TEST REPORT

of

FCC Part 15 Subpart B&C §15.247 / RSS-210 Issue 8, RSS-Gen Issue 3

FCC ID/IC Certification: A3LNX210 / 649E-NX210

Equipment Under Test	:	Digital Camera
Model Name	:	NX210(Alternative model : NX-R)
Serial No.	:	N/A
Applicant	:	SAMSUNG ELECTRONICS Co., Ltd.
Manufacturer	:	SAMSUNG ELECTRONICS Co., Ltd.
Manufacturer's factory	:	TIANJIN SAMSUNG OPTO-ELECTRONICS CO., LTD.
Date of Test(s)	:	2012.03.30 ~2012.04.04
Date of Issue	:	2012.04.05

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

Tested By: Logan Lee **Date** 2012.04.05

Approved By: Feel Jeong **Date** 2012.04.05

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd.
- Wireless Div. 2FL, 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-dong, Korea
- 705, Dongcheon-dong Suji-gu, Yongin-si, Gyeonggi-do, Korea
www.ee.sgs.com/korea
Telephone : +82 +31 428 5700
FAX : +82 +31 427 2371

1.2. Details of Applicant

Applicant : SAMSUNG ELECTRONICS Co., Ltd.
Address : 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea
Contact Person : Hong, Sung-Min
Phone No. : +82 31 277 6989

1.3. Details of Factory Information

Factory : TIANJIN SAMSUNG OPTO-ELECTRONICS CO., LTD.
Address : No.9 ZhangHeng street, Micro-Electronic Industrial Park, JinGang Road, Tianjin, China

1.4. Description of EUT

Kind of Product	Digital Camera
Model Name	NX210(Alternative model : NX-R)
Serial Number	N/A
Power Supply	DC 7.4 V (Li-ion Battery)
Frequency Range	2 412 ㎒ ~ 2 462 ㎒ (11b/g/n_HT20_SISO)
Modulation Technique	DSSS, OFDM
Number of Channels	11
Antenna Type	PCB Antenna
Antenna Gain	-0.09 ㏈i
H/W version	NX210_MAIN_PCB_REV.PI 2012.02.04
S/W version	0.51

1.5. Declaration by the manufacturer

- This device charges rechargeable battery with battery cradle & AC power cable. It is not able to operate while charging.
- 802.11n supports HT20 mode only.

1.6. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal Due.
Signal Generator	R & S	SMR40	100272	Jul. 15, 2012
Signal Generator	Agilent	8648D	3847M00534	Mar. 29, 2013
Spectrum Analyzer	R&S	FSV30	101004	Jul. 06, 2012
Power Sensor	R&S	NRP-Z81	100748	Aug. 22, 2012
High Pass Filter	Wainwright	WHK3.0/18G-10SS	344	Jul. 07, 2012
High Pass Filter	Wainwright	WHNX7.5/26.5G-6SS	11	Sep. 15, 2012
DC Power Supply	Agilent	6553A	MY40000695	Jul. 04, 2012
Preamplifier	H.P.	8447F	2944A03909	Jul. 04, 2012
Preamplifier	R & S	SCU 18	10117	Jan. 12, 2013
Preamplifier	SCHWARZBECK MESSELEKTRONIK	JS44-18004000-35-8P	1546891	Jul. 04, 2012
Test Receiver	R & S	ESU26	100109	Feb. 21, 2013
Bilog Antenna	SCHWARZBECK MESSELEKTRONIK	VULB9163	396	May. 12, 2013
Horn Antenna	R & S	HF 907	100019	Jul. 29, 2012
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170223	Jun. 30, 2012
Antenna Master	INN-CO	MM 4000	N.C.R.	N.C.R.
Turn Table	INN-CO	DS 1200 S	N.C.R.	N.C.R.
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.6 m)	N.C.R.	N.C.R.

1.7. Summary of Test Results

Measurement of Digital Transmission Systems Operating under Section 15.247 March 23, 2005 is used.
The EUT has been tested according to the following specifications:

APPLIED STANDARD:FCC Part15 subpart B&C, RSS-210, RSS-Gen			
Standard section		**Test Item**	**Result**
15.205(a) 15.209 15.247(d)	A8.5	Transmitter Radiated Spurious Emissions Conducted Spurious Emission	Complied
15.109(a)	RSS-Gen 6	Receiver Radiated Spurious Emission	Complied
15.247(a)(2)	A8.2(a)	6 dB Bandwidth and 99% BW	Complied
15.247(b)(3)	A8.4(4)	Maximum Peak Output Power	Complied
15.247(e)	A8.3(2)	Power Spectral Density	Complied

1.8. Conclusion of worst-case

The field strength of spurious emission was measured in three orthogonal EUT positions(X-axis, Y-axis and Z-axis). Worst case is X-axis. 1 Mbps is the highest output power in the 11b. 6 Mbps is the highest output power in the 11g. In case of 11n, we chose MCS0 mode.

1.9. Test report revision

Revision	Report number	Description
0	F690501/RF-RTL005420	Initial

1.10. Details of added models

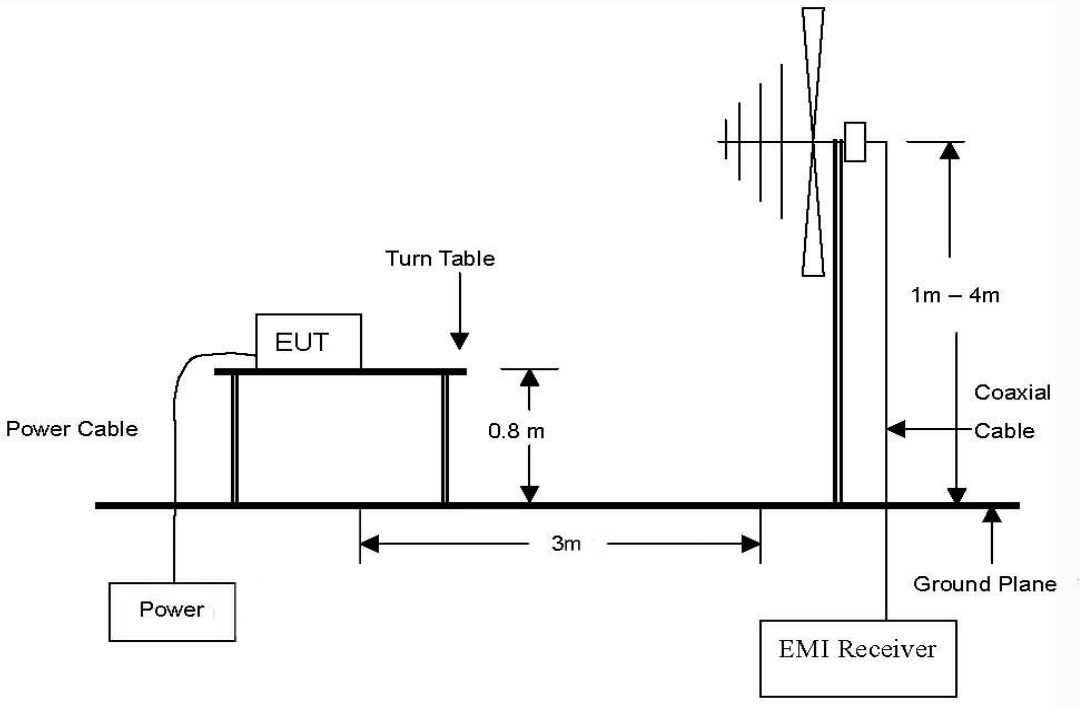
Model	Information
NX210	Basic model
NX-R	Same as basic model and change the color only

2. Transmitter Radiated Spurious Emissions and Conducted Spurious Emission

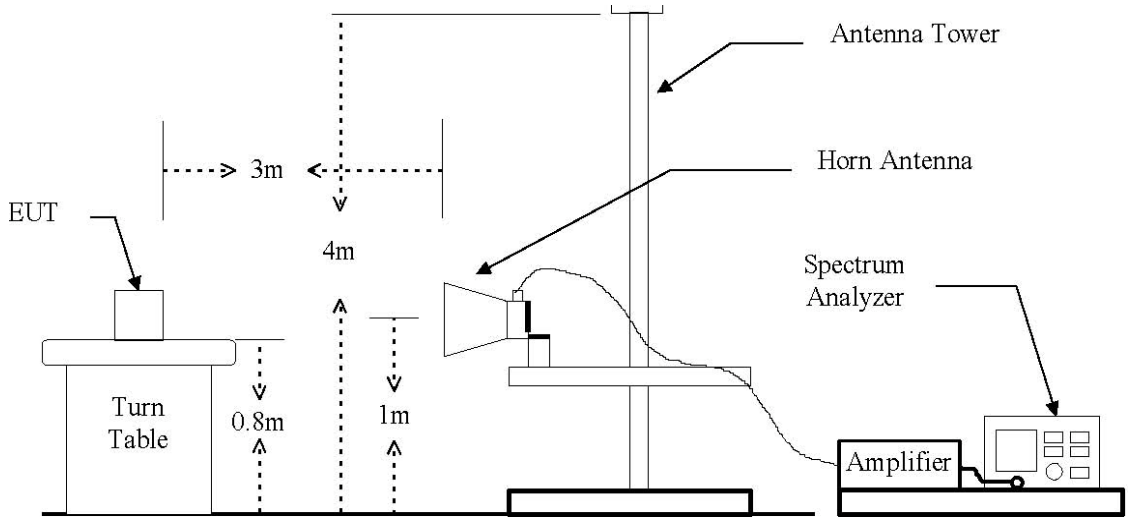
2.1. Test Setup

2.1.1. Transmitter Radiated Spurious Emissions

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



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 ㎓ to 24.8 ㎓ Emissions.



2.1.2. Conducted Spurious Emission

2.2. Limit

According to §15.247(d), in any 100 ㎑ 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 ㏈ below that in the 100 ㎑ 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 ㏈ instead of 20 ㏈. Attenuation below the general limits specified in section §15.209(a) is not required. In addition, radiated emission which in the restricted band, as define in section §15.205(a), must also comply the radiated emission limits specified in section §15.209(a) (see section §15.205(c))

According to § 15.209(a), Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table：

Frequency (㎒)	Distance (Meters)	Field Strength (㏈㎶/m)	Field Strength (㎶/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

2.3. Test Procedures

Radiated emissions from the EUT were measured according to the dictates of KDB558074

2.3.1. 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 ㎓, 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 ㎓, the EUT was set 3 meter away from the interference-receiving antenna.
3. The antenna is a broadband 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 ㏈ 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 ㏈ 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 ㎑ for Peak detection (PK) or Quasi-peak detection (QP) at frequency below 1 ㎓.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 ㎒ for Peak detection and frequency above 1 ㎓.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 ㎒ and the video bandwidth is 10 ㎐ for Average detection (AV) at frequency above 1 ㎓.

2.3.2. Test Procedures for Conducted Spurious Emissions

1. The transmitter output was connected to the spectrum analyzer.
2. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using RBW = 100 ㎑, VBW = 100 ㎑.

2.4. Test Results

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

2.4.1. Spurious Radiated Emission (Worst case configuration_11b mode)

The frequency spectrum from 30 ㎒ to 1 000 ㎒ was investigated. Emission levels are not reported much lower than the limits by over 30 ㏈. All reading values are peak values.

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	AMP + CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
52.03	36.8	Peak	V	13.7	-26.3	24.2	40.0	15.8
95.15	36.0	Peak	V	11.1	-26.5	20.6	43.5	22.9
Above 100.00	Not detected	-	-	-	-	-	-	-

Remark:

1. All spurious emission at channels are almost the same below 1 ㎓, so that the channel was chosen at representative in final test.
2. Actual = Reading + AF + AMP + CL

2.4.2. Spurious Radiated Emission

The frequency spectrum above 1 000 ㎒ was investigated. Emission levels are not reported much lower than the limits by over 30 ㏈.

DSSS : 802.11b

Low Channel (2 412 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
*2 390.00	27.17	Peak	V	28.05	5.14	60.36	74.00	13.64
*2 390.00	15.59	Average	V	28.05	5.14	48.78	54.00	5.22

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	AMP+CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
4 823.94	49.39	Peak	V	32.31	-34.98	46.72	74.00	27.28
Above 4 900.00	Not detected	-	-	-	-	-	-	-

Middle Channel (2 437 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	AMP+CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
4 874.07	50.49	Peak	V	32.79	-34.96	48.32	74.00	25.68
Above 4 900.00	Not detected	-	-	-	-	-	-	-

High Channel (2 462 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 483.50	28.04	Peak	V	28.31	5.19	61.54	74.00	12.46
*2 483.50	15.44	Average	V	28.31	5.19	48.94	54.00	5.06

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
4 924.12	54.88	Peak	V	33.10	-34.87	53.11	74.00	20.89
Above 5 000.00	Not detected	-	-	-	-	-	-	-

OFDM : 802.11g
Low Channel (2 412 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 390.00	29.32	Peak	V	28.05	5.14	62.51	74.00	11.49
*2 390.00	16.20	Average	V	28.05	5.14	49.39	54.00	4.61

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
4 823.81	47.74	Peak	V	32.30	-34.98	45.06	74.00	28.94
Above 4 900.00	Not detected	-	-	-	-	-	-	-

Middle Channel (2 437 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
4 874.13	48.33	Peak	V	32.79	-34.96	46.16	74.00	27.84
Above 4 900.00	Not detected	-	-	-	-	-	-	-

High Channel (2 462 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 483.50	26.88	Peak	V	28.31	5.19	60.38	74.00	13.62
*2 483.50	15.72	Average	V	28.31	5.19	49.22	54.00	4.78

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
4 924.15	51.05	Peak	V	33.11	-34.87	49.29	74.00	24.71
Above 5 000.00	Not detected	-	-	-	-	-	-	-

OFDM : 802.11n
Low Channel (2 412 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 390.00	28.57	Peak	V	28.05	5.14	61.76	74.00	12.24
*2 390.00	16.16	Average	V	28.05	5.14	49.35	54.00	4.65

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
4 822.15	47.06	Peak	V	32.28	-34.97	44.37	74.00	29.63
Above 4 900.00	Not detected	-	-	-	-	-	-	-

Middle Channel (2 437 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
4 872.81	47.60	Peak	V	32.78	-34.97	45.41	74.00	28.59
Above 4 900.00	Not detected	-	-	-	-	-	-	-

High Channel (2 462 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 483.50	26.90	Peak	V	28.31	5.19	60.40	74.00	13.60
*2 483.50	15.68	Average	V	28.31	5.19	49.18	54.00	4.82

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
4 922.38	50.73	Peak	V	33.09	-34.87	48.95	74.00	25.05
Above 5 000.00	Not detected	-	-	-	-	-	-	-

