FCC Part 15
EMI TEST REPORT

of

E.U.T. : 5GHz Outdoor MIMO-OFDM Radio
Model : ATHN2052-27
FCC ID : 2AHFGATHN5G4X4

for

APPLICANT : Yu Jya Technology Co., Ltd.

ADDRESS : 3F., No.8, Alley 8, Lane 45, Baoxing Rd., Xindian District, New Taipei City, 231, Taiwan

Test Performed by

ELECTRONICS TESTING CENTER, TAIWAN
NO. 34. LIN 5. DINGFU VIL., LINKOU DIST.,
NEW TAIPEI CITY, TAIWAN, 24442, R.O.C.
Tel : (02)26023052 Fax : (02)26010910
http://www.etc.org.tw ; e-mail: emc@etc.org.tw

Report Number : 15-12-RBF-011-01

TEST REPORT CERTIFICATION

Applicant : Yu Jya Technology Co., Ltd.
3F., No.8, Alley 8, Lane 45, Baoxing Rd., Xindian District, New Taipei City, 231, Taiwan

Manufacturer : Yu Jya Technology Co., Ltd.
3F., No.8, Alley 8, Lane 45, Baoxing Rd., Xindian District, New Taipei City, 231, Taiwan

Description of EUT

a) Type of EUT : 5GHz Outdoor MIMO-OFDM Radio
b) Trade Name : Azuretec
c) Model No. : ATHN2052-27
d) Series Model No. : ATHN2051-27; ATHNV2051-27 / ATHNV2052-27; ATHN4011-27; ATHNV4011-27
e) Power Supply : Adapter: GPSU40A-8
I/P: 100-240Vac 1.0A max. 50-60Hz
O/P: 48V 930mA 45W max

Regulation Applied : FCC Rules and Regulations Part 15 Subpart E

I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in ANSI C63.10-2009, and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Note: 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of ETC

Summary of Tests

Test	Results
Radiated Emission	**Pass**
Conducted Emission	**Pass**
Emission Bandwidth	**Pass**
Output Power	**Pass**
100 kHz Bandwidth of Band Edges	**Pass**
Power Density	**Pass**
Out-of-Band Conducted Emission	**Pass**
Duty Cycle	**N.A.**

Date Test Item Received	:	*Dec. 08, 2015*
Date Test Campaign Completed	:	*Apr. 27, 2016*
Date of Issue	:	*May 05, 2016*

Test Engineer : _____

(Vincent Chang, Engineer)

Approve & Authorized : _____

S. S. Liou, Section Manager
EMC Dept. II of ELECTRONICS
TESTING CENTER, TAIWAN

Table of Contents Page

1 GENERAL INFORMATION 1

1.1 Product Description 1
1.2 Test Methodology 2
1.3 Test Facility 2

2 PROVISIONS APPLICABLE 3

2.1 Definition 3
2.2 Requirement for Compliance 4
2.3 Restricted Bands of Operation 7
2.4 Labeling Requirement 7
2.5 User Information 8

3. SYSTEM TEST CONFIGURATION 9

3.1 Justification 9
3.2 Devices for Tested System 9

4 RADIATED EMISSION MEASUREMENT 10

4.1 Applicable Standard 10
4.2 Measurement Procedure 10
4.3 Measuring Instrument 12
4.4 Radiated Emission Data 13
4.5 Field Strength Calculation 69
4.6 Photos of Radiation Measuring Setup 70

5 CONDUCTED EMISSION MEASUREMENT 78

5.1 Standard Applicable 78
5.2 Measurement Procedure 78
5.3 Conducted Emission Data 79
5.4 Result Data Calculation 87
5.5 Conducted Measurement Equipment 87
5.6 Photos of Conduction Measuring Setup 88

6 ANTENNA REQUIREMENT 92

6.1 Standard Applicable 92
6.2 Antenna Construction and Directional Gain 92

7 EMISSION BANDWIDTH MEASUREMENT 93

7.1 Standard Applicable 93
7.2 Measurement Procedure 93
7.3 Measurement Equipment 93

7.4 Measurement Data 94

8 OUTPUT POWER MEASUREMENT 119

8.1 Standard Applicable 119
8.2 Measurement Procedure 119
8.3 Measurement Equipment 119
8.4 Measurement Data 120

9 100 KHZ BANDWIDTH OF BAND EDGES MEASUREMENT 121

9.1 Standard Applicable 121
9.2 Measurement Procedure 121
9.3 Measurement Equipment 121
9.4 Measurement Data 122

10 POWER DENSITY MEASUREMENT 139

10.1 Standard Applicable 139
10.2 Measurement Procedure 139
10.3 Measurement Equipment 139
10.4 Measurement Data 140

11. OUT-OF-BAND CONDUCTED EMISSION MEASUREMENT 166

11.1 Standard Applicable 166
11.2 Measurement Procedure 166
11.3 Measurement Equipment 166
11.4 Measurement Data 167

12. DYTY CYCLE 240

12.1 Standard Applicable 240
12.2 Measurement Equipment 240
12.3 Measurement Data 240

1 GENERAL INFORMATION

1.1 Product Description

a) Type of EUT : 5GHz Outdoor MIMO-OFDM Radio
b) Trade Name : Azuretec
c) Model No. : ATHN2052-27
d) Series Model No. : ATHN2051-27; ATHNV2051-27 / ATHNV2052-27; ATHN4011-27; ATHNV4011-27
e) Power Supply : Adapter: GPSU40A-8
I/P: 100-240Vac 1.0A max. 50-60Hz
O/P: 48V 930mA 45W max
f) Antenna : Antenna 1: ImmersionRC 5.8GHz SpiroNET omni directional antenna (0.95dBic)
Antenna 2: TRA58003P (3dBi)
Antenna 3: ANT5015DX-S70 (15dBi)
Antenna 4: ANT5018D-P (18dBi)
Antenna 5: ANT5010DX-M (10dBi)
Antenna 6: ANT5023D-P (23dBi)
g) Model Difference : 1. Athena-MIMO HT-OFDM Outdoor Radio – ATHN2051-27 - single RF module(2x2 MIMO) / ATHN2052-27 - dual RF modules(4x4 MIMO)
2. Ahtena-MIMO HT-OFDM Outdoor Vehicle Unit – ATHNV2051-27 - single RF module(2x2 MIMO) / ATHNV2052-27 - dual RF modules(4x4 MIMO)
3. Athena-MIMO Outdoor Dual Channels Mobile Mesh Radio – ATHN4011-27 - dual RF modules(4x4 MIMO)
4. Athena-MIMO Outdoor Dual Channels Mobile Mesh Vehicle Unit – ATHNV4011-2 - dual RF modules(4x4 MIMO)

Model	ATHN2052-27	ATHN2051-27	ATHNV2051-27	ATHNV2052-27	ATHN4011-27	ATHNV4011-27
Difference	dual RF module (EUT)	single RF module	single RF module Vehicle use	dual RF module Vehicle use	dual RF module	dual RF module Vehicle use

The EUT was operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations when using antenna with directional antenna gains greater than 6 dBi.

1.2 Test Methodology

Both conducted and radiated emissions were performed according to the procedures illustrated in ANSI C63.10-2009. Other required measurements were illustrated in separate sections of this test report for details. For RF test the measurement procedure was refered to FCC KDB 789033 D02 General UNII Test Procedures New Rules v01 & FCC KDB 558074 D01 DTS Meas Guidance v03r03.

Instead of 0.8m EUT height above 1GHz, 1.5m was allowed by FCC December 2014 TCB Conference call.

Measurement Software

Software	Version	Note
e3	Version 6.100618b	Radiated Emission Test
e3	Version 6.100421	Conducted Emission Test

Configurations for radiated and conducted emission tests

Test mode	Description
Antenna 1	Four ImmersionRC 5.8GHz SpiroNET omni directional antenna connected to the EUT
Antenna 2	Four TRA58003P antenna connected to the EUT
Antenna 3	Two ANT5015DX-S70 antenna and two ANT5018D-P antenna connected to the EUT. ANT5015DX-S70 antenna working.
Antenna 4	Two ANT5015DX-S70 antenna and two ANT5018D-P antenna connected to the EUT. ANT5018D-P antenna working.
Antenna 5	Two ANT5010DX-M antenna and two ANT5023D-P antenna connected to the EUT. ANT5010DX-M antenna working.
Antenna 6	Two ANT5010DX-M antenna and two ANT5023D-P antenna connected to the EUT. ANT5023D-P antenna working.

1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at No.34, Lin 5, Dingfu Vil., Linkou Dist., New Taipei City, Taiwan 24442, R.O.C.
This site is FCC 2.948 listed and accepted in a letter dated Jan. 29, 2014.
Registration Number: 90589

2 PROVISIONS APPLICABLE

2.1 Definition

Unintentional radiator:
A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:
A digital device which is marketed for use in commercial or business environment; exclusive of a device which is market for use by the general public, or which is intended to be used in the home.

Class B Digital Device :
A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business of industrial environment. Example of such devices that are marketed for the general public.

Note : A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Requirement for Compliance

(1) Conducted Emission Requirement

Except for Class A digital devices, for equpment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency MHz	Quasi Peak dBμV	Average dBμV
0.15 - 0.5	66-56*	56-46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

* Decreases with the logarithm of the frequency

(2) Radiated Emission Requirement

For unintentional device, according to §15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency MHz	Distance Meters	Radiated dBμV/m	Radiated μV/m
30 - 88	3	40.0	100
88 - 216	3	43.5	150
216 - 960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to §15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

(3) Antenna Requirement

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

(4) Bandwidth Requirement

According to 15.407(e), within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

(5) Output Power Requirement

According to 15.407(a)(3), for the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

(6) Undesirable emission limits

Amendment(s) published April 6, 2016, in 81 FR 19901

EFFECTIVE DATES: May 6, 2016

According to 15.407(b)(4), for transmitters operating in the 5.725-5.85 GHz band:

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may

demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(7) 100 kHz Bandwidth of Frequency Band Edges Requirement

According to 15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

(8) Power Density Requirement

According to 15.407(a)(3), for the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

2.3 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42-16.423	399.9-410	4.5-5.15
0.495 - 0.505 **	16.69475 - 16.69525	608-614	5.35-5.46
2.1735 - 2.1905	16.80425 - 16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475 - 156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3360-4400	Above 38.6
13.36-13.41			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

2.4 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device :

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.5 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio / TV technician for help.

3. SYSTEM TEST CONFIGURATION

3.1 Justification

For both radiated and conducted emissions below 1 GHz, the system was configured for testing in a typical fashion as a customer would normally use it. The peripherals other than EUT were connected in normally standing by situation. Measurement was performed under the condition that a computer program was exercised to simulate data communication of EUT, and the transmission rate was set to maximum allowed by EUT. Three highest emissions were verified with varying placement of the cables connected to EUT to maximize the emission from EUT.

For conducted and radiated emissions, whichever RF channel is operated, the digital circuits' function identically. As the reason, measurement of emissions from digital circuits is performed with the highest, middle and the lowest channel by transmitting mode.

3.2 Devices for Tested System

Device	Manufacture	Model / FCC ID.	Description
5GHz Outdoor MIMO-OFDM Radio *	Yu Jya Technology Co., Ltd.	ATHN2052-27 / 2AHFGATHN5G4X4	1.8m Unshielded AC Adaptor Power Line

Remark "*" means equipment under test.

4 RADIATED EMISSION MEASUREMENT

4.1 Applicable Standard

For transmitters operating in the 5.725-5.85 GHz band, according to Amendment(s) published April 6, 2016, in 81 FR 19901, the out band emission shall be comply with § 15.247(d)

4.2 Measurement Procedure

1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on a open test site. As the same purpose, for emission frequencies measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.
3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 100 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.
5. Repeat step 4 until all frequencies need to be measured were complete.
6. Repeat step 5 with search antenna in vertical polarized orientations.
7. Check the three frequencies of highest emission with varying the placement of cables associated with EUT to obtain the worse case and record the result.

Figure 1 : Frequencies measured below 1 GHz configuration

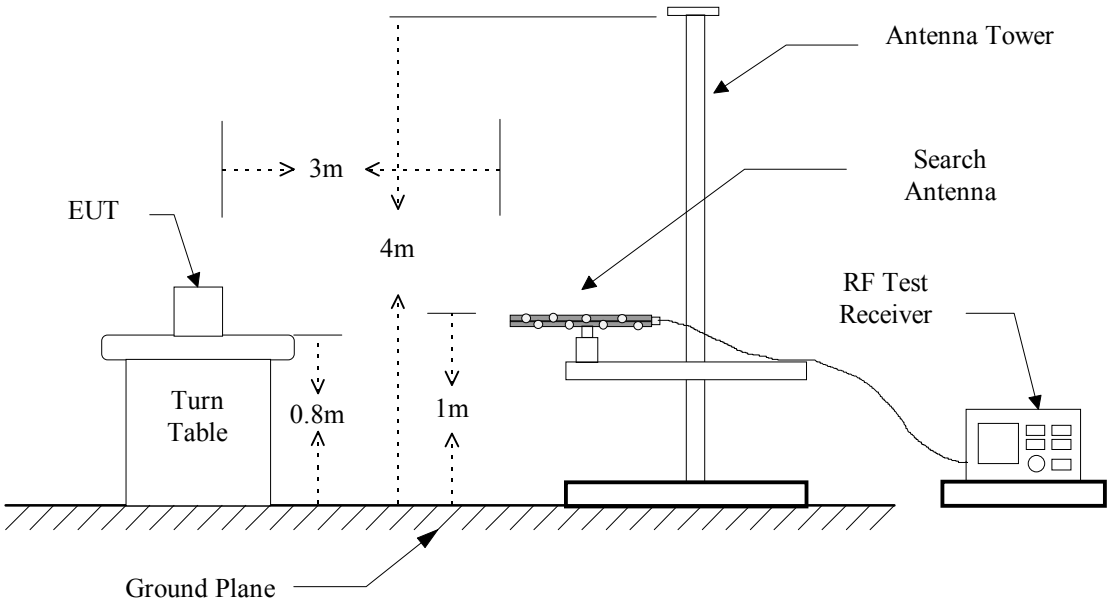
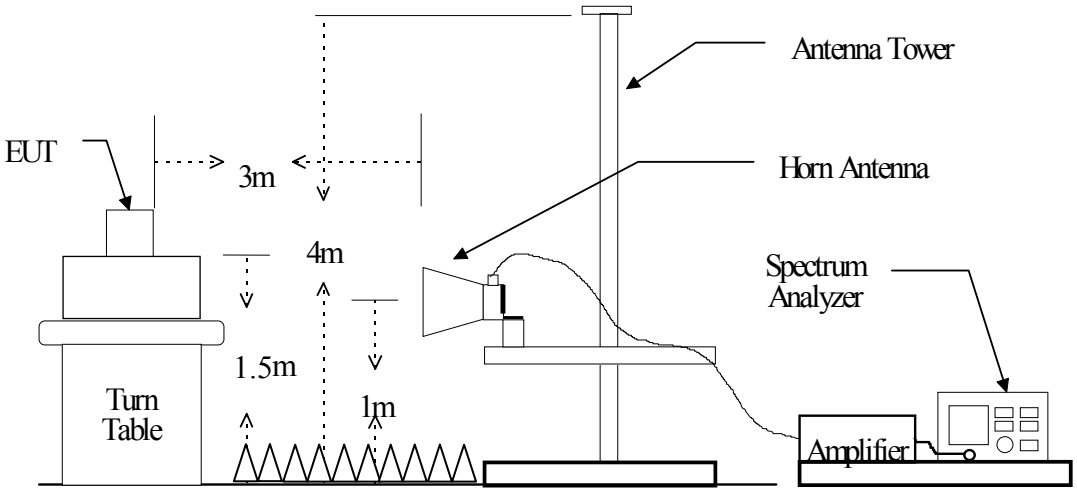


Figure 2 : Frequencies measured above 1 GHz configuration



4.3 Measuring Instrument

The following instrument are used for radiated emissions measurement:

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum	Rohde & Schwarz	FSP40	2015/01/21	2016/01/20
EMI Test Receiver	Rohde & Schwarz	ESCI	2015/12/05	2016/12/04
Test Receiver	Rohde & Schwarz	ESVS30	2015/06/03	2016/06/02
Double Ridged Antenna	EMCO	3115	2015/10/08	2016/10/07
Double Ridged Guide Horn Antenna	EMCO	3116	2015/08/12	2016/08/10
Log-periodic Antenna	EMCO	3146	2015/11/17	2016/11/16
Biconical Antenna	EMCO	3110B	2015/05/29	2016/05/28
Amplifier	HP	8449B	2015/10/06	2016/10/05
Amplifier	HP	8447D	2015/11/09	2016/11/07
Amplifier	HP	83051A	2015/10/21	2016/10/19

Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	N/A
	Spectrum Analyzer	Peak	100 kHz	100 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10 Hz or ≥ 1/T (Note 1)

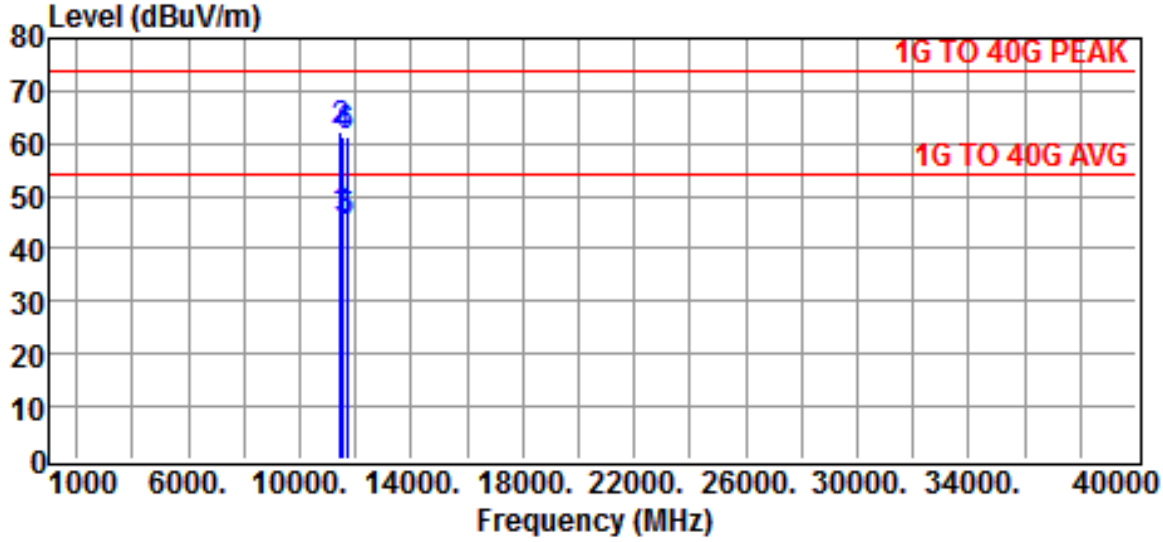
Note 1:
VBW = 10 Hz, when the duty cycle is no less than 98%.
VBW ≥ 1/T, when duty cycle is less than 98% where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

4.4 Radiated Emission Data

4.4.1 RF Portion

(A) Antenna 1

(a) 5MHz

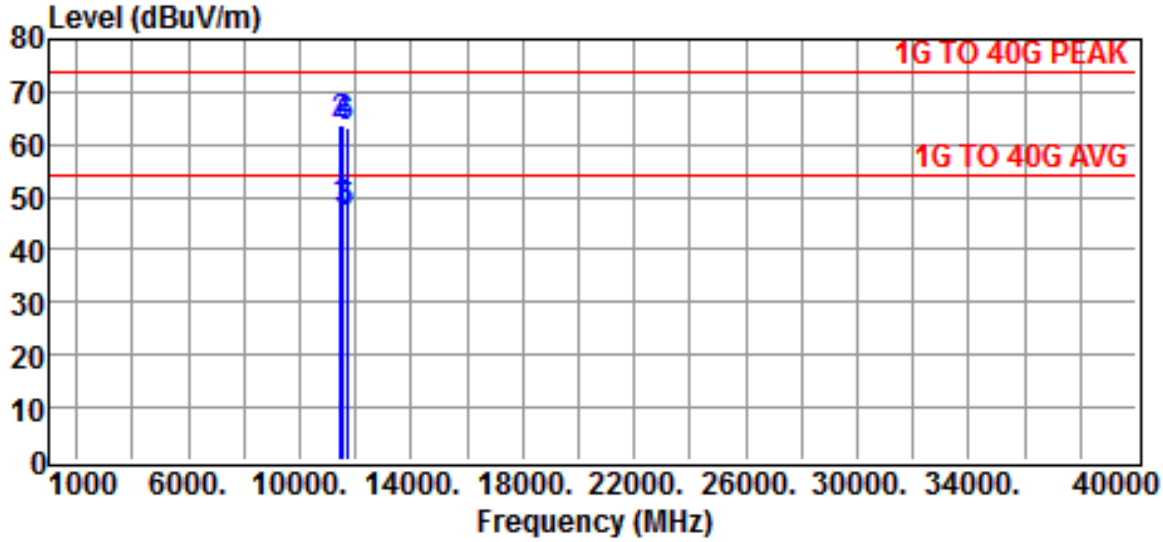


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 1		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	34.4	10.7	45.1	54.0	-8.9	Average
11465.0000	50.4	10.7	61.1	74.0	-12.9	Peak
11565.0000	33.5	10.8	44.3	54.0	-9.7	Average
11565.0000	49.6	10.8	60.4	74.0	-13.6	Peak
11685.0000	33.3	10.8	44.1	54.0	-9.9	Average
11685.0000	49.2	10.8	60.0	74.0	-14.0	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



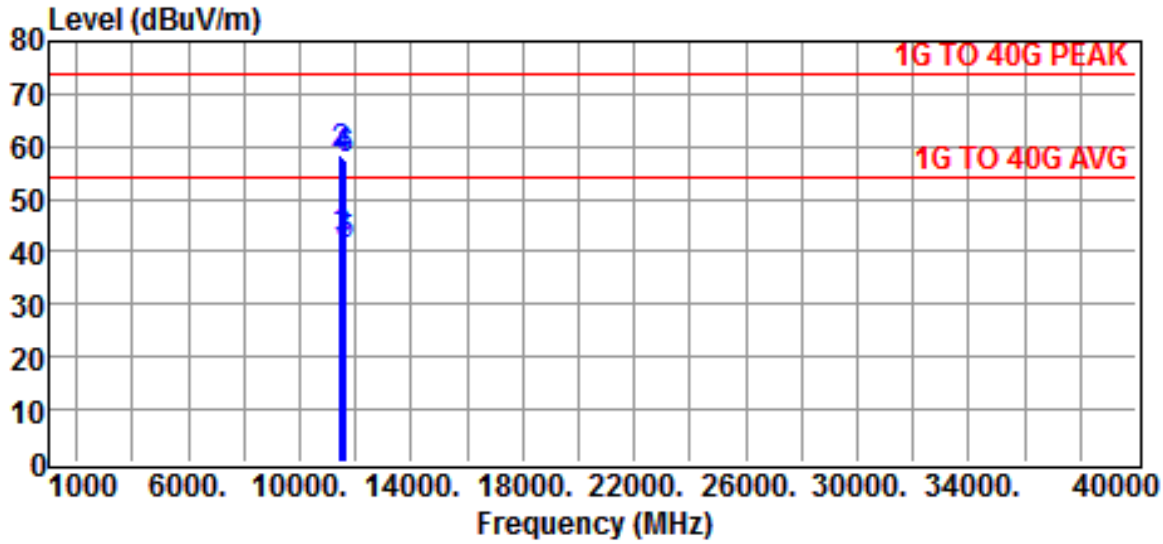
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 1		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	36.1	10.7	46.8	54.0	-7.2	Average
11465.0000	52.1	10.7	62.8	74.0	-11.2	Peak
11565.0000	35.5	10.8	46.3	54.0	-7.7	Average
11565.0000	51.6	10.8	62.4	74.0	-11.6	Peak
11685.0000	35.2	10.8	46.0	54.0	-8.0	Average
11685.0000	51.2	10.8	62.0	74.0	-12.0	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(b) 10MHz

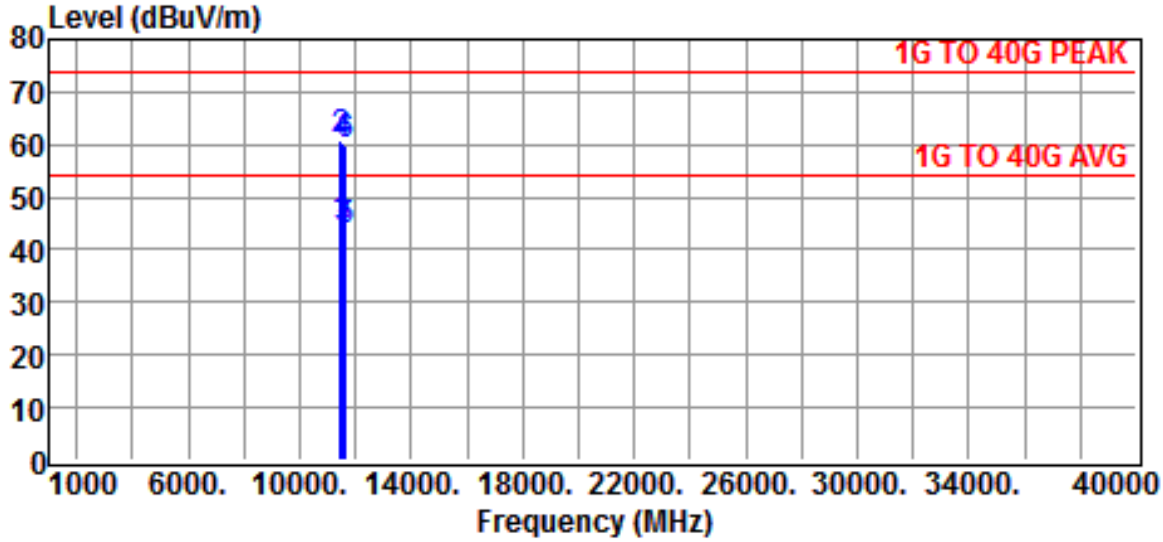


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 1		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	30.6	10.7	41.3	54.0	-12.7	Average
11480.0000	46.7	10.7	57.4	74.0	-16.6	Peak
11580.0000	30.3	10.8	41.1	54.0	-12.9	Average
11580.0000	46.1	10.8	56.9	74.0	-17.1	Peak
11660.0000	29.8	10.8	40.6	54.0	-13.4	Average
11660.0000	45.3	10.8	56.1	74.0	-17.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



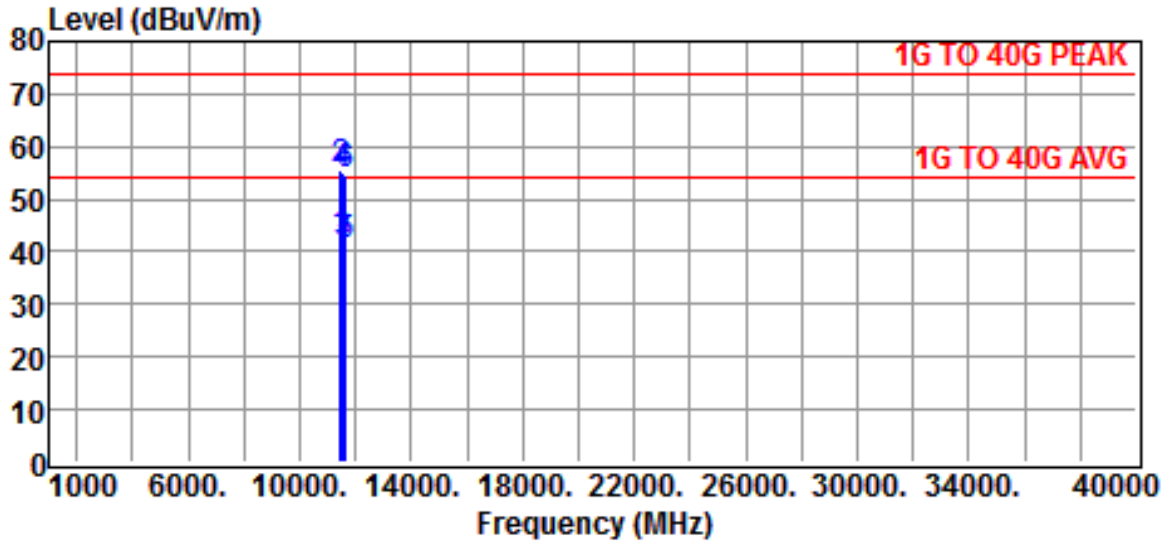
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 1		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	32.7	10.7	43.4	54.0	-10.6	Average
11480.0000	49.0	10.7	59.7	74.0	-14.3	Peak
11580.0000	32.3	10.8	43.1	54.0	-10.9	Average
11580.0000	48.5	10.8	59.3	74.0	-14.7	Peak
11660.0000	32.1	10.8	42.9	54.0	-11.1	Average
11660.0000	48.2	10.8	59.0	74.0	-15.0	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(c) 20MHz

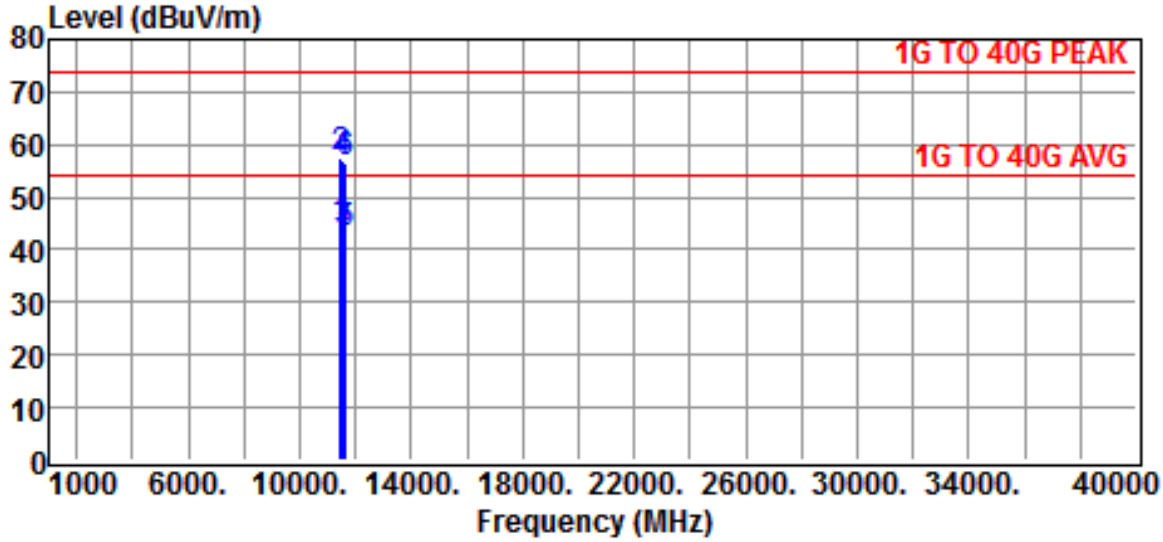


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 1		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	30.3	10.7	41.0	54.0	-13.0	Average
11490.0000	43.5	10.7	54.2	74.0	-19.8	Peak
11570.0000	29.4	10.8	40.2	54.0	-13.8	Average
11570.0000	43.2	10.8	54.0	74.0	-20.0	Peak
11650.0000	29.1	10.8	39.9	54.0	-14.1	Average
11650.0000	42.4	10.8	53.2	74.0	-20.8	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



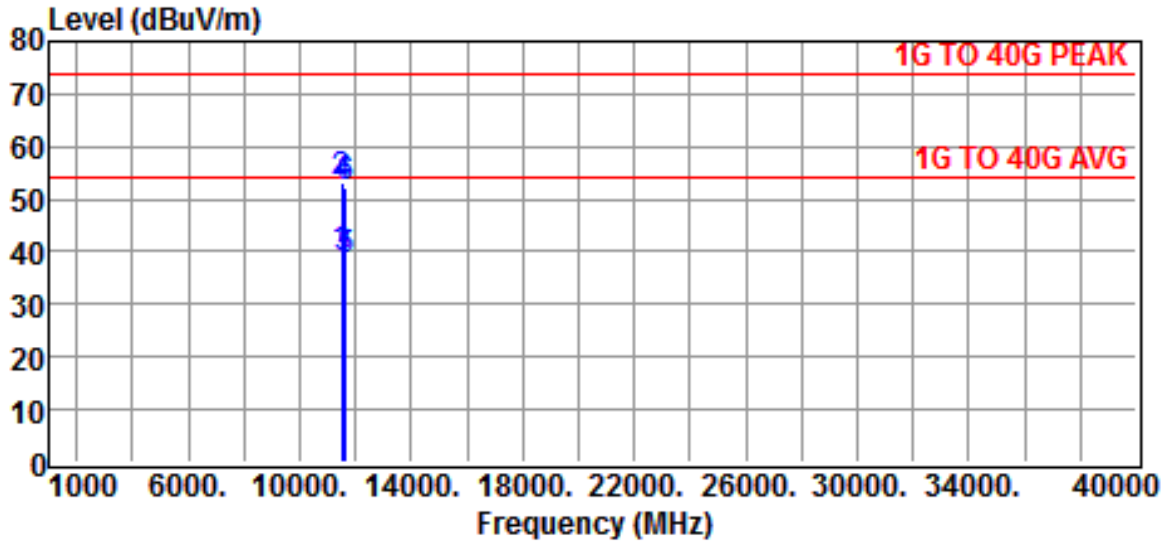
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 1		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	32.5	10.7	43.2	54.0	-10.8	Average
11490.0000	45.7	10.7	56.4	74.0	-17.6	Peak
11570.0000	31.9	10.8	42.7	54.0	-11.3	Average
11570.0000	45.3	10.8	56.1	74.0	-17.9	Peak
11650.0000	31.3	10.8	42.1	54.0	-11.9	Average
11650.0000	44.7	10.8	55.5	74.0	-18.5	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(d) 40MHz

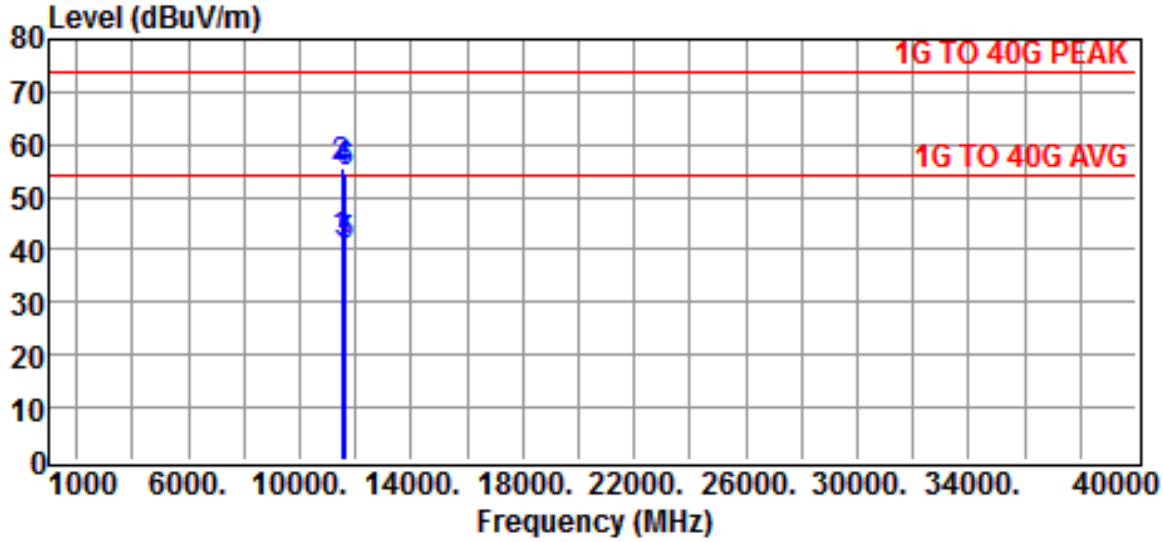


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 1		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	27.8	10.7	38.5	54.0	-15.5	Average
11510.0000	41.7	10.7	52.4	74.0	-21.6	Peak
11550.0000	27.2	10.8	38.0	54.0	-16.0	Average
11550.0000	41.2	10.8	52.0	74.0	-22.0	Peak
11630.0000	26.7	10.8	37.5	54.0	-16.5	Average
11630.0000	40.9	10.8	51.7	74.0	-22.3	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 1		

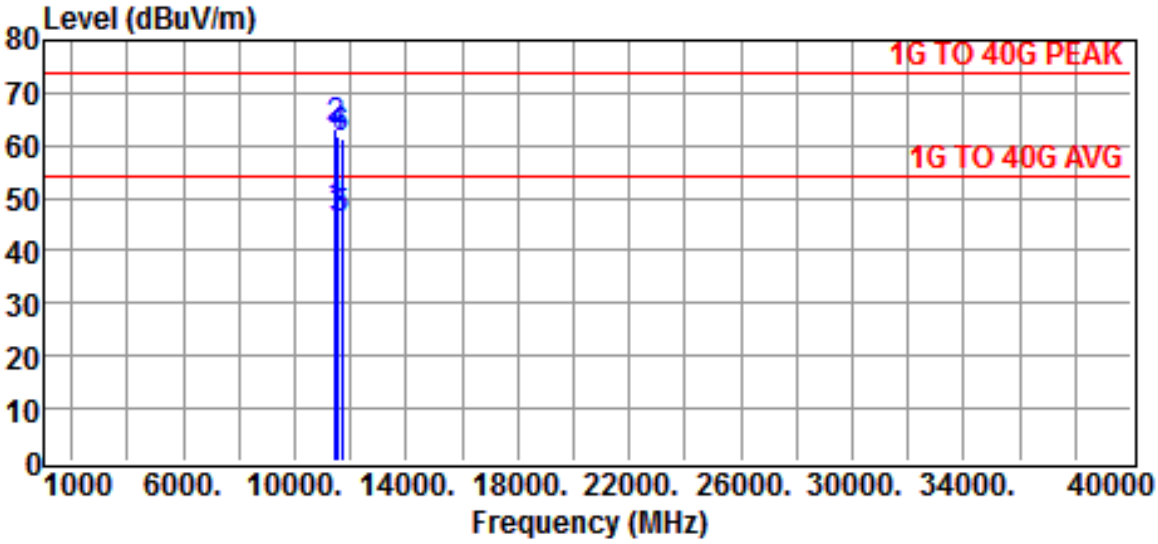
Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	29.8	10.7	40.5	54.0	-13.5	Average
11510.0000	44.2	10.7	54.9	74.0	-19.1	Peak
11550.0000	29.2	10.8	40.0	54.0	-14.0	Average
11550.0000	43.3	10.8	54.1	74.0	-19.9	Peak
11630.0000	28.7	10.8	39.5	54.0	-14.5	Average
11630.0000	42.9	10.8	53.7	74.0	-20.3	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(B) Antenna 2

(a) 5MHz

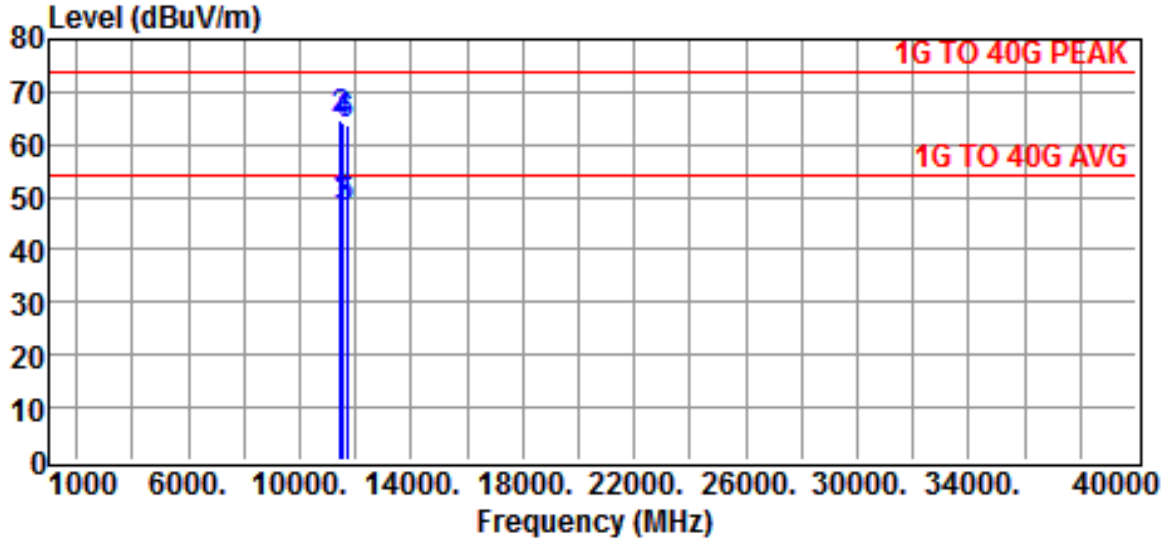


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 2		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	35.8	10.7	46.5	54.0	-7.5	Average
11465.0000	51.6	10.7	62.3	74.0	-11.7	Peak
11565.0000	34.0	10.8	44.8	54.0	-9.2	Average
11565.0000	50.2	10.8	61.0	74.0	-13.0	Peak
11685.0000	34.0	10.8	44.8	54.0	-9.2	Average
11685.0000	49.6	10.8	60.4	74.0	-13.6	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



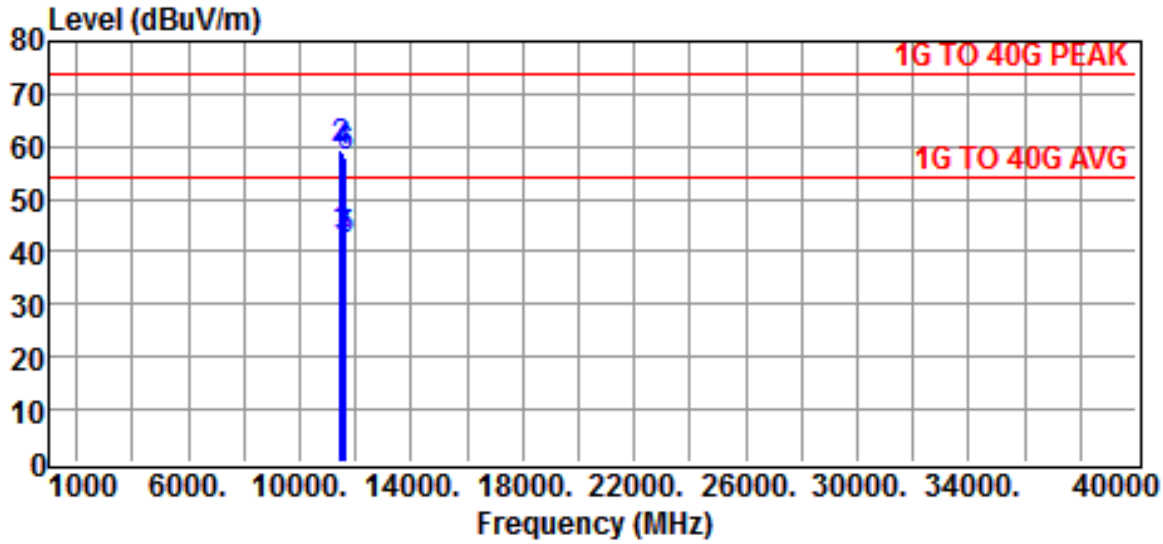
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 2		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	37.1	10.7	47.8	54.0	-6.2	Average
11465.0000	43.2	10.7	53.9	74.0	-20.1	Peak
11565.0000	36.2	10.8	47.0	54.0	-7.0	Average
11565.0000	52.4	10.8	63.2	74.0	-10.8	Peak
11685.0000	35.9	10.8	46.7	54.0	-7.3	Average
11685.0000	51.8	10.8	62.6	74.0	-11.4	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(b) 10MHz

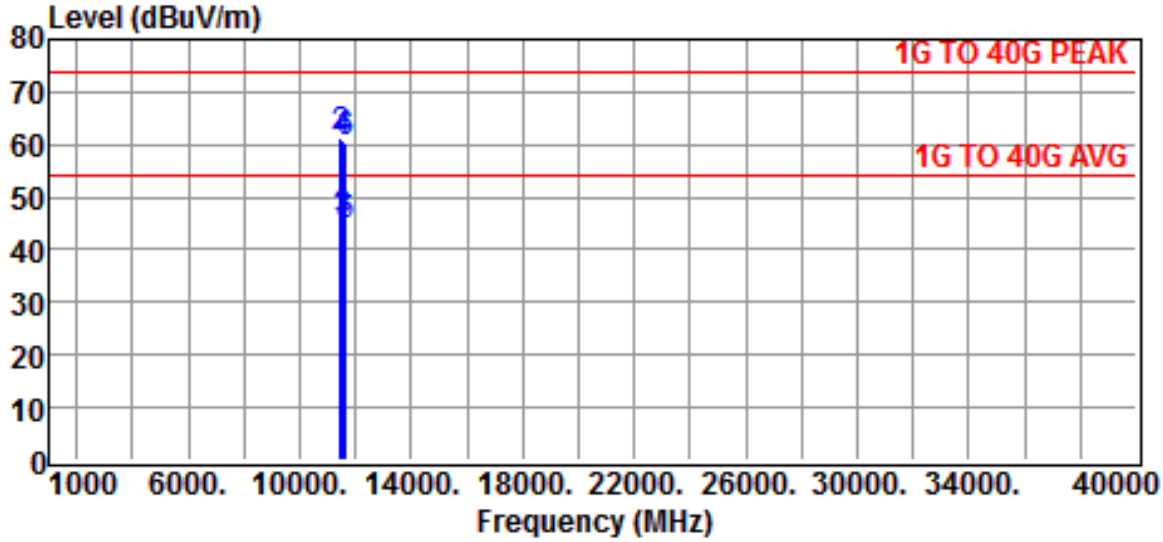


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 2		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	31.6	10.7	42.3	54.0	-11.7	Average
11480.0000	47.6	10.7	58.3	74.0	-15.7	Peak
11580.0000	30.8	10.8	41.6	54.0	-12.4	Average
11580.0000	47.2	10.8	58.0	74.0	-16.0	Peak
11660.0000	30.4	10.8	41.2	54.0	-12.8	Average
11660.0000	46.3	10.8	57.1	74.0	-16.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



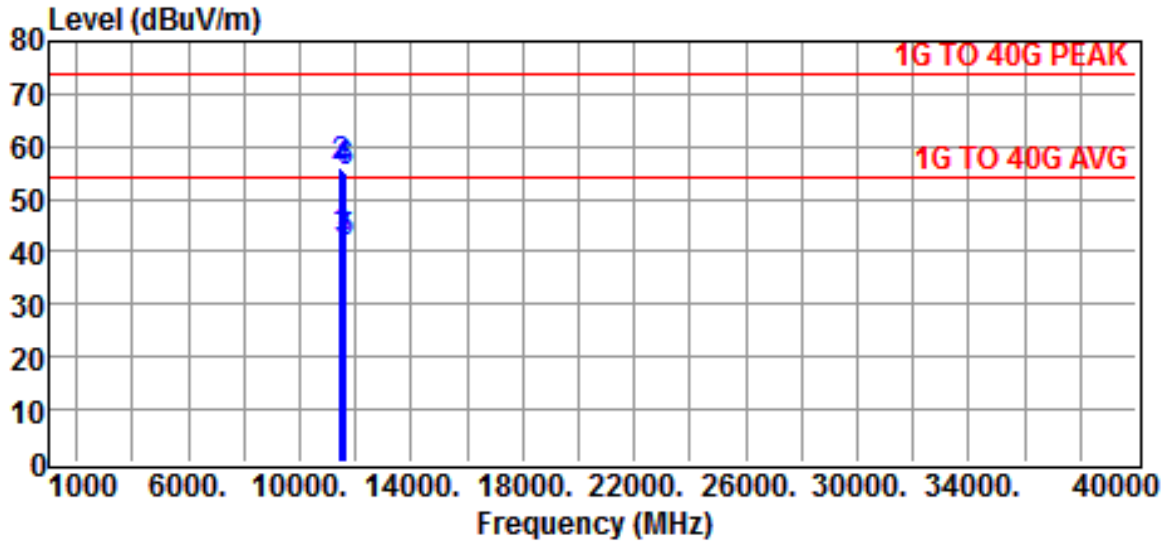
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 2		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	33.6	10.7	44.3	54.0	-9.7	Average
11480.0000	49.7	10.7	60.4	74.0	-13.6	Peak
11580.0000	33.4	10.8	44.2	54.0	-9.8	Average
11580.0000	49.2	10.8	60.0	74.0	-14.0	Peak
11660.0000	32.5	10.8	43.3	54.0	-10.7	Average
11660.0000	48.5	10.8	59.3	74.0	-14.7	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(c) 20MHz

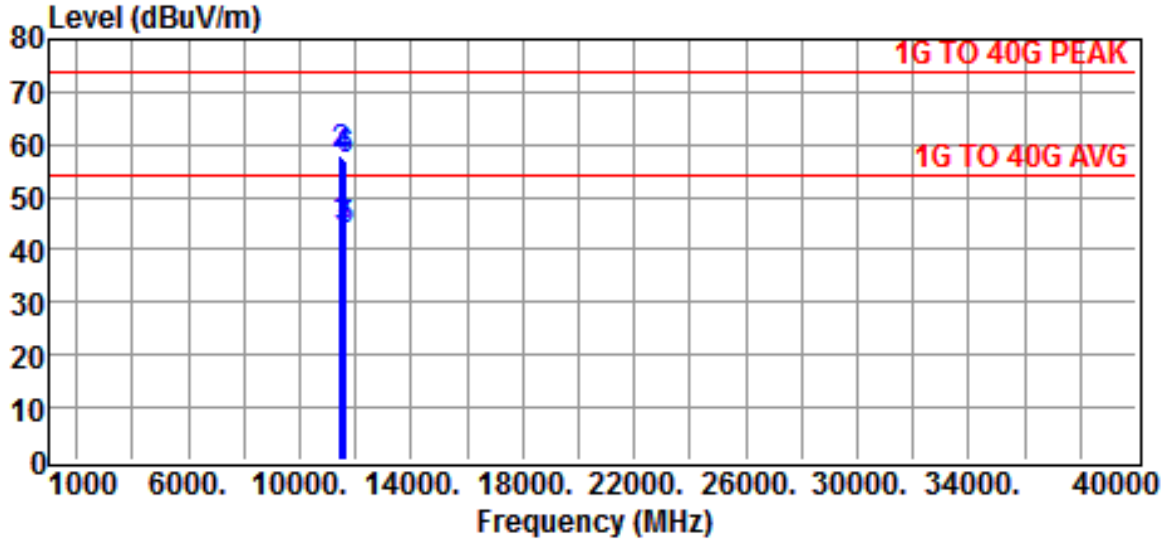


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 2		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	31.1	10.7	41.8	54.0	-12.2	Average
11490.0000	44.6	10.7	55.3	74.0	-18.7	Peak
11570.0000	31.3	10.8	42.1	54.0	-11.9	Average
11570.0000	43.8	10.8	54.6	74.0	-19.4	Peak
11650.0000	29.8	10.8	40.6	54.0	-13.4	Average
11650.0000	43.4	10.8	54.2	74.0	-19.8	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



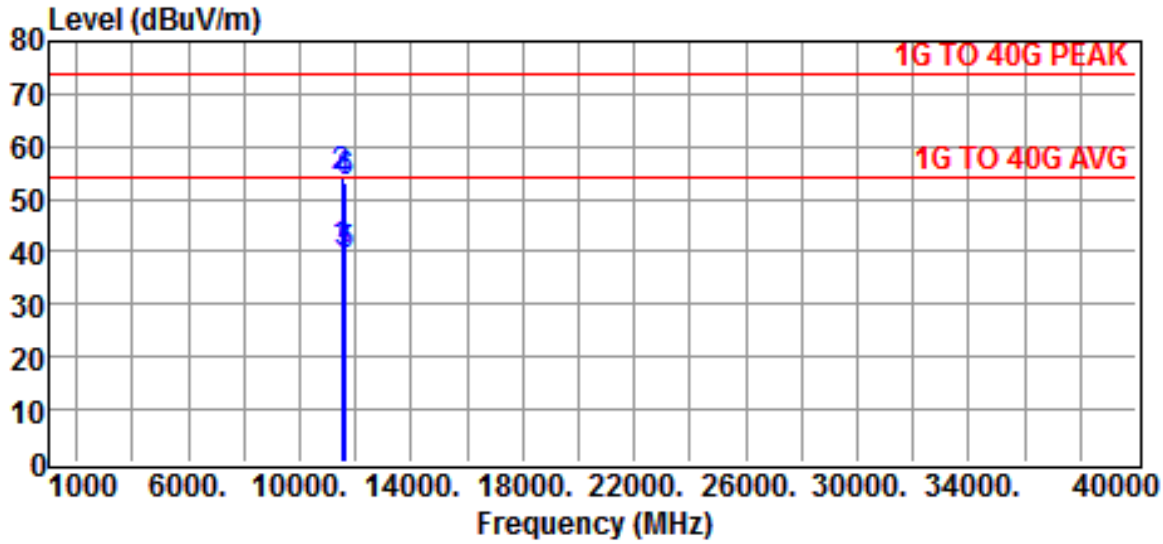
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 2		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	32.9	10.7	43.6	54.0	-10.4	Average
11490.0000	46.4	10.7	57.1	74.0	-16.9	Peak
11570.0000	32.3	10.8	43.1	54.0	-10.9	Average
11570.0000	45.8	10.8	56.6	74.0	-17.4	Peak
11650.0000	31.9	10.8	42.7	54.0	-11.3	Average
11650.0000	45.1	10.8	55.9	74.0	-18.1	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(d) 40MHz

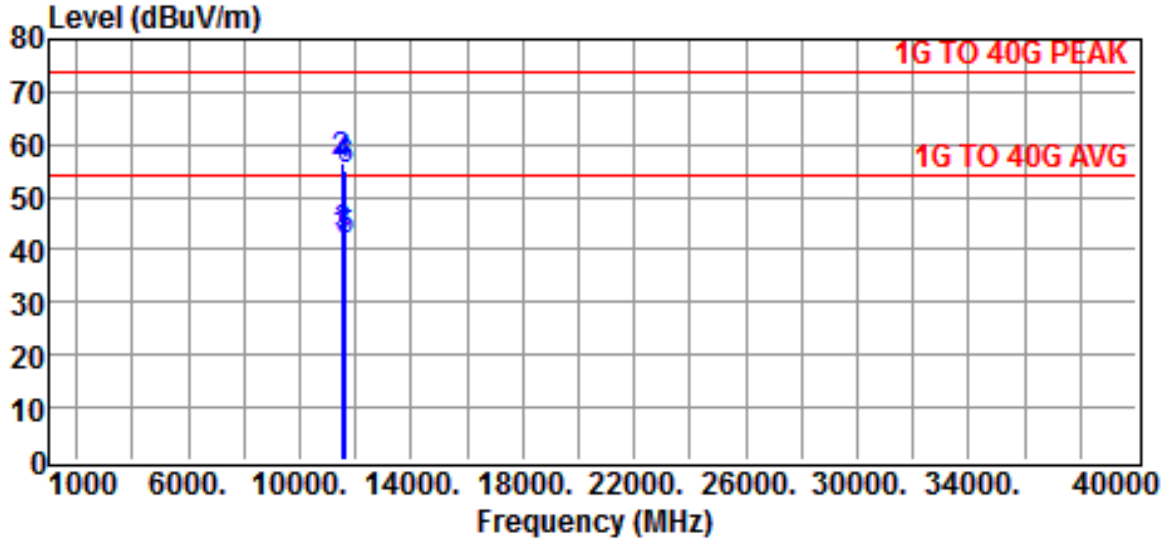


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 2		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	28.9	10.7	39.6	54.0	-14.4	Average
11510.0000	42.5	10.7	53.2	74.0	-20.8	Peak
11550.0000	27.9	10.8	38.7	54.0	-15.3	Average
11550.0000	41.6	10.8	52.4	74.0	-21.6	Peak
11630.0000	27.6	10.8	38.4	54.0	-15.6	Average
11630.0000	41.1	10.8	51.9	74.0	-22.1	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 2		

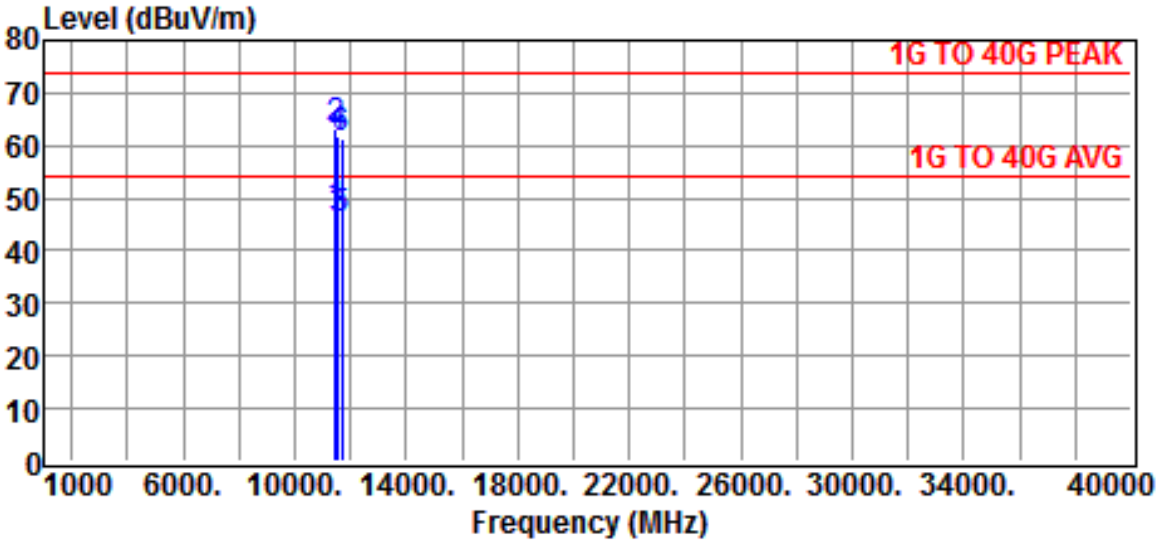
Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	30.2	10.7	40.9	54.0	-13.1	Average
11510.0000	44.7	10.7	55.4	74.0	-18.6	Peak
11550.0000	30.8	10.8	41.6	54.0	-12.4	Average
11550.0000	44.2	10.8	55.0	74.0	-19.0	Peak
11630.0000	29.8	10.8	40.6	54.0	-13.4	Average
11630.0000	43.5	10.8	54.3	74.0	-19.7	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(C) Antenna 3 (15dBi)

(a) 5MHz

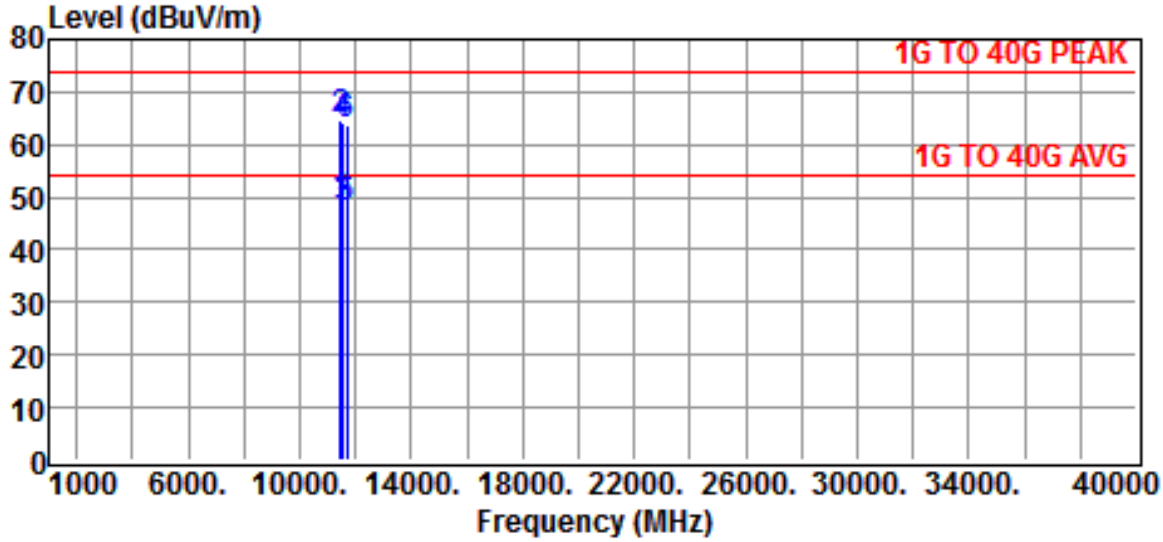


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 3		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	36.8	10.7	47.5	54.0	-6.5	Average
11465.0000	52.7	10.7	63.4	74.0	-10.6	Peak
11565.0000	35.0	10.8	45.8	54.0	-8.2	Average
11565.0000	51.1	10.8	61.9	74.0	-12.1	Peak
11685.0000	35.0	10.8	45.8	54.0	-8.2	Average
11685.0000	50.7	10.8	61.5	74.0	-12.5	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



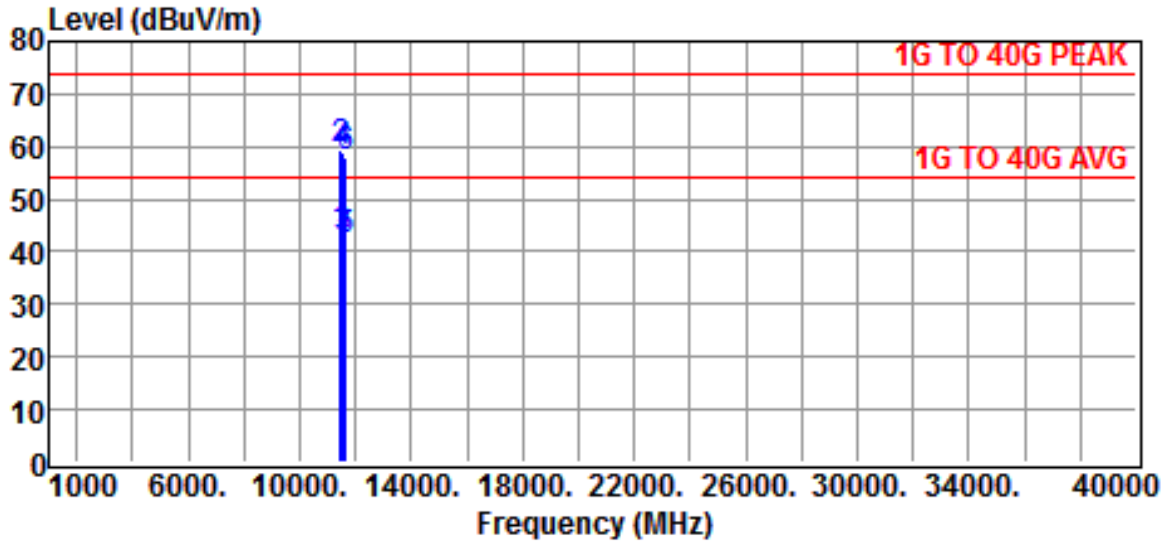
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 3		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	38.1	10.7	48.8	54.0	-5.2	Average
11465.0000	54.1	10.7	64.8	74.0	-9.2	Peak
11565.0000	37.1	10.8	47.9	54.0	-6.1	Average
11565.0000	53.3	10.8	64.1	74.0	-9.9	Peak
11685.0000	36.9	10.8	47.7	54.0	-6.3	Average
11685.0000	52.9	10.8	63.7	74.0	-10.3	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(b) 10MHz

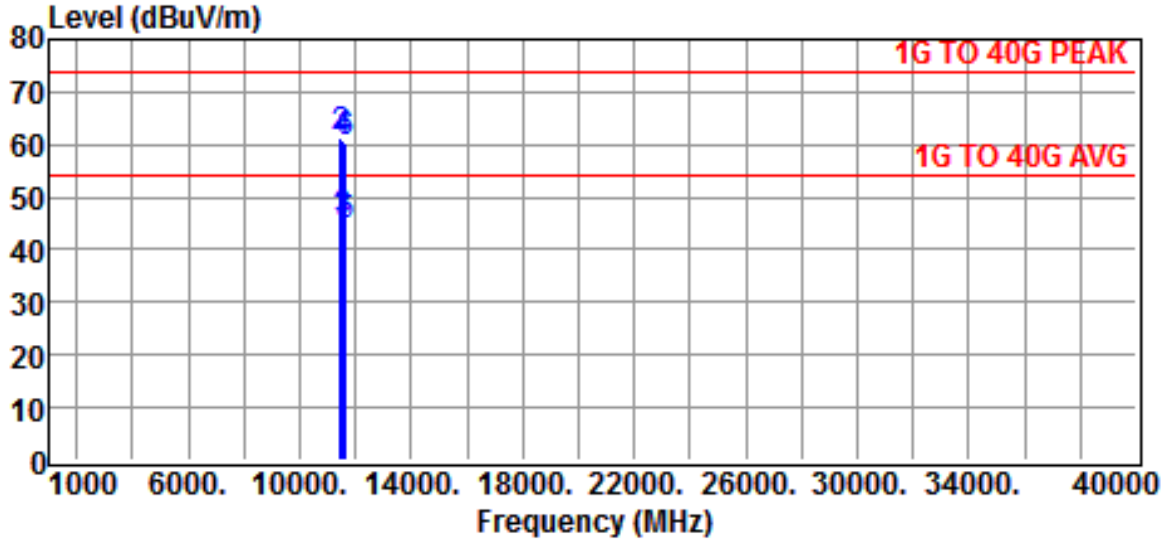


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 3		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	32.6	10.7	43.3	54.0	-10.7	Average
11480.0000	48.7	10.7	59.4	74.0	-14.6	Peak
11580.0000	31.9	10.8	42.7	54.0	-11.3	Average
11580.0000	48.2	10.8	59.0	74.0	-15.0	Peak
11660.0000	31.4	10.8	42.2	54.0	-11.8	Average
11660.0000	47.2	10.8	58.0	74.0	-16.0	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



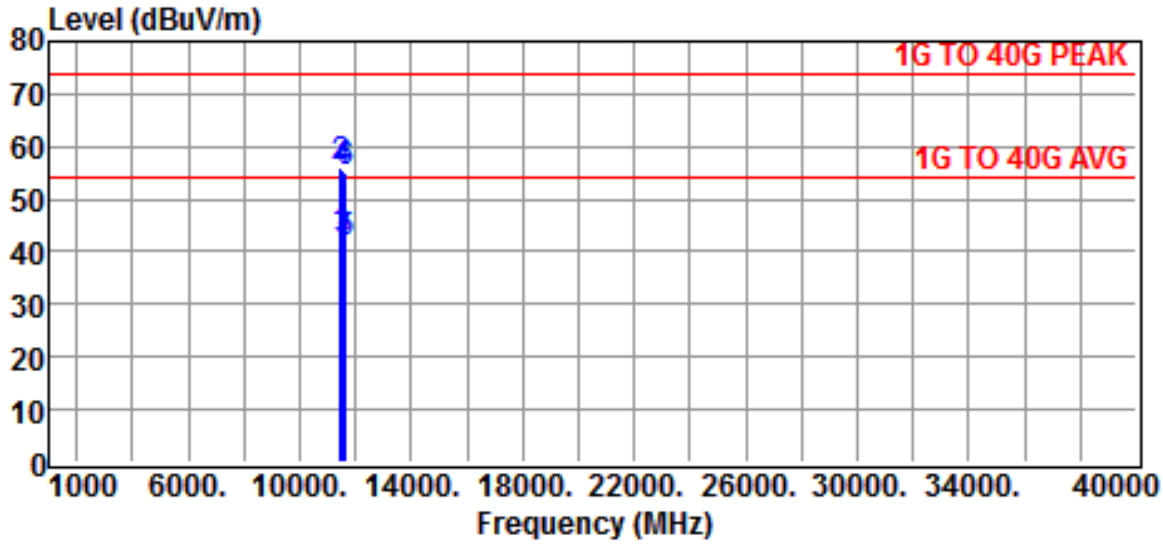
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 3		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	34.7	10.7	45.4	54.0	-8.6	Average
11480.0000	50.8	10.7	61.5	74.0	-12.5	Peak
11580.0000	34.5	10.8	45.3	54.0	-8.7	Average
11580.0000	50.2	10.8	61.0	74.0	-13.0	Peak
11660.0000	33.6	10.8	44.4	54.0	-9.6	Average
11660.0000	49.4	10.8	60.2	74.0	-13.8	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(c) 20MHz

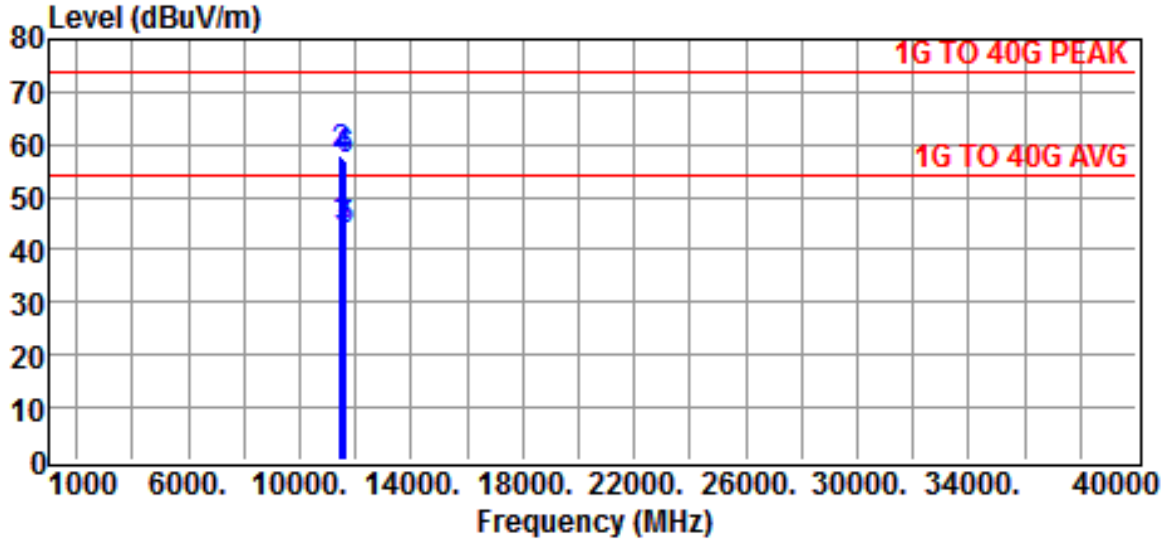


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 3		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	32.0	10.7	42.7	54.0	-11.3	Average
11490.0000	45.5	10.7	56.2	74.0	-17.8	Peak
11570.0000	31.4	10.8	42.2	54.0	-11.8	Average
11570.0000	44.9	10.8	55.7	74.0	-18.3	Peak
11650.0000	30.7	10.8	41.5	54.0	-12.5	Average
11650.0000	44.3	10.8	55.1	74.0	-18.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



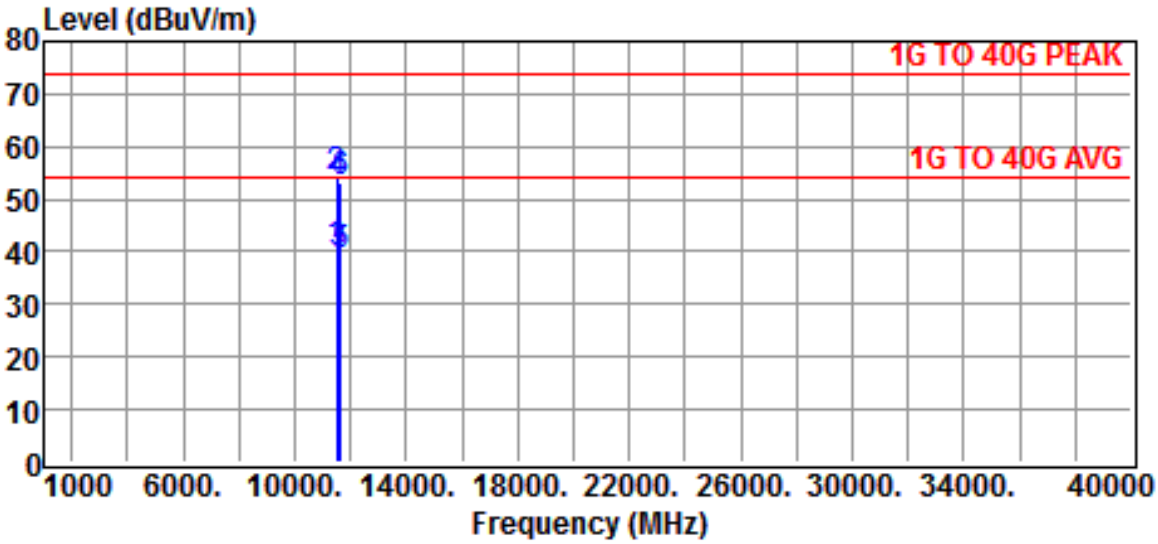
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 3		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	33.9	10.7	44.6	54.0	-9.4	Average
11490.0000	47.5	10.7	58.2	74.0	-15.8	Peak
11570.0000	33.4	10.8	44.2	54.0	-9.8	Average
11570.0000	46.7	10.8	57.5	74.0	-16.5	Peak
11650.0000	32.9	10.8	43.7	54.0	-10.3	Average
11650.0000	46.2	10.8	57.0	74.0	-17.0	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(d) 40MHz

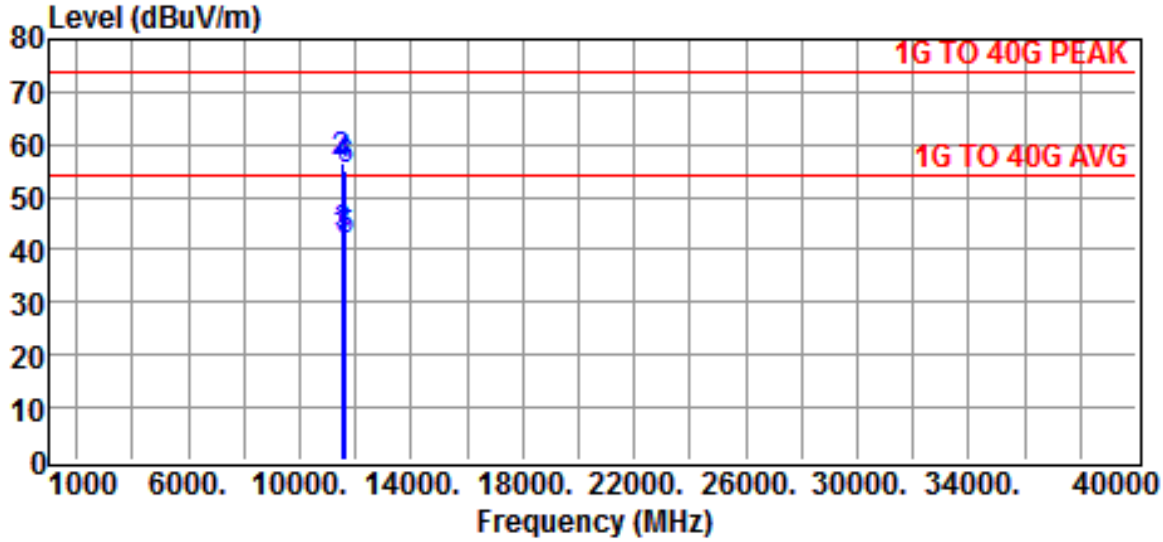


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 3		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	29.6	10.7	40.3	54.0	-13.7	Average
11510.0000	43.5	10.7	54.2	74.0	-19.8	Peak
11550.0000	28.8	10.8	39.6	54.0	-14.4	Average
11550.0000	42.5	10.8	53.3	74.0	-20.7	Peak
11630.0000	28.5	10.8	39.3	54.0	-14.7	Average
11630.0000	42.2	10.8	53.0	74.0	-21.0	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 3		

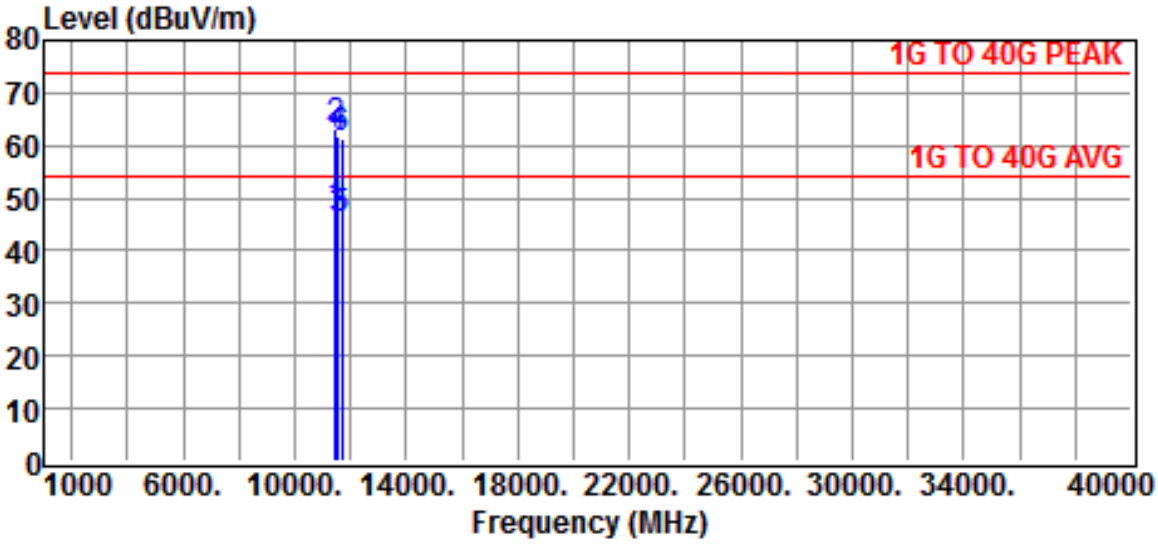
Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	31.3	10.7	42.0	54.0	-12.0	Average
11510.0000	45.7	10.7	56.4	74.0	-17.6	Peak
11550.0000	31.6	10.8	42.4	54.0	-11.6	Average
11550.0000	45.1	10.8	55.9	74.0	-18.1	Peak
11630.0000	30.9	10.8	41.7	54.0	-12.3	Average
11630.0000	44.5	10.8	55.3	74.0	-18.7	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(D) Antenna 4 (18dBi)

(a) 5MHz

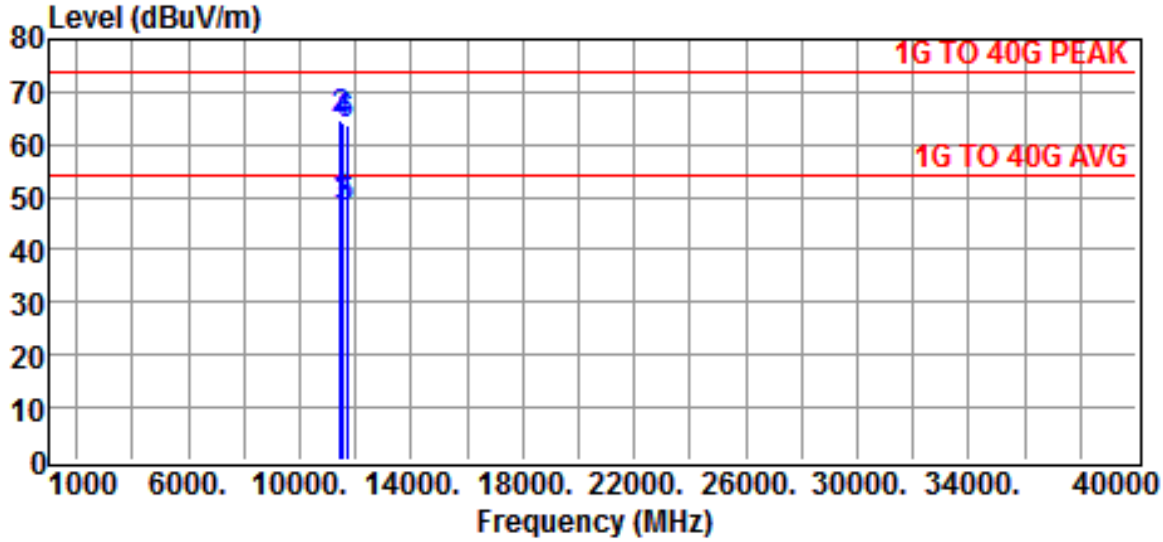


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 4		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	38.8	10.7	49.5	54.0	-4.5	Average
11465.0000	54.7	10.7	65.4	74.0	-8.6	Peak
11565.0000	38.1	10.8	48.9	54.0	-5.1	Average
11565.0000	53.2	10.8	64.0	74.0	-10.0	Peak
11685.0000	37.3	10.8	48.1	54.0	-5.9	Average
11685.0000	52.7	10.8	63.5	74.0	-10.5	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



