

# TEST REPORT

of

FCC Part 90 Subpart Z

FCC ID : PIDGWU-200

Equipment Under Test : WiMAX USB dongle  
Model Name : GWU-200  
Serial No. : N/A  
Applicant : Airspan Network Ltd.  
Manufacturer : IGI Mobile Inc.  
Date of Test(s) : 2011.02.01 ~ 2011.04.25  
Date of Issue : 2011.04.25

In the configuration tested, the EUT complied with the standards specified above.

Tested By:



Date

2011.04.25

Wonsuk Kim

Approved By:



Date

2011.04.25

Charles Kim

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## 1. General Information

### 1.1. Testing Laboratory

SGS Korea Co., Ltd.

- 705, Dongchun-Dong Sooji-Gu, Yongin-Shi, Kyungki-Do, South Korea.
- Wireless Div. 2FL, 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-do, Korea 435-040

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### 1.2. Details of Applicant

Applicant : Airspan Network Ltd.

Address : Cambridge House, Oxford Road, Uxbridge, Middlesex, UB8, 1UN, United Kingdom

Contact Person : Joe Yeung

Phone No. : +44 1895 46 7460

### 1.3. Description of EUT

Kind of Product	WiMAX USB dongle
Model Name	GWU-200
Serial Number	N / A
Power Supply	AC 100 ~ 240 V (Use PC USB port DC 5 V)
Frequency Range	3 652.5 MHz ~ 3 697.5 MHz : 5 MHz Bandwidth 3 655 MHz ~ 3 695 MHz : 10 MHz Bandwidth
Modulation Technique	QPSK 1/2, QPSK 3/4, 16QAM 1/2, 16QAM 3/4
Power	17.09 dB m(MISO) : 5 MHz Bandwidth 19.53 dB m(MISO) : 10 MHz Bandwidth
Channel Bandwidth	5 MHz, 10 MHz
Antenna Type	Integral Type
Antenna Gain	4.5 dB i

### 1.4. Declaration by the manufacturer

- N/A

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### 1.5. Test Equipment List

Equipment	Manufacturer	Model	Cal Due.
Signal Generator	Agilent	E4438C	Mar. 31, 2012
Spectrum Analyzer	R & S	FSV30	Mar. 31, 2012
Spectrum Analyzer	R&S	FSP40	Jul. 15, 2011
High Pass Filter	Wainwright	WHK6.0/18G-10SS	Sep. 29, 2011
Preamplifier	H.P	8447F	Jul. 05, 2011
Preamplifier	Agilent	8449B	Mar. 31, 2012
Test Receiver	R & S	ESU26	Jul. 07, 2011
Bilog Antenna	SCHWARZBECK MESSELEKTRONIK	VULB9163	Jun. 25, 2011
Horn Antenna	SCHWARZBECK MESSELEKTRONIK	BBHA9170	Jun. 16, 2012
Horn Antenna	SCHWARZBECK MESSELEKTRONIK	BBHA9170	Mar. 16, 2012
Horn Antenna	Rohde & Schwarz	HF 906	Oct. 08, 2011
Antenna Master	EMCO	1050	N.C.R.
Turn Table	Daeil EMC	DI-1500	N.C.R.
Anechoic Chamber	SY Corporation	L x W x H (9.6 m x 6.4 m x 6.6 m)	N.C.R.

### 1.6. Support equipment

Equipment	Manufacturer	Type	S/N
Notebook PC	LG IBM	2366	99-LZLR2

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## 1.7. Summary of Test Results

The EUT has been tested according to the following specifications:

APPLIED STANDARD:FCC Part90, SUBPART Z		
Section	Test Item	Result
2.1049	99% Occupied Bandwidth	Complied
90.1321(c)	EIRP radiated power	Complied
90.1321(c)	Peak EIRP power density	Complied
90.1323, 2.1051	Spurious emissions at Antenna Terminals	Complied
90.213	Frequency stability	Complied
90.210(b)	Transmitter Emissions Mask	Complied
90.1323, 2.1053	Transmitter Radiated Emissions above 1 GHz	Complied

## 1.8. Test report revision

Revision	Report number	Description
0	F690501/RF-RTL004439	Initial
1	F690501/RF-RTL004439-1	Retest for changing frequency
2	F690501/RF-RTL004439-2	Retest for Peak EIRP power density
3	F690501/RF-RTL004439-3	Addition : emission mask

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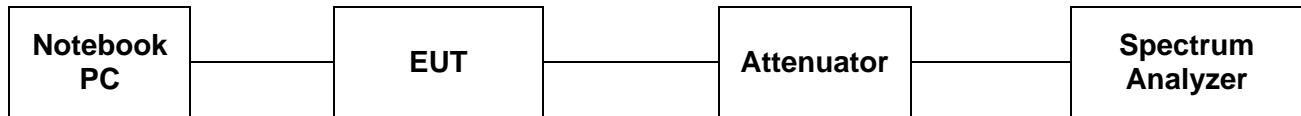
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## 2. 99% Occupied Bandwidth

### 2.1. Test setup



### 2.2. Limit

Limit: Not Applicable

### 2.3. Test procedure

1. The 99% band width was measured with a spectrum analyzer connected to RF antenna connector(conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency. The analyzer center frequency was set to the EUT carrier frequency, using the analyzer. Display Line and Marker Delta functions, the 99% band width of the emission was determined.
- 2-1. The 99% bandwidth of the fundamental frequency was measured with the spectrum analyzer using RBW = 100 kHz, VBW = 300 kHz, Span = 15 MHz for 5 MHz Bandwidth.
- 2-2. The 99% bandwidth of the fundamental frequency was measured with the spectrum analyzer using RBW = 100 kHz, VBW = 300 kHz, Span = 30 MHz for 10 MHz Bandwidth.

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## 2.4. Test result

Ambient temperature : (23 ± 2) °C  
Relative humidity : 46 % R.H.

- 5 MHz Bandwidth

Operation Mode	Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
QPSK 1/2	Low	3 652.5	4.47
	Middle	3 675.0	4.45
	High	3 697.5	4.47

Operation Mode	Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
QPSK 3/4	Low	3 652.5	4.47
	Middle	3 675.0	4.45
	High	3 697.5	4.47

Operation Mode	Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
16QAM 1/2	Low	3 652.5	4.47
	Middle	3 675.0	4.45
	High	3 697.5	4.47

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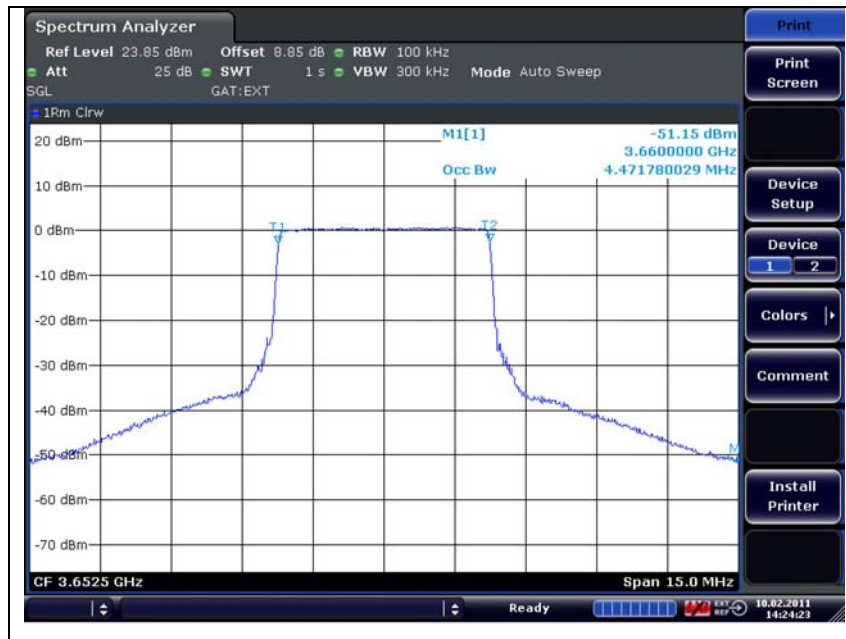
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Operation Mode	Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
16QAM 3/4	Low	3 652.5	4.47
	Middle	3 675.0	4.45
	High	3 697.5	4.47

- QPSK 1/2  
Low channel



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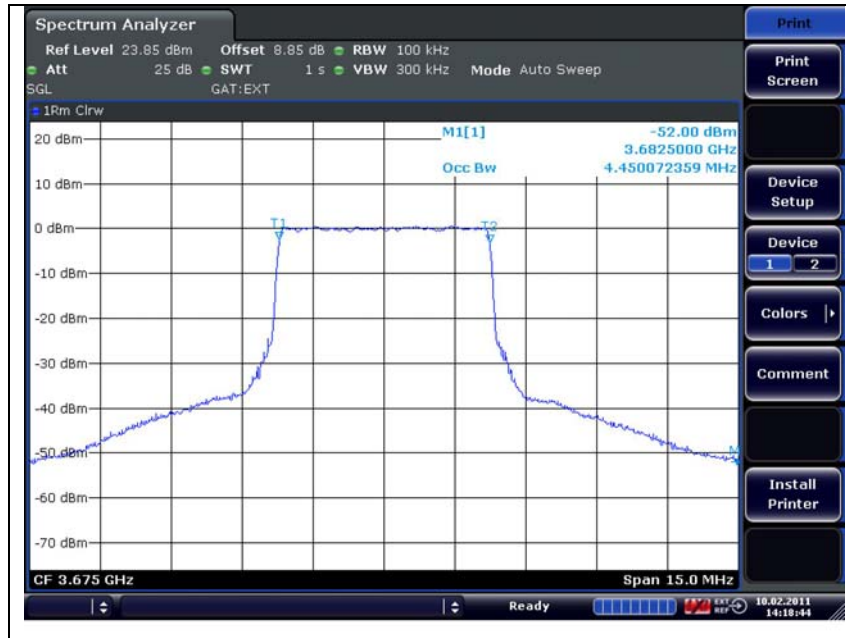
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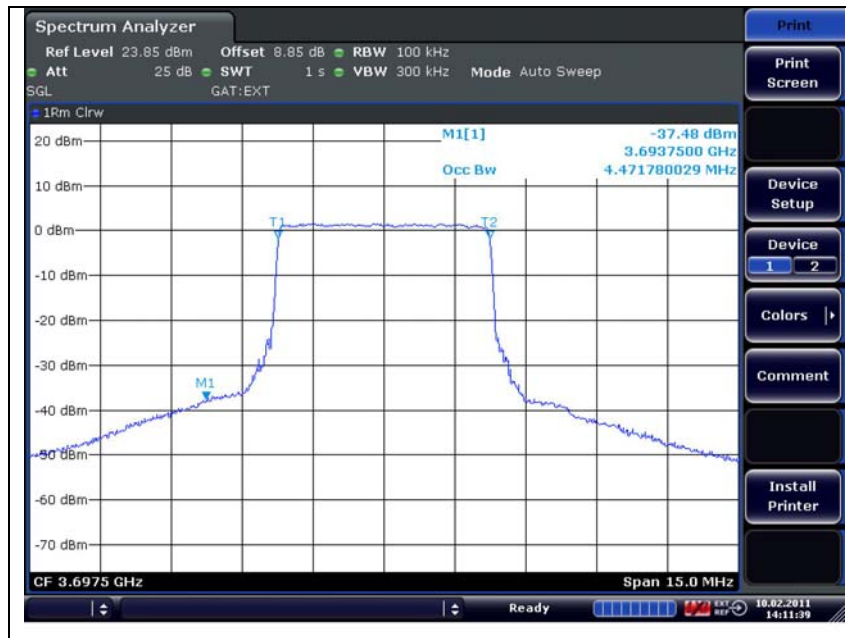
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Middle channel



High channel



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- QPSK 3/4  
Low channel



Middle channel



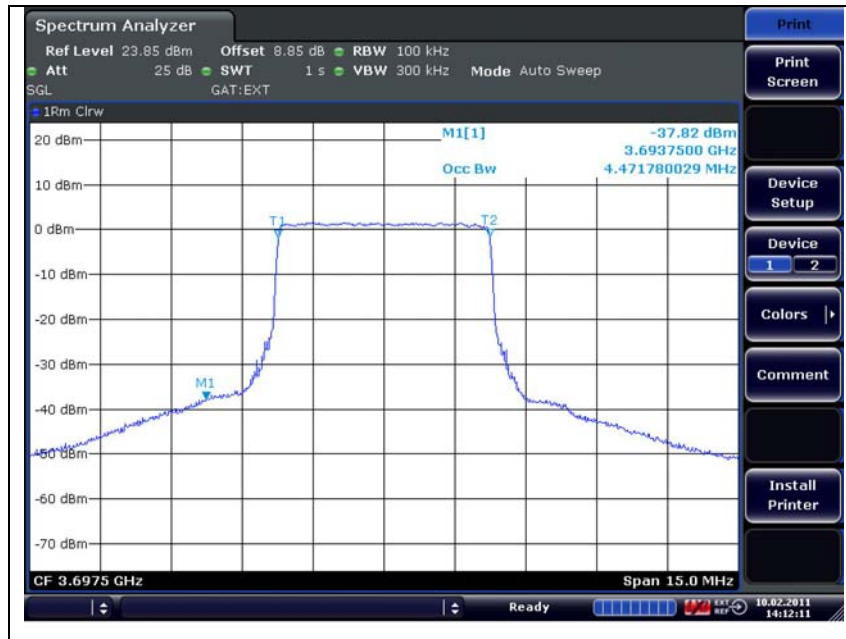
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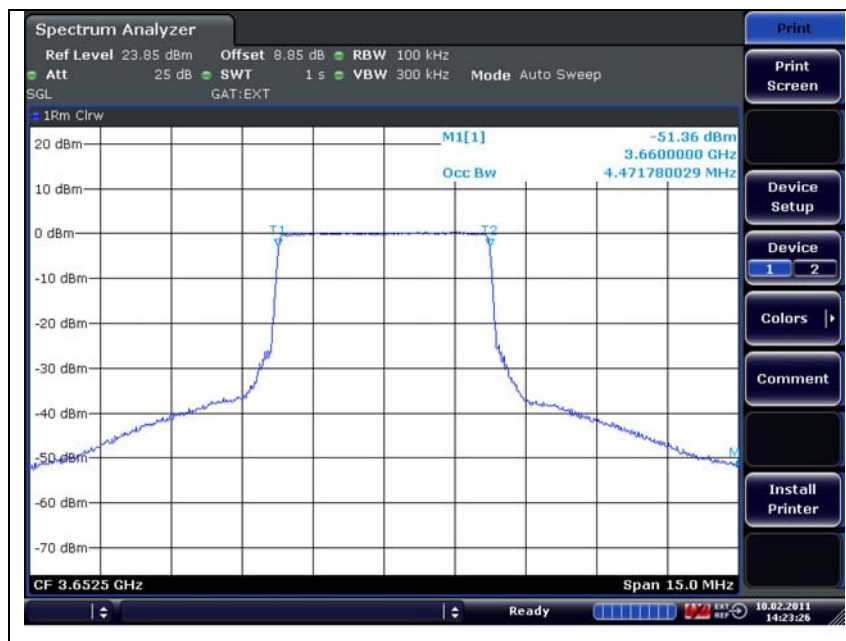
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High channel



- 16QAM 1/2  
Low channel



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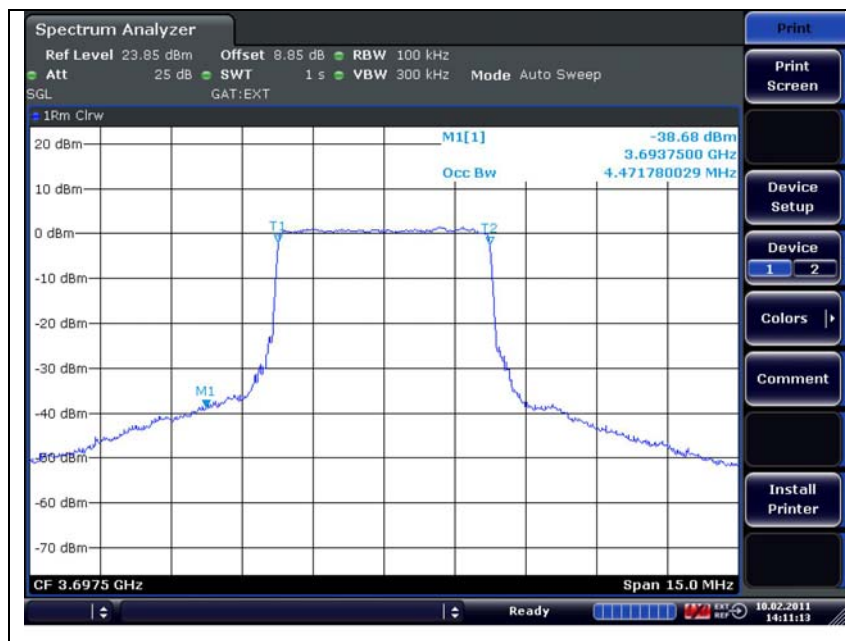
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Middle channel



High channel



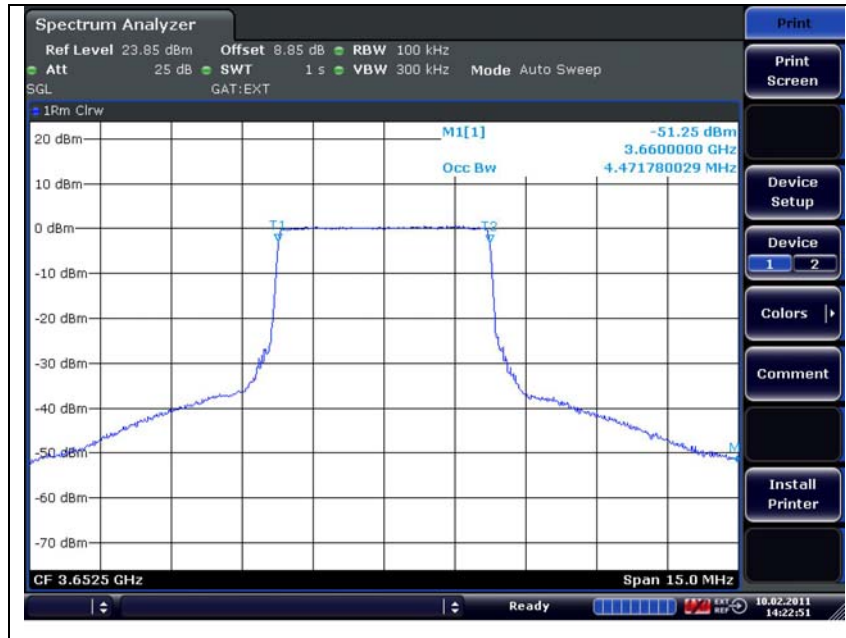
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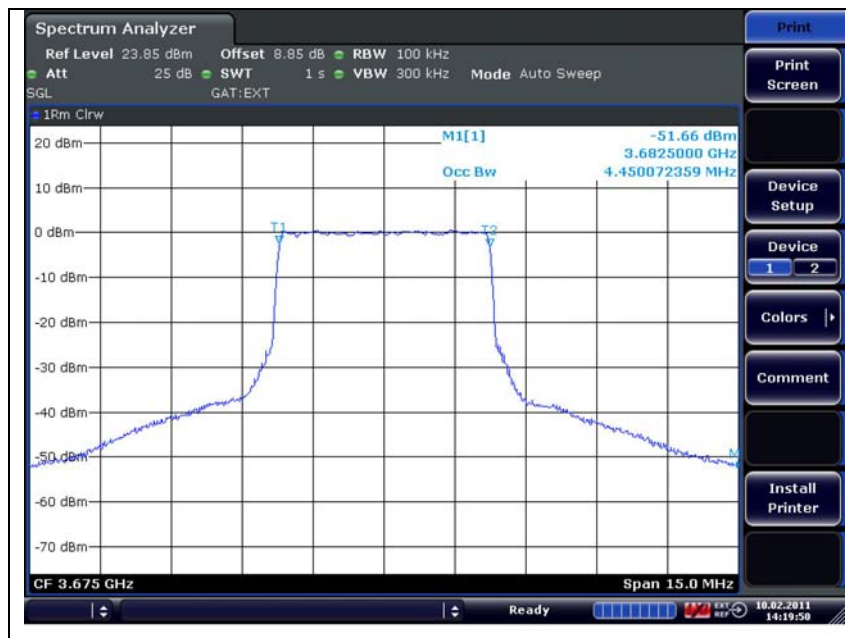
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- 16QAM 3/4  
Low channel



Middle channel



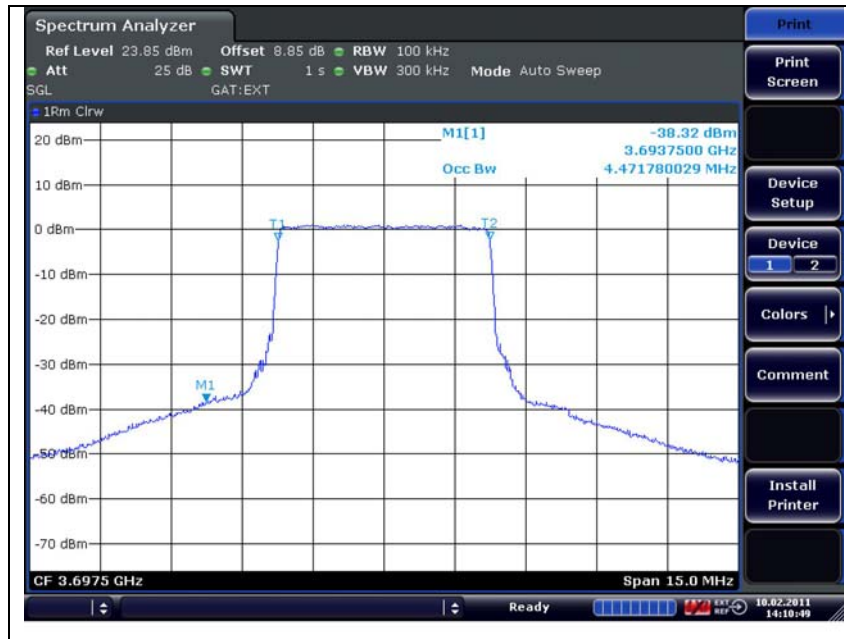
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High channel



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## - 10 MHz Bandwidth

Operation Mode	Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
QPSK 1/2	Low	3 655	9.12
	Middle	3 675	9.12
	High	3 695	9.12

Operation Mode	Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
QPSK 3/4	Low	3 655	9.12
	Middle	3 675	9.12
	High	3 695	9.12

Operation Mode	Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
16QAM 1/2	Low	3 655	9.12
	Middle	3 675	9.12
	High	3 695	9.12

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Operation Mode	Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
16QAM 3/4	Low	3 655	9.12
	Middle	3 675	9.12
	High	3 695	9.12

- QPSK 1/2  
Low channel



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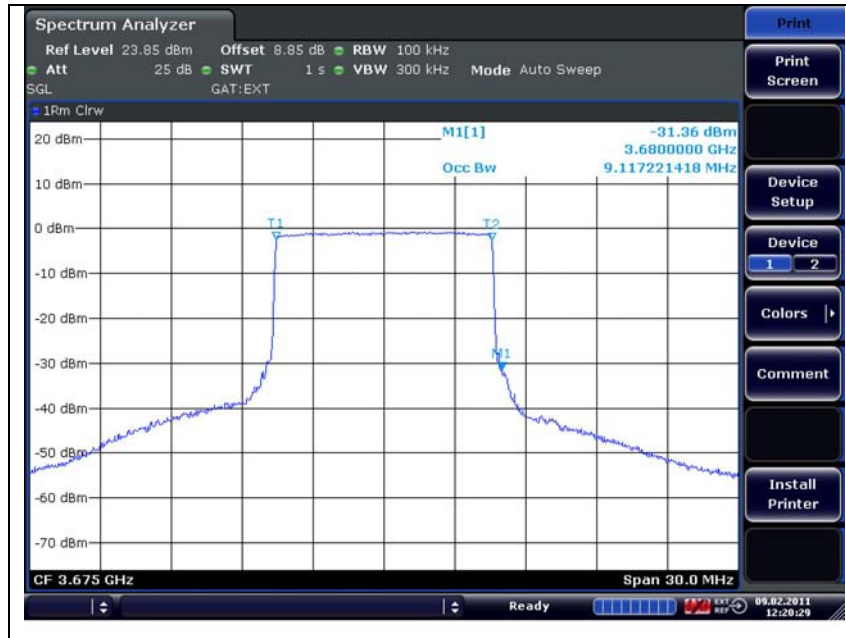
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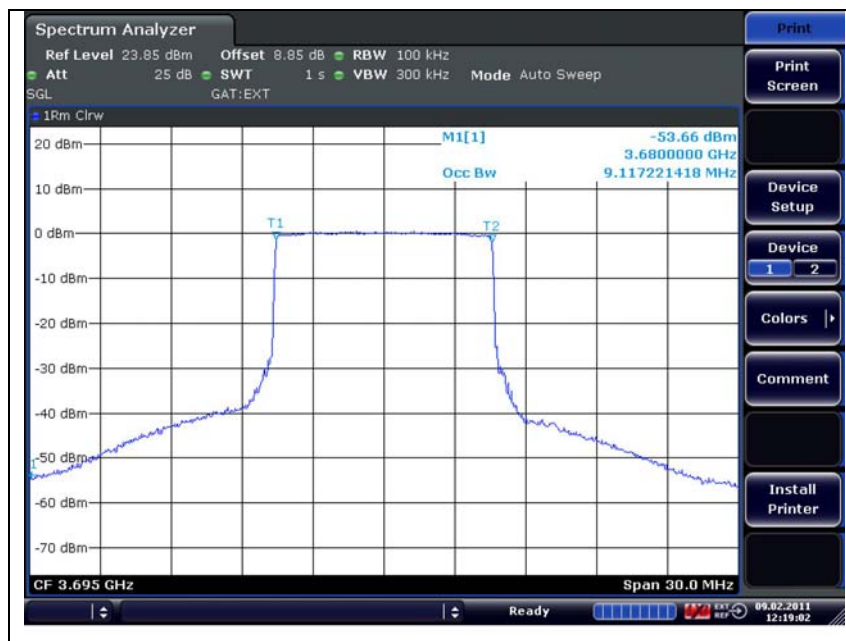
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Middle channel



