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Dates of Tests : June 11~ 25, 2012
Test Report S/N: LR50011206L
Test Site : LTA CO., LTD

CERTIFICATION OF COMPLIANCE

FCC ID.

VUJAT280

APPLICANT

ATID Co., Ltd

Equipment Class	:	Digital Transmission System (DTS)
Manufacturing Description	:	Industrial PDA
Manufacturer	:	ATID CO., Ltd.
Model name	:	AT280
Test Device Serial No.:	:	Identical prototype
Rule Part(s)	:	FCC Part 15.247 Subpart C; ANSI C-63.4-2003
Frequency Range	:	2412MHz ~ 2462MHz
Max. Output Power	:	Max 19.14 dBm - Conducted (802.11b) Max 17.13 dBm - Conducted (802.11g)
Data of issue	:	July 06, 2012

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

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1. General information's

1-1 Test Performed

Company name : LTA Co., Ltd.
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 Web site : <http://www.ltalab.com>
 E-mail : chahn@ltalab.com
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 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”.

1-2 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	2012-09-30	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 Client & Manufacture**

Company name : ATID Co., Ltd
 Address : #1210, Byuksan/Gyungin digital valley II #481-10, Gasan-Dong, Gumchon-Gu,
 Seoul, Korea
 Tel / Fax : +82-2-544-1436 / +82-2-2113-0040

2-2 Equipment Under Test (EUT)

Trade name : Industrial PDA
 FCC ID : VUJAT280
 Model name : AT280
 Serial number : Identical prototype
 Date of receipt : June 8, 2012
 EUT condition : Pre-production, not damaged
 Antenna type : PCB Pattern antenna with Max. 3.306 dBi gain
 Frequency Range : 2412MHz ~ 2462MHz (DSSS)
 RF output power : Max 19.14 dBm - Conducted (802.11b)
 : Max 17.13 dBm - Conducted (802.11g)
 Number of channels : 11
 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
 Power Source : DC 3.7V by internal battery (Li-ion)
 Firmware Version : V1.0.0

2-4 Tested frequency

	LOW	MID	HIGH
Frequency (MHz) for 802.11b/g	2412	2442	2462

2-5 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
PC	N/A	N/A	N/A
TV MONITOR	LE23R18(R)	63343HDP901399E	SAMSONG
KEYBOARD	PKB 1500U	018070294293	PLEOMAX
MOUSE	M056U0A	F09027AB	DELL

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	C
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.

→ Antenna Requirement

The ATID Co., Ltd FCC ID: VUJAT280 unit complies with the requirement of §15.203.

The antenna is connected to inside of EUT. And type is Chip 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 (802.11b/g)

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 ~ 40 MHz

VBW = 100 kHz (VBW ≥ RBW)

Sweep = auto

Trace = max hold

Detector function = peak

Measurement Data:

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Bandwidth (MHz)	Result
802.11b	2412	1	10.59	Complies
	2442	76	10.77	Complies
	2462	11	10.77	Complies
802.11g	2412	1	16.56	Complies
	2442	76	16.56	Complies
	2462	11	16.58	Complies

- See next pages for actual measured spectrum plots.

Minimum Standard:

6 dB Bandwidth > 500kHz

Measurement Setup

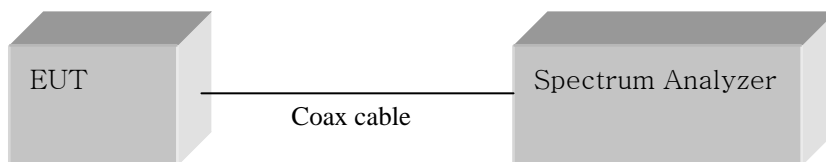
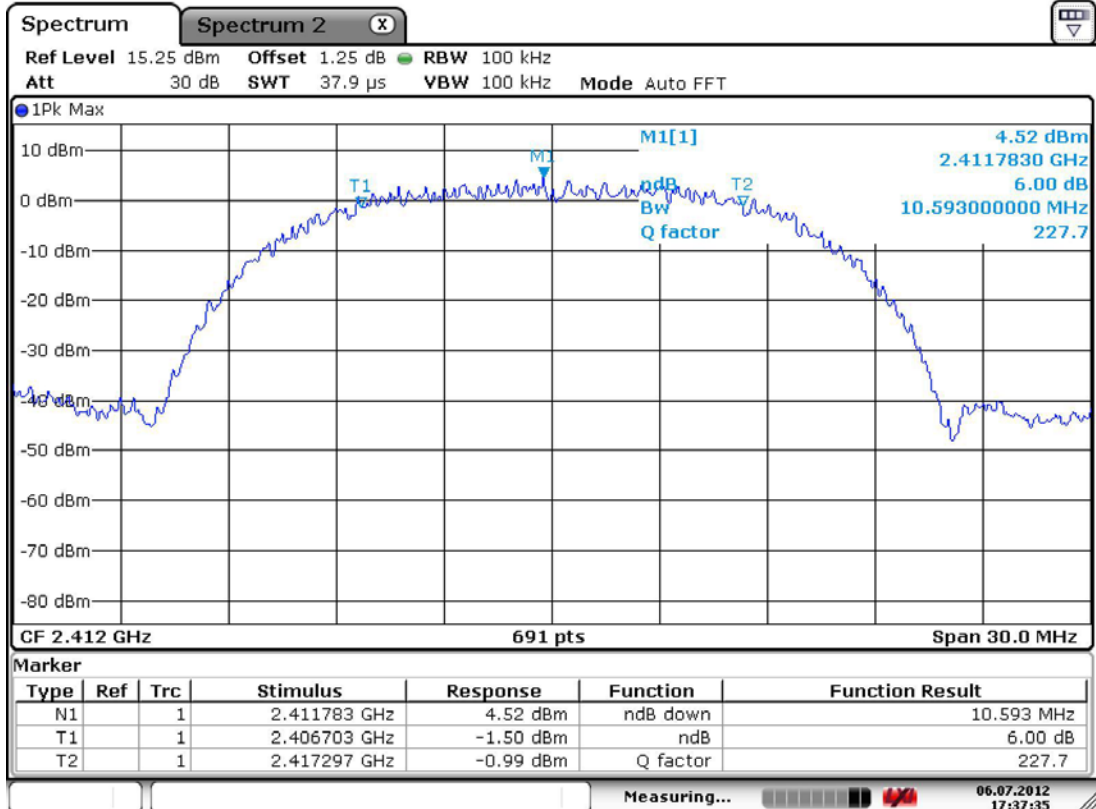
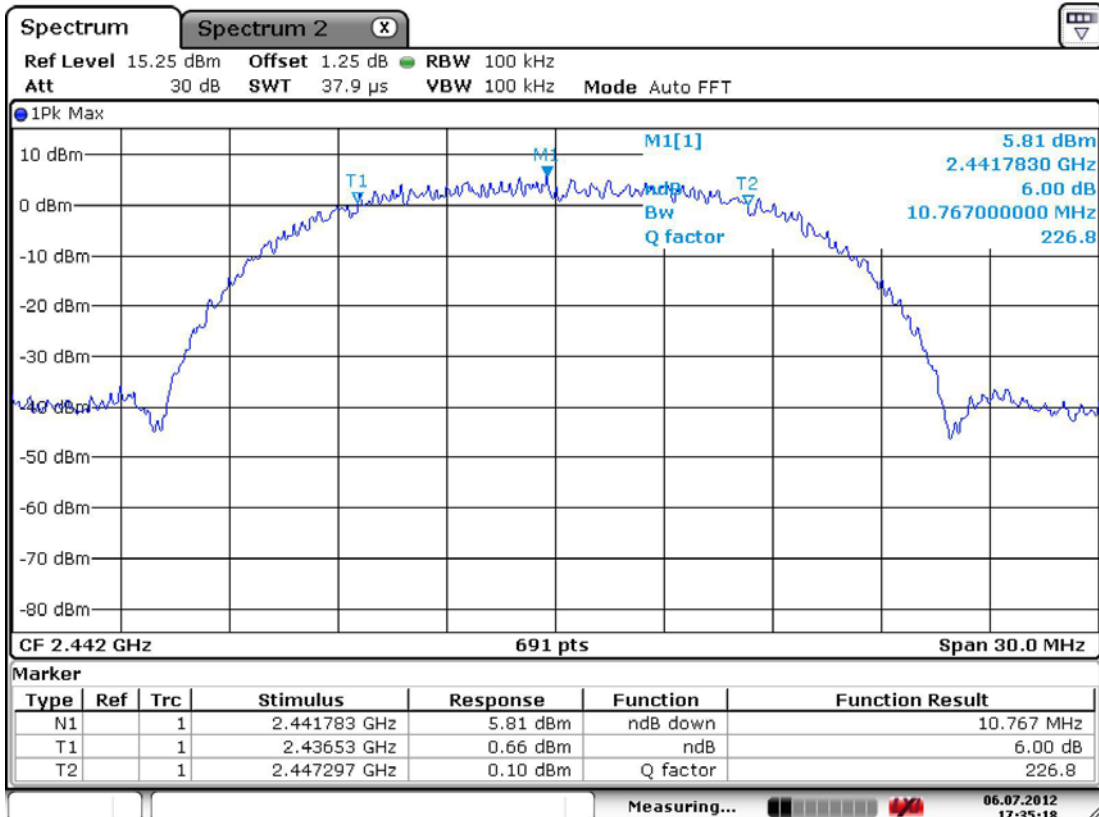