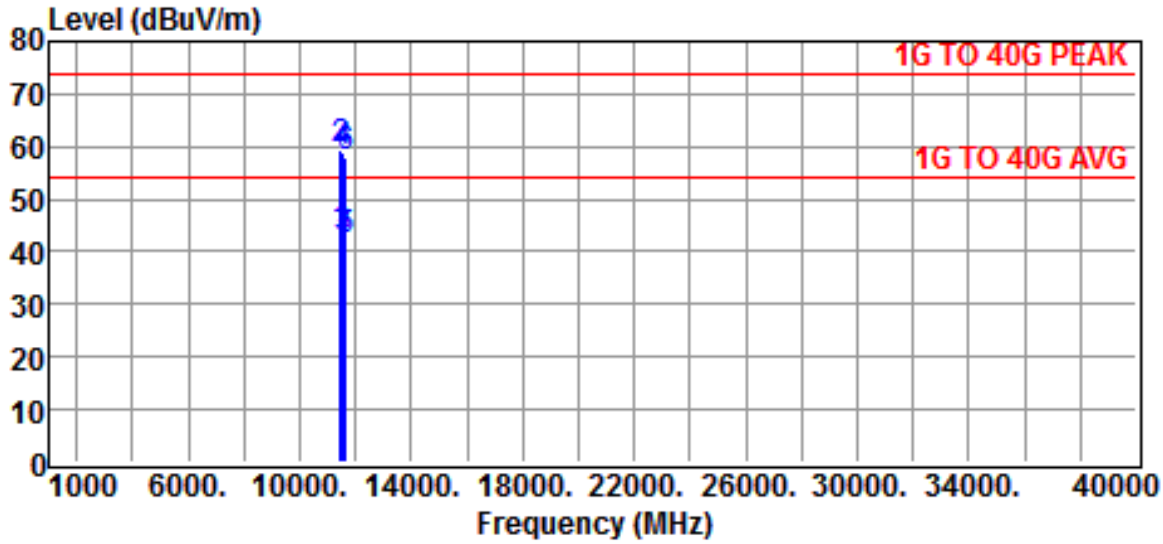
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 4		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	40.2	10.7	50.9	54.0	-3.1	Average
11465.0000	56.7	10.7	67.4	74.0	-6.6	Peak
11565.0000	39.4	10.8	50.2	54.0	-3.8	Average
11565.0000	55.3	10.8	66.1	74.0	-7.9	Peak
11685.0000	39.0	10.8	49.8	54.0	-4.2	Average
11685.0000	55.0	10.8	65.8	74.0	-8.2	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(b) 10MHz

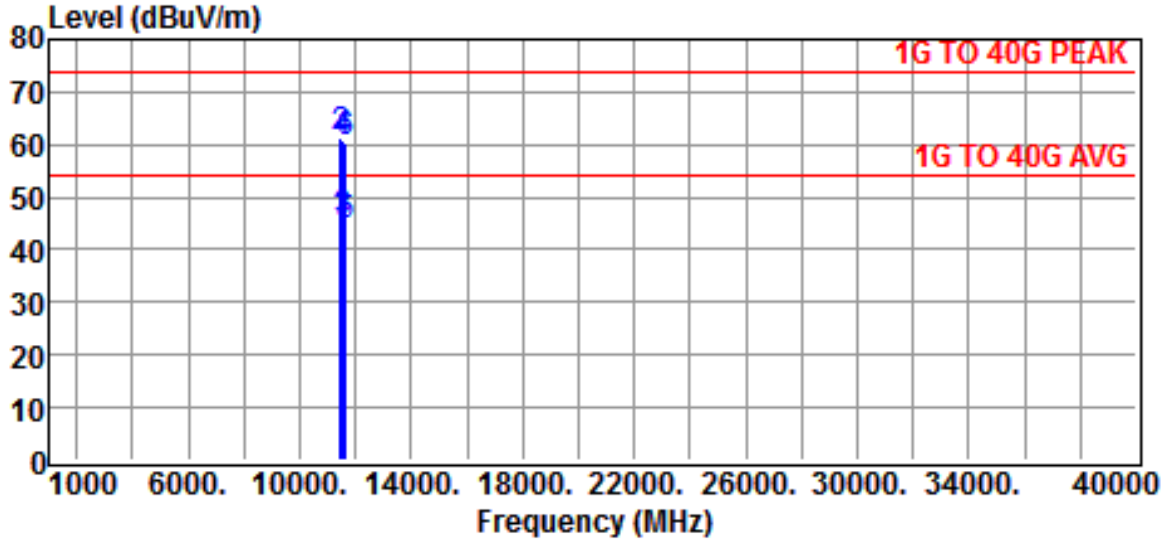


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 4		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	34.5	10.7	45.2	54.0	-8.8	Average
11480.0000	50.7	10.7	61.4	74.0	-12.6	Peak
11580.0000	33.7	10.8	44.5	54.0	-9.5	Average
11580.0000	50.2	10.8	61.0	74.0	-13.0	Peak
11660.0000	33.6	10.8	44.4	54.0	-9.6	Average
11660.0000	49.3	10.8	60.1	74.0	-13.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



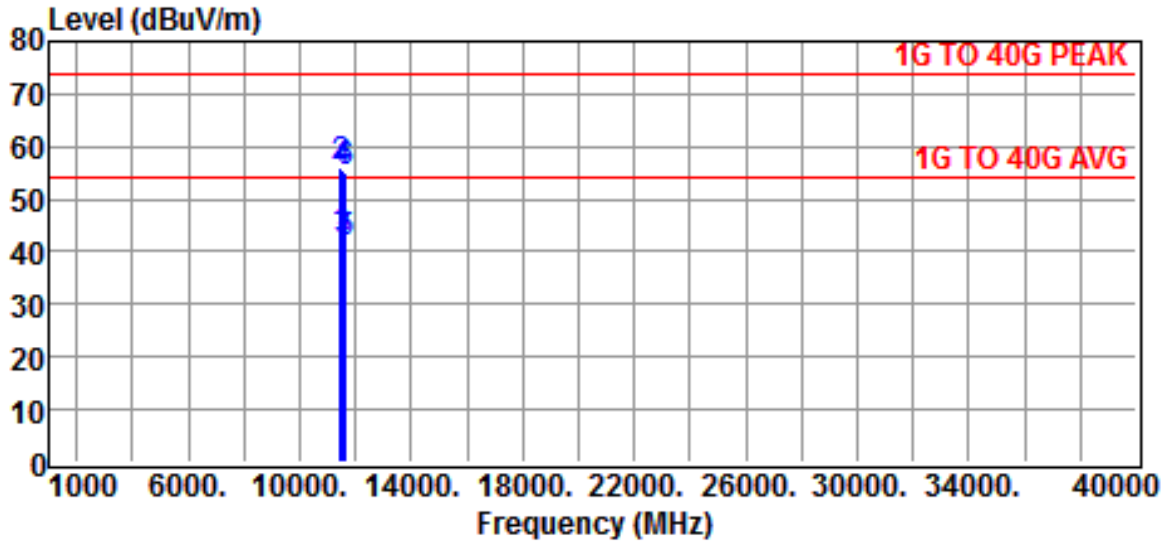
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 4		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	36.8	10.7	47.5	54.0	-6.5	Average
11480.0000	52.0	10.7	62.7	74.0	-11.3	Peak
11580.0000	36.4	10.8	47.2	54.0	-6.8	Average
11580.0000	52.1	10.8	62.9	74.0	-11.1	Peak
11660.0000	35.6	10.8	46.4	54.0	-7.6	Average
11660.0000	51.5	10.8	62.3	74.0	-11.7	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(c) 20MHz

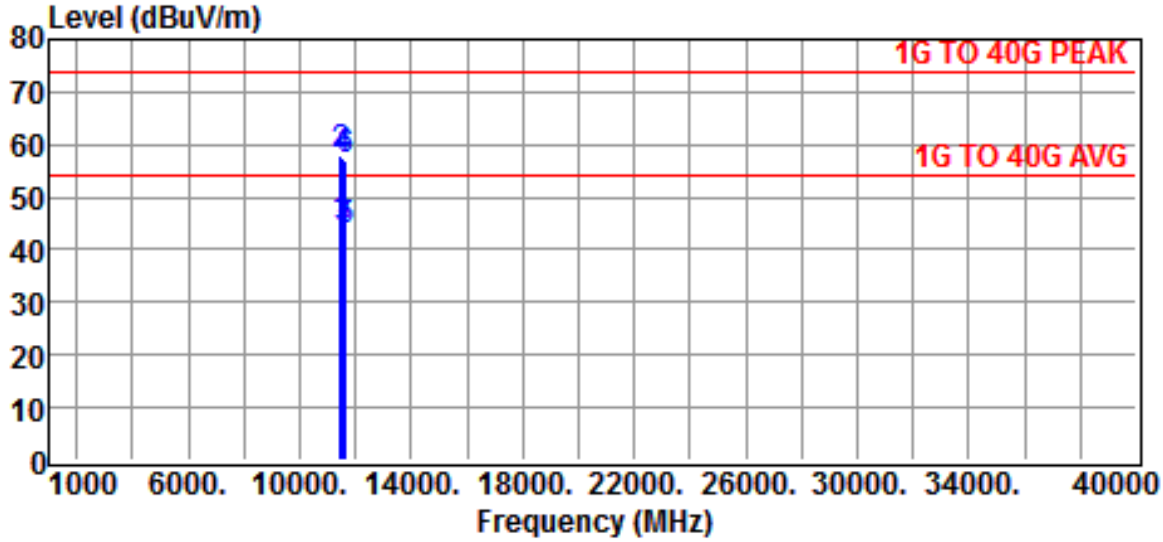


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 4		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	34.1	10.7	44.8	54.0	-9.2	Average
11490.0000	47.4	10.7	58.1	74.0	-15.9	Peak
11570.0000	33.6	10.8	44.4	54.0	-9.6	Average
11570.0000	46.8	10.8	57.6	74.0	-16.4	Peak
11650.0000	32.5	10.8	43.3	54.0	-10.7	Average
11650.0000	46.3	10.8	57.1	74.0	-16.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



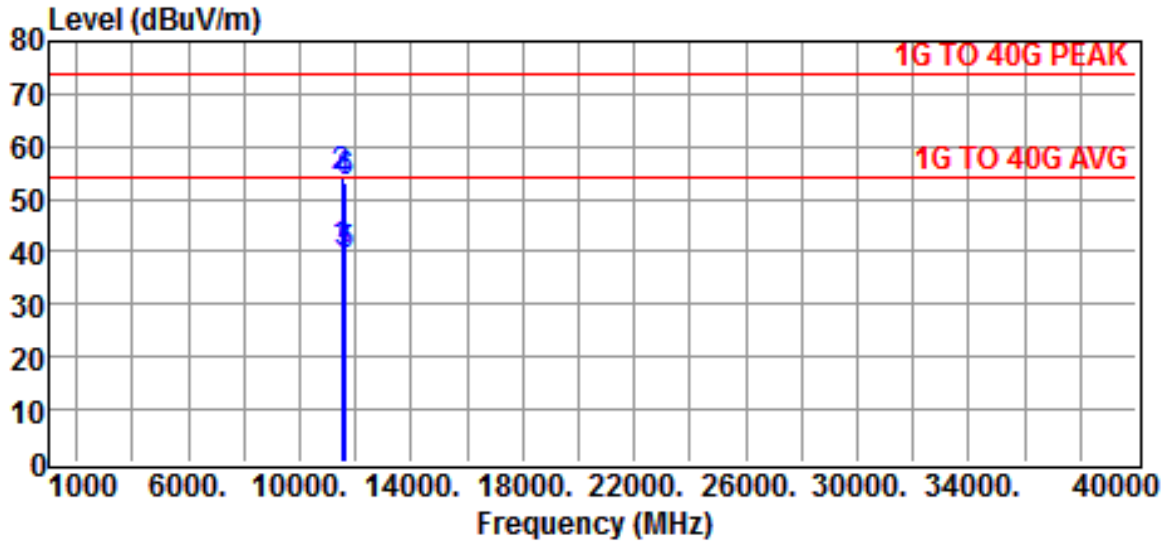
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 4		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	36.0	10.7	46.7	54.0	-7.3	Average
11490.0000	49.5	10.7	60.2	74.0	-13.8	Peak
11570.0000	35.4	10.8	46.2	54.0	-7.8	Average
11570.0000	48.7	10.8	59.5	74.0	-14.5	Peak
11650.0000	35.0	10.8	45.8	54.0	-8.2	Average
11650.0000	48.2	10.8	59.0	74.0	-15.0	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(d) 40MHz

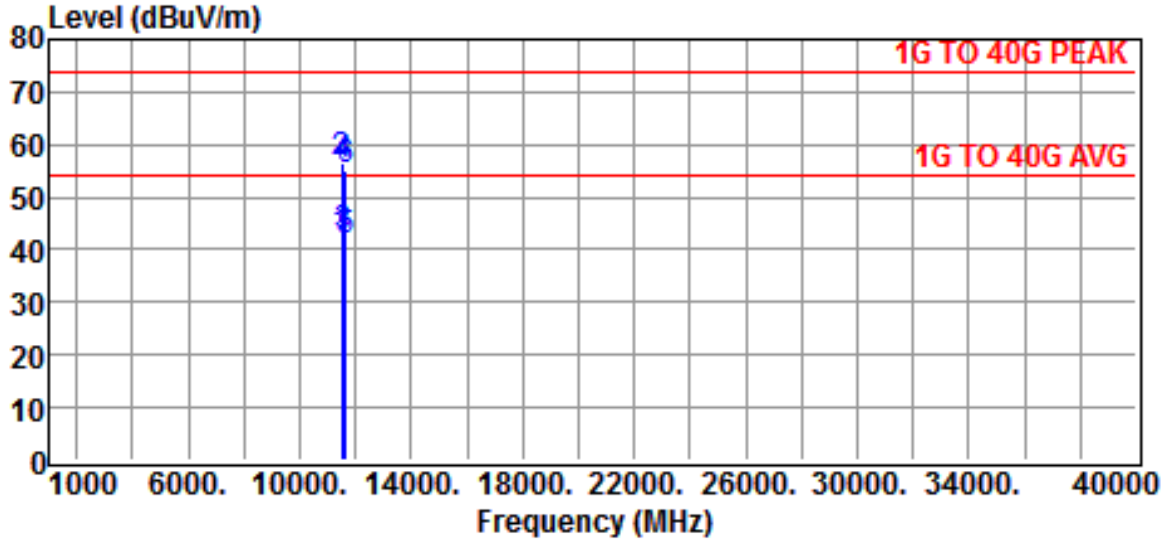


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 4		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	31.8	10.7	42.5	54.0	-11.5	Average
11510.0000	45.5	10.7	56.2	74.0	-17.8	Peak
11550.0000	31.9	10.8	42.7	54.0	-11.3	Average
11550.0000	44.7	10.8	55.5	74.0	-18.5	Peak
11630.0000	30.5	10.8	41.3	54.0	-12.7	Average
11630.0000	44.2	10.8	55.0	74.0	-19.0	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 4		

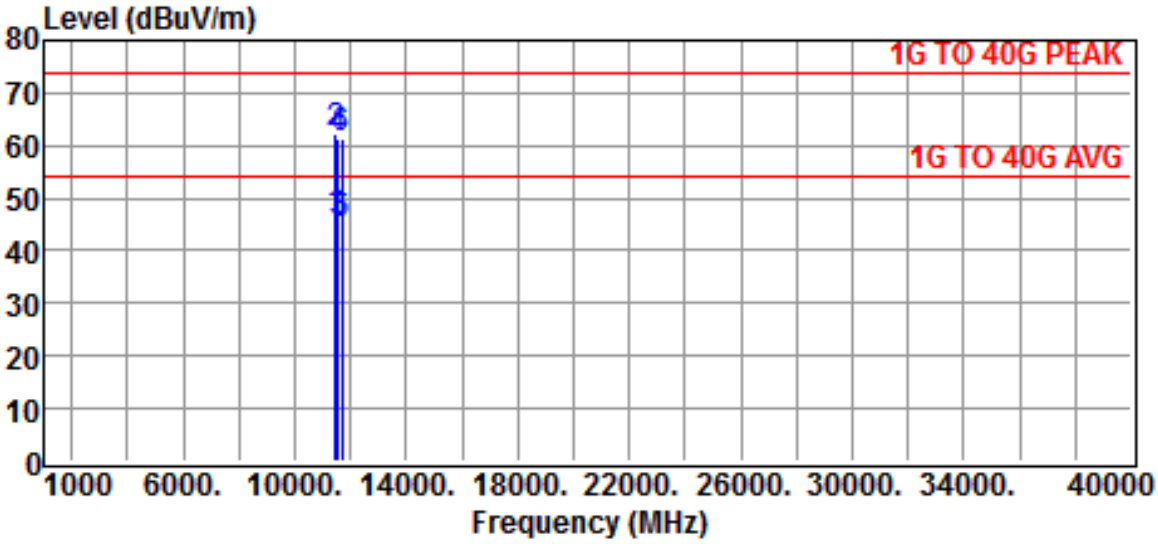
Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	34.3	10.7	45.0	54.0	-9.0	Average
11510.0000	47.6	10.7	58.3	74.0	-15.7	Peak
11550.0000	33.5	10.8	44.3	54.0	-9.7	Average
11550.0000	47.2	10.8	58.0	74.0	-16.0	Peak
11630.0000	32.8	10.8	43.6	54.0	-10.4	Average
11630.0000	46.6	10.8	57.4	74.0	-16.6	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(E) Antenna 5 (10dBi)

(a) 5MHz

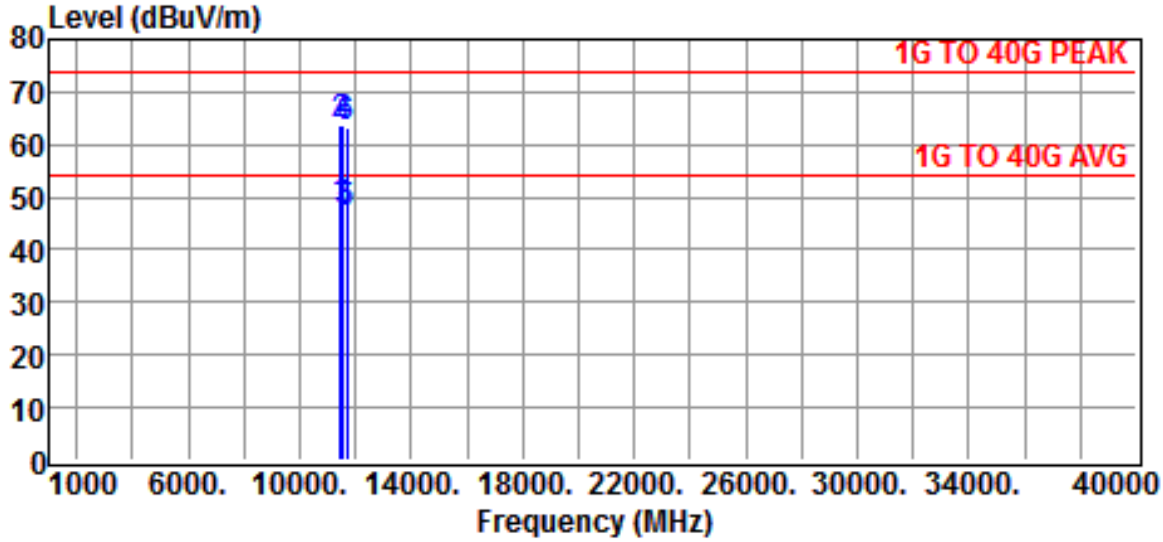


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 5		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	35.4	10.7	46.1	54.0	-7.9	Average
11465.0000	51.5	10.7	62.2	74.0	-11.8	Peak
11565.0000	34.6	10.8	45.4	54.0	-8.6	Average
11565.0000	50.7	10.8	61.5	74.0	-12.5	Peak
11685.0000	34.4	10.8	45.2	54.0	-8.8	Average
11685.0000	50.4	10.8	61.2	74.0	-12.8	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



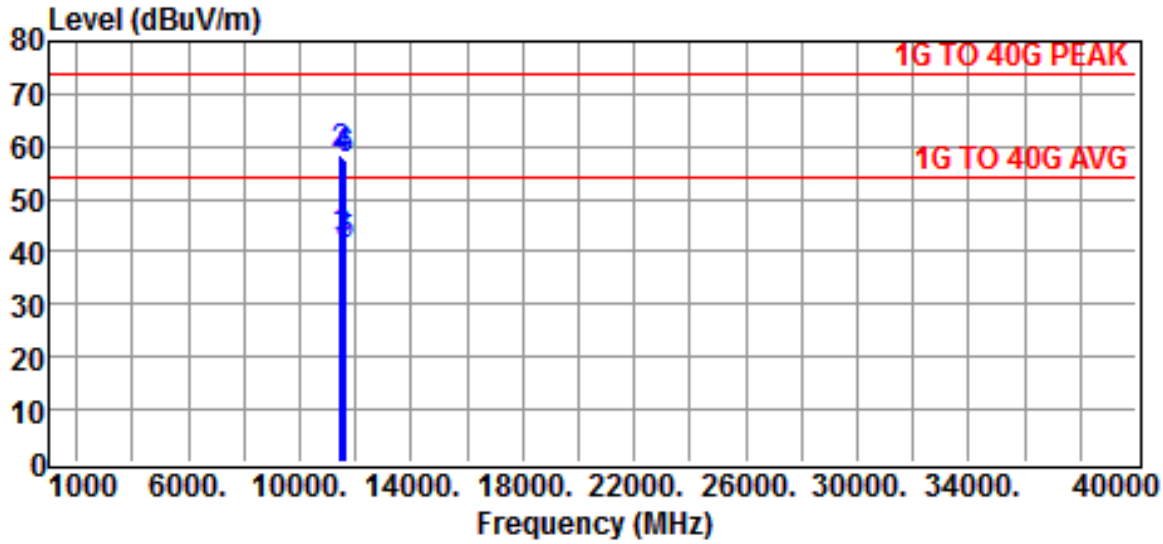
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 5		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	37.0	10.7	47.7	54.0	-6.3	Average
11465.0000	53.0	10.7	63.7	74.0	-10.3	Peak
11565.0000	36.6	10.8	47.4	54.0	-6.6	Average
11565.0000	52.7	10.8	63.5	74.0	-10.5	Peak
11685.0000	36.2	10.8	47.0	54.0	-7.0	Average
11685.0000	52.3	10.8	63.1	74.0	-10.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(b) 10MHz

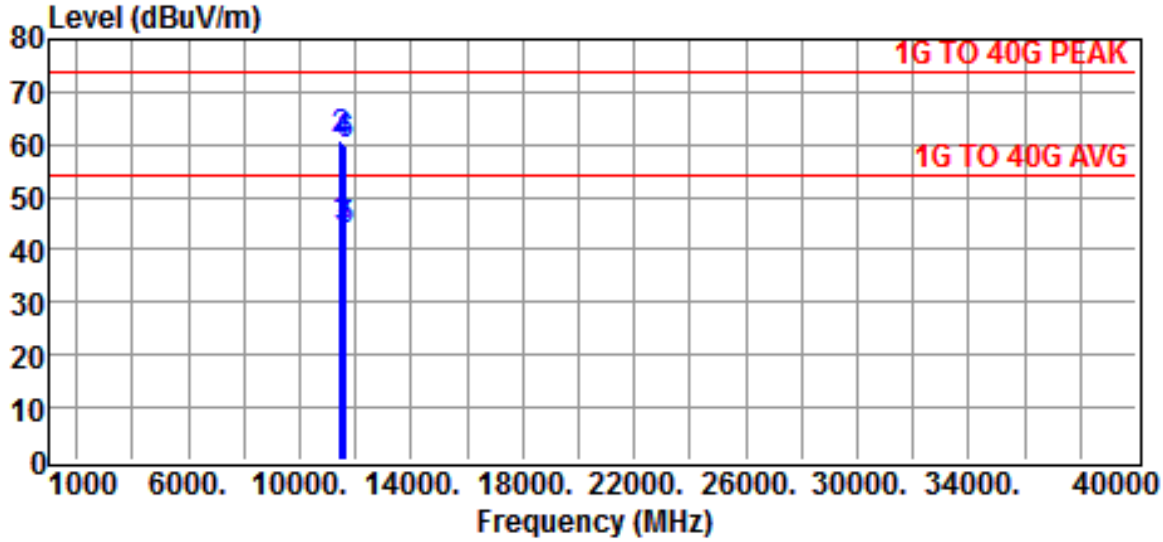


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 5		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	31.7	10.7	42.4	54.0	-11.6	Average
11480.0000	47.8	10.7	58.5	74.0	-15.5	Peak
11580.0000	31.2	10.8	42.0	54.0	-12.0	Average
11580.0000	47.2	10.8	58.0	74.0	-16.0	Peak
11660.0000	30.6	10.8	41.4	54.0	-12.6	Average
11660.0000	46.7	10.8	57.5	74.0	-16.5	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



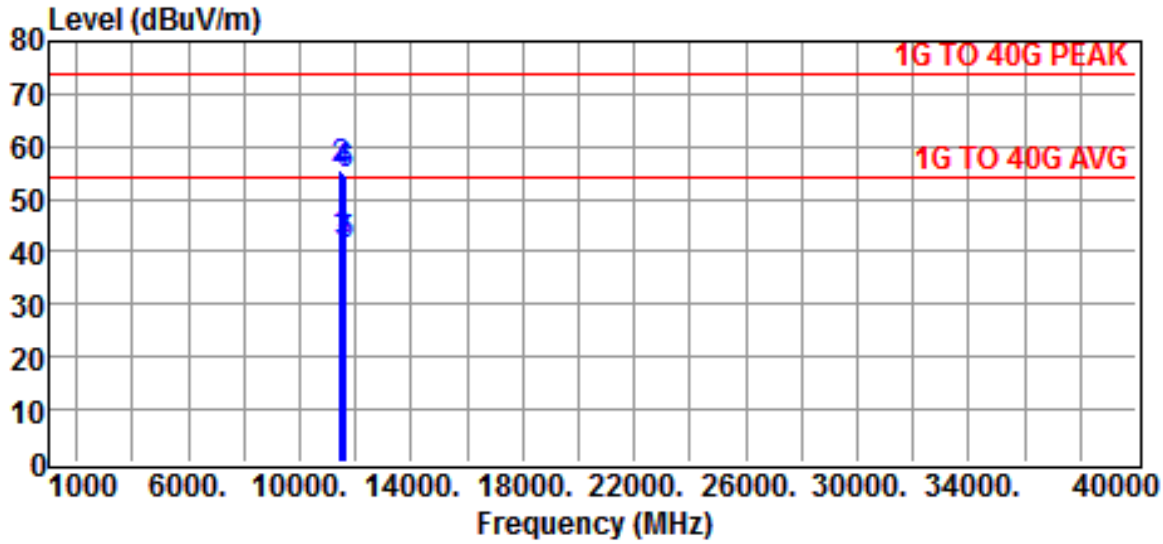
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 5		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	33.8	10.7	44.5	54.0	-9.5	Average
11480.0000	50.1	10.7	60.8	74.0	-13.2	Peak
11580.0000	33.3	10.8	44.1	54.0	-9.9	Average
11580.0000	49.6	10.8	60.4	74.0	-13.6	Peak
11660.0000	33.0	10.8	43.8	54.0	-10.2	Average
11660.0000	49.1	10.8	59.9	74.0	-14.1	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(c) 20MHz

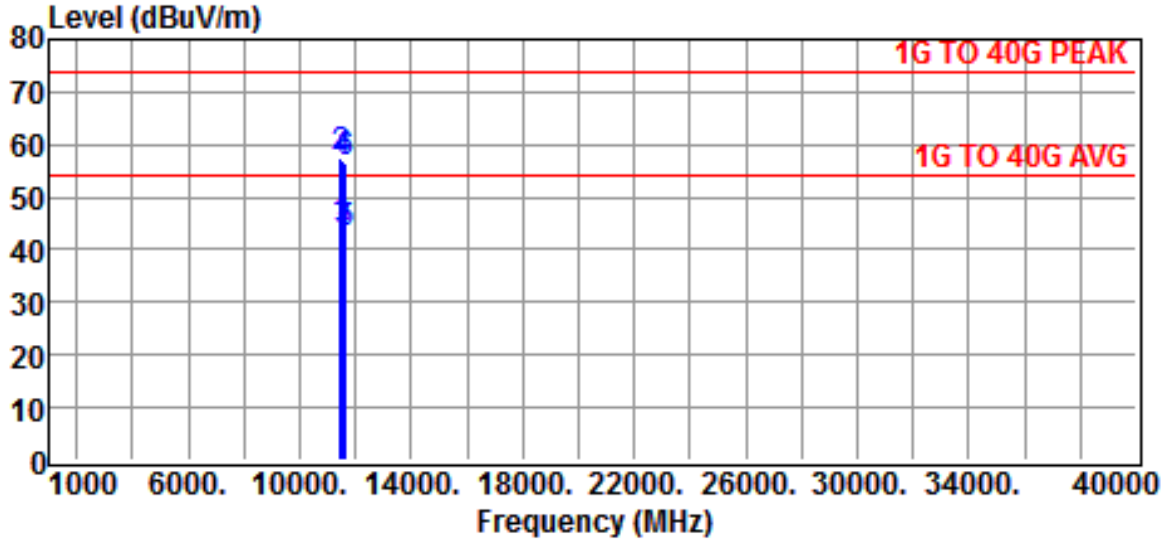


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 5		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	31.3	10.7	42.0	54.0	-12.0	Average
11490.0000	44.7	10.7	55.4	74.0	-18.6	Peak
11570.0000	30.7	10.8	41.5	54.0	-12.5	Average
11570.0000	44.2	10.8	55.0	74.0	-19.0	Peak
11650.0000	30.2	10.8	41.0	54.0	-13.0	Average
11650.0000	43.6	10.8	54.4	74.0	-19.6	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



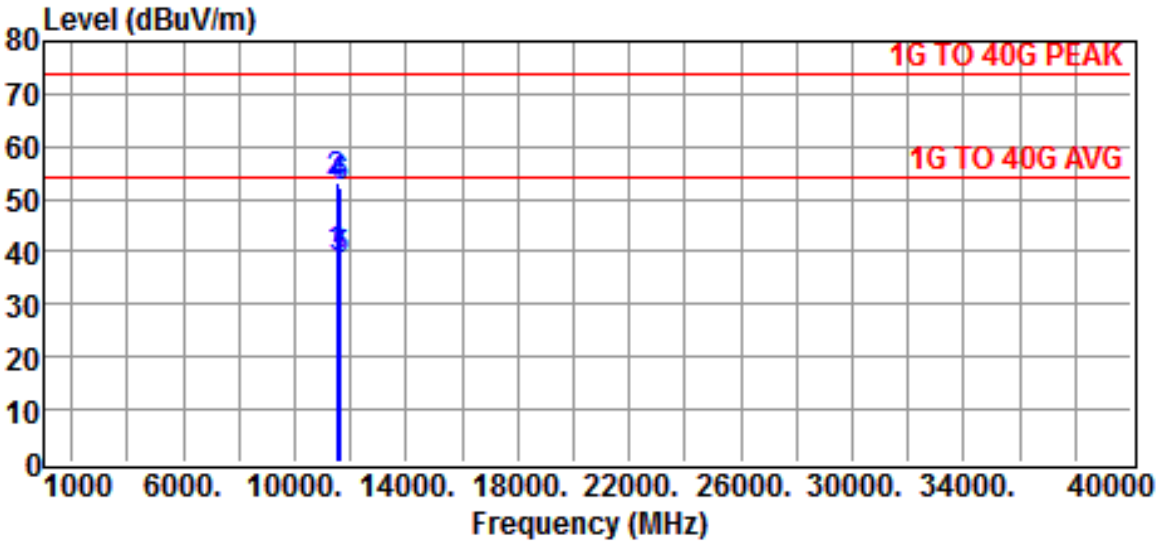
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 5		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	33.5	10.7	44.2	54.0	-9.8	Average
11490.0000	46.8	10.7	57.5	74.0	-16.5	Peak
11570.0000	32.9	10.8	43.7	54.0	-10.3	Average
11570.0000	46.2	10.8	57.0	74.0	-17.0	Peak
11650.0000	32.4	10.8	43.2	54.0	-10.8	Average
11650.0000	45.7	10.8	56.5	74.0	-17.5	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(d) 40MHz

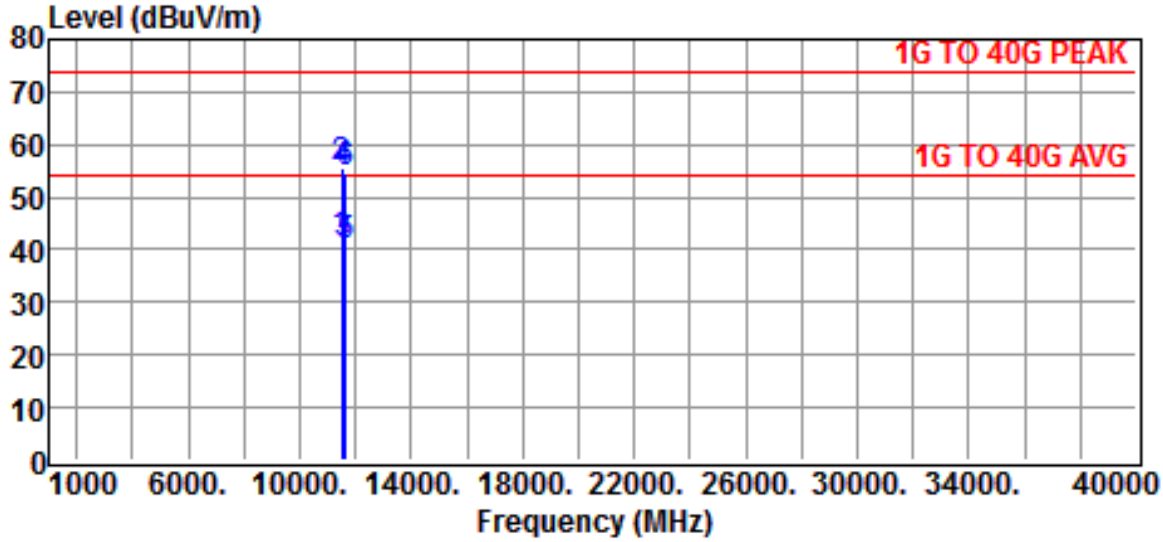


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 5		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	28.8	10.7	39.5	54.0	-14.5	Average
11510.0000	42.7	10.7	53.4	74.0	-20.6	Peak
11550.0000	28.2	10.8	39.0	54.0	-15.0	Average
11550.0000	42.1	10.8	52.9	74.0	-21.1	Peak
11630.0000	27.5	10.8	38.3	54.0	-15.7	Average
11630.0000	41.6	10.8	52.4	74.0	-21.6	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 5		

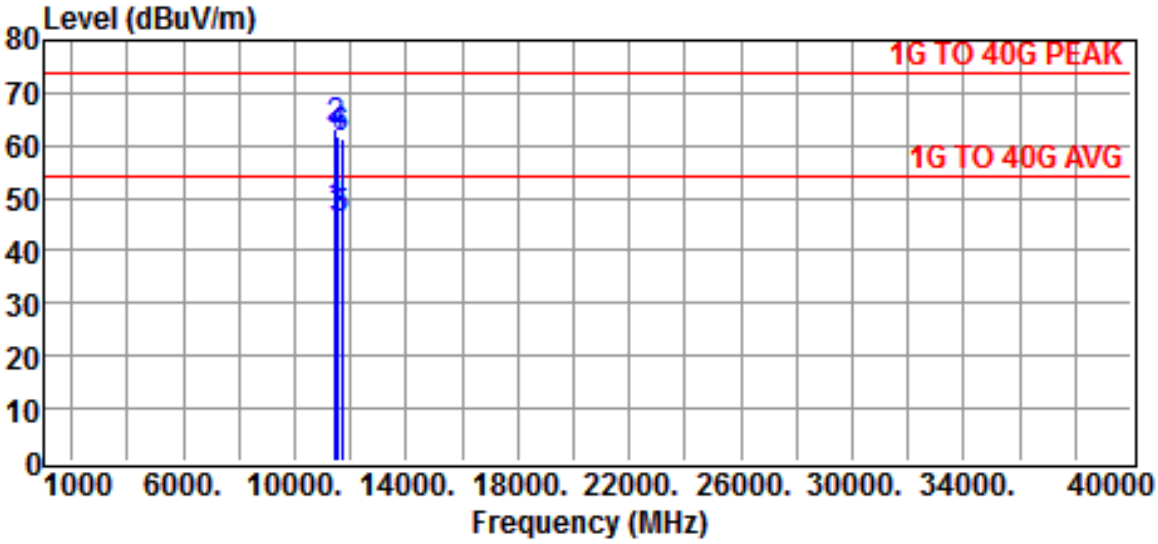
Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	30.8	10.7	41.5	54.0	-12.5	Average
11510.0000	45.1	10.7	55.8	74.0	-18.2	Peak
11550.0000	30.2	10.8	41.0	54.0	-13.0	Average
11550.0000	44.4	10.8	55.2	74.0	-18.8	Peak
11630.0000	29.8	10.8	40.6	54.0	-13.4	Average
11630.0000	44.0	10.8	54.8	74.0	-19.2	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(F) Antenna 6 (23dBi)

(a) 5MHz

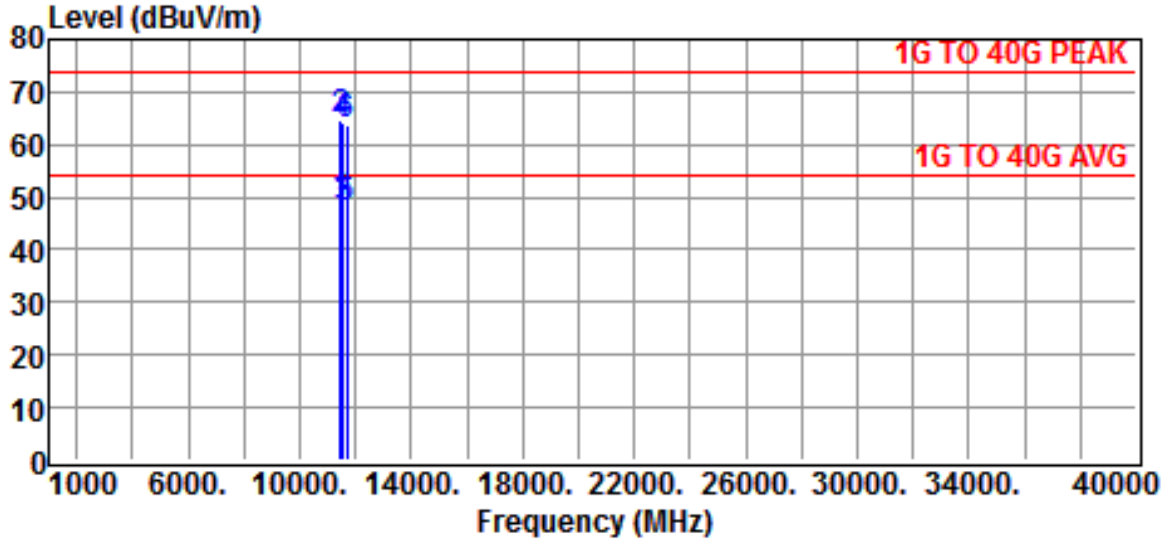


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 6		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	39.8	10.7	50.5	54.0	-3.5	Average
11465.0000	55.8	10.7	66.5	74.0	-7.5	Peak
11565.0000	38.2	10.8	49.0	54.0	-5.0	Average
11565.0000	54.1	10.8	64.9	74.0	-9.1	Peak
11685.0000	38.2	10.8	49.0	54.0	-5.0	Average
11685.0000	53.8	10.8	64.6	74.0	-9.4	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



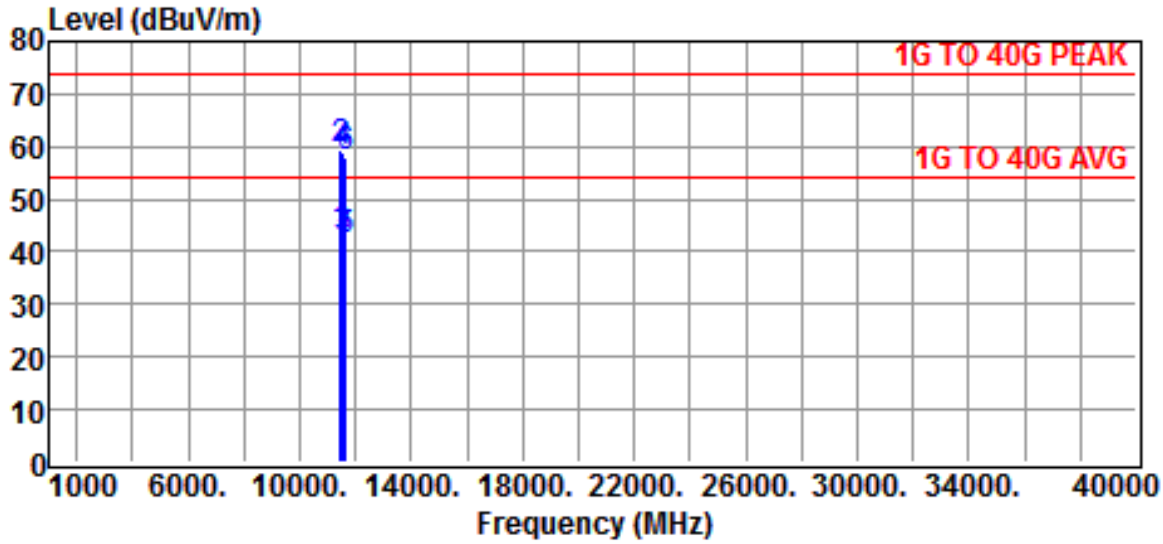
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO5732.5-MI5782.5-HI5842.5MHz		
Test Mode	:Antenna 6		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11465.0000	41.2	10.7	51.9	54.0	-2.1	Average
11465.0000	57.6	10.7	68.3	74.0	-5.7	Peak
11565.0000	40.3	10.8	51.1	54.0	-2.9	Average
11565.0000	56.4	10.8	67.2	74.0	-6.8	Peak
11685.0000	40.0	10.8	50.8	54.0	-3.2	Average
11685.0000	56.1	10.8	66.9	74.0	-7.1	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(b) 10MHz

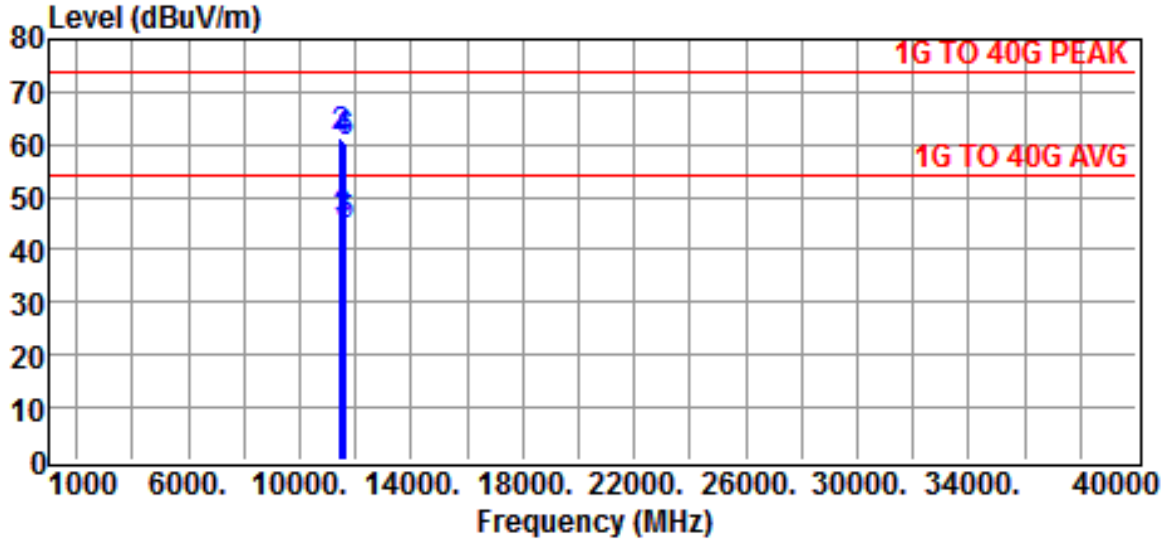


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 6		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	35.6	10.7	46.3	54.0	-7.7	Average
11480.0000	51.7	10.7	62.4	74.0	-11.6	Peak
11580.0000	34.8	10.8	45.6	54.0	-8.4	Average
11580.0000	51.3	10.8	62.1	74.0	-11.9	Peak
11660.0000	34.5	10.8	45.3	54.0	-8.7	Average
11660.0000	50.2	10.8	61.0	74.0	-13.0	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



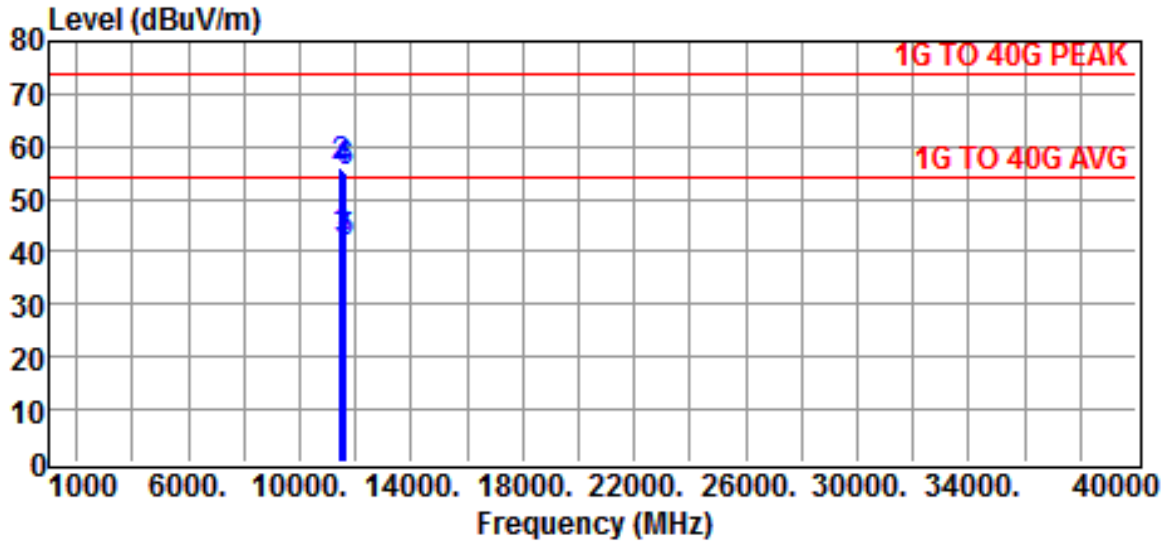
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5740 - MI 5790 - HI 5830MHz		
Test Mode	:Antenna 6		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11480.0000	37.8	10.7	48.5	54.0	-5.5	Average
11480.0000	53.0	10.7	63.7	74.0	-10.3	Peak
11580.0000	37.5	10.8	48.3	54.0	-5.7	Average
11580.0000	53.1	10.8	63.9	74.0	-10.1	Peak
11660.0000	36.7	10.8	47.5	54.0	-6.5	Average
11660.0000	52.5	10.8	63.3	74.0	-10.7	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(c) 20MHz

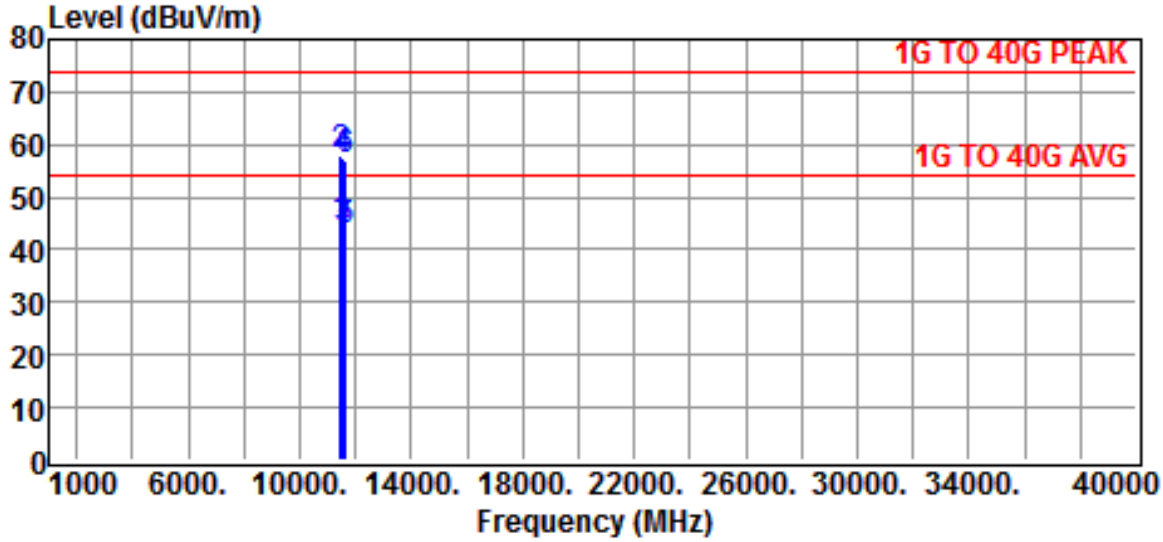


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 6		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	35.1	10.7	45.8	54.0	-8.2	Average
11490.0000	48.5	10.7	59.2	74.0	-14.8	Peak
11570.0000	34.5	10.8	45.3	54.0	-8.7	Average
11570.0000	47.9	10.8	58.7	74.0	-15.3	Peak
11650.0000	33.6	10.8	44.4	54.0	-9.6	Average
11650.0000	47.2	10.8	58.0	74.0	-16.0	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



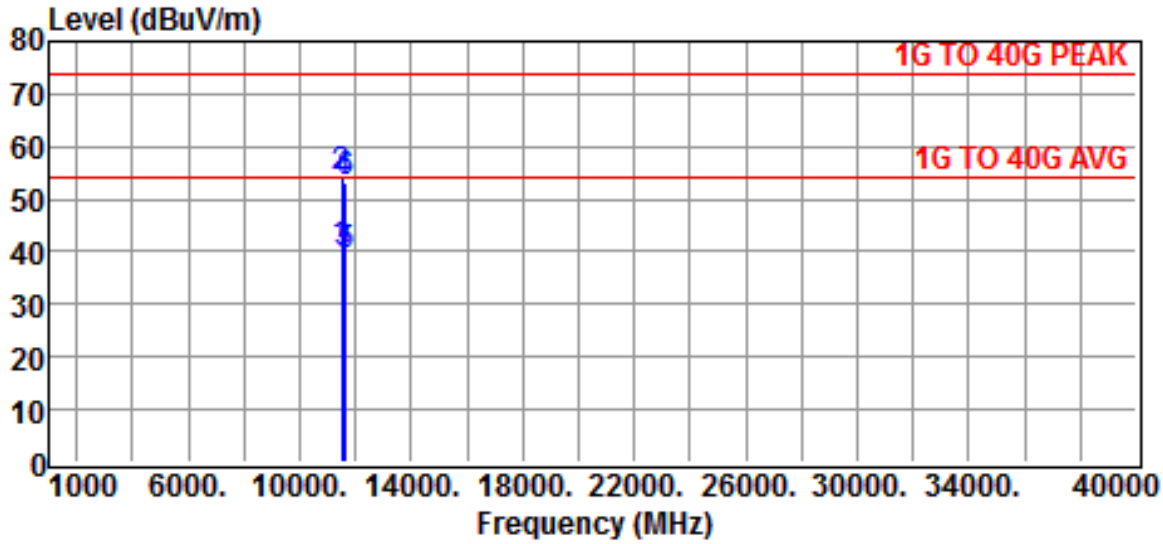
Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5745 - MI 5785 - HI 5825MHz		
Test Mode	:Antenna 6		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11490.0000	37.0	10.7	47.7	54.0	-6.3	Average
11490.0000	50.6	10.7	61.3	74.0	-12.7	Peak
11570.0000	36.4	10.8	47.2	54.0	-6.8	Average
11570.0000	49.8	10.8	60.6	74.0	-13.4	Peak
11650.0000	36.1	10.8	46.9	54.0	-7.1	Average
11650.0000	49.3	10.8	60.1	74.0	-13.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

(d) 40MHz

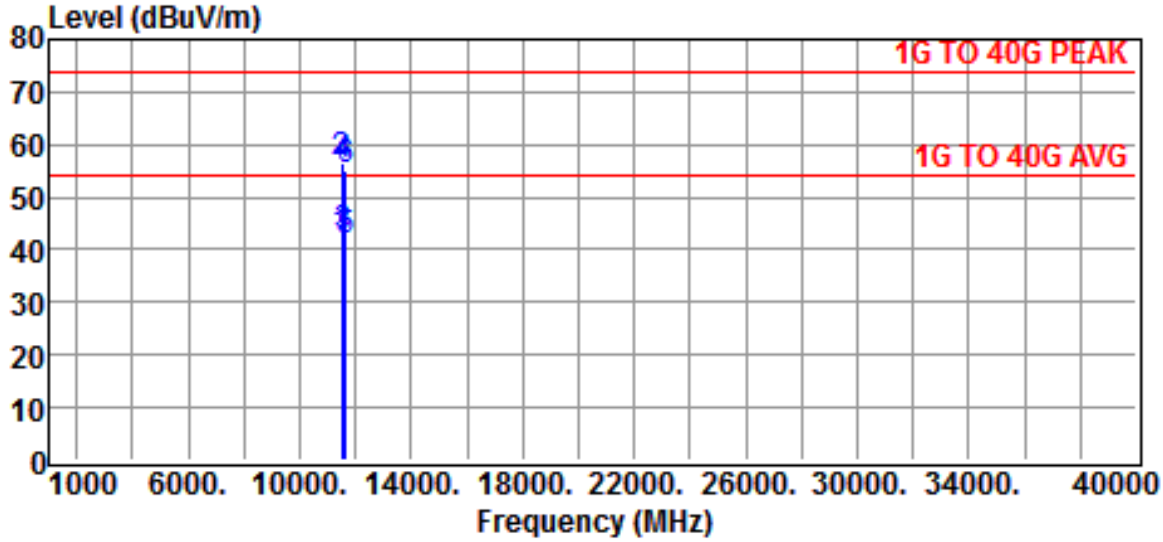


Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 6		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	32.8	10.7	43.5	54.0	-10.5	Average
11510.0000	46.6	10.7	57.3	74.0	-16.7	Peak
11550.0000	31.9	10.8	42.7	54.0	-11.3	Average
11550.0000	45.7	10.8	56.5	74.0	-17.5	Peak
11630.0000	31.6	10.8	42.4	54.0	-11.6	Average
11630.0000	45.3	10.8	56.1	74.0	-17.9	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result



Site	:chamber	Date	:2015-12-23
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:25˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:TXRX-CH LO 5755 - MI 5775 - HI 5815MHz		
Test Mode	:Antenna 6		

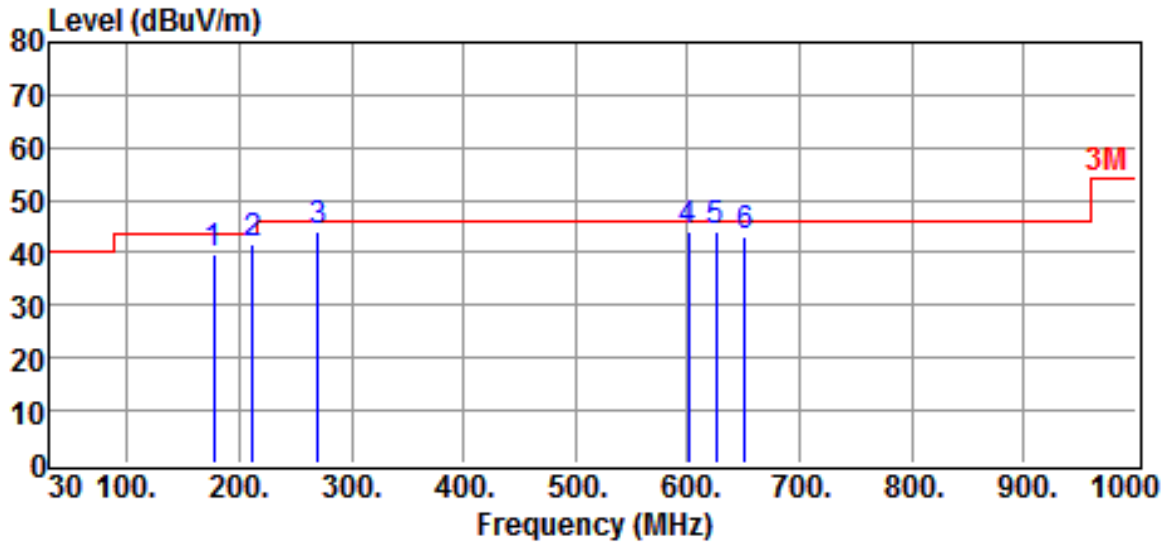
Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
11510.0000	35.2	10.7	45.9	54.0	-8.1	Average
11510.0000	48.7	10.7	59.4	74.0	-14.6	Peak
11550.0000	34.7	10.8	45.5	54.0	-8.5	Average
11550.0000	48.2	10.8	59.0	74.0	-15.0	Peak
11630.0000	33.9	10.8	44.7	54.0	-9.3	Average
11630.0000	47.6	10.8	58.4	74.0	-15.6	Peak

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The margin value=Limit – Result

4.4.2 Other Emission

a) Emission frequencies below 1 GHz

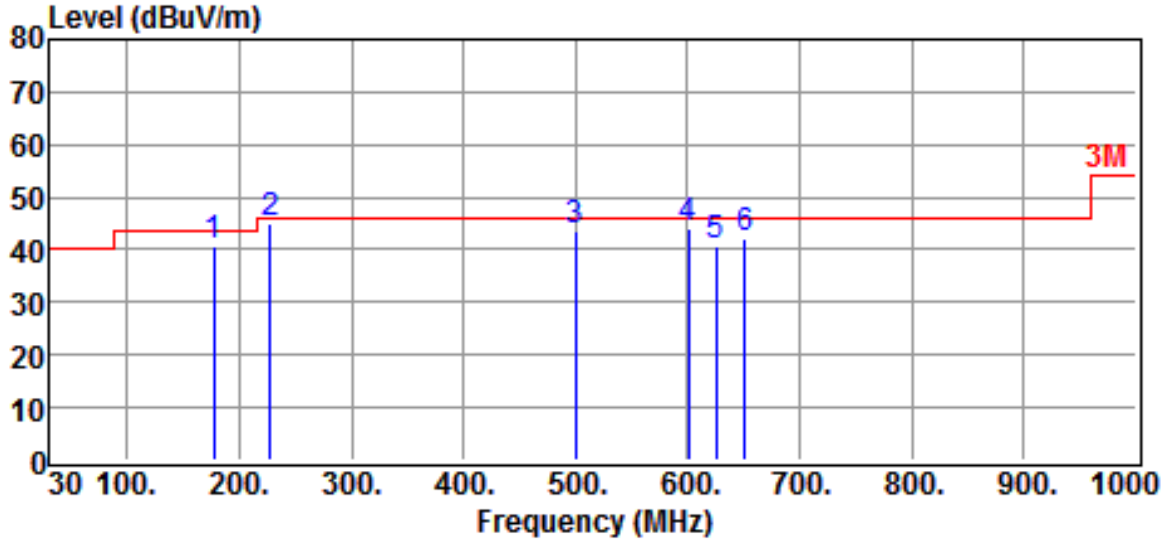


Site	:OPEN SITE	Date	:2015-12-07
Limit	:3M	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:20˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:OPERATION MODE		
Test Mode	:Antenna 1		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
177.4400	25.0	14.7	39.7	43.5	-3.8	QP
212.3600	23.6	18.2	41.8	43.5	-1.7	QP
270.5600	23.1	21.0	44.1	46.0	-1.9	QP
600.3600	20.6	23.3	43.9	46.0	-2.1	QP
625.5800	20.4	23.9	44.3	46.0	-1.7	QP
650.8000	18.9	24.4	43.3	46.0	-2.7	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit - Result

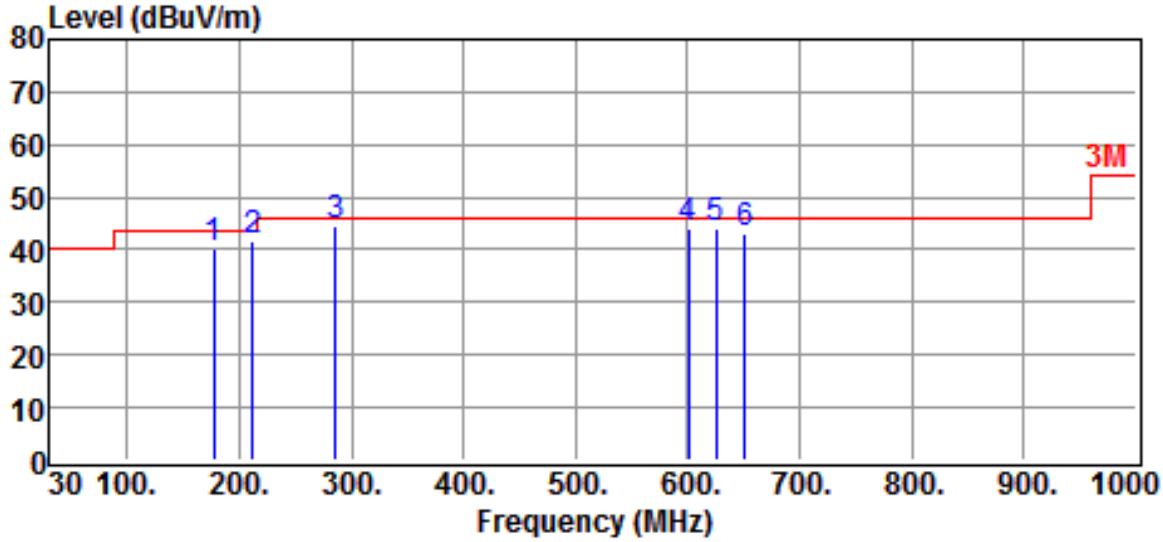


Site	:OPEN SITE	Date	:2015-12-07
Limit	:3M	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:20˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:OPERATION MODE		
Test Mode	:Antenna 1		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
177.4400	26.1	14.7	40.8	43.5	-2.7	QP
227.8800	25.8	19.0	44.8	46.0	-1.2	QP
499.4800	21.4	22.1	43.5	46.0	-2.5	QP
600.3600	20.8	23.3	44.1	46.0	-1.9	QP
625.5800	16.7	23.9	40.6	46.0	-5.4	QP
650.8000	17.6	24.4	42.0	46.0	-4.0	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit – Result

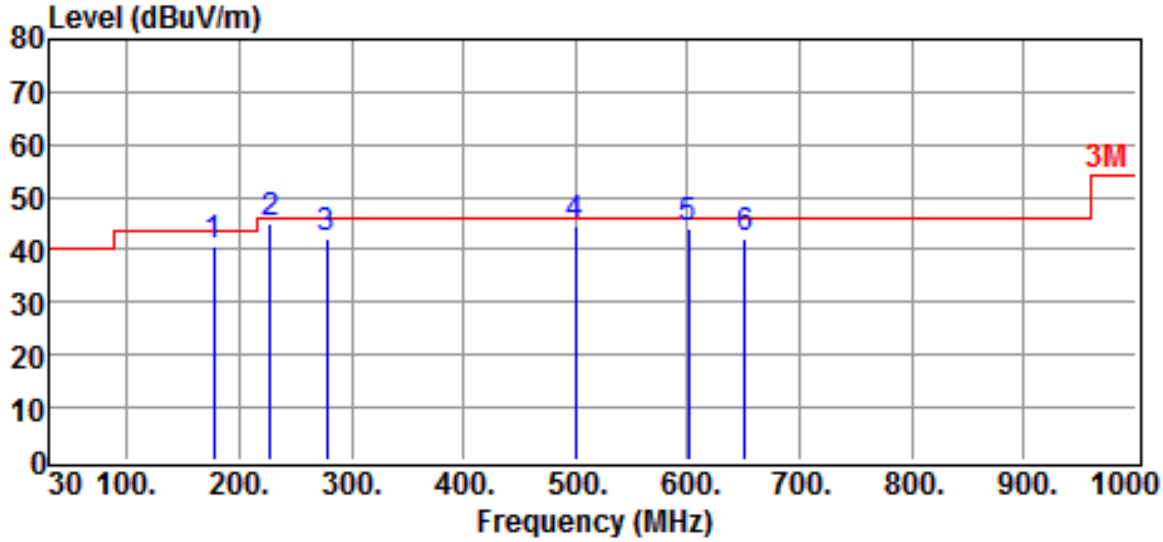


Site	:OPEN SITE	Date	:2015-12-07
Limit	:3M	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:20˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:OPERATION MODE		
Test Mode	:Antenna 2		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
177.4400	25.8	14.7	40.5	43.5	-3.0	QP
212.3600	23.6	18.2	41.8	43.5	-1.7	QP
286.0800	21.9	22.5	44.4	46.0	-1.6	QP
600.3600	20.6	23.3	43.9	46.0	-2.1	QP
625.5800	20.4	23.9	44.3	46.0	-1.7	QP
650.8000	18.9	24.4	43.3	46.0	-2.7	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit - Result

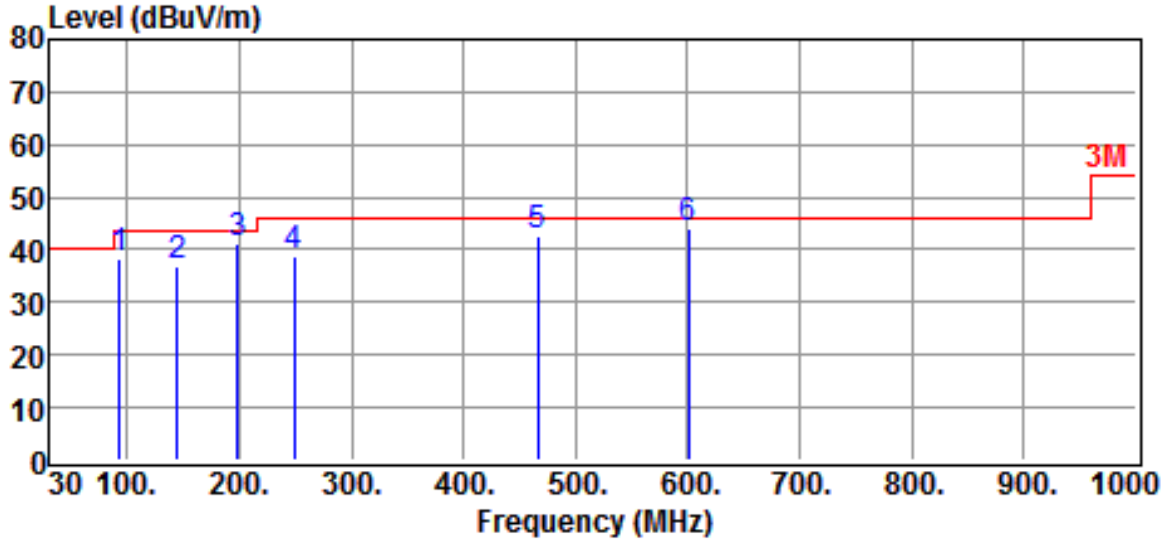


Site	:OPEN SITE	Date	:2015-12-07
Limit	:3M	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:20˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:OPERATION MODE		
Test Mode	:Antenna 2		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
177.4400	26.1	14.7	40.8	43.5	-2.7	QP
227.8800	25.8	19.0	44.8	46.0	-1.2	QP
278.3200	20.1	22.1	42.2	46.0	-3.8	QP
499.4800	22.4	22.1	44.5	46.0	-1.5	QP
600.3600	20.8	23.3	44.1	46.0	-1.9	QP
650.8000	17.6	24.4	42.0	46.0	-4.0	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit – Result

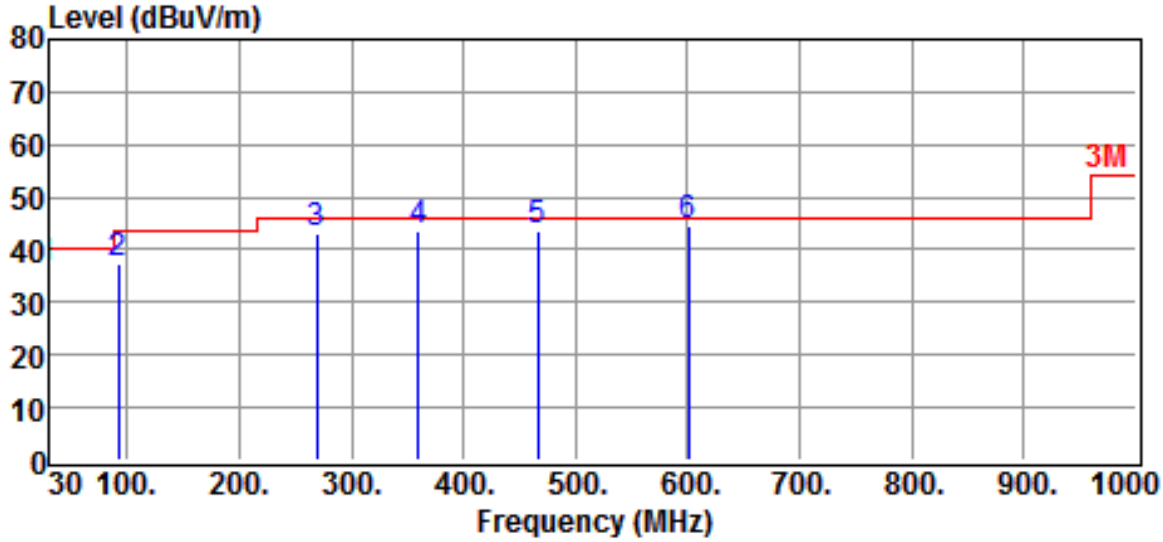


Site	:OPEN SITE	Date	:2015-12-07
Limit	:3M	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:20˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:OPERATION MODE		
Test Mode	:Antenna 3 / Antenna 4		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
93.0500	27.2	11.0	38.2	43.5	-5.3	QP
144.4600	22.8	14.1	36.9	43.5	-6.6	QP
198.7800	23.7	17.3	41.0	43.5	-2.5	QP
249.2200	18.6	20.1	38.7	46.0	-7.3	QP
466.5000	21.4	21.1	42.5	46.0	-3.5	QP
600.3600	20.6	23.3	43.9	46.0	-2.1	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit - Result

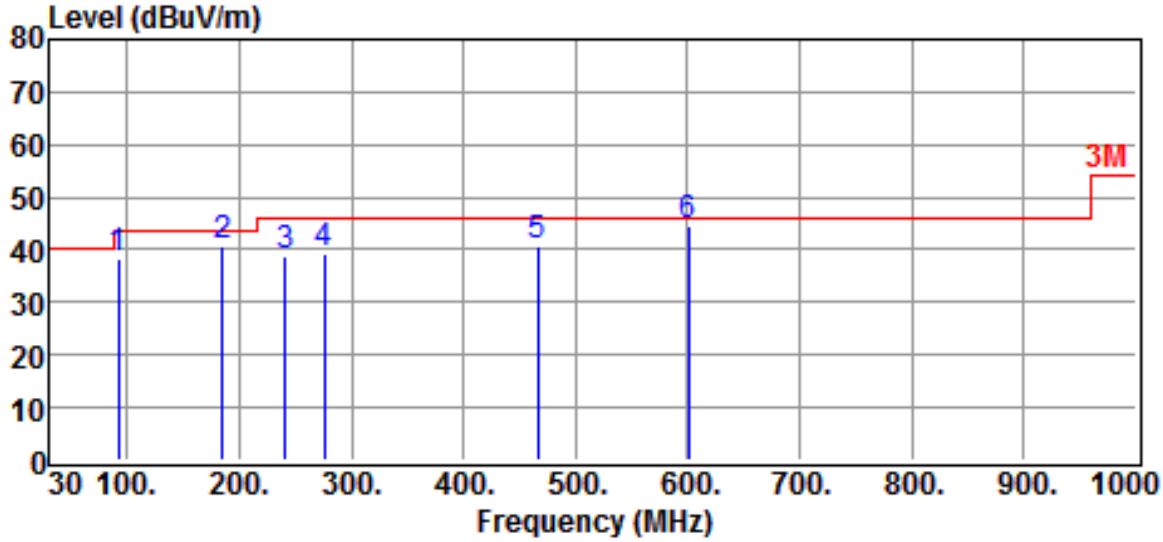


Site	:OPEN SITE	Date	:2015-12-07
Limit	:3M	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:20˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:OPERATION MODE		
Test Mode	:Antenna 3 / Antenna 4		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
30.0000	20.0	16.4	36.4	40.0	-3.6	QP
92.0800	26.4	11.0	37.4	43.5	-6.1	QP
268.6200	21.5	21.6	43.1	46.0	-2.9	QP
359.8000	25.2	18.4	43.6	46.0	-2.4	QP
466.5000	22.3	21.1	43.4	46.0	-2.6	QP
600.3600	21.5	23.3	44.8	46.0	-1.2	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit – Result

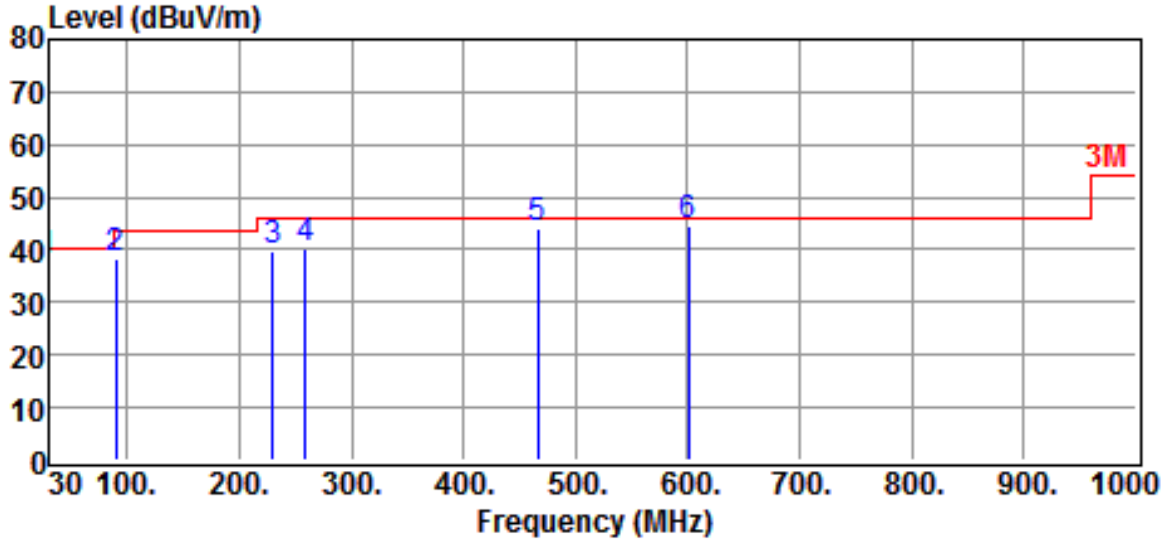


Site	:OPEN SITE	Date	:2015-12-07
Limit	:3M	Ant. Pol.	:HORIZONTAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:20˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:OPERATION MODE		
Test Mode	:Antenna 5 / Antenna 6		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
92.0800	27.2	11.0	38.2	43.5	-5.3	QP
185.2000	24.8	15.9	40.7	43.5	-2.8	QP
241.4600	19.4	19.6	39.0	46.0	-7.0	QP
276.3800	17.0	22.4	39.4	46.0	-6.6	QP
466.5000	19.8	21.1	40.9	46.0	-5.1	QP
600.3600	21.2	23.3	44.5	46.0	-1.5	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit - Result



Site	:OPEN SITE	Date	:2015-12-07
Limit	:3M	Ant. Pol.	:VERTICAL
EUT	:Outdoor Radio	Model	:ATHN2052-27
Power Rating	:120V 60Hz	Temp.	:20˚C
Engineer	:VC	Humi.	:68 %
Test Mode	:OPERATION MODE		
Test Mode	:Antenna 5 / Antenna 6		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
30.0000	21.4	16.4	37.8	40.0	-2.2	QP
90.1400	27.3	10.9	38.2	43.5	-5.3	QP
229.8200	20.9	18.9	39.8	46.0	-6.2	QP
258.9200	19.7	20.7	40.4	46.0	-5.6	QP
466.5000	22.9	21.1	44.0	46.0	-2.0	QP
600.3600	21.0	23.3	44.3	46.0	-1.7	QP

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit – Result

b) Emission frequencies Above 1GHz

Radiated emission frequencies above 1 GHz to 25 GHz were too low to be measured with a pre-amplifier of 35 dB.