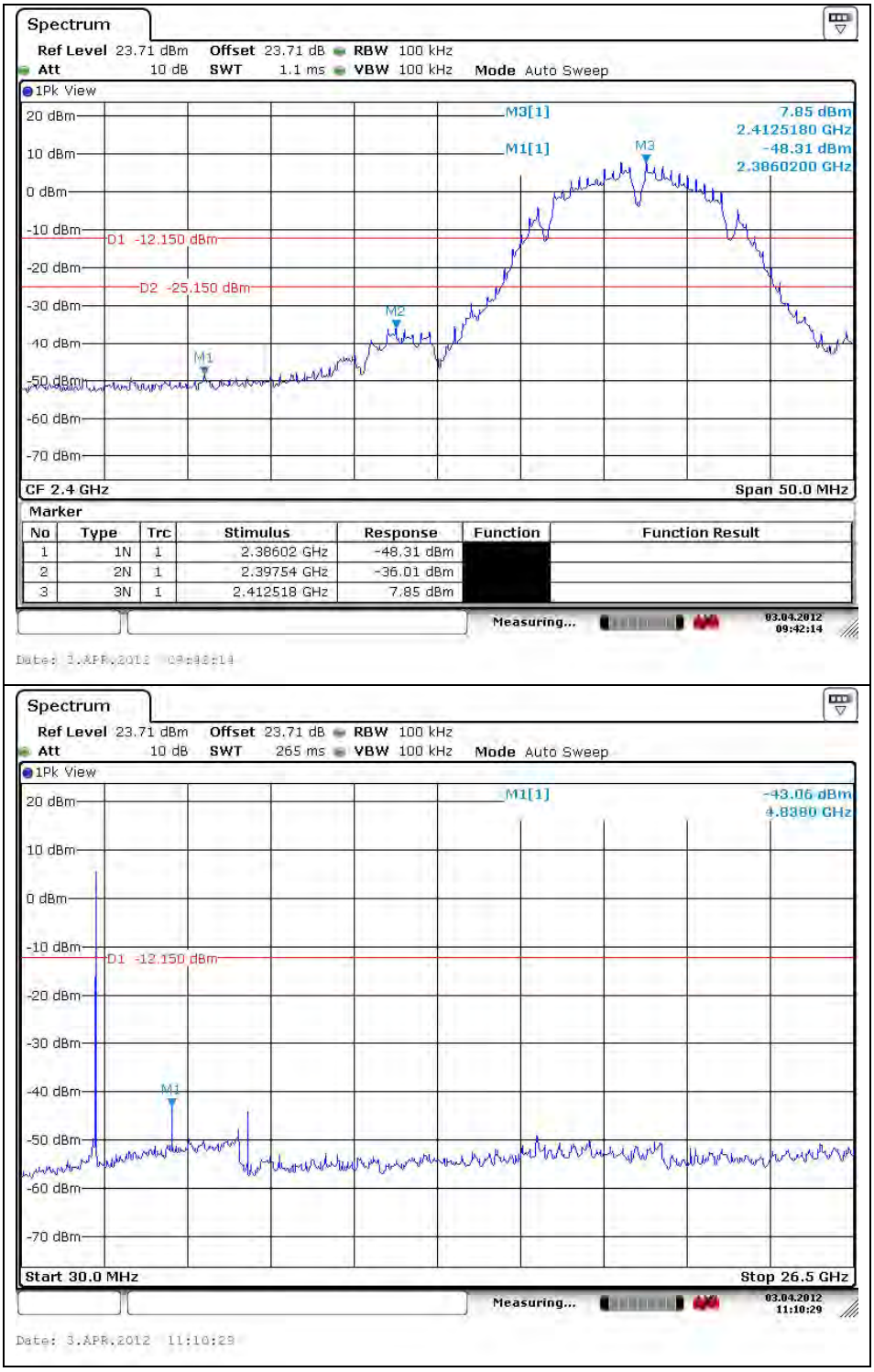
▣ Remarks

1. "*" means the restricted band.
2. Measuring frequencies from 1 ㎓ to the 10th harmonic of highest fundamental Frequency.
3. Radiated emissions measured in frequency above 1 000 ㎒ were made with an instrument using peak/average detector mode.
4. Average test would be performed if the peak result were greater than the average limit.
5. Actual = Reading + AF + AMP + CL
6. To get a maximum emission level from the EUT, the EUT was moved throughout the x-axis, y-axis and z-axis. The worst case is x-axis.

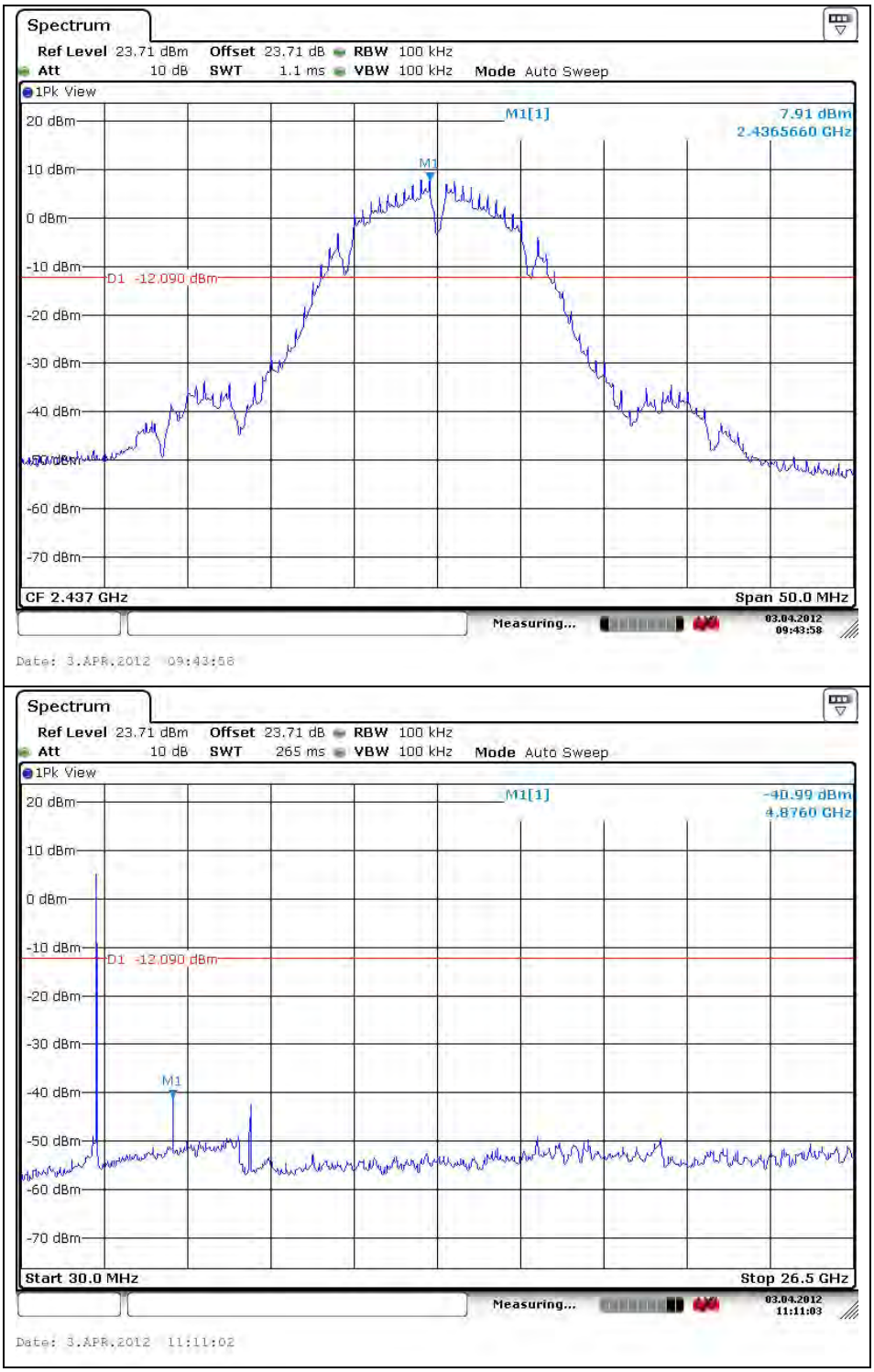
2.4.3. Spurious RF Conducted Emissions: Plot of Spurious RF Conducted Emission

