LTA
Laboratory for Test & Approval Co.,Ltd.

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http://www.ltalab.com

TEST REPORT

Dates of Tests : January 02~14, 2013
Test Report S/N: LR500111301B
Test Site : LTA CO., LTD

CERTIFICATION OF COMPLIANCE

FCC ID. **ROBSMB815**

APPLICANT **ITI Technology Co., Ltd**

Equipment Class	**:**	**Digital Transmission System (DTS)**
Manufacturing Description	**:**	**SMART TV (WLAN embedded)**
Manufacturer	**:**	**ITI Technology Co., Ltd**
Model name	**:**	**SMB815**
Test Device Serial No.	**:**	**Identical prototype**
Rule Part(s)	**:**	**FCC Part 15.247 Subpart C; ANSI C-63.4-2003**
Frequency Range	**:**	**2412MHz ~ 2462MHz for 802.11b/g/n_20MHz** **2422MHz ~ 2452MHz for 802.11n_40MHz**
Max. Output Power	**:**	**Max 12.67 dBm - Conducted (802.11b)**
	:	**Max 12.70 dBm - Conducted (802.11g)**
	:	**Max 12.81 dBm - Conducted (802.11n_20MHz)**
	:	**Max 12.72 dBm - Conducted (802.11n_40MHz)**
Data of issue	**:**	**January 16, 2013**

This test report is issued under the authority of:

Kyu-Hyun Lee, Manager

The test was supervised by:

Jung-Moo Her, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. This report must not be used by the applicant to claim product endorsement by any agency.

NVLAP LAB Code.: 200723-0

TABLE OF CONTENTS

1. General information's

1-1 Purpose

This document is based on the Electromagnetic Interference (EMI) tests performed on the "**SMB815**". The measurements were performed according to the measurement procedure described in ANSI C 63.4:2003. The tests were carried out in order to confirm whether the electromagnetic emissions from the EUT(Equipment Under Test), are within the class B limits defined in FCC Part 15, Subpart B- "Section 15.107- Conducted limits" and "Section 15.109-Radiated emission limits".

1-2 Test Performed

Company name	:	LTA Co., Ltd.
Address	:	243, Jubug-ri,Yangji-Myeon,Youngin-Si, Kyunggi-Do, Korea. 449-822
Web site	:	http://www.ltalab.com
E-mail	:	chahn@ltalab.com
Telephone	:	+82-31-323-6008
Facsimile		+82-31-323-6010

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competents of calibration and testing laboratory".

1-3 Measurement uncertainty

Radiated disturbance	(30 – 1 000 MHz)	:	+4.52 [dB]	,-4.43 [dB] (k=2)
	(1 GHz – 18 GHz)		+3.00 [dB]	,-3.00 [dB] (k=2)
Conducted disturbance	(0.15 – 30 MHz)	:	+1.45 [dB]	,-1.45 [dB] (k=2)

The coverage factor k=2 yields approx. a 95% level of confidence for near-normal distribution typical of most measurement results.

1-4 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2013-09-30	ECT accredited Lab.
RRL	KOREA	KR0049	2013-04-24	EMC accredited Lab.
FCC	U.S.A	610755	2014-04-27	FCC filing
FCC	U.S.A	649054	2013-04-13	FCC CAB
VCCI	JAPAN	R2133(10m), C2307	2014-06-21	VCCI registration
VCCI	JAPAN	T-2009	2013-12-23	VCCI registration
VCCI	JAPAN	G-563	2015-05-28	VCCI registration
IC	CANADA	5799A-1	2015-06-21	IC filing

2. Information's about test item

2-1 Applicant & Manufacture

Company name	:	ITI Technology Co., Ltd.
Address	:	T-1208 SK Technopark, 190-1 Shangdaewon, Jungwon-gu, Seongnam-si, Gyunggi-do, KOREA
Tel / Fax	:	+82 31 776 0770 / +82-31-776-0766

2-2 Equipment Under Test (EUT)

Trade name	:	SMART TV
FCC ID	:	ROBSMB815
Model name	:	SMB815
Serial number	:	Identical prototype
Date of receipt	:	January 02, 2013
EUT condition	:	Pre-production, not damaged
Antenna type	:	PCB Pattern antenna with Max. 3.8dBi gain
Frequency Range	:	2412MHz ~ 2462MHz for 802.11b/g/n_20MHz
		2422MHz ~ 2452MHz for 802.11n_40MHz
RF output power	:	Max 12.67dBm - Conducted (802.11b)
	:	Max 12.70dBm - Conducted (802.11g)
	:	Max 12.81dBm - Conducted (802.11n_20MHz)
	:	Max 12.72dBm - Conducted (802.11n_40MHz)
Number of channels	:	13 for 802.11b & 802.11g & 802.11n_20MHz
	:	11 for 802.11n_40MHz
Type of Modulation	:	CCK, DQPSK, DBPSK for DSSS
		64QAM, 16QAM, QPSK, BPSK for OFDM
Transfer Rate	:	11/5.5/2/1Mbps for 802.11b
	:	54/48/36/24/18/12/9/6Mbps for 802.11g
	:	Up to 300.0Mbps for 802.11n_20MHz / n_40MHz
Power Source	:	DC 24V by adapter (AC / DC : Input – 120 Vac 60 Hz, Output – 24 Vdc)
Interface port	:	RF IN, HDMI #1, #2, AV #1, #2, RJ-45, RGB, USB, AUDIO IN / OUT
Firmware version	:	V1.0

2-3 Tested frequency

	LOW	MID	HIGH
Frequency (MHz) for 802.11b/g/n20	**2412**	**2437**	**2462**
Frequency (MHz) for 802.11n40	**2422**	**2437**	**2452**

2-4 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
Notebook	**VOSTRO 1015**	**N/A**	**DELL**

2-5 Description of Test modes

***11 channels are provided for 802.11b, 802.11g and 802.11n_20MHz**

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

***7 channels are provided for 802.11n_40MHz**

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

3. Test Report

3.1 Summary of tests

FCC Part Section(s)	Parameter	Limit	Test Condition	Status (note 1)
15.247(a)	6 dB Bandwidth	> 500kHz	Conducted	C
15.247(b)	Transmitter Peak Output Power	< 1Watt		C
15.247(d)	Transmitter Power Spectral Density	< 8dBm @ 3kHz		C
15.247(d)	Band Edge & Spurious	> 20 dBc		C
15.209	Field Strength of Harmonics	Emission	Radiated	C
15.207	AC Conducted Emissions	Emissions	Conducted	NA note3
15.203	Antenna requirement	-	-	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

Note 3: This device is only operated by DC

→ Antenna Requirement
The ITI Technology Co., Ltd FCC ID: ROBSMB815 unit complies with the requirement of §15.203.
The antenna is internal PCB pattern Antenna.

The sample was tested according to the following specification:
*FCC Parts 15.247; ANSI C-63.4-2003
*FCC KDB Publication No. 558074 D01 DTS Meas. Guidance V01
*FCC TCB Workshop 2012, April

3.2 Technical Characteristics Test

3.2.1 6 dB Bandwidth

Procedure:

*The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.

The bandwidth at 6dB below the highest in-band spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 6dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz

Span = 30 / 60 MHz

VBW = 100 kHz (VBW ≥ RBW)

Sweep = auto

Trace = max hold

Detector function = peak

Measurement Data:

Mode	Frequency (MHz)	Channel No.	Test Results (MHz)	
			6dB Bandwidth	99% Bandwidth
802.11b	2412	1	10.46	14.28
	2437	6	9.77	14.24
	2462	11	10.46	14.37
802.11g	2412	1	16.41	16.37
	2437	6	16.45	16.32
	2462	11	16.45	16.37
802.11n _20MHz	2412	1	17.45	17.45
	2437	6	17.19	17.45
	2462	11	17.41	17.50
802.11n _40MHz	2422	1	35.60	35.60
	2437	4	35.08	35.43
	2452	7	35.17	35.60

- See next pages for actual measured spectrum plots.

Minimum Standard:

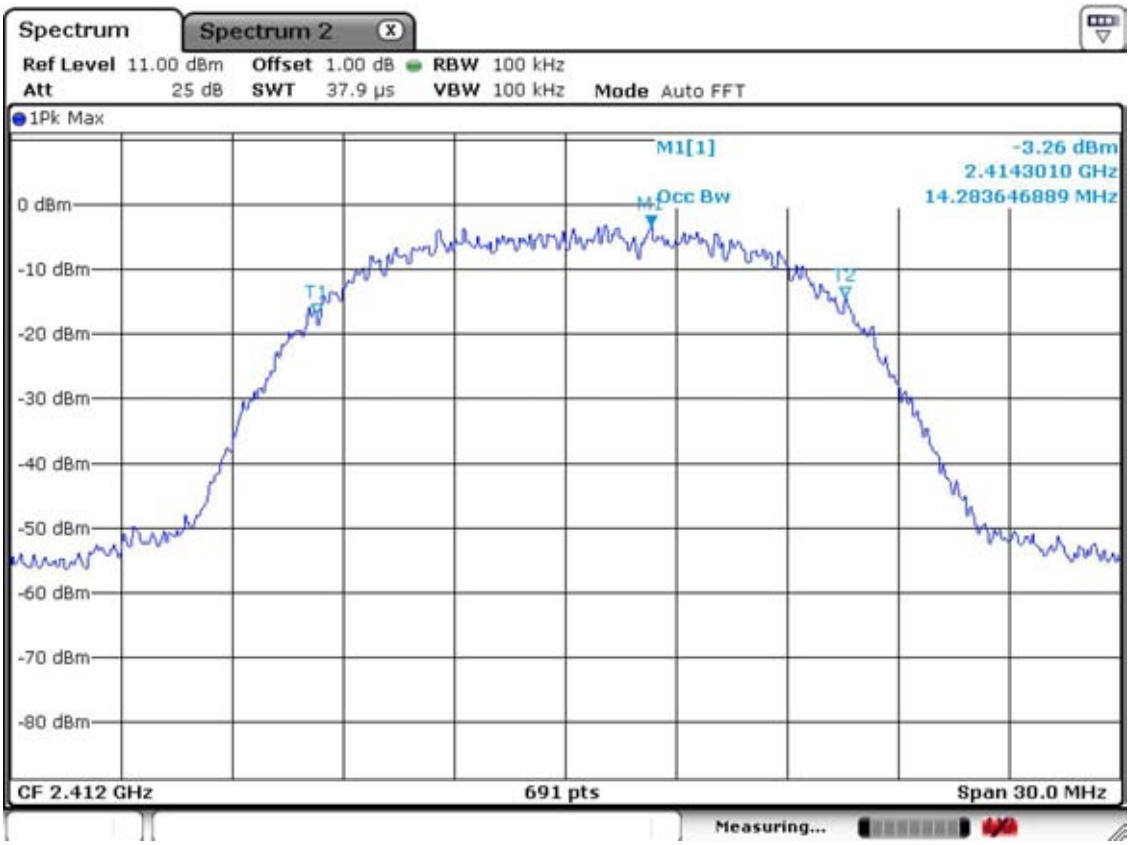
6 dB Bandwidth > 500kHz

Measurement Setup

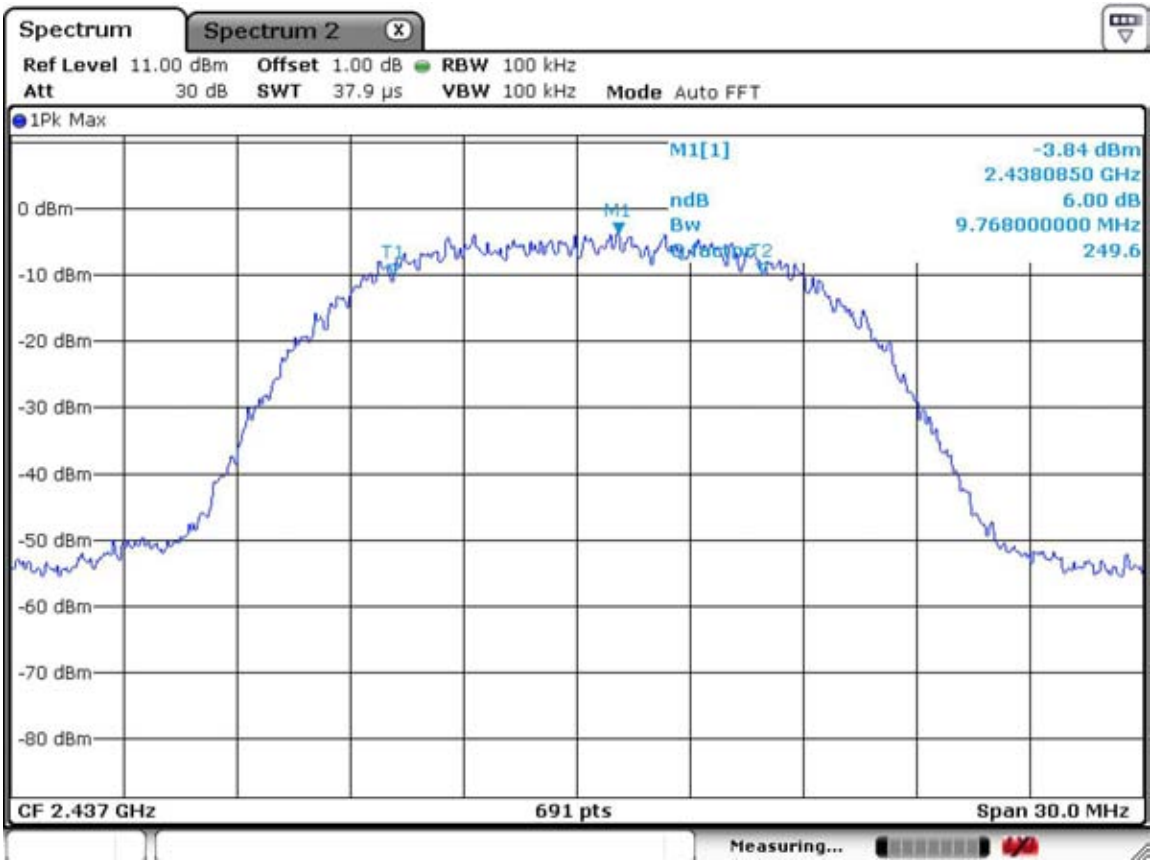
Same as the Chapter 3.2.1 (Figure 1)

802.11b - 6dB Bandwidth
CH 1

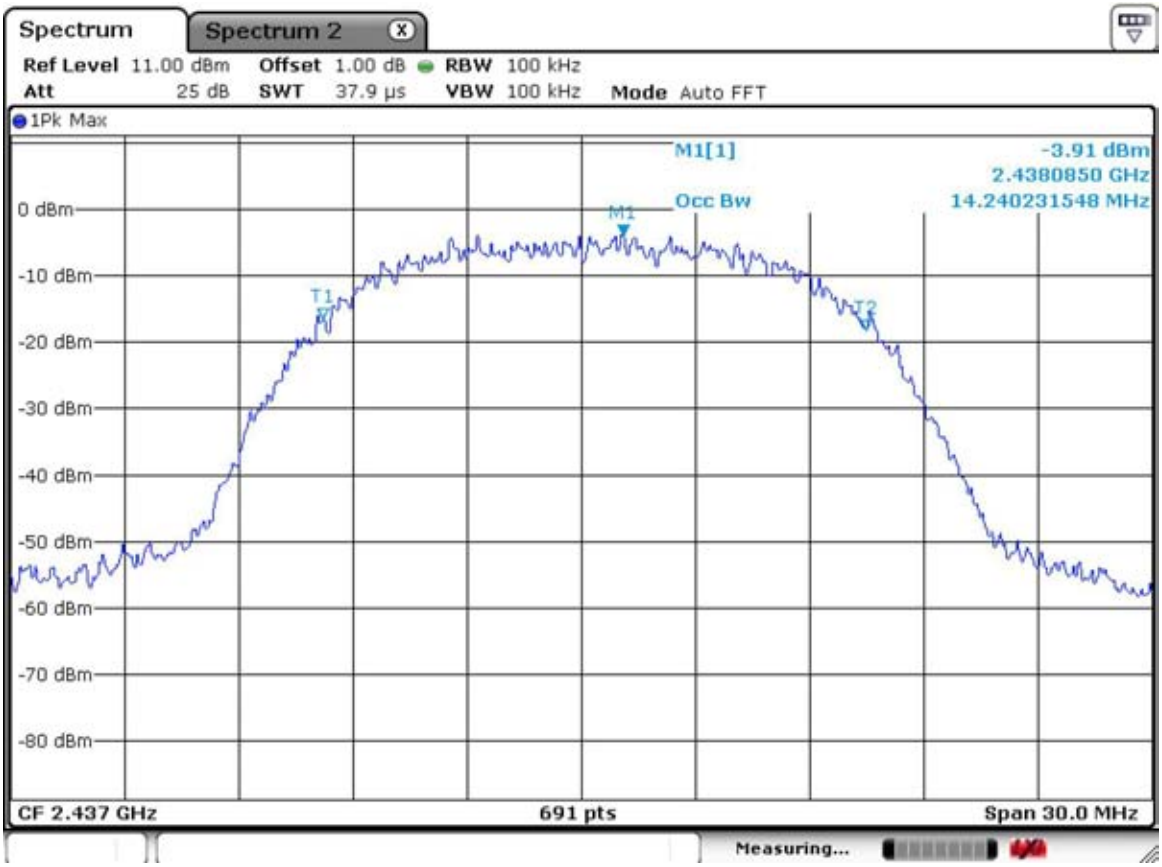
99% Bandwidth



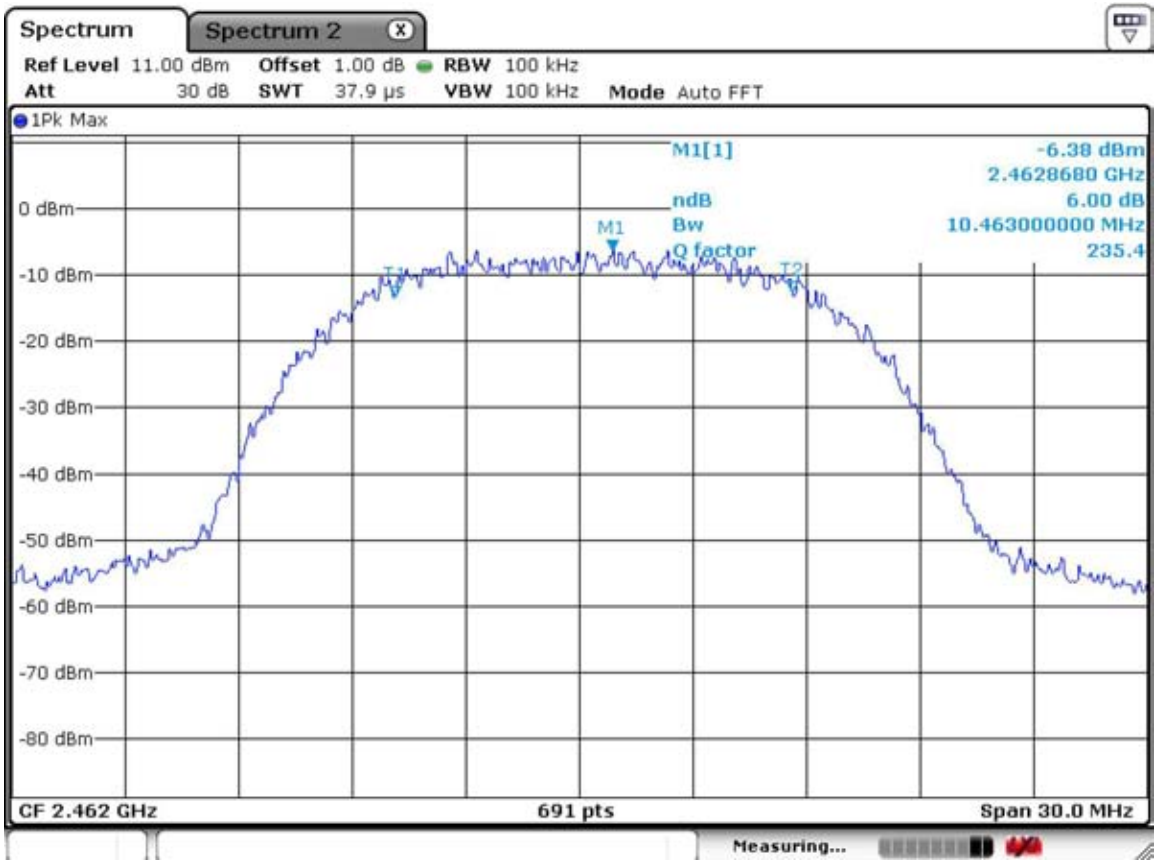
802.11b - 6dB Bandwidth
CH 6



99% Bandwidth

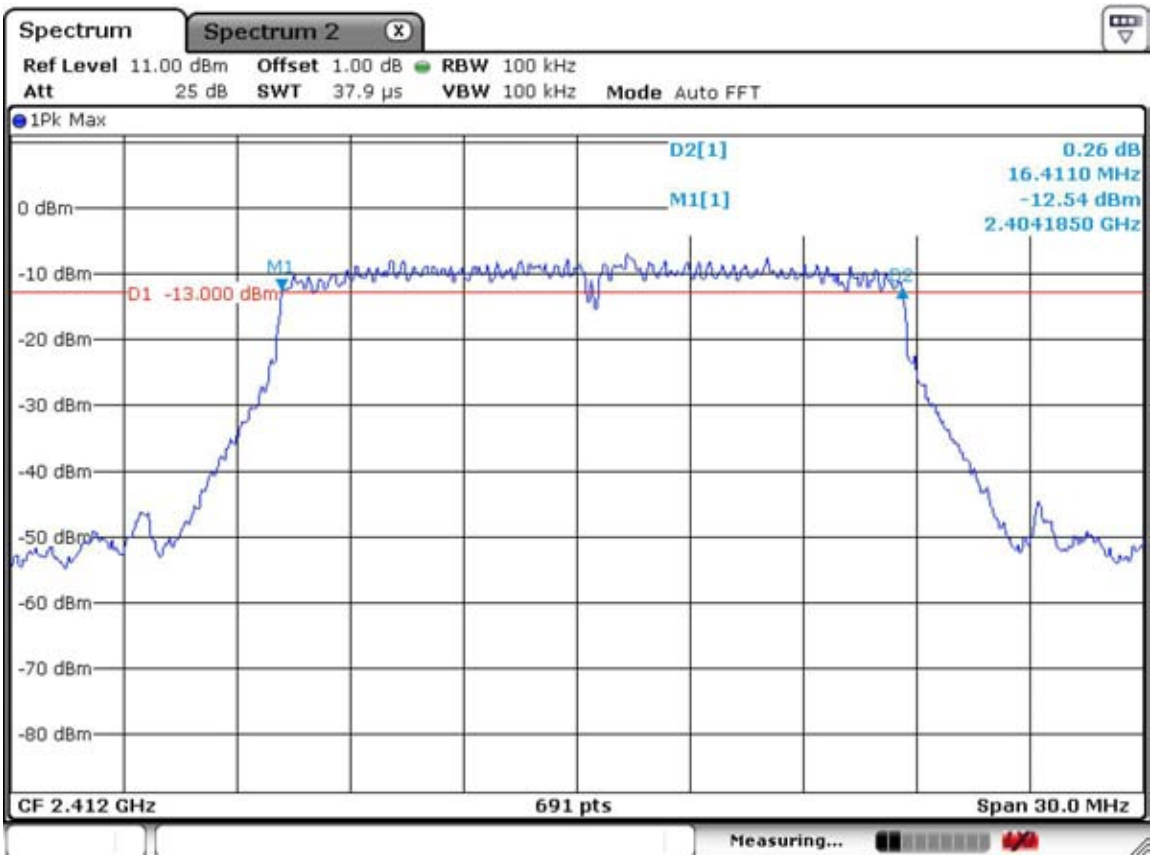


802.11b - 6dB Bandwidth
CH 11

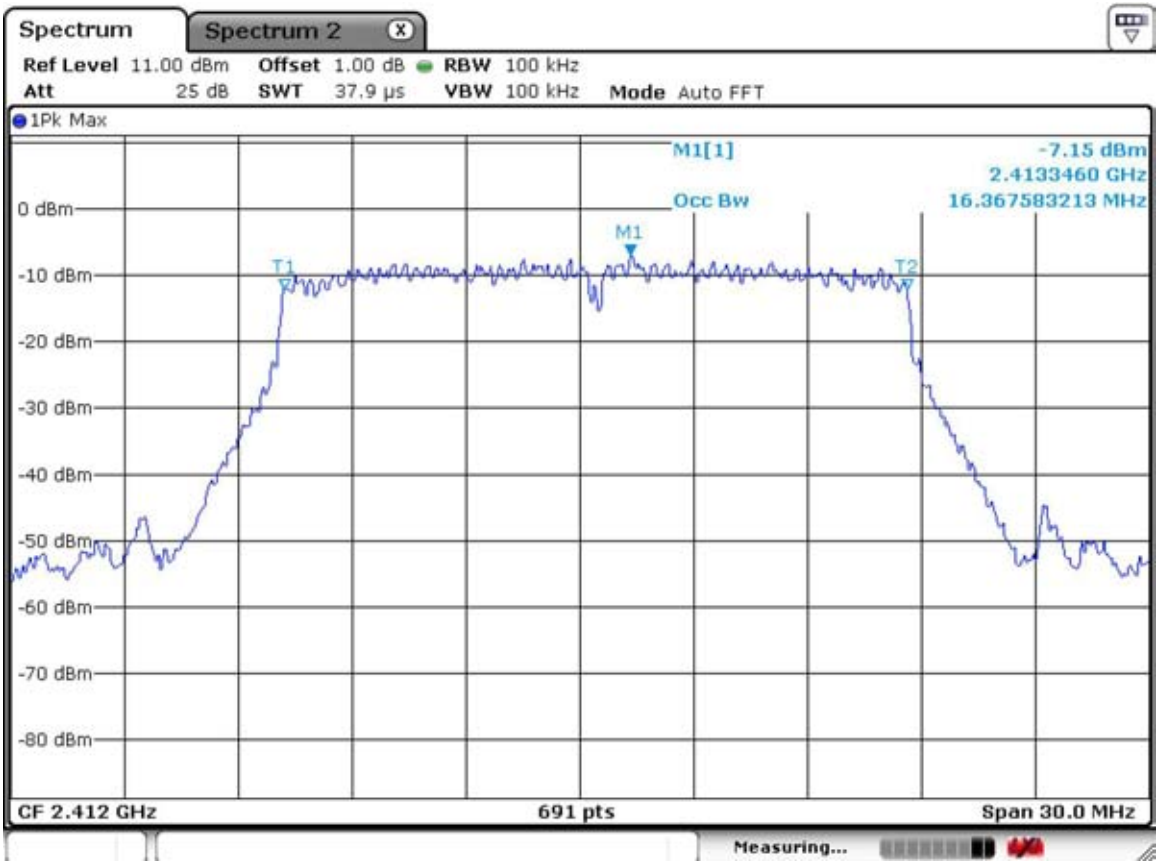


99% Bandwidth

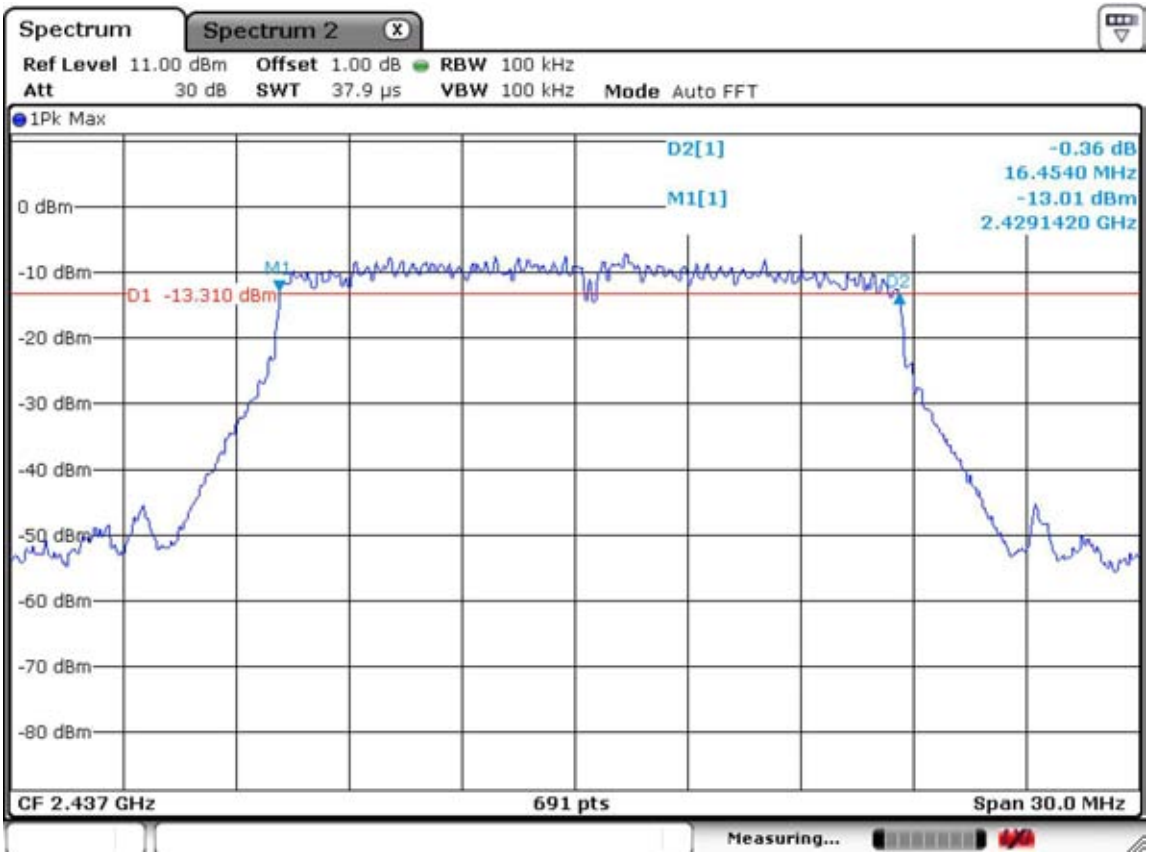
802.11g - 6dB Bandwidth
CH 1



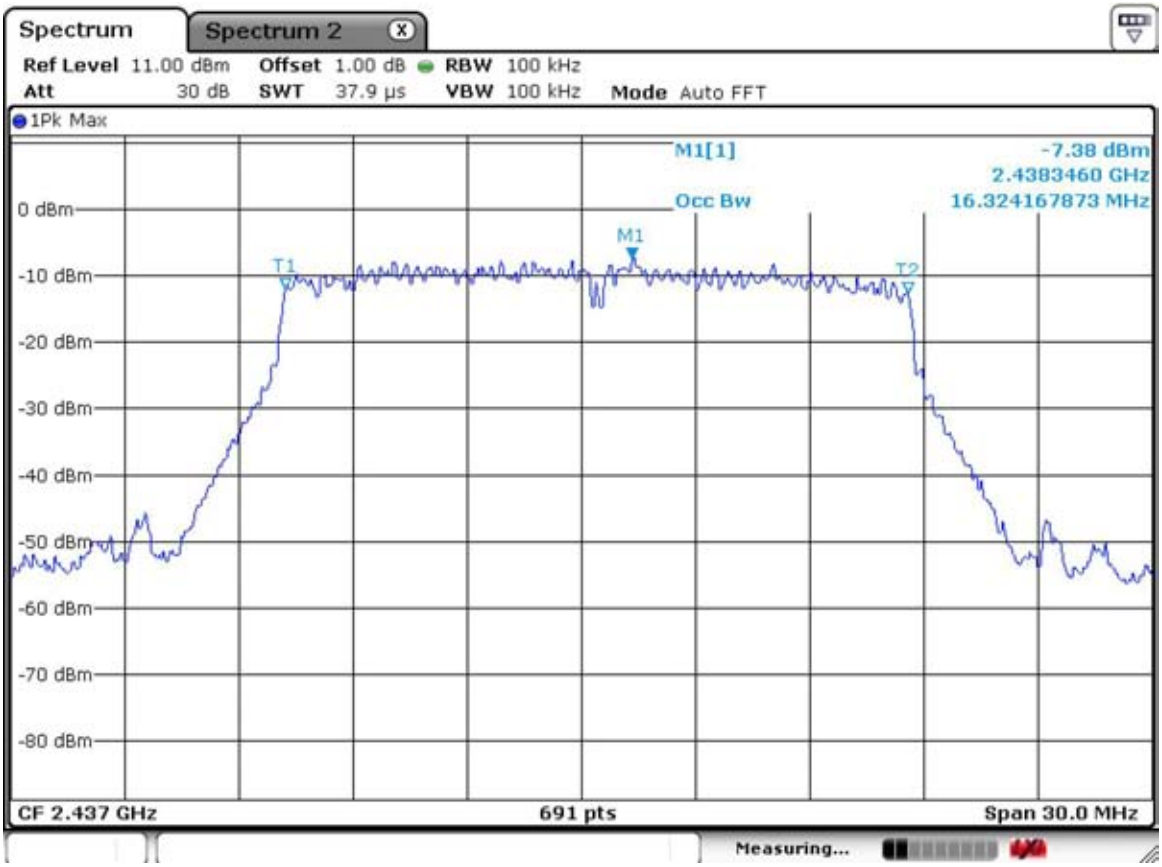
99% Bandwidth



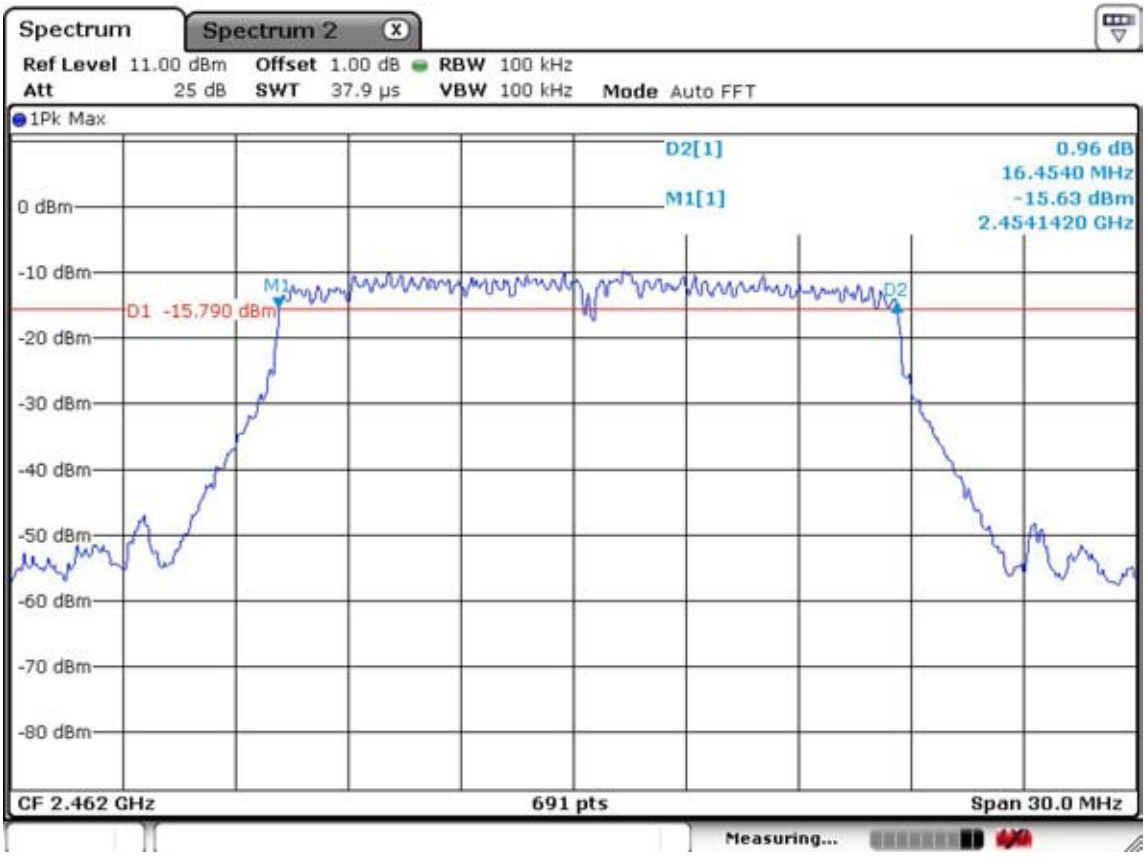
802.11g - 6dB Bandwidth
CH 6



99% Bandwidth



802.11g - 6dB Bandwidth
CH 11



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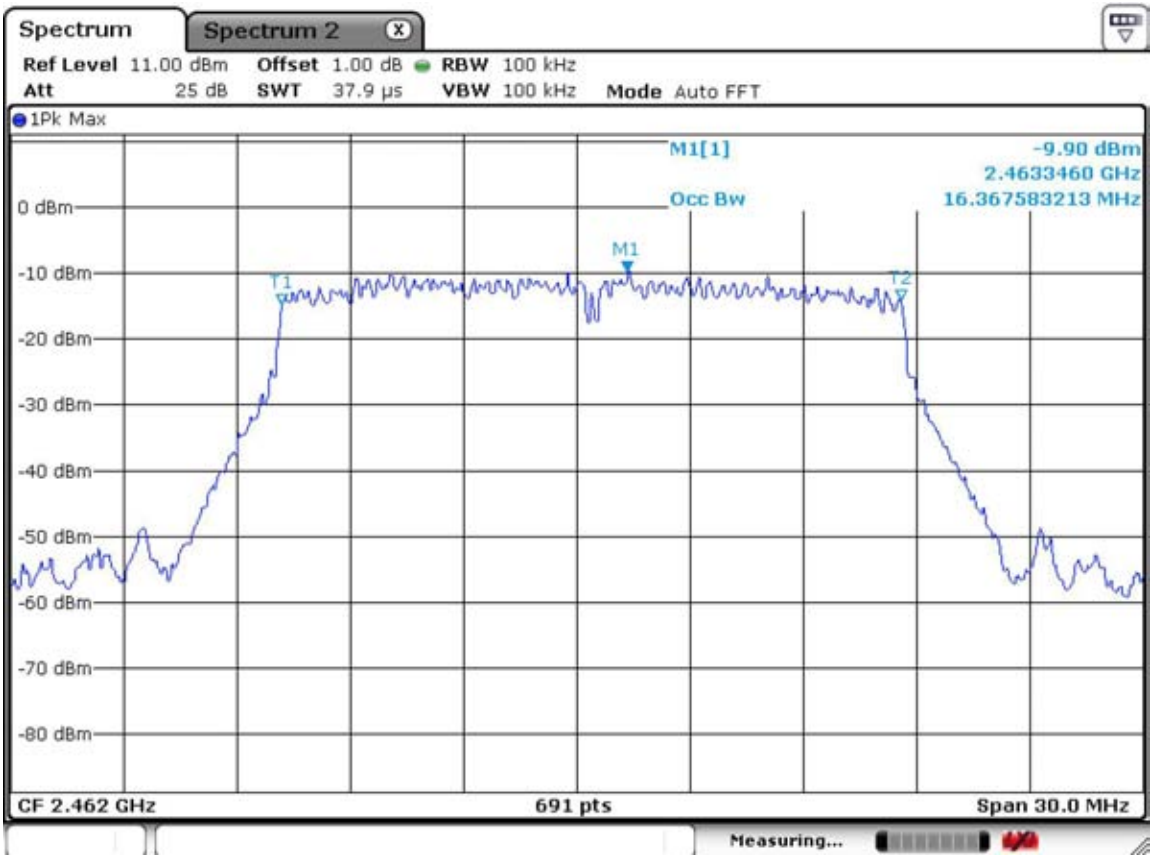
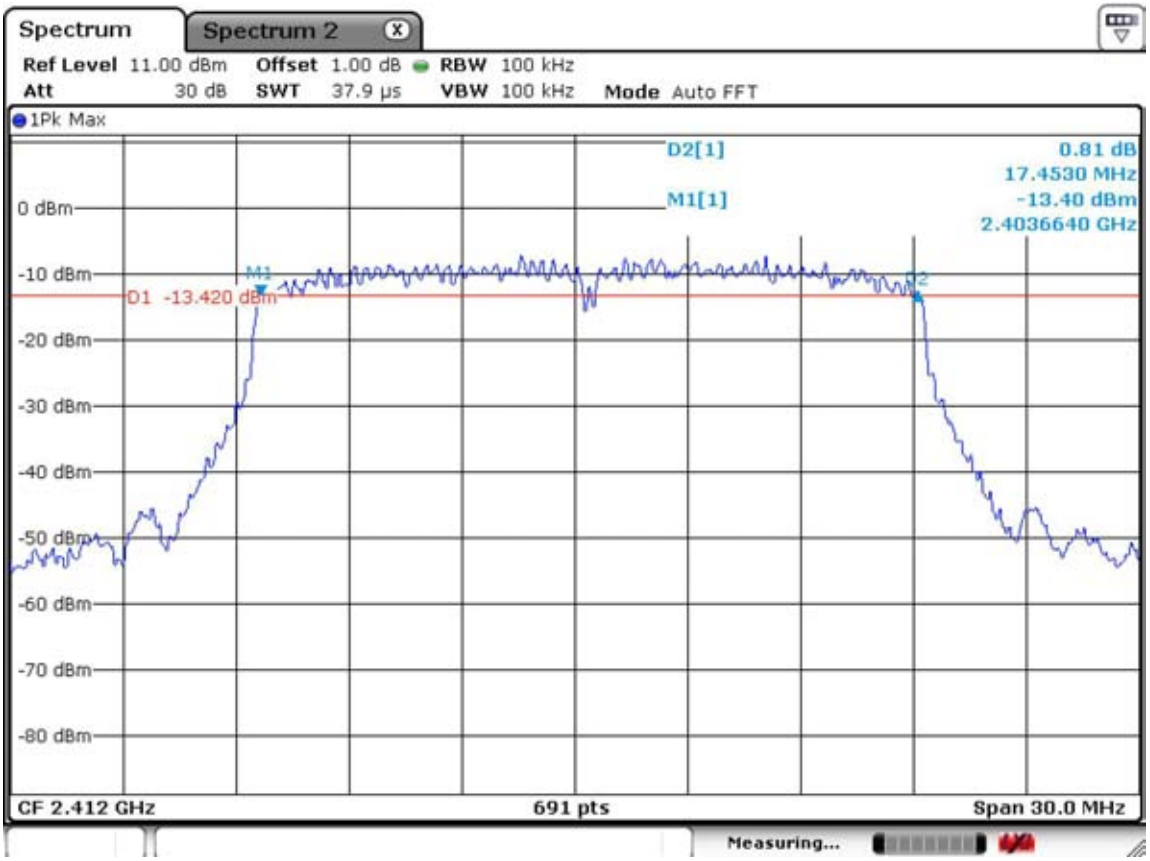
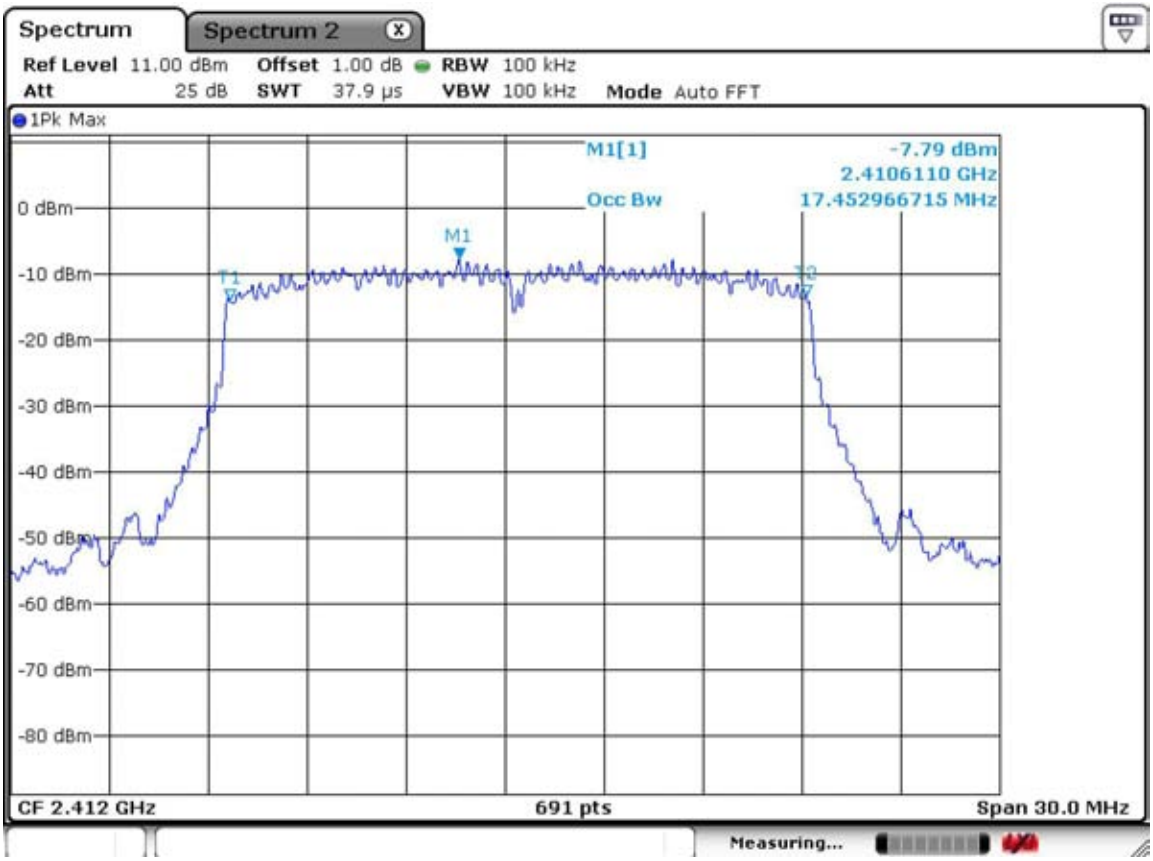