High channel



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- QPSK 3/4  
Low channel



Middle channel



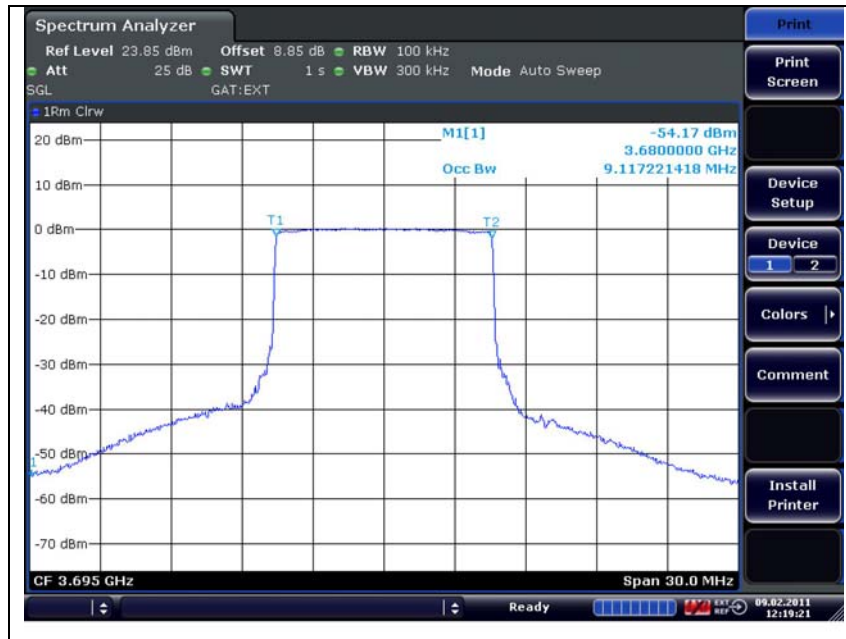
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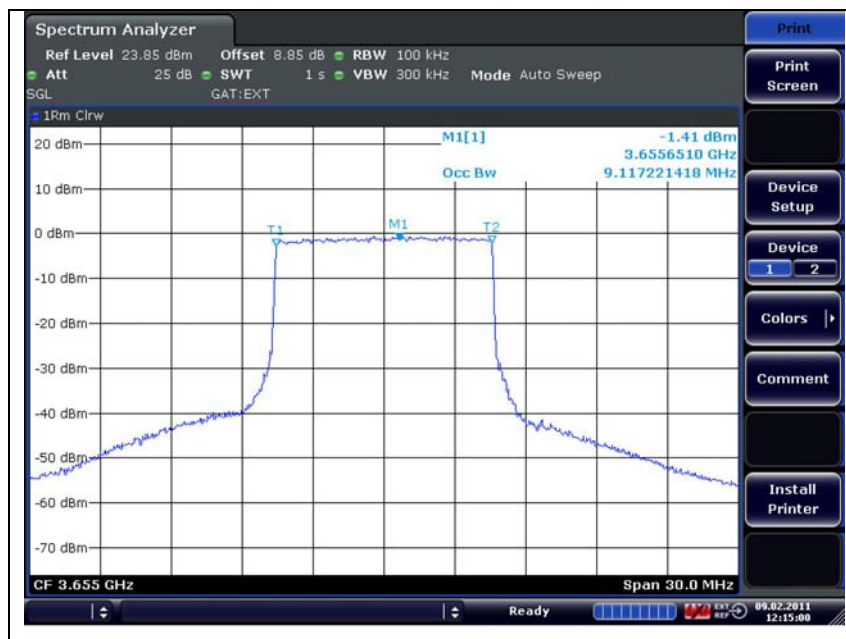
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High channel



- 16AQM 1/2  
Low channel



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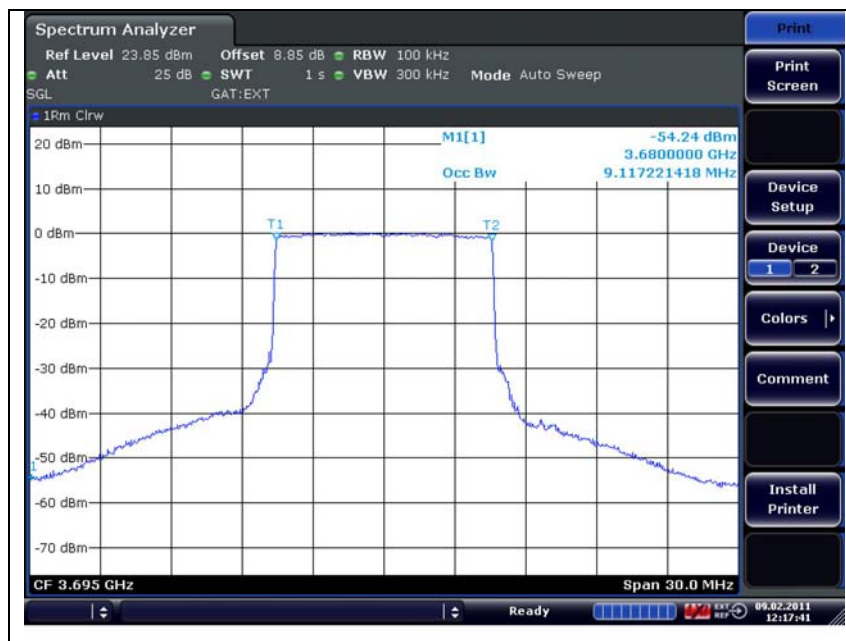
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Middle channel



High channel



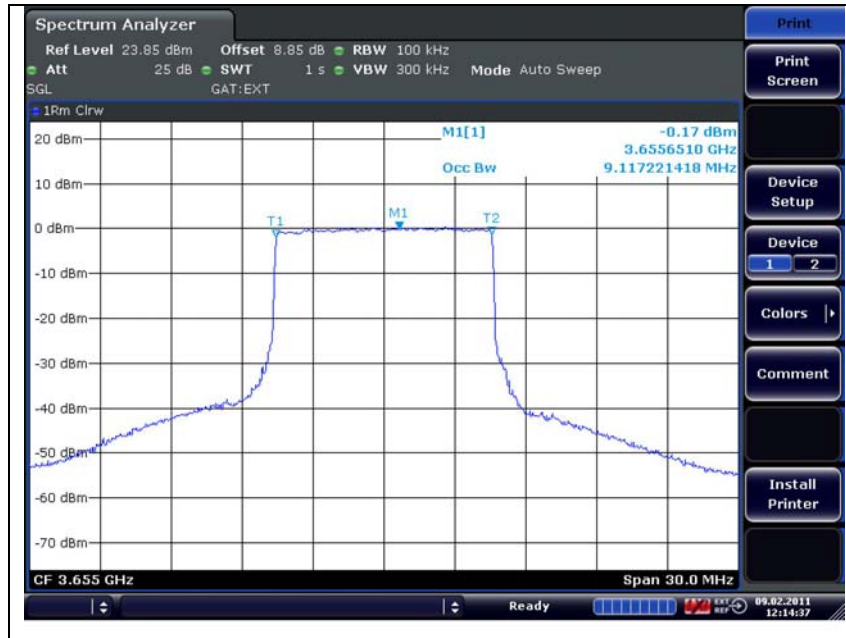
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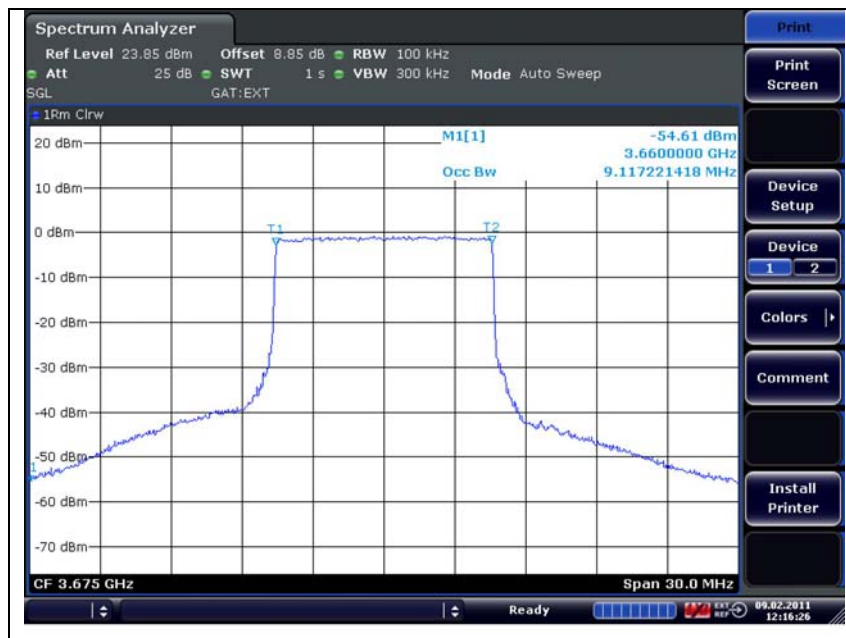
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- 16QAM 3/4  
Low channel



Middle channel



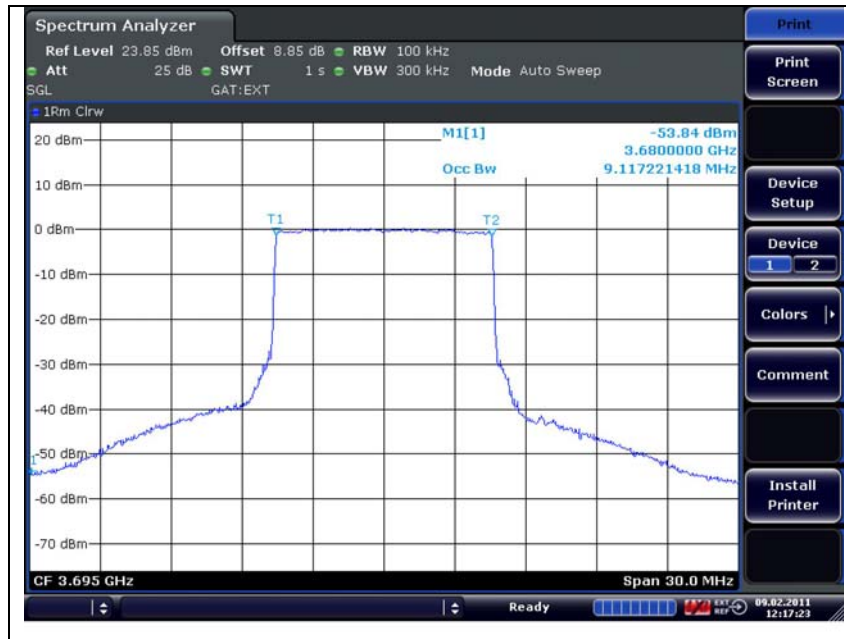
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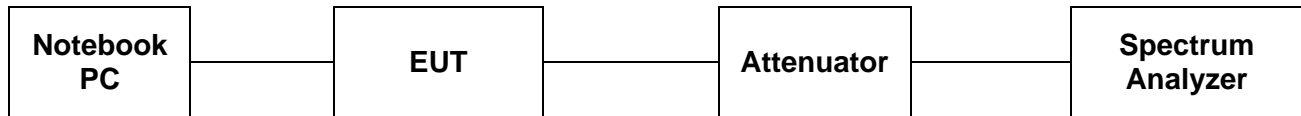
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### 3. Peak output power

#### 3.1. Test setup



#### 3.2. Limit

The peak output power of the intentional radiator shall not exceed the following :

Mobile and portable stations are limited to 1 W/25 MHz equivalent isotropically radiated power(EIRP). In any event the peak EIRP power density shall not exceed 40 milliwatt(+16 dB m) in any one Megahertz slice of spectrum.

- 5 MHz bandwidth :  $30 - 10 \log(25/5) = 23 \text{ dB m/5 MHz}$ .

- 10 MHz bandwidth :  $30 - 10 \log(25/10) = 26.02 \text{ dB m/10 MHz}$ .

#### 3.3. Test procedure

1. The RF power output was measured with a Spectrum analyzer connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency, A spectrum analyzer was used to record the shape of the transmit signal.
2. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using ;  
The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

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### 3.4. Test result

Ambient temperature : (23 ± 2) °C  
Relative humidity : 46 % R.H.

- 5 MHz bandwidth

Antenna gain : 4.5 dBi

Modulation	Carrier Frequency (MHz)	Measured Output power (dBm)	Calculated EIRP Power. (dBm)	FCC EIRP Power limit (dBm)
QPSK 1/2	3 652.5	16.57	21.07	23
	3 675.0	16.90	21.40	23
	3 697.5	17.09	21.59	23

Antenna gain : 4.5 dBi

Modulation	Carrier Frequency (MHz)	Measured Output power (dBm)	Calculated EIRP Power. (dBm)	FCC EIRP Power limit (dBm)
QPSK 3/4	3 652.5	16.48	20.98	23
	3 675.0	16.62	21.12	23
	3 697.5	16.96	21.46	23

Antenna gain : 4.5 dBi

Modulation	Carrier Frequency (MHz)	Measured Output power (dBm)	Calculated EIRP Power. (dBm)	FCC EIRP Power limit (dBm)
16QAM 1/2	3 652.5	16.18	20.68	23
	3 675.0	16.51	21.01	23
	3 697.5	16.89	21.39	23

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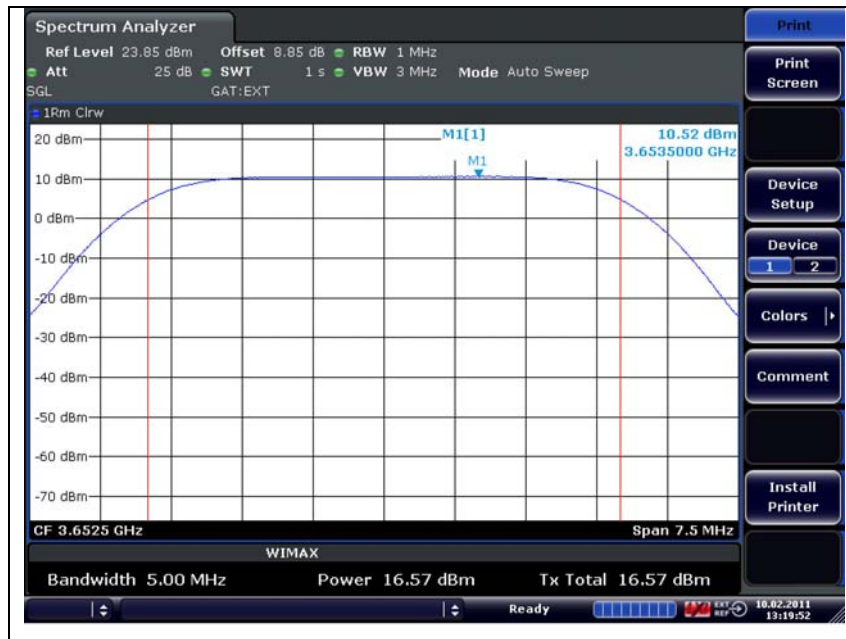
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Antenna gain : 4.5 dBi

Modulation	Carrier Frequency (MHz)	Measured Output power (dBm)	Calculated EIRP Power. (dBm)	FCC EIRP Power limit (dBm)
16AQM 3/4	3 652.5	16.89	21.39	23
	3 675.0	16.57	21.07	23
	3 697.5	16.76	21.26	23

- QPSK 1/2  
Low channel



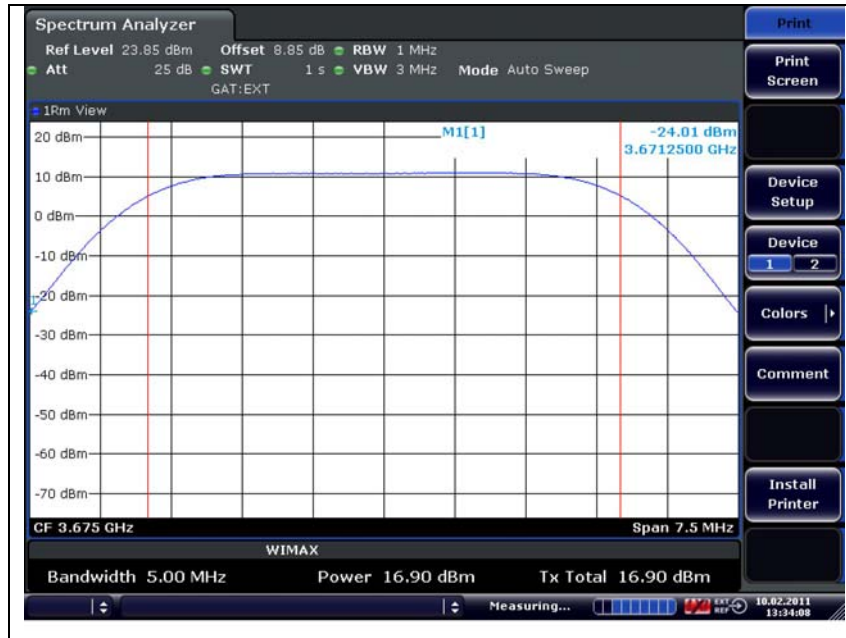
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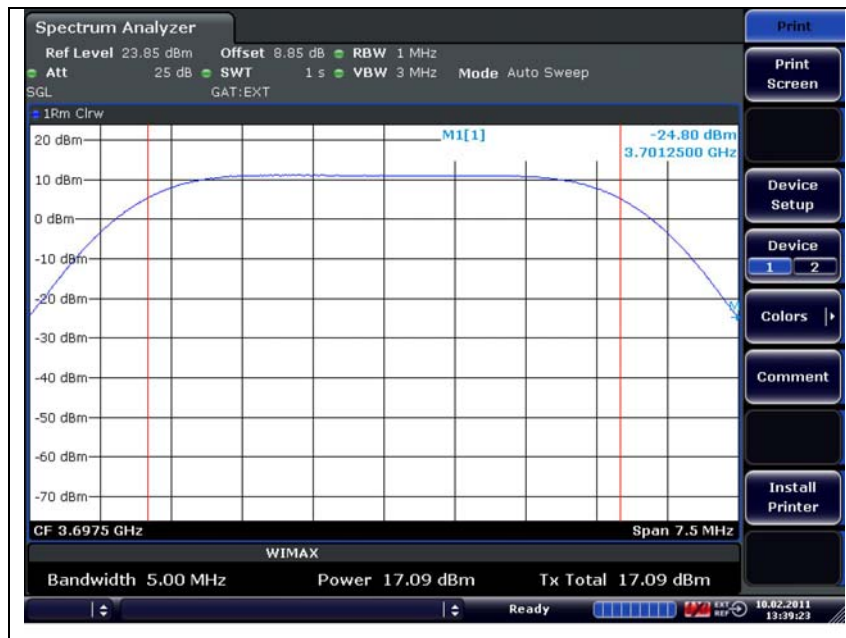
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Middle channel



High channel



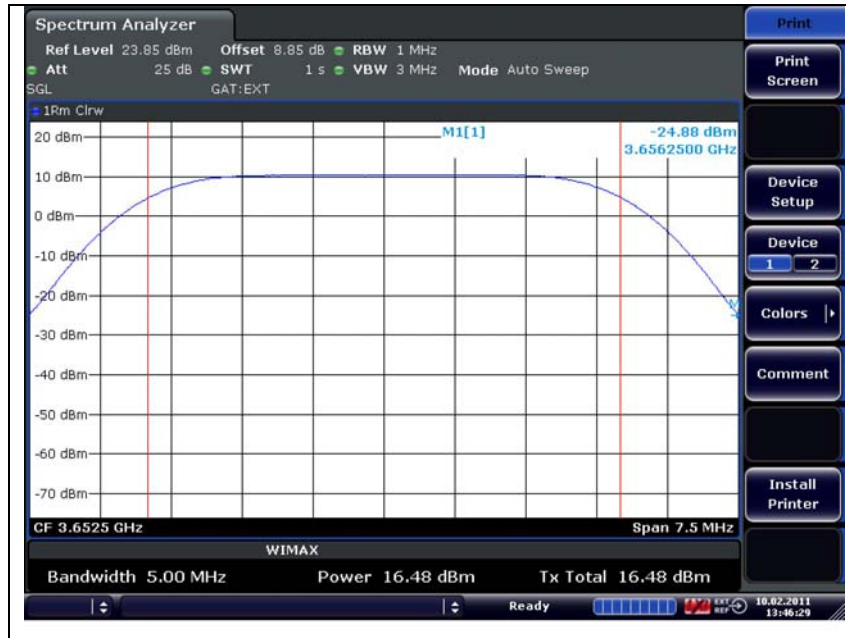
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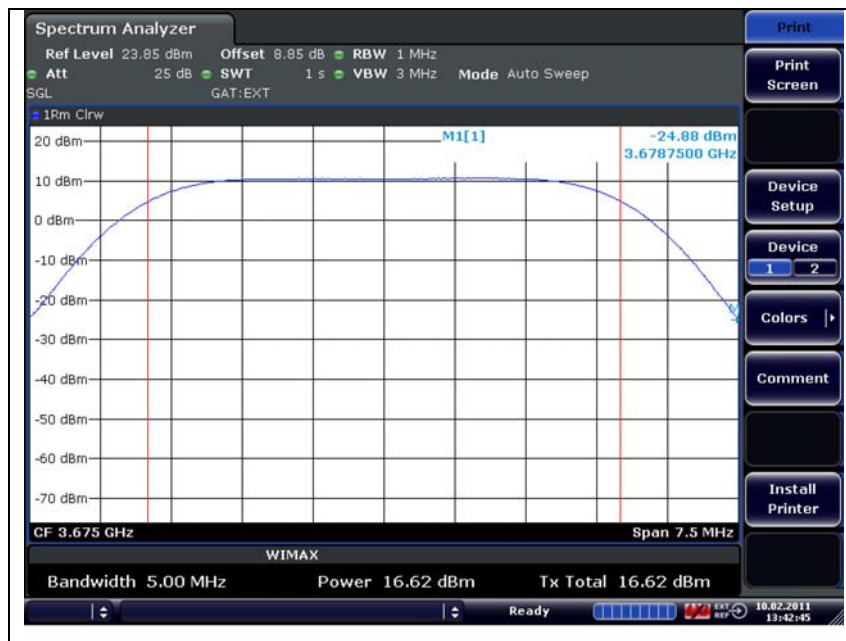
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

[www.kr.sgs.com/ee](http://www.kr.sgs.com/ee)

- QPSK 3/4  
Low channel



Middle channel



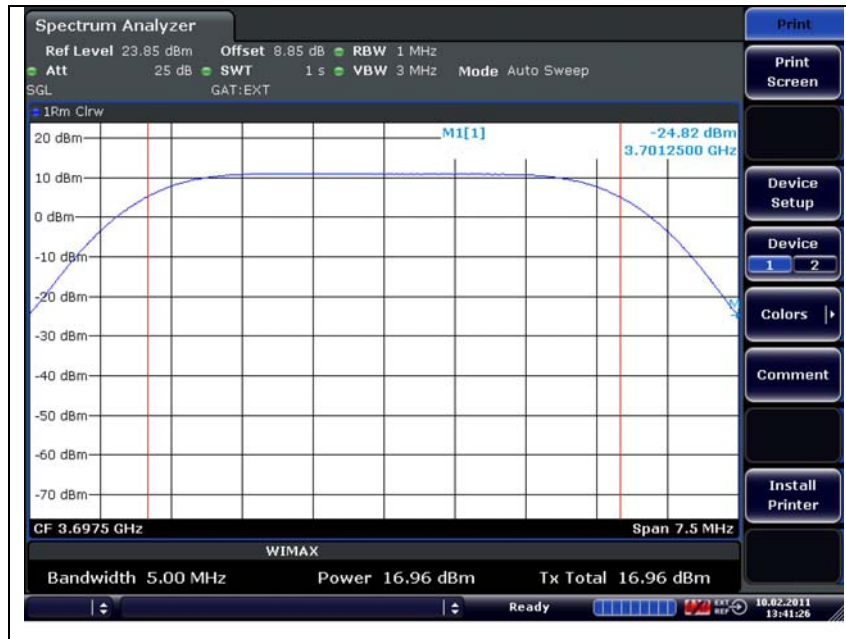
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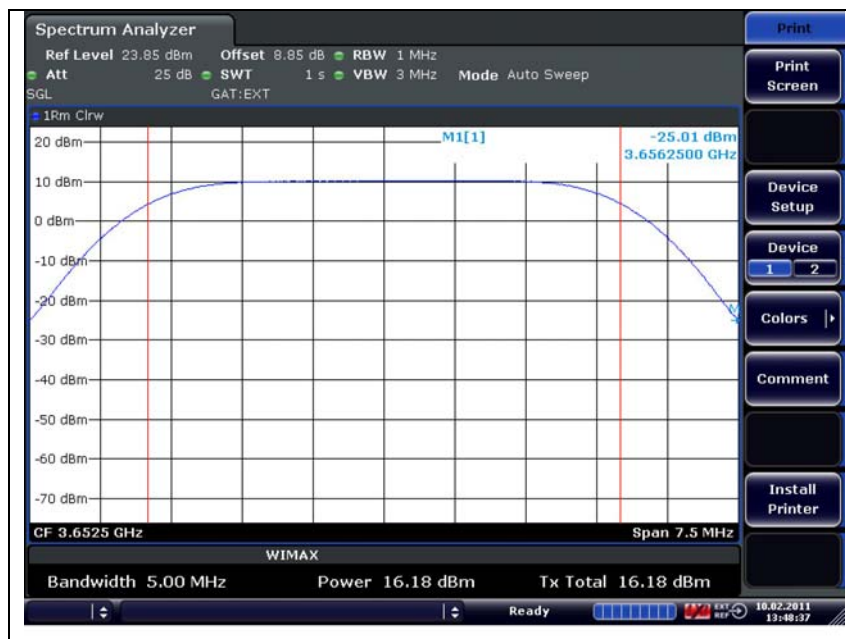
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

[www.kr.sgs.com/ee](http://www.kr.sgs.com/ee)