4.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss(if used) and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where

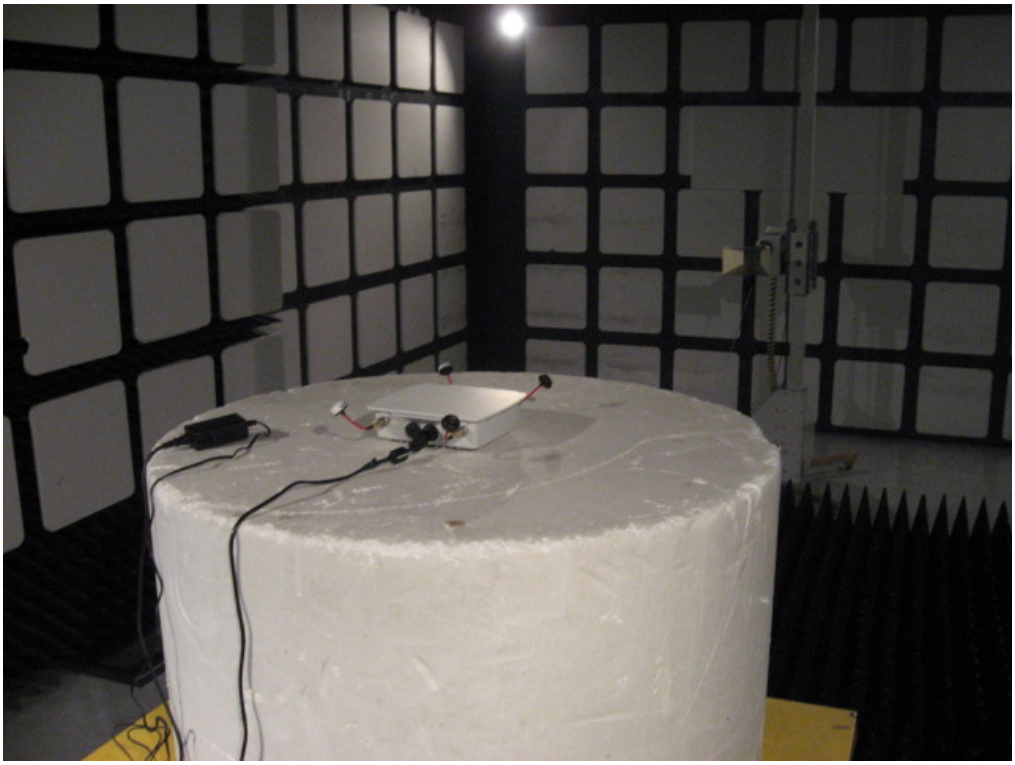
Corrected Factor = Antenna FACTOR + Cable Loss + High Pass Filter Loss - Amplifier Gain

4.6 Photos of Radiation Measuring Setup

(A) Antenna 1

(Below 1GHz)

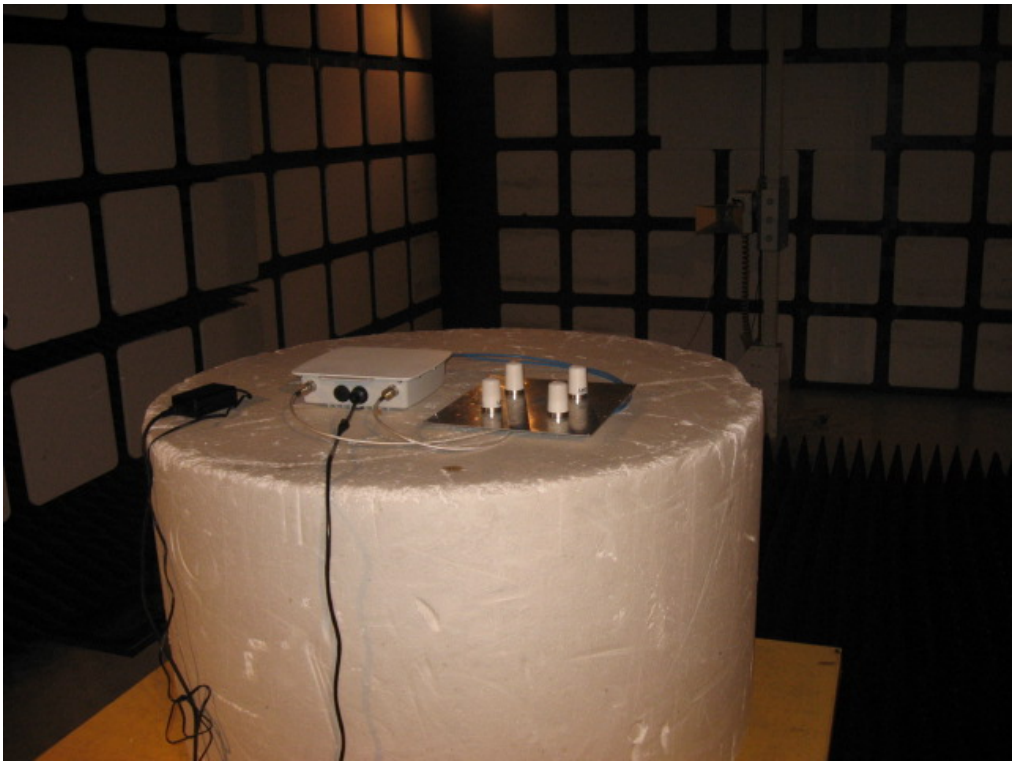
(Above 1GHz)

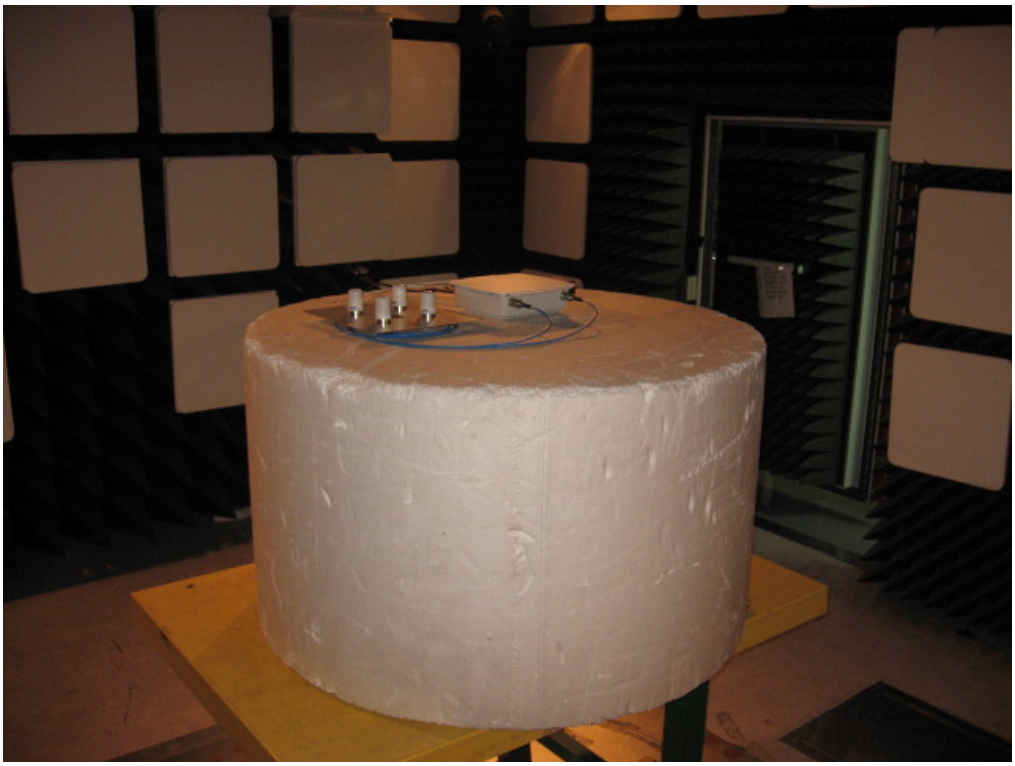


(B) Antenna 2

(Below 1GHz)

(Above 1GHz)





(C) Antenna 3 / Antenna 4

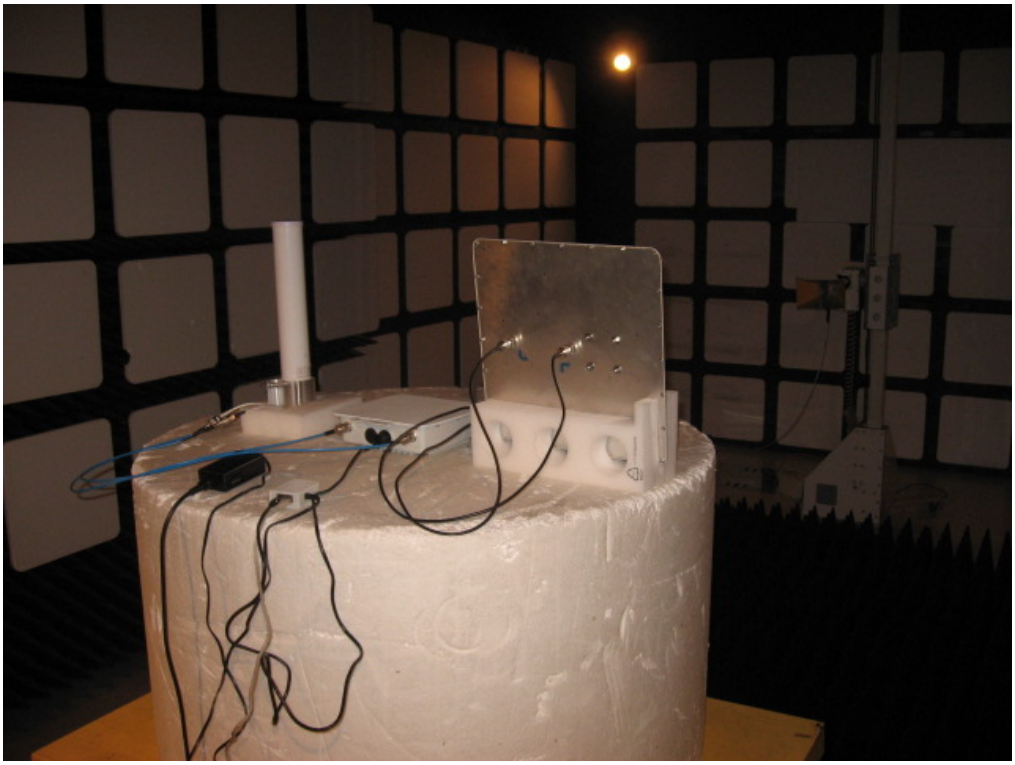
(Below 1GHz)

(Above 1GHz)

(D) Antenna 5 / Antenna 6

(Below 1GHz)

(Above 1GHz)



5 CONDUCTED EMISSION MEASUREMENT

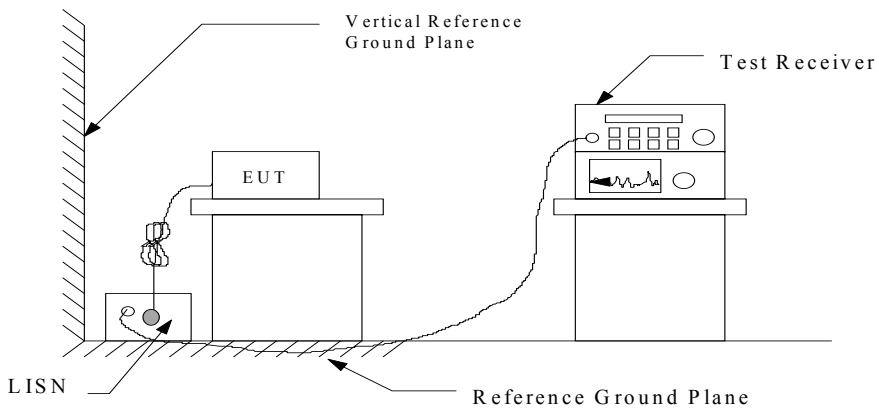
5.1 Standard Applicable

For unintentional and intentional device, Line Conducted Emission Limits are in accordance to §15.107(a) and §15.207(a) respectively. Both Limits are identical specification.

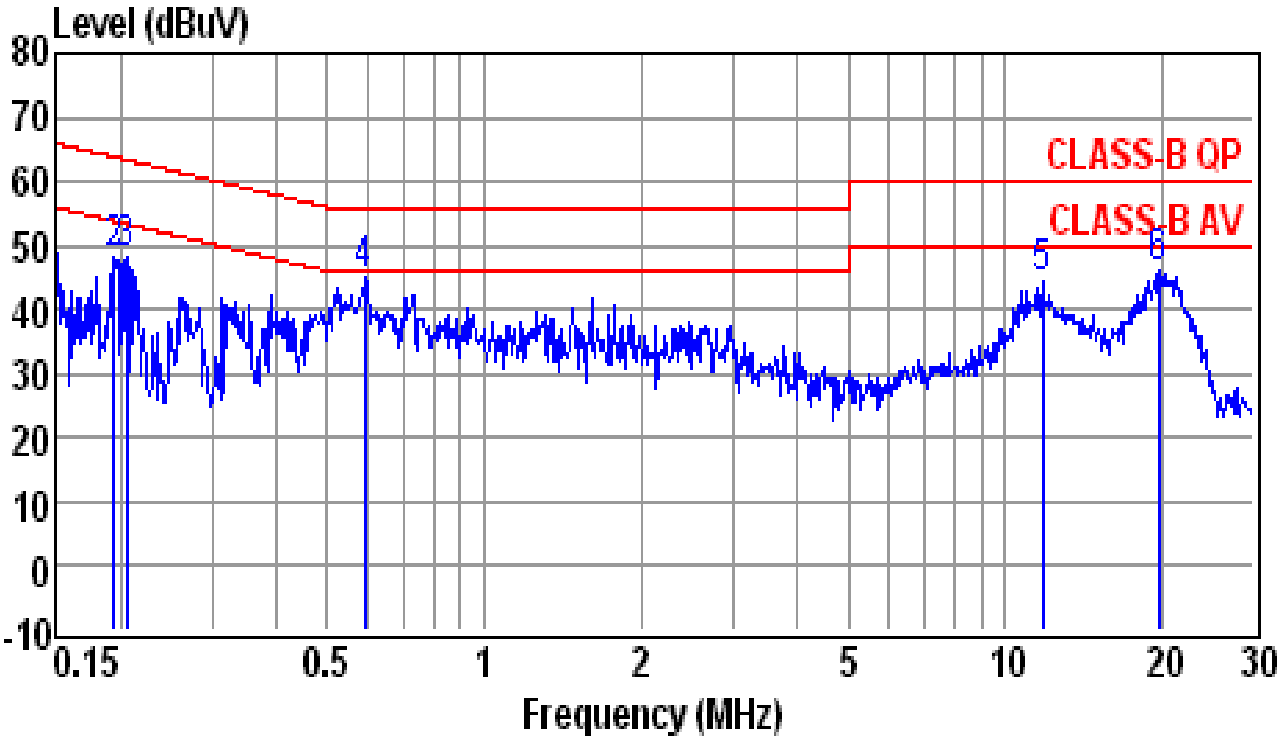
5.2 Measurement Procedure

1. Setup the configuration per figure 3.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 or 8 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then record the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.
6. Repeat all above procedures on measuring each operation mode of EUT.

Figure 3 : Conducted emissions measurement configuration



5.3 Conducted Emission Data

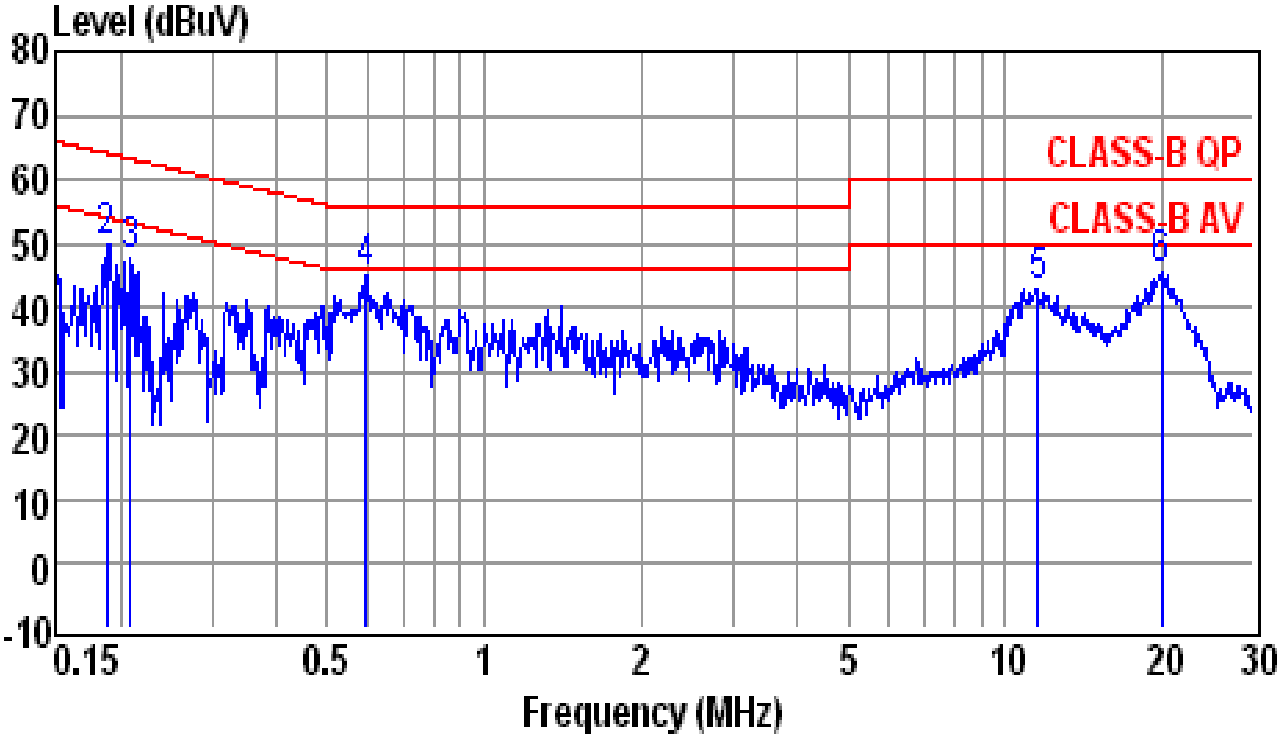


Site	: conducted #1	Date	: 12-05-2015
Condition	: CLASS-B QP	LISN	: LINE
Tem / Hum	: 25 ℃ / 68%	Test Mode	: OPERATION MODE
EUT	: Outdoor Radio	Power Rating	: 120V 60Hz
Test Mode	:Antenna 1		

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1508	40.01	10.17	50.18	65.96	-15.78	QP
0.1945	38.27	10.17	48.44	63.84	-15.40	QP
0.2051	37.83	10.17	48.00	63.40	-15.40	QP
0.5885	34.75	10.21	44.96	56.00	-11.04	QP
11.8070	33.78	10.79	44.57	60.00	-15.43	QP
19.7400	34.86	11.18	46.04	60.00	-13.96	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

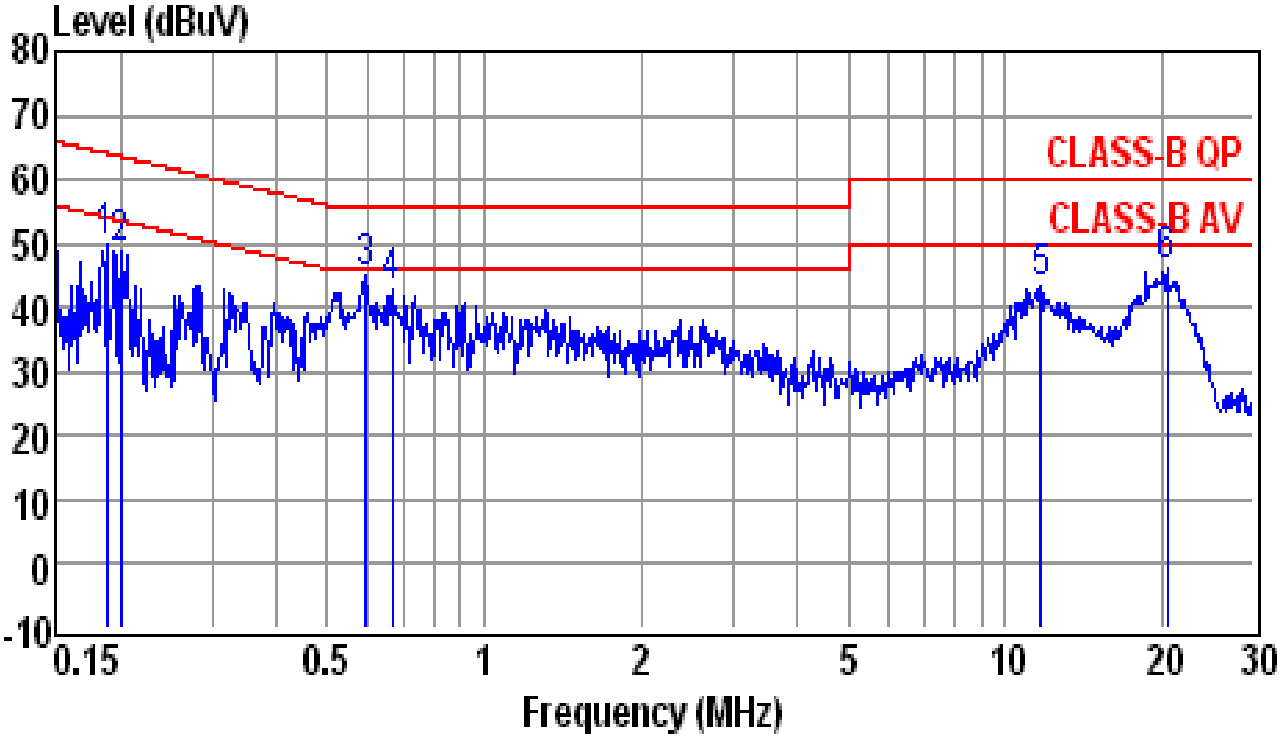


Site	: conducted #1	Date	: 12-05-2015
Condition	: CLASS-B QP	LISN	: NEUTRAL
Tem / Hum	: 25 ℃ / 68%	Test Mode	: OPERATION MODE
EUT	: Outdoor Radio	Power Rating	: 120V 60Hz
Test Mode	:Antenna 1		

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1500	37.90	10.18	48.08	66.00	-17.92	QP
0.1884	39.78	10.18	49.96	64.11	-14.15	QP
0.2094	37.23	10.18	47.41	63.23	-15.82	QP
0.5916	34.80	10.23	45.03	56.00	-10.97	QP
11.5590	32.11	10.70	42.81	60.00	-17.19	QP
19.9500	34.67	10.95	45.62	60.00	-14.38	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

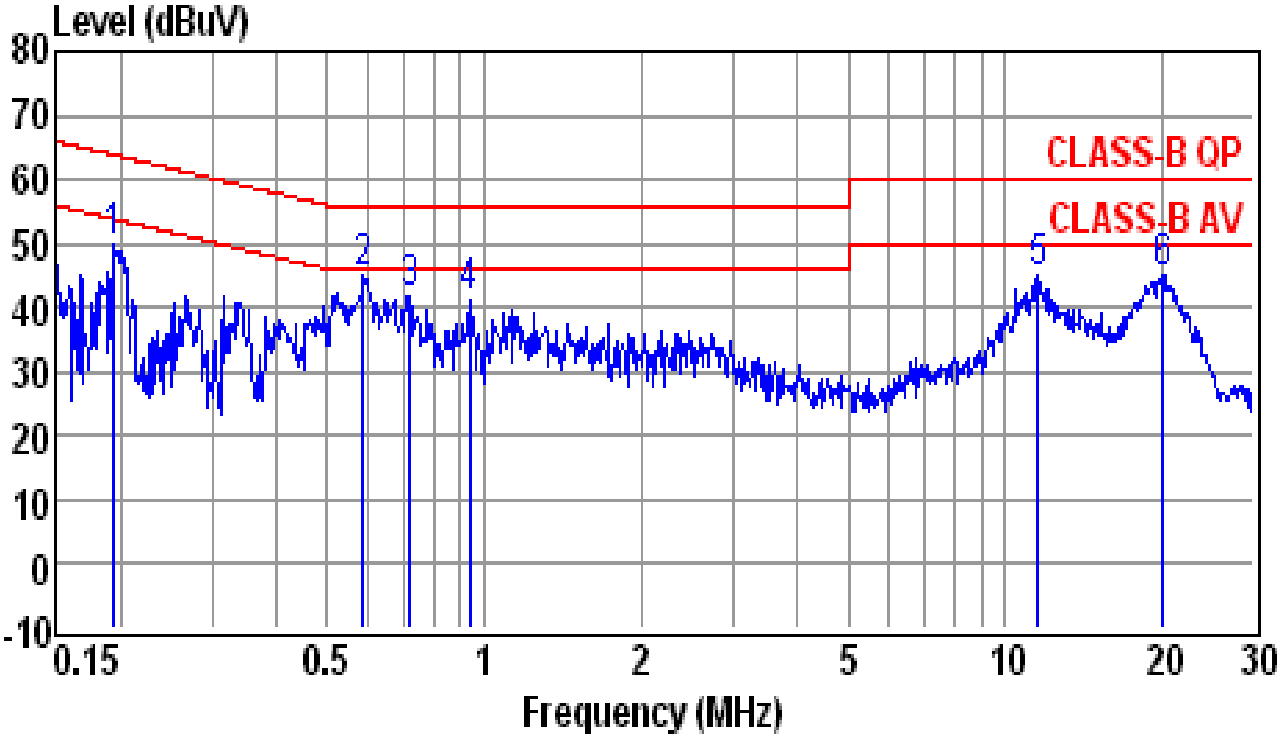


Site	: conducted #1	Date	: 12-05-2015
Condition	: CLASS-B QP	LISN	: LINE
Tem / Hum	: 25 ℃ / 68%	Test Mode	: OPERATION MODE
EUT	: Outdoor Radio	Power Rating	: 120V 60Hz
Test Mode	:Antenna 2		

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1884	39.55	10.17	49.72	64.11	-14.39	QP
0.2008	38.51	10.17	48.68	63.58	-14.90	QP
0.5916	34.74	10.21	44.95	56.00	-11.05	QP
0.6648	32.83	10.22	43.05	56.00	-12.95	QP
11.7450	32.72	10.78	43.50	60.00	-16.50	QP
20.4860	35.06	11.20	46.26	60.00	-13.74	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

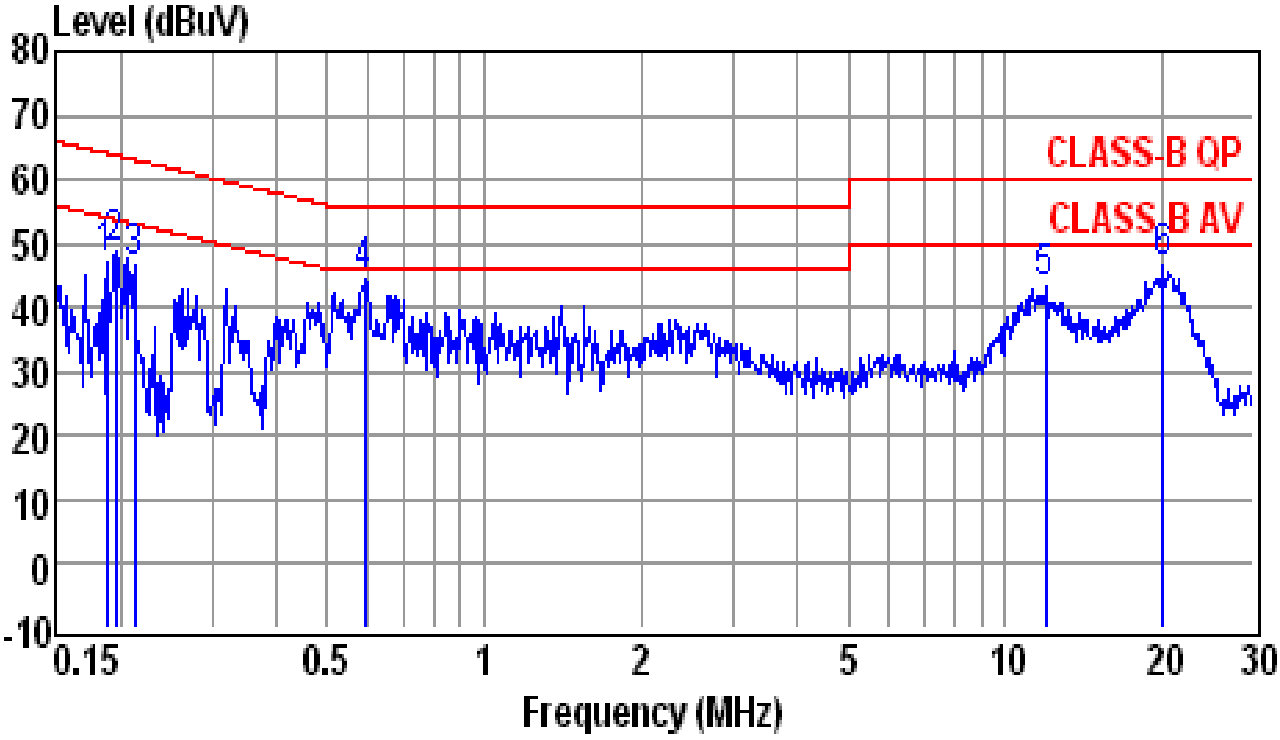


Site	: conducted #1	Date	: 12-05-2015
Condition	: CLASS-B QP	LISN	: NEUTRAL
Tem / Hum	: 25 ℃ / 68%	Test Mode	: OPERATION MODE
EUT	: Outdoor Radio	Power Rating	: 120V 60Hz
Test Mode	:Antenna 2		

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1945	39.41	10.18	49.59	63.84	-14.25	QP
0.5854	34.53	10.23	44.76	56.00	-11.24	QP
0.7198	31.48	10.24	41.72	56.00	-14.28	QP
0.9381	30.90	10.25	41.15	56.00	-14.85	QP
11.6210	34.19	10.71	44.90	60.00	-15.10	QP
20.0560	33.95	10.95	44.90	60.00	-15.10	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

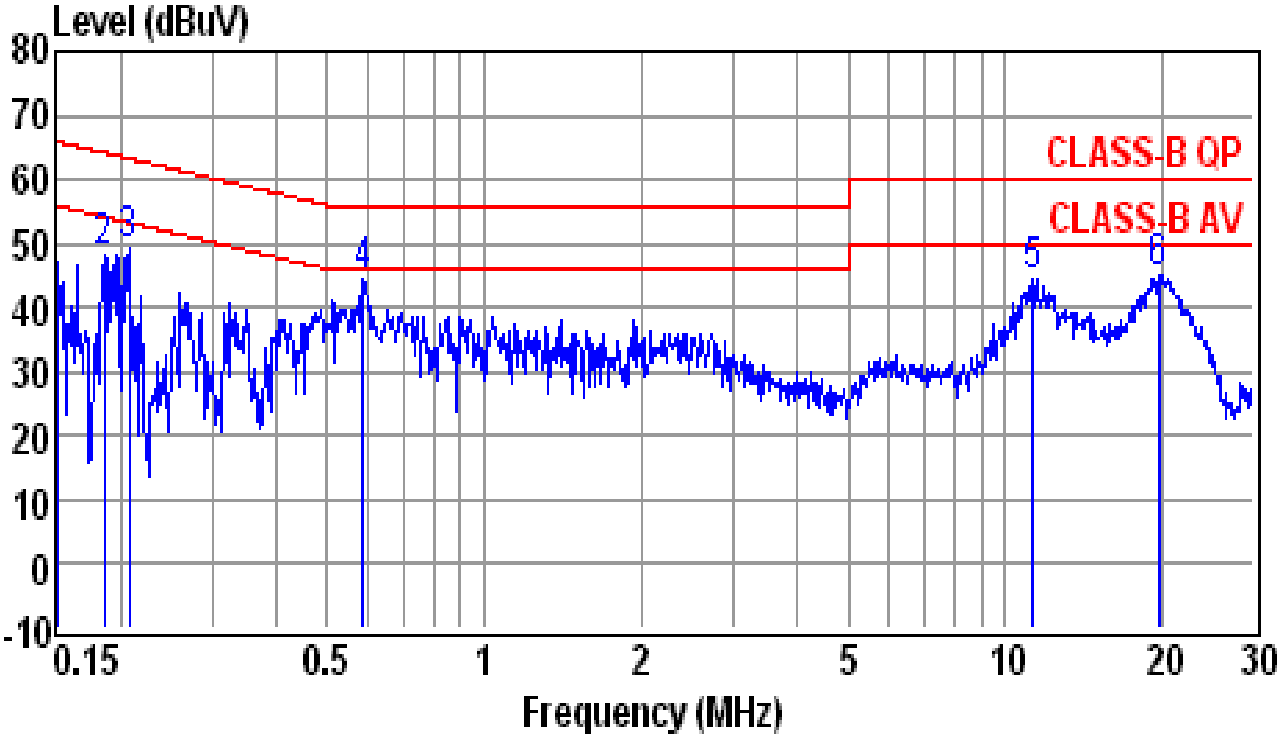


Site	: conducted #1	Date	: 12-05-2015
Condition	: CLASS-B QP	LISN	: LINE
Tem / Hum	: 25 ℃ / 68%	Test Mode	: OPERATION MODE
EUT	: Outdoor Radio	Power Rating	: 120V 60Hz
Test Mode	:Antenna 3 / Antenna 4		

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1884	37.14	10.17	47.31	64.11	-16.80	QP
0.1955	38.80	10.17	48.97	63.80	-14.83	QP
0.2128	36.39	10.17	46.56	63.10	-16.54	QP
0.5885	34.33	10.21	44.54	56.00	-11.46	QP
11.9330	32.41	10.79	43.20	60.00	-16.80	QP
20.0560	35.40	11.19	46.59	60.00	-13.41	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

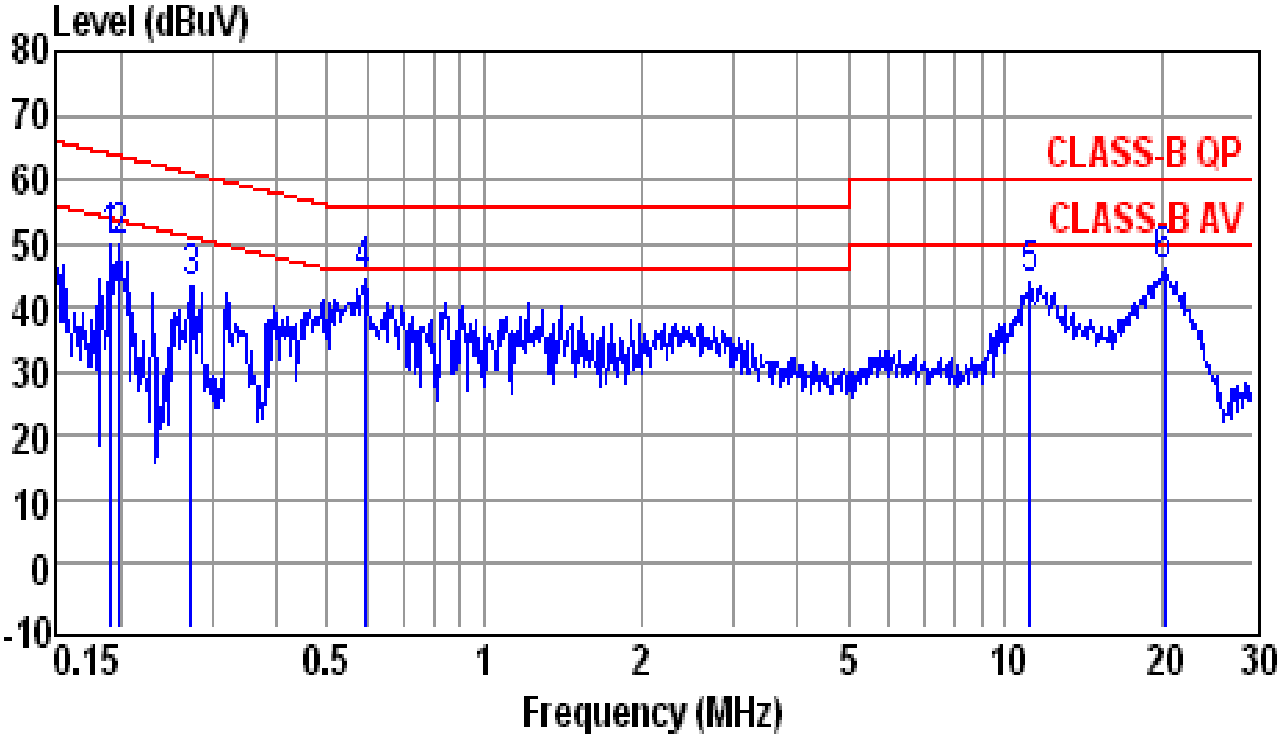


Site	: conducted #1	Date	: 12-05-2015
Condition	: CLASS-B QP	LISN	: NEUTRAL
Tem / Hum	: 25 ℃ / 68%	Test Mode	: OPERATION MODE
EUT	: Outdoor Radio	Power Rating	: 120V 60Hz
Test Mode	:Antenna 3 / Antenna4		

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1516	37.09	10.18	47.27	65.91	-18.64	QP
0.1864	37.82	10.18	48.00	64.20	-16.20	QP
0.2083	38.91	10.18	49.09	63.27	-14.18	QP
0.5854	34.15	10.23	44.38	56.00	-11.62	QP
11.3170	33.86	10.70	44.56	60.00	-15.44	QP
19.7400	34.22	10.94	45.16	60.00	-14.84	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

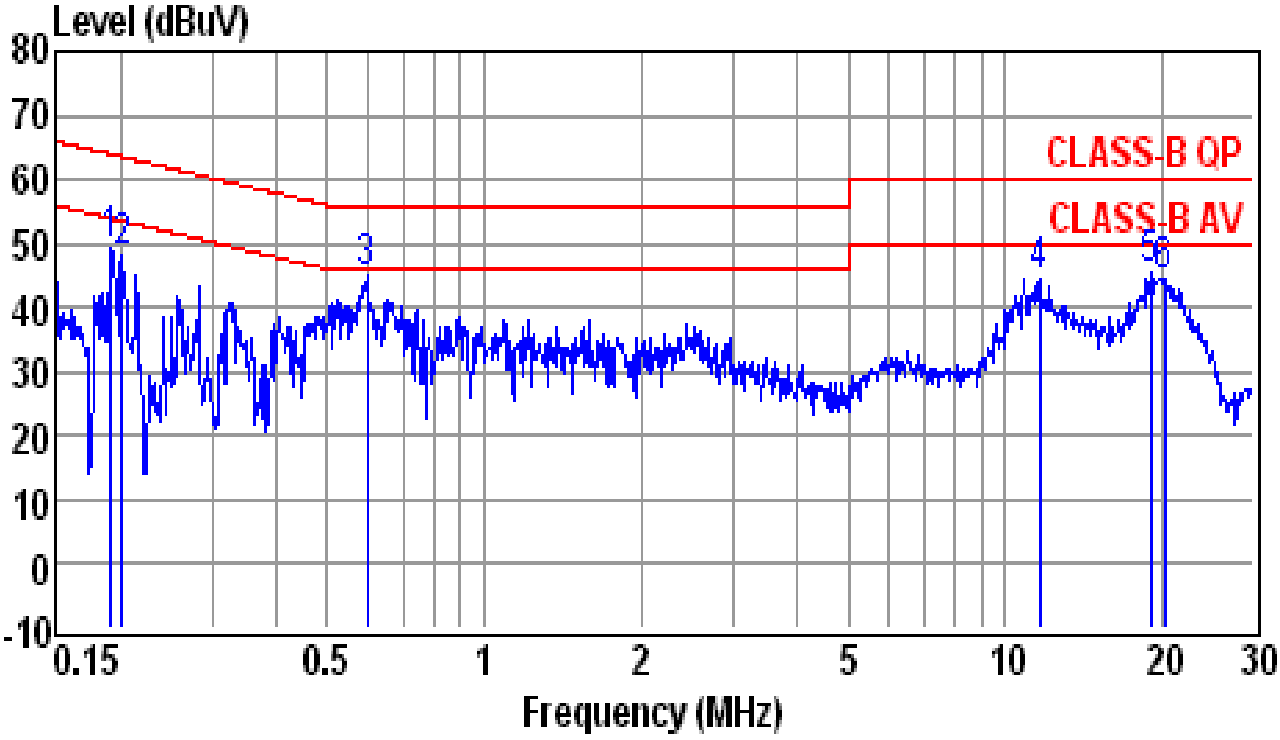


Site	: conducted #1	Date	: 12-05-2015
Condition	: CLASS-B QP	LISN	: LINE
Tem / Hum	: 25 ℃ / 68%	Test Mode	: OPERATION MODE
EUT	: Outdoor Radio	Power Rating	: 120V 60Hz
Test Mode	:Antenna 5 / Antenna 6		

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1924	39.74	10.17	49.91	63.93	-14.02	QP
0.1997	39.54	10.17	49.71	63.62	-13.91	QP
0.2744	33.04	10.18	43.22	60.98	-17.76	QP
0.5885	34.27	10.21	44.48	56.00	-11.52	QP
11.1980	33.34	10.75	44.09	60.00	-15.91	QP
20.1620	34.83	11.19	46.02	60.00	-13.98	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss



Site	: conducted #1	Date	: 12-05-2015
Condition	: CLASS-B QP	LISN	: NEUTRAL
Tem / Hum	: 25 ℃ / 68%	Test Mode	: OPERATION MODE
EUT	: Outdoor Radio	Power Rating	: 120V 60Hz
Test Mode	:Antenna 5 / Antenna 6		

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1924	39.17	10.18	49.35	63.93	-14.58	QP
0.2018	37.76	10.18	47.94	63.54	-15.60	QP
0.5948	34.48	10.23	44.71	56.00	-11.29	QP
11.6830	33.63	10.71	44.34	60.00	-15.66	QP
19.0210	34.43	10.93	45.36	60.00	-14.64	QP
20.1620	33.58	10.94	44.52	60.00	-15.48	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

5.4 Result Data Calculation

The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR

Assume a receiver reading of 22.5 dB μV is obtained, and LISN Factor is 0.1 dB, then the total of disturbance voltage is 22.6 dB μV.

RESULT = 22.5 + 0.1 = 22.6 dB μV
Level in μV = Common Antilogarithm[(22.6 dB μV)/20]
= 13.48 μV

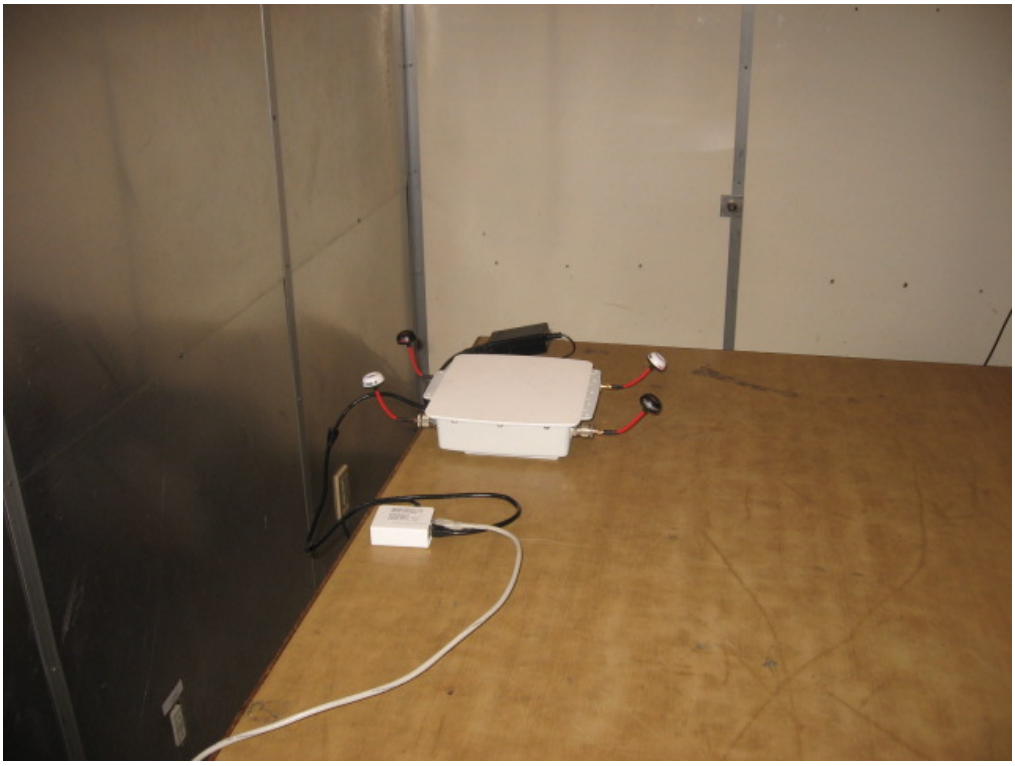
5.5 Conducted Measurement Equipment

The following test equipment are used during the conducted test .

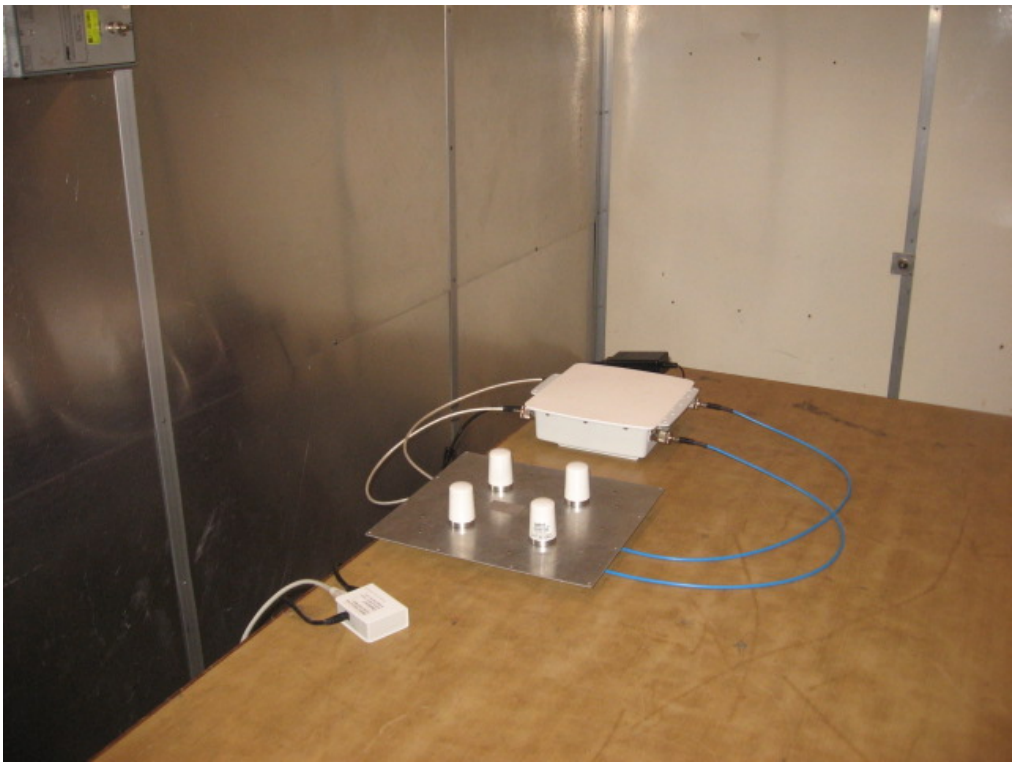
Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCI	2015/12/05	2016/12/04
LISN	EMCO	3625/2	2015/10/28	2016/10/26
LISN	Rohde & Schwarz	ESH2-Z5	2015/04/09	2016/04/08

5.6 Photos of Conduction Measuring Setup

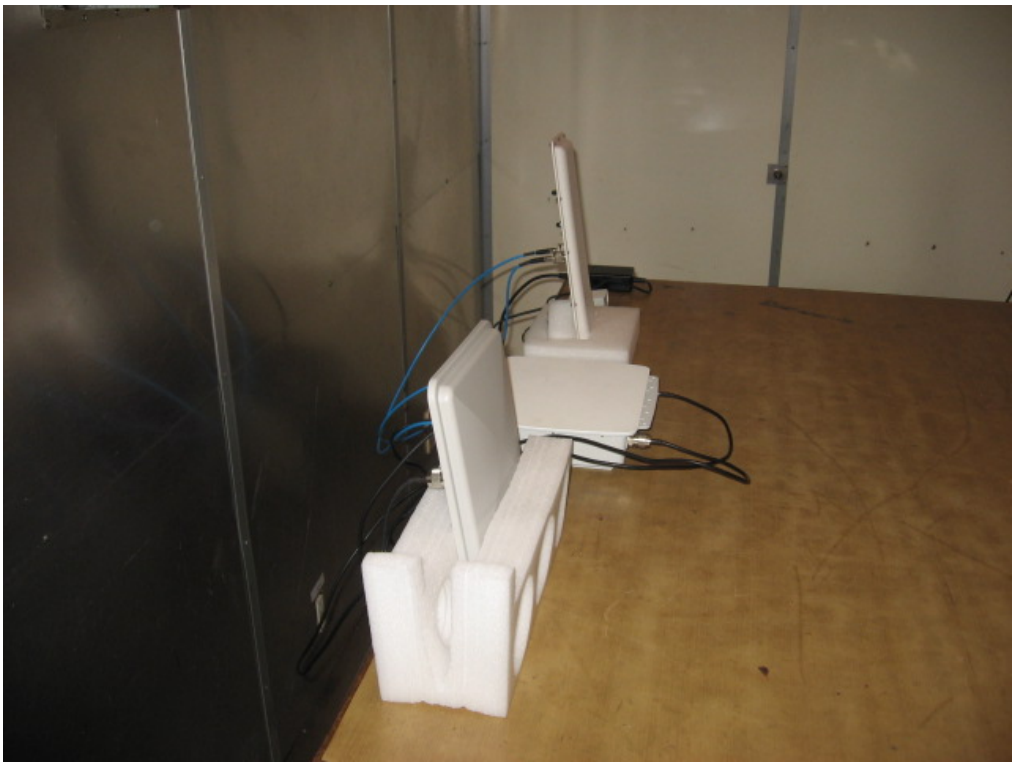
(A) Antenna 1



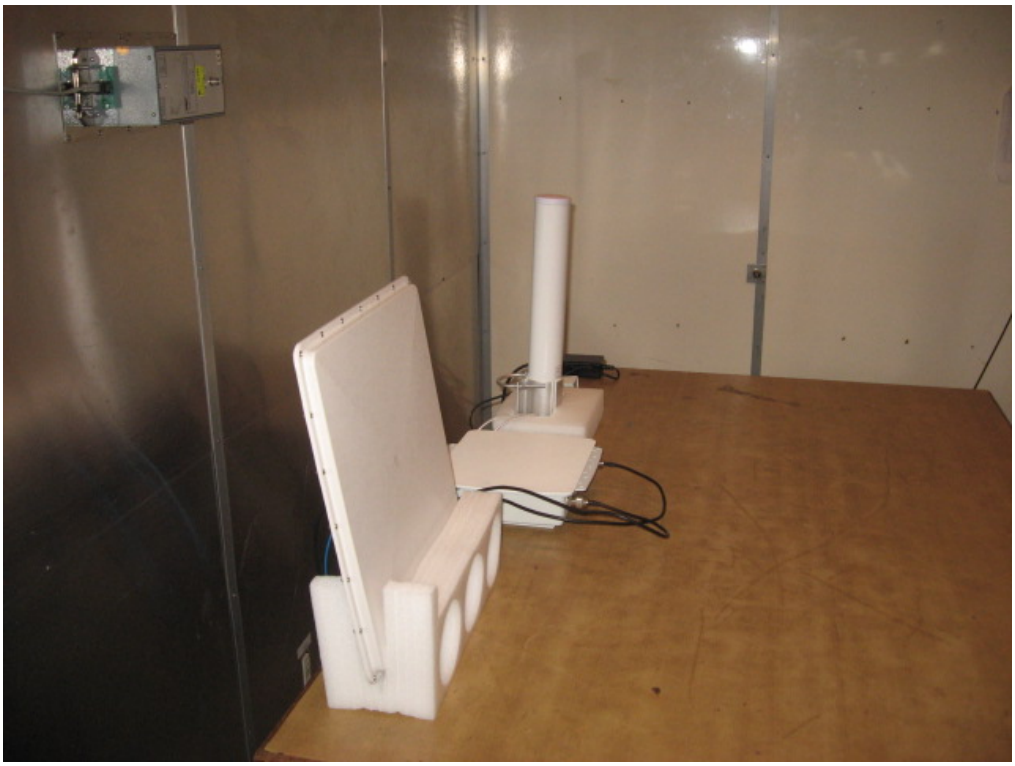
(B) Antenna 2



(C) Antenna 3 / Antenna 4



(D) Antenna 5 / Antenna 6



6 ANTENNA REQUIREMENT

6.1 Standard Applicable

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

According to §15.407 (a)(3), if transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

6.2 Antenna Construction and Directional Gain

The following antenna are used.

Antenna 1: ImmersionRC 5.8GHz SpiroNET omni directional antenna (0.95dBic)
Antenna 2: TRA58003P (3dBi)
Antenna 3: ANT5015DX-S70 (15dBi)
Antenna 4: ANT5018D-P (18dBi)
Antenna 5: ANT5010DX-M (10dBi)
Antenna 6: ANT5023D-P (23dBi)

Those antenna with their directional gain greater than 6dBi are limited to be used for fixed point-to-point operation.

Please see internal photos and the antenna specifications.

7 EMISSION BANDWIDTH MEASUREMENT

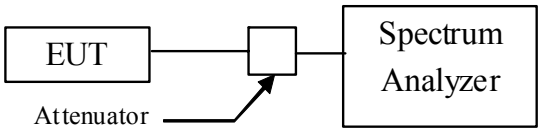
7.1 Standard Applicable

According to 15.407(e), within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

7.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value. The settings of spectrum analyzer is as followings.
   1) Set RBW = 100 kHz.
   2) Set the video bandwidth (VBW) ≥ 3 x RBW.
   3) Detector = Peak.
   4) Trace mode = max hold.
   5) Sweep = auto couple.
   6) Allow the trace to stabilize.
   7) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
3. Repeat above procedures until all frequencies measured were complete.

Figure 4: Emission bandwidth measurement configuration.



7.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2015/07/06	2016/07/05
Attenuator	MINI-CIRCUITS	BW-S10W2+	2015/10/07	2016/10/06

7.4 Measurement Data

Test Date : Jan. 07, 2016 Temperature : 24 °C Humidity : 56 %

Mode: 5MHz

ANT0	Channel Low:	6 dB Emission Bandwidth is	4.48	MHz
	Channel Mid:	6 dB Emission Bandwidth is	4.48	MHz
	Channel High:	6 dB Emission Bandwidth is	4.48	MHz
ANT1	Channel Low:	6 dB Emission Bandwidth is	4.48	MHz
	Channel Mid:	6 dB Emission Bandwidth is	4.48	MHz
	Channel High:	6 dB Emission Bandwidth is	4.48	MHz

Mode: 10MHz

ANT0	Channel Low:	6 dB Emission Bandwidth is	8.904	MHz
	Channel Mid:	6 dB Emission Bandwidth is	8.904	MHz
	Channel High:	6 dB Emission Bandwidth is	8.904	MHz
ANT1	Channel Low:	6 dB Emission Bandwidth is	8.904	MHz
	Channel Mid:	6 dB Emission Bandwidth is	8.904	MHz
	Channel High:	6 dB Emission Bandwidth is	8.904	MHz

Mode: 20MHz

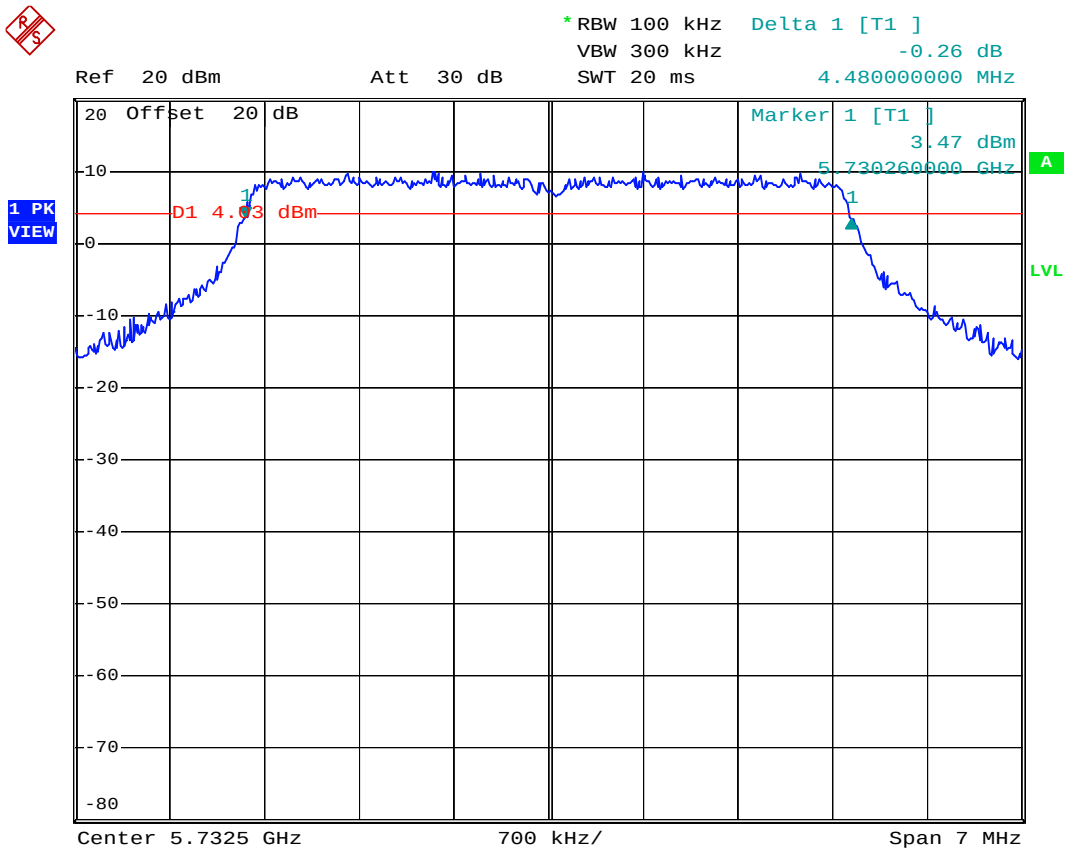
ANT0	Channel Low:	6 dB Emission Bandwidth is	17.7	MHz
	Channel Mid:	6 dB Emission Bandwidth is	17.7	MHz
	Channel High:	6 dB Emission Bandwidth is	17.7	MHz
ANT1	Channel Low:	6 dB Emission Bandwidth is	17.7	MHz
	Channel Mid:	6 dB Emission Bandwidth is	17.7	MHz
	Channel High:	6 dB Emission Bandwidth is	17.7	MHz

Mode: 40MHz

ANT0	Channel Low:	6 dB Emission Bandwidth is	36.5	MHz
	Channel Mid:	6 dB Emission Bandwidth is	36.5	MHz
	Channel High:	6 dB Emission Bandwidth is	36.5	MHz
ANT1	Channel Low:	6 dB Emission Bandwidth is	36.5	MHz
	Channel Mid:	6 dB Emission Bandwidth is	36.5	MHz
	Channel High:	6 dB Emission Bandwidth is	36.5	MHz

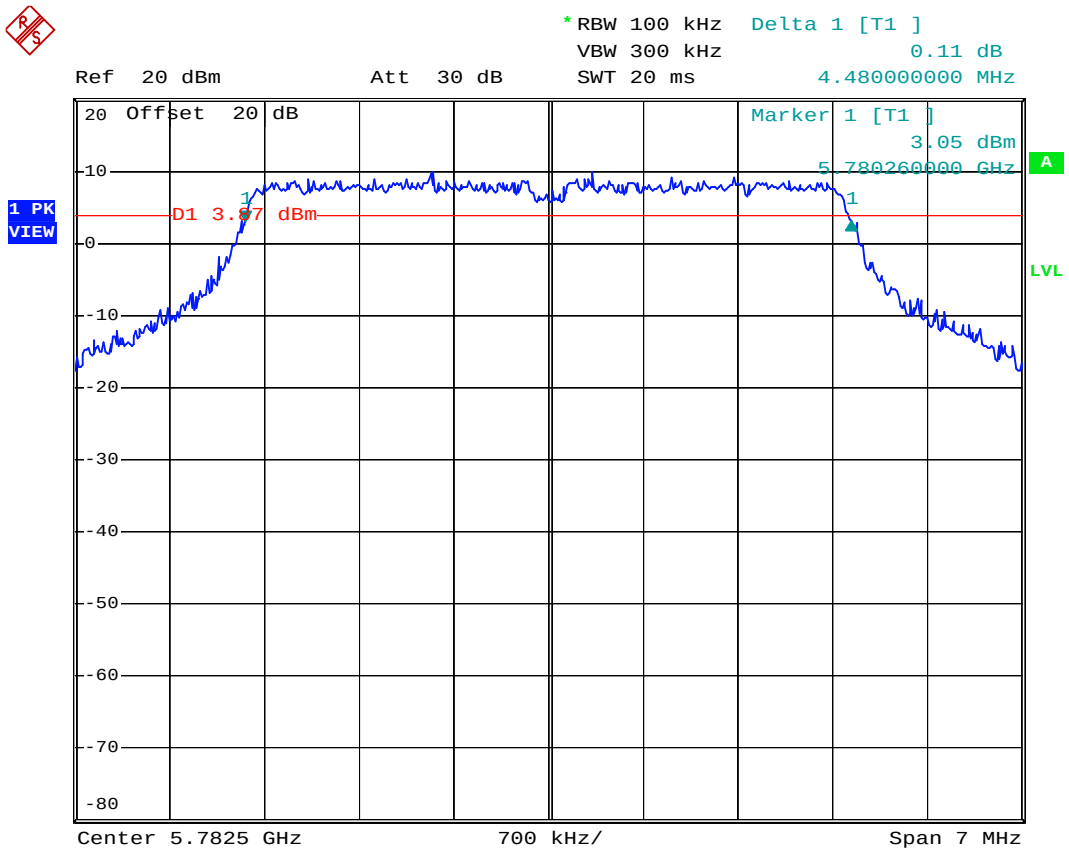
Note : The expanded uncertainty: frequency $\times 1.65\times10^{-6}$ (1 GHz $<f\leq$ 18 GHz).