Figure 1: Measurement setup for the carrier frequency separation

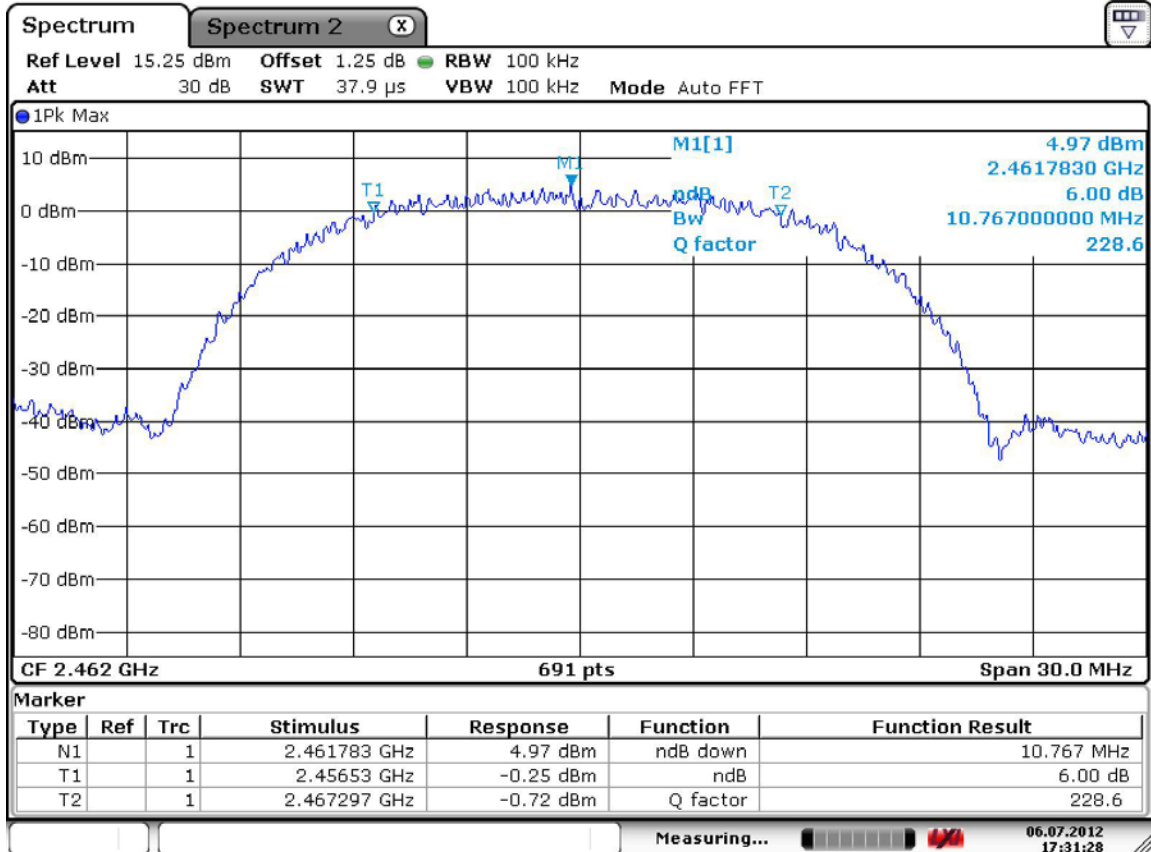
802.11b CH 1



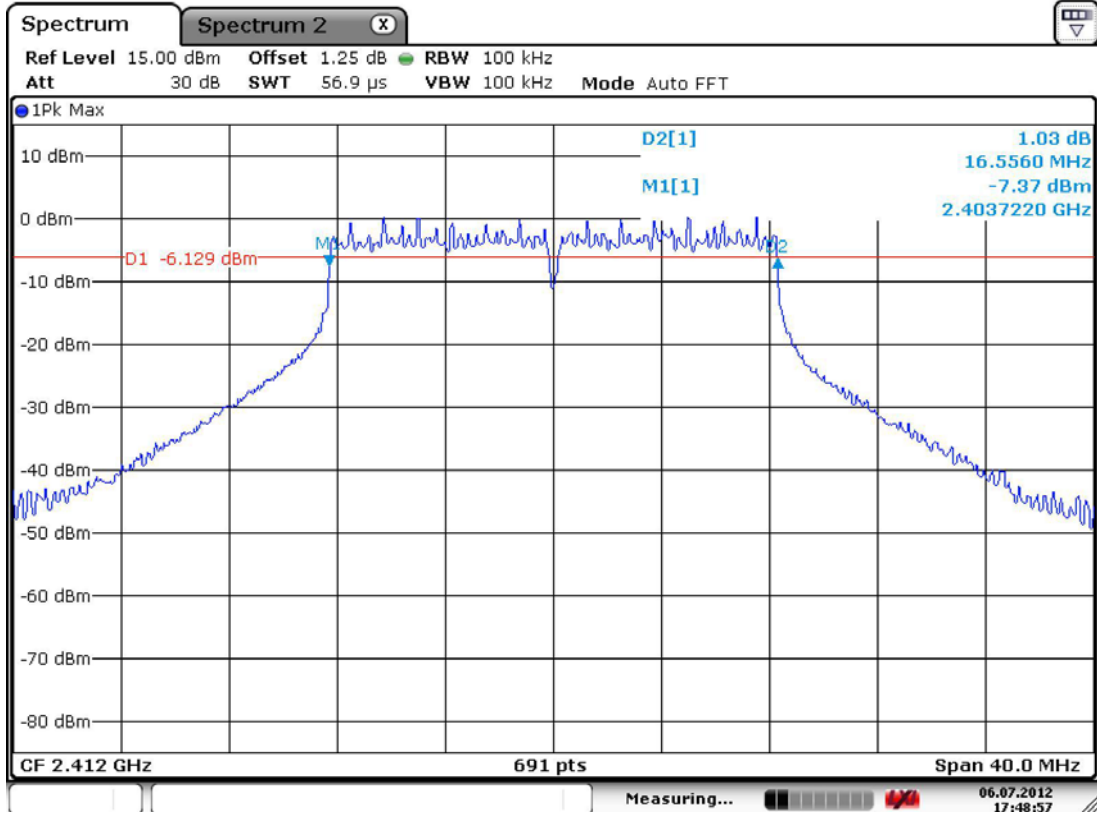
CH 7



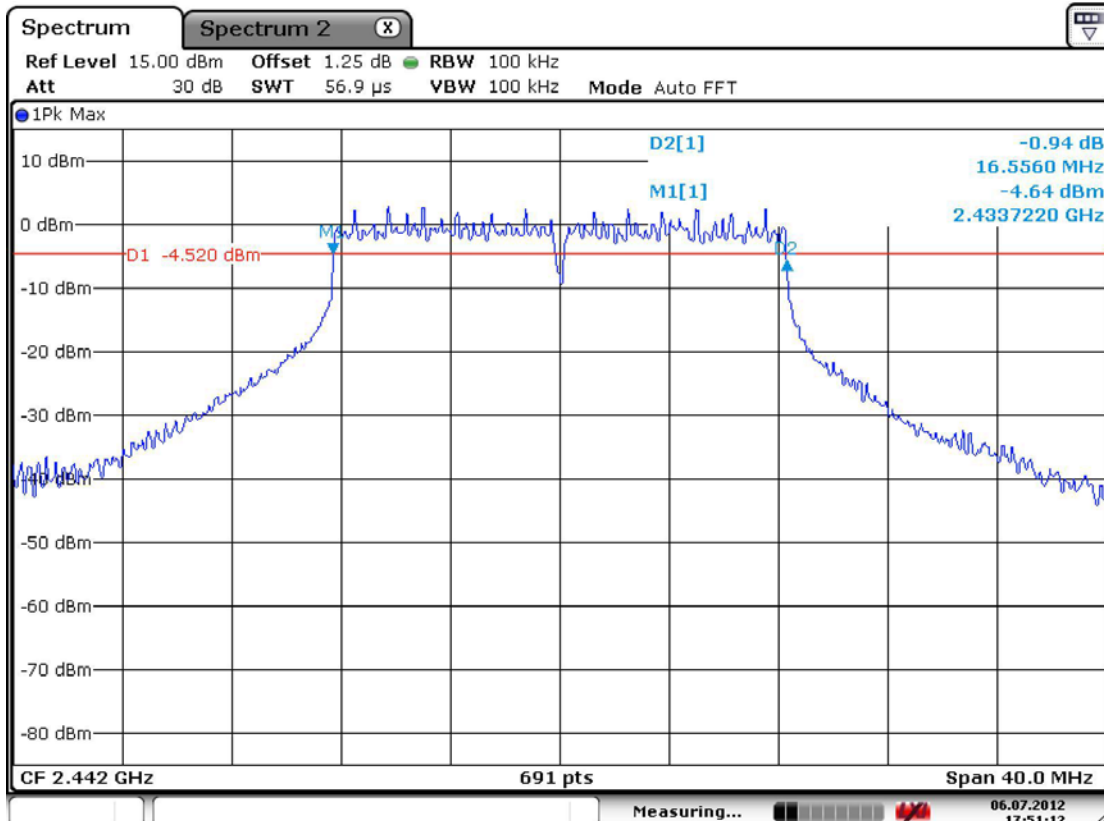
CH 11



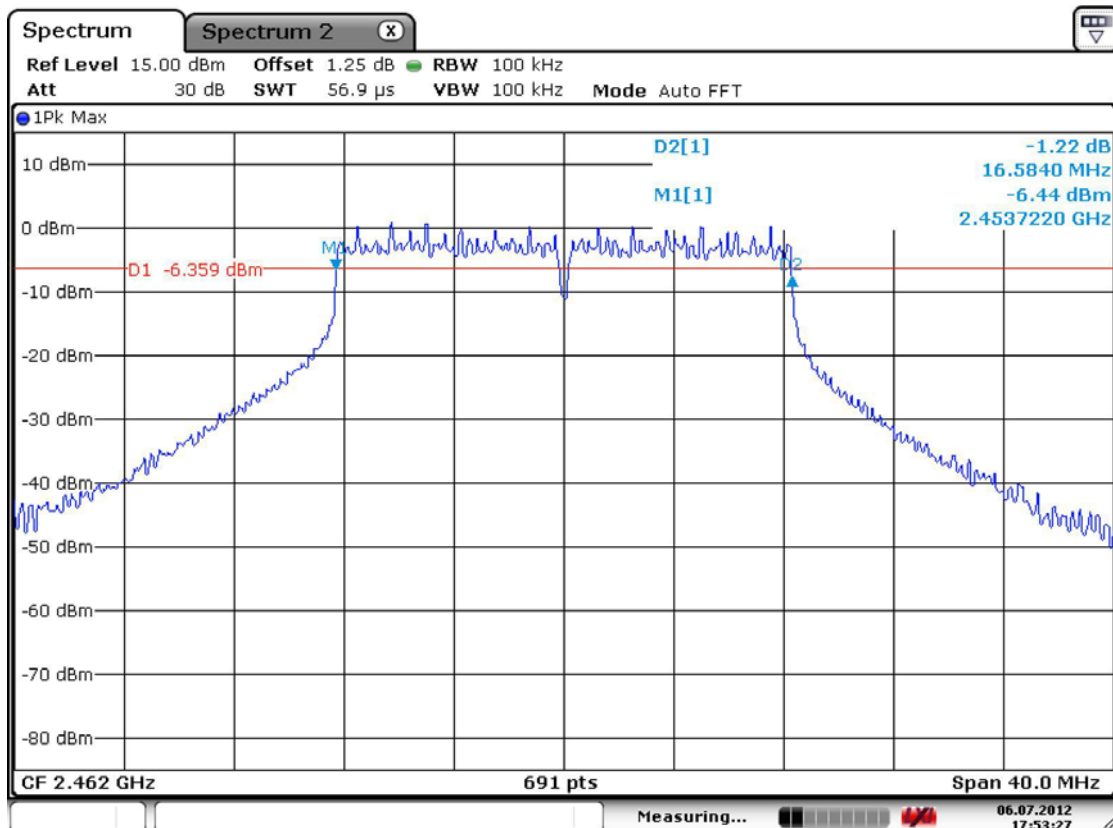
802.11g CH 1



CH 7



CH 11



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	
			Peak Output Power (dBm)	Result
802.11b	2412	1	19.14	Complies
	2442	7	19.11	Complies
	2462	11	19.01	Complies
802.11g	2412	1	17.13	Complies
	2442	7	17.06	Complies
	2462	11	17.04	Complies

- See next pages for actual measured spectrum plots.

Minimum Standard:

Peak output power	< 1W
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Measurement Setup

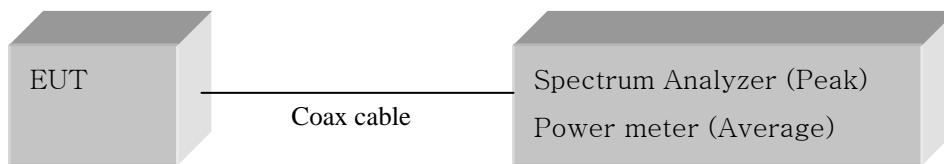
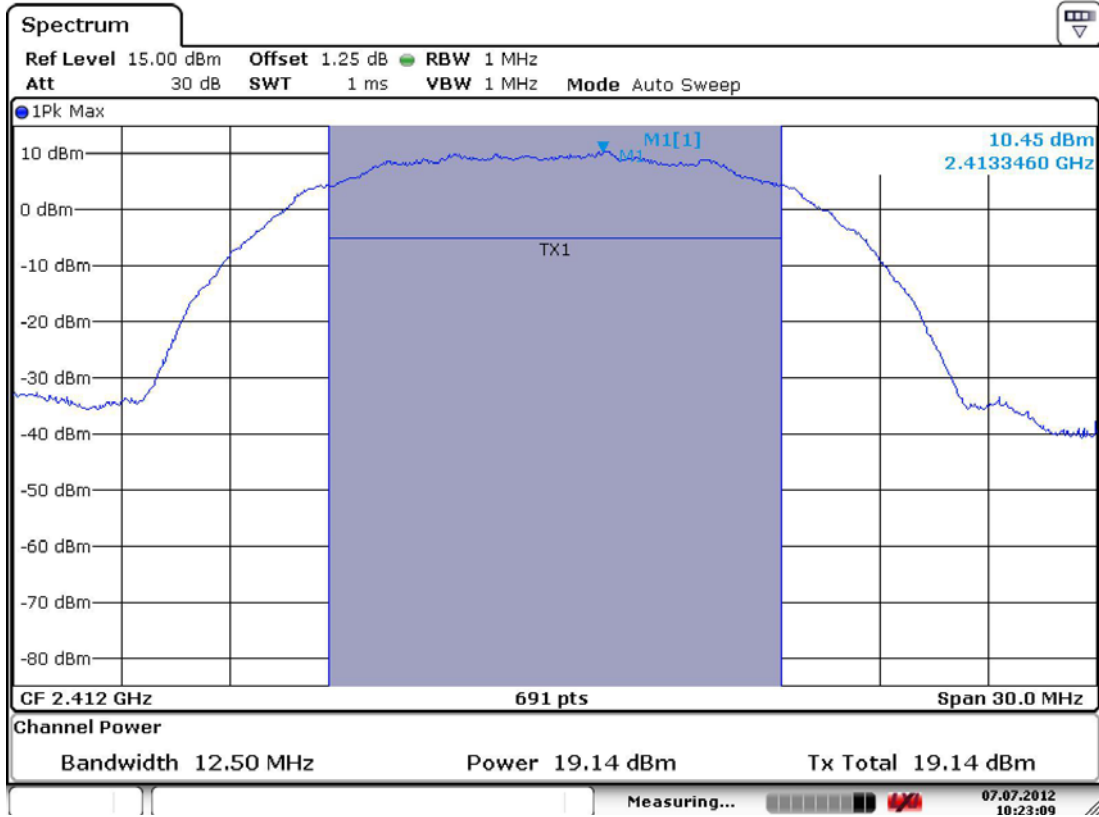
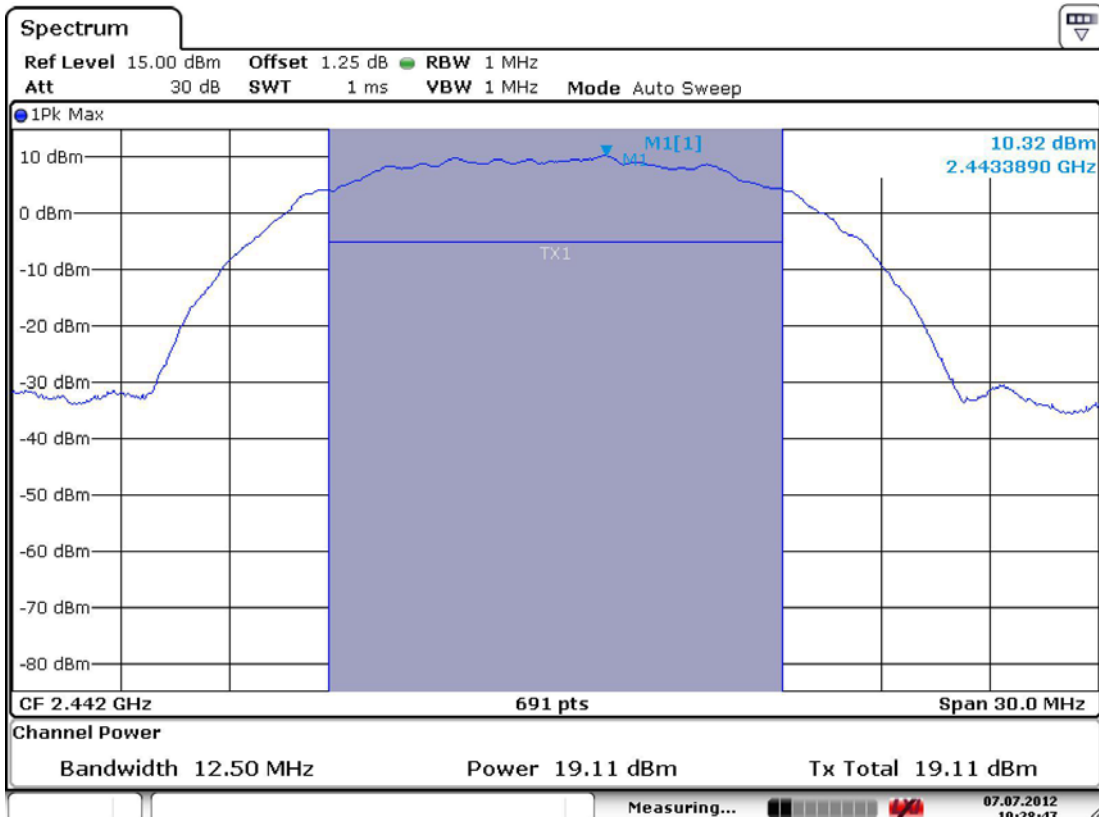