High channel



- 16QAM 1/2  
Low channel



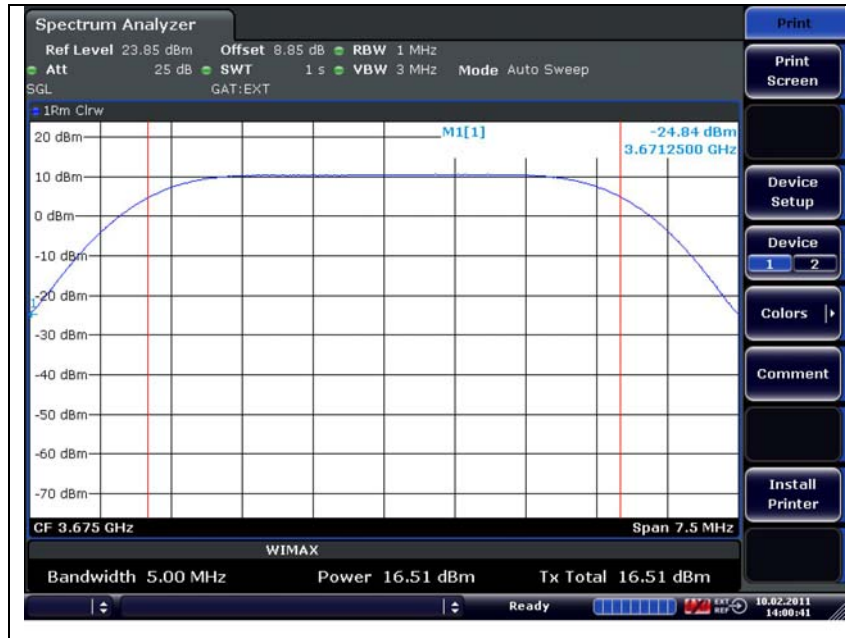
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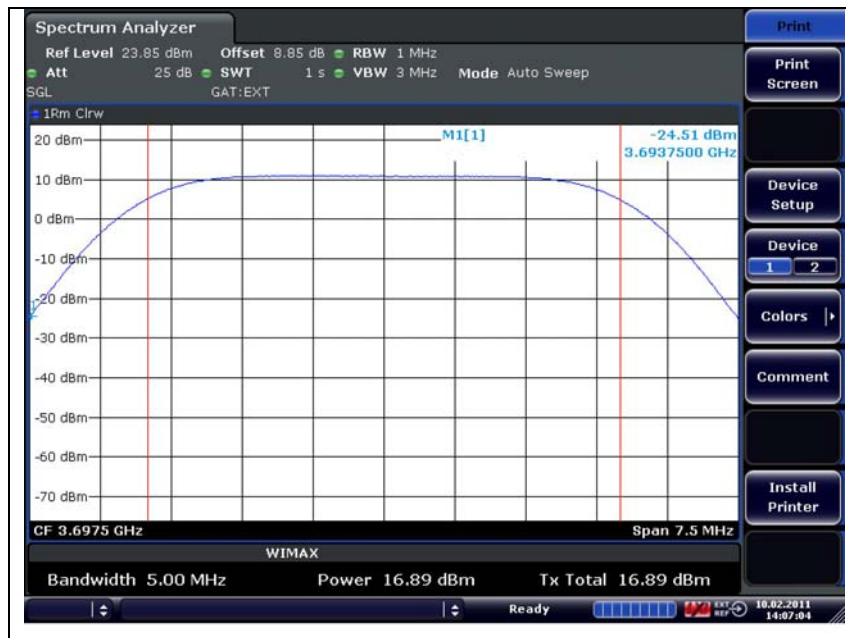
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

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Middle channel



High channel



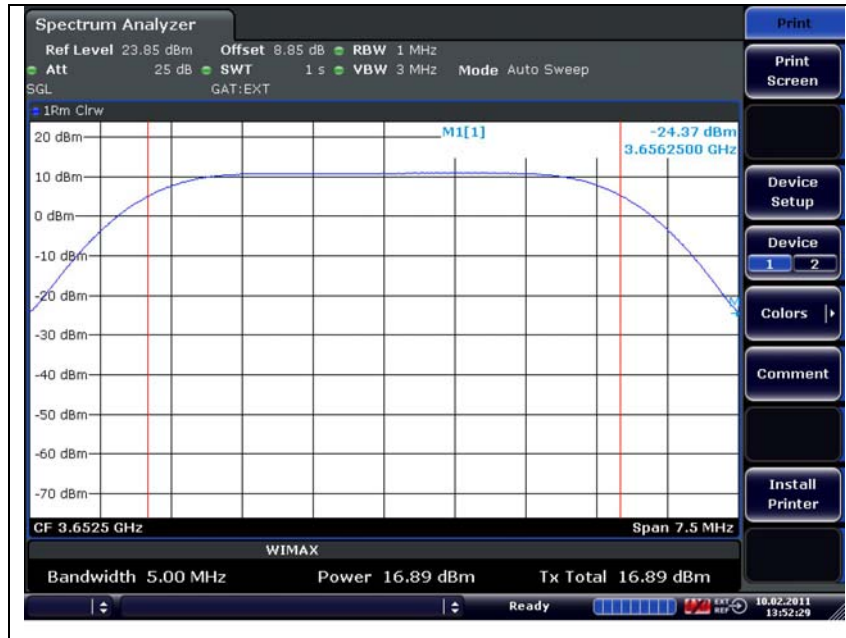
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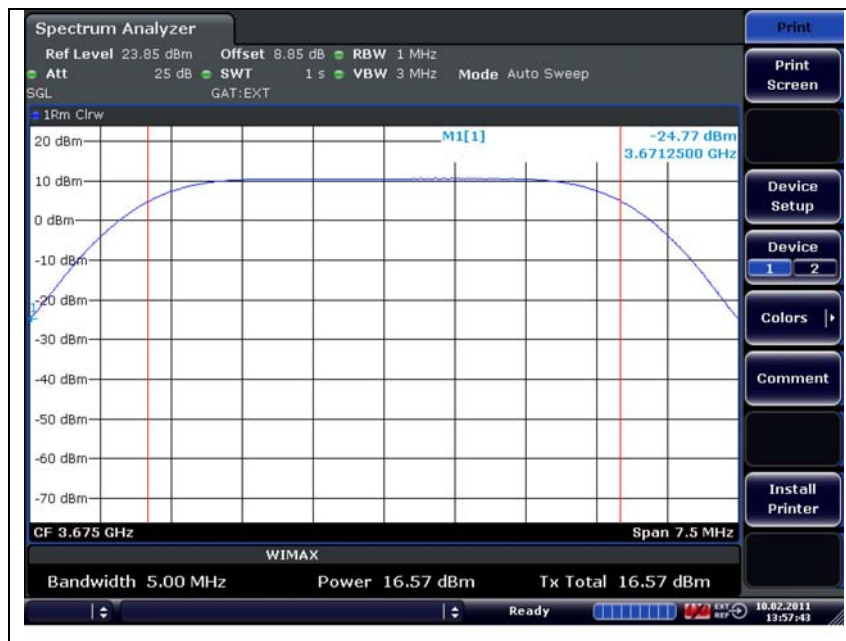
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- 16QAM 3/4  
Low channel



Middle channel



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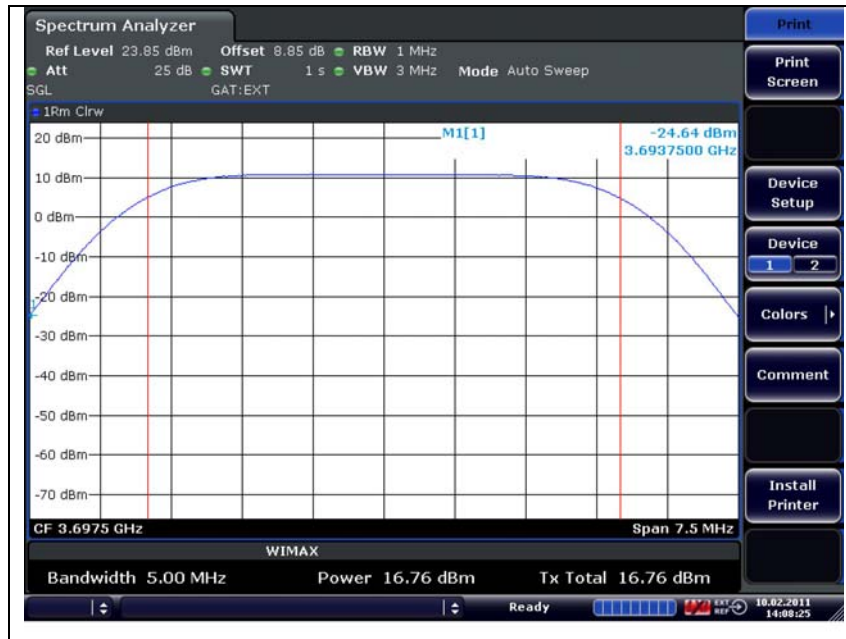
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High channel



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- 10 MHz bandwidth

Antenna gain : 4.5 dBi

Modulation	Carrier Frequency (MHz)	Measured Output power (dB m)	Calculated EIRP Power. (dB m)	FCC EIRP Power limit (dB m)
QPSK 1/2	3 655	18.95	23.45	26.02
	3 675	18.71	23.21	26.02
	3 695	19.03	23.53	26.02

Antenna gain : 4.5 dBi

Modulation	Carrier Frequency (MHz)	Measured Output power (dB m)	Calculated EIRP Power. (dB m)	FCC EIRP Power limit (dB m)
QPSK 3/4	3 655	19.34	23.84	26.02
	3 675	18.81	23.31	26.02
	3 695	19.40	23.90	26.02

Antenna gain : 4.5 dBi

Modulation	Carrier Frequency (MHz)	Measured Output power (dB m)	Calculated EIRP Power. (dB m)	FCC EIRP Power limit (dB m)
16QAM 1/2	3 655	19.25	23.75	26.02
	3 675	18.92	23.42	26.02
	3 695	19.53	24.03	26.02

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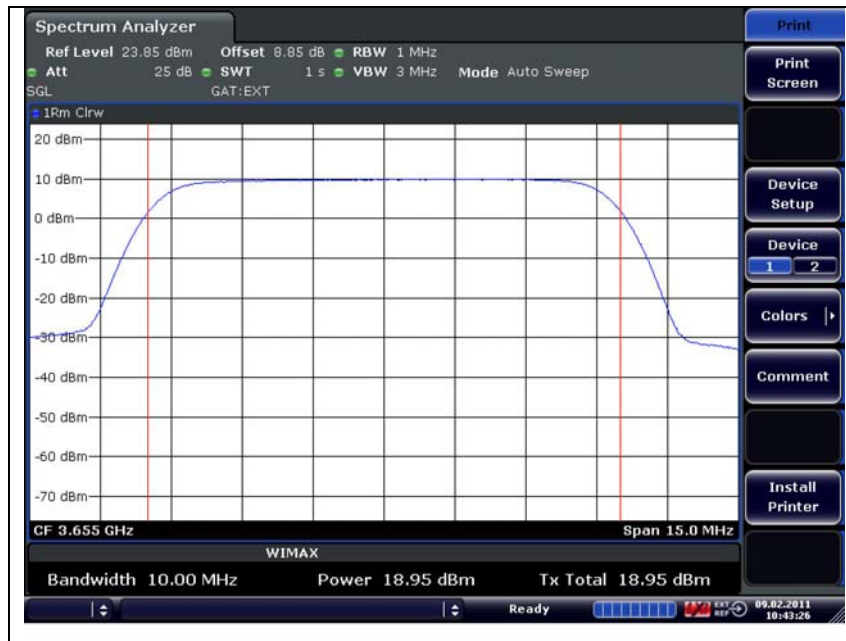
[www.kr.sgs.com/ee](http://www.kr.sgs.com/ee)



Antenna gain : 4.5 dB i

Modulation	Carrier Frequency (MHz)	Measured Output power (dB m)	Calculated EIRP Power. (dB m)	FCC EIRP Power limit (dB m)
16AQM 3/4	3 655	19.25	23.73	26.02
	3 675	18.63	23.13	26.02
	3 695	19.44	23.94	26.02

- QPSK 1/2  
Low channel



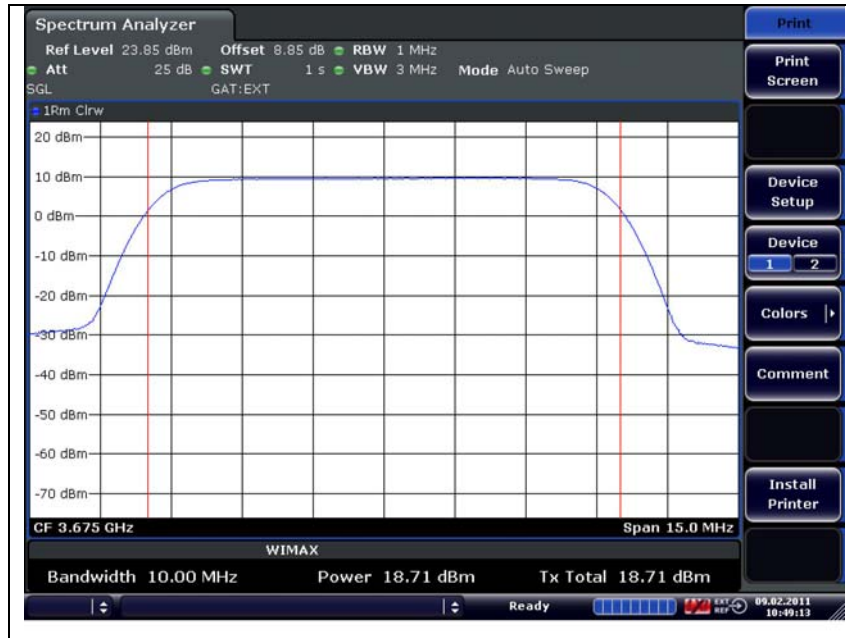
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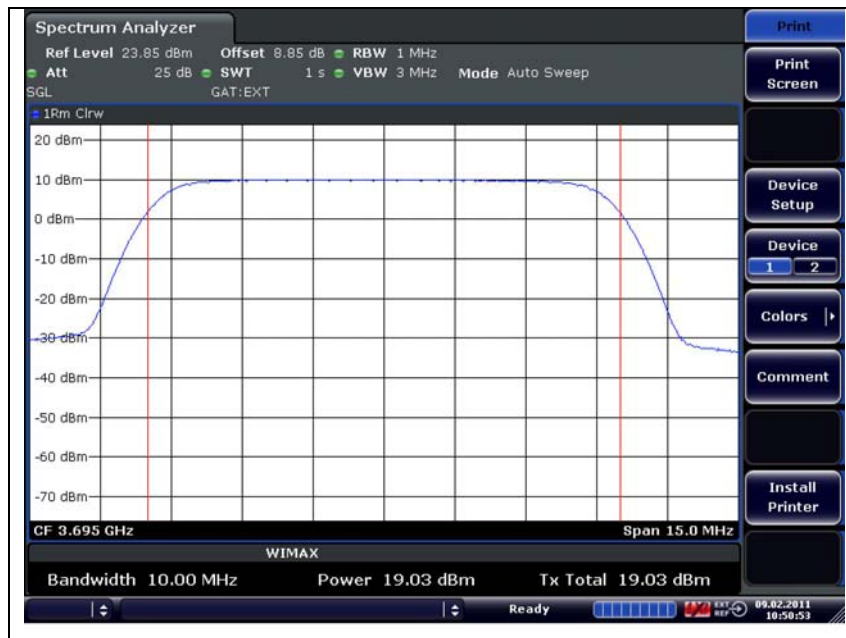
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Middle channel



High channel



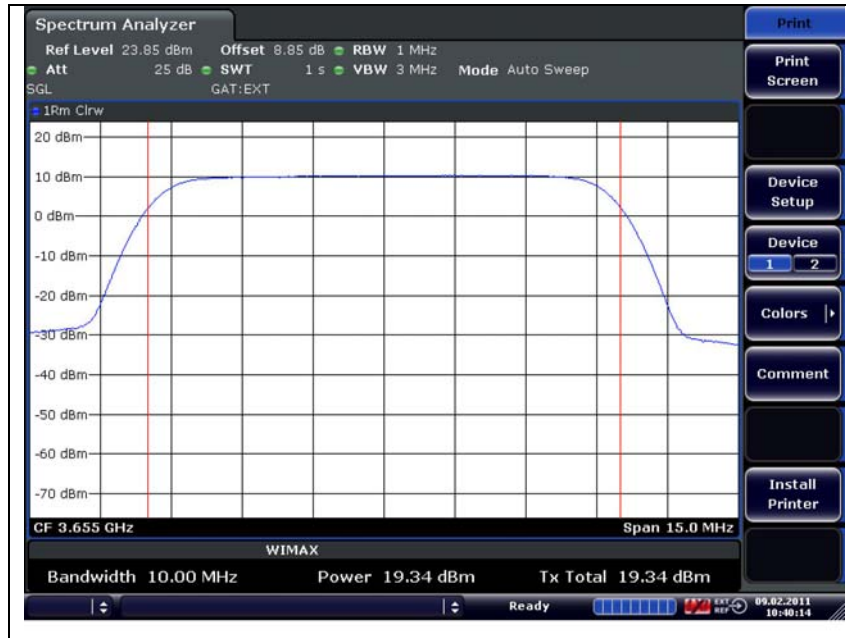
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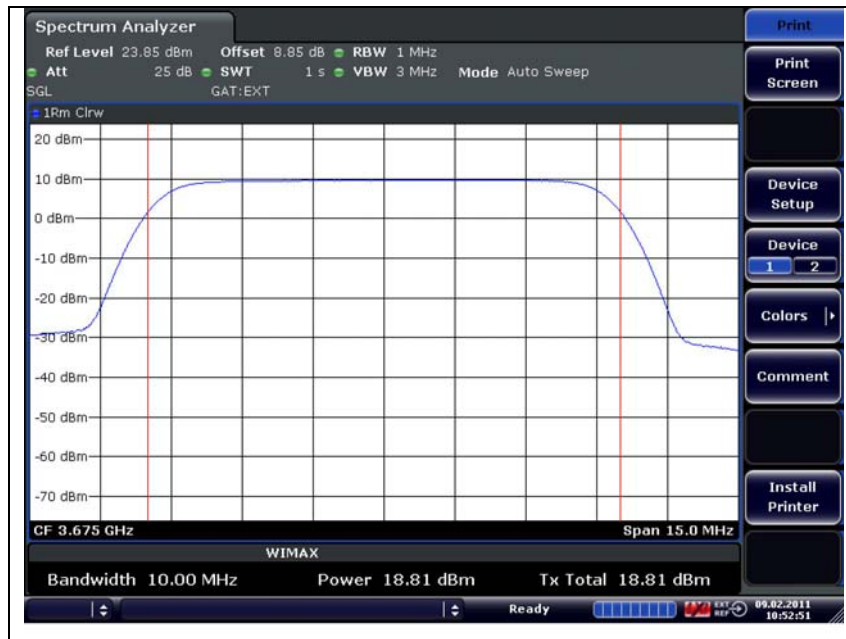
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- QPSK 3/4  
Low channel



Middle channel



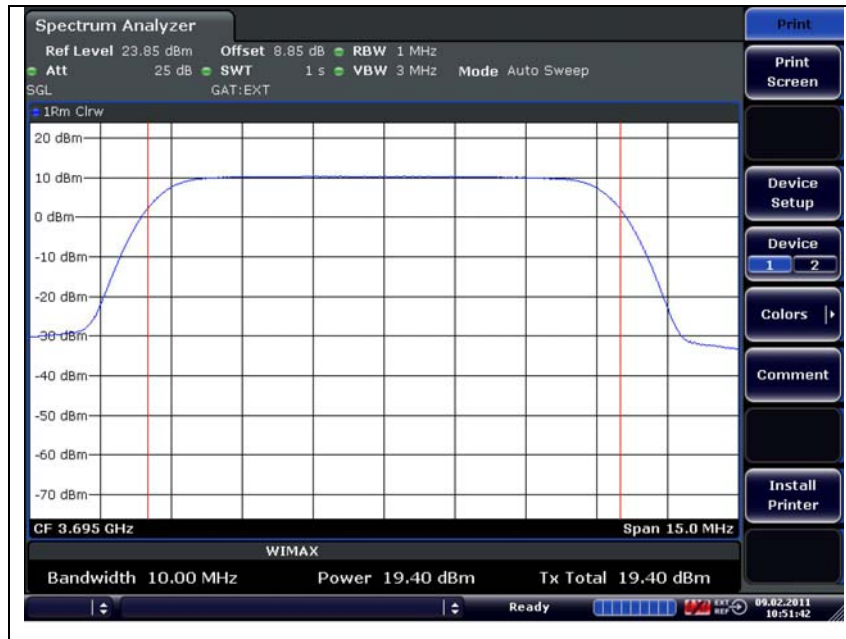
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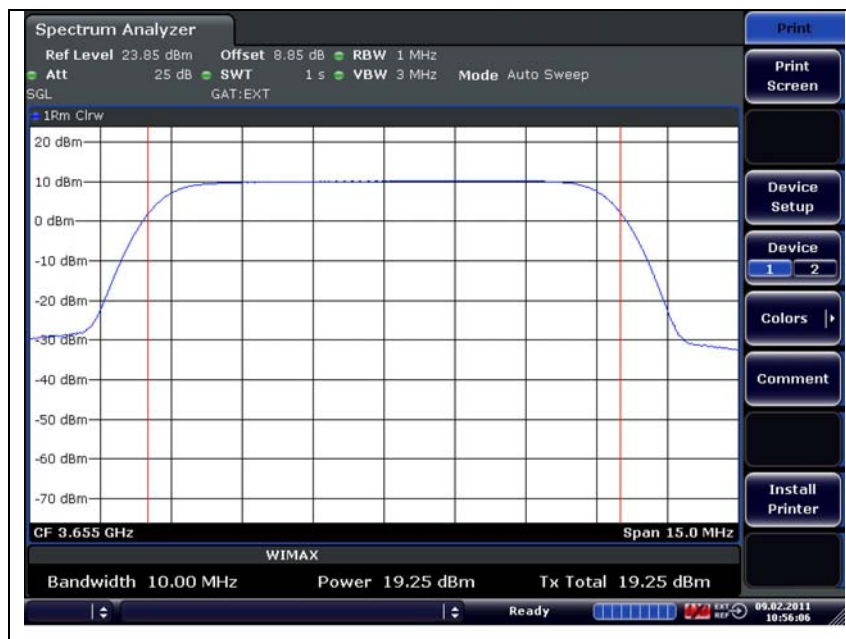
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High channel



- 16QAM 1/2  
Low channel



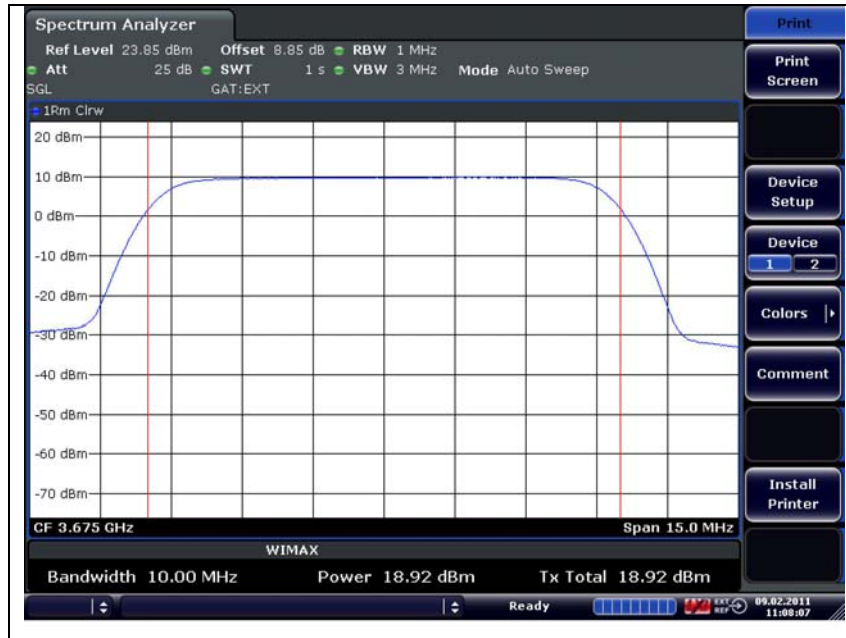
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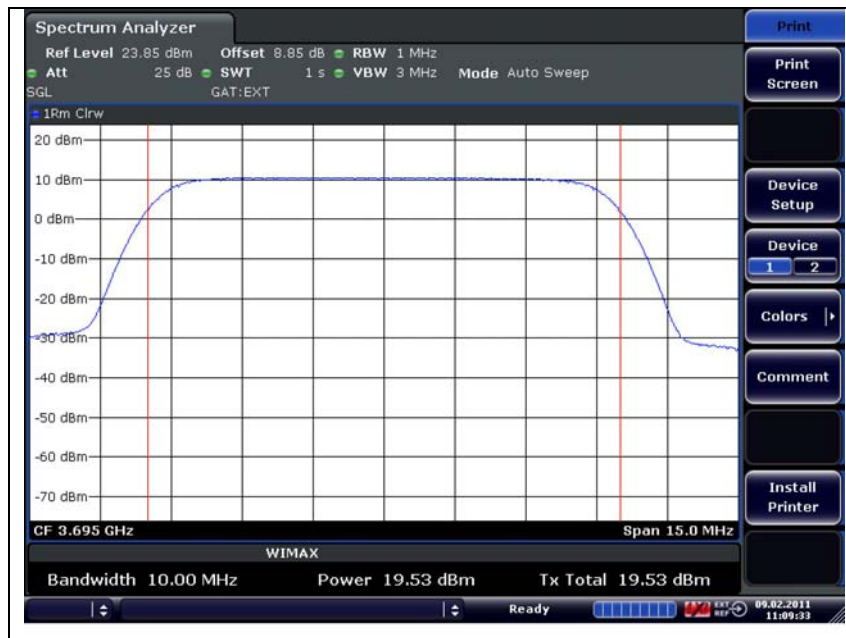
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

[www.kr.sgs.com/ee](http://www.kr.sgs.com/ee)

Middle channel



High channel



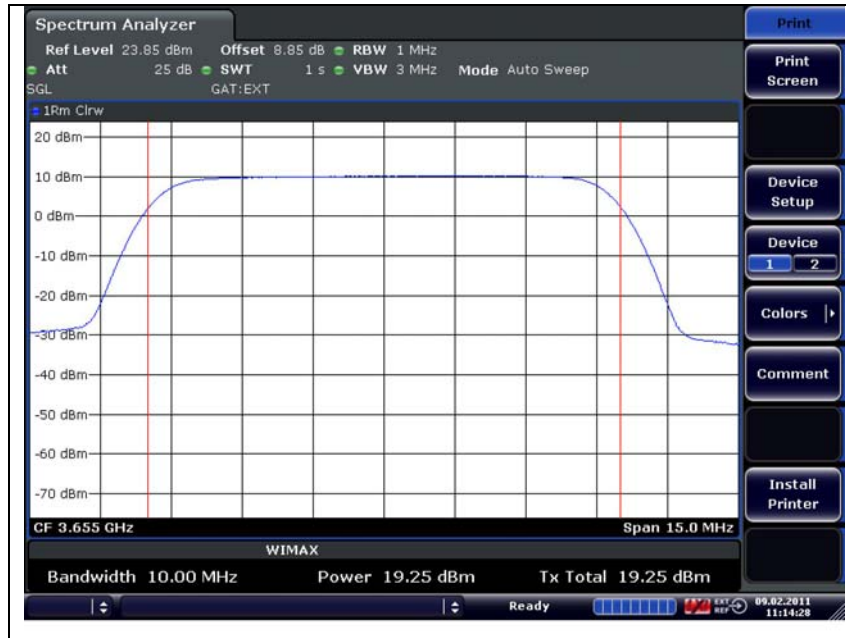
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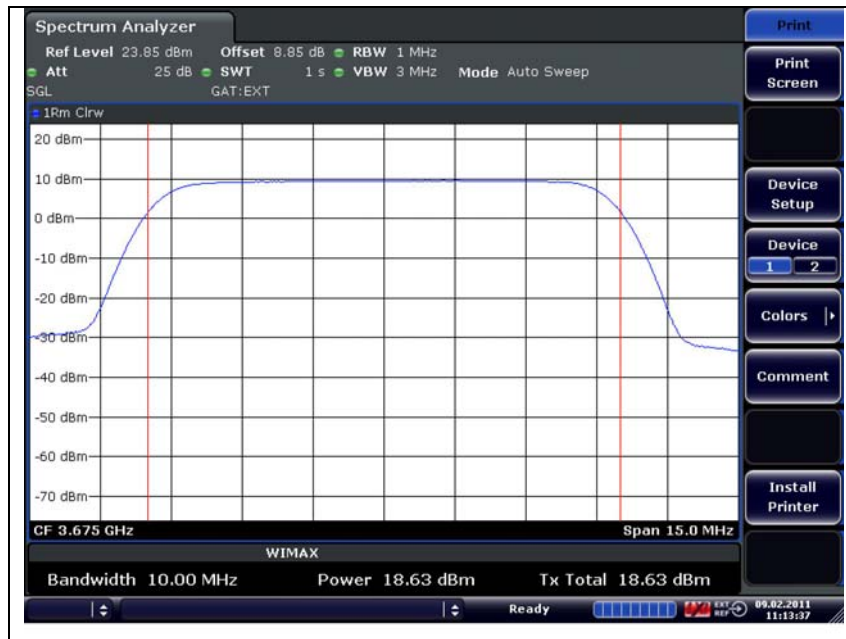
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- 16QAM 3/4  
Low channel