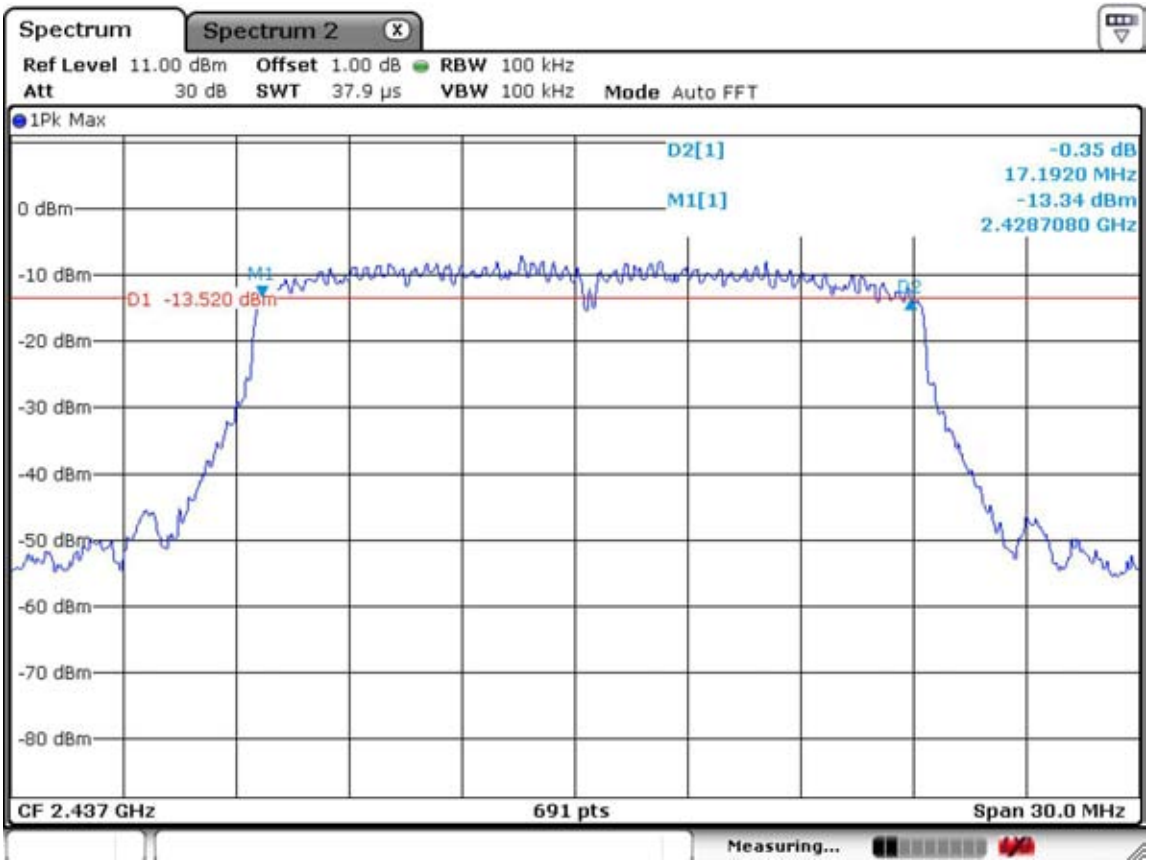
802.11n_20MHz - 6dB Bandwidth
CH 1



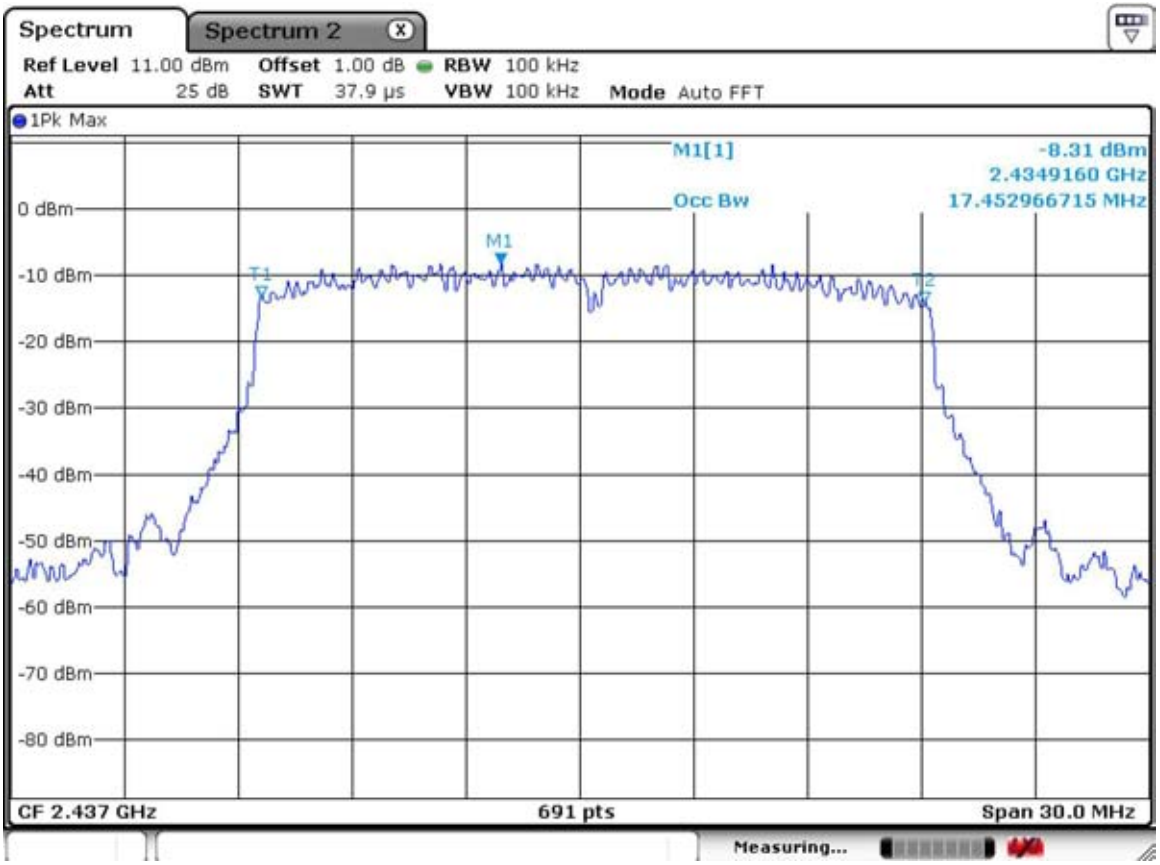
99% Bandwidth



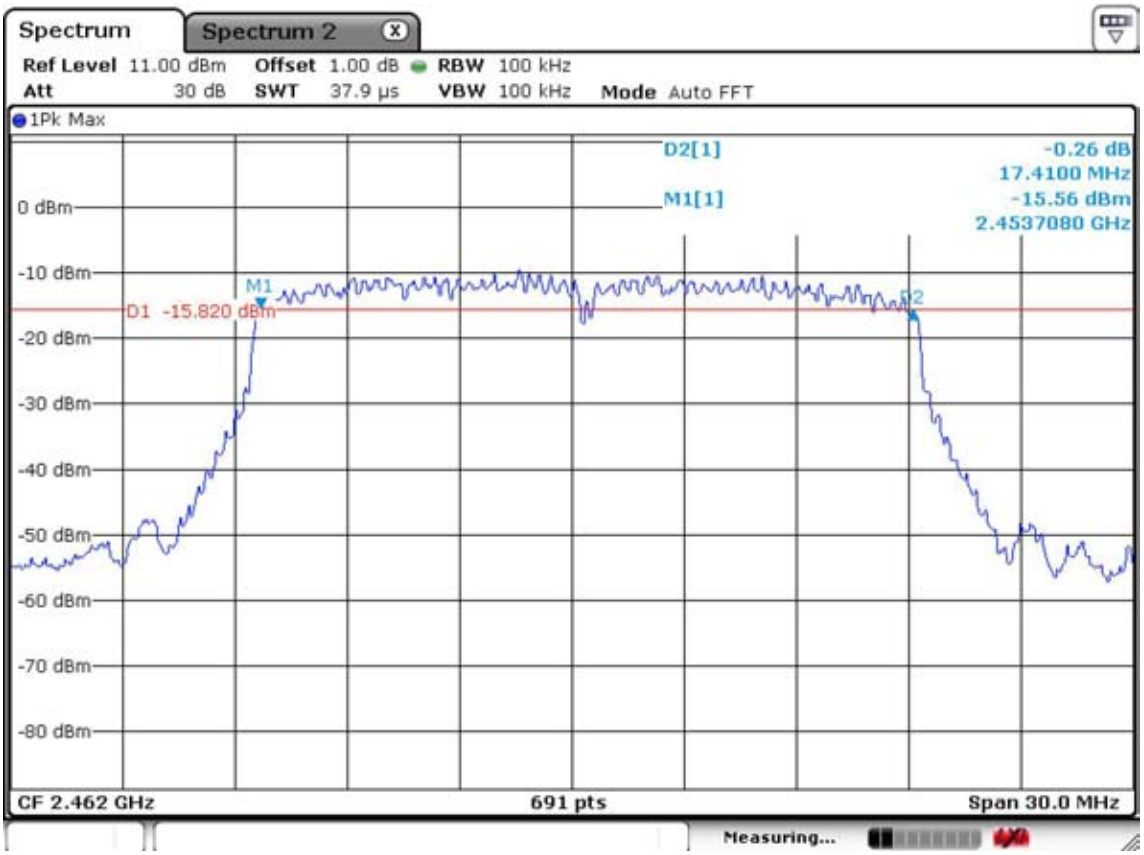
802.11n_20MHz - 6dB Bandwidth
CH 6



99% Bandwidth



802.11n_20MHz - 6dB Bandwidth
CH 11



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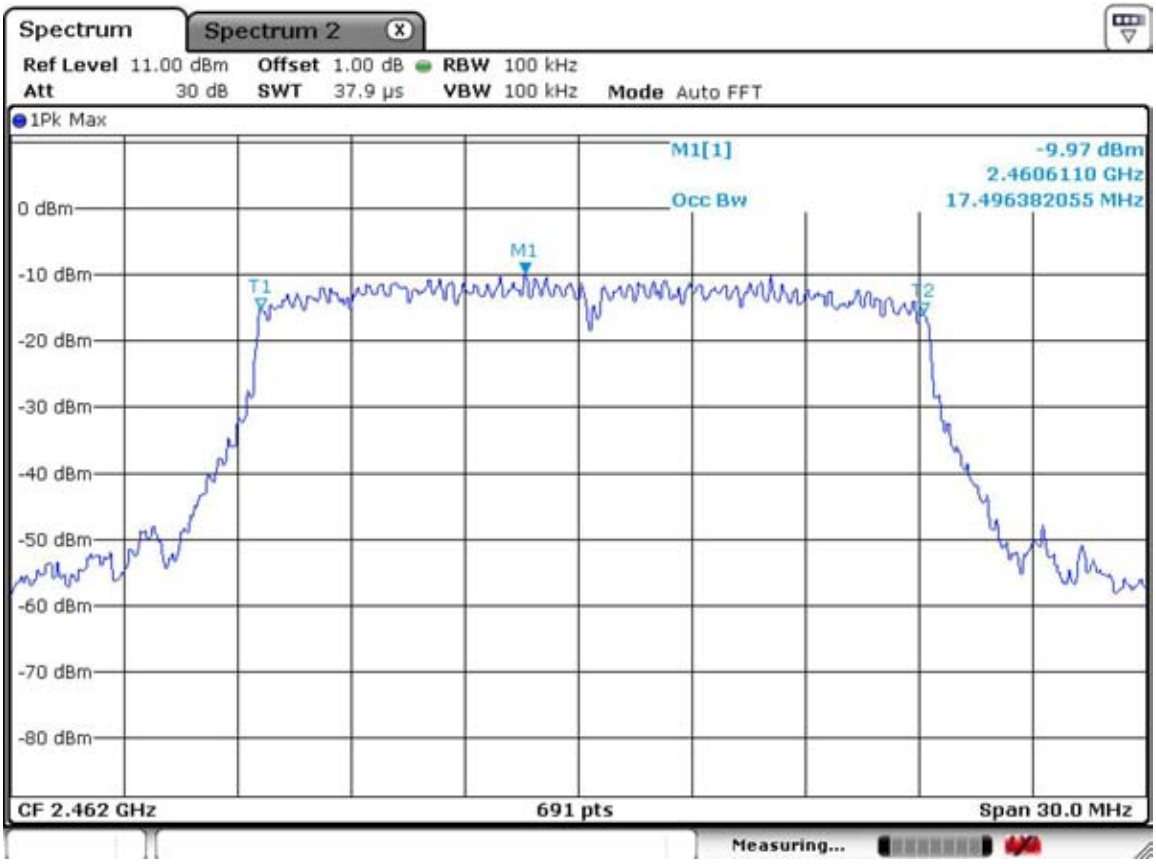
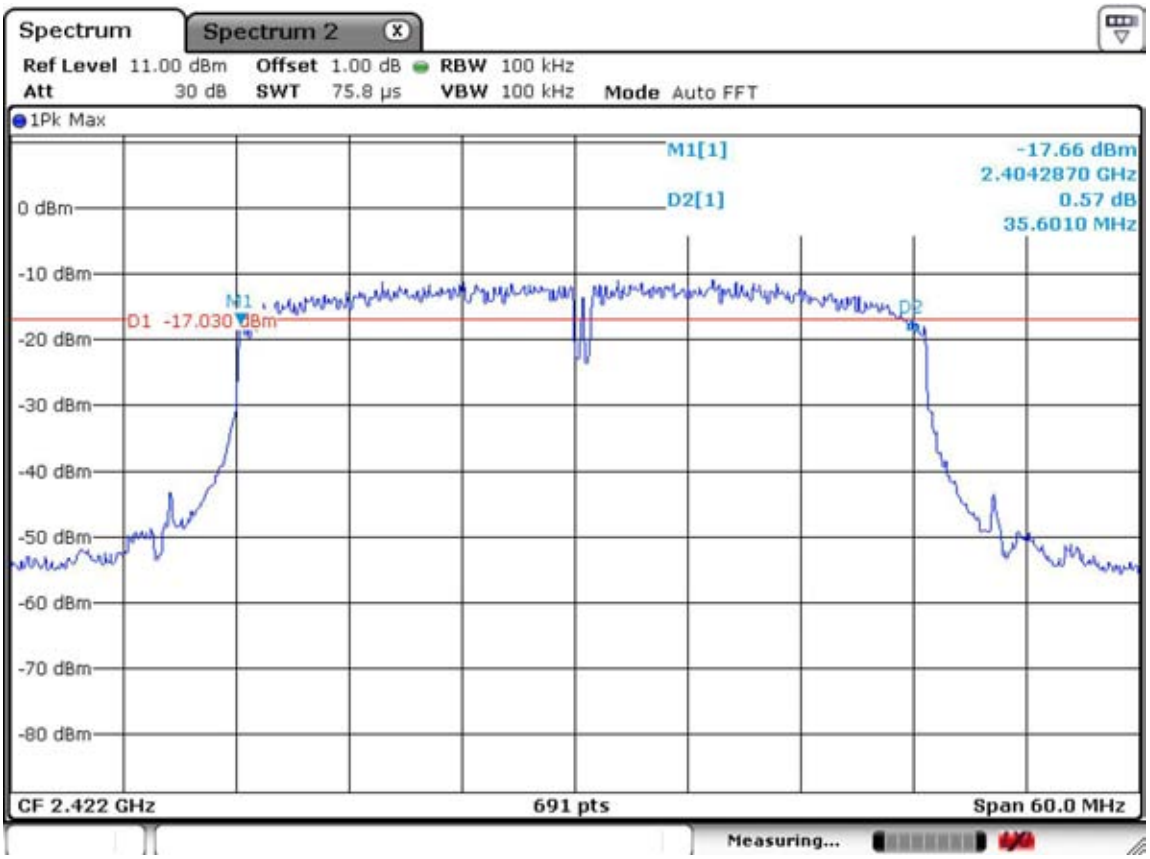


802.11n_40MHz - 6dB Bandwidth
CH 1



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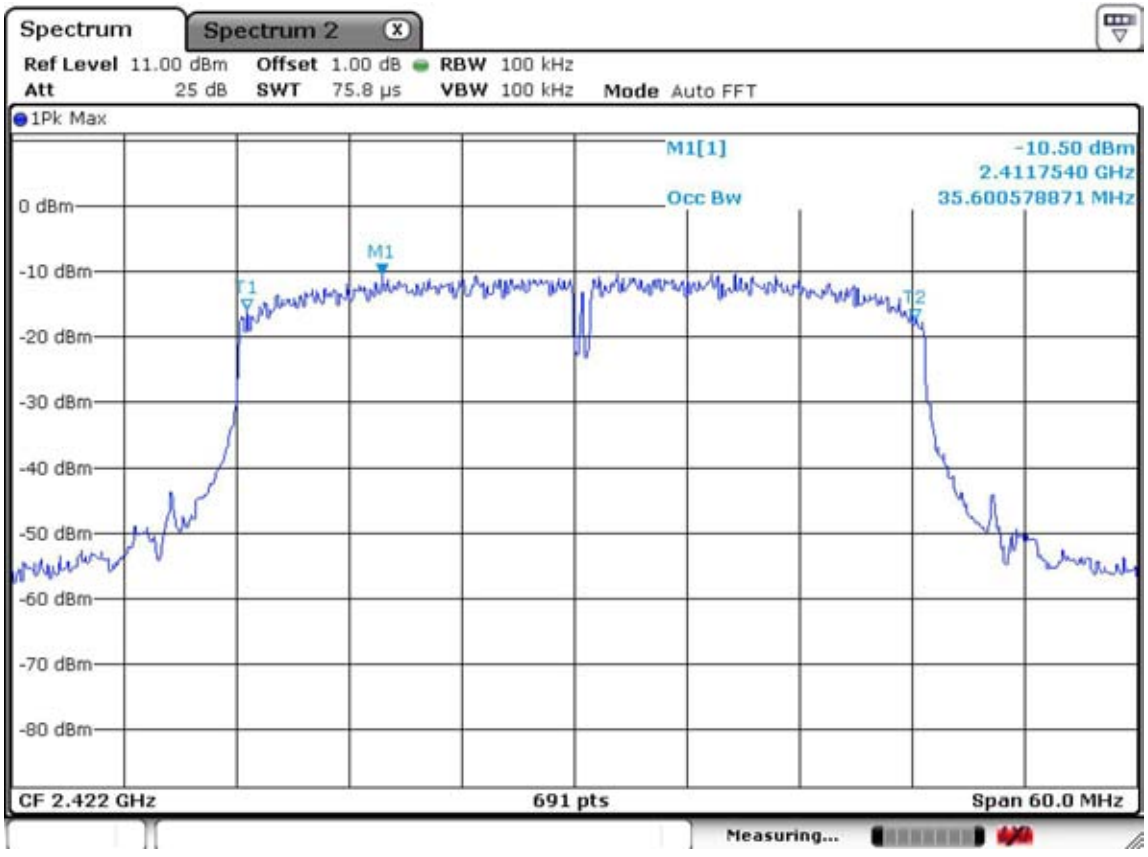
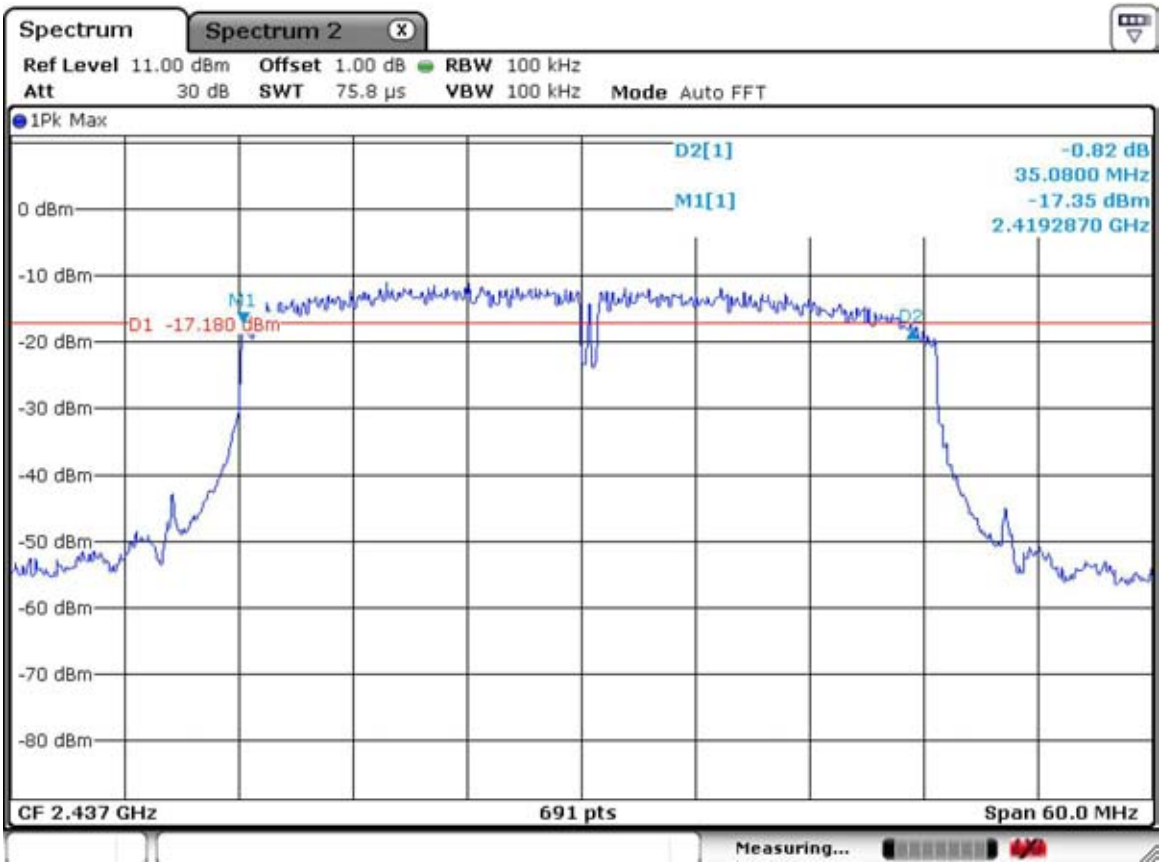


802.11n_40MHz - 6dB Bandwidth
CH 4



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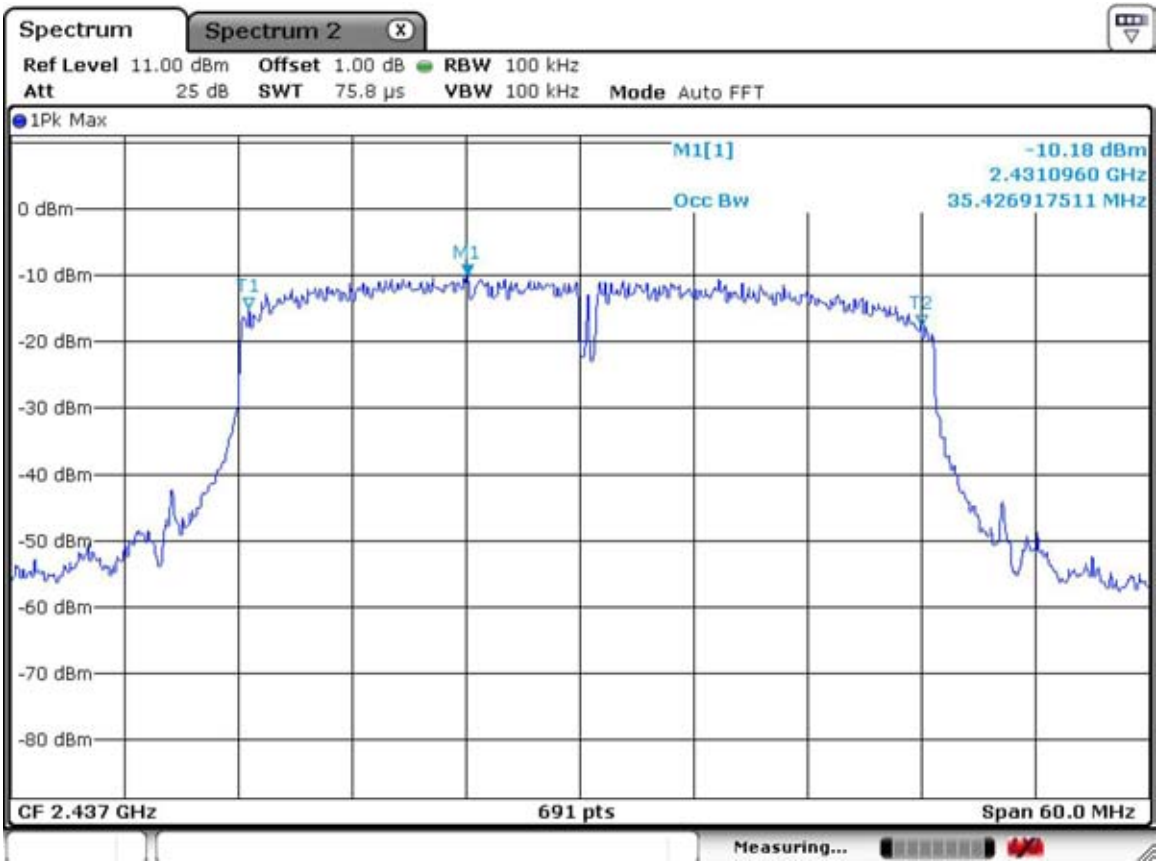
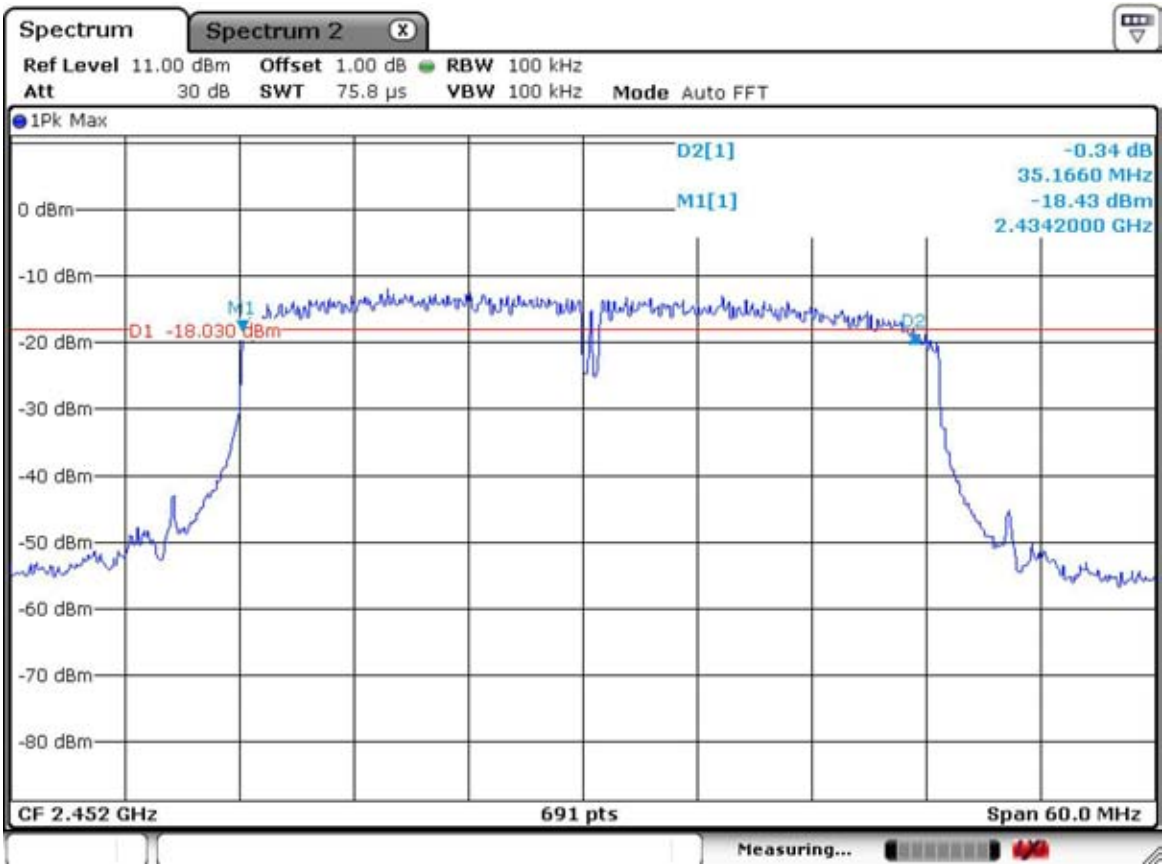
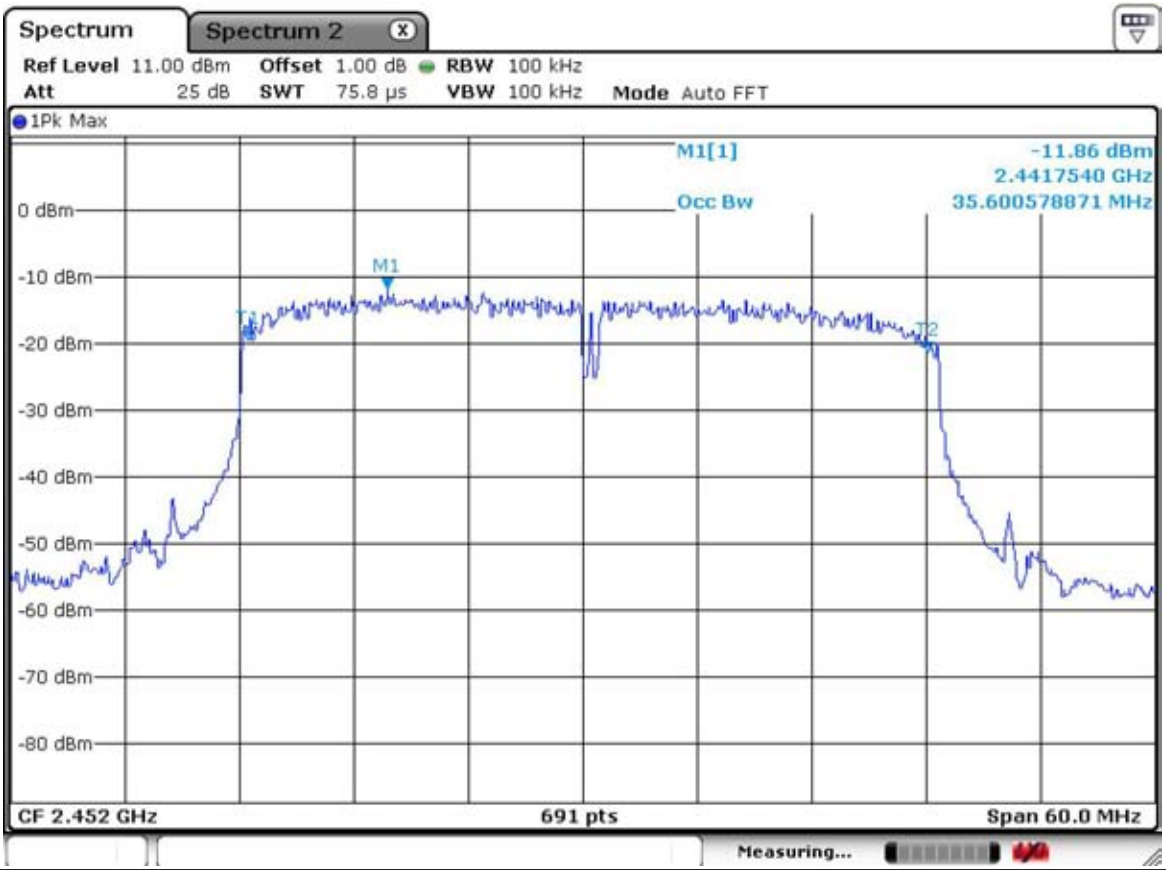


802.11n_40MHz - 6dB Bandwidth
CH 7



99% Bandwidth



3.2.2 Peak Output Power Measurement

Procedure:

*The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.

The maximum peak output power was measured with the spectrum analyzer connected to the antenna output of the EUT. The spectrum analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth. The EUT was operating in transmit mode at the appropriate center frequency.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 1MHz Span = auto

VBW = 1MHz (VBW ≥ RBW) Sweep = auto

Detector function = peak

Measurement Data:

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Data (dBm)	Result
802.11b	2412	1	12.67	Complies
	2437	6	12.57	Complies
	2462	11	10.65	Complies
802.11g	2412	1	12.70	Complies
	2437	6	12.48	Complies
	2462	11	10.21	Complies
802.11n _20MHz	2412	1	12.81	Complies
	2437	6	12.52	Complies
	2462	11	10.22	Complies
802.11n _40MHz	2422	1	12.72	Complies
	2437	4	12.16	Complies
	2452	7	10.95	Complies

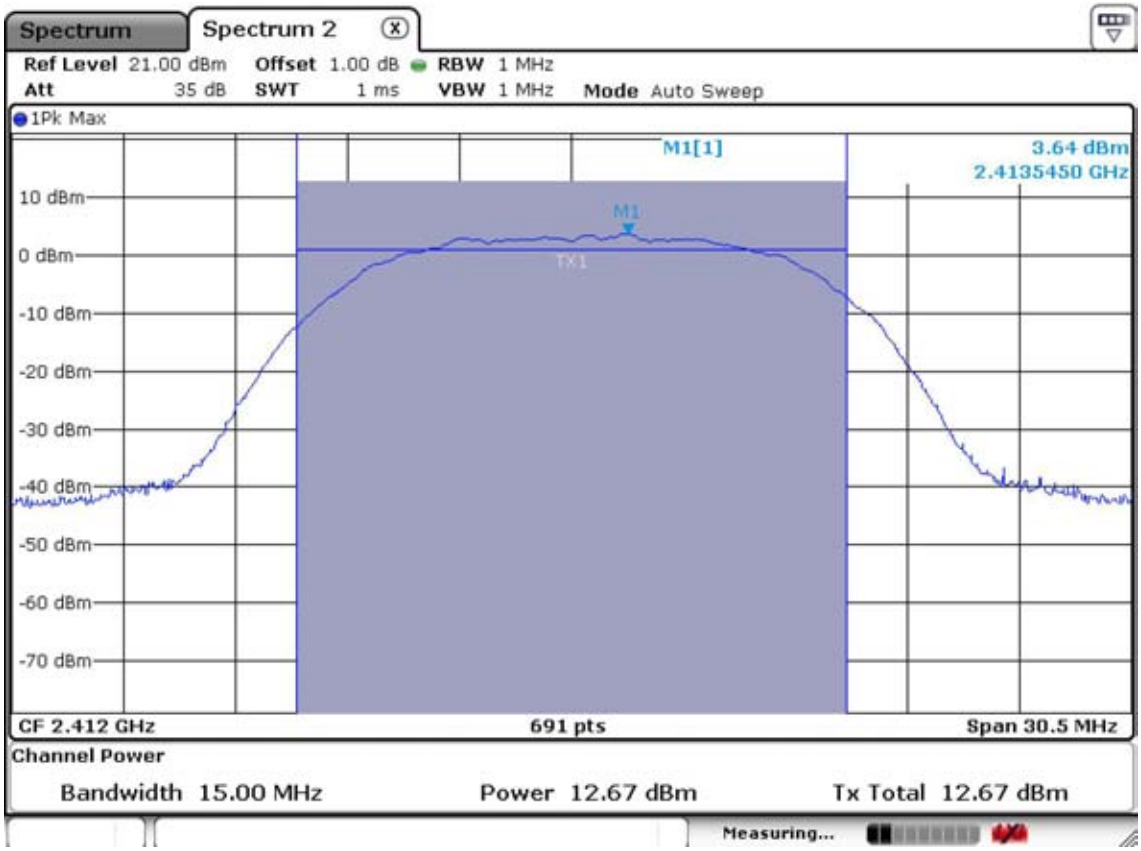
- See next pages for actual measured spectrum plots.

