

EMC TEST REPORT

Report No. : TS11020011-EME

Model No. : Go Wi-Fi! P322

Issued Date : Aug. 03, 2011

**Applicant: Socket Mobile, Inc.
39700 Eureka Drive, Newark, CA 94560, USA**

**Test Method/
Standard: FCC Part 15 Subpart E Section §15.207、§15.209、§15.407
and ANSI C63.4/2003.**

**Test By: Intertek Testing Services Taiwan Ltd.
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Summary of Tests

Test Item	Reference	Results
Peak output power test	15.407 (a)(1)/(2)/(3) DA 02-2138	Pass
Power Spectrum Density test	15.407 (a)(1)/(2)/(3) DA 02-2138	Pass
Peak excursion to average ratio test	15.407(a)(6) DA 02-2138	Pass
Radiated spurious emission test	15.407(b)(1)/(2)/(3)/(6), 15.209	Pass
Additional provisions	15.215(c)	Pass
AC line conducted emission test	15.407(b)(6) 15.207	Pass



1. General information

1.1 Identification of the EUT

Product:	802.11a/b/g SDIO Card
Model No.:	Go Wi-Fi! P322
Nominal Channel Bandwidth:	5 MHz
Operating Frequency:	<ol style="list-style-type: none">1. 5250 MHz ~ 5350 MHz2. 5470 MHz ~ 5725 MHz3. 5725 MHz ~ 5805 MHz
Channel Number:	<ol style="list-style-type: none">1. 4 channels for 5250 MHz ~ 5350 MHz for 802.11a2. 11 channels for 5470 MHz ~ 5725 MHz for 802.11a3. 4 channels for 5725 MHz ~ 5805 MHz for 802.11a
Rated Power:	DC 3.3 V
Power Cord:	N/A
Data Cable:	N/A
Sample Received:	Apr. 15, 2011
Test Date(s):	Apr. 15, 2011 ~ Aug. 03, 2011
Note 1:	This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
Note 2:	When determining the test conclusion, the Measurement Uncertainty of test has been considered.



1.2 Additional information about the EUT

The EUT is an 802.11a/b/g SDIO Card, and was defined as information technology equipment.

For more detail features, please refer to User's manual as file name "Installation guide.pdf".

1.3 Antenna description

The EUT uses a permanently connected antenna.

Antenna Gain : 1.2 dBi
Antenna Type : Printed PCB antenna
Connector Type : N/A

1.4 Peripherals equipment

Peripherals	Brand	Model No.	Serial No.	FCC ID
PC	DELL	GX-520	8WJK1S	N/A
Monitor	BenQ	FP556MS	N/A	N/A
Keyboard	Logitech	Y-BF37	MCT32000524	DoC
Mouse	IBM	M-SAU-IBM6	23-070576	N/A
Printer	HP	DeskJet 400	TH86I1K30S	B94C2642X
Modem	Dynalink	V1456VQE	00V230A00116311	DoC
PCI Card	N/A	M01-SDADT-X20	N/A	N/A

2. Test specifications

2.1 Test standard

The EUT was performed according to the procedures in FCC Part 15 Subpart E Section §15.207、§15.209、§15.407、DA 02-2138 and ANSI C63.4/2003, method of measurement: reference FCC document: KDB 913591.

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band was all meet limit requirement, thus we evaluate the EUT pass the specified test.

The AC power conducted emissions was invested over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz (15.207 paragraph).

Radiated emissions were invested cover the frequency range from 30 MHz to 1000 MHz using a receiver RBW of 120 kHz record QP reading, and the frequency over 1 GHz using a spectrum analyzer RBW of 1 MHz and 10 Hz VBW record Average reading (15.209 paragraph), the Peak reading recorded also on the report.

The EUT setup configurations please refer to the photo of test configuration in item.



2.2 Operation mode

The EUT was supplied with 3.3 Vdc from PCI Card (Test voltage: 120Vac, 60Hz).

The EUT was inserted into the PCI Card installed on the PC, and it was run in Tx mode that was controlled by “art” program. The EUT was transmitted continuously during the test.

The EUT channel ranges have 5250 MHz ~ 5350 MHz, 5470 MHz ~ 57250 MHz and 5725 MHz ~ 5805 MHz. These testing channels have channel 52 (5260 MHz), channel 60 (5300 MHz), channel 64 (5320 MHz), channel 100 (5500 MHz), channel 116 (5580 MHz), channel 140 (5700 MHz), channel 149 (5745 MHz), channel 157 (5785 MHz) and channel 161 (5805 MHz).

The final tests were executed under these conditions recorded in this report individually. Please refer the details below:

802.11a channel 60	
Data rate (Mbps)	PK(dBm)
6	22.22
9	22.13
12	22.06
18	22.01
24	21.93
36	21.86
48	21.61
54	21.55

802.11a channel 116	
Data rate (Mbps)	PK(dBm)
6	21.64
9	21.62
12	21.51
18	21.49
24	21.35
36	21.31
48	21.22
54	21.14

802.11a channel 157	
Data rate (Mbps)	PK(dBm)
6	21.01
9	20.97
12	20.81
18	20.79
24	20.72
36	20.64
48	20.43
54	20.41

3. Peak Output Power test (FCC 15.407)

3.1 Operating environment

Temperature: 23 °C
Relative Humidity: 52 %
Atmospheric Pressure: 1008 hPa

3.2 Test setup & procedure

Method of Measurement:

The power output per FCC §15.407(a) was measured on the EUT using a 50 ohm SMA cable connected to wideband peak power meter via power sensor which the video bandwidth can be up to 65MHz. Power was read directly and cable loss correction (2.0dB) was added to the reading to obtain power at the EUT antenna terminals.

3.3 Limit

Operating Frequency (MHz)	Output power limit
5150~5250	< 50 mW (17 dBm) or 4 dBm+10 log B
5250~5350, 5470~5725	< 250 mW (24 dBm) or 11 dBm+10 log B
5725~5825	< 1 W (30 dBm) or 17 dBm+10 log B

Remark: where B is the -26 dB emission bandwidth in MHz.



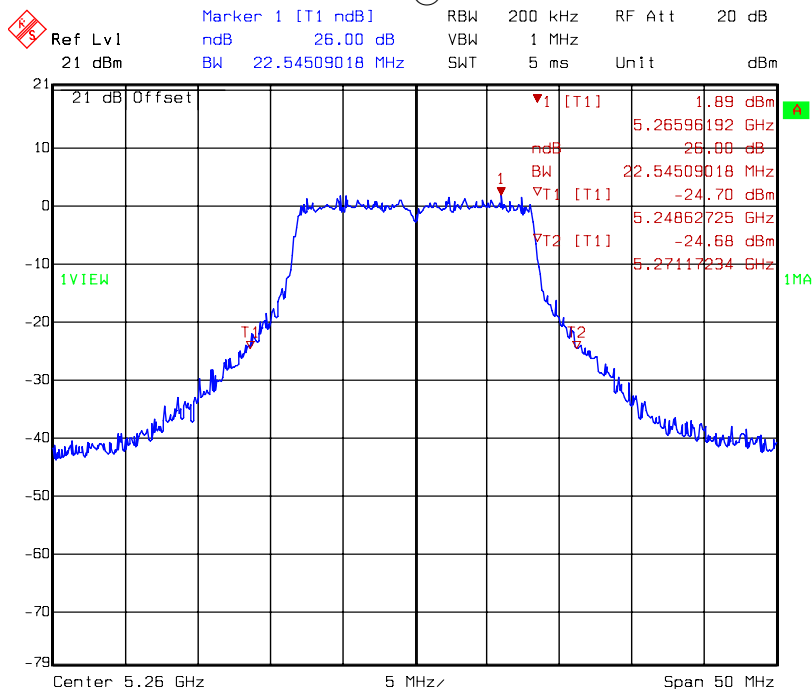
3.4 Measured data of Maximum Output Power test results

Single Tx

Mode	Channel	Data Rate (Mbps)	Reading	Output Power		Limit (dBm)	Margin (dB)
			(dBm)	(dBm)	(mW)		
802.11a	52	6	20.53	22.03	159.59	24	-1.97
	60		20.72	22.22	166.72	24	-1.78
	64		20.62	22.12	162.93	24	-1.88
	100		20.26	21.76	149.97	24	-2.24
	116		20.14	21.64	145.88	24	-2.36
	140		19.66	21.16	130.62	24	-2.84
	149		19.49	20.99	125.60	30	-9.01
	157		19.51	21.01	126.18	30	-8.99
	161		19.74	21.24	133.05	30	-8.76

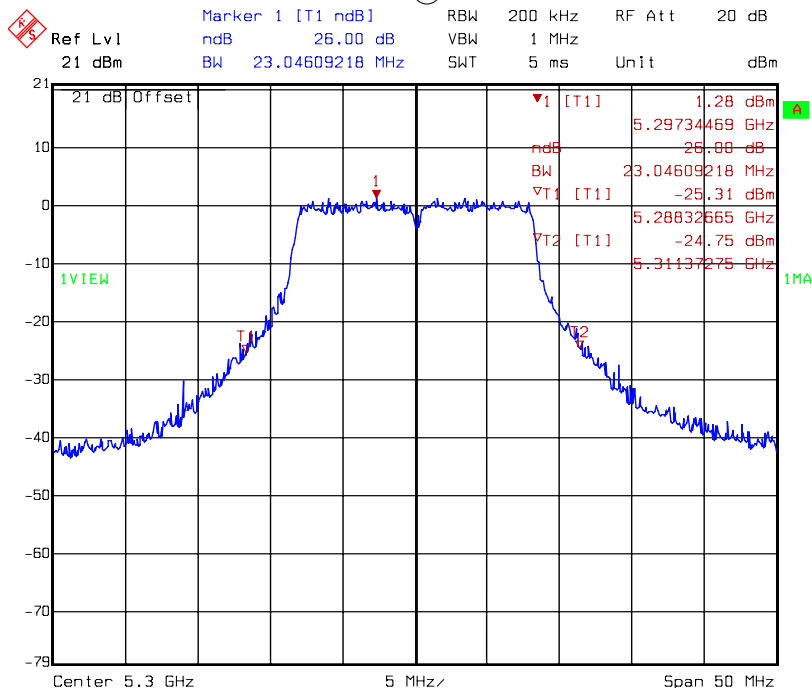
Please see the plots as next page.

Chain 0: 26 dB Bandwidth @ 802.11a mode channel 52



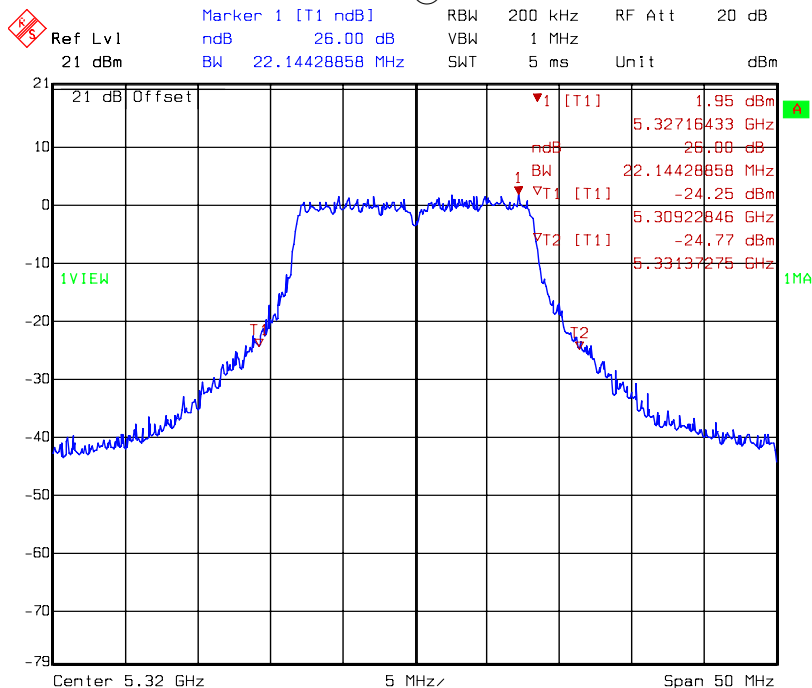
Title: 26dB Bandwidth, TS11020011-EME
 Comment A: 11a 5260 ch52 Chain0
 Date: 19.APR.2011 16:18:27

Chain 0: 26 dB Bandwidth @ 802.11a mode channel 60



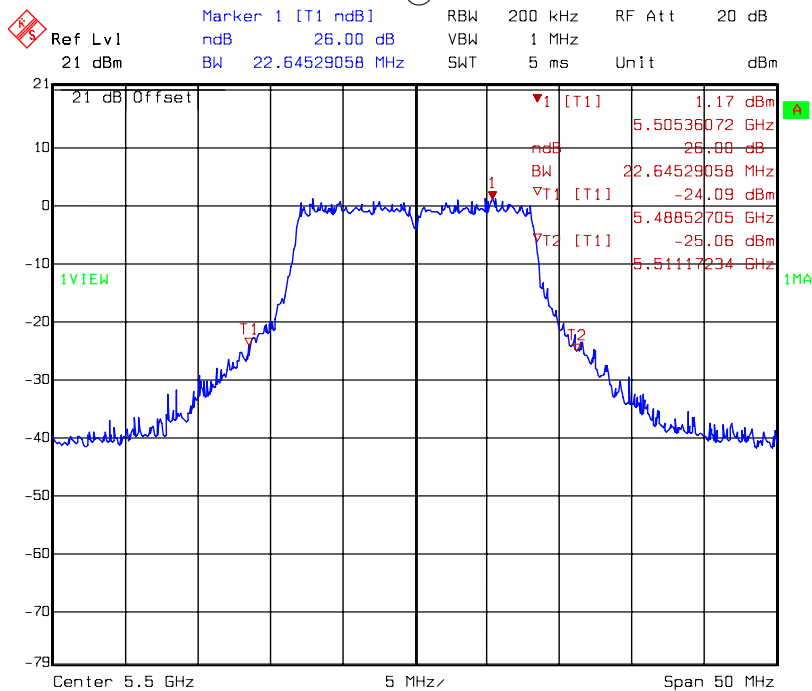
Title: 26dB Bandwidth, TS11020011-EME
 Comment A: 11a 5300 ch60 Chain0
 Date: 19.APR.2011 16:16:52

Chain 0: 26 dB Bandwidth @ 802.11a mode channel 64



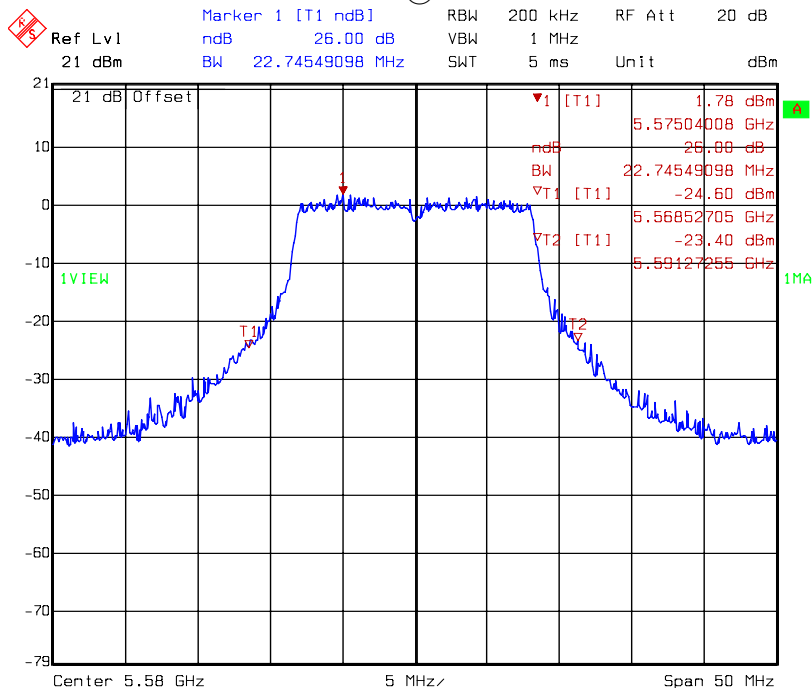
Title: 26dB Bandwidth,TS11020011-EME
 Comment A: 11a 5320 ch64 Chain0
 Date: 19.APR.2011 16:15:24