Middle channel



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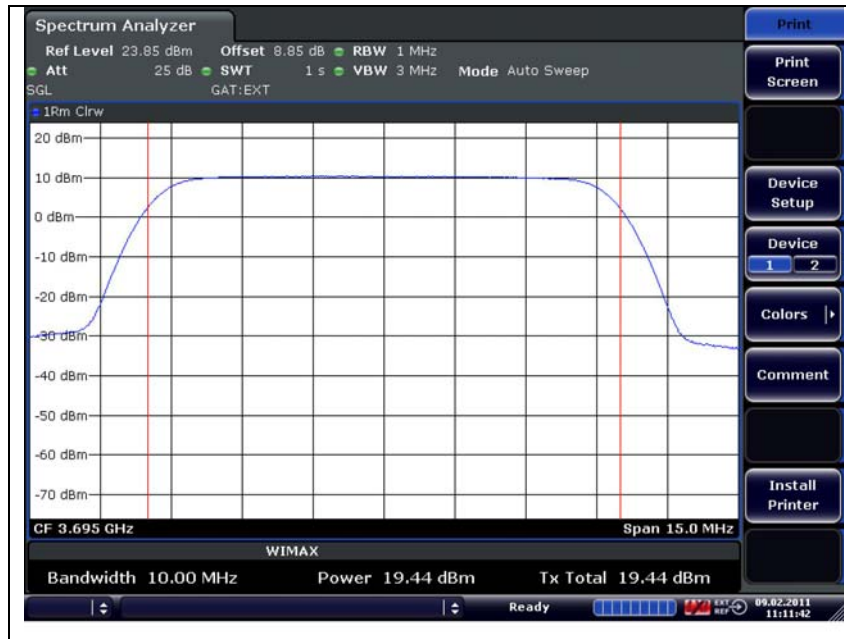
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High channel



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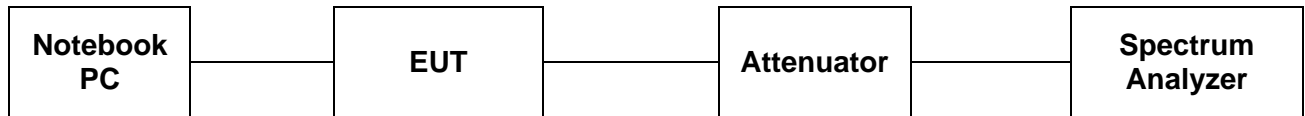
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## 4. Peak EIRP power density

### 4.1. Test setup



### 4.2. Limit

Mobile and portable stations are limited to 1 W/25 MHz equivalent isotropically radiated power(EIRP). In any event the peak EIRP power density shall not exceed 40 milliwatt(+16 dB m/MHz) in any one Megahertz slice of spectrum.

### 4.3. Test procedure

The test methodology used for this measurement was determined to provide the highest possible power density readings.

Power spectral density measurements were performed via the spectrum analyzer and plots were recorded. The system highest power setting was selected and modulation was ON.

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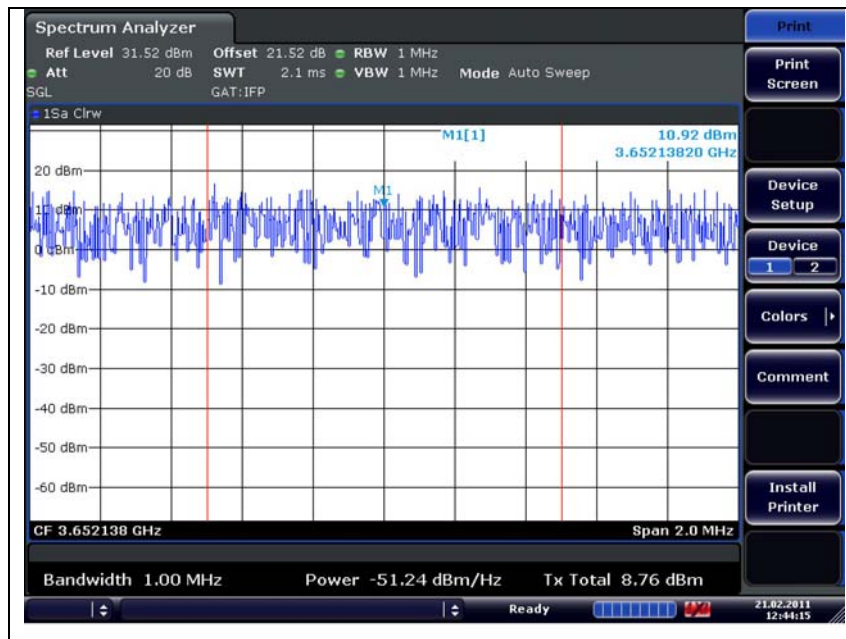
#### 4.4. Test result

Ambient temperature : (23 ± 2) °C  
Relative humidity : 46 % R.H.

- 5 MHz Bandwidth

Modulation	Carrier Frequency (MHz)	PPSD (dB m/MHz)	Limit (dB m/MHz)	Margin (dB)
QPSK 1/2	3 652.5	8.76	16	7.24
	3 675.0	9.47		6.53
	3 697.5	9.38		6.62

Low channel



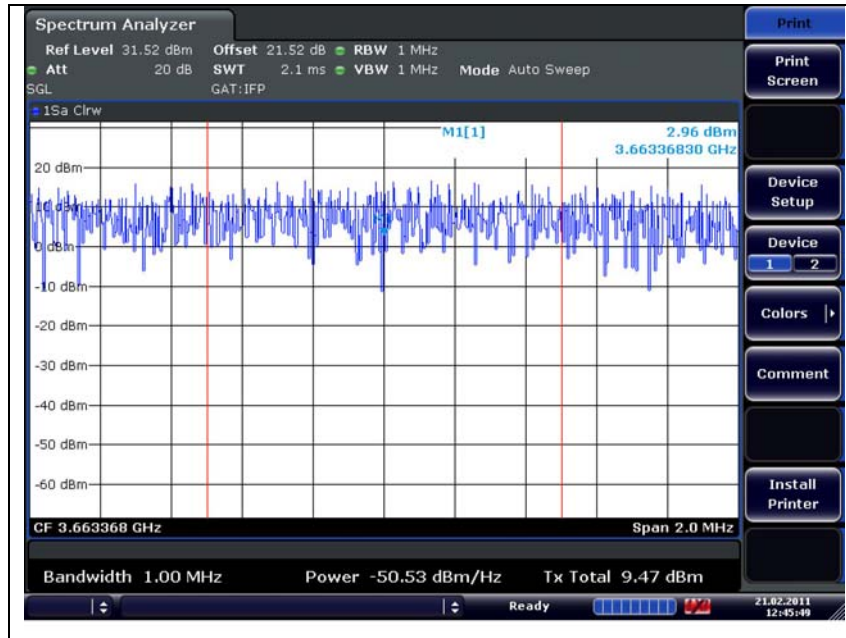
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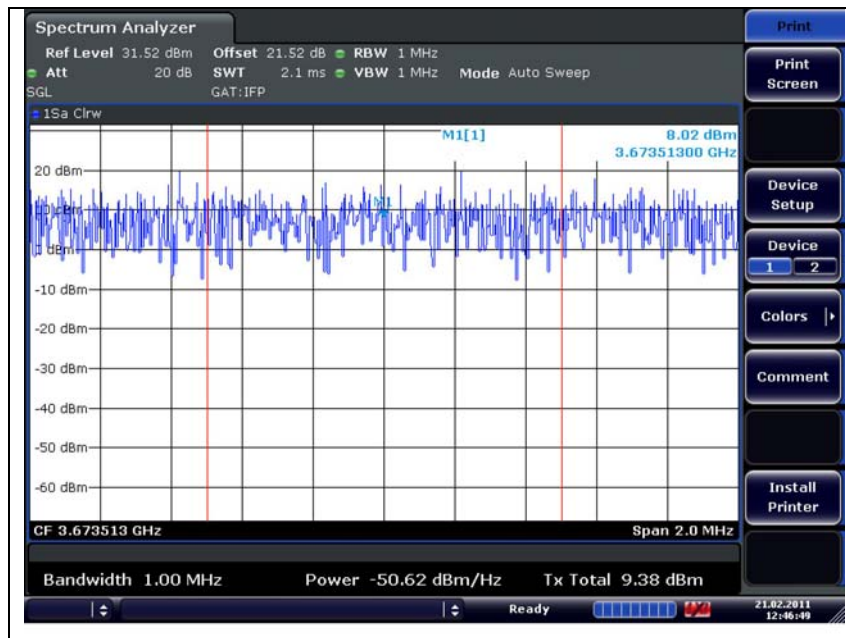
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Middle channel



High channel



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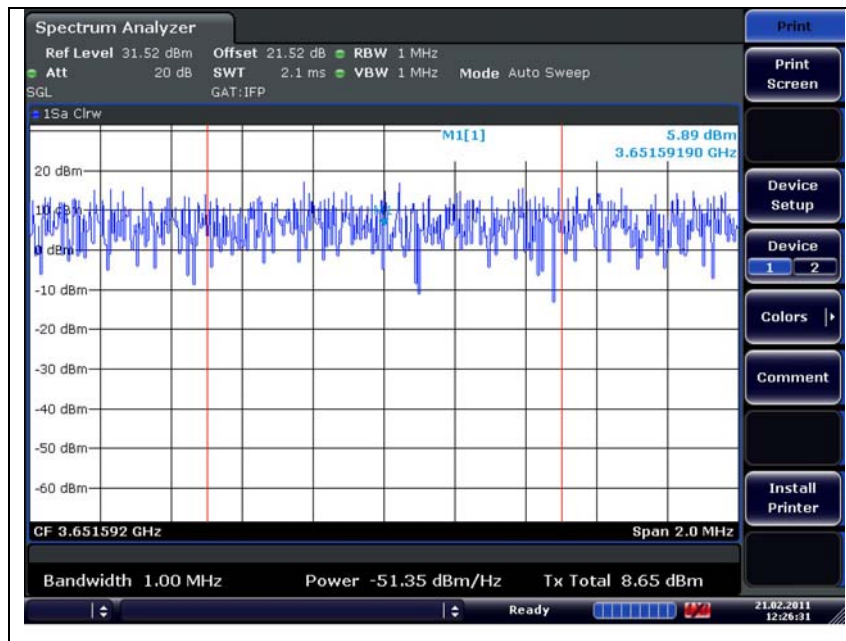
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- 10 MHz Bandwidth

Modulation	Carrier Frequency (MHz)	PPSD (dB m/MHz)	Limit (dB m/MHz)	Margin (dB)
16QAM 1/2	3 655	8.65	16	7.35
	3 675	8.00		8.00
	3 695	8.95		7.05

Low channel



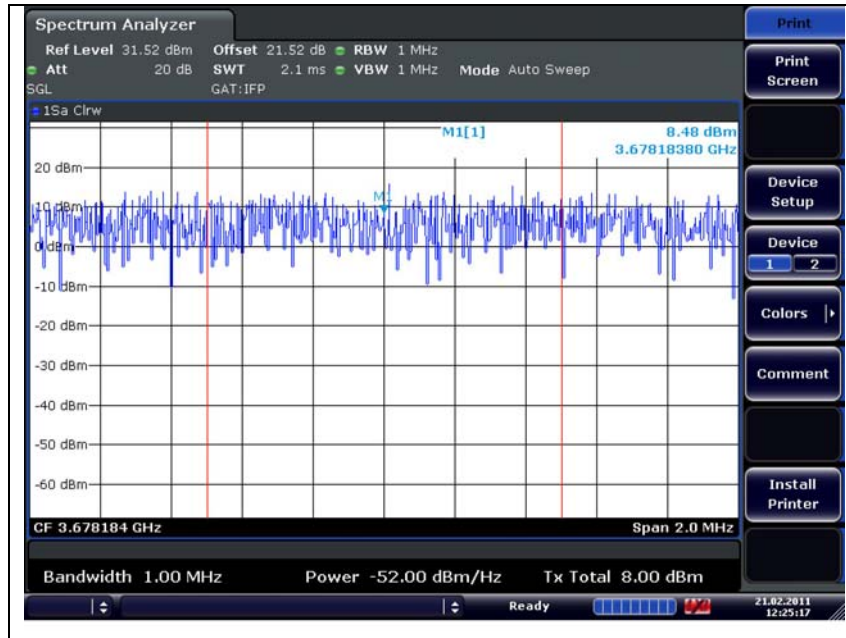
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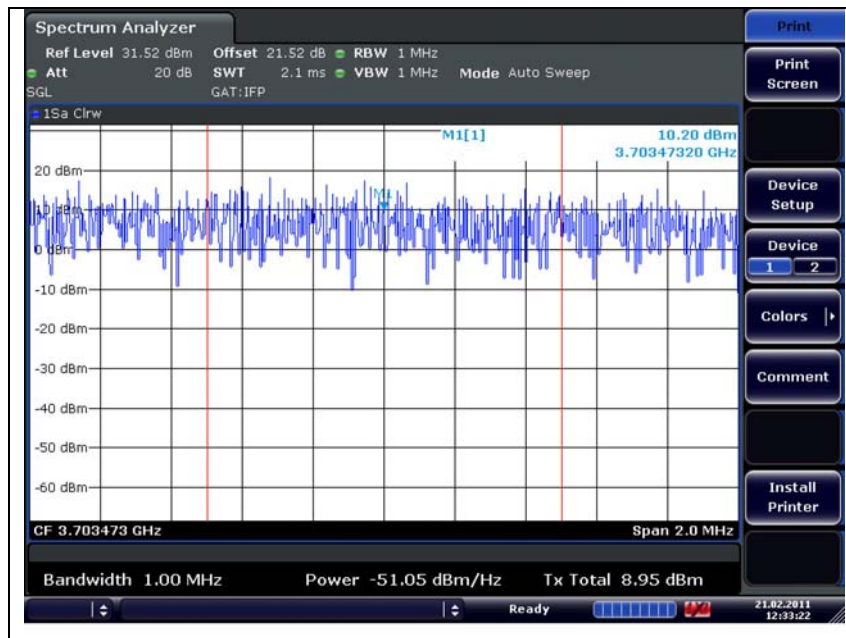
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Middle channel



High channel



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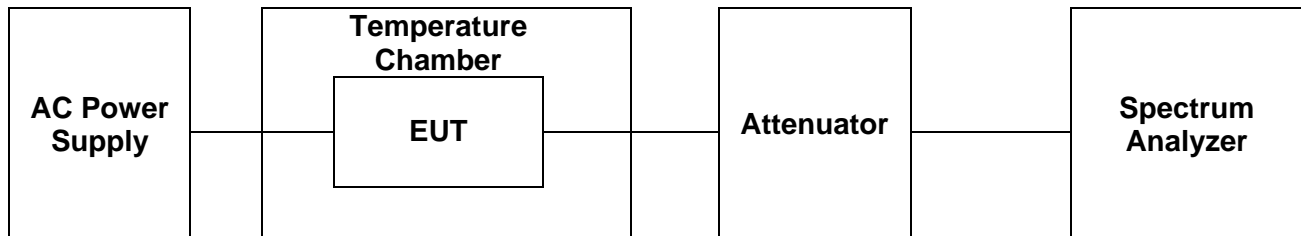
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## 5. Frequency Stability; Temperature Variations, and Voltage Variations

### 5.1. Test setup



### 5.2. Limit

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency bands of operation.

### 5.3. Test procedure

The transmitter output was connected to a spectrum analyzer and the frequency stability was measured in a modulated operational mode as the transmitter could not operate Continuous Wave (CW). Further there was no carrier breakthrough available to provide a measurement point. Frequency error was measured using the 6 dB points on the spectrum mask and center frequency calculated as Marker 1 + ½ Delta Marker 1. Frequency stability was measured through the extremes of temperature on the mid channel only. Before measurements were taken at each temperature the equipment waited until thermal balance was obtained.

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## 5.4. Test result

Ambient temperature : (23 ± 2) °C  
Relative humidity : 46 % R.H.

- 5 MHz Bandwidth

Reference Frequency: 3 675.0 MHz, Limit: ±10 ppm				
Environment Temperature (℃)	Power Supplied (Vac)	Frequency Measure with Time Elapse		
		Frequency Error(kHz)	ppm	Limit ±(kHz)
23(Ref.)	120	-1.3	-0.35	36.750
50		2.6	0.71	36.750
40		2.8	0.76	36.750
30		-1.1	-0.30	36.750
10		-1.5	-0.41	36.750
0		-1.4	-0.38	36.750
-10		-1.4	-0.38	36.750
-20		-2.6	-0.71	36.750
-30		-2.2	-0.60	36.750
High(115%)		-1.5	-0.41	36.625
Low(85%)		-1.5	-0.41	36.625

- 10 MHz Bandwidth

Reference Frequency: 3 675 MHz, Limit: ±10 ppm				
Environment Temperature (℃)	Power Supplied (Vac)	Frequency Measure with Time Elapse		
		Frequency Error(kHz)	ppm	Limit ±(kHz)
23(Ref.)	120	-1.6	-0.44	36.750
50		2.3	0.63	36.750
40		2.6	0.71	36.750
30		-1.2	-0.33	36.750
10		-1.4	-0.38	36.750
0		-1.7	-0.46	36.750
-10		-1.7	-0.46	36.750
-20		-2.7	-0.73	36.750
-30		-2.4	-0.65	36.750
High(115%)		-1.5	-0.41	36.750
Low(85%)		-1.6	-0.44	36.750

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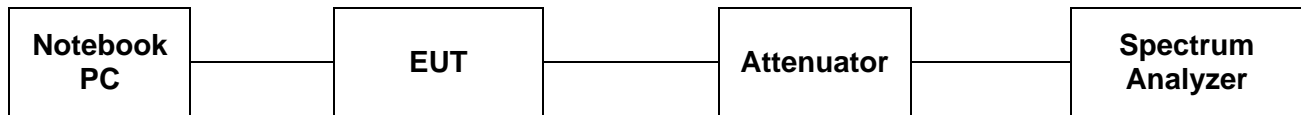
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## 6. Transmitter Conducted Emissions Mask

### 6.1. Test setup



### 6.2. Limit

- (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
- (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
- (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least  $43 + 10 \log (P)$  dB.

### 6.3. Test procedure

The emissions mask was measured with a spectrum analyzer connected to RF antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency. The analyzer center frequency was set to the EUT carrier frequency, using the analyzer. . The emissions mask was determined

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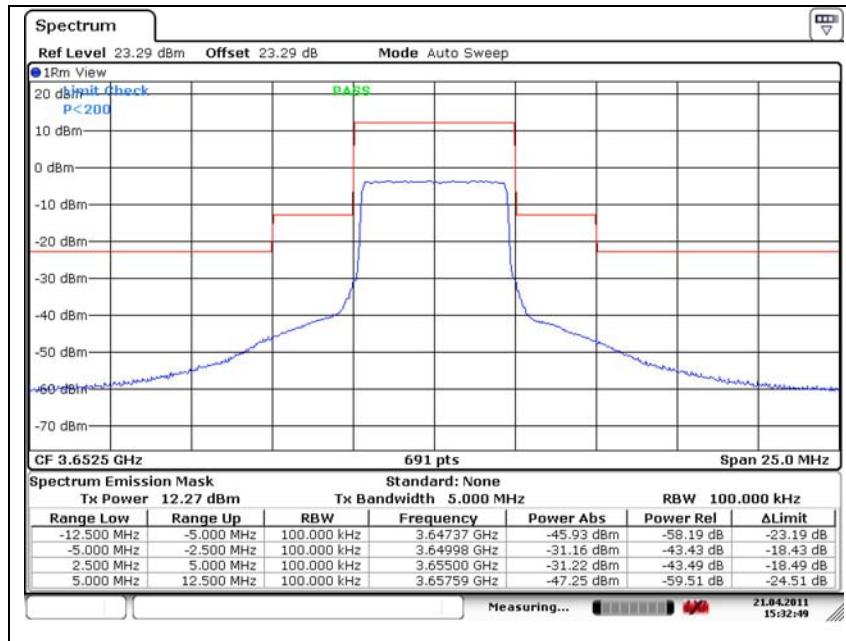
## 6.4. Test result

Ambient temperature : (23 ± 2) °C

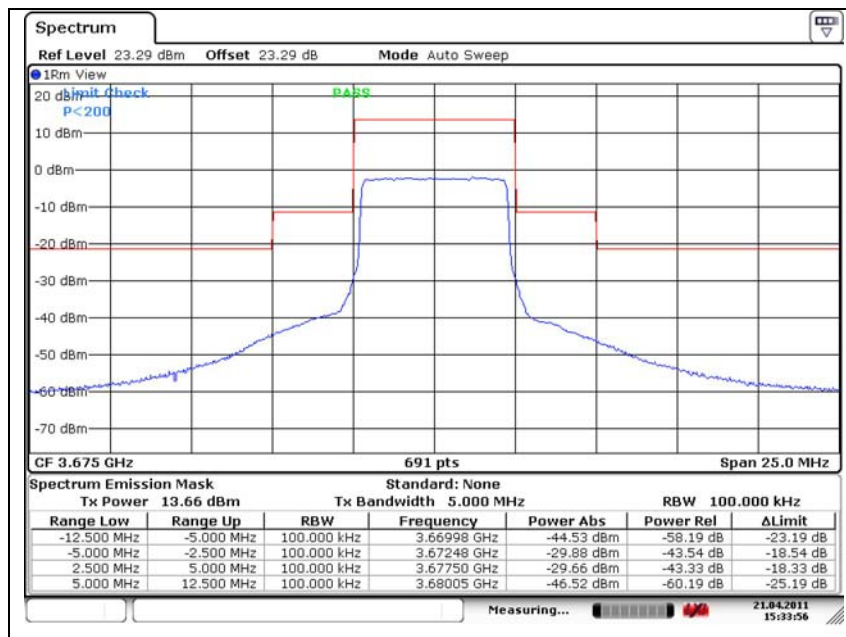
Relative humidity : 46 % R.H.

