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Test report No.: KES-RF-13T0004 Page (1) of (72)

TEST REPORT

Part 15 Subpart C 15.247

Equipment under test Wifi Module

Model name WizFi250

FCC ID XR2WIZFI250

Applicant WIZNET Co., LTD.

Manufacturer WIZNET Co., LTD.

Date of test(s) 2014.03.05 ~2014.03.13

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Revision history

Revision	Date of issue	Test report No.	Description
-	2014.03.18	KES-RF-14T0004	Initial



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1. General information

1.1. EUT description

Equipment under test	Wifi Module				
Model name	WizFi250				
Serial number	V/A				
Frequency range	2 412 MHz ~ 2 462 MHz (802.11 b/g/n_HT20)				
Modulation technique	e DSSS, OFDM				
Number of channels	11(802.11 b/g/n_HT20)				
Antenna type & gain	UFL type PCB antenna // 2.50 dBi				
	PCB antenna // 4.15 dBi				
Power source	DC 3.3 V				

1.2. Test frequency

- 802.11b/g/n_HT20

	Low channel	Middle channel	High channel		
Frequency (Mz)	2 412	2 442	2 462		

1.3. Information about derivative model

N/A

1.4. Device modifications

N/A

1.5 Device information

- The device have two type antenna. When it use a UFL type PCB antenna, PCB Antenna does not operating, and vice versa.

- The device does not transmit simultaneously for UFL type PCB antenna and PCB antenna.

- The device duty cycle \geq 98 percent



1.6. Test facility

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The open area test site is constructed in conformance with the requirements ANSI C63.4-2003/2009.

1.7. Laboratory accreditations and listings

Country	Agency	Scope of accreditation	Certificate No.
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	343818
KOREA	КС	EMI (10 meter Open Area Test Site and two conducted sites) Radio (3 & 10 meter Open Area Test Sites and one conducted site)	KR0100
CANADA	IC	3 & 10 meter Open Area Test Sites and one conducted site	4769B-1



2. Summary of tests

Reference	Parameter	Test results
15.247(a)(2)	6 dB bandwidth	Pass
15.247(b)(3)	Output power	Pass
15.247(e)	Power spectral density	Pass
15.205, 15.209, 15.207(d)	Radiated spurious emission and conducted spurious emission	Pass
15.207	AC conducted emissions	Pass

Test procedures;

The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ANSI C63.4-2003/2009) and the guidance provided in KDB 558074_v03r01 were used in the measurement of the EUT.



Pre-scanned maximum output power

Preliminary tests were performed in different data rate as below table and the highest power data rates(802.11b, 802.11g, 802.11n_HT20) were chosen for full test in the following section to demonstrate compliance to the FCC limit line.

- UFL type PCB antenna

		Conducted power(dB m)						
Test mode	Detector mode	Data rate(Mbps)						
		1	2	5.5	11			
802.11b	Peak	14.39	14.54	<mark>14.67</mark>	14.65			
(Low channel)	Average	11.55	11.72	<u>12.05</u>	11.89			

Test mode		Conducted power(dB m)							
	Detector mode	de Data rate(Mbps)							
		6	9	12	18	24	36	48	54
802.11g	Peak	<u>19.32</u>	19.15	18.75	19.23	19.20	18.86	18.85	17.88
(Low channel)	Average	<u>11.19</u>	11.04	10.84	10.99	11.05	11.06	10.99	10.23

Test mode				C	onducted]	power(dB	m)		
	Detector mode	node Data rate(Mbps)							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n(HT20)	Peak	<u>19.25</u>	19.16	19.15	18.96	18.24	18.67	18.47	17.73
(Low channel)	Average	<u>11.07</u>	10.94	10.95	10.97	10.29	10.06	10.09	9.75



- PCB antenna

Test mode		Conducted power(dB m)						
	Detector mode	Data rate(Mbps)						
		1	2	5.5	11			
802.11b	Peak	16.72	<u>17.22</u>	16.97	16.78			
(Low channel)	Average	12.55	<u>12.89</u>	12.17	12.38			

Test mode		Conducted power(dB m)								
	Detector mode	ode Data rate(Mbps)								
		6	9	12	18	24	36	48	54	
802.11g	Peak	<u>20.15</u>	20.13	20.12	20.09	20.06	20.05	20.07	20.03	
(Low channel)	Average	<mark>12.68</mark>	12.57	12.47	12.33	12.27	12.09	11.89	11.18	

			Conducted power(dB m)									
Test mode	Detector mode				Data rat	e(Mbps)						
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7			
802.11n(HT20)	Peak	<u>20.09</u>	20.06	20.05	20.04	20.01	20.04	20.02	19.91			
(Low channel)	Low channel) Average			12.27	12.15	11.22	11.05	10.96	10.11			

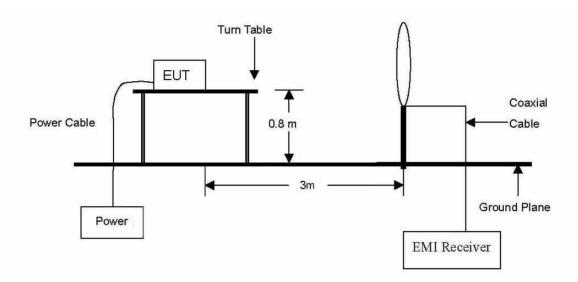


3. Test results

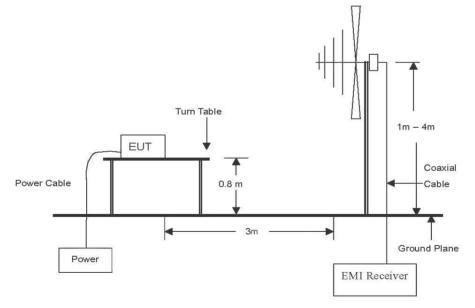
3.1 Radiated spurious emissions

Test setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 Mz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 Mz to 1 Gz emissions.

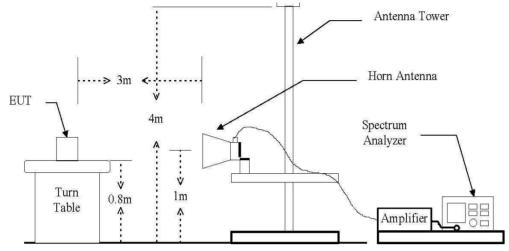


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The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 24 GHz emissions.