Chain 0: 26 dB Bandwidth @ 802.11a mode channel 100



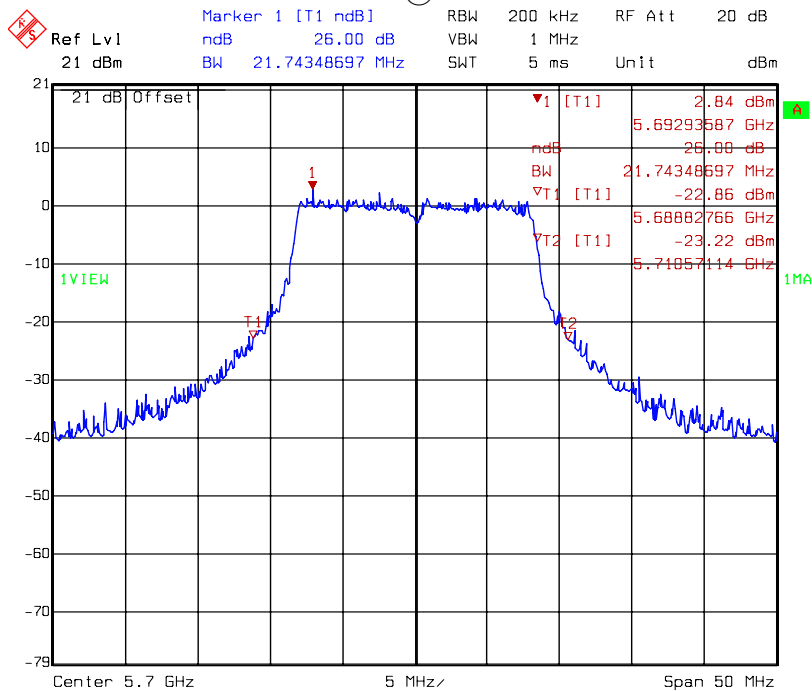
Title: 26dB Bandwidth,TS11020011-EME
 Comment A: 11a 5500 ch100 Chain0
 Date: 19.APR.2011 16:13:25

Chain 0: 26 dB Bandwidth @ 802.11a mode channel 116



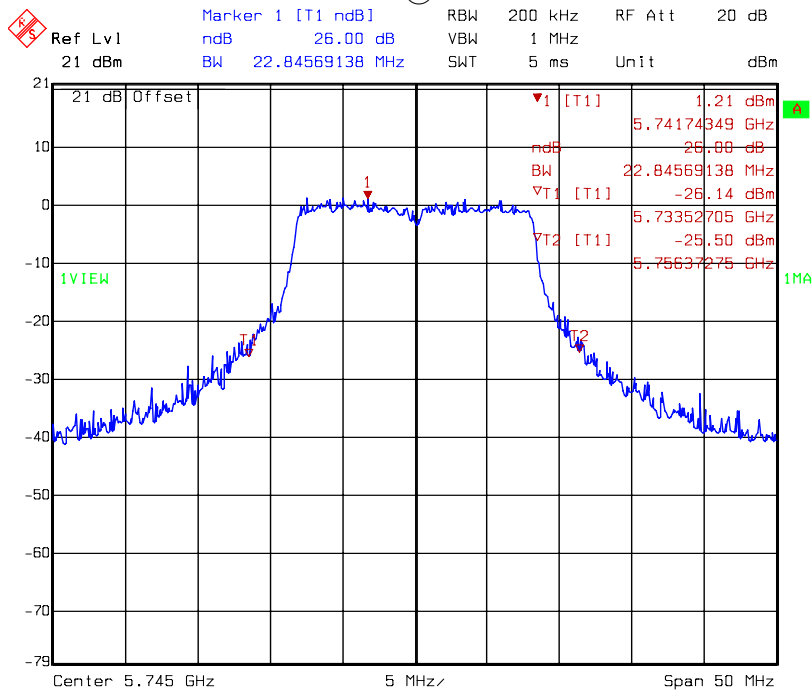
Title: 26dB Bandwidth,TS11020011-EME
 Comment A: 11a 5580 ch116 Chain0
 Date: 19.APR.2011 16:11:33

Chain 0: 26 dB Bandwidth @ 802.11a mode channel 140



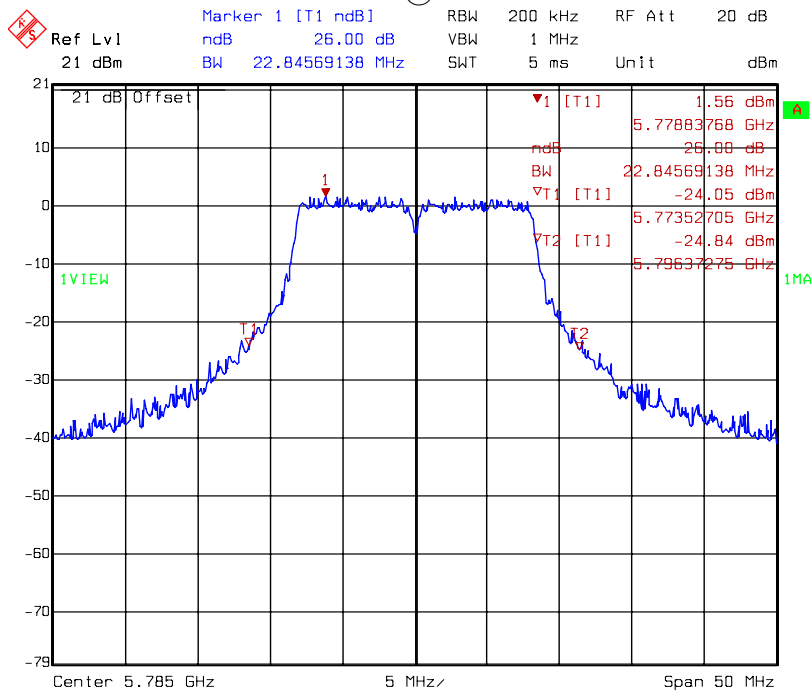
Title: 26dB Bandwidth,TS11020011-EME
 Comment A: 11a 5700 ch140 Chain0
 Date: 19.APR.2011 16:10:48

Chain 0: 26 dB Bandwidth @ 802.11a mode channel 149



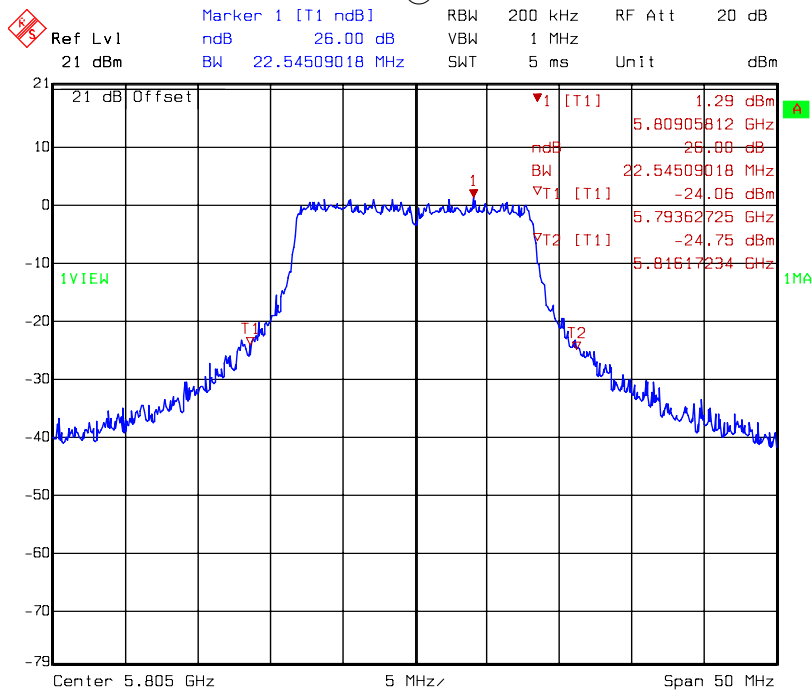
Title: 26dB Bandwidth,TS11020011-EME
 Comment A: 11a 5745 ch149 Chain0
 Date: 19.APR.2011 16:10:01

Chain 0: 26 dB Bandwidth @ 802.11a mode channel 157



Title: 26dB Bandwidth,TS11020011-EME
 Comment A: 11a 5785 ch157 Chain0
 Date: 19.APR.2011 16:02:16

Chain 0: 26 dB Bandwidth @ 802.11a mode channel 161



Title: 26dB Bandwidth,
 Comment A: 11a 5805 ch161 Chain0
 Date: 26.JUL.2011 14:34:45

4. Power Spectrum Density test (FCC 15.407)

4.1 Operating environment

Temperature: 23 °C
Relative Humidity: 52 %
Atmospheric Pressure: 1008 hPa

4.2 Test setup & procedure

Method of Measurement:

The power spectrum density per FCC §15.407(a) was measured from the antenna port of the EUT using a 50 ohm spectrum analyzer with the resolution bandwidth set at 1MHz, the video bandwidth set at 3 MHz. Power spectrum density was read directly and cable loss (2.0 dB)/external attenuator (20 dB) correction was added to the reading to obtain power at the EUT antenna terminals.

4.3 Limitation

Operating Frequency (MHz)	Power density limit
5150~5250	< 4 dBm/MHz
5250~5350, 5470~5725	< 11 dBm/MHz
5725~5825	< 17 dBm/MHz



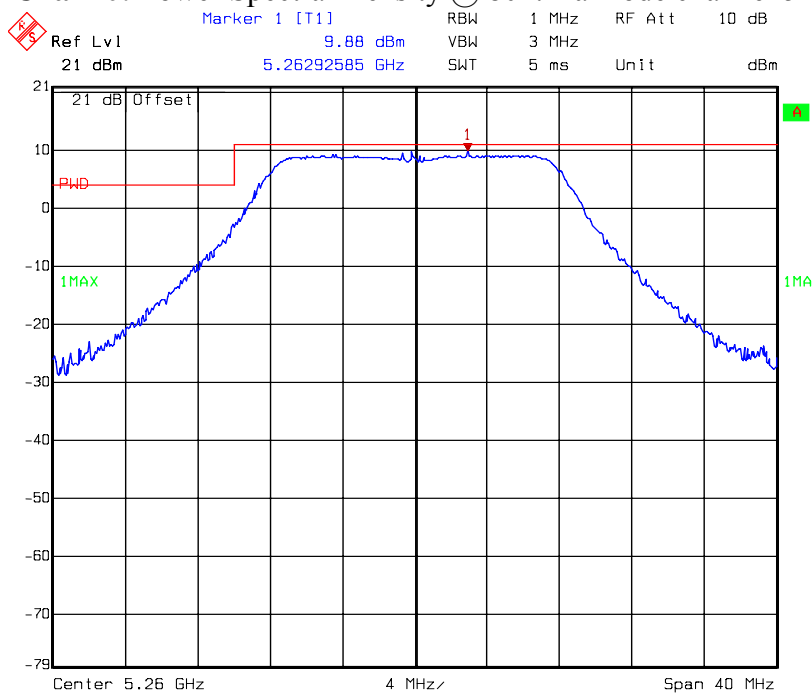
4.4 Measured data of Power Spectrum Density test results

Single Tx

Mode	Channel	Data rate Mbps	PPSD (dBm)	Limit (dBm)	Margin (dB)
802.11a	52	6	9.88	11	-1.12
	60		9.81	11	-1.19
	64		9.77	11	-1.23
	100		9.14	11	-1.86
	116		9.20	11	-1.80
	140		9.74	11	-1.26
	149		9.07	17	-7.93
	157		9.77	17	-7.23
	161		9.57	17	-7.43

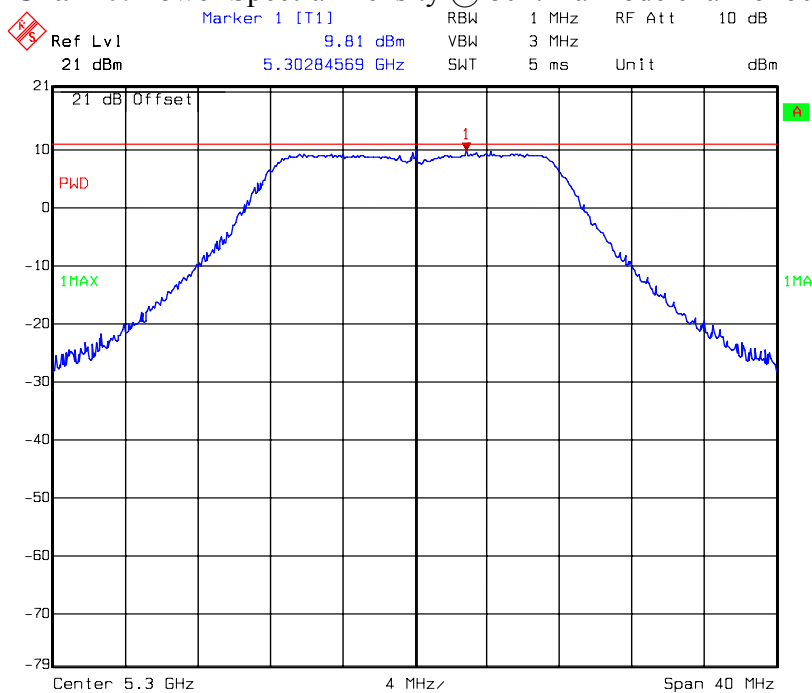
Please see the plot below.