DSSS : 802.11b

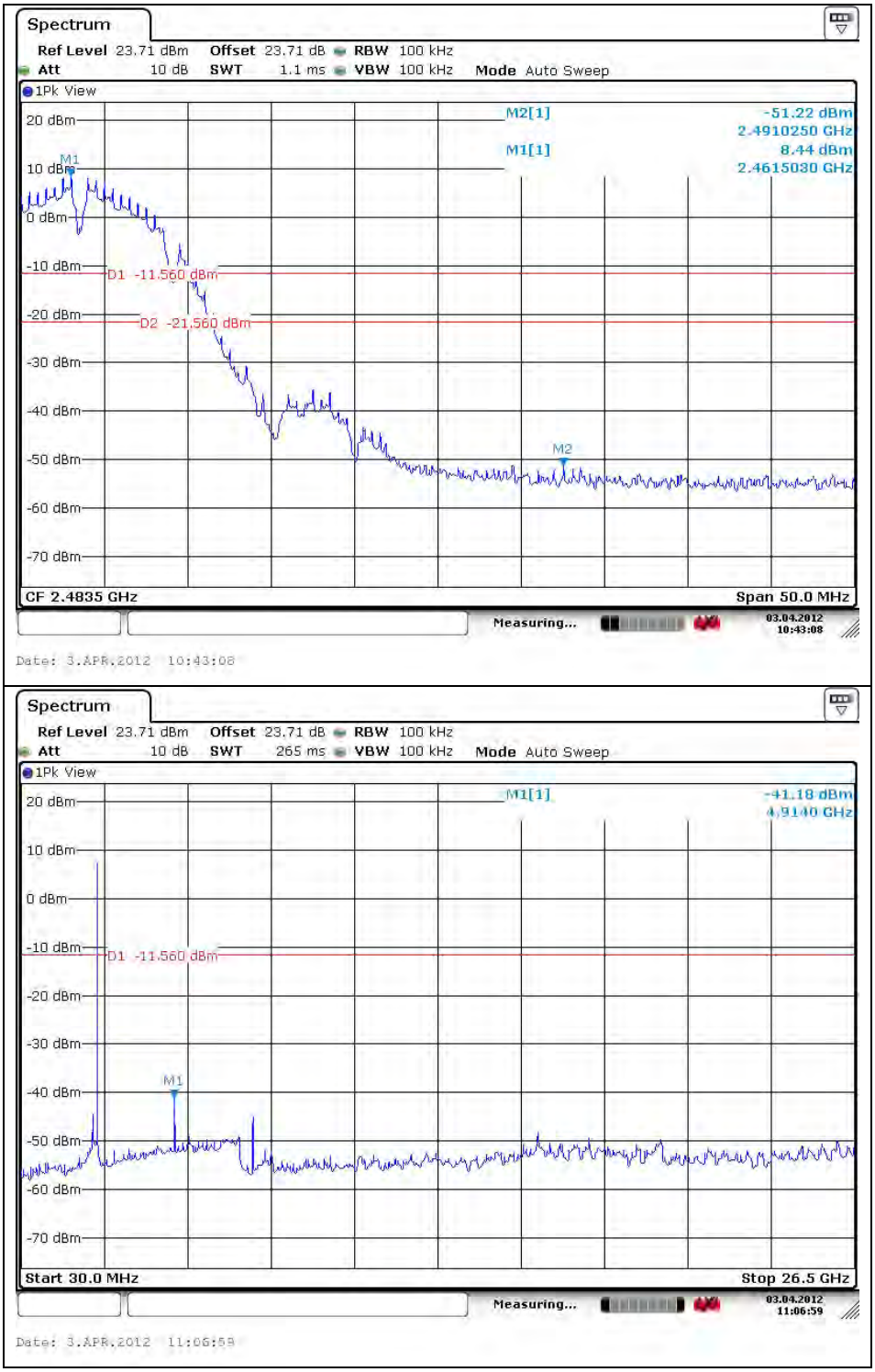
Low Channel



Middle Channel

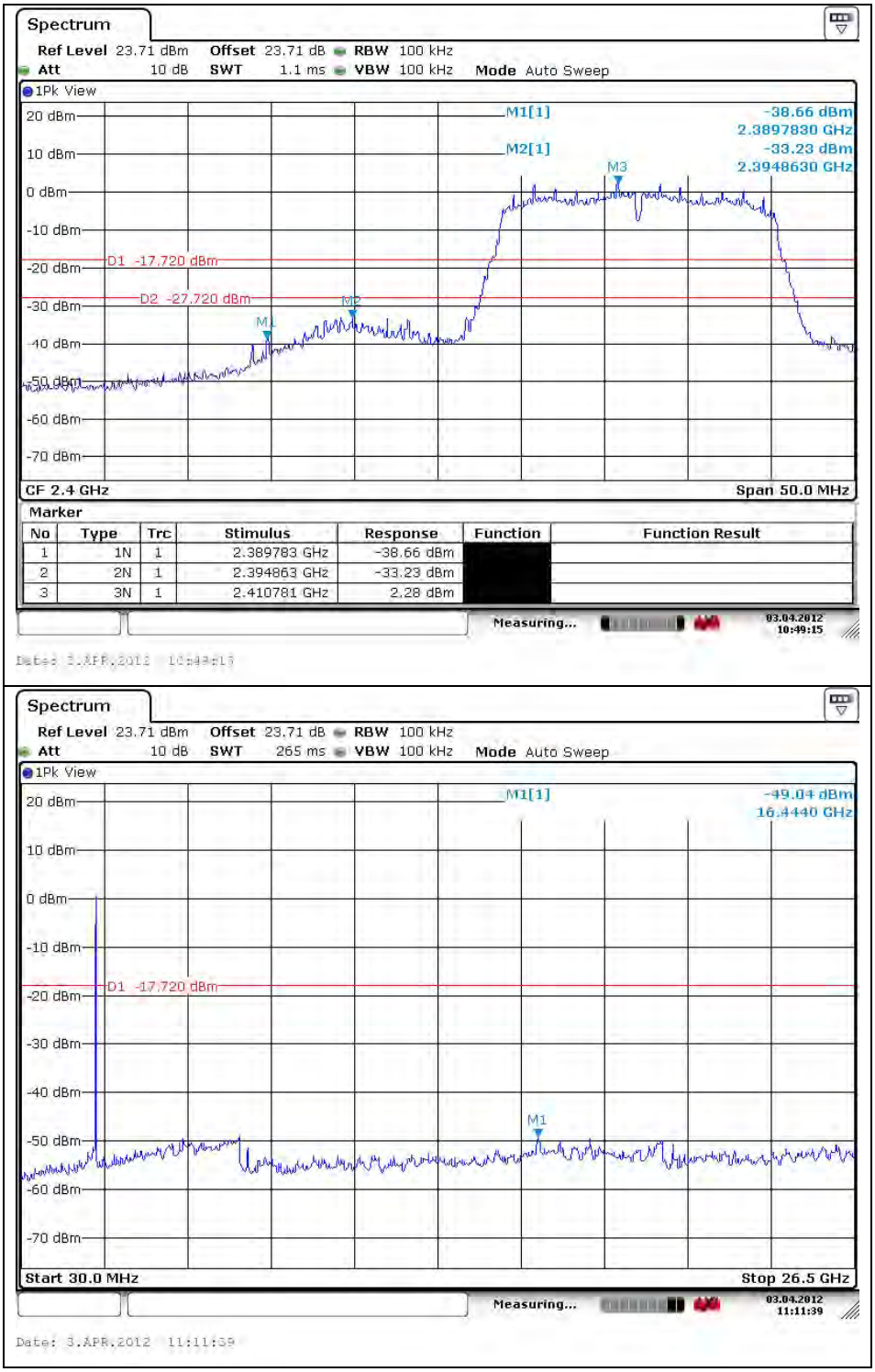


High Channel

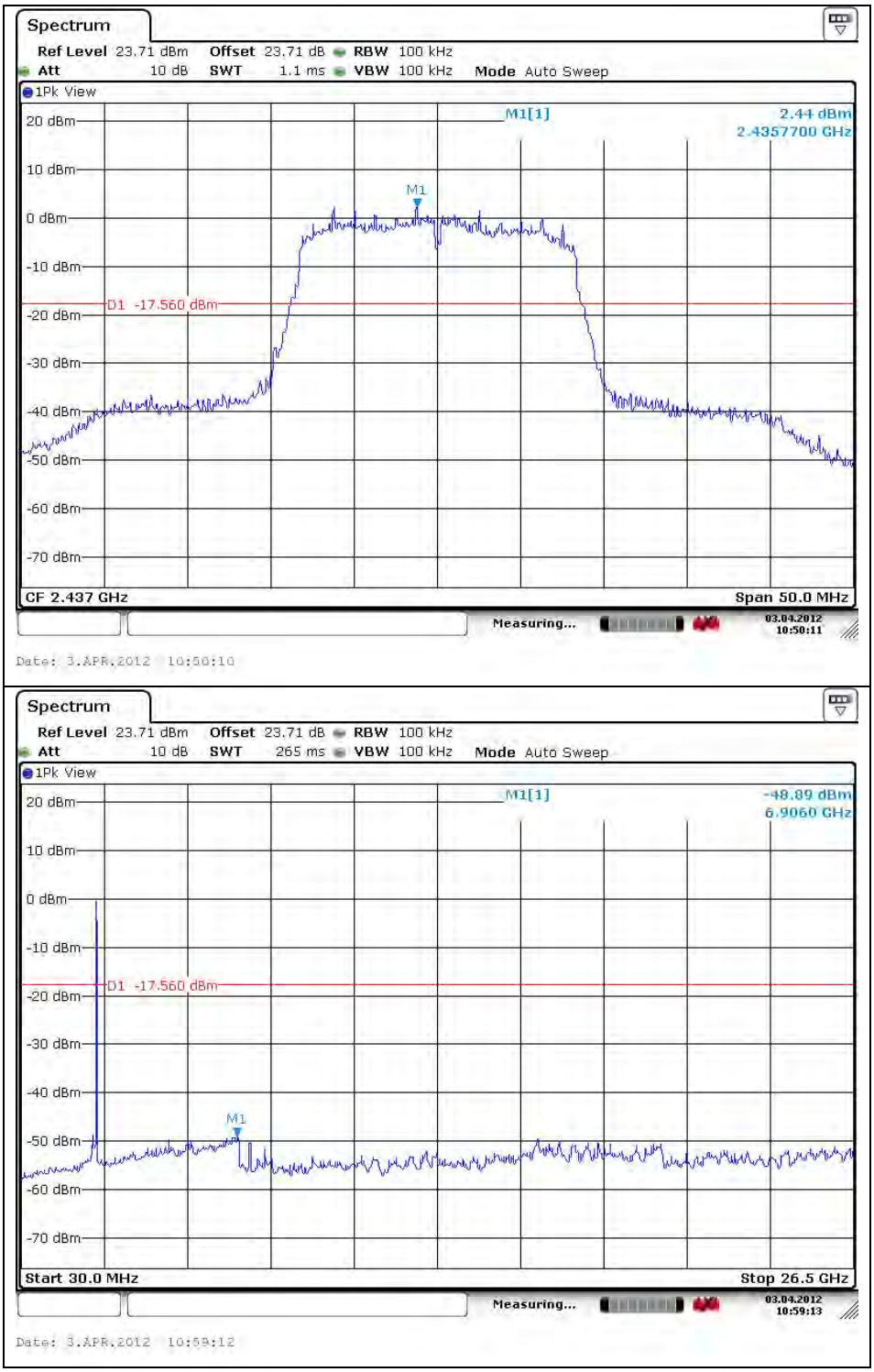


OFDM : 802.11g

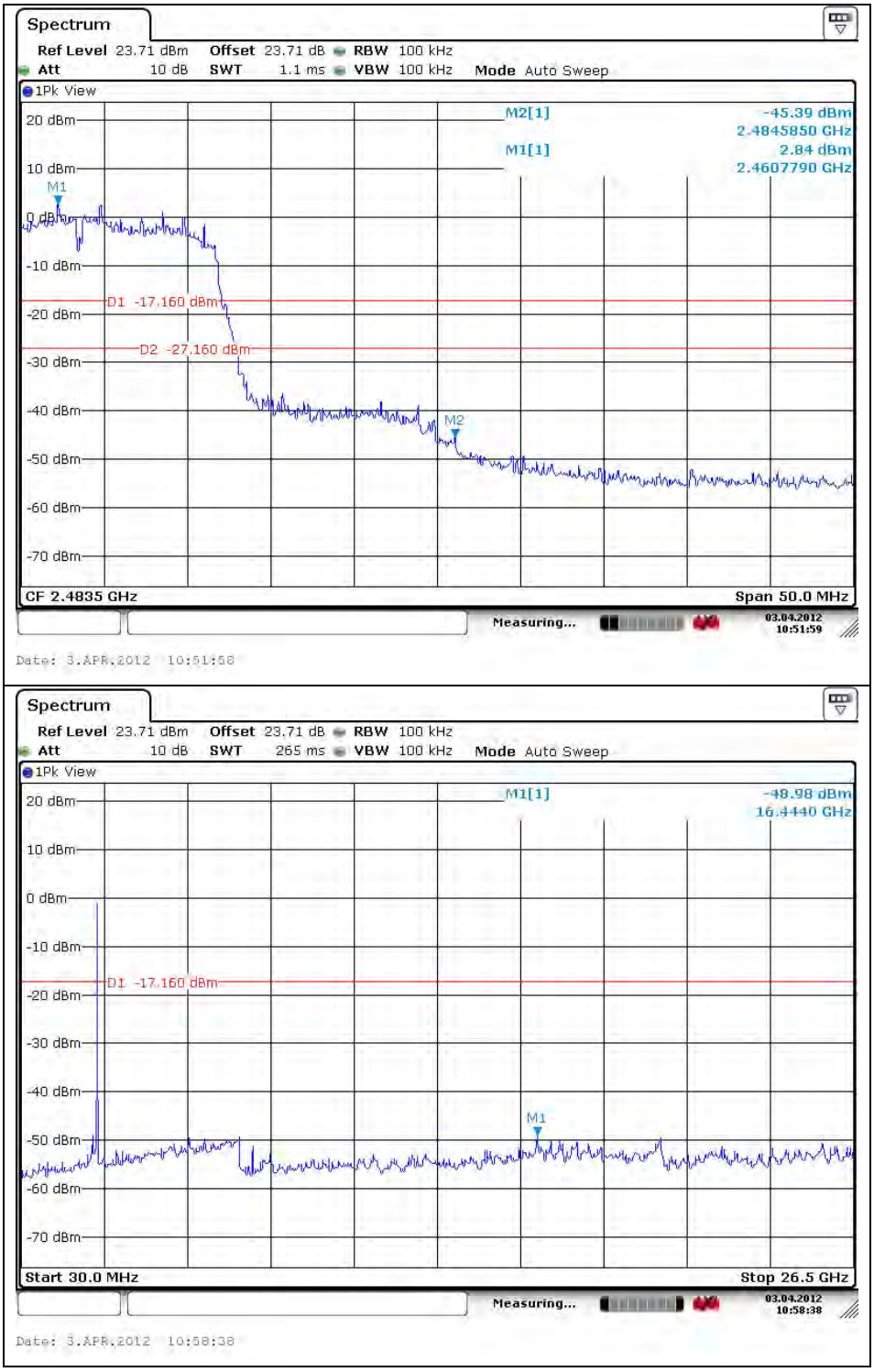
Low Channel



Middle Channel

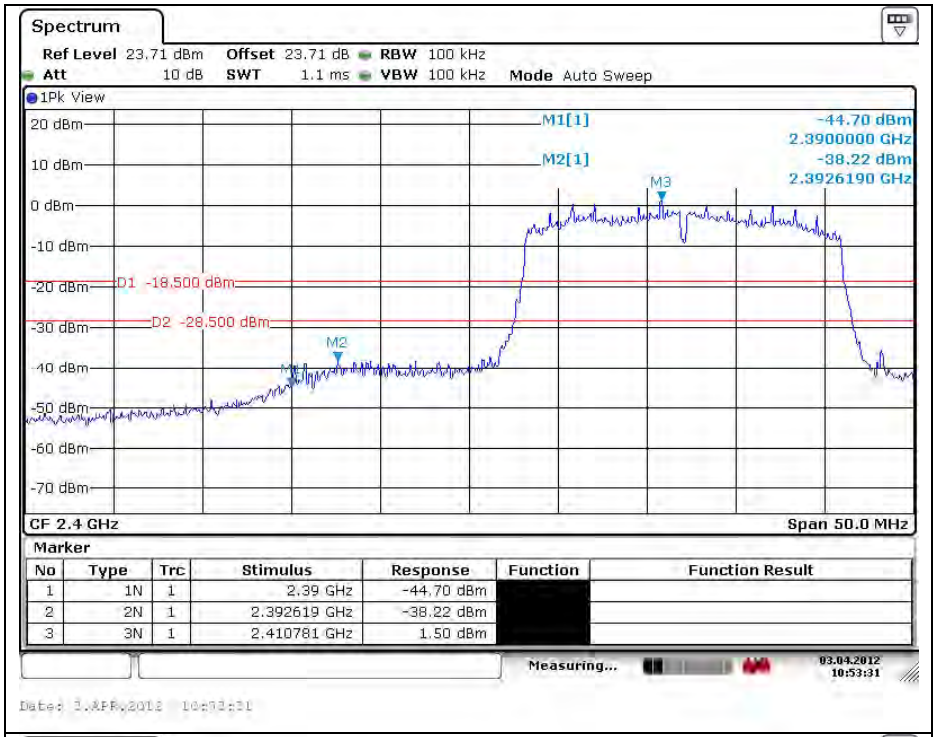


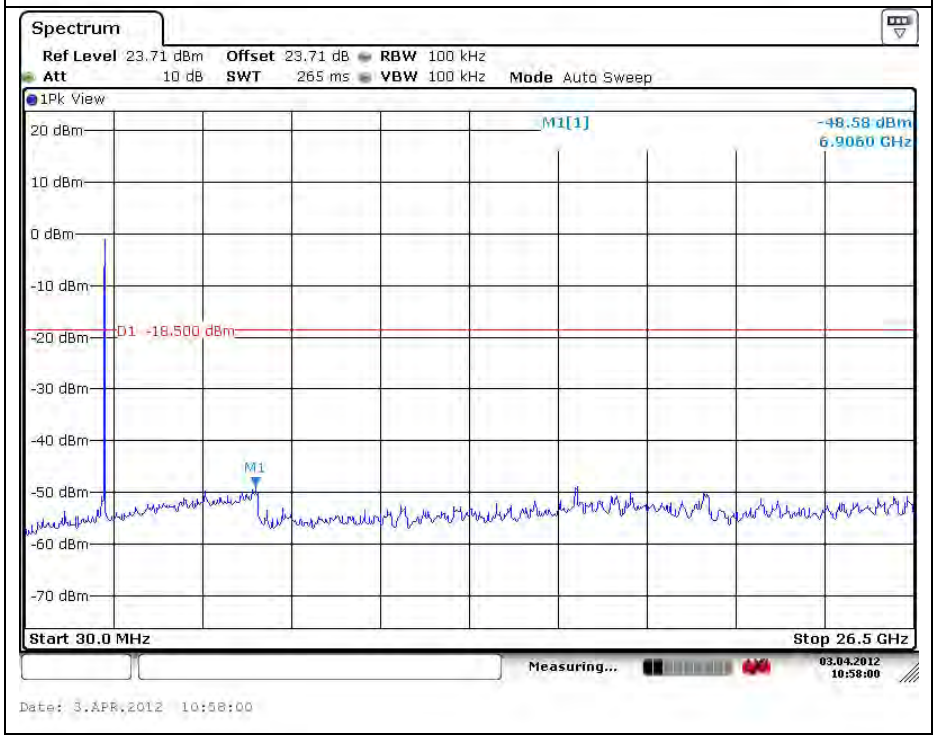
High Channel



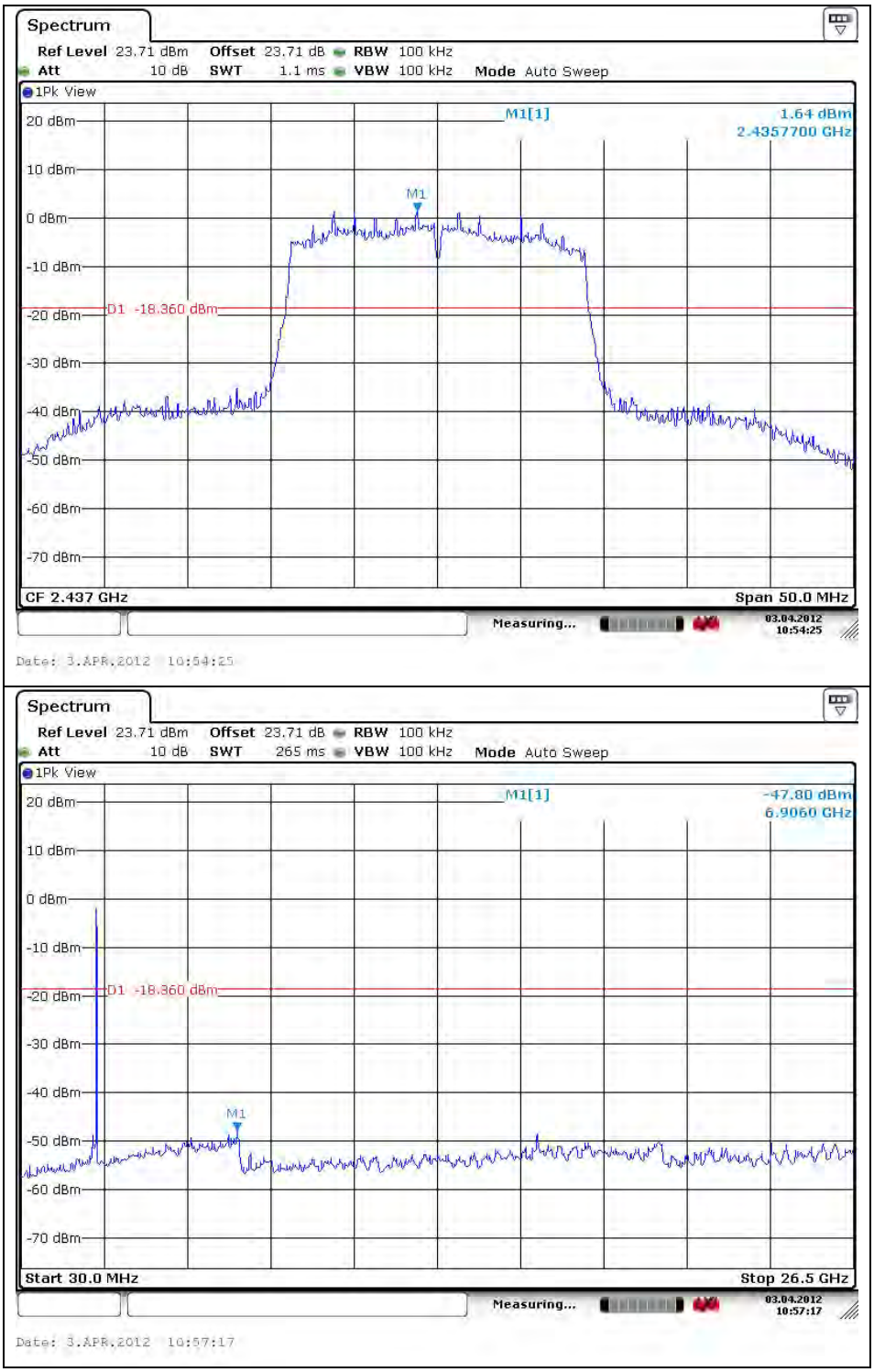
OFDM : 802.11n

Low Channel

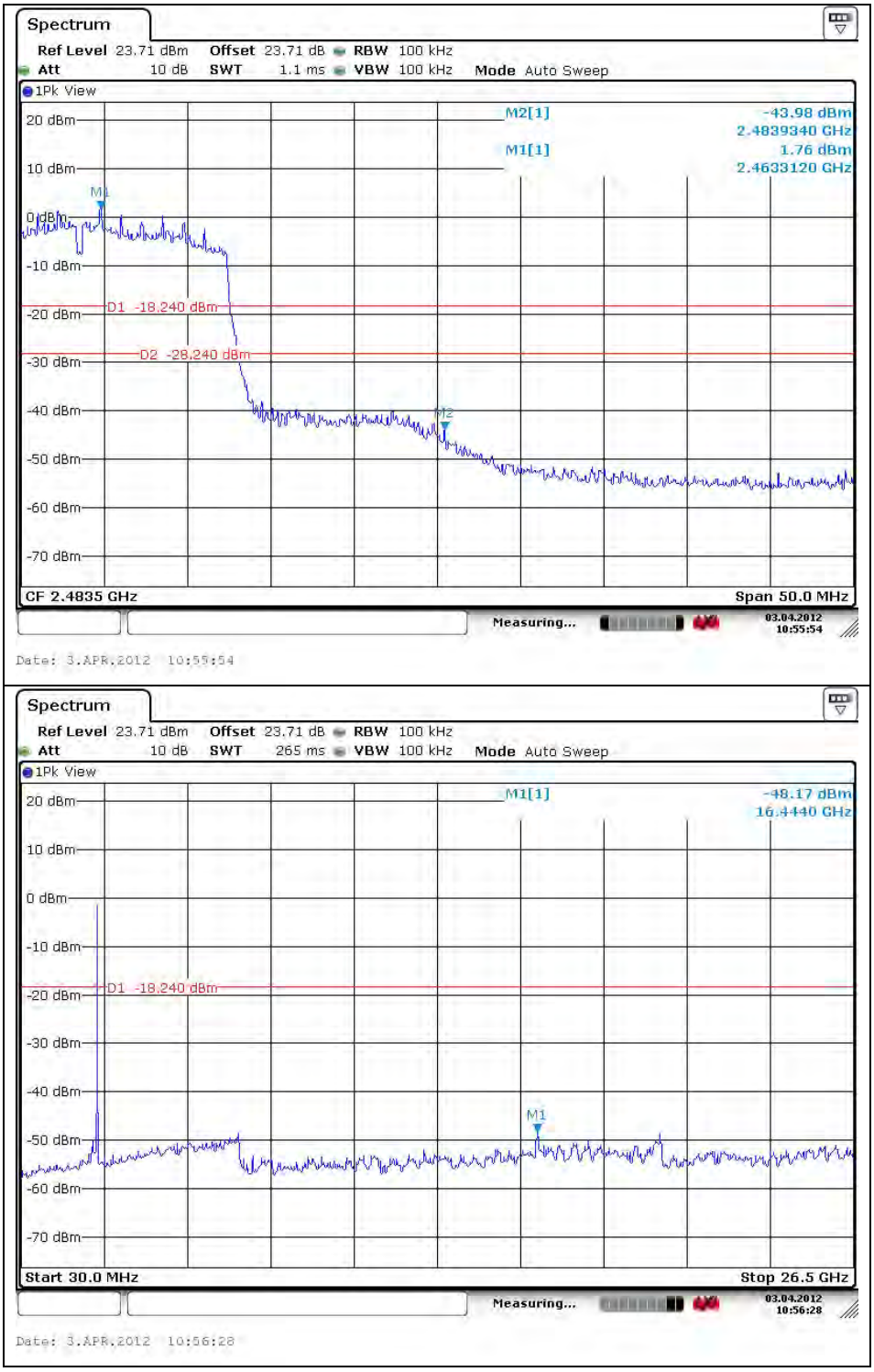




Middle Channel



High Channel



3. Receiver Radiated spurious emissions

3.1. Test setup - Same as clause 2.1.

3.1.1. Receiver Radiated Spurious Emissions - Same as clause 2.1.1.

3.2. Limit

According to §15.109(a), Except for Class A digital devices, the field strength of radiated emission from unintentional radiator at a distance of 3 m shall not exceed the following values:

Frequency (㎒)	Distance (Meters)	Radiated (㏈ μV/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

3.3. Test Procedures - Same as clause 2.3.

Radiated emissions from the EUT were measured according to the dictates of KDB558074

3.3.1. Test Procedures for Radiated Spurious Emissions- Same as clause 2.3.1.

3.4. Test Results

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

3.4.1. Spurious Radiated Emission (Worst case configuration_11b mode)

The frequency spectrum from 30 ㎒ to 26.5 ㎓ was investigated. Emission levels are not reported much lower than the limits by over 30 ㏈. All reading values are peak values.