Figure 1: Measurement setup for the carrier frequency separation

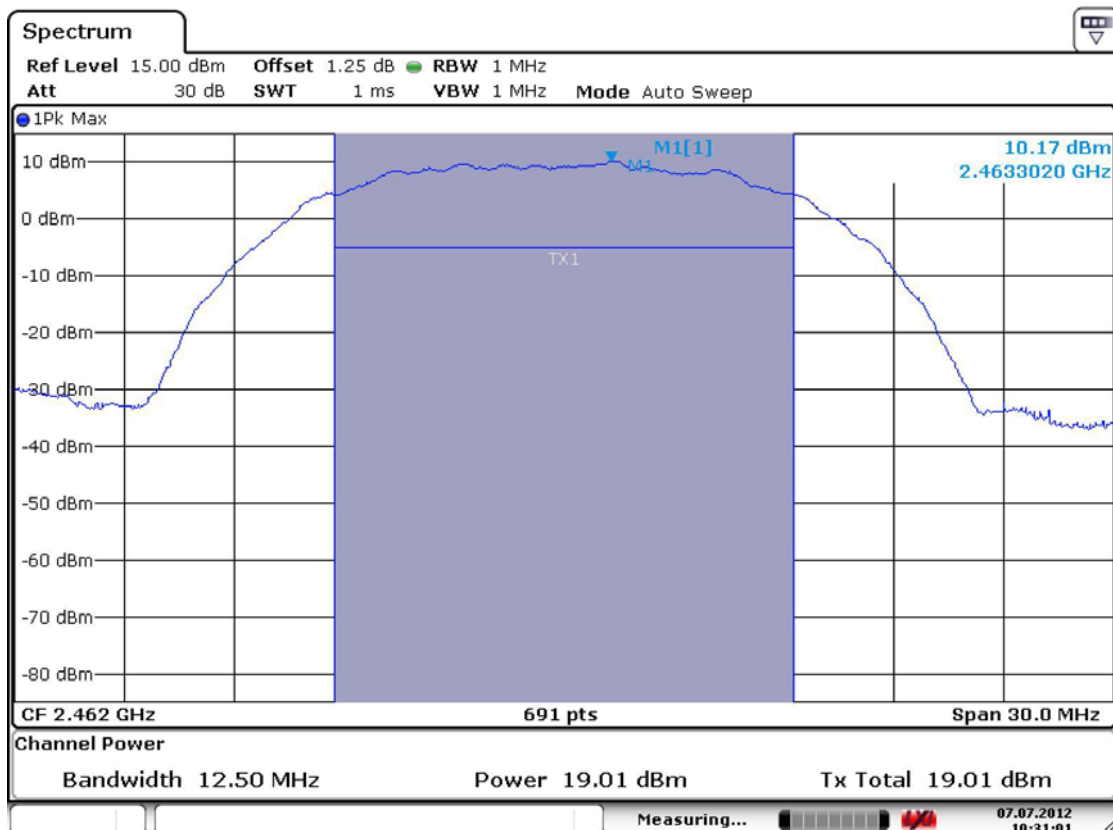
802.11b CH 1



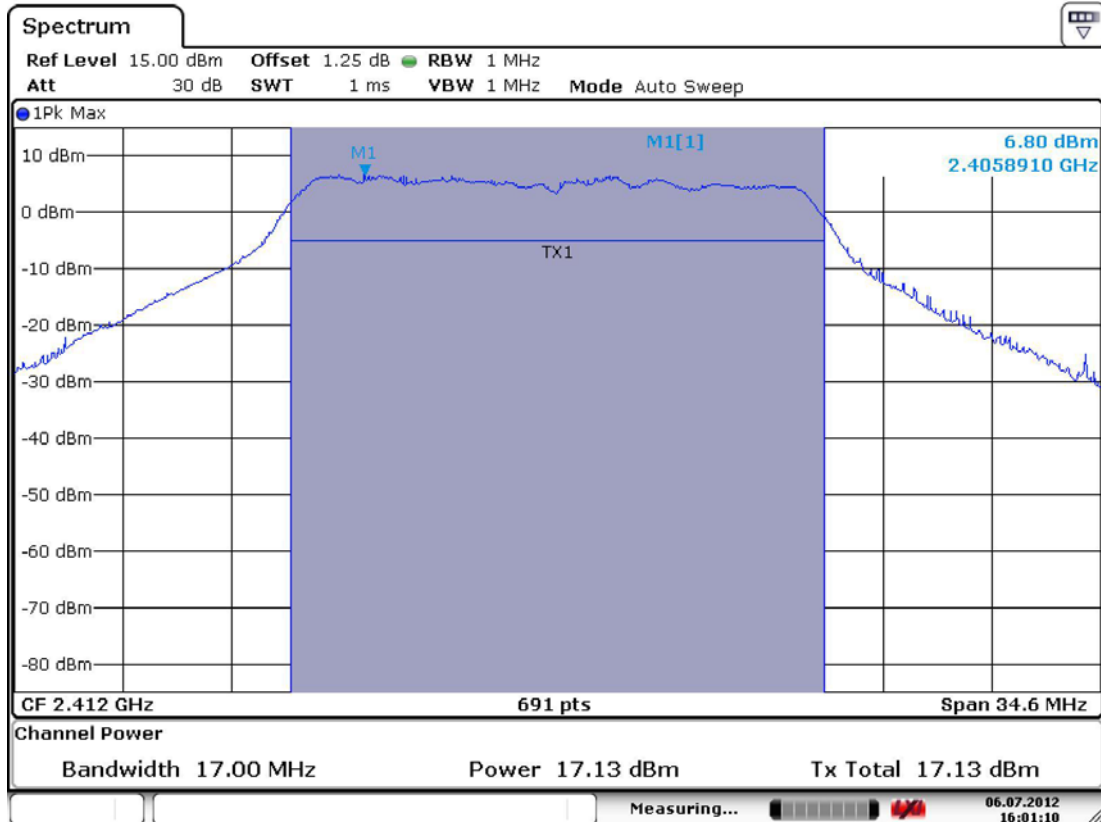
CH 7



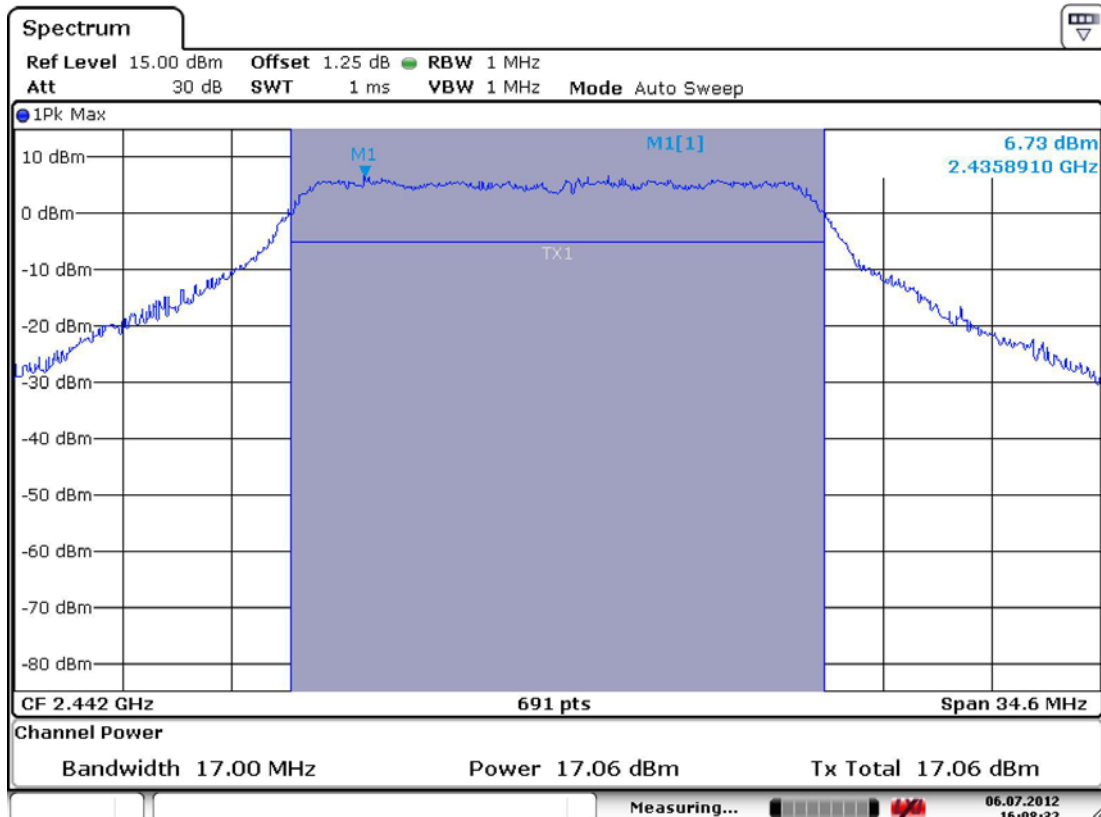
CH 11



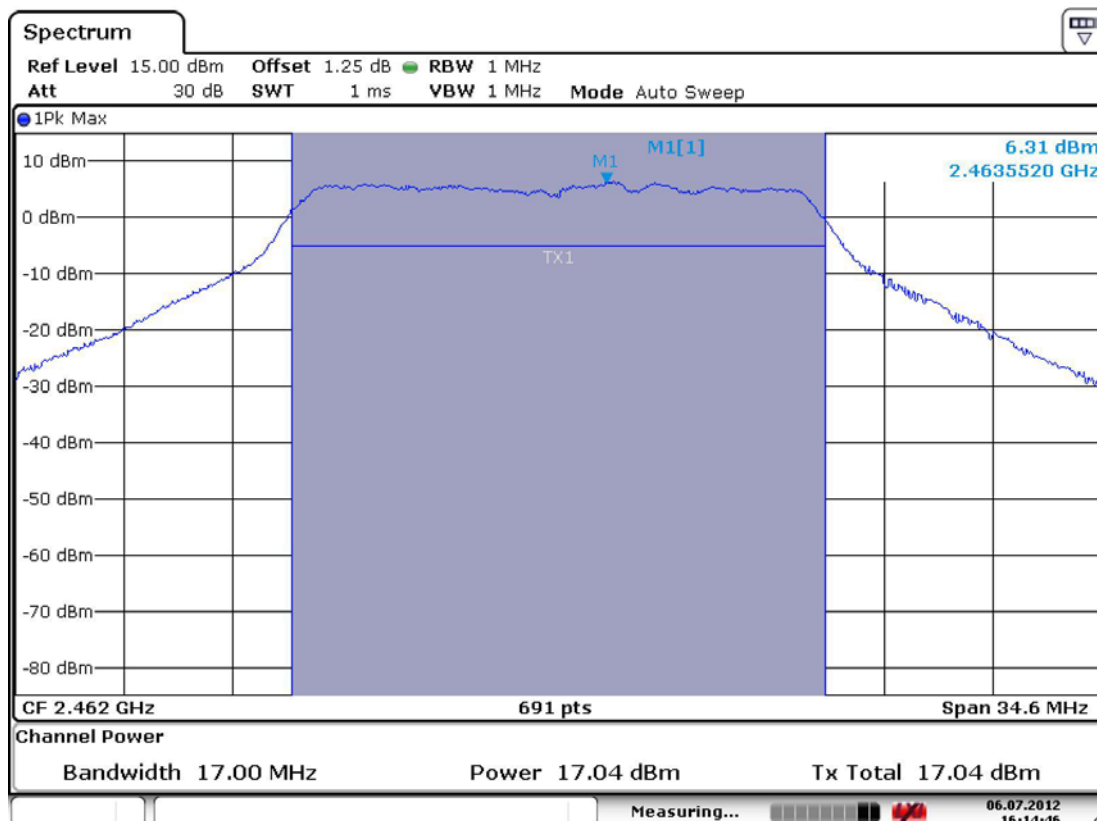
802.11g CH 1



CH 7



CH 11



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 = 10 kHz

Sweep time = 100 sec

Detector function = peak

Trace = max hold

Measurement Data:

Mode	Frequency (MHz)	Ch.	Test Results	
			dBm	Result
802.11b	2412	1	-10.37	Complies
	2442	7	-8.65	Complies
	2462	11	-9.70	Complies
802.11g	2412	1	-21.28	Complies
	2442	7	-19.07	Complies
	2462	11	-21.49	Complies

- See next pages for actual measured spectrum plots.

Minimum Standard:

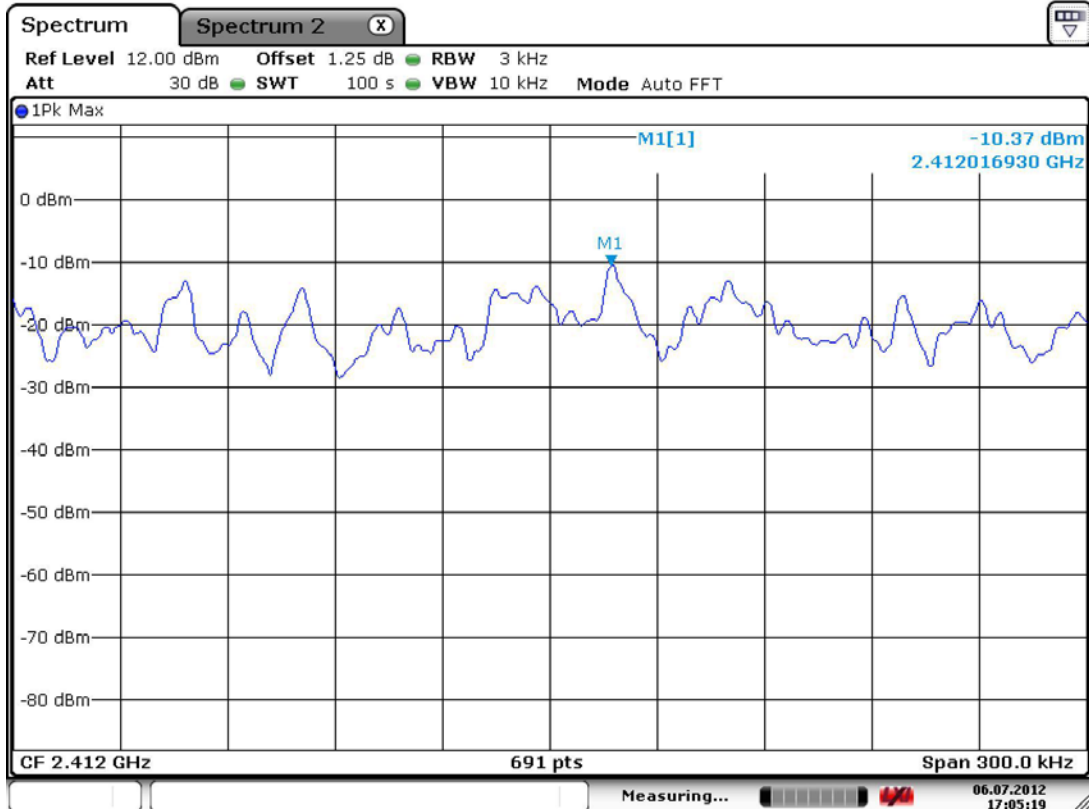
Power Spectral Density	< 8dBm @ 3kHz BW
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Measurement Setup

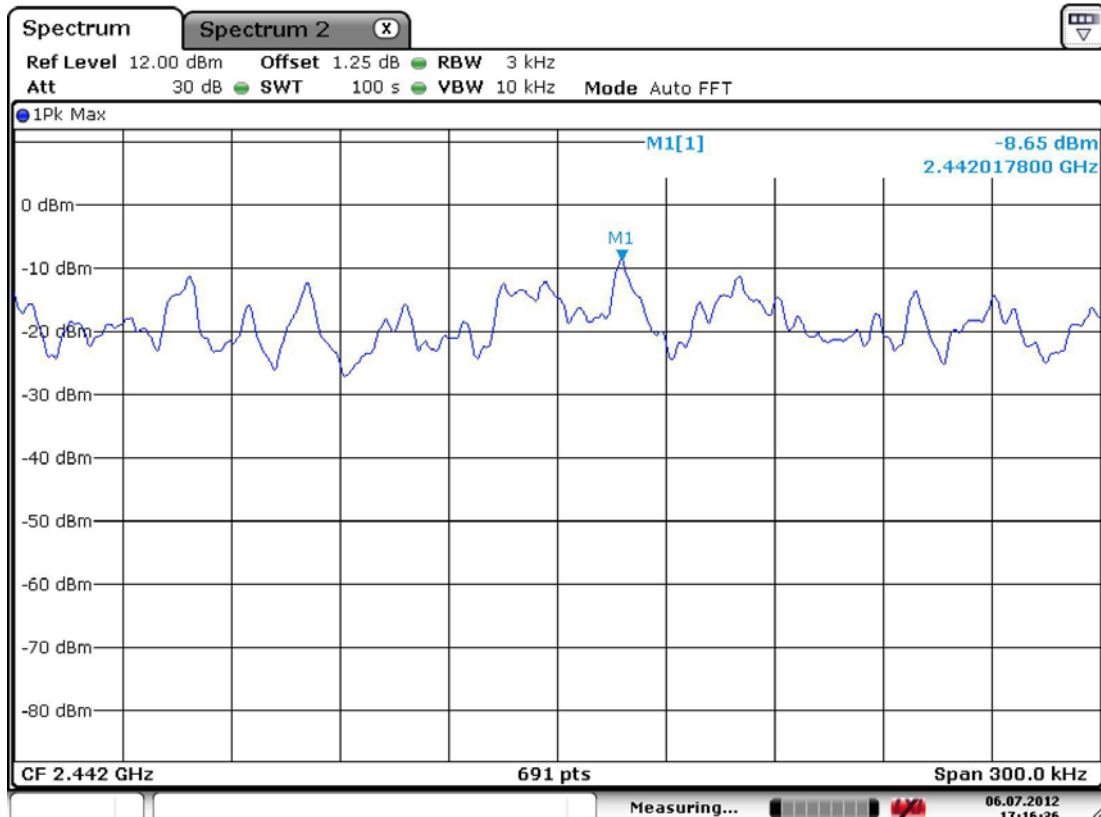
Same as the Chapter 3.2.1 (Figure 1)