Mode: 5MHz / ANT0 / Channel Low



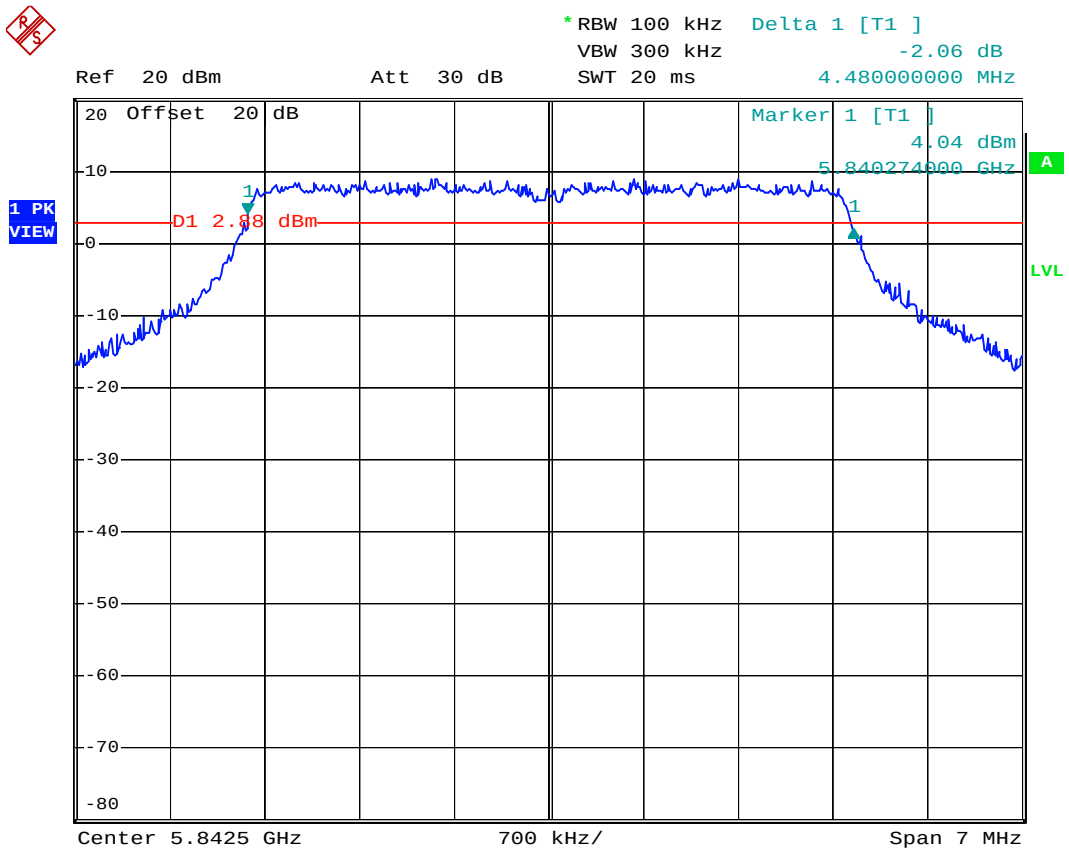
Date: 7.JAN.2016 09:31:03

Mode: 5MHz / ANT0 / Channel Mid



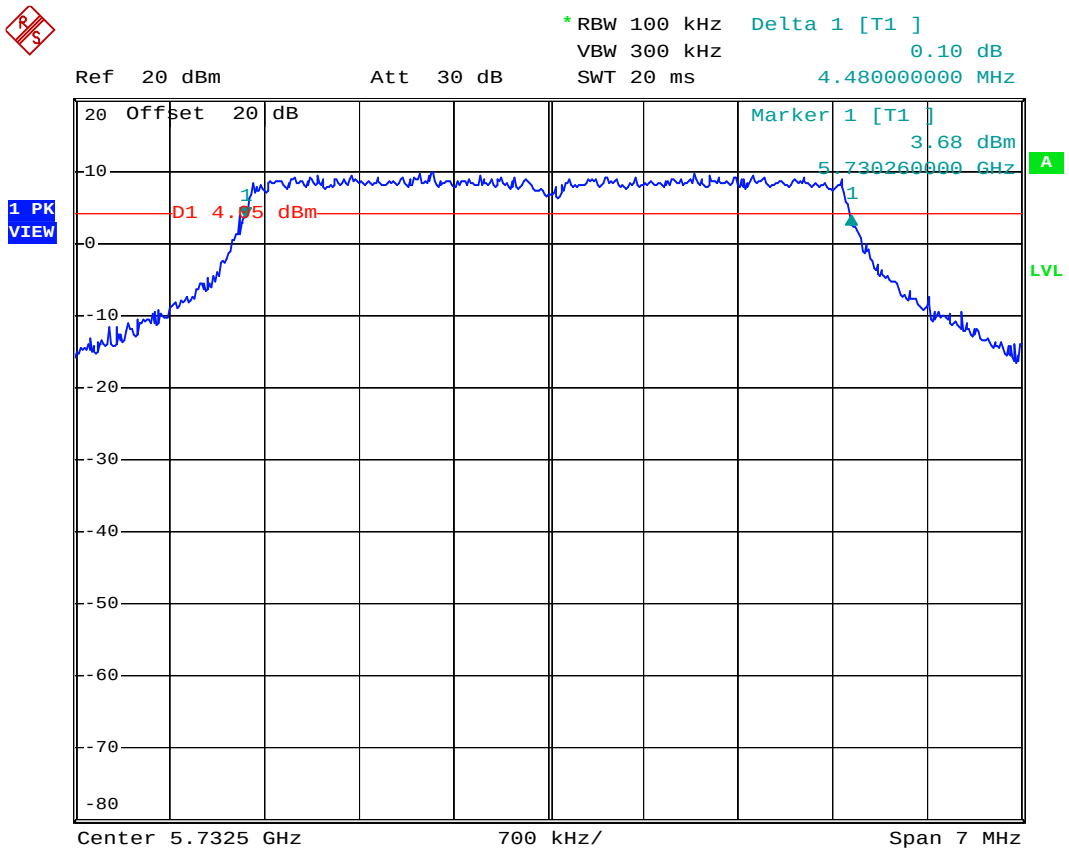
Date: 7.JAN.2016 09:32:11

Mode: 5MHz / ANT0 / Channel High



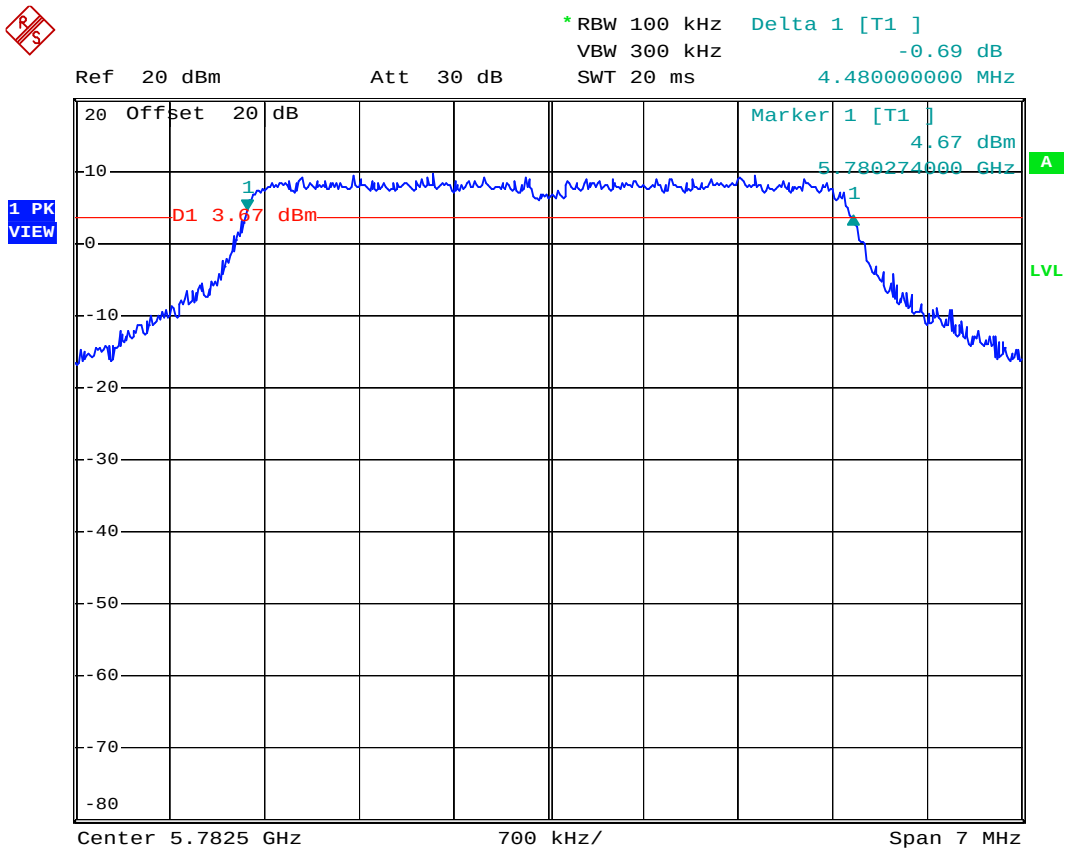
Date: 7.JAN.2016 09:33:56

Mode: 5MHz / ANT1 / Channel Low



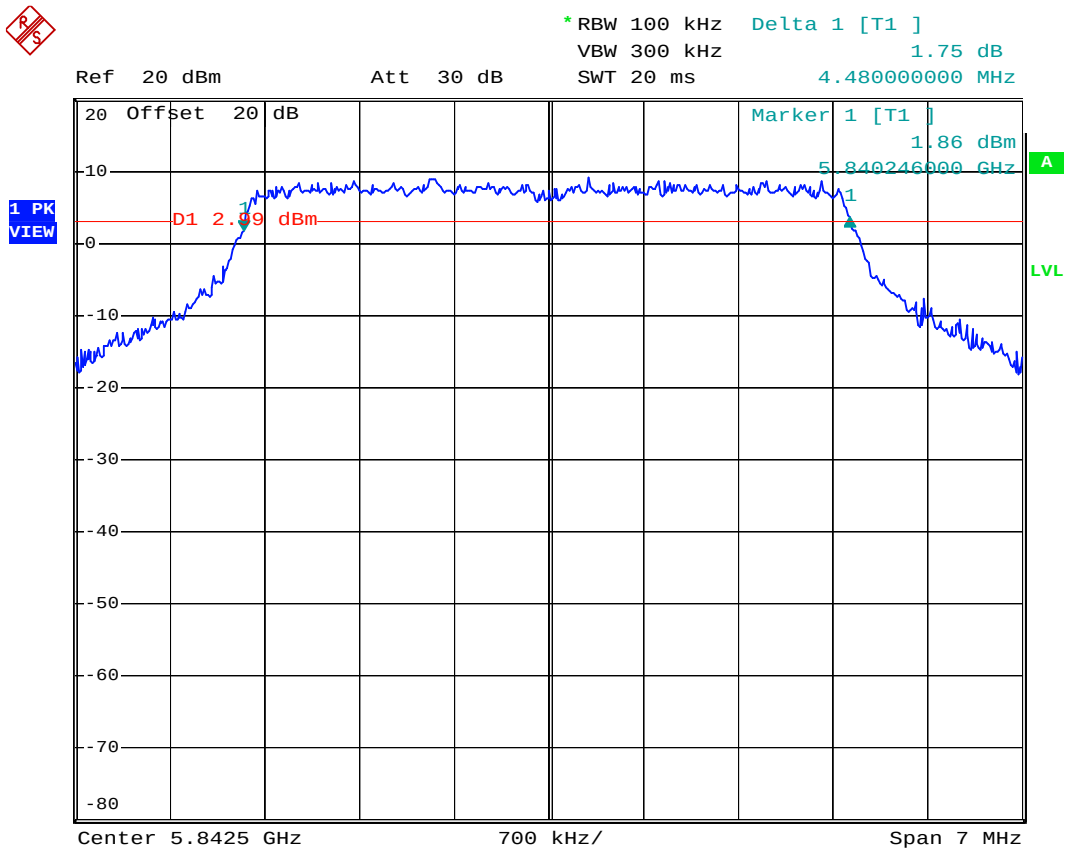
Date: 7.JAN.2016 09:31:35

Mode: 5MHz / ANT1 / Channel Mid



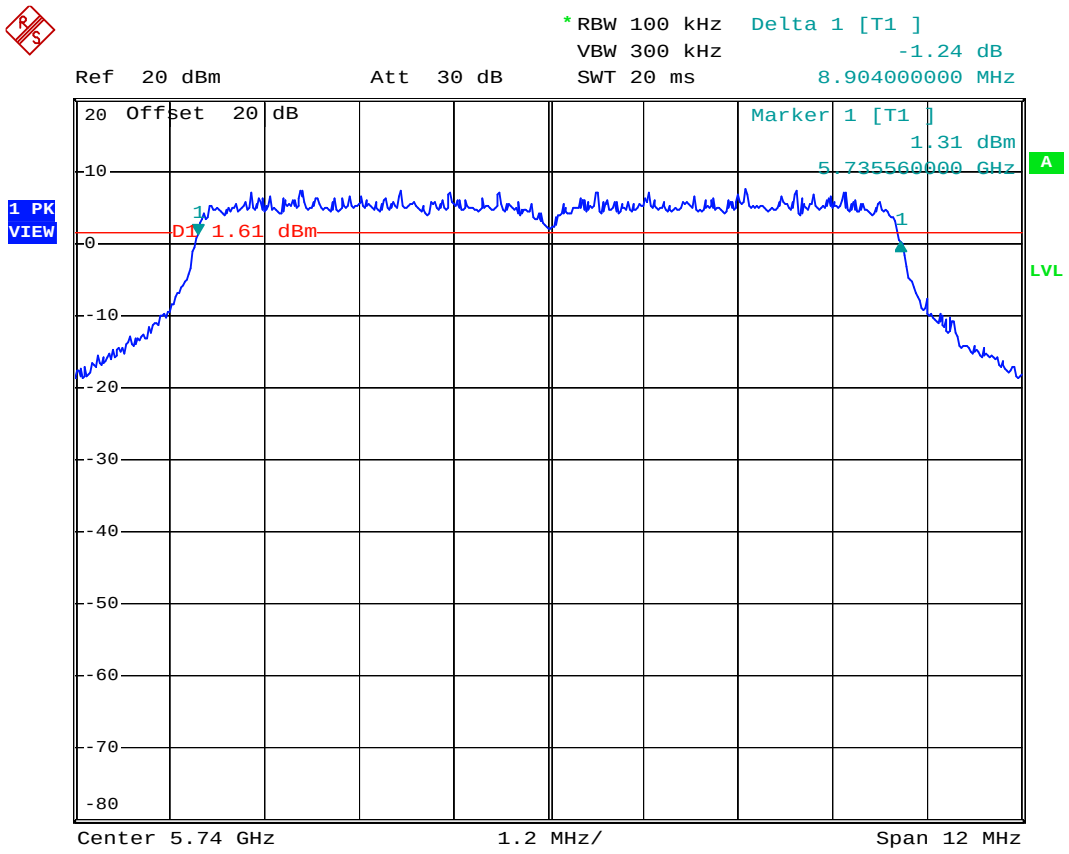
Date: 7.JAN.2016 09:33:01

Mode: 5MHz / ANT1 / Channel High



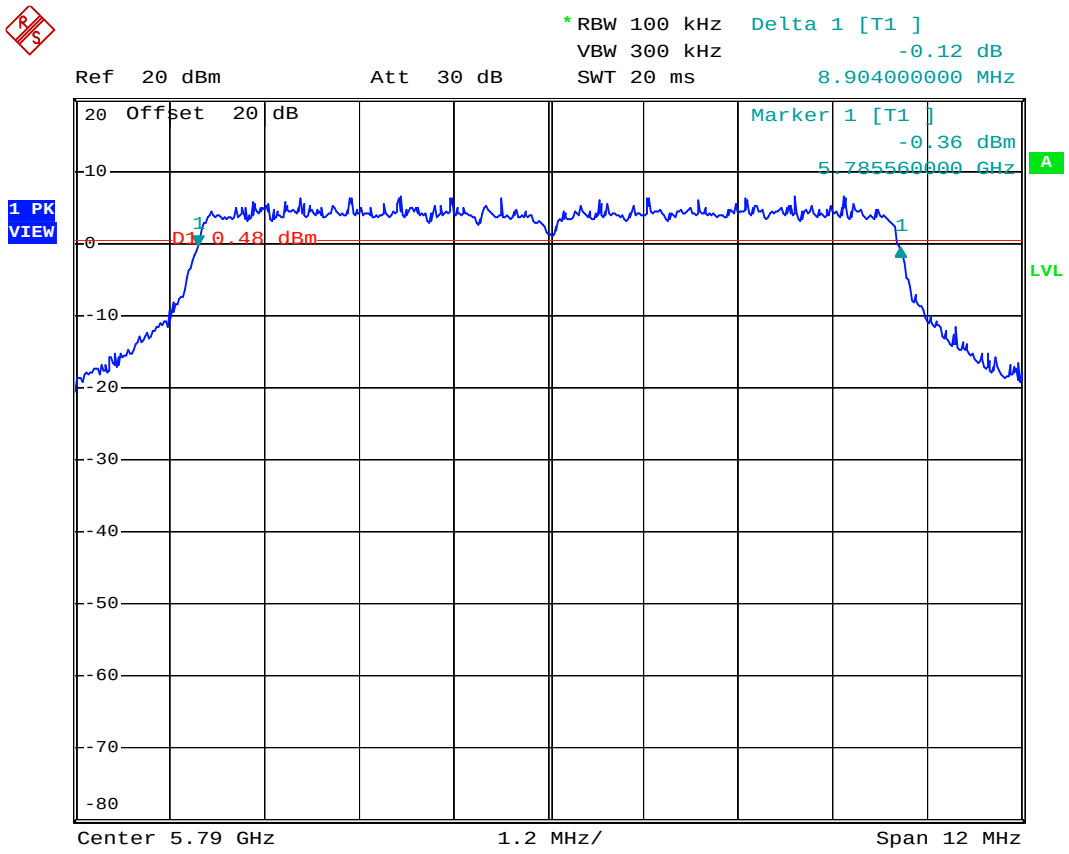
Date: 7.JAN.2016 09:34:57

Mode: 10MHz / ANT0 / Channel Low



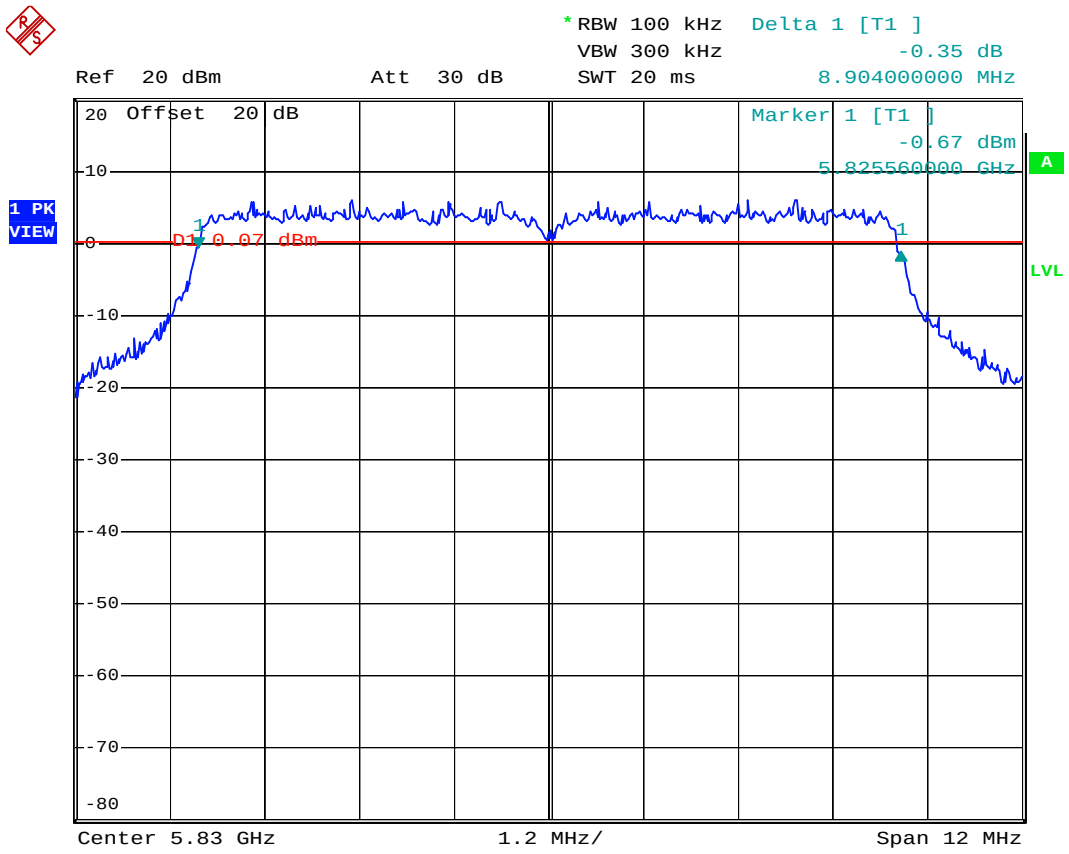
Date: 7.JAN.2016 09:42:55

Mode: 10MHz / ANT0 / Channel Mid



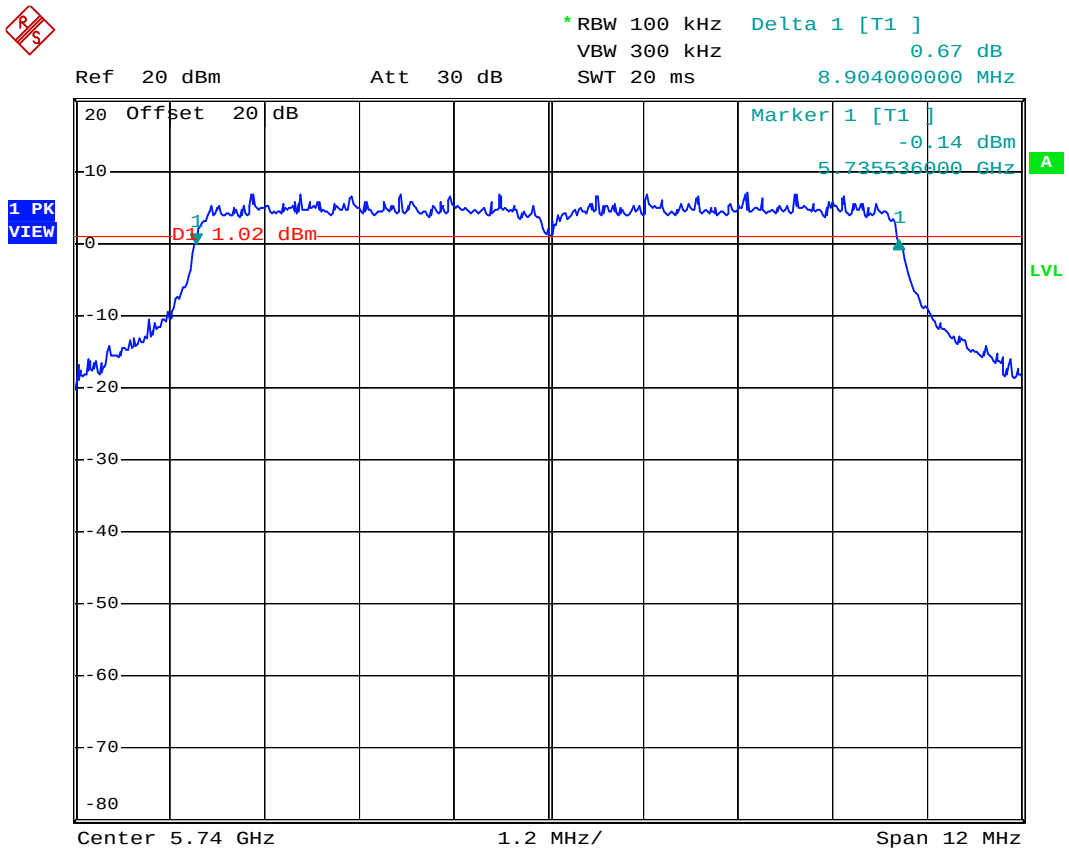
Date: 7.JAN.2016 09:43:59

Mode: 10MHz / ANT0 / Channel High



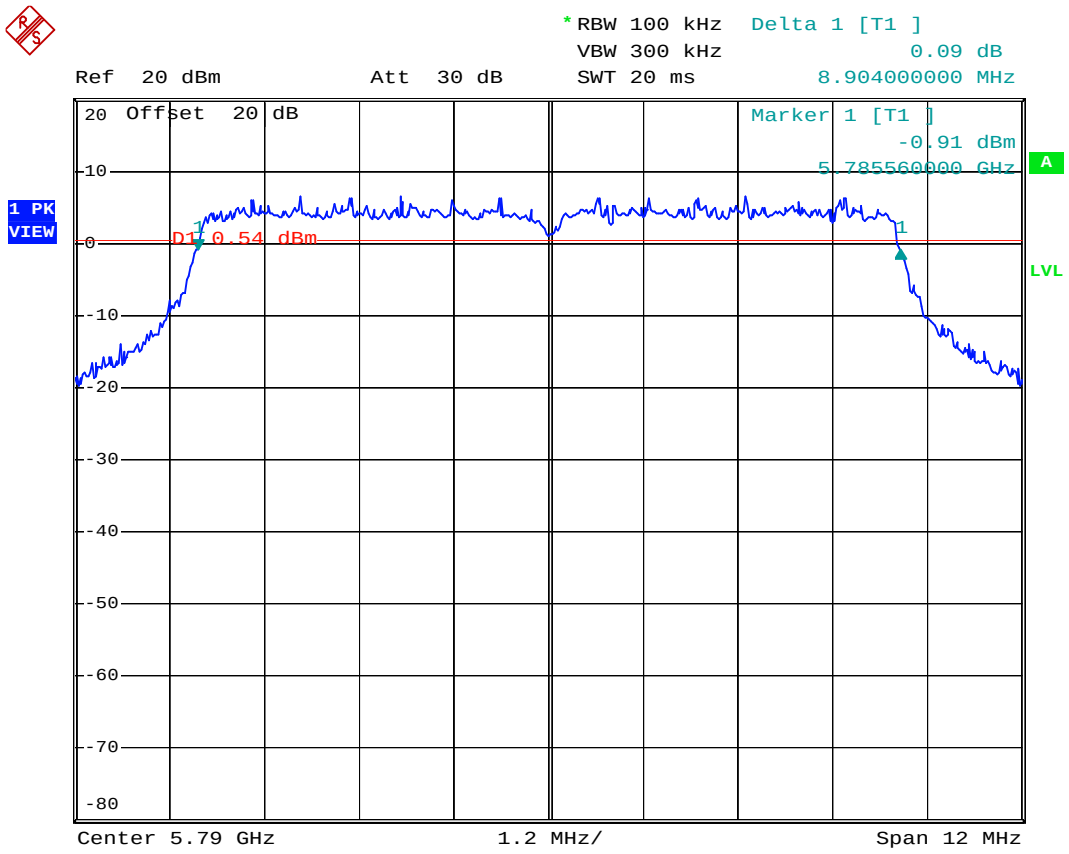
Date: 7.JAN.2016 09:45:07

Mode: 10MHz / ANT1 / Channel Low



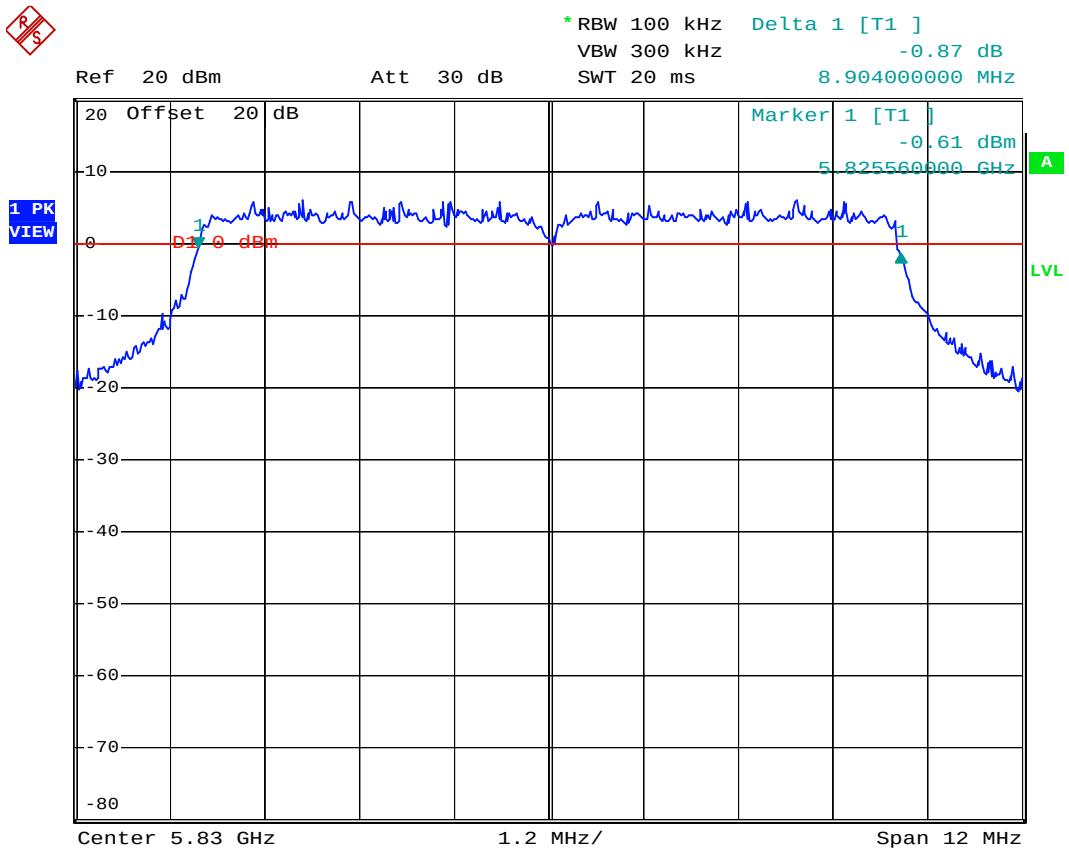
Date: 7.JAN.2016 09:43:22

Mode: 10MHz / ANT1 / Channel Mid



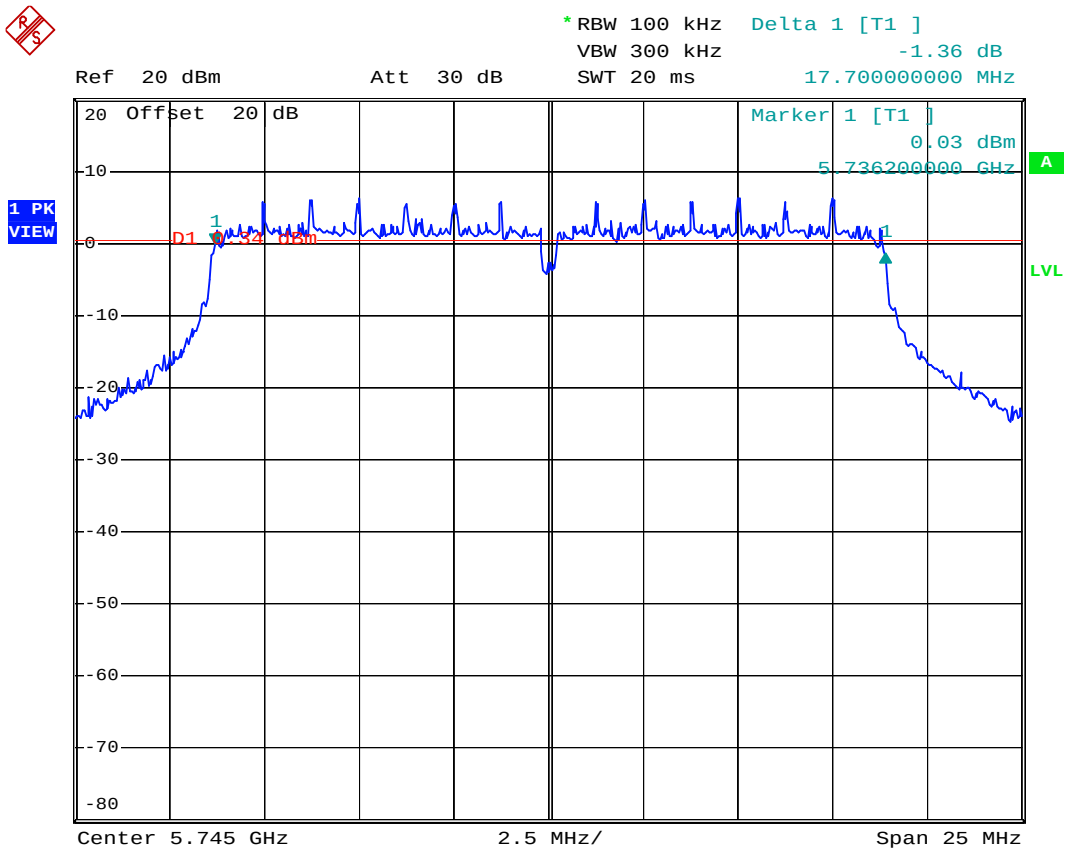
Date: 7.JAN.2016 09:44:31

Mode: 10MHz / ANT1 / Channel High



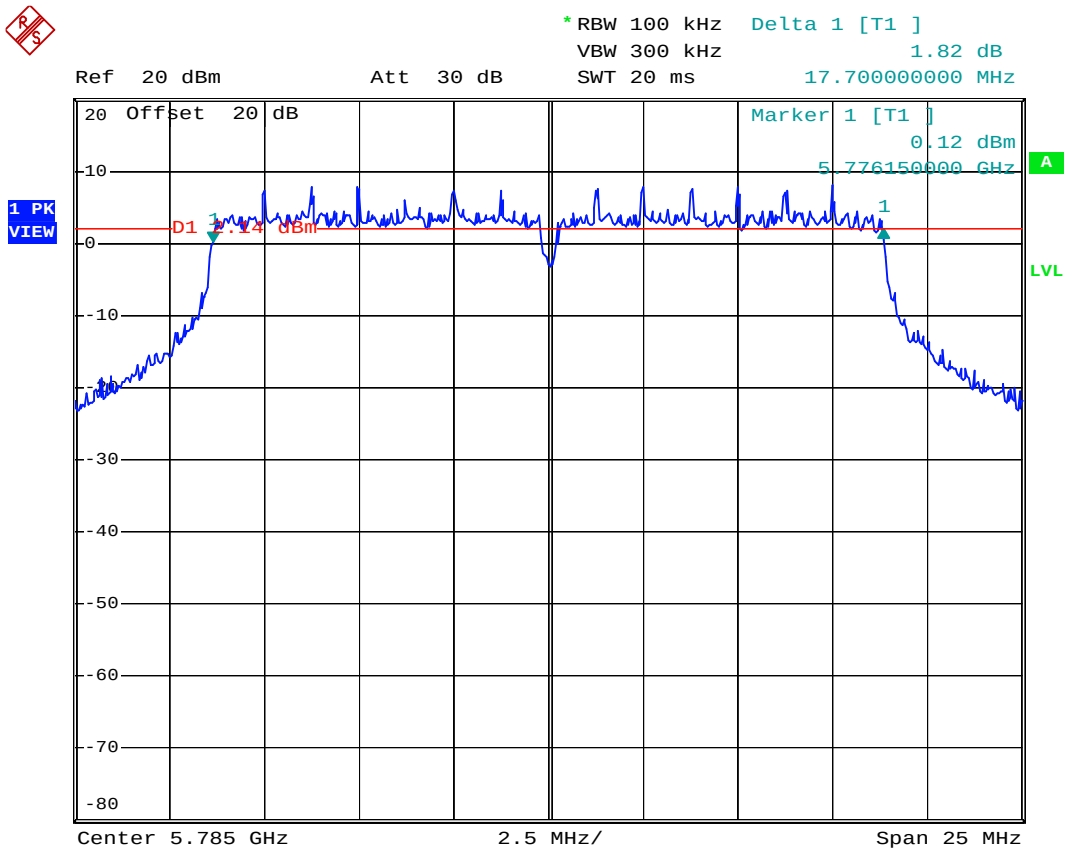
Date: 7.JAN.2016 09:45:34

Mode: 20MHz / ANT0 / Channel Low



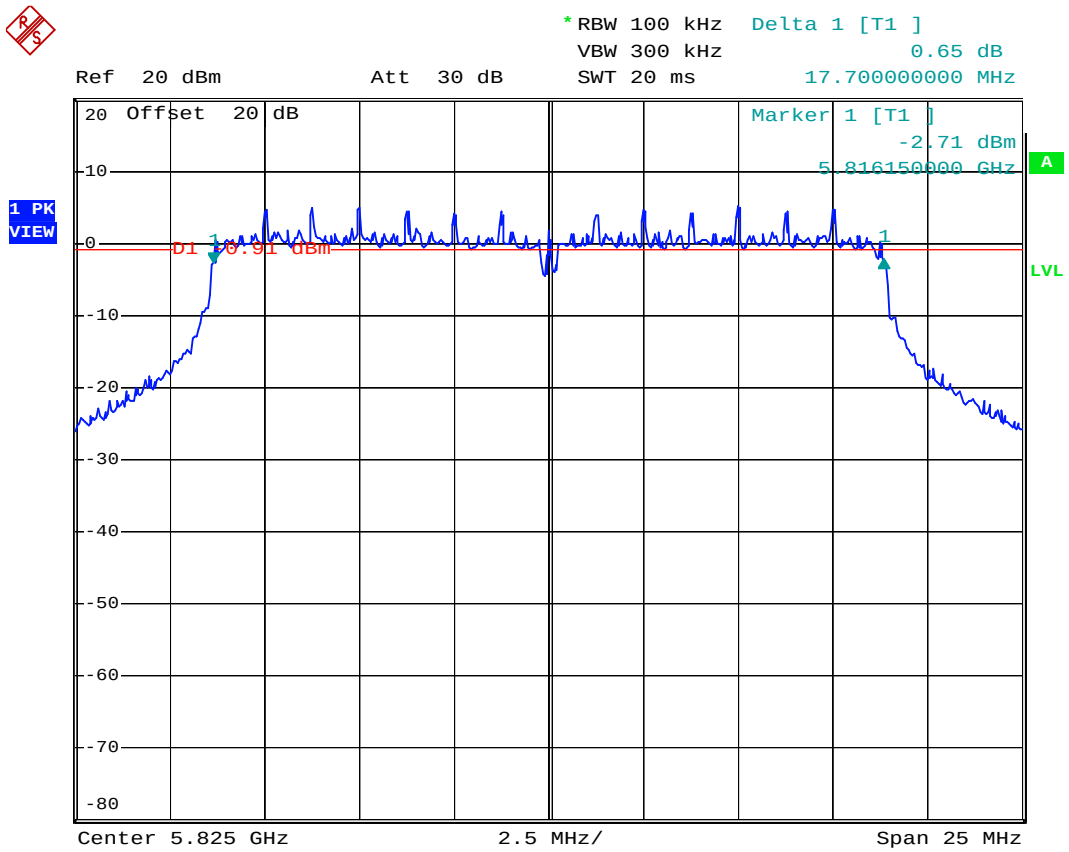
Date: 7.JAN.2016 09:53:37

Mode: 20MHz / ANT0 / Channel Mid



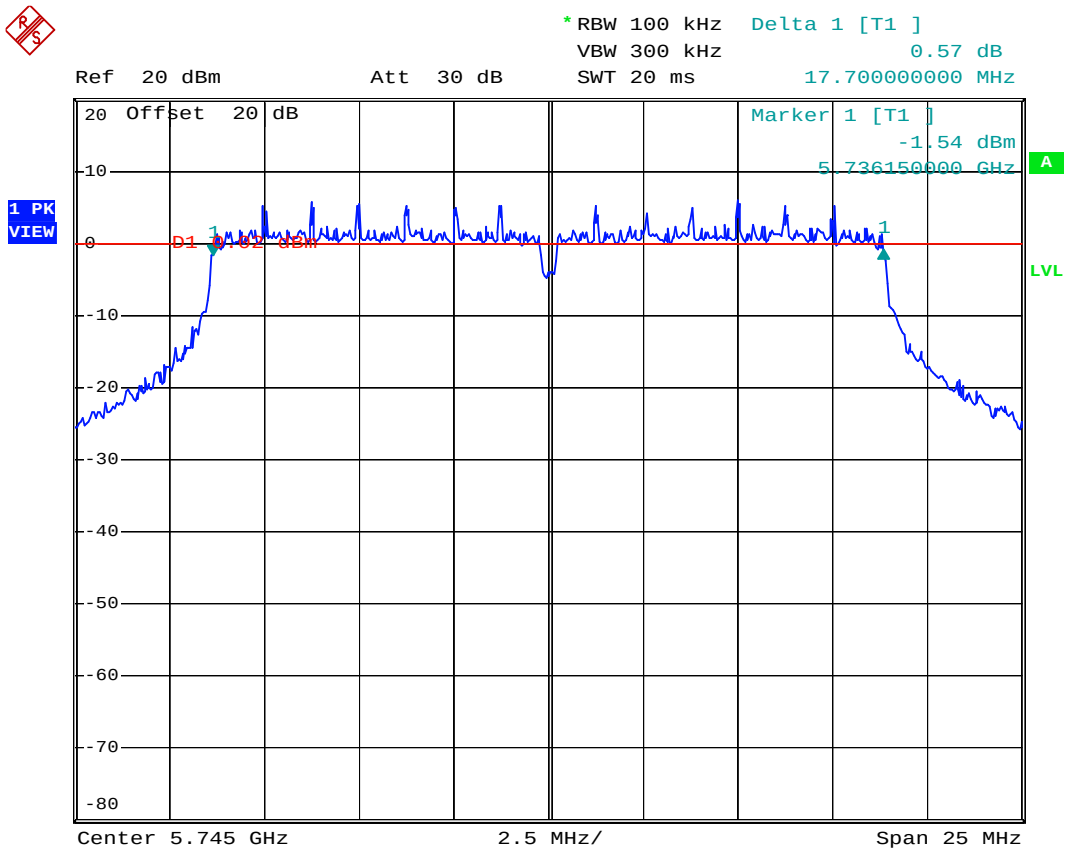
Date: 7.JAN.2016 10:04:25

Mode: 20MHz / ANT0 / Channel High



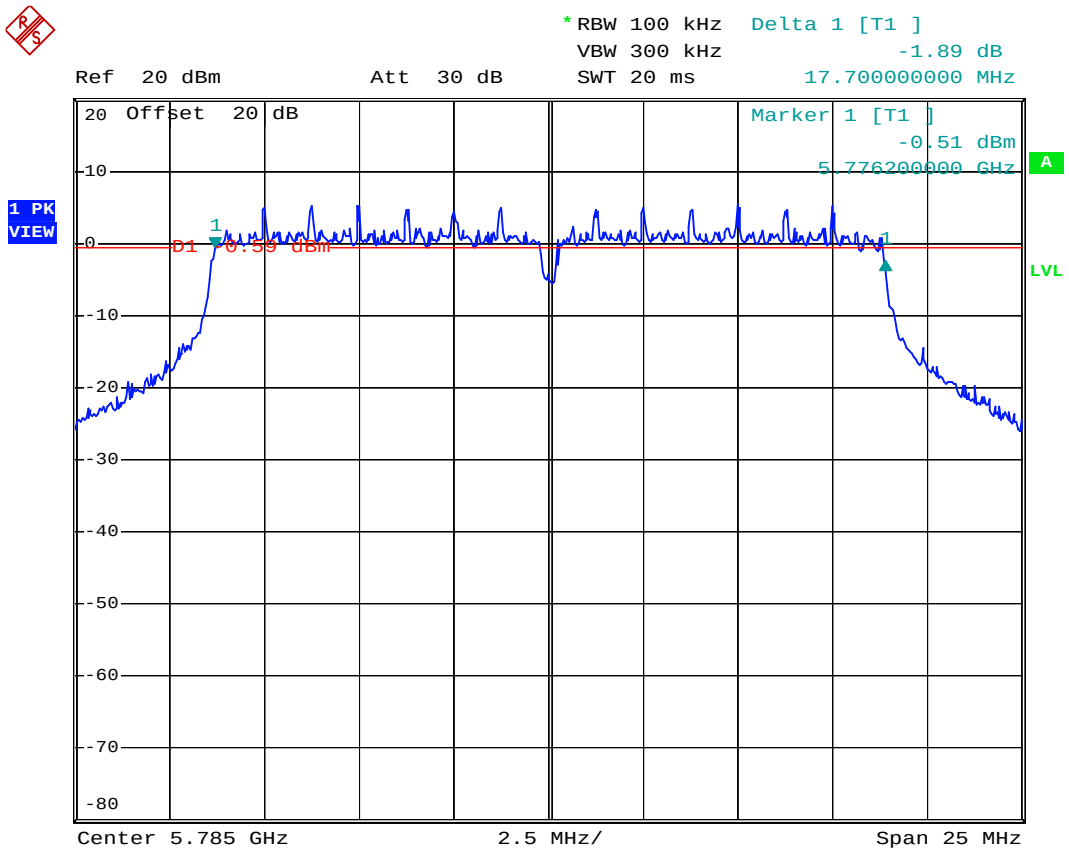
Date: 7.JAN.2016 10:06:18

Mode: 20MHz / ANT1 / Channel Low



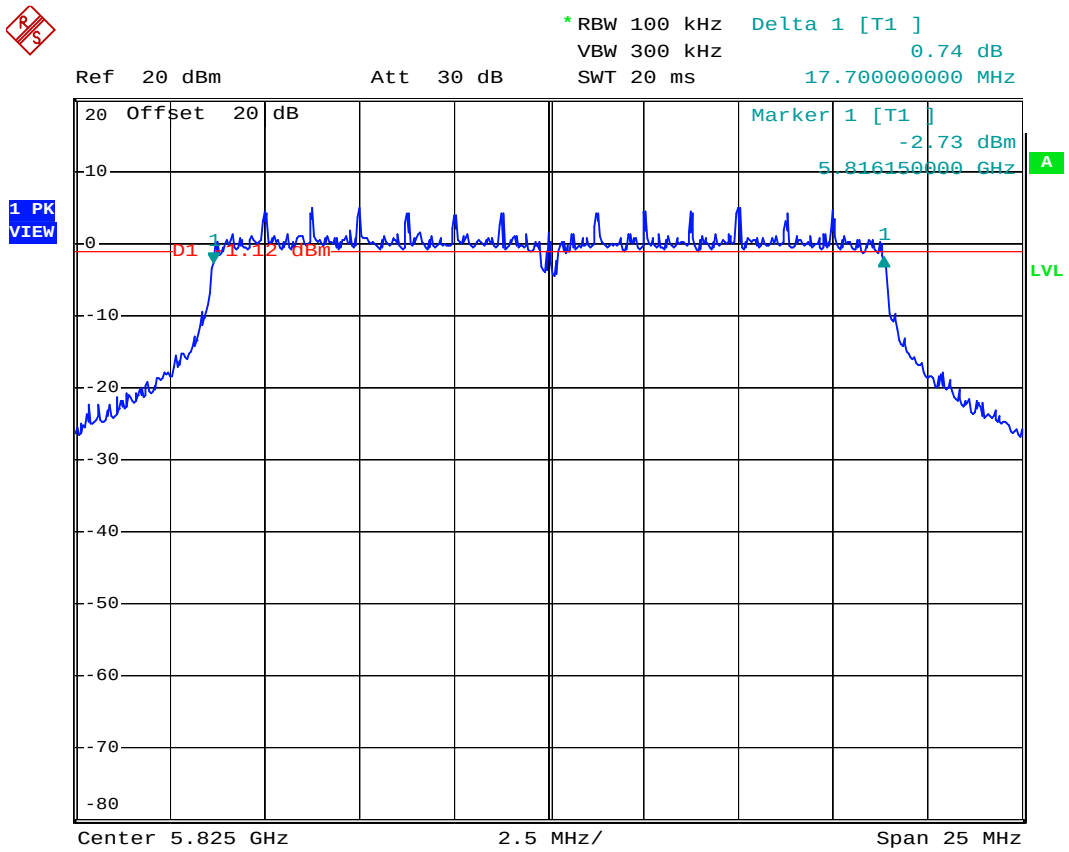
Date: 7.JAN.2016 09:54:14

Mode: 20MHz / ANT1 / Channel Mid



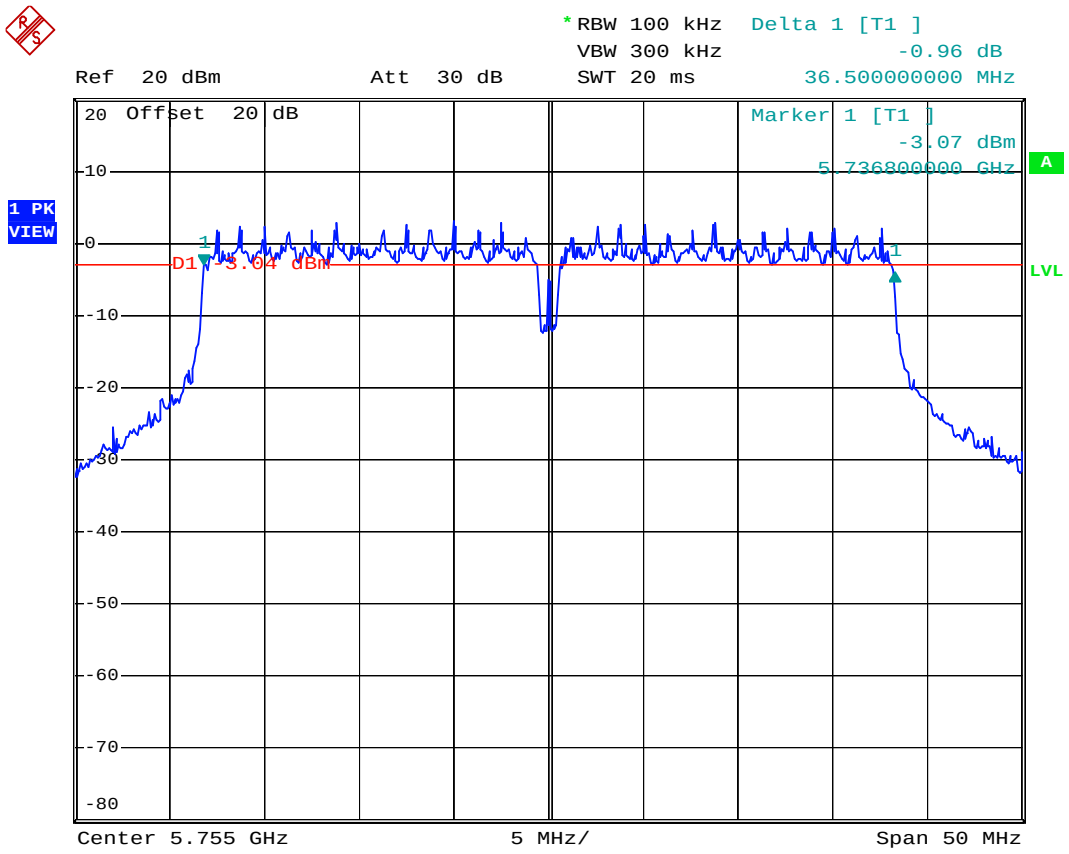
Date: 7.JAN.2016 10:05:31

Mode: 20MHz / ANT1 / Channel High



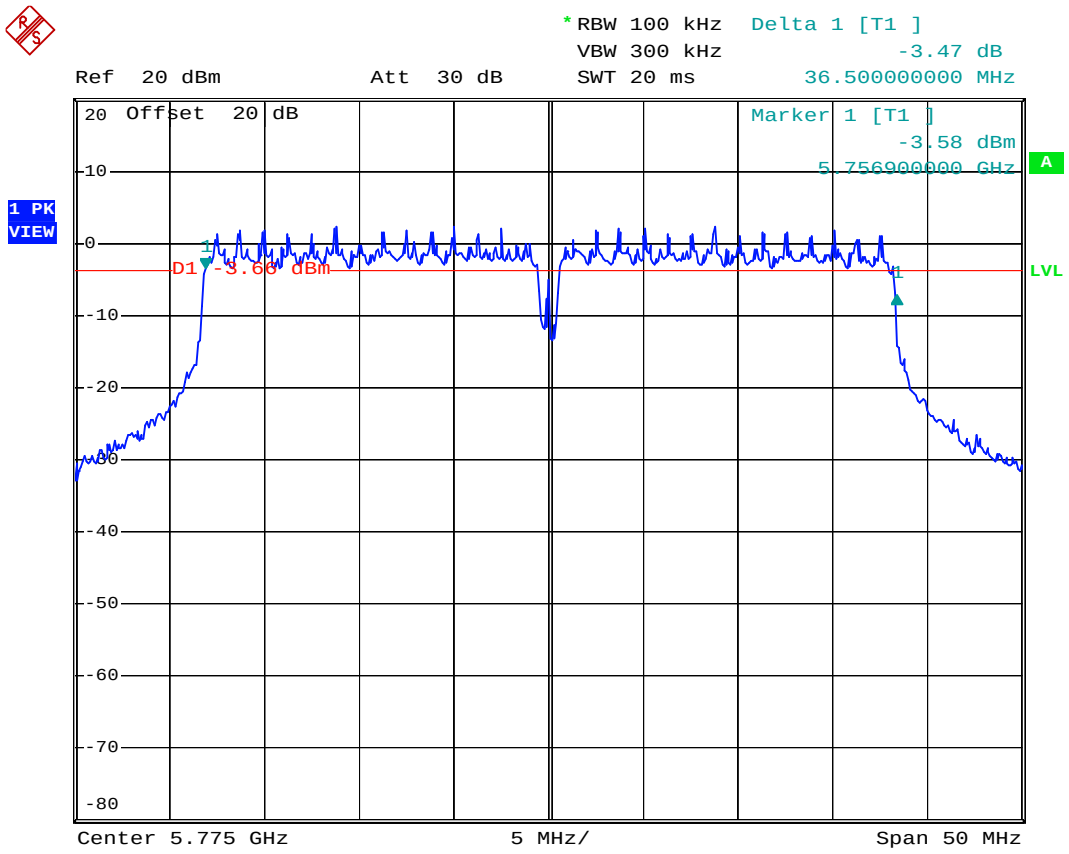
Date: 7.JAN.2016 10:06:55

Mode: 40MHz / ANT0 / Channel Low



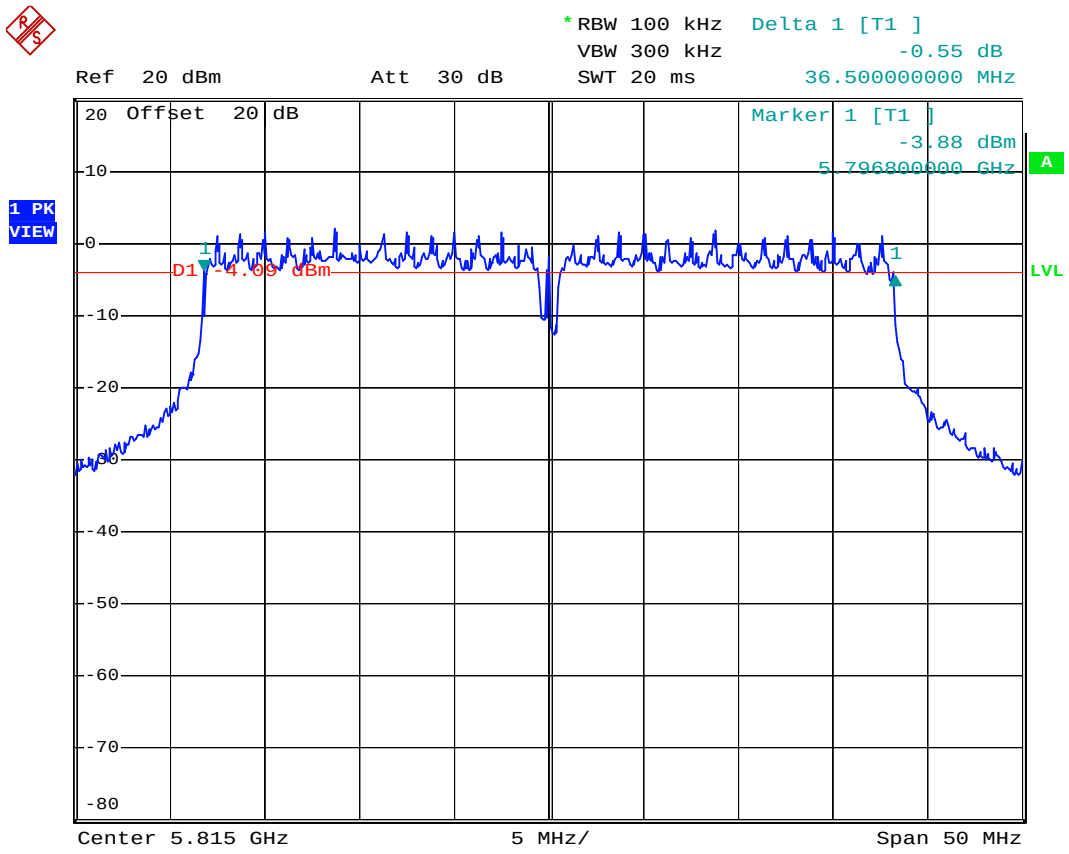
Date: 7.JAN.2016 10:23:04

Mode: 40MHz / ANT0 / Channel Mid



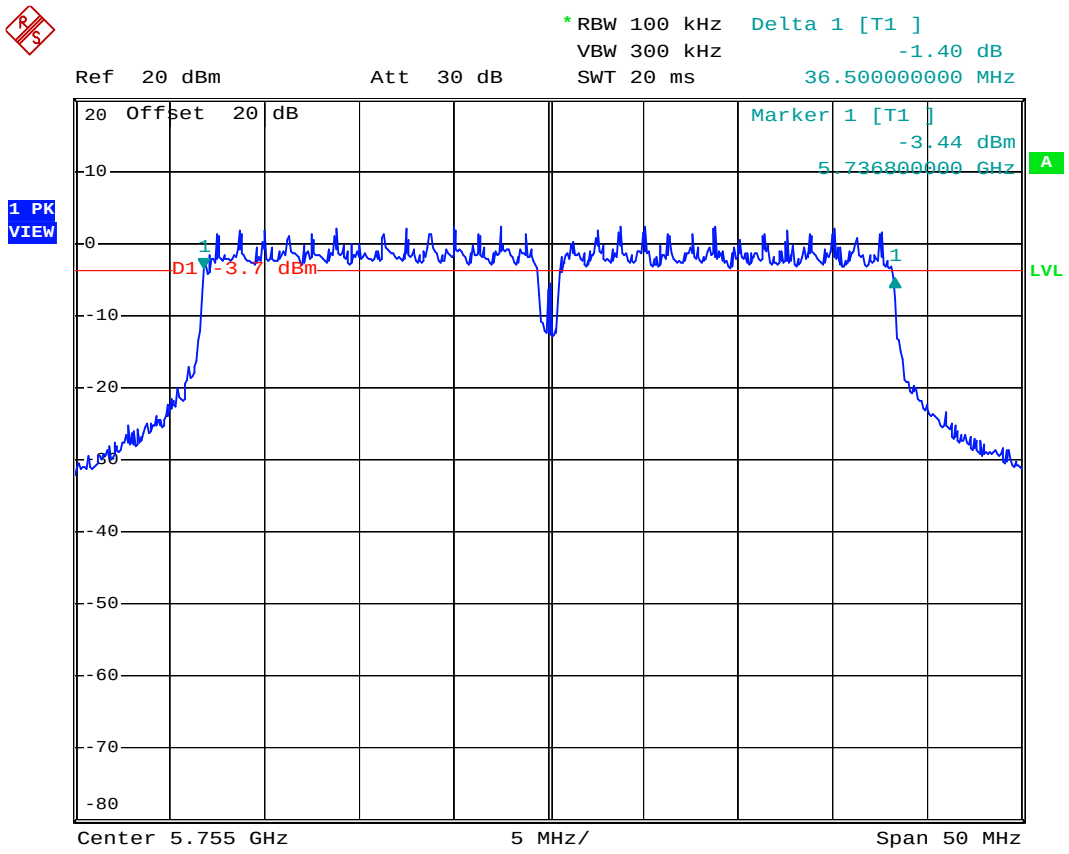
Date: 7.JAN.2016 10:24:38

Mode: 40MHz / ANT0 / Channel High



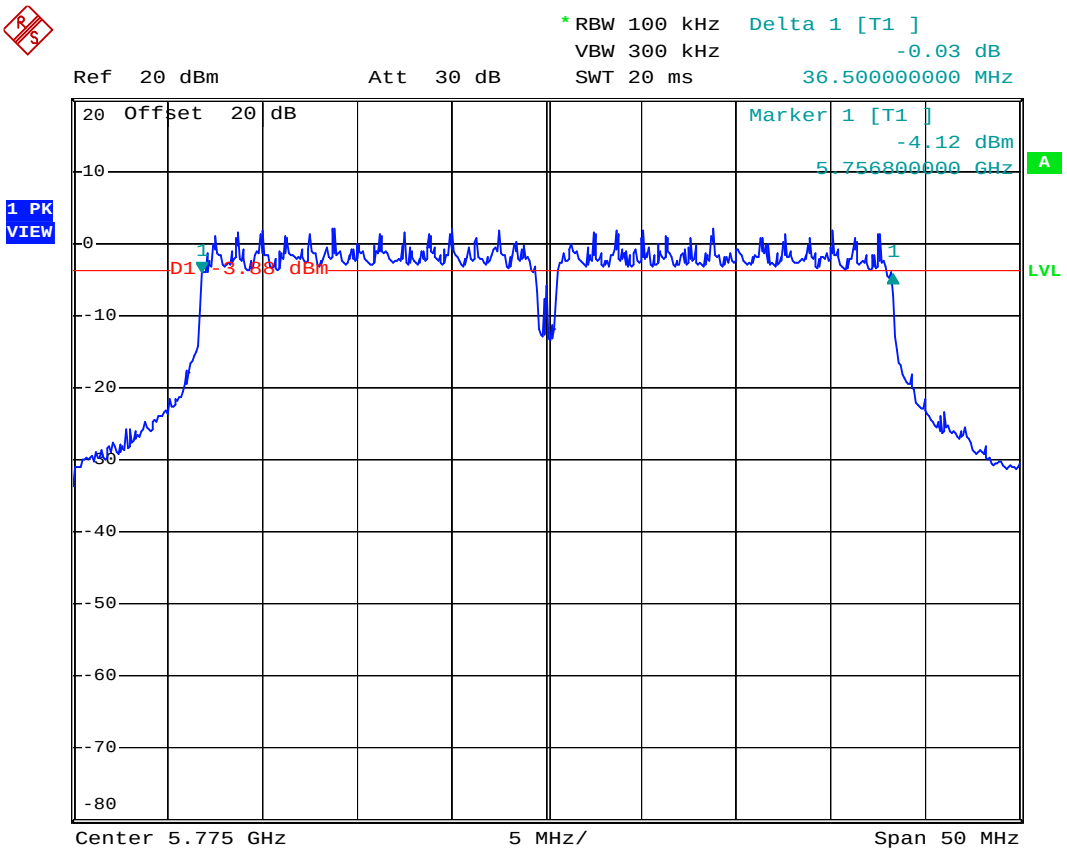
Date: 7.JAN.2016 10:26:08

Mode: 40MHz / ANT1 / Channel Low



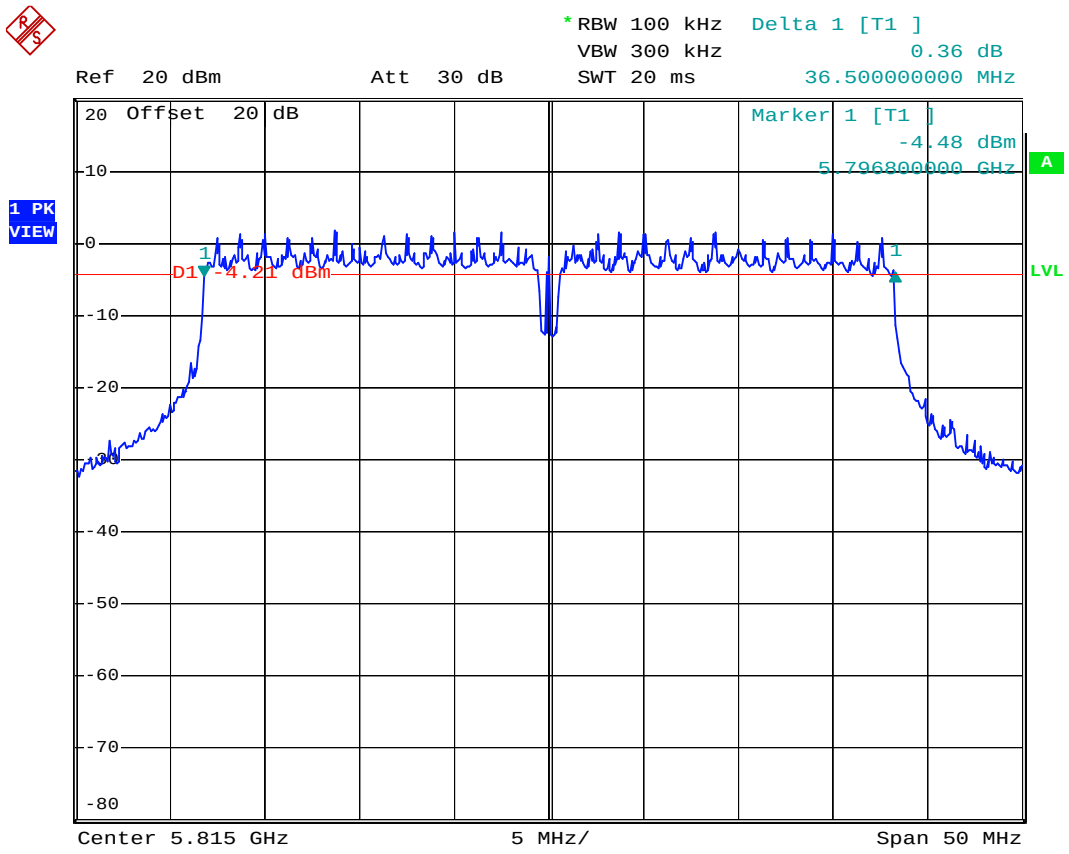
Date: 7.JAN.2016 10:23:39

Mode: 40MHz / ANT1 / Channel Mid



Date: 7.JAN.2016 10:25:12

Mode: 40MHz / ANT1 / Channel High



Date: 7.JAN.2016 10:26:58

8 OUTPUT POWER MEASUREMENT

8.1 Standard Applicable

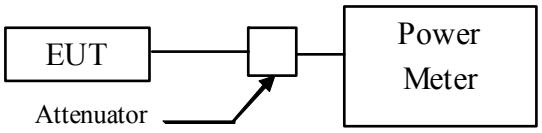
According to 15.407(a)(3), for the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

8.2 Measurement Procedure

Measurement Procedure:
Method PM (Measurement using an RF average power meter)

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 5 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable.
3. Record the readings on the instrument and add a compensat factor of the attenuator.
4. Repeat above procedures until all frequencies measured were complete.

Figure 5: Output power and measurement configuration.



8.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
POWER METER +SENSOR	ANRITSU	ML2487A +MA2491A	2015/01/16	2016/01/15
Attenuator	MINI-CIRCUITS	BW-S10W2+	2015/10/07	2016/10/06

8.4 Measurement Data

Test Date : Jan. 07, 2016 Temperature : 24 °C Humidity : 56 %

Measurement Procedure:

Method PM (Measurement using an RF average power meter)

(A) 5MHz

Chan. Freq.(MHz)	Average Power(dBm)		Total Power(mW)	Total Power(dBm)	Limit(dBm)	Pass/Fail
	Chain 0	Chain 1				
5732.5	23.20	22.10	371.11	25.70	30.00	Pass
5782.5	22.80	21.90	345.43	25.38	30.00	Pass
5842.5	22.40	21.50	315.03	24.98	30.00	Pass

(B) 10MHz

Chan. Freq.(MHz)	Average Power(dBm)		Total Power(mW)	Total Power(dBm)	Limit(dBm)	Pass/Fail
	Chain 0	Chain 1				
5740	22.90	21.80	346.34	25.40	30.00	Pass
5790	22.50	21.40	315.87	25.00	30.00	Pass
5830	22.10	21.00	288.07	24.60	30.00	Pass

(C) 20MHz

Chan. Freq.(MHz)	Average Power(dBm)		Total Power(mW)	Total Power(dBm)	Limit(dBm)	Pass/Fail
	Chain 0	Chain 1				
5745	22.50	21.50	319.08	25.04	30.00	Pass
5785	22.10	21.10	291.01	24.64	30.00	Pass
5825	21.50	20.60	256.07	24.08	30.00	Pass

(D) 40MHz

Chan. Freq.(MHz)	Average Power(dBm)		Total Power(mW)	Total Power(dBm)	Limit(dBm)	Pass/Fail
	Chain 0	Chain 1				
5755	21.80	20.90	274.38	24.38	30.00	Pass
5775	21.40	20.30	245.19	23.90	30.00	Pass
5815	21.00	19.90	223.62	23.50	30.00	Pass

Note: The EUT was operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations when using antenna with directional antenna gains greater than 6 dBi.

Note : The expanded uncertainty: 2dB.

9 100 kHz BANDWIDTH OF BAND EDGES MEASUREMENT

9.1 Standard Applicable

According to 15.247(c), if any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either at least 20 dB below that in any 100 kHz bandwidth within the band that contains the highest level of the desired power or shall not exceed the general levels specified in §15.209(a), whichever results in the lesser attenuation.

9.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set both RBW of spectrum analyzer to 100kHz and VBW to 300kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

9.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2015/07/06	2016/07/05
Attenuator	MINI-CIRCUITS	BW-S10W2+	2015/10/07	2016/10/06

9.4 Measurement Data

Test Date : Jan. 08, 2016 Temperature : 22 °C Humidity : 50 %

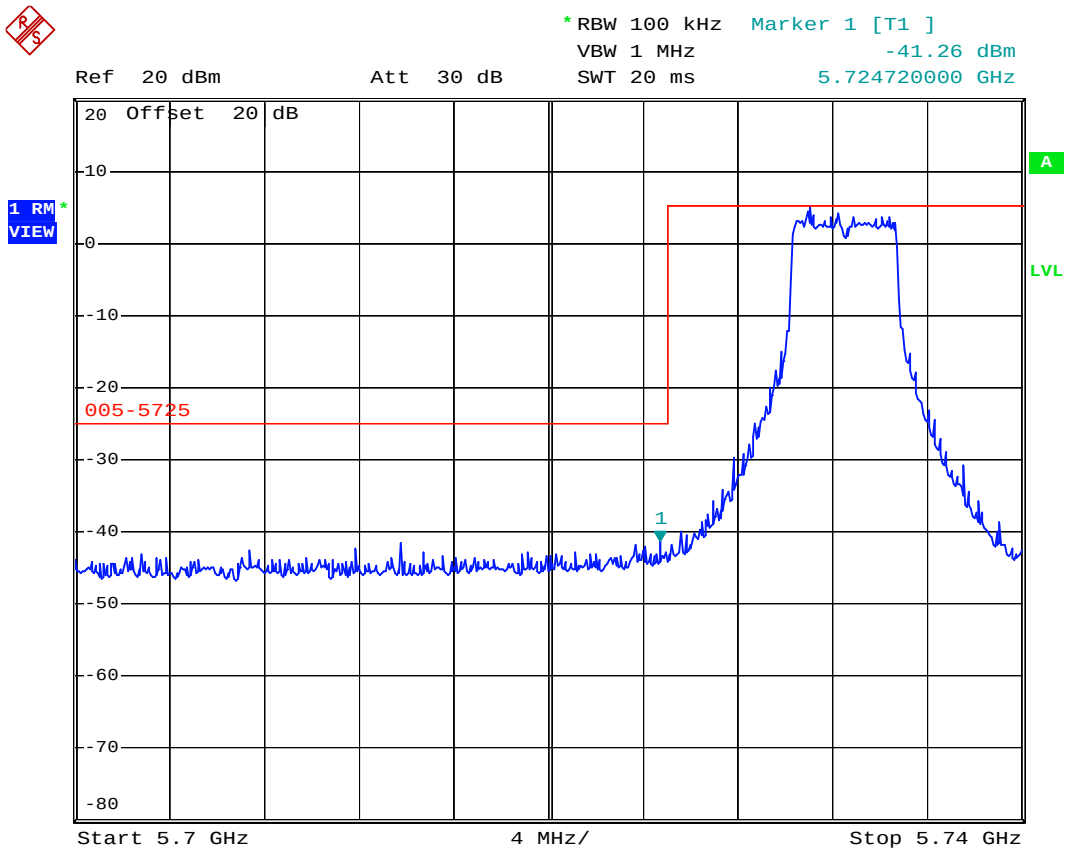
Mode: 5MHz, 10MHz, 20MHz, 40MHz

a) Lower Band Edge : All emissions in this 100kHz bandwidth are attenuated more than 20dB from the carrier.

b) Upper Band Edge : All emissions in this 100kHz bandwidth are attenuated more than 20dB from the carrier.

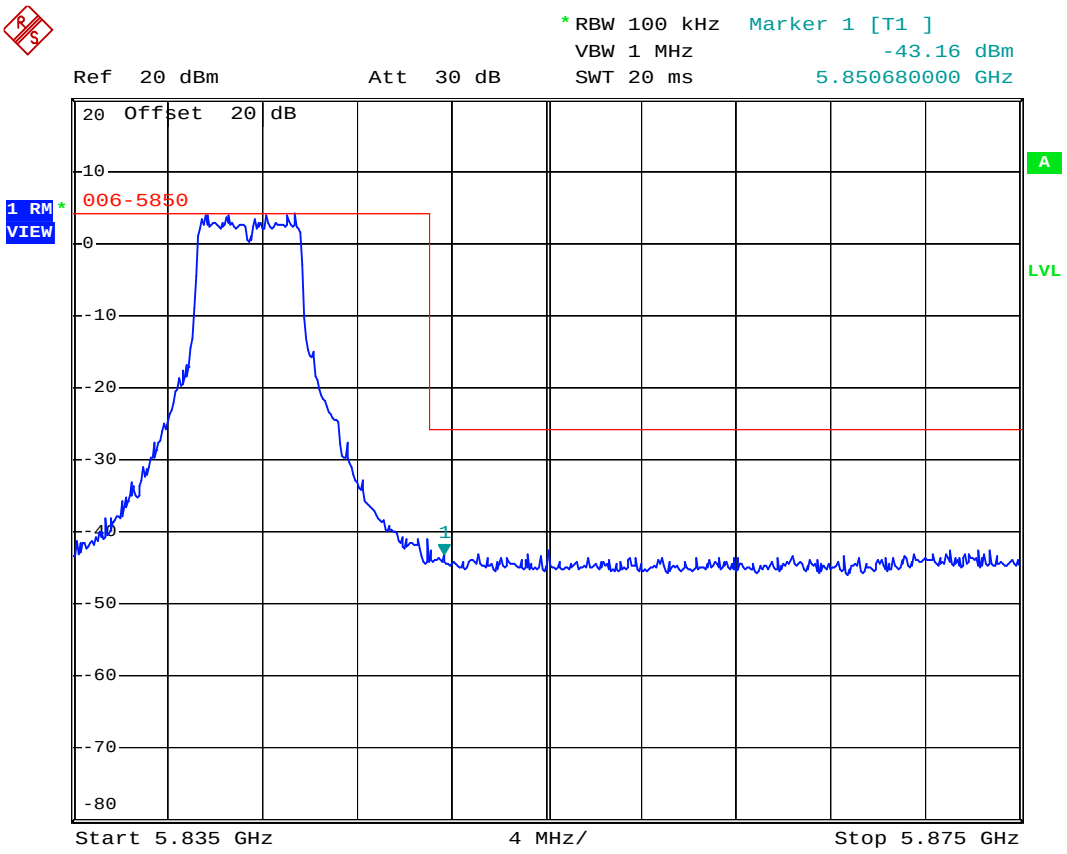
Note : The expanded uncertainty: 2dB.