Minimum Standard:

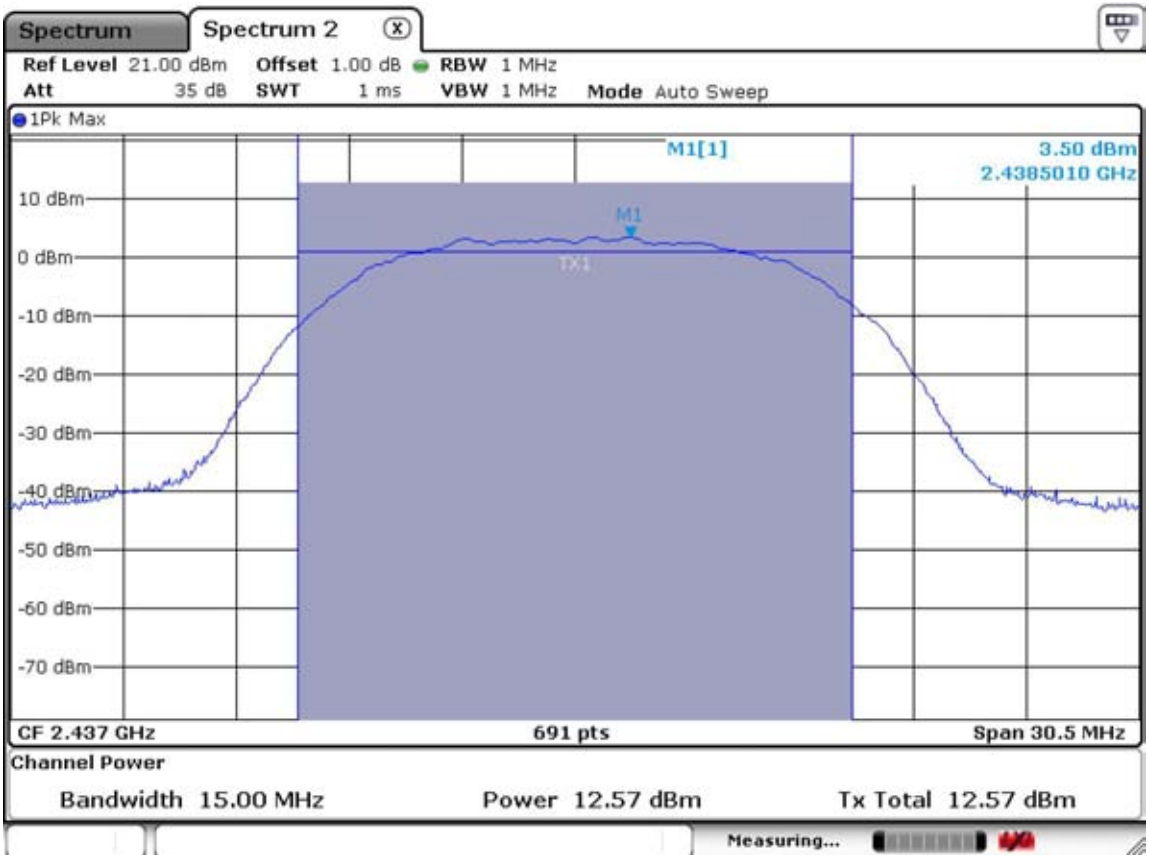
Peak output power	< 1W

802.11b

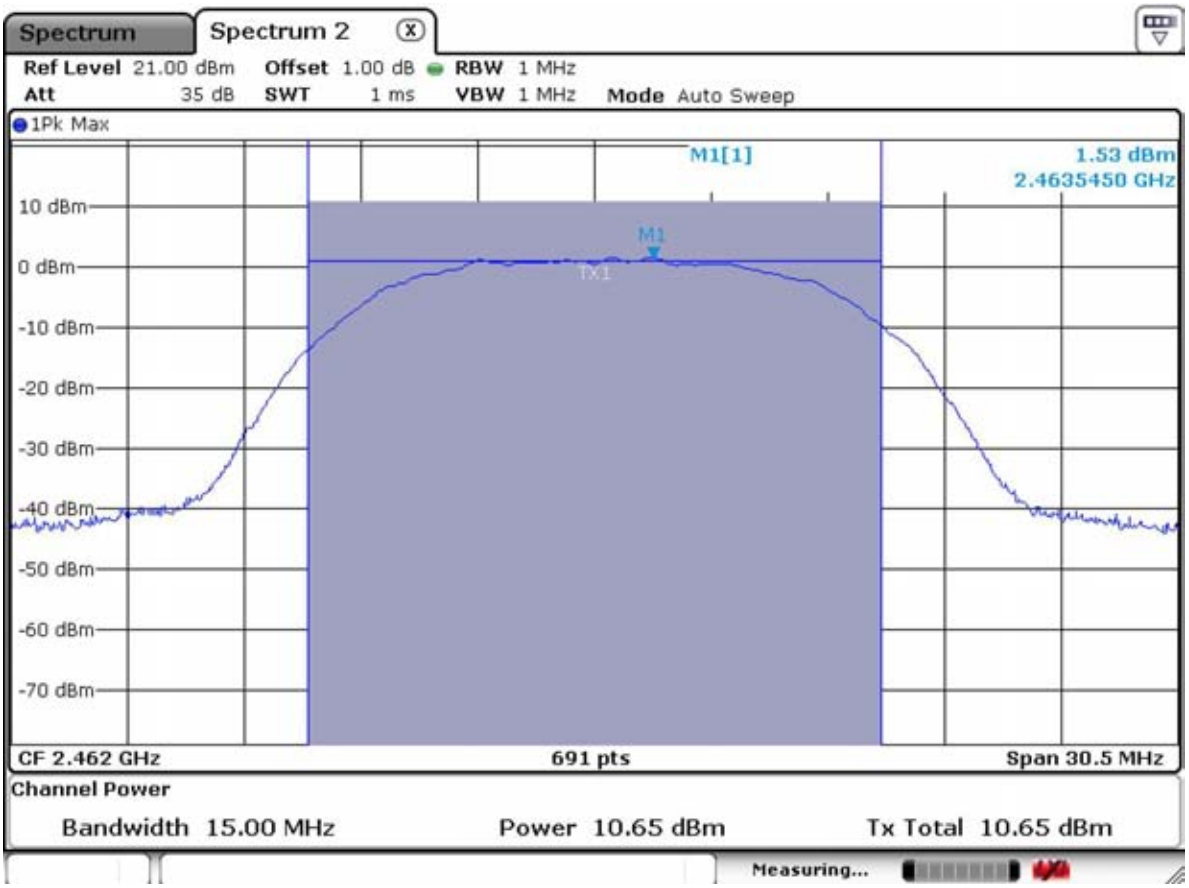
CH 1



CH 6

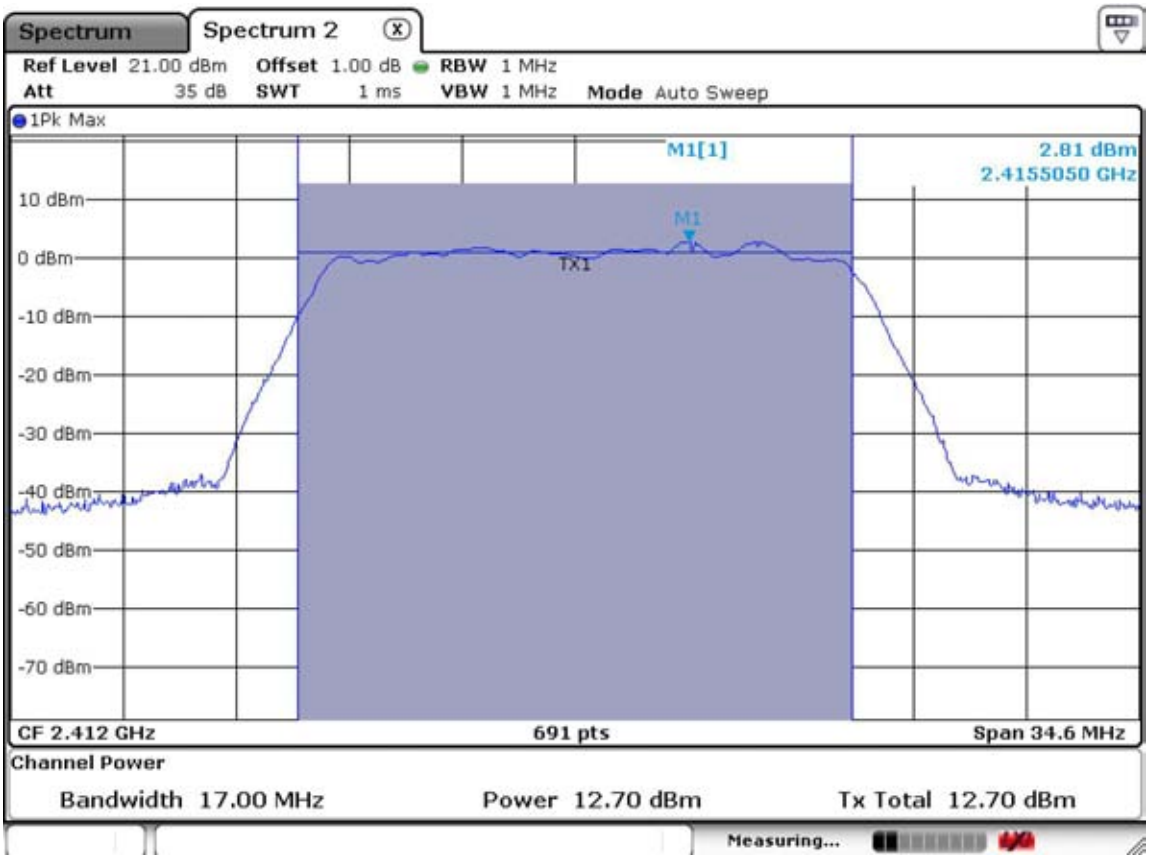


CH 11

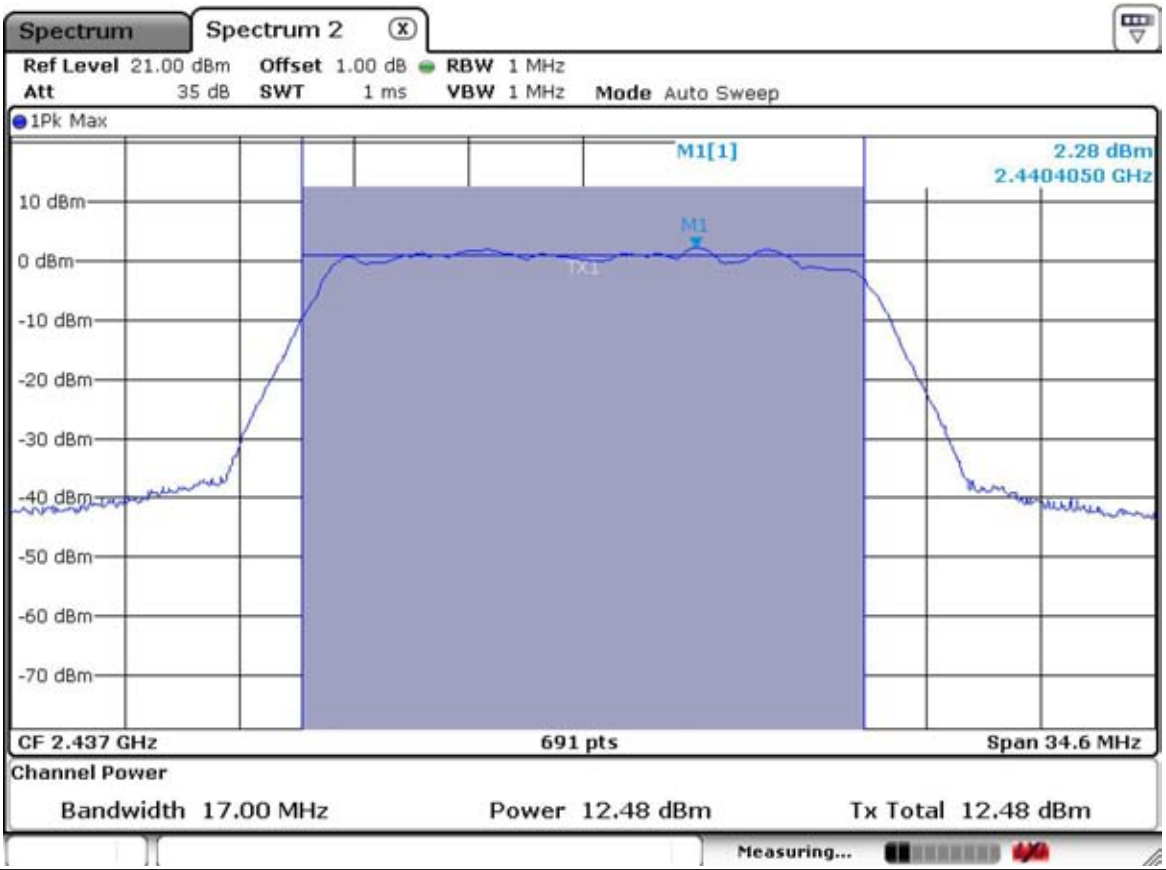

Spectrum
Spectrum 2
Ref Level 21.00 dBm Offset 1.00 dB RBW 1 MHz
Att 35 dB SWT 1 ms VBW 1 MHz Mode Auto Sweep
1Pk Max
M1[1]
1.53 dBm
2.4635450 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
TX1
CF 2.462 GHz
691 pts
Span 30.5 MHz
Channel Power
Bandwidth 15.00 MHz
Power 10.65 dBm
Tx Total 10.65 dBm
Measuring...

802.11g

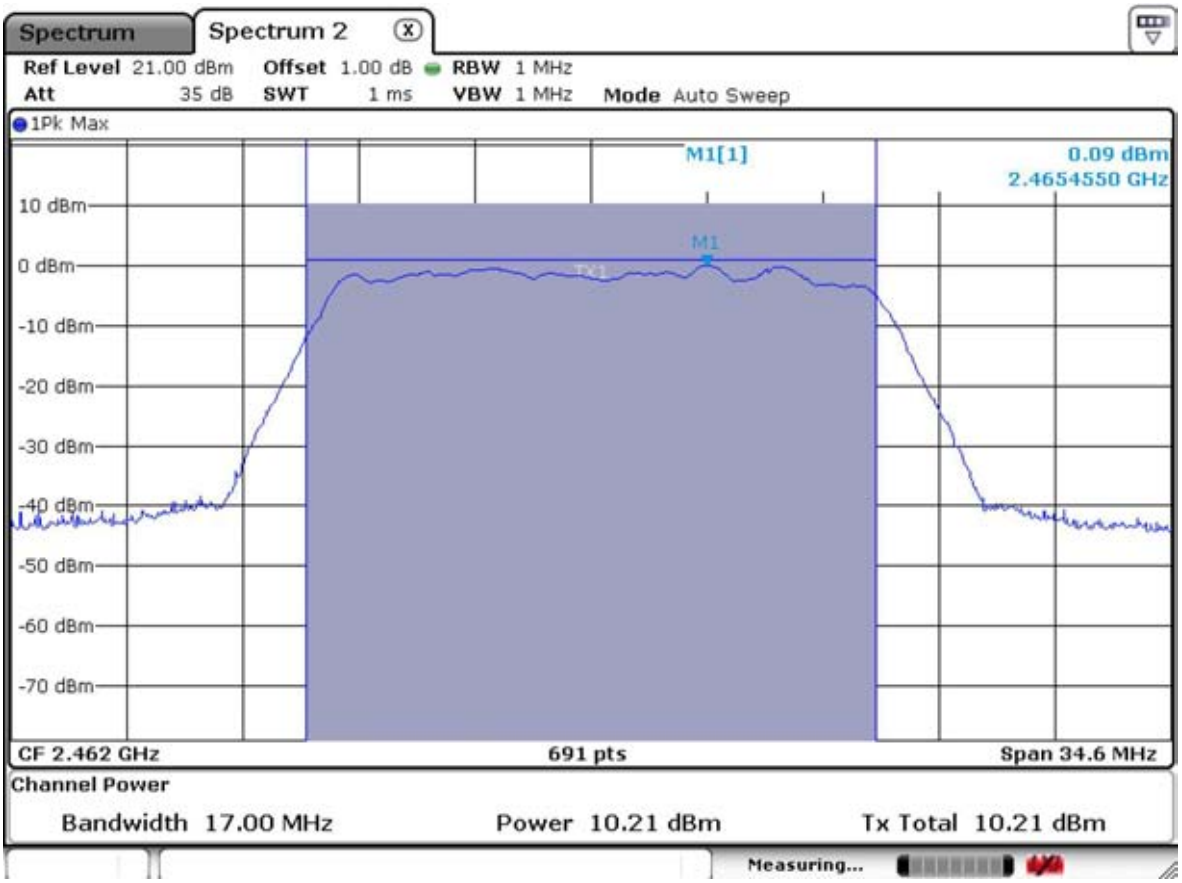
CH 1



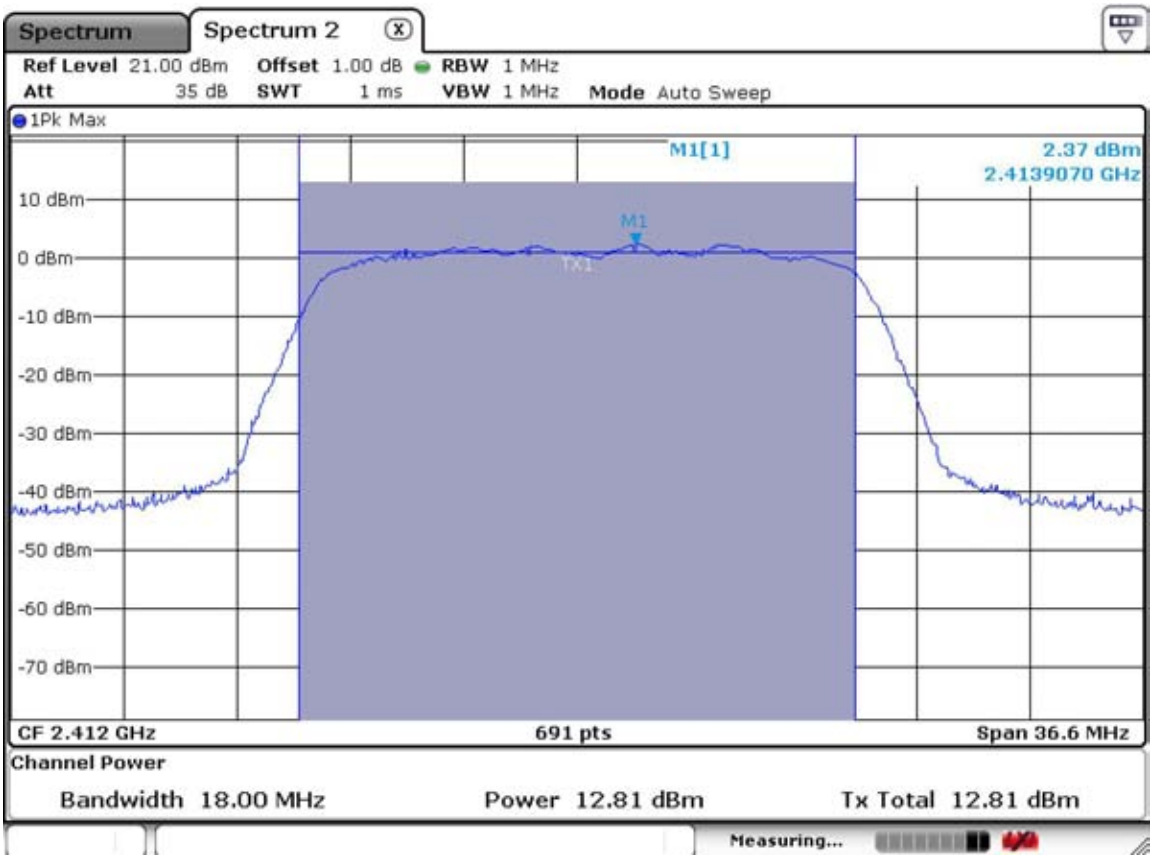
CH 6



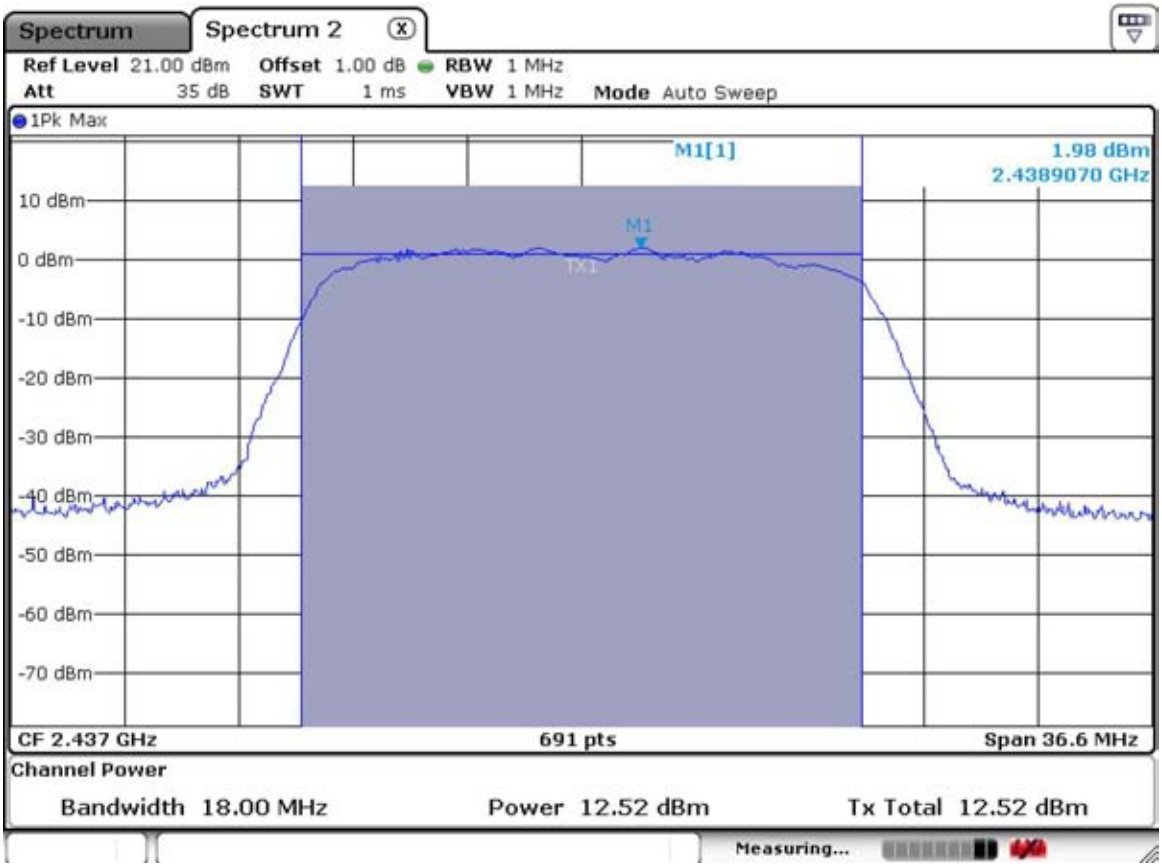
CH 11



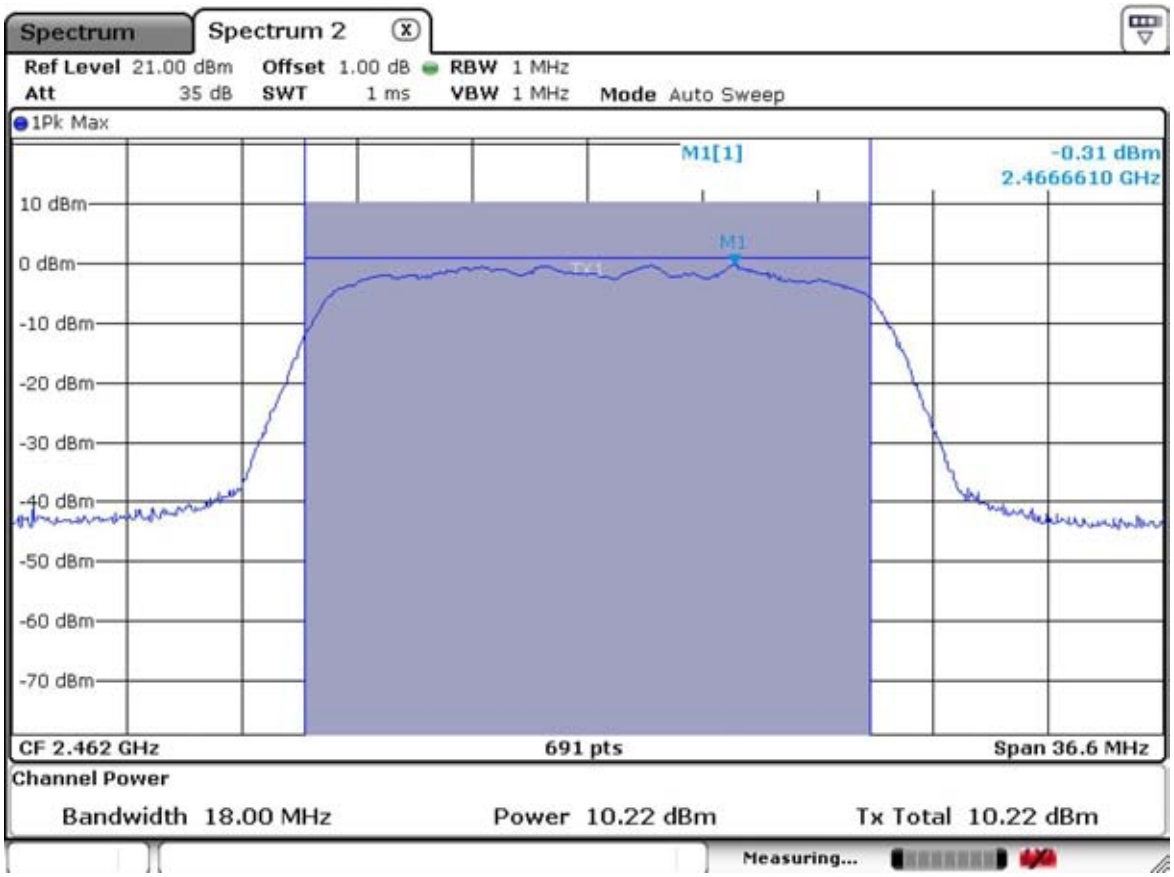
802.11n_20MHz
CH 1



CH 6

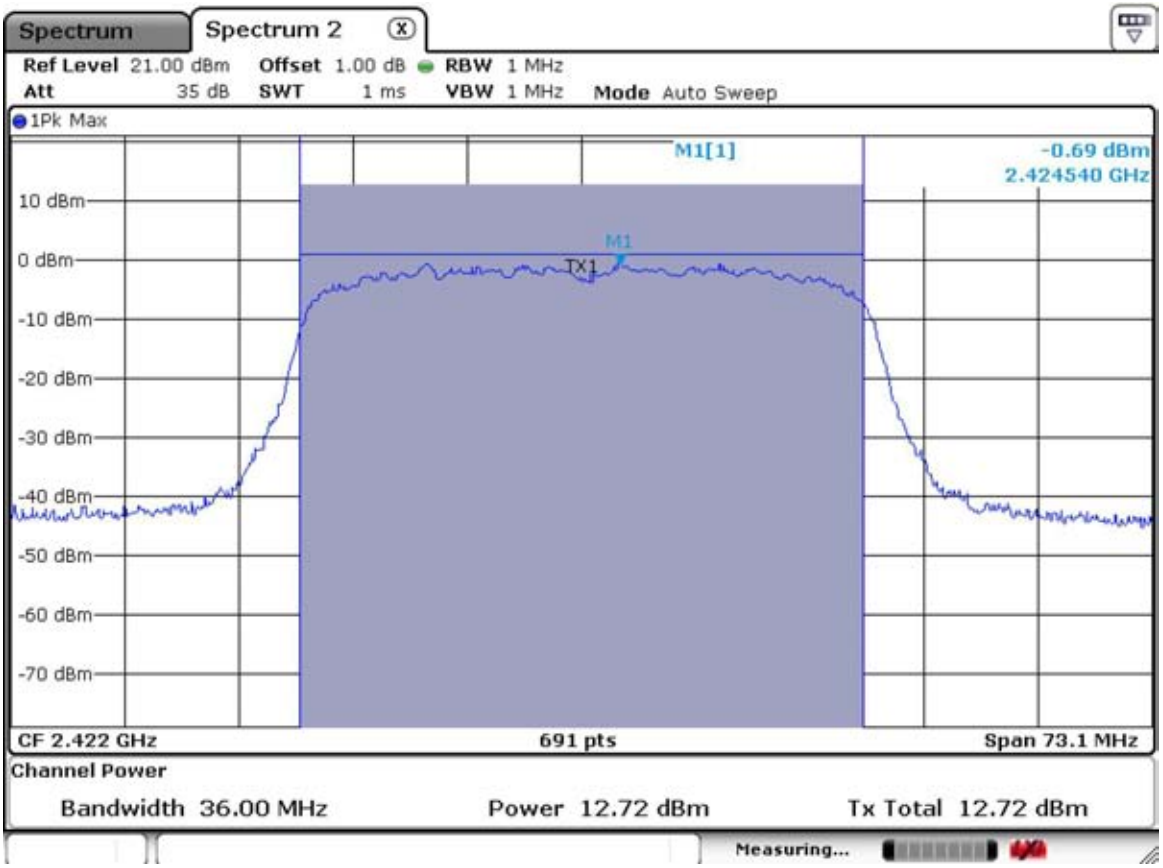


CH 11

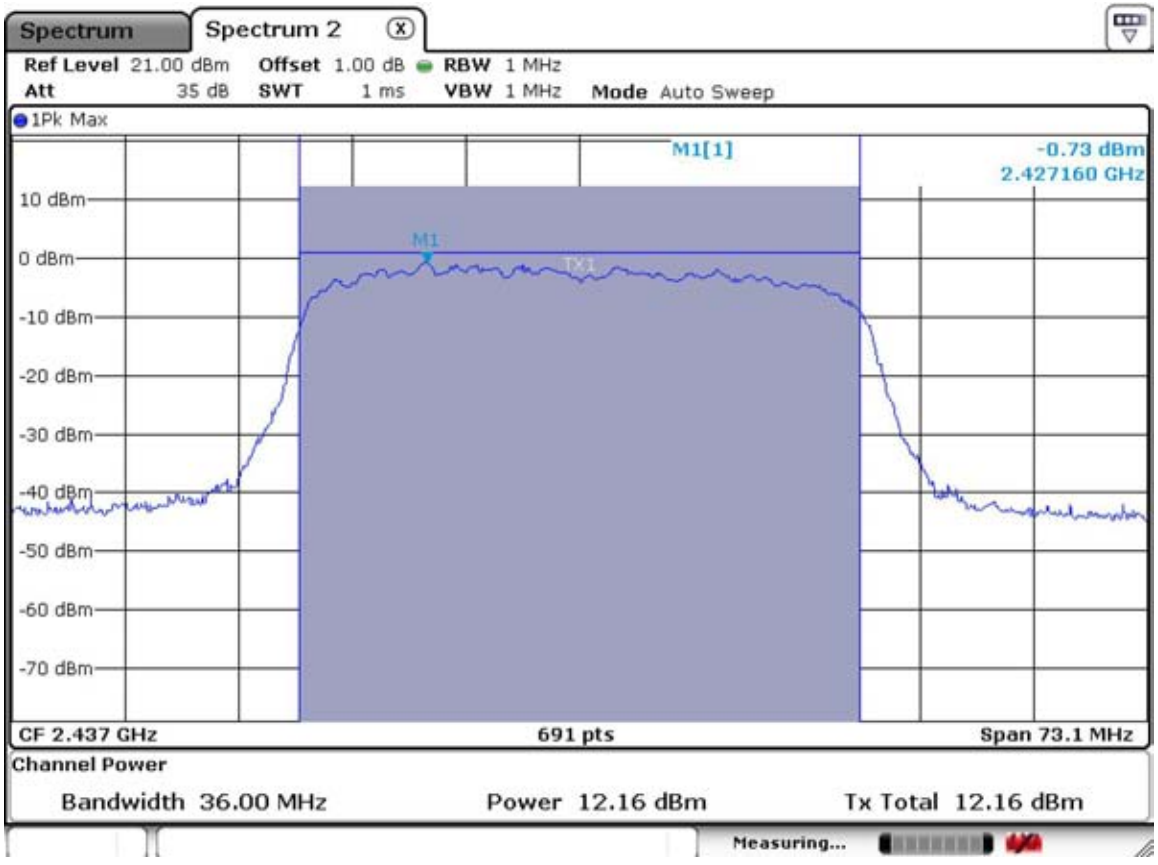

Spectrum
Spectrum 2
Ref Level 21.00 dBm
Offset 1.00 dB
RBW 1 MHz
Att 35 dB
SWT 1 ms
VBW 1 MHz
Mode Auto Sweep
1Pk Max
M1[1]
-0.31 dBm
2.4666610 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.462 GHz
691 pts
Span 36.6 MHz
Channel Power
Bandwidth 18.00 MHz
Power 10.22 dBm
Tx Total 10.22 dBm
Measuring...

802.11n_40MHz

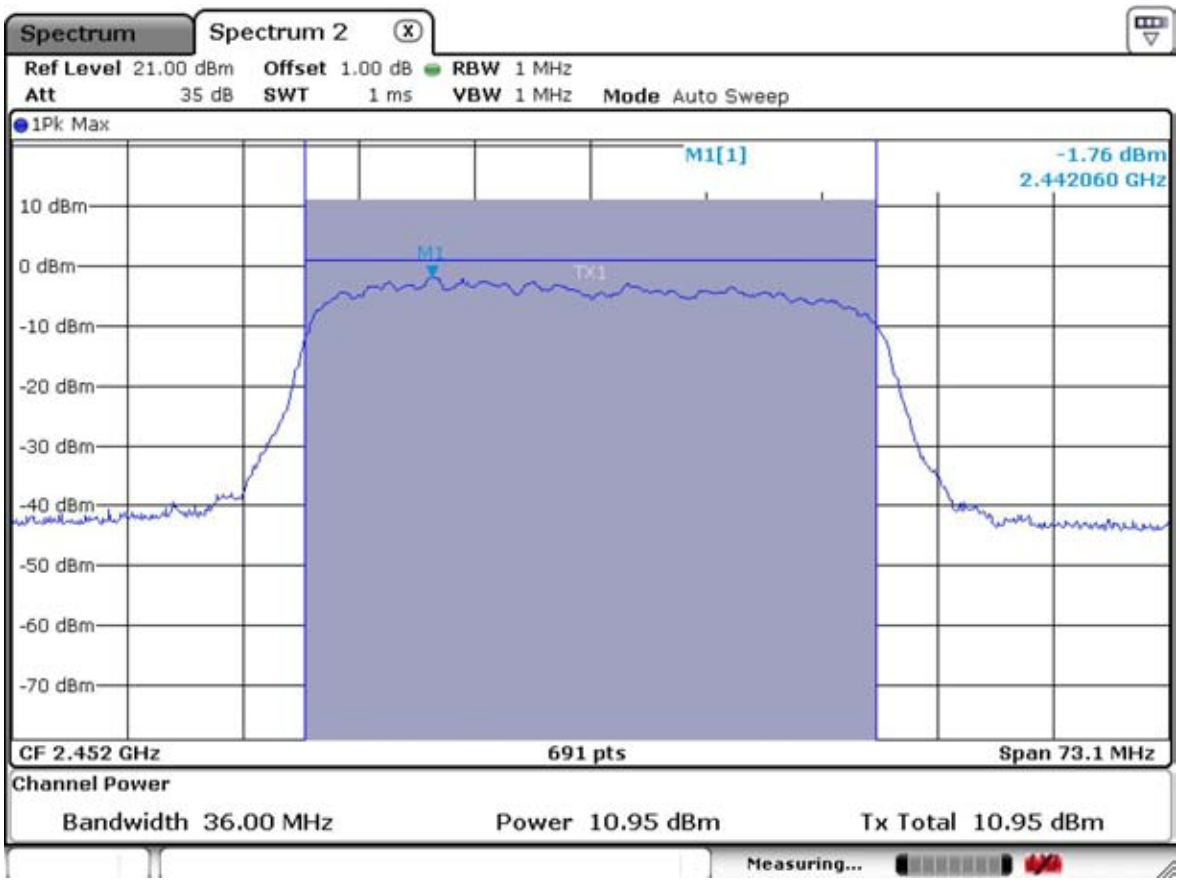
CH 1



CH 4



CH 7


Spectrum
Spectrum 2
Ref Level 21.00 dBm
Offset 1.00 dB
RBW 1 MHz
Att 35 dB
SWT 1 ms
VBW 1 MHz
Mode Auto Sweep
1Pk Max
M1[1]
-1.76 dBm
2.442060 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
TX1
CF 2.452 GHz
691 pts
Span 73.1 MHz
Channel Power
Bandwidth 36.00 MHz
Power 10.95 dBm
Tx Total 10.95 dBm
Measuring...

3.2.3 Power Spectral Density

Procedure:

*The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April. The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

The spectrum analyzer is set to:

RBW = 3 kHz — Span = 300 kHz

VBW = 3 kHz — Sweep = 100 sec

Detector function = peak — Trace = max hold

Measurement Data:

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Data (dBm)	Result
802.11b	2412	1	-19.10	Complies
	2437	6	-19.17	Complies
	2462	11	-21.83	Complies
802.11g	2412	1	-21.71	Complies
	2437	6	-21.98	Complies
	2462	11	-24.29	Complies
802.11n _20MHz	2412	1	-21.94	Complies
	2437	6	-21.60	Complies
	2462	11	-24.90	Complies
802.11n _40MHz	2422	1	-26.46	Complies
	2437	4	-27.19	Complies
	2452	7	-28.71	Complies

- See next pages for actual measured spectrum plots.

Minimum Standard:

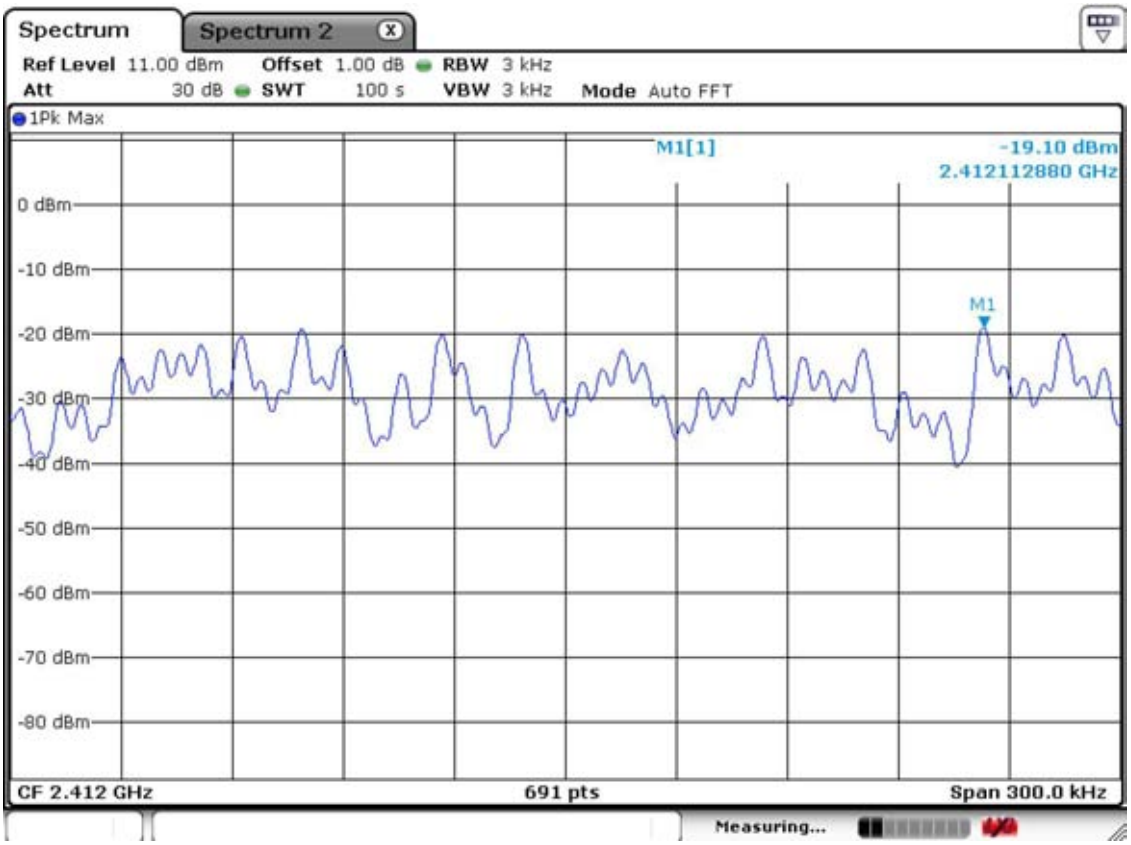
Power Spectral Density	< 8dBm @ 3kHz BW

Measurement Setup

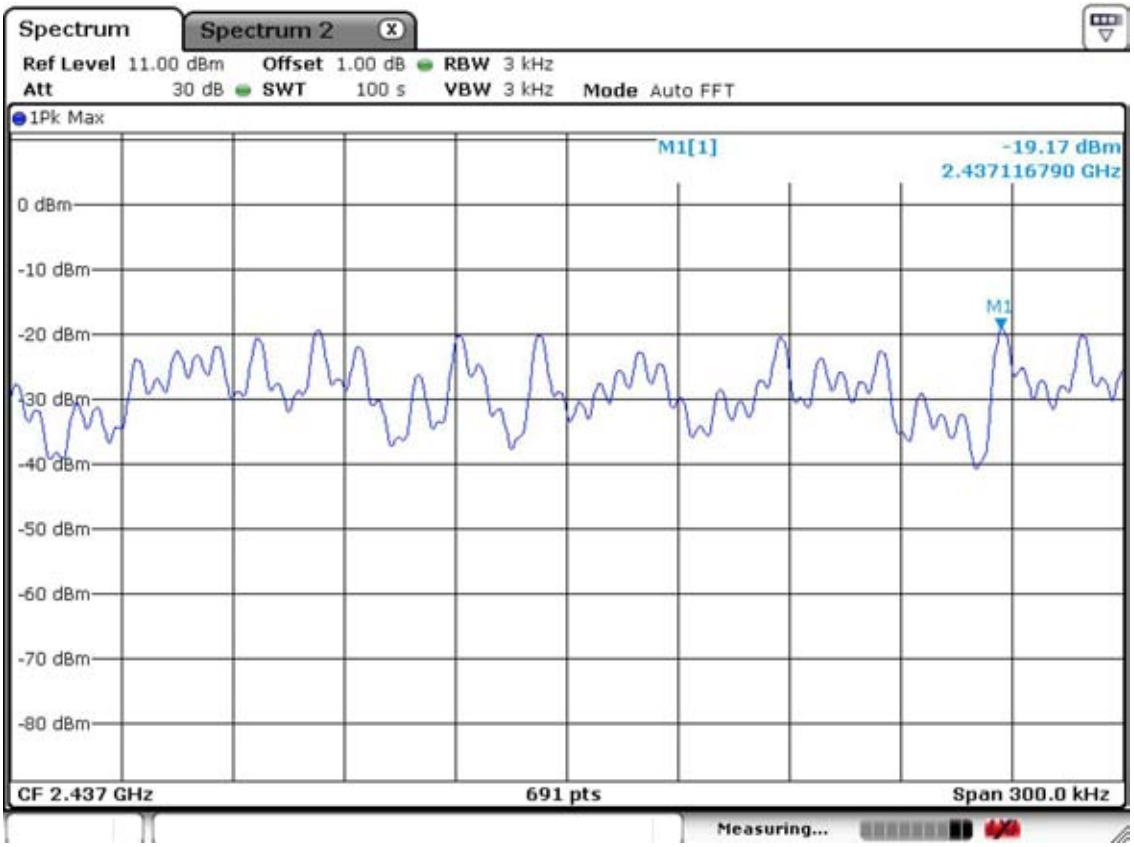
Same as the Chapter 3.2.1 (Figure 1)