802.11b Power Density Measurement

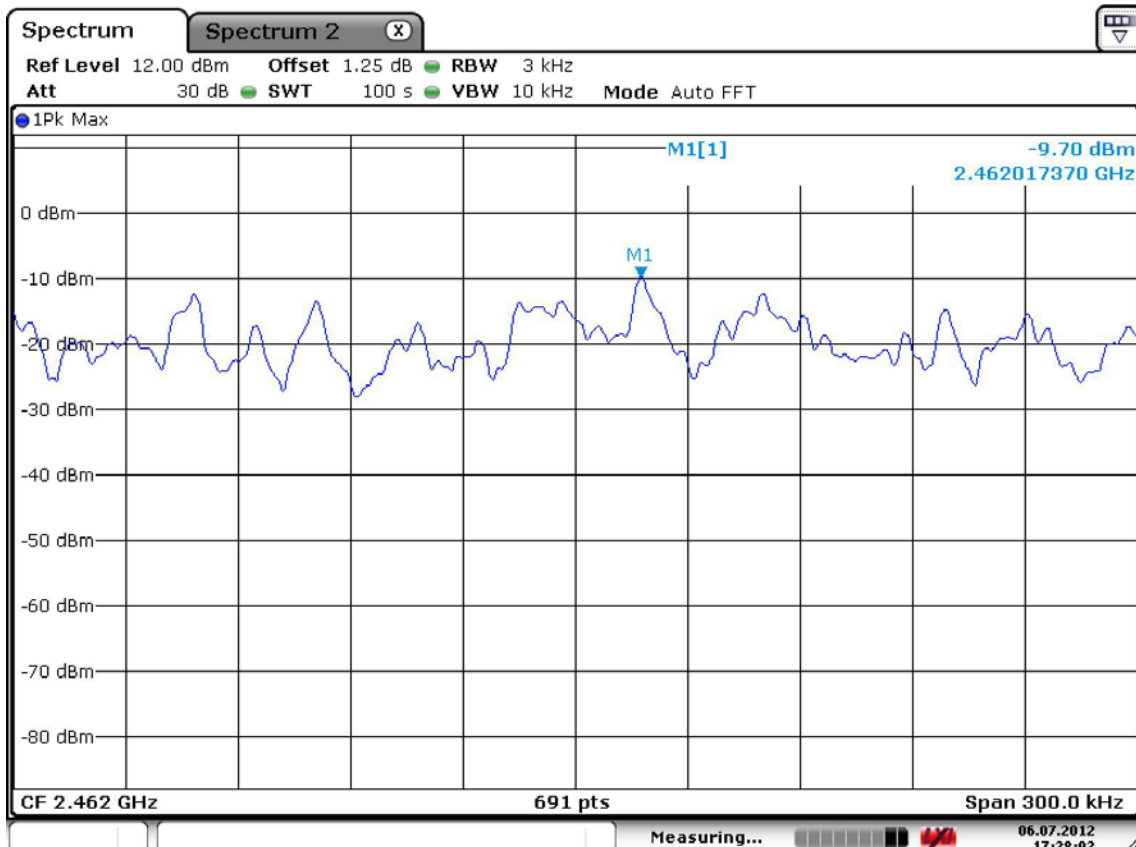
CH 1



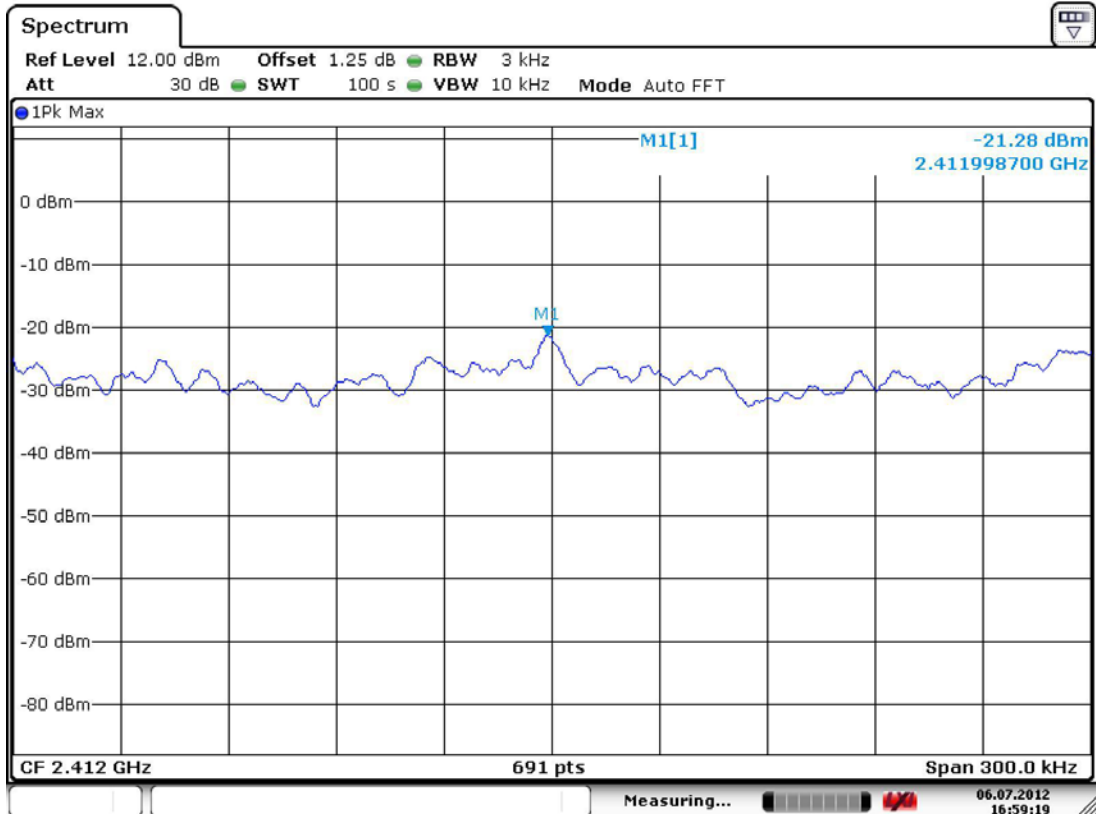
CH 7



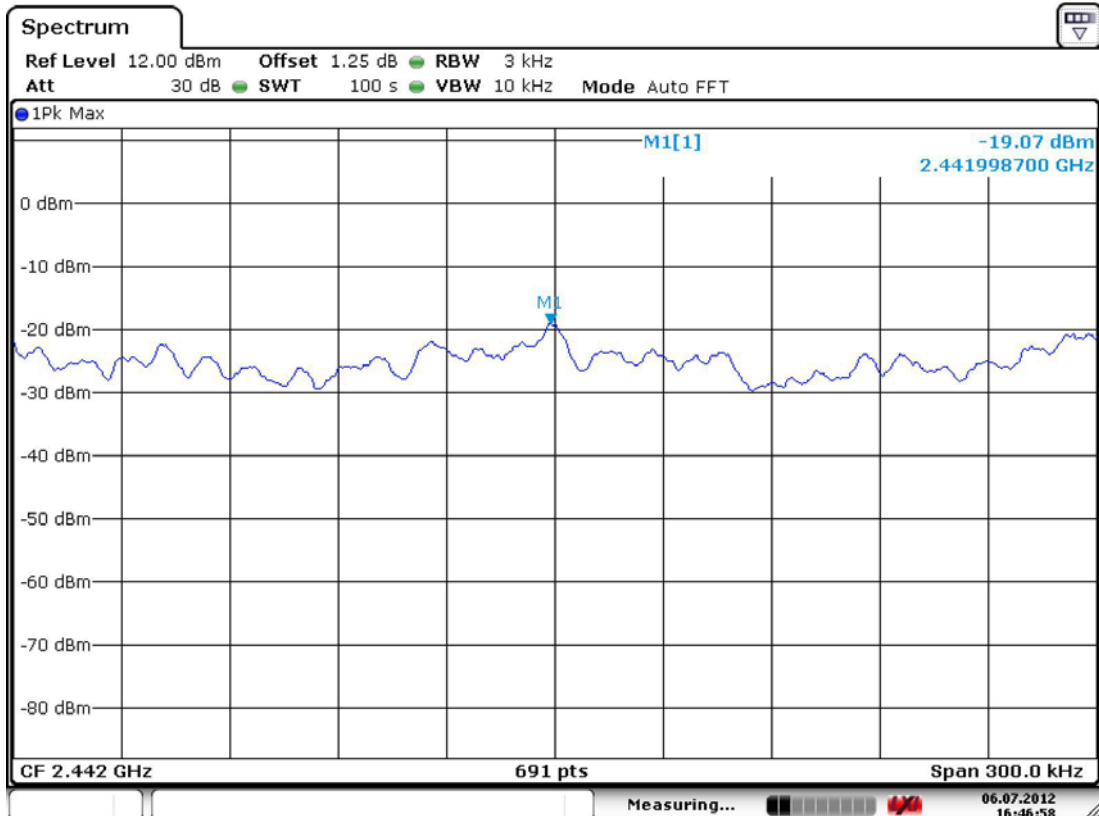
CH 11



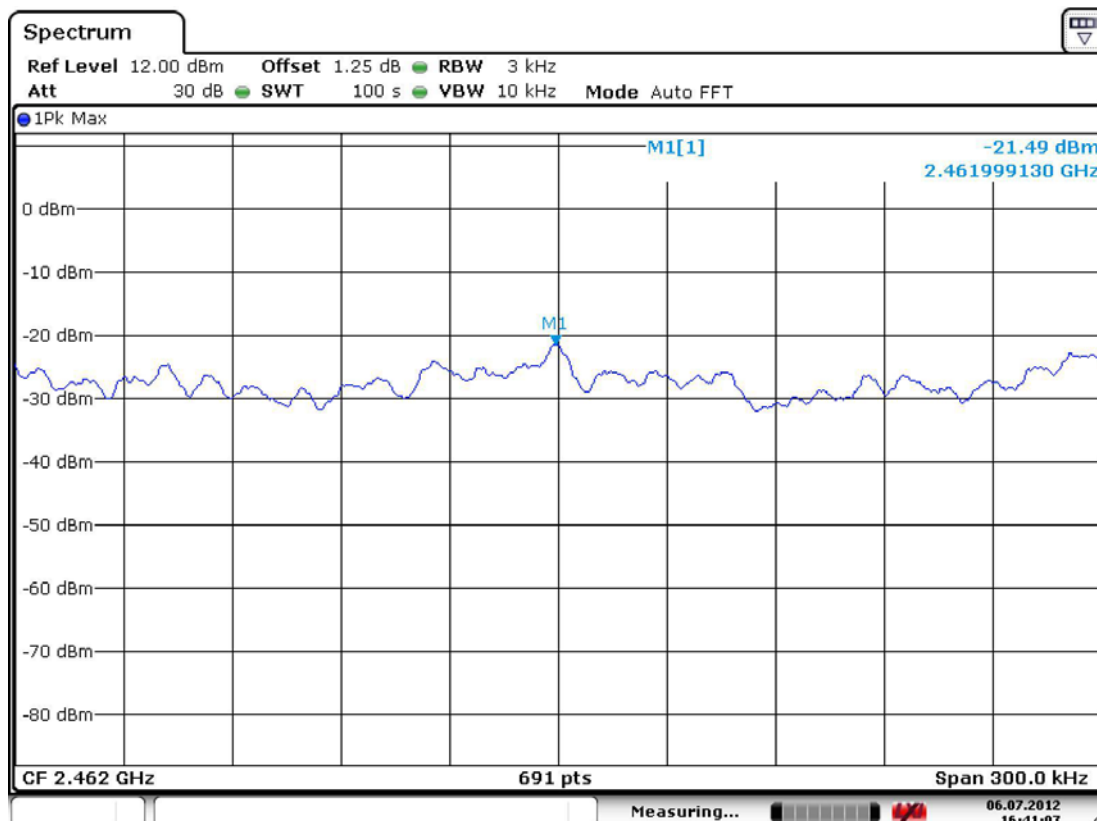
802.11g Power Density Measurement CH 1



CH 6



CH 11



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 inband spectral density is 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 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 MHz

Detector function = peak

Trace = max hold

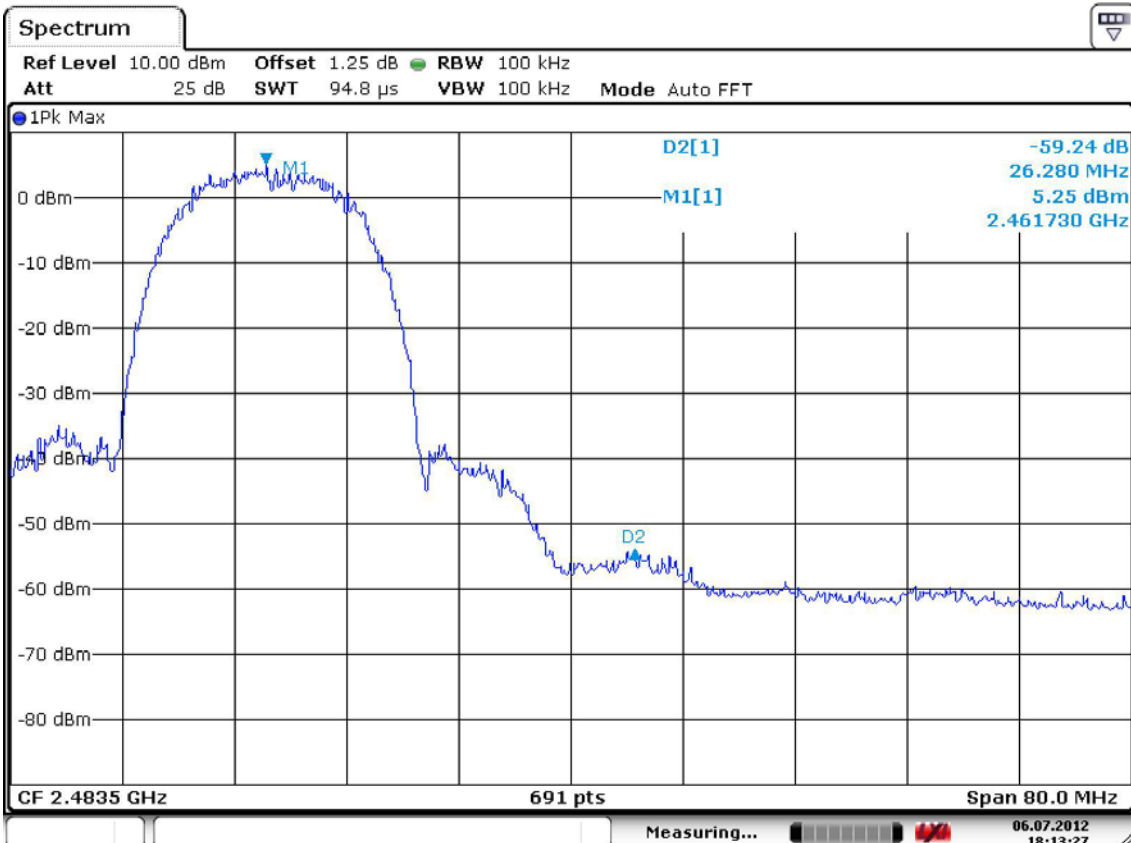
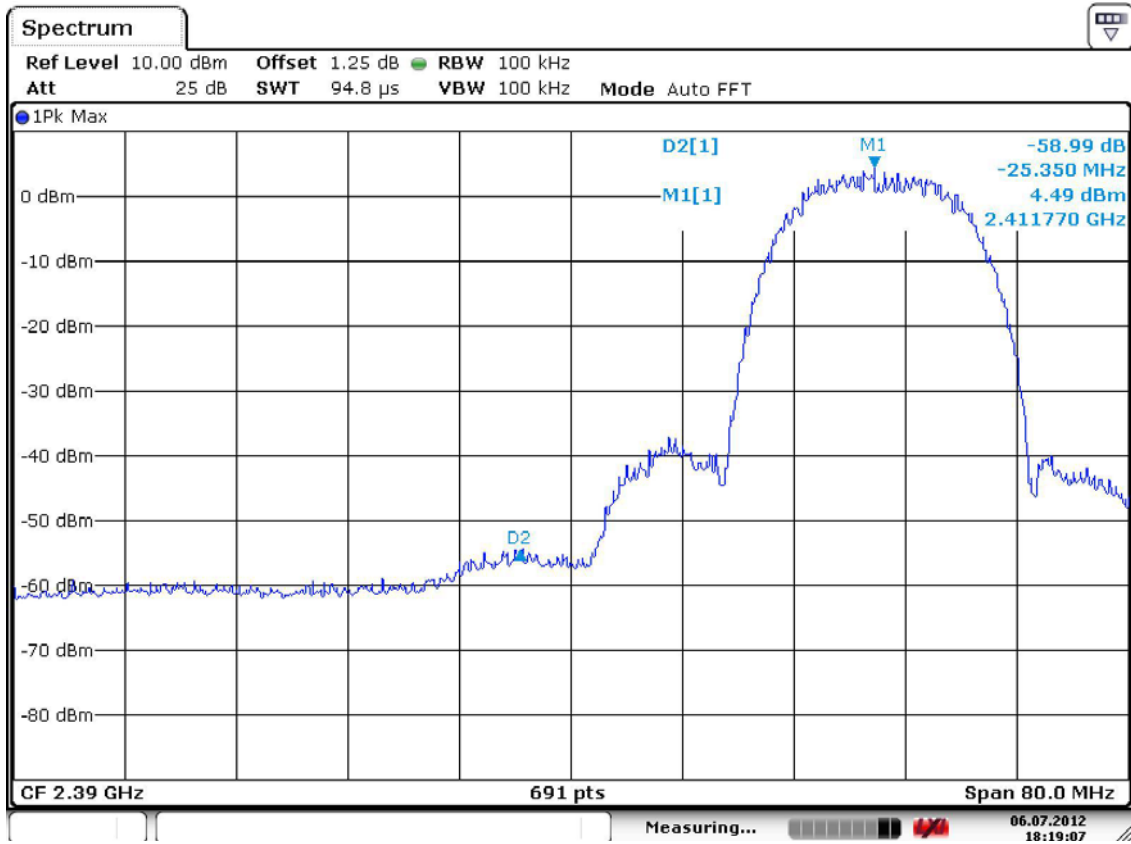
Sweep = auto