5MHz / ANT0 / Channel Low



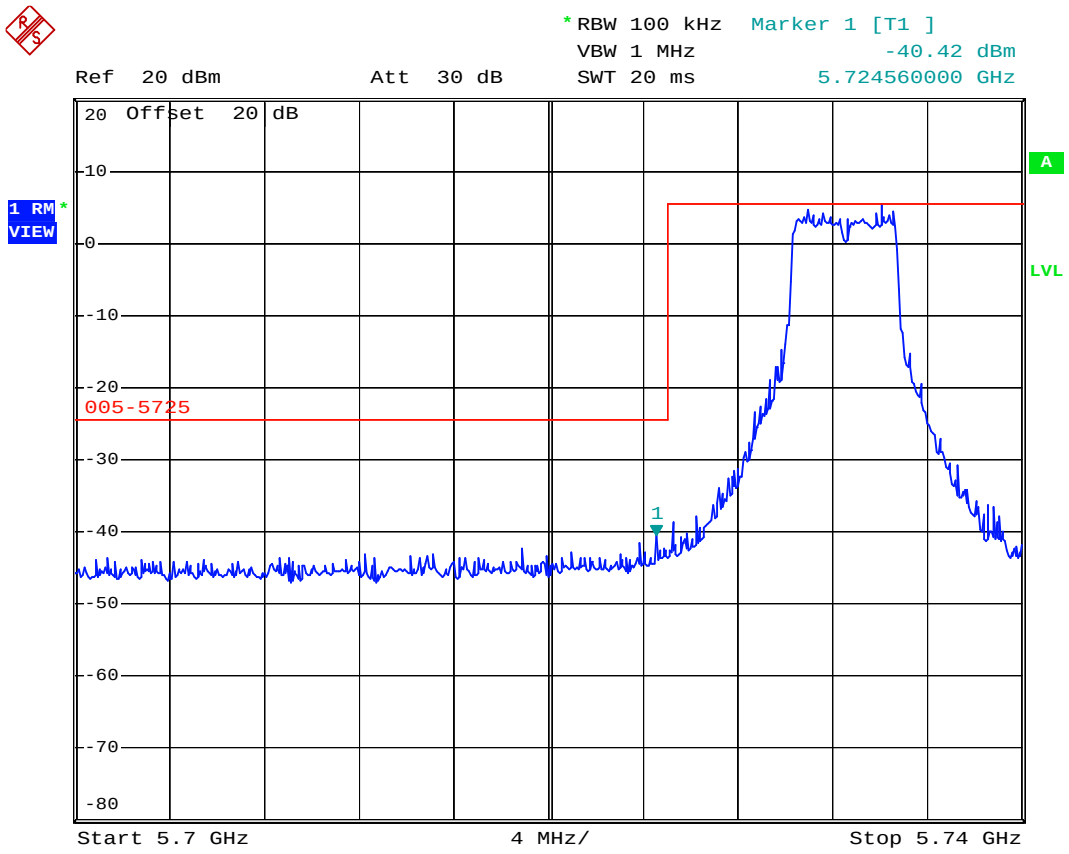
Date: 8.JAN.2016 09:39:30

5MHz / ANT0 / Channel High



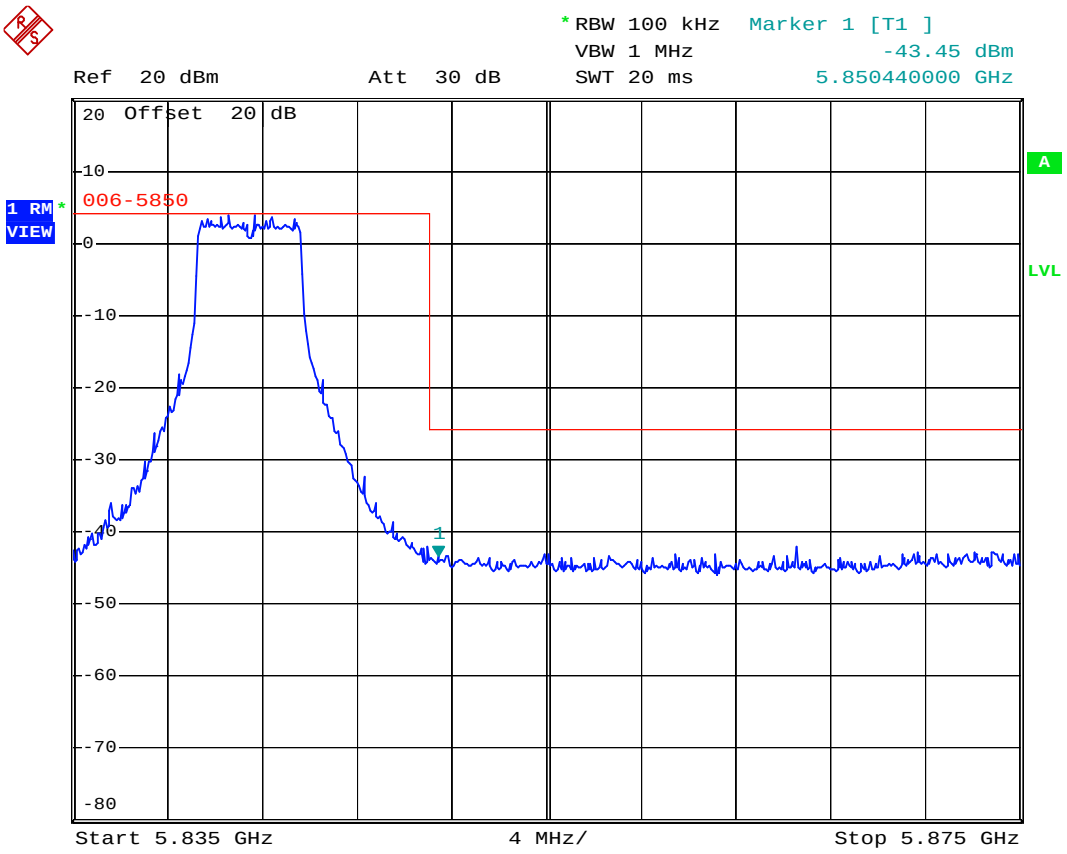
Date: 8.JAN.2016 10:50:10

5MHz / ANT1 / Channel Low



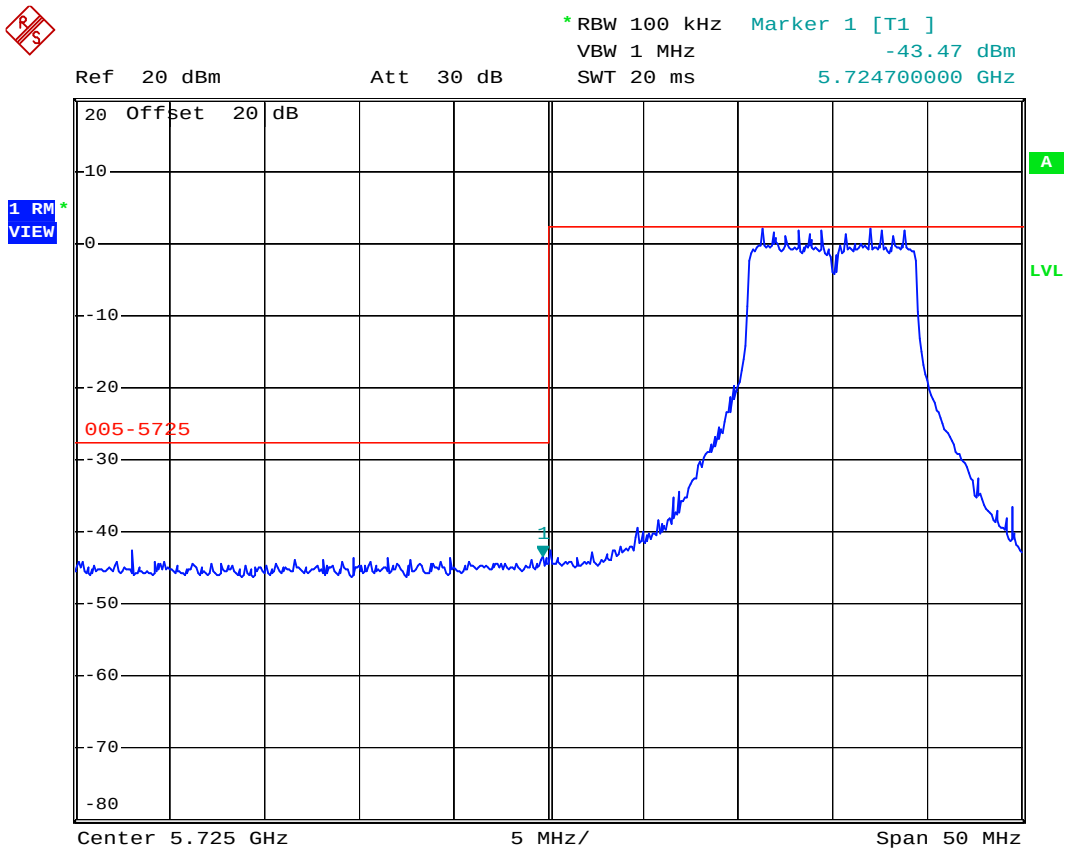
Date: 8.JAN.2016 10:45:16

5MHz / ANT1 / Channel High



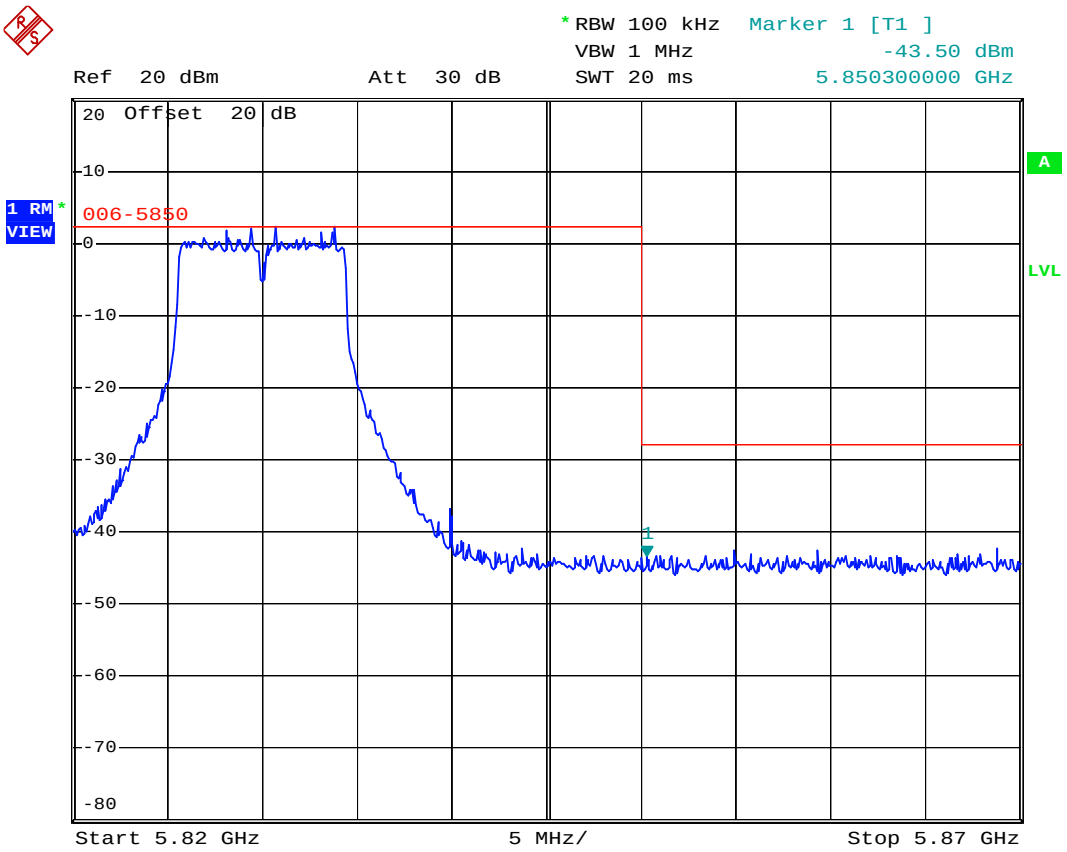
Date: 8.JAN.2016 10:50:33

10MHz / ANT0 / Channel Low



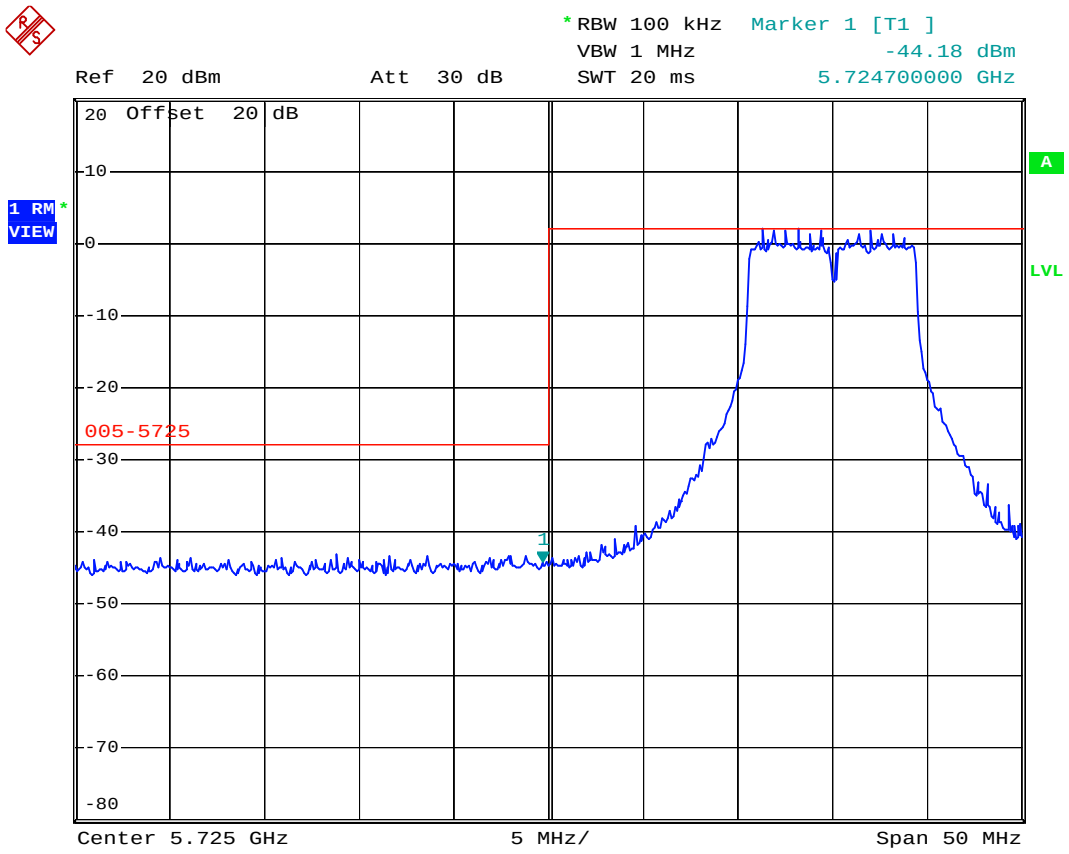
Date: 8.JAN.2016 10:54:39

10MHz / ANT0 / Channel High



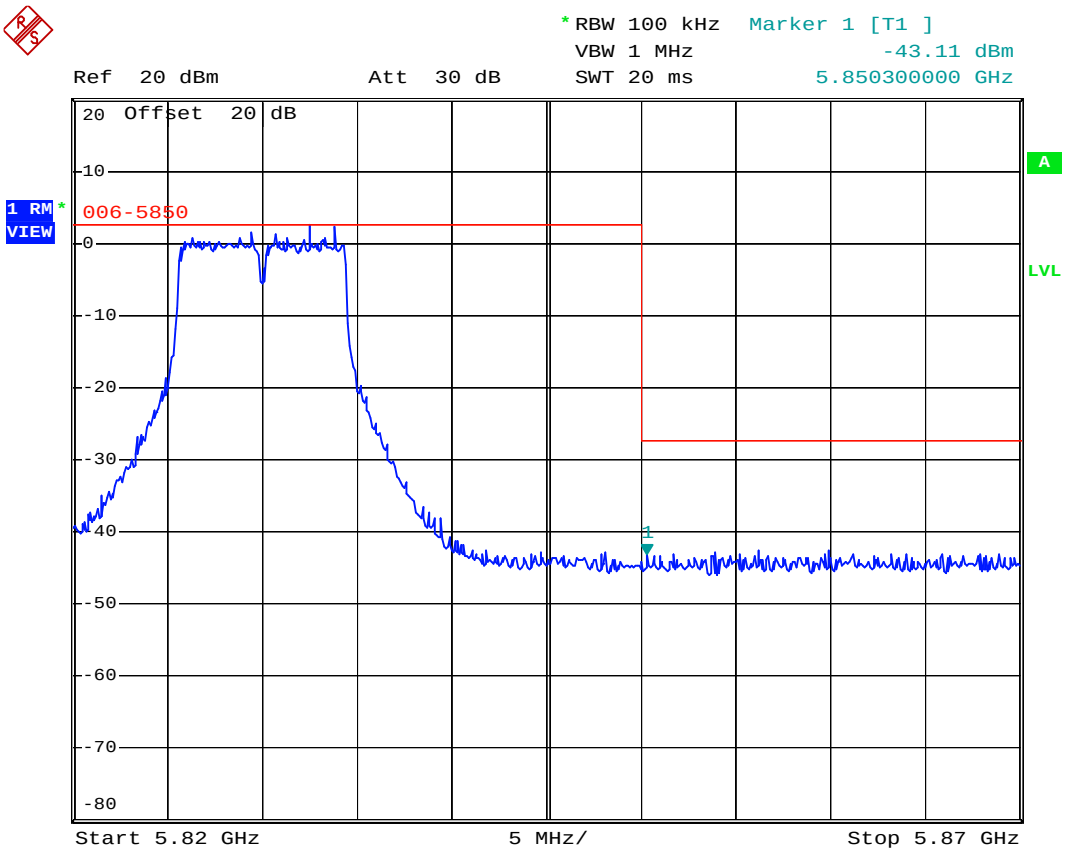
Date: 8.JAN.2016 10:58:46

10MHz / ANT1 / Channel Low



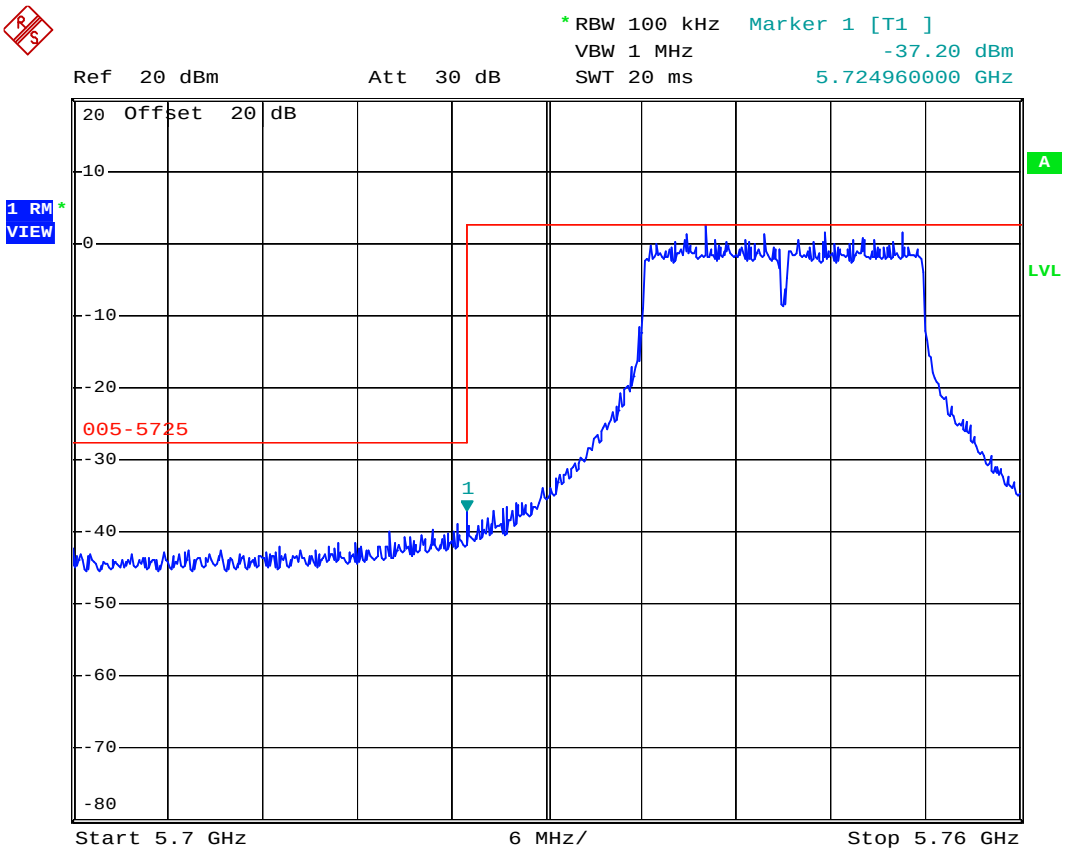
Date: 8.JAN.2016 10:55:32

10MHz / ANT1 / Channel High



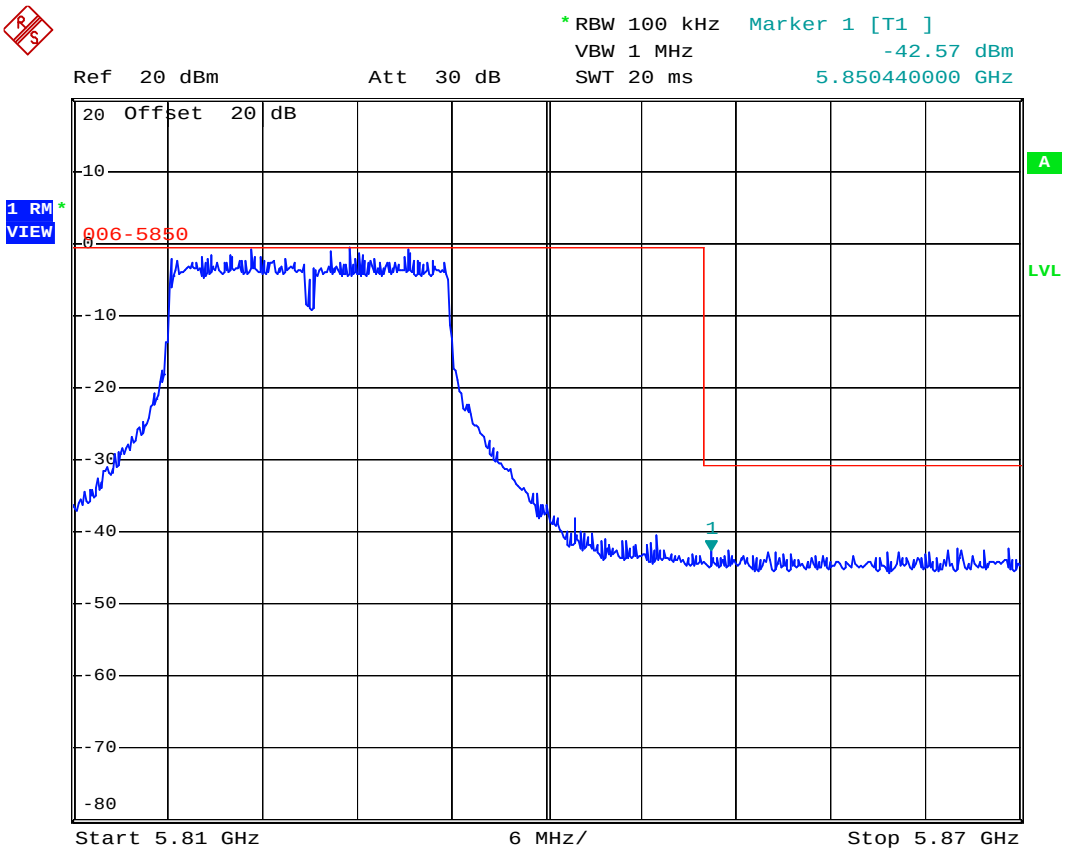
Date: 8.JAN.2016 10:59:43

20MHz / ANT0 / Channel Low



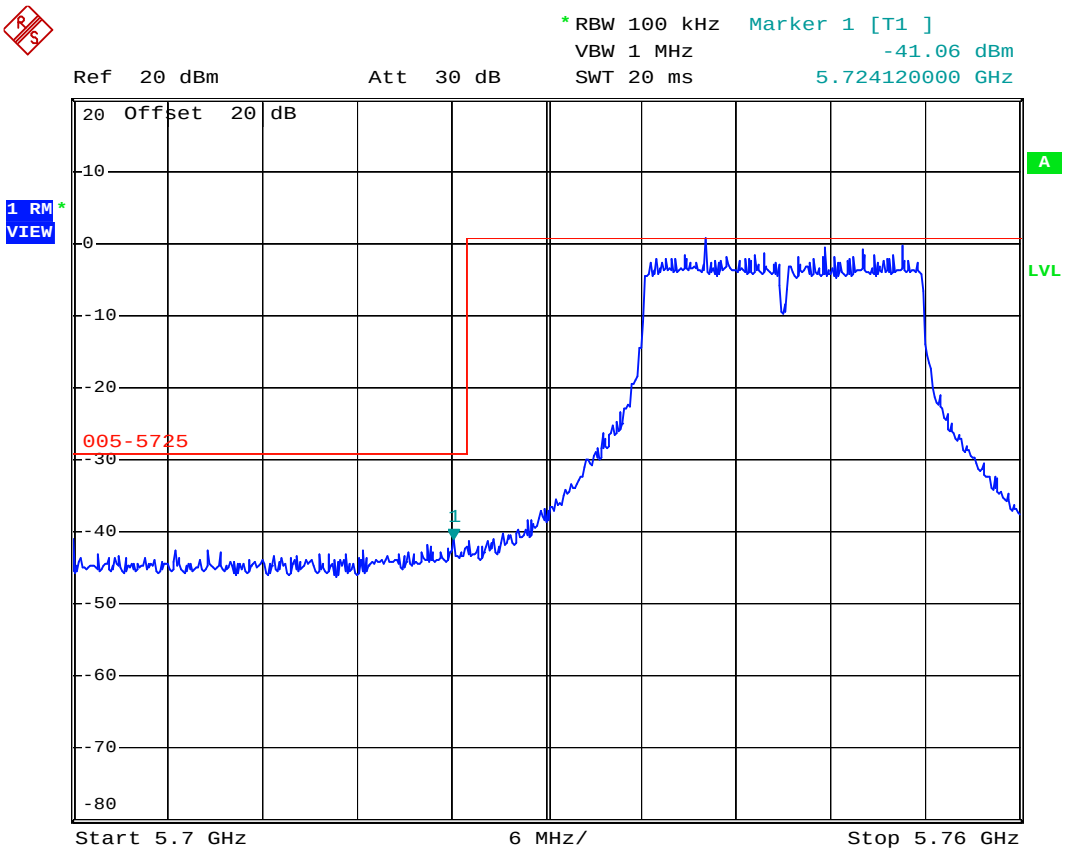
Date: 8.JAN.2016 11:06:41

20MHz / ANT0 / Channel High



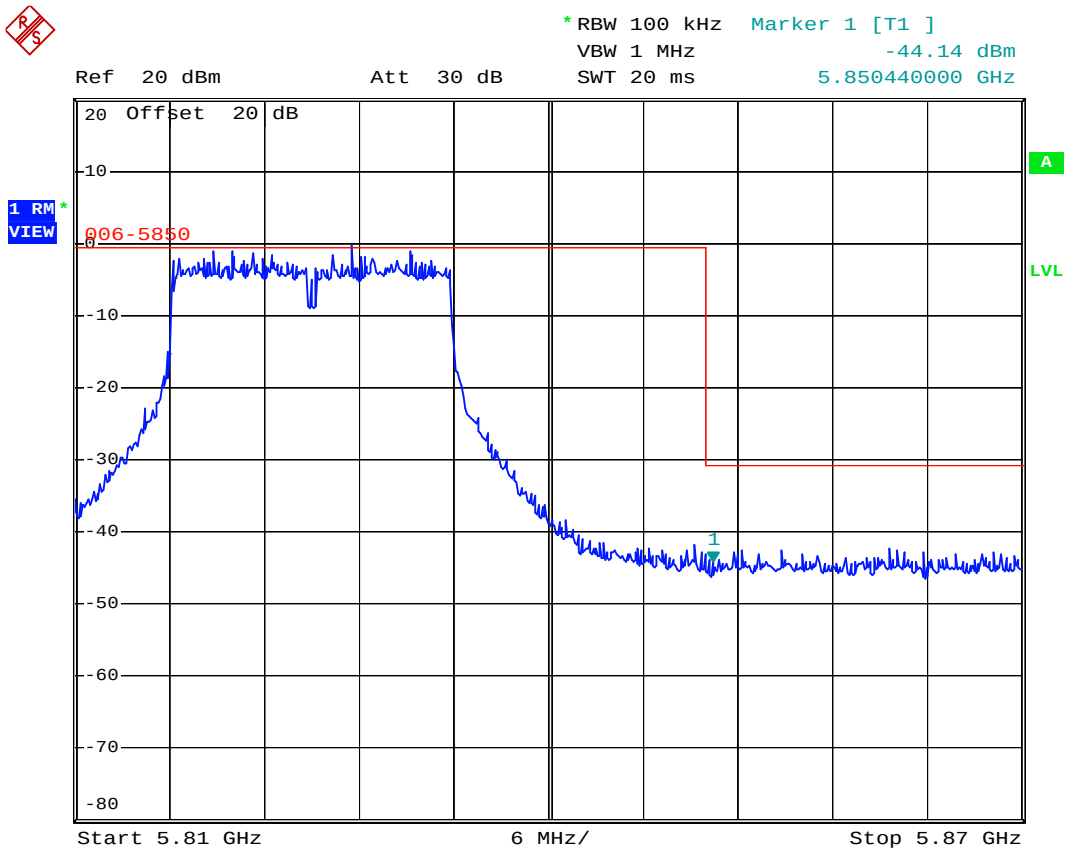
Date: 8.JAN.2016 11:20:50

20MHz / ANT1 / Channel Low



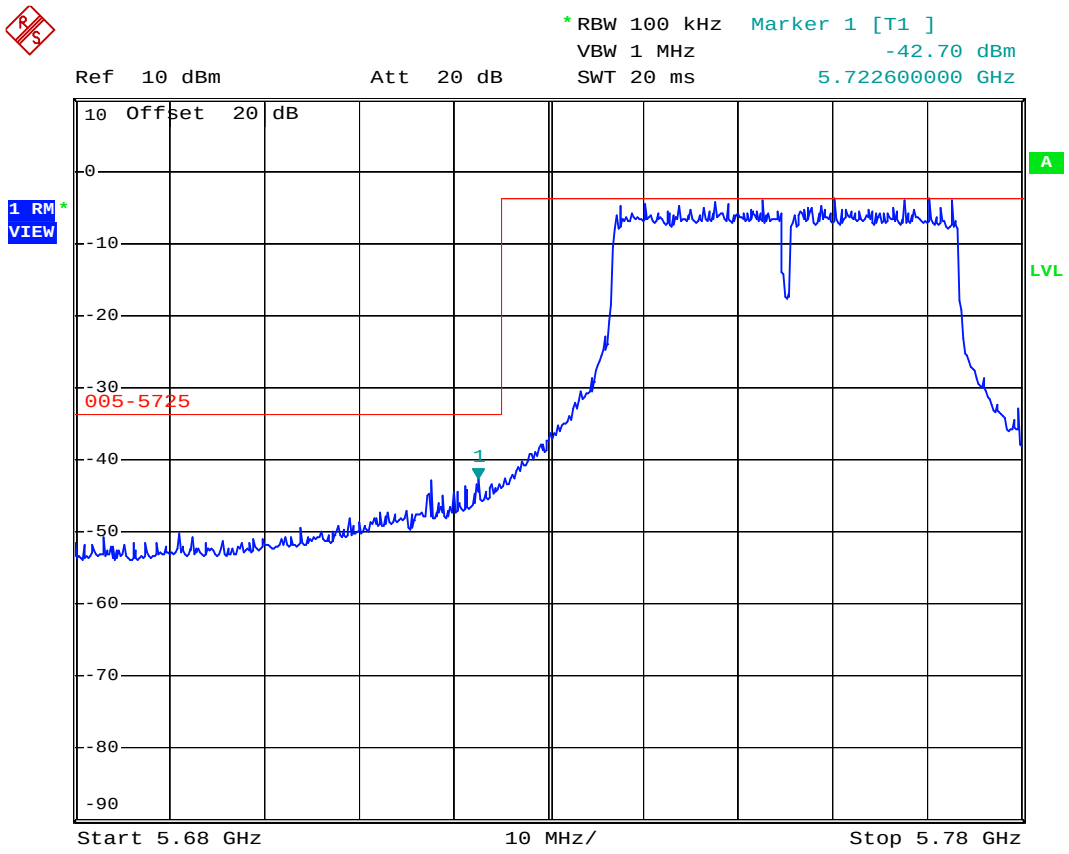
Date: 8.JAN.2016 11:18:50

20MHz / ANT1 / Channel High



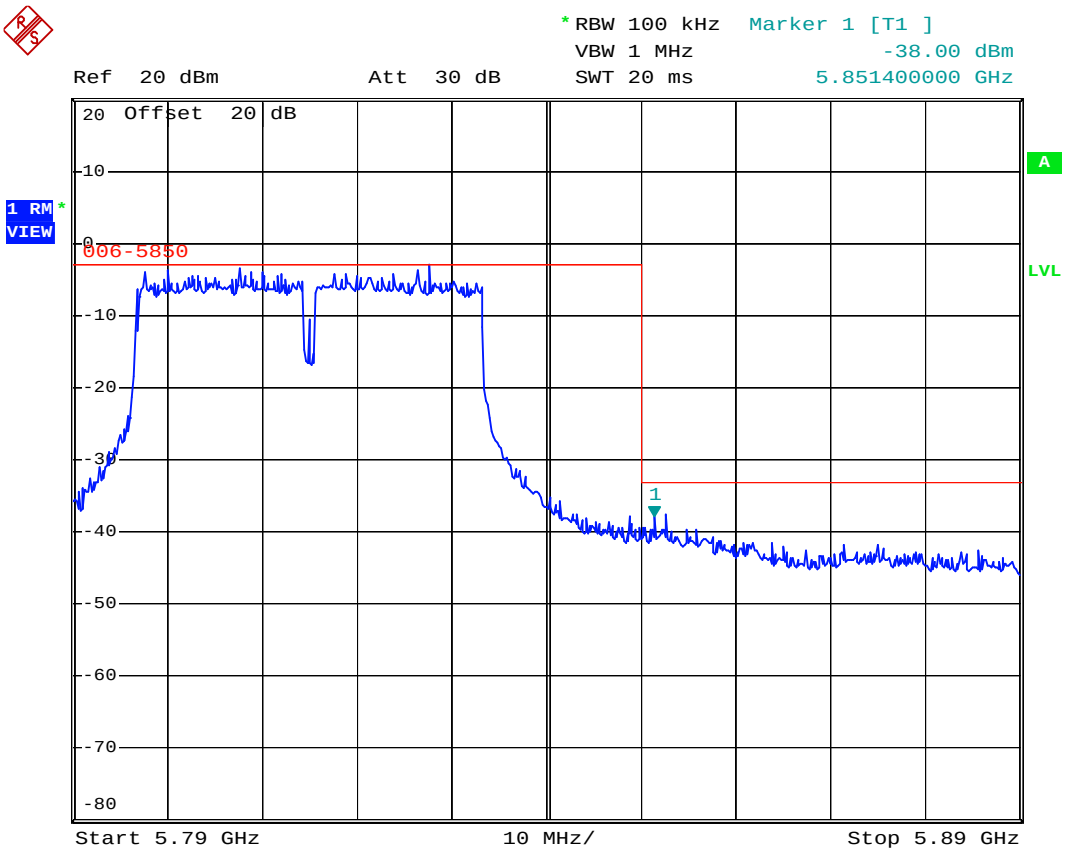
Date: 8.JAN.2016 11:21:19

40MHz / ANT0 / Channel Low



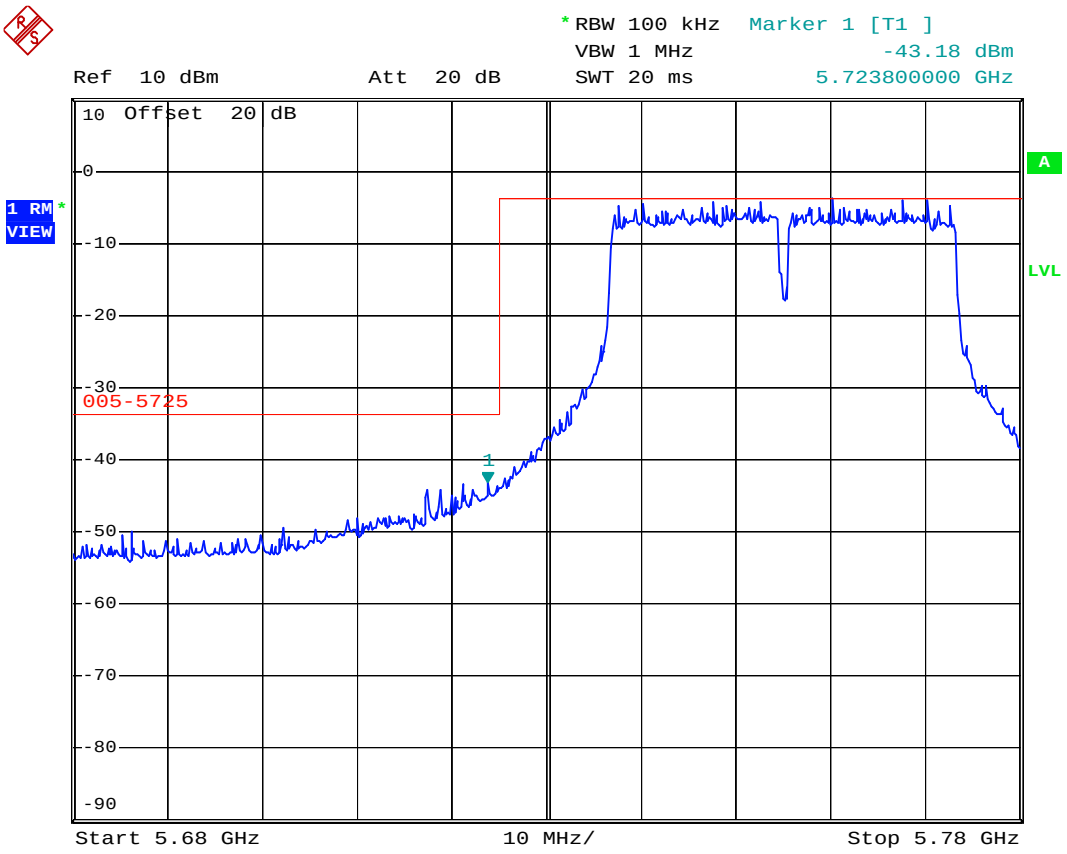
Date: 8.JAN.2016 11:32:16

40MHz / ANT0 / Channel High



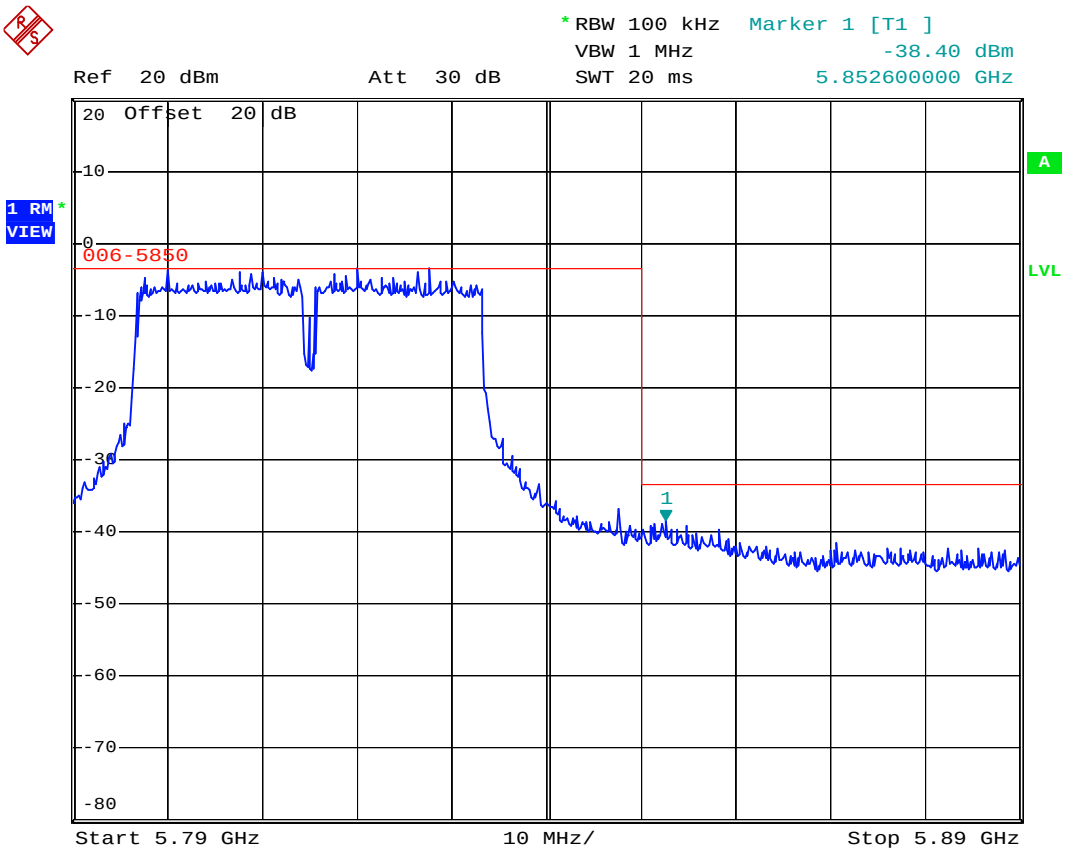
Date: 8.JAN.2016 11:25:25

40MHz / ANT1 / Channel Low



Date: 8.JAN.2016 11:32:53

40MHz / ANT1 / Channel High



Date: 8.JAN.2016 11:28:12

10 POWER DENSITY MEASUREMENT

10.1 Standard Applicable

According to 15.407(a)(3), for the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

10.2 Measurement Procedure

Measurement Method: SA-2

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 5 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set EUT to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set analyzer center frequency to channel center frequency.
4. Set span to encompass the entire emission bandwidth (EBW) of the signal.
5. Set RBW ≥ 1/T.
6. Set the VBW ≥ 3 x RBW.
7. Detector = power averaging (rms).
8. Sweep time = auto.
9. Trace mode = free run.
10. Trace average at least 100 traces in power averaging (rms) mode
11. Add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
12. Repeat above procedures until all measured frequencies were complete.

10.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2015/07/06	2016/07/05
Attenuator	MINI-CIRCUITS	BW-S10W2+	2015/10/07	2016/10/06

10.4 Measurement Data

Test Date : Apr. 27, 2016 Temperature : 25 °C Humidity : 60 %

Mode: 5MHz

TX Chain	Chan. Freq.(MHz)	PSD		Factor *10 log (N_{ANT})* (N=2)	Total PSD (dBm/500kHz)	Limit (dBm)	Pass/Fail
		Reading (dBm)	Adding 10log(500kHz /RBW)				
0	5732.5	9.52	11.74	3.01	14.75	30.00	Pass
	5782.5	9.56	11.78	3.01	14.79	30.00	Pass
	5842.5	8.29	10.51	3.01	13.52	30.00	Pass
1	5732.5	9.48	11.70	3.01	14.71	30.00	Pass
	5782.5	9.29	11.51	3.01	14.52	30.00	Pass
	5842.5	8.45	10.67	3.01	13.68	30.00	Pass

Mode: 10MHz

TX Chain	Chan. Freq.(MHz)	PSD		Factor *10 log (N_{ANT})* (N=2)	Total PSD (dBm/500kHz)	Limit (dBm)	Pass/Fail
		Reading (dBm)	Adding 10log(500kHz /RBW)				
0	5740	7.65	9.87	3.01	12.88	30.00	Pass
	5790	5.89	8.11	3.01	11.12	30.00	Pass
	5830	5.83	8.05	3.01	11.06	30.00	Pass
1	5740	6.99	9.21	3.01	12.22	30.00	Pass
	5790	6.28	8.50	3.01	11.51	30.00	Pass
	5830	5.91	8.13	3.01	11.14	30.00	Pass

Mode: 20MHz

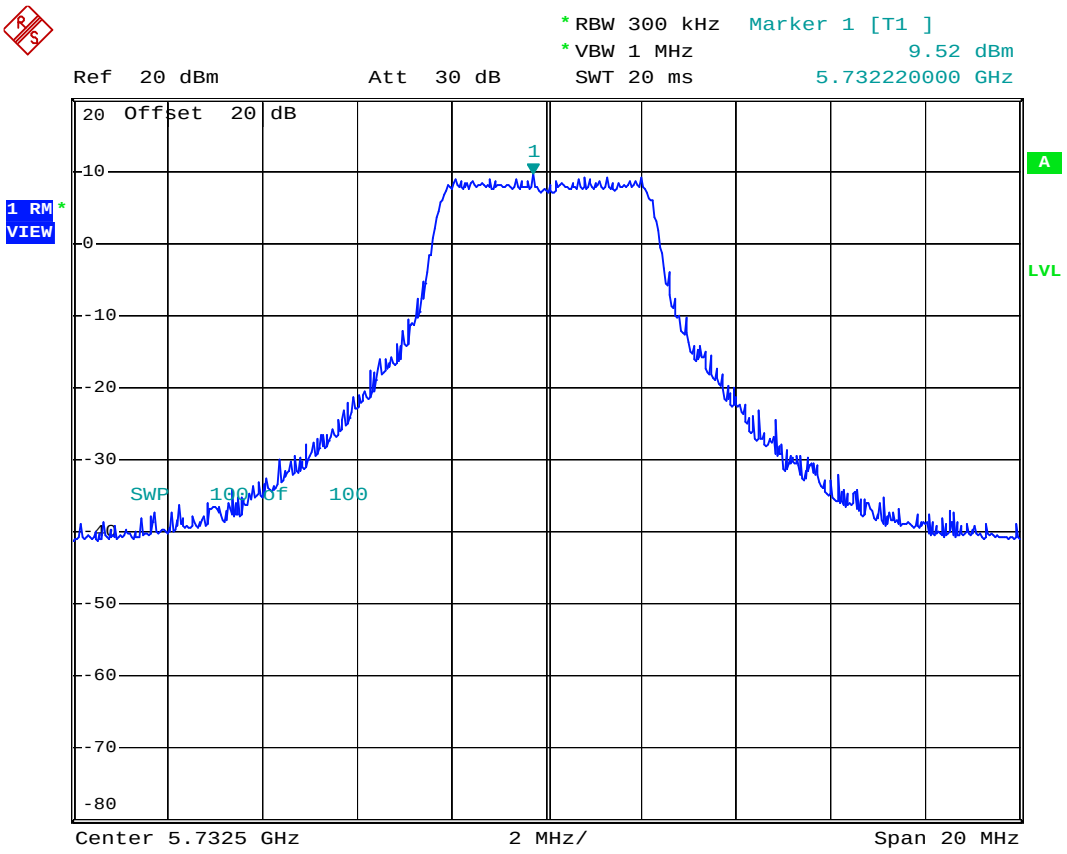
TX Chain	Chan. Freq.(MHz)	PSD		Factor *10 log (N_{ANT})* (N=2)	Total PSD (dBm/500kHz)	Limit (dBm)	Pass/Fail
		Reading (dBm)	Adding 10log(500kHz /RBW)				
0	5745	3.78	6.00	3.01	9.01	30.00	Pass
	5785	3.34	5.56	3.01	8.57	30.00	Pass
	5825	2.91	5.13	3.01	8.14	30.00	Pass
1	5745	4.04	6.26	3.01	9.27	30.00	Pass
	5785	3.12	5.34	3.01	8.35	30.00	Pass
	5825	2.92	5.14	3.01	8.15	30.00	Pass

Mode: 40MHz

TX Chain	Chan. Freq.(MHz)	PSD		Factor *10 log (N_{ANT})* (N=2)	Total PSD (dBm/500kHz)	Limit (dBm)	Pass/Fail
		Reading (dBm)	Adding 10log(500kHz /RBW)				
0	5755	0.83	3.05	3.01	6.06	30.00	Pass
	5775	0.35	2.57	3.01	5.58	30.00	Pass
	5815	-0.22	2.00	3.01	5.01	30.00	Pass
1	5755	0.57	2.79	3.01	5.80	30.00	Pass
	5775	0.43	2.65	3.01	5.66	30.00	Pass
	5815	-0.16	2.06	3.01	5.07	30.00	Pass

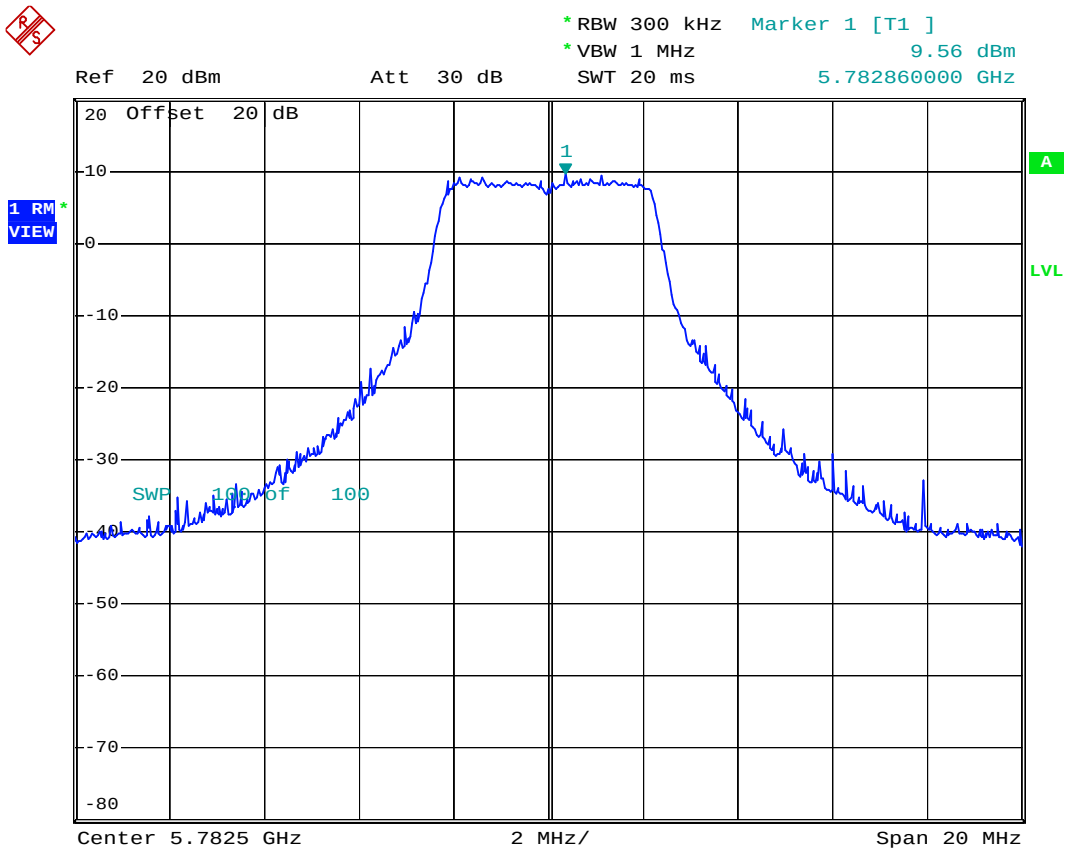
Note : The expanded uncertainty: 2dB.

Mode: 5MHz / ANT0 / Channel Low



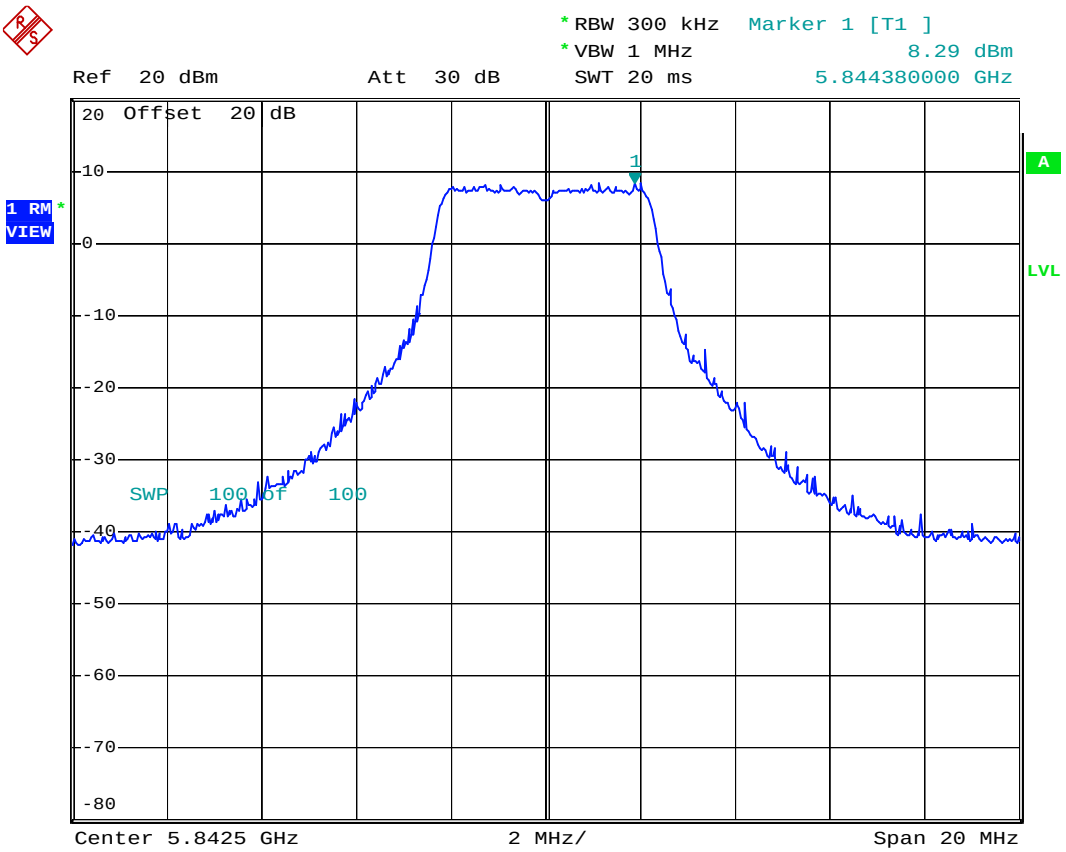
Date: 27.APR.2016 12:06:43

Mode: 5MHz / ANT0 / Channel Mid



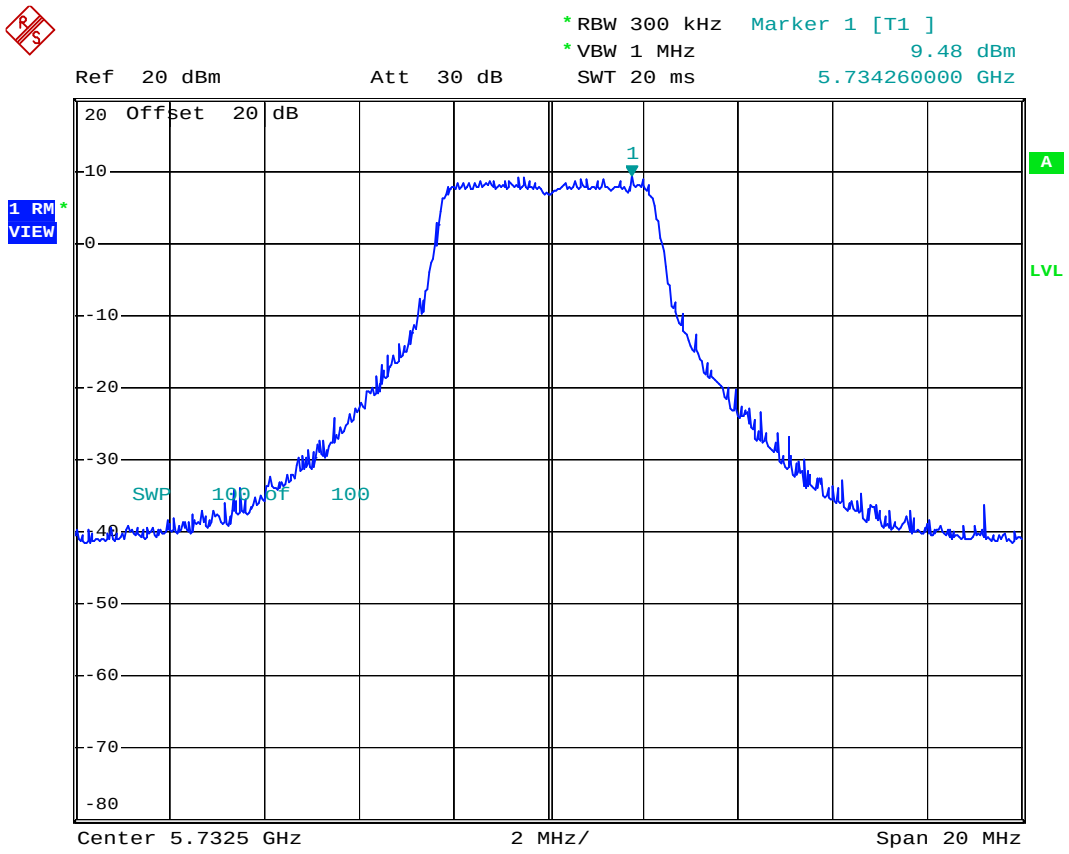
Date: 27.APR.2016 12:09:36

Mode: 5MHz / ANT0 / Channel High



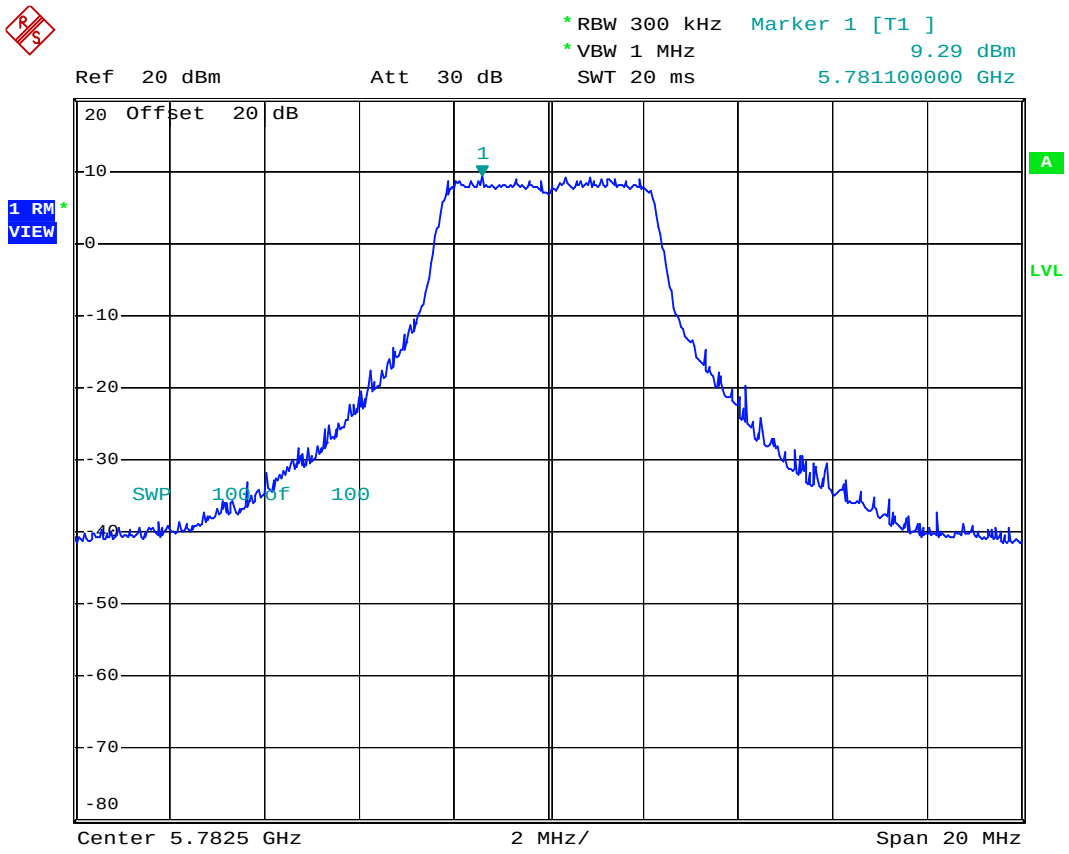
Date: 27.APR.2016 12:11:13

Mode: 5MHz / ANT1 / Channel Low



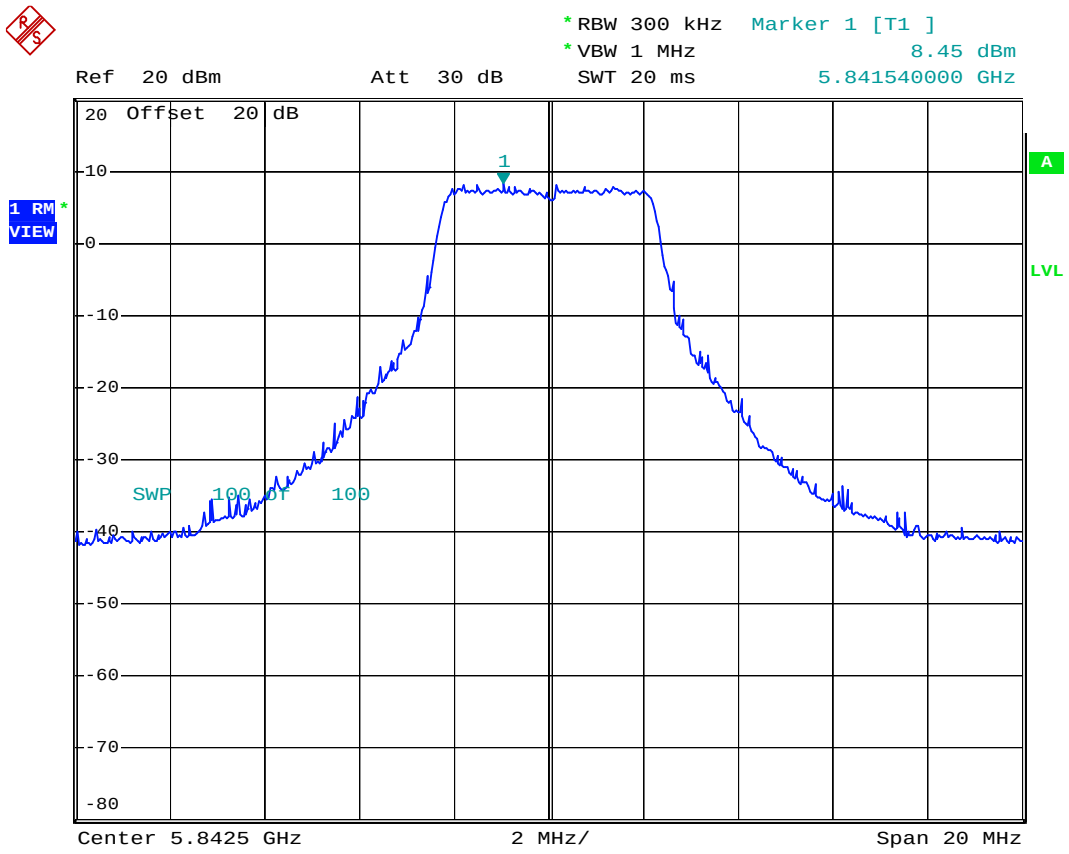
Date: 27.APR.2016 12:07:24

Mode: 5MHz / ANT1 / Channel Mid



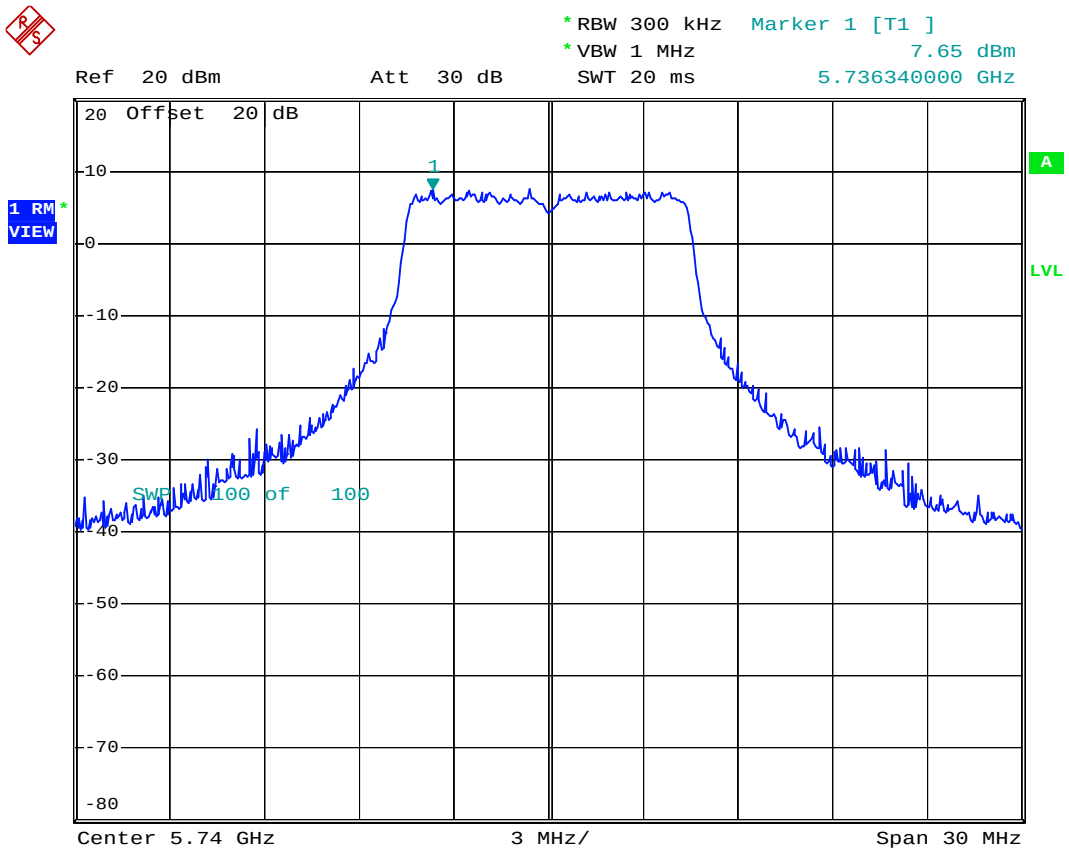
Date: 27.APR.2016 12:10:04

Mode: 5MHz / ANT1 / Channel High



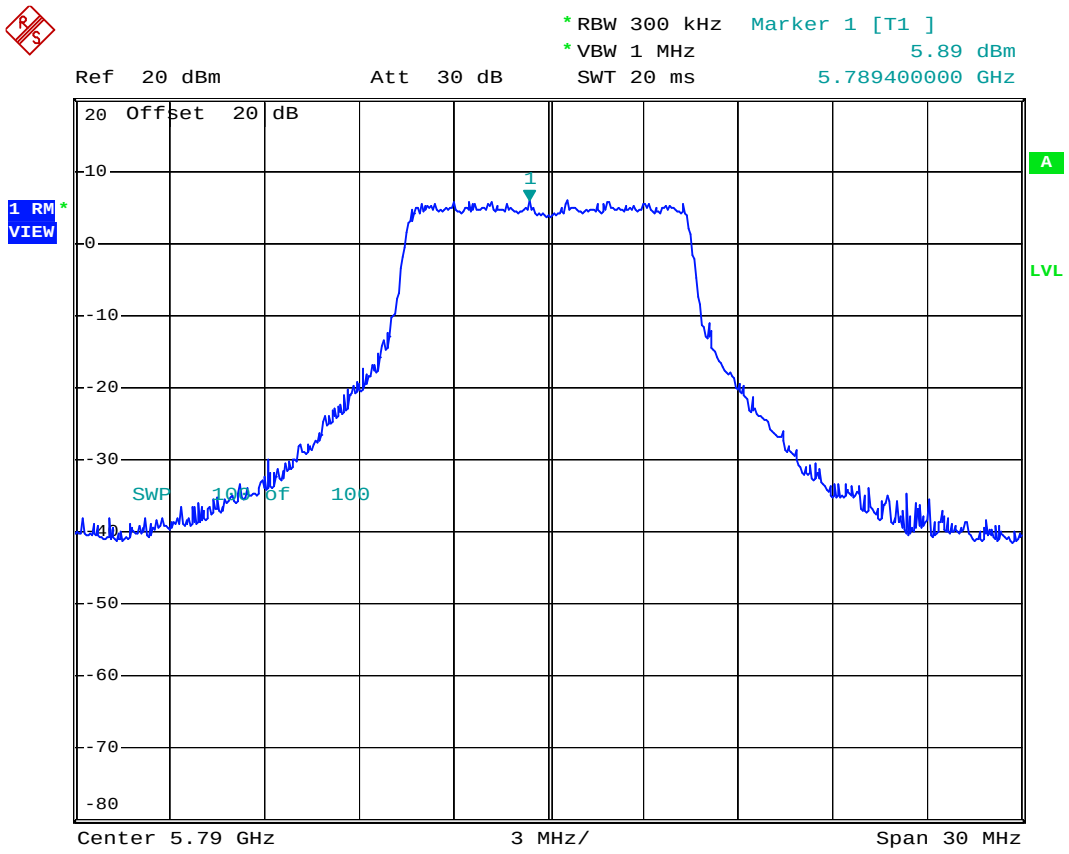
Date: 27.APR.2016 12:11:39

Mode: 10MHz / ANT0 / Channel Low



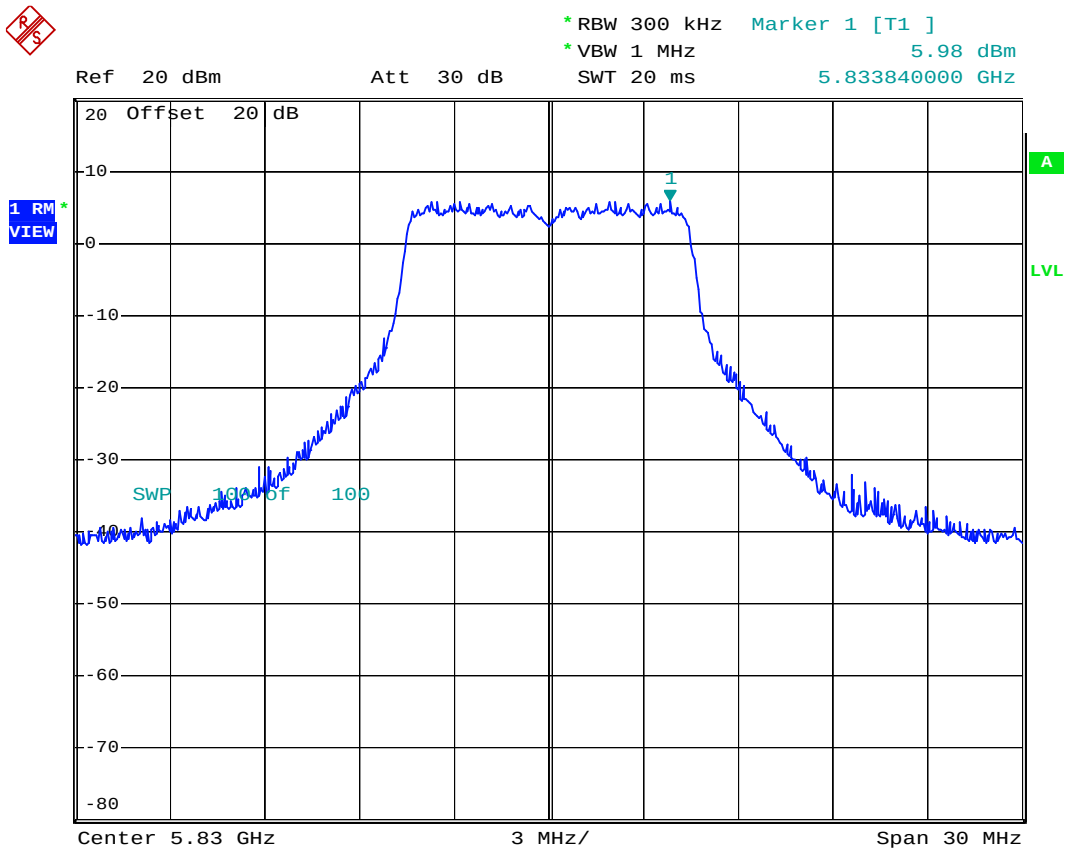
Date: 27.APR.2016 12:13:52

Mode: 10MHz / ANT0 / Channel Mid



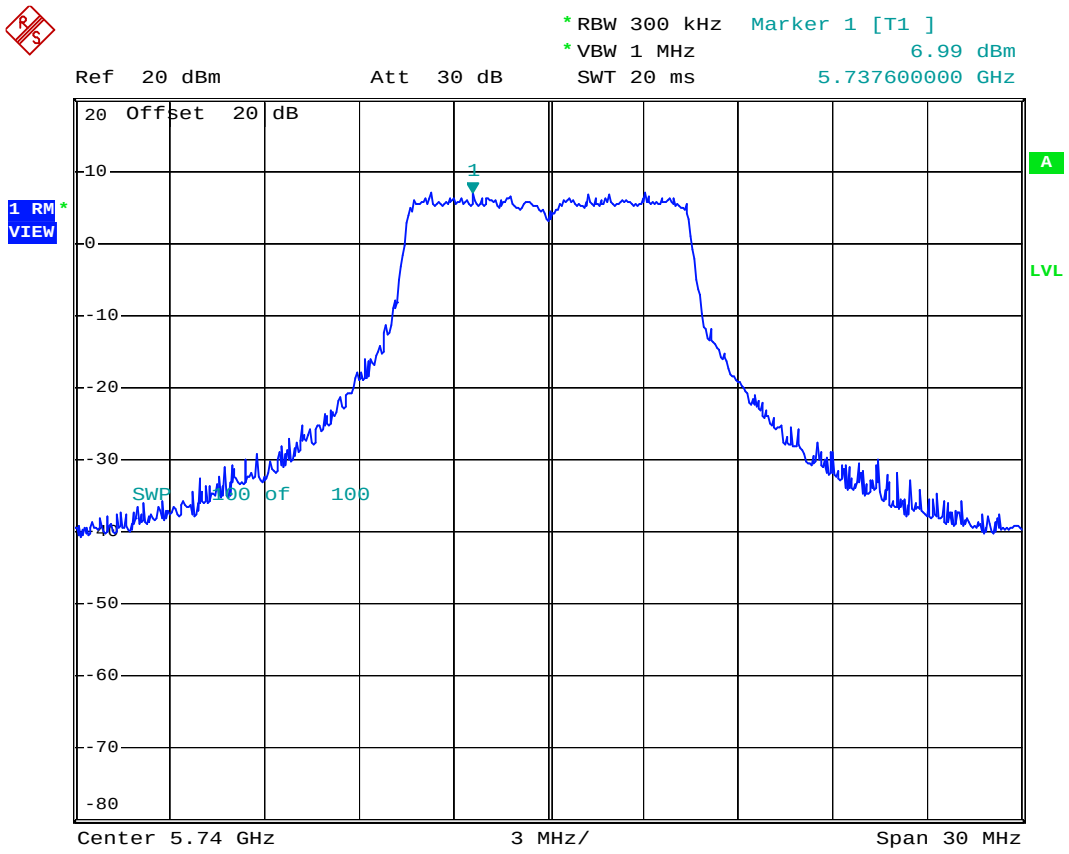
Date: 27.APR.2016 12:20:52

Mode: 10MHz / ANT0 / Channel High



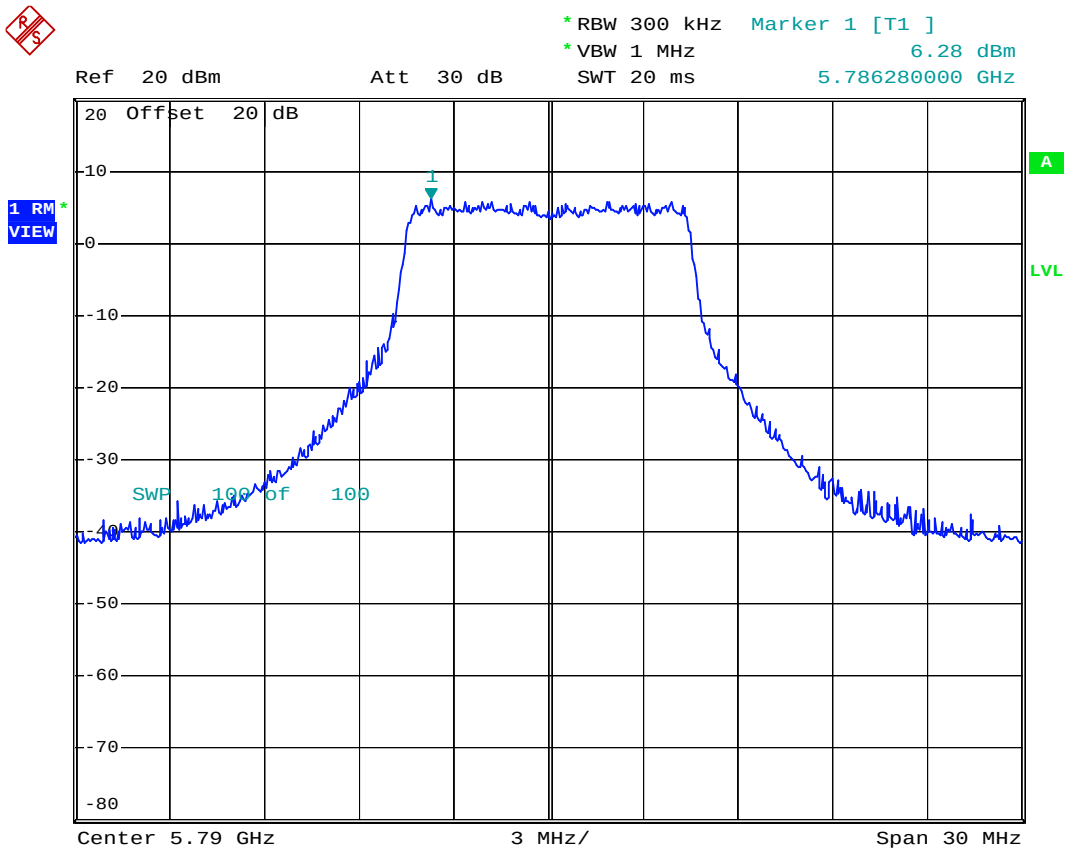
Date: 27.APR.2016 12:22:15

Mode: 10MHz / ANT1 / Channel Low



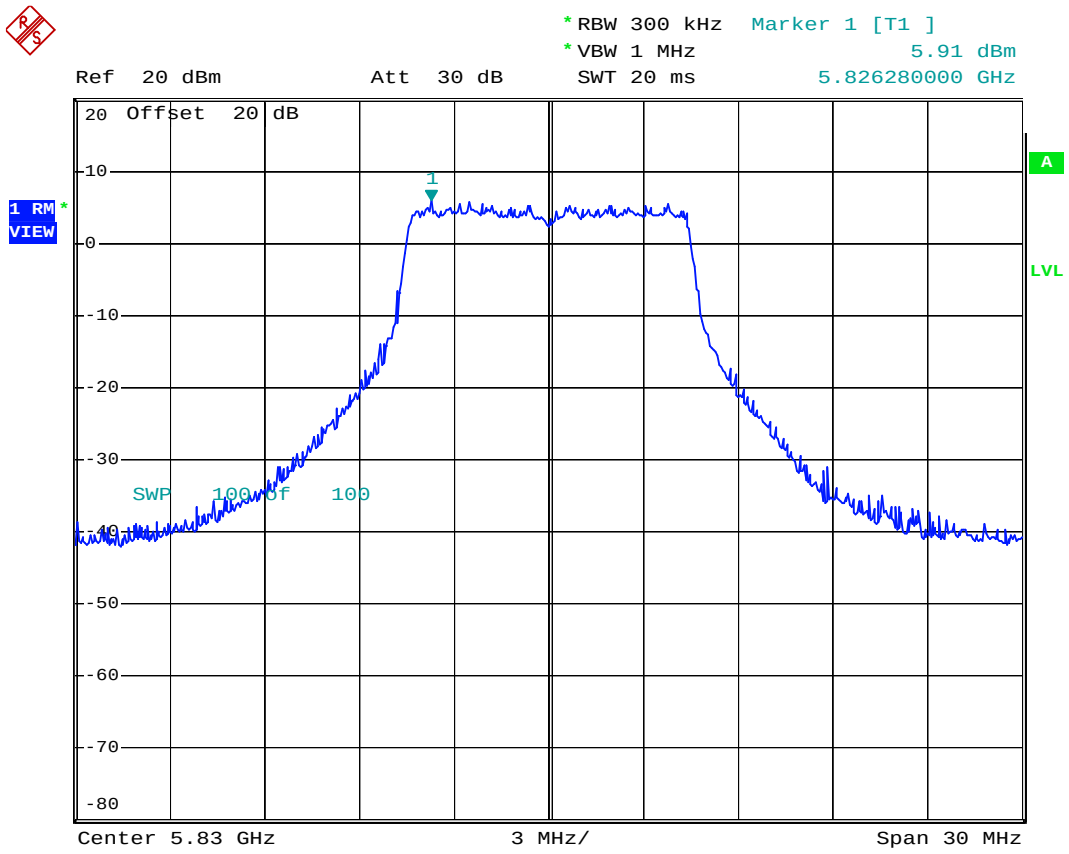
Date: 27.APR.2016 12:14:18

Mode: 10MHz / ANT1 / Channel Mid



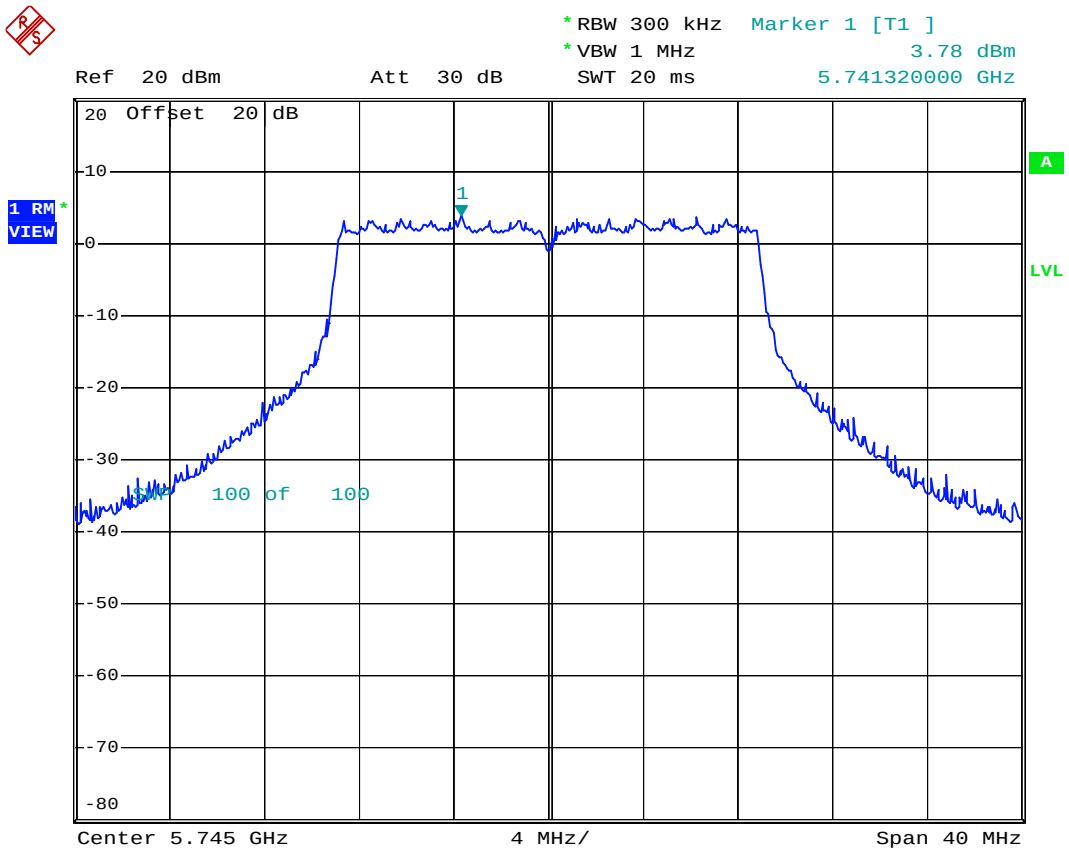
Date: 27.APR.2016 12:21:28

Mode: 10MHz / ANT1 / Channel High



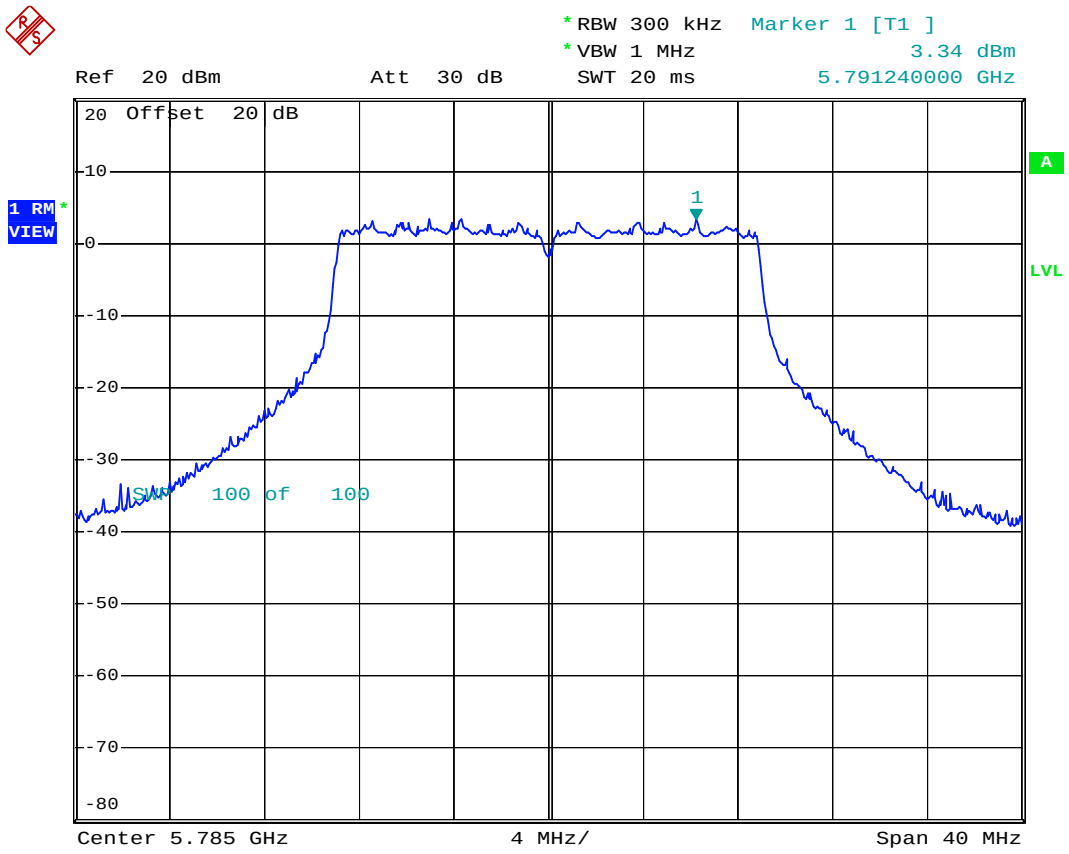
Date: 27.APR.2016 12:22:42

Mode: 20MHz / ANT0 / Channel Low



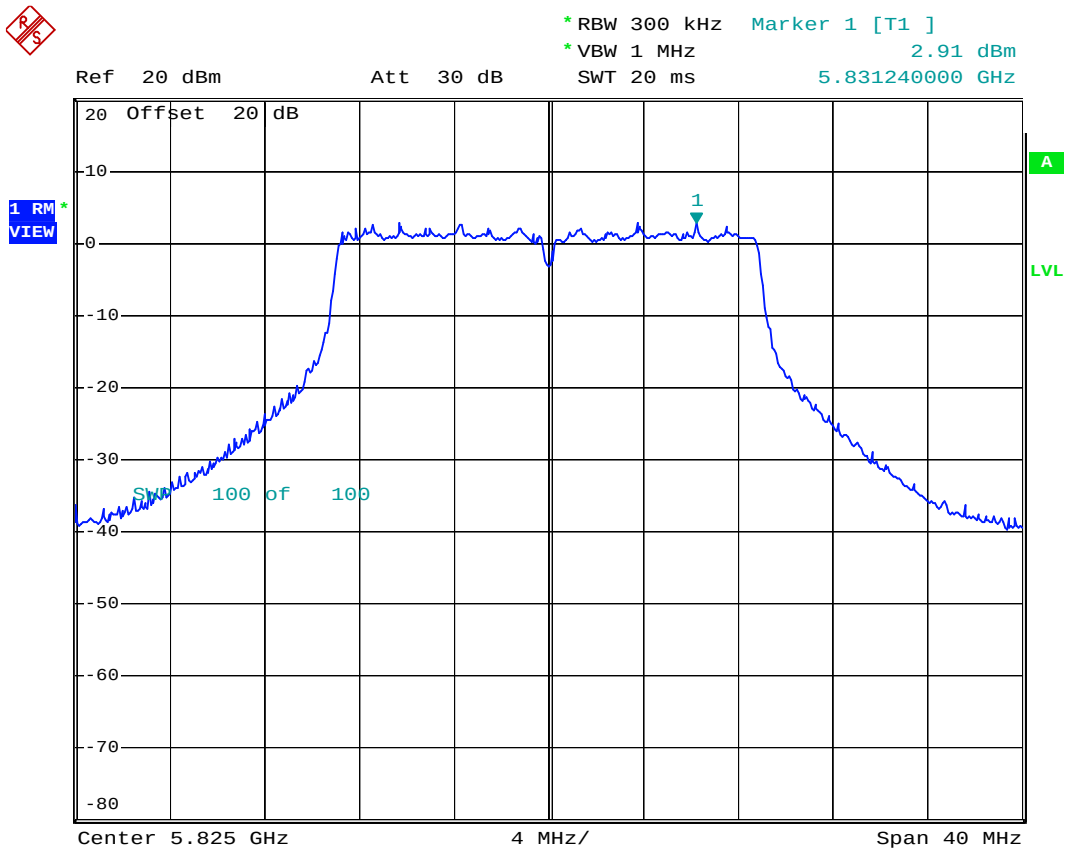
Date: 27.APR.2016 12:23:46

Mode: 20MHz / ANT0 / Channel Mid



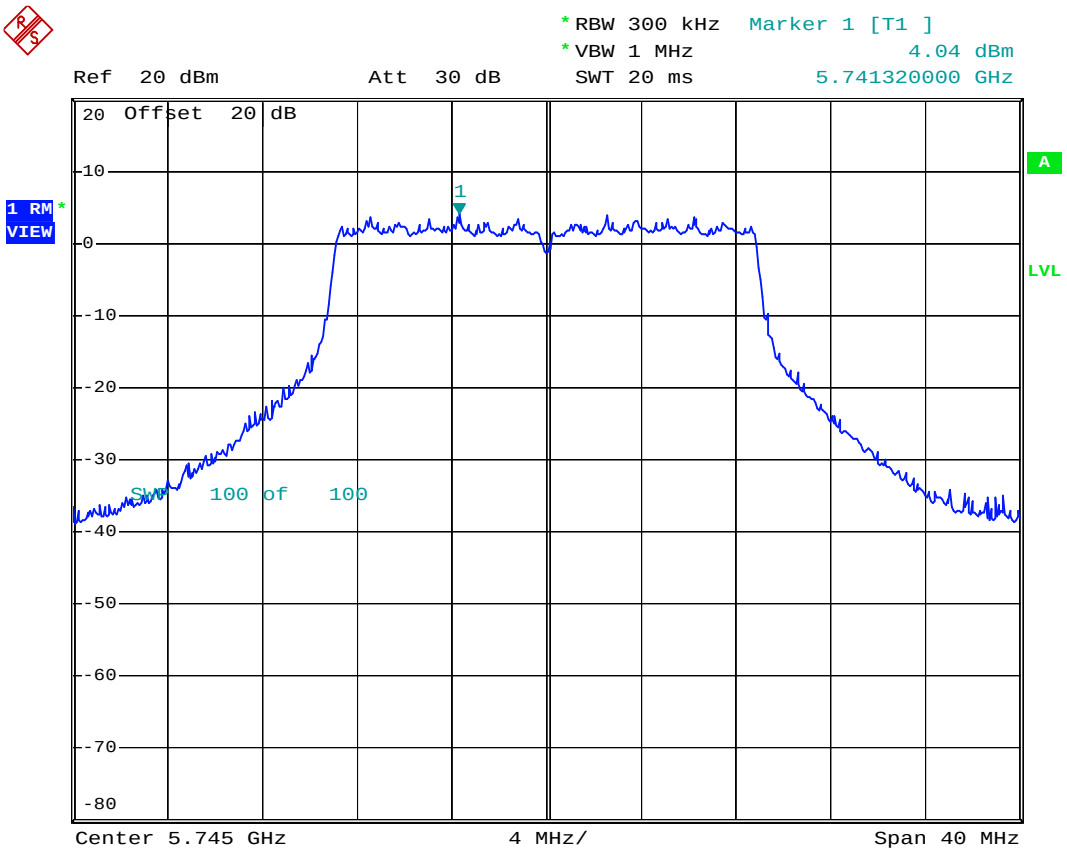
Date: 27.APR.2016 12:25:44

Mode: 20MHz / ANT0 / Channel High



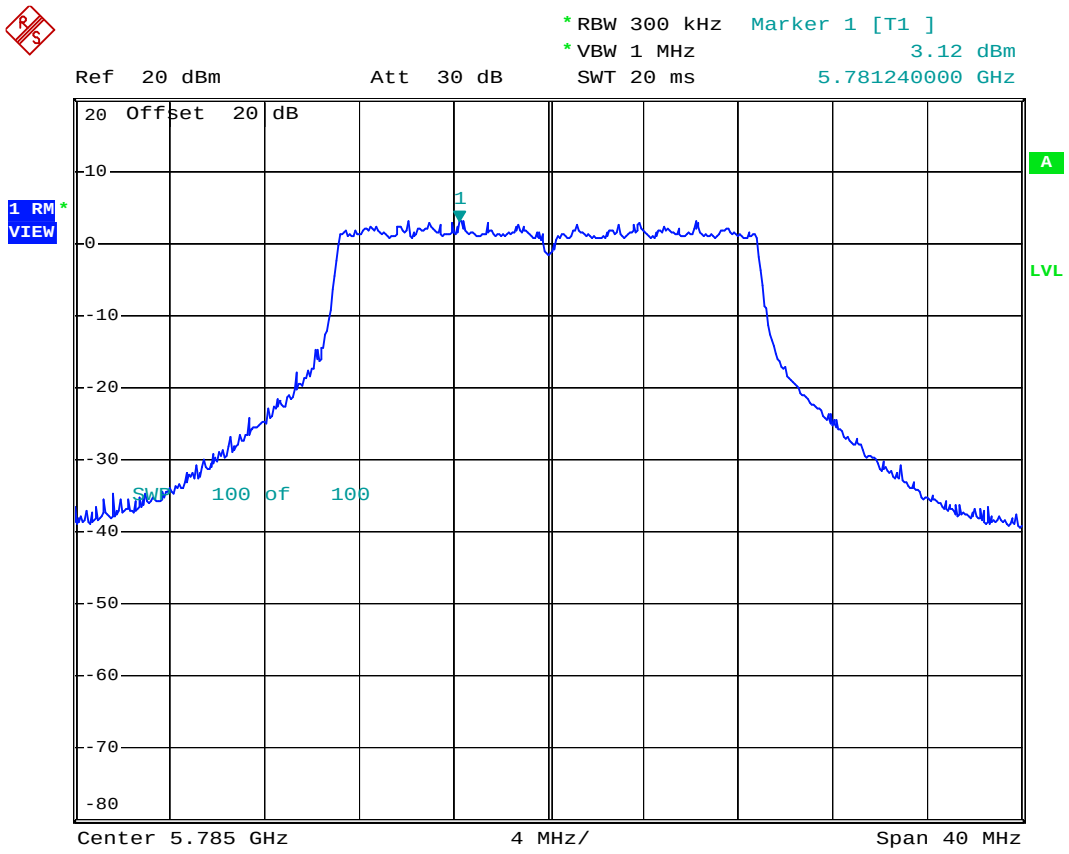
Date: 27.APR.2016 12:28:03

Mode: 20MHz / ANT1 / Channel Low



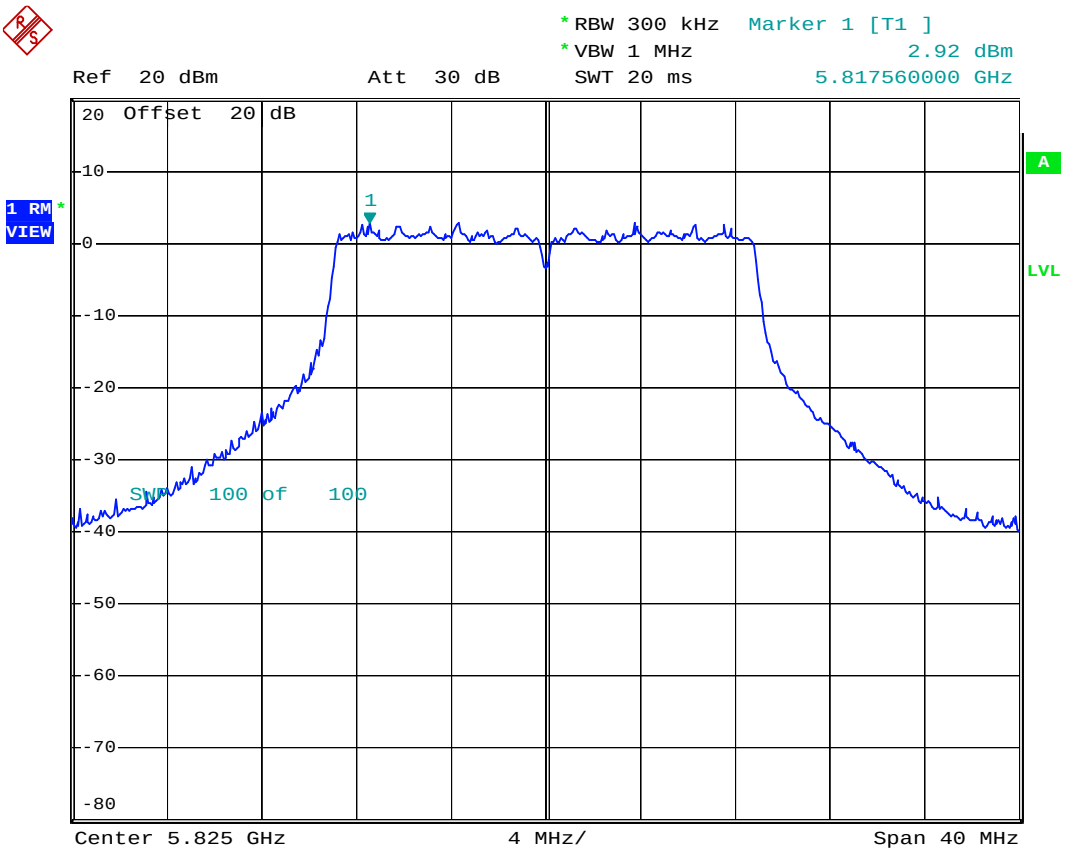
Date: 27.APR.2016 12:24:15

Mode: 20MHz / ANT1 / Channel Mid



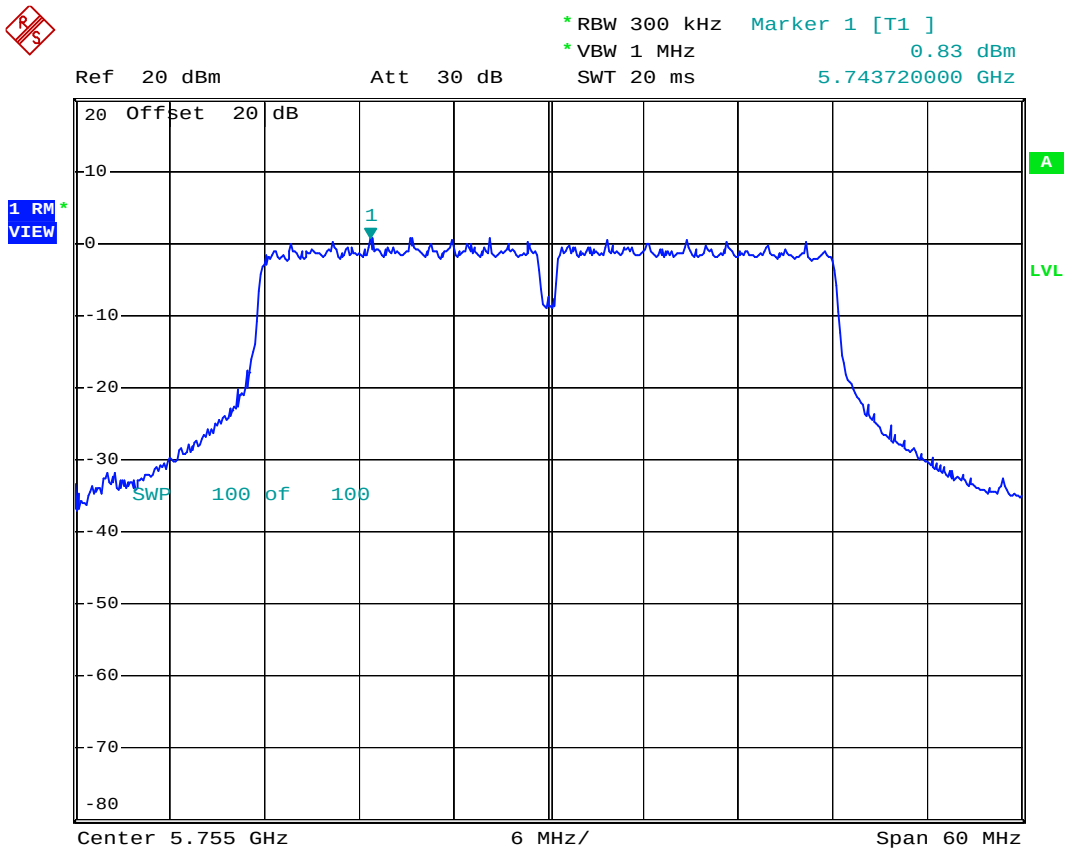
Date: 27.APR.2016 12:26:11

Mode: 20MHz / ANT1 / Channel High



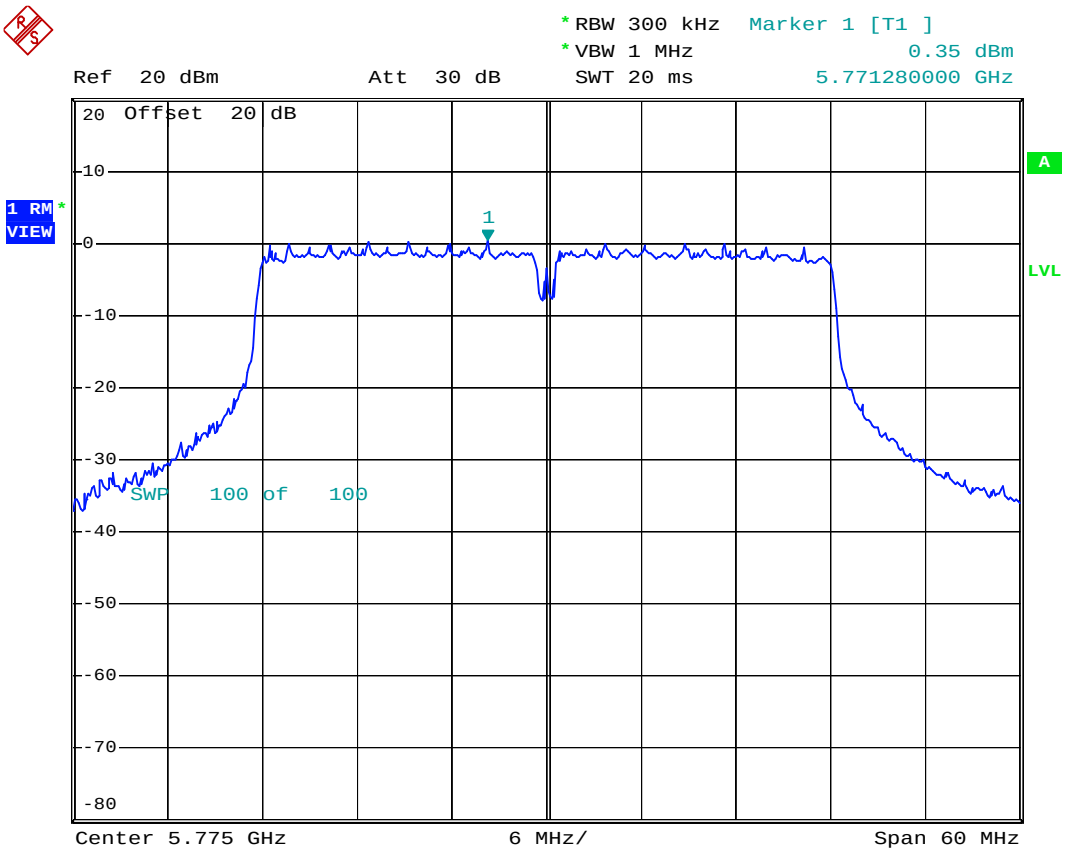
Date: 27.APR.2016 12:28:24

Mode: 40MHz / ANT0 / Channel Low



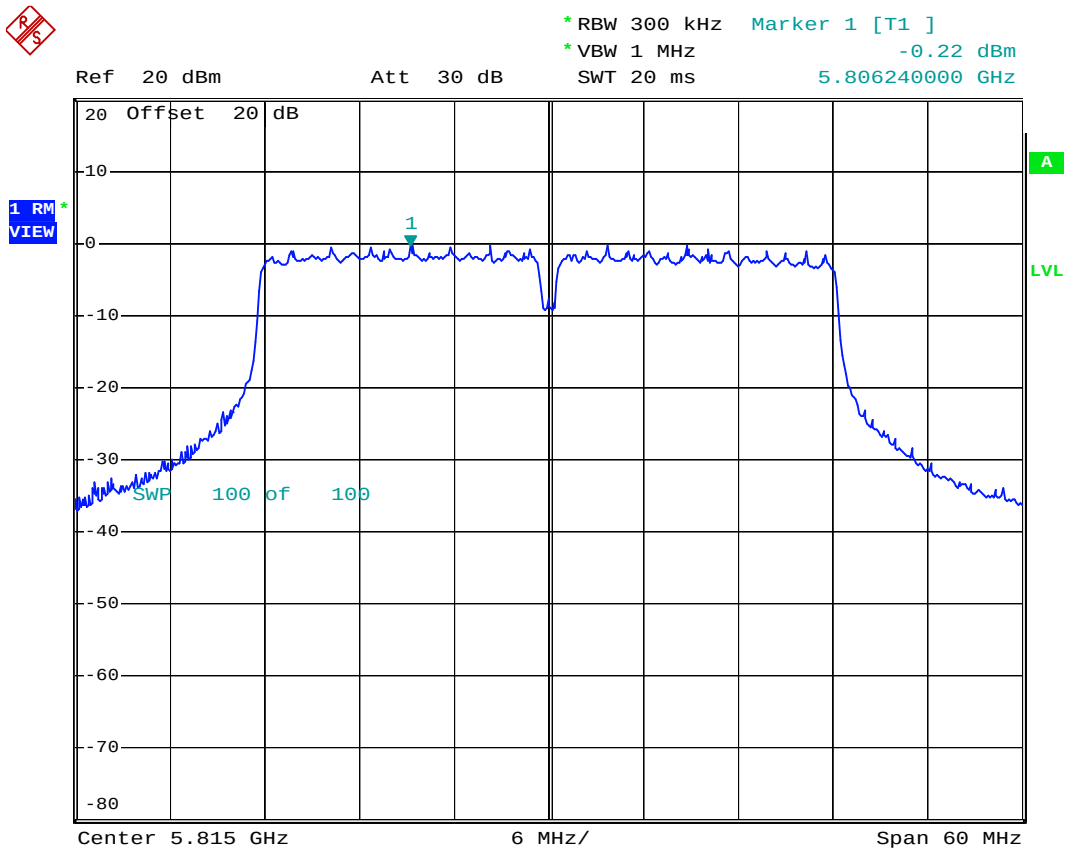
Date: 27.APR.2016 12:29:13

Mode: 40MHz / ANT0 / Channel Mid



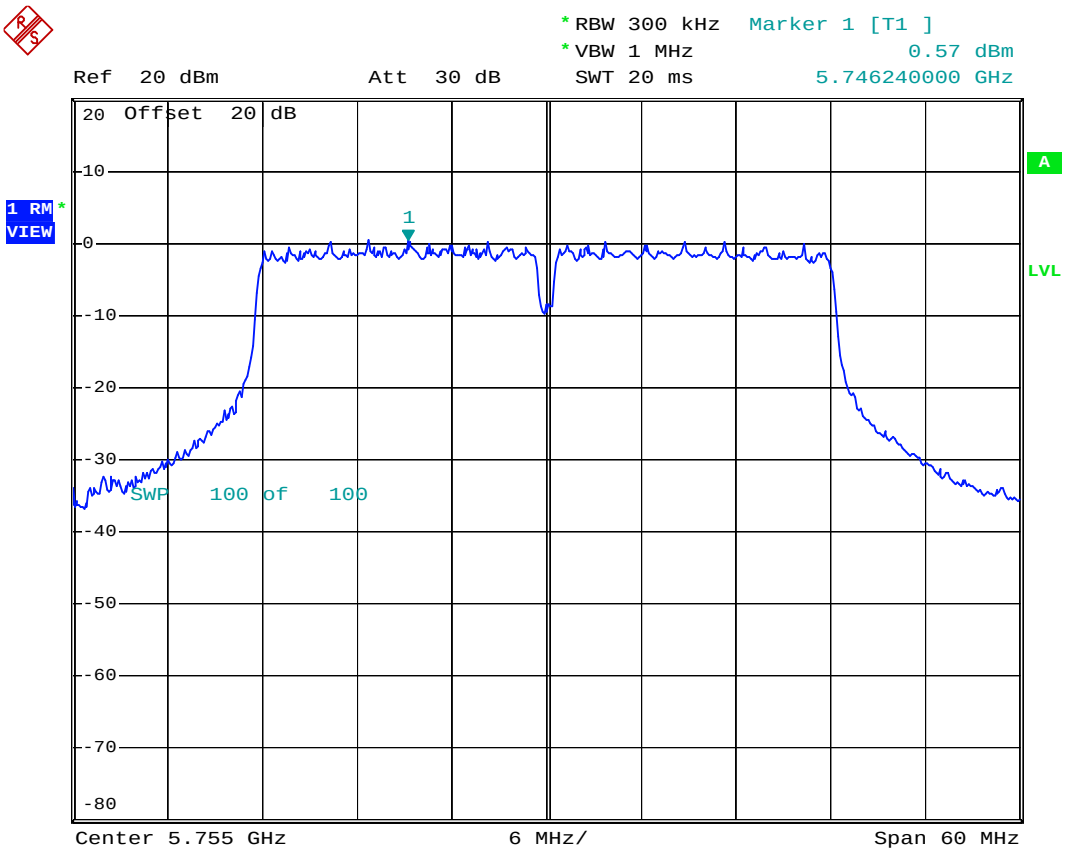
Date: 27.APR.2016 12:30:16

Mode: 40MHz / ANT0 / Channel High



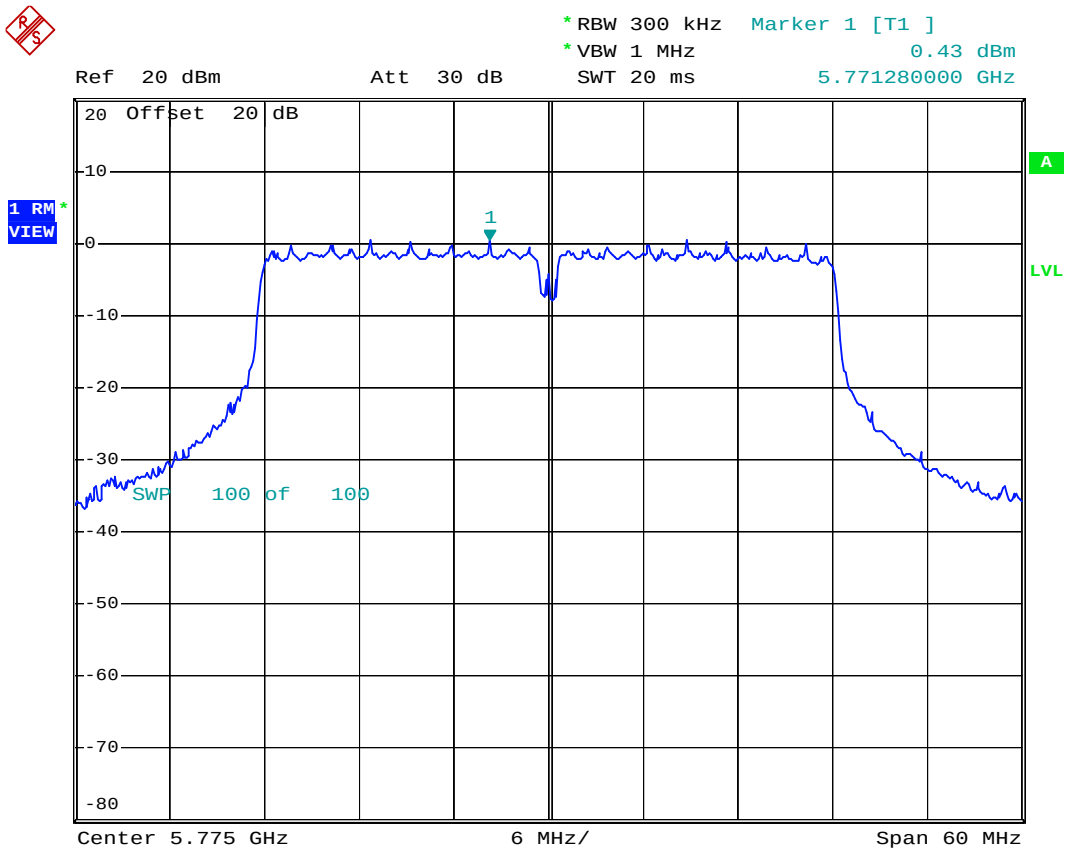
Date: 27.APR.2016 12:31:11

Mode: 40MHz / ANT1 / Channel Low



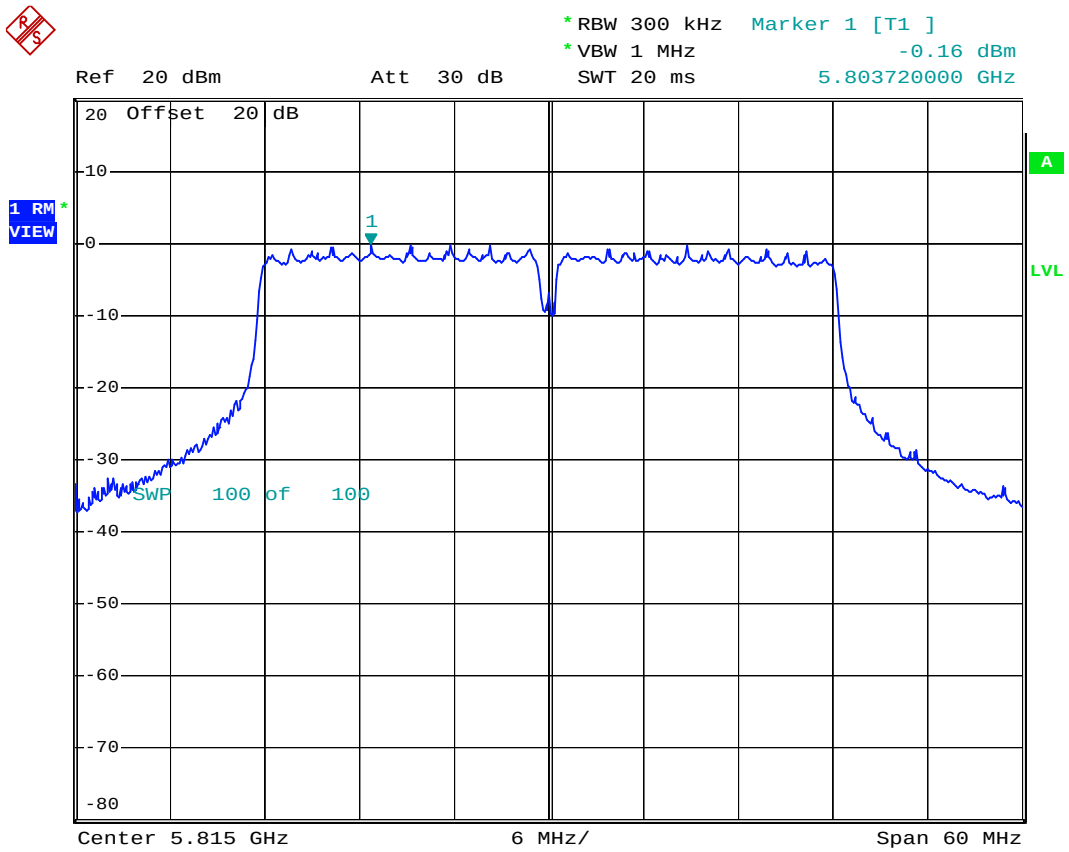
Date: 27.APR.2016 12:29:36

Mode: 40MHz / ANT1 / Channel Mid



Date: 27.APR.2016 12:30:38

Mode: 40MHz / ANT1 / Channel High



Date: 27.APR.2016 12:31:35

11. OUT-OF-BAND CONDUCTED EMISSION MEASUREMENT

11.1 Standard Applicable

According to 15.247(c), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required.