Chain 0: Power Spectral Density @ 802.11a mode channel 52



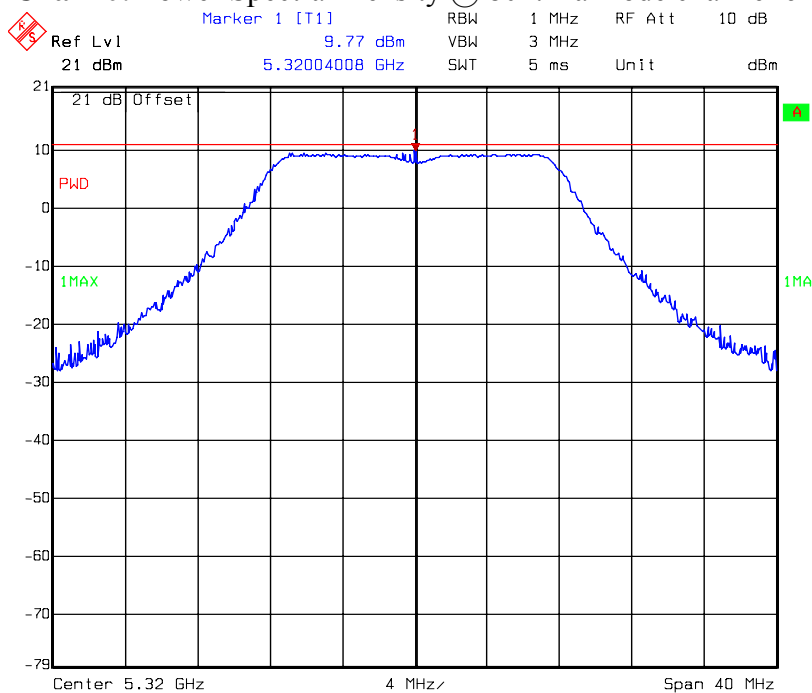
Title: Power Density,
 Comment A: 11a 5260 ch52 Chain0
 Date: 26.JUL.2011 15:22:52

Chain 0: Power Spectral Density @ 802.11a mode channel 60

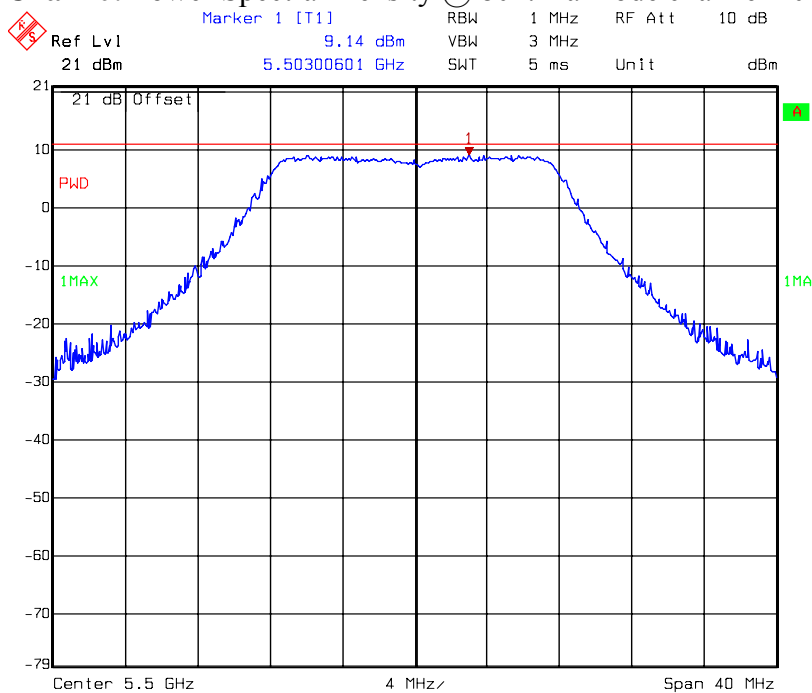


Title: Power Density,
 Comment A: 11a 5300 ch60 Chain0
 Date: 26.JUL.2011 15:25:42

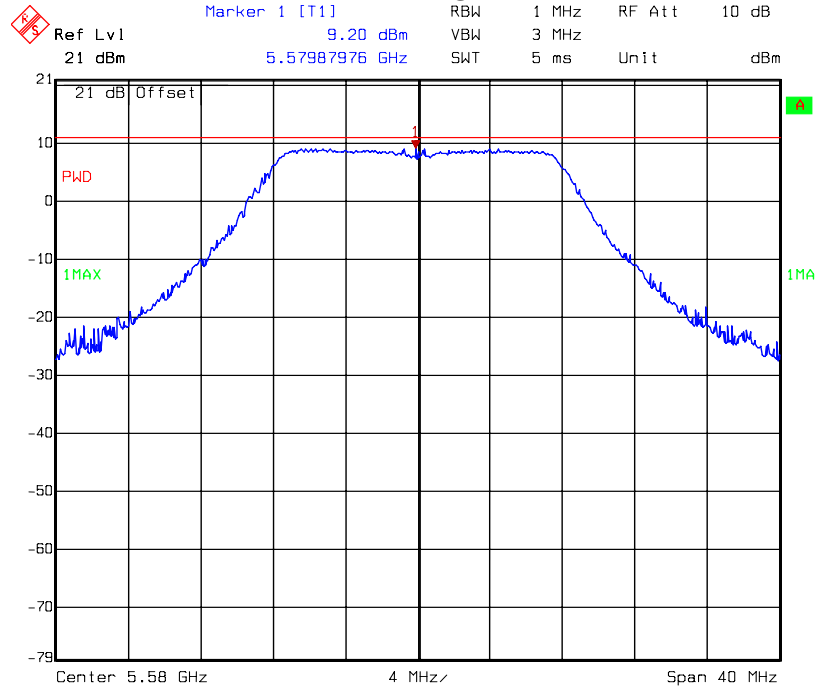
Chain 0: Power Spectral Density @ 802.11a mode channel 64



Chain 0: Power Spectral Density @ 802.11a mode channel 100

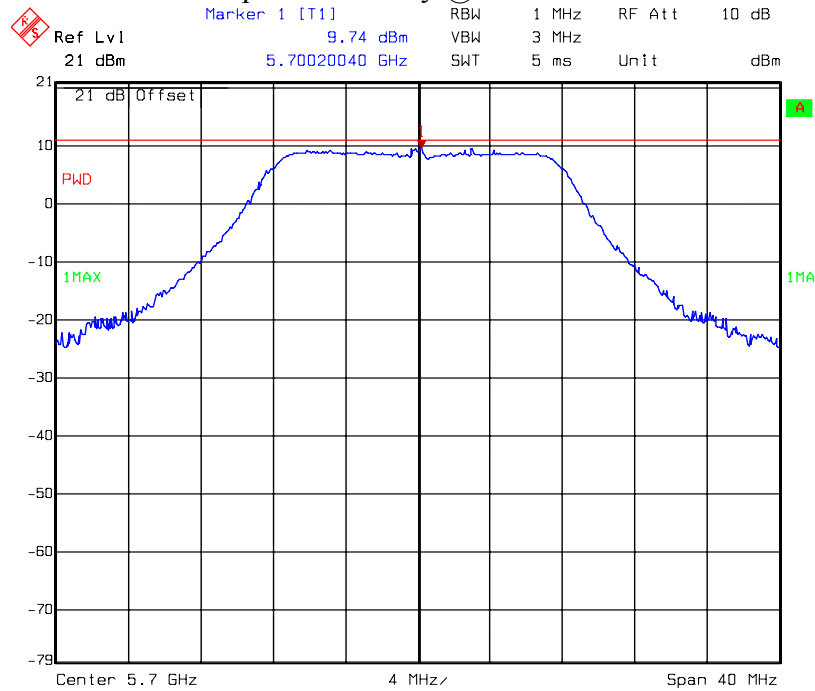


Chain 0: Power Spectral Density @ 802.11a mode channel 116



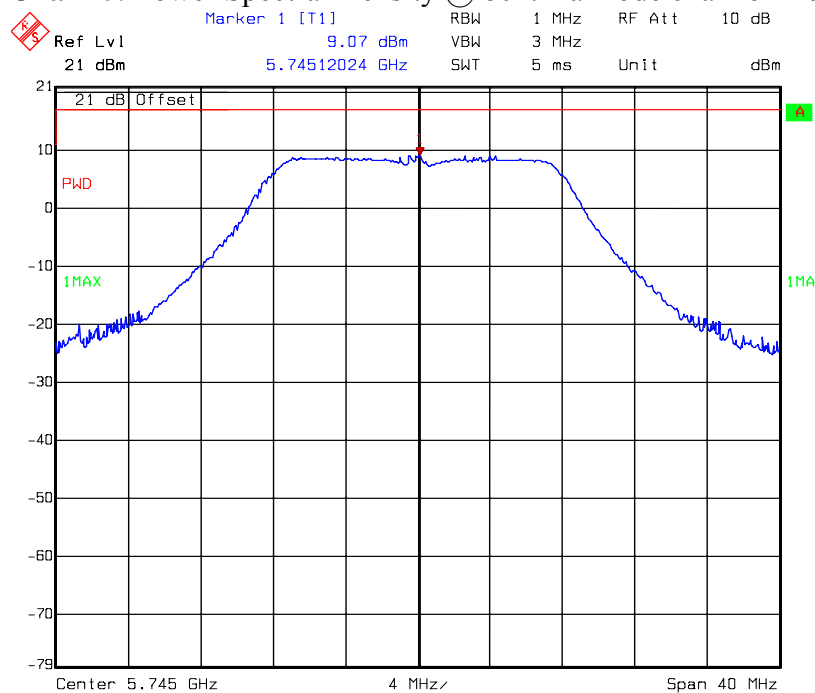
Title: Power Density,
 Comment A: 11a 5580 ch116 Chain0
 Date: 26.JUL.2011 15:38:44

Chain 0: Power Spectral Density @ 802.11a mode channel 140



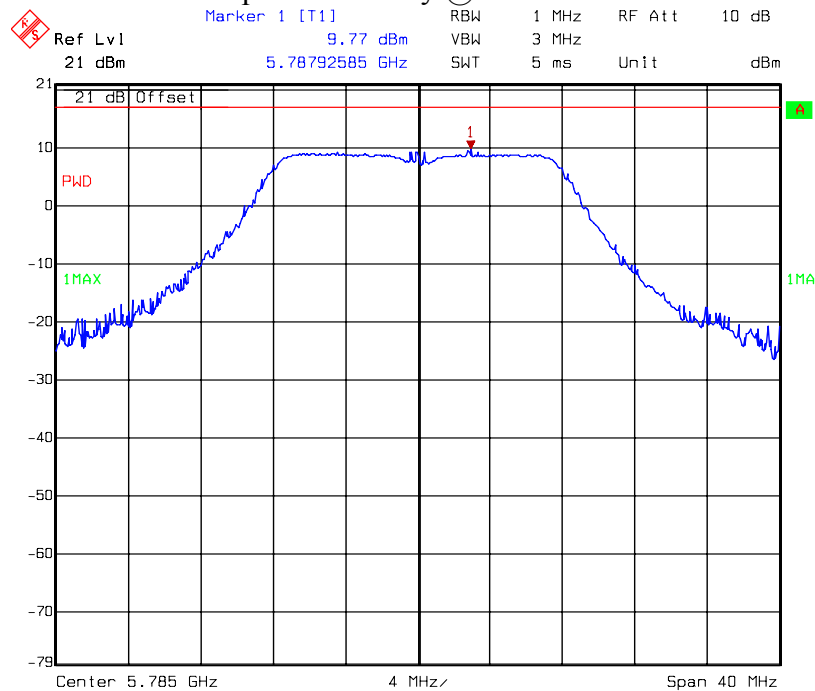
Title: Power Density,
 Comment A: 11a 5700 ch140 Chain0
 Date: 26.JUL.2011 15:56:03

Chain 0: Power Spectral Density @ 802.11a mode channel 149



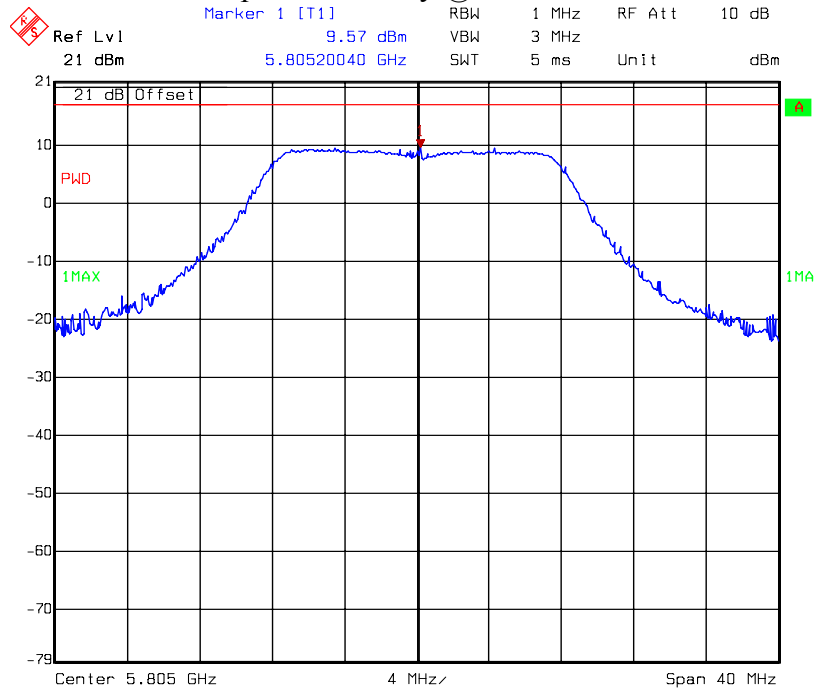
Title: Power Density,
 Comment A: 11a 5745 ch149 Chain0
 Date: 26.JUL.2011 15:50:50

Chain 0: Power Spectral Density @ 802.11a mode channel 157



Title: Power Density,
 Comment A: 11a 5785 ch157 Chain0
 Date: 26.JUL.2011 15:47:41

Chain 0: Power Spectral Density @ 802.11a mode channel 161



Title: Power Density,
 Comment A: 11a 5805 ch161 Chain0
 Date: 26.JUL.2011 15:58:06

5. Additional provisions test (FCC 15.215)

5.1 Operating environment

Temperature:	25	°C
Relative Humidity:	50	%
Atmospheric Pressure:	1023	hPa

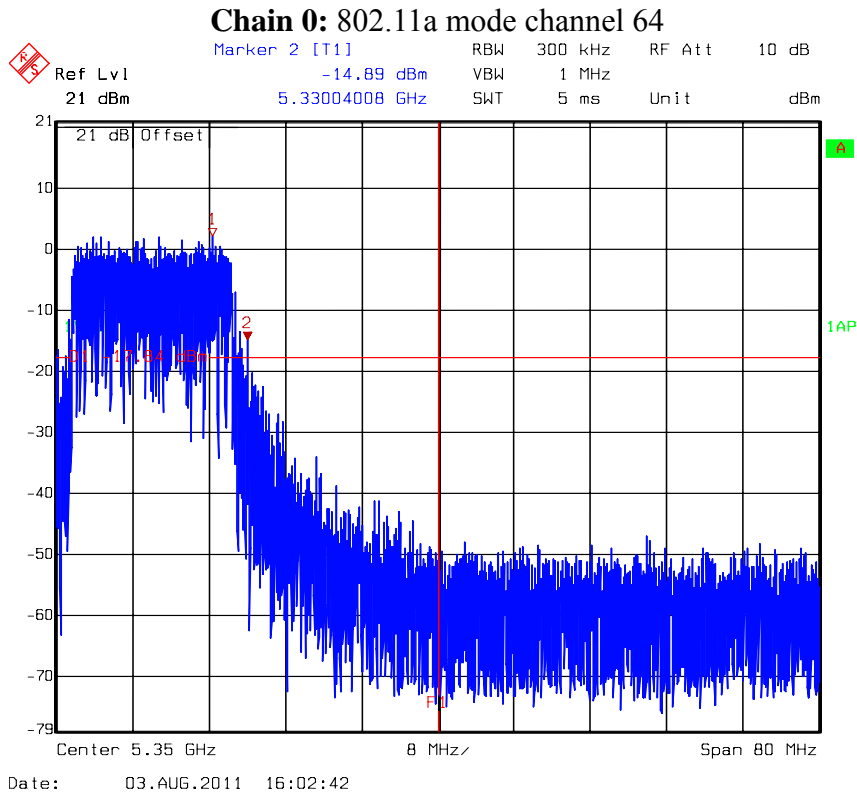
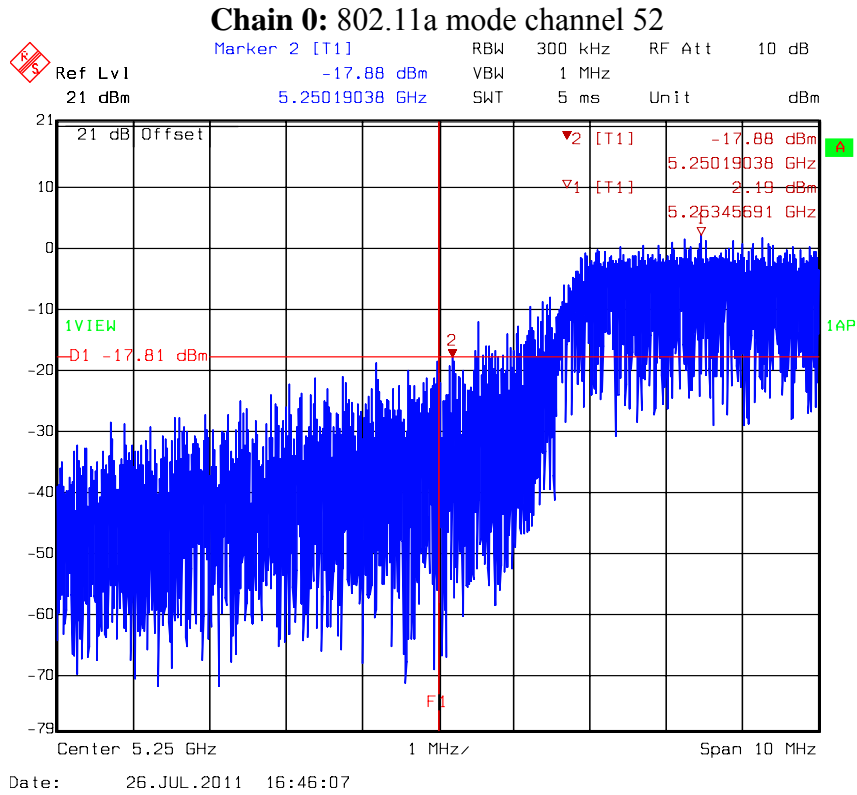
5.2 Procedure of test setup & limitation