802.11b Power Density Measurement

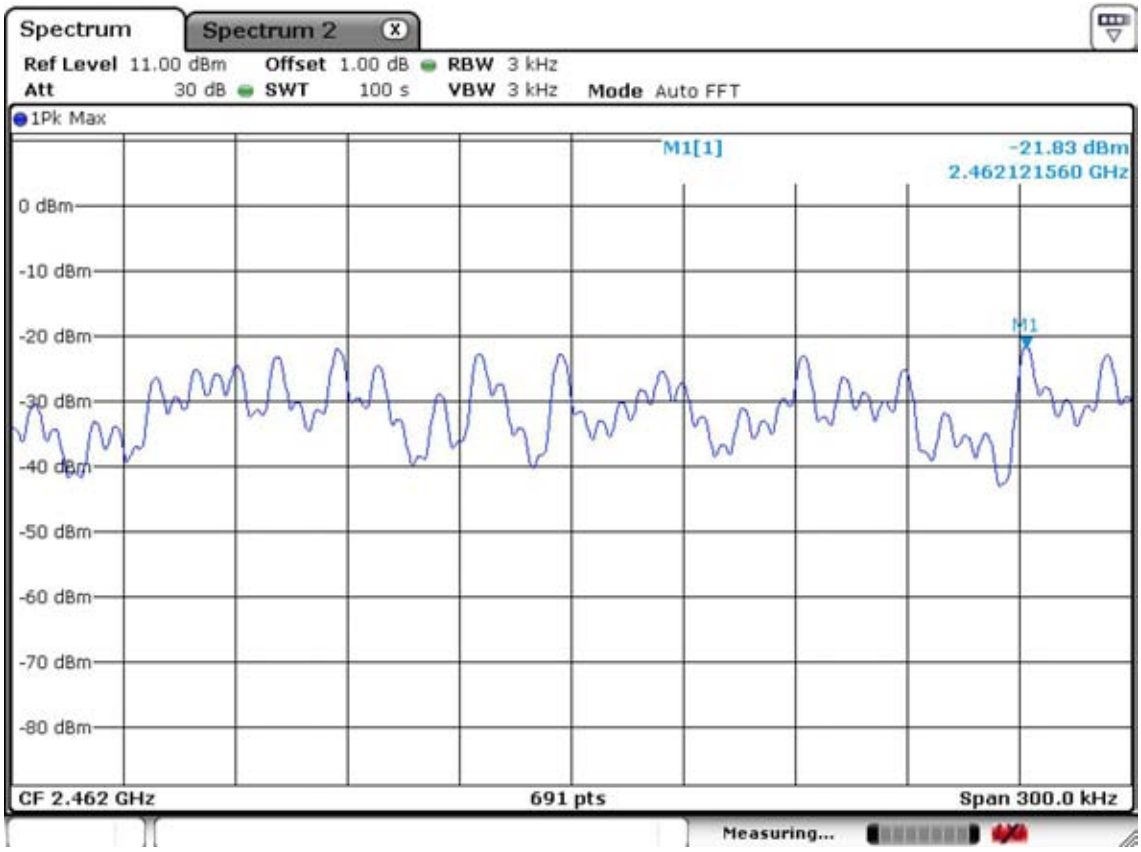
CH 1



CH 6

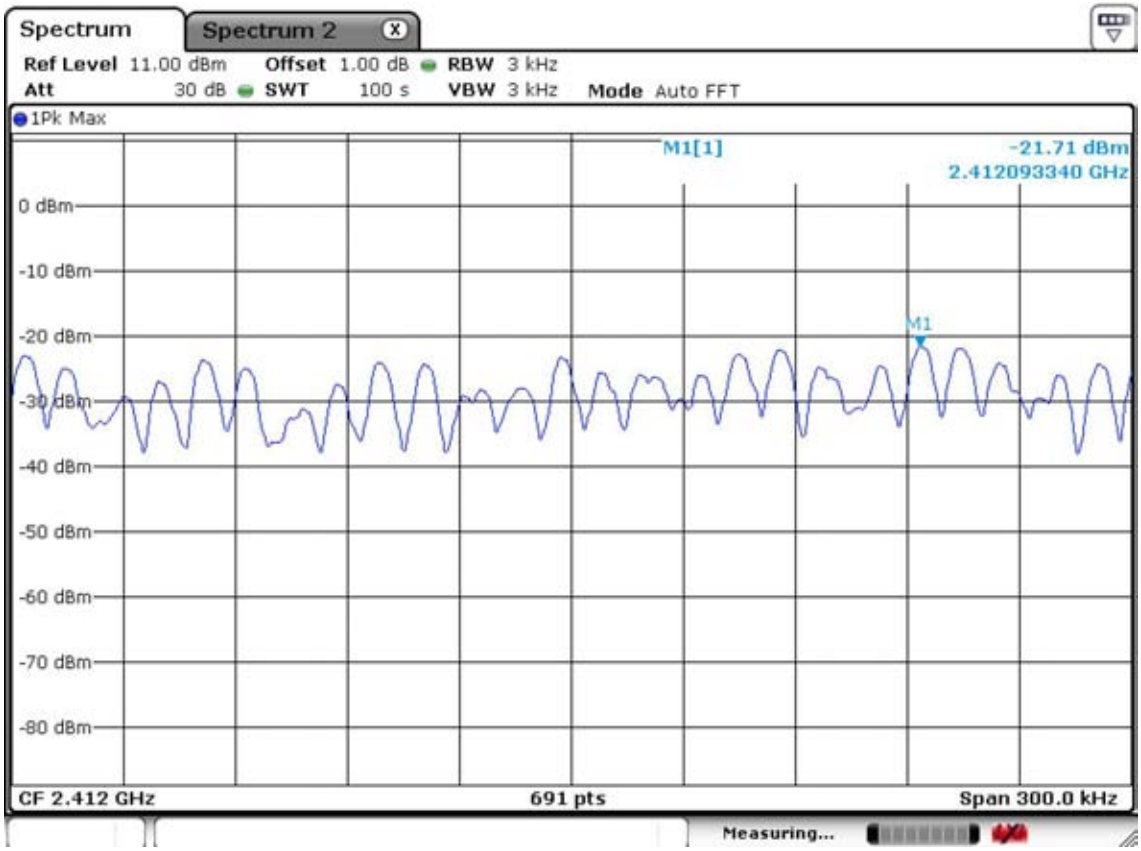


CH 11

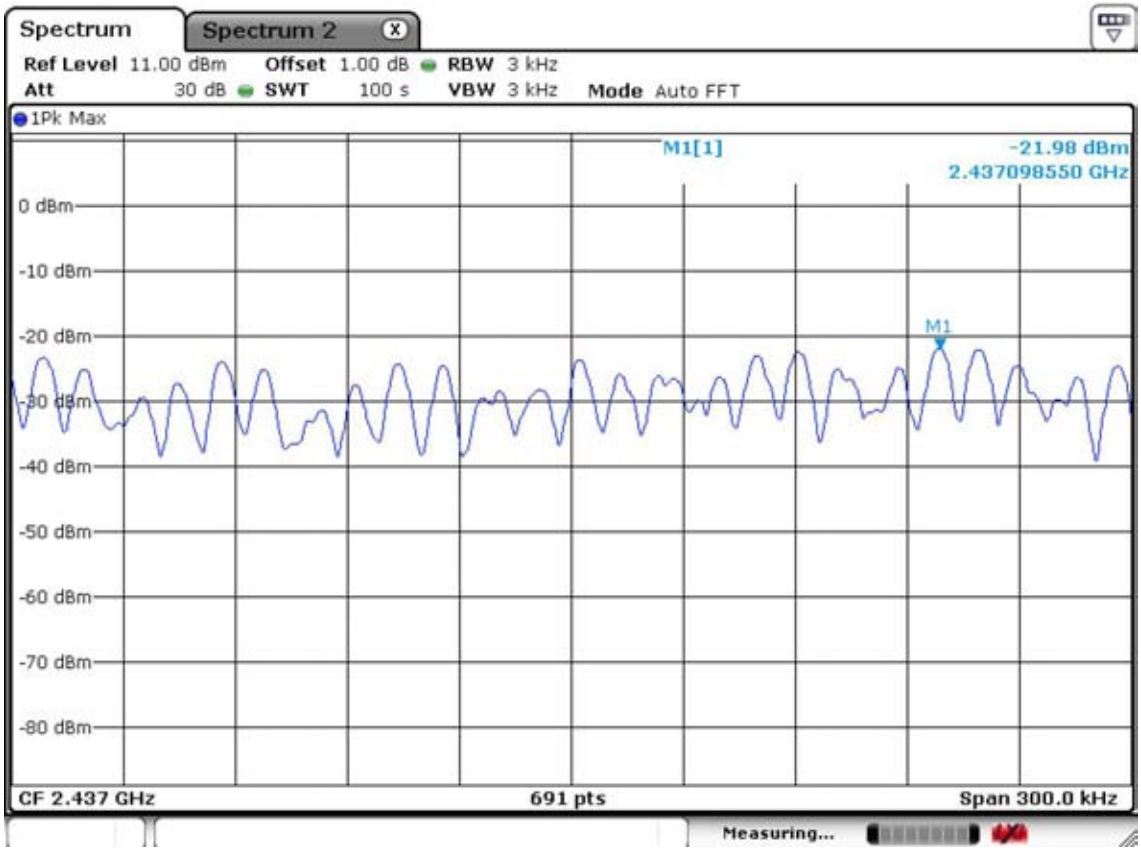


802.11g Power Density Measurement

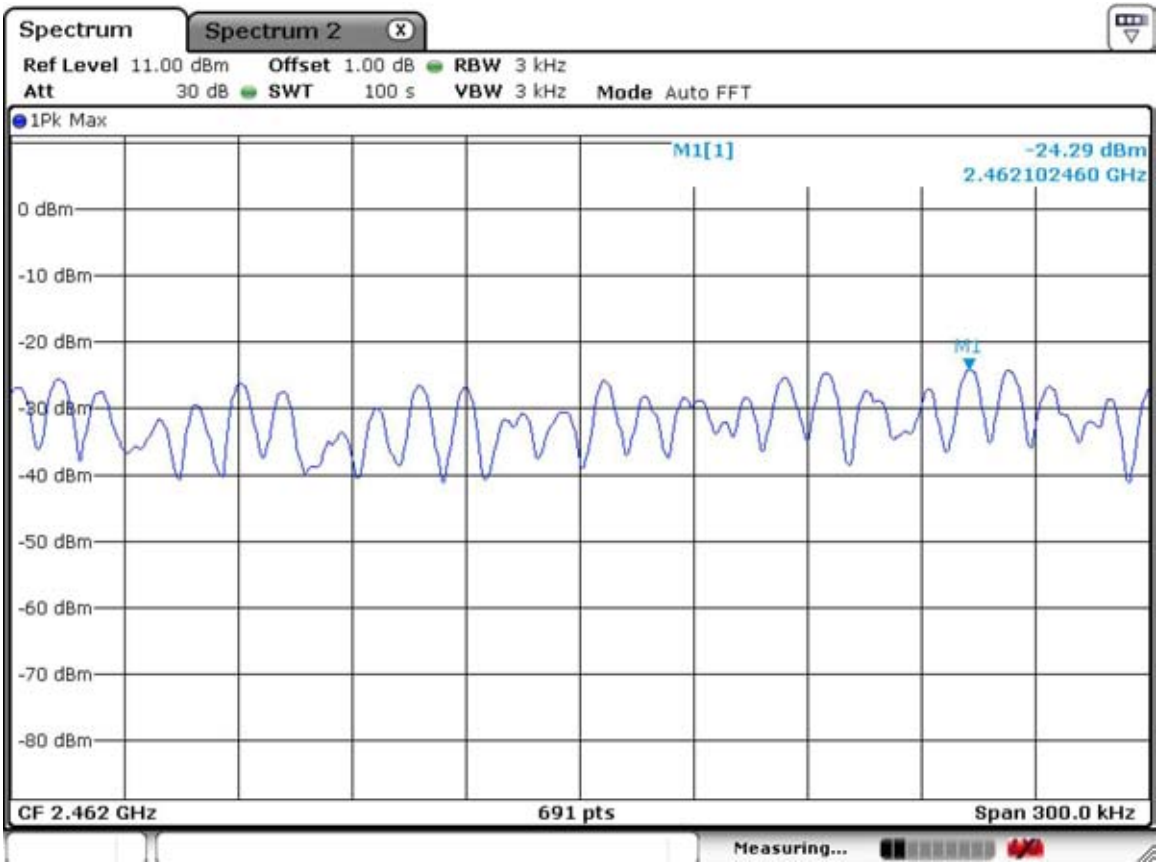
CH 1



CH 6

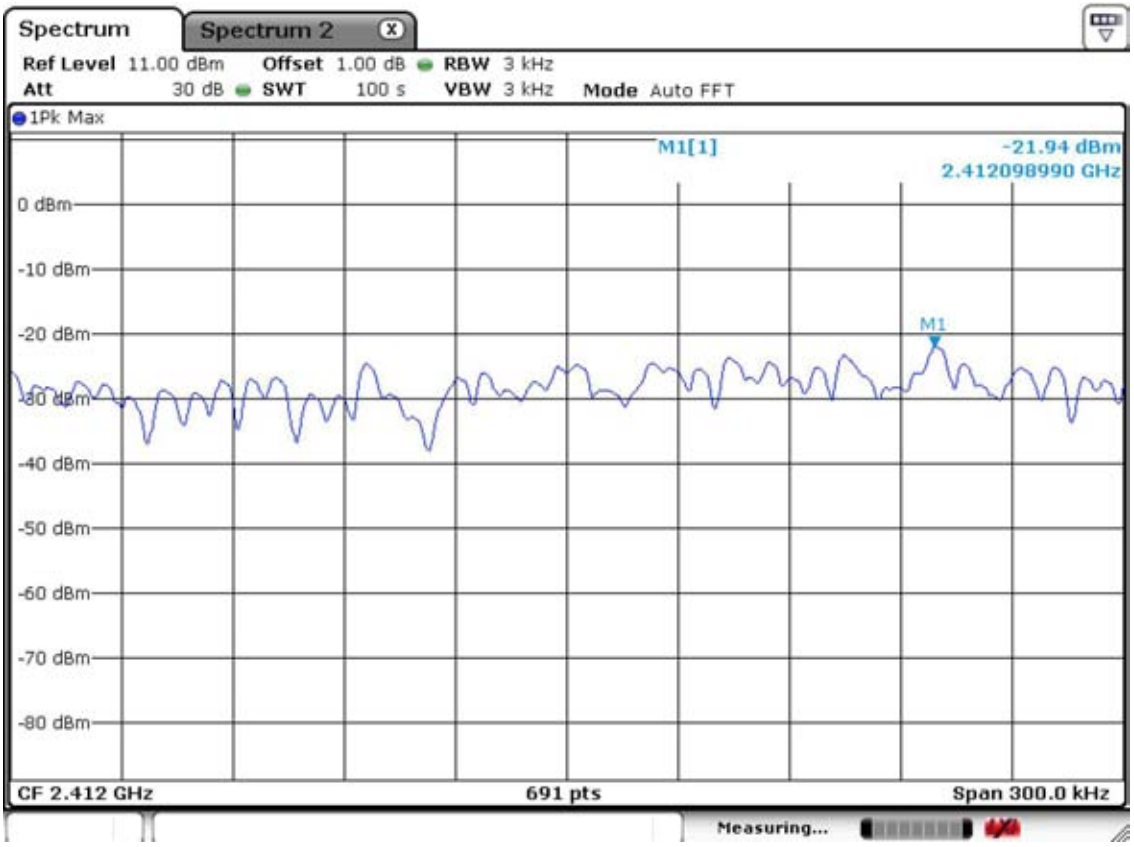


CH 11

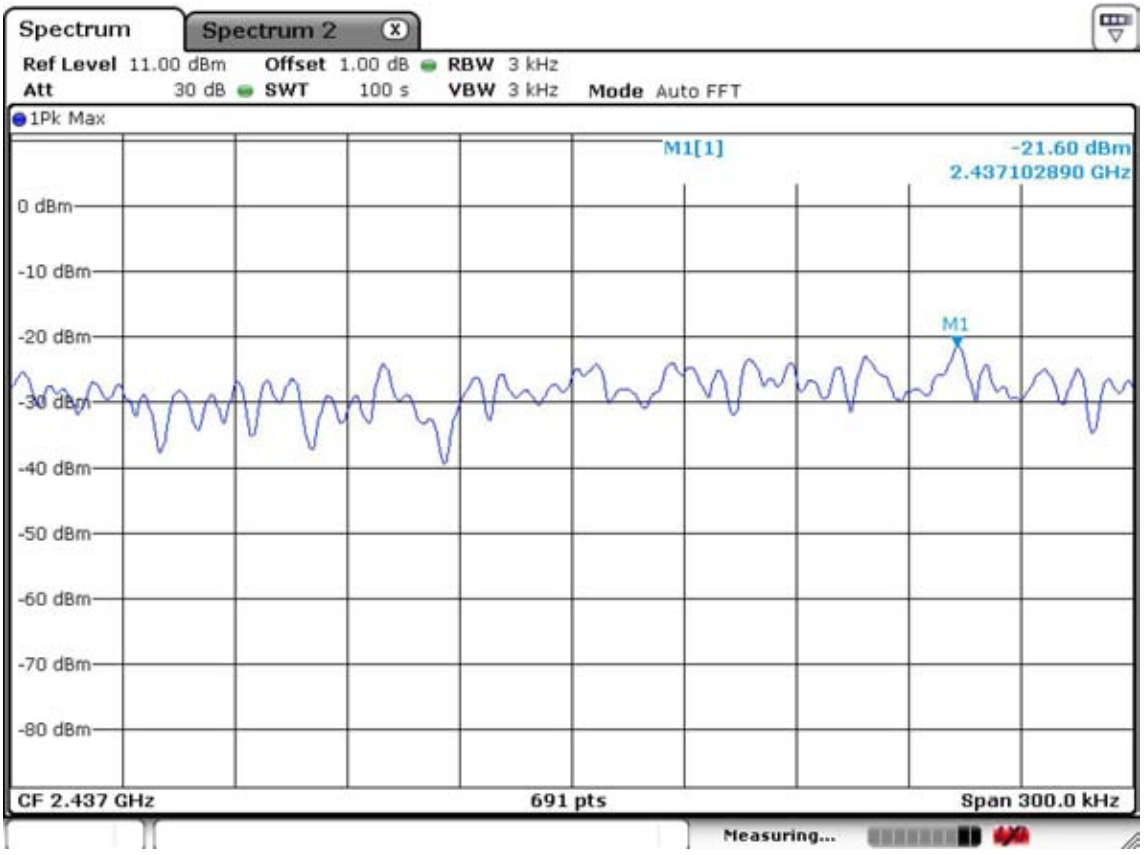

Spectrum
Spectrum 2
Ref Level 11.00 dBm Offset 1.00 dB RBW 3 kHz
Att 30 dB SWT 100 s VBW 3 kHz Mode Auto FFT
1Pk Max
M1[1]
-24.29 dBm
2.462102460 GHz
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
M1
CF 2.462 GHz
691 pts
Span 300.0 kHz
Measuring...

802.11n_20MHz Power Density Measurement

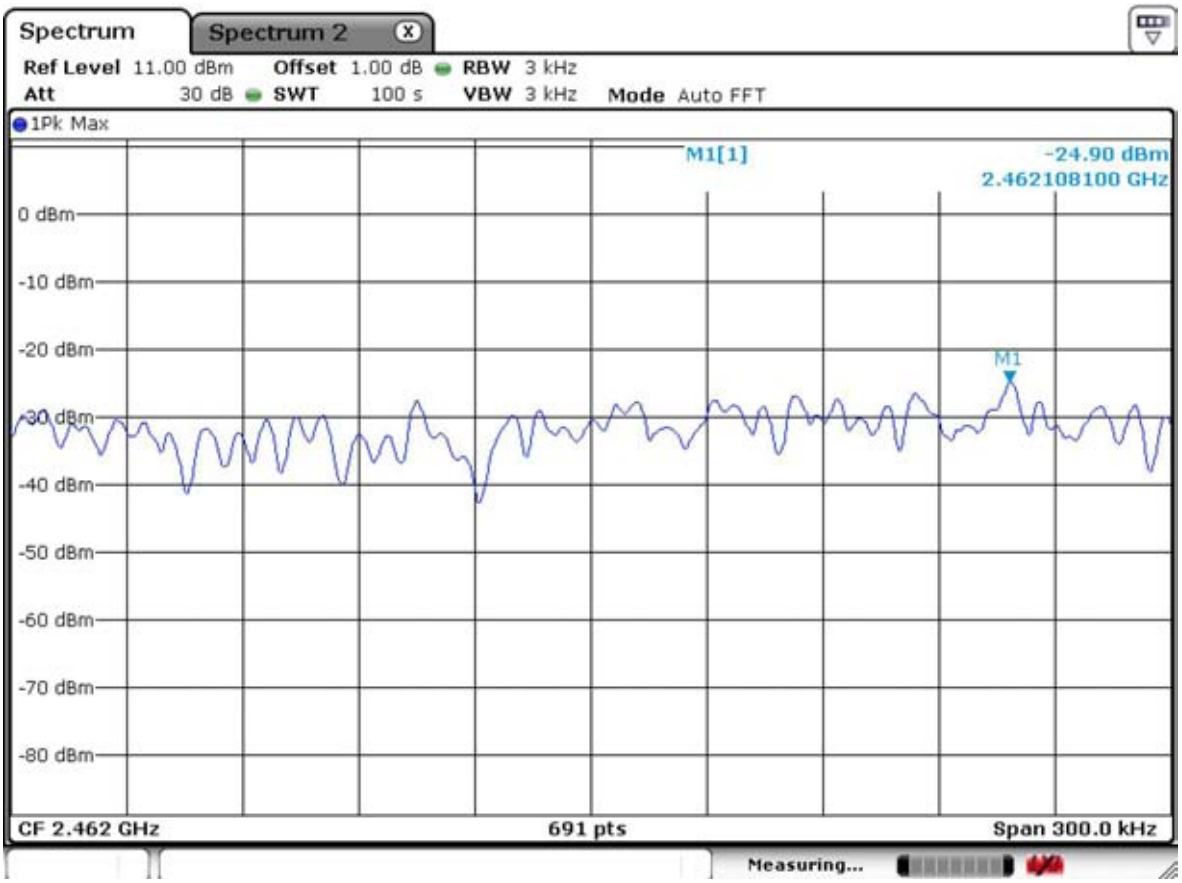
CH 1



CH 6

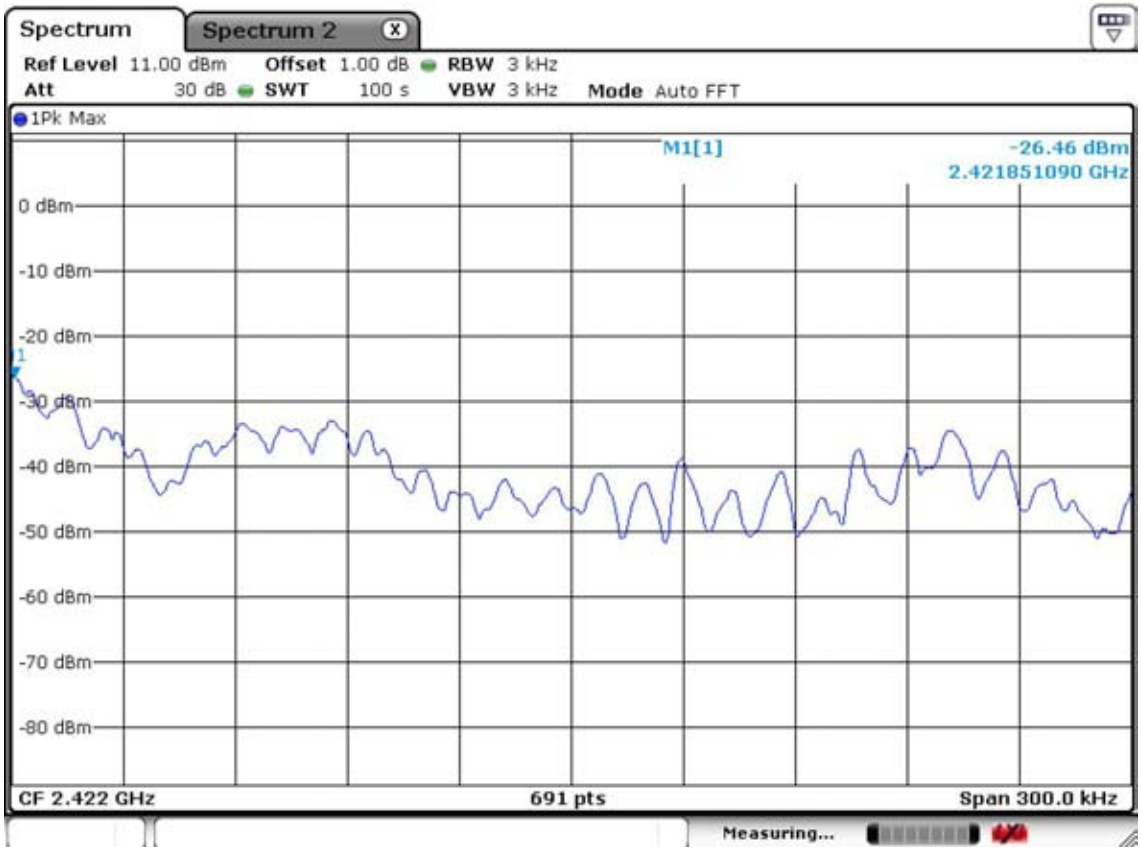


CH 11

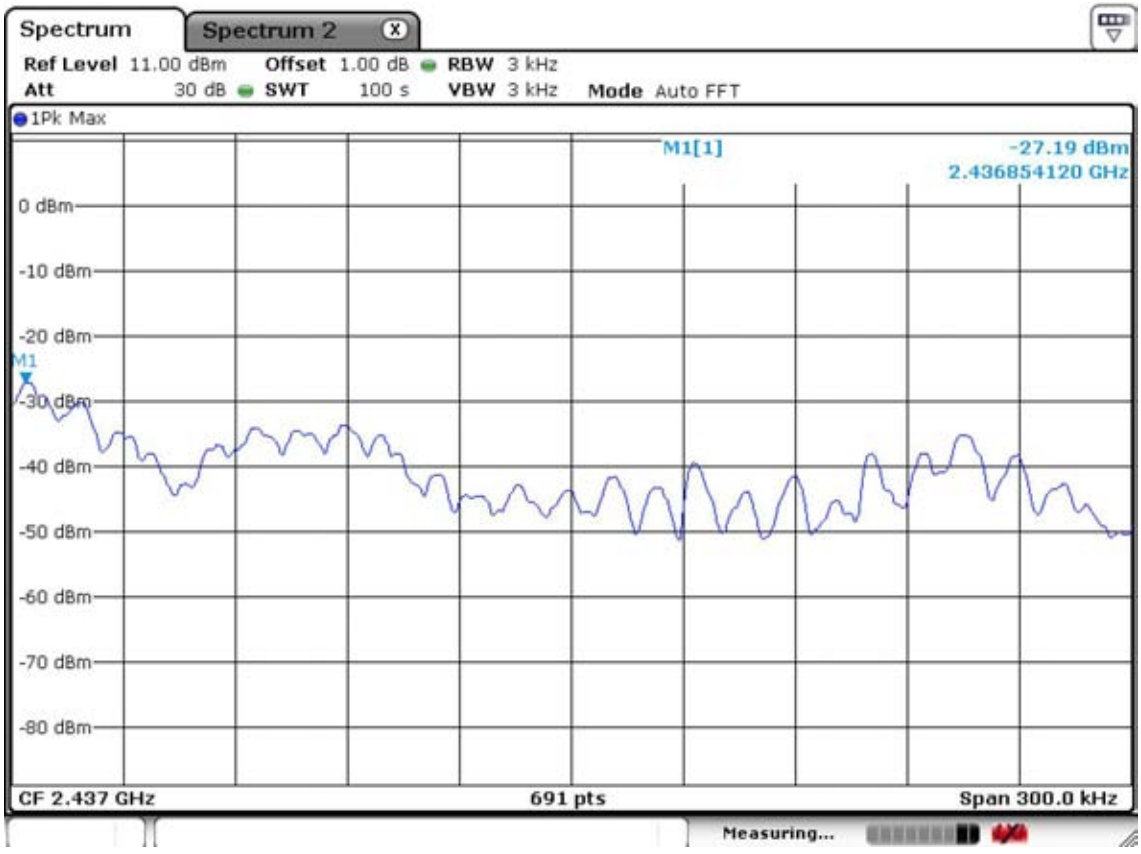

Spectrum
Spectrum 2
Ref Level 11.00 dBm
Offset 1.00 dB
RBW 3 kHz
Att 30 dB
SWT 100 s
VBW 3 kHz
Mode Auto FFT
1Pk Max
M1[1]
-24.90 dBm
2.462108100 GHz
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
M1
CF 2.462 GHz
691 pts
Span 300.0 kHz
Measuring...

802.11n_40MHz Power Density Measurement

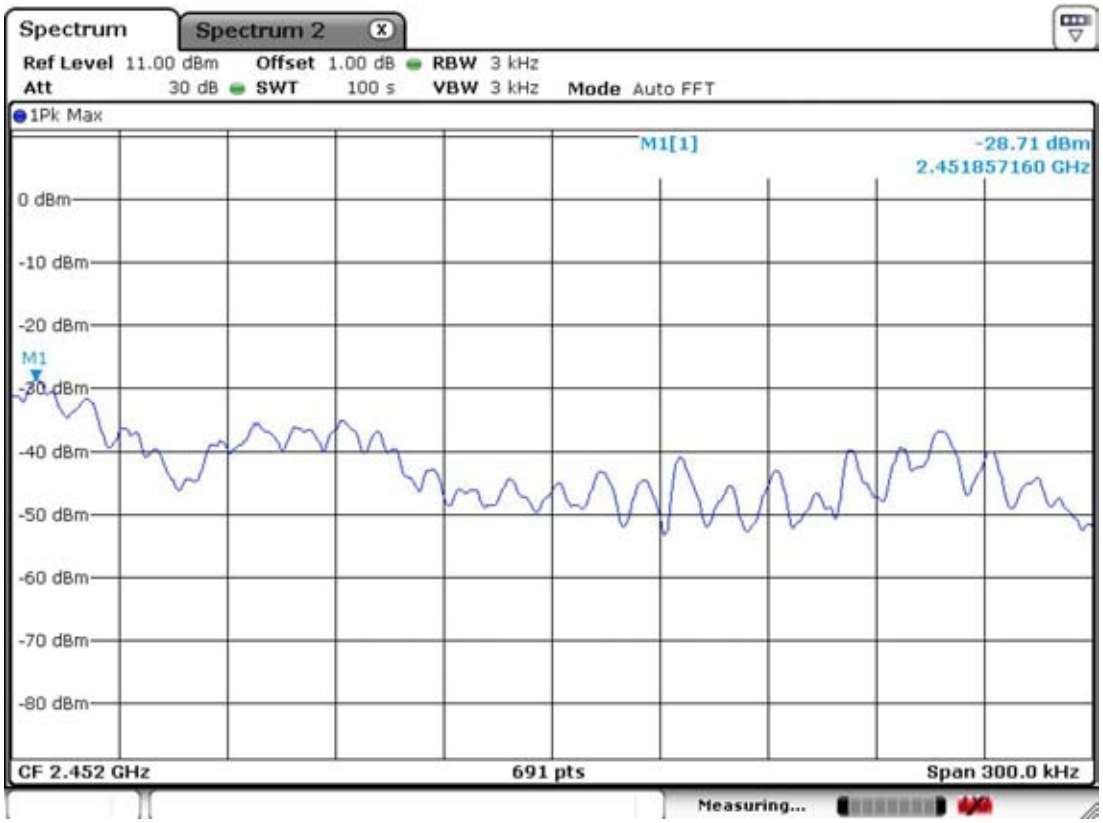
CH 1



CH 4



CH 7


Spectrum
Spectrum 2
Ref Level 11.00 dBm Offset 1.00 dB RBW 3 kHz
Att 30 dB SWT 100 s VBW 3 kHz Mode Auto FFT
1Pk Max
M1[1]
-28.71 dBm
2.451857160 GHz
0 dBm
-10 dBm
-20 dBm
M1
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
CF 2.452 GHz
691 pts
Span 300.0 kHz
Measuring...

3.2.4 Band - edge

Procedure:

*The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.

The bandwidth at 20dB down from the highest in band spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels.

After the trace being stable, Use the marker-to-peak function to measure 20 dB down both sides of the intentional emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz	VBW = 100 kHz
Span = 80/160 MHz	Detector function = peak
Trace = max hold	Sweep = auto

Measurement Data: Complies

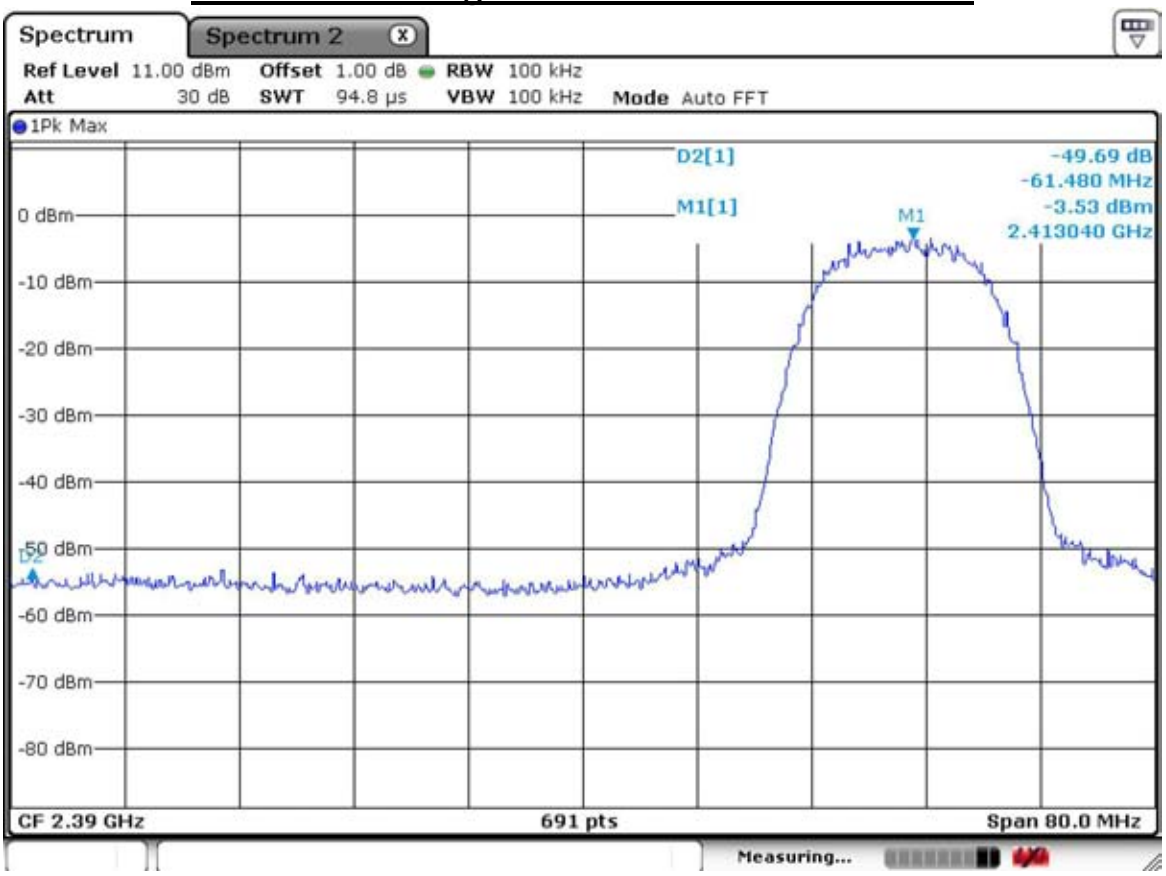
- All conducted emission in any 100kHz bandwidth outside of the spread spectrum band was at least 20dB lower than the highest inband spectral density. Therefore the applying equipment meets the requirement.
- See next pages for actual measured spectrum plots.

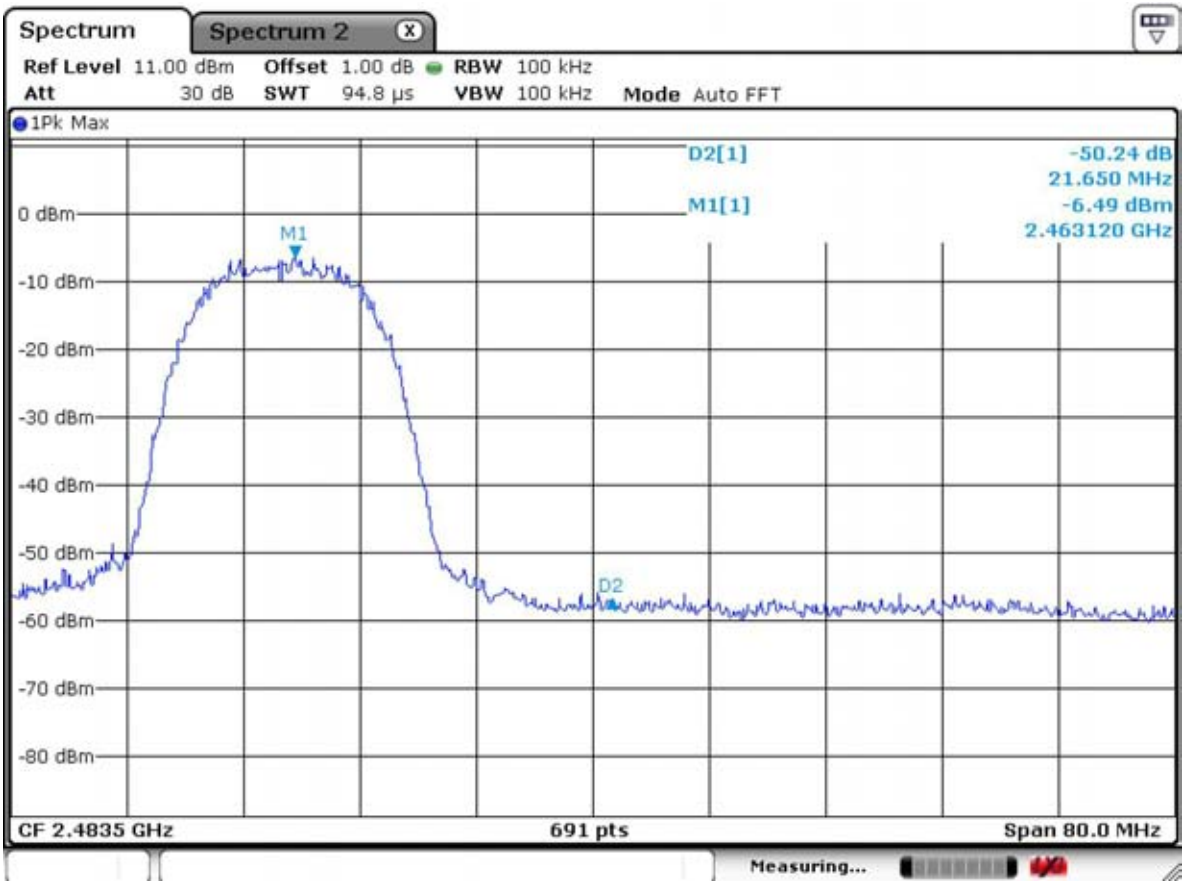
Minimum Standard:	> 20 dBc

Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

802.11b Band–edge : Conducted Measurements





***802.11b mode**

Band-edges in the restricted band 2310-2390 MHz measurement

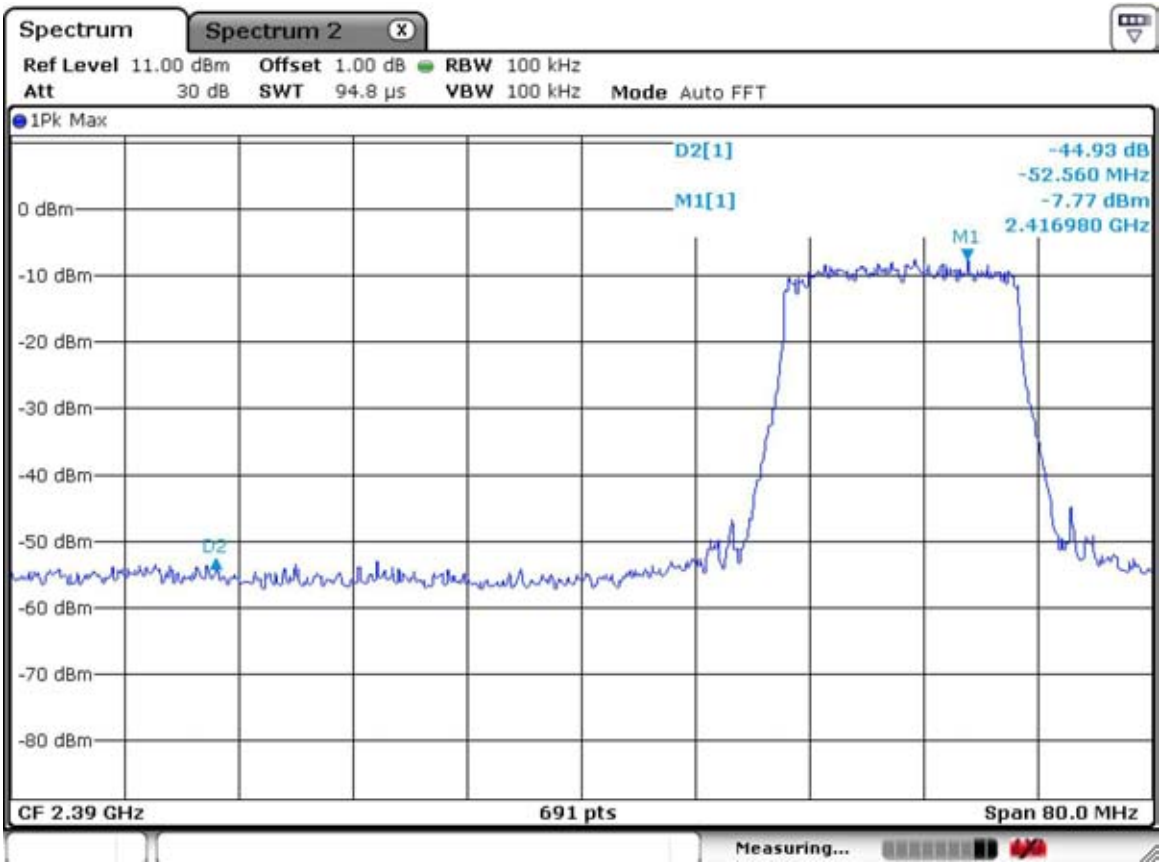
Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp. Gain + Cable						
2389	41.45	50.67	V	29.1	24.4	54.0	74.0	46.2	55.4	7.8	18.6

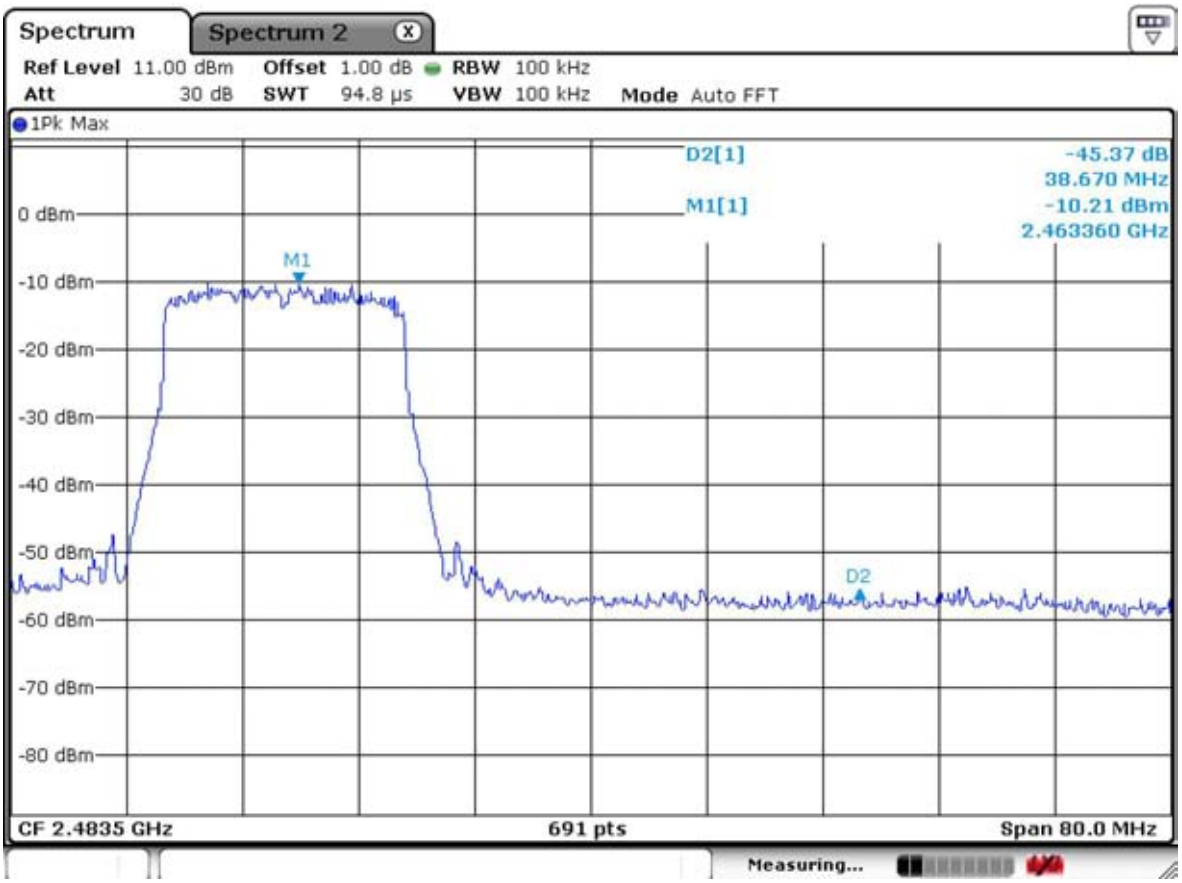
Band-edges in the restricted band 2483.5-2500 MHz measurement