11.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
   RBW = 100 kHz
   VBW ≥ RBW
   Sweep = auto
   Detector function = peak
   Trace = max hold.
4. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. Plot the result on the screen of spectrum analyzer.
5. Repeat above procedures until all measured frequencies were complete.

11.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2015/07/06	2016/07/05
Attenuator	MINI-CIRCUITS	BW-S10W2+	2015/10/07	2016/10/06

11.4 Measurement Data

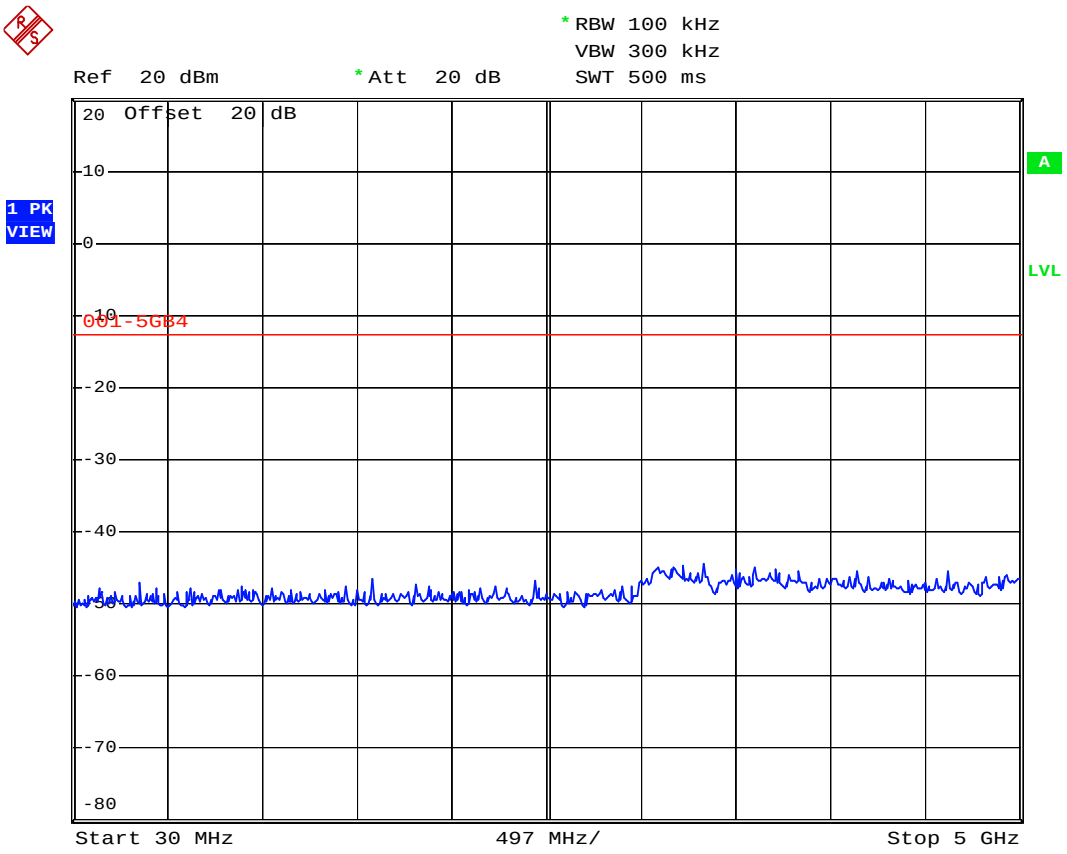
Test Date : Jan. 08, 2016 Temperature : 22 °C Humidity : 50 %

Mode: 5MHz, 10MHz, 20MHz, 40MHz

1 GHz to 40 GHz frequency band: All emissions are attenuated more than 20dB from the carrier.

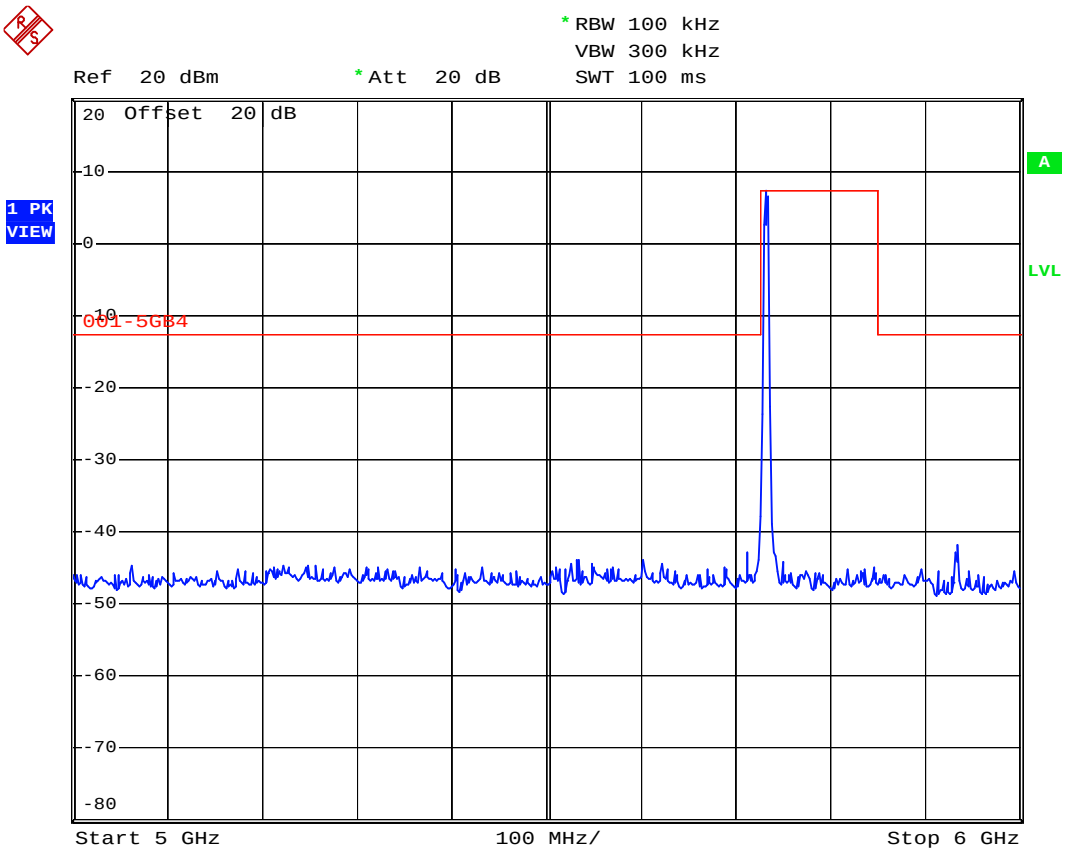
Note : The expanded uncertainty: 2dB.