Test procedure

Radiated emissions from the EUT were measured according to the dictates in section 11.0 & 12.0 of KDB 558074_v03r01

- 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site or open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- 2. During performing radiated emission below 10thz, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. During performing radiated emission above 1 GHz, the EUT was set 3 meter away from the interference receiving antenna.
- 3. The antenna is a broadband antenna, and its height is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
- 5. The test receiver system was set to peak detect function and specified bandwidth with maximum hold mode.
- 6. If the emission level of the EUT in peak mode was 10 dBlower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have10 dB margin would be retested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet



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Note.

All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

1. Unwanted emissions into non-restricted frequency bands

The reference level measurement refer to section 11.1
Set analyzer center frequency to DTS channel center frequency,
Set SPAN to ≥ 1.5 times the DTS channel bandwidth,
Set RBW=100 kHz,
Set VBW ≥ 3 × RBW,
Set detector = peak,
Set sweep time = auto couple,
Trace = max hold

- Unwanted emissions level measurement refer to section 11.2 Set the center frequency and span to encompass frequency range to be measured, Set RBW=100kHz, Set VBW $\geq 3 \times RBW$, Set detector = peak, Ensure that the number of measurement points $\geq \text{span} / RBW$, Set sweep time = auto couple, Trace = max hold

2. Unwanted emissions into restricted frequency bands

Peak power measurement procedure refer to section 12.2.4
Set RBW=1Mb,
Set VBW ≥ 3 × RBW,
Set SPAN ≥ RBW,
Set detector = Peak,
Set sweep time = auto,
Trace = max hold

-Average power measurements procedure refer to section 12.2.5.1 The EUT shall be configured to operate at the maximum achievable duty cycle. Set RBW = 1 Mb, Set VBW \ge 3 × RBW, Set detector = RMS, if span/(# of points in sweep) \le (RBW/2).

Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied then the detector mode shall be set to peak, Averaging type = power (i.e.,RMS).

1) As an alternative the detector and averaging type may be set for linear voltage averaging.

- 2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB Averaging shall not be used. Sweep time = auto, perform a trace average of at least 100 traces. Sweep time = auto, perform a trace average of at least 100 traces.
- 3. To get a maximum emission level from the EUT, the EUT is manipulated through three orthogonal planes.

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Limit

According to 15.209(a), for an intentional radiator devices, the general required of field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values :

Frequency (Mz)	Distance (Meters)	Radiated (µV/m)
0.009 ~ 0.490	300	2 400 / F(kHz)
0.490 ~ 1.705	30	24 000 / F(kHz)
1.705 ~ 30.0	30	30
30 ~ 88	3	100**
88 ~ 216	3	150**
216~960	3	200**
Above 960	3	500

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



- UFL type PCB antenna

Test results (Below 30 Mz) – Worst case configuration: 802.11g

The frequency spectrum from 9 kHz to 30 MHz was investigated. Emission levels are not reported much lower than the limits by over 20 dB.

Radiated	emissions	Ant.	C	orrection facto	rs	Total	Liı	nit	
Frequency (Mbz)	Reading (dBµV)	Pol.	Ant. factor (dB/m)	u u		Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)	
	Not detected for above 30 Mz								

Note.

- 1. All spurious emission at channels are almost the same below 30 MHz, so that <u>low channel</u> was chosen at representative in final test.
- 2. Actual = Reading + Ant. factor + Cable loss + F_d
- 3. $F_d = 40 \log(D_m / D_s)$

Where:

- F_d = Distance factor in dB
- D_m = Measurement distance in meters
- D_s = Specification distance in meters

Test results (Below 1 000 Mz) – Worst case configuration: 802.11g

The frequency spectrum from 30 Mz to 1 000 Mz was investigated. Emission levels are not reported much lower than the limits by over 20 dB.

Radiated	emissions	Ant.	Correctio	on factors	Total	Li	mit
Frequency (Mz)	Reading (dBµV)	Pol.	Ant. factor (dB/m)	Cable loss (dB)	Actual (dBµV/m)	Limit (dBµN/m)	Margin (dB)
60.98	16.19	V	11.81	0.73	28.73	40.00	11.27
61.01	23.84	Н	11.80	0.73	36.37	40.00	3.63
95.91	24.77	V	9.10	1.00	34.87	43.50	8.63
95.92	22.83	Н	9.10	1.00	32.93	43.50	10.57
167.77	21.77	V	12.43	1.37	35.57	43.50	7.93
191.84	26.85	Н	9.95	1.37	38.17	43.50	5.33
191.87	23.58	V	9.95	1.40	34.93	43.50	8.57
201.32	28.14	V	9.34	1.39	38.87	43.50	4.63
287.78	25.79	Н	12.31	1.71	39.81	46.00	6.19
335.97	23.59	Н	12.51	1.85	37.95	46.00	8.05
352.05	20.03	V	13.88	1.90	35.81	46.00	10.19
597.85	13.85	V	18.66	2.68	35.19	46.00	10.81

Note.

1. All spurious emission at channels are almost the same below 1 GHz, so that <u>low channel</u> was chosen at representative in final test.

- 2. Actual = Reading + Ant. factor + Cable loss
- 3. Detector mode: Quasi peak

4. To get a maximum emission level from the EUT, the EUT was moved throughout the XY, XZ and YZ planes.

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Test results (Above 1 000 Mz)

The frequency spectrum from 2.5 \mathbb{GH} to 25 \mathbb{GH} was investigated. No Emissions were found above 20 dB below the limit.

	802.11b // Low channel											
Ra	diated emissio	ons	Ant.	Correction factors		Total	Li	mit				
Frequency (MEz)	Reading (dBµV)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)				
2 389.86	56.69	Perak	Н	29.02	-29.61	56.10	74.00	17.90				
2 389.86	42.17	Average	Н	29.02	-29.61	41.58	54.00	12.42				
2 389.39	57.20	Perak	V	29.02	-29.61	56.61	74.00	17.39				
2 389.39	36.95	Average	V	29.02	-29.61	36.36	54.00	17.64				

802.11b // Middle channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Liı	mit		
Frequency (MLz)	Reading (dBµV)	Detector mode	Pol.	Pol. Ant. factor Amp + CL (dB/m) (dB)		Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)		
	Not detected for above 1 000 MHz									

802.11b // High channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit
Frequency (MLz)	Reading (dBµN)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµN/m)	Margin (dB)
2 483.50	57.85	Perak	Н	29.22	-29.38	57.69	74.00	16.31
2 483.50	36.59	Average	Н	29.22	-29.38	36.43	54.00	17.57
2 483.50	58.36	Perak	V	29.22	-29.38	58.20	74.00	15.80
2 483.50	38.71	Average	V	29.22	-29.38	38.55	54.00	15.45

Note.