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp. Gain + Cable						
2483.5	40.22	49.56	V	29.1	24.4	54.0	74.0	45.0	54.3	9.0	19.7

Note : This EUT was tested in 3 orthogonal positions and the worst-case data was presented

802.11g Band–edge : Conducted Measurements





***802.11 g mode**

Band-edges in the restricted band 2310-2390 MHz measurement

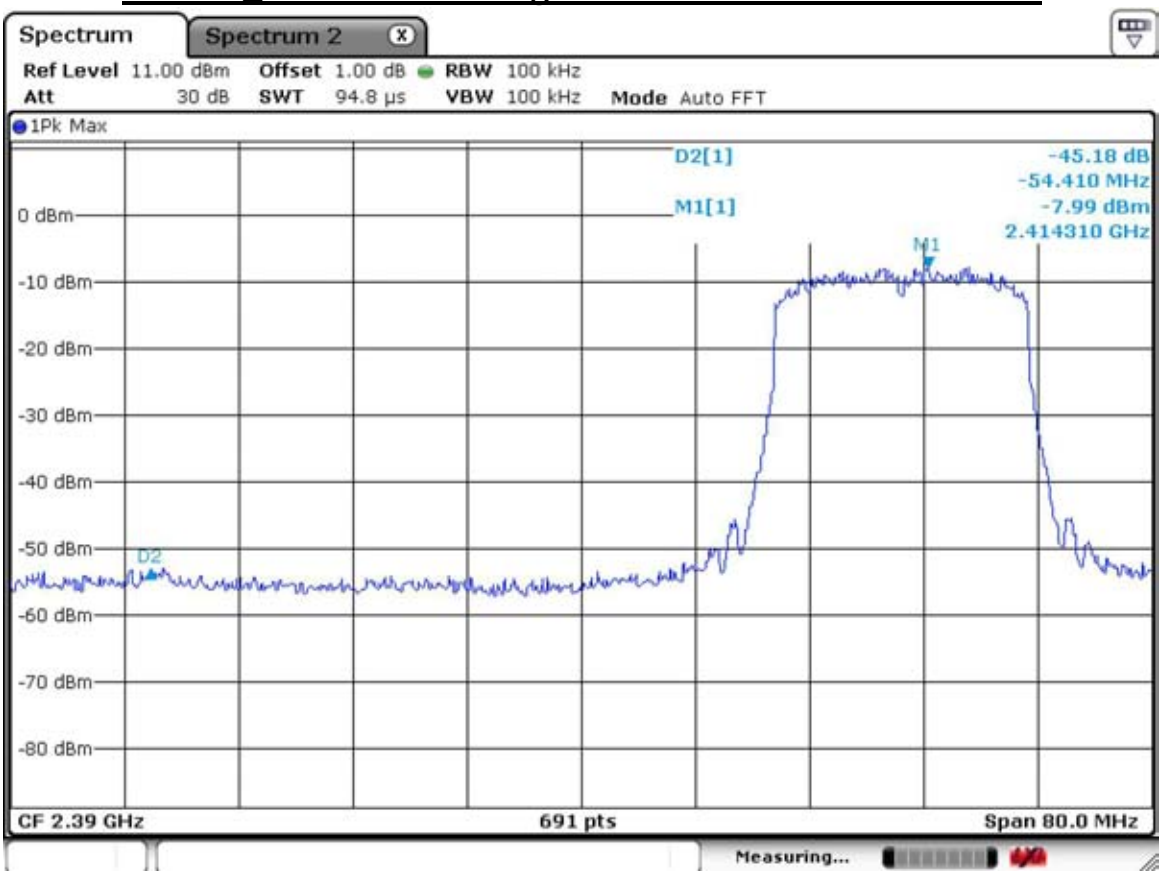
Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp. Gain + Cable						
2389	42.25	53.03	H	29.1	24.4	54.0	74.0	47.0	57.8	7.0	16.2

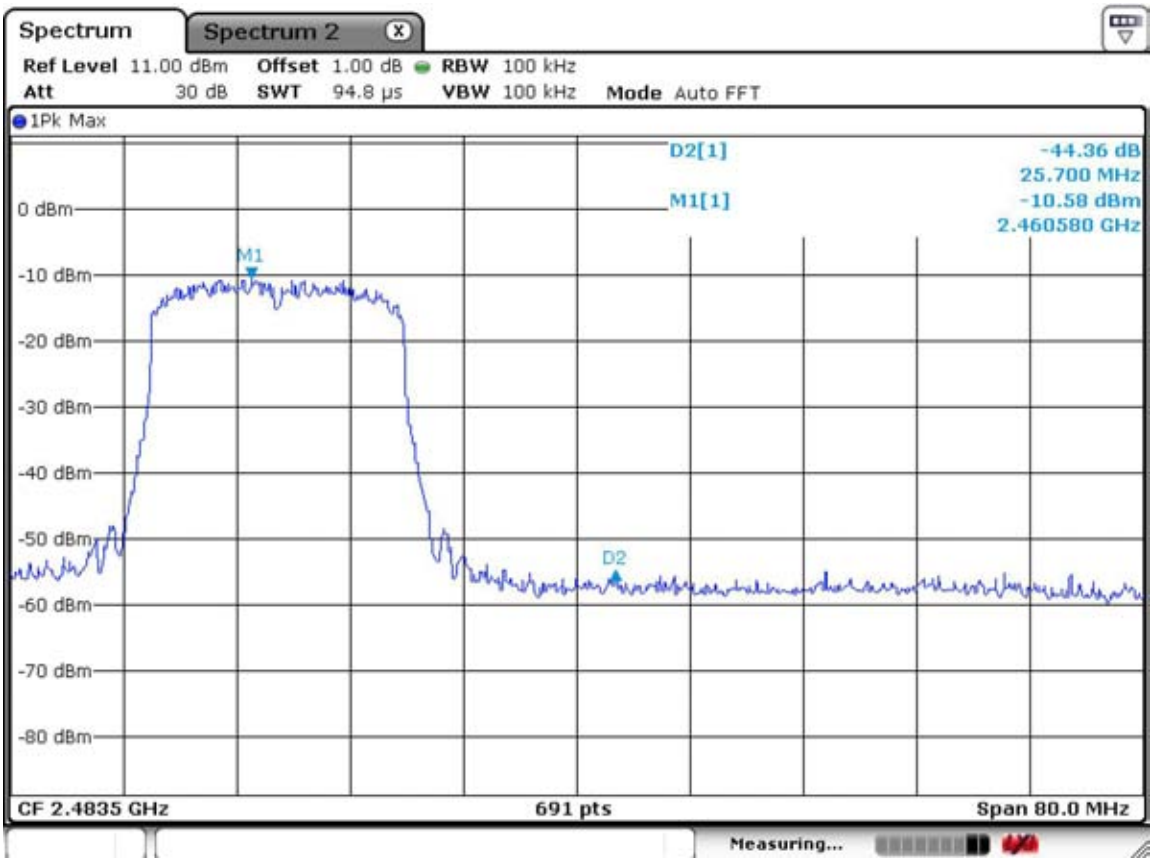
Band-edges in the restricted band 2483.5-2500 MHz measurement

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp. Gain + Cable						
2483.5	41.56	52.06	H	29.1	24.4	54.0	74.0	46.3	56.8	7.7	17.2

Note : This EUT was tested in 3 orthogonal positions and the worst-case data was presented

802.11n_20MHz Band–edge : Conducted Measurements





***802.11 n_20MHz mode**

Band-edges in the restricted band 2310-2390 MHz measurement

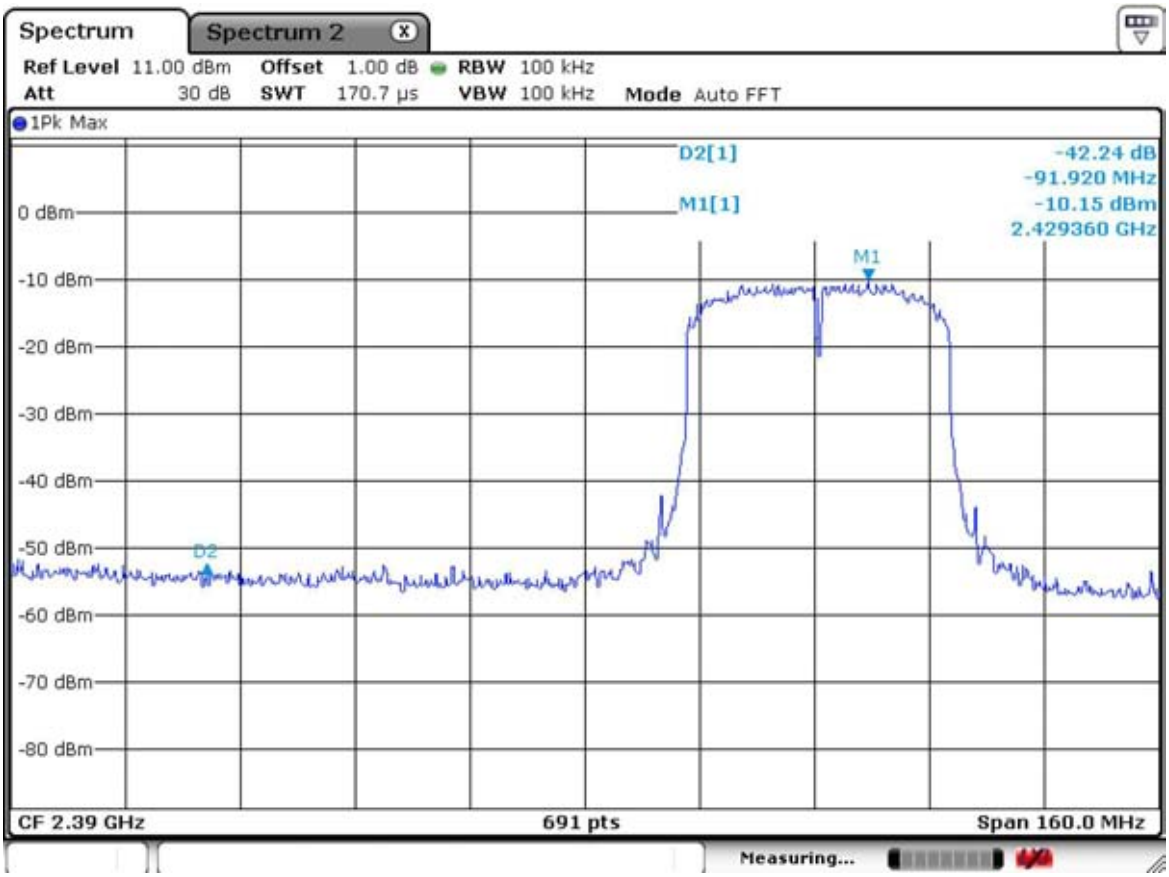
Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp. Gain + Cable						
2390	43.45	53.77	H	29.1	24.4	54.0	74.0	48.2	58.5	5.8	15.5

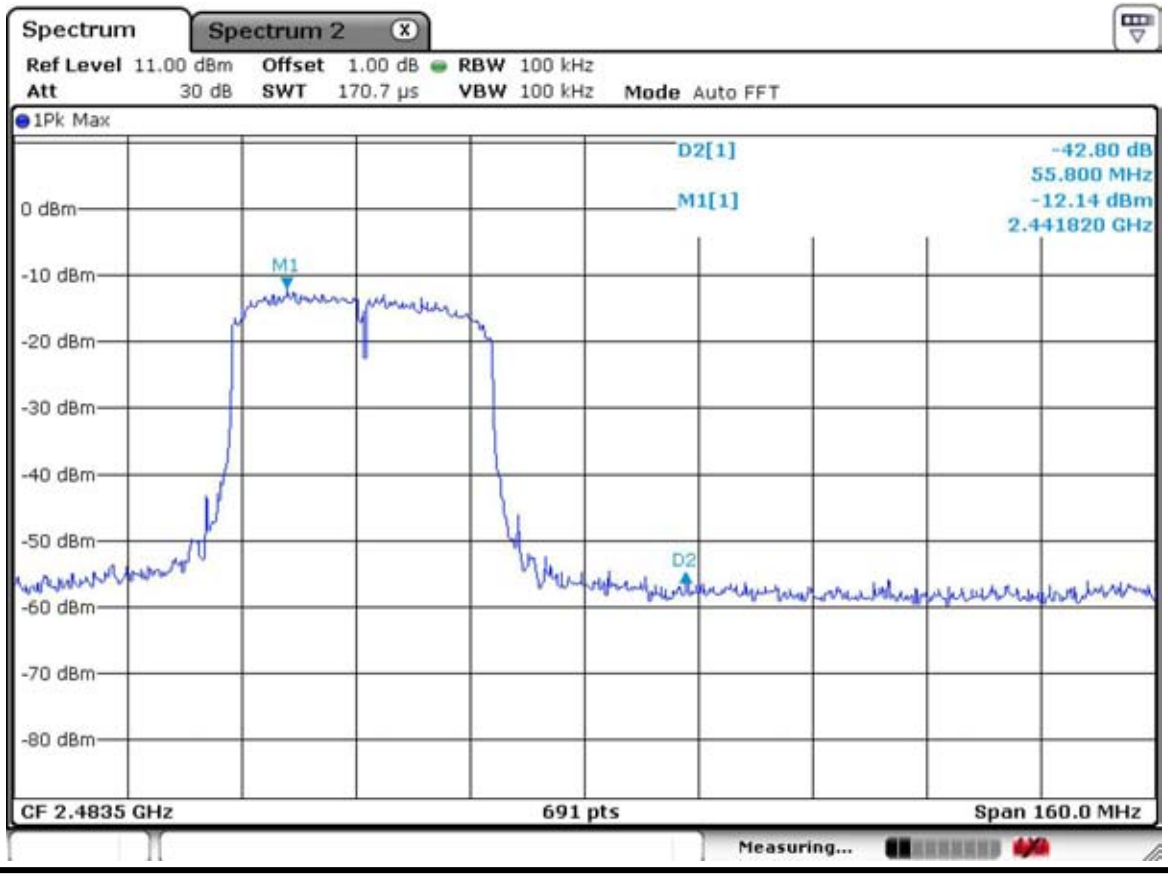
Band-edges in the restricted band 2483.5-2500 MHz measurement

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp. Gain + Cable						
2483.5	41.19	52.48	H	29.1	24.4	54.0	74.0	45.9	57.2	8.1	16.8

Note : This EUT was tested in 3 orthogonal positions and the worst-case data was presented

802.11n_40MHz Band–edge : Conducted Measurements





***802.11 n_40MHz mode**

Band-edges in the restricted band 2310-2390 MHz measurement

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp. Gain + Cable						
2389.9	41.67	51.49	V	29.1	24.4	54.0	74.0	46.4	56.2	7.6	17.8

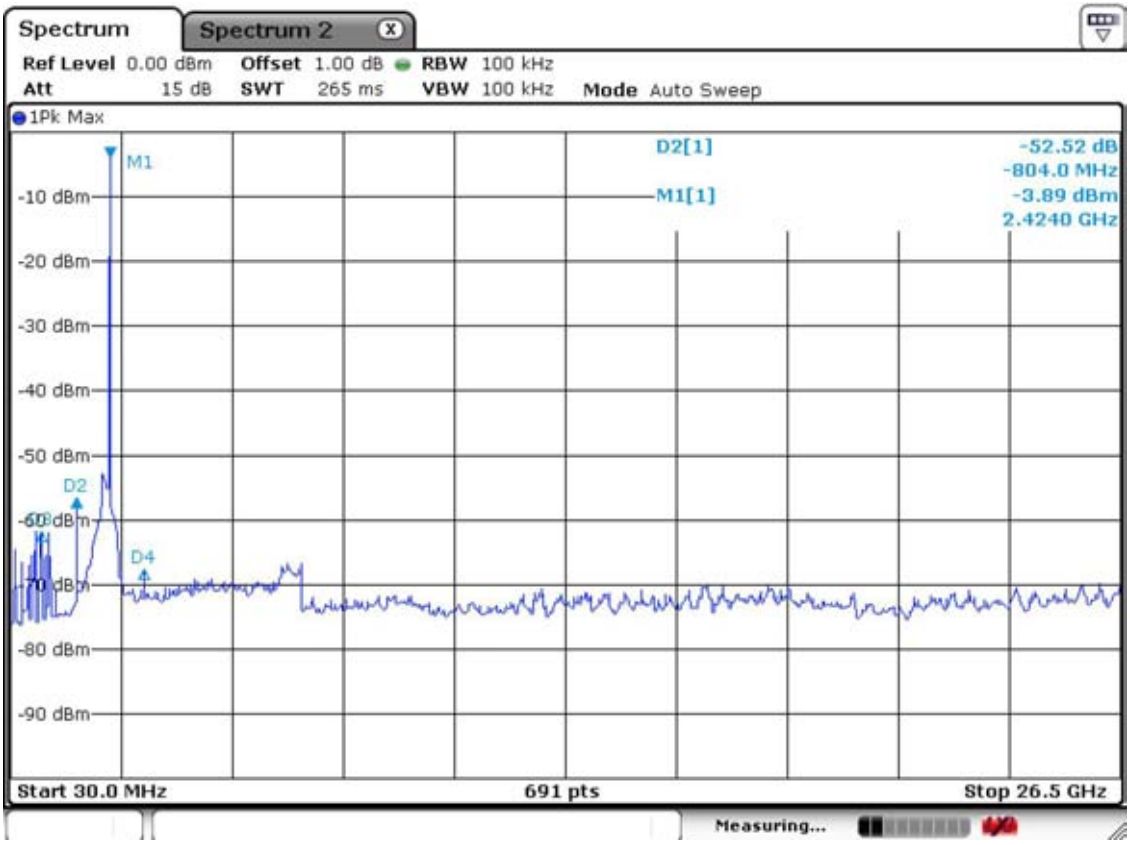
Band-edges in the restricted band 2483.5-2500 MHz measurement

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp. Gain + Cable						
2483.5	40.36	51.1	V	29.1	24.4	54.0	74.0	45.1	55.8	8.9	18.2

Note : This EUT was tested in 3 orthogonal positions and the worst-case data was presented

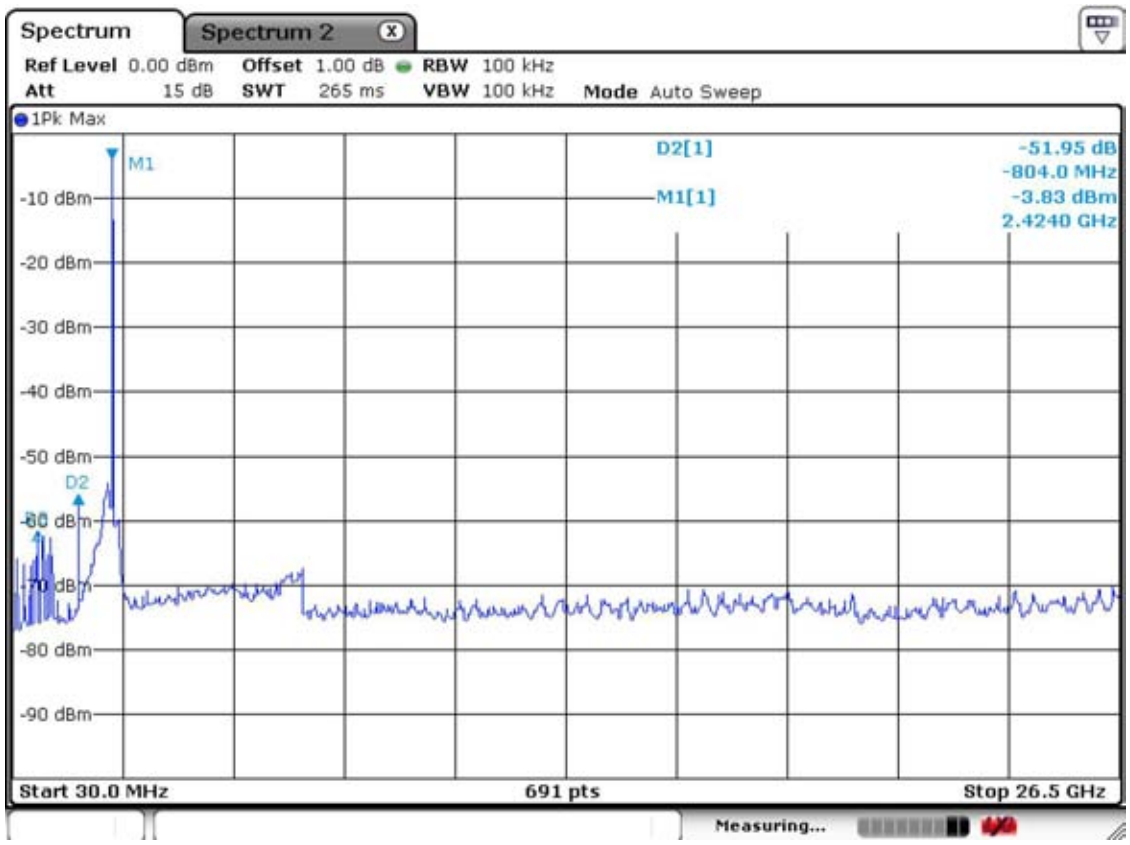
802.11b – channel 1

Frequency Range = 30 MHz ~ 10th harmonic.



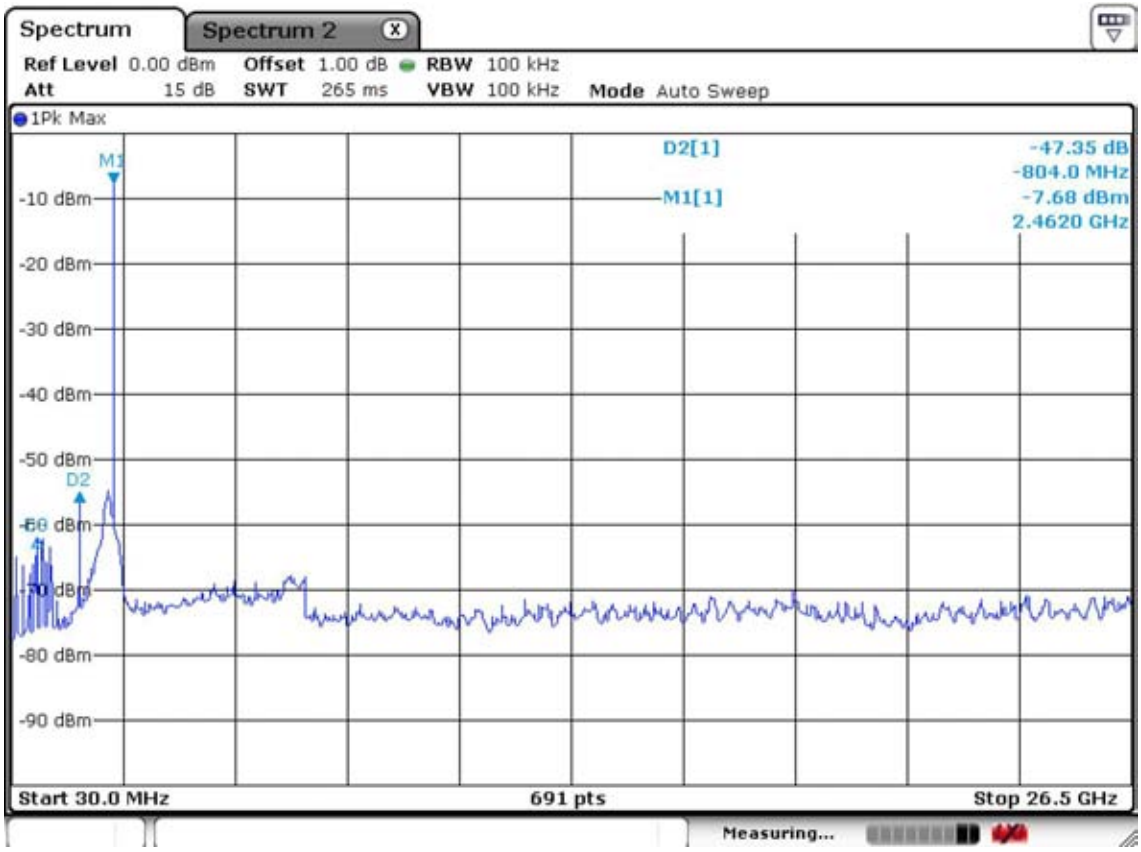
802.11b – channel 6

Frequency Range = 30 MHz ~ 10th harmonic.



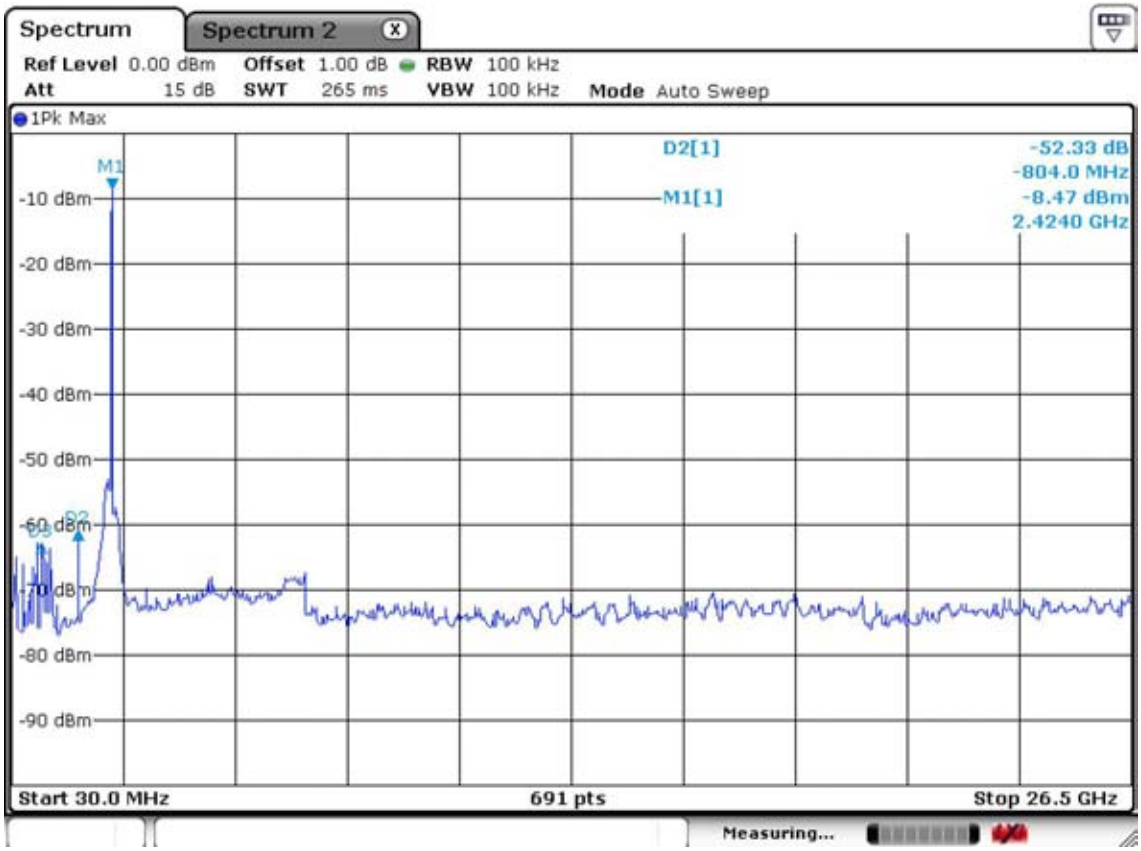
802.11b –channel 11

Frequency Range = 30 MHz ~ 10th harmonic.



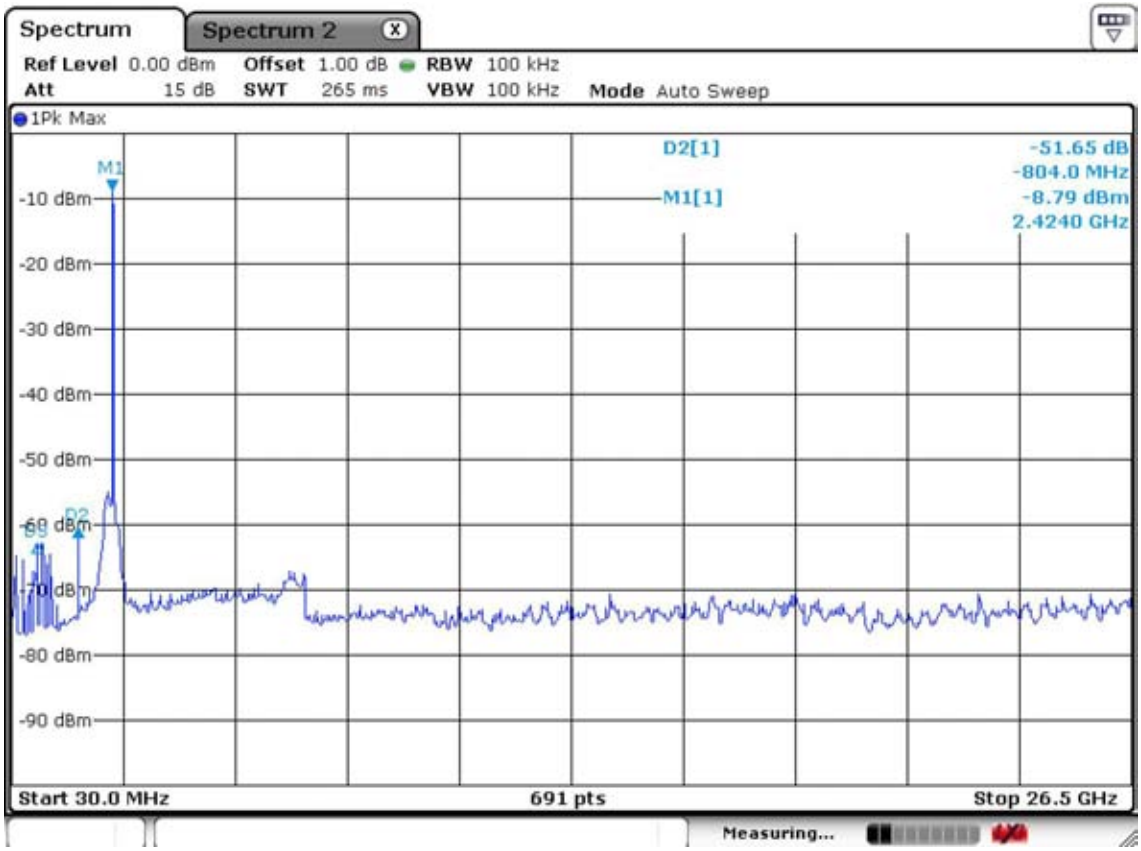
802.11g – channel 1

Frequency Range = 30 MHz ~ 10th harmonic.



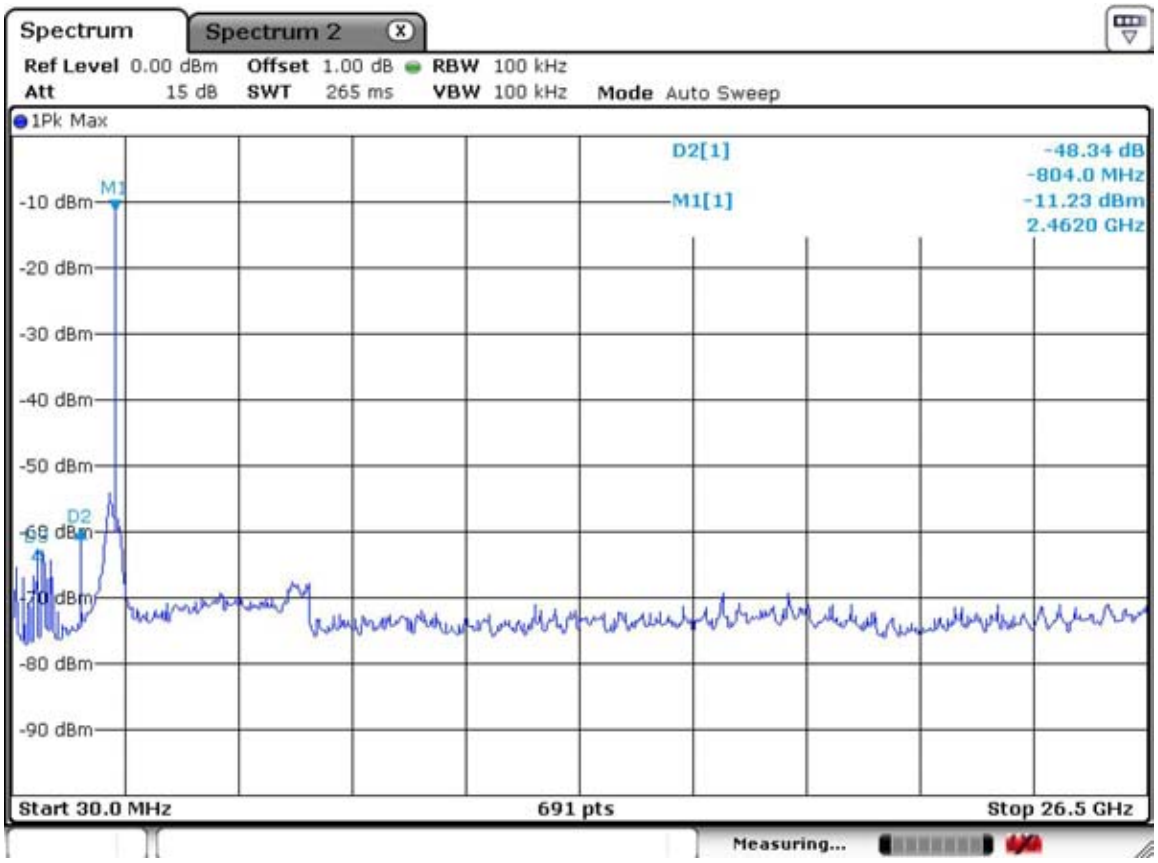
802.11g – channel 6

Frequency Range = 30 MHz ~ 10th harmonic.



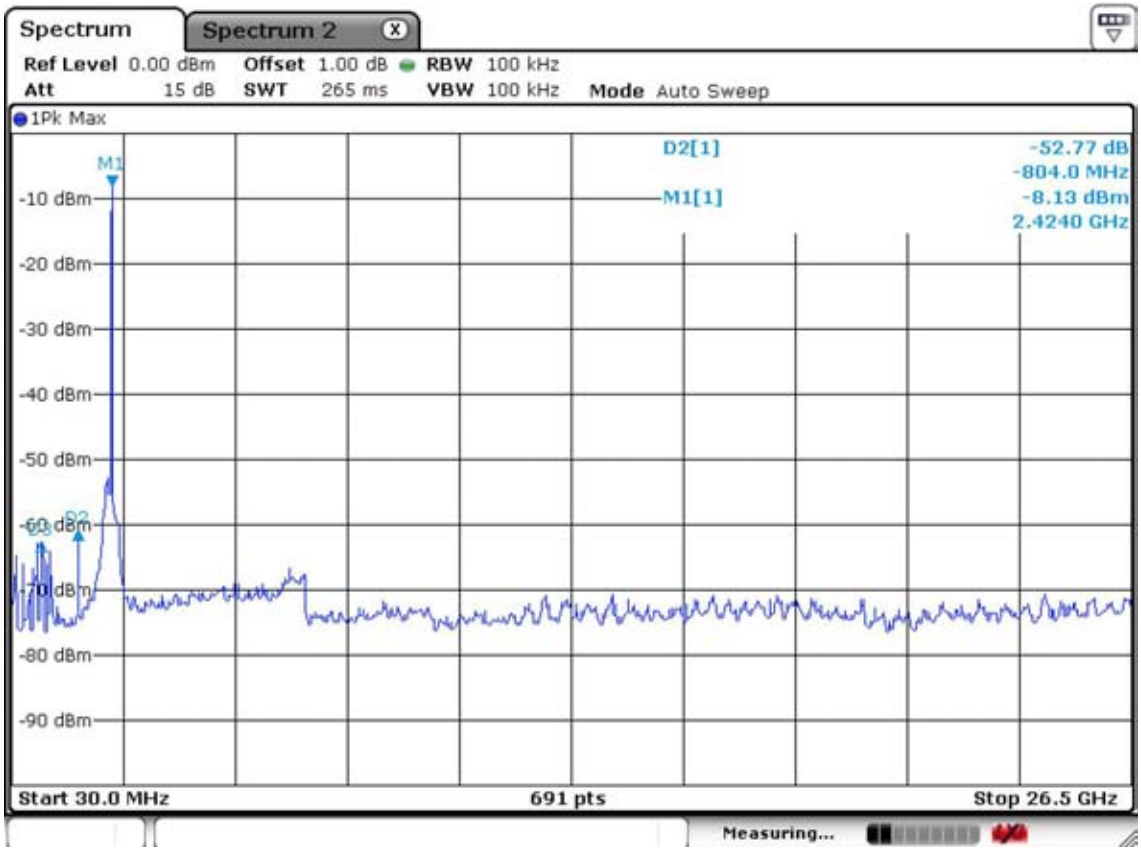
802.11g –channel 11

Frequency Range = 30 MHz ~ 10th harmonic.



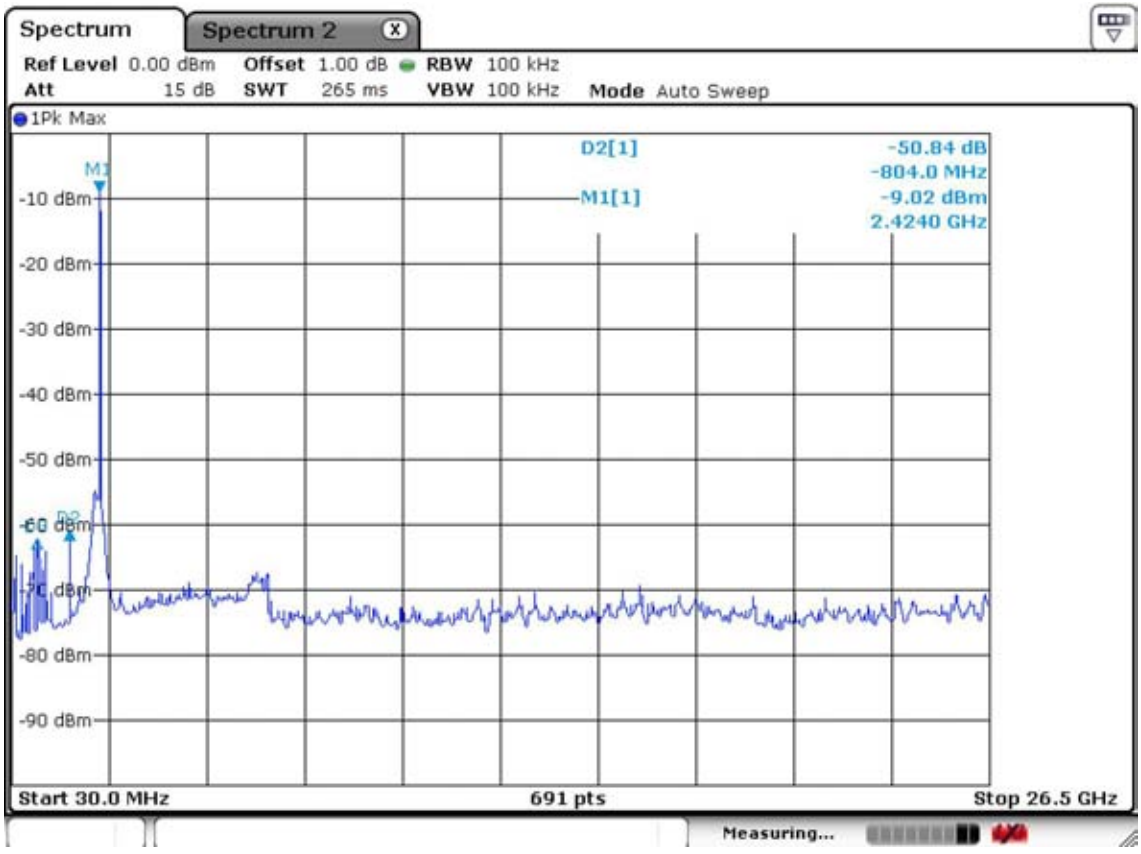
802.11n_20MHz – channel 1

Frequency Range = 30 MHz ~ 10th harmonic.