- 5 MHz Bandwidth

Low channel



Middle channel



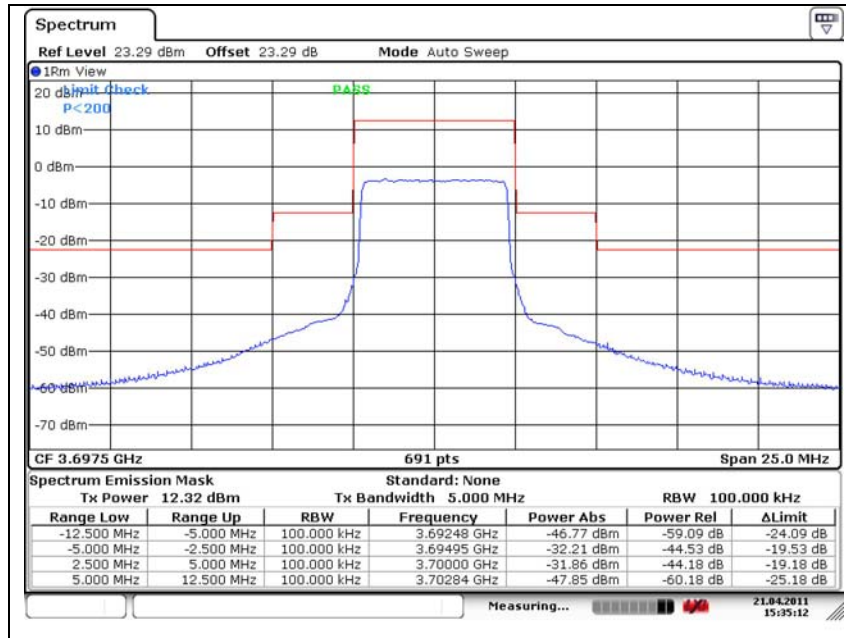
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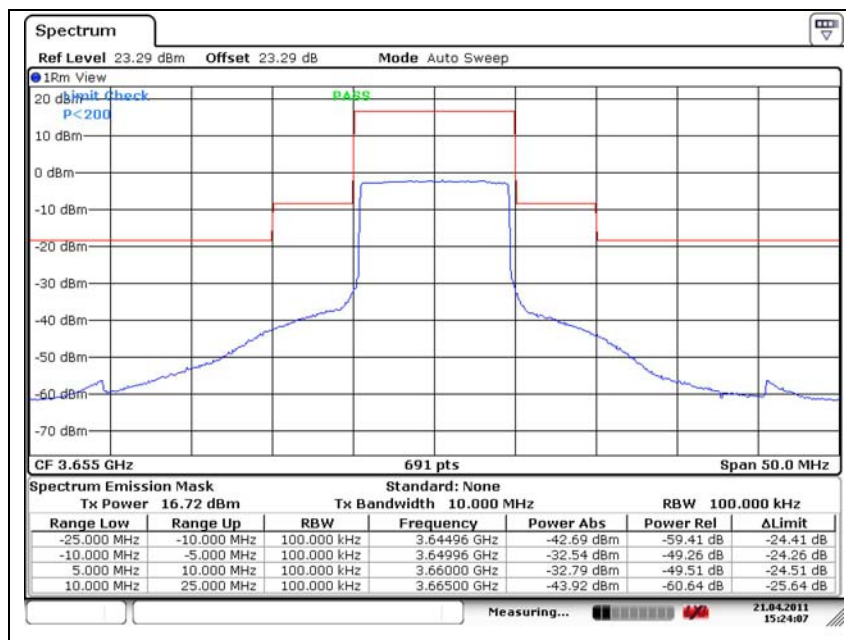
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High channel



- 10 MHz Bandwidth  
 Low channel



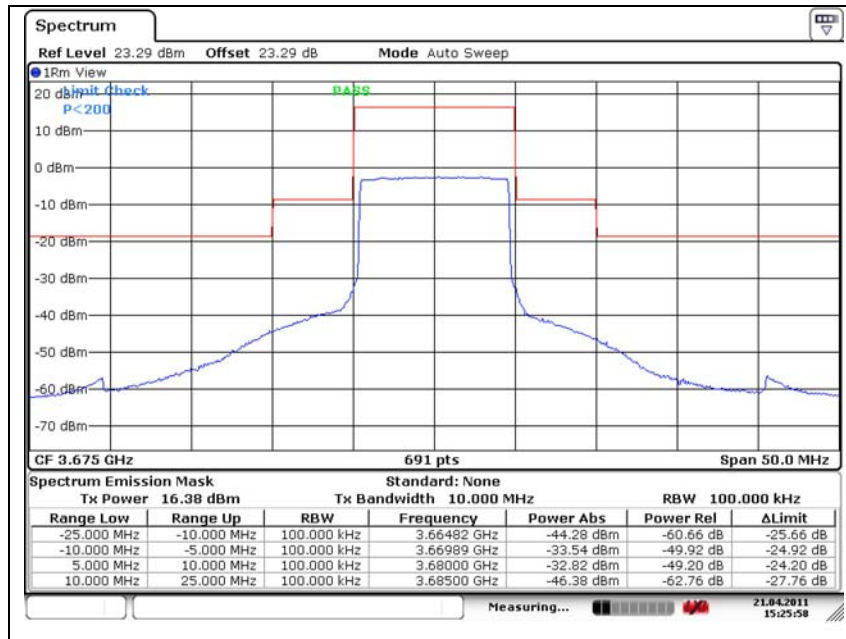
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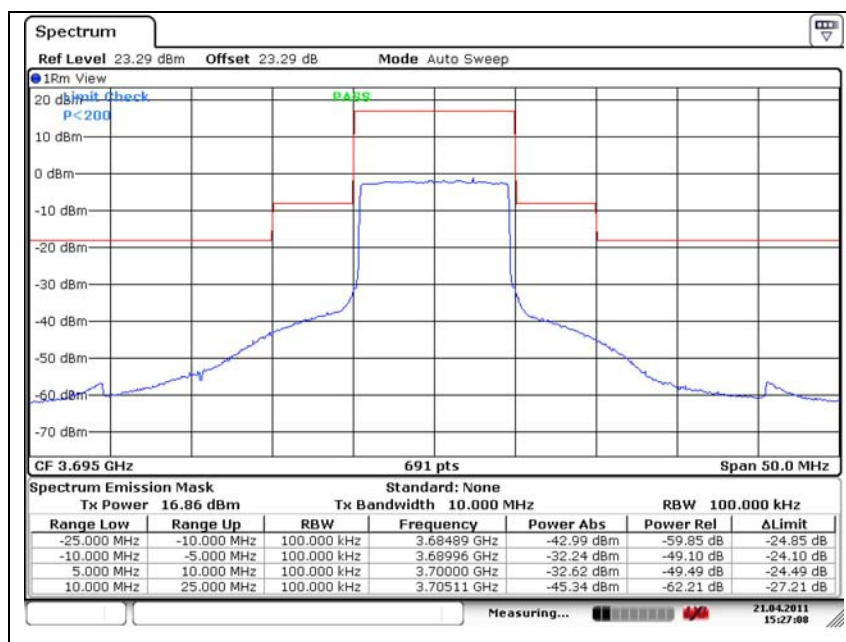
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Middle channel



High channel



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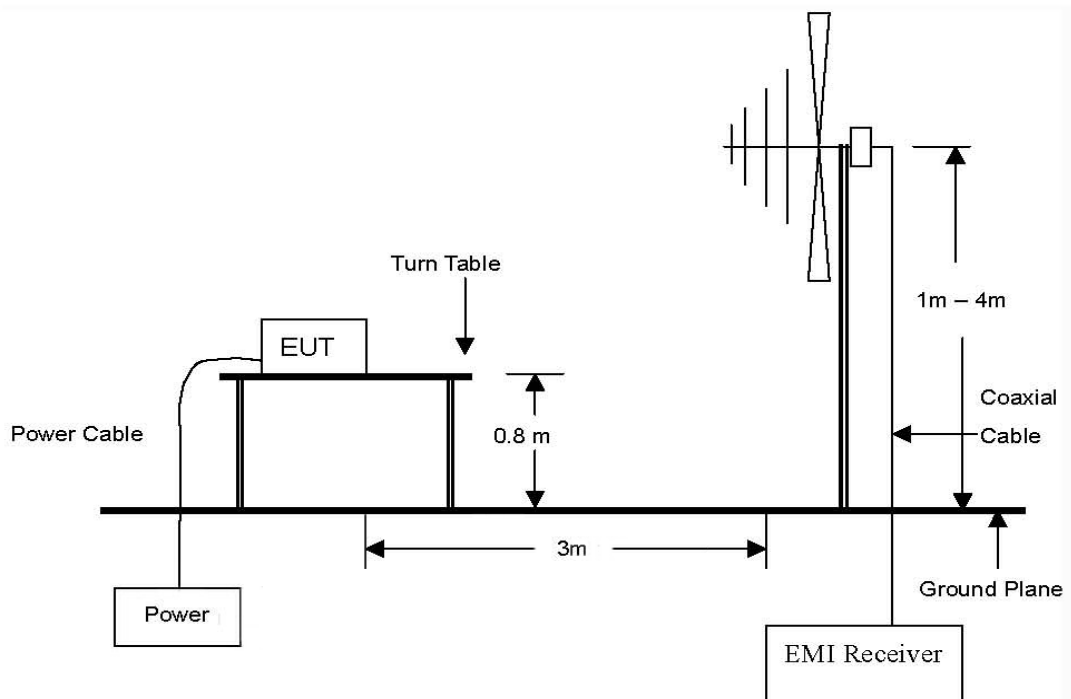
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## 7. Transmitter radiated spurious emissions and Spurious emissions at antenna terminals

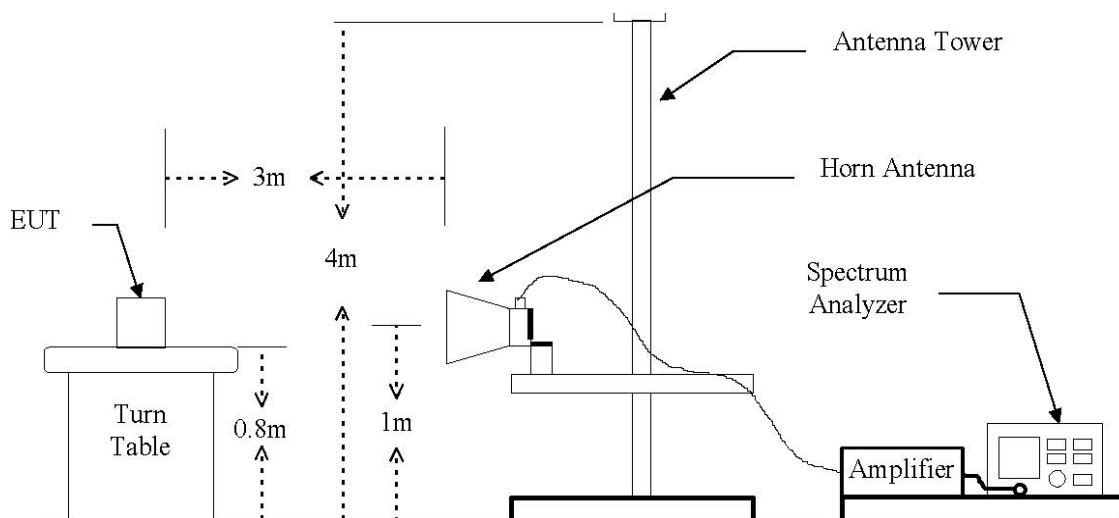
### 7.1. Test setup

#### 7.1.1. Transmitter radiated spurious emissions

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.

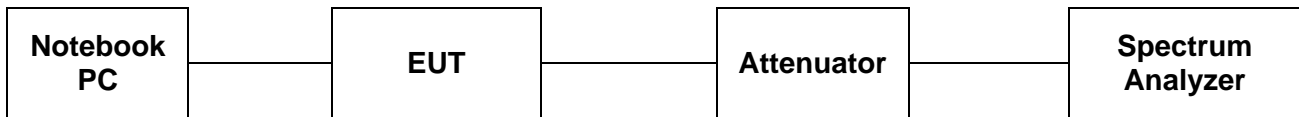


The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 24 GHz Emissions.



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### 7.1.2. Spurious emissions at antenna terminals



### 7.2. Limit

For operation in the 3 650 ~ 3 700 MHz band the power of any emission outside the frequency band of operation shall be attenuated below the transmitter power (P) within the licensed band of operation, measured in Watts, by at least  $43 + 10 \cdot \log(P) = -13 \text{ dB m}$

### 7.3. Test procedure

Radiated emissions from the EUT were measured according to the dictates of ANSI C63.4:2003

#### 7.3.1. Test procedures for radiated spurious emissions

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission below 1 GHz, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 GHz, the EUT was set 3 meter away from the interference-receiving antenna.
3. The antenna is a broad dB and antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

#### ■ Note

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Peak detection (PK) or Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1 GHz.

#### 7.3.2. Test procedures for spurious emissions at antenna terminals

Transmitter conducted spurious emissions were measured for QPSK 1/2, 16QAM 1/2 modulation state only. Measurement were made while EUT was operating in a modulated transmit mode of operation, at the appropriate center frequency. Conducted spurious emissions were measured to 40 GHz in a peak hold mode.

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## 7.4. Test result

Ambient temperature : (23 ± 2) °C  
Relative humidity : 46 % R.H.

### 7.4.1. Spurious radiated emission

The frequency spectrum above 30 MHz was investigated. Emission levels are not reported much lower than the limits by over 30 dB. All reading values are peak values.

#### - 5 MHz Bandwidth(Worst case configuration\_QPSK 1/2 mode)

##### A. Low Channel (3 652.5 MHz)

Frequency (MHz)	Polarization (H/V)	C.L (dB)	SG level+ Amp. (dB m)	Ant. gain (dB d)	E.R.P. (dB m)	Limit	Margin (dB)
Below 1 000.00	-	-	-	-	Not detected	-	-
7 304.62	H	11.08	-31.20	7.98	-34.31	-13.00	21.31
Above 7 400.00	-	-	-	-	Not detected	-	-

##### B. Middle Channel (3 675.0 MHz)

Frequency (MHz)	Polarization (H/V)	C.L (dB)	SG level+ Amp. (dB m)	Ant. gain (dB d)	E.R.P. (dB m)	Limit	Margin (dB)
Below 1 000.00	-	-	-	-	Not detected	-	-
7 350.87	H	11.02	-29.41	8.00	-32.44	-13.00	19.44
Above 7 400.00	-	-	-	-	Not detected	-	-

##### C. High Channel (3 697.5 MHz)

Frequency (MHz)	Polarization (H/V)	C.L (dB)	SG level+ Amp. (dB m)	Ant. gain (dB d)	E.R.P. (dB m)	Limit	Margin (dB)
Below 1 000.00	-	-	-	-	Not detected	-	-
7 393.22	H	10.97	-32.08	8.01	-35.03	-13.00	22.03
Above 7 400.00	-	-	-	-	Not detected	-	-

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**- 10 MHz Bandwidth(Worst case configuration\_16QAM 1/2 mode)**
**B. Low Channel (3 655 MHz)**

Frequency (MHz)	Polarization (H/V)	C.L (dB)	SG level+ Amp. (dB m)	Ant. gain (dB d)	E.R.P. (dB m)	Limit	Margin (dB)
Below 1 000.00	-	-	-	-	Not detected	-	-
7 307.28	H	11.08	-30.51	7.98	-33.61	-13.00	20.61
Above 7 400.00	-	-	-	-	Not detected	-	-

**B. Middle Channel (3 675 MHz)**

Frequency (MHz)	Polarization (H/V)	C.L (dB)	SG level+ Amp. (dB m)	Ant. gain (dB d)	E.R.P. (dB m)	Limit	Margin (dB)
Below 1 000.00	-	-	-	-	Not detected	-	-
7 349.13	H	11.03	-32.56	8.00	-35.59	-13.00	22.59
Above 7 400.00	-	-	-	-	Not detected	-	-

**C. High Channel (3 695 MHz)**

Frequency (MHz)	Polarization (H/V)	C.L (dB)	SG level+ Amp. (dB m)	Ant. gain (dB d)	E.R.P. (dB m)	Limit	Margin (dB)
Below 1 000.00	-	-	-	-	Not detected	-	-
7 391.12	H	10.97	-30.70	8.01	-33.66	-13.00	20.66
Above 7 400.00	-	-	-	-	Not detected	-	-

## Remarks ;

1. Measuring frequencies from 1 GHz to the 10<sup>th</sup> harmonic of highest fundamental Frequency.
2. Radiated emissions measured in frequency above 30 MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Actual = Reading + AF + Amp Gain + CL
5. Worst case is XZ-plane.

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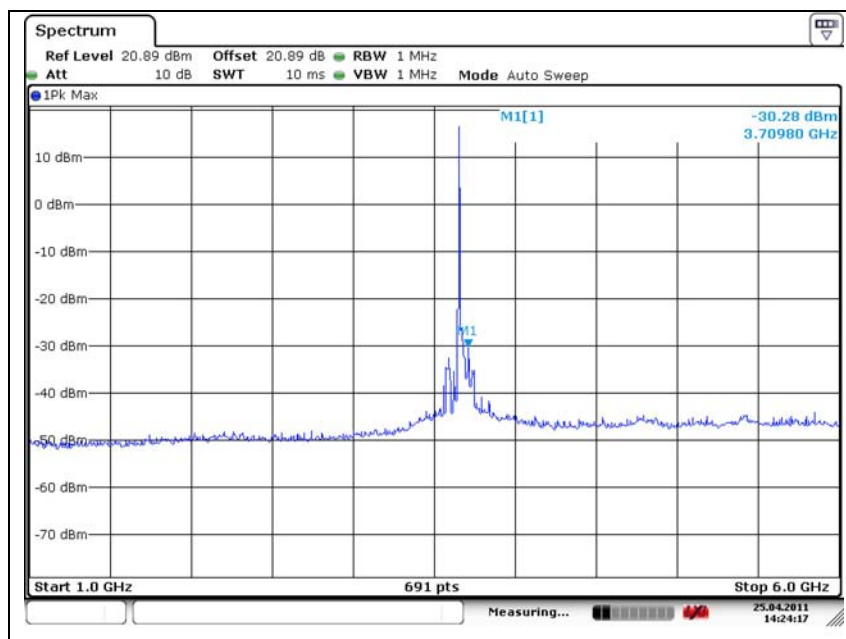
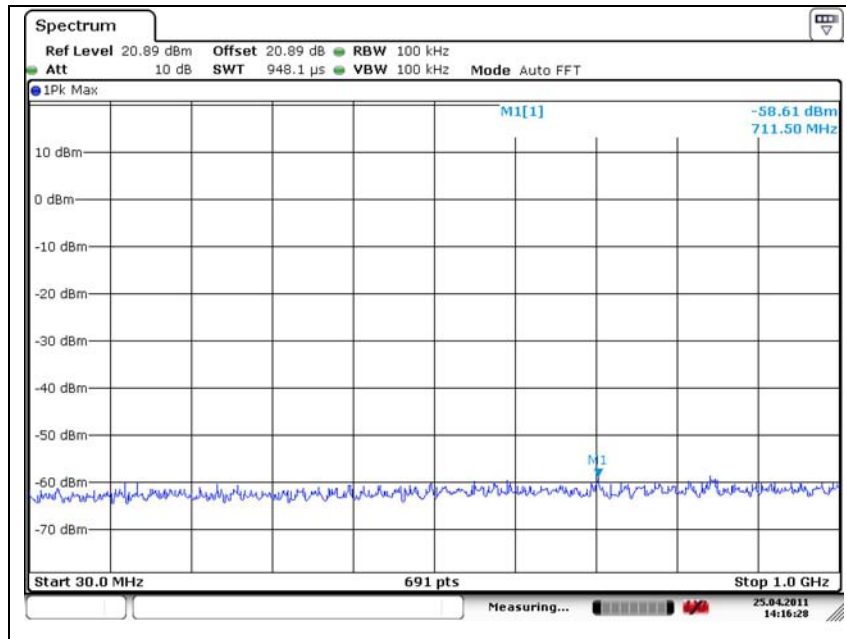
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## 7.4.2. Spurious emissions at antenna terminals

- 5 MHz bandwidth(Worst case configuration\_QPSK 1/2 mode)

- Mode : QPSK 1/2  
Low Channel

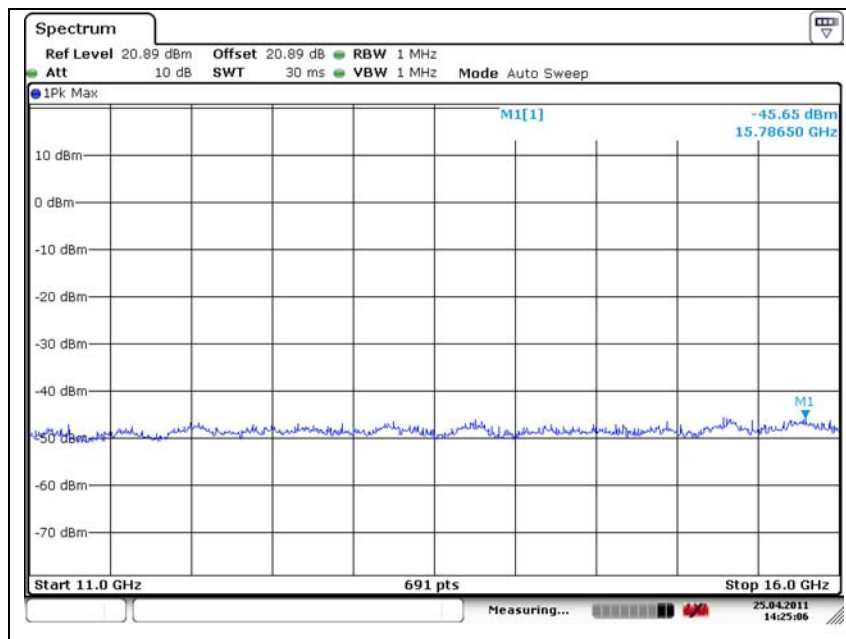
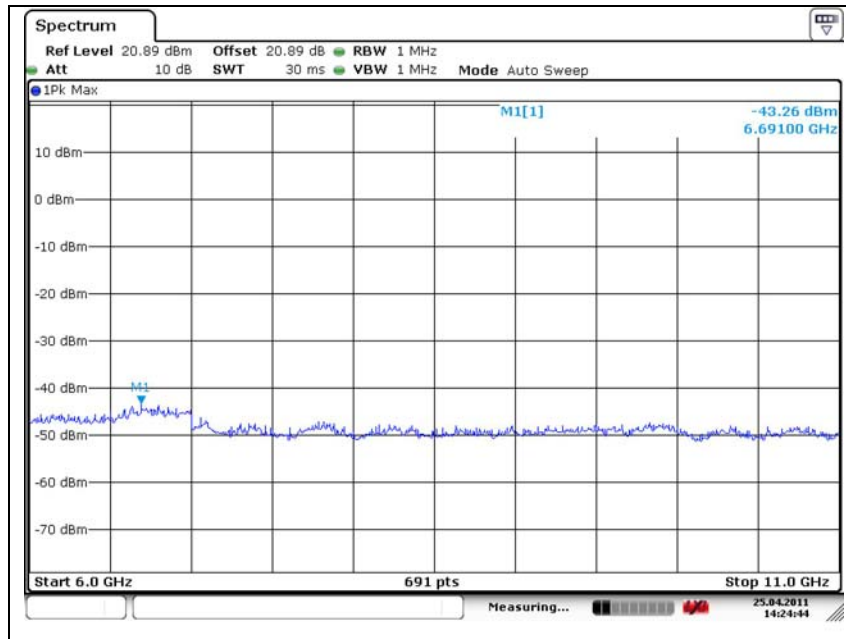


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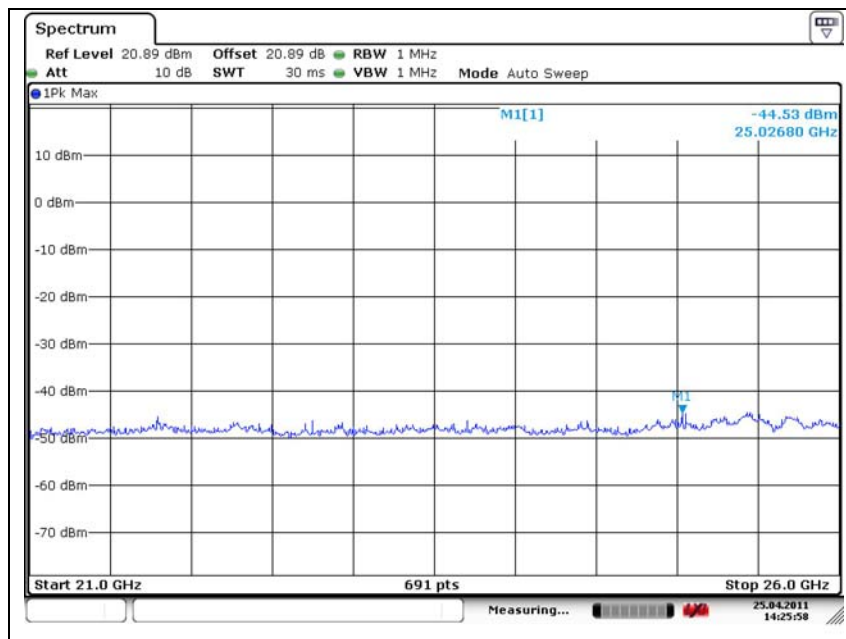
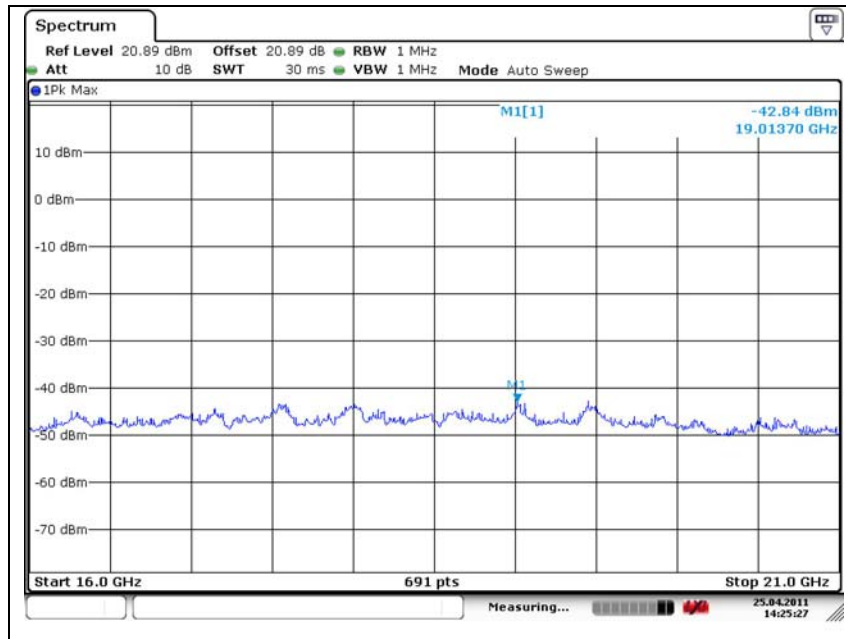


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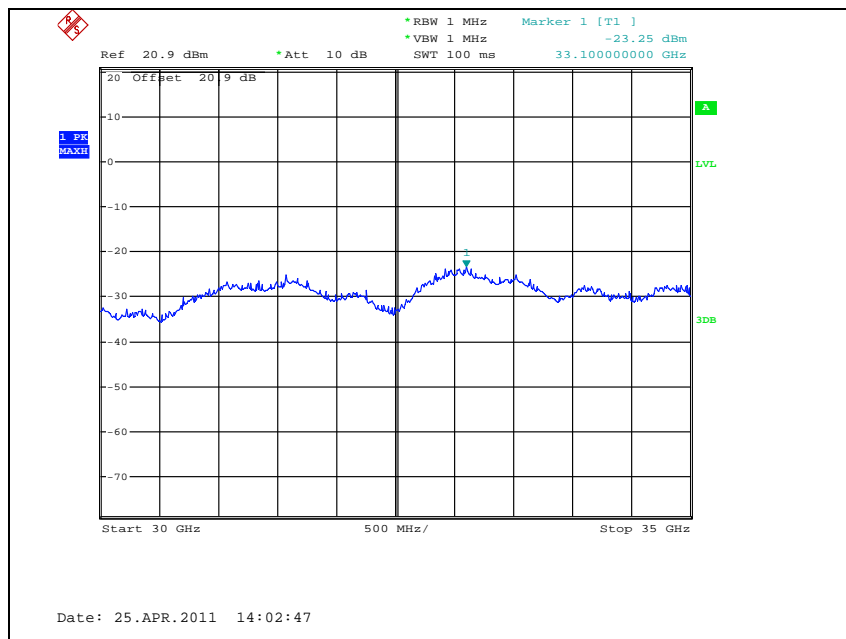
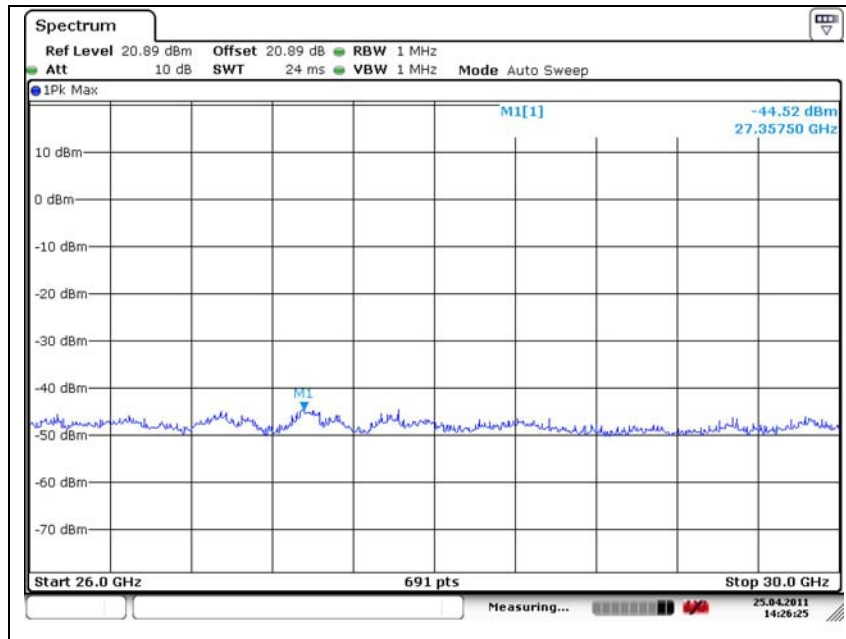