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Radiated emissions measured in frequency above 1 000 MHz were made with an instrument using peak/average detector mode.

3. Average test would be performed if the peak result were greater than the average limit.

4. Actual = Reading + Ant. factor + Amp + CL (Cable loss)



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802.11g // Low channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit
Frequency (MEz)	Reading (dBµN)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2 390.00	61.39	Perak	Н	29.02	-29.61	60.80	74.00	13.20
2 390.00	44.11	Average	Н	29.02	-29.61	43.52	54.00	10.48
2 390.00	58.54	Perak	V	29.02	-29.61	57.95	74.00	16.05
2 390.00	42.12	Average	V	29.02	-29.61	41.53	54.00	12.47

802.11g // Middle channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Liı	mit		
Frequency (MEz)	1 2 8		Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµN/m)	Margin (dB)		
	Not detected for above 1 000 Mz									

802.11g // High channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit
Frequency (MLz)	Reading (dBµN)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµN/m)	Limit (dBµV/m)	Margin (dB)
2 483.91	60.14	Perak	Н	29.23	-29.38	59.99	74.00	14.01
2 483.91	41.83	Average	Н	29.23	-29.38	41.68	54.00	12.32
2 485.93	57.82	Perak	V	29.23	-29.37	57.68	74.00	16.32
2 485.93	38.05	Average	V	29.23	-29.37	37.91	54.00	16.09

Note.

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Radiated emissions measured in frequency above 1 000 MHz were made with an instrument using peak/average detector mode.

3. Average test would be performed if the peak result were greater than the average limit.

4. Actual = Reading + Ant. factor + Amp + CL (Cable loss)



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802.11n(HT20) // Low channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit
Frequency (MHz)	Reading (dBµV)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµN/m)	Limit (dBµV/m)	Margin (dB)
2 390.00	61.84	Perak	Н	29.02	-29.61	61.25	74.00	12.75
2 390.00	47.84	Average	Н	29.02	-29.61	47.25	54.00	6.75
2 390.00	58.04	Perak	V	29.02	-29.61	57.45	74.00	16.55
2 390.00	44.55	Average	V	29.02	-29.61	43.96	54.00	10.04

802.11n(HT20) // Middle channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit		
Frequency (MHz)	Reading (dBµV)			Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)				
	Not detected for above 1 000 MHz									

802.11n(HT20) // High channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit
Frequency (MEz)	Reading (dBµV)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2 484.11	57.68	Perak	Н	29.23	-29.38	57.53	74.00	16.47
2 484.11	38.62	Average	Н	29.23	-29.38	38.47	54.00	15.53
2 483.50	61.50	Perak	V	29.22	-29.38	61.34	74.00	12.66
2 483.50	44.98	Average	V	29.22	-29.38	44.82	54.00	9.18

Note.

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Radiated emissions measured in frequency above 1 000 MHz were made with an instrument using peak/average detector mode.

3. Average test would be performed if the peak result were greater than the average limit.

4. Actual = Reading + Ant. factor + Amp + CL (Cable loss)



- PCB antenna

Test results (Below 30 Mz) – Worst case configuration: 802.11g

The frequency spectrum from 9 kHz to 30 MHz was investigated. Emission levels are not reported much lower than the limits by over 20 dB.

Radiated	emissions	Ant.	C	orrection facto	rs	Total	Liı	nit
Frequency (Mbz)	Reading (dBµV)	Pol.	Ant. factor (dB/m)	Cable loss (dB)	F _d (dB)	Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Not detected for above 30 MHz							

Note.

- 1. All spurious emission at channels are almost the same below 30 Mz, so that <u>low channel</u> was chosen at representative in final test.
- 2. Actual = Reading + Ant. factor + Cable loss + F_d
- 3. $F_d = 40 \log(D_m / D_s)$

Where:

- F_d = Distance factor in dB
- D_m = Measurement distance in meters
- D_s = Specification distance in meters

Test results (Below 1 000 Mz) – Worst case configuration: 802.11g

The frequency spectrum from 30 Mz to 1 000 Mz was investigated. Emission levels are not reported much lower than the limits by over 20 dB.

Radiated	emissions	Ant.	Correctio	on factors	Total	Li	mit
Frequency (Mz)	Reading (dBµN)	Pol.	Ant. factor (dB/m)	Cable loss (dB)	Actual (dBµN/m)	Limit (dBµN/m)	Margin (dB)
95.91	22.51	Н	9.10	1.00	32.61	43.50	10.89
95.94	23.04	V	9.11	1.00	33.15	43.50	10.35
167.77	20.42	V	12.43	1.37	34.22	43.50	9.28
201.33	27.47	Н	9.34	1.39	38.20	43.50	5.30
233.17	14.73	Н	10.58	1.53	26.84	46.00	19.16
335.96	12.53	V	13.51	1.85	27.89	46.00	18.11
335.97	21.80	Н	13.51	1.85	37.16	46.00	8.84
352.05	9.11	V	13.88	1.90	24.89	46.00	21.11
352.34	10.80	Н	13.89	1.90	26.59	46.00	19.41
384.05	22.03	Н	14.53	2.03	38.59	46.00	7.41
424.08	9.88	V	15.50	2.16	27.54	46.00	18.46

Note.

1. All spurious emission at channels are almost the same below 1 GHz, so that <u>low channel</u> was chosen at representative in final test.

2. Actual = Reading + Ant. factor + Cable loss

3. Detector mode: Quasi peak

4. To get a maximum emission level from the EUT, the EUT was moved throughout the XY, XZ and YZ planes.

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Test results (Above 1 000 Mz)

The frequency spectrum from 2.5 GHz to 25 GHz was investigated. No Emissions were found above 20 dB below the limit. 907 11h // I ow abannal

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Liı	mit
Frequency (MEz)	Reading (dBµV)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµN/m)	Limit (dBµN/m)	Margin (dB)
2 374.96	54.55	Perak	Н	28.99	-29.62	53.93	74.00	20.07
2 374.96	40.23	Average	Н	28.99	-29.62	39.61	54.00	14.39
2 386.68	57.51	Perak	V	29.02	-29.61	56.91	74.00	17.09
2 386.68	37.21	Average	V	29.02	-29.61	36.61	54.00	17.39

802.11b // Middle channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit		
Frequency (MLz)	Reading (dBµV)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)		
	Not detected for above 1 000 MHz									

802.11b // High channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit
Frequency (Mbz)	Reading (dBµV)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2 486.99	56.18	Perak	Н	29.23	-29.37	56.04	74.00	17.96
2 486.99	36.25	Average	Н	29.23	-29.37	36.11	54.00	17.89
2 489.14	58.37	Perak	V	29.24	-29.37	58.24	74.00	15.76
2 489.14	38.76	Average	V	29.24	-29.37	38.63	54.00	15.37

Note.