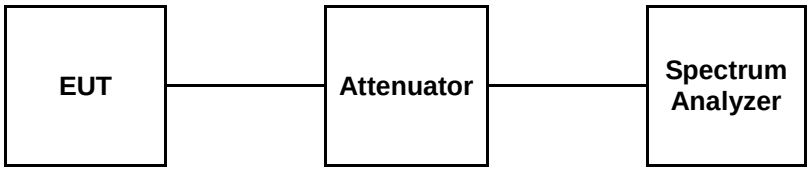
Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	AMP + CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
45.32	35.2	Peak	V	14.2	-26.4	23.0	40.0	17.0
Above 100.00	Not detected	-	-	-	-	-	-	-

Remark:

1. All spurious emission at channels are almost the same from 30 ㎒ to 26.5 ㎓, so that the middle channel was chosen at representative in final test.
2. Actual = Reading + AF + AMP + CL

4. 6 dB Bandwidth and 99 %Occupied Bandwidth Measurement

4.1. Test Setup



4.2. Limit

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 ~928 ㎒, 2 400 ~ 2 483.5 ㎒, and 5 725 ~ 5 825 ㎒ bands. The minimum of 6 dB Bandwidth shall be at least 500 ㎑

4.3. Test Procedure

1. The 6 dB 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 6 dB band width of the emission was determined.

2. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using RBW = 100 ㎑, VBW = 100 ㎑, Span = 50 ㎒.

4.4. Test Results

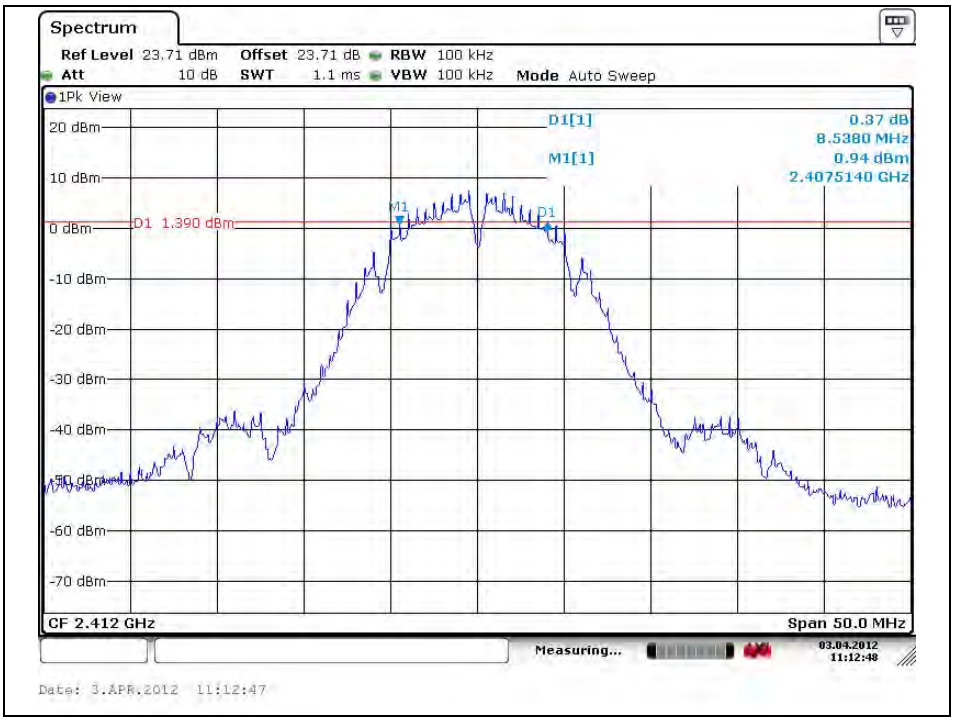
Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

Operation Mode	Channel	Channel Frequency (㎒)	6 ㏈ Bandwidth (㎒)	99 % Bandwidth (㎒)
DSSS (802.11b)	Low	2 412	8.54	12.45
	Middle	2 437	8.50	12.59
	High	2 462	8.54	12.52
OFDM (802.11g)	Low	2 412	15.34	16.71
	Middle	2 437	15.41	16.79
	High	2 462	15.38	16.71
OFDM (802.11n)	Low	2 412	16.06	17.58
	Middle	2 437	16.17	17.66
	High	2 462	16.14	17.58