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
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802.11b Band-edge : Conducted Measurements



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

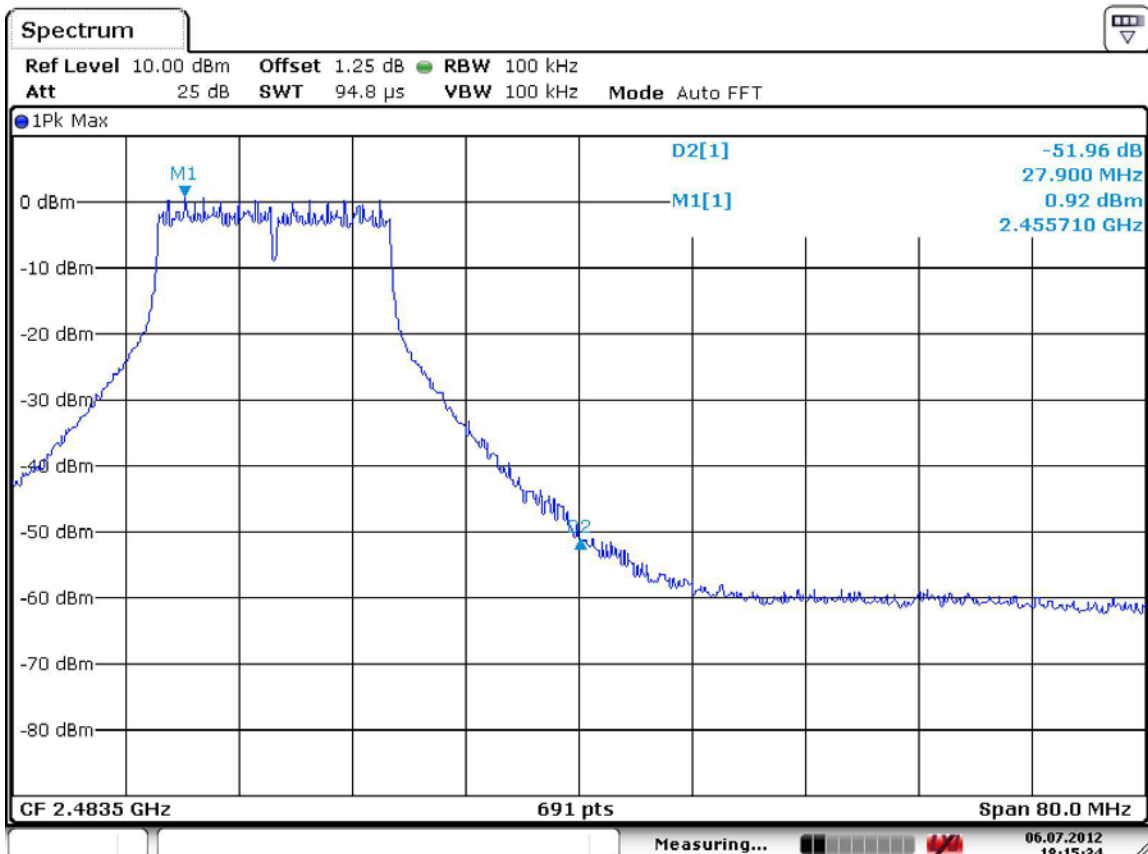
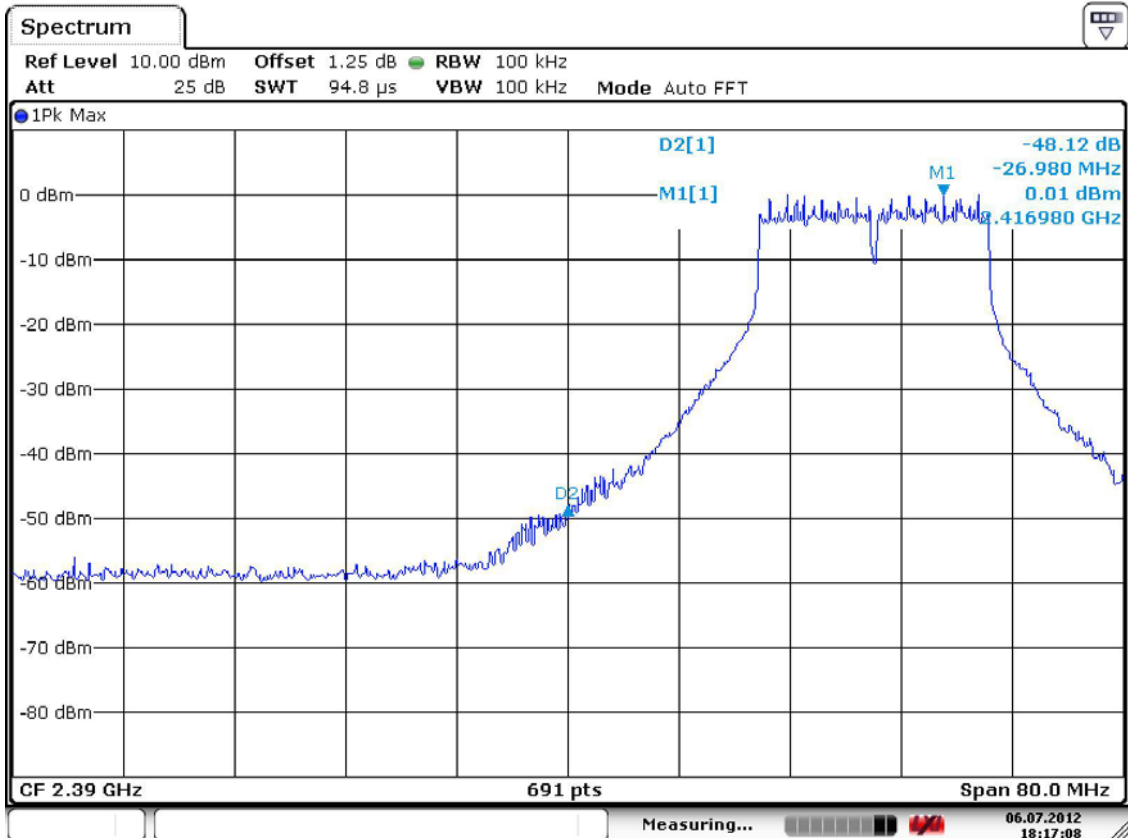
Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
2376.0	33.77	45.93	V	25.4	37.1	4.0	54.0	74.0	26.0	38.2	28.0	35.8

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

Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
2483.5	31.50	45.45	V	25.4	37.1	4.0	54.0	74.0	23.8	37.7	30.3	36.3

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

802.11g Band-edge : Conducted Measurements



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

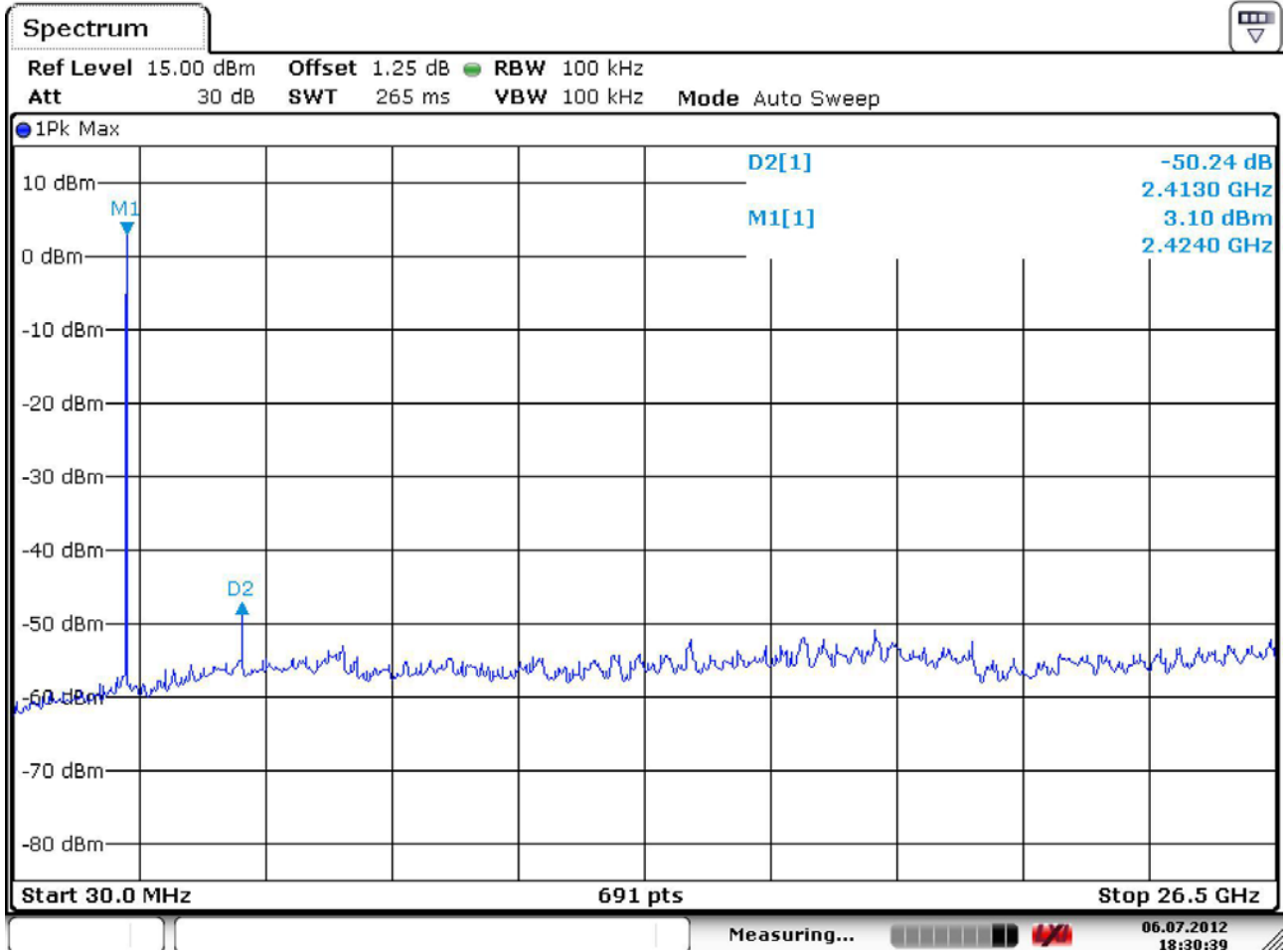
Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
2376.0	38.53	57.62	V	25.4	37.1	4.0	54.0	74.0	30.8	49.9	23.2	24.1

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

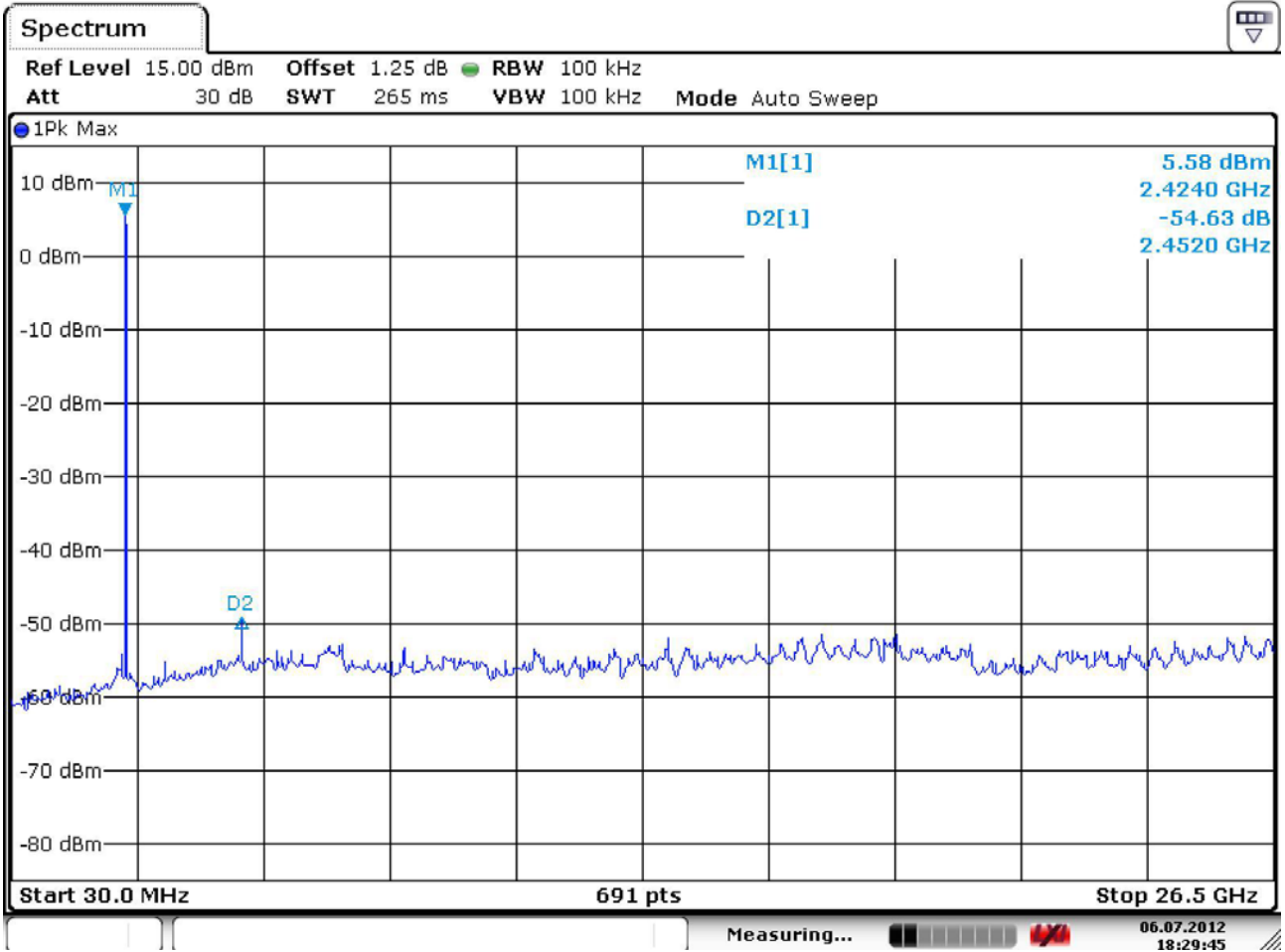
Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
2483.5	36.19	52.8	V	25.4	37.1	4.0	54.0	74.0	28.4	45.1	25.6	29.0