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Radiated emissions measured in frequency above 1 000 MHz were made with an instrument using peak/average detector mode.

3. Average test would be performed if the peak result were greater than the average limit.

4. Actual = Reading + Ant. factor + Amp + CL (Cable loss)



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802.11g // Low channel

Ra	diated emissio	ons	Ant.	Correctio	Correction factors		Li	mit
Frequency (MHz)	Reading (dBµN)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2 390.00	60.28	Perak	Н	29.02	-29.61	59.69	74.00	14.31
2 390.00	44.23	Average	Н	29.02	-29.61	43.64	54.00	10.36
2 390.00	59.37	Perak	V	29.02	-29.61	58.78	74.00	15.22
2 390.00	43.20	Average	V	29.02	-29.61	42.61	54.00	11.39

802.11g // Middle channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit		
Frequency (MLZ)	Reading (dBµV)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)		
	Not detected for above 1 000 MHz									

	802.11g // High channel										
Ra	Radiated emissions		Ant.	Correctio	on factors	Total	Li	mit			
Frequency (Mbz)	Reading (dBµV)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµN/m)	Limit (dBµN/m)	Margin (dB)			
2 486.87	60.06	Perak	Н	29.23	-29.37	59.92	74.00	14.08			
2 486.87	41.90	Average	Н	29.23	-29.37	41.76	54.00	12.24			
2 483.50	58.00	Perak	V	29.22	-29.38	57.84	74.00	16.16			
2 483.50	40.01	Average	V	29.22	-29.38	39.85	54.00	14.15			

000 11 // *** *

Note.

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Radiated emissions measured in frequency above 1 000 MHz were made with an instrument using peak/average detector mode.

3. Average test would be performed if the peak result were greater than the average limit.

4. Actual = Reading + Ant. factor + Amp + CL (Cable loss)



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802.11n(HT20) // Low channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit
Frequency (MHz)	Reading (dBµN)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2 390.00	61.92	Perak	Н	29.02	-29.61	61.33	74.00	12.67
2 390.00	45.44	Average	Н	29.02	-29.61	44.85	54.00	9.15
2 389.81	59.03	Perak	V	29.02	-29.61	58.44	74.00	15.56
2 389.81	45.32	Average	V	29.02	-29.61	44.73	54.00	9.27

802.11n(HT20) // Middle channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit	
Frequency (MHz)	Reading (dBµV)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµV/m)	Limit (dBµV/m)	Margin (dB)	
Not detected for above 1 000 Młz									

802.11n(HT20) // High channel

Ra	diated emissio	ons	Ant.	Correctio	on factors	Total	Li	mit
Frequency (MEz)	Reading (dBµV)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dBµN/m)	Limit (dBµN/m)	Margin (dB)
2 483.50	57.55	Perak	Н	29.22	-29.38	57.39	74.00	16.61
2 483.50	38.50	Average	Н	29.22	-29.38	38.34	54.00	15.66
2 483.50	61.04	Perak	V	29.22	-29.38	60.88	74.00	13.12
2 483.50	43.33	Average	V	29.22	-29.38	43.17	54.00	10.83

Note.

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

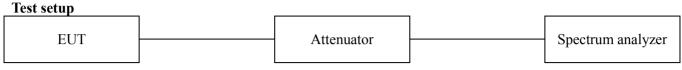
2. Radiated emissions measured in frequency above 1 000 MHz were made with an instrument using peak/average detector mode.

3. Average test would be performed if the peak result were greater than the average limit.

4. Actual = Reading + Ant. factor + Amp + CL (Cable loss)



3.2 Conducted spurious emissions



Test procedure

All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.

Per the guidance of KDB 558074_v03r01, section 11.1&11.2, the reference level for out of band emissions is established from the plots of this section since the band edge emissions are measured with a RBW of 100 kHz. This reference level is then used as the limit in subsequent plots for out of band spurious emissions shown in section 2.4.3. The limit for out of band spurious emission at the band edge is 20dB below the fundamental emission level measured in a 100 kHz bandwidth.

Limit

According to 15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph(b)(3) of this section , the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in section 15.209(a) is not required. In addition, radiated emission which in the restricted band, as define in section 15.205(a), must also comply the radiated emission limits specified in section 15.209(a) (see section 15.205(c))



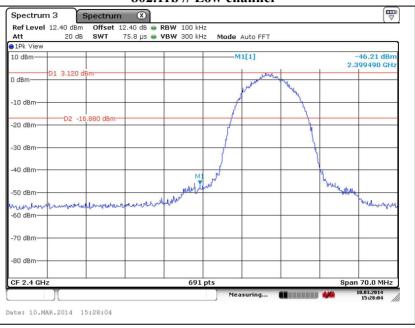
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Test results for conducted spurious emission

- UFL type PCB antenna





Ref Level Att	12.40 dBm 20 dB	Offset 1 SWT	2.40 dB 👄 R 265 ms 👄 V			Auto Sweep		
∋1Pk View								
10 dBm					M	1[1]		-48.78 dBm 8.4360 GHz
0 dBm	D1 2.650 d	Bm						
-10 dBm—								
-20 dBm—	D2 -17	.350 dBm-						
-30 dBm—								
-40 dBm—-								
-50 dBm	. Mallar	manuter a	unun	A	Make with M.	M	MULINA	Monoral
260 dBm-	hours	and an and						
-70 dBm—								
-80 dBm								
Start 30.0) MHz			691	pts		Stop	26.5 GHz
	Υ				Mea	suring		10.03.2014 15:29:58