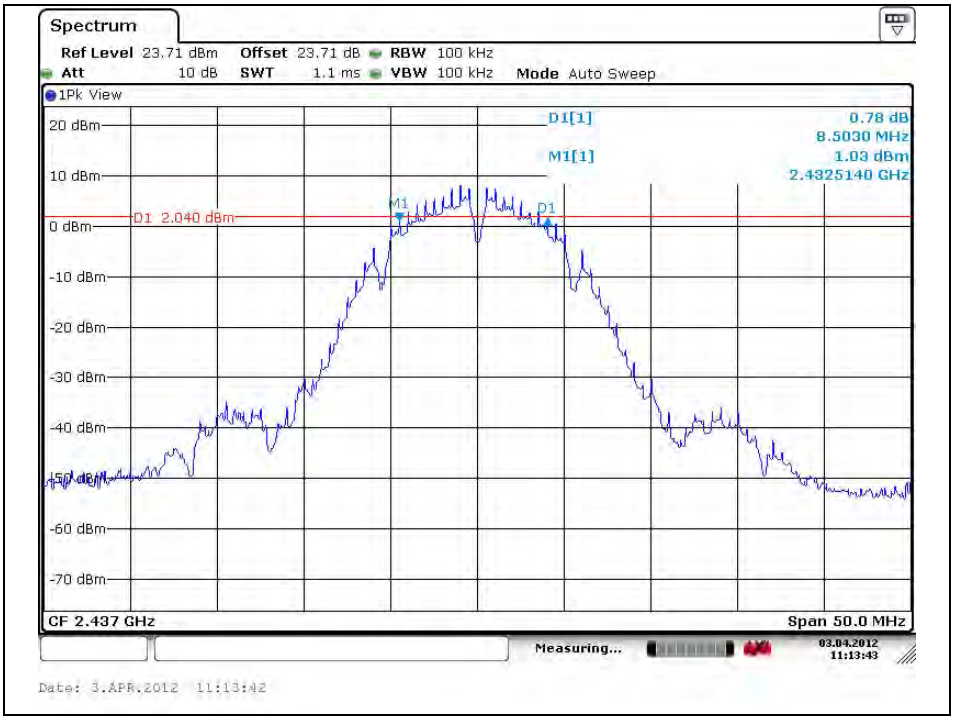
6 dB Bandwidth

DSSS : 802.11b

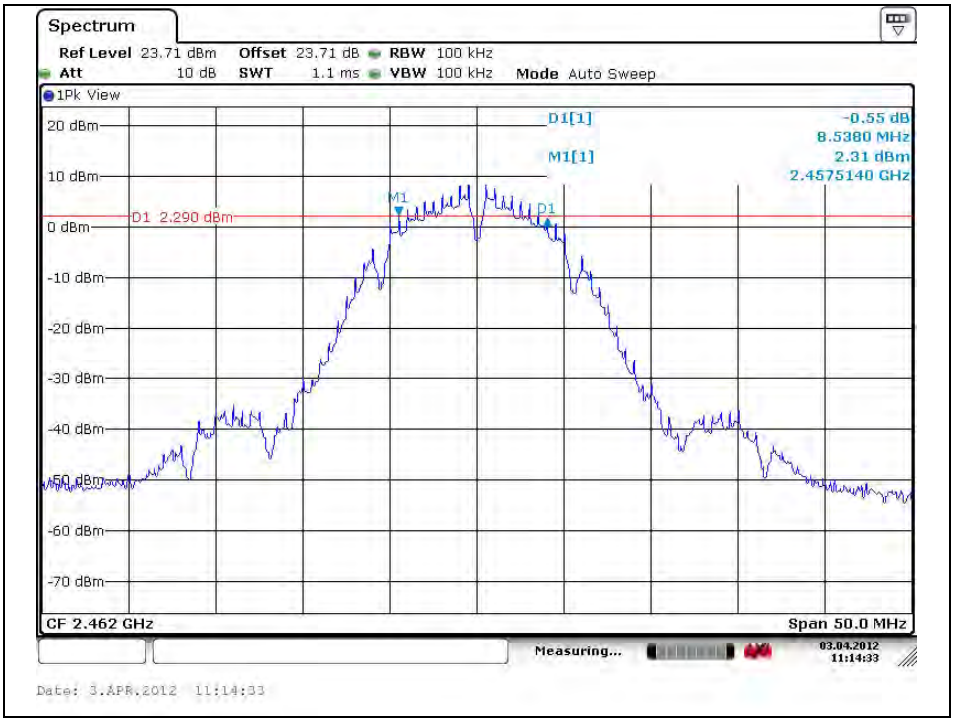
Low Channel



Middle Channel

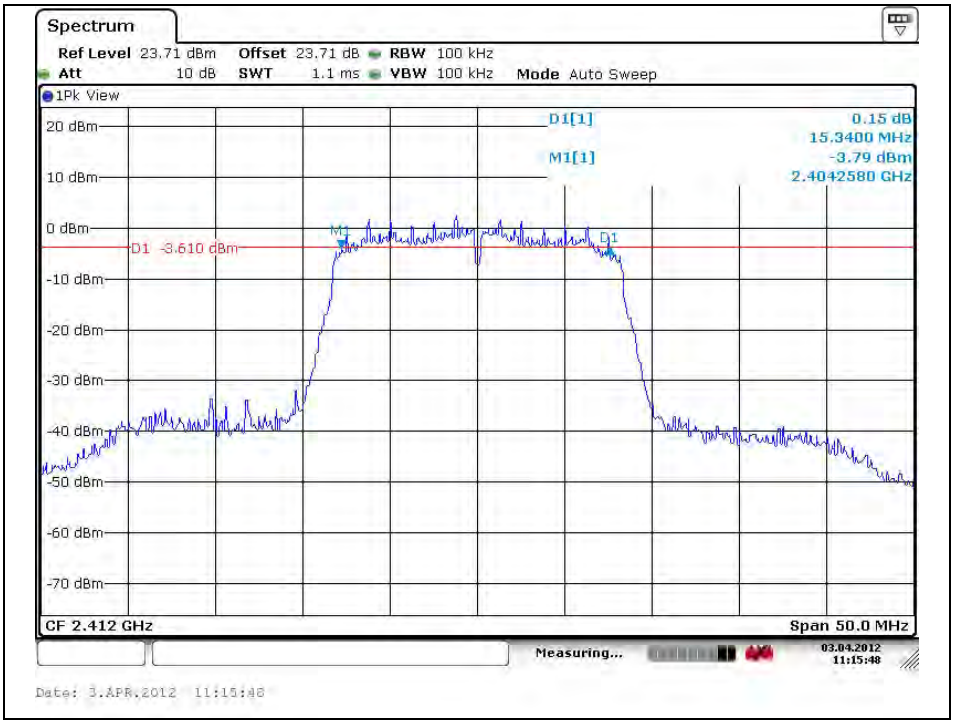


High Channel

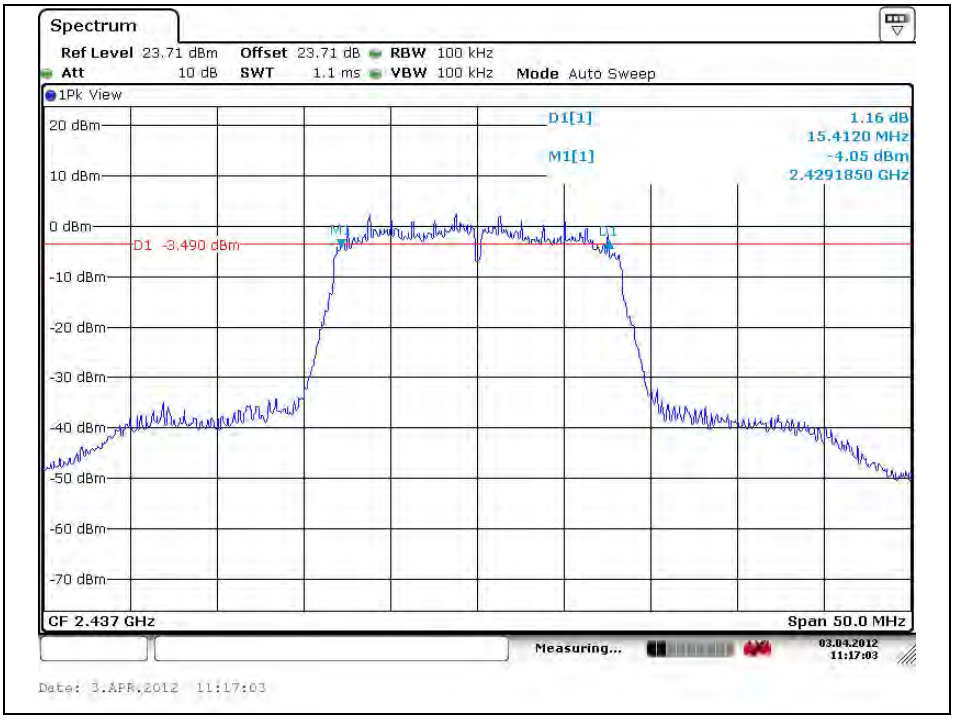


OFDM : 802.11g

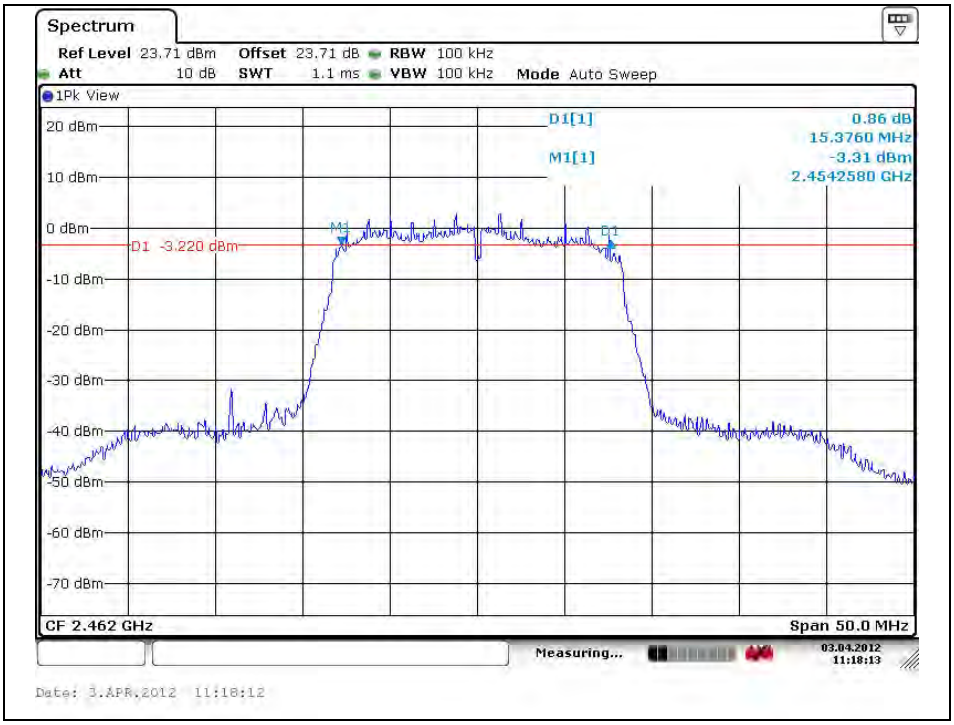
Low Channel



Middle Channel

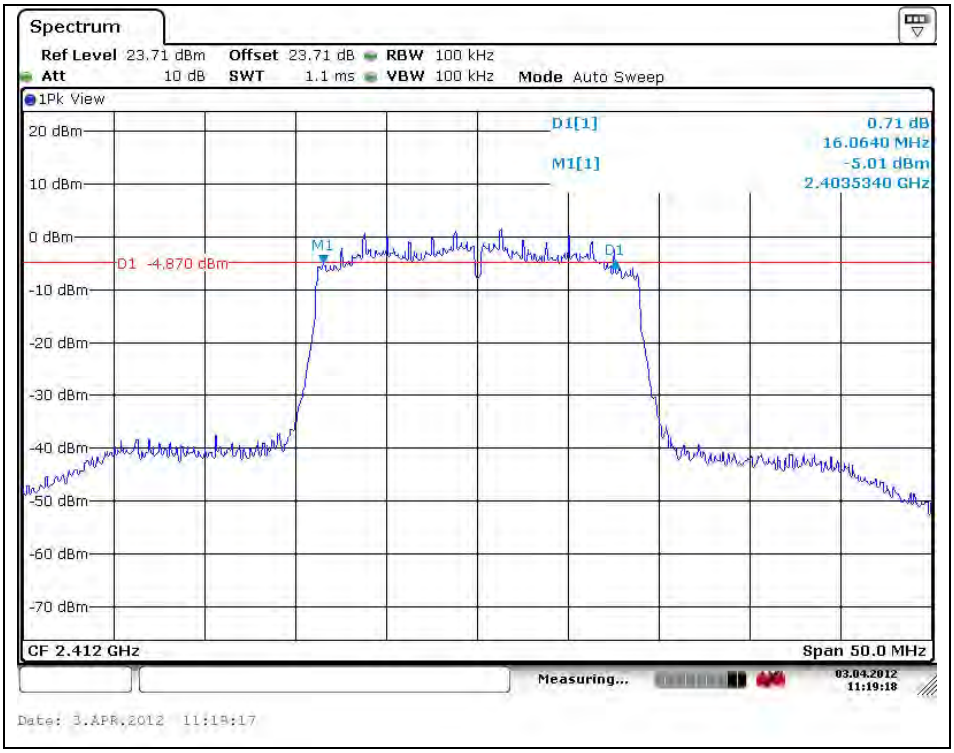


High Channel

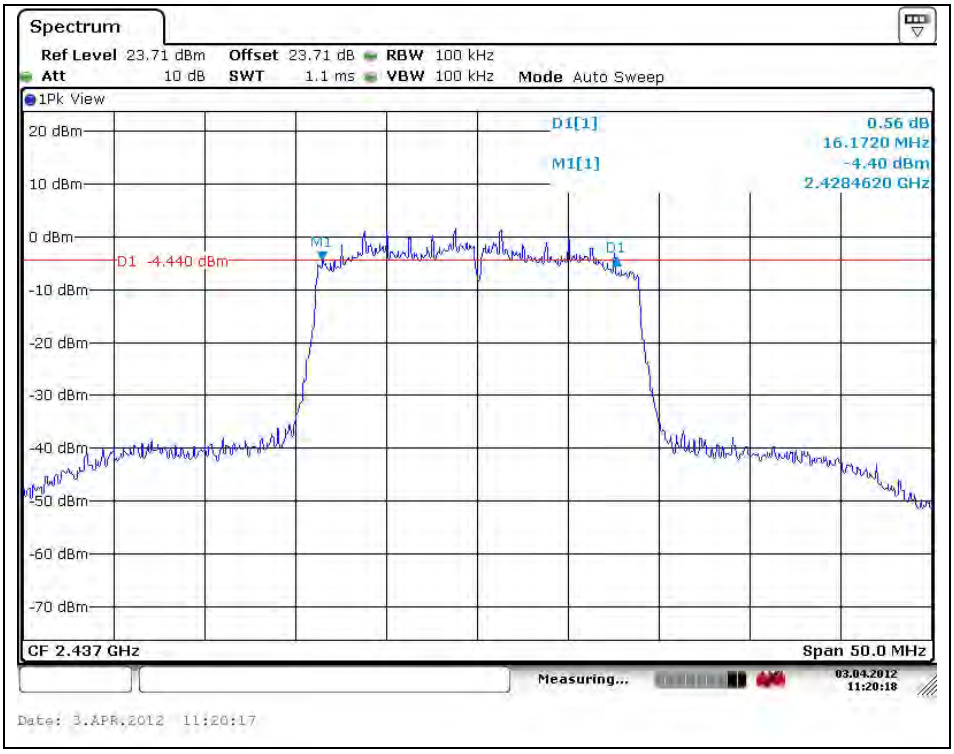


OFDM : 802.11n

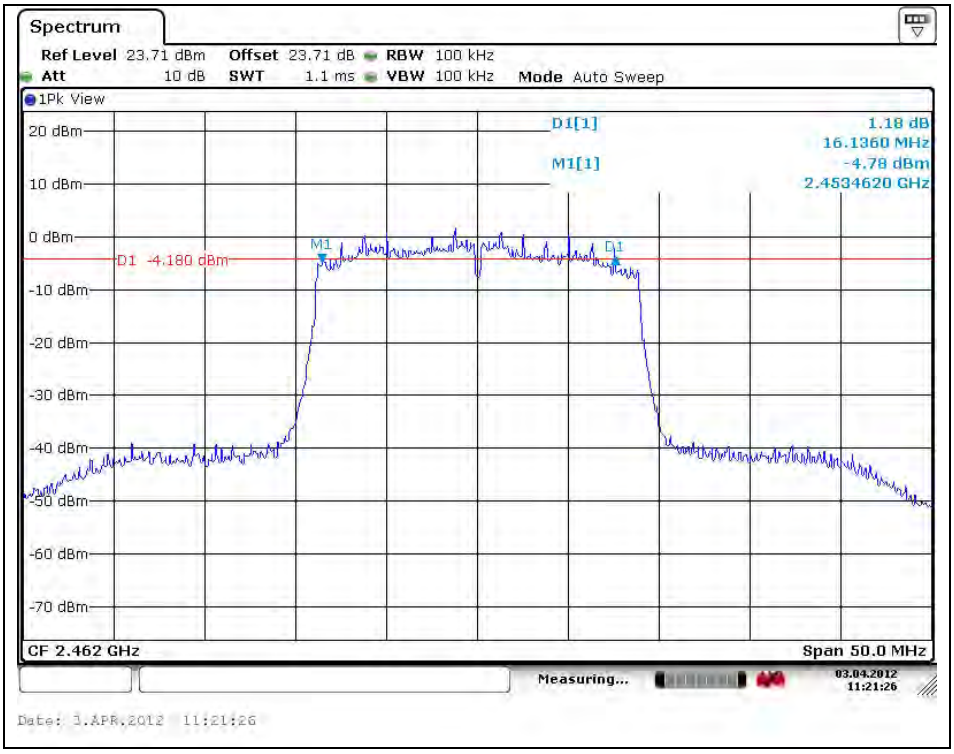
Low Channel



Middle Channel



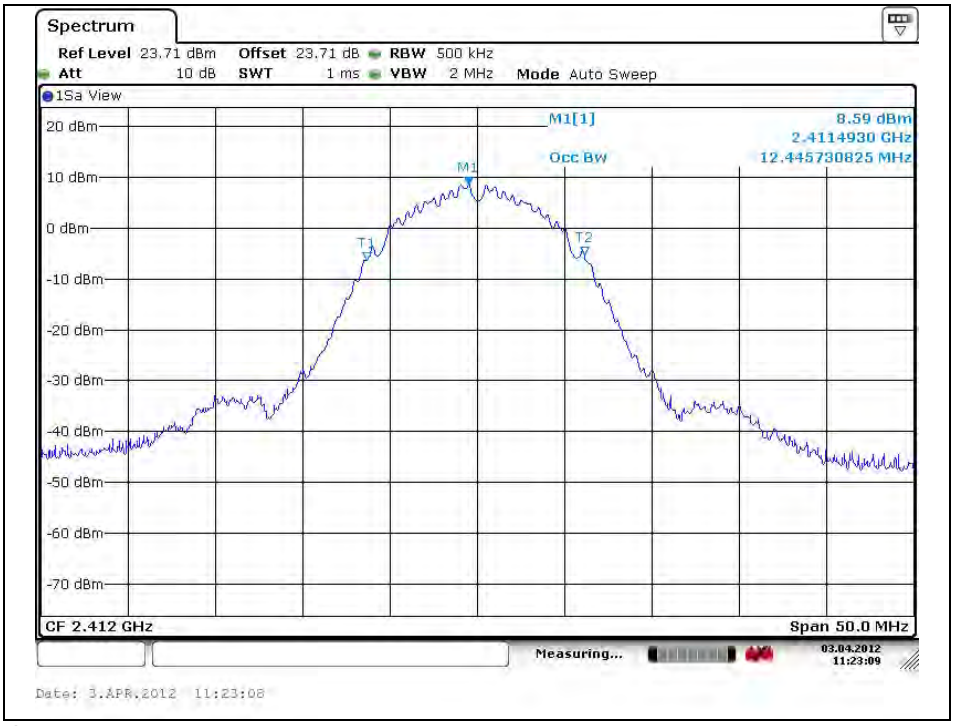
High Channel



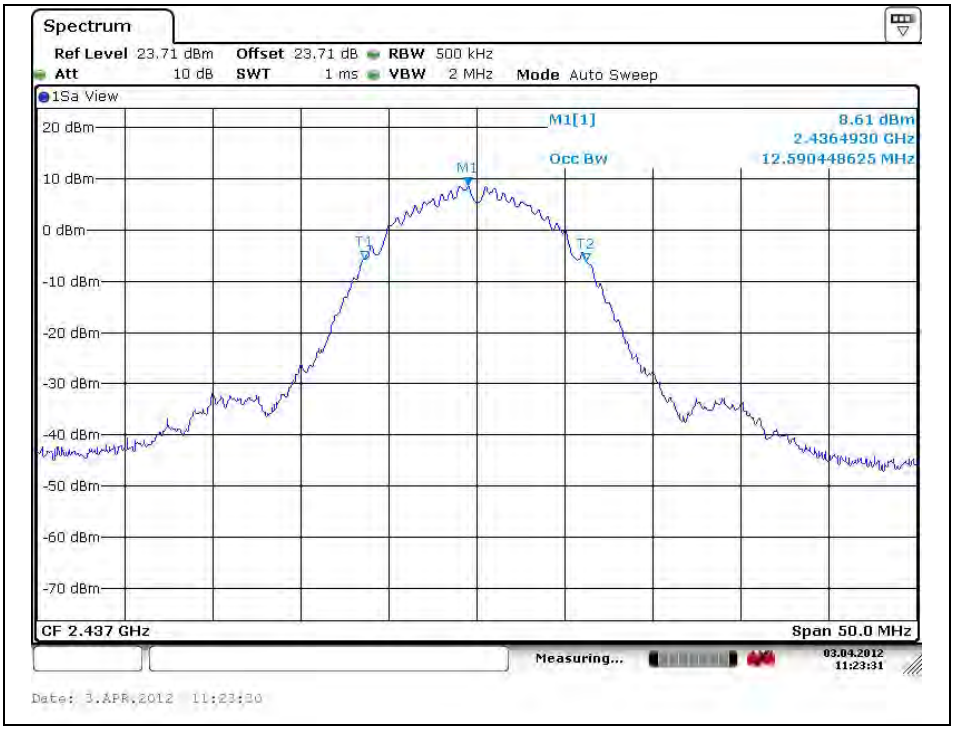
99% Bandwidth

DSSS : 802.11b

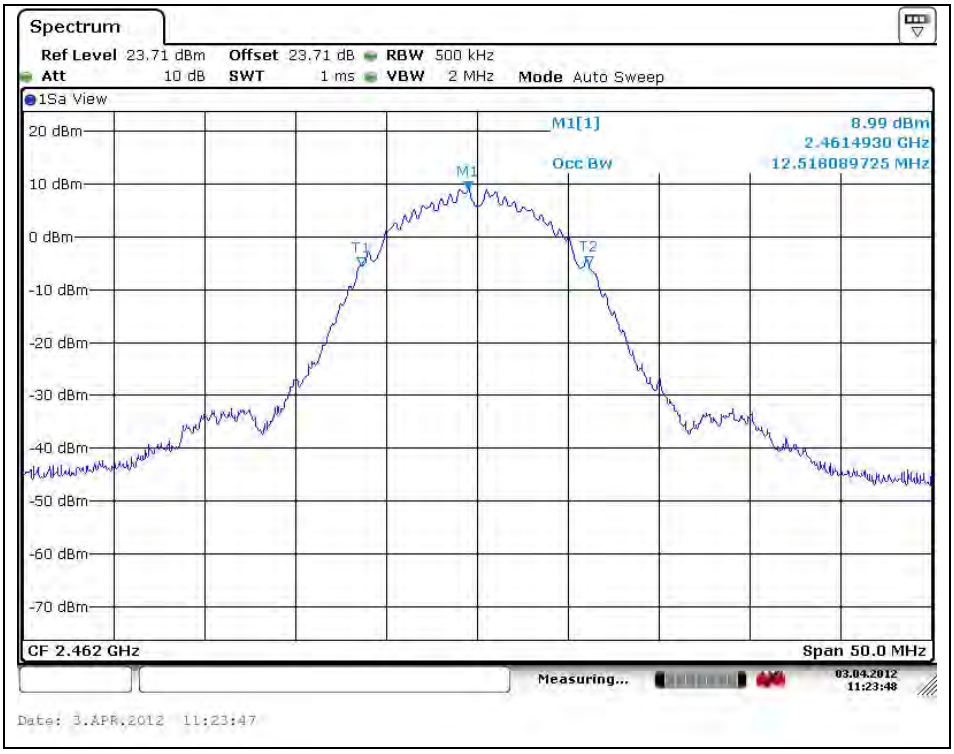
Low Channel



Middle Channel

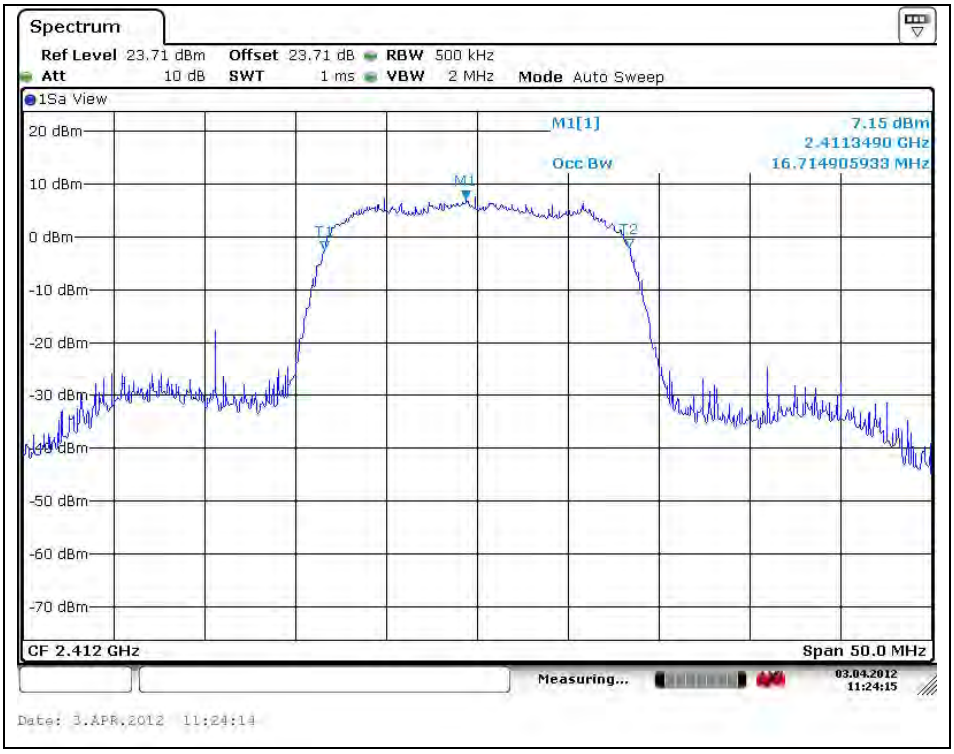


High Channel

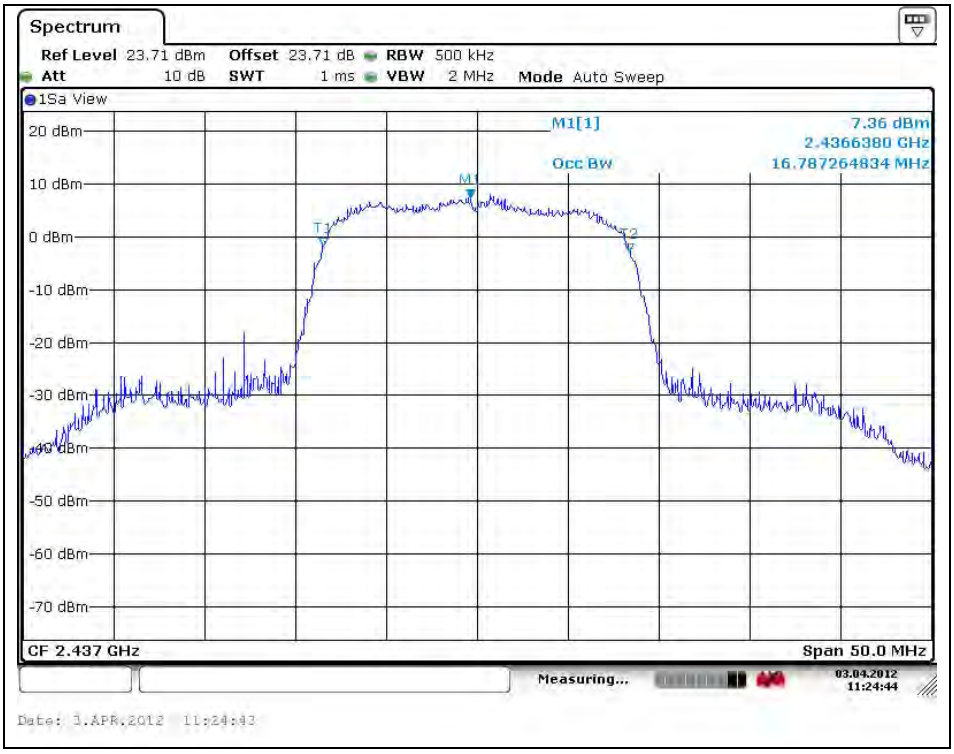


OFDM : 802.11g

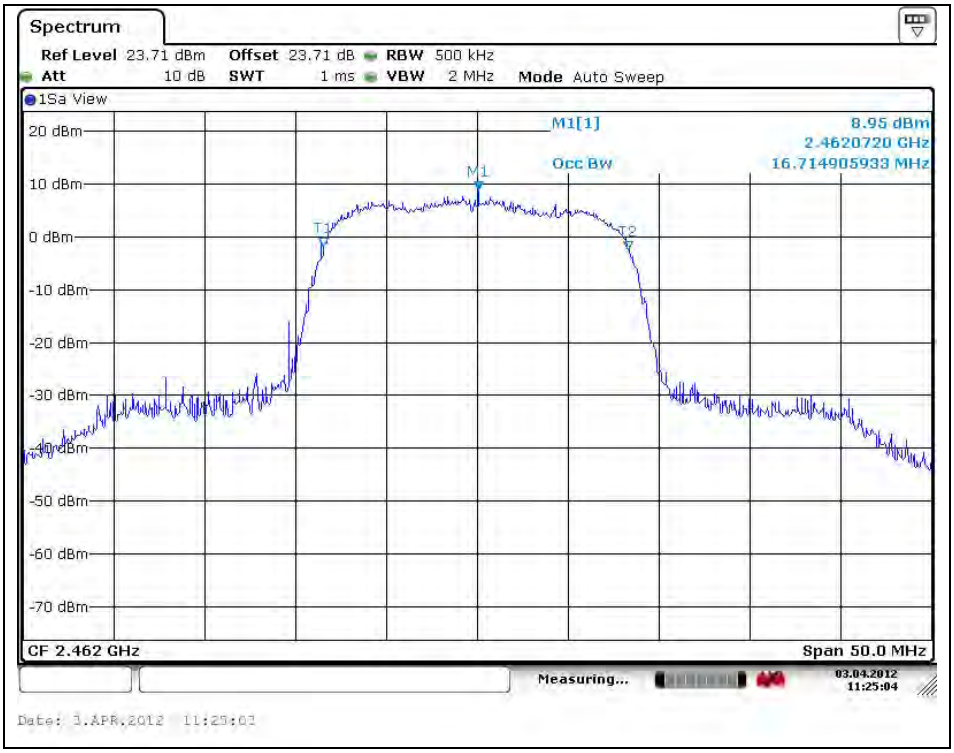
Low Channel



Middle Channel

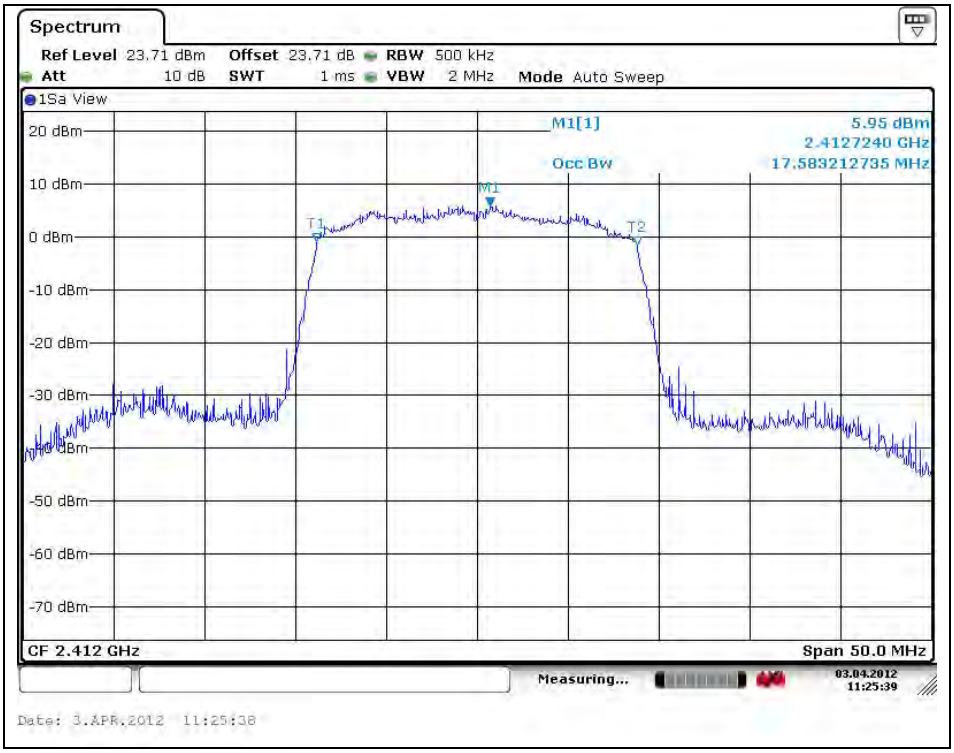


High Channel

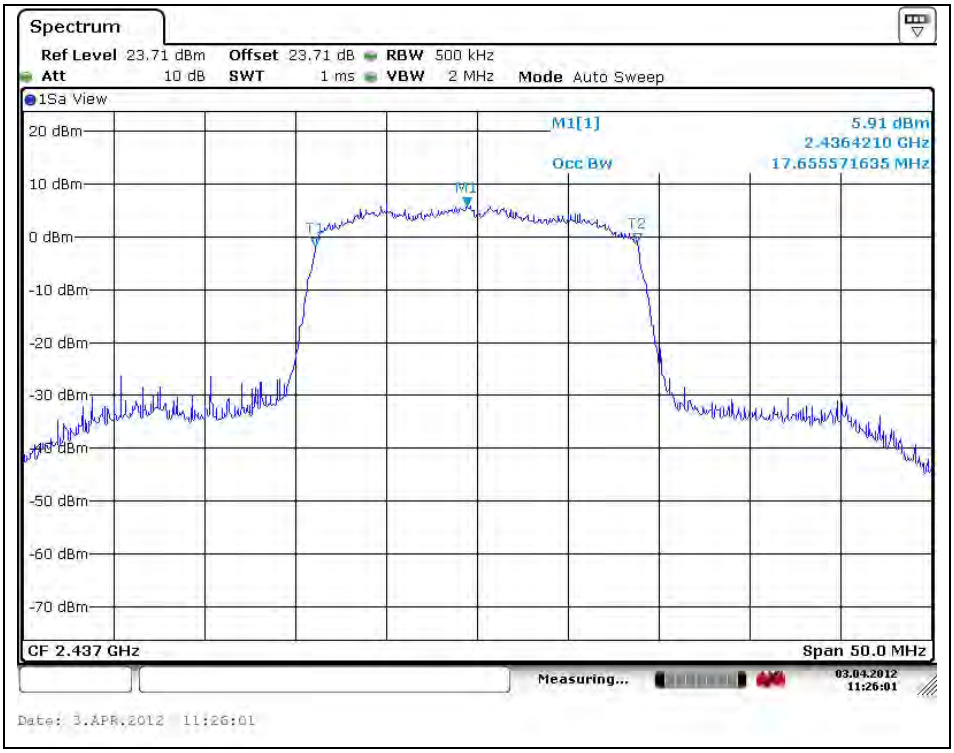


OFDM : 802.11n

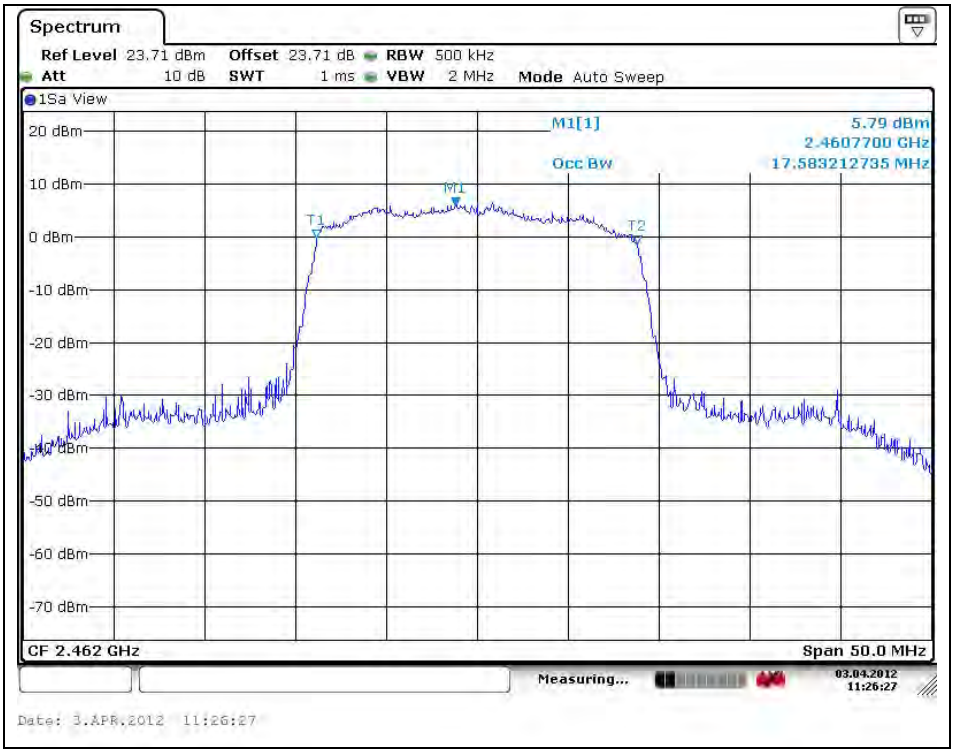
Low Channel



Middle Channel

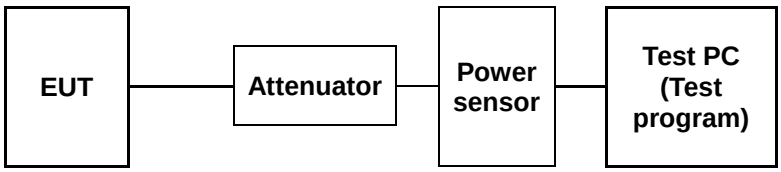


High Channel



5. Maximum Peak Output Power Measurement

5.1. Test Setup



5.2. Limit

According to §15.247(b)(3), for systems using digital modulation in the 902 ~ 928 ㎒, 2 400 ~2 483.5 ㎒, and 5 725 ~ 5 850 ㎒ band: 1 Watt. As an alternative to a peak power measurement, compliance with the one watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antenna elements. The average must not include any intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