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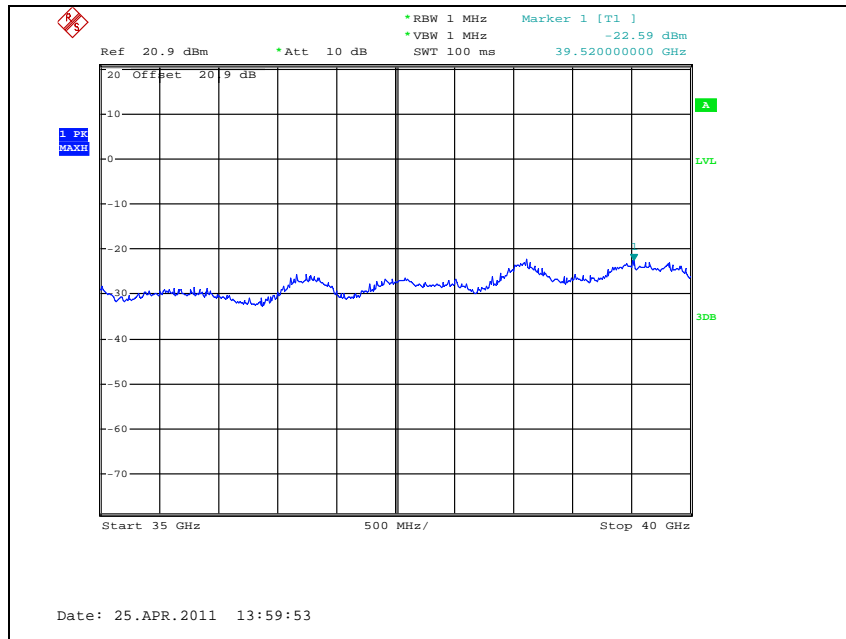


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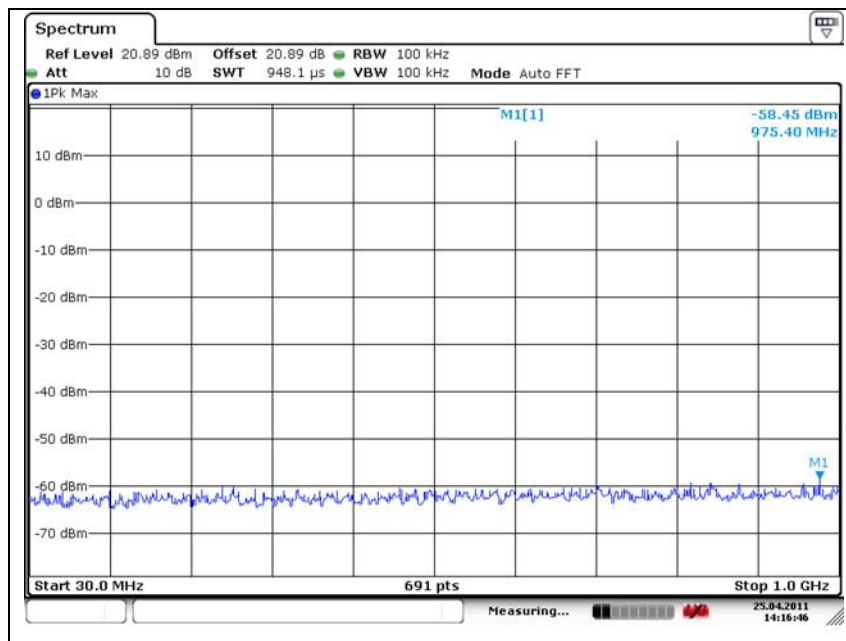
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Middle Channel

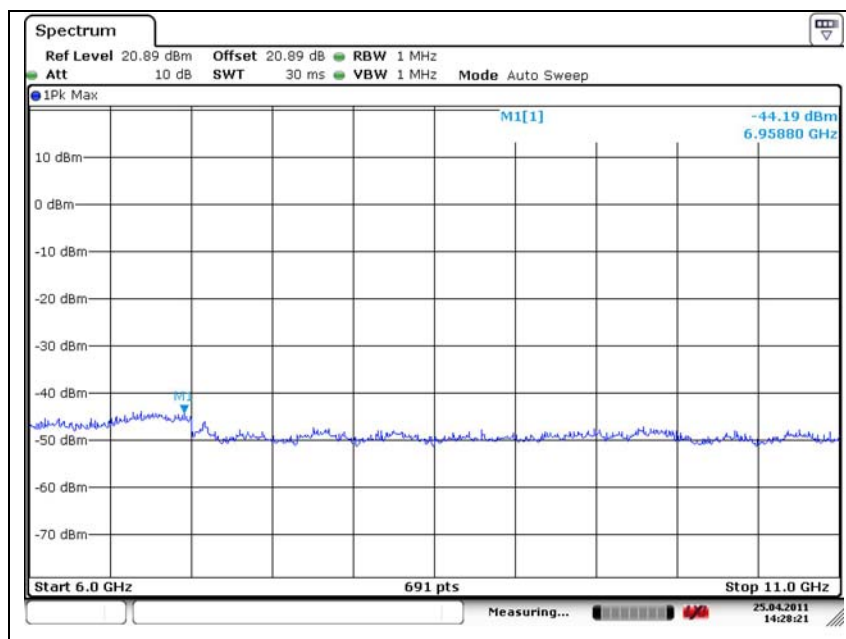
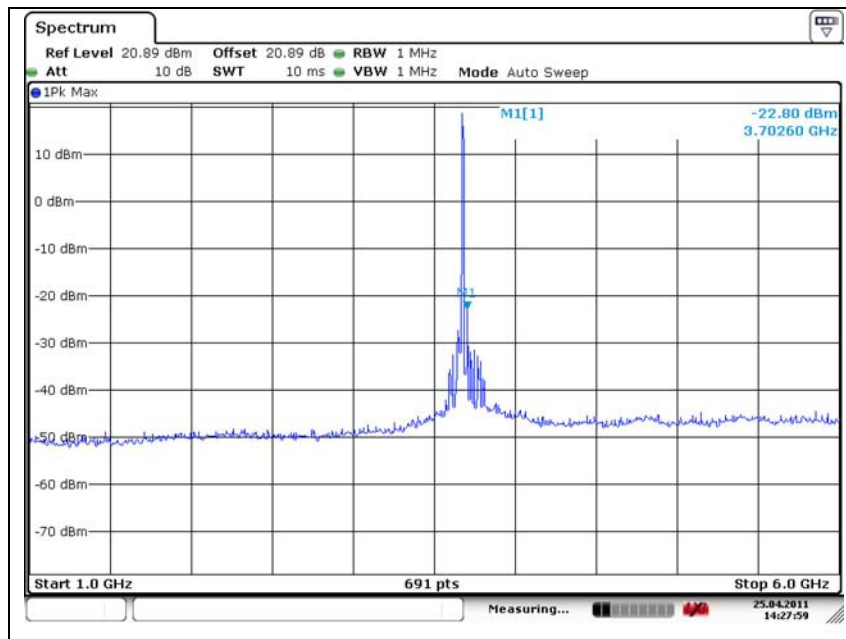


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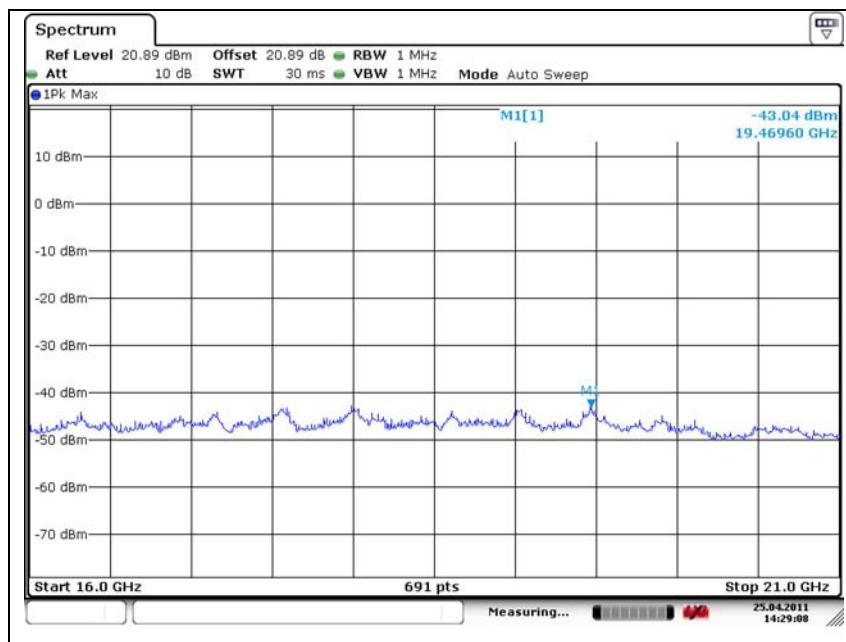
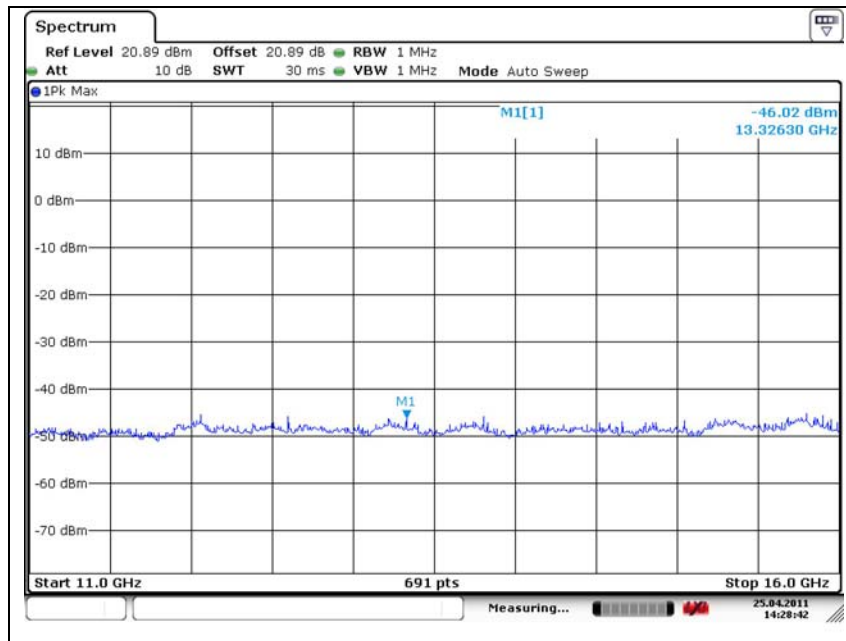


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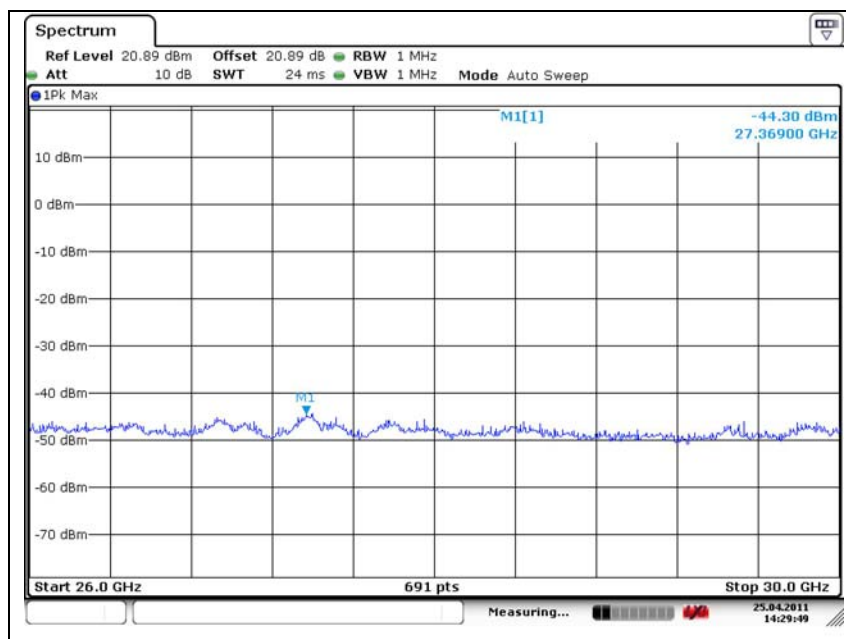
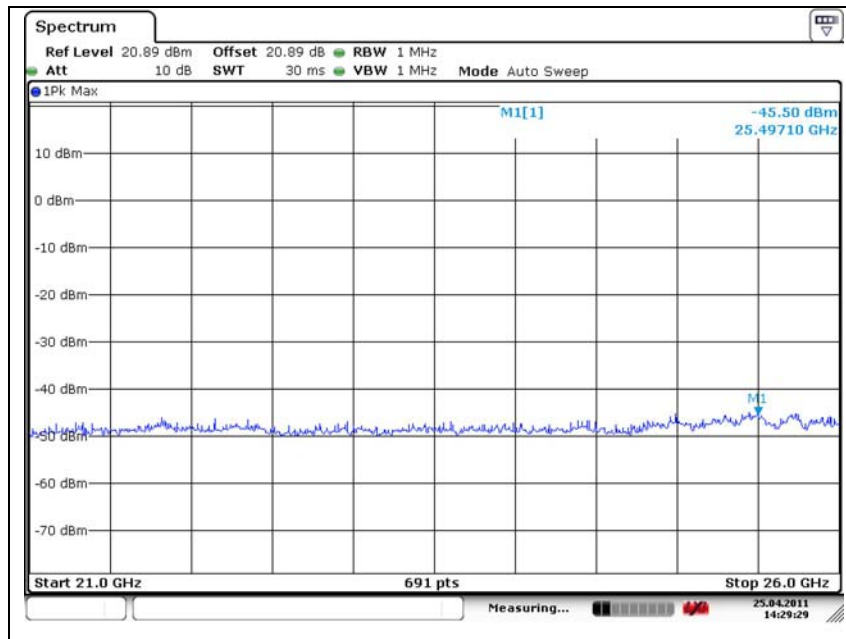
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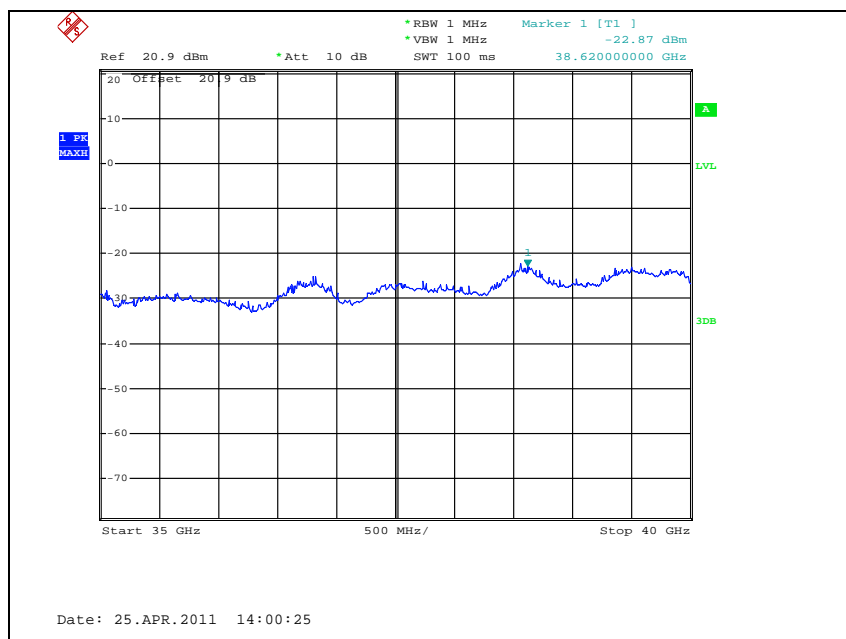
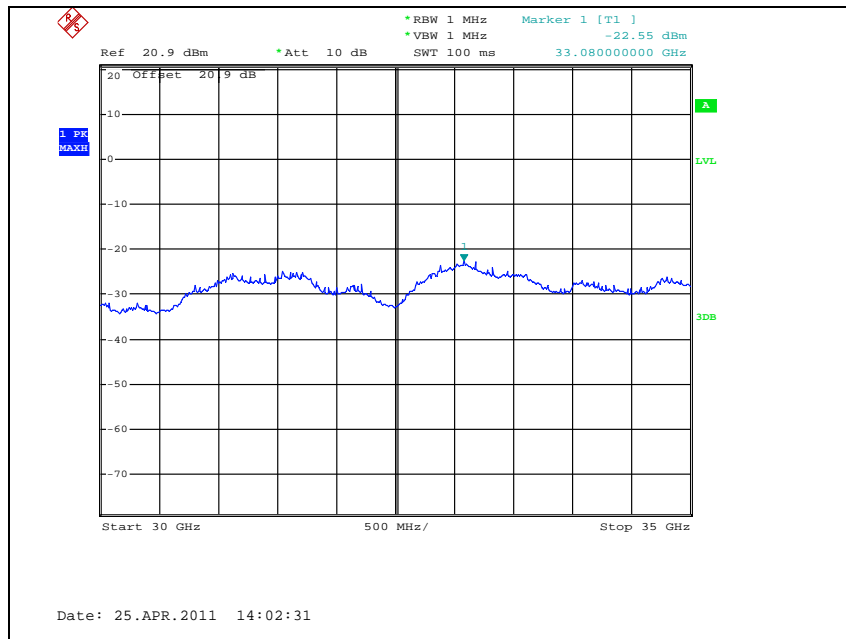


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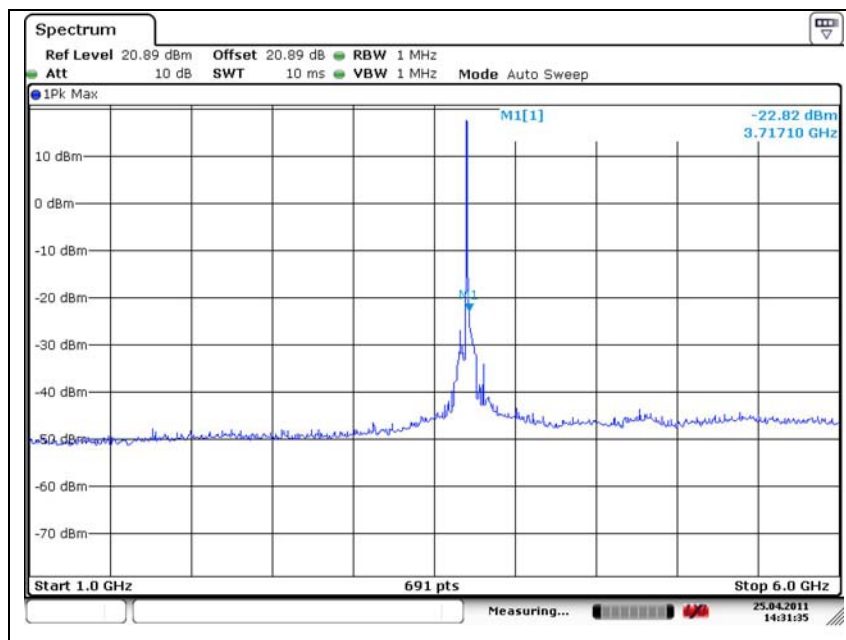
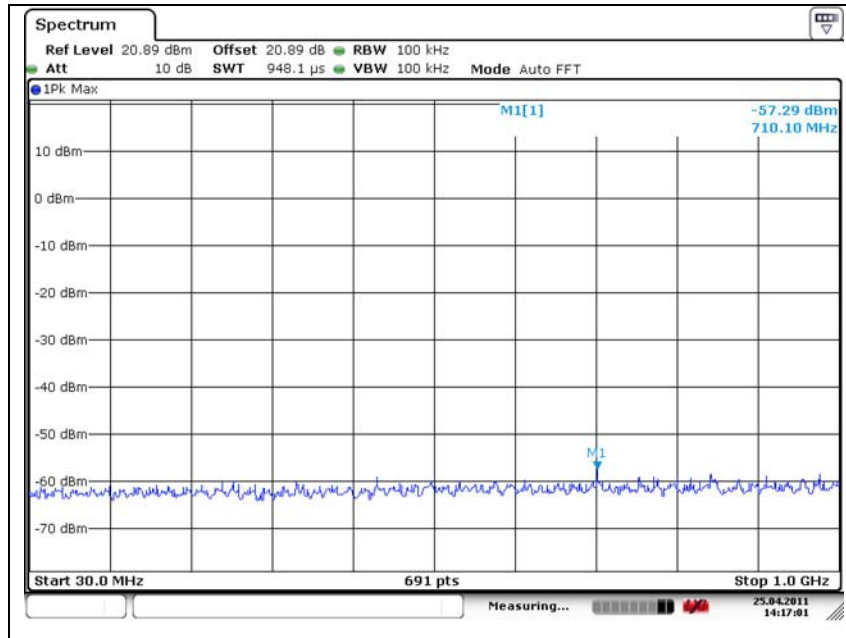
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## High Channel

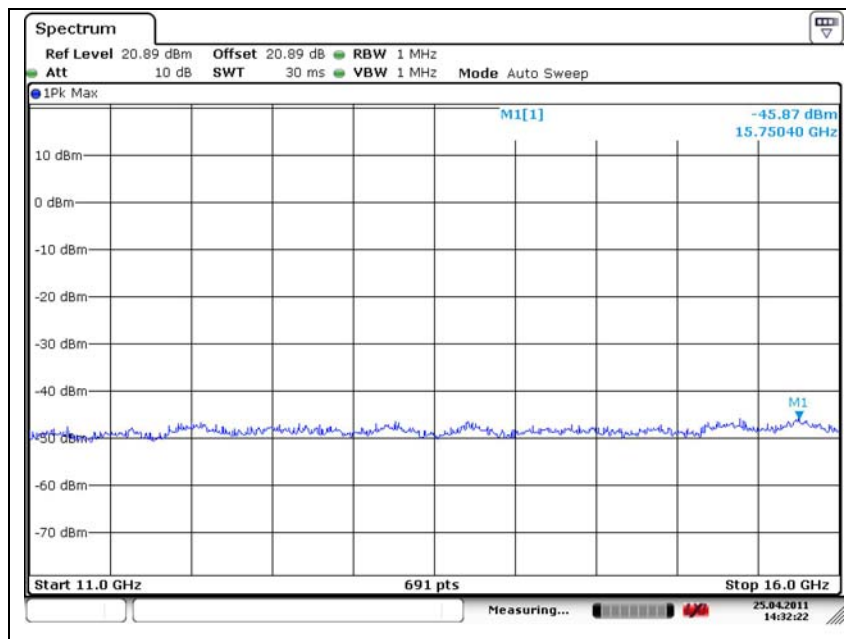
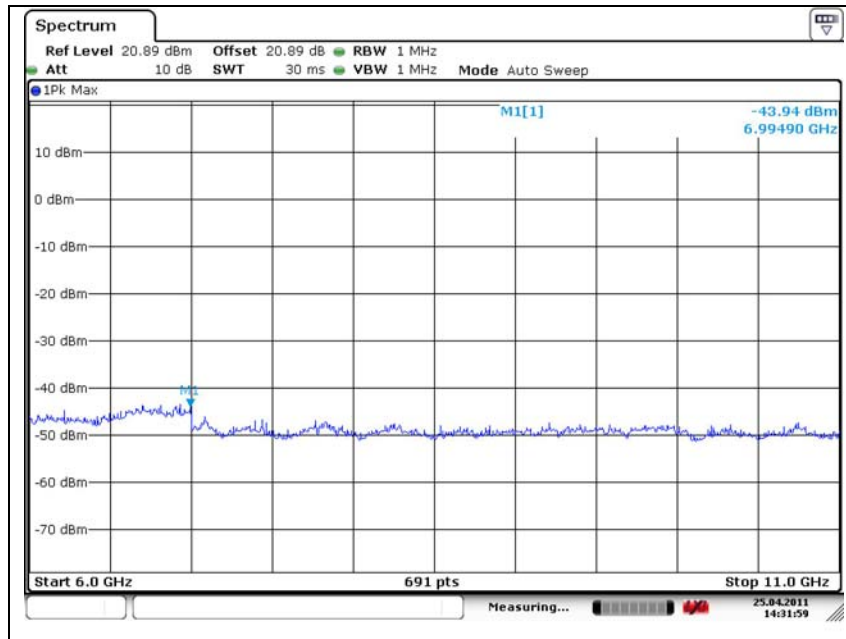


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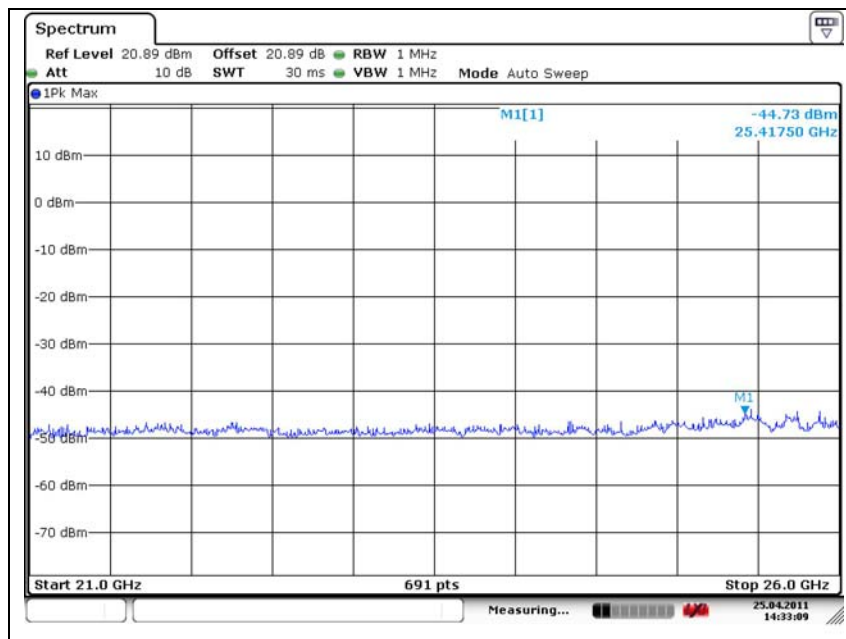
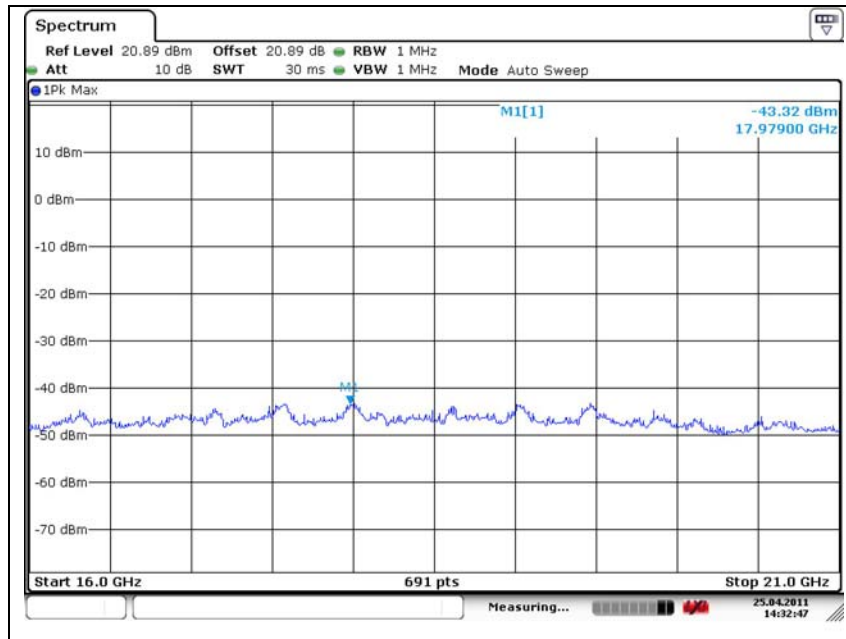