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				N	/A			
			_					
		pectrum		nu soo ku				
Ref Level Att		Offset 1				Auto Sweep		
Ref Level Att 1Pk View	12.40 dBm	Offset 1	2.40 dB 🔵 R		z Mode			
Ref Level Att 1Pk View 10 dBm	12.40 dBm 20 dB	Offset 13 SWT	2.40 dB 🔵 R		z Mode	Auto Sweep 1[1]		-50.04 dBm 8.4750 GHz
Ref Level Att 1Pk View 10 dBm	12.40 dBm 20 dB	Offset 13 SWT	2.40 dB 🔵 R		z Mode			-50.04 dBm
Ref Level Att 1Pk View 10 dBm	12.40 dBm 20 dB	Offset 13 SWT	2.40 dB 🔵 R		z Mode			-50.04 dBm
Ref Level Att 1Pk View 10 dBm U dBm -10 dBm	12.40 dBm 20 dB	Offset 1: SWT	2.40 dB 🔵 R		z Mode			-50.04 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm	12.40 dBm 20 dB	Offset 13 SWT	2.40 dB 🔵 R		z Mode			-50.04 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm	12.40 dBm 20 dB	Offset 1: SWT	2.40 dB 🔵 R		z Mode			-50.04 dBm
Ref Level Att IPk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	12.40 dBm 20 dB	Offset 1: SWT	2.40 dB 🔵 R		z Mode			-50.04 dBm
Ref Level Att 4tt 9 19 k View 9 10 dBm 0 0 dBm -10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	12.40 dBm 20 dB	Offset 1: SWT	2.40 dB 🔵 R		z Mode			-50.04 dBm
Ref Level Att 4tt 9 1Pk View 9 1Pk View 10 dBm 10 dBm	12,40 dBm 20 dB D1 0.880 df	Offset 1: SWT	2.40 dB 🔵 R		2 Mode . 	1[1]		-50.04 dBm 8.4750 GHz
Ref Level Att 4tt 9 1Pk View 9 1Pk View 10 dBm 10 dBm	12,40 dBm 20 dB D1 0.880 df	Offset 1: SWT	2.40 dB 🔵 R	'BW 300 kH	2 Mode .	1[1]		-50.04 dBm 8.4750 GHz
Ref Level Att 10 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -50 dBm	12,40 dBm 20 dB D1 0.880 df	Offset 1: SWT	2.40 dB 🔵 R	'BW 300 kH	2 Mode .	1[1]		-50.04 dBm 8.4750 GHz
Ref Level Att 91Pk View 10 dBm -10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm	12,40 dBm 20 dB D1 0.880 df	Offset 1: SWT	2.40 dB 🔵 R	'BW 300 kH	2 Mode .	1[1]		-50.04 dBm 8.4750 GHz
	12,40 dBm 20 dB D1 0.880 df	Offset 1: SWT	2.40 dB 🔵 R	'BW 300 kH	2 Mode .	1[1]		-50.04 dBm 8.4750 GHz

802.11b // Middle channel

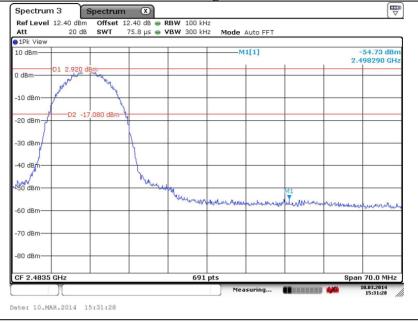
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Date: 10.MAR.2014 15:27:03



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802.11b // High channel



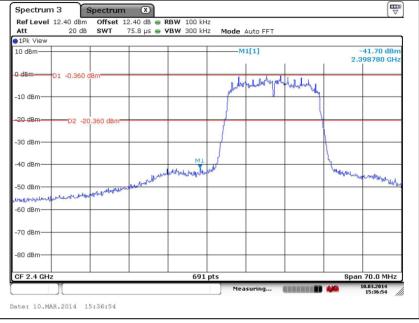
Att	12.40 dBm 20 dB	SWT	12.40 dB 👄 F 265 ms 👄 V			Auto Sweep		
1Pk View					- 11040			
10 dBm					M	1[1]	1	49.85 dBm 8.4360 GHz
0 dBm	D1 1.310 de	lm						
-10 dBm								
-20 dBm	D2 -18	.690 dBm <u>—</u>						
-30 dBm								
-40 dBm								
-50 dBm		wandfull .	howwww		u., "na	mathym	f	 Muraman
-80 dBm	week the second	•• V¥	a mana N	Ch Drift - Jones III				
-70 dBm								
-80 dBm								
Start 30.0	MHz			691	pts			 26.5 GHz

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802.11g // Low channel



Ref Level 1: Att	20 dB	SWT	12.40 dB 👄 1 265 ms 👄 '			Auto Sweep			
1Pk View						F			
10 dBm					M	1[1]			49.09 dBm 3.4750 GHz
0 dBm	L -2.470 d	8m							
-10 dBm									
-20 dBm		.470 dBm—							
-30 dBm									
-40 dBm									
-50 dBm	, kun b	-l.s.uksM			П	M			. a. worker i
WEB dem	and the stand	and the We	Muluda	krihindulon	man and a c		n yr yr ywyng	to any have not	www
-70 dBm									
-80 dBm									
Start 30.0 M	Hz			69	Lpts				26.5 GHz