Method of Measurement:

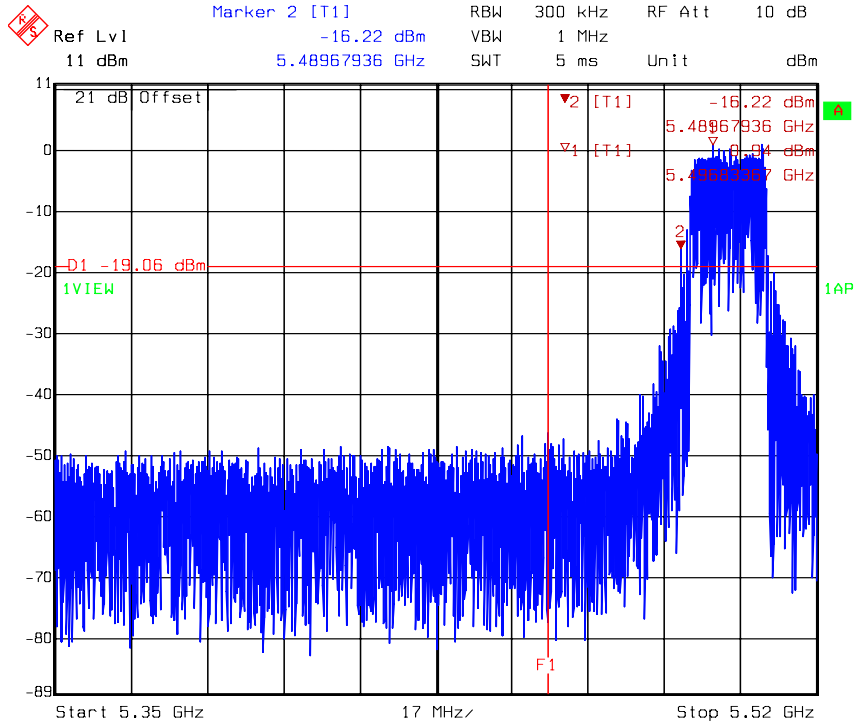
The additional provisions mean the device must be designed to ensure that the 20dB bandwidth of the emission or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

This requirement per FCC §15.215 (c) was measured from the antenna port of the EUT using a 50ohm spectrum analyzer with the resolution bandwidth set at 300kHz (approximately 1% of the emission bandwidth), the video bandwidth set at 1MHz (VBW > RBW).

5.3 Measured data of Power Spectrum Density test results

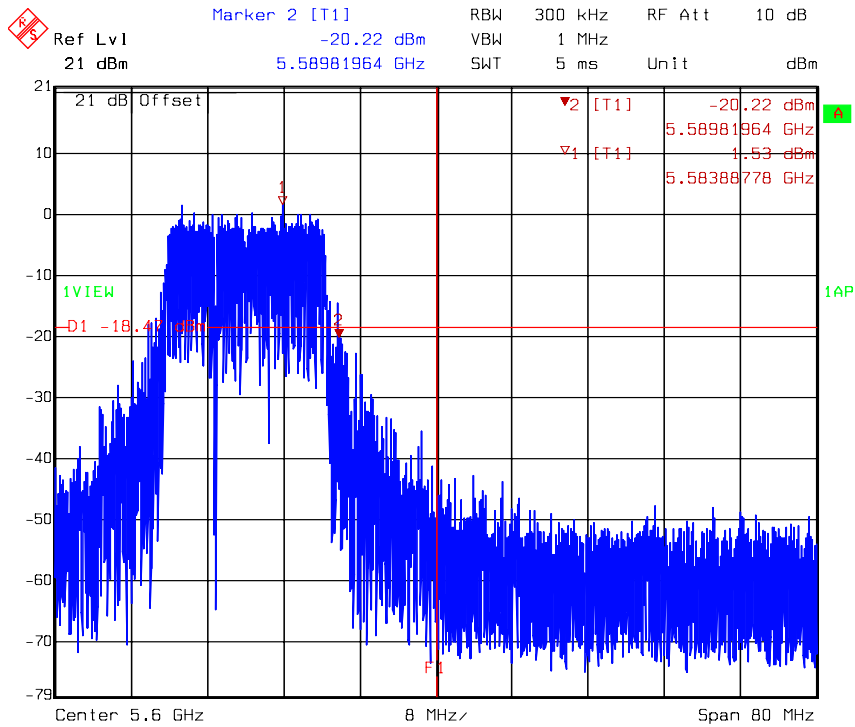


Chain 0: 802.11a mode channel 100



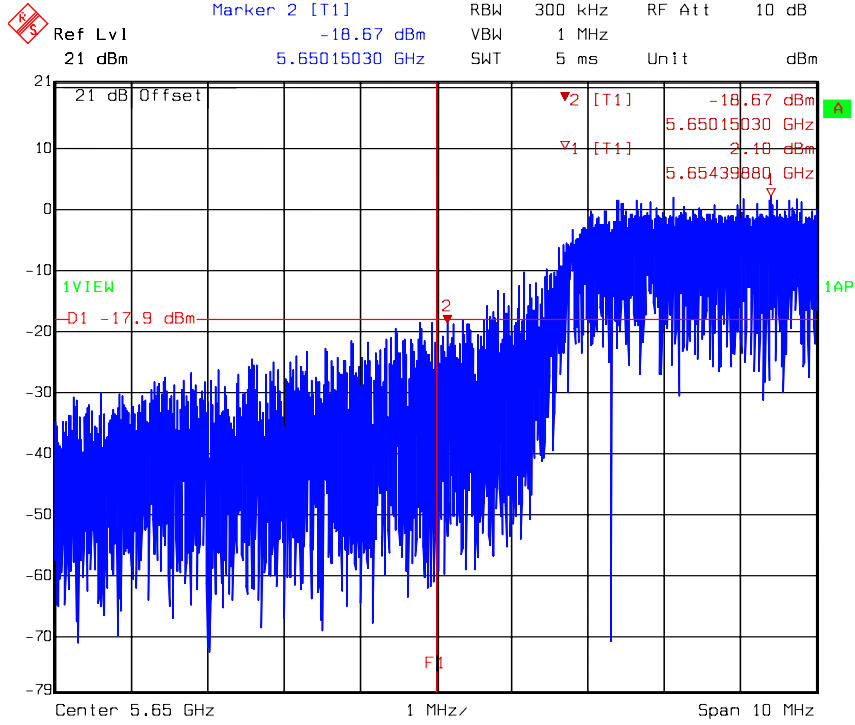
Date: 27.JUL.2011 18:08:51

Chain 0: 802.11a mode channel 116



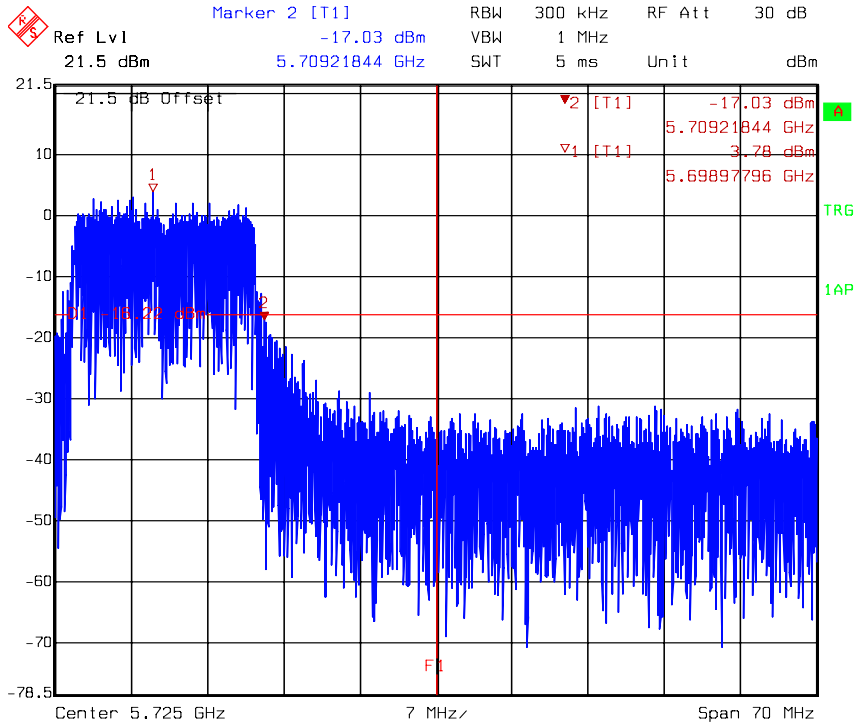
Date: 26.JUL.2011 16:39:11

Chain 0: 802.11a mode channel 132



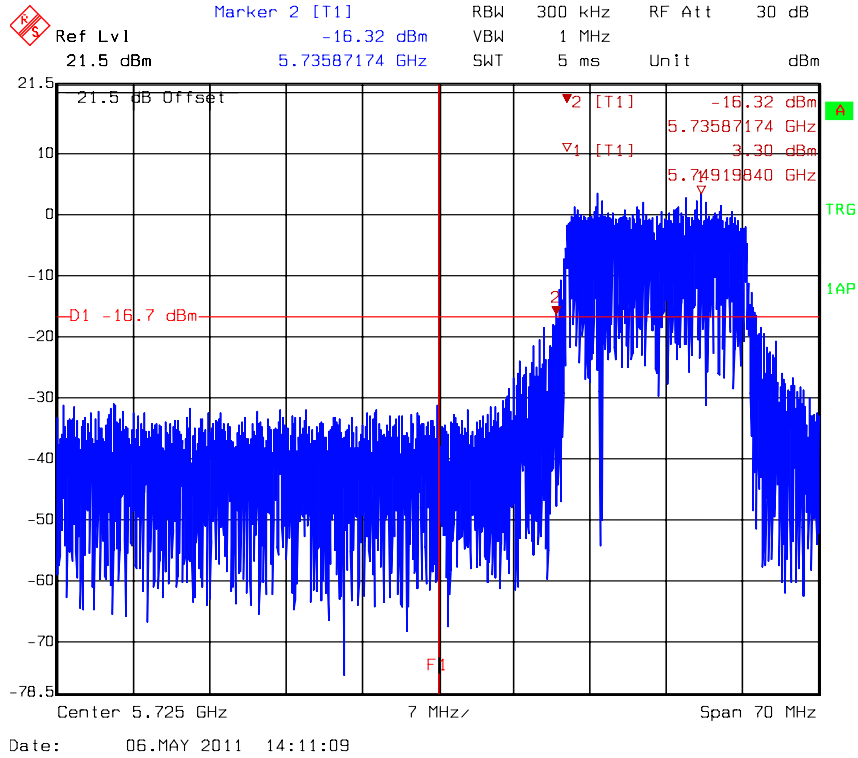
Date: 26.JUL.2011 16:48:16

Chain 0: 802.11a mode channel 140

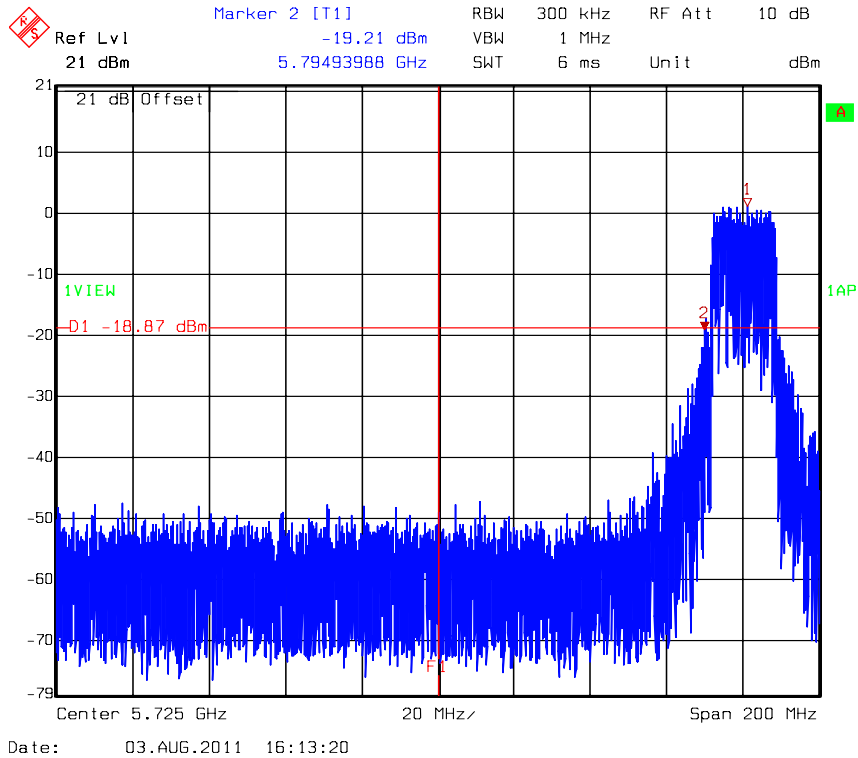


Date: 06.MAY 2011 13:59:00

Chain 0: 802.11a mode channel 149



Chain 0: 802.11a mode channel 161



6. Peak excursion to average ratio test (FCC 15.407)

6.1 Operating environment

Temperature: 23 °C
Relative Humidity: 52 %
Atmospheric Pressure: 1008 hPa

6.2 Test setup & procedure

The power spectrum density per FCC §15.407(a)(6) was measured from the antenna port of the EUT. Using a 50ohm spectrum analyzer with the RBW=1MHz, VBW=3MHz for peak measurement and RBW=1MHz, VBW=10 kHz for average measurement. Peak excursion to average ratio was read directly.