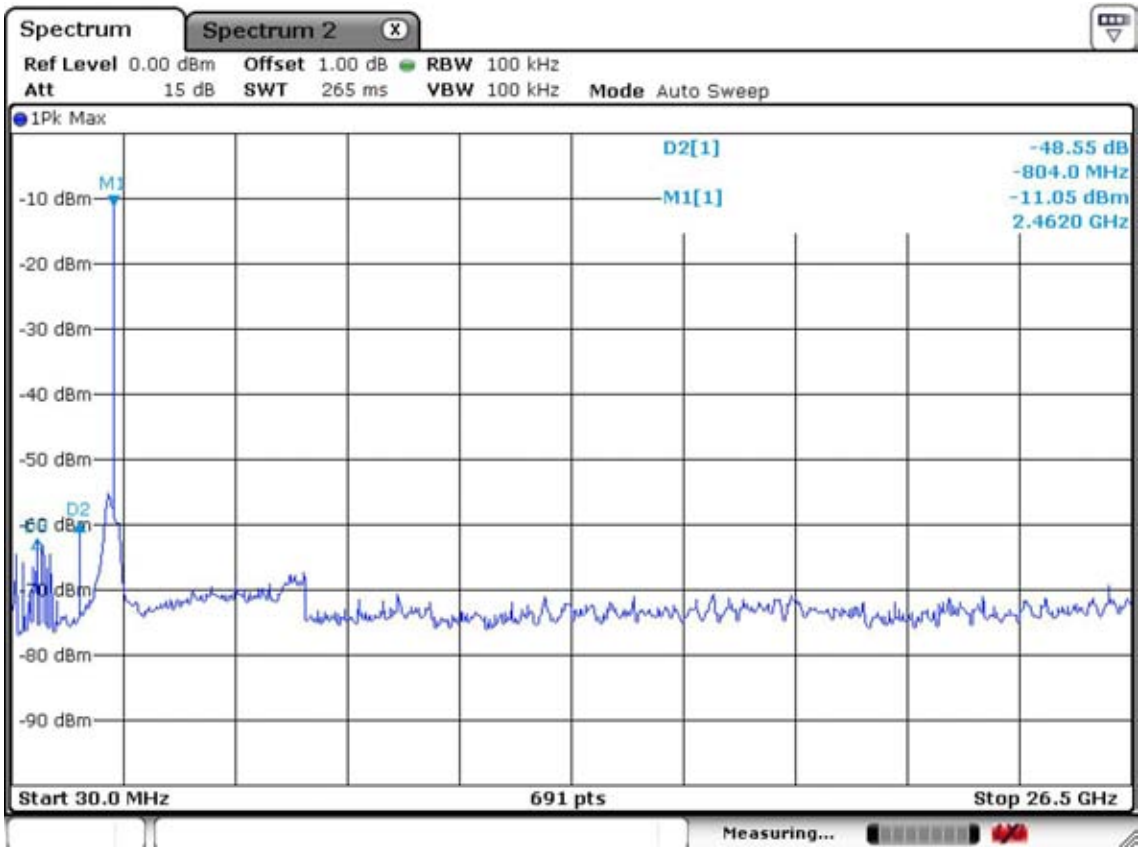
802.11n_20MHz – channel 6

Frequency Range = 30 MHz ~ 10th harmonic.



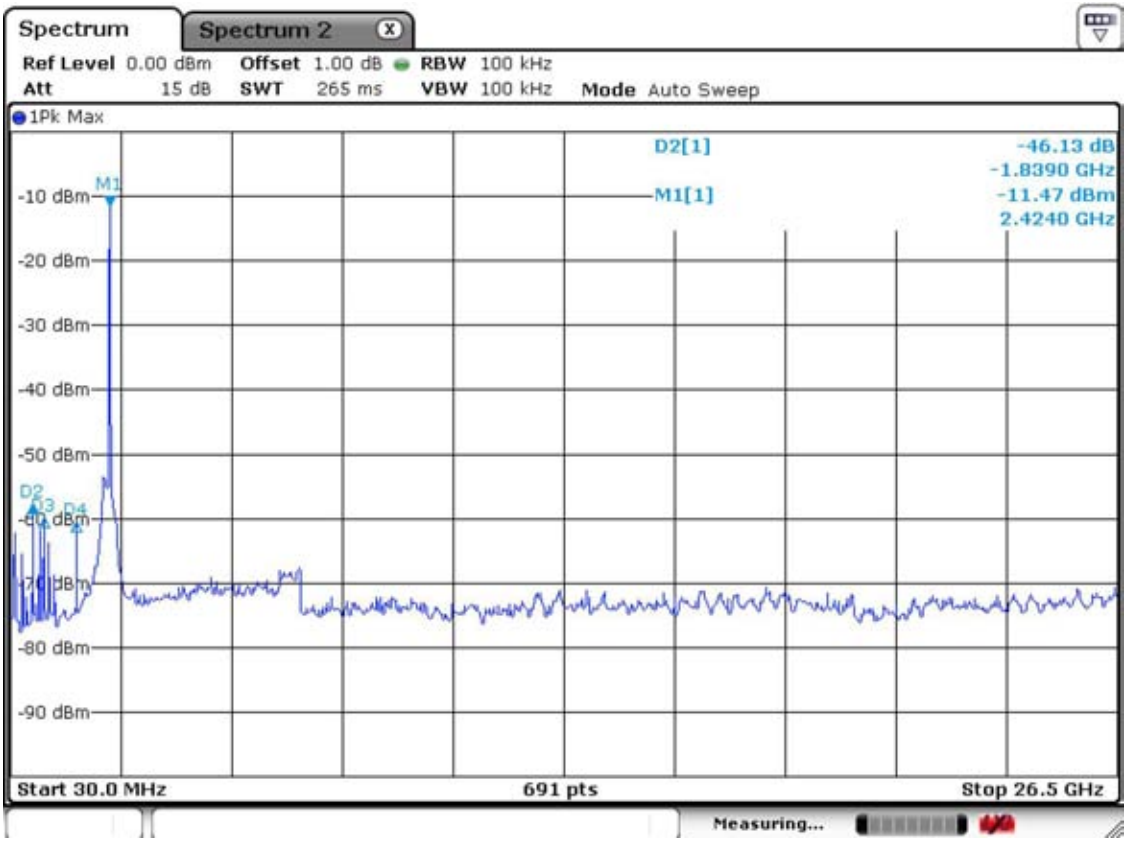
802.11n_20MHz –channel 11

Frequency Range = 30 MHz ~ 10th harmonic.



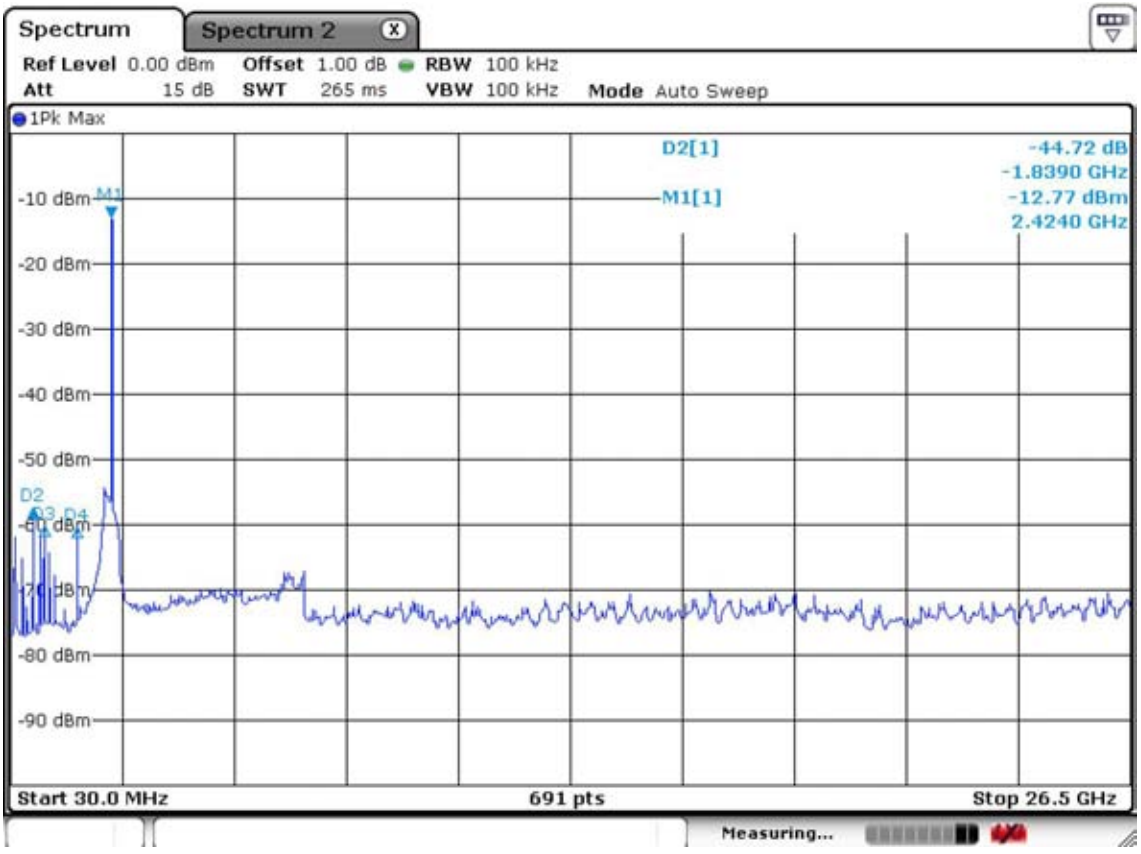
802.11n_40MHz – channel 1

Frequency Range = 30 MHz ~ 10th harmonic.



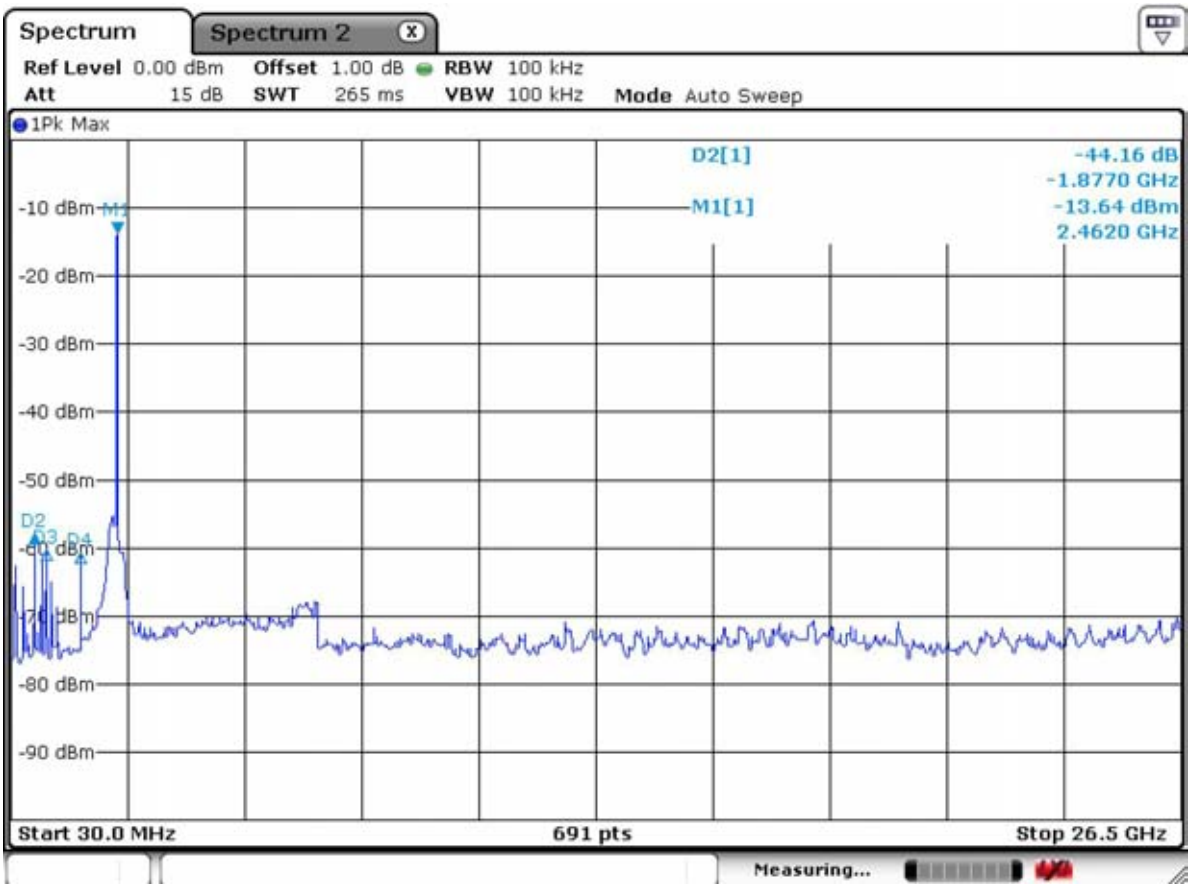
802.11n_40MHz – channel 4

Frequency Range = 30 MHz ~ 10th harmonic.



802.11n_40MHz –channel 7

Frequency Range = 30 MHz ~ 10th harmonic.



3.2.5 Field Strength of Harmonics - Transmitter

Procedure:

* The testing follows TCB Workshop 2012, April and fulfills ANSI C63.4-2003 and the guidelines in ANSI C63.10-2009 test requirement. The EUT was placed on a 0.8m high wooden table inside a shielded enclosure. An antenna was placed near the EUT and measurements of frequencies and amplitudes of field strengths were recorded for reference during final measurements. For final radiated testing, measurements were performed in OATS. Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine worst-case orientation for maximum emissions.

The spectrum analyzer is set to:

Center frequency = the worst channel

Frequency Range = 9 kHz ~ 10th harmonic.

RBW = 120 kHz (9kHz ~ 1 GHz) — Peak: VBW ≥ RBW

= 1 MHz (1 GHz ~ 10th harmonic) — Average: VBW=10Hz

Span = 100 MHz — Detector function = peak

Trace = max hold — Sweep = auto

Measurement Data: Complies

- See next pages for actual measured data.
- No other emissions were detected at a level greater than 20dB below limit.
- The three antennas were used with this EUT during the Testing.

Minimum Standard: FCC Part 15.209(a)

Frequency (MHz)	Limit (uV/m) @ 3m
0.009 ~ 0.490	2400/F (kHz) @ 300m
0.490 ~ 1.705	24000/F (kHz) @ 30m
1.705 ~ 30	30 @ 30m
30 ~ 88	100 **
88 ~ 216	150 **
216 ~ 960	200 **
Above 960	500

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

802.11b Measurement Data: (Above 1GHz)

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna	Correction Factor Amp. Gain	Correction Factor Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
4824	43.44	49.69	H	31.4	36.5	5.7	54.0	74.0	44.1	50.4	9.9	23.6
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna	Correction Factor Amp. Gain	Correction Factor Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna	Correction Factor Amp. Gain	Correction Factor Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
4924	41.67	47.73	H	31.4	36.5	5.7	54.0	74.0	42.3	48.4	11.7	25.6
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

No emissions were detected at a level greater than 20dB below limit.

802.11b Measurement Data: (9kHz - 30MHz)

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna	Correction Factor Amp.Gain+Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
-	-	-	-	-	-	-	-	-	-	-	-
No emissions were detected at a level greater than 20dB below limit.											
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

*No emissions were detected at a level greater than 20dB below limit.

802.11g Measurement Data: (Above 1GHz)

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna	Correction Factor Amp. Gain	Correction Factor Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
4823	44.62	50.21	V	31.4	36.5	5.7	54.0	74.0	45.3	50.9	8.7	23.1
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna	Correction Factor Amp. Gain	Correction Factor Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
4883.9	46.76	52.14	V	31.4	36.5	5.7	54.0	74.0	47.4	52.8	6.6	21.2
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna	Correction Factor Amp. Gain	Correction Factor Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
4923.9	43.88	49.52	V	31.4	36.5	5.7	54.0	74.0	44.6	50.2	9.5	23.8
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

No emissions were detected at a level greater than 20dB below limit.

802.11g Measurement Data: (9kHz - 30MHz)

Frequency [MHz]	Reading [dBuV/m] AV	Reading [dBuV/m] Peak	Pol.	Correction Factor Antenna	Correction Factor Amp.Gain+Cable	Limits [dBuV/m] AV	Limits [dBuV/m] Peak	Result [dBuV/m] AV	Result [dBuV/m] Peak	Margin [dB] AV	Margin [dB] Peak
-	-	-	-	-	-	-	-	-	-	-	-
No emissions were detected at a level greater than 20dB below limit.											
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

*No emissions were detected at a level greater than 20dB below limit.

802.11n_20MHz Measurement Data: (Above 1GHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor Antenna	Amp. Gain	Cable	Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor Antenna	Amp. Gain	Cable	Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor Antenna	Amp. Gain	Cable	Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
4924	41.12	46.55	V	31.4	36.5	5.7	54.0	74.0	41.8	47.2	12.2	26.8
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

No emissions were detected at a level greater than 20dB below limit.

802.11n_20MHz Measurement Data: (9kHz - 30MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor Antenna	Amp.Gain+Cable	Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
-	-	-	-	-	-	-	-	-	-	-	-
No emissions were detected at a level greater than 20dB below limit.											
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

*No emissions were detected at a level greater than 20dB below limit.

802.11n_40MHz Measurement Data: (Above 1GHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor Antenna	Amp. Gain	Cable	Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
4823.9	42.29	46.34	V	31.4	36.5	5.7	54.0	74.0	43.0	47.0	11.0	27.0
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor Antenna	Amp. Gain	Cable	Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor Antenna	Amp. Gain	Cable	Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

No emissions were detected at a level greater than 20dB below limit.

802.11n_40MHz Measurement Data: (9kHz - 30MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor Antenna	Amp.Gain+Cable	Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
-	-	-	-	-	-	-	-	-	-	-	-
No emissions were detected at a level greater than 20dB below limit.											
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

*No emissions were detected at a level greater than 20dB below limit.

3.2.6 Field Strength of Harmonics - Receivers

Definition:

The field strength of emissions from intentional radiators was measured. In case of the air temperature of the test site is out of the range is 10 to 40°C before the testing proceeds the warm-up time of EUT maintain adequately

Test method	:	FCC Part 15.209
Frequency Range	:	9 kHz ~ 10^{th} harmonic.
Bandwidth	:	120 kHz (F < 1GHz) 1 MHz (F > 1GHz)
Distance of antenna	:	3 meters
Test mode	:	Rx mode
Result	:	**Complies**

Measurement Data:

- Refer to the next page.
- No other emissions were detected at a level greater than 20dB below limit
- It gave the worse case emissions.

Field Strength Limit

Part 15.209 LIMIT:

Frequency (MHz)	Limit (uV/m) @ 3m
0.009 ~ 0.490	2400/F(kHz)
0.490 ~ 1.705	24000/F(kHz)
1.705 ~ 30	30
30 ~ 88	100 **
88 ~ 216	150 **
216 ~ 960	200 **
Above 960	500

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

Measurement Data: (30MHz ~ 10th harmonic.)

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Antenna	Amp. Gain +Cable			
No emissions were detected at a level greater than 20dB below limit.							

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Antenna	Amp. Gain +Cable			
No emissions were detected at a level greater than 20dB below limit.							

Frequency [MHz]	Reading [dBuV/m] AV / Peak	Pol.	Correction Factor		Limits [dBuV/m] AV / Peak	Result [dBuV/m] AV / Peak	Margin [dB] AV / Peak
			Antenna	Amp. Gain +Cable			
No emissions were detected at a level greater than 20dB below limit.							

Measurement Data: (9kHz - 30MHz)

Frequency [MHz]	Reading [dBuV/m] AV / Peak		Pol.	Correction Factor		Limits [dBuV/m] AV / Peak		Result [dBuV/m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
-	-	-	-	-	-	-	-	-	-	-	-
No emissions were detected at a level greater than 20dB below limit.											
-	-	-	-	-	-	-	-	-	-	-	-

*No emissions were detected at a level greater than 20dB below limit.

3.3 Subpart B

3.3.1 Test Summary

Parameter	Applied Standard	Status (note 1)
I. Emission		
Radiated disturbance	FCC Part 15.109: (October 1, 2010)	C
Conducted disturbance	FCC Part 15.107: (October 1, 2010)	C
Disturbance voltage at the antenna terminals	FCC Part 15, Subpart B: (October 1, 2010)	C
Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable * The data in this test report are traceable to the national or international standards.		

Frequency range to be scanned:

0.15 MHz - 30 MHz as conducted measurement

30 MHz – 1 000 MHz (1 GHz) as radiated measurement

1 000 MHz(1GHz) – 18 000 MHz (18 GHz) as radiated measurement

Bandwidth:

Measured by the CISPR quasi-peak function Bandwidth is 10 kHz in the frequency 0.15 MHz to 30 MHz, 120 kHz in the frequency 30 MHz to 1 000 MHz. and 1 000 MHz in the frequency 1 GHz to 18 GHz

A sample calculation:

COR. F (correction factor)= Antenna factor + Cable loss- Amp.gain- Distance correction

Emission Level= meter reading + COR.F

3.3.2 Operating Mode of the EUT

The tests have been conducted with the following operational mode(s) of the EUT.

Name of mode in the report	Description
ATSC, PC monitor mode	: -

3.3.3 Modification

- None

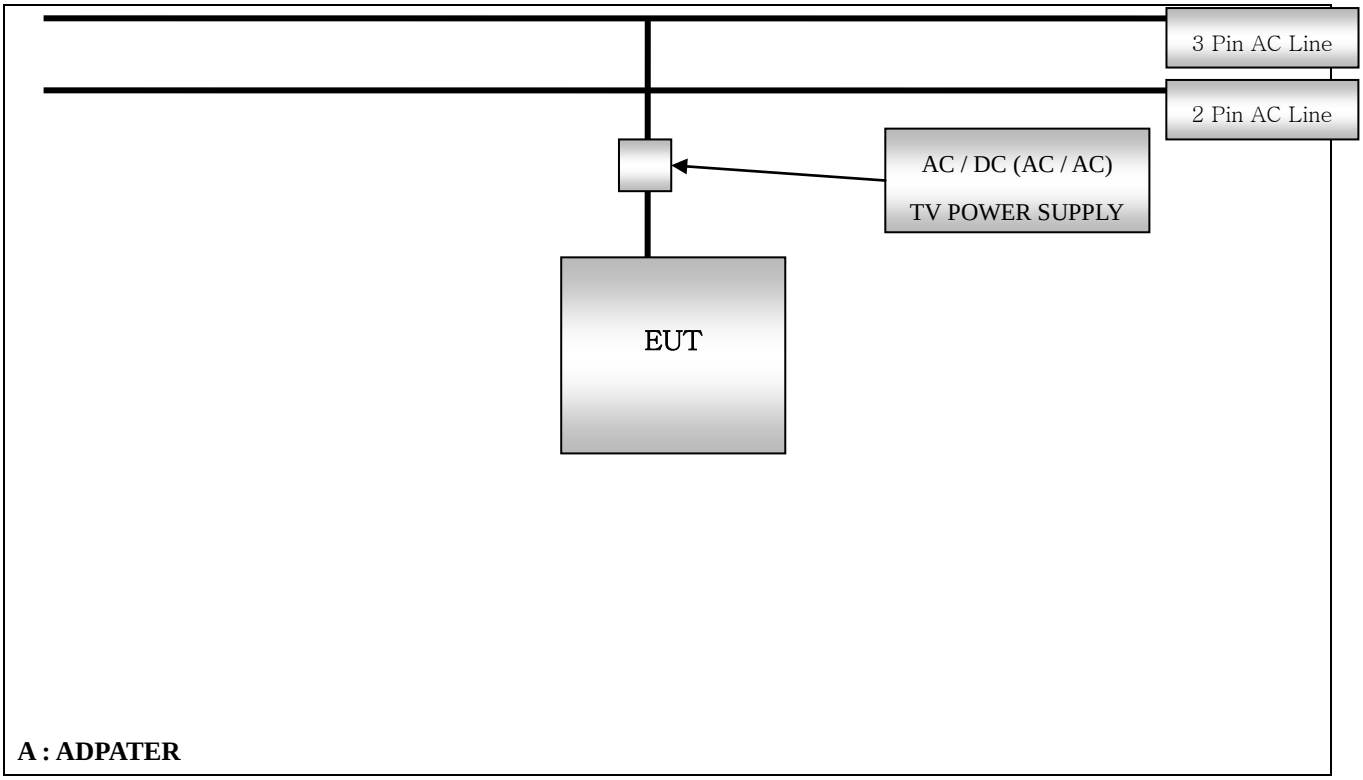
3.3.4 List of EUT and accessory

EUT				
Category	**Model Name**	**Serial No.**	**Manufacturer**	**Remarks**
SMART TV	SMB815	N/A	ITITECHNOLOGY CO.,LTD	-
ACCESSORY				
Category	**Model Name**	**Serial No.**	**Manufacturer**	**Remarks**
-	-	-	-	-

3.3.5 Cable List

Cable List				
Type	**Length (m)**	**Shielding (Cable/backshell)**	**Remarks**	
			From	**to**
AC / DC (AC / AC) TV POWER SUPPLY	1.5	YES/YES	RF IN	DC(AC) / RF OUT

3.3.6 Block diagram of the EUT test



A : ADPATER

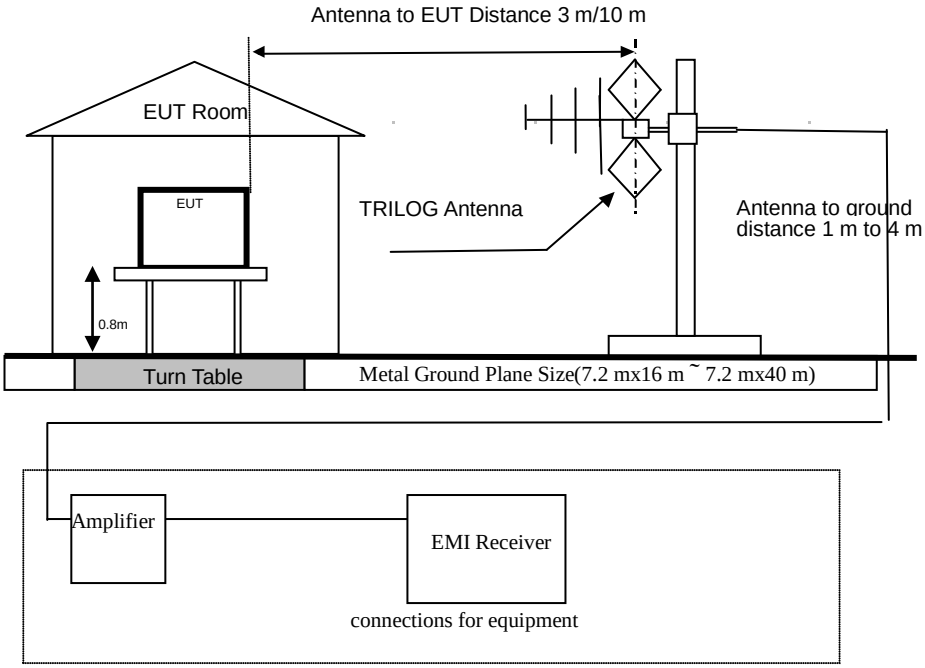
Note) refer to the Test setup photograph.

3.4- Test Site Description

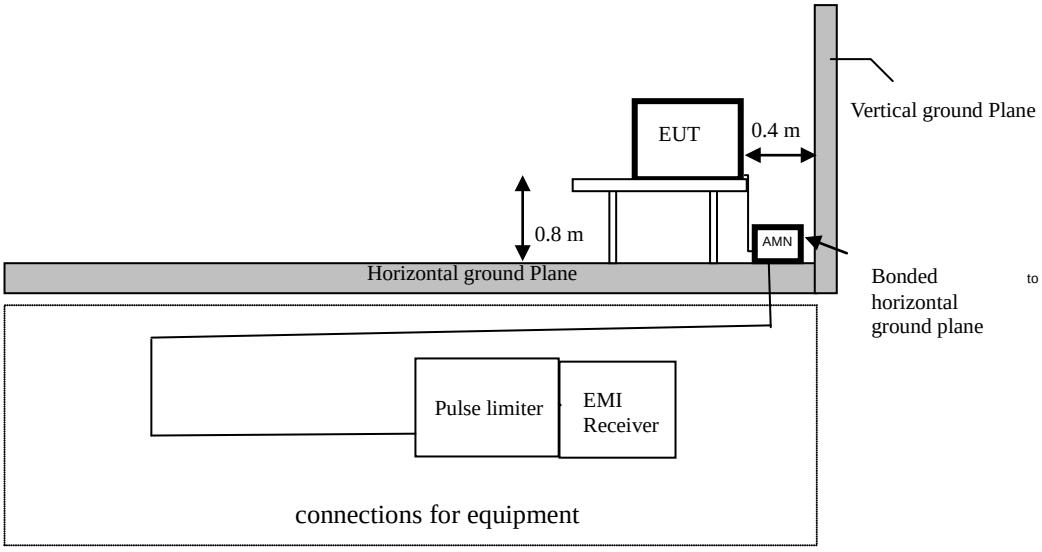
1-Facility

All the testing facilities are periodically serviced as a daily check for equipment and cables systems, an every 6 months facility check for the facilities and a monthly check and annual calibration for testing equipment according to ISO/IEC 17025. All the testing facilities are used as the same specifications shown below. There are descriptions both for radiated disturbance measurement and conducted disturbance measurement conformed by ANSI C 63.4:2003.
The NSA measurement of the OATS was performed on October 1, 2009 according to ANSI C 63.4 : 2003.

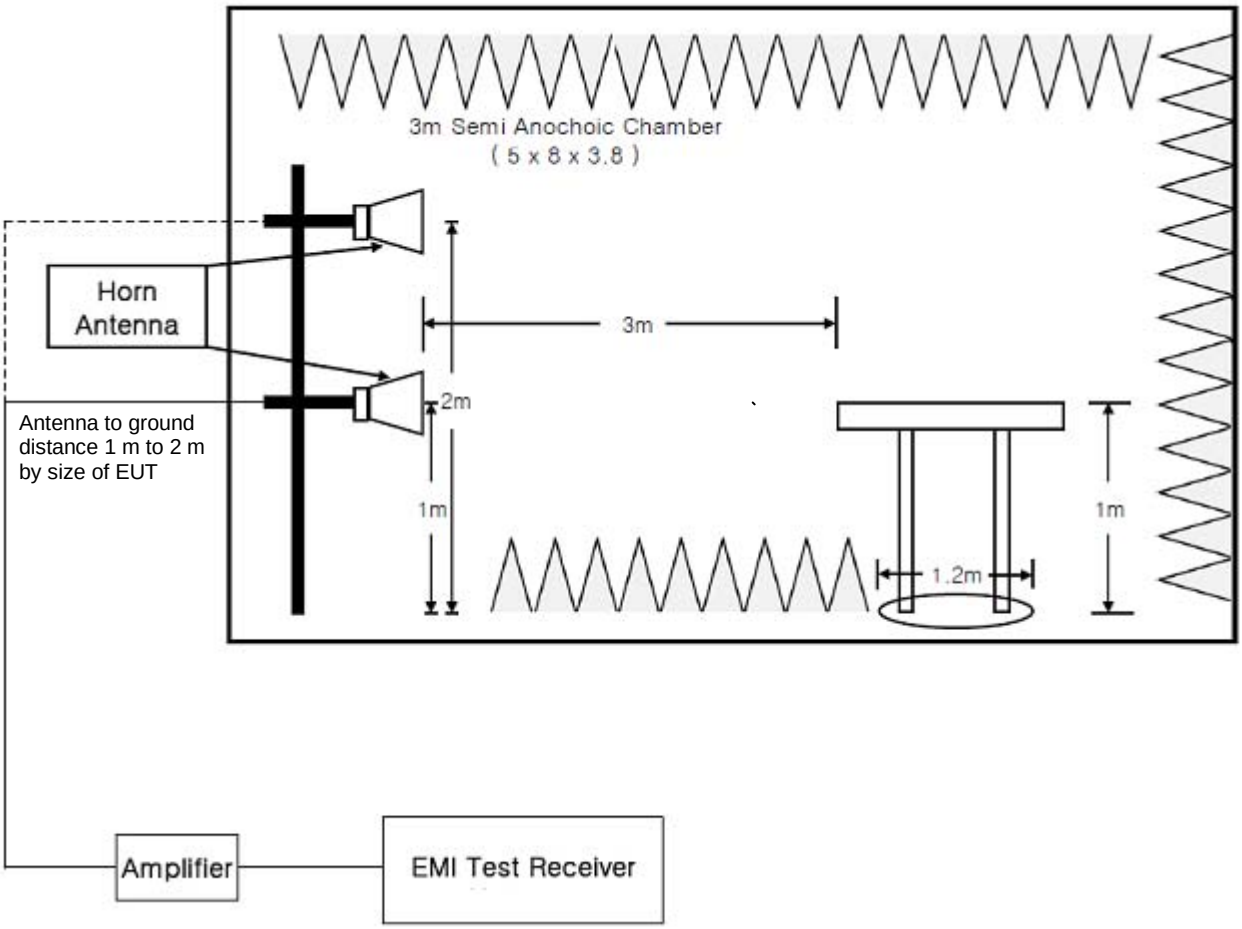
2-1 Radiated Disturbance Measurement – Below 1 GHz



2-2 Conducted Disturbance Measurement



2-3 Radiated Disturbance Measurement – Above 1 GHz



3.5- Test Procedure

3.5.1 Radiated Disturbance Measurements – Below 1 GHz

- Test site is met the requirements of ANSI C 63.4:2003 and the distance between the EUT and the antenna is adjusted 3m/10m.
- The turntable can be rotated 360 degrees.
- The antenna can be adjusted between 1m and 4m in height above the ground.
- The EUT is placed on the non-conducting table with 0.8m height on the turntable.
- Measurements are carried out using a EMI test receiver with peak detectors (100 kHz bandwidth) and an EMI receiver with quasi-peak detectors(120 kHz bandwidth).
- Refer to the list of test equipment used for the test.
- TRILOG antenna are used as wideband antenna.
- The TRILOG antenna is used in the frequency range of 30 MHz to 1 000 MHz, the Horn antenna is used in the frequency range of 1GHz to 18 GHz.
- A variable attenuator is used for verifying amplifier's linearity.
- Rotating the turntable and adjusting the height of the antenna are carried out by control buttons on the console.
- Refer to "Brief Information"(page 7-8) about details of the EUT and configuration of the cables.

- Measurement is carried out by a LTA operator as manual operation.

–searching for some of High disturbance frequency points than the other points with the following settings; bandwidth 100 kHz, frequency range 10 MHz between 30 MHz and 300 MHz and frequency range 50 MHz between 300 MHz and 1 GHz.

–searching the worst direction with the maximum level of the disturbance wave in rotating the turntable 360 degrees at each searched frequency point.

–setting the height of the antenna with the maximum level of the disturbance wave from 1m to 4m.

–reading the disturbance level by the EMI receiver with quasi-peak detectors (120 kHz bandwidth) according to ANSI C 63.4:2003.

–measuring to vertical and horizontal polarization.

–calculating the measurement result with the following formula or equation:

(Measurement result= measured value + antenna factor + antenna cable loss)

3.5.2 Conducted Disturbance Measurements

・The measurement is carried out on an open site with horizontal and metallic ground plane.
・An AMN(Artificial Mains Network) with a nominal impedance (50Ω/50μH) as defined in ANSI C 63.4:2003, shall be utilized.
・The AMN is grounded on a horizontal metal ground plane.
・Measurement is carried out using an EMI receiver with quasi-peak detectors and average detector. (Refer to the List of test equipment used for the test.)
・The shortest distance between the EUT and the AMN is 0.8m.
・The EUT is placed on the non-conducting table with 0.8m height.
・A remote switch is used for changing phases between Line (L) and Neutral (N).
・ Refer to "Brief Information"(page 5-8) about details of the EUT and configuration of the cables.

・Measurement is carried out as manual operation.
-detecting the maximized emission level using the maxhold function after setting the spectrum analyzer bandwidth 1 MHz and the frequency range from 150 kHz to 1 MHz , 1 MHz to 5 MHz and 5 MHz to 30 MHz.
–searching the maximum frequency point of the disturbance wave in each frequency range.
–reading the disturbance level of quasi-peak, average and Line (L) and Neutral (N) in 9 kHz bandwidth by the EMI receiver.
–calculating the measurement result with the following formula or equation.
(Result = Reading + Cor.F.)
(Margin = Limit- Result)

3.5.3 Radiated Disturbance Measurements – Above 1 GHz

- Test site is met the requirements of ANSI C 63.4:2003 and the distance between the EUT and the antenna is adjusted 3m.
- The turntable can be rotated 360 degrees.
- The antenna can be adjusted between 1m in height above the ground.
- The EUT is placed on the non-conducting table with 1m height on the turntable.
- Measurements are carried out using a EMI test receiver with peak detectors (1 MHz bandwidth) and an EMI receiver with peak and average detectors(1 MHz bandwidth).
- Refer to the list of test equipment used for the test.
- HORN antenna are used as wideband antenna.
- The HORN antenna is used in the frequency range of 1 GHz to 18 GHz.
- A variable attenuator is used for verifying amplifier's linearity.
- Rotating the turntable and adjusting the height of the antenna are carried out by control buttons on the console.
- Refer to "Brief Information"(page 7-8) about details of the EUT and configuration of the cables.
- Measurement is carried out by a LTA operator as manual operation.

–searching the worst direction with the maximum level of the disturbance wave in rotating the turntable 360 degrees at each searched frequency point.

–setting the height of the antenna with the maximum level of the disturbance wave from 1m

–reading the disturbance level by the EMI receiver with peak and average detectors (1 MHz bandwidth) according to ANSI C 63.4:2003.

–measuring to vertical and horizontal polarization.

–calculating the measurement result with the following formula or equation:

(Measurement result= measured value + antenna factor + antenna cable loss)

3.5.4- List of Equipment Used For the Tests

	Item	Model Name	Serial No.	Manufacturer	Interval	Last Cal.
1	EMI TEST Receiver	ESCI7	100722	R&S	1 year	Sep-12
2	Two-LineV-Network <MAIN>	ENV216	100408	R&S	1 year	Sep-12
3	Two-Line V-Network <SUB>	ESH3-Z5	893045/017	R&S	1 year	Apr-12
4	TRILOG Antenna	VULB 9160	9160-3172	SCHWARZBECK	2 year	Sep-12
5	HORN ANTENNA	3115	114105	ETS	2 year	Jan-12
6	Amplifier (1 – 18 GHz)	8449B	3008A02126	Agilent	1 year	Mar-12
7	ABSORBING CLAMP	MDS21	3665	SCHWARZBECK	1 year	Sep-12
8	V-NETWORK	ESH3-Z6	100378	R&S	1 year	Sep-12
9	Pulse Limiter	ESH3-Z2	100710	R&S	1 year	Mar-12
10	RF Amplifier(-1 GHz)	8447D	2944A07882	HP	1 year	Sep-12
11	e3 software	e3	5.5.201a	AUDIX	-	-
12	Impedance Stabilization Network	ISN T800	27109	TESEQ	1 year	Feb-12
13	Impedance Stabilization Network	ENY81-CA6	101565	R&S	1 year	Jan-12
14	EZ-17 RF-CURRENT PROBE	EZ-17	100508	R&S	2 year	Jan-12
15	Attenuator (3 dB)	8491A	37822	HP	1 year	Sep-12
16	Attenuator (10 dB)	8491A	63196	HP	1 year	Sep-12
17	Hygro-Thermograph	THB-36	0041557-01	ISUZU	1 year	Sep-12
18	Mini-Circuits Splitter	ZFSC-2-2500	SF617800326	Mini-Circuits	N/A	N/A
19	Mini-Circuits Splitter	ZFM-150	15542	Mini-Circuits	N/A	N/A
20	Spectrum Analyzer (-2.9 GHz)	8594E	3710A04074	HP	2 year	Mar-12
21	Test Receiver(~30 MHz)	ESHS10	828404/009	R&S	1 year	Mar-12
22	Power Divider	11636A	06243	HP	2 year	Sep-12
23	Matching Pad	932A	75953	EIDEN	N/A	N/A

3.6 Radiated Disturbance Measurements

3.6.1 ATSC mode

3.6.1.1 Below 1 GHz - Local oscillator

Local oscillator (CH 02)

Frequency [MHz]	Harmonic	Reading [dBuV]	Factor [dB]	Level QP [dBuV/m]	Limit QP [dBuV/m]	Margin QP [dB]	Height [cm]	Angle [°]	Polarity
62	1	37.5	-16.21	21.29	40	18.71	374	126	H
62	1	43.8	-16.21	27.59	40	12.41	100	254	V
124	2	42.5	-15.31	27.19	43.5	16.31	381	157	H
124	2	52.1	-15.31	36.79	43.5	6.71	100	148	V
186	3	50.6	-15.00	35.6	43.5	7.9	248	236	H
186	3	53.6	-15.00	38.6	43.5	4.9	100	229	V
248	4	46.8	-13.66	33.14	46	12.86	123	58	H
248	4	46.7	-13.66	33.04	46	12.96	100	302	V
310	5	54.2	-11.26	42.94	46	3.06	100	214	H
310	5	52.6	-11.26	41.34	46	4.66	100	102	V
372	6	47.2	-9.79	37.41	46	8.59	102	118	H
372	6	47.5	-9.79	37.71	46	8.29	168	75	V
434	7	42.3	-8.43	33.87	46	12.13	103	94	H
434	7	46.2	-8.43	37.77	46	8.23	149	158	V
496	8	36.7	-7.16	29.54	46	16.46	126	169	H
496	8	38.1	-7.16	30.94	46	15.06	154	42	V
558	9	42	-5.29	36.71	46	9.29	147	73	H
558	9	48	-5.29	42.71	46	3.29	103	66	V
620	10	44.3	-3.56	40.74	46	5.26	121	100	H
620	10	49.1	-3.56	45.54	46	0.46	100	25	V
682	11	35.3	-1.97	33.33	46	12.67	159	43	H
682	11	41.6	-1.97	39.63	46	6.37	132	297	V
744	12	35.3	-0.64	34.66	46	11.34	149	145	H
744	12	38.1	-0.64	37.46	46	8.54	210	181	V
806	13	35	0.53	35.53	46	10.47	204	77	H
806	13	36.2	0.53	36.73	46	9.27	153	48	V
868	14	42.6	1.47	44.07	46	1.93	125	43	H
868	14	44.4	1.47	45.87	46	0.13	114	209	V
930	15	32.8	3.57	36.37	46	9.63	126	157	H
930	15	33.7	3.57	37.27	46	8.73	130	153	V
992	16	38.1	6.79	44.89	54	9.11	100	57	H
992	16	39.6	6.79	46.39	54	7.61	100	64	V

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

Local oscillator (CH 12)

Frequency [MHz]	Harmonic	Reading [dBuV]	Factor [dB]	Level QP [dBuV/m]	Limit QP [dBuV/m]	Margin QP [dB]	Height [cm]	Angle [°]	Polarity
212	1	42.3	-15.56	26.74	43.5	16.76	168	75	H
212	1	41.6	-15.56	26.04	43.5	17.46	100	46	V
424	2	43.6	-8.65	34.95	46	11.05	100	85	H
424	2	48.5	-8.65	39.85	46	6.15	214	154	V
636	3	34.9	-3.13	31.77	46	14.23	134	70	H
636	3	36.7	-3.13	33.57	46	12.43	126	66	V
848	4	35.6	1.18	36.78	46	9.22	100	42	H
848	4	35.5	1.18	36.68	46	9.32	156	91	V

Local oscillator (CH 28)

Frequency [MHz]	Harmonic	Reading [dBuV]	Factor [dB]	Level QP [dBuV/m]	Limit QP [dBuV/m]	Margin QP [dB]	Height [cm]	Angle [°]	Polarity
562	1	43.6	-5.17	38.43	46	7.57	133	126	H
562	1	45.9	-5.17	40.73	46	5.27	128	157	V

Local oscillator (CH 69)

Frequency [MHz]	Harmonic	Reading [dBuV]	Factor [dB]	Level QP [dBuV/m]	Limit QP [dBuV/m]	Margin QP [dB]	Height [cm]	Angle [°]	Polarity
808	1	38.9	0.57	39.47	46	6.53	100	215	H
808	1	39.7	0.57	40.27	46	5.73	100	43	V

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

3.6.1.2 Below 1 GHz - Other frequencies (CH 14)

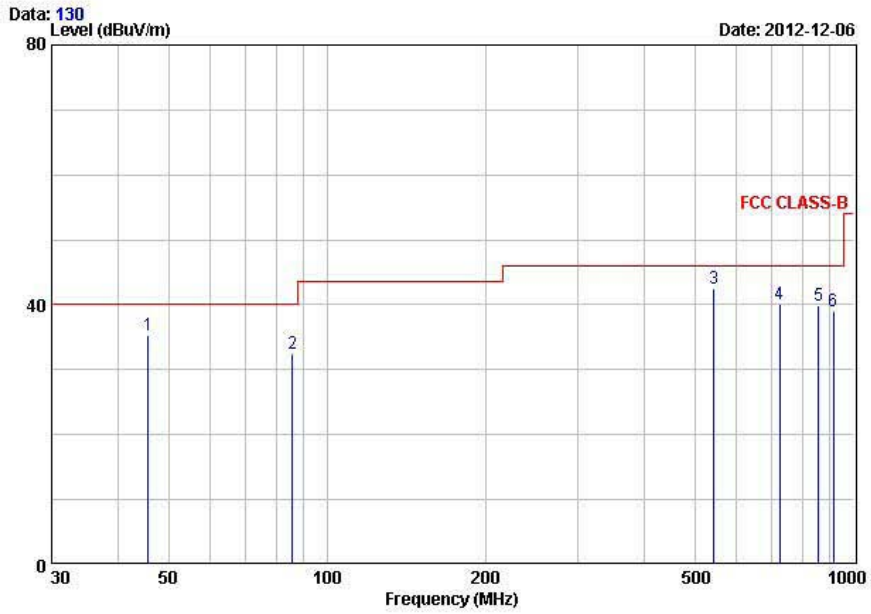
- **AC / AC TV power supply**

LTA
Laboratory for Test & Approval Co.,Ltd.