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				N	Δ			
				1 1/	Π			
		pectrum	<u></u>					
Spectrum Ref Level Att		Offset 12	X 2.40 dB ■ R 265 ms ■ V			Auto Sweep		(EE)
Ref Level (Att 1Pk View	12.40 dBm	Offset 12	.40 dB 🔵 R		z Mode			
Ref Level (Att 1Pk View 10 dBm	12.40 dBm	Offset 12	.40 dB 🔵 R		z Mode	Auto Sweep 1[1]		50.61 dBm 8.4360 GHz
Ref Level : Att 1Pk View 10 dBm	12.40 dBm 20 dB	Offset 12 SWT 2	.40 dB 🔵 R		z Mode			-50.61 dBm
Ref Level : Att 1Pk View 10 dBm	12.40 dBm	Offset 12 SWT 2	.40 dB 🔵 R		z Mode			-50.61 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm	12.40 dBm 20 dB	Offset 12 SWT 2	.40 dB 🔵 R		z Mode			-50.61 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm	12.40 dBm 20 dB D1 -3.150 d	Offset 12 SWT 2	.40 dB 🔵 R		z Mode			-50.61 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm 0 10 dBm 0 -10 dBm 0 -20 dBm 0	12.40 dBm 20 dB D1 -3.150 d	Offset 12 SWT 2	.40 dB 🔵 R		z Mode			-50.61 dBm
Ref Level Att Att Pk View 10 dBm 0 -10 dBm 0 -20 dBm 0 -30 dBm -30 dBm	12.40 dBm 20 dB D1 -3.150 d	Offset 12 SWT 2	.40 dB 🔵 R		z Mode			-50.61 dBm
Ref Level Att 91Pk View 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	12.40 dBm 20 dB D1 -3.150 d	Offset 12 SWT 2	.40 dB 🔵 R		z Mode	1[1]		-50.61 dBm
Ref Level Att 91Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	12.40 dBm 20 dB D1 -3.150 d	Offset 12 SWT :: Bm	2265 ms 🖶 V	BW 300 kH	z <u>Mode</u> . M	1[1]		-50.61 dBm
Ref Level Att 91Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	12.40 dBm 20 dB D1 -3.150 d	Offset 12 SWT 2	.40 dB 🔵 R		z Mode . M	1[1]	l l	-50.61 dBm 8.4360 GHz
Ref Level Att 91Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -50 dBm	12.40 dBm 20 dB D1 -3.150 d	Offset 12 SWT :: Bm	2265 ms 🖶 V	'BW 300 kH	z <u>Mode</u> . M	1[1]	l det whethere	-50.61 dBm 8.4360 GHz
Ref Level Att 91Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	12.40 dBm 20 dB D1 -3.150 d	Offset 12 SWT :: Bm	2265 ms 🖶 V	'BW 300 kH	z <u>Mode</u> . M	1[1]	l l	-50.61 dBm 8.4360 GHz
Ref Level Att 91Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -50 dBm	12.40 dBm 20 dB D1 -3.150 d	Offset 12 SWT :: Bm	2265 ms 🖶 V	'BW 300 kH	z <u>Mode</u> . M	1[1]		-50.61 dBm 8.4360 GHz

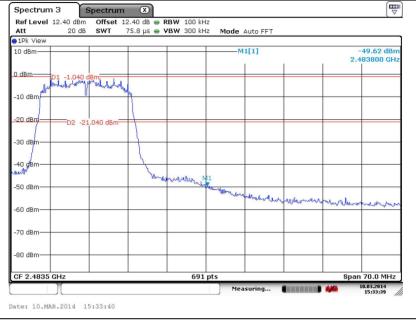
802.11g // Middle channel

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802.11g // High channel

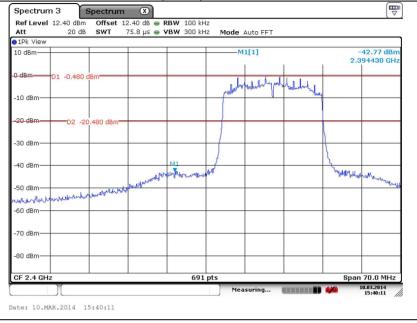


	12.40 dBm		12.40 dB 🗑 R						
Att	20 dB	SWT	265 ms 👄 🖌	' BW 300 kH	z Mode	Auto Sweep			
∋1Pk View									
10 dBm					M	1[1]			-50.55 dBm
						1	1	1	16.9810 GHz
0 dBm	D1 -2.130 d	0							-
	DI -2.130 0	Bm							
-10 dBm									_
-20 dBm									
Lo dom	D2 -22	.130 dBm-							
-30 dBm									
-30 UBIII									
-40 dBm									-
						M1			
-50 dBm-		an and	T	4.7	al adate	and the	the state	10 10	able at a
Jow	mertunter	www.W	moundary	how would be	muchm	and contract	manner	and the second	and we
460 dBm									
-70 dBm									
-80 dBm									
Start 30.0	MHz		1	691	pts		I	Sto	p 26.5 GHz
	1					suring			10.03.2014
						suring			15:34:34



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802.11n(HT20) // Low channel



Ref Level	12.40 dBm	Offset :	12.40 dB 🗑 F	BW 100 kH	Iz				`
Att	20 dB	SWT	265 ms 👄 🖌	/BW 300 kH	z Mode	Auto Sweep			
∋1Pk View									
10 dBm					M	1[1]			-49.23 dBm 6.9810 GHz
0 dBm	D1 -1.310 d	Bm							
-10 dBm									
-20 dBm—-	D2 -21	.310 dBm-							
-30 dBm									
-40 dBm——									
-50 dBm	Ţ.	North	month			M1 Martin pahl	B. a. J.		your manuel
-60 dBm	www.grun.grupu	anan Mi	Manna	www.	produced in t		r an and an and	al with the second	
-70 dBm									
-80 dBm									
Start 30.0	MHz			691	pts			Sto	p 26.5 GHz
					Mea	suring			10.03.2014 15:40:57

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802.11n(HT20) // Middle channel N/A Spectrum @ REW 100 kHz Mode Auto Sweep Spectrum @ REW 100 kHz Mode Auto Sweep OB SWT 265 ms @ VBW 300 kHz MI[1] 0 dBm 0 dBm 0 dBm 0 dBm MI[1] 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm

mun han by

691 pts

Measuring...

4.1

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-20 dBm-

-30 dBm -40 dBm -50 dBm

-70 dBm -80 dBm Start 30.0 MHz

Date: 10.MAR.2014 15:42:01

-D2 -21.440 dBm

which which of you where

Stop 26.5 GHz

10.03.2014 15:42:01

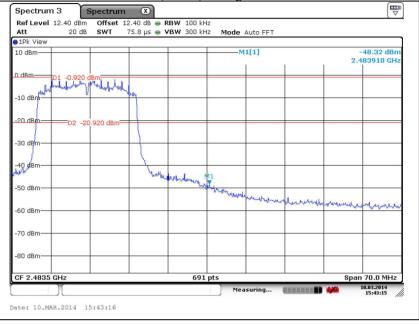
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802.11n(HT20) // High channel



Att	20 dB	SWT	265 ms 😑 \	/BW 300 kH	z Mode	Auto Sweep			
●1Pk View									
10 dBm					M	1[1]			49.72 dBm 3.4360 GHz
0 dBm	0.040.40								
-10 dBm	-3.840 dE	sm							
-20 dBm		840 dBm-							
-30 dBm	-02 -23								
-40 dBm									
-50 dBm	. which my	weight a	A marker in	un Alaz	hour with	yuntrisme	l Markenardska, m	hut what has to	when when
-60 dBm	a	Della 1		0-1-0-1-0-0		·		- A - A	
-70 dBm									
-80 dBm									
Start 30.0 MH:	z		1	691	pts			Stop	26.5 GHz