6.3 Limitation

Operating Frequency (MHz)	Peak excursion to average ratio limit
5150~5250	<13dB
5250~5350, 5470~5725	<13dB
5725~5825	<13dB



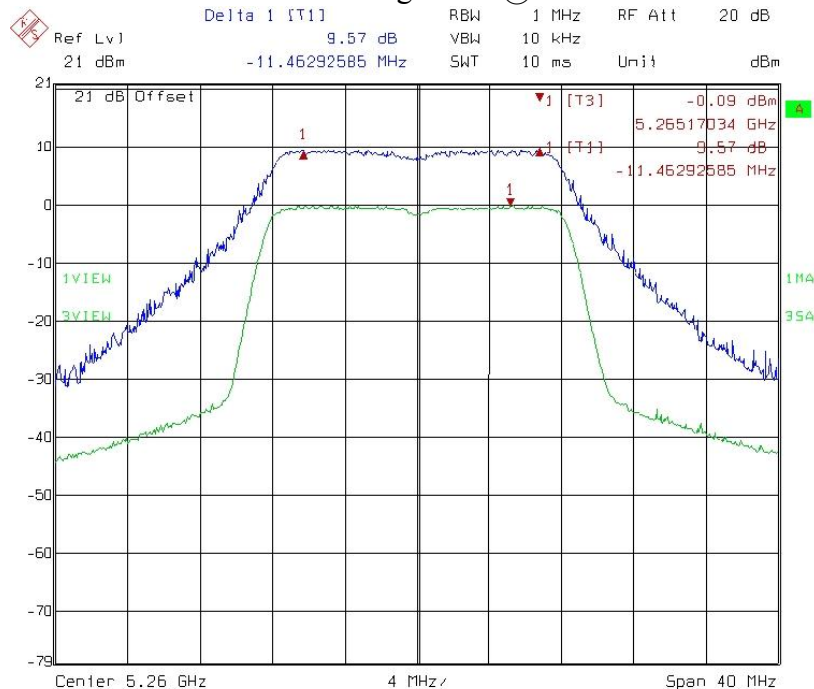
6.4 Measured data of Peak excursion to average ratio test results

Single Tx

Mode	Channel	Data rate (Mbps)	PK excursion to AV ratio (dBm)	Limit (dBm)	Margin (dB)
802.11a	52	6	9.57	13	-3.43
	60		9.94	13	-3.06
	64		9.66	13	-3.34
	100		9.81	13	-3.19
	116		9.72	13	-3.28
	140		9.74	13	-3.26
	149		9.46	13	-3.54
	157		10.07	13	-2.93
	161		9.70	13	-3.30

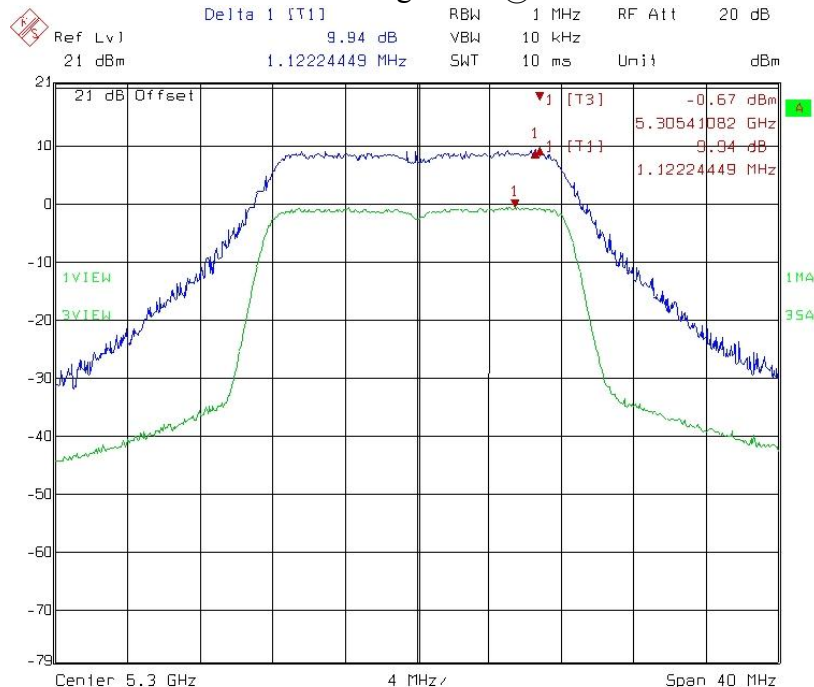
Please see the plot below.

Chain 0: Peak excursion to average ratio @ 802.11a mode channel 52



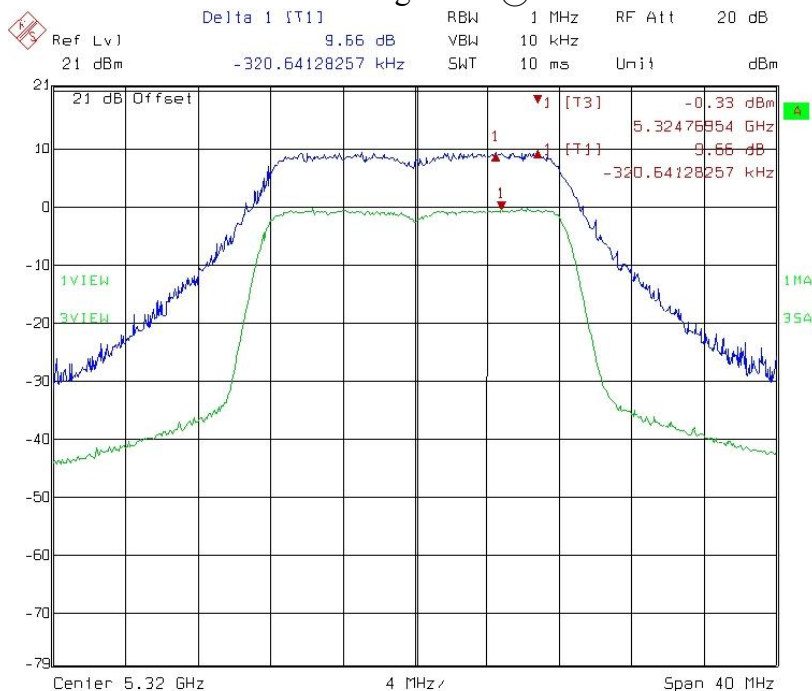
Title: PK Excursion AV,TS11020011-EME
 Comment A: 11a 52ch 5260 Chain0
 Date: 19.APR.2011 16:20:36

Chain 0: Peak excursion to average ratio @ 802.11a mode channel 60



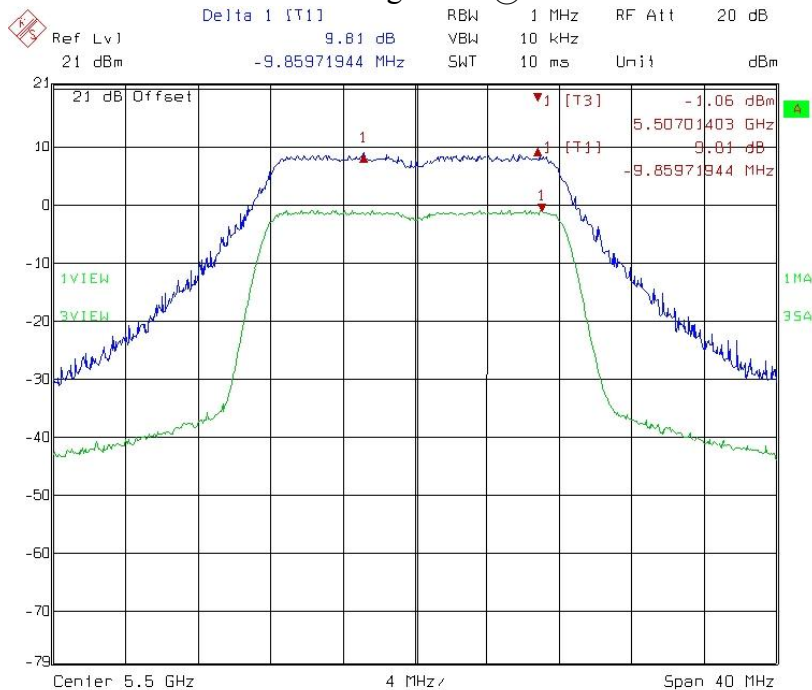
Title: PK Excursion AV,TS11020011-EME
 Comment A: 11a 60ch 5300 Chain0
 Date: 19.APR.2011 16:27:49

Chain 0: Peak excursion to average ratio @ 802.11a mode channel 64



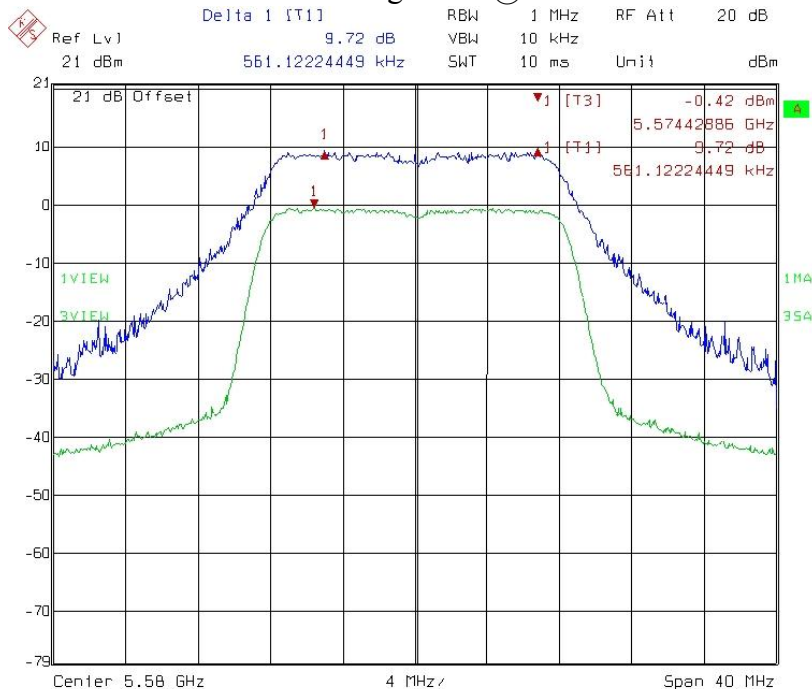
Title: PK Excursion AV,TS11020011-EME
 Comment A: 11a 64ch 5320 Chain0
 Date: 19.APR.2011 16:28:57

Chain 0: Peak excursion to average ratio @ 802.11a mode channel 100



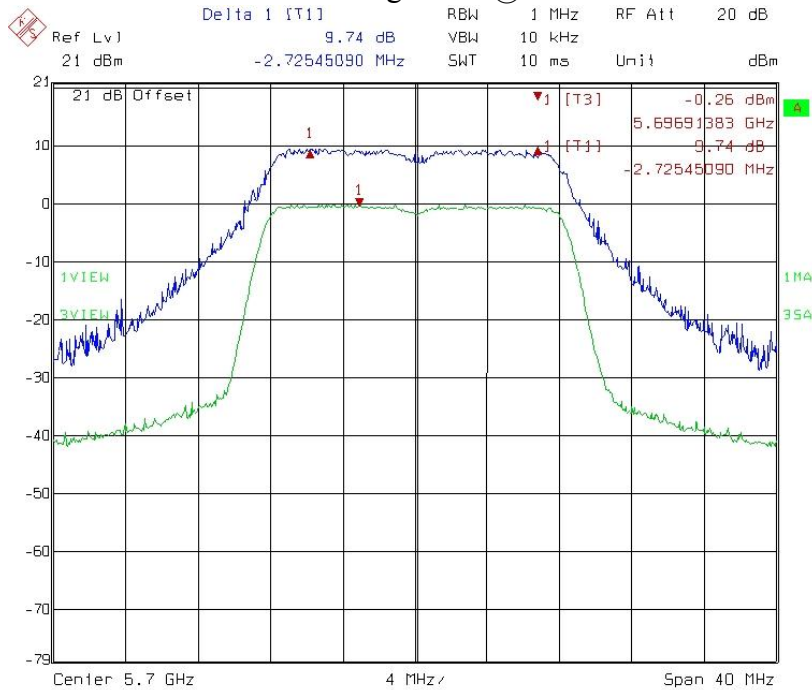
Title: PK Excursion AV,TS11020011-EME
 Comment A: 11a 100ch 5500 Chain0
 Date: 19.APR.2011 16:31:29

Chain 0: Peak excursion to average ratio @ 802.11a mode channel 116



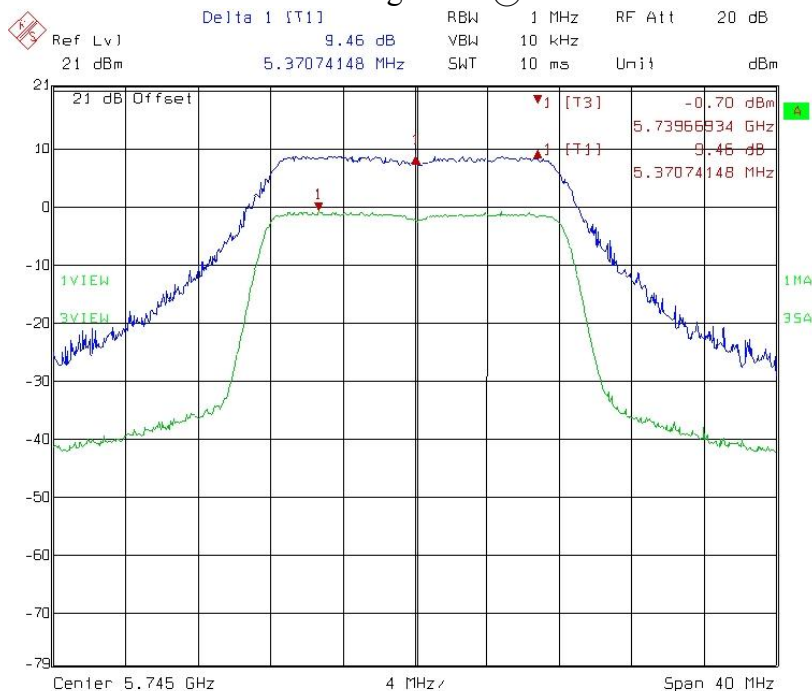
Title: PK Excursion AV,TS11020011-EME
 Comment A: 11a 116ch 5580 Chain0
 Date: 19.APR.2011 16:32:29

Chain 0: Peak excursion to average ratio @ 802.11a mode channel 140



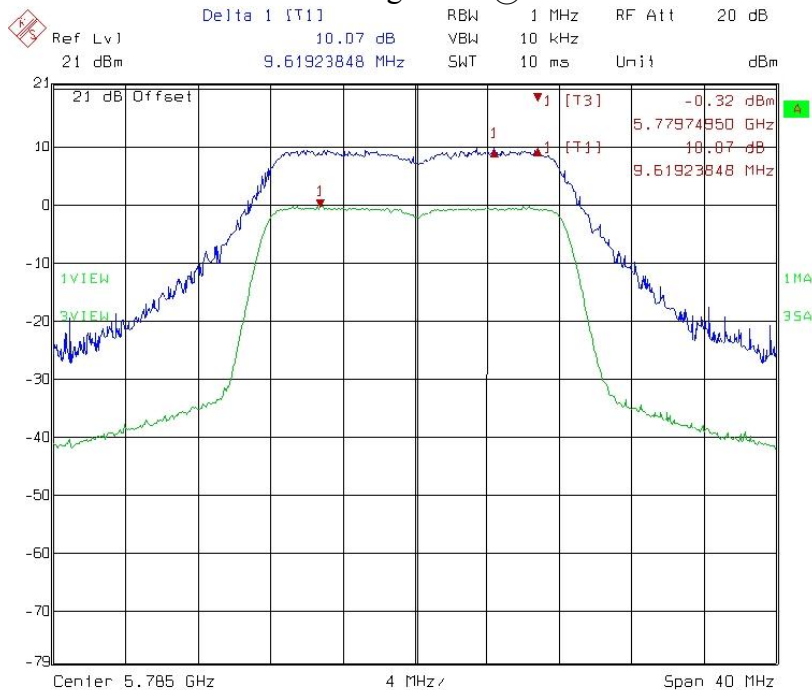
Title: PK Excursion AV,TS11020011-EME
 Comment A: 11a 140ch 5700 Chain0
 Date: 19.APR.2011 16:34:57

Chain 0: Peak excursion to average ratio @ 802.11a mode channel 149



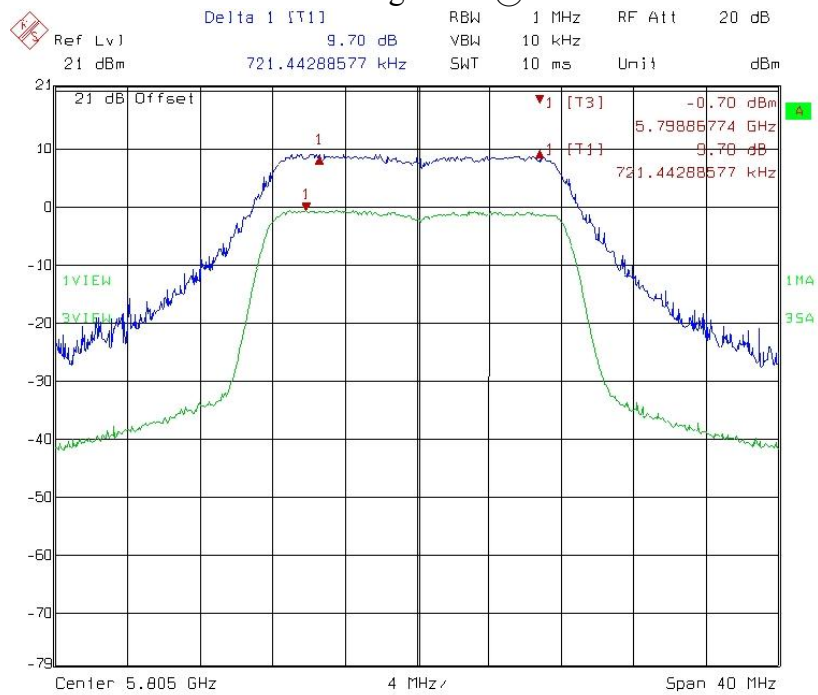
Title: PK Excursion AV,TS11020011-EME
 Comment A: 11a 149ch 5745 Chain0
 Date: 19.APR.2011 16:35:38