According to §15.247(b)(4), the conducted output power limit specified in paragraph(b) of this section is based on the use of antenna with directional gains that do not exceed 6 ㏈i. Except as shown in paragraph(c) of this section, if transmitting antenna of directional gain greater than 6 ㏈i are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraph (b)(1), (b)(2), and (b)(3) of this section , as appropriate, by the amount in ㏈ that the directional gain of the antenna exceeds 6㏈i.

5.3. Test Procedure

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to power sensor.
3. Adjust the period of operating transmission in test program in order to use power sensor and then measure average power and peak power about each data rate of WLAN at the appropriate frequencies.
4. Test program : (S/W name : R&S Power Viewer, Version : 3.2.0)
5. Record in the test report.

5.4. Test result

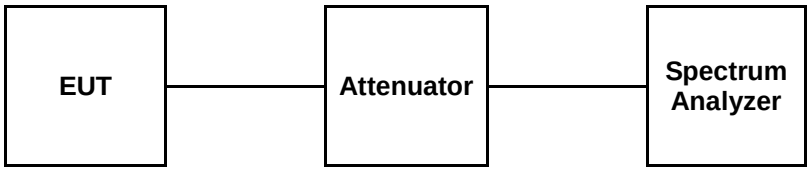
Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

Mode	Channel Frequency (㎒)	Channel	Data rate (Mbps)	Attenuator + Cable offset (㏈)	Average power Result (㏈m)	Peak Power Result (㏈m)
DSSS (802.11b)	2 412	Low	1	21.09	15.16	18.31
			2		15.08	18.27
			5.5		**15.18**	18.25
			11		14.99	**18.33**
	2 437	Middle	1	21.15	15.58	18.82
			2		15.51	18.76
			5.5		**15.69**	18.72
			11		15.41	**18.87**
	2 462	High	1	21.18	15.66	18.75
			2		15.58	18.70
			5.5		**15.73**	18.76
			11		15.52	**18.85**
OFDM (802.11g)	2 412	Low	6	21.09	**12.26**	**23.39**
			9		12.22	22.36
			12		12.11	22.89
			18		11.88	22.87
			24		11.79	22.81
			36		11.44	23.08
			48		11.08	22.69
			54		10.99	22.79
	2 437	Middle	6	21.15	12.62	**23.57**
			9		**12.66**	23.35
			12		12.44	23.09
			18		12.26	22.99
			24		12.12	23.02
			36		11.82	23.28
			48		11.51	22.92
			54		11.42	22.94
	2 462	High	6	21.18	**12.78**	**23.38**
			9		12.72	23.12
			12		12.65	22.87