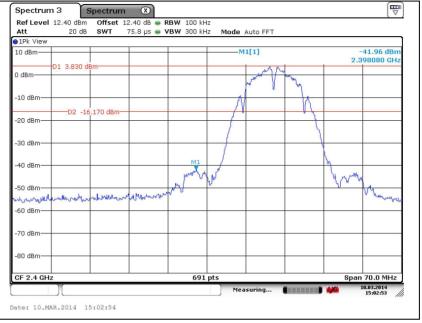
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- PCB antenna

802.11b // Low channel



Att	20 dB	SWT	265 ms 😑 🕻	′BW 300 kH	z Mode	Auto Sweep			
∋1Pk View									
10 dBm	-D1 3.500 d	0.00			M	1[1]			-50.31 dBm .8.4360 GHz
0 dBm	UI 3.500 u	BIII							
-10 dBm—									
-20 dBm—	D2 -16	5.500 dBm-							
-30 dBm—									
-40 dBm—									
-50 dBm—						M المعرب المعرب	L Latin Arri	L. D. d	L
460 dBm—	warthouthouth	ann an Phy	muuna	Yman	unun	ho alouno.	" Hell Comments	purcharute	humberthai
-70 dBm—									
-80 dBm—									
Start 30.0) MHz			691	pts			Sto	p 26.5 GHz

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			N/	٨			
			N/	٨			
			N/	٨			
			N/	٨			
				A			
Spectrui Ref Level	m 3 5	Offset 1					
Att			RBW 100 kH:	2			
	20 dB		RBW 100 kH: /BW 300 kH:		uto Sweep		
1Pk View				2 Mode 4	uto Sweep		48.54 dBm
1Pk View 10 dBm		SWT		2 Mode 4			
) 1Pk View 10 dBm		SWT		2 Mode 4			48.54 dBm
1Pk View 10 dBm	D1 2.140 d	SWT		2 Mode 4			48.54 dBm
1Pk View 10 dBm	D1 2.140 d	SWT		2 Mode 4			48.54 dBm
1Pk View 10 dBm	D1 2.140 d	SWT		2 Mode 4			48.54 dBm
1Pk View 10 dBm	D1 2.140 d	SWT		2 Mode 4			48.54 dBm
Ptk View 10 dBm	D1 2.140 d	SWT		2 Mode 4	I[1]	1	48.54 dBm 3.4750 GHz
1Pk View 10 dBm	D1 2.140 d	SWT		2 Mode 4			48.54 dBm
10k View 10 dBm 10 dBm	D1 2.140 d	SWT		2 Mode 4	I[1]	1	48.54 dBm 3.4750 GHz
●1Pk View 10 dBm	D1 2.140 d	SWT		2 Mode 4	I[1]	1	48.54 dBm 3.4750 GHz

802.11b // Middle channel

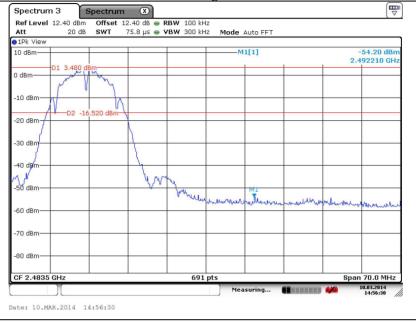
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802.11b // High channel



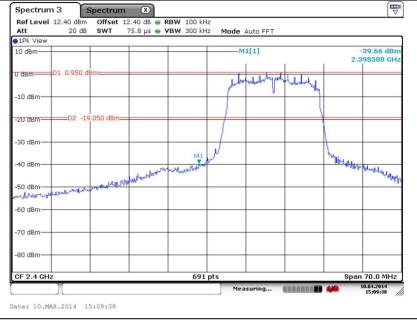
∋1Pk View									-
10 dBm					M	1[1]			-48.70 dBm 8.4360 GHz
0 dBm	D1 1.740 d	Bm							
-10 dBm									
-20 dBm	D2 -18	3.260 dBm							
-30 dBm									
-40 dBm									
-50 dBm		an comt o				M	L)		a a state
60 dem-	ud have been proposed	ownedur	rundredel	lummu	uture	downward	Muhn	der marked by the	alle to show the
-70 dBm									
-80 dBm									
Start 30.0	MHz			691	nts			Stor	26.5 GHz

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802.11g // Low channel



	12.40 dBm		2.40 dB 🗑 F					
Att	20 dB	SWT	265 ms 👄 \	′BW 300 kH	z Mode	Auto Sweep		
1Pk View								
10 dBm					M	1[1]		-50.37 dBm 8.4360 GHz
0 dBm	D1 -2.050 c	Bm						
-10 dBm								
-20 dBm	D2 -22	.050 dBm						
-30 dBm								
-40 dBm								
-50 dBm	and the weld men	handhar	human	vumm	mun	mululund	hidrauthormor	allofulation
-70 dBm								
-70 abm-								
-80 dBm								
Start 30.0	MHz			691	pts		Stop	26.5 GHz
					Mea	suring	444	10.03.2014 15:10:51