243 Jubug-ri, yangji-Myeon, Youngin-si,
Gyeonggi-do 449-822 Korea
Tel :+82-31-3236008,9
Fax:+82-31-3236010

EUT/Model No.: SMB815 TEST MODE: ATSC(AC / AC) mode

Temp Humi : 4 / 37 Tested by: PARK.H.W



	Freq	Reading	C.F	Result	Limit QP	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	45.76	50.90	-15.64	35.26	40.00	4.74	100	71	VERTICAL
2	85.99	52.40	-19.81	32.59	40.00	7.41	100	73	VERTICAL
3	543.27	48.30	-5.72	42.58	46.00	3.42	100	250	HORIZONTAL
4	724.05	41.10	-1.04	40.06	46.00	5.94	118	287	HORIZONTAL
5	857.02	38.50	1.31	39.81	46.00	6.19	123	241	VERTICAL
6	914.26	36.40	2.71	39.11	46.00	6.89	130	67	HORIZONTAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

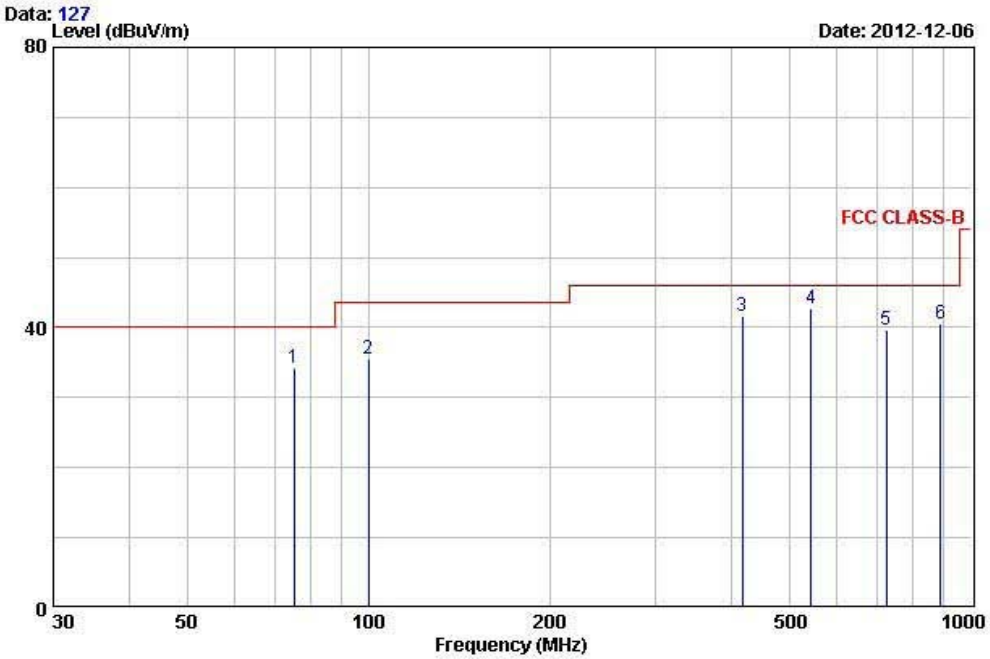
- **AC / DC TV power supply**

LTA
Laboratory for Test & Approval Co.,Ltd.

243 Jubug-ri, yangji-Myeon, Youngin-si,
Gyeonggi-do 449-822 Korea
Tel :+82-31-3236008,9
Fax:+82-31-3236010

EUT/Model No.: SMB815 TEST MODE: ATSC(AC / DC) mode

Temp Humi : 4 / 37 Tested by: PARK.H.W



	Freq	Reading	C.F	Result	Limit QP	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	75.18	52.70	-18.49	34.21	40.00	5.79	100	126	VERTICAL
2	100.02	53.50	-18.08	35.42	43.50	8.08	297	48	HORIZONTAL
3	417.64	50.40	-8.80	41.60	46.00	4.40	100	142	HORIZONTAL
4	543.27	48.40	-5.72	42.68	46.00	3.32	103	254	HORIZONTAL
5	724.05	40.80	-1.04	39.76	46.00	6.24	116	283	HORIZONTAL
6	890.13	38.80	1.79	40.59	46.00	5.41	125	147	HORIZONTAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

3.6.1.3 Above 1 GHz - Local oscillator

Local oscillator (CH 02)

Freq.(MHz) [MHz]	Harmonic	Reading(PK) [dBuV]	Reading(AV) [dBuV]	C.F [dB]	Result(PK) [dBuV/m]	Result(AV) [dBuV/m]	Limit(PK) [dBuV/m]	Limit(AV) [dBuV/m]	Margin(PK) [dB]	Margin(AV) [dB]	Height [cm]	Angle [°]	Polarity
1054	17	54.2	37.6	-12.90	41.30	24.70	74	54	32.70	29.30	100	242	H
1054	17	55.4	38.5	-12.90	42.50	25.60	74	54	31.50	28.40	100	153	V
1116	18	51.6	38.4	-12.37	39.23	26.03	74	54	34.77	27.97	100	62	H
1116	18	57.2	37.5	-12.37	44.83	25.13	74	54	29.17	28.87	100	54	V
1178	19	55.6	39.5	-11.83	43.77	27.67	74	54	30.23	26.33	100	58	H
1178	19	54.9	37.8	-11.83	43.07	25.97	74	54	30.93	28.03	100	99	V
1240	20	58.2	39.4	-11.30	46.90	28.10	74	54	27.10	25.90	100	72	H
1240	20	60.3	39.6	-11.30	49.00	28.30	74	54	25.00	25.70	100	325	V
1302	21	54.7	40.5	-10.92	43.78	29.58	74	54	30.22	24.42	100	66	H
1302	21	58.4	41.3	-10.92	47.48	30.38	74	54	26.52	23.62	100	154	V
1364	22	57.3	44.2	-10.56	46.74	33.64	74	54	27.26	20.36	100	123	H
1364	22	59.4	43.1	-10.56	48.84	32.54	74	54	25.16	21.46	100	20	V
1426	23	52.6	47.2	-10.20	42.40	37.00	74	54	31.60	17.00	100	54	H
1426	23	55.5	46.8	-10.20	45.30	36.60	74	54	28.70	17.40	100	75	V
1488	24	53.4	41.3	-9.84	43.56	31.46	74	54	30.44	22.54	100	194	H
1488	24	51.6	42.8	-9.84	41.76	32.96	74	54	32.24	21.04	100	152	V
1550	25	59.7	45.1	-9.57	50.13	35.53	74	54	23.87	18.47	100	113	H
1550	25	59.2	39.4	-9.57	49.63	29.83	74	54	24.37	24.17	100	186	V
1612	26	56.8	42.5	-9.31	47.49	33.19	74	54	26.51	20.81	100	42	H
1612	26	54.2	44.4	-9.31	44.89	35.09	74	54	29.11	18.91	100	63	V
1674	27	55.6	43.7	-9.05	46.55	34.65	74	54	27.45	19.35	100	42	H
1674	27	58.6	40.6	-9.05	49.55	31.55	74	54	24.45	22.45	100	28	V
1736	28	57.4	39.5	-8.79	48.61	30.71	74	54	25.39	23.29	100	75	H
1736	28	58.2	38.6	-8.79	49.41	29.81	74	54	24.59	24.19	100	42	V
1798	29	54.9	42.3	-8.03	46.87	34.27	74	54	27.13	19.73	100	35	H
1798	29	56.1	45.6	-8.03	48.07	37.57	74	54	25.93	16.43	100	95	V
1860	30	50.9	44.1	-7.13	43.77	36.97	74	54	30.23	17.03	100	40	H
1860	30	54.3	42.5	-7.13	47.17	35.37	74	54	26.83	18.63	100	65	V
1922	31	52.7	42.3	-6.23	46.47	36.07	74	54	27.53	17.93	100	42	H
1922	31	55.6	46.3	-6.23	49.37	40.07	74	54	24.63	13.93	100	53	V
1984	32	57.3	46.5	-5.32	51.98	41.18	74	54	22.02	12.82	100	97	H
1984	32	54.2	44.2	-5.32	48.88	38.88	74	54	25.12	15.12	100	48	V
2046	33	58.9	47.3	-5.08	53.82	42.22	74	54	20.18	11.78	100	225	H
2046	33	53.5	42.9	-5.08	48.42	37.82	74	54	25.58	16.18	100	333	V
2108	34	50.8	43.2	-5.17	45.63	38.03	74	54	28.37	15.97	100	324	H
2108	34	57.1	45.9	-5.17	51.93	40.73	74	54	22.07	13.27	100	318	V
2170	35	54.8	44.6	-5.26	49.54	39.34	74	54	24.46	14.66	100	57	H
2170	35	55.3	46.3	-5.26	50.04	41.04	74	54	23.96	12.96	100	40	V
2232	36	56.2	45.1	-5.36	50.84	39.74	74	54	23.16	14.26	100	176	H
2232	36	60.4	50.3	-5.36	55.04	44.94	74	54	18.96	9.06	100	128	V
2294	37	61.5	49.8	-5.31	56.19	44.49	74	54	17.81	9.51	100	42	H
2294	37	58.3	47.2	-5.31	52.99	41.89	74	54	21.01	12.11	100	158	V
2356	38	55.5	44.6	-5.20	50.30	39.40	74	54	23.70	14.60	100	196	H
2356	38	54.9	41.6	-5.20	49.70	36.40	74	54	24.30	17.60	100	75	V
2418	39	58.8	40.5	-5.12	53.68	35.38	74	54	20.32	18.62	100	49	H
2418	39	57.6	43.7	-5.12	52.48	38.58	74	54	21.52	15.42	100	187	V
2480	40	53.3	42.9	-4.99	48.31	37.91	74	54	25.69	16.09	100	324	H
2480	40	54.9	41.8	-4.99	49.91	36.81	74	54	24.09	17.19	100	36	V
2542	41	52.3	42.6	-4.75	47.55	37.85	74	54	26.45	16.15	100	253	H
2542	41	51.9	40.3	-4.75	47.15	35.55	74	54	26.85	18.45	100	221	V
2604	42	51.6	39.5	-4.45	47.15	35.05	74	54	26.85	18.95	100	209	H
2604	42	56.4	39.6	-4.45	51.95	35.15	74	54	22.05	18.85	100	248	V
2666	43	57.6	42.5	-4.15	53.45	38.35	74	54	20.55	15.65	100	72	H
2666	43	56.8	44.8	-4.15	52.65	40.65	74	54	21.35	13.35	100	58	V
2728	44	54.9	41.6	-3.85	51.05	37.75	74	54	22.95	16.25	100	67	H
2728	44	54.7	42.8	-3.85	50.85	38.95	74	54	23.15	15.05	100	184	V
2790	45	56.8	40.7	-3.65	53.15	37.05	74	54	20.85	16.95	100	152	H
2790	45	56.3	42.6	-3.65	52.65	38.95	74	54	21.35	15.05	100	27	V
2852	46	59	45.3	-3.52	55.48	41.78	74	54	18.52	12.22	100	136	H
2852	46	59.3	48.7	-3.52	55.78	45.18	74	54	18.22	8.82	100	325	V
2914	47	58.9	50.3	-3.39	55.51	46.91	74	54	18.49	7.09	100	22	H

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

2914	47	57.2	46.9	-3.39	53.81	43.51	74	54	20.19	10.49	100	38	V
2976	48	55.4	47.2	-3.27	52.13	43.93	74	54	21.87	10.07	100	236	H
2976	48	50.8	44.4	-3.27	47.53	41.13	74	54	26.47	12.87	100	242	V
3038	49	52.1	43.7	-3.04	49.06	40.66	74	54	24.94	13.34	100	23	H
3038	49	51.3	42.6	-3.04	48.26	39.56	74	54	25.74	14.44	100	25	V
3100	50	52.6	40.5	-2.75	49.85	37.75	74	54	24.15	16.25	100	336	H
3100	50	54.7	41.8	-2.75	51.95	39.05	74	54	22.05	14.95	100	254	V
3162	51	52.8	44.9	-2.46	50.34	42.44	74	54	23.66	11.56	100	152	H
3162	51	55.6	41.2	-2.46	53.14	38.74	74	54	20.86	15.26	100	233	V
3224	52	54.8	43.2	-2.17	52.63	41.03	74	54	21.37	12.97	100	354	H
3224	52	57.5	45.3	-2.17	55.33	43.13	74	54	18.67	10.87	100	215	V
3286	53	56.7	45.2	-1.94	54.76	43.26	74	54	19.24	10.74	100	105	H
3286	53	54.9	41.2	-1.94	52.96	39.26	74	54	21.04	14.74	100	103	V
3348	54	53.8	43.6	-1.75	52.05	41.85	74	54	21.95	12.15	100	22	H
3348	54	55.6	52.5	-1.75	53.85	50.75	74	54	20.15	3.25	100	58	V
3410	55	57.9	43.9	-1.56	56.34	42.34	74	54	17.66	11.66	100	76	H
3410	55	56.3	39.6	-1.56	54.74	38.04	74	54	19.26	15.96	100	284	V
3472	56	57.4	46.8	-1.37	56.03	45.43	74	54	17.97	8.57	100	53	H
3472	56	52.6	47.2	-1.37	51.23	45.83	74	54	22.77	8.17	100	50	V
3534	57	55.6	44.6	-1.20	54.40	43.40	74	54	19.60	10.60	100	2	H
3534	57	54.8	45.2	-1.20	53.60	44.00	74	54	20.40	10.00	100	96	V
3596	58	59.3	42.3	-1.03	58.27	41.27	74	54	15.73	12.73	100	26	H
3596	58	54.8	44.8	-1.03	53.77	43.77	74	54	20.23	10.23	100	35	V
3658	59	57.8	47.6	-0.87	56.93	46.73	74	54	17.07	7.27	100	4	H
3658	59	59.6	42.3	-0.87	58.73	41.43	74	54	15.27	12.57	100	253	V
3720	60	57.3	44.5	-0.70	56.60	43.80	74	54	17.40	10.20	100	228	H
3720	60	54.6	41.9	-0.70	53.90	41.20	74	54	20.10	12.80	100	2	V
3782	61	56.2	43.6	-0.49	55.71	43.11	74	54	18.29	10.89	100	0	H
3782	61	54	44.4	-0.49	53.51	43.91	74	54	20.49	10.09	100	63	V
3844	62	54.3	42.8	-0.22	54.08	42.58	74	54	19.92	11.42	100	44	H
3844	62	55.5	45.6	-0.22	55.28	45.38	74	54	18.72	8.62	100	257	V
3906	63	58.4	42.7	0.04	58.44	42.74	74	54	15.56	11.26	100	169	H
3906	63	62.3	43.8	0.04	62.34	43.84	74	54	11.66	10.16	100	184	V
3968	64	60.4	42.6	0.31	60.71	42.91	74	54	13.29	11.09	100	72	H
3968	64	61.5	49.3	0.31	61.81	49.61	74	54	12.19	4.39	100	64	V
4030	65	62.7	48.7	0.49	63.19	49.19	74	54	10.81	4.81	100	253	H
4030	65	60.4	46.5	0.49	60.89	46.99	74	54	13.11	7.01	100	46	V
4092	66	59.6	44.2	0.58	60.18	44.78	74	54	13.82	9.22	100	220	H
4092	66	57.4	41.9	0.58	57.98	42.48	74	54	16.02	11.52	100	214	V
4154	67	55.2	42.3	0.68	55.88	42.98	74	54	18.12	11.02	100	253	H
4154	67	51.6	41.2	0.68	52.28	41.88	74	54	21.72	12.12	100	36	V
4216	68	54	45.3	0.77	54.77	46.07	74	54	19.23	7.93	100	87	H
4216	68	58.2	47.1	0.77	58.97	47.87	74	54	15.03	6.13	100	48	V
4278	69	59.7	44.6	0.85	60.55	45.45	74	54	13.45	8.55	100	94	H
4278	69	61.4	48.7	0.85	62.25	49.55	74	54	11.75	4.45	100	236	V
4340	70	59.7	45.2	0.89	60.59	46.09	74	54	13.41	7.91	100	98	H
4340	70	58.9	45.3	0.89	59.79	46.19	74	54	14.21	7.81	100	54	V
4402	71	55.6	46.7	0.94	56.54	47.64	74	54	17.46	6.36	100	163	H
4402	71	57.4	44.4	0.94	58.34	45.34	74	54	15.66	8.66	100	254	V
4464	72	57.9	42.3	0.98	58.88	43.28	74	54	15.12	10.72	100	158	H
4464	72	60.3	42.5	0.98	61.28	43.48	74	54	12.72	10.52	100	236	V
4526	73	61.4	43.6	1.09	62.49	44.69	74	54	11.51	9.31	100	90	H
4526	73	61.9	48.2	1.09	62.99	49.29	74	54	11.01	4.71	100	72	V
4588	74	63.2	47.6	1.28	64.48	48.88	74	54	9.52	5.12	100	165	H
4588	74	56.8	43.6	1.28	58.08	44.88	74	54	15.92	9.12	100	284	V
4650	75	59.4	48.2	1.48	60.88	49.68	74	54	13.12	4.32	100	142	H
4650	75	58.7	48.1	1.48	60.18	49.58	74	54	13.82	4.42	100	22	V
4712	76	57.6	42.6	1.67	59.27	44.27	74	54	14.73	9.73	100	36	H
4712	76	55	43.9	1.67	56.67	45.57	74	54	17.33	8.43	100	320	V
4774	77	59.4	45.7	1.82	61.22	47.52	74	54	12.78	6.48	100	84	H
4774	77	54.6	45.2	1.82	56.42	47.02	74	54	17.58	6.98	100	26	V
4836	78	52.3	43.9	1.89	54.19	45.79	74	54	19.81	8.21	100	312	H
4836	78	55.9	42.4	1.89	57.79	44.29	74	54	16.21	9.71	100	327	V
4898	79	54.8	41.8	1.96	56.76	43.76	74	54	17.24	10.24	100	249	H
4898	79	56.3	44.4	1.96	58.26	46.36	74	54	15.74	7.64	100	76	V
4960	80	54.8	42.3	2.03	56.83	44.33	74	54	17.17	9.67	100	304	H
4960	80	59.6	46.2	2.03	61.63	48.23	74	54	12.37	5.77	100	69	V

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

Local oscillator (CH 12)

Freq.(MHz) [MHz]	Harmonic	Reading(PK) [dBuV]	Reading(AV) [dBuV]	C.F [dB]	Result(PK) [dBuV/m]	Result(AV) [dBuV/m]	Limit(PK) [dBuV/m]	Limit(AV) [dBuV/m]	Margin(PK) [dB]	Margin(AV) [dB]	Height [cm]	Angle [°]	Polarity
1060	5	53.6	41.3	-12.85	40.75	28.45	74	54	33.25	25.55	100	165	H
1060	5	54.2	42.5	-12.85	41.35	29.65	74	54	32.65	24.35	100	146	V
1272	6	54.6	44.2	-11.09	43.51	33.11	74	54	30.49	20.89	100	235	H
1272	6	52.6	41.9	-11.09	41.51	30.81	74	54	32.49	23.19	100	269	V
1484	7	52.8	46.5	-9.87	42.93	36.63	74	54	31.07	17.37	100	84	H
1484	7	56.3	42.3	-9.87	46.43	32.43	74	54	27.57	21.57	100	15	V
1696	8	59.4	44.8	-8.96	50.44	35.84	74	54	23.56	18.16	100	106	H
1696	8	55.4	45.7	-8.96	46.44	36.74	74	54	27.56	17.26	100	247	V
1908	9	52.8	41.3	-6.43	46.37	34.87	74	54	27.63	19.13	100	328	H
1908	9	52.7	42.1	-6.43	46.27	35.67	74	54	27.73	18.33	100	53	V
2120	10	55.4	54.3	-5.19	50.21	49.11	74	54	23.79	4.89	100	345	H
2120	10	54.2	42	-5.19	49.01	36.81	74	54	24.99	17.19	100	358	V
2332	11	54.2	42.6	-5.24	48.96	37.36	74	54	25.04	16.64	100	254	H
2332	11	57.8	45.7	-5.24	52.56	40.46	74	54	21.44	13.54	100	176	V
2544	12	59.4	48.2	-4.74	54.66	43.46	74	54	19.34	10.54	100	103	H
2544	12	55.2	43.9	-4.74	50.46	39.16	74	54	23.54	14.84	100	29	V
2756	13	53.1	42.8	-3.72	49.38	39.08	74	54	24.62	14.92	100	8	H
2756	13	54.4	47.8	-3.72	50.68	44.08	74	54	23.32	9.92	100	45	V
2968	14	57.4	50.3	-3.28	54.12	47.02	74	54	19.88	6.98	100	82	H
2968	14	58.1	45.6	-3.28	54.82	42.32	74	54	19.18	11.68	100	166	V
3180	15	52.3	44.4	-2.38	49.92	42.02	74	54	24.08	11.98	100	174	H
3180	15	56.1	47.3	-2.38	53.72	44.92	74	54	20.28	9.08	100	153	V
3392	16	50.9	46.8	-1.62	49.28	45.18	74	54	24.72	8.82	100	122	H
3392	16	61.4	50.2	-1.62	59.78	48.58	74	54	14.22	5.42	100	294	V
3604	17	64.2	51	-1.01	63.19	49.99	74	54	10.81	4.01	100	38	H
3604	17	55.9	46.8	-1.01	54.89	45.79	74	54	19.11	8.21	100	44	V
3816	18	53.6	47.2	-0.34	53.26	46.86	74	54	20.74	7.14	100	112	H
3816	18	58.3	49.6	-0.34	57.96	49.26	74	54	16.04	4.74	100	18	V
4028	19	54.6	43.3	0.49	55.09	43.79	74	54	18.91	10.21	100	44	H
4028	19	52.3	42.6	0.49	52.79	43.09	74	54	21.21	10.91	100	59	V
4240	20	55.8	42.8	0.81	56.61	43.61	74	54	17.39	10.39	100	77	H
4240	20	59.4	43.7	0.81	60.21	44.51	74	54	13.79	9.49	100	123	V
4452	21	58.3	49.5	0.97	59.27	50.47	74	54	14.73	3.53	100	105	H
4452	21	56.8	47.6	0.97	57.77	48.57	74	54	16.23	5.43	100	148	V
4664	22	59.4	48.3	1.52	60.92	49.82	74	54	13.08	4.18	100	126	H
4664	22	53.9	42.6	1.52	55.42	44.12	74	54	18.58	9.88	100	252	V
4876	23	62.4	48.6	1.93	64.33	50.53	74	54	9.67	3.47	100	194	H
4876	23	55.8	46.5	1.93	57.73	48.43	74	54	16.27	5.57	100	237	V

Local oscillator (CH 28)

Freq.(MHz) [MHz]	Harmonic	Reading(PK) [dBuV]	Reading(AV) [dBuV]	C.F [dB]	Result(PK) [dBuV/m]	Result(AV) [dBuV/m]	Limit(PK) [dBuV/m]	Limit(AV) [dBuV/m]	Margin(PK) [dB]	Margin(AV) [dB]	Height [cm]	Angle [°]	Polarity
1124	2	55.6	44.2	-12.30	43.30	31.90	74	54	30.70	22.10	100	163	H
1124	2	58.9	47.5	-12.30	46.60	35.20	74	54	27.40	18.80	100	154	V
1686	3	54.7	45.6	-9.00	45.70	36.60	74	54	28.30	17.40	100	128	H
1686	3	58.2	49.5	-9.00	49.20	40.50	74	54	24.80	13.50	100	77	V
2248	4	55.4	40.9	-5.38	50.02	35.52	74	54	23.98	18.48	100	95	H
2248	4	56.3	43.7	-5.38	50.92	38.32	74	54	23.08	15.68	100	254	V
2810	5	51.7	41.5	-3.61	48.09	37.89	74	54	25.91	16.11	100	168	H
2810	5	52.8	42	-3.61	49.19	38.39	74	54	24.81	15.61	100	43	V
3372	6	55.6	42.9	-1.68	53.92	41.22	74	54	20.08	12.78	100	298	H
3372	6	53.9	44.6	-1.68	52.22	42.92	74	54	21.78	11.08	100	325	V
3934	7	58.4	48.2	0.16	58.56	48.36	74	54	15.44	5.64	100	247	H
3934	7	53.9	42.9	0.16	54.06	43.06	74	54	19.94	10.94	100	115	V
4496	8	50.8	42.8	1.00	51.80	43.80	74	54	22.20	10.20	100	263	H
4496	8	55.4	43.6	1.00	56.40	44.60	74	54	17.60	9.40	100	58	V

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

Local oscillator (CH 69)

Freq.(MHz) [MHz]	Harmonic	Reading(PK) [dBuV]	Reading(AV) [dBuV]	C.F [dB]	Result(PK) [dBuV/m]	Result(AV) [dBuV/m]	Limit(PK) [dBuV/m]	Limit(AV) [dBuV/m]	Margin(PK) [dB]	Margin(AV) [dB]	Height [cm]	Angle [°]	Polarity
1616	2	56.4	44.5	-9.29	47.11	35.21	74	54	26.89	18.79	100	154	H
1616	2	57.2	43.9	-9.29	47.91	34.61	74	54	26.09	19.39	100	15	V
2424	3	53.9	45.8	-5.09	48.81	40.71	74	54	25.19	13.29	100	263	H
2424	3	55.1	46.2	-5.09	50.01	41.11	74	54	23.99	12.89	100	227	V
3232	4	54.8	47.2	-2.14	52.66	45.06	74	54	21.34	8.94	100	289	H
3232	4	56.2	45.1	-2.14	54.06	42.96	74	54	19.94	11.04	100	84	V
4040	5	54.7	48.3	0.50	55.20	48.80	74	54	18.80	5.20	100	354	H
4040	5	55.8	42.9	0.50	56.30	43.40	74	54	17.70	10.60	100	163	V
4848	6	57.3	46.5	1.90	59.20	48.40	74	54	14.80	5.60	100	23	H
4848	6	52.7	44.8	1.90	54.60	46.70	74	54	19.40	7.30	100	9	V

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

3.6.1.4 Above 1 GHz - Other frequencies (CH 14)

- **AC / AC TV power supply**

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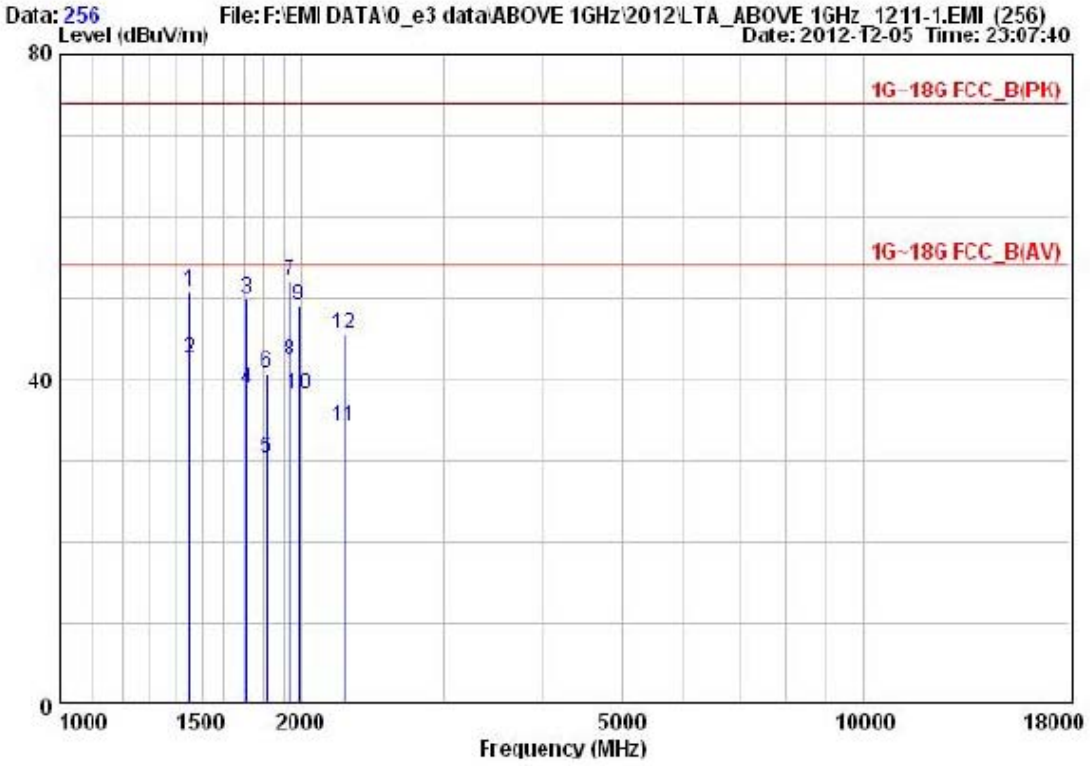
EUT/Model No.: SMB815 Temp/Humi: 25 / 36

Test Mode : ATSC(AC / AC) mode Tested by: PARK.H.W



Model : SMB815

TEST mode : ATSC(AC / AC) mode

Test Date: 2012/12/5 Temp.: [℃] 21 Humidity: [%] 33

Freq.(MHz)	Reading(PK)	Reading(AV)	C.F	Result(PK)	Result(AV)	Limit(PK)	Limit(AV)	Margin(PK)	Margin(AV)	Height	Angle	Polarity
MHz	dBuV	dBuV	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	cm		H/V
1452.8	60.8	52.5	-10.1	50.75	42.45	74.0	54.0	23.25	11.55	100	84	Hor
1708.5	58.9	47.8	-8.91	49.99	38.89			24.01	15.11	100	321	Ver
1815.6	48.5	38.0	-7.78	40.72	30.22			33.28	23.78	100	265	Hor
1963.2	58.1	48.3	-6.06	52.04	42.24			21.96	11.76	100	179	Hor
1989.1	54.2	49.3	-5.25	48.95	38.05			25.05	15.95	100	88	Hor
2258.5	51.0	39.6	-5.57	45.63	34.23			28.37	19.77	100	47	Hor

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

- **AC / AC TV power supply**

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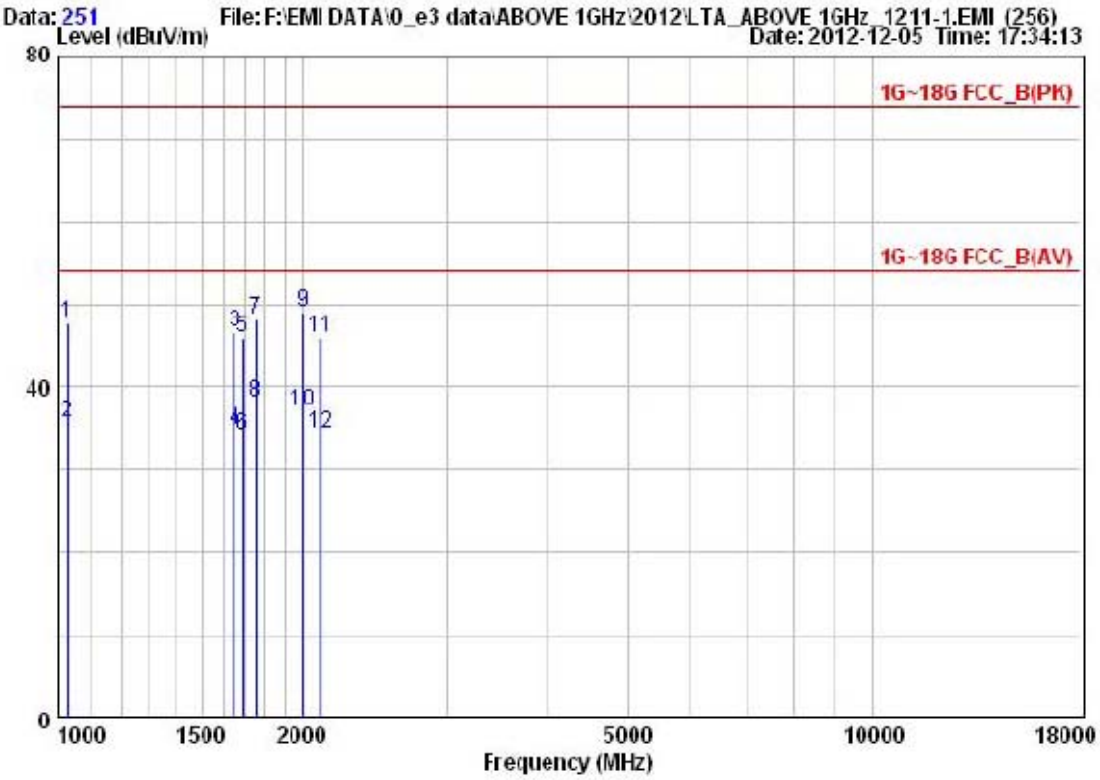
Fax:+82-31-3236010

EUT/Model No.: SMB815 Temp/Humi: 25 / 36

Test Mode : ATSC(AC / DC) mode Tested by: PARK H W



Model : SMB815 Test Date Temp.: [℃] Humidity: [%]

TEST mode : ATSC(AC / DC) mode 2012/12/5 25 36

Freq.(MHz)	Reading(PK)	Reading(AV)	C.F	Result(PK)	Result(AV)	Limit(PK)	Limit(AV)	Margin(PK)	Margin(AV)	Height	Angle	Polarity
MHz	dBuV	dBuV	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	cm	deg	H/V
1029.1	60.9	48.8	-13.1	47.82	35.72	74.0	54.0	26.18	18.28	100	123	Ver
1648.4	55.9	44.1	-9.16	46.74	34.94			27.26	19.06	100	269	Ver
1690.5	55.0	43.3	-8.98	46.02	34.32			27.98	19.68	100	54	Ver
1748.9	57.0	46.8	-8.74	48.26	38.06			25.74	15.94	100	125	Hor
2000.6	54.2	42.2	-5.09	49.11	37.11			24.89	16.89	100	65	Ver
2099.7	51.1	39.6	-5.16	45.94	34.44			28.06	19.56	100	75	Hor

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

3.6.2 PC Monitor mode

3.6.2.1 Below 1 GHz

- **AC / AC TV power supply**

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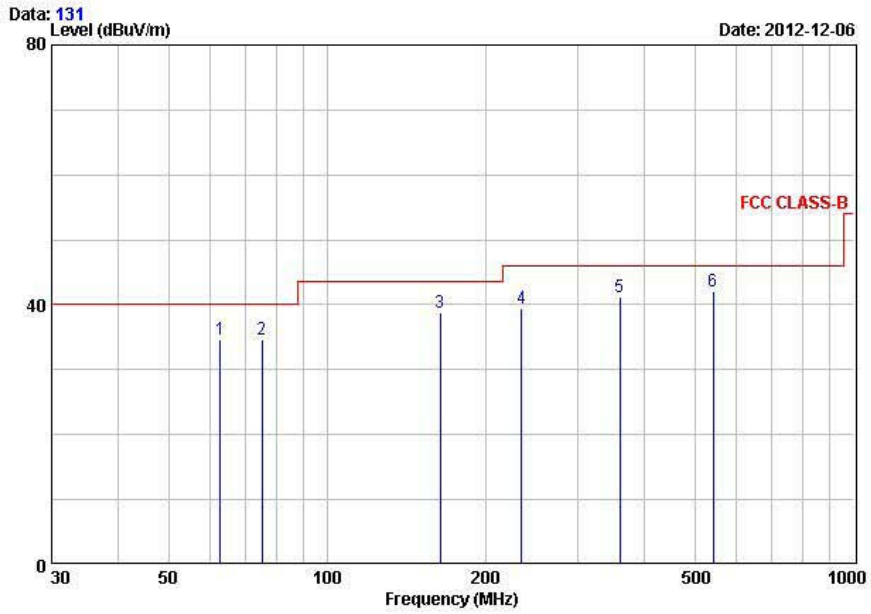
EUT/Model No.: SMB815 TEST MODE: PC Monitor(AC / AC) mode

Temp Humi : 4 / 37 Tested by: PARK.H.W



	Freq	Reading	C.F	Result	Limit QP	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	62.65	50.90	-16.30	34.60	40.00	5.40	100	136	VERTICAL
2	75.26	53.20	-18.51	34.69	40.00	5.31	100	178	VERTICAL
3	164.01	52.30	-13.55	38.75	43.50	4.75	169	72	HORIZONTAL
4	234.02	53.90	-14.36	39.54	46.00	6.46	138	146	HORIZONTAL
5	360.02	51.30	-10.06	41.24	46.00	4.76	106	29	HORIZONTAL
6	542.01	47.90	-5.76	42.14	46.00	3.86	124	113	HORIZONTAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

- 1 -

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

- **AC / DC TV power supply**

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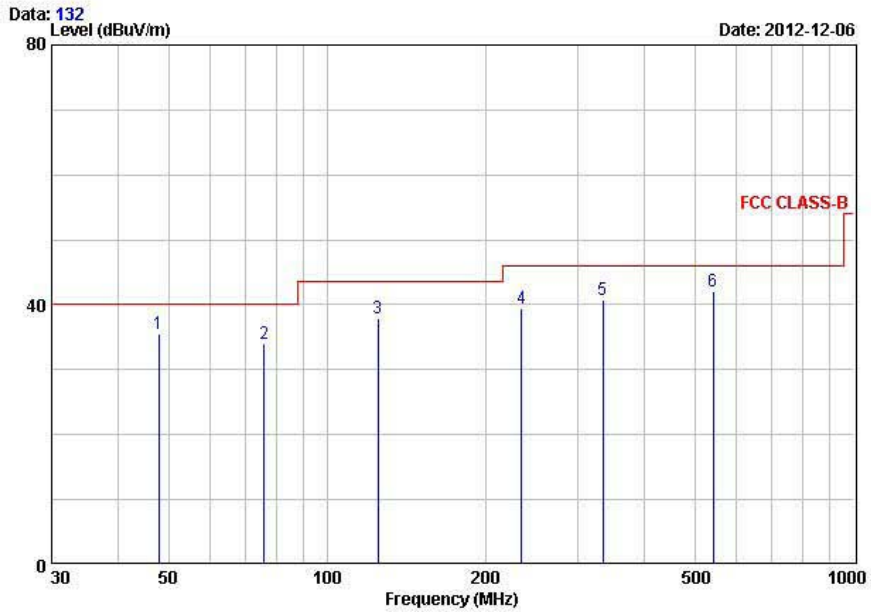
Fax:+82-31-3236010

EUT/Model No.: SMB815 TEST MODE: PC Monitor(AC / DC) mode

Temp Humi : 4 / 37 Tested by: PARK.H.W



	Freq	Reading	C.F	Result	Limit QP	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	47.96	51.30	-15.67	35.63	40.00	4.37	100	269	VERTICAL
2	75.98	52.70	-18.69	34.01	40.00	5.99	100	198	VERTICAL
3	125.00	53.10	-15.22	37.88	43.50	5.62	179	84	HORIZONTAL
4	234.02	53.80	-14.36	39.44	46.00	6.56	136	294	HORIZONTAL
5	334.02	51.40	-10.66	40.74	46.00	5.26	109	56	HORIZONTAL
6	542.02	47.80	-5.76	42.04	46.00	3.96	123	169	HORIZONTAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

3.6.2.2 Above 1 GHz

- **AC / AC TV power supply**

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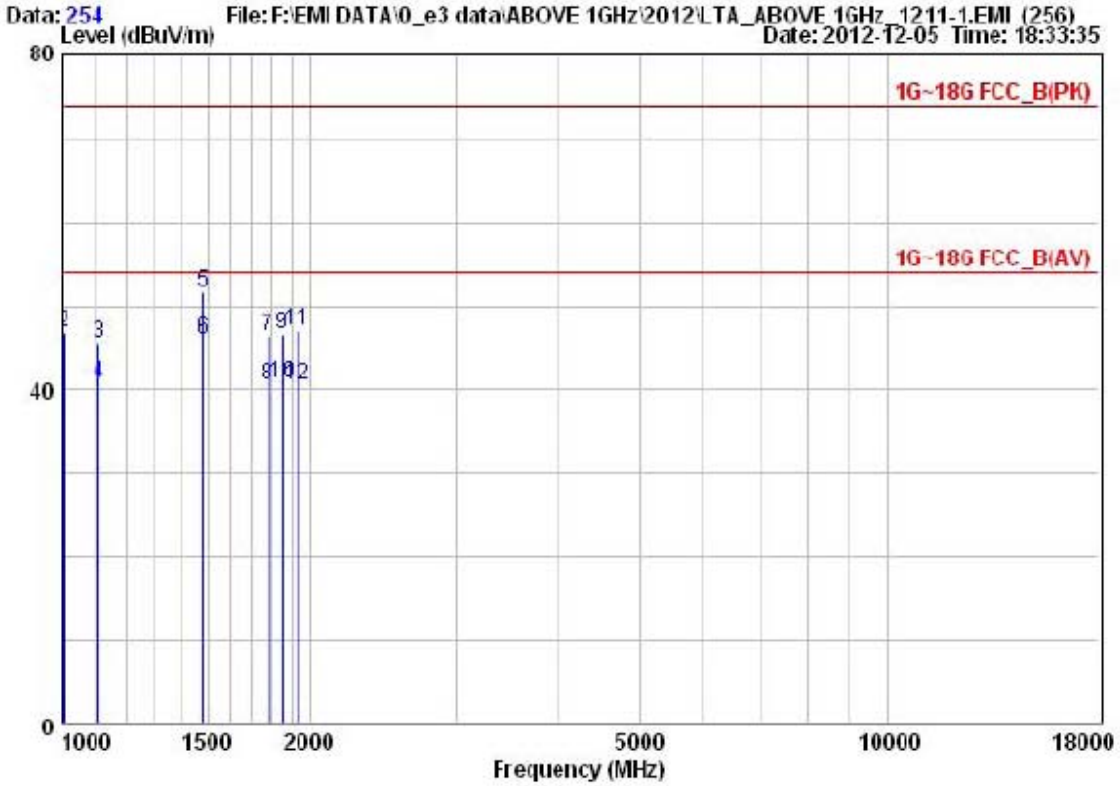
EUT/Model No.: SMB815 Temp/Humi: 25 / 36