			18		12.52	22.76
			24		12.23	22.74
			36		11.99	23.11
			48		11.67	22.81
			54		11.47	22.74

Mode	Channel Frequency (㎒)	Channel	Data rate (Mbps)	Attenuator + Cable offset (㏈)	Average power Result (㏈ m)	Peak Power Result (㏈ m)
OFDM (802.11n)	2 412	Low	MCS0	21.09	**11.17**	**22.52**
			MCS1		10.94	22.34
			MCS2		10.78	22.16
			MCS3		10.59	22.03
			MCS4		10.29	21.92
			MCS5		10.09	21.83
			MCS6		9.91	22.37
			MCS7		9.85	22.13
	2 437	Middle	MCS0	21.15	**11.66**	**22.91**
			MCS1		11.45	22.58
			MCS2		11.15	22.54
			MCS3		11.01	22.39
			MCS4		10.75	22.34
			MCS5		10.51	22.24
			MCS6		10.34	22.67
			MCS7		10.17	22.57
	2 462	High	MCS0	21.18	**11.67**	**22.61**
			MCS1		11.48	22.41
			MCS2		11.29	22.36
			MCS3		11.15	22.19
			MCS4		10.89	22.11
			MCS5		10.54	22.04
			MCS6		10.42	22.41
			MCS7		10.26	22.20

6. POWER SPECTRAL DENSITY MEASUREMENT

6.1. Test Setup



6.2. Limit

§15.247(e) For digitally modulated system, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 ㏈ m in any 3 ㎑ band any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

6.3. Test Procedure

1. Place the EUT on the table and set it in transmitting mode.
   Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3 ㎑, VBW = 10 ㎑, Span = 300 ㎑ and Sweep = 100 s.
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

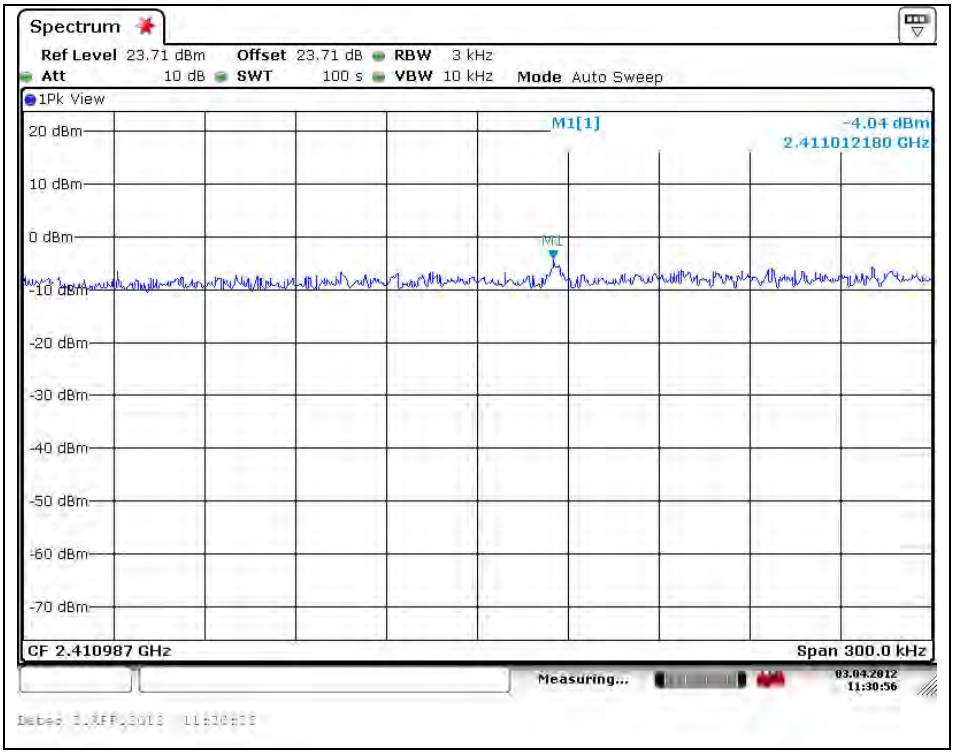
6.4. Test Results

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

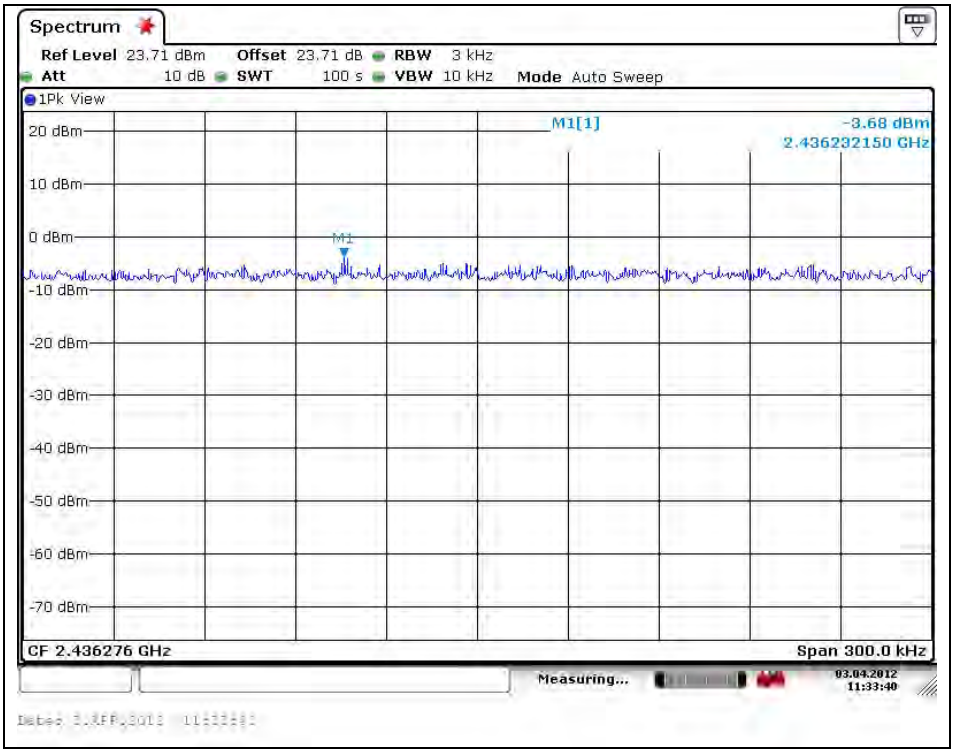
Operation Mode	Frequency	Final RF Power Level in 3 ㎑ BW (㏈m)	Maximum Limit (㏈m)
DSSS (802.11b)	2 412 ㎒	-4.04	8
	2 437 ㎒	-3.68	8
	2 462 ㎒	-3.41	8
OFDM (802.11g)	2 412 ㎒	-10.83	8
	2 437 ㎒	-10.68	8
	2 462 ㎒	-10.79	8
OFDM (802.11n)	2 412 ㎒	-11.82	8
	2 437 ㎒	-11.97	8
	2 462 ㎒	-11.73	8

