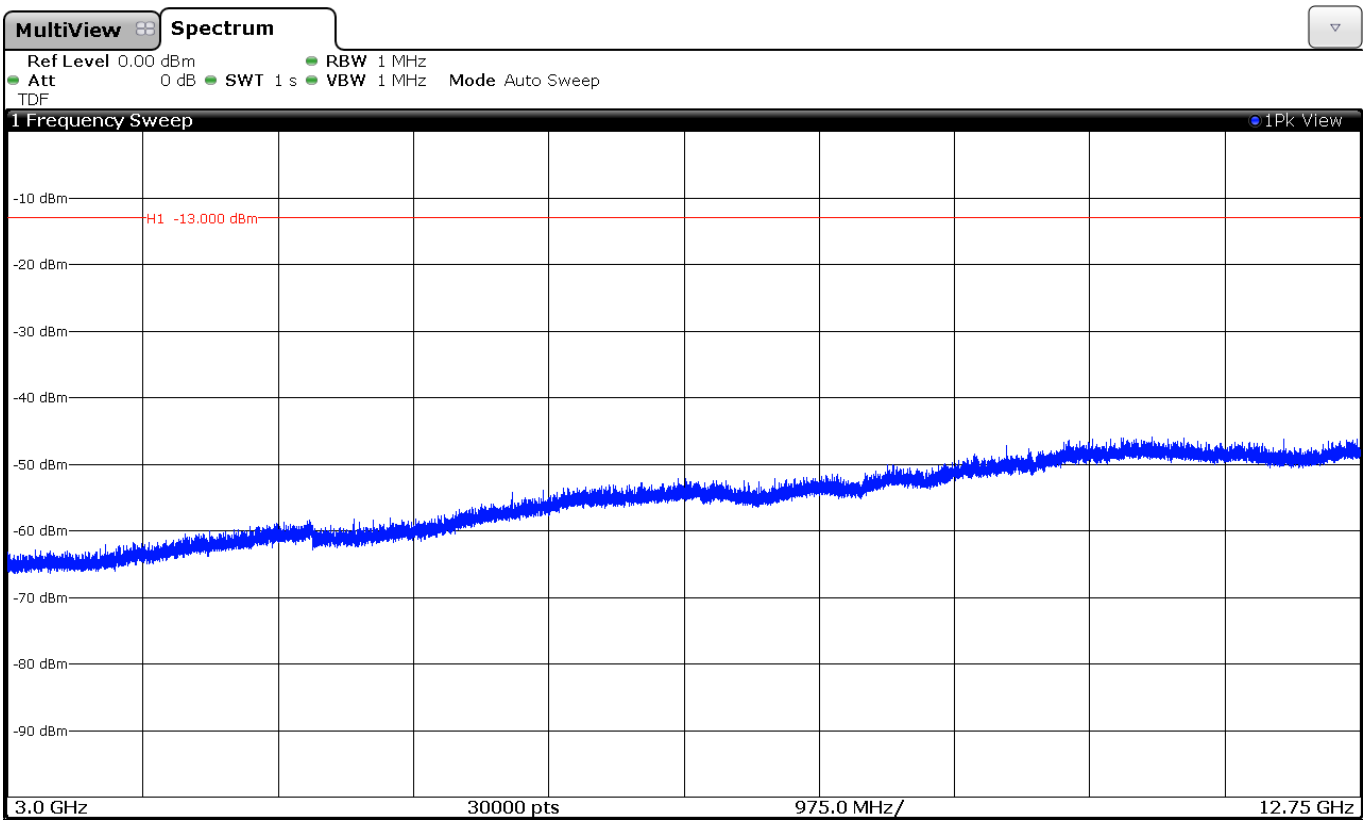


CHANNEL: HIGHEST

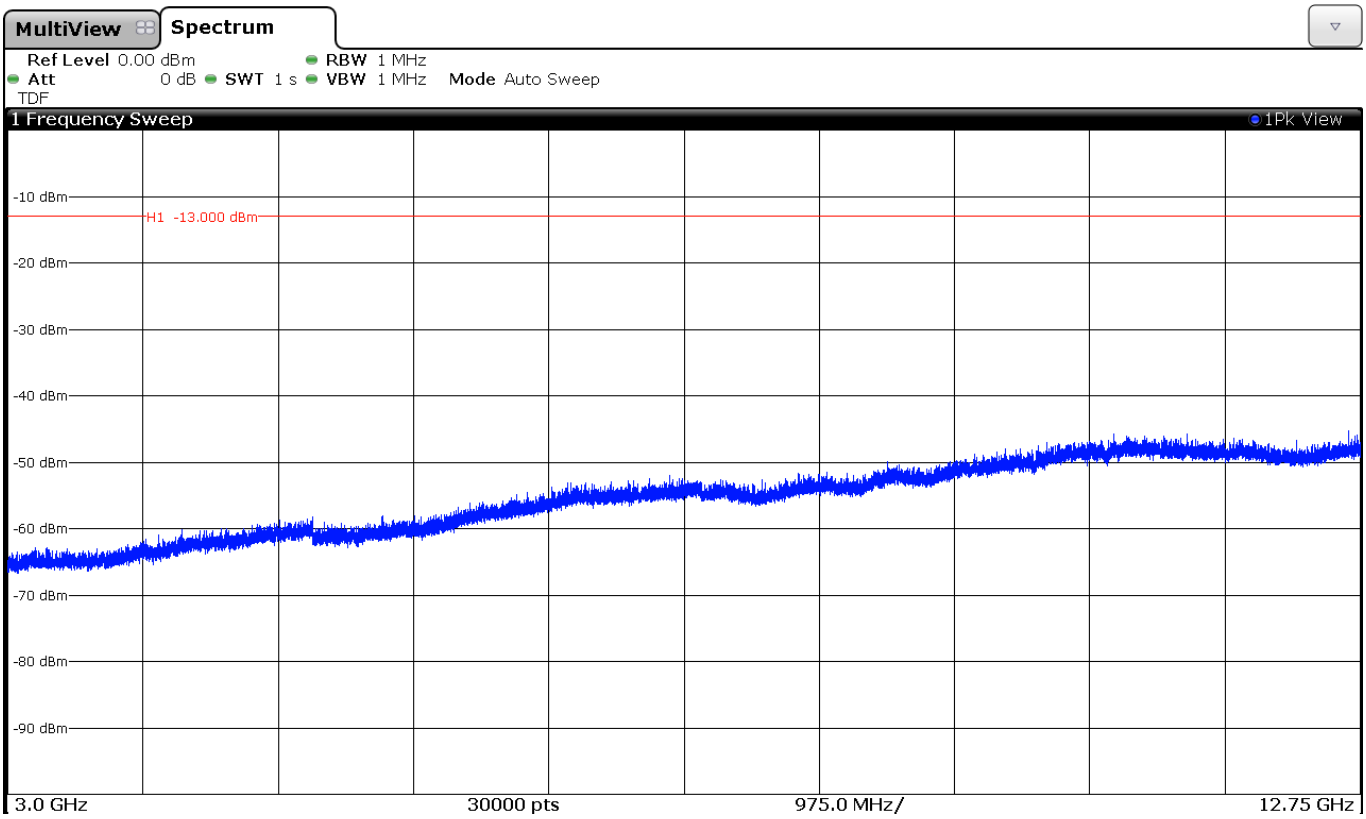


WCDMA MODULATION

CHANNEL: LOWEST



CHANNEL: MIDDLE



CHANNEL: HIGHEST