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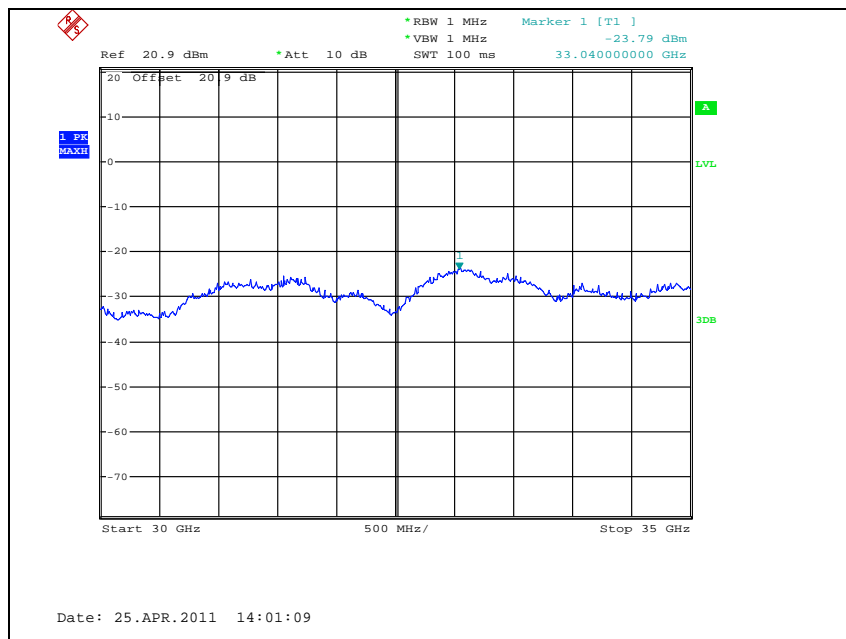
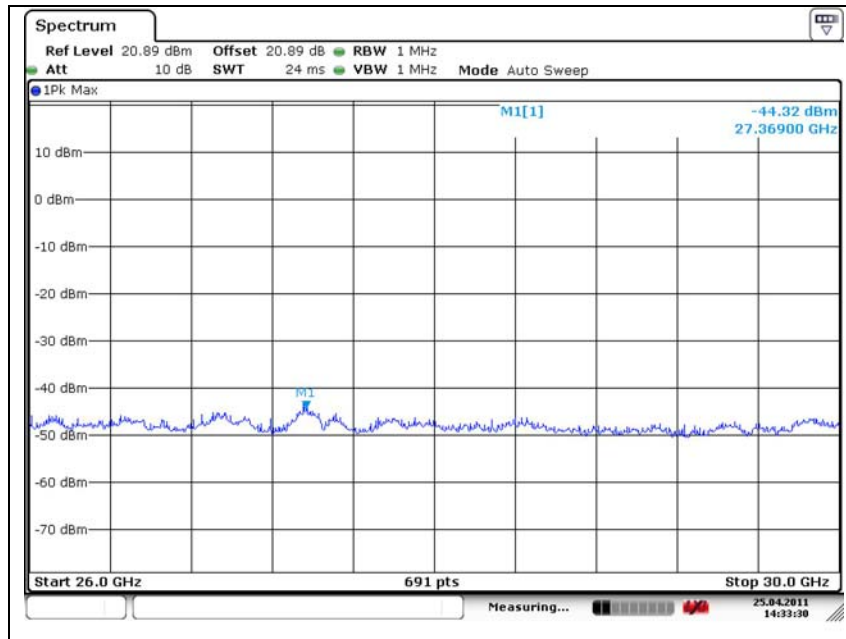


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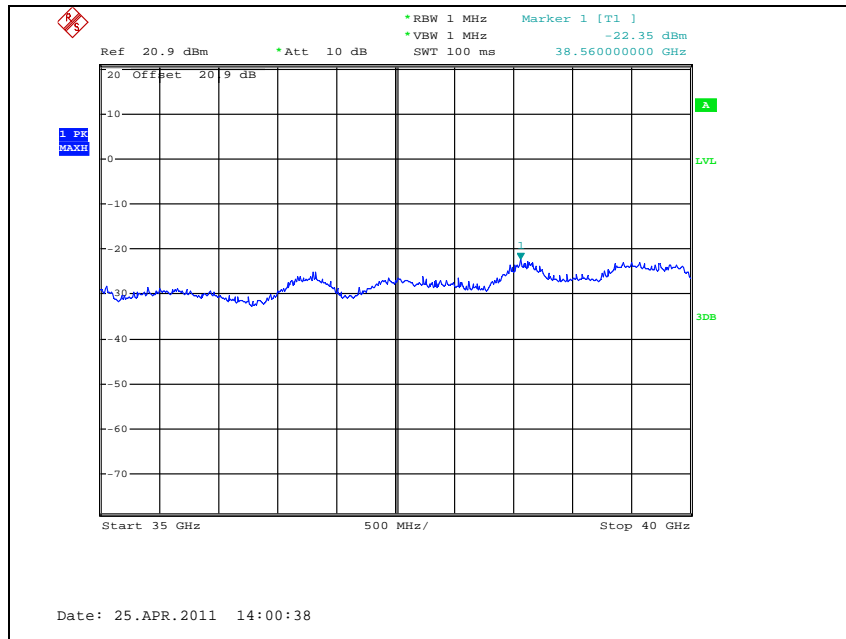


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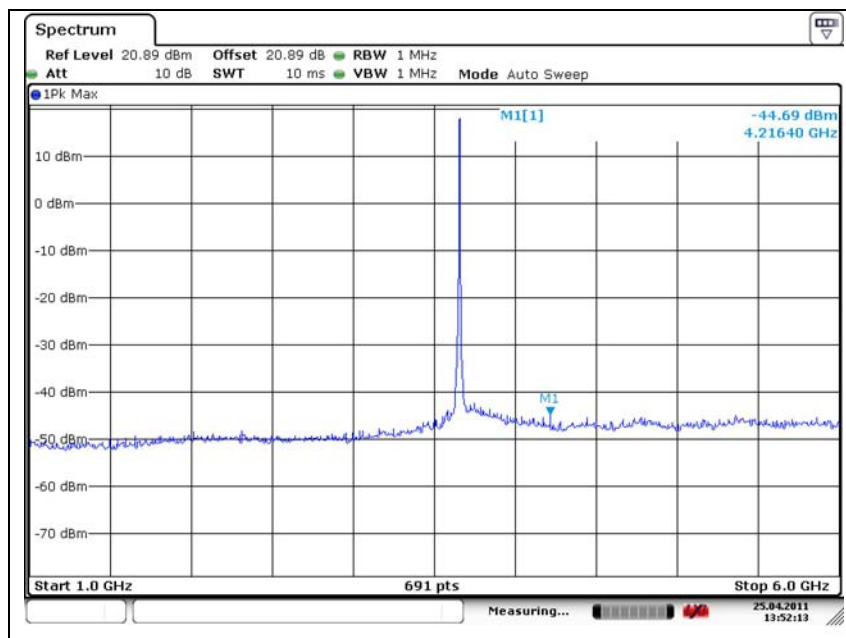
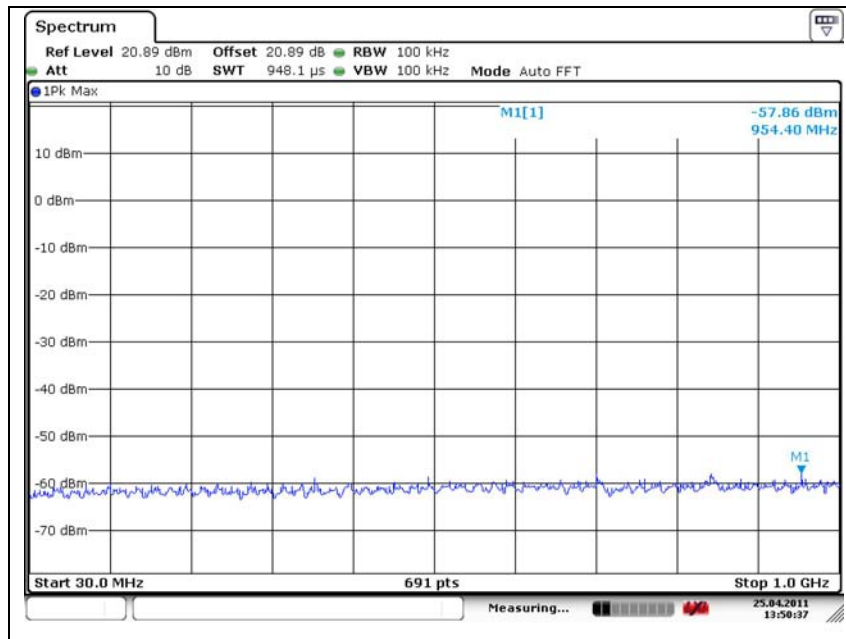
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- 10 MHz bandwidth(Worst case configuration\_16QAM 1/2 mode)

- Mode : 16QAM 1/2

Low Channel

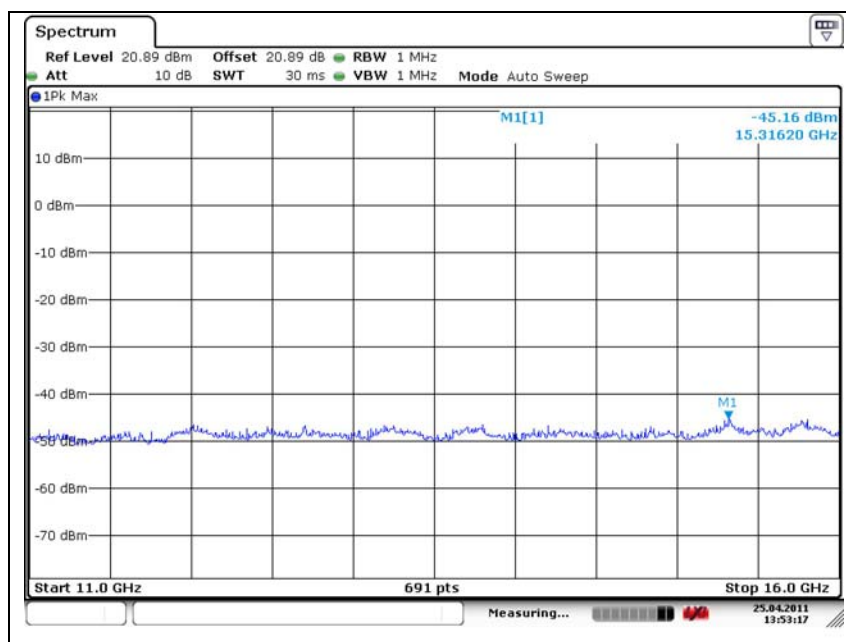
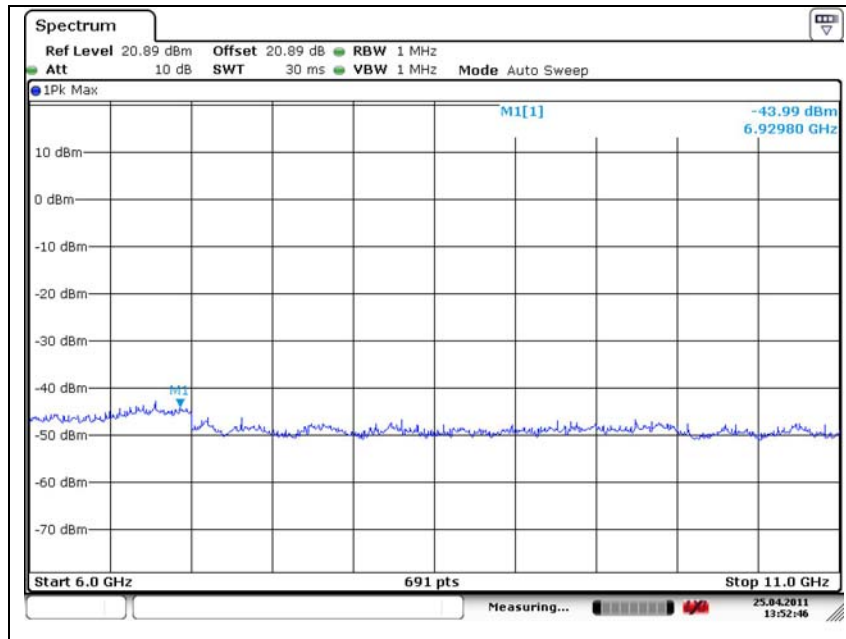


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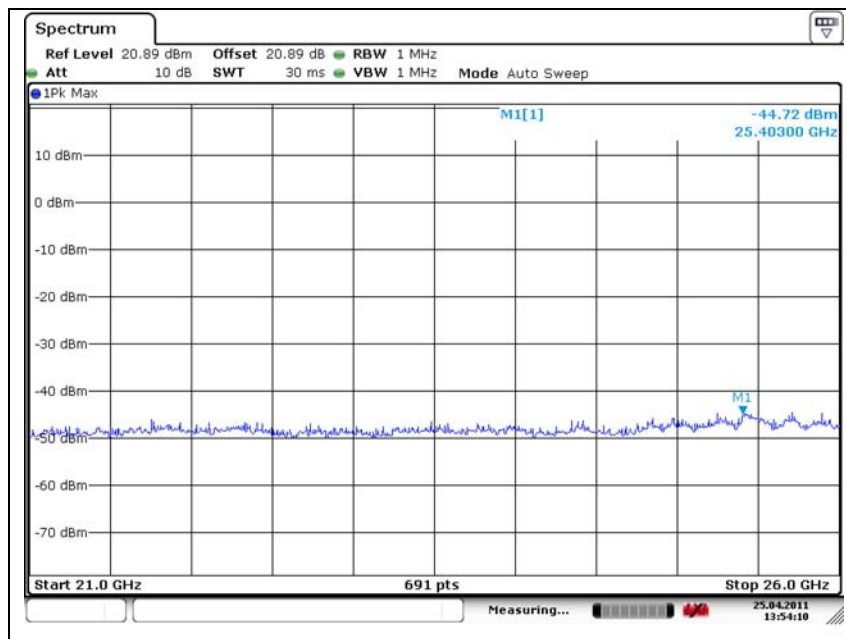
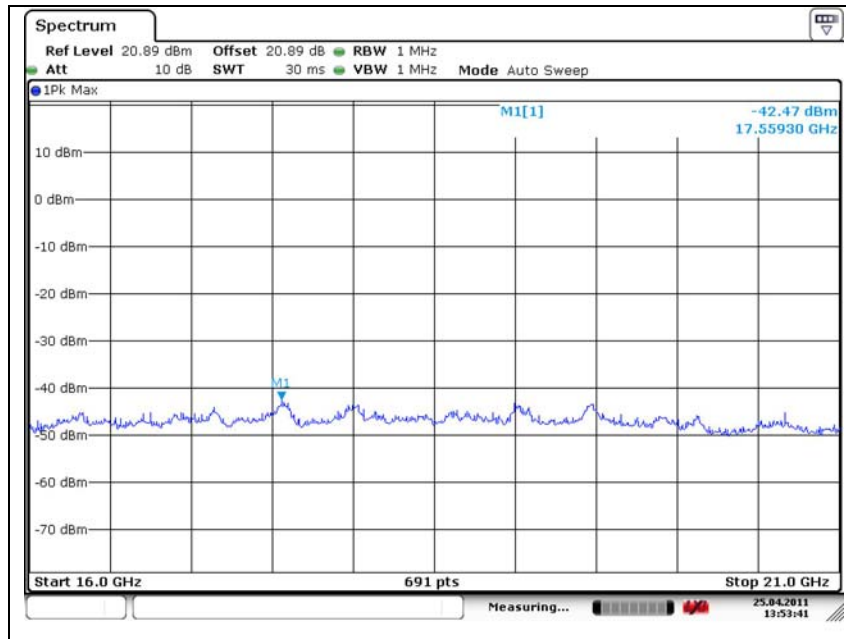


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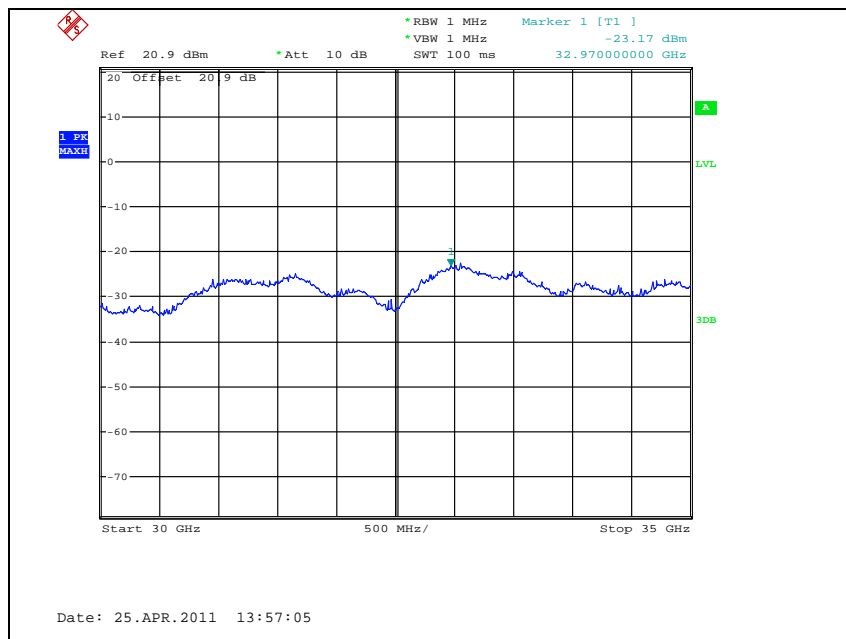
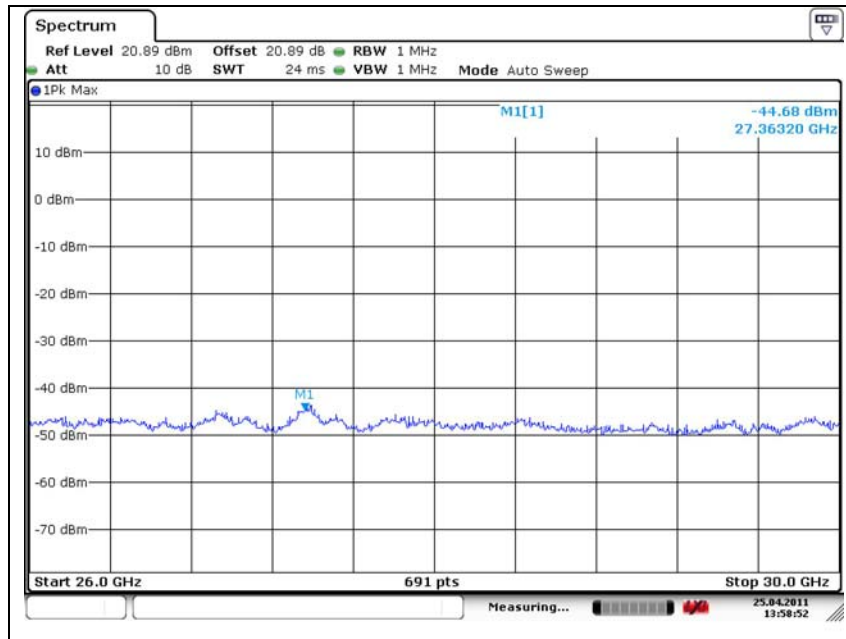


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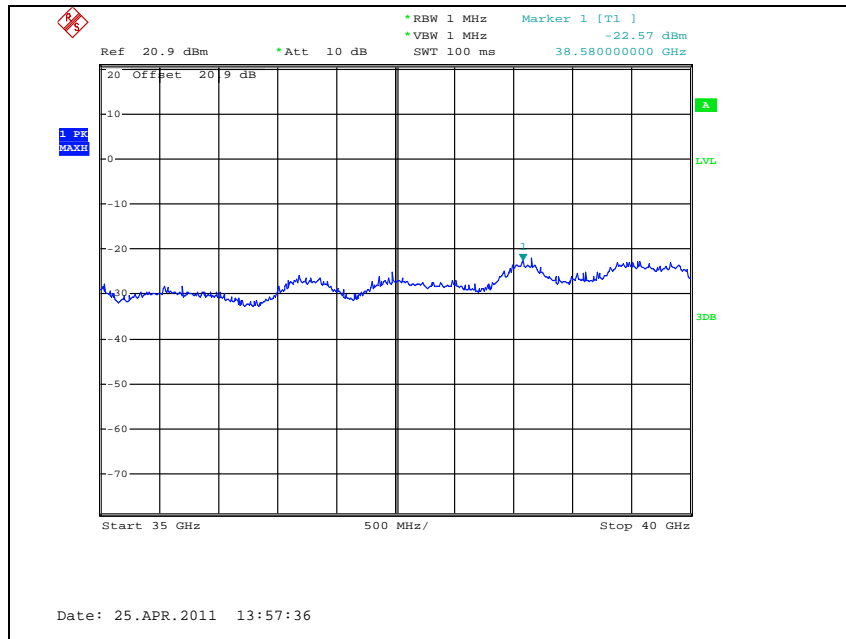


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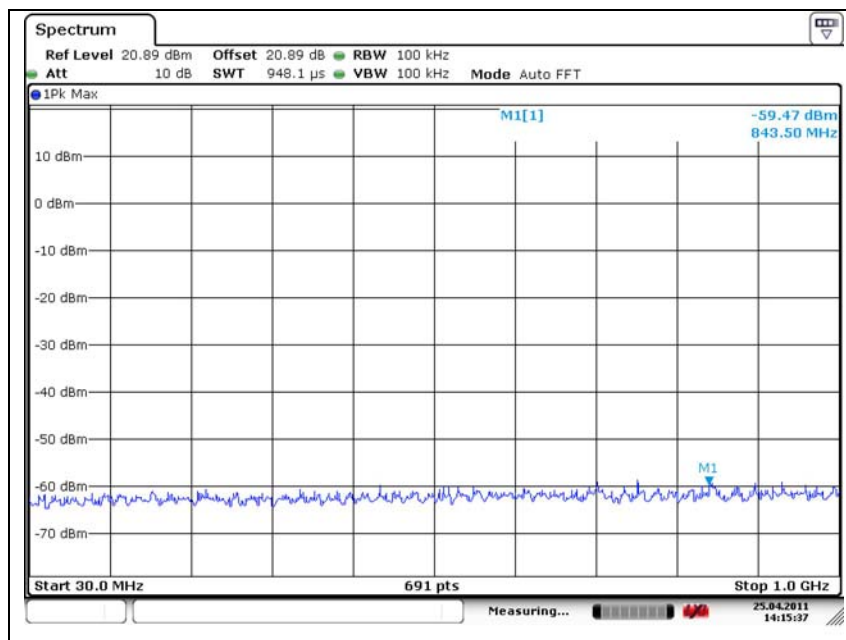
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Middle Channel

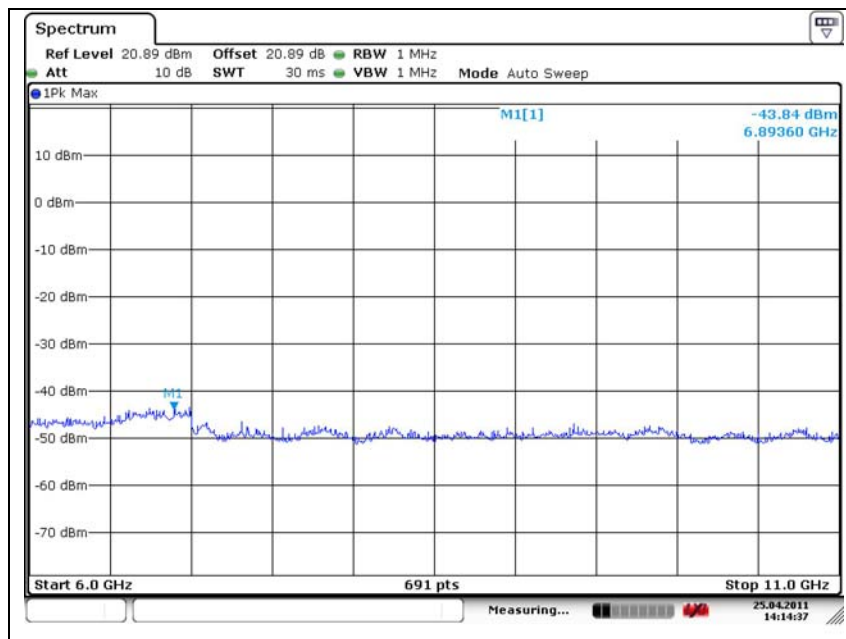
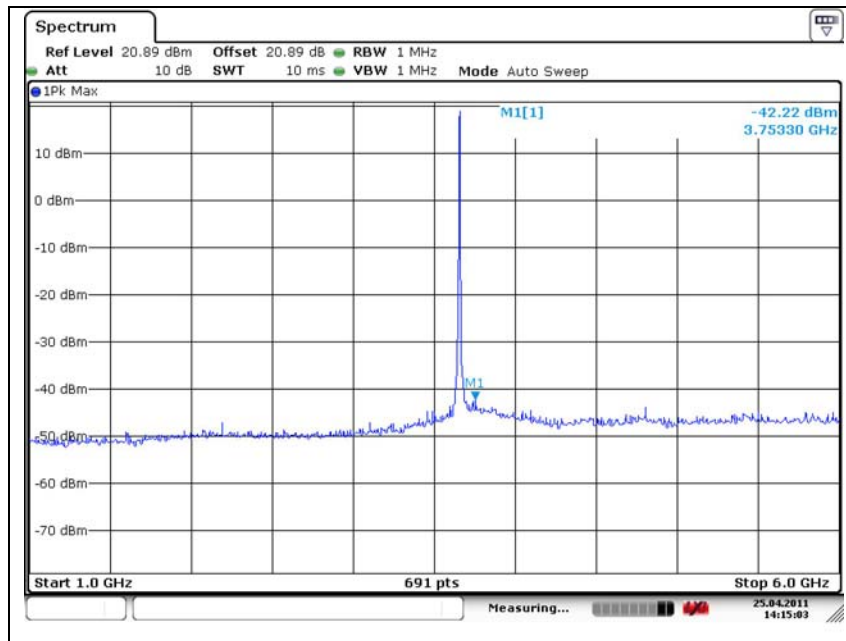