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				N/	A			
				1.0/	1			
Spectrum	3 S	pectrum	®					
Ref Level 1	12.40 dBm			2 BW 100 kH		uto Swoon		
Spectrum Ref Level 1 Att 1Pk View		Offset 1	2.40 dB 🗑 R	RBW 100 kH YBW 300 kH	z Mode A	uto Sweep		
Ref Level 1 Att 1Pk View	12.40 dBm	Offset 1	2.40 dB 🗑 R		z Mode A	uto Sweep		₩ 49.13 dBm 3.4750 GHz
Ref Level 1 Att) 1Pk View 10 dBm	12.40 dBm 20 dB	Offset 13 SWT	2.40 dB 🗑 R		z Mode A			49.13 dBm
Ref Level 1 Att) 1Pk View 10 dBm) dBm	12.40 dBm	Offset 13 SWT	2.40 dB 🗑 R		z Mode A			49.13 dBm
Ref Level 1 Att 1Pk View 10 dBm 0 dBm	12.40 dBm 20 dB	Offset 13 SWT	2.40 dB 🗑 R		z Mode A			49.13 dBm
Ref Level 1 Att 1Pk View 10 dBm 0 dBm -10 dBm	20 dB 20 dB	Offset 13 SWT	2.40 dB 🗑 R		z Mode A			49.13 dBm
Ref Level 1 Att) 1Pk View 10 dBm 0 dBm 0 dBm 2 dBm -10 dBm	20 dB 20 dB	Offset 1: SWT	2.40 dB 🗑 R		z Mode A			49.13 dBm
Ref Level 1 Att) IPk View 10 dBm D dBm -10 dBm -20 dBm -30 dBm	20 dB 20 dB	Offset 1: SWT	2.40 dB 🗑 R		z Mode A			49.13 dBm
Ref Level 1 Att 91Pk View 10 dBm 0 dBm 0 dBm -20 dBm -30 dBm -40 dBm	12.40 dBm 20 dB 01 -2.120 d	Offset 1: SWT	2.40 dB 🗑 R		z Mode A	.[1]		49.13 dBm 3.4750 GHz
Ref Level 1 Att 91Pk View 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm	12.40 dBm 20 dB 01 -2.120 d	Offset 1: SWT	2.40 dB 🗑 R		z Mode A	.[1]		49.13 dBm
Ref Level 1 Att 91Pk View 10 dBm 0 dBm 0 dBm -20 dBm -30 dBm -40 dBm	12.40 dBm 20 dB 01 -2.120 d	Offset 1: SWT	2.40 dB 🗑 R		z Mode A	.[1]		49.13 dBm 3.4750 GHz
Ref Level 1 Att p1Pk View 10 dBm 10 dBm 20 dBm 20 dBm 30 dBm 40 dBm 50 dBm 60 dBm	12.40 dBm 20 dB 01 -2.120 d	Offset 1: SWT	2.40 dB 🗑 R		z Mode A	.[1]		49.13 dBm 3.4750 GHz
Ref Level 1 Att 91Pk View 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm	12.40 dBm 20 dB 01 -2.120 d	Offset 1: SWT	2.40 dB 🗑 R		z Mode A	.[1]		49.13 dBm 3.4750 GHz

802.11g // Middle channel

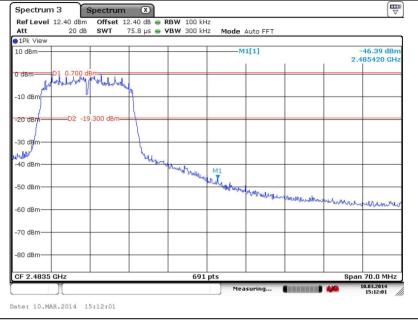
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802.11g // High channel



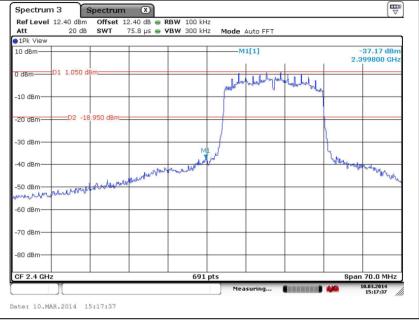
Att 20 dB SWT	265 ms 😑 VBW 300 k	Hz Mode Auto Sweep		
10 dBm		M1[1]		-48.30 dBm 18.4750 GHz
0 dBm D1 -1.720 dBm				
-10 dBm				
-20 dBm				
-30 dBm				
-40 dBm				
-50 dBm	the second s	multin market wind	r	ish a which of hard and
60 dBm	and the second of the second o		And all the area	a. Adv. av
-70 dBm				
-80 dBm				
Start 30.0 MHz	69	1 pts		Stop 26.5 GHz

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802.11n(HT20) // Low channel



Att	12.40 dBm 20 dB	SWT	2.40 dB 👄 🖡 265 ms 👄 🍾			Auto Sweep			
1Pk View									
10 dBm					M	1[1]			49.25 dBm 8.4360 GHz
0 dBm	D1 -2.590 d	8m							
-10 dBm—									
-20 dBm—	D2 -22	.590 dBm-							
-30 dBm—									
-40 dBm—-									
-50 dBm—		الم أنظر	White way by		- and	M. Jack Mark		whilework	A. M. Marker
-60 dBm—	and how the	- man Mah	and a many and a grand a	www	North Contraction of the		L. AND ARD	an a frank hand	-adhar
-70 dBm—									
-80 dBm—									
Start 30.0) MHz			691	pts				26.5 GHz



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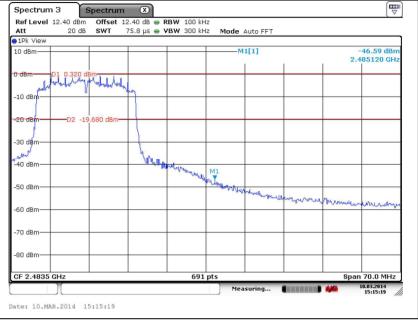
N/A N/A Pectrum 3 Spectrum (RBW 100 KHz t 20 dB SWT 265 ms VBW 300 KHz Mode Auto Sweep

Att 1Pk View	20 dB	SWT	265 ms 👄 🖌	'BW 300 kH	z Mode	Auto Sweep			
10 dBm					M	1[1]			49.12 dBm .4360 GHz
0 dBm	D1 -0.430 c	Bm							
-10 dBm									
-20 dBm	D2 -20	.430 dBm							
-30 dBm									
-40 dBm									
-50 dBm	10.00				1000	M			
60 dBm	whether	mun In	Mannarolyn	www.mww	www.M	mmun	would	pylater	Juhor - w
-70 dBm									
-80 dBm									
Start 30.0	MHz			691	pts			Stop	26.5 GHz
	Υ					suring			0.03.2014 15:19:29



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802.11n(HT20) // High channel



Ref Level		Offset 1	l2.40 dB 🥃 R	BW 100 k⊢	Z				
Att	20 dB	SWT	265 ms 😑 🖌	' BW 300 kH	z Mode	Auto Sweep			
∋1Pk View									
10 dBm					M	1[1]		. 1	-49.99 dBm 18.4360 GHz
0 dBm	D1 -0.750 d	8m							
-10 dBm									
-20 dBm	D2 -20	.750 dBm							
-30 dBm									
-40 dBm									
-50 dBm		JH.m. bl	manuf		. D.d	M. water a photo w	l al in Aile		www
±60 dBm	Josephinikaros	and be	many	ynner	whether after 11 h		wander have		Charles
-70 dBm									
-80 dBm									
Start 30.0	MHz			691	pts			Sto	p 26.5 GHz
					Mea	suring		-	10.03.2014 15:16:25