Test Mode : PC Monitor(AC / AC) mode Tested by: PARK H W



Model : SMB815 Test Date Temp.: [°C] Humidity: [%]

TEST mode : PC Monitor(AC / AC) mode 2012/12/5 21 66

Freq.(MHz)	Reading(PK)	Reading(AV)	C.F	Result(PK)	Result(AV)	Limit(PK)	Limit(AV)	Margin(PK)	Margin(AV)	Height	Angle	Polarity
MHz	dBuV	dBuV	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	cm		H/V
1007.0	60.0	54.9	-13.2	46.80	41.68	74.0	54.0	27.20	12.87	100	145	Hor
1108.3	58.0	53.2	-12.4	45.58	40.78			28.42	13.22	100	98	Hor
1483.6	61.5	55.9	-9.87	51.63	46.03			22.37	7.97	100	94	Ver
1775.8	54.8	49.0	-8.36	46.46	40.62			27.54	13.38	100	251	Hor
1849.8	54.0	48.0	-7.28	46.71	40.67			27.29	13.33	100	2	Hor
1925.7	53.2	46.8	-6.17	47.00	40.64			27.00	13.36	100	63	Hor

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

- **AC / DC TV power supply**

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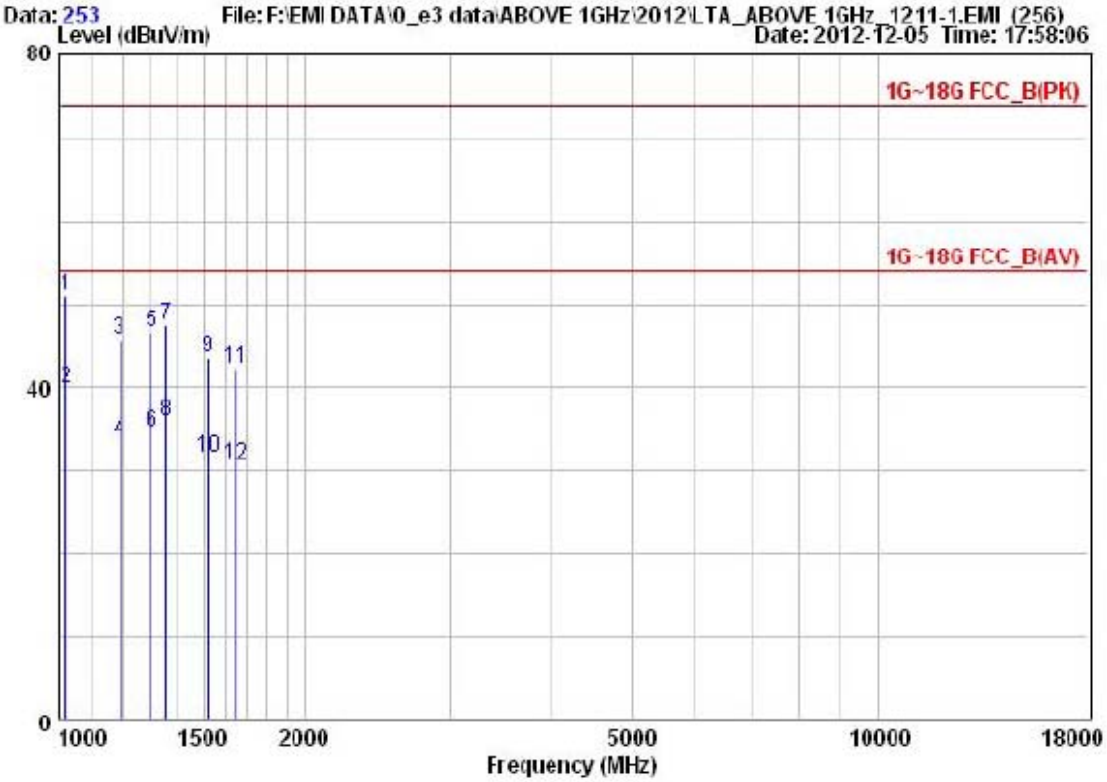
EUT/Model No.: SMB815 Temp/Humi: 25 / 36

Test Mode : PC Monitor(AC / DC) mode Tested by: PARK H W



Model : SMB815 Test Date Temp.: [℃] Humidity: [%] Barometric [mbar]

TEST mode : PC Monitor(AC / DC) mode 2012/12/5 25 36

Freq.(MHz)	Reading(PK)	Reading(AV)	C.F	Result(PK)	Result(AV)	Limit(PK)	Limit(AV)	Margin(PK)	Margin(AV)	Height	Angle	Polarity
MHz	dBuV	dBuV	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	cm		H/V
1021.5	64.2	56.1	-16.1	51.07	39.97			22.93	14.03	100	214	VER
1187.7	57.5	45.3	-11.8	45.75	33.55			28.25	20.45	100	98	VER
1299.0	57.5	45.6	-10.9	46.57	34.67	74.0	54.0	27.43	19.33	100	62	HOR
1353.7	58.1	46.5	-10.6	47.48	35.88			26.52	18.12	100	58	HOR
1526.5	53.2	41.3	-9.66	43.54	31.64			30.46	22.36	100	75	HOR
1645.6	51.5	39.9	-9.17	42.33	30.73			31.67	23.27	100	44	HOR

TEST EQUIPMENT USED: 01, 04, 05, 06, 07, 10, 11

3.7 Conducted Disturbance Measurements

3.7.1 ATSC mode (CH 14)

- **AC / AC TV power supply - LINE**

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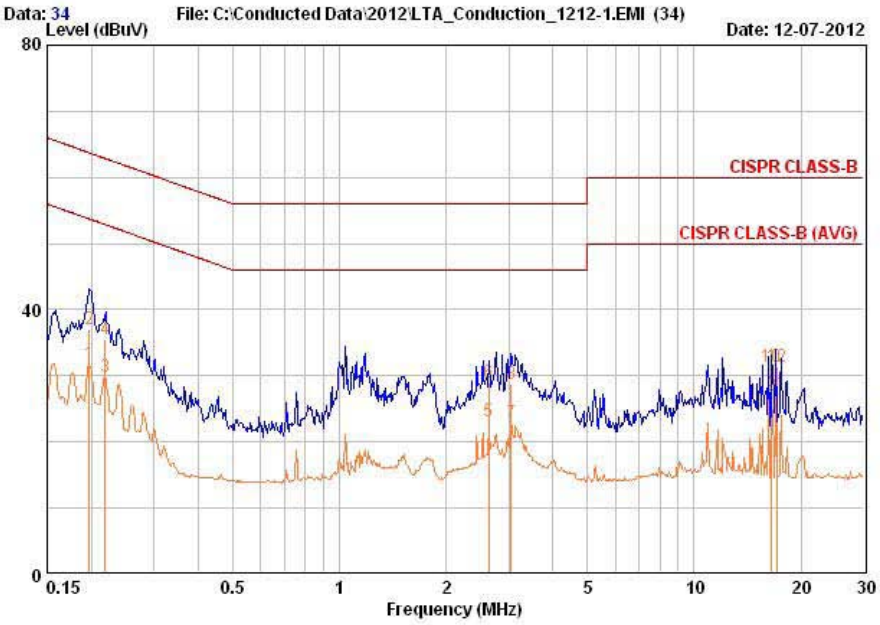
EUT / Model No.	: SMB815	Phase	: LINE
Test Mode	: ATSC(AC / AC) mode	Test Power	: 120 / 60
Temp./Humi.	: 25 / 45	Test Engineer	: PARK H W



Freq (MHz)	RD QP (dBuV)	RD AV (dBuV)	C.F (dB)	Result QP (dBuV)	Result AV (dBuV)	Limit QP (dBuV)	Limit AV (dBuV)	Margin QP (dB)	Margin AV (dB)
0.198	27.55	22.21	9.58	37.13	31.79	63.71	53.71	26.58	21.92
0.218	26.05	20.23	9.58	35.64	29.82	62.89	52.89	27.26	23.08
2.641	19.28	13.34	9.69	28.97	23.03	56.00	46.00	27.03	22.97
3.048	19.17	13.24	9.68	28.85	22.92	56.00	46.00	27.15	23.08
16.568	21.41	17.24	9.89	31.30	27.13	60.00	50.00	28.70	22.87
17.047	21.41	17.51	9.90	31.31	27.41	60.00	50.00	28.69	22.59

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

TEST EQUIPMENT USED: 02, 03, 08, 09, 11, 12, 13, 14, 21

- **AC / AC TV power supply - NEUTRAL**

LTA
Laboratory for Test & Approval Co.,Ltd.

243 Jubug-ri, yangji-Myeon, Youngin-si,
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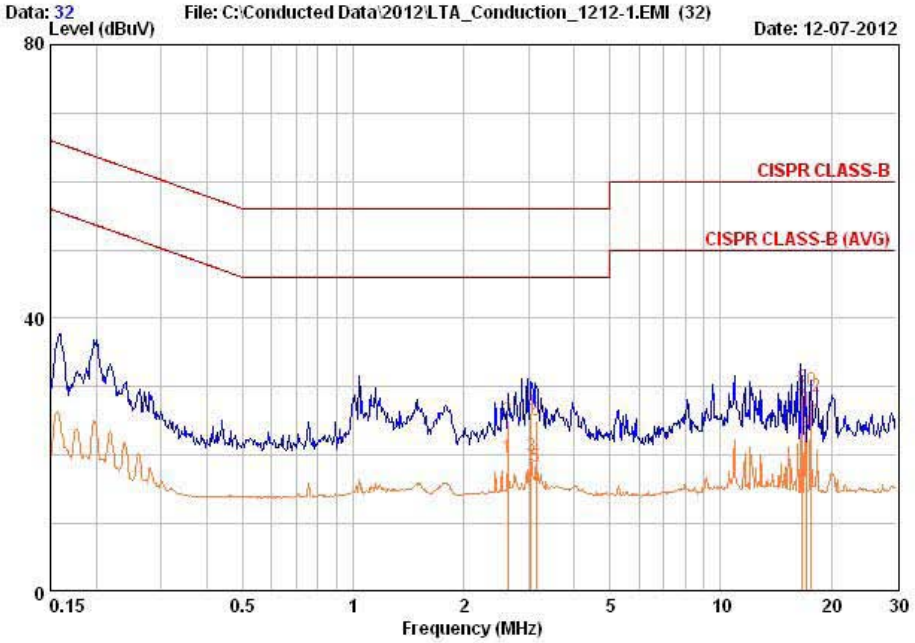
EUT / Model No.	: SMB815	Phase	: NEUTRAL
Test Mode	: ATSC(AC / AC) mode	Test Power	: 120 / 60
Temp./Humi.	: 25 / 45	Test Engineer	: PARK H W



Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
2.641	15.38	10.00	9.68	25.06	19.68	56.00	46.00	30.94	26.32
3.048	16.57	10.14	9.68	26.25	19.82	56.00	46.00	29.75	26.18
3.151	15.37	8.64	9.68	25.05	18.32	56.00	46.00	30.95	27.68
16.658	19.91	17.12	9.96	29.87	27.08	60.00	50.00	30.13	22.92
17.118	19.51	13.36	9.97	29.48	23.33	60.00	50.00	30.52	26.67
17.599	18.51	14.82	9.98	28.49	24.80	60.00	50.00	31.51	25.20

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

TEST EQUIPMENT USED: 02, 03, 08, 09, 11, 12, 13, 14, 21

- **AC / DC TV power supply - LINE**

LTA
Laboratory for Test & Approval Co.,Ltd.

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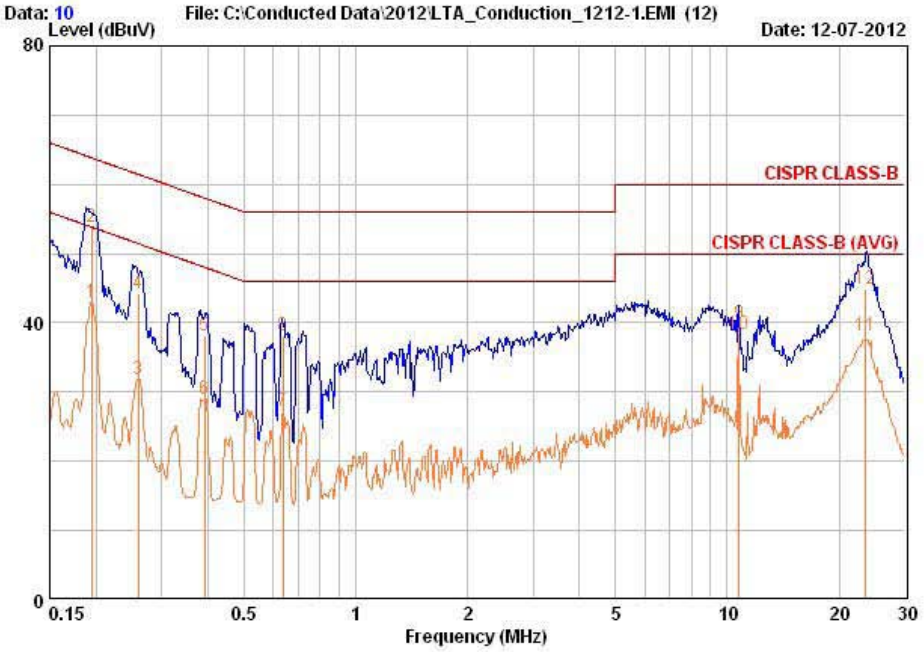
EUT / Model No.	: SMB815	Phase	: LINE
Test Mode	: ATSC(AC / DC) mode	Test Power	: 120 / 60
Temp./Humi.	: 25 / 45	Test Engineer	: PARK H W



Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.194	44.15	33.34	9.59	53.74	42.93	63.84	53.84	10.11	10.92
0.260	34.66	22.29	9.59	44.25	31.88	61.42	51.42	17.18	19.55
0.391	28.46	19.35	9.61	38.07	28.96	58.03	48.03	19.96	19.07
0.637	28.56	17.71	9.60	38.16	27.31	56.00	46.00	17.84	18.69
10.733	30.08	28.60	9.77	39.86	38.38	60.00	50.00	20.14	11.62
23.511	35.04	28.14	9.92	44.96	38.06	60.00	50.00	15.04	11.94

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

TEST EQUIPMENT USED: 02, 03, 08, 09, 11, 12, 13, 14, 21

- **AC / DC TV power supply - NEUTRAL**

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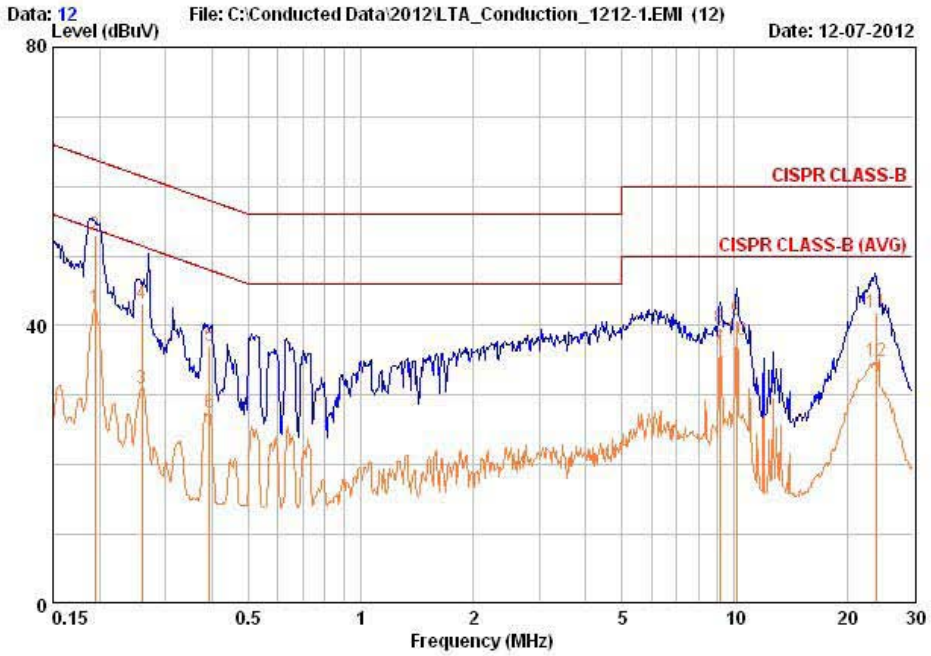
EUT / Model No.	: SMB815	Phase	: NEUTRAL
Test Mode	: ATSC(AC / DC) mode	Test Power	: 120 / 60
Temp./Humi.	: 25 / 45	Test Engineer	: PARK H W



Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.194	43.45	32.87	9.58	53.03	42.45	63.84	53.84	10.82	11.40
0.260	33.56	21.44	9.58	43.14	31.02	61.42	51.42	18.29	20.41
0.393	27.46	17.90	9.60	37.06	27.50	57.99	47.99	20.93	20.49
9.156	29.88	26.83	9.75	39.63	36.58	60.00	50.00	20.37	13.42
10.125	30.98	28.24	9.77	40.76	38.02	60.00	50.00	19.24	11.98
23.888	31.75	24.78	10.05	41.79	34.82	60.00	50.00	18.21	15.18

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

TEST EQUIPMENT USED: 02, 03, 08, 09, 11, 12, 13, 14, 21

3.7.2 PC Monitor mode

- **AC / AC TV power supply - LINE**

LTA
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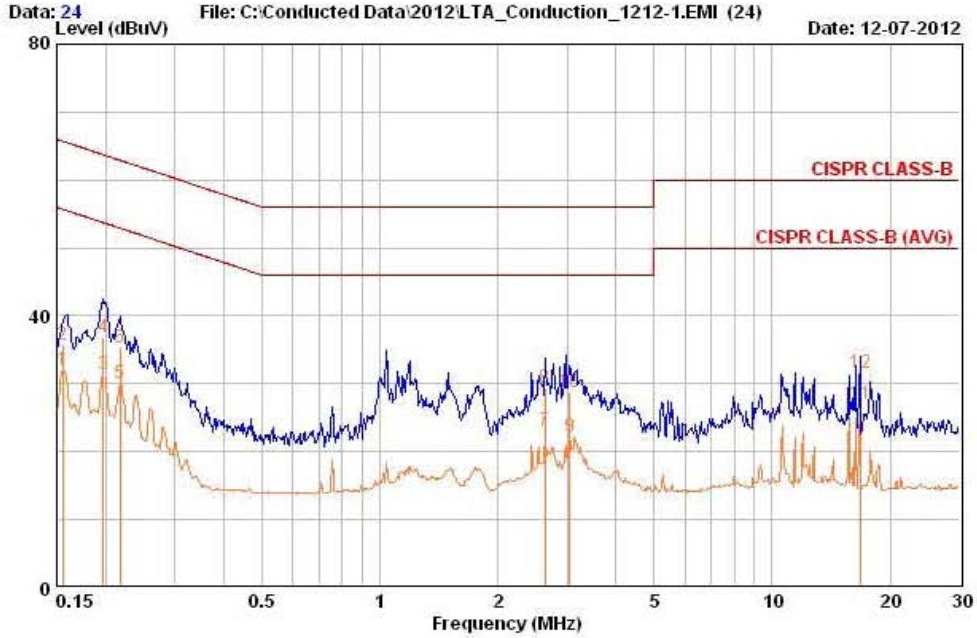
EUT / Model No.	: SMB815	Phase	: LINE
Test Mode	: PC Monitor(AC / AC) mode	Test Power	: 120 / 60
Temp./Humi.	: 25 / 45	Test Engineer	: PARK H W



Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.156	26.15	22.35	9.62	35.77	31.97	65.69	55.69	29.92	23.72
0.198	27.35	21.80	9.58	36.93	31.38	63.71	53.71	26.78	22.33
0.217	25.65	20.48	9.58	35.24	30.07	62.92	52.92	27.68	22.85
2.636	19.68	13.48	9.69	29.37	23.17	56.00	46.00	26.63	22.83
3.041	19.17	12.59	9.68	28.85	22.27	56.00	46.00	27.15	23.73
16.750	21.81	17.23	9.89	31.70	27.12	60.00	50.00	28.30	22.88

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

TEST EQUIPMENT USED: 02, 03, 08, 09, 11, 12, 13, 14, 21

- **AC / AC TV power supply – NEUTRAL**

LTA
Laboratory for Test & Approval Co.,Ltd.

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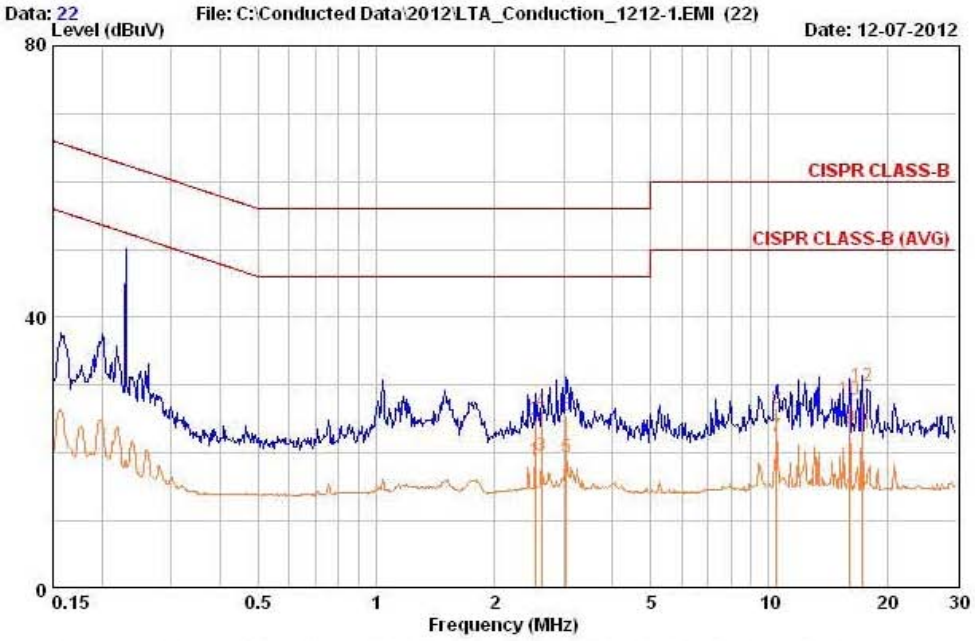
EUT / Model No.	: SMB815	Phase	: NEUTRAL
Test Mode	: PC Monitor(AC / AC) mode	Test Power	: 120 / 60
Temp./Humi.	: 25 / 45	Test Engineer	: PARK H W



Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
2.540	15.08	9.27	9.68	24.76	18.95	56.00	46.00	31.24	27.05
2.636	16.38	9.93	9.68	26.06	19.61	56.00	46.00	29.94	26.39
3.041	15.77	9.79	9.68	25.45	19.47	56.00	46.00	30.55	26.53
10.452	16.88	12.76	9.79	26.67	22.55	60.00	50.00	33.33	27.45
16.055	17.91	13.85	9.95	27.86	23.80	60.00	50.00	32.14	26.20
17.291	19.91	12.98	9.97	29.88	22.95	60.00	50.00	30.12	27.05

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

TEST EQUIPMENT USED: 02, 03, 08, 09, 11, 12, 13, 14, 21

- **AC / DC TV power supply – LINE**

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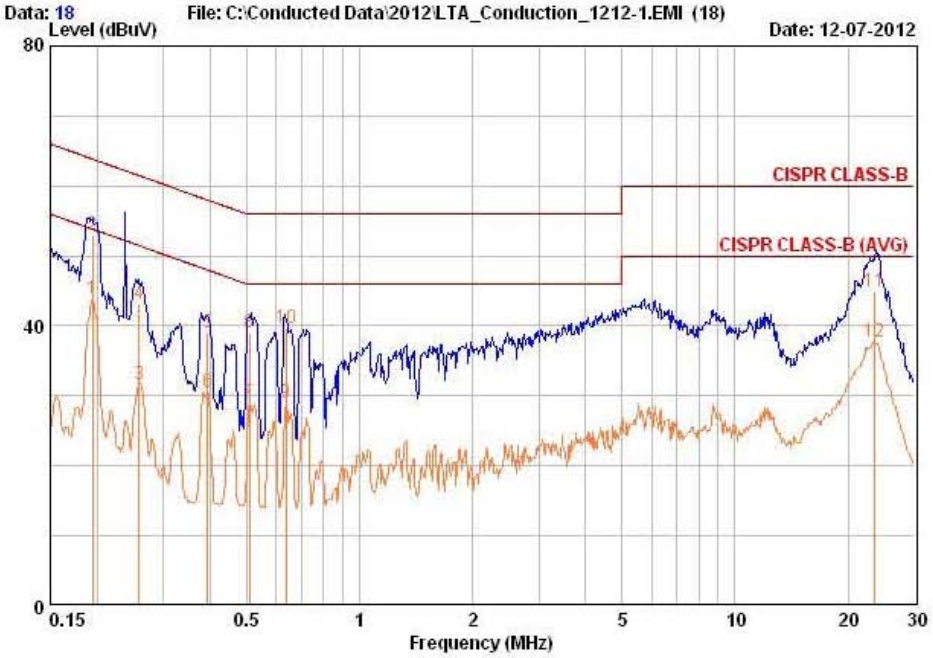
EUT / Model No.	: SMB815	Phase	: LINE
Test Mode	: PC Monitor(AC / DC) mode	Test Power	: 120 / 60
Temp./Humi.	: 25 / 45	Test Engineer	: PARK H W



Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.194	43.45	34.15	9.59	53.04	43.74	63.84	53.84	10.81	10.11
0.259	33.66	22.12	9.59	43.25	31.71	61.47	51.47	18.22	19.75
0.393	29.46	20.99	9.61	39.07	30.60	57.99	47.99	18.92	17.39
0.510	29.36	19.47	9.63	38.99	29.10	56.00	46.00	17.01	16.90
0.637	30.06	19.36	9.60	39.66	28.96	56.00	46.00	16.34	17.04
23.511	34.94	27.89	9.92	44.86	37.81	60.00	50.00	15.14	12.19

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

TEST EQUIPMENT USED: 02, 03, 08, 09, 11, 12, 13, 14, 21

- **AC / DC TV power supply – NEUTRAL**

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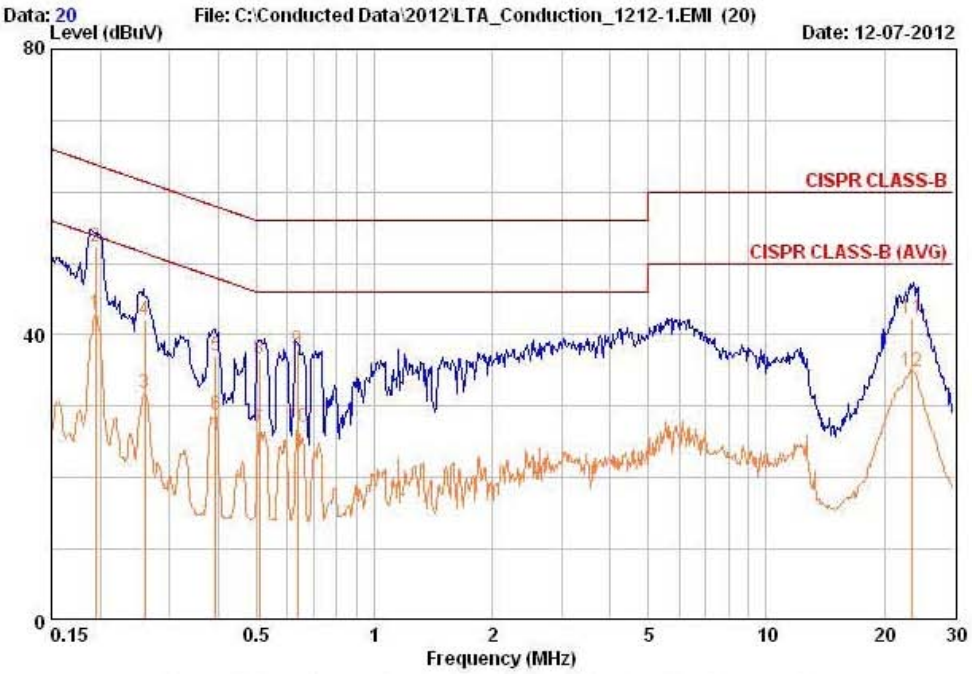
EUT / Model No.	: SMB815	Phase	: NEUTRAL
Test Mode	: PC Monitor(AC / DC) mode	Test Power	: 120 / 60
Temp./Humi.	: 25 / 45	Test Engineer	: PARK H W



Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.194	42.65	33.41	9.58	52.23	42.99	63.84	53.84	11.62	10.86
0.260	32.46	22.16	9.58	42.04	31.74	61.42	51.42	19.39	19.69
0.393	27.46	19.11	9.60	37.06	28.71	57.99	47.99	20.93	19.28
0.510	27.06	17.11	9.63	36.69	26.74	56.00	46.00	19.31	19.26
0.637	28.26	17.53	9.60	37.86	27.13	56.00	46.00	18.14	18.87
23.511	32.24	24.84	10.04	42.29	34.89	60.00	50.00	17.71	15.11

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

TEST EQUIPMENT USED: 02, 03, 08, 09, 11, 12, 13, 14, 21

3.8 Disturbance voltage at the antenna terminal Measurement

- **ATSC receiving (Local oscillator)**

Band	CH	Picture Frequency [MHz]	Local Oscillator Frequency [Hamonics]		Meter Reading [dBuV]	Total Loss [dB]	Results [dBuV]	Limit [dBuv]
VHF	2	57 (IF Freq. - 44 MHz)	Fundamental	1	<25	12.7	37.7	51.8
			Harmonics	2	<25	12.8	37.8	51.8
				3	<25	12.8	37.8	51.8
				4	<25	12.7	37.7	51.8
				5	<25	12.8	37.8	51.8
				6	<25	12.8	37.8	51.8
				7	<25	12.7	37.7	51.8
				8	<25	12.8	37.8	51.8
				9	<25	12.8	37.8	51.8
				10	<25	12.8	37.8	51.8
				11	<25	12.9	37.9	51.8
				12	<25	12.9	37.9	51.8
				13	<25	12.9	37.9	51.8
				14	<25	13.0	38.0	51.8
				15	<25	13.0	38.0	51.8
				16	<25	13.0	38.0	51.8
				17	<25	13.1	38.1	51.8
				18	<25	13.1	38.1	51.8
				19	<25	13.1	38.1	51.8
				20	<25	13.2	38.2	51.8
				21	<25	13.2	38.2	51.8
				22	<25	13.2	38.2	51.8
				23	<25	13.3	38.3	51.8
				24	<25	13.3	38.3	51.8
				25	<25	13.3	38.3	51.8
				26	<25	13.4	38.4	51.8
				27	<25	13.4	38.4	51.8
				28	<25	13.3	38.3	51.8
				29	<25	13.4	38.4	51.8
				30	<25	13.5	38.5	51.8
				31	<25	13.5	38.5	51.8
				32	<25	13.5	38.5	51.8
				33	<25	13.6	38.6	51.8
				34	<25	13.6	38.6	51.8
			Fundamental	1	<25	12.7	37.7	51.8
			Harmonics	2	<25	12.7	37.7	51.8
				3	<25	12.8	37.8	51.8
				4	<25	12.7	37.7	51.8
				5	<25	12.8	37.8	51.8
				6	<25	12.8	37.8	51.8
				7	<25	12.9	37.9	51.8
				8	<25	12.8	37.8	51.8
				9	<25	12.9	37.9	51.8
				10	<25	12.9	37.9	51.8
				11	<25	13.0	38.0	51.8
				12	<25	13.0	38.0	51.8

TEST EQUIPMENT USED: 1, 15, 16, 17, 18, 19, 20, 22, 23

	3	63 (IF Freq. - 44 MHz)	Harmonics	13	<25	13.1	38.1	51.8
				14	<25	13.1	38.1	51.8
				15	<25	13.2	38.2	51.8
				16	<25	13.1	38.1	51.8
				17	<25	13.2	38.2	51.8
				18	<25	13.3	38.3	51.8
				19	<25	13.3	38.3	51.8
				20	<25	13.3	38.3	51.8
				21	<25	13.4	38.4	51.8
				22	<25	13.3	38.3	51.8
				23	<25	13.4	38.4	51.8
				24	<25	13.4	38.4	51.8
				25	<25	13.5	38.5	51.8
				26	<25	13.4	38.4	51.8
				27	<25	13.5	38.5	51.8
				28	<25	13.5	38.5	51.8
				29	<25	13.6	38.6	51.8
				30	<25	13.6	38.6	51.8
				31	<25	13.7	38.7	51.8
	6	85 (IF Freq. - 44 MHz)	Fundamental	1	<25	12.8	37.8	51.8
			Harmonics	2	<25	12.7	37.7	51.8
				3	<25	12.8	37.8	51.8
				4	<25	12.8	37.8	51.8
				5	<25	12.9	37.9	51.8
				6	<25	12.9	37.9	51.8
				7	<25	12.9	37.9	51.8
				8	<25	12.9	37.9	51.8
				9	<25	13.0	38.0	51.8
				10	<25	12.9	37.9	51.8
				11	<25	13.0	38.0	51.8
				12	<25	12.9	37.9	51.8
				13	<25	13.0	38.0	51.8
				14	<25	13.0	38.0	51.8
				15	<25	13.0	38.0	51.8
				16	<25	13.1	38.1	51.8
				17	<25	13.2	38.2	51.8
				18	<25	13.2	38.2	51.8
				19	<25	13.3	38.3	51.8
				20	<25	13.4	38.4	51.8
				21	<25	13.5	38.5	51.8
				22	<25	13.5	38.5	51.8
				23	<25	13.6	38.6	51.8
	7	177 (IF Freq. - 44 MHz)	Fundamental	1	<25	12.8	37.8	51.8
			Harmonics	2	<25	12.8	37.8	51.8
				3	<25	12.9	37.9	51.8
				4	<25	12.8	37.8	51.8
				5	<25	12.9	37.9	51.8
				6	<25	12.9	37.9	51.8
				7	<25	13.0	38.0	51.8

TEST EQUIPMENT USED: 1, 15, 16, 17, 18, 19, 20, 22, 23

			8	<25	13.1	38.1	51.8
			9	<25	13.2	38.2	51.8
			10	<25	13.4	38.4	51.8
			11	<25	13.7	38.7	51.8
8	183 (IF Freq. - 44 MHz)	Fundamental	1	<25	12.9	37.9	51.8
		Harmonics	2	<25	13.0	38.0	51.8
			3	<25	13.1	38.1	51.8
			4	<25	13.1	38.1	51.8
			5	<25	13.2	38.2	51.8
			6	<25	13.2	38.2	51.8
			7	<25	13.3	38.3	51.8
			8	<25	13.3	38.3	51.8
			9	<25	13.4	38.4	51.8
			10	<25	13.4	38.4	51.8
10	195 (IF Freq. - 44 MHz)	Fundamental	1	<25	12.9	37.9	51.8
		Harmonics	2	<25	13.1	38.1	51.8
			3	<25	13.1	38.1	51.8
			4	<25	13.3	38.3	51.8
			5	<25	13.3	38.3	51.8
			6	<25	13.4	38.4	51.8
			7	<25	13.4	38.4	51.8
			8	<25	13.5	38.5	51.8
			9	<25	13.4	38.4	51.8
			10	<25	13.5	38.5	51.8
11	201 (IF Freq. - 44 MHz)	Fundamental	1	<25	13.0	38.0	51.8
		Harmonics	2	<25	13.1	38.1	51.8
			3	<25	13.2	38.2	51.8
			4	<25	13.2	38.2	51.8
			5	<25	13.3	38.3	51.8
			6	<25	13.3	38.3	51.8
			7	<25	13.4	38.4	51.8
			8	<25	13.4	38.4	51.8
			9	<25	13.5	38.5	51.8
			10	<25	13.5	38.5	51.8
12	207 (IF Freq. - 44 MHz)	Fundamental	1	<25	13.1	38.1	51.8
		Harmonics	2	<25	13.2	38.2	51.8
			3	<25	13.1	38.1	51.8
			4	<25	13.2	38.2	51.8
			5	<25	13.2	38.2	51.8
			6	<25	13.3	38.3	51.8
			7	<25	13.2	38.2	51.8
			8	<25	13.3	38.3	51.8
			9	<25	13.3	38.3	51.8
			10	<25	13.4	38.4	51.8
13	213	Fundamental	1	<25	13.2	38.2	51.8
			2	<25	13.3	38.3	51.8
			3	<25	13.2	38.2	51.8
			4	<25	13.3	38.3	51.8
			5	<25	13.3	38.3	51.8

TEST EQUIPMENT USED: 1, 15, 16, 17, 18, 19, 20, 22, 23

		(IF Freq. - 44 MHz)	Harmonics	6	<25	13.4	38.4	51.8
				7	<25	13.4	38.4	51.8
				8	<25	13.5	38.5	51.8
				9	<25	13.5	38.5	51.8
	14	473 (IF Freq. - 44 MHz)	Fundamental	1	<25	13.2	38.2	51.8
			Harmonics	2	<25	13.2	38.2	51.8
				3	<25	13.2	38.2	51.8
				4	<25	13.3	38.3	51.8
	19	503 (IF Freq. - 44 MHz)	Fundamental	1	<25	13.3	38.3	51.8
			Harmonics	2	<25	13.3	38.3	51.8
				3	<25	13.4	38.4	51.8
				4	<25	13.5	38.5	51.8
	28	557 (IF Freq. - 44 MHz)	Fundamental	1	<25	13.3	38.3	51.8
			Harmonics	2	<25	13.4	38.4	51.8
				3	<25	13.5	38.5	51.8
	36	605 (IF Freq. - 44 MHz)	Fundamental	1	<25	13.4	38.4	51.8
			Harmonics	2	<25	13.4	38.4	51.8
				3	<25	13.5	38.5	51.8
	44	653 (IF Freq. - 44 MHz)	Fundamental	1	<25	13.4	38.4	51.8
			Harmonics	2	<25	13.4	38.4	51.8
				3	<25	13.5	38.5	51.8
	53	707 (IF Freq. - 44 MHz)	Fundamental	1	<25	13.4	38.4	51.8
			Harmonics	2	<25	13.3	38.3	51.8
				3	<25	13.5	38.5	51.8
	61	755 (IF Freq. - 44 MHz)	Fundamental	1	<25	13.4	38.4	51.8
			Harmonics	2	<25	13.5	38.5	51.8
	69	803 (IF Freq. - 44 MHz)	Fundamental	1	<25	13.5	38.5	51.8
			Harmonics	2	<25	13.5	38.5	51.8

TEST EQUIPMENT USED: 1, 15, 16, 17, 18, 19, 20, 22, 23

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Conclusions

- Product models **"SMB815"** meets all of the Class B requirements of the FCC Part 15, Subpart B. Limits of radio disturbance characteristics of ITE).

(Refer to Test Specification and Test Results in the "LTA certification", page3 and 4.)

APPENDIX

TEST EQUIPMENT USED FOR TESTS

	Description	Model No.	Serial No.	Manufacturer	Interval	Last Cal. Date
1	Spectrum Analyzer (~30GHz)	FSV-30	100757	R&S	1 year	2013-01-15
2	Spectrum Analyzer (~2.9GHz)	8594E	3649A03649	HP	2 year	2012-03-26
3	Signal Generator (~3.2GHz)	8648C	3623A02597	HP	1 year	2012-03-26
4	Signal Generator (1~20GHz)	83711B	US34490456	HP	1 year	2012-03-26
5	Attenuator (3dB)	8491A	37822	HP	2 year	2012-09-22
6	Attenuator (10dB)	8491A	63196	HP	2 year	2012-09-22
7	Test Receiver (~30MHz)	ESHS10	828404/009	R&S	1 year	2012-03-26
8	EMI Test Receiver (~7GHz)	ESCI7	100722	R&S	1 year	2012-09-22
9	RF Amplifier (~1.3GHz)	8447D	2439A09058	HP	2 year	2012-09-22
10	RF Amplifier (1~18GHz)	8449B	3008A02126	HP	2 year	2012-03-26
11	Horn Antenna (1~18GHz)	BBHA 9120D	9120D122	SCHWARZBECK	2 year	2012-12-21
12	Horn Antenna (18 ~ 40GHz)	SAS-574	154	Schwarzbeck	2 year	2012-11-24
13	Horn Antenna (18 ~ 40GHz)	SAS-574	155	Schwarzbeck	2 year	2012-11-24
14	TRILOG Antenna	VULB 9160	9160-3172	SCHWARZBECK	2 year	2012-09-20
15	Hygro-Thermograph	THB-36	0041557-01	ISUZU	1 year	2012-09-26
16	Splitter (SMA)	ZFSC-2-2500	SF617800326	Mini-Circuits	-	-
17	Power Divider	11636A	6243	HP	2 year	2012-09-22
18	DC Power Supply	6622A	3448A03079	HP	-	-
19	Frequency Counter	5342A	2826A12411	HP	1 year	2012-03-26
20	Power Meter	EPM-441A	GB32481702	HP	1 year	2012-03-26
21	Power Sensor	8481A	US41030291	HP	1 year	2012-09-22
22	Audio Analyzer	8903B	3729A18901	HP	1 year	2012-09-22
23	Modulation Analyzer	8901B	3749A05878	HP	1 year	2012-09-22
24	TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	1 year	2012-09-22
25	Stop Watch	HS-3	601Q09R	CASIO	2 year	2012-03-26
26	LISN	ENV216	100408	R&S	1 year	2012-09-22
27	UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	106243	R&S	2 year	2012-06-27
28	Highpass Filter	WHKX1.5/15G-10SS	74	Wainwright Instruments	-	-
29	Highpass Filter	WHKX3.0/18G-10SS	118	Wainwright Instruments	-	-