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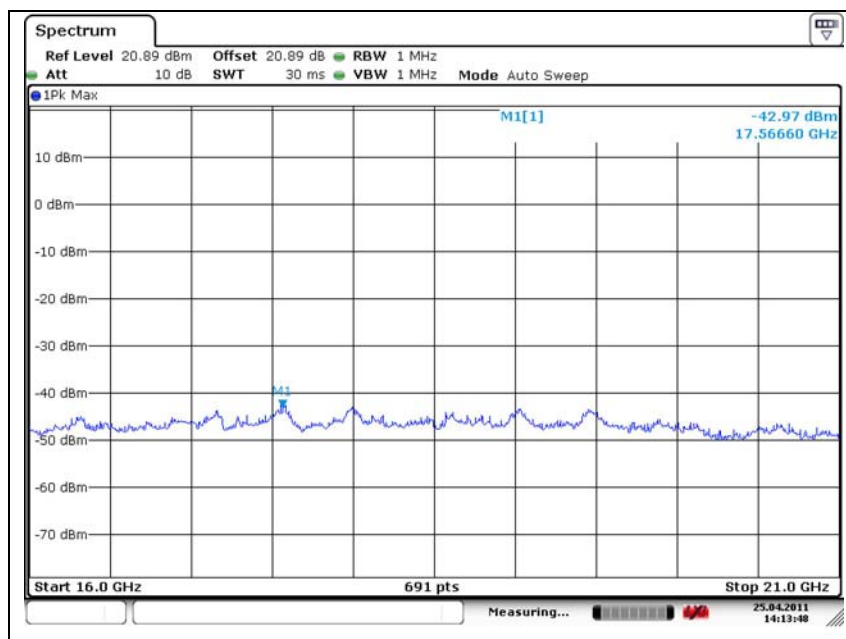
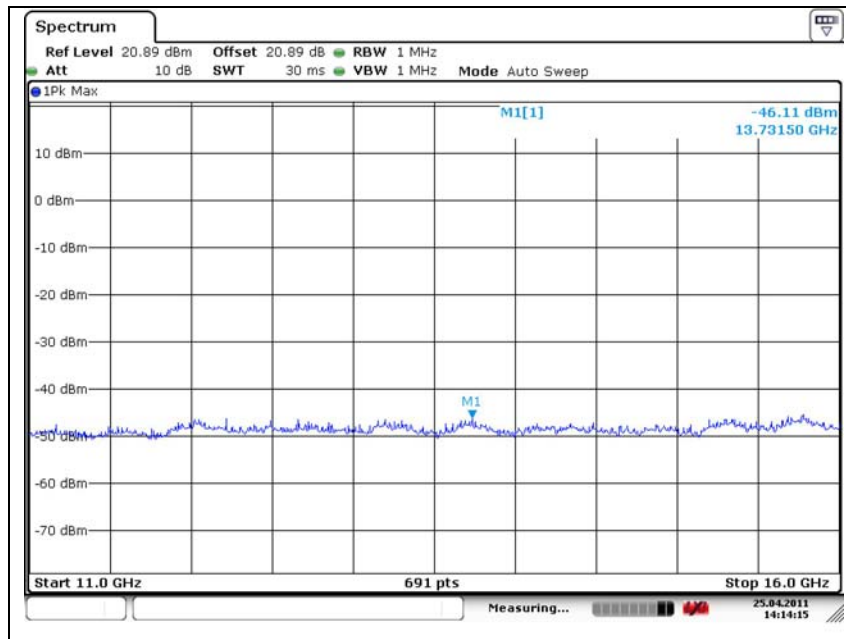


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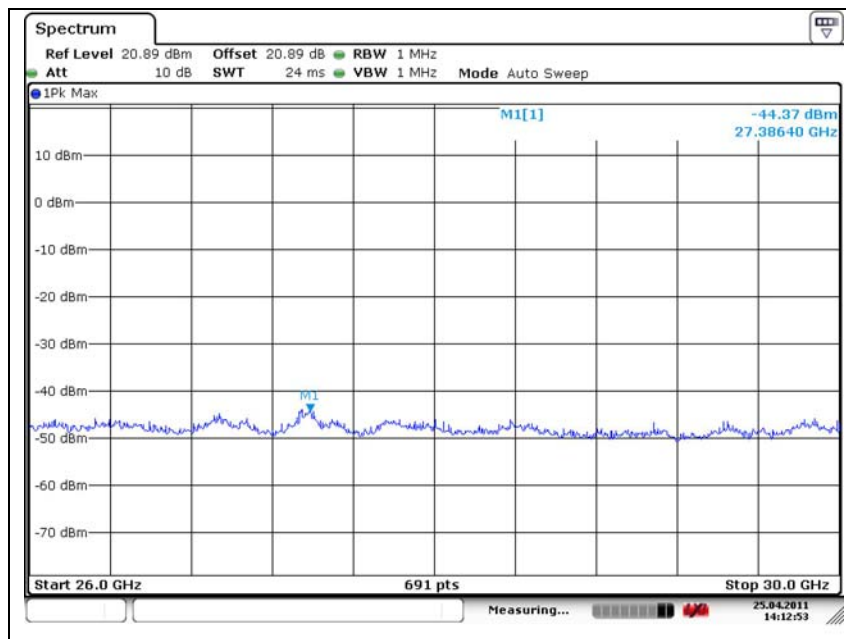
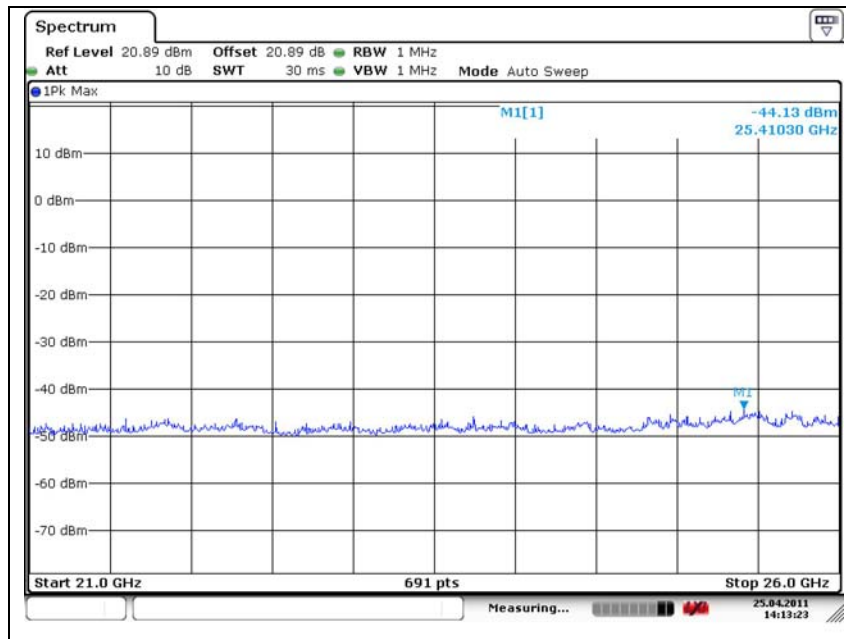
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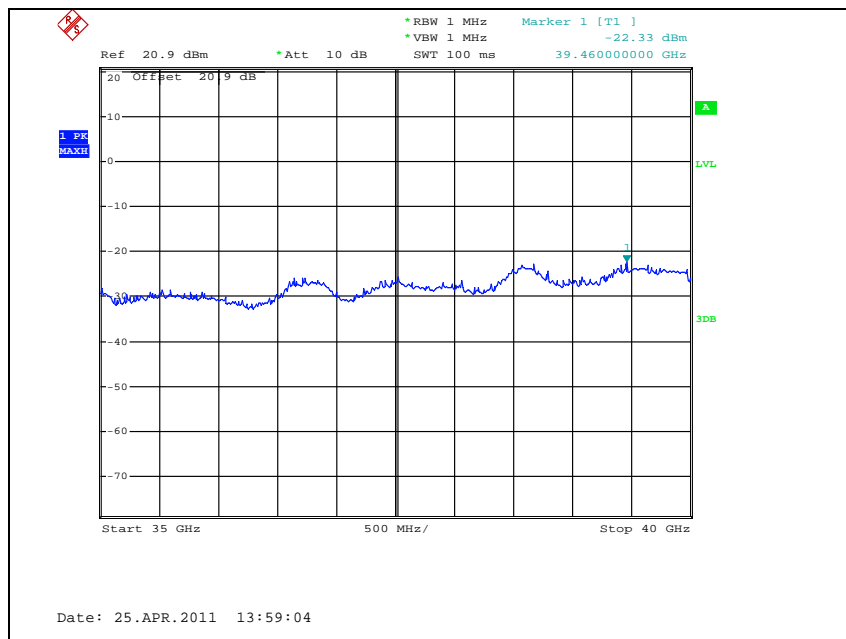
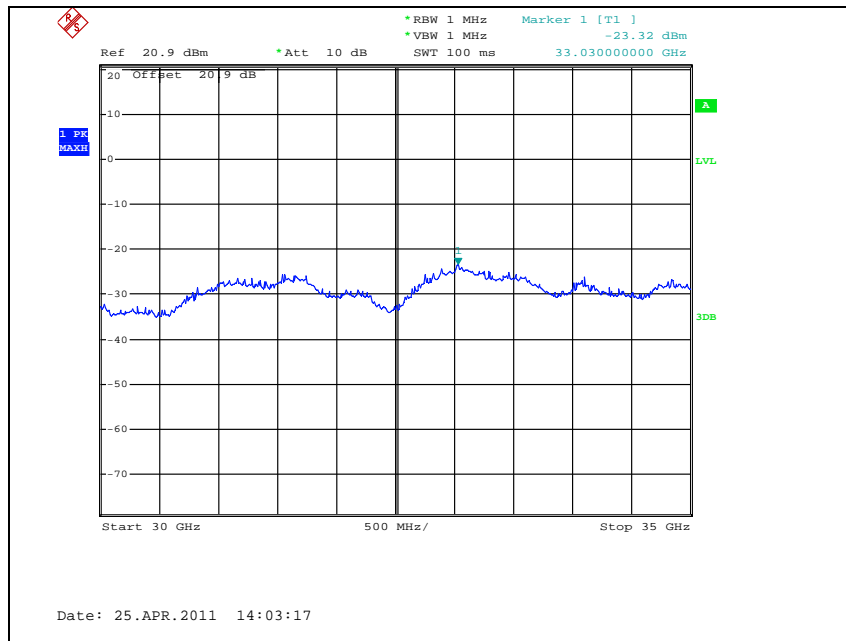


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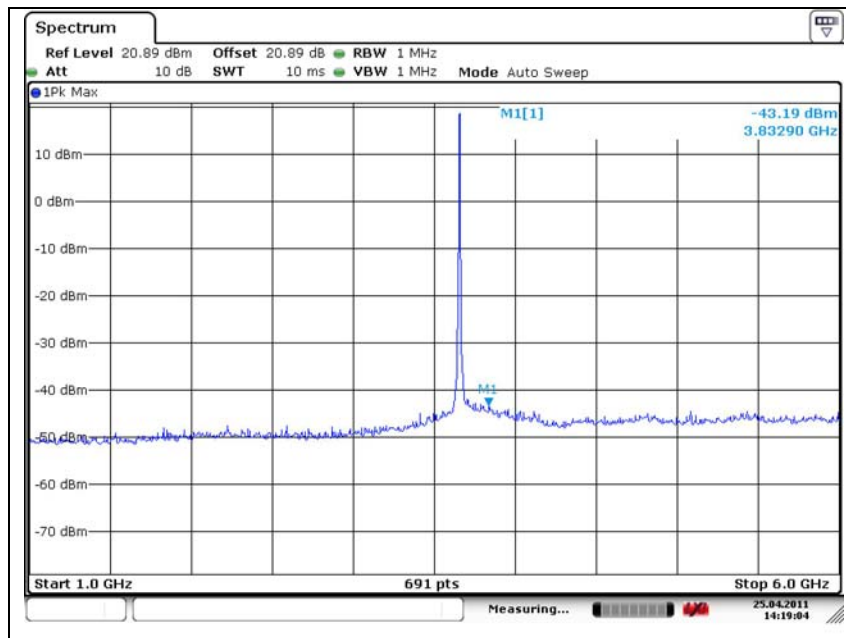
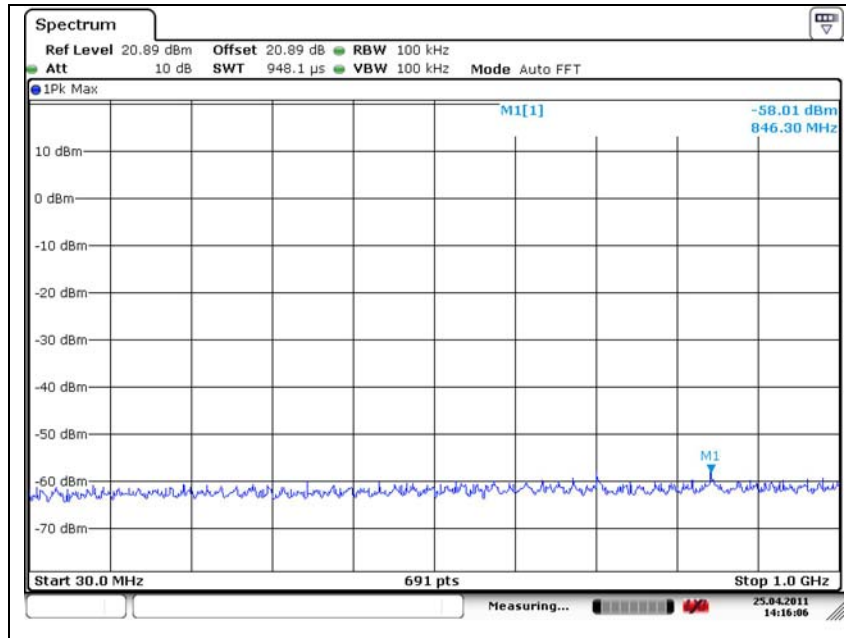
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## High Channel

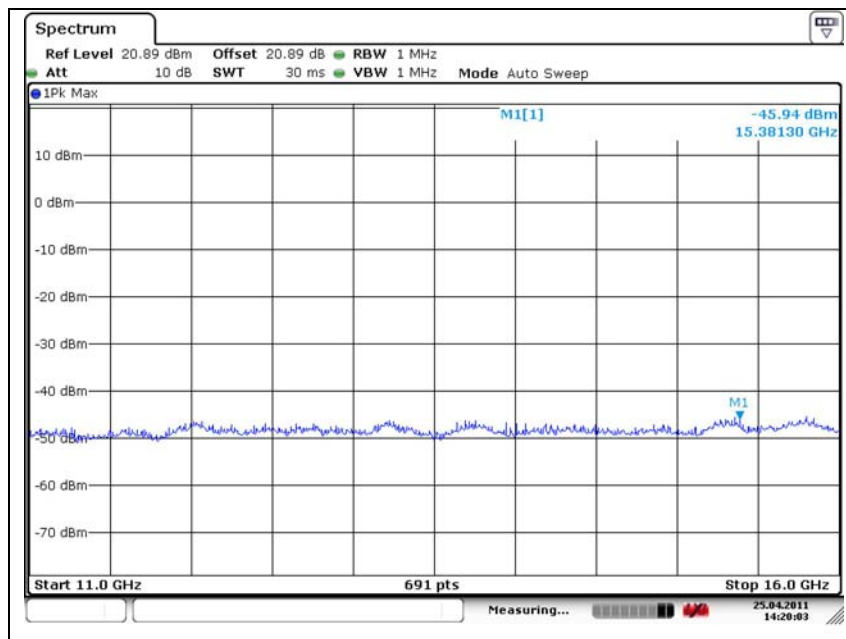
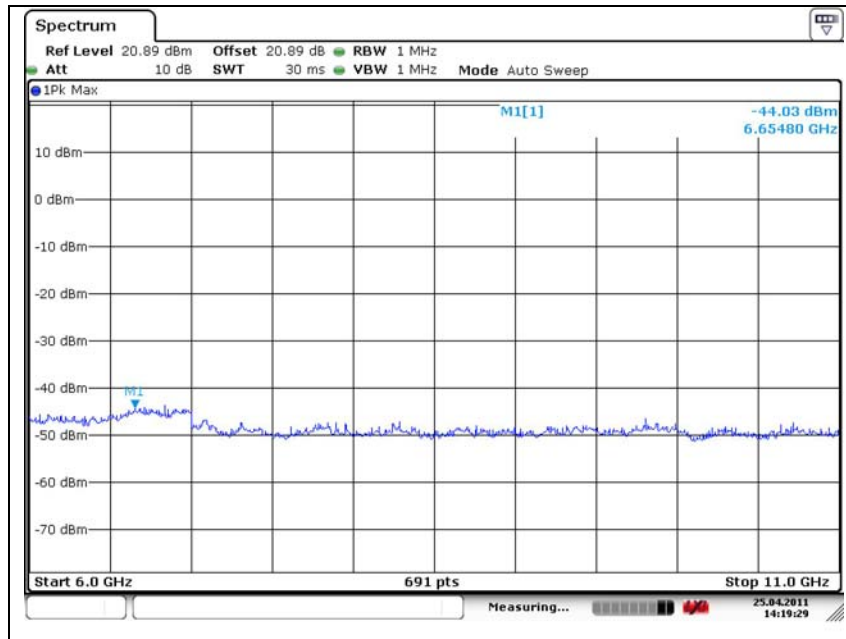


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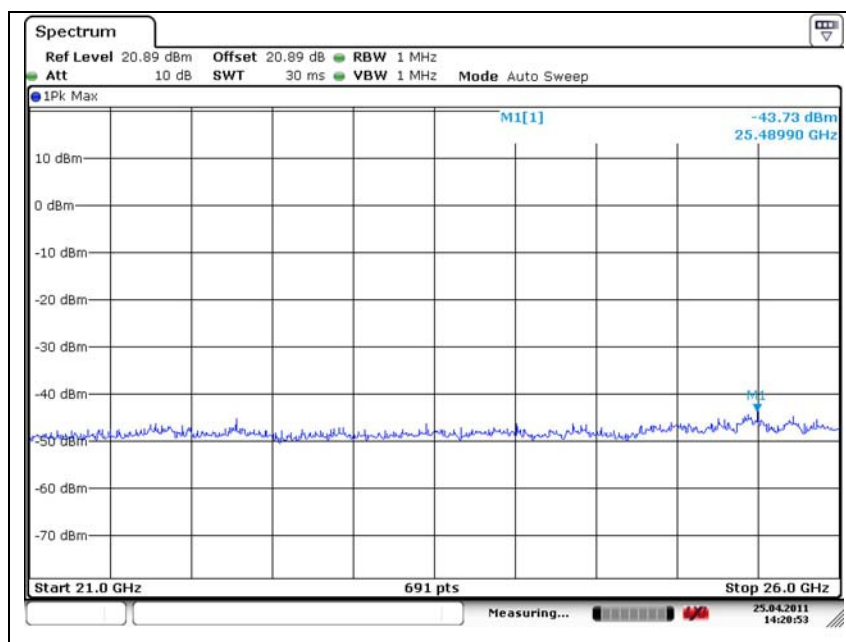
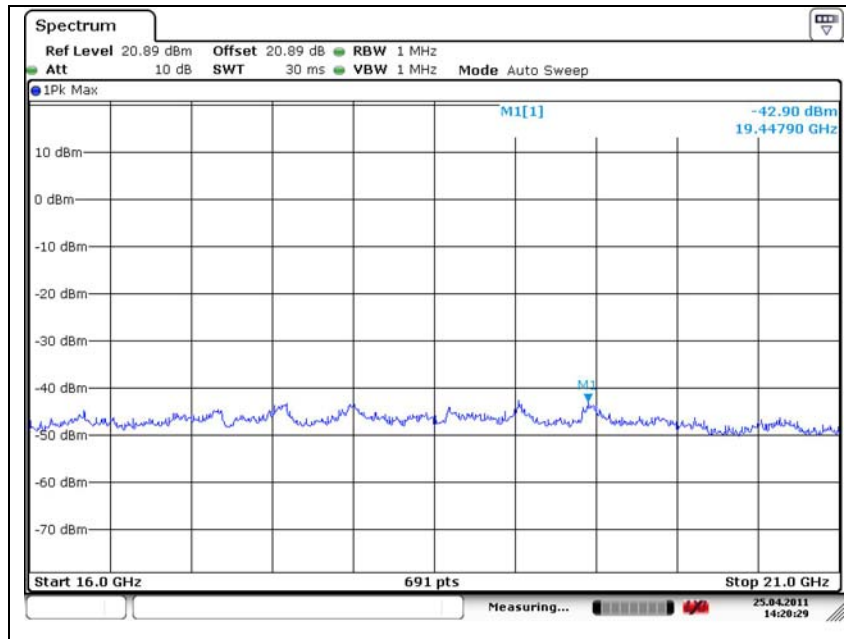


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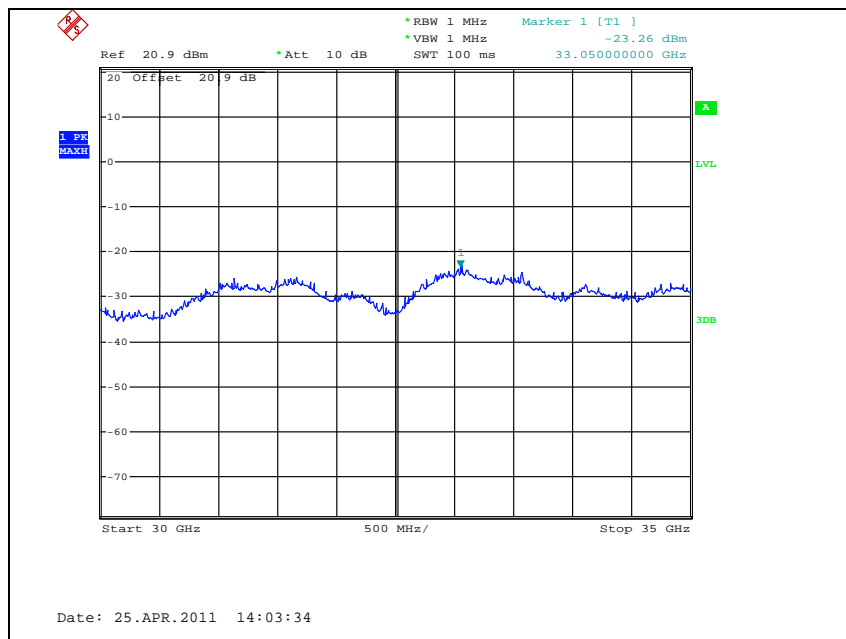
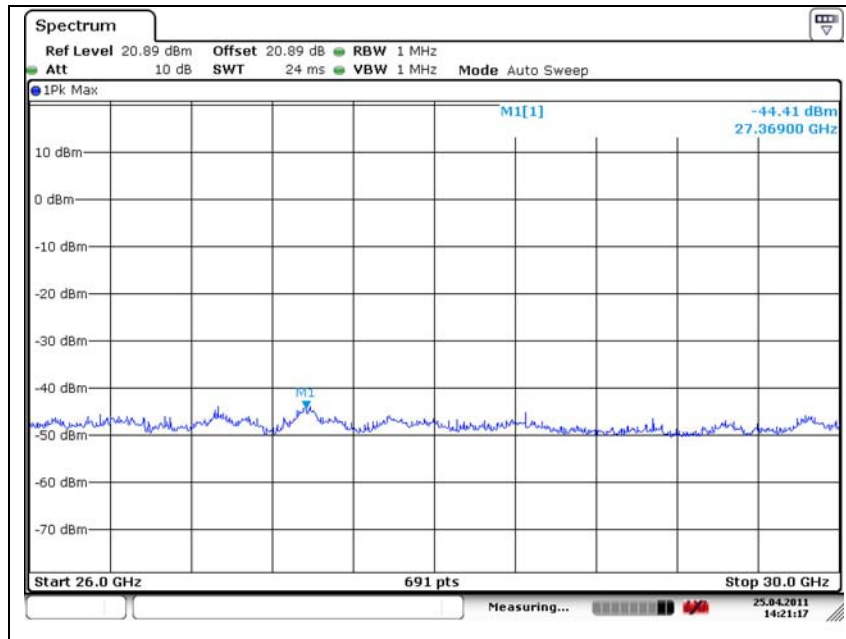


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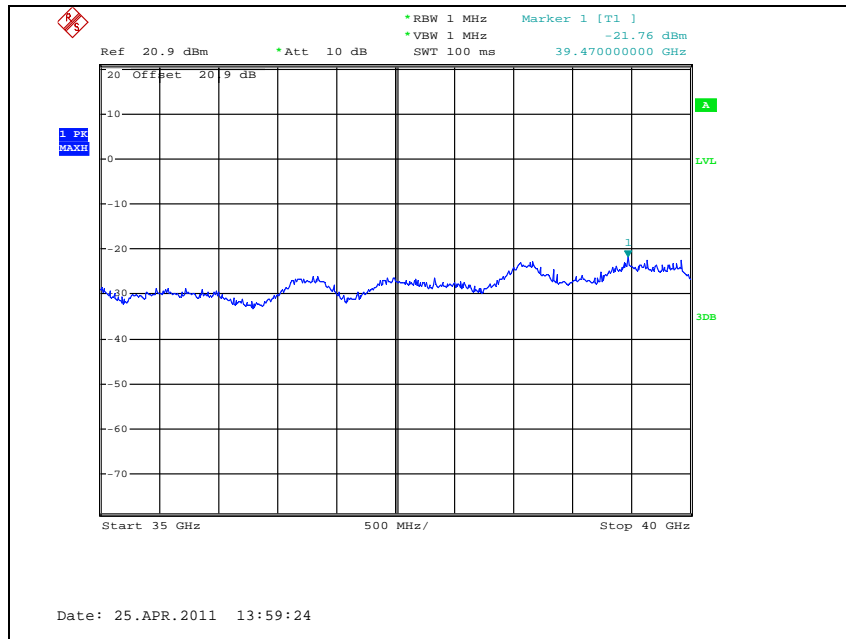


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