5MHz / ANT0 / Channel Low 30MHz ~ 5GHz



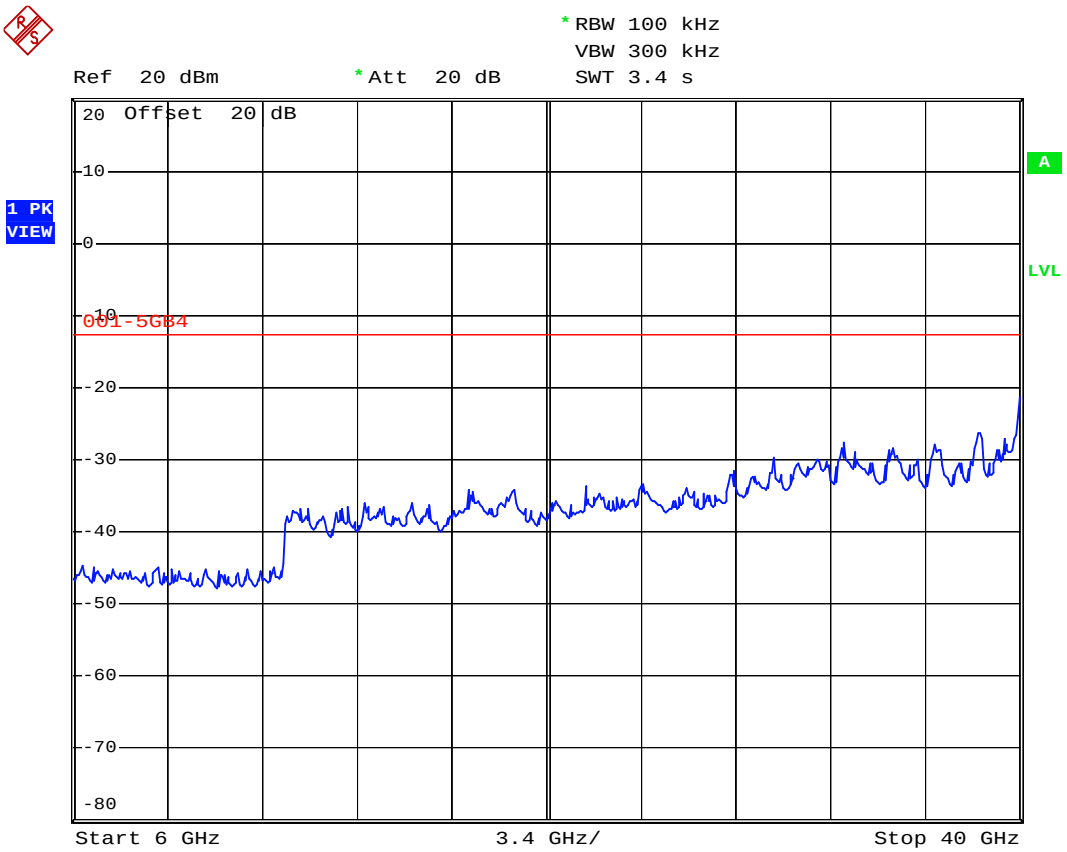
Date: 8.JAN.2016 11:51:18

5MHz / ANT0 / Channel Low 5GHz ~ 6GHz



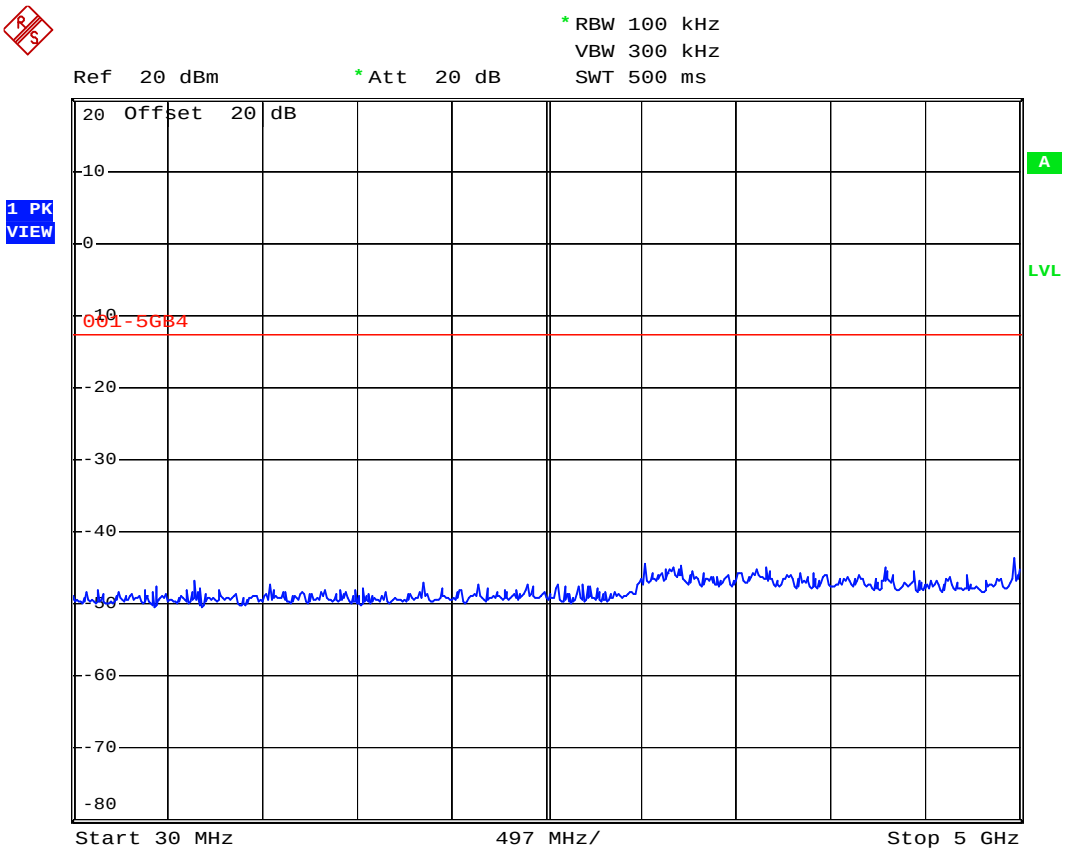
Date: 8.JAN.2016 11:47:21

5MHz / ANT0 / Channel Low 6GHz ~ 40GHz



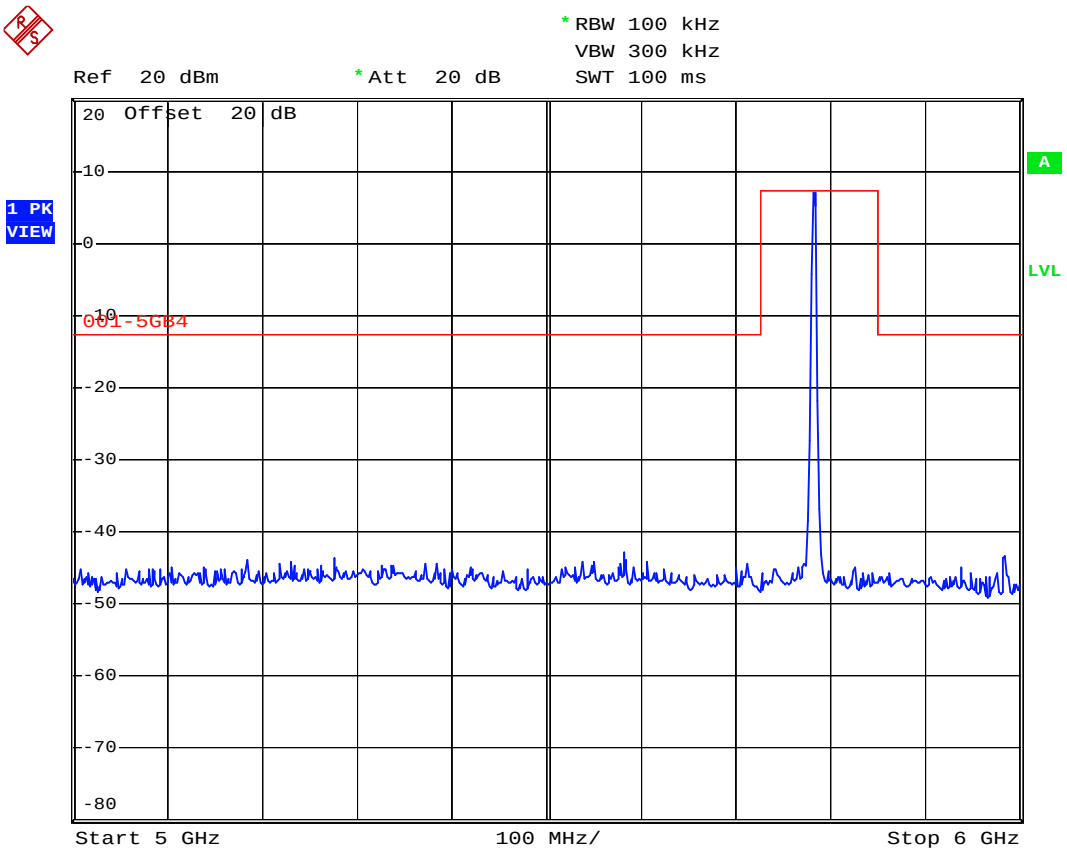
Date: 8.JAN.2016 11:51:54

5MHz / ANT0 / Channel Middle 30MHz ~ 5GHz



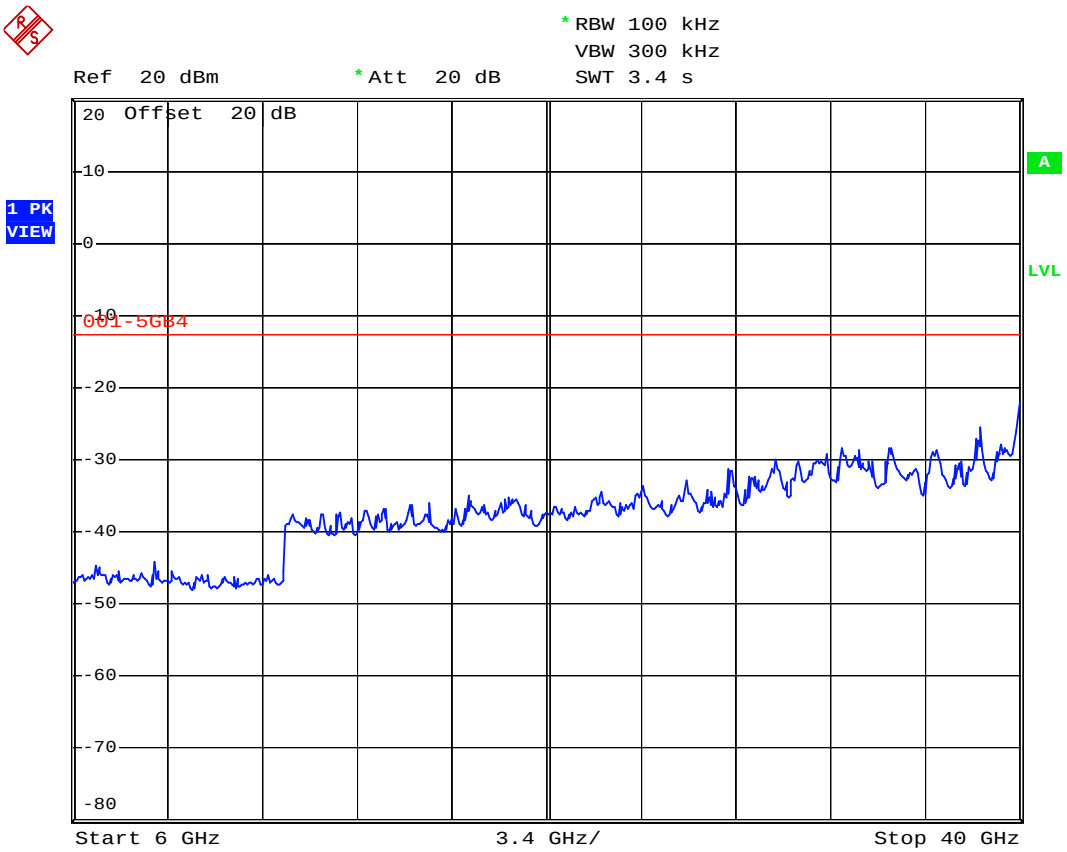
Date: 8.JAN.2016 11:53:33

5MHz / ANT0 / Channel Middle 5GHz ~ 6GHz



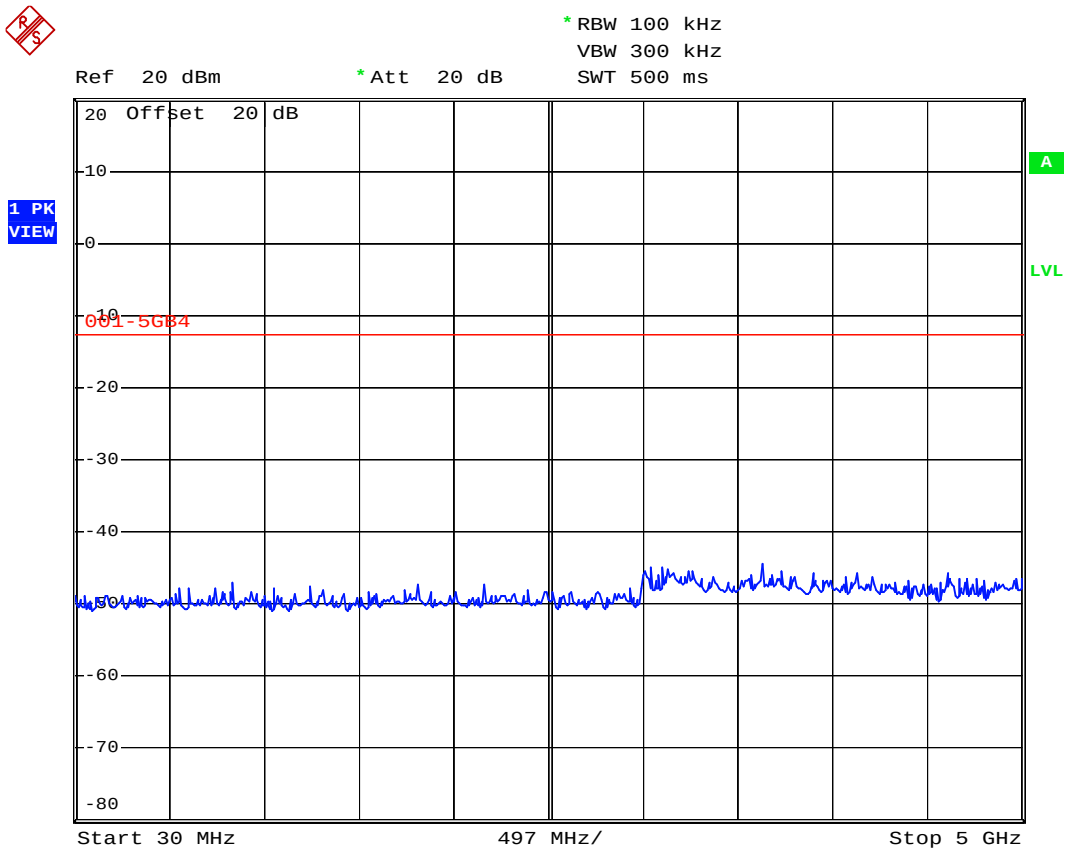
Date: 8.JAN.2016 11:48:36

5MHz / ANT0 / Channel Middle 6GHz ~ 40GHz



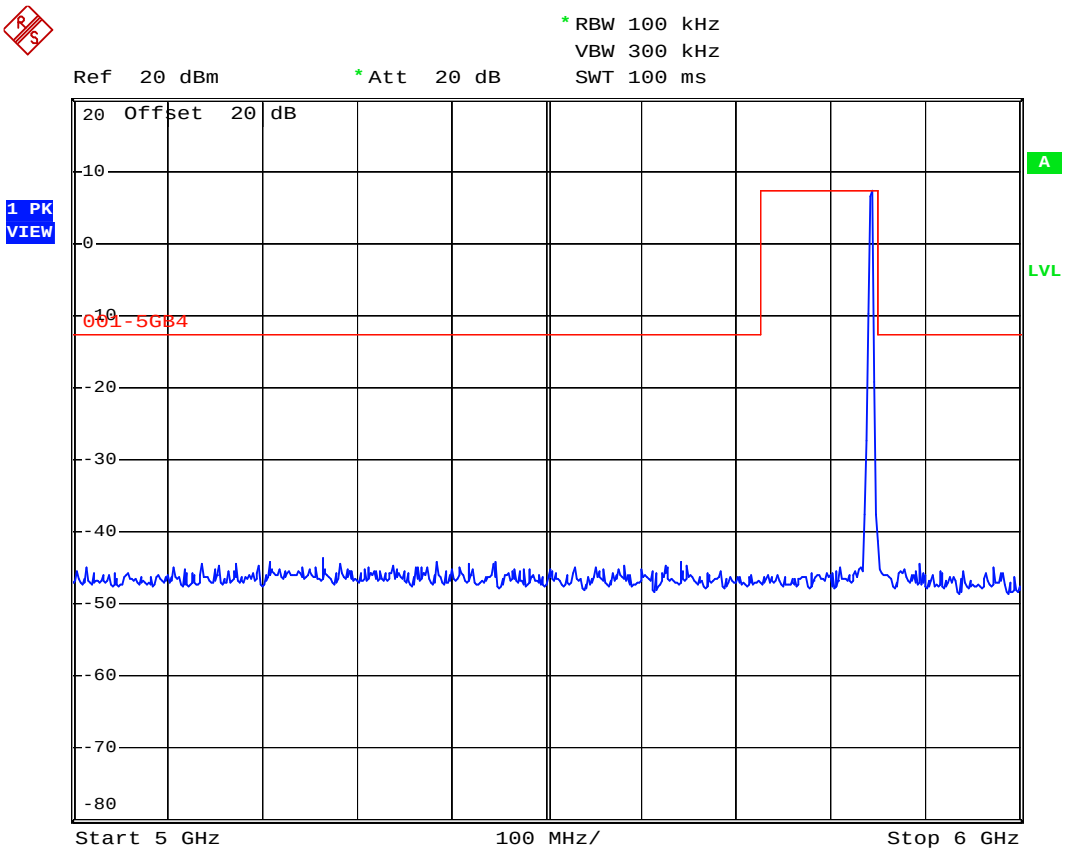
Date: 8.JAN.2016 11:52:22

5MHz / ANT0 / Channel High 30MHz ~ 5GHz



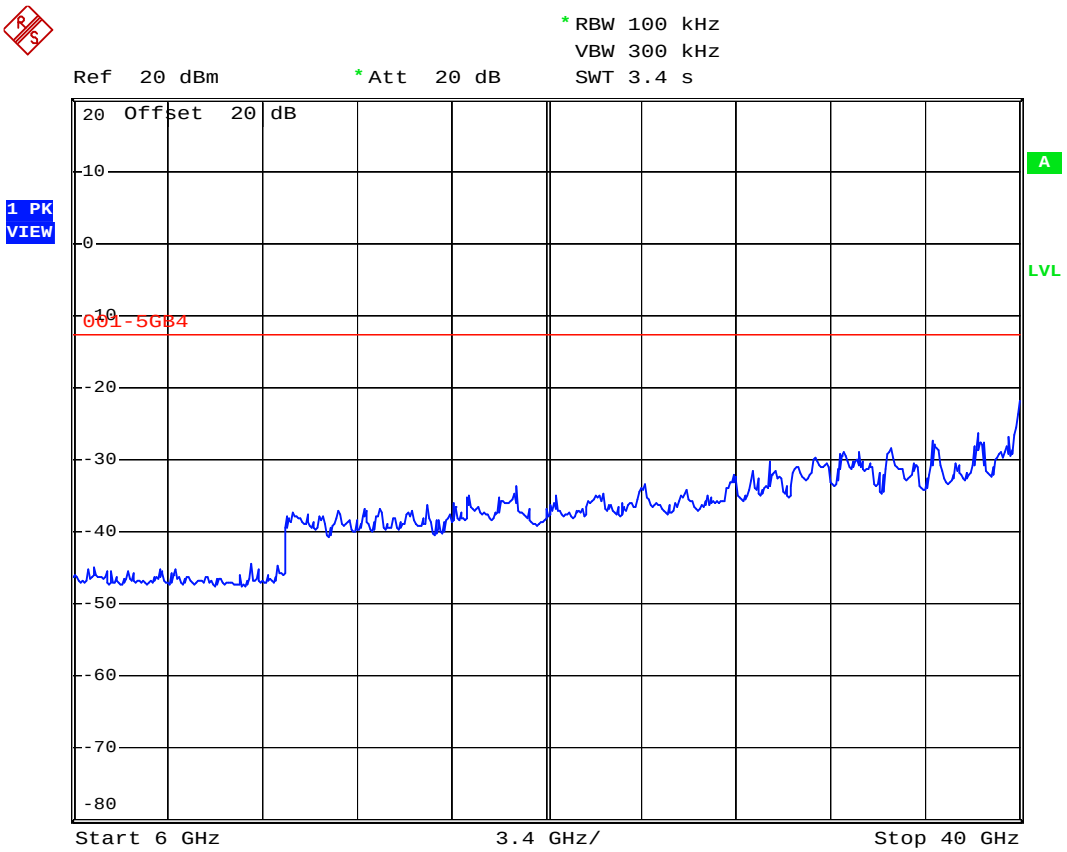
Date: 8.JAN.2016 11:55:31

5MHz / ANT0 / Channel High 5GHz ~ 6GHz



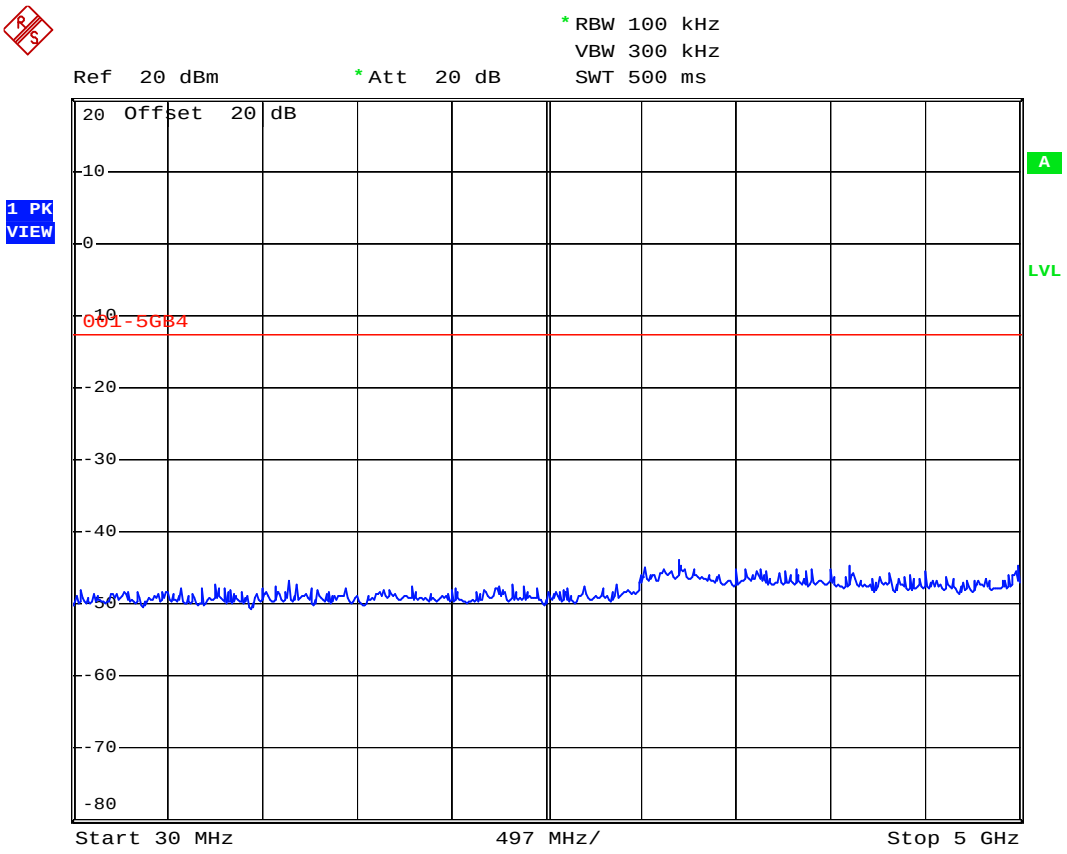
Date: 8.JAN.2016 11:49:31

5MHz / ANT0 / Channel High 6GHz ~ 40GHz



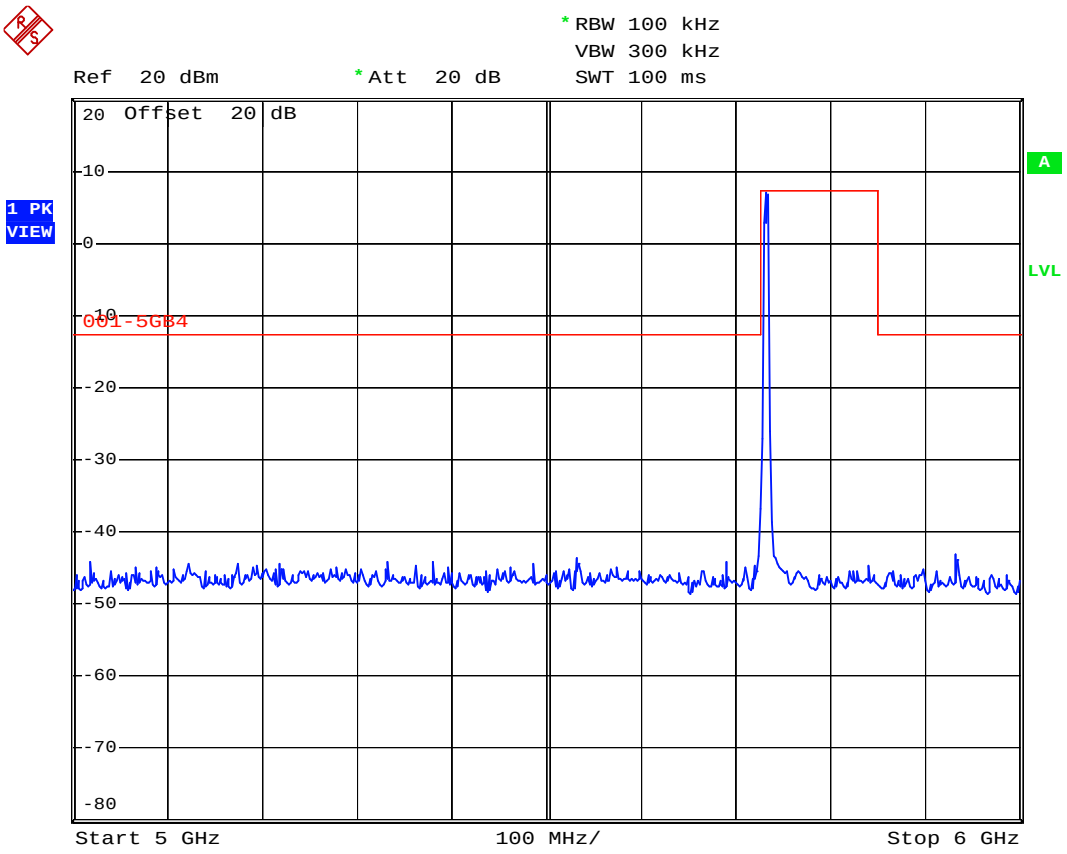
Date: 8.JAN.2016 11:56:01

5MHz / ANT1 / Channel Low 30MHz ~ 5GHz



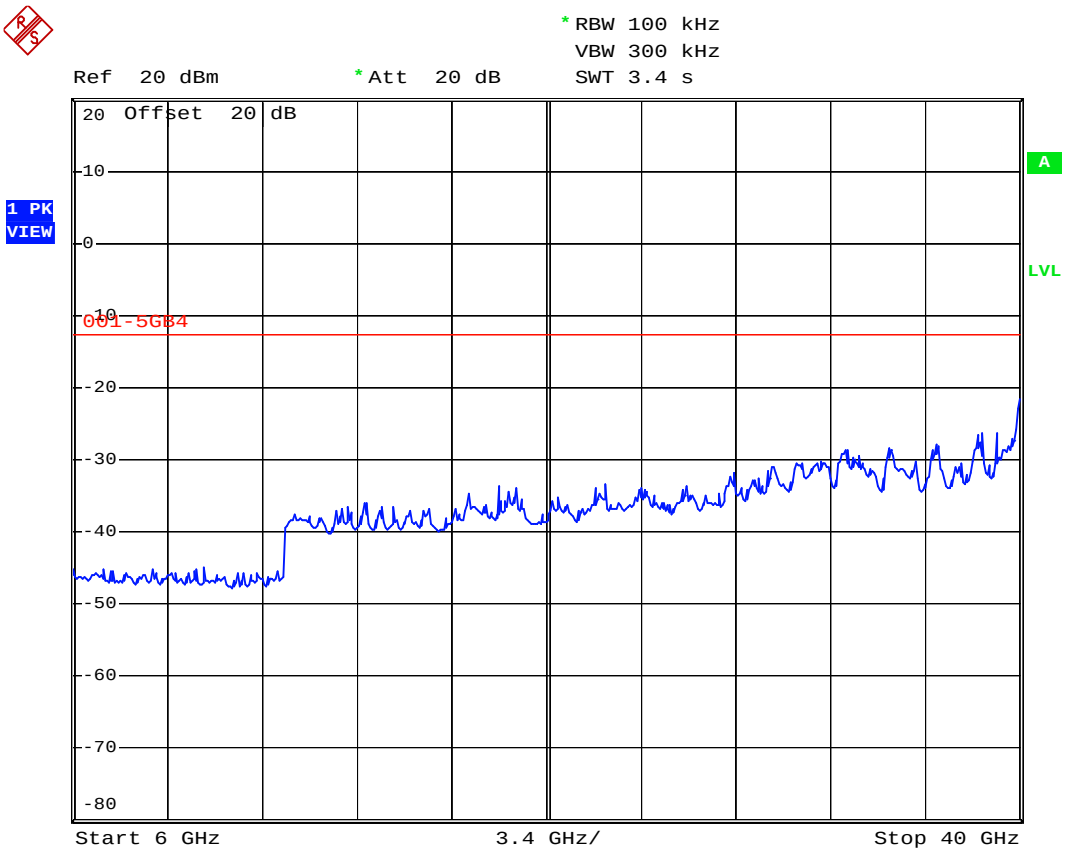
Date: 8.JAN.2016 11:59:56

5MHz / ANT1 / Channel Low 5GHz ~ 6GHz



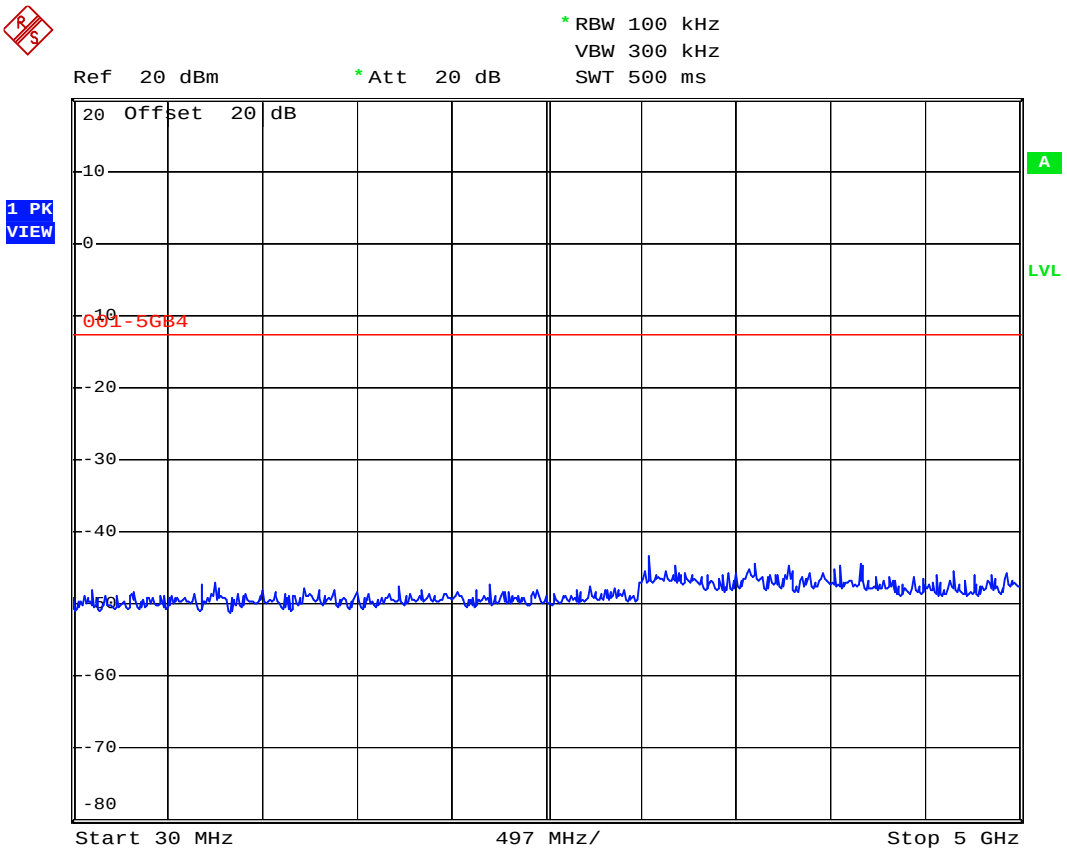
Date: 8.JAN.2016 11:47:36

5MHz / ANT1 / Channel Low 6GHz ~ 40GHz



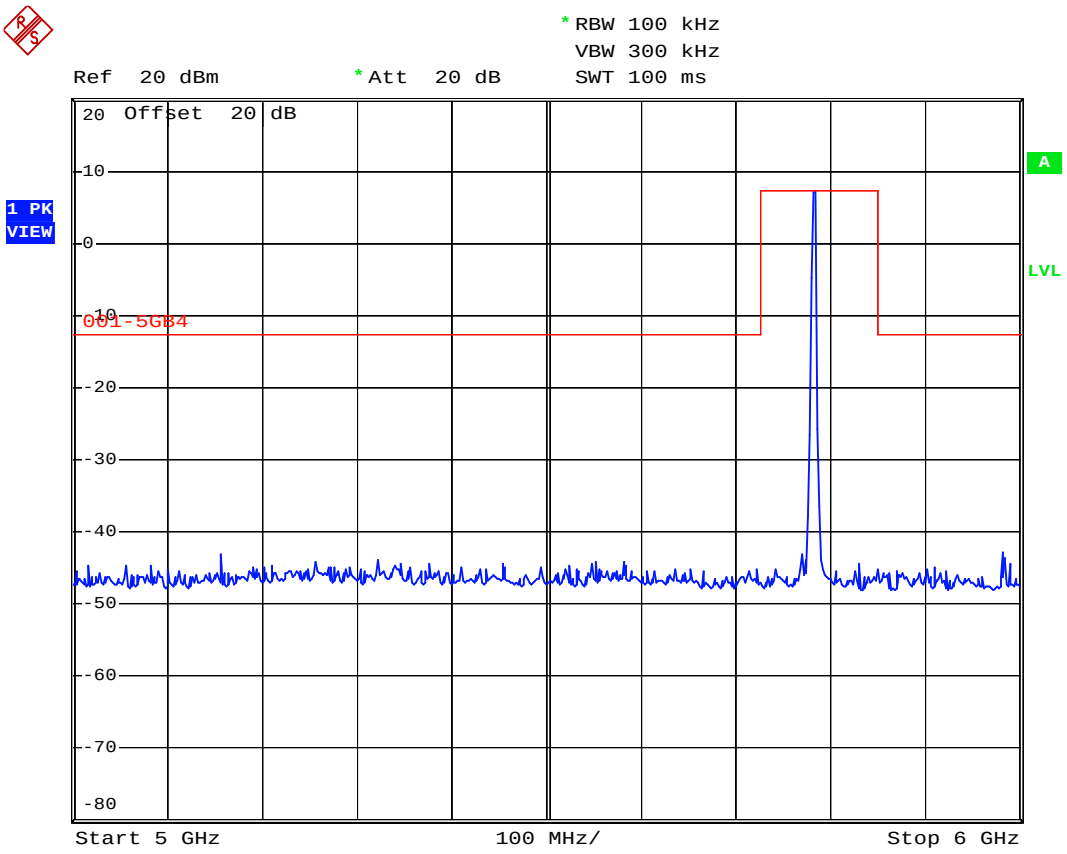
Date: 8.JAN.2016 11:59:26

5MHz / ANT1 / Channel Middle 30MHz ~ 5GHz



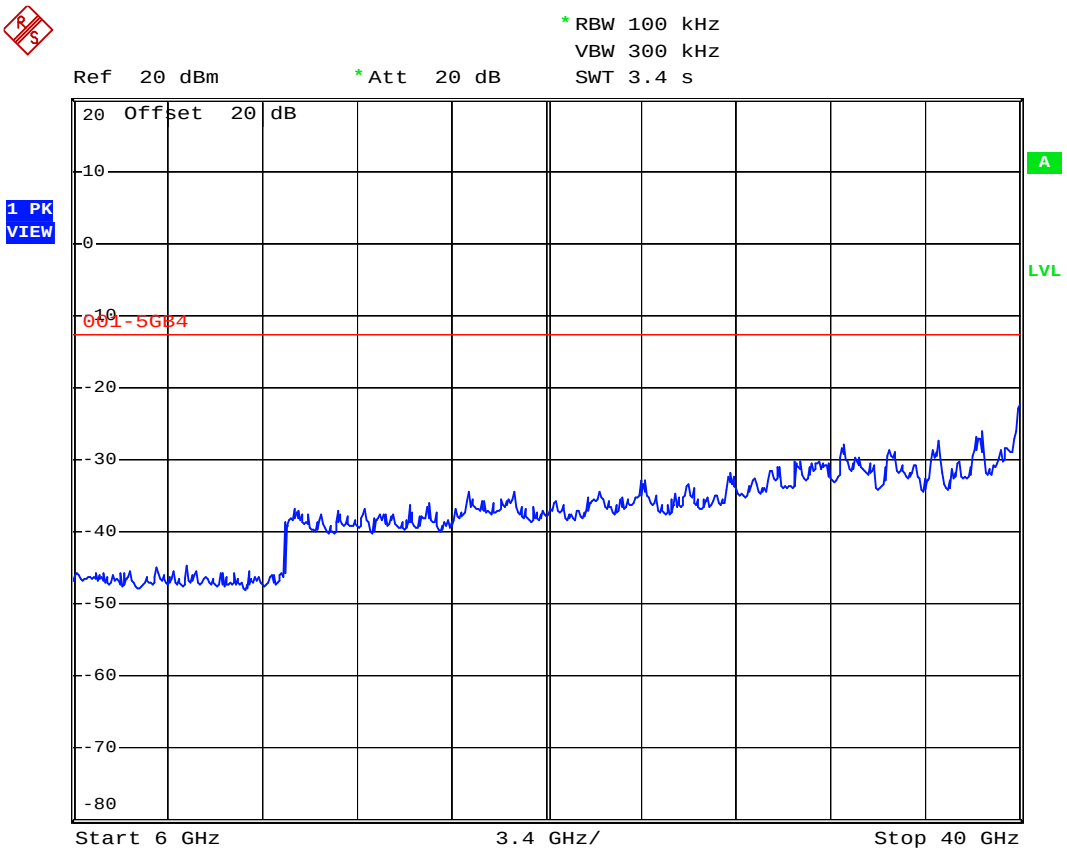
Date: 8.JAN.2016 11:58:06

5MHz / ANT1 / Channel Middle 5GHz ~ 6GHz



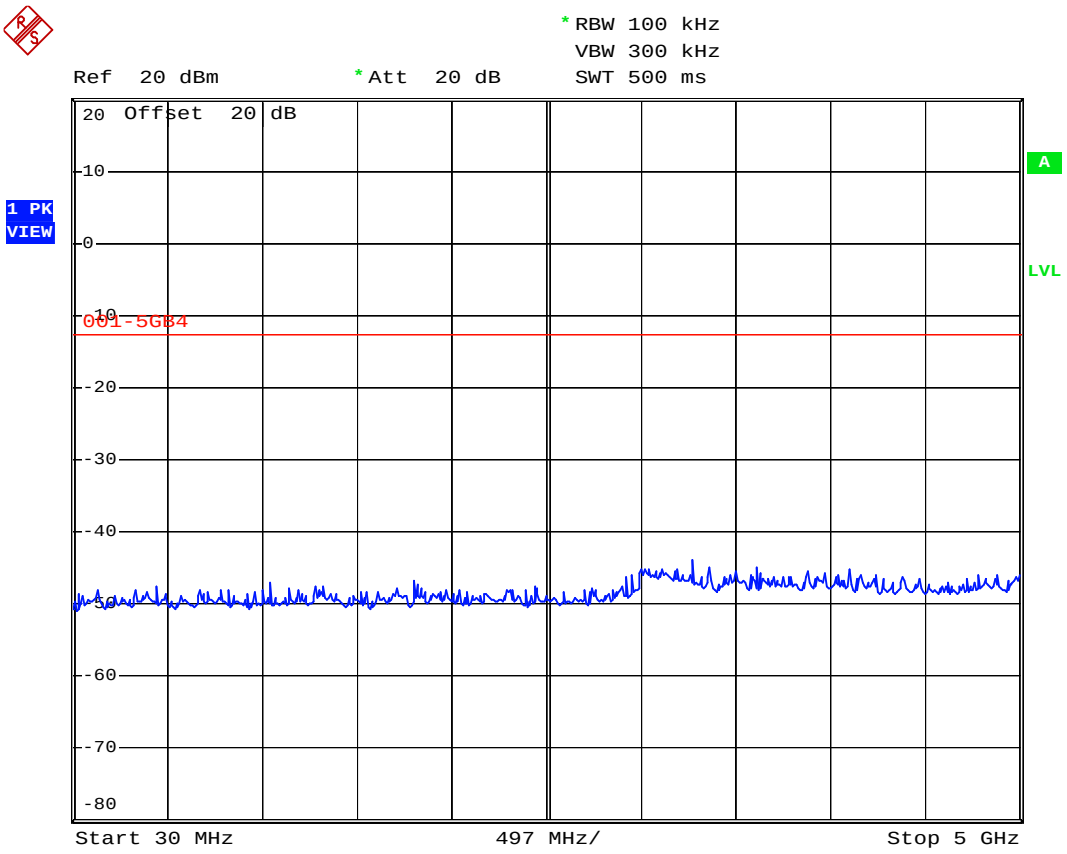
Date: 8.JAN.2016 11:48:56

5MHz / ANT1 / Channel Middle 6GHz ~ 40GHz



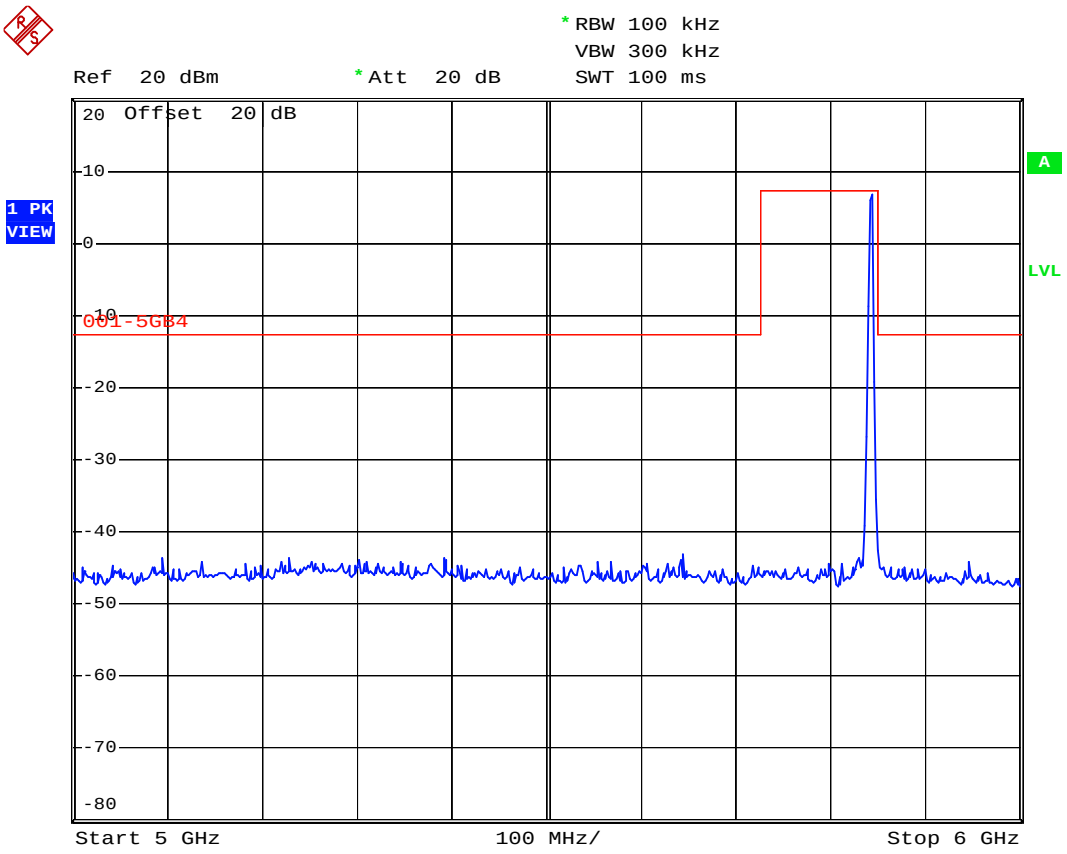
Date: 8.JAN.2016 11:58:44

5MHz / ANT1 / Channel High 30MHz ~ 5GHz



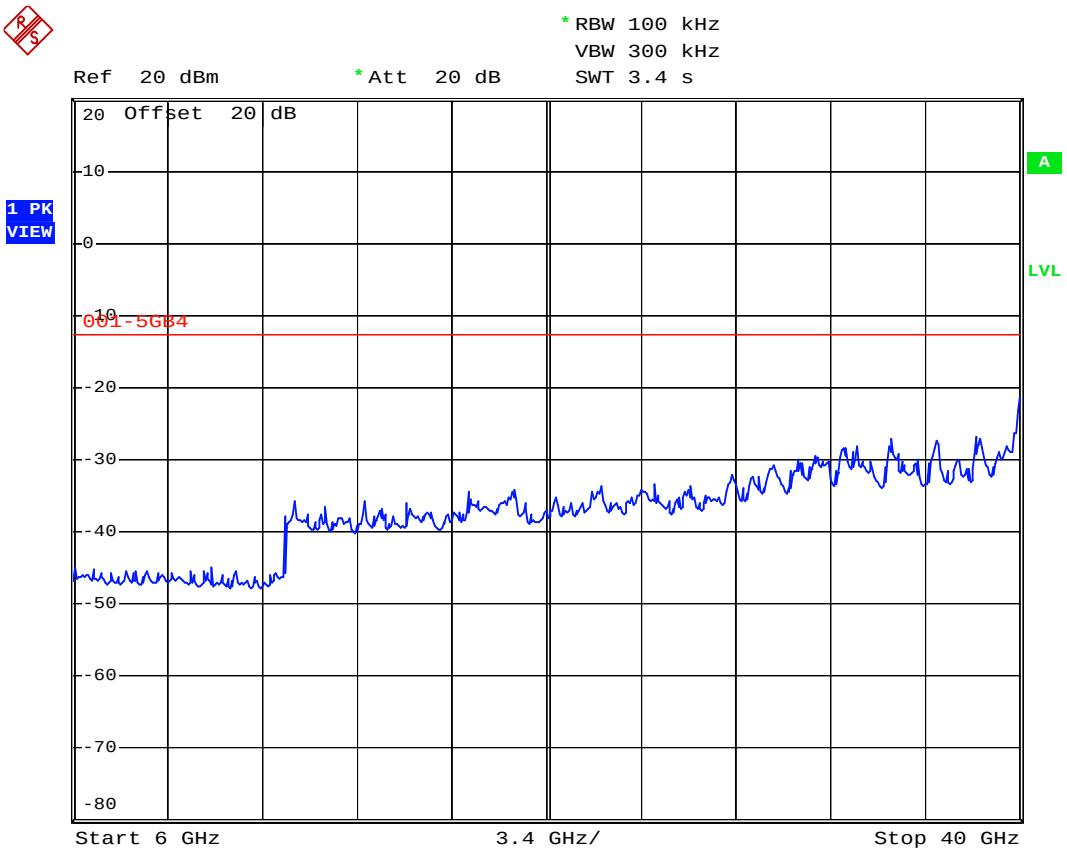
Date: 8.JAN.2016 11:57:35

5MHz / ANT1 / Channel High 5GHz ~ 6GHz



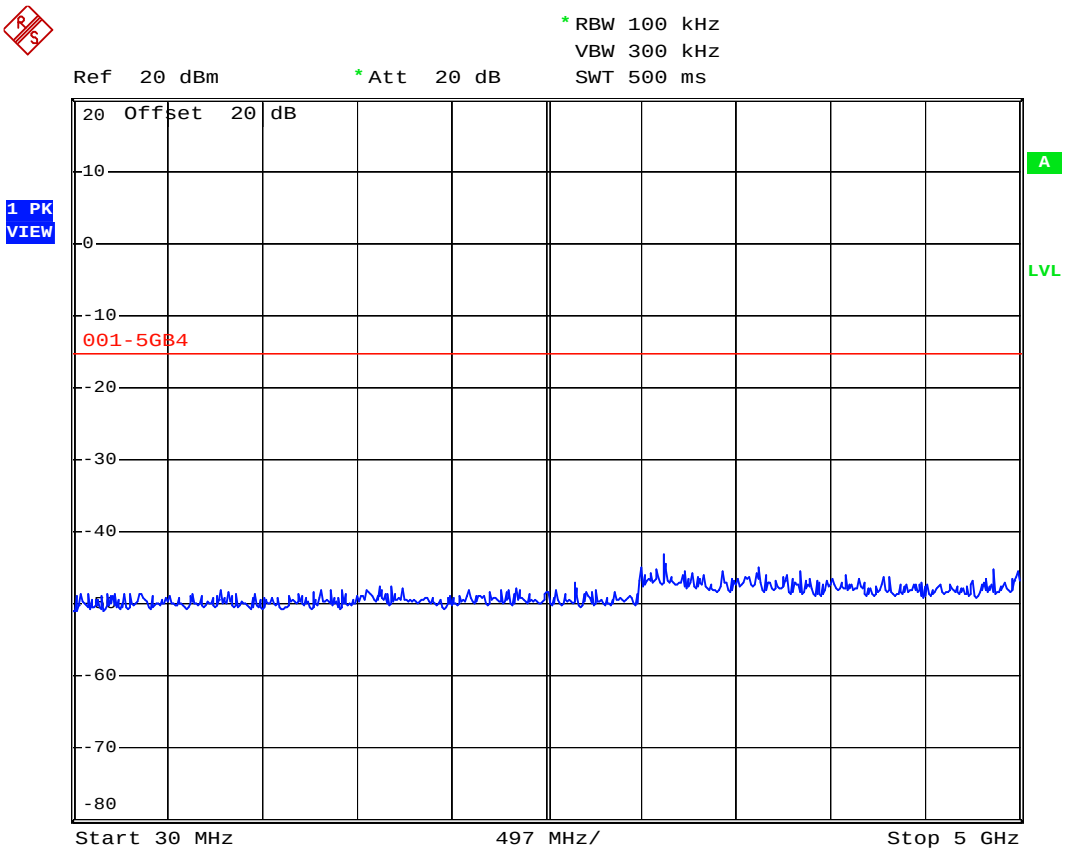
Date: 8.JAN.2016 11:49:59

5MHz / ANT1 / Channel High 6GHz ~ 40GHz



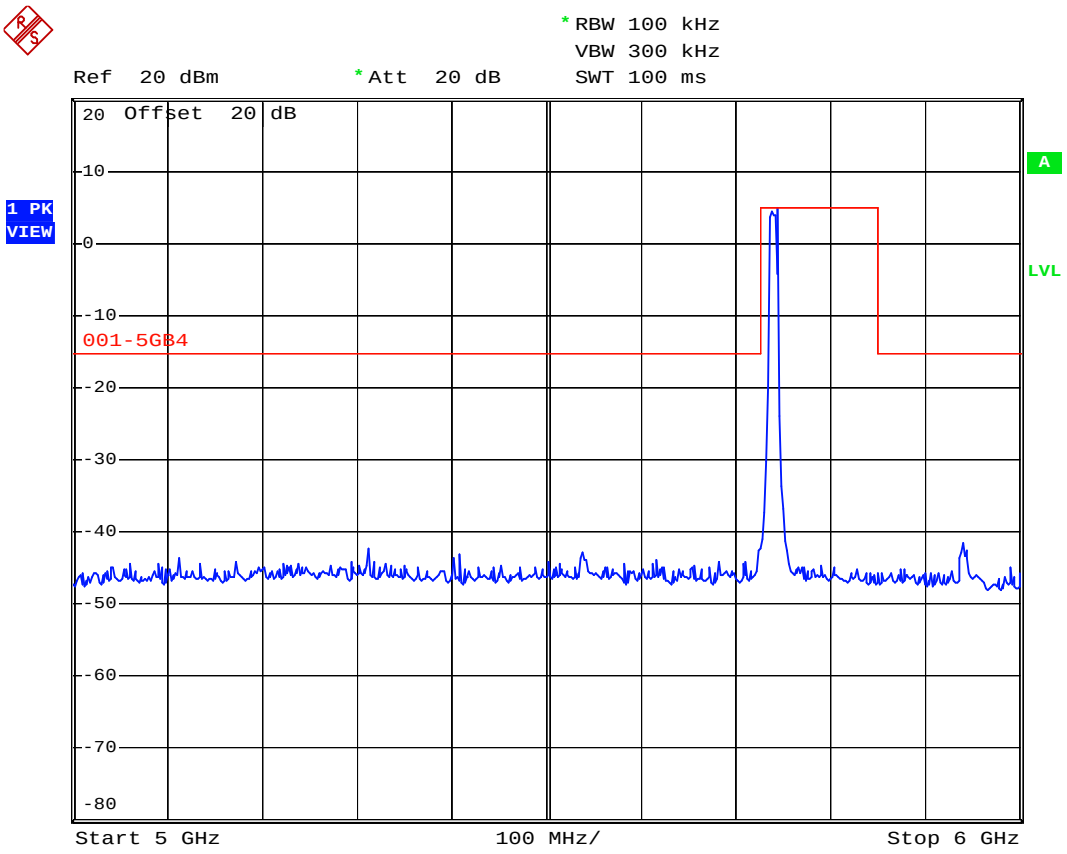
Date: 8.JAN.2016 11:56:42

10MHz / ANT0 / Channel Low 30MHz ~ 5GHz



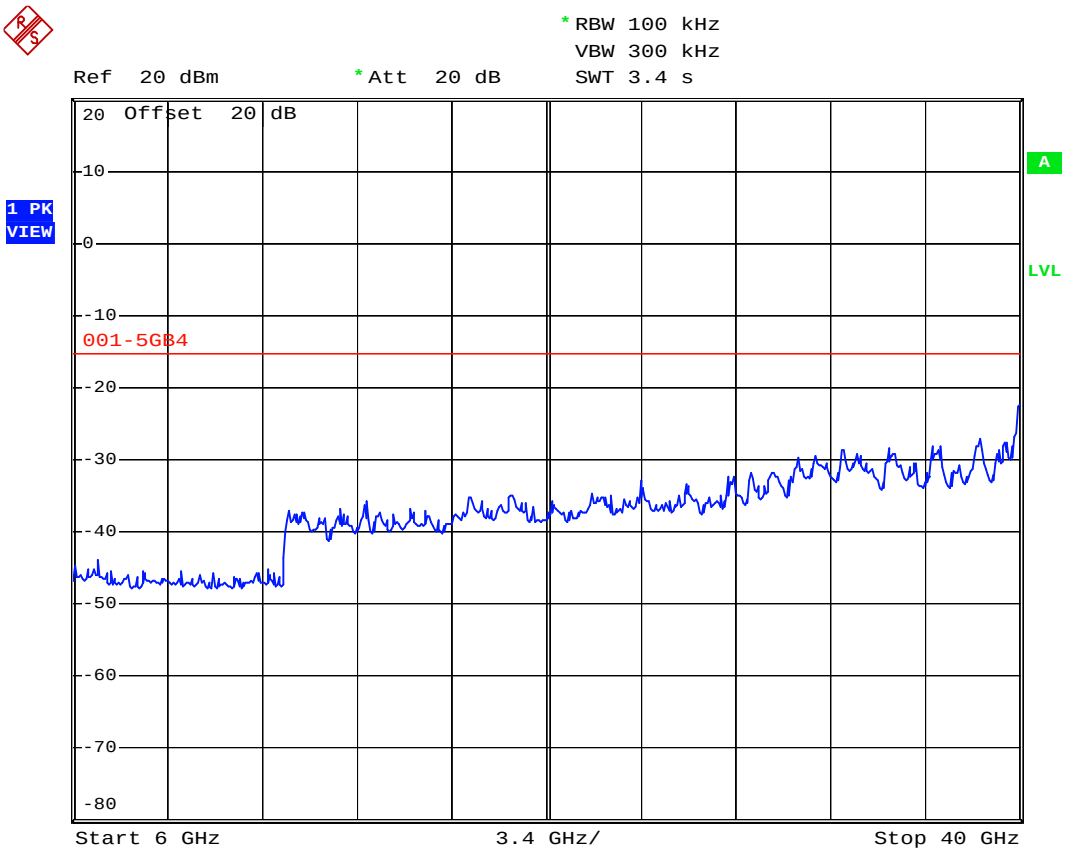
Date: 8.JAN.2016 12:30:19

10MHz / ANT0 / Channel Low 5GHz ~ 6GHz



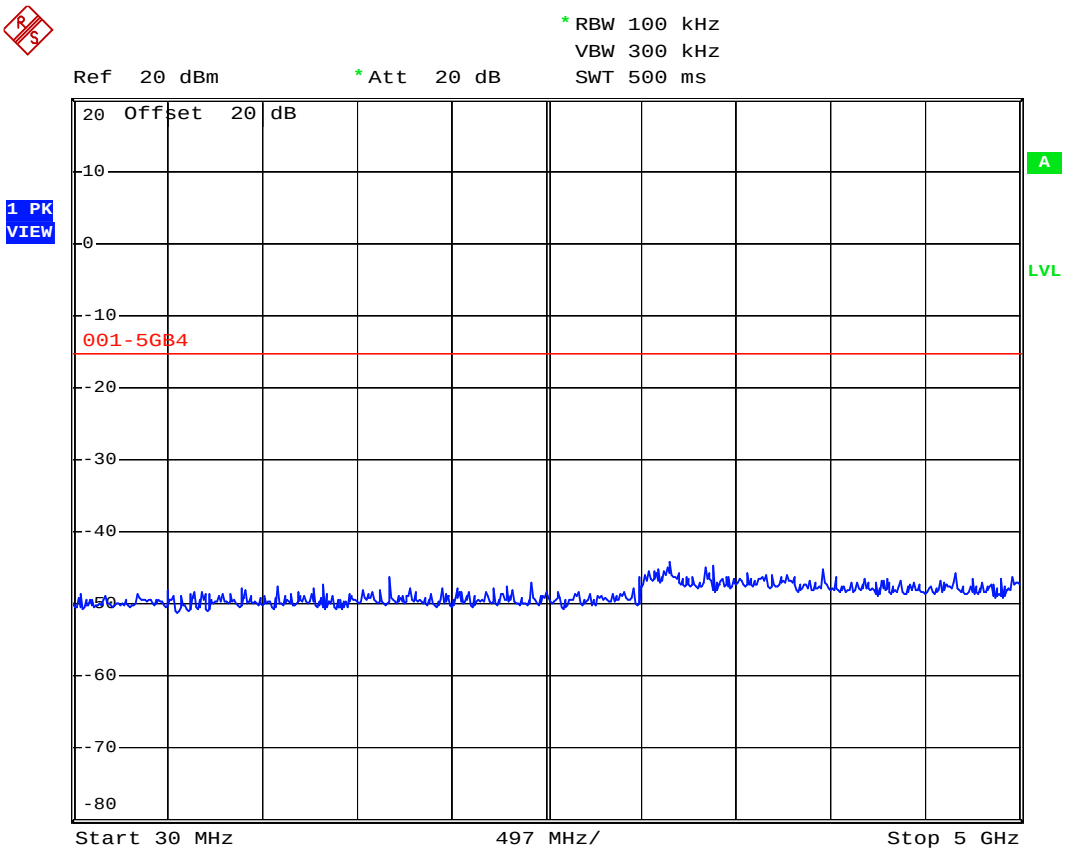
Date: 8.JAN.2016 12:27:02

10MHz / ANT0 / Channel Low 6GHz ~ 40GHz



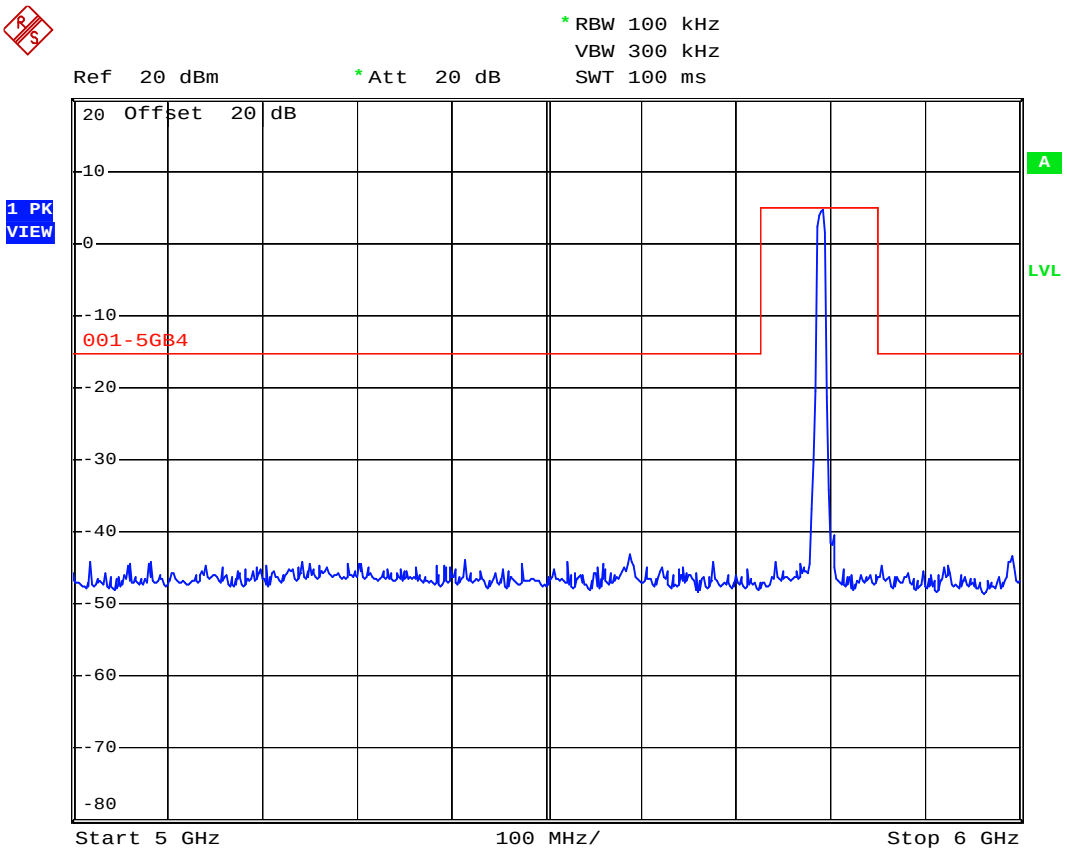
Date: 8.JAN.2016 12:32:00

10MHz / ANT0 / Channel Middle 30MHz ~ 5GHz



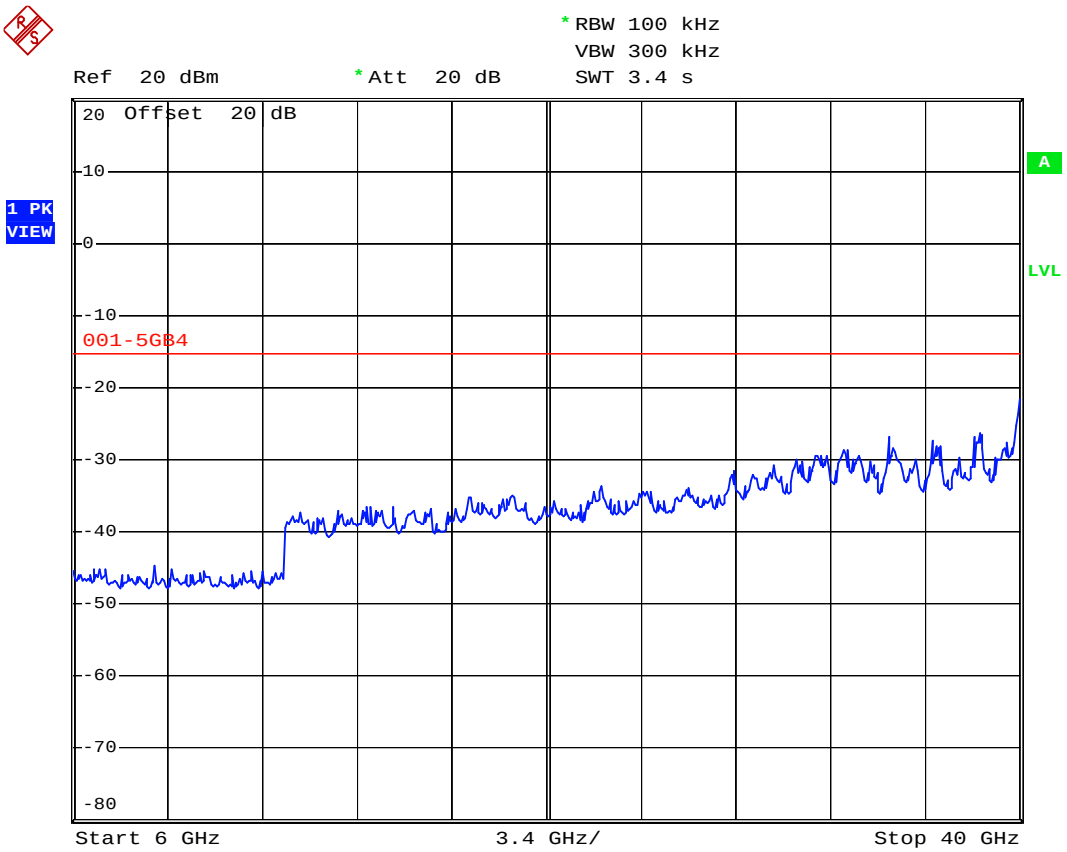
Date: 8.JAN.2016 12:30:48

10MHz / ANT0 / Channel Middle 5GHz ~ 6GHz



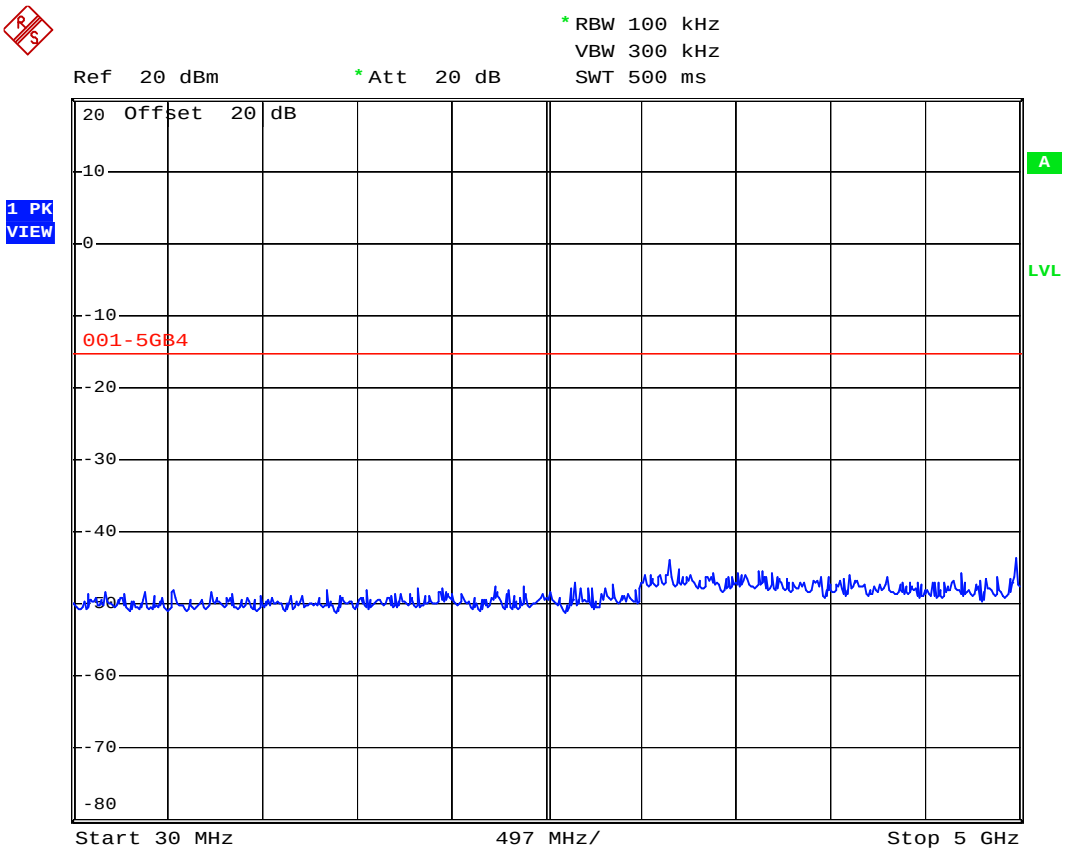
Date: 8.JAN.2016 12:27:36

10MHz / ANT0 / Channel Middle 6GHz ~ 40GHz



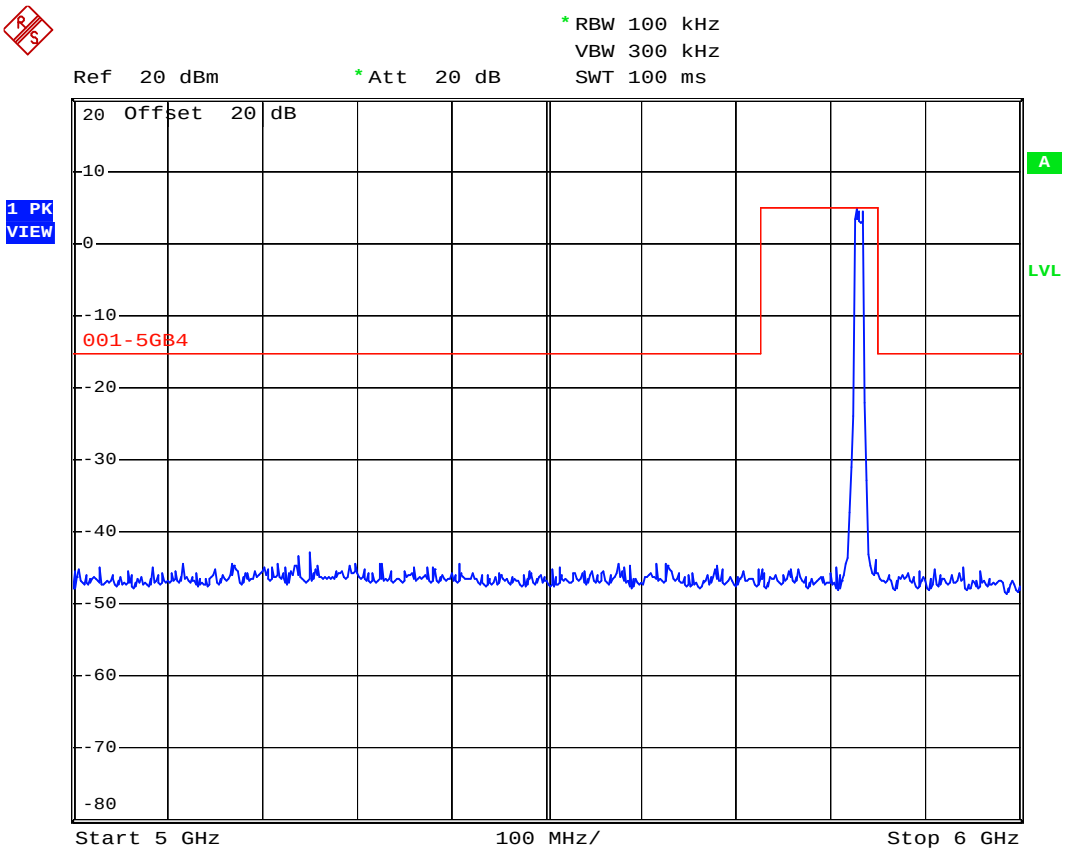
Date: 8.JAN.2016 12:32:42

10MHz / ANT0 / Channel High 30MHz ~ 5GHz



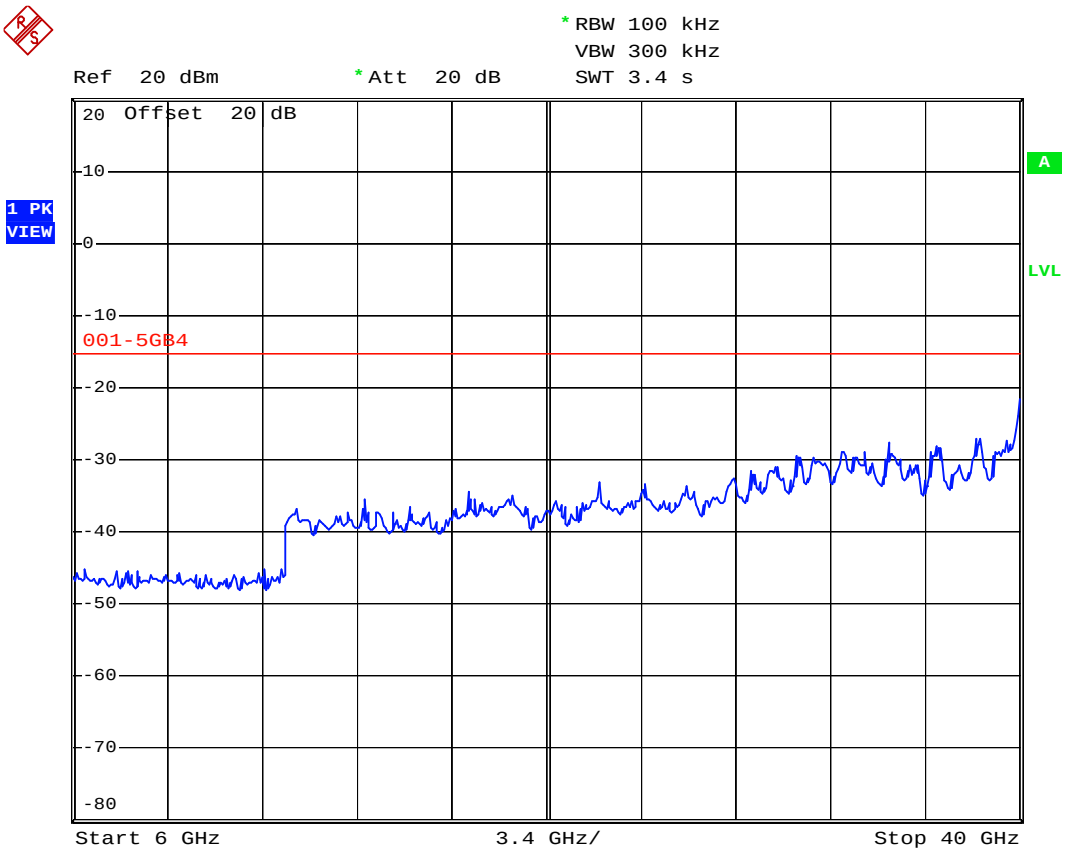
Date: 8.JAN.2016 12:31:19

10MHz / ANT0 / Channel High 5GHz ~ 6GHz



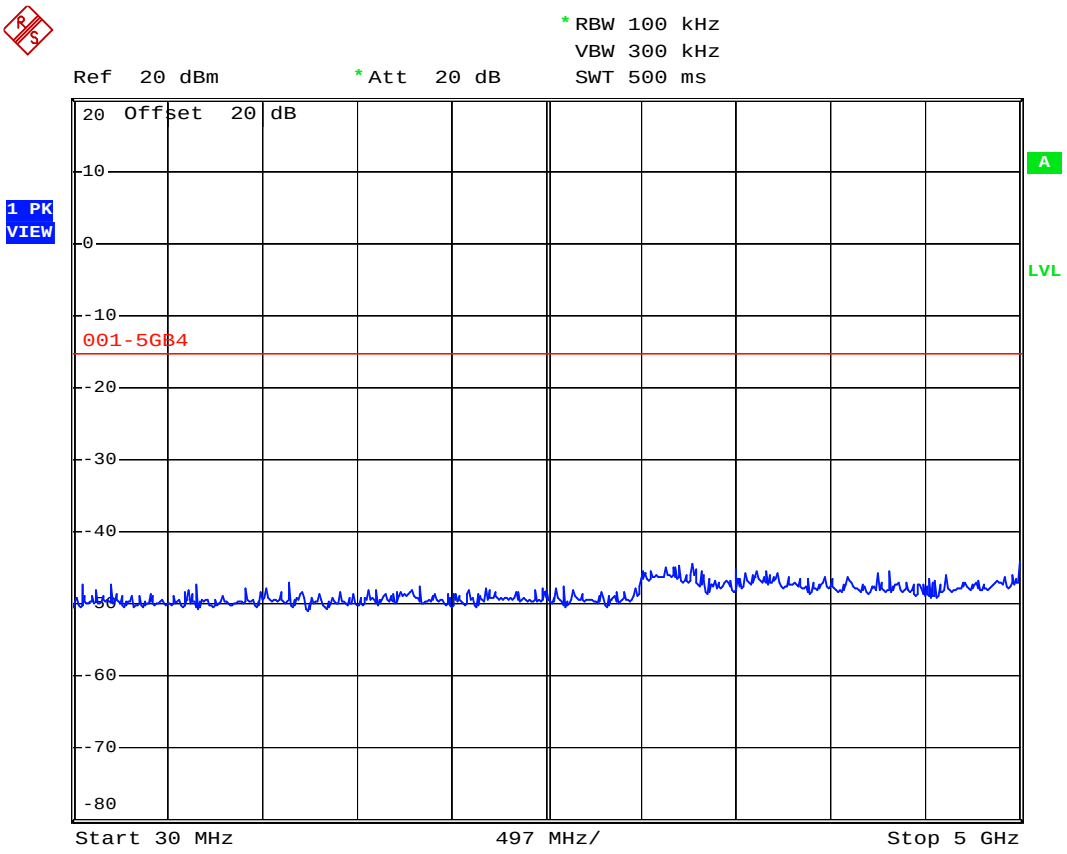
Date: 8.JAN.2016 12:28:31

10MHz / ANT0 / Channel High 6GHz ~ 40GHz



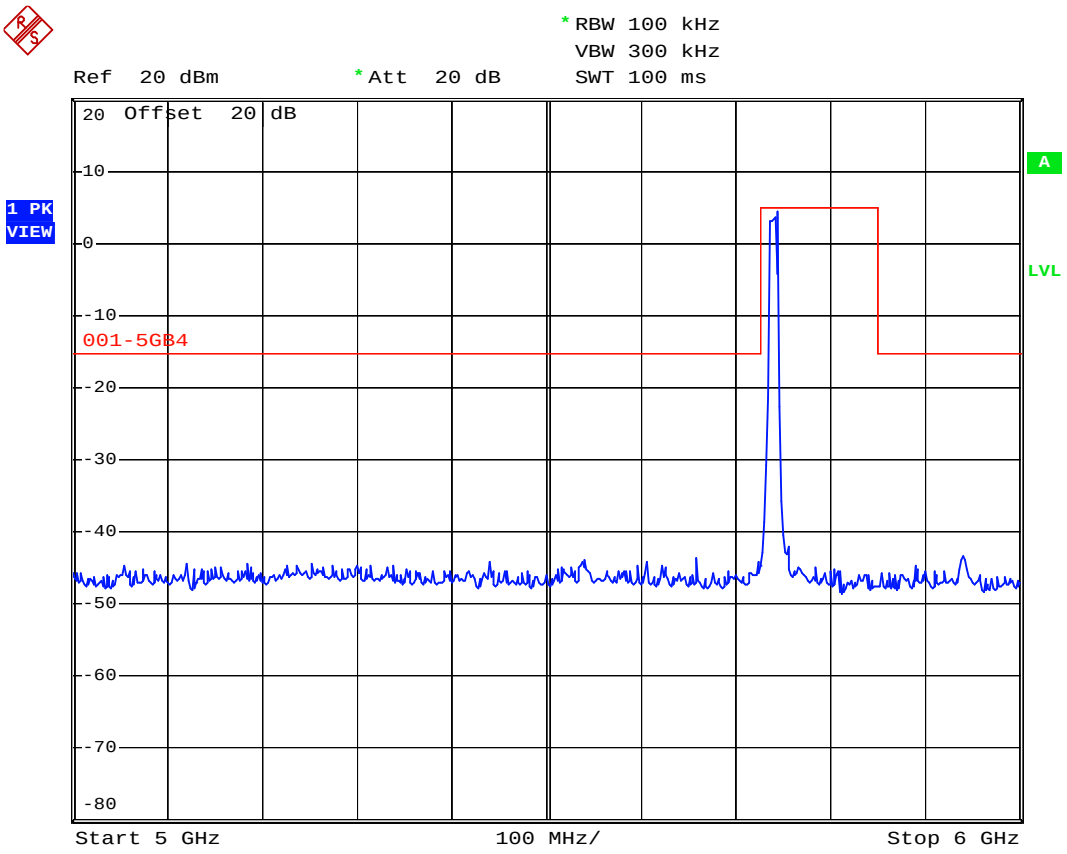
Date: 8.JAN.2016 12:33:30

10MHz / ANT1 / Channel Low 30MHz ~ 5GHz



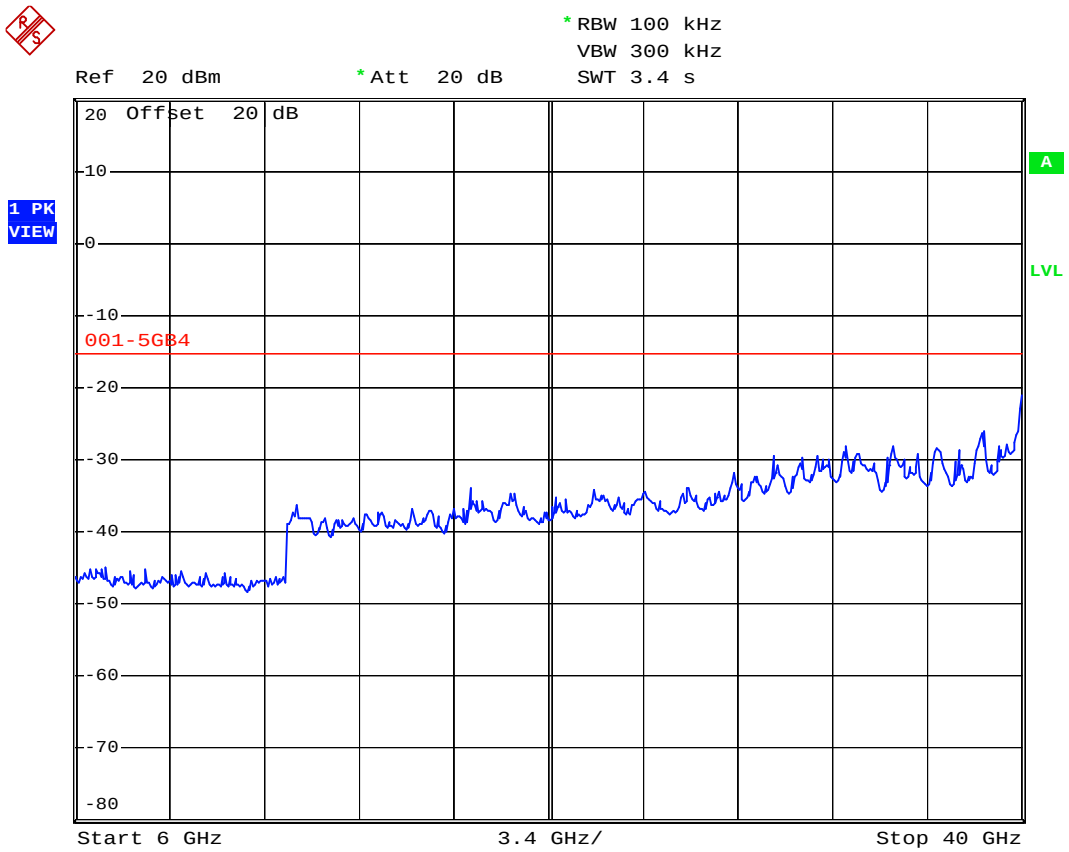
Date: 8.JAN.2016 12:30:31

10MHz / ANT1 / Channel Low 5GHz ~ 6GHz



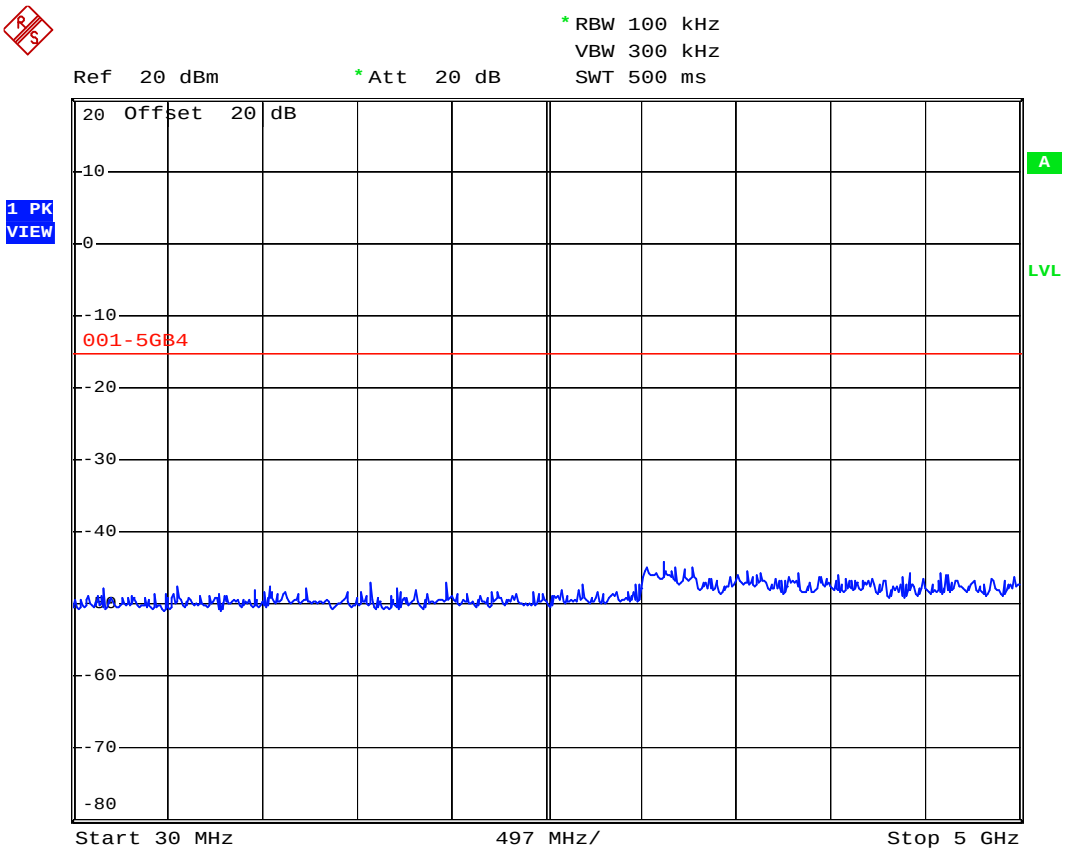
Date: 8.JAN.2016 12:27:17

10MHz / ANT1 / Channel Low 6GHz ~ 40GHz



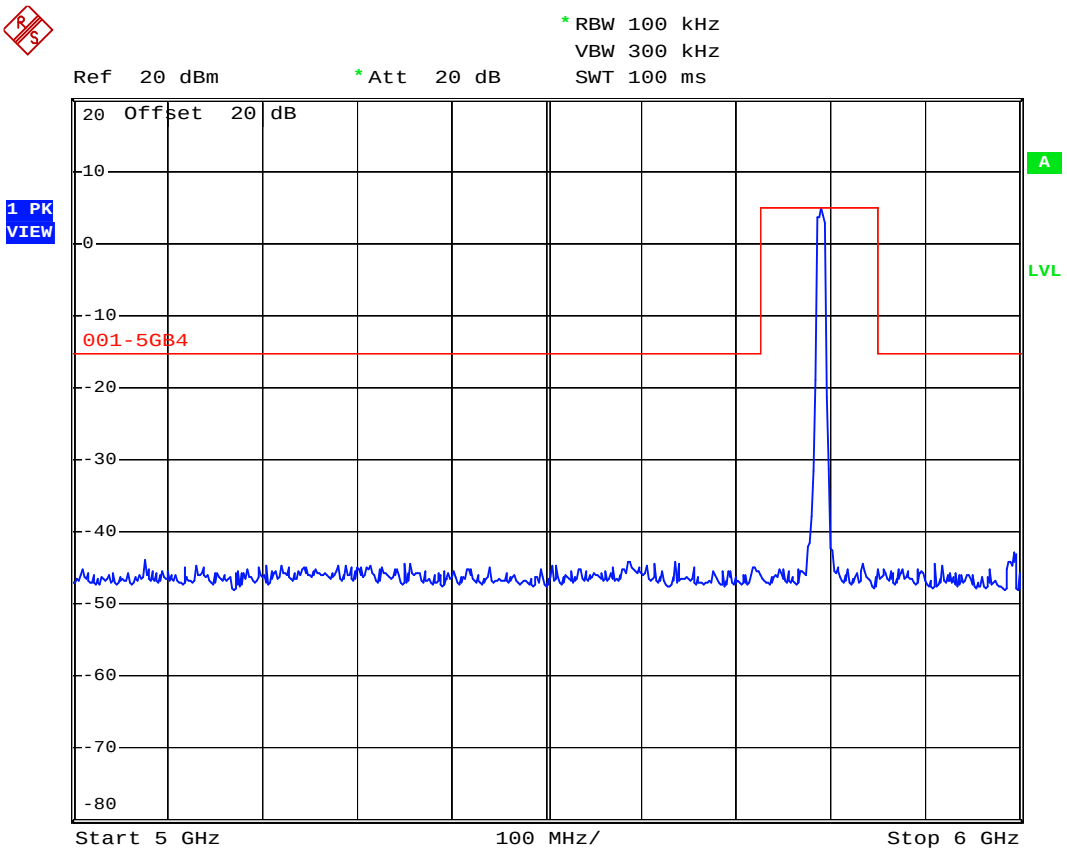
Date: 8.JAN.2016 12:32:18

10MHz / ANT1 / Channel Middle 30MHz ~ 5GHz



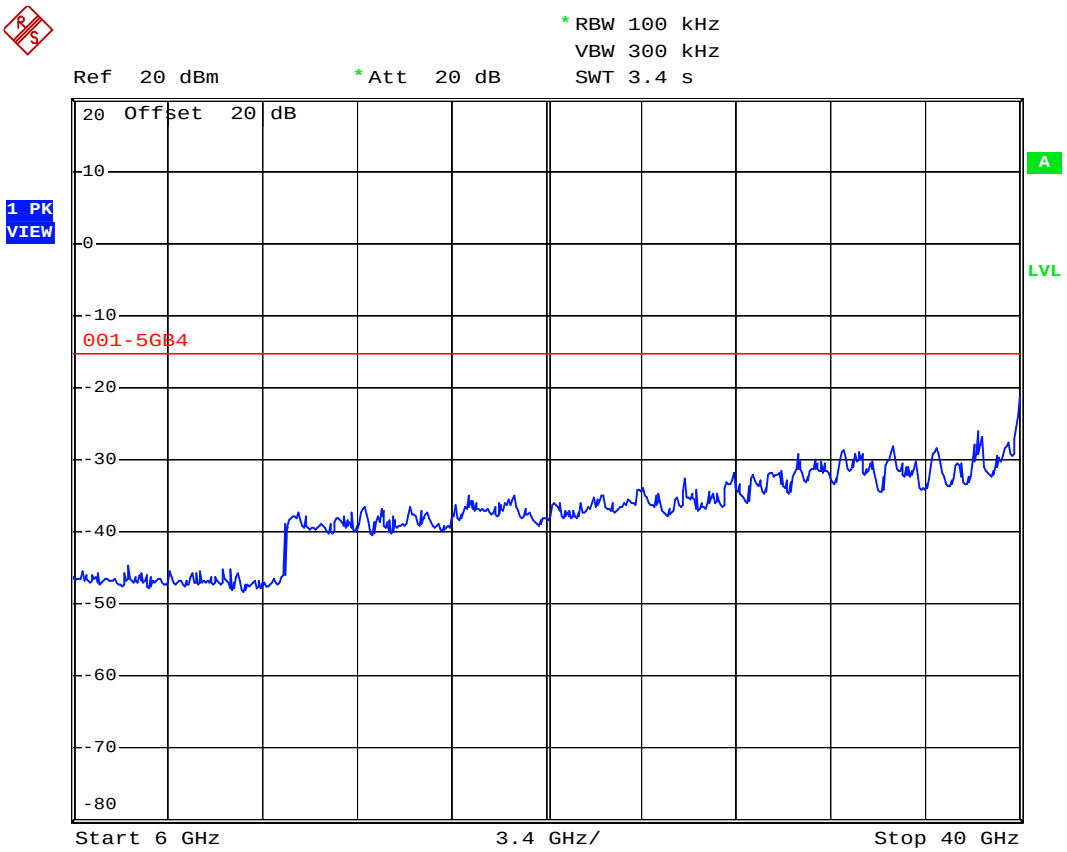
Date: 8.JAN.2016 12:31:02

10MHz / ANT1 / Channel Middle 5GHz ~ 6GHz



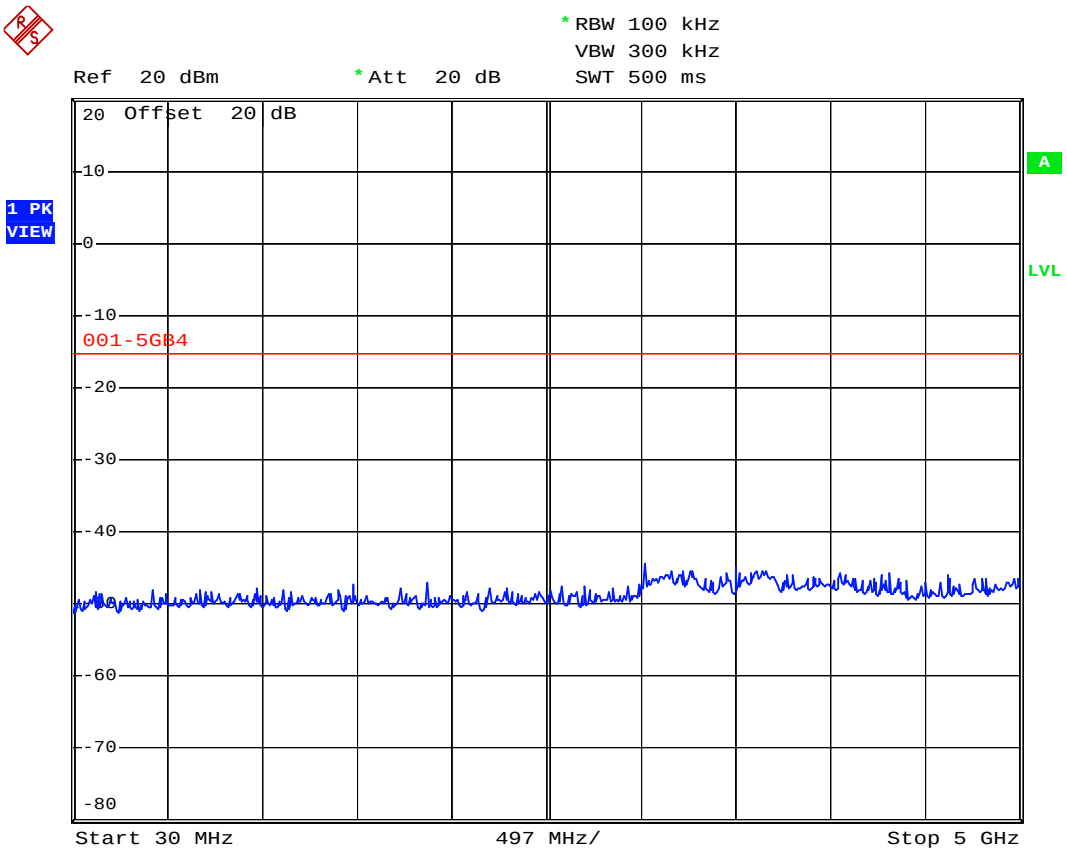
Date: 8.JAN.2016 12:28:08

10MHz / ANT1 / Channel Middle 6GHz ~ 40GHz



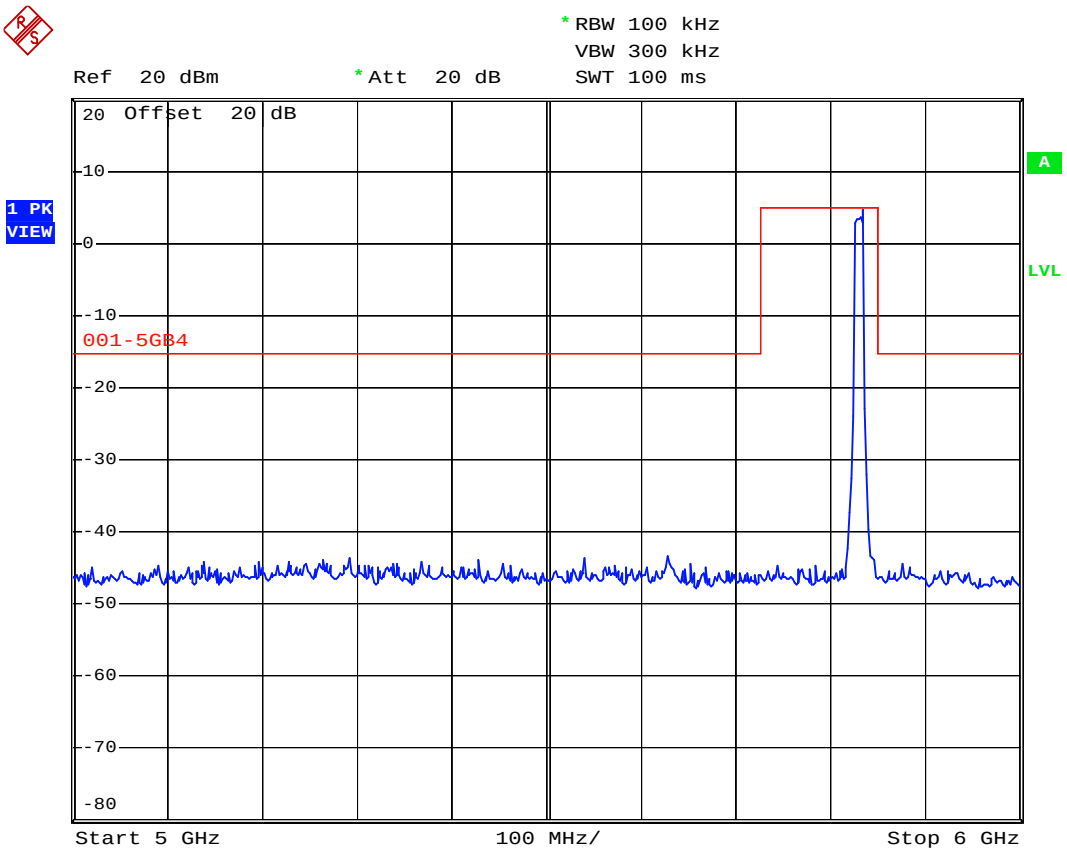
Date: 8.JAN.2016 12:33:01

10MHz / ANT1 / Channel High 30MHz ~ 5GHz



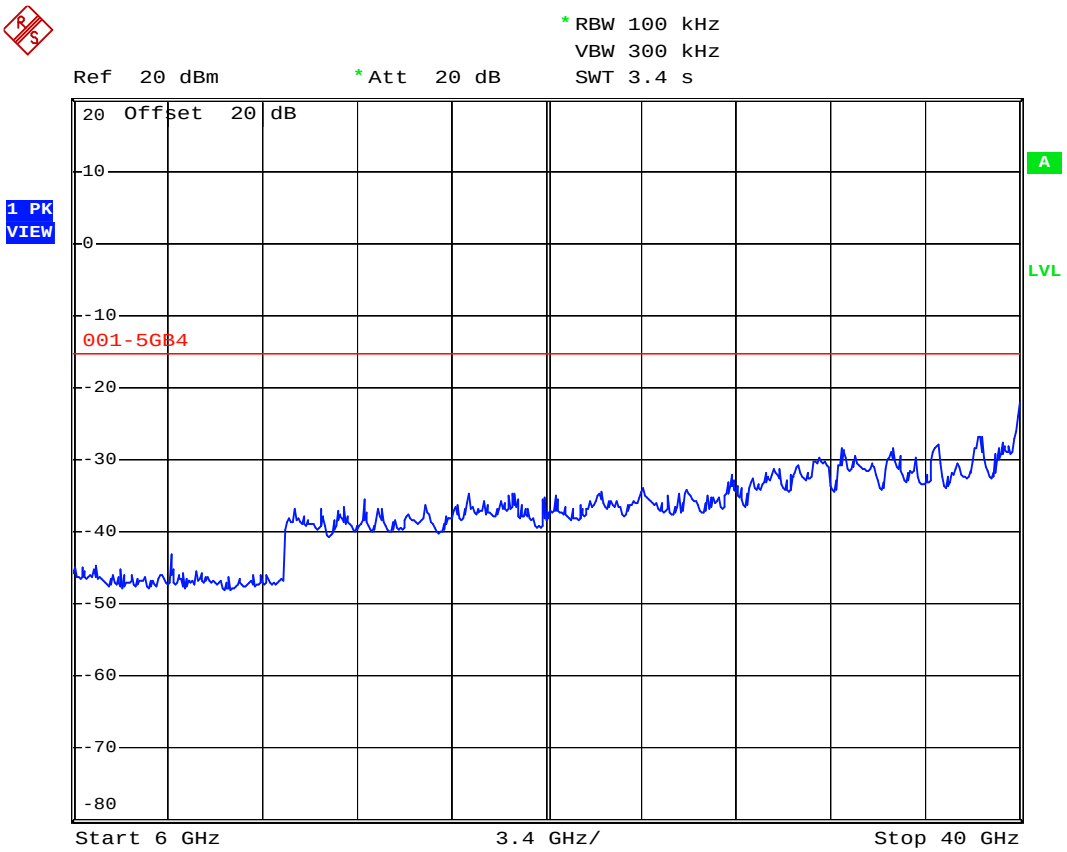
Date: 8.JAN.2016 12:31:32

10MHz / ANT1 / Channel High 5GHz ~ 6GHz



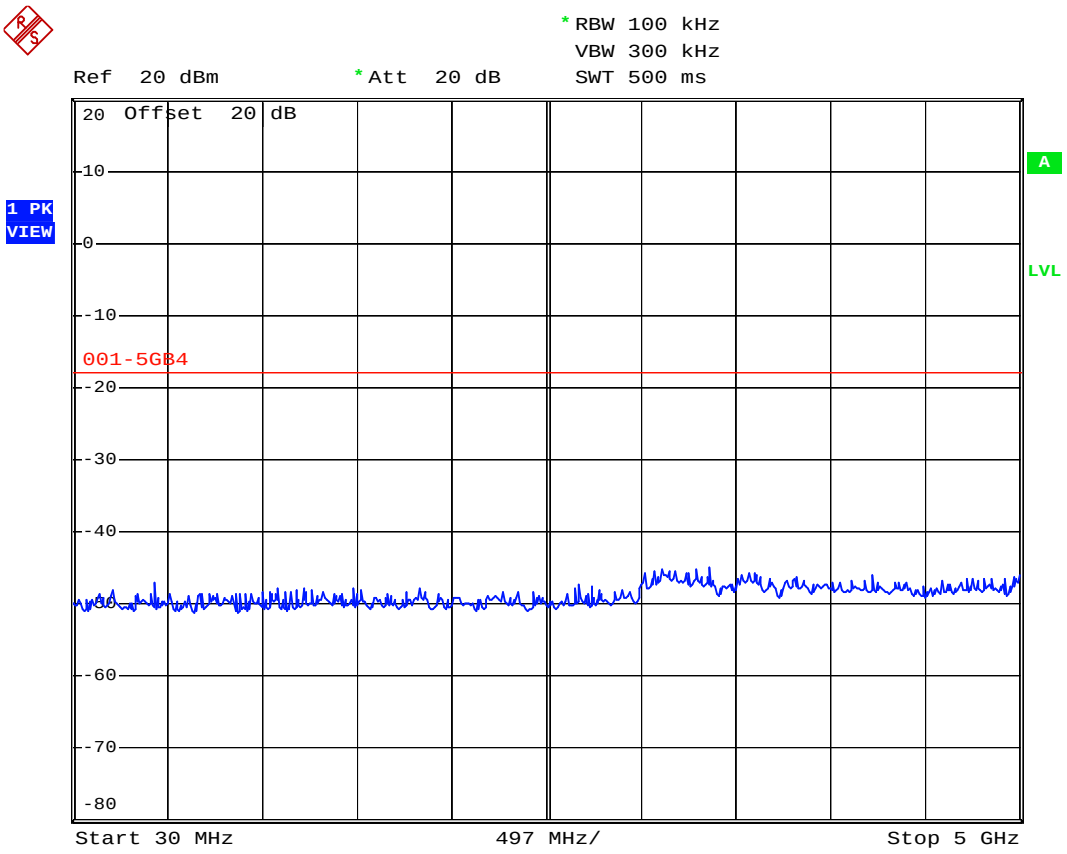
Date: 8.JAN.2016 12:28:55

10MHz / ANT1 / Channel High 6GHz ~ 40GHz



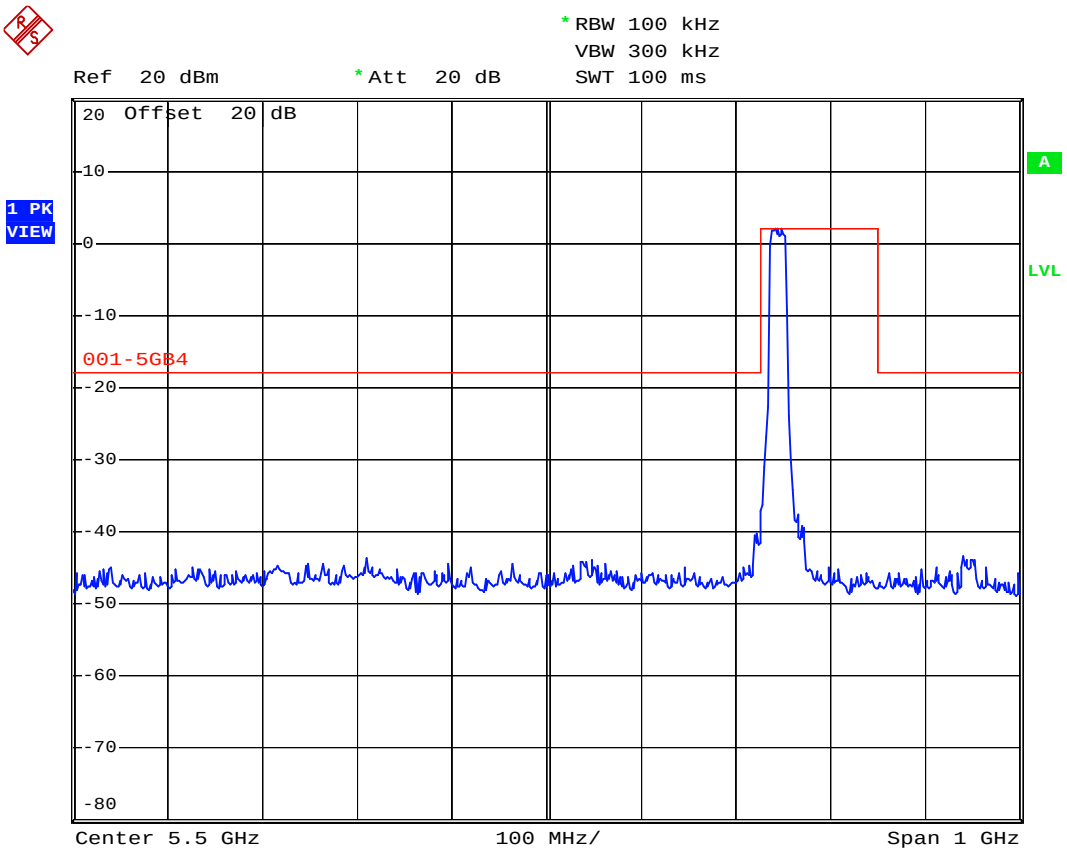
Date: 8.JAN.2016 12:33:51

20MHz / ANT0 / Channel Low 30MHz ~ 5GHz



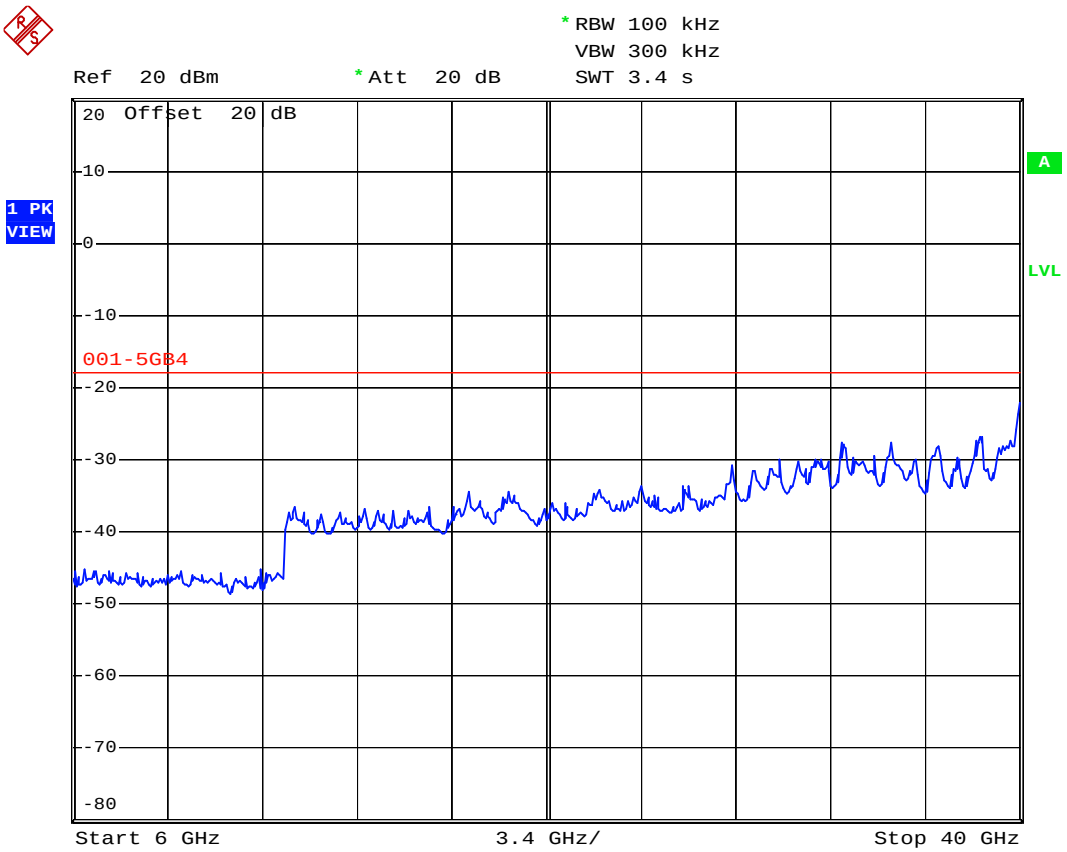
Date: 8.JAN.2016 14:22:31

20MHz / ANT0 / Channel Low 5GHz ~ 6GHz



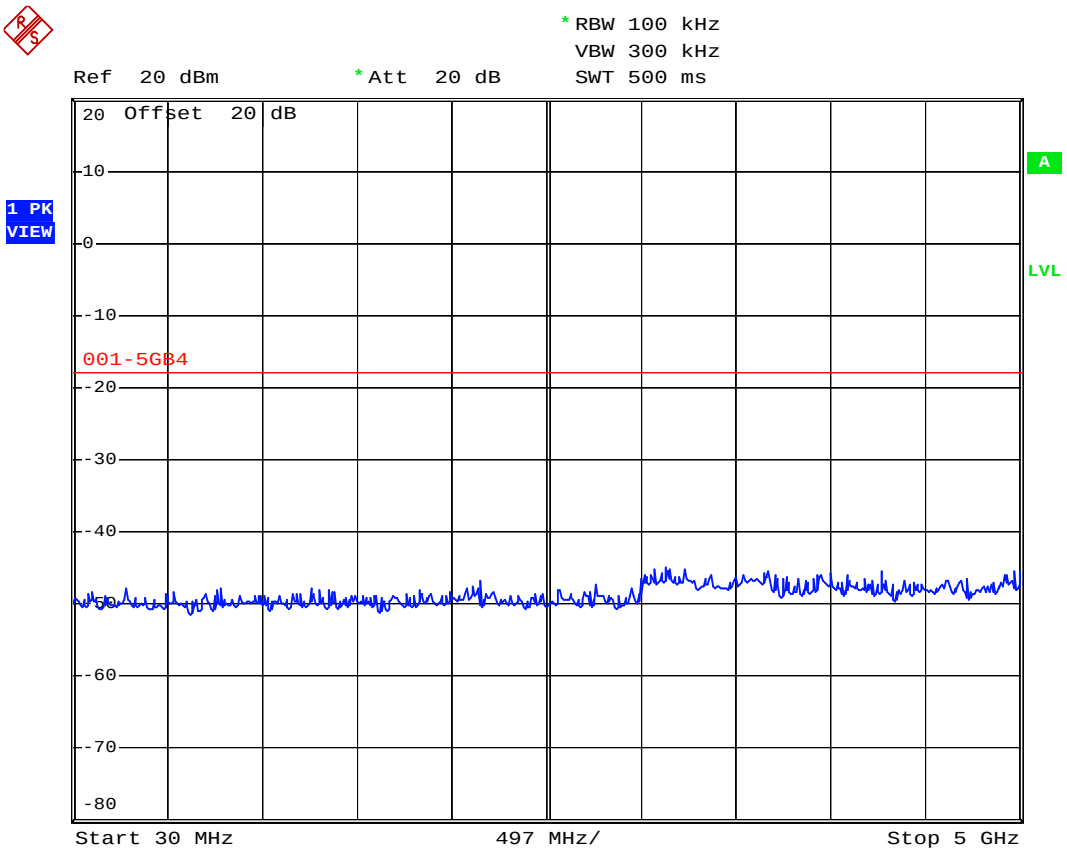
Date: 8.JAN.2016 14:18:52

20MHz / ANT0 / Channel Low 6GHz ~ 40GHz



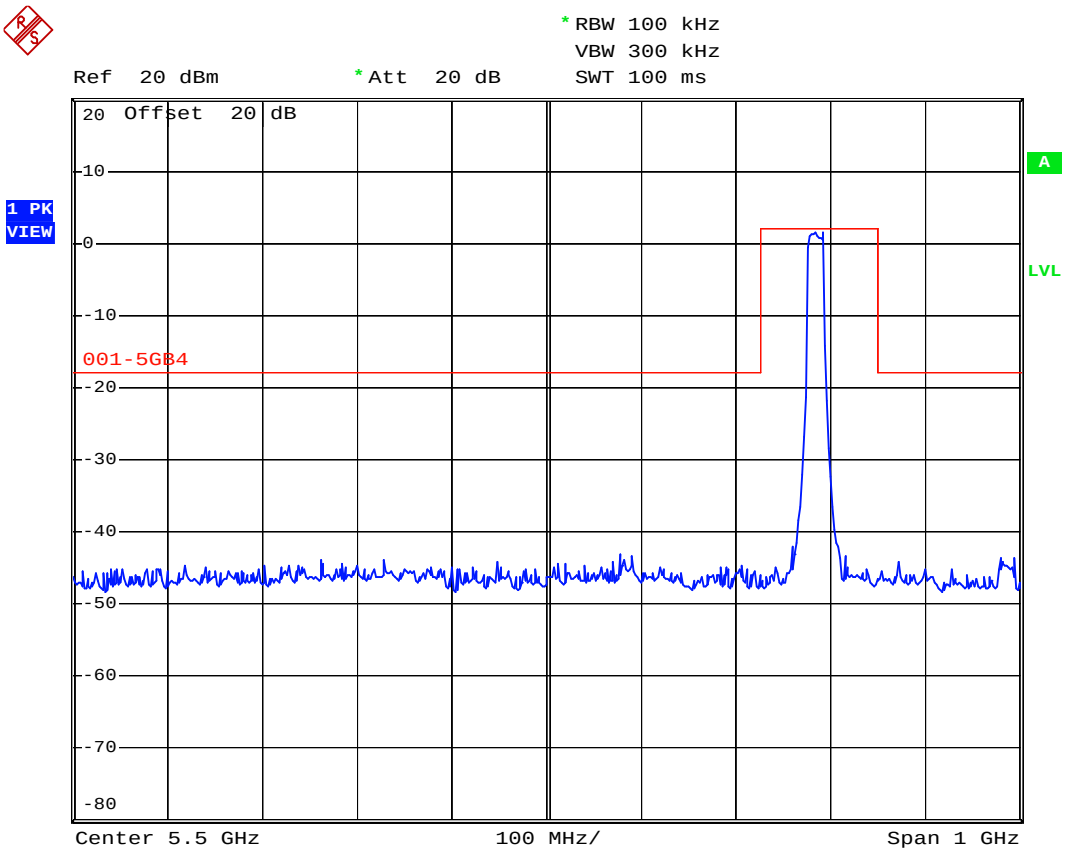
Date: 8.JAN.2016 14:24:44