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

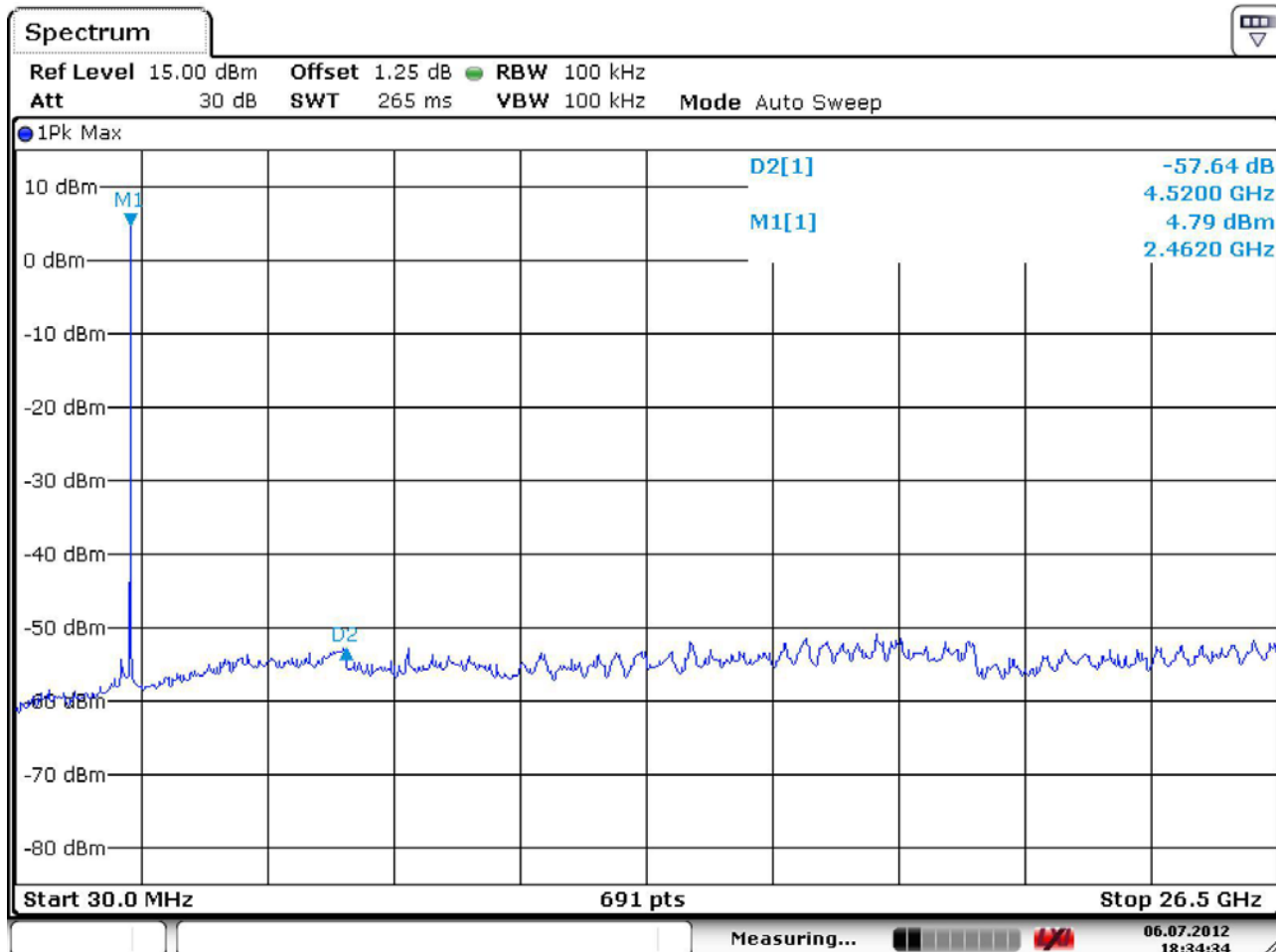
802.11b - Low channel
Frequency Range = 30 MHz ~ 10th harmonic.



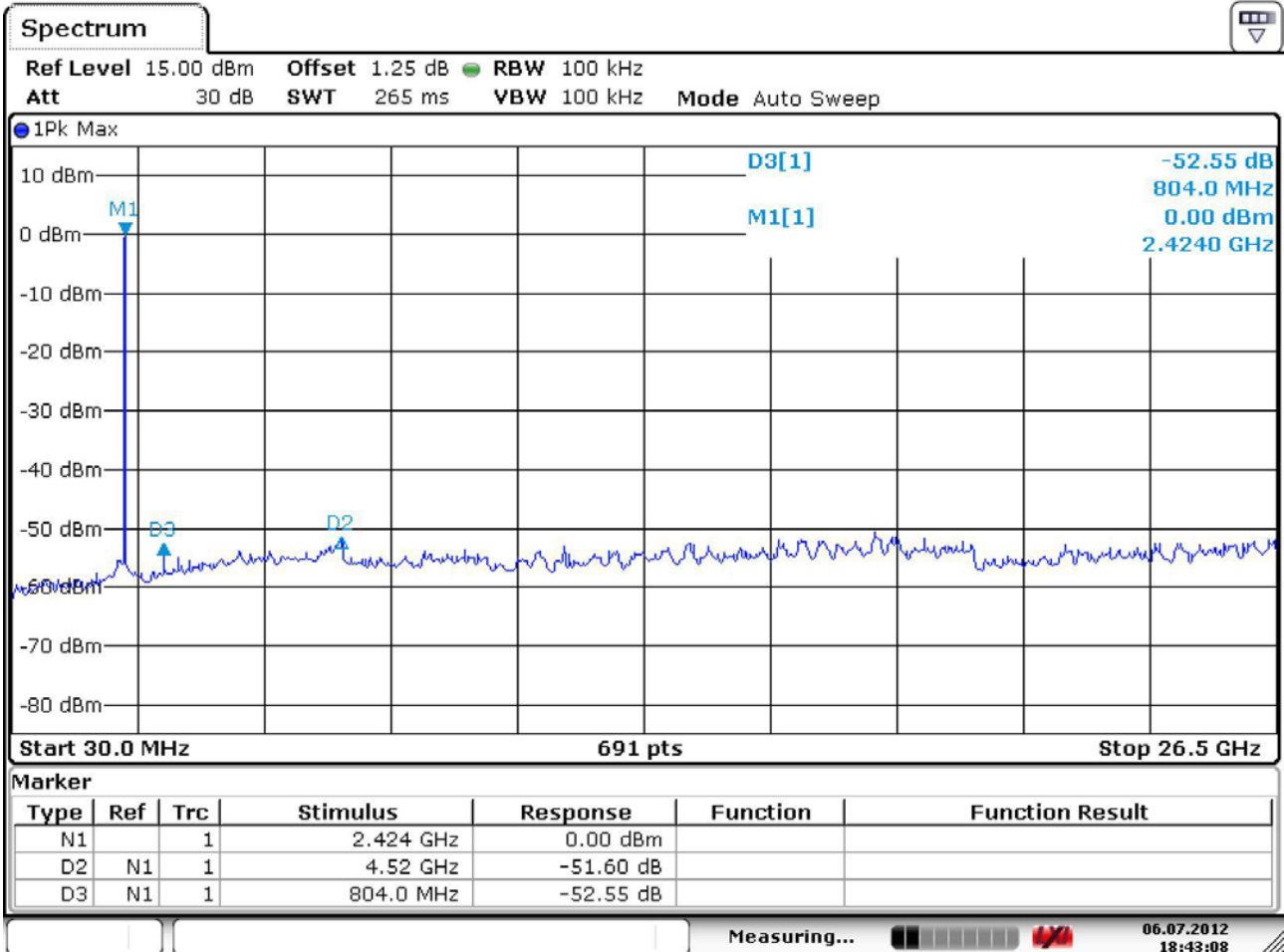
802.11b - Mid channel
Frequency Range = 30 MHz ~ 10th harmonic.



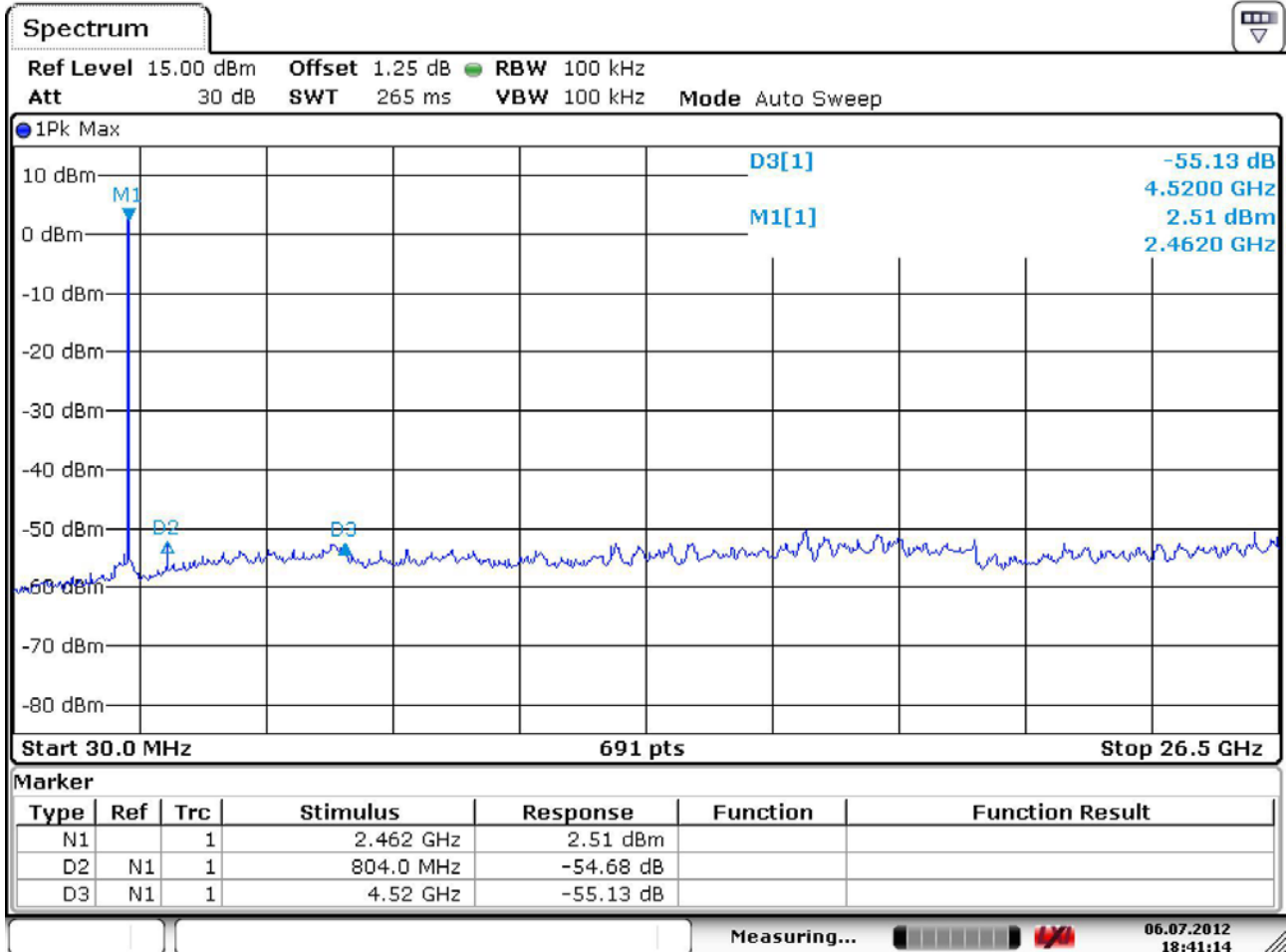
802.11b – High channel
Frequency Range = 30 MHz ~ 10th harmonic.



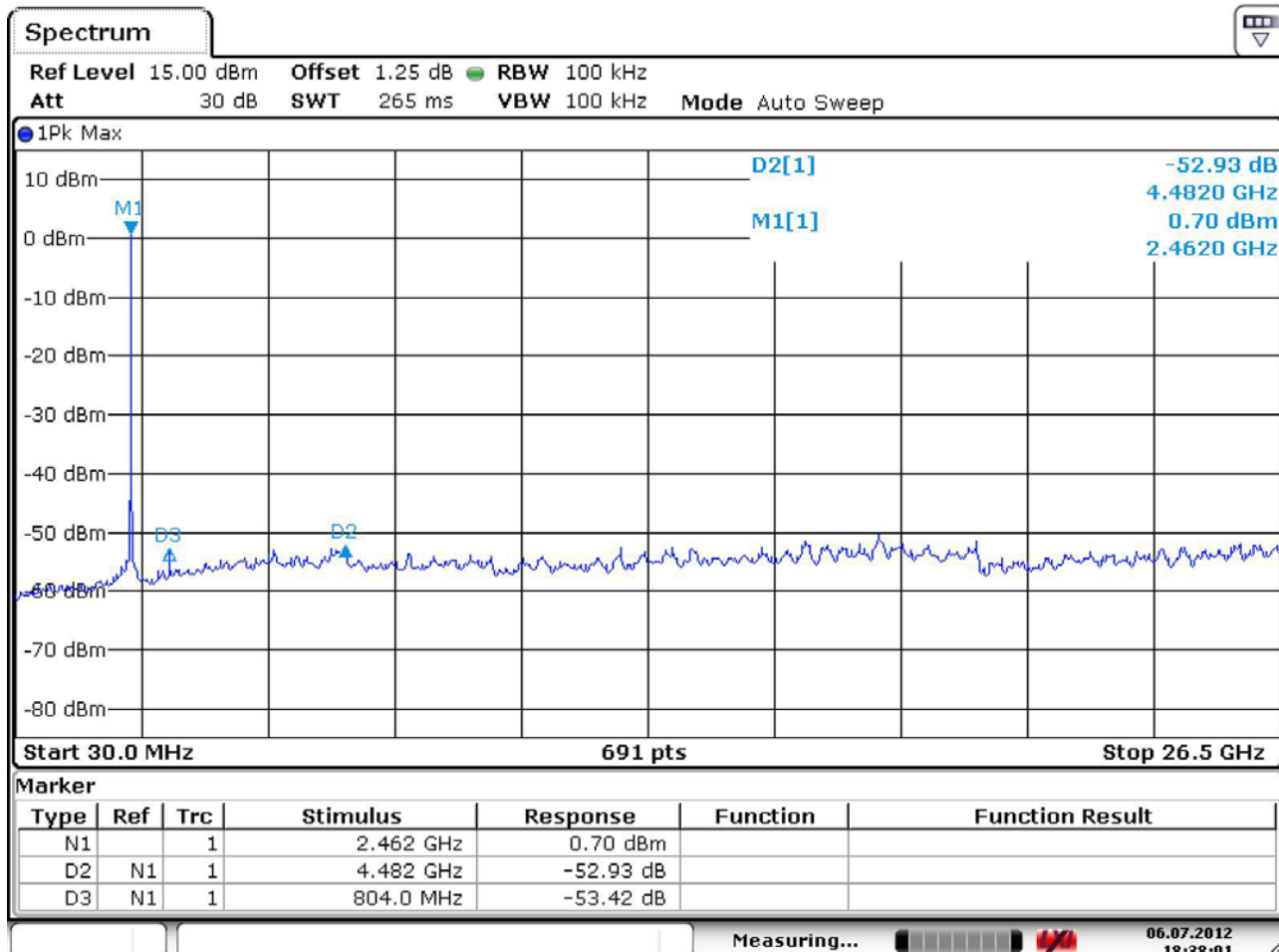
802.11g - Low channel
 Frequency Range = 30 MHz ~ 10th harmonic.



802.11g - Mid channel
Frequency Range = 30 MHz ~ 10th harmonic.



802.11g – High channel
Frequency Range = 30 MHz ~ 10th harmonic.



3.2.5 Field Strength of Harmonics

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 = 30 MHz ~ 10th harmonic.

RBW = 100 kHz (30MHz ~ 1 GHz)

VBW ≥ RBW

= 1 MHz (1 GHz ~ 10th harmonic)

Span = 100 MHz

Detector function = peak

Trace = max hold

Sweep = auto

Measurement Data: **Complies**

- See next pages for actual measured data.