DSSS : 802.11b

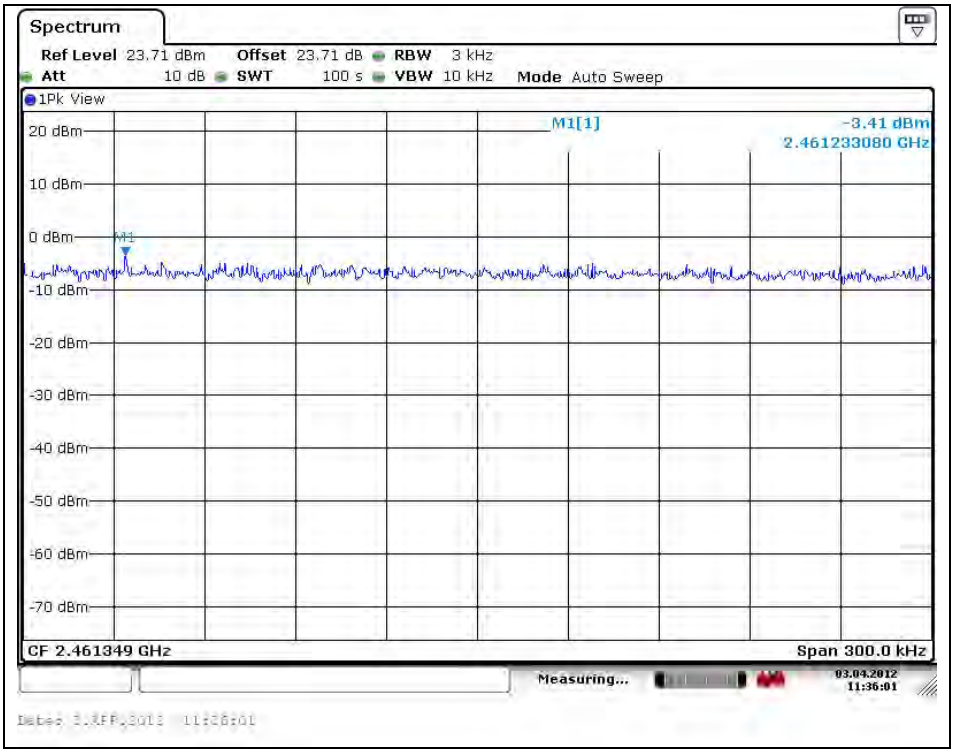
Low Channel



Middle Channel

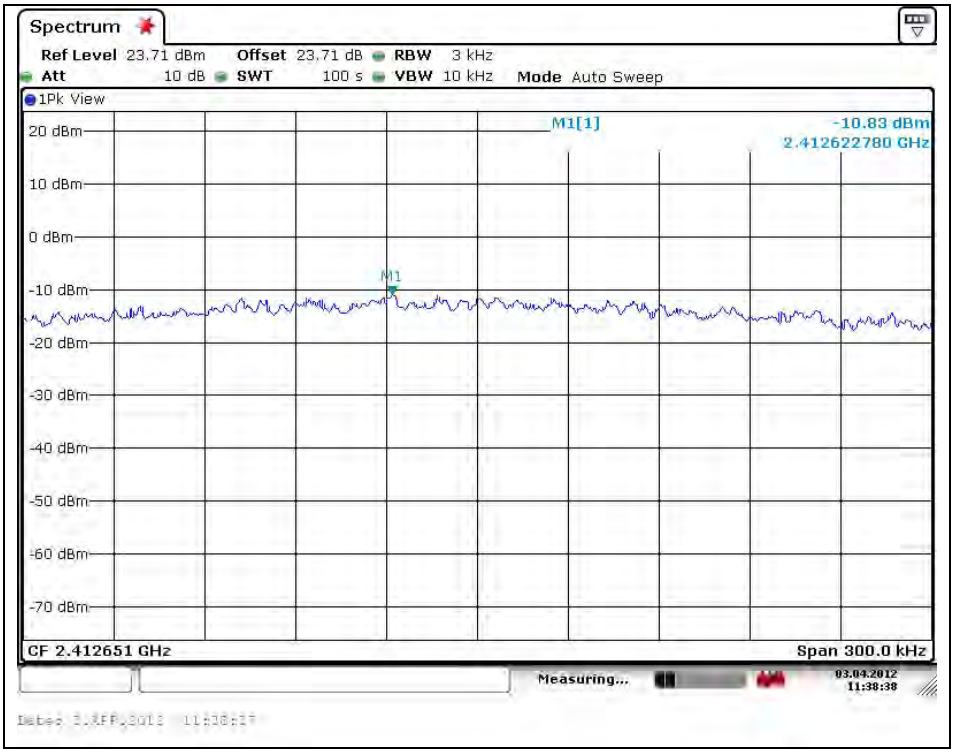


High Channel

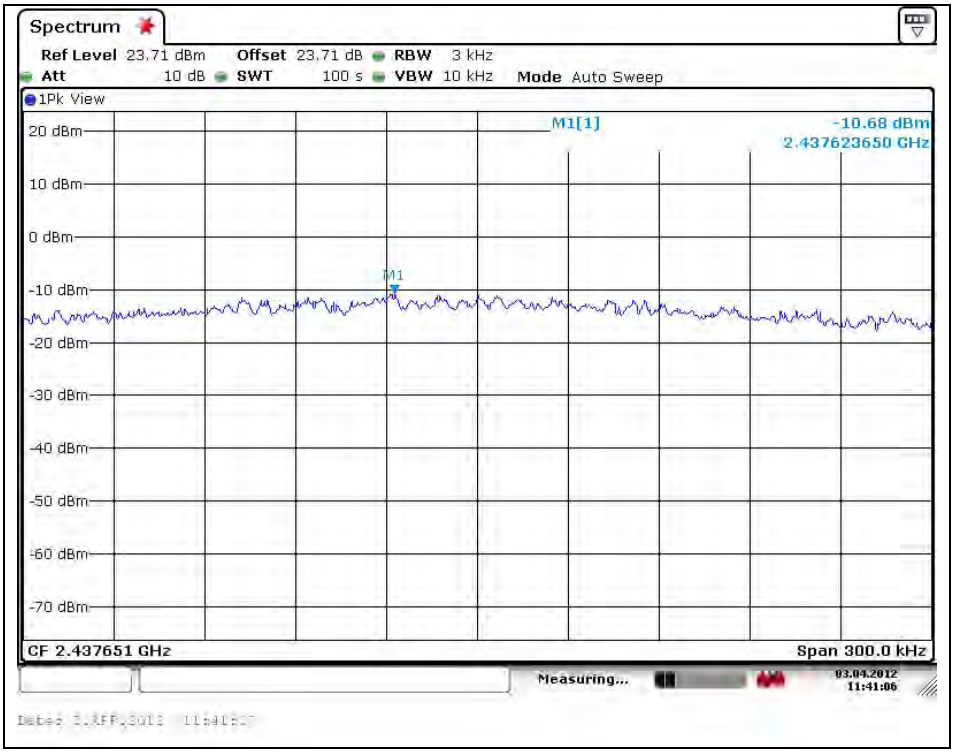


OFDM : 802.11g

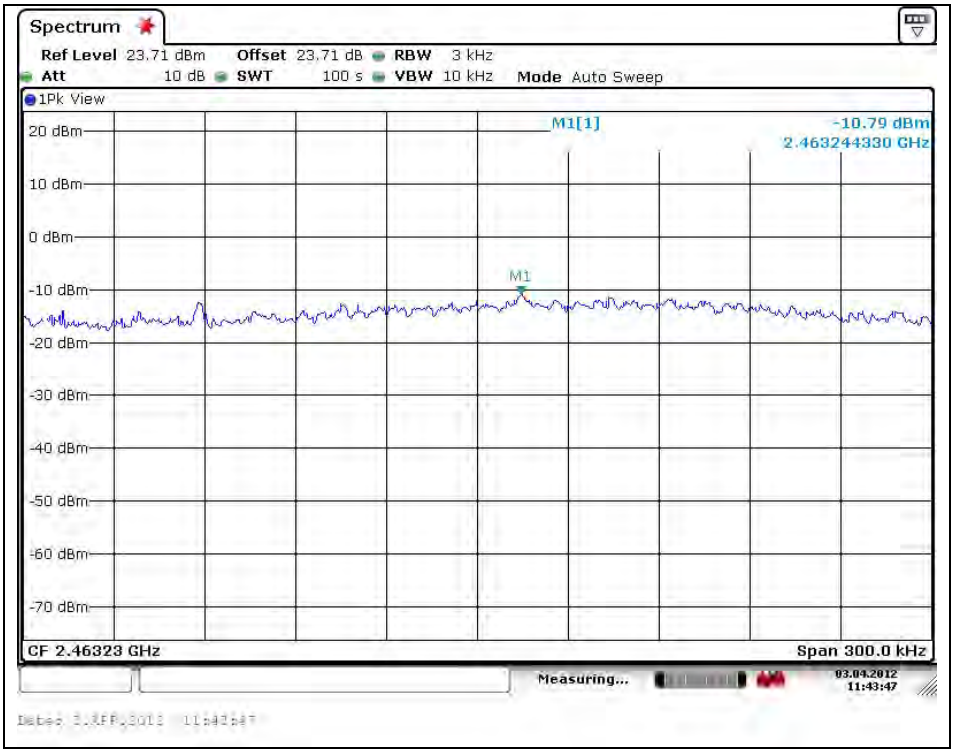
Low Channel



Middle Channel

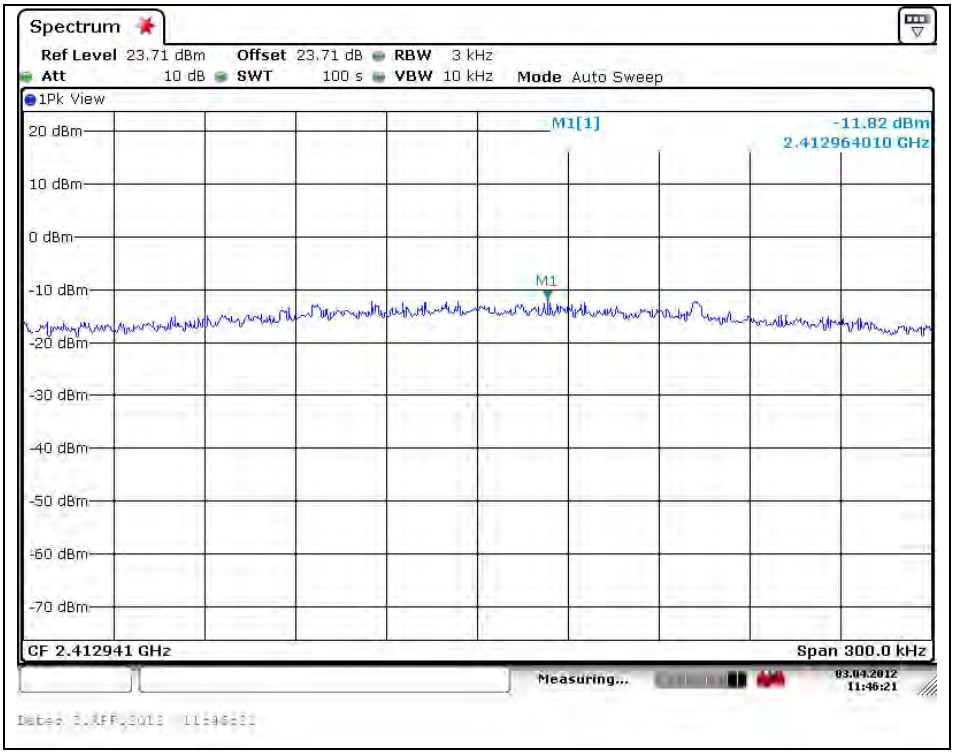


High Channel

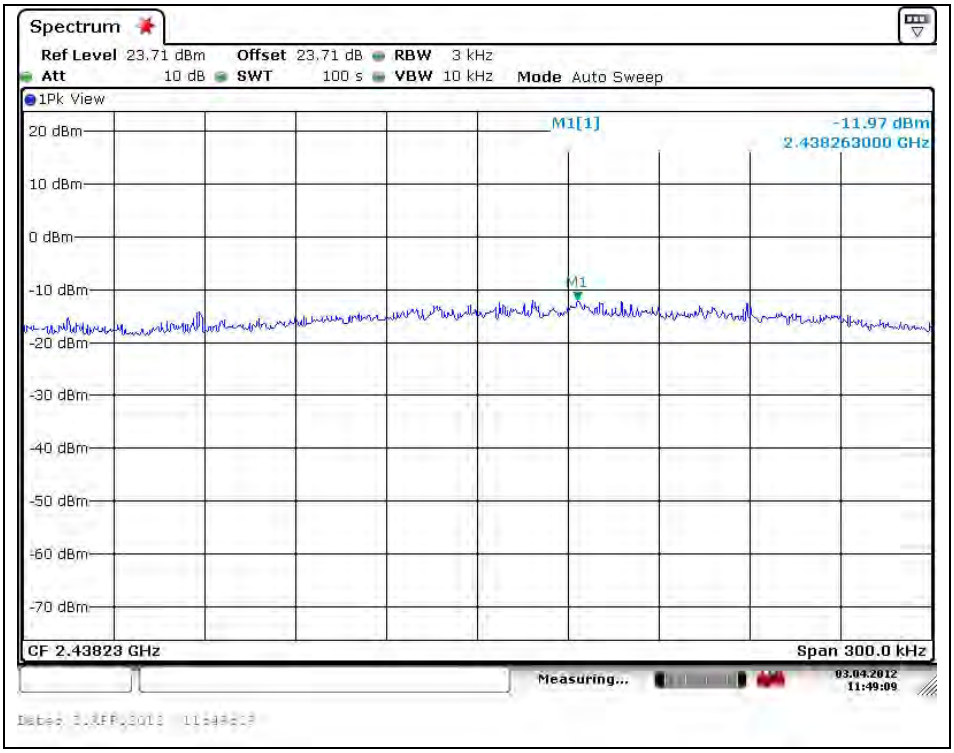


DSSS : 802.11n

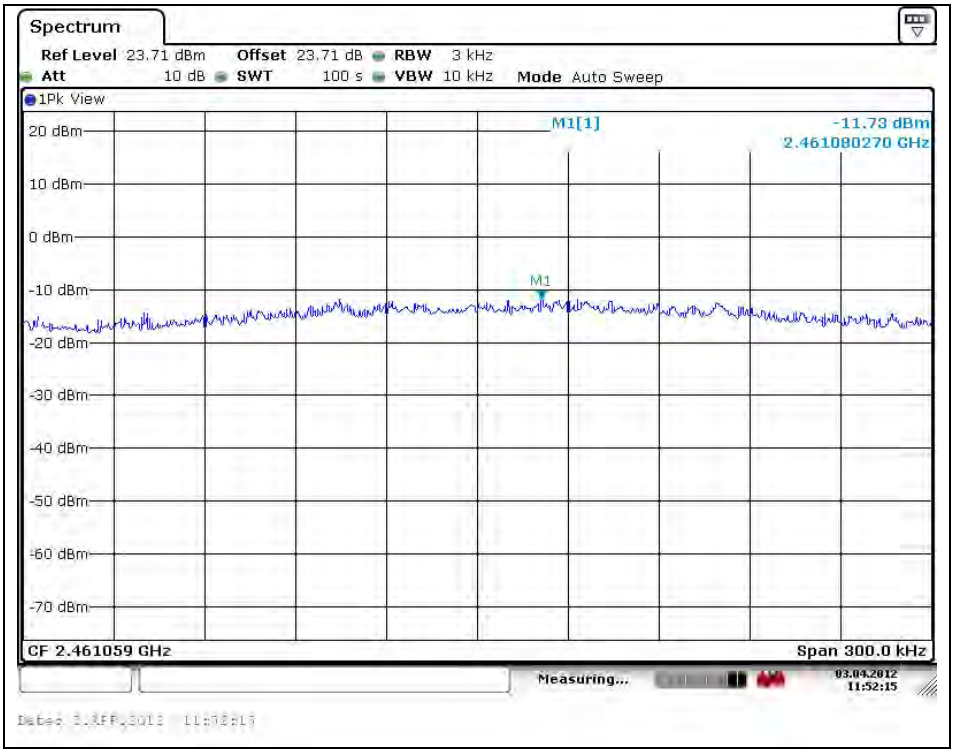
Low Channel



Middle Channel



High Channel



7. Antenna Requirement

7.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section §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. And according to FCC 47 CFR Section §15.247 (b) if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the gain of the antenna exceeds 6 dBi.

7.2. Antenna Connected Construction

Antenna used in this product is Integral type (PCB Antenna) gain of -0.09 dBi.