Chain 0: Peak excursion to average ratio @ 802.11a mode channel 157



Title: PK Excursion AV,TS11020011-EME
 Comment A: 11a 157ch 5785 Chain0
 Date: 19.APR.2011 16:36:32

Chain 0: Peak excursion to average ratio @ 802.11a mode channel 161



Title: PK Excursion AV,
 Comment A: 11a 161ch 5805 Chain0
 Date: 26.JUL.2011 14:43:10

7. Radiated Emission test (FCC 15.205 & 15.209)

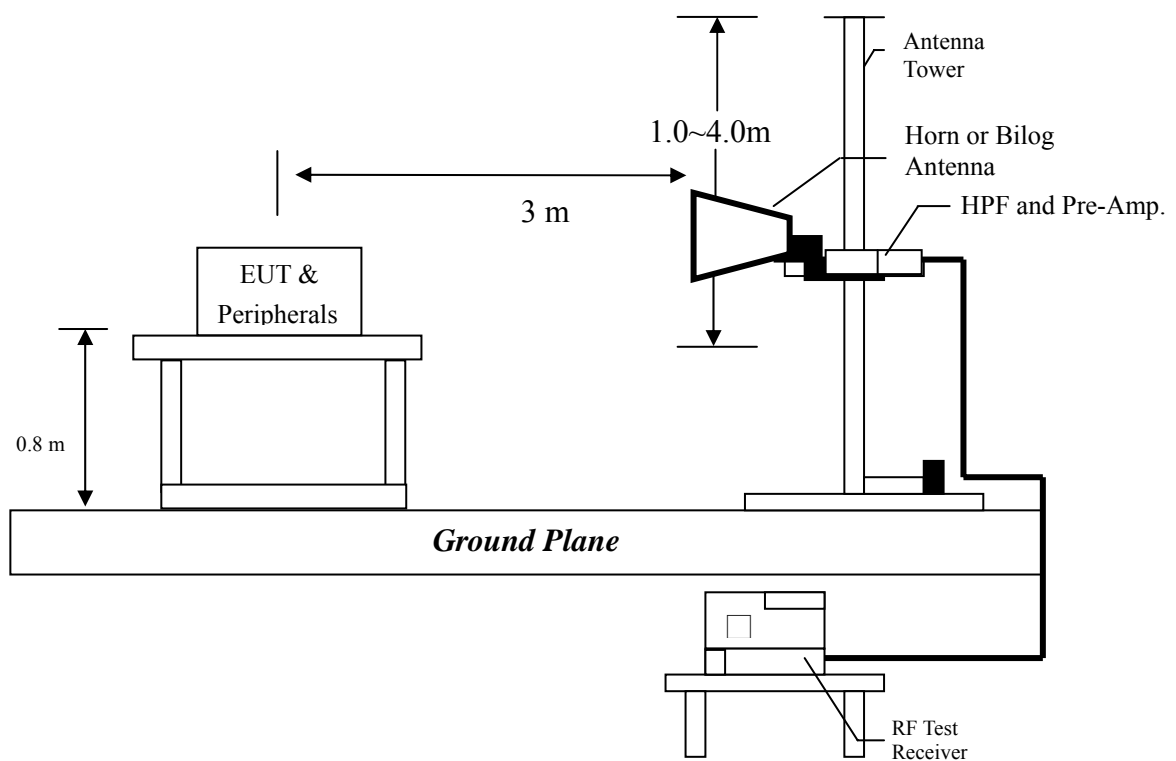
7.1 Operating environment

Temperature: 23 °C
 Relative Humidity: 52 %
 Atmospheric Pressure 1008 hPa

7.2 Test setup & procedure

Method of Measurement:

The Diagram below shows the test setup, which is utilized to make these measurements.



Radiated emission measurements were performed from 30MHz to tenth harmonic or 40GHz. The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.



7.3 Emission limits

The spurious Emission shall test through the 10th harmonic. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

Frequency (MHz)	Limits (dB μ V/m@3m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

7.4 Radiated spurious emission test data

7.4.1 Measurement results: frequencies equal to or less than 1 GHz

The test was performed on EUT under 802.11a continuously transmitting mode. The worst case occurred at 802.11a Tx channel 60.

EUT : Go Wi-Fi! P322
 Worst Case : 802.11a Tx at channel 60

Antenna Polariz. (V/H)	Freq. (MHz)	Receiver Detector	Corr. Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
V	49.400	QP	12.84	24.46	33.79	40.00	-6.21
V	125.060	QP	9.47	22.56	36.87	43.50	-6.63
V	149.310	QP	14.27	12.77	41.23	43.50	-2.27
V	224.970	QP	12.08	18.92	35.50	46.00	-10.50
V	532.460	QP	19.46	12.59	35.12	46.00	-10.88
V	796.300	QP	23.19	11.70	41.27	46.00	-4.73
H	125.060	QP	11.62	16.15	37.19	43.50	-6.31
H	149.310	QP	13.24	19.94	39.01	43.50	-4.49
H	224.790	QP	11.63	14.30	36.30	46.00	-9.70
H	416.060	QP	16.81	21.19	34.88	46.00	-11.12
H	431.580	QP	18.12	11.25	32.84	46.00	-13.16
H	796.300	QP	23.52	13.64	39.63	46.00	-6.37

Remark:

1. Corr. Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Corr. Factor

7.4.2 Measurement results: frequency above 1GHz

EUT : Go Wi-Fi! P322
 Test Condition : 802.11a Tx at channel 52

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
15780	PK	V	38.46	50.66	53.15	65.35	74	-8.65
15780	AV	V	38.46	50.66	40.52	52.72	54	-1.28
15780	PK	H	38.46	50.66	50.42	62.62	74	-11.38
15780	AV	H	38.46	50.66	37.93	50.13	54	-3.87

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1GHz to 40GHz. The data value listed above which is higher than the system noise floor.

EUT : Go Wi-Fi! P322
 Test Condition : 802.11a Tx at channel 60

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
10600	PK	V	33.23	49.24	48.51	64.52	74	-9.48
10600	AV	V	33.23	49.24	34.60	50.61	54	-3.39
15900	PK	V	38.46	50.66	52.83	65.03	74	-8.97
15900	AV	V	38.46	50.66	38.70	50.90	54	-3.10
10600	AV	H	33.23	49.24	47.67	63.68	74	-10.32
10600	PK	H	33.23	49.24	36.68	52.69	54	-1.31
15900	AV	H	33.23	49.24	47.31	63.32	74	-10.68
15900	PK	H	33.23	49.24	32.41	48.42	54	-5.58

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1GHz to 40GHz. The data value listed above which is higher than the system noise floor.

EUT : Go Wi-Fi! P322
 Test Condition : 802.11a Tx at channel 64

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
10640	PK	V	33.23	49.24	51.08	67.09	74	-6.91
10640	AV	V	33.23	49.24	37.05	53.06	54	-0.94
15960	PK	V	38.46	50.66	55.22	67.42	74	-6.58
15960	AV	V	38.46	50.66	38.74	50.94	54	-3.06
10640	PK	H	33.23	49.24	50.78	66.79	74	-7.21
10640	AV	H	33.23	49.24	37.68	53.69	54	-0.31
15960	PK	H	38.46	50.66	51.09	63.29	74	-10.71
15960	AV	H	38.46	50.66	37.13	49.33	54	-4.67

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1GHz to 40GHz. The data value listed above which is higher than the system noise floor.

EUT : Go Wi-Fi! P322
 Test Condition : 802.11a Tx at channel 100

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
11000	PK	V	33.53	49.96	44.23	60.66	74	-13.34
11000	AV	V	33.53	49.96	31.88	48.31	54	-5.69
11000	PK	H	33.53	49.96	46.95	63.38	74	-10.62
11000	AV	H	33.53	49.96	34.61	51.04	54	-2.96

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1GHz to 40GHz. The data value listed above which is higher than the system noise floor.

EUT : Go Wi-Fi! P322
 Test Condition : 802.11a Tx at channel 116

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
11160	PK	V	33.53	49.96	44.92	61.35	74	-12.65
11160	AV	V	33.53	49.96	30.66	47.09	54	-6.91
11160	PK	H	33.53	49.96	43.41	59.84	74	-14.16
11160	AV	H	33.53	49.96	32.82	49.25	54	-4.75

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1GHz to 40GHz. The data value listed above which is higher than the system noise floor.

EUT : Go Wi-Fi! P322
 Test Condition : 802.11a Tx at channel 140

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
11400	PK	V	33.53	49.96	42.23	58.66	74	-15.34
11400	AV	V	33.53	49.96	30.13	46.56	54	-7.44
11400	PK	H	33.53	49.96	41.08	57.51	74	-16.49
11400	AV	H	33.53	49.96	29.08	45.51	54	-8.49

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 40 GHz. The data value listed above which is higher than the system noise floor.



EUT : Go Wi-Fi! P322
 Test Condition : 802.11a Tx at channel 149

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
11490	PK	V	33.53	49.96	40.79	57.22	74	-16.78
11490	AV	V	33.53	49.96	29.45	45.88	54	-8.12
11490	PK	H	33.53	49.96	39.00	55.43	74	-18.57
11490	AV	H	33.53	49.96	27.59	44.02	54	-9.98

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1GHz to 40GHz. The data value listed above which is higher than the system noise floor.

EUT : Go Wi-Fi! P322
 Test Condition : 802.11a Tx at channel 157

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
11570	PK	V	34.55	50.03	41.12	56.60	74	-17.40
11570	AV	V	34.55	50.03	29.05	44.53	54	-9.47
11570	PK	H	34.55	50.03	41.72	57.20	74	-16.80
11570	AV	H	34.55	50.03	29.57	45.05	54	-8.95

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1GHz to 40GHz. The data value listed above which is higher than the system noise floor.



EUT : Go Wi-Fi! P322
Test Condition : 802.11a Tx at channel 161

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
11610	PK	V	34.55	50.03	39.84	55.32	74	-18.68
11610	AV	V	34.55	50.03	30.39	45.87	54	-8.13
11610	PK	H	34.55	50.03	44.19	59.67	74	-14.33
11610	AV	H	34.55	50.03	30.63	46.11	54	-7.89

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1GHz to 40GHz. The data value listed above which is higher than the system noise floor.

8. Emission on the band edge §FCC 15.205

Method of Measurement:

Reference FCC document: KDB 913591

The measurement was made to the average and peak field strength of the fundamental frequency. And the spurious emission in the restrict band must also comply with the FCC subpart C 15.209.

8.1 Operating environment

Temperature:	23	°C
Relative Humidity:	52	%
Atmospheric Pressure	1008	hPa

8.2 Test setup & procedure

Radiated setup:

Reference to section 7.2

Procedure:

STEP 1 - Perform an in-band field strength measurement of the fundamental emission using a 1 MHz RBW, a 1 MHz VBW, and a peak detector (as required by Section 15.35). Repeat the measurement with an average detector (i.e., 1 MHz RBW with 10 Hz VBW).

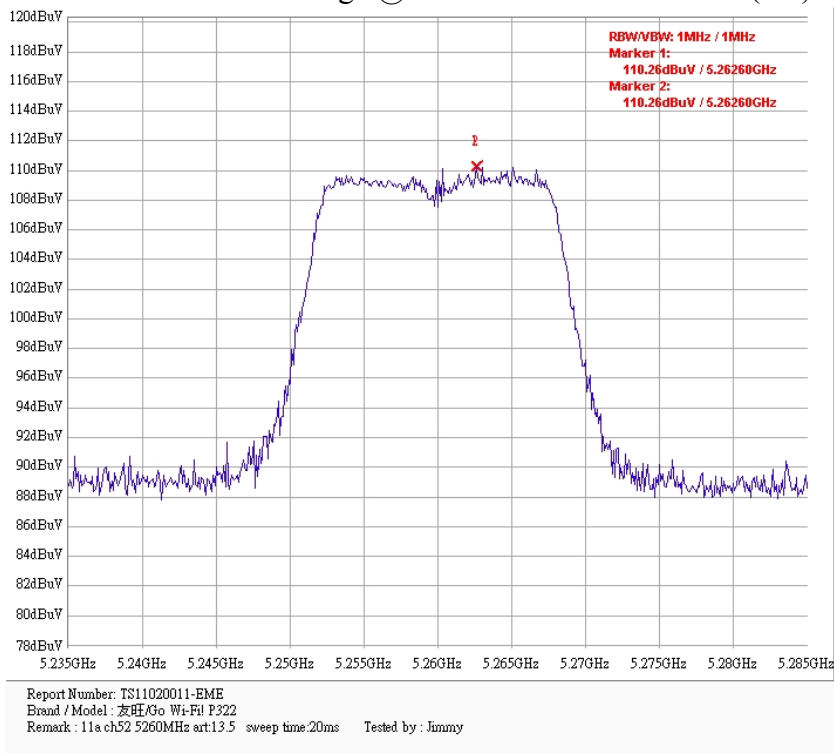
STEP 2 - Choose a spectrum analyzer span that encompasses both the peak of the fundamental emission and the band edge emission under investigation. Record the peak levels of the fundamental emission and the relevant band edge emission (i.e., run several sweeps in peak hold mode). Observe the stored trace and measure the amplitude delta between the peak of the fundamental and the peak of the band edge emission. This is not a field strength measurement, it is only a relative measurement to determine the amount by which the emission drops at the band edge relative to the highest fundamental emission level.

STEP 3 - Subtract the delta measured in step (2) from the field strengths measured in step (1). The resultant field strengths are then used to determine band edge compliance as required by Section 15.205.