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:

Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
4823.8	33.9	47.33	V	31.4	36.5	5.7	54.0	74.0	34.6	48.0	19.4	26.0
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
[MHz]	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
4884	31.92	45.41	V	31.4	36.5	5.7	54.0	74.0	32.6	46.1	21.4	27.9
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
[MHz]	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
4924	32.05	45.16	V	31.4	36.5	5.7	54.0	74.0	32.7	45.8	21.3	28.2
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

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

802.11g Measurement Data:

Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
4831	37.1	50.82	H	31.4	36.5	5.7	54.0	74.0	37.8	51.5	16.2	22.5
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
4891	41.14	55.3	V	31.4	36.5	5.7	54.0	74.0	41.8	56.0	12.2	18.0
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV/m]		Pol.	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
4918.5	35.94	50.48	V	31.4	36.5	5.7	54.0	74.0	36.6	51.2	17.4	22.9
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

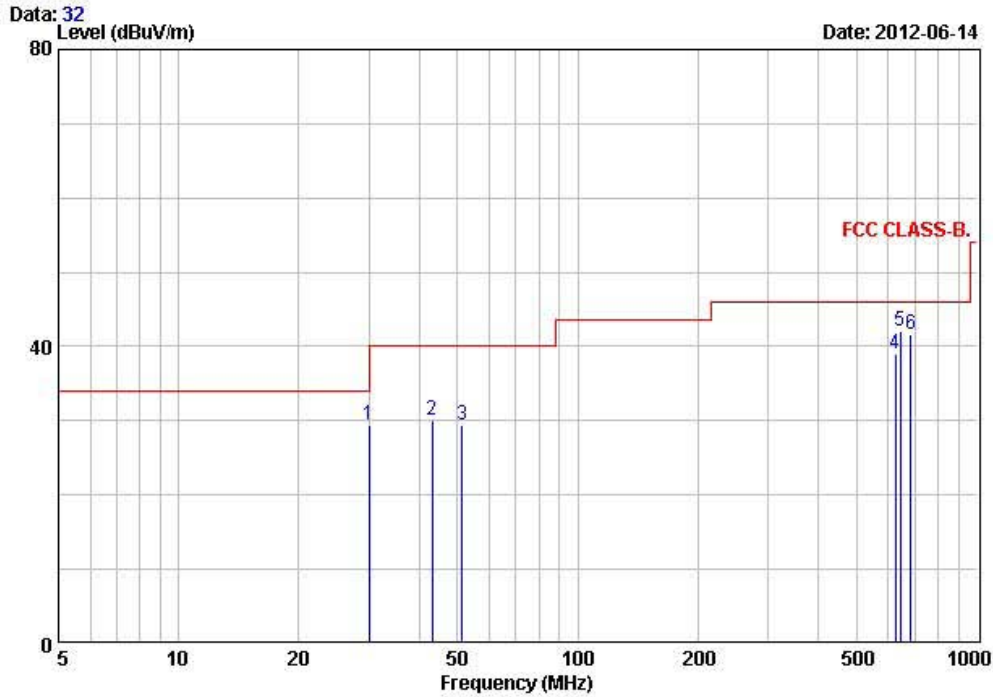
No emissions were detected at a level greater than 20dB below limit.

Radiated Emissions – Below 1GHz WORST-CASE DATA : BT Pairing + WLAN b mode



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EUT/Model No.: AT280 TEST MODE: BT+WLAN(B) mode
Temp Humi : 25 / 48 Tested by: PARK H W



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.00	46.20	-16.84	29.36	40.00	10.64	100	64	VERTICAL
2	43.26	45.90	-15.75	30.15	40.00	9.85	100	61	VERTICAL
3	51.23	44.90	-15.47	29.43	40.00	10.57	100	167	VERTICAL
4	625.00	41.60	-2.64	38.96	46.00	7.04	100	227	VERTICAL
5	642.35	44.20	-2.17	42.03	46.00	3.97	125	346	VERTICAL
6	682.42	42.70	-1.15	41.55	46.00	4.45	147	320	HORIZONTAL

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

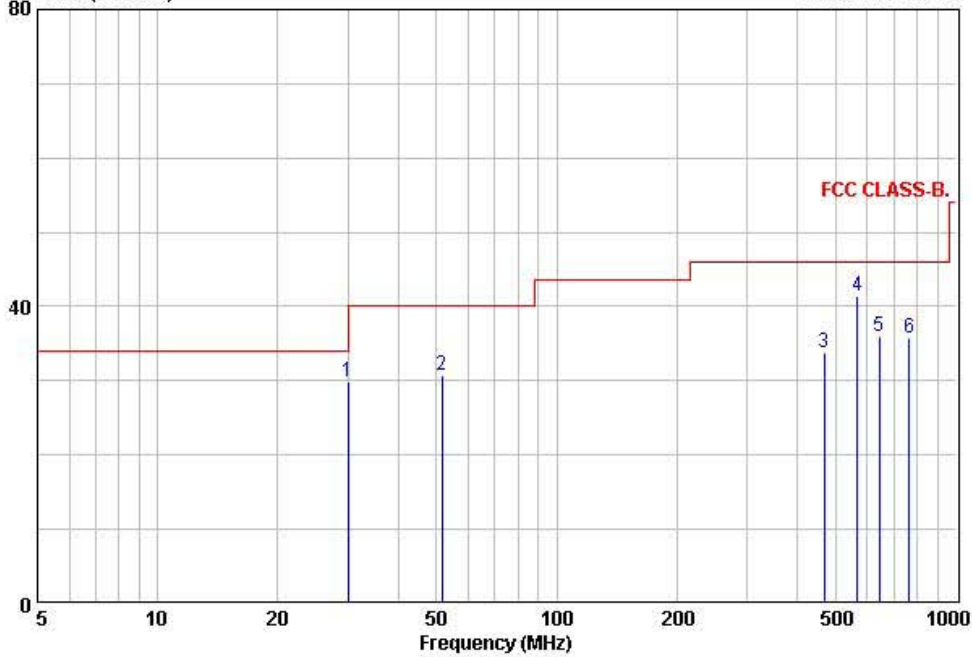
Radiated Emissions – Below 1GHz WORST-CASE DATA : BT Pairing + WLAN g mode



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EUT/Model No.: AT280 TEST MODE: BT + WLAN(G) mode
Temp Humi : 25 / 48 Tested by: PARK H W

Data: 31 Level (dBuV/m) Date: 2012-06-14



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.00	46.80	-16.84	29.96	40.00	10.04	100	184	VERTICAL
2	51.53	46.20	-15.49	30.71	40.00	9.29	100	294	VERTICAL
3	467.52	40.90	-7.06	33.84	46.00	12.16	132	79	VERTICAL
4	567.14	45.70	-4.30	41.40	46.00	4.60	167	20	HORIZONTAL
5	642.51	38.20	-2.17	36.03	46.00	9.97	142	324	HORIZONTAL
6	765.32	35.20	0.60	35.80	46.00	10.20	100	319	VERTICAL

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

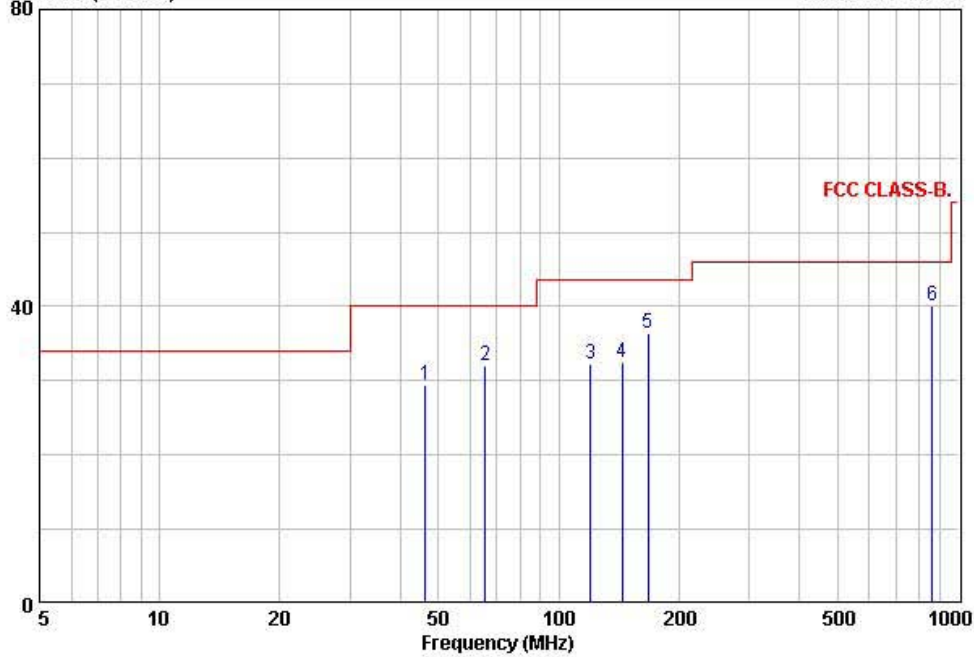
Radiated Emissions – Below 1GHz WORST-CASE DATA : PC Mode



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EUT/Model No.: AT280 TEST MODE: PC mode
Temp Humi : 25 / 48 Tested by: PARK H W

Data: 33 Level (dBuV/m) Date: 2012-06-14



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	QP	dB	cm	deg	
1	46.28	44.90	-15.50	29.40	40.00	10.60	100	186	VERTICAL
2	65.44	48.60	-16.50	32.10	40.00	7.90	100	276	VERTICAL
3	120.00	48.90	-16.72	32.18	43.50	11.32	108	351	HORIZONTAL
4	144.36	45.70	-13.19	32.51	43.50	10.99	178	207	HORIZONTAL
5	167.52	49.50	-13.20	36.30	43.50	7.20	169	20	HORIZONTAL
6	864.09	37.80	2.36	40.16	46.00	5.84	150	309	HORIZONTAL

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

3.2.8 AC Conducted Emissions

Procedure:

*The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009. The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. While the measurement, EUT had its hopping function disabled at the middle channels in line with Section 15.31(m). Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

Measurement Data: Complies

- See next pages for actual measured spectrum plots.
- No emissions were detected at a level greater than 20dB below limit.

Minimum Standard: FCC Part 15.207(a)/EN 55022

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

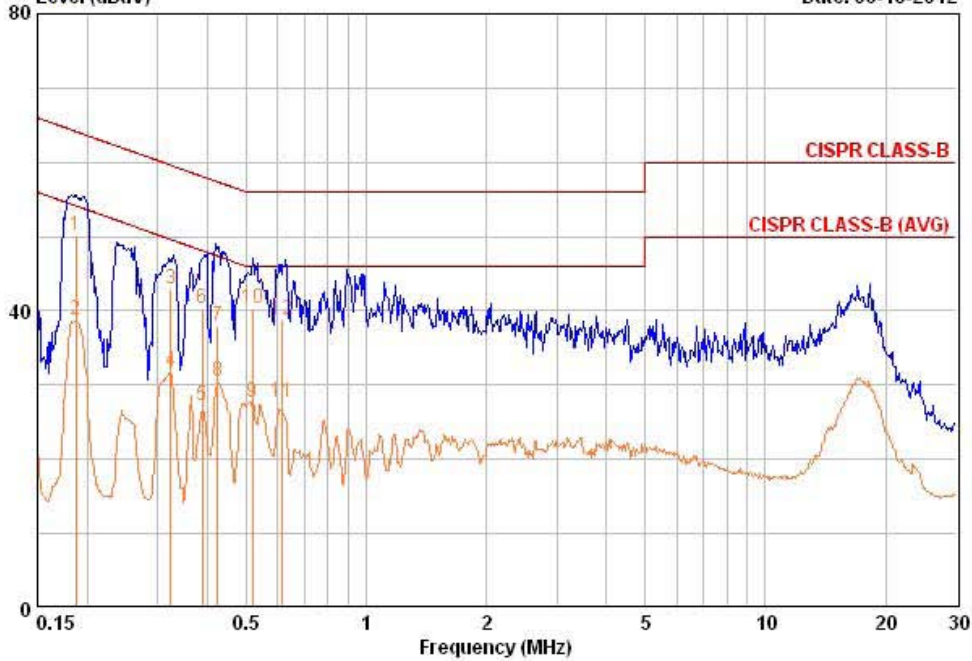
AC Conducted Emissions at BT Pairing+ WLAN b mode – Line



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EUT / Model No. : AT280	Phase : LINE
Test Mode : BT+WLAN(B) mode	Test Power : 120 / 60
Temp./Humi. : 25 / 55	Test Engineer : PARK H W

Data: 466 File: C:\Conducted Data\2012\LTA_Conduction_1206-1.EMI (476) Date: 06-18-2012



Freq MHz	RD		C.F	Result		Limit		Margin	
	QP dBuV	AV dBuV		QP dBuV	AV dBuV	QP dBuV	AV dBuV	QP dB	AV dB
0.187	40.44	29.14	9.63	50.07	38.77	64.17	54.17	14.10	15.40
0.323	33.43	22.33	9.60	43.03	31.93	59.63	49.63	16.60	17.70
0.388	30.73	17.63	9.62	40.35	27.25	58.11	48.11	17.76	20.86
0.425	28.33	20.93	9.62	37.95	30.55	57.35	47.35	19.40	16.80
0.518	30.72	18.02	9.62	40.34	27.64	56.00	46.00	15.66	18.36
0.614	29.22	18.02	9.64	38.86	27.66	56.00	46.00	17.14	18.34

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

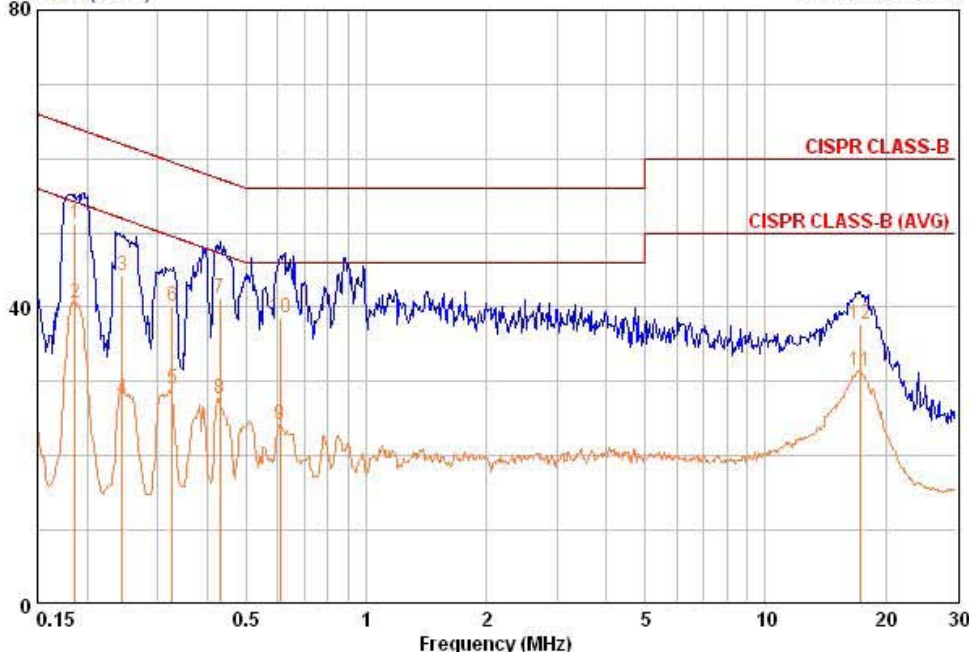
AC Conducted Emissions at BT Pairing+ WLAN b mode – Neutral



243 Jubug-ri, yangji-Myeon, Youngin-si,
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EUT / Model No. : AT280	Phase : NEUTRAL
-----	-----
Test Mode : BT+WLAN(B) mode	Test Power : 120 / 60
-----	-----
Temp./Humi. : 25 / 55	Test Engineer : PARK H W
-----	-----

Data: 464 File: C:\Conducted Data\2012\LTA_Conduction_1206-1.EMI (476) Date: 06-18-2012



Freq MHz	RD		C.F	Result		Limit		Margin	
	QP dBuV	AV dBuV		QP dBuV	AV dBuV	QP dBuV	AV dBuV	QP dB	AV dB
0.186	41.64	30.94	9.53	51.17	40.47	64.21	54.21	13.04	13.74
0.244	34.63	18.03	9.64	44.27	27.67	61.96	51.96	17.69	24.29
0.326	30.43	19.33	9.58	40.01	28.91	59.55	49.55	19.55	20.65
0.430	31.43	17.93	9.67	41.09	27.59	57.25	47.25	16.16	19.66
0.607	29.02	14.62	9.63	38.65	24.25	56.00	46.00	17.35	21.75
17.216	27.79	21.49	9.91	37.70	31.40	60.00	50.00	22.30	18.60