20MHz / ANT0 / Channel Middle 30MHz ~ 5GHz



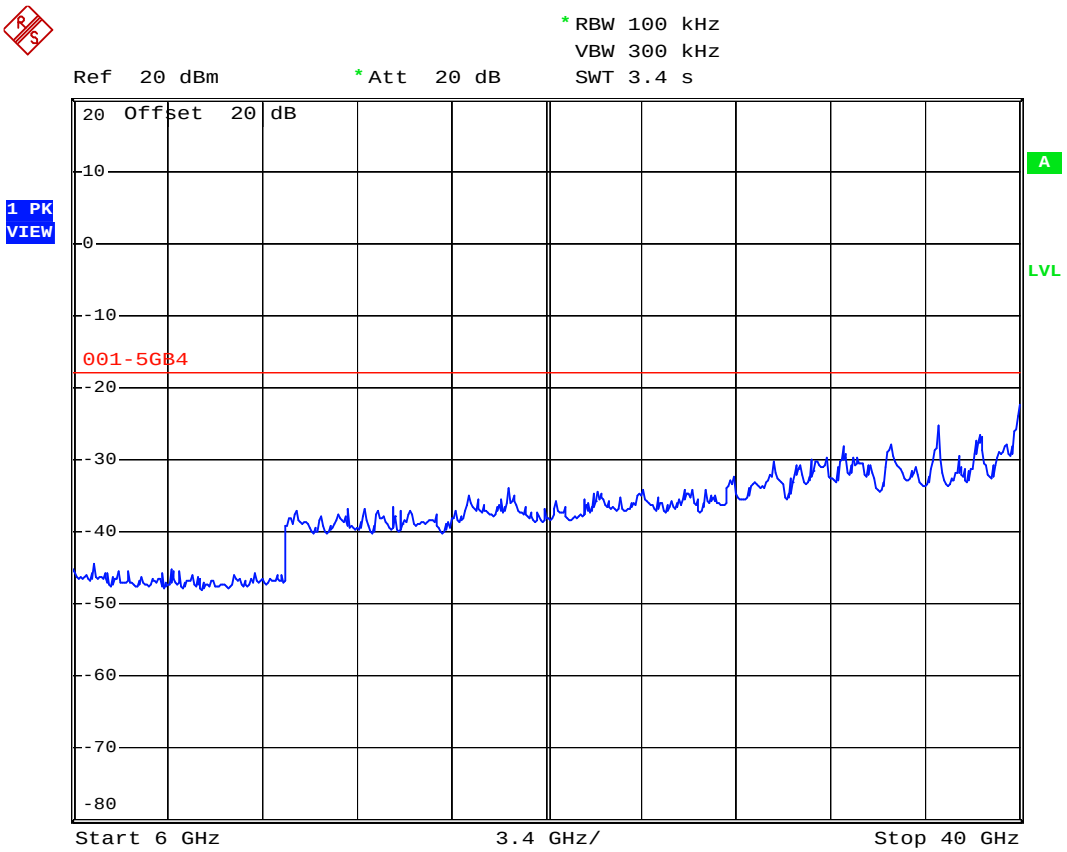
Date: 8.JAN.2016 14:23:04

20MHz / ANT0 / Channel Middle 5GHz ~ 6GHz



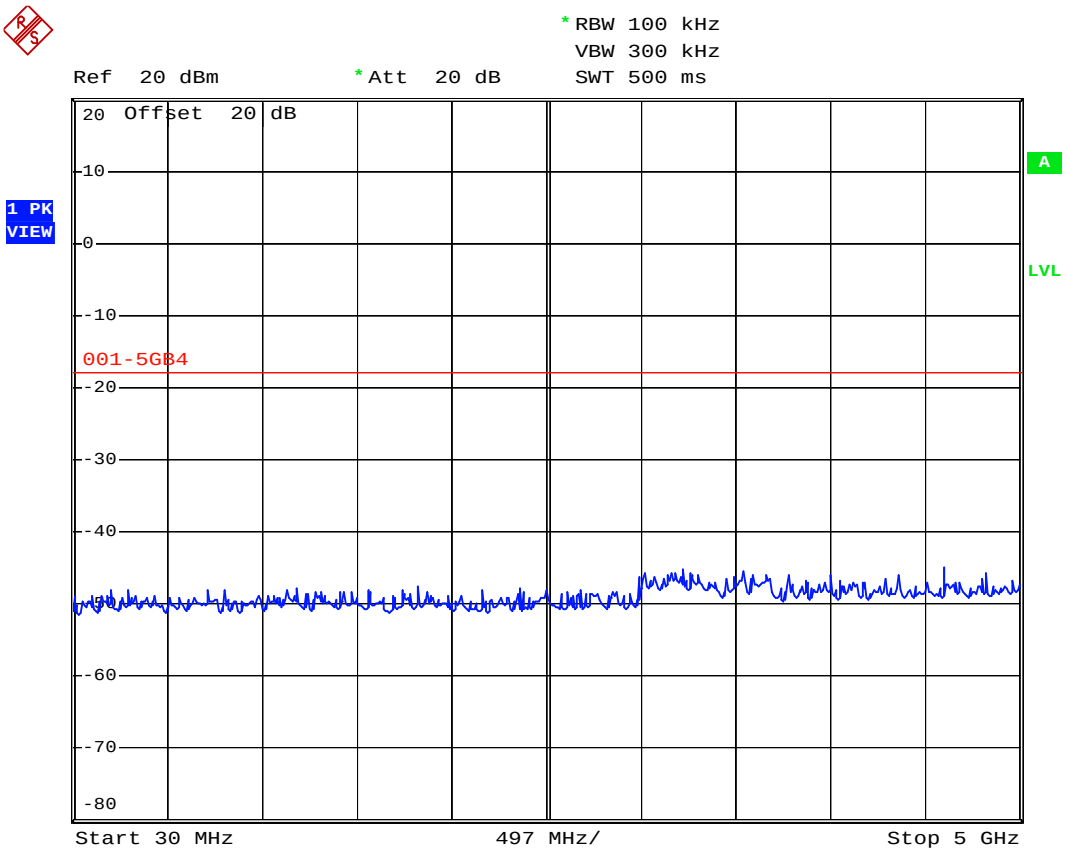
Date: 8.JAN.2016 14:19:30

20MHz / ANT0 / Channel Middle 6GHz ~ 40GHz



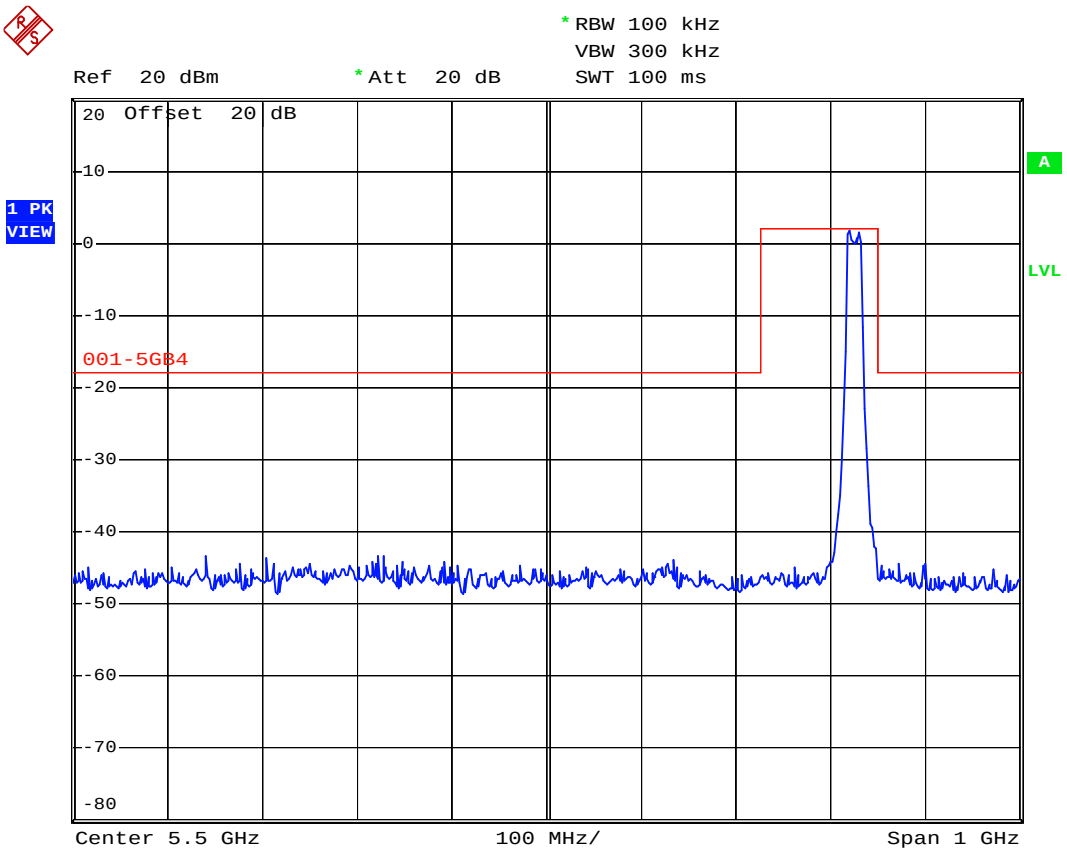
Date: 8.JAN.2016 14:25:35

20MHz / ANT0 / Channel High 30MHz ~ 5GHz



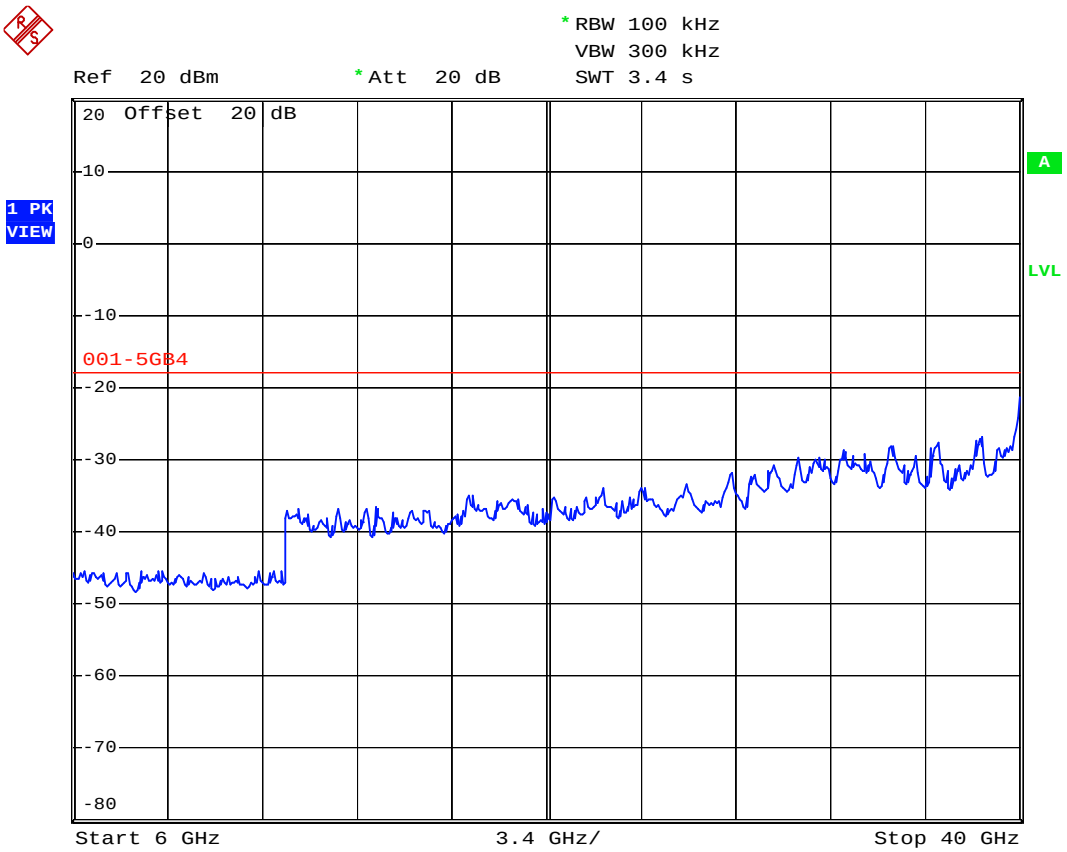
Date: 8.JAN.2016 14:23:49

20MHz / ANT0 / Channel High 5GHz ~ 6GHz



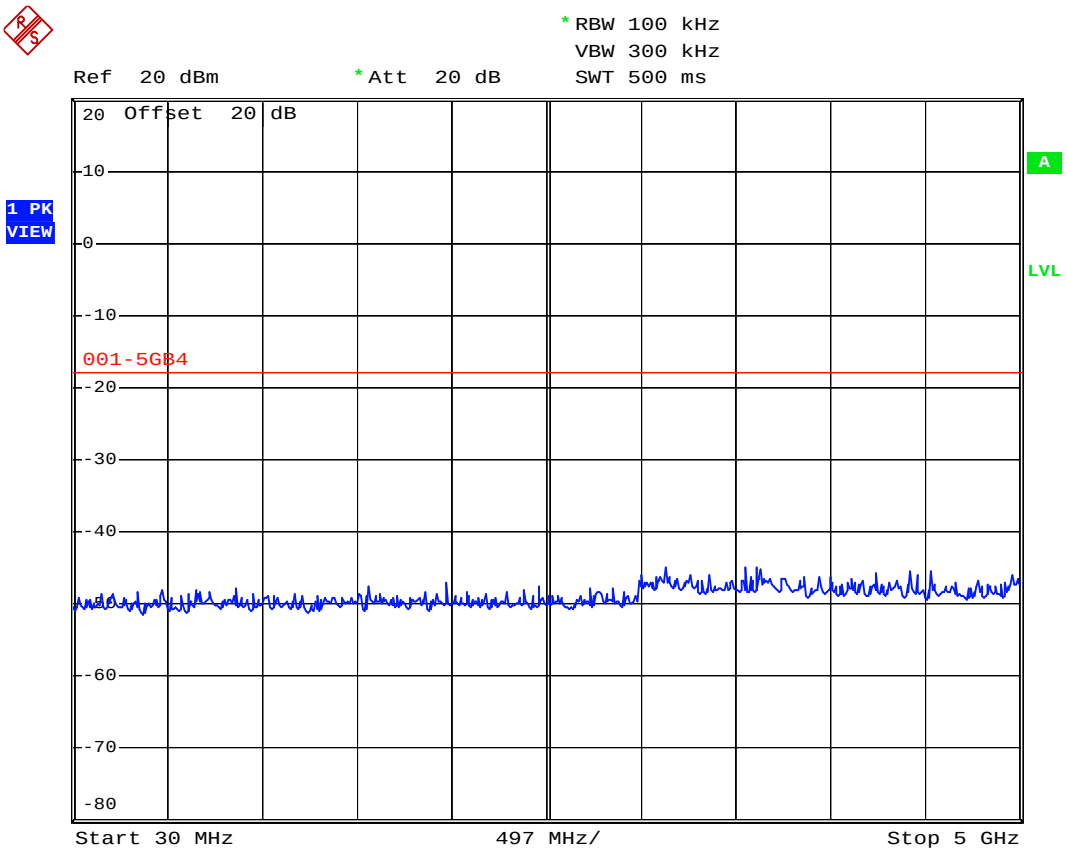
Date: 8.JAN.2016 14:20:24

20MHz / ANT0 / Channel High 6GHz ~ 40GHz



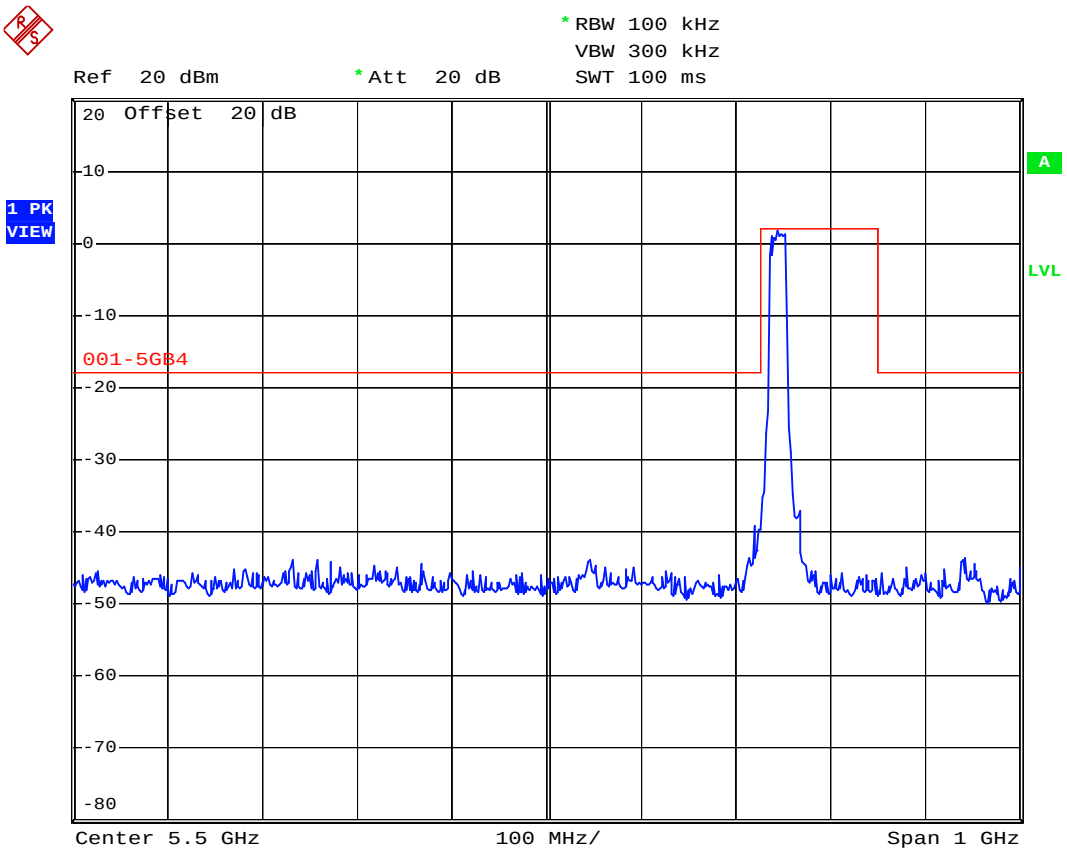
Date: 8.JAN.2016 14:26:46

20MHz / ANT1 / Channel Low 30MHz ~ 5GHz



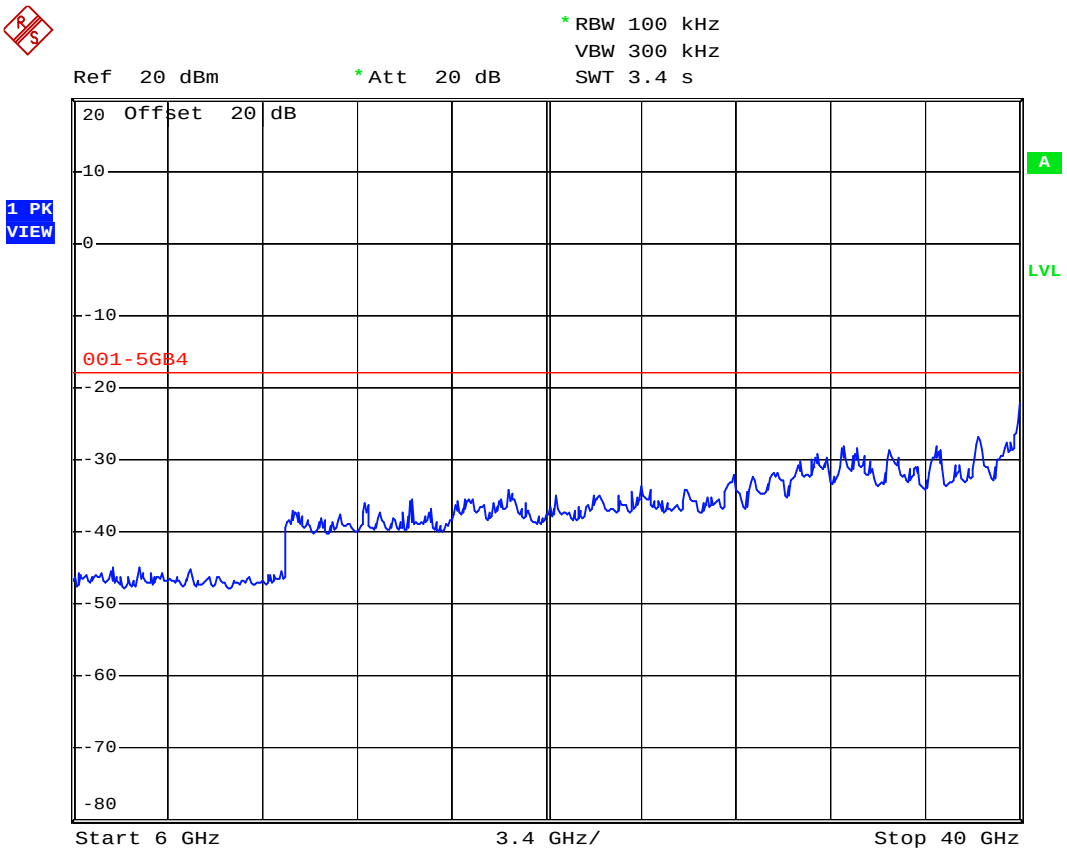
Date: 8.JAN.2016 14:22:41

20MHz / ANT1 / Channel Low 5GHz ~ 6GHz



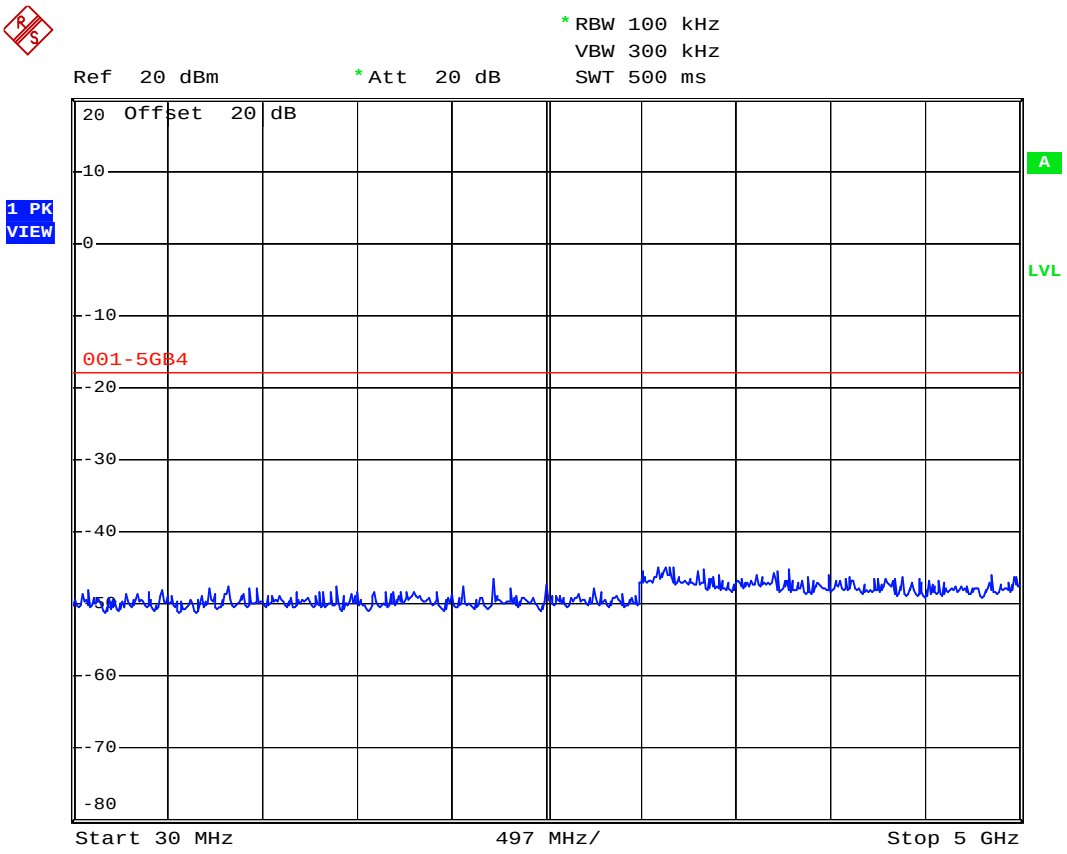
Date: 8.JAN.2016 14:19:03

20MHz / ANT1 / Channel Low 6GHz ~ 40GHz



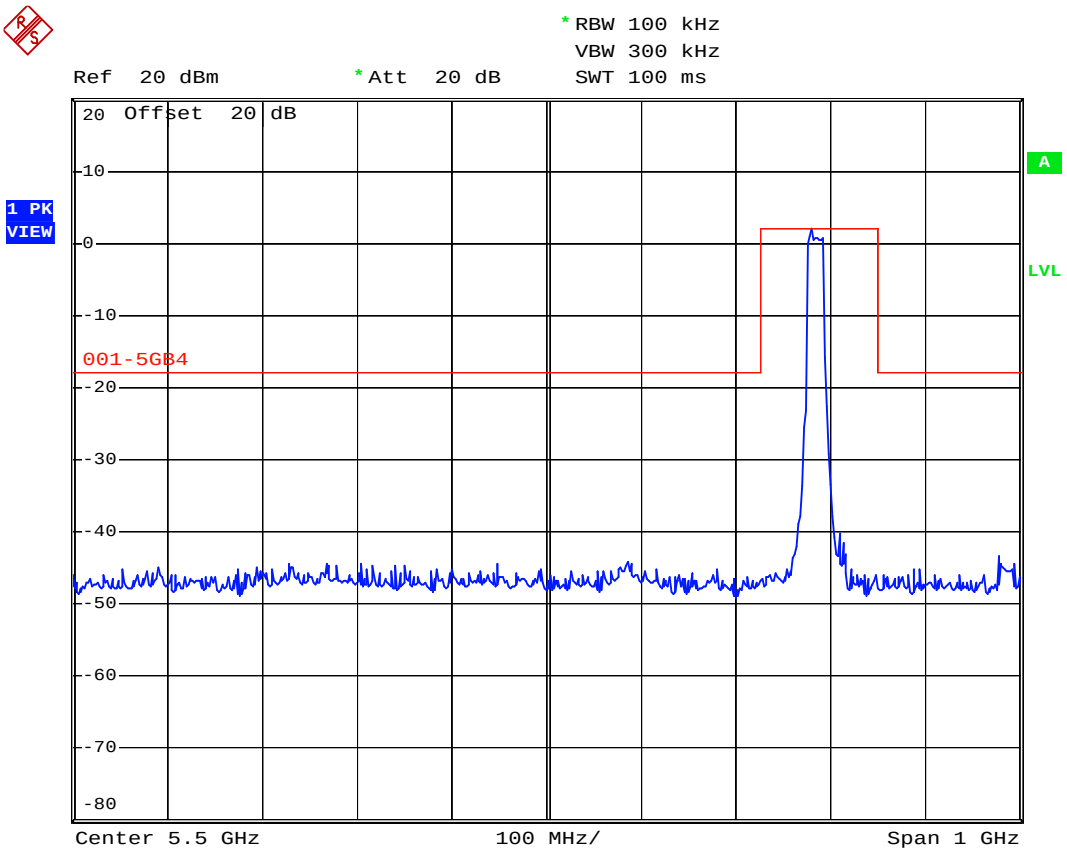
Date: 8.JAN.2016 14:25:02

20MHz / ANT1 / Channel Middle 30MHz ~ 5GHz



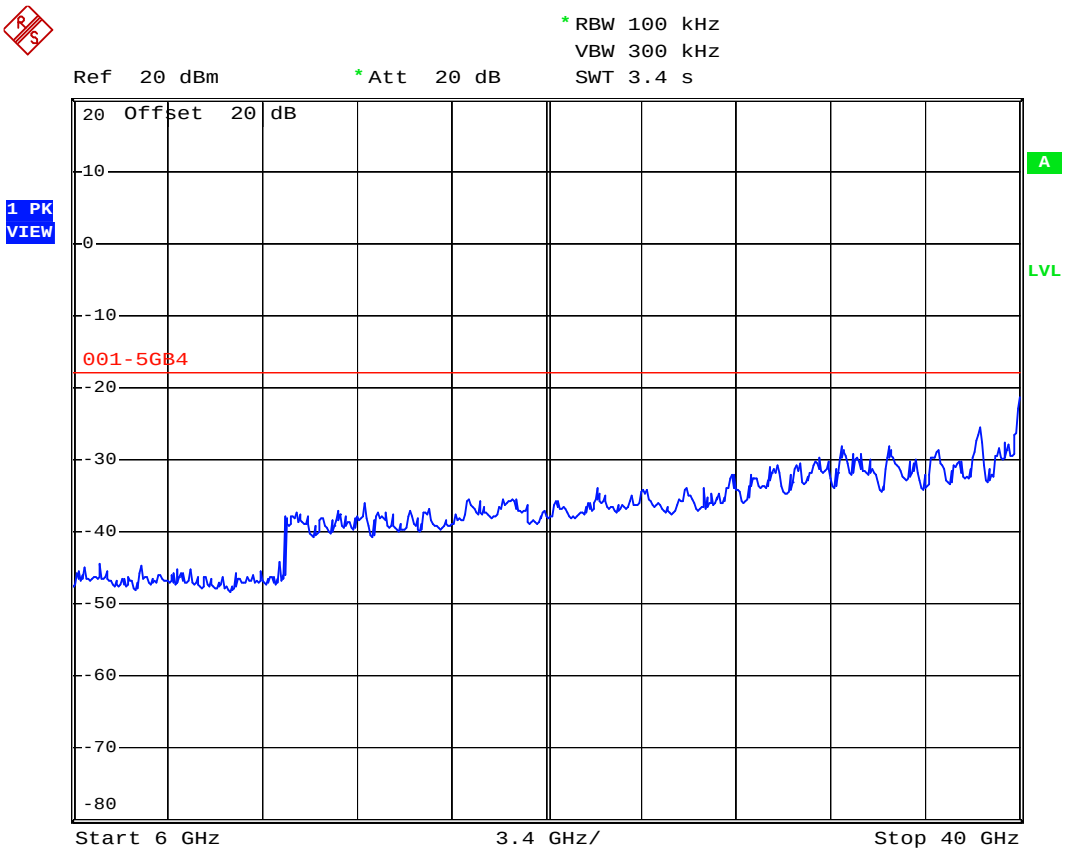
Date: 8.JAN.2016 14:23:19

20MHz / ANT1 / Channel Middle 5GHz ~ 6GHz



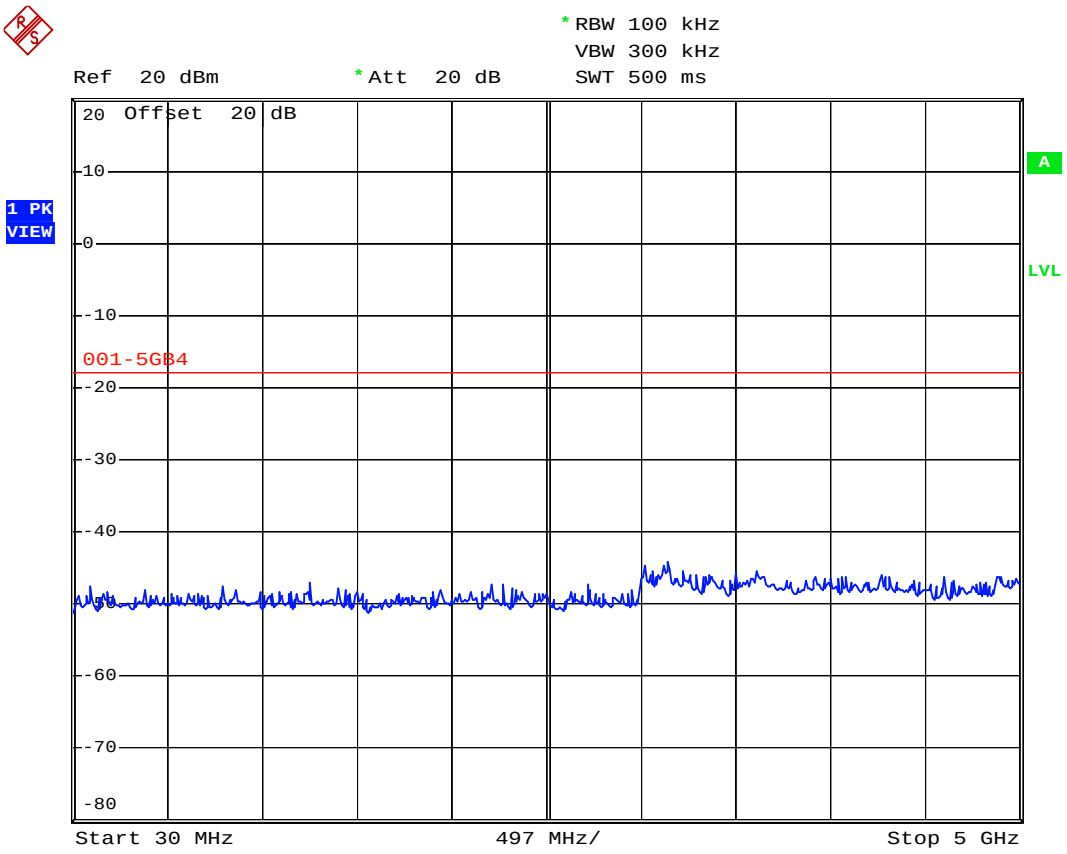
Date: 8.JAN.2016 14:20:02

20MHz / ANT1 / Channel Middle 6GHz ~ 40GHz



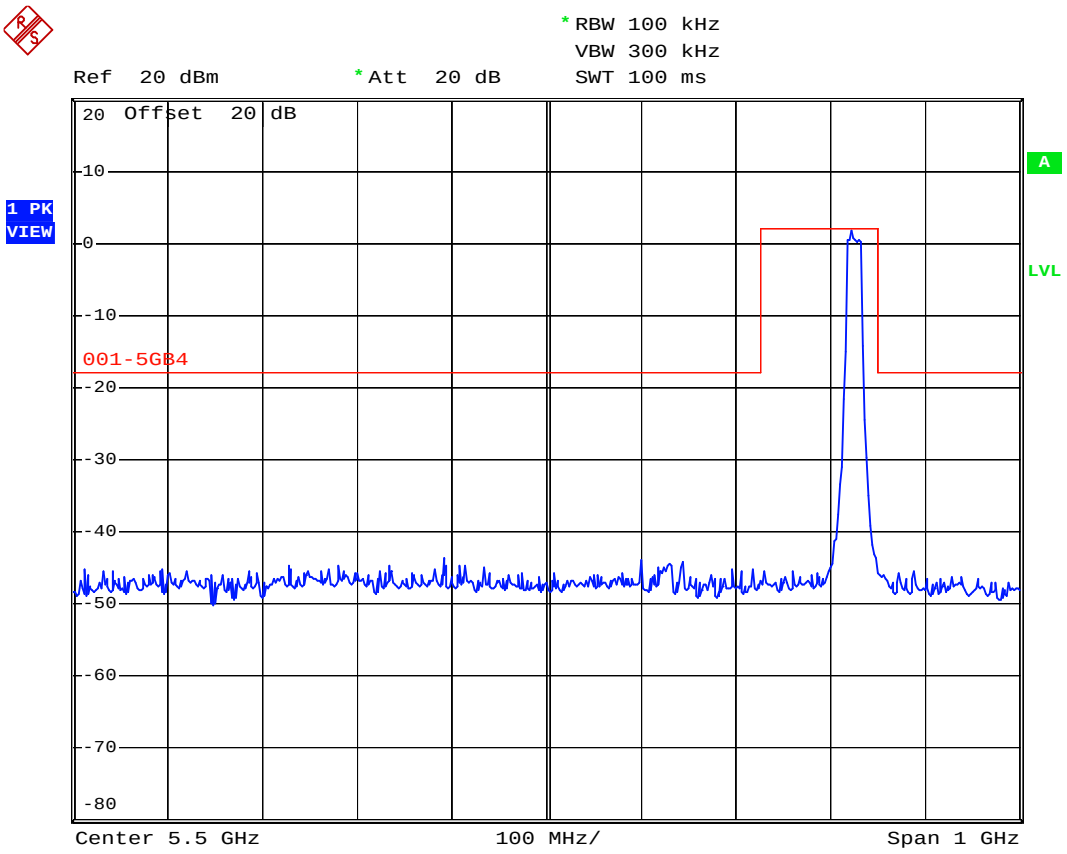
Date: 8.JAN.2016 14:25:57

20MHz / ANT1 / Channel High 30MHz ~ 5GHz



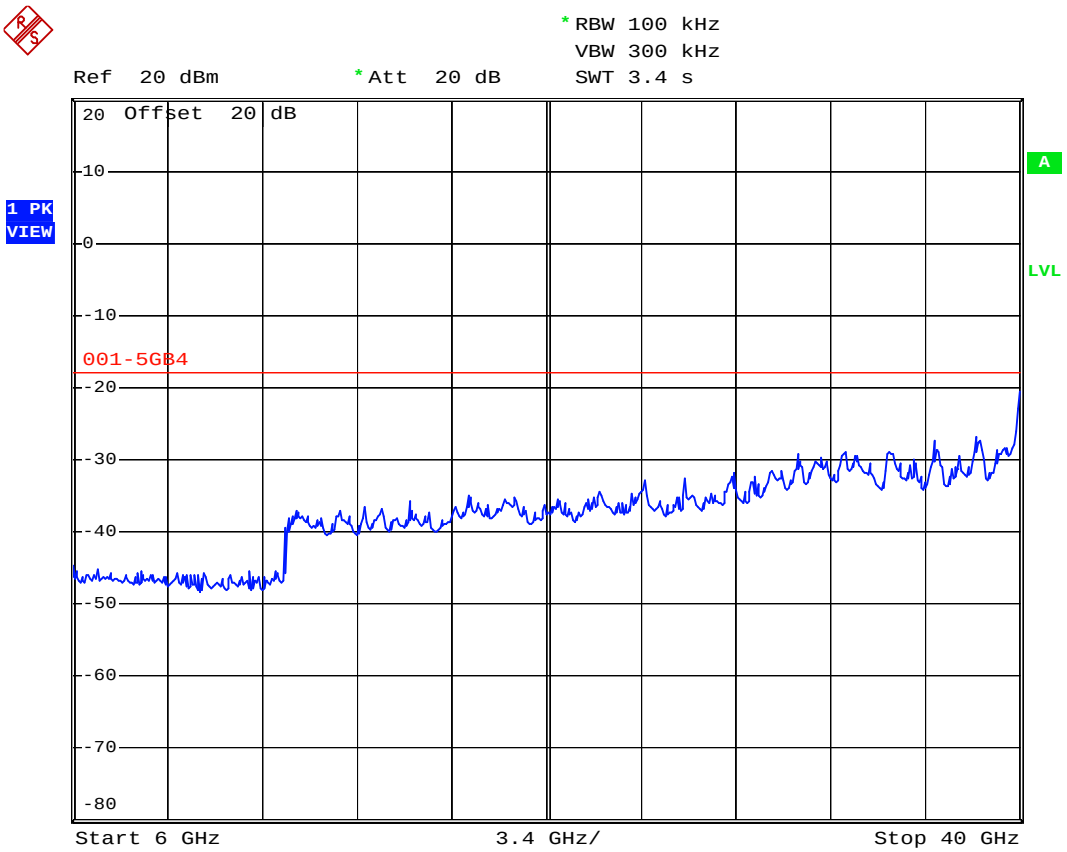
Date: 8.JAN.2016 14:24:00

20MHz / ANT1 / Channel High 5GHz ~ 6GHz



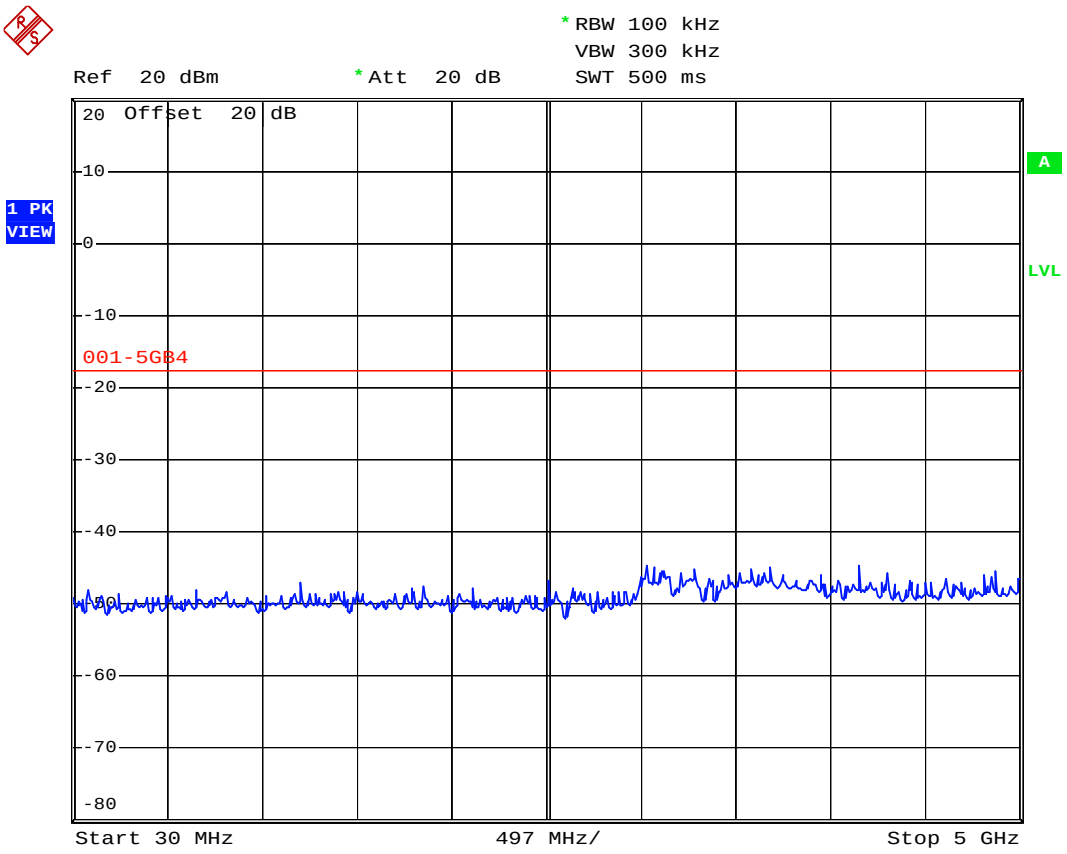
Date: 8.JAN.2016 14:21:05

20MHz / ANT1 / Channel High 6GHz ~ 40GHz



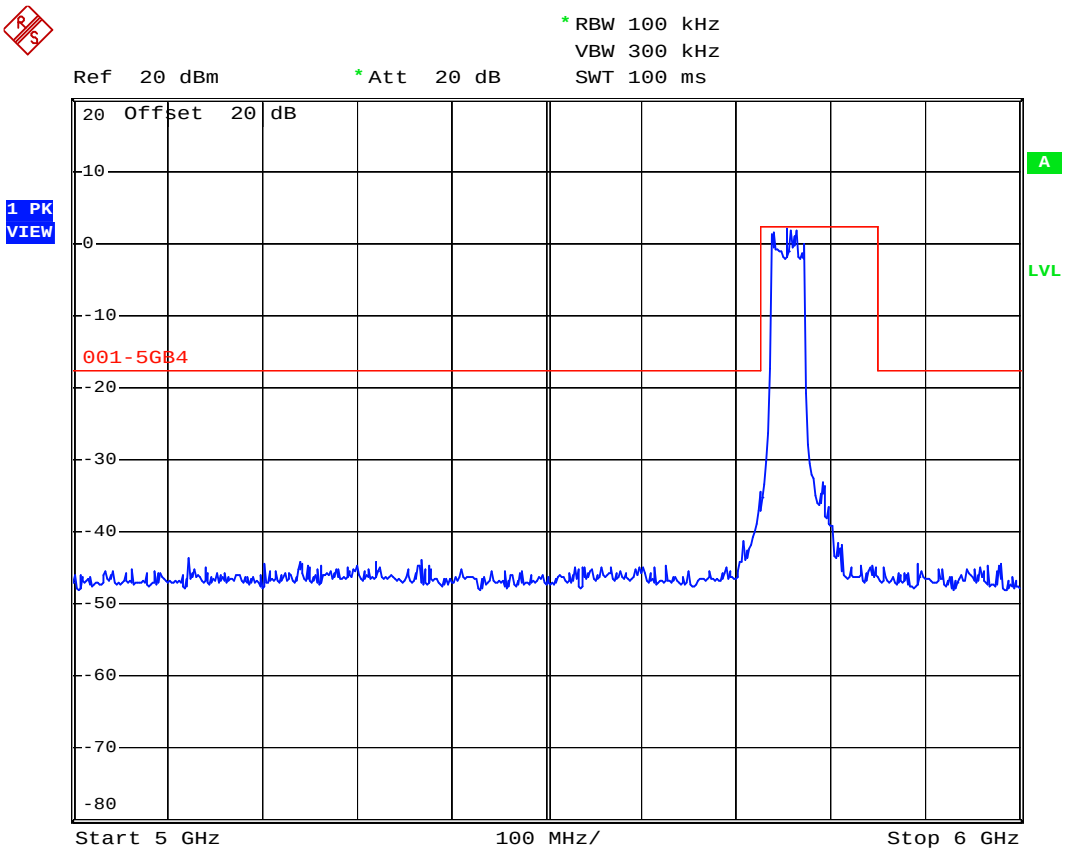
Date: 8.JAN.2016 14:27:10

40MHz / ANT0 / Channel Low 30MHz ~ 5GHz



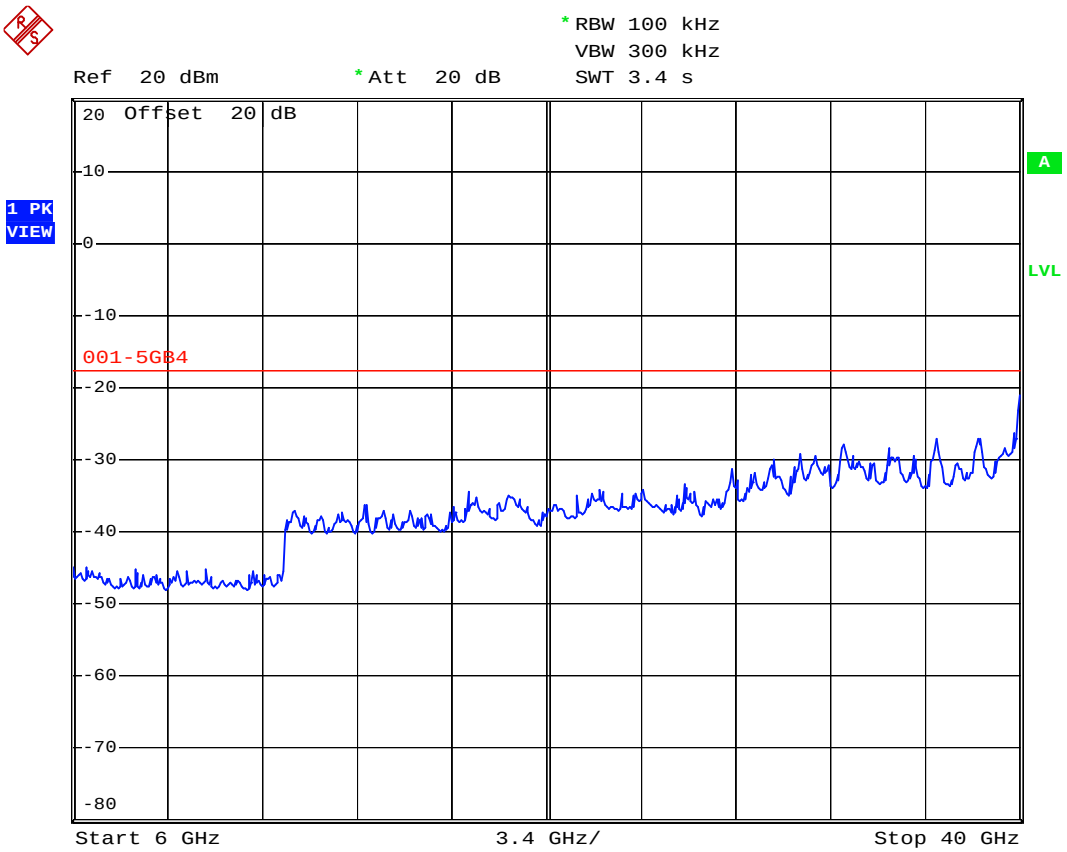
Date: 8.JAN.2016 15:05:21

40MHz / ANT0 / Channel Low 5GHz ~ 6GHz



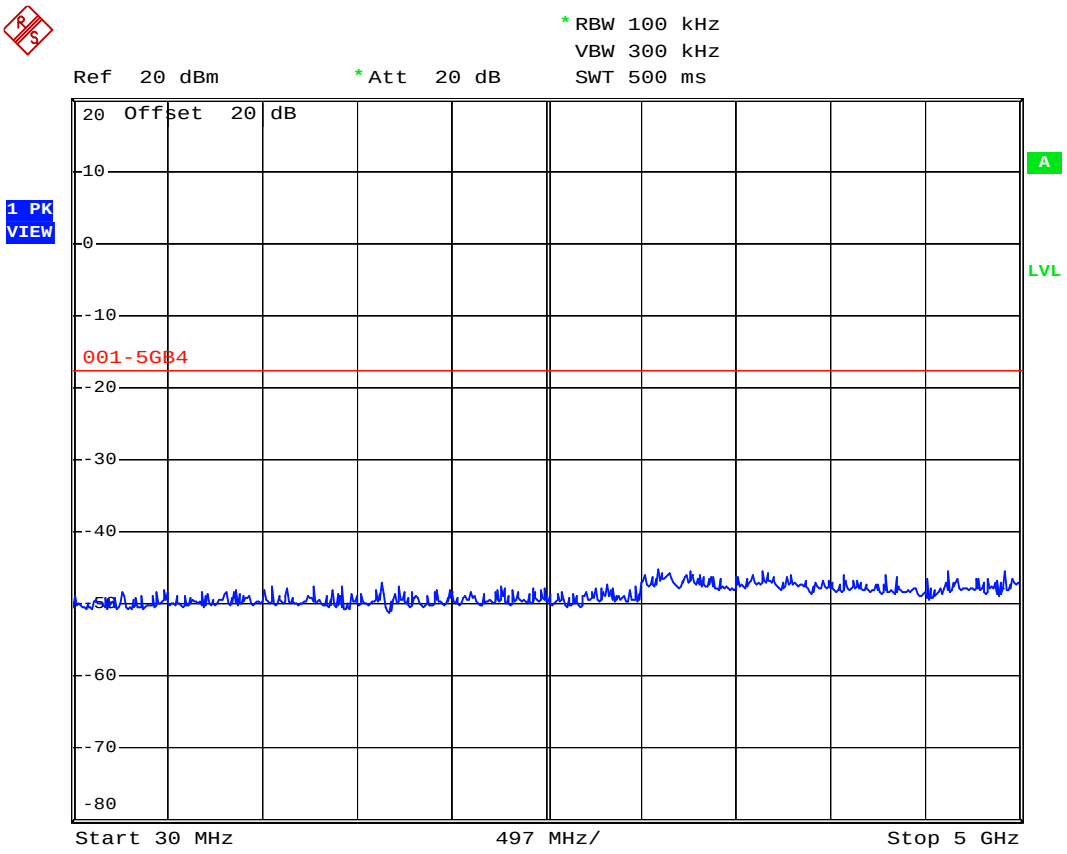
Date: 8.JAN.2016 15:03:12

40MHz / ANT0 / Channel Low 6GHz ~ 40GHz



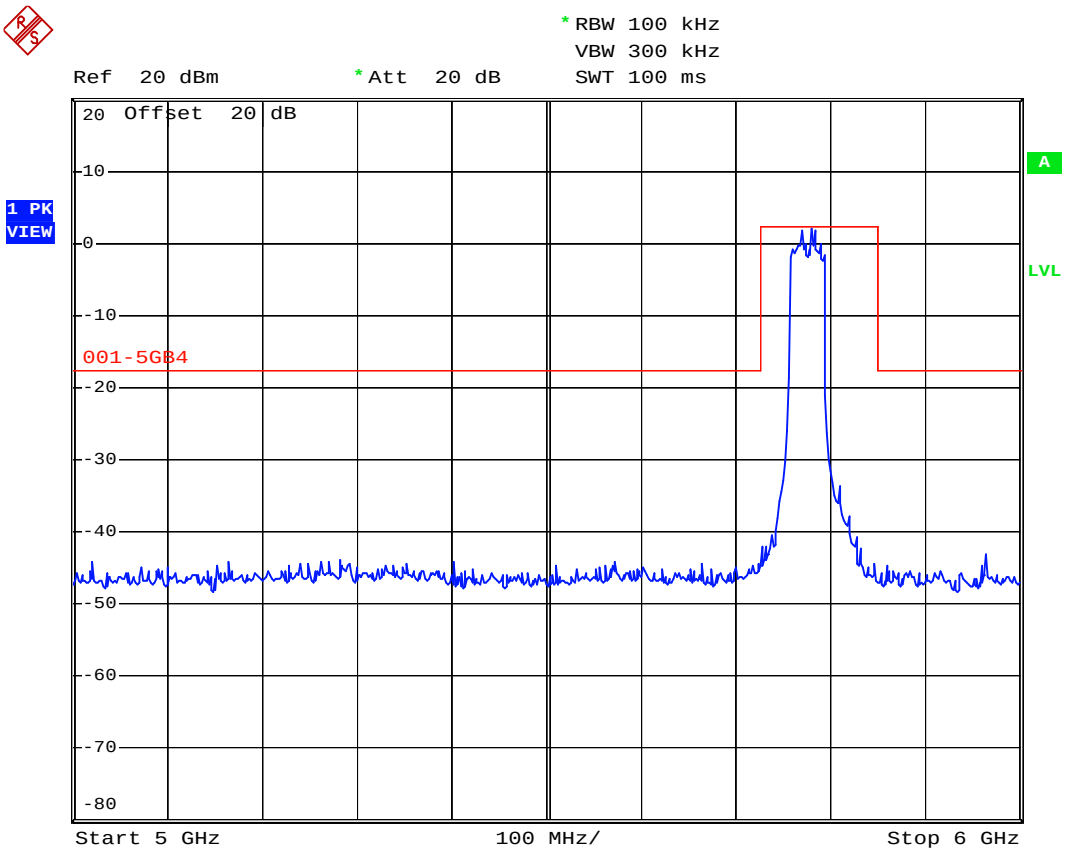
Date: 8.JAN.2016 15:07:29

40MHz / ANT0 / Channel Middle 30MHz ~ 5GHz



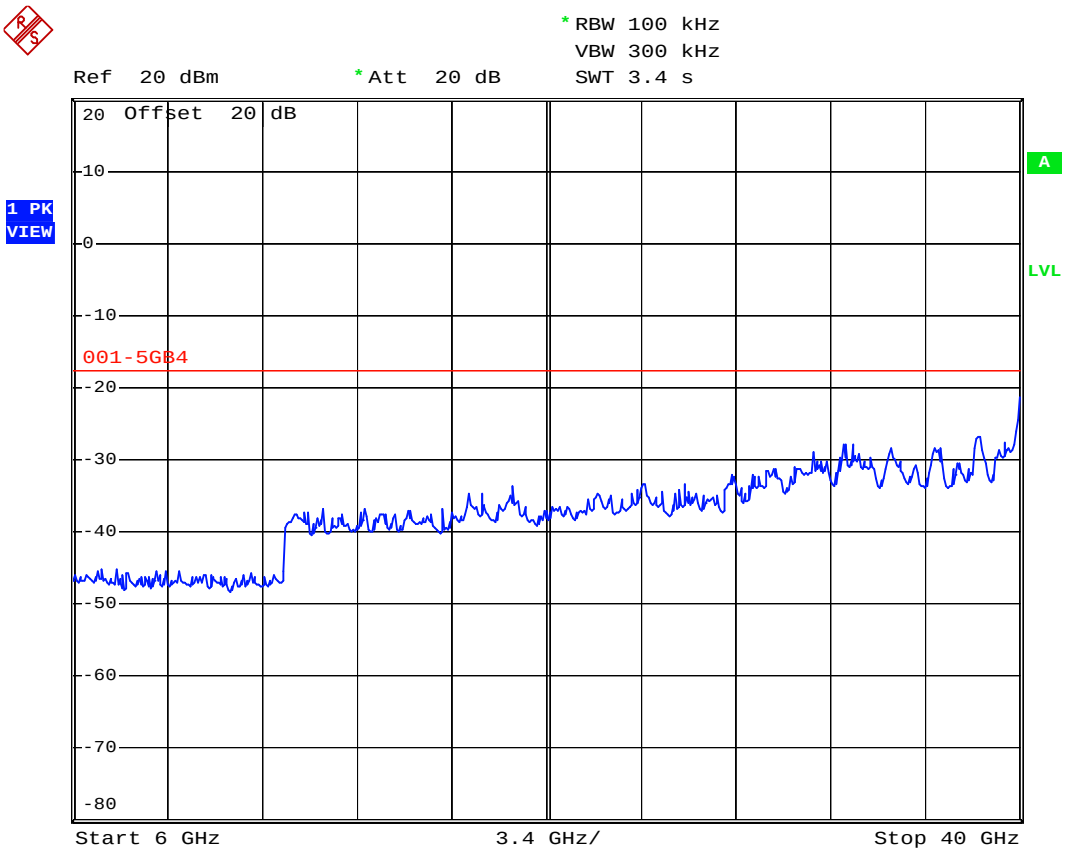
Date: 8.JAN.2016 15:06:07

40MHz / ANT0 / Channel Middle 5GHz ~ 6GHz



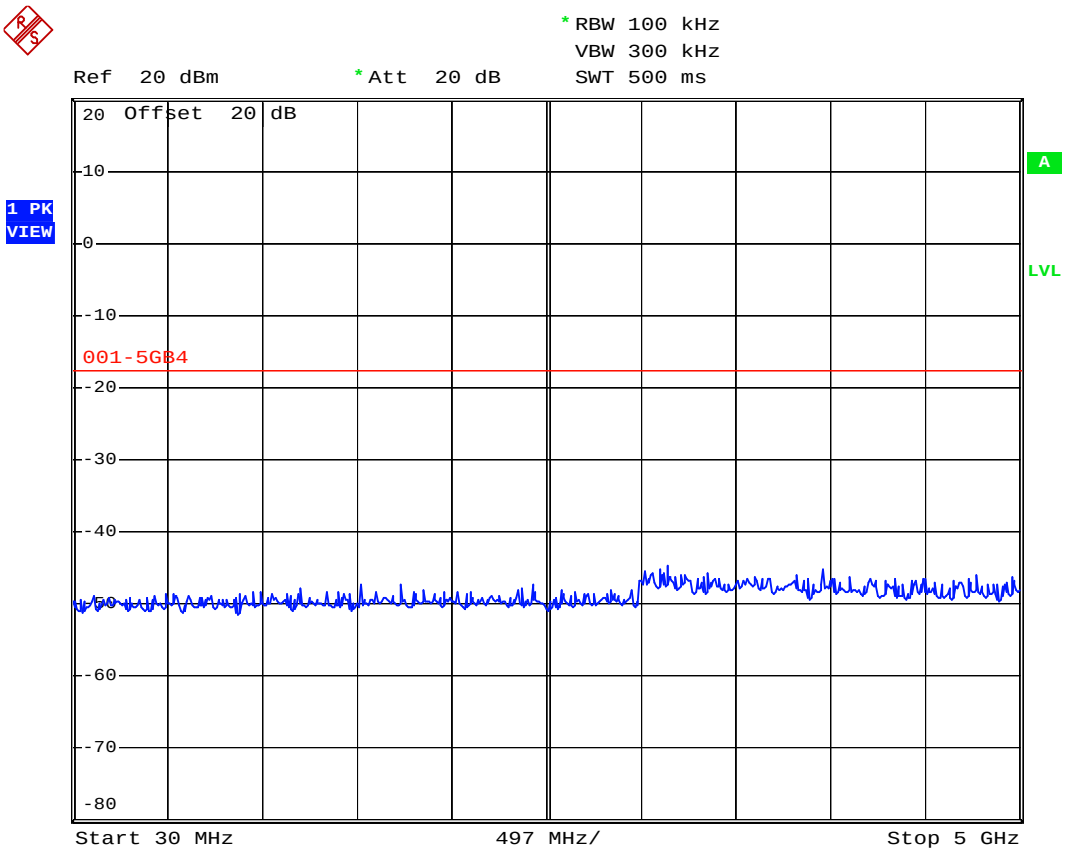
Date: 8.JAN.2016 15:03:49

40MHz / ANT0 / Channel Middle 6GHz ~ 40GHz



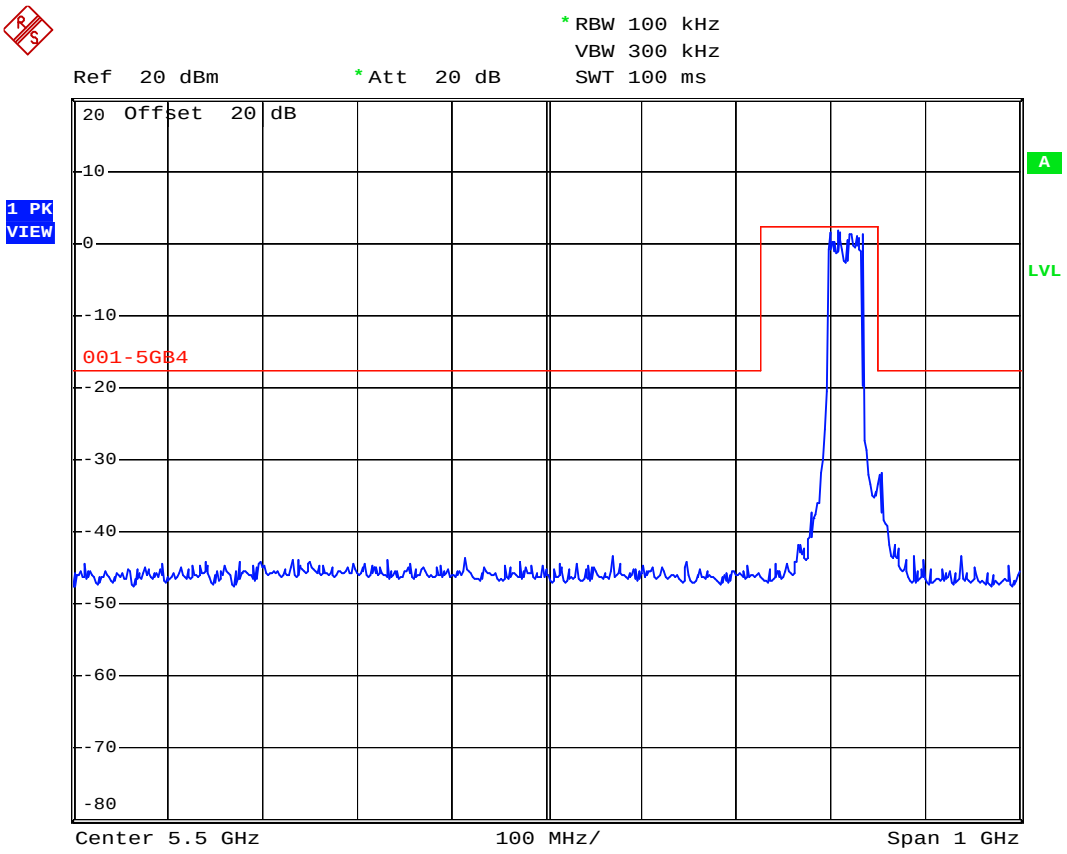
Date: 8.JAN.2016 15:08:13

40MHz / ANT0 / Channel High 30MHz ~ 5GHz



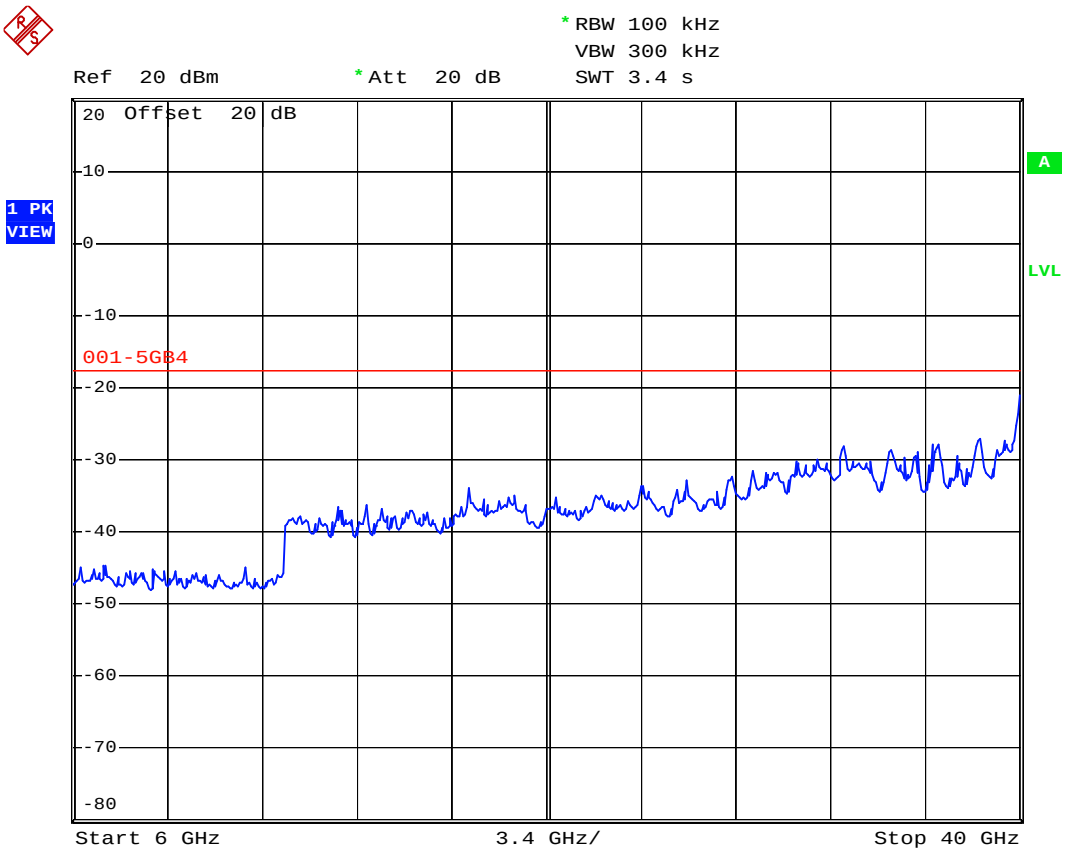
Date: 8.JAN.2016 15:06:38

40MHz / ANT0 / Channel High 5GHz ~ 6GHz



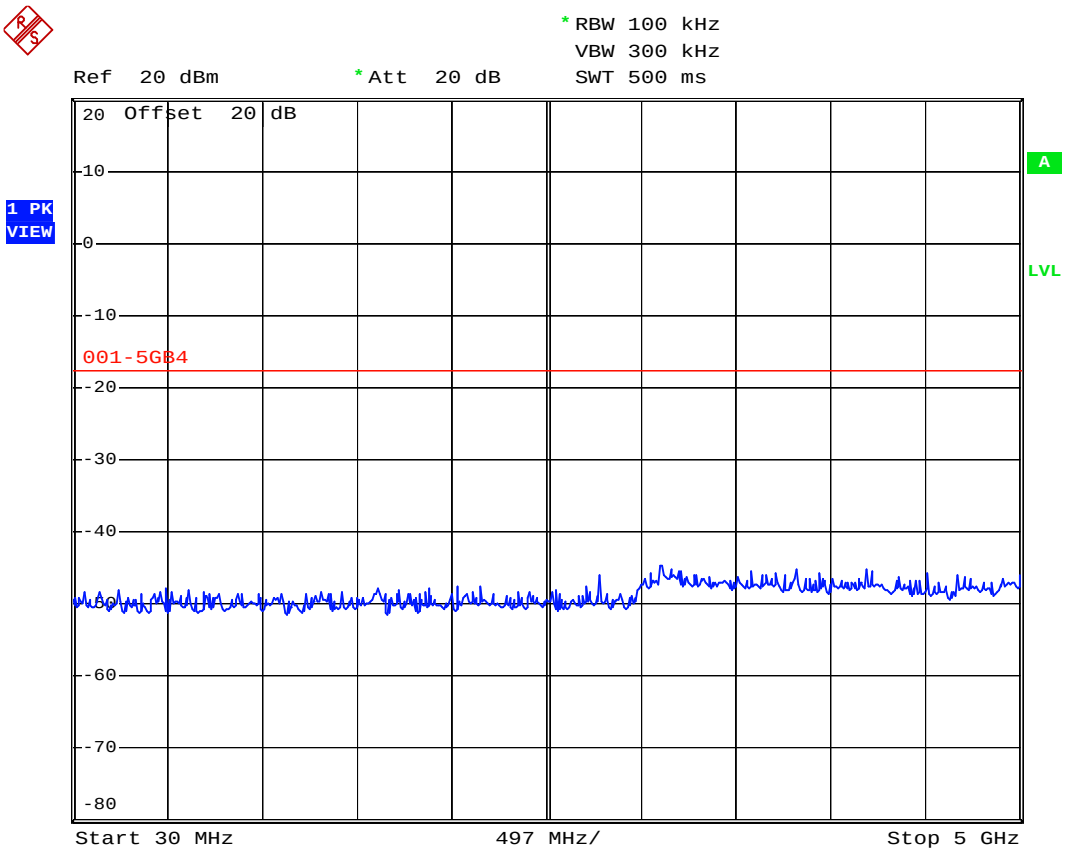
Date: 8.JAN.2016 15:04:38

40MHz / ANT0 / Channel High 6GHz ~ 40GHz



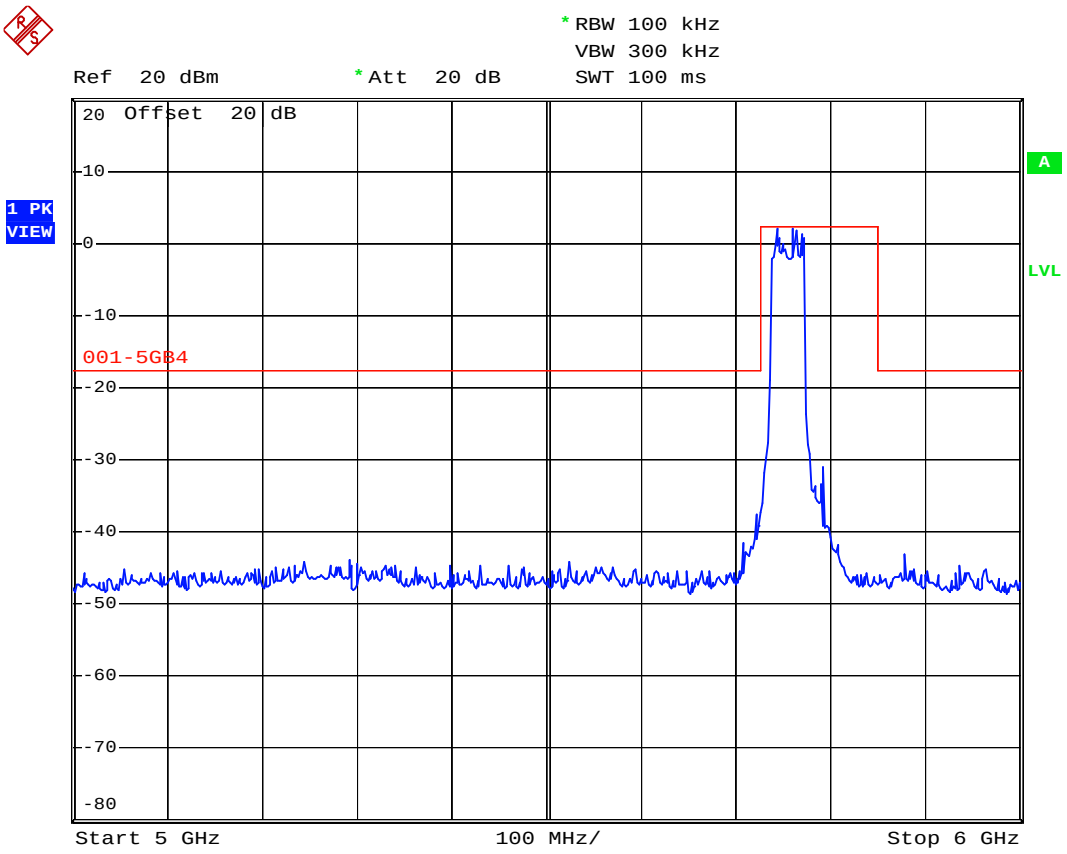
Date: 8.JAN.2016 15:09:07

40MHz / ANT1 / Channel Low 30MHz ~ 5GHz



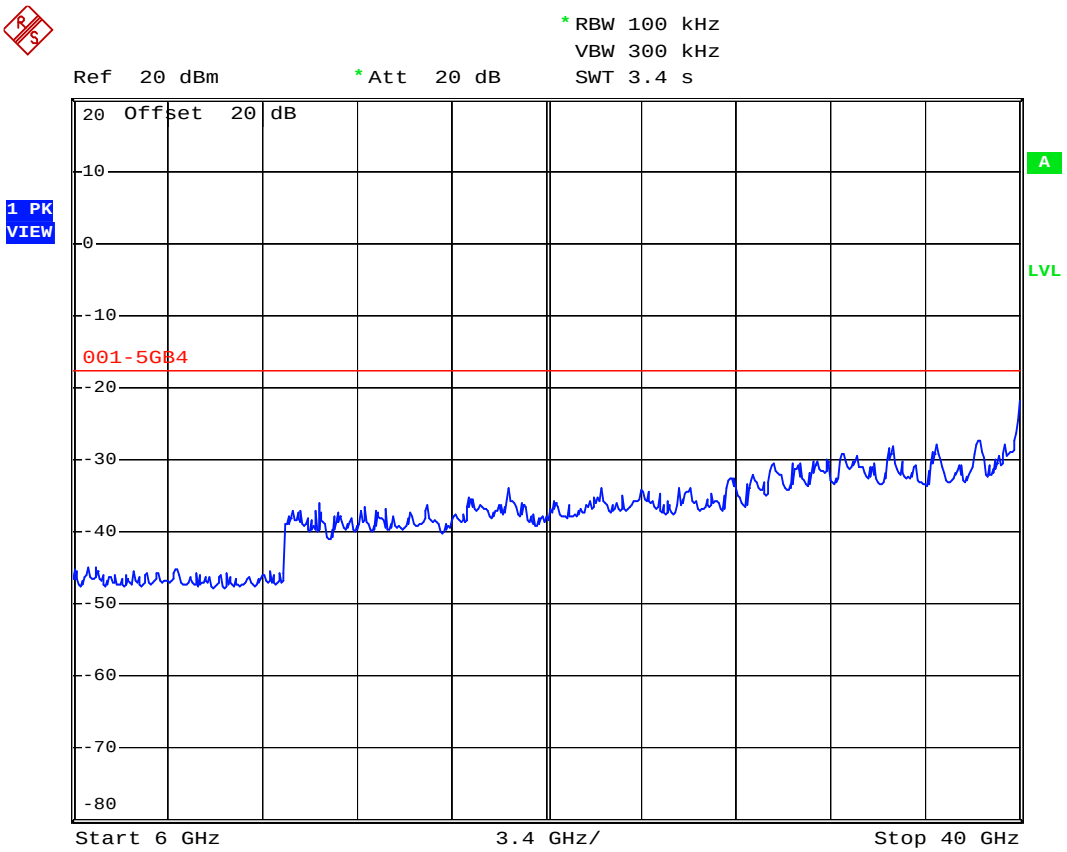
Date: 8.JAN.2016 15:05:32

40MHz / ANT1 / Channel Low 5GHz ~ 6GHz



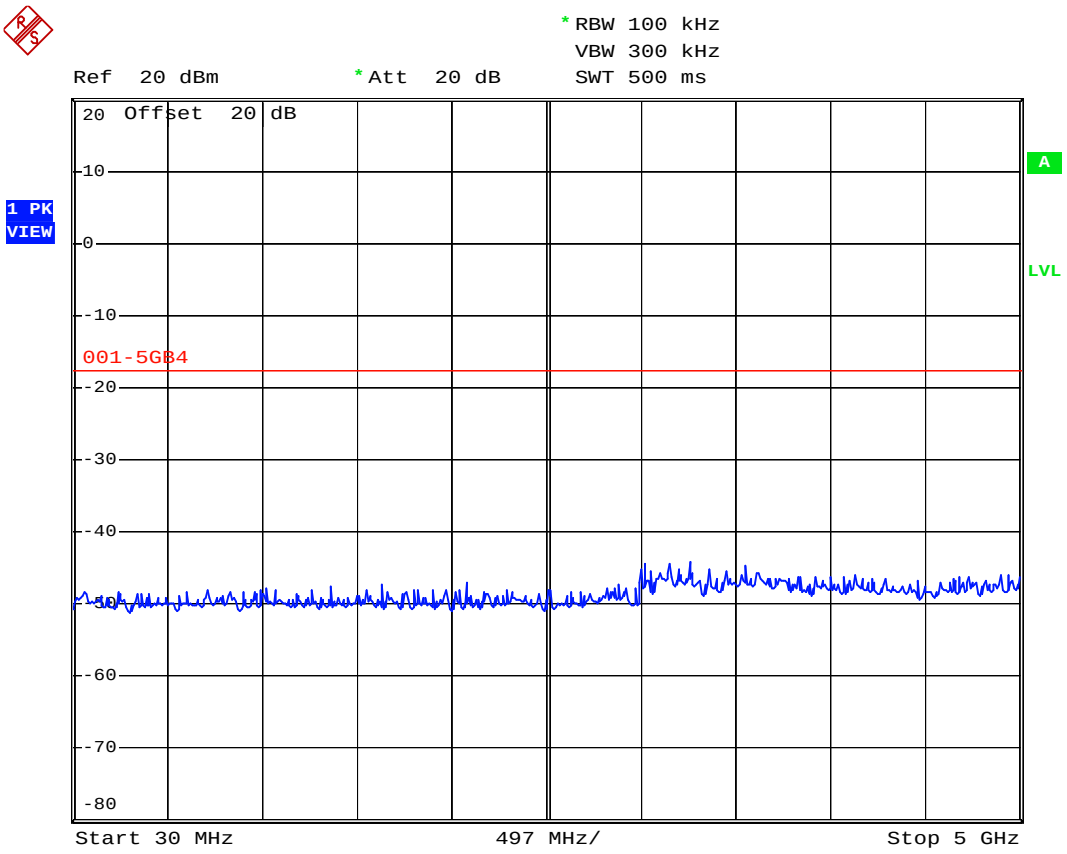
Date: 8.JAN.2016 15:03:26

40MHz / ANT1 / Channel Low 6GHz ~ 40GHz



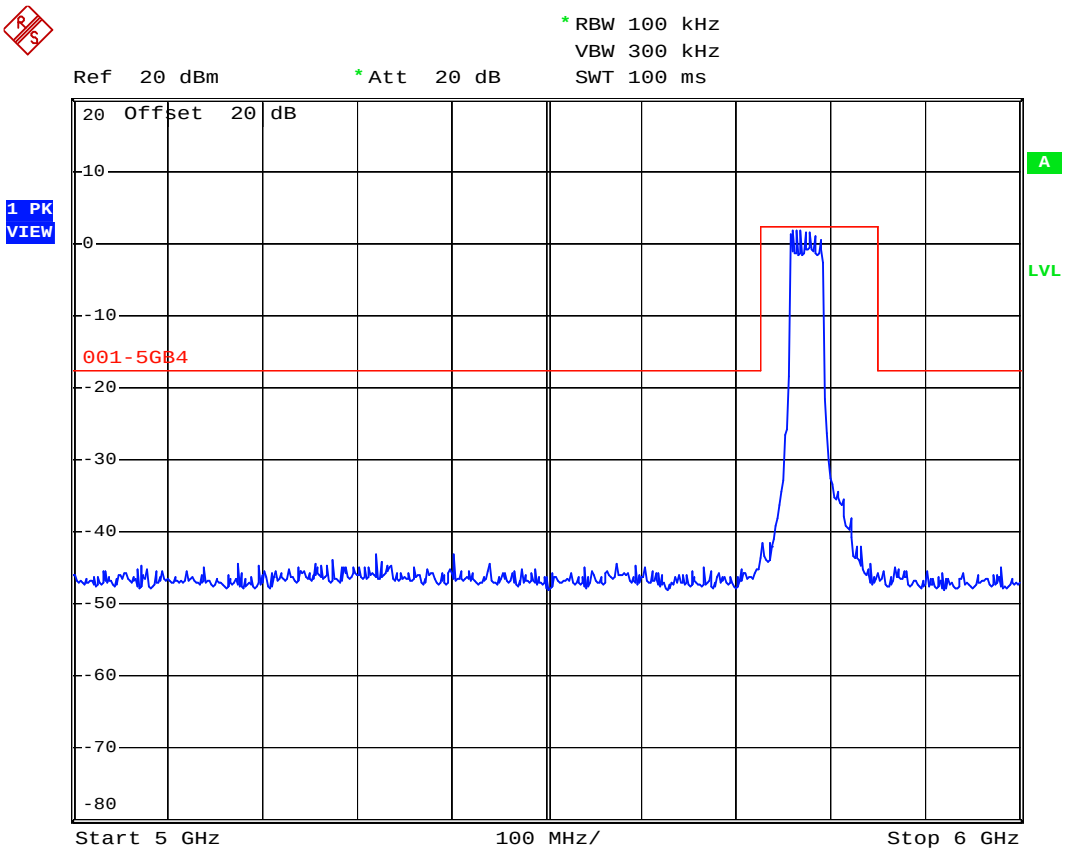
Date: 8.JAN.2016 15:07:47

40MHz / ANT1 / Channel Middle 30MHz ~ 5GHz



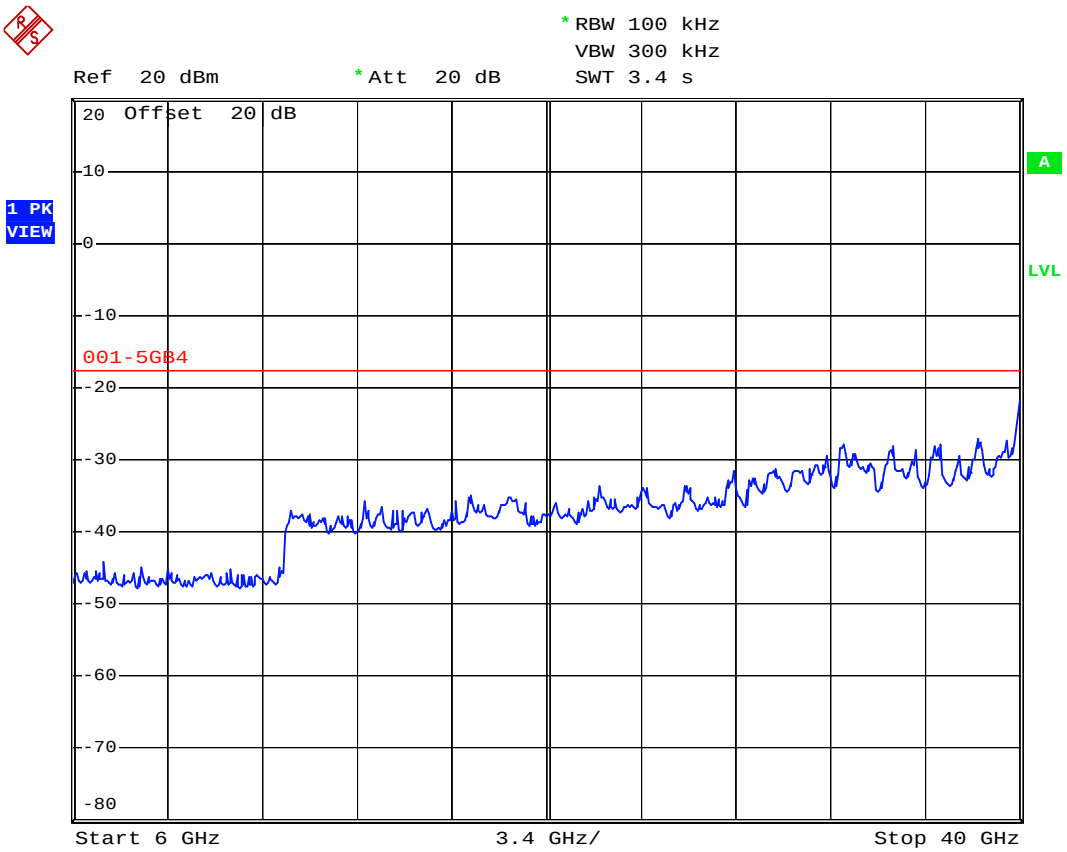
Date: 8.JAN.2016 15:06:21

40MHz / ANT1 / Channel Middle 5GHz ~ 6GHz



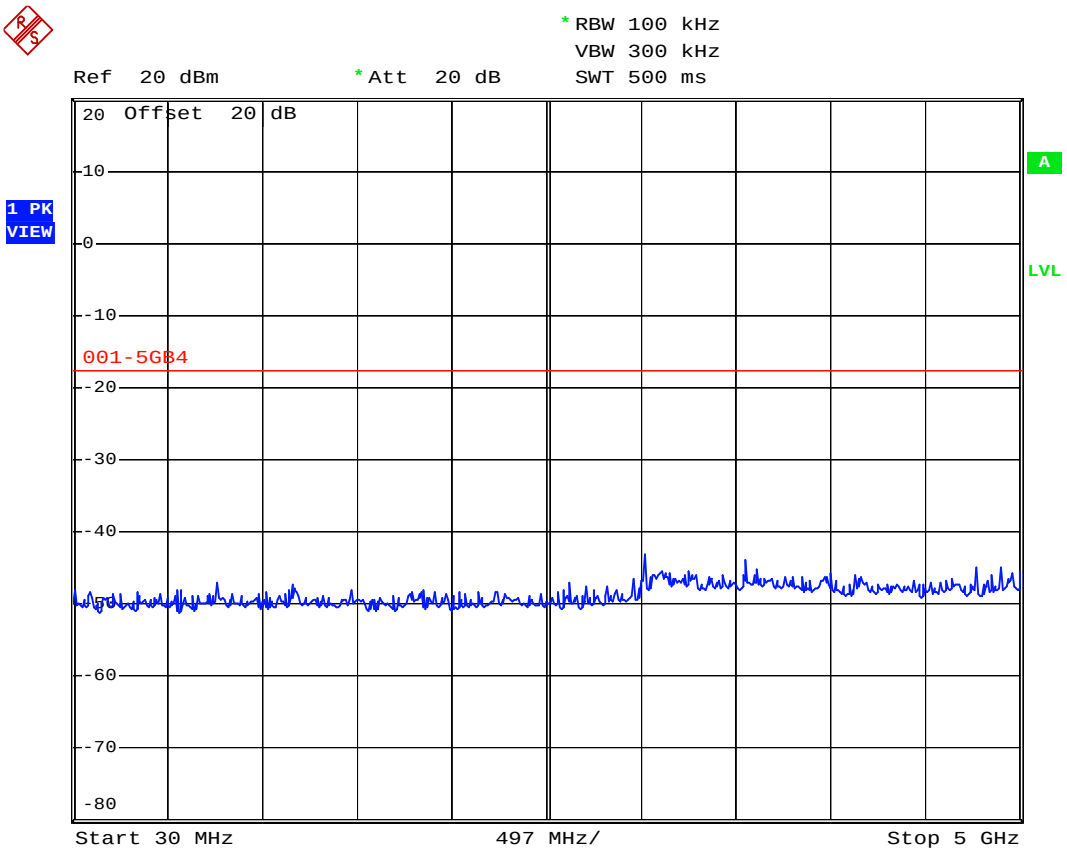
Date: 8.JAN.2016 15:04:08

40MHz / ANT1 / Channel Middle 6GHz ~ 40GHz



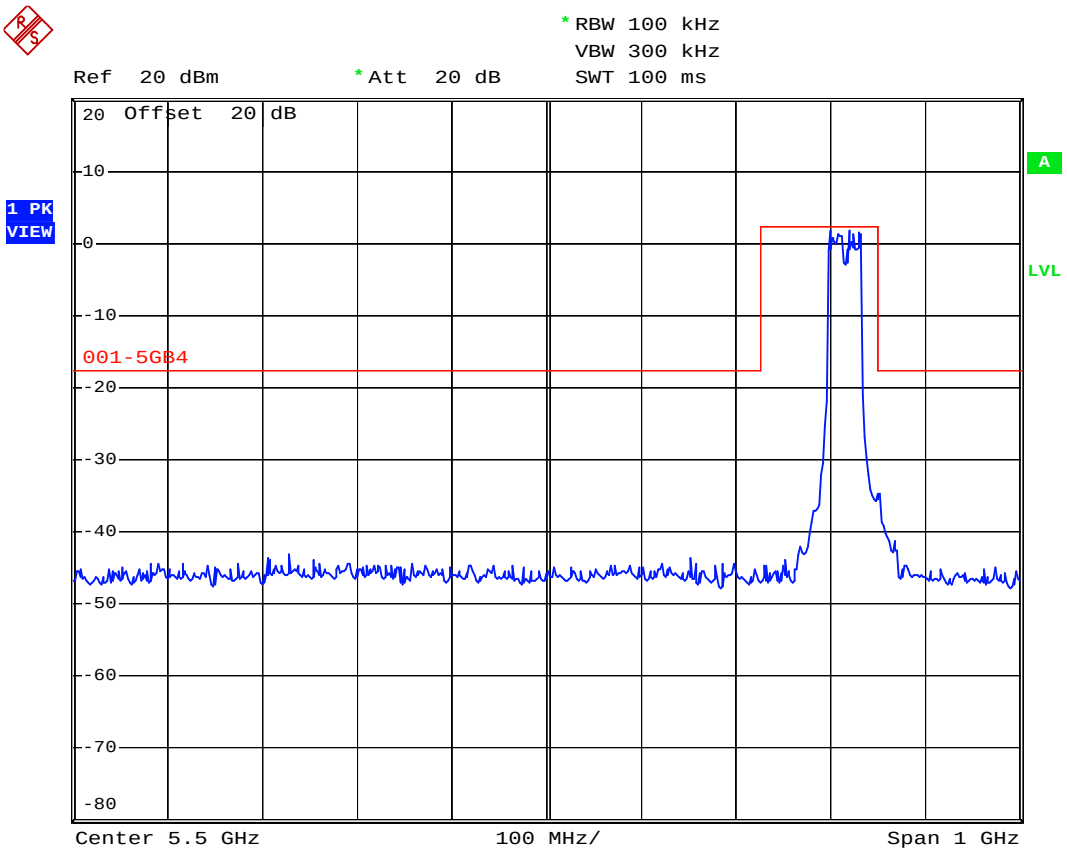
Date: 8.JAN.2016 15:08:33

40MHz / ANT1 / Channel High 30MHz ~ 5GHz



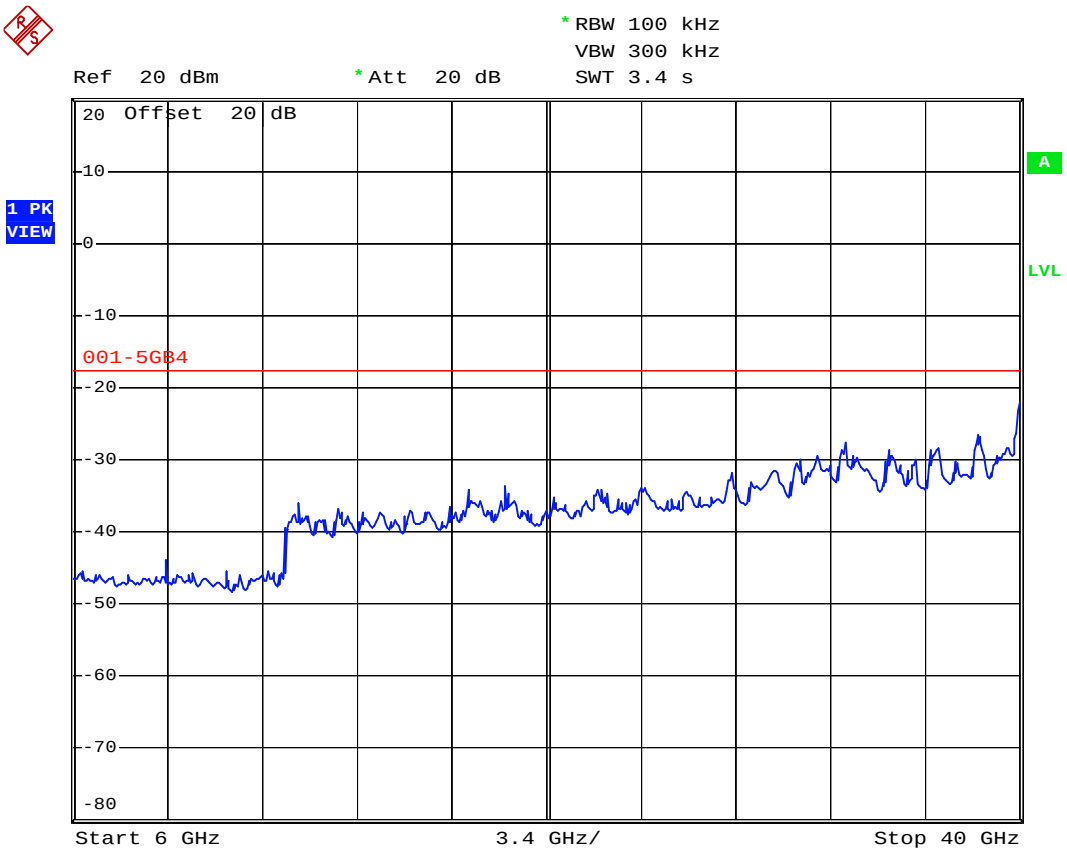
Date: 8.JAN.2016 15:06:52

40MHz / ANT1 / Channel High 5GHz ~ 6GHz



Date: 8.JAN.2016 15:04:57

40MHz / ANT1 / Channel High 6GHz ~ 40GHz



Date: 8.JAN.2016 15:09:33

12. DYTY CYCLE

12.1 Standard Applicable

None. Refereency only.

12.2 Measurement Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2015/07/06	2016/07/05

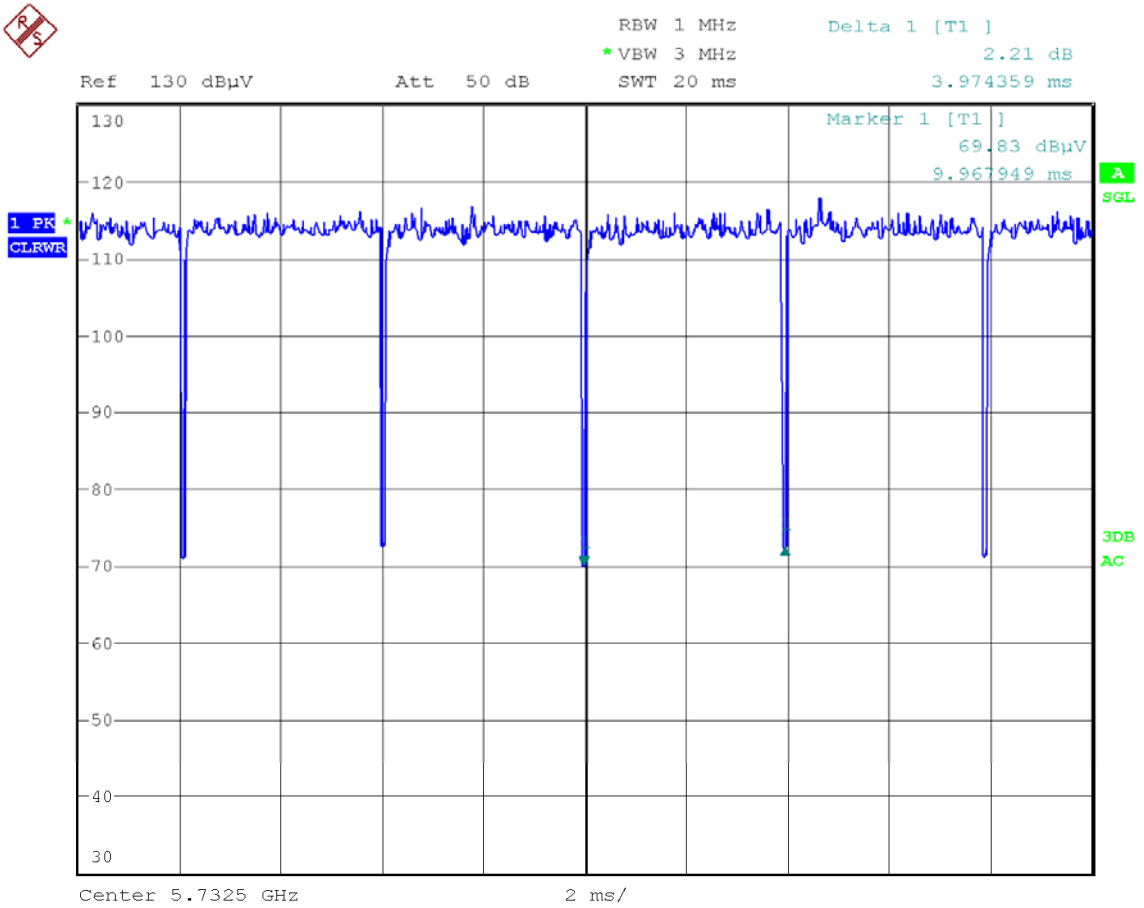
12.3 Measurement Data

Test Date : Dec. 23, 2015 Temperature : 24 °C Humidity : 56 %

The EUT set for test with the continuous transmission mode and the duty cycle >98%.

Refer to the following page for data plots..

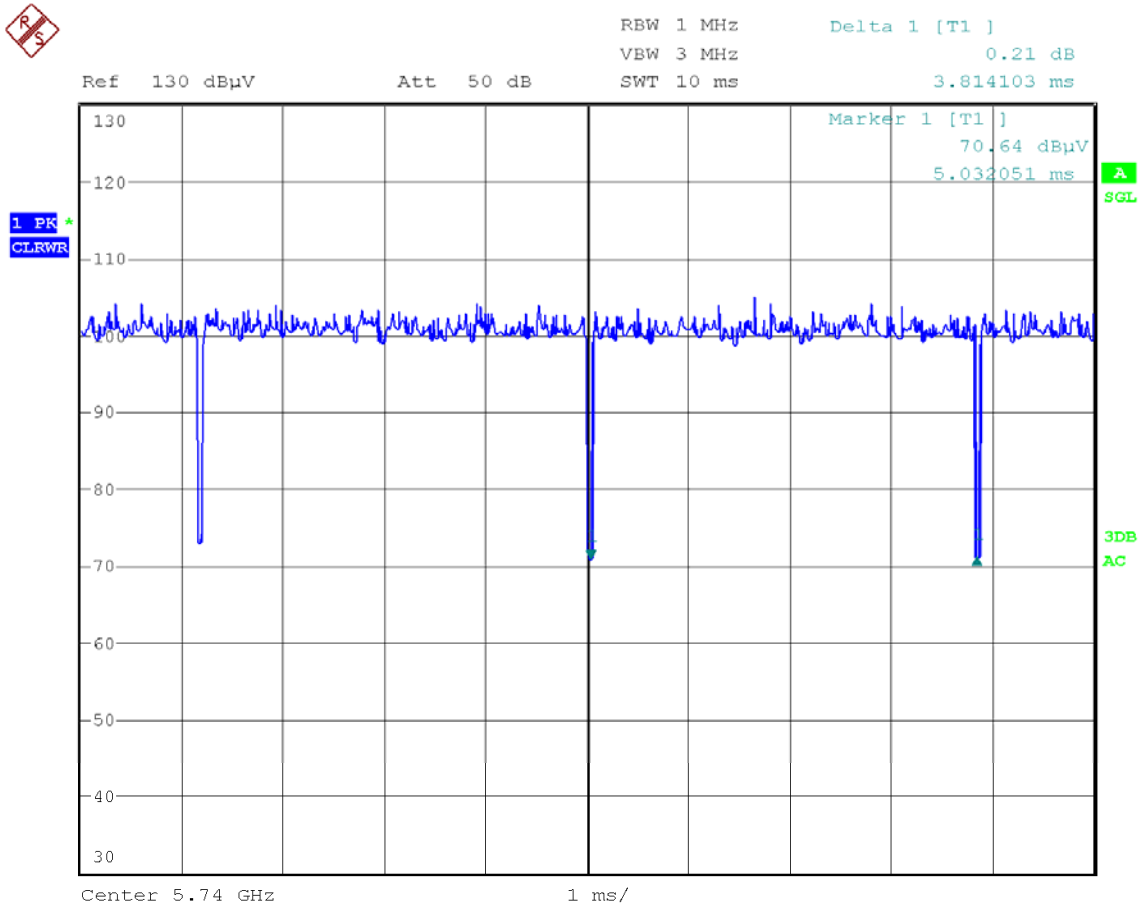
5MHz



KHz

Date: 23.DEC.2015 12:11:06

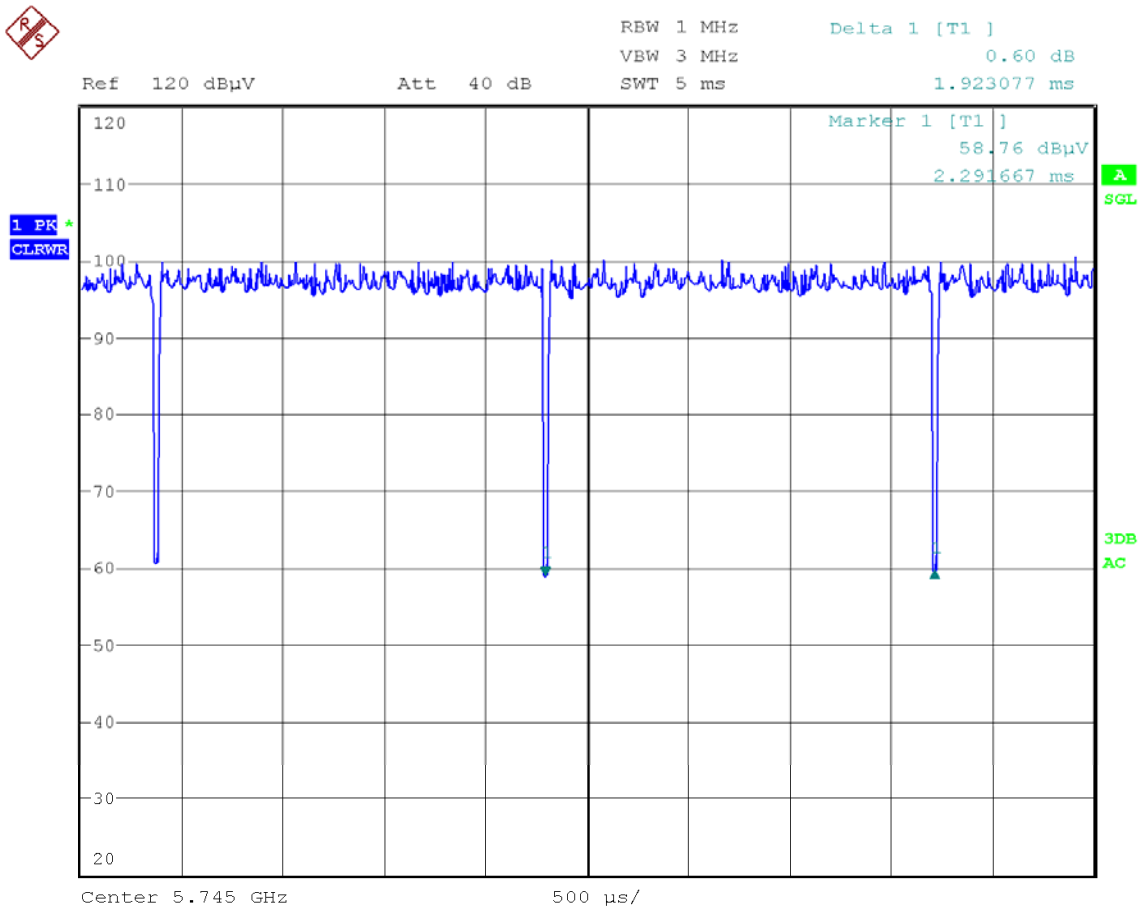
10MHz



KHz

Date: 23.DEC.2015 10:54:16

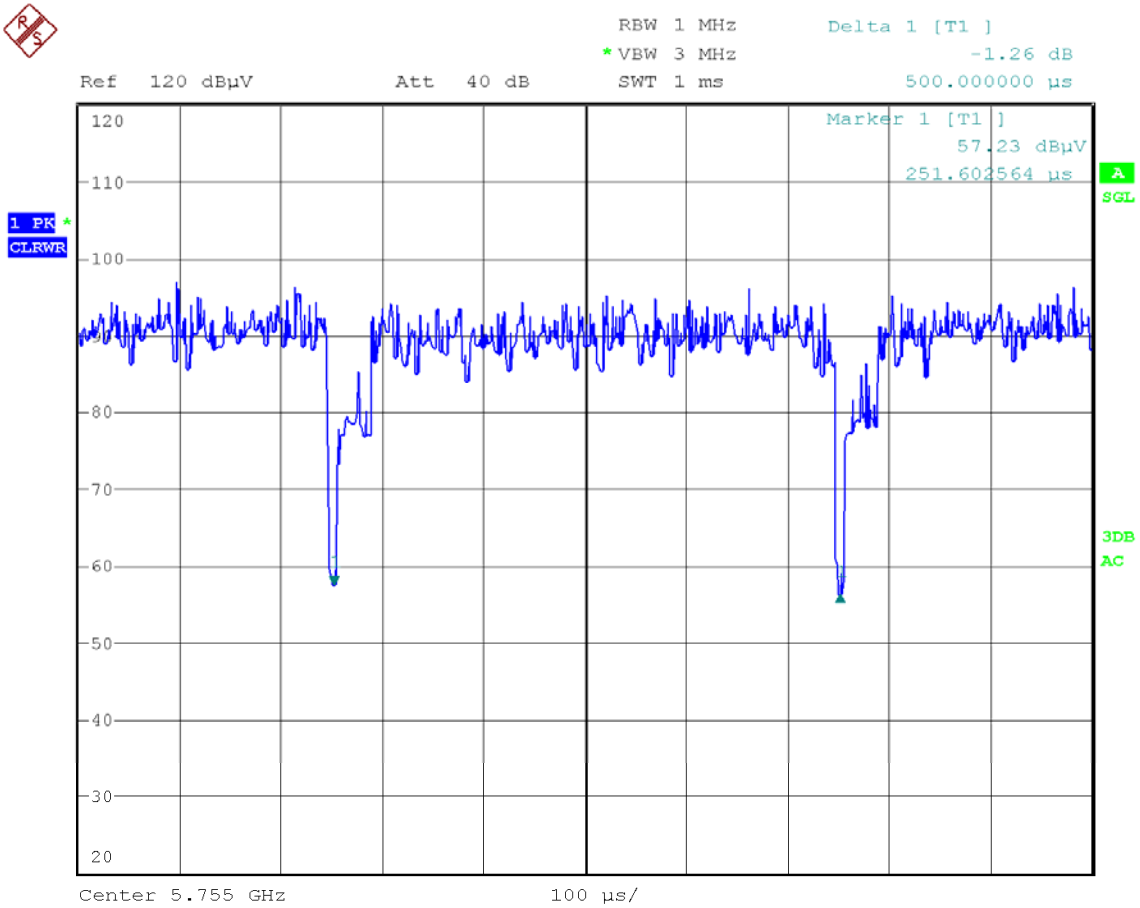
20MHz



KHz

Date: 23.DEC.2015 10:58:26

40MHz



KHz

Date: 23.DEC.2015 11:00:02