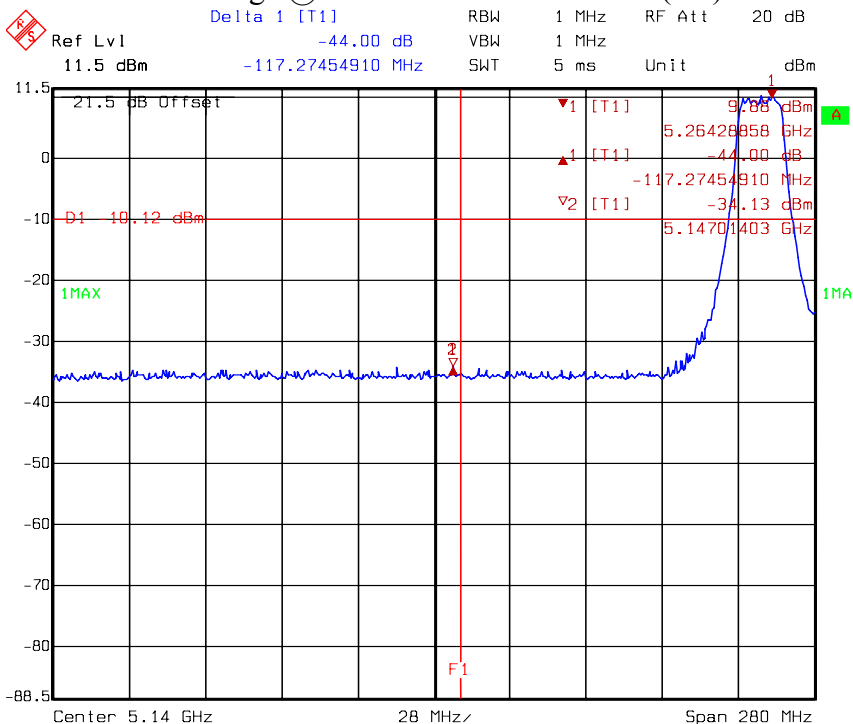
8.3 Test Result

Channel	Detector	Radiated Method	Conducted Method	The Max. Field Strength in Restrict Band (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
		Max. Field Strength of Fundamental (dBuV)	Between Carrier Max. Power and Loca Max. Emission in Restrict Band (dBc)			
802.11a channel 52	PK	110.26	44.00	66.26	74	-7.74
	AV	98.85	47.49	51.36	54	-2.64
802.11a channel 64	PK	110.07	43.04	67.03	74	-6.97
	AV	98.58	51.65	46.93	54	-7.07
802.11a channel 100	PK	112.74	48.89	63.85	74	-10.15
	AV	101.73	51.72	50.01	54	-3.99

Fundamental: Band edge @ 802.11a mode channel 52 (PK)

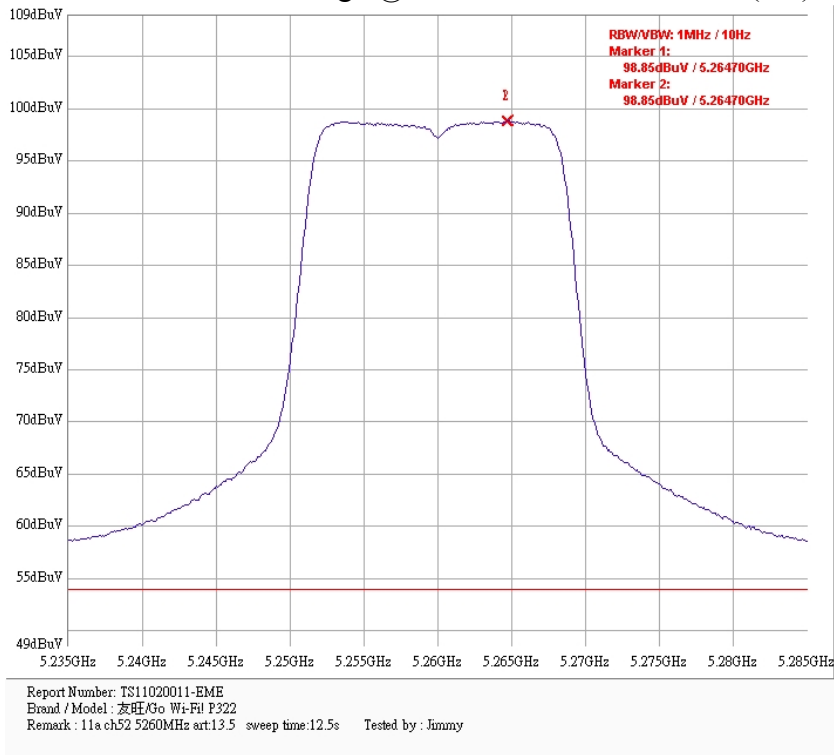


Band edge @ 802.11a mode channel 52 (PK)

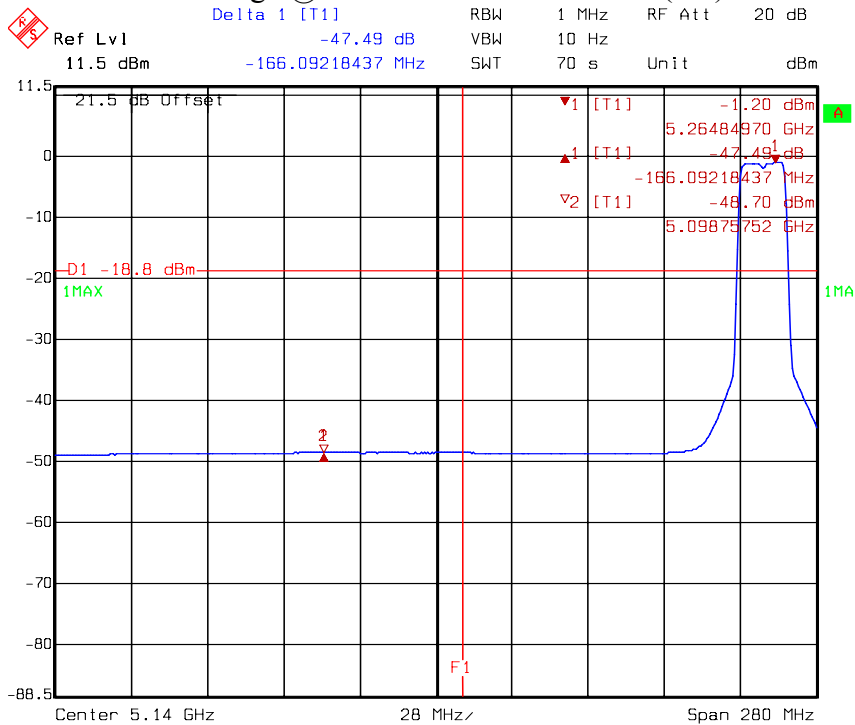


Date: 06.MAY 2011 14:52:43

Fundamental: Band edge @ 802.11a mode channel 52 (AV)

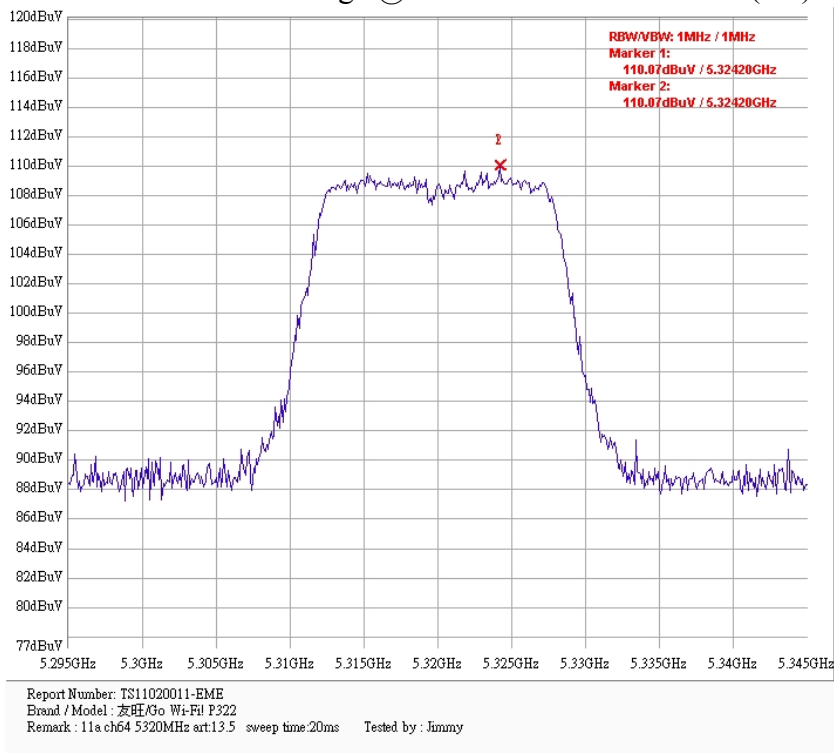


Band edge @ 802.11a mode channel 52 (AV)

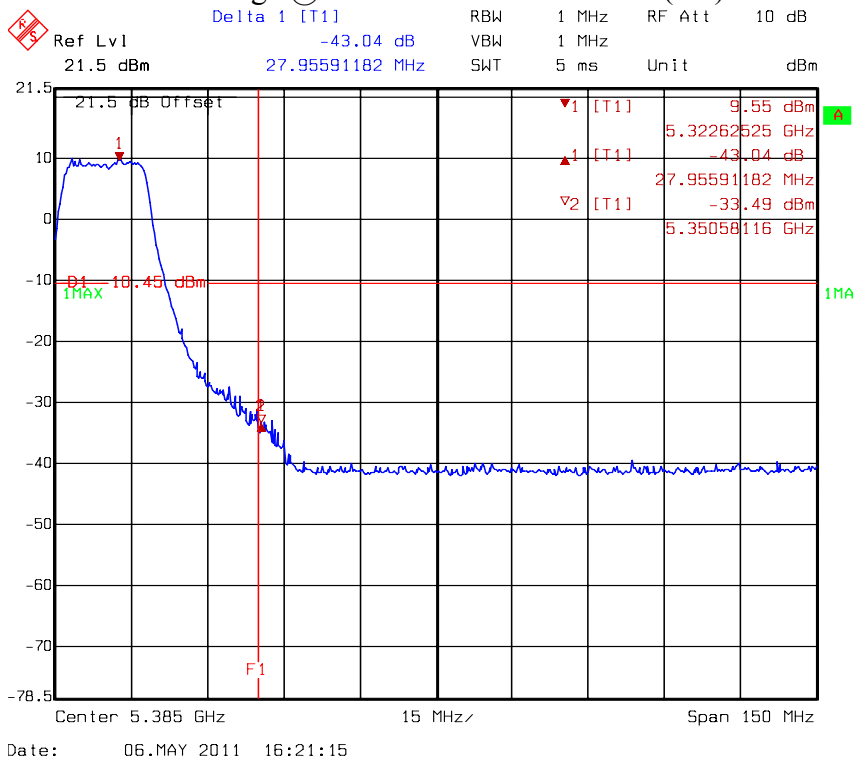


Date: 06.MAY 2011 14:59:23

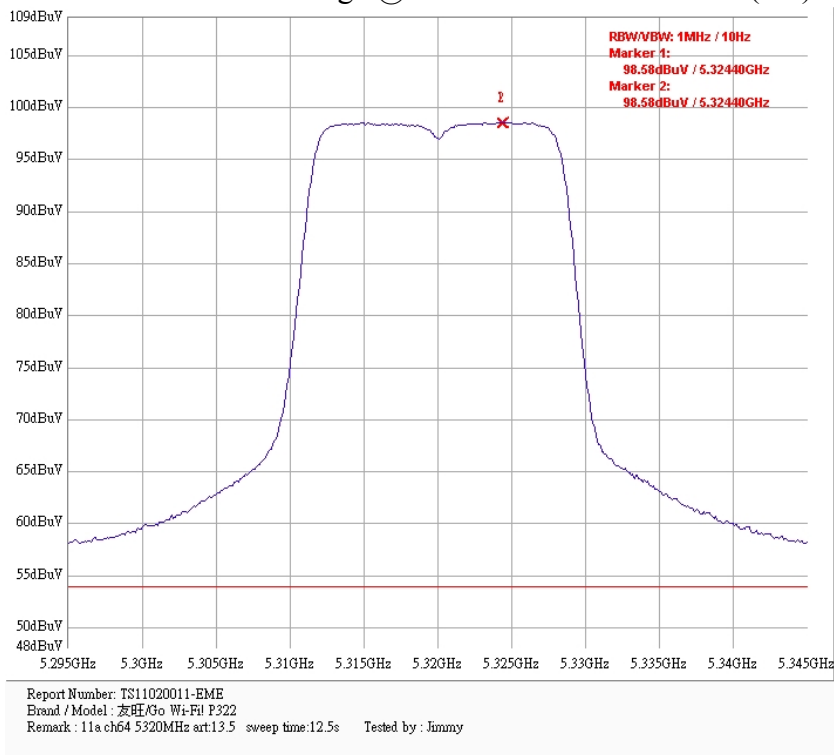
Fundamental: Band edge @ 802.11a mode channel 64 (PK)



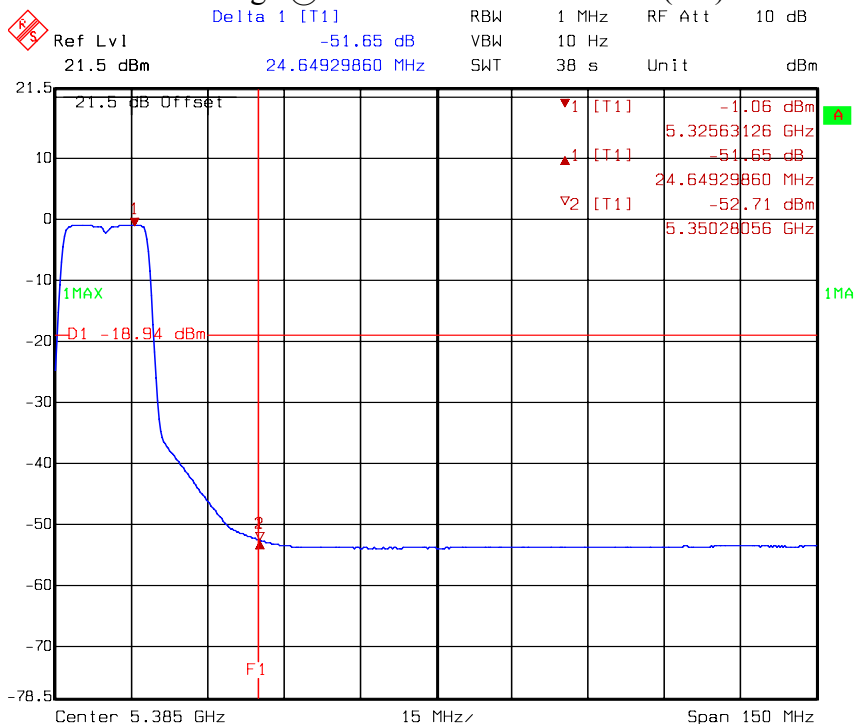
Band edge @ 802.11a mode channel 64 (PK)



Fundamental: Band edge @ 802.11a mode channel 64 (AV)

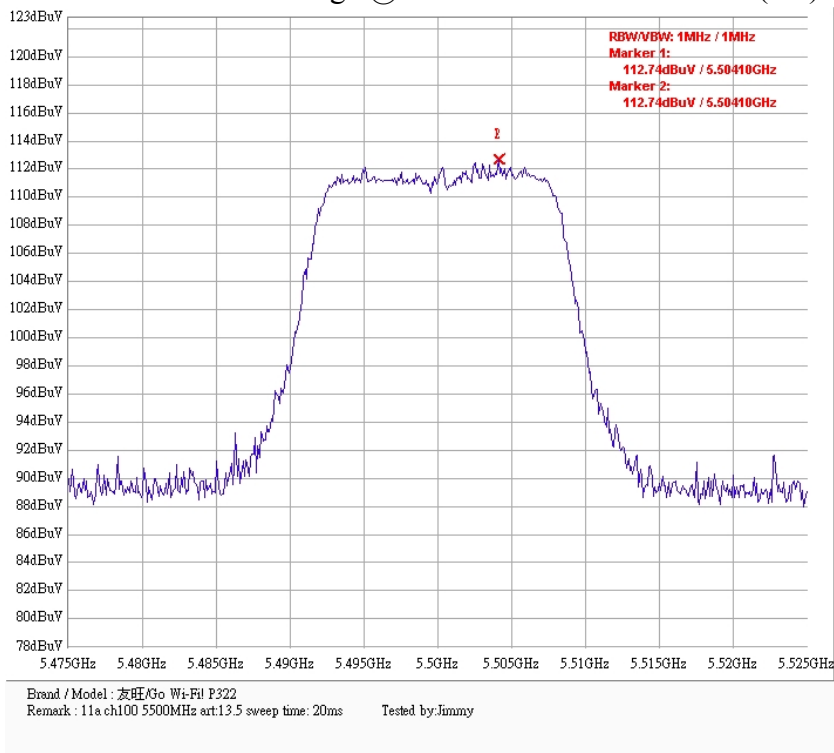


Band edge @ 802.11a mode channel 64 (AV)