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

AC Conducted Emissions at BT Pairing+ WLAN g mode – Line



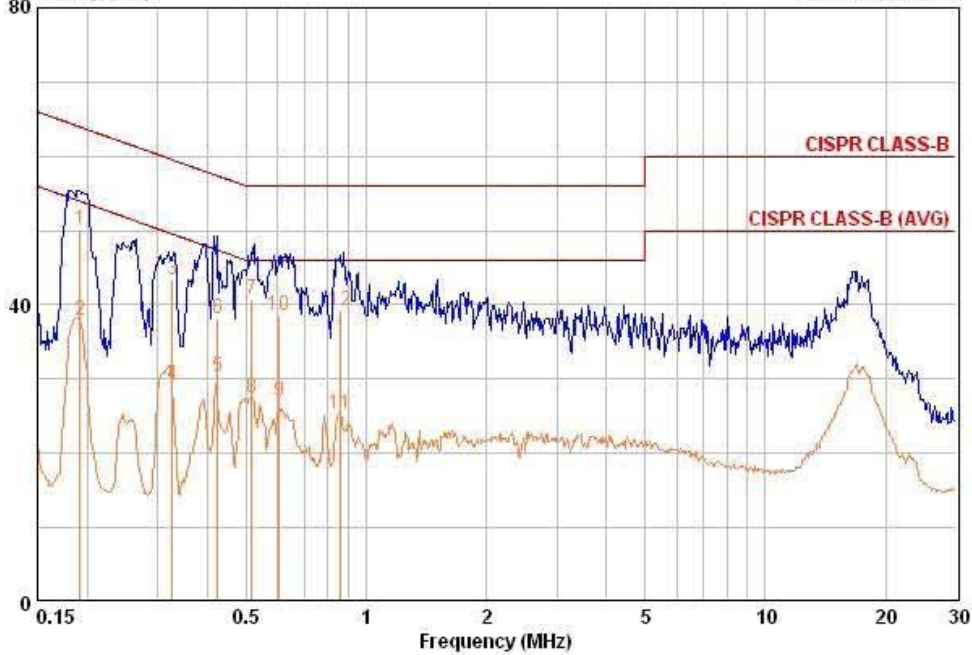
243 Jbug-ri, yangji-Myeon, Youngin-si,
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EUT / Model No. : AT280 Phase : LINE

 Test Mode : BT+WLAN(G) mode Test Power : 120 / 60

 Temp./Humi. : 25 / 55 Test Engineer : PARK H W

Data: 468 File: C:\Conducted Data\2012\LTA_Conduction_1206-1.EMI (476) Date: 06-18-2012



Freq MHz	RD		C.F	Result		Limit		Margin	
	QP dBuV	AV dBuV		QP dBuV	AV dBuV	QP dBuV	AV dBuV	QP dB	AV dB
0.192	40.44	28.34	9.62	50.06	37.96	63.95	53.95	13.89	15.99
0.326	33.73	19.53	9.60	43.33	29.13	59.55	49.55	16.23	20.43
0.424	28.43	20.73	9.62	38.05	30.35	57.37	47.37	19.32	17.02
0.517	31.12	17.92	9.62	40.74	27.54	56.00	46.00	15.26	18.46
0.605	29.02	17.32	9.64	38.66	26.96	56.00	46.00	17.34	19.04
0.864	29.53	15.53	9.69	39.22	25.22	56.00	46.00	16.78	20.78

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

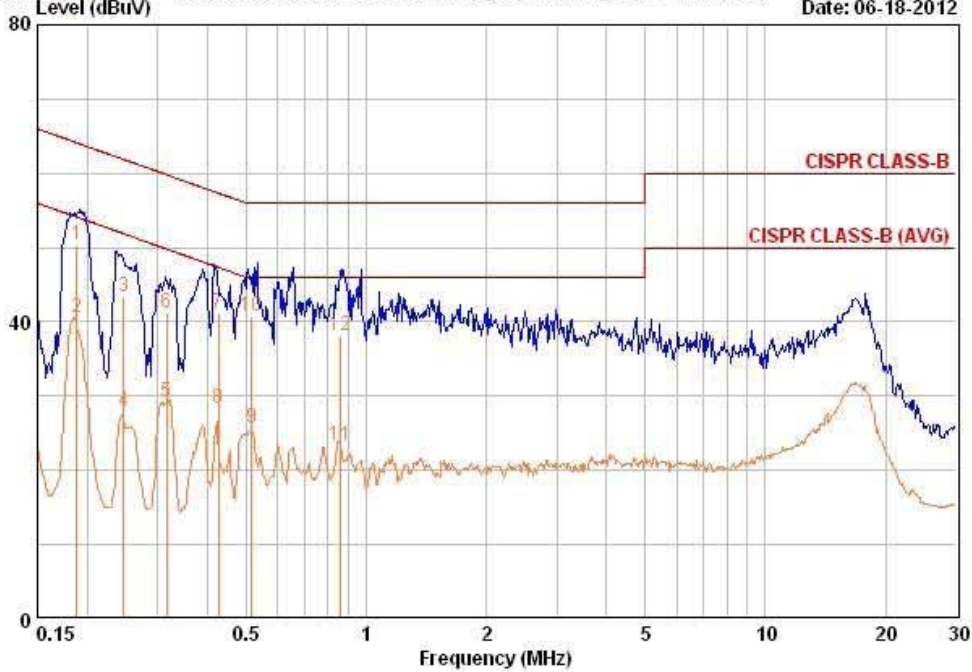
AC Conducted Emissions at BT Pairing+ WLAN g mode – Neutral



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EUT / Model No. : AT280	Phase : NEUTRAL
Test Mode : BT+WLAN(G) mode	Test Power : 120 / 60
Temp./Humi. : 25 / 55	Test Engineer : PARK H W

Data: 470 File: C:\Conducted Data\2012\LTA_Conduction_1206-1.EMI (476) Date: 06-18-2012



Freq MHz	RD		C.F	Result		Limit		Margin	
	QP dBuV	AV dBuV		QP dBuV	AV dBuV	QP dBuV	AV dBuV	QP dB	AV dB
0.188	40.74	30.94	9.53	50.27	40.47	64.12	54.12	13.85	13.65
0.247	33.83	18.33	9.65	43.48	27.98	61.86	51.86	18.38	23.88
0.316	31.73	19.73	9.57	41.30	29.30	59.81	49.81	18.52	20.52
0.426	31.63	18.63	9.67	41.29	28.29	57.33	47.33	16.04	19.04
0.515	31.02	16.12	9.69	40.71	25.81	56.00	46.00	15.29	20.19
0.862	28.63	13.63	9.62	38.24	23.24	56.00	46.00	17.76	22.76

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

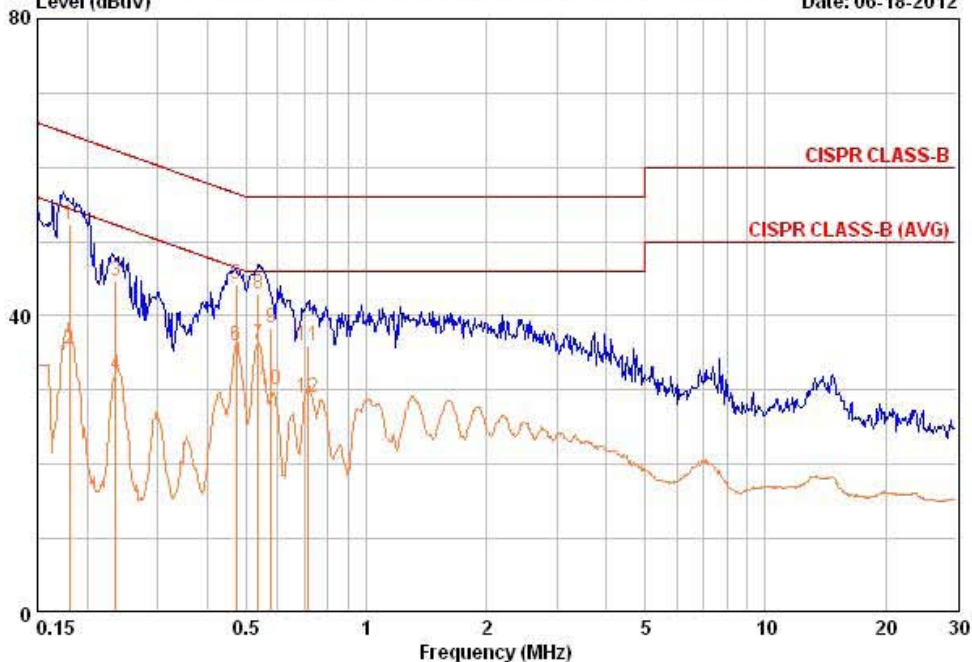
AC Conducted Emissions at PC mode – Line



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EUT / Model No. : AT280	Phase : LINE
Test Mode : PC mode	Test Power : 120 / 60
Temp./Humi. : 25 / 55	Test Engineer : PARK H W

Data: 460 Level (dBuV) File: C:\Conducted Data\2012\LTA_Conduction_1206-1.EMI (476) Date: 06-18-2012



Freq MHz	RD		C.F	Result		Limit		Margin	
	QP dBuV	AV dBuV		QP dBuV	AV dBuV	QP dBuV	AV dBuV	QP dB	AV dB
0.180	42.64	25.94	9.63	52.27	35.57	64.49	54.49	12.21	18.91
0.235	35.13	22.53	9.58	44.71	32.11	62.27	52.27	17.56	20.16
0.472	34.62	26.32	9.61	44.24	35.94	56.48	46.48	12.24	10.54
0.536	33.42	26.62	9.62	43.04	36.24	56.00	46.00	12.96	9.76
0.577	28.72	20.42	9.63	38.35	30.05	56.00	46.00	17.65	15.95
0.714	26.22	19.32	9.66	35.88	28.98	56.00	46.00	20.12	17.02

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

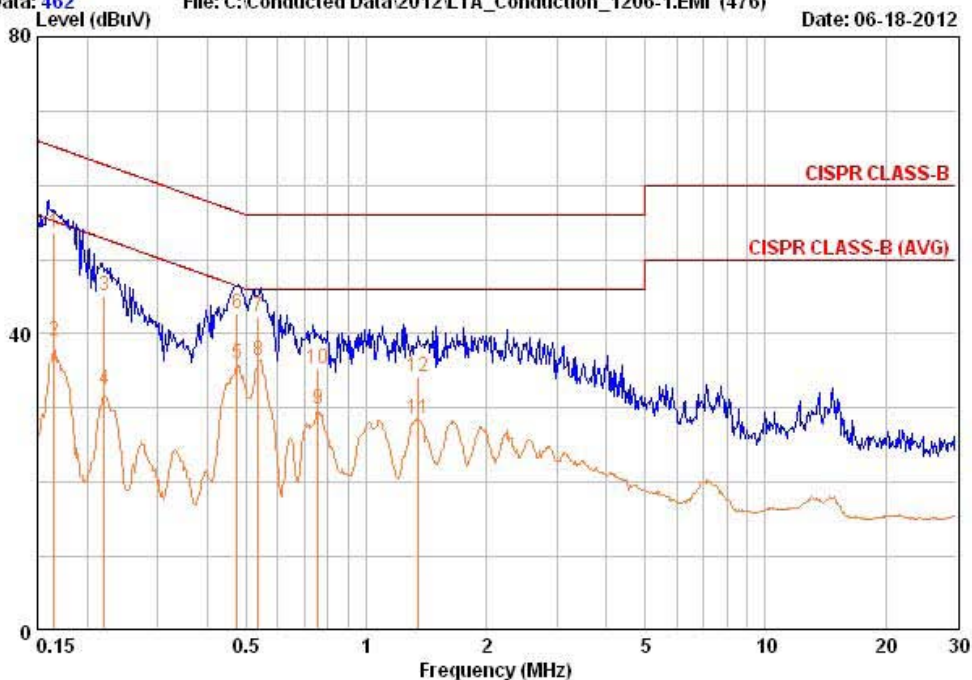
AC Conducted Emissions at PC mode – Neutral



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EUT / Model No. : AT280	Phase : NEUTRAL
Test Mode : PC mode	Test Power : 120 / 60
Temp./Humi. : 25 / 55	Test Engineer : PARK H W

Data: 462 File: C:\Conducted Data\2012\LTA_Conduction_1206-1.EMI (476) Date: 06-18-2012



Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.165	44.04	29.34	9.57	53.61	38.91	65.21	55.21	11.60	16.30
0.221	35.64	22.94	9.58	45.21	32.51	62.78	52.78	17.57	20.27
0.475	33.02	26.32	9.69	42.71	36.01	56.43	46.43	13.71	10.41
0.536	32.62	26.72	9.68	42.30	36.40	56.00	46.00	13.70	9.60
0.758	25.62	20.22	9.59	35.22	29.82	56.00	46.00	20.78	16.18
1.346	24.64	18.84	9.65	34.29	28.49	56.00	46.00	21.71	17.51

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

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	2012-01-10
2	Signal Generator (~3.2GHz)	8648C	3623A02597	HP	1 year	2012-03-26
3	Signal Generator (1~20GHz)	83711B	US34490456	HP	1 year	2012-03-26
4	Attenuator (3dB)	8491A	37822	HP	2 year	2010-10-08
5	Attenuator (10dB)	8491A	63196	HP	2 year	2010-10-08
6	Attenuator (30dB)	8498A	3318A10929	HP	2 year	2011-01-05
7	Test Receiver (~30MHz)	ESHS10	828404/009	R&S	1 year	2012-03-26
8	EMI Test Receiver (~1GHz)	ESCI7	100722	R&S	1 year	2011-10-07
9	RF Amplifier (~1.3GHz)	8447D	2439A09058	HP	2 year	2010-10-08
10	RF Amplifier (1~18GHz)	8449B	3008A02126	HP	2 year	2012-03-26
11	Horn Antenna (1~18GHz)	BBHA 9120D	9120D122	SCHWARZBECK	2 year	2010-12-24
12	Horn Antenna (18 ~ 40GHz)	SAS-574	154	Schwarzbeck	2 year	2010-11-25
13	Horn Antenna (18 ~ 40GHz)	SAS-574	155	Schwarzbeck	2 year	2010-11-25
14	TRILOG Antenna	VULB 9160	9160-3172	SCHWARZBECK	2 year	2010-10-07
15	Dipole Antenna	VHA9103	2116	SCHWARZBECK	2 year	2010-11-25
16	Dipole Antenna	VHA9103	2117	SCHWARZBECK	2 year	2010-11-25
17	Dipole Antenna	VHA9105	2261	SCHWARZBECK	2 year	2010-11-25
18	Dipole Antenna	VHA9105	2262	SCHWARZBECK	2 year	2010-11-25
19	Hygro-Thermograph	THB-36	0041557-01	ISUZU	2 year	2013-04-26
20	Splitter (SMA)	ZFSC-2-2500	SF617800326	Mini-Circuits	-	-
21	Power Divider	11636A	6243	HP	2 year	2010-10-08
22	DC Power Supply	6622A	3448A03079	HP	-	-
23	Frequency Counter	5342A	2826A12411	HP	1 year	2012-03-26
24	Power Meter	EPM-441A	GB32481702	HP	1 year	2012-03-26
25	Power Sensor	8481A	US41030291	HP	1 year	2011-10-07
26	Audio Analyzer	8903B	3729A18901	HP	1 year	2011-10-07
27	Modulation Analyzer	8901B	3749A05878	HP	1 year	2011-10-07
28	TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	1 year	2011-10-07
29	Stop Watch	HS-3	601Q09R	CASIO	2 year	2012-03-26
30	LISN	ENV216	100408	R&S	1 year	2011-10-07
31	Highpass Filter	WHKX1.5/15G-10SS	74	Wainwright Instruments	-	-
32	Highpass Filter	WHKX3.0/18G-10SS	118	Wainwright Instruments	-	-
33	Loop Antenna	FMZB 1516	151602/94	SCHWARZBECK	2 year	2011-04-05