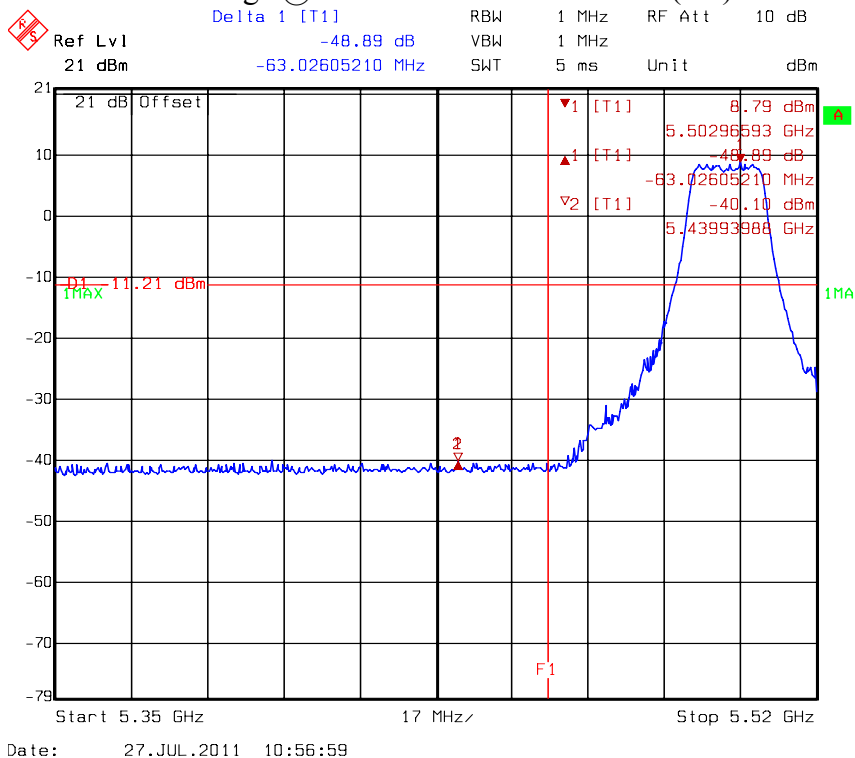


Date: 06.MAY 2011 16:28:35

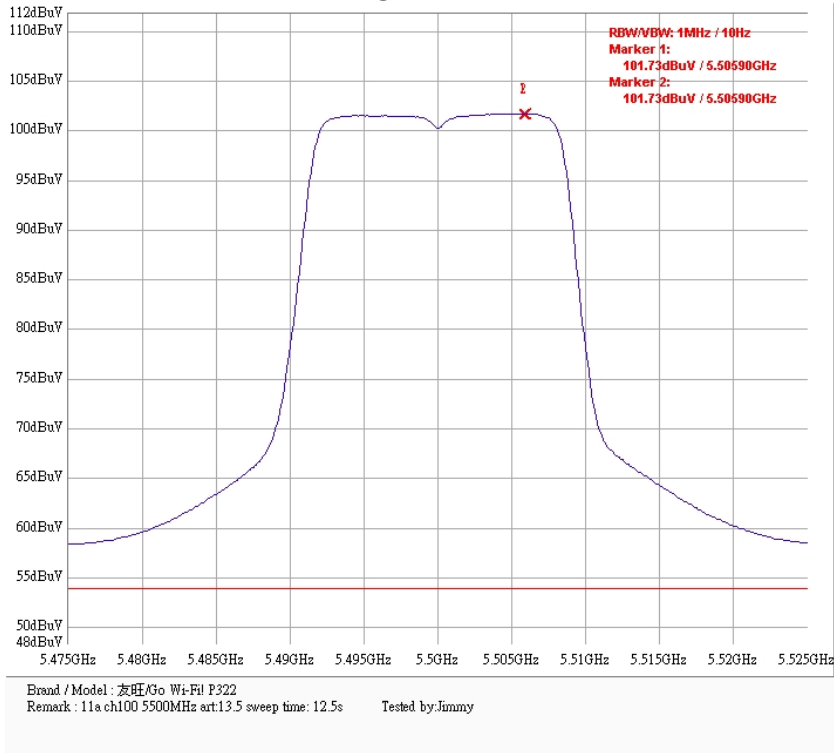
Fundamental: Band edge @ 802.11a mode channel 100 (PK)



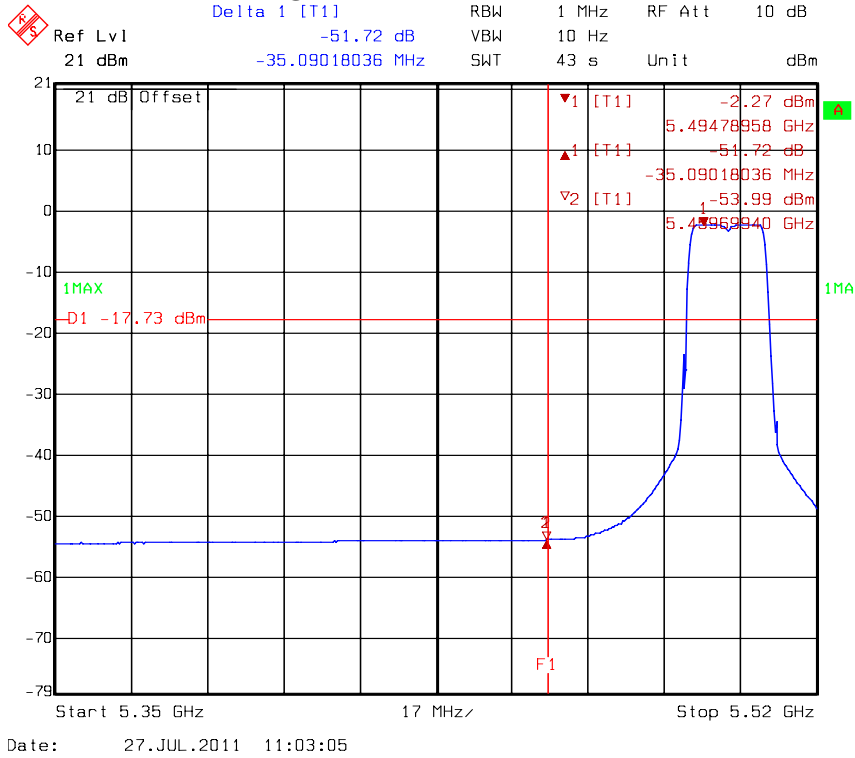
Band edge @ 802.11a mode channel 100 (PK)



Fundamental: Band edge @ 802.11a mode channel 100 (AV)



Band edge @ 802.11a mode channel 100 (AV)

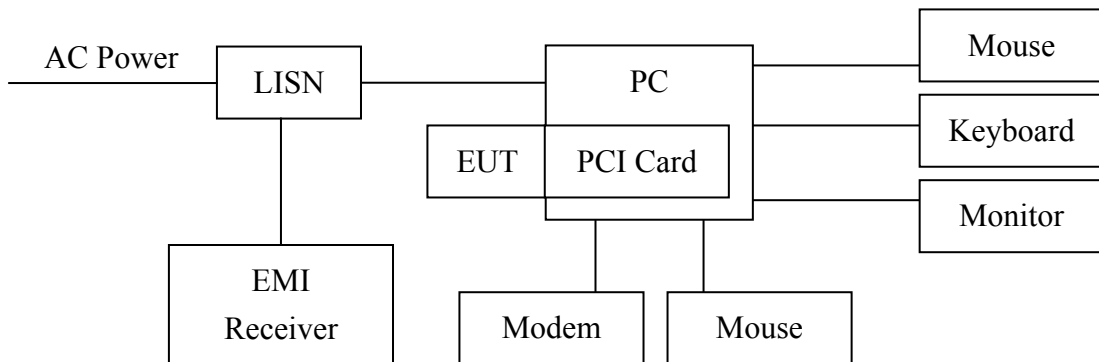


9. Power Line Conducted Emission test

9.1 Operating environment

Temperature: 21 °C
Relative Humidity: 50 %
Atmospheric Pressure 1008 hPa

9.2 Test setup & procedure



The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a 50 ohm/50 uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 ohm/50 uH coupling impedance with 50 ohm termination.

Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4/2003 on conducted measurement. The bandwidth of the field strength meter (R & S Test Receiver ESCS 30) is set at 9 kHz.

The EUT configuration please refer to the “Conducted set-up photo.pdf”.

9.3 Emission limit

Freq. (MHz)	Conducted Limit (dBuV)	
	Q.P.	Ave.
0.15~0.50	66 – 56*	56 – 46*
0.50~5.00	56	46
5.00~30.0	60	50

*Decreases with the logarithm of the frequency.

9.4 Uncertainty of Conducted Emission

Expanded uncertainty (k=2) of conducted emission measurement is ± 2.786 dB.

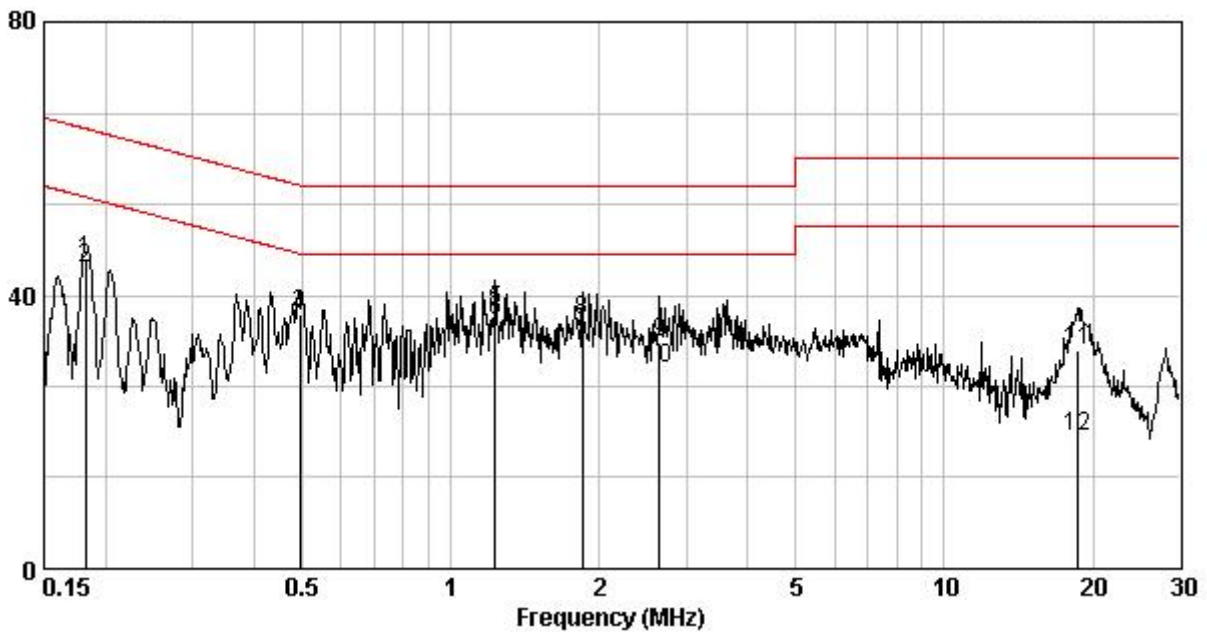
9.5 Power Line Conducted Emission test data

Phase: Line
 EUT: Go Wi-Fi! P322
 Test Condition: Continuously mode

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Margin (dB)	
						Qp	Av
0.182	0.80	45.24	64.37	44.00	54.37	-19.13	-10.37
0.494	0.10	37.18	56.10	36.81	46.10	-18.92	-9.29
1.229	0.17	37.72	56.00	36.30	46.00	-18.28	-9.70
1.848	0.11	36.33	56.00	34.49	46.00	-19.67	-11.51
2.650	0.17	33.23	56.00	29.43	46.00	-22.77	-16.57
18.622	0.95	31.98	60.00	19.27	50.00	-28.02	-30.73

Remark:

1. Correction Factor (dB)= LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)

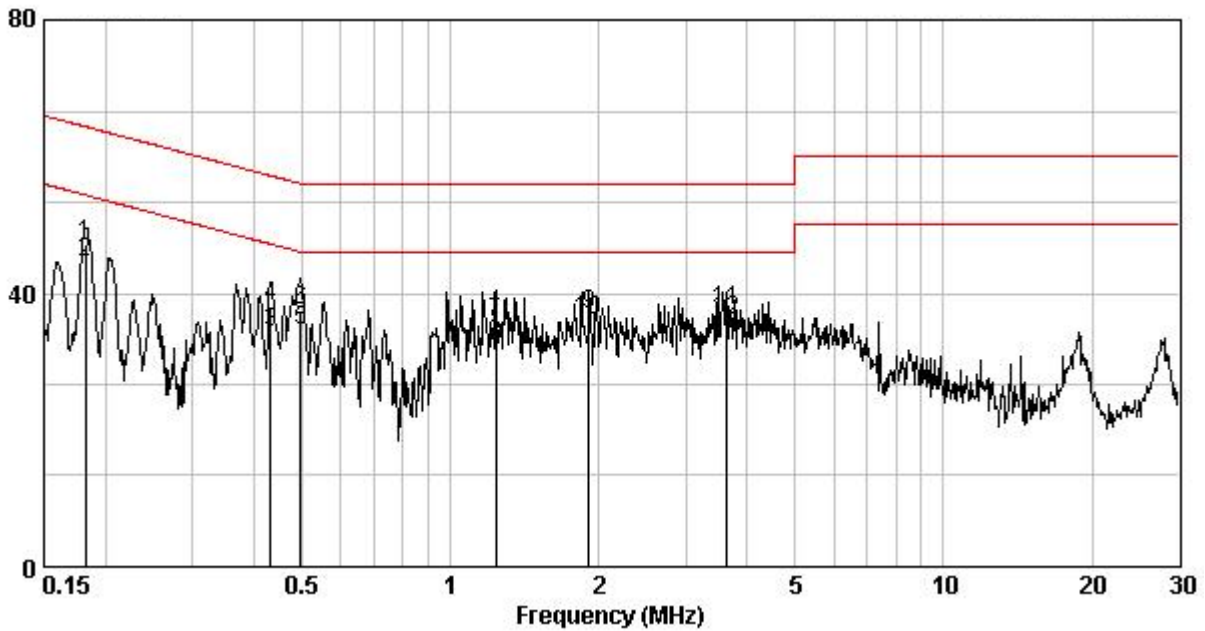


Phase: Neutral
 EUT: Go Wi-Fi! P322
 Test Condition: Continuously mode

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Margin (dB)	
						Qp	Av
0.182	0.10	47.15	64.37	44.65	54.37	-17.22	-9.72
0.433	0.10	38.15	57.20	34.37	47.20	-19.05	-12.83
0.497	0.10	37.38	56.05	34.69	46.05	-18.67	-11.36
1.236	0.17	35.71	56.00	32.43	46.00	-20.29	-13.57
1.908	0.11	36.82	56.00	36.06	46.00	-19.18	-9.94
3.629	0.25	37.38	56.00	36.12	46.00	-18.62	-9.88

Remark:

1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)



Appendix A: Test equipment list

Equipment	Brand	Frequency range	Model No.	Cal. Date	Cal. interval
EMI Test Receiver	Rohde & Schwarz	9 kHz~2.75 GHz	ESCS30	9/03/2010	1 year
Spectrum Analyzer	Rohde & Schwarz	9 kHz~30 GHz	FSP30	8/16/2010	1 year
Spectrum Analyzer	Rohde & Schwarz	20 Hz~40 GHz	FSEK30	1/18/2011	1 year
Horn Antenna	SCHWARZBECK	1 GHz~18 GHz	BBHA 9120 D	8/31/2010	2 years
Horn Antenna	SCHWARZBECK	14 GHz~40 GHz	BBHA 9170	9/3/2010	2 years
Bilog Antenna	SCHWARZBECK	25 MHz~1.7 GHz	VULB 9168	9/22/2009	2 years
Pre-Amplifier	MITEQ	100 MHz~26.5 GHz	AFS44-00102650--42-10P-44	10/27/2009	2 years
Pre-Amplifier	MITEQ	26 GHz~40 GHz	JS4-26004000--27-8A	9/8/2010	2 years
Power Meter	Anritsu	100 MHz~18 GHz	ML2495A	10/20/2010	1 year
Power Sensor	Anritsu	100 MHz~18 GHz	MA2411B	10/20/2010	1 year
Temperature & Humidity Test Chamber	TERCHY	N/A	MHU-225LRU (SA)	8/6/2010	1 year
LISN	Rohde & Schwarz	9 kHz~30 MHz	ESH3-Z5	10/15/2010	1 year

Note: The above equipments are within the valid calibration period.

Measurement Uncertainty:

Measurement uncertainty was calculated in accordance with TR 100 028-1.

Parameter	Uncertainty
Radiated Emission	±5.056 dB
Conducted Emission	±2.786 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k=2.