

To: FCC 47 CFR Part 15.247 & IC RSS-210

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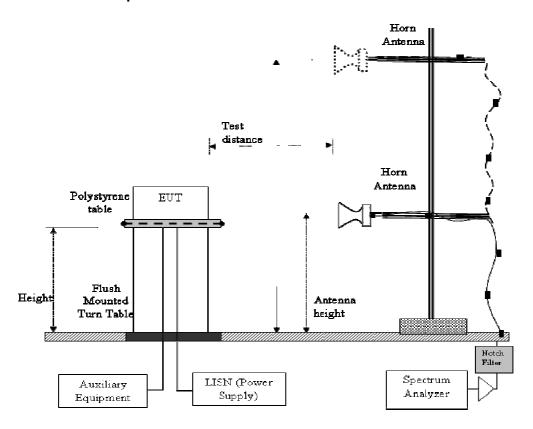
## 7.6 Radiated Spurious Emissions

#### **Test Procedure**

Testing was performed in a 3-meter anechoic chamber. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. Preliminary emissions were recorded with in Spectrum Analyzer mode, using a maximum peak detector while in peak hold mode.

Emissions nearest the limits were chosen for maximization and formal measurement using a CISPR Compliant receiver. Emissions above 1000 MHz are measured utilizing a CISPR compliant average detector with a tuned receiver, using a bandwidth of 1 MHz. Emissions from 30 MHz – 1000 MHz are measured utilizing a CISPR compliant quasi-peak detector with a tuned receiver, using a bandwidth of 120 kHz. Only the highest emissions relative to the limit are listed.

### **Test Measurement Set Up**

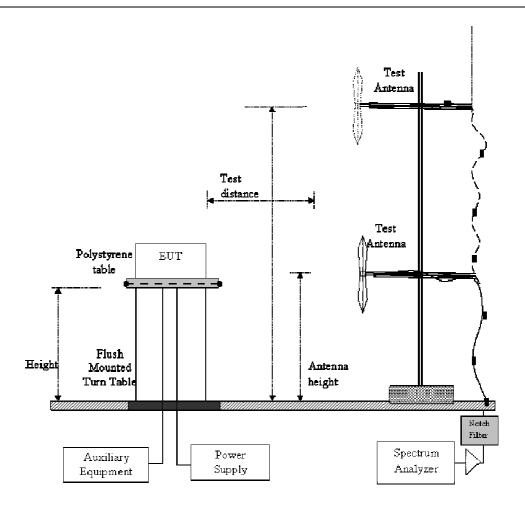


Radiated Emission Measurement Setup – Above 1 GHz



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Radiated Emission Measurement Setup – Below 1 GHz

## **Field Strength Calculation**

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

FS = Field Strength

R = Measured Spectrum analyzer Input Amplitude

AF = Antenna Factor



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### CORR = Correction Factor = CL - AG + NFL

CL = Cable Loss

AG = Amplifier Gain

FO = Distance Falloff Factor

NFL = Notch Filter Loss or Waveguide Loss

#### Field Strength Calculation Example:

Given receiver input reading of 51.5 dB $\mu$ V; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

$$FS = 51.5 + 8.5 + 1.3 - 26.0 + 1 = 36.3 dB\mu V/m$$

Conversion between  $dB\mu V/m$  (or  $dB\mu V$ ) and  $\mu V/m$  (or  $\mu V$ ) are done as:

Level  $(dB\mu V/m) = 20 * Log (level (\mu V/m))$ 

40 dB $\mu$ V/m = 100  $\mu$ V/m 48 dB $\mu$ V/m = 250  $\mu$ V/m



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## **Specification**

### **Radiated Spurious Emissions**

**FCC §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 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 §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section §15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(a)).

FCC §15.205 (a) Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

**FCC §15.205 (a)** Except as shown in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

FCC §15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.



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# **Table 1: FCC 15.209 Spurious Emissions Limits**

Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance (meters)		
30-88	100	40.0	3		
88-216	150	43.5	3		
216-960	200	46.0	3		
Above 960	500	54.0	3		

# **Laboratory Measurement Uncertainty for Spectrum Measurement**

<b>Measurement Uncertainty</b>	+5.6/ -4.5 dB
Micasarcinent Oncertainty	10.0/ T.0 dD

# Traceability:

Method	Test Equipment Used
Work instruction WI-03	0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312



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# 7.6.1 <u>Integral Antenna - Transmitter Radiated Spurious Emissions – Above 1 GHz</u>

### 2400 - 2483.5 MHz: 802.11b

Test Freq. 2412 MHz													
									ngineer	CSB	-		
	ariant		b; 1 Mb:						mp (°C)	21			
Freq. R	lange	1000 N	IHz - 18	000 MHz		Rel. Hum .(%) 37				37			
Power Se	etting	12 in A	RT test	utility			Press. (m Bars) 1003						
Ant	enna	Integra	l Antenr	nas				Duty C	ycle (%)	100%			
Test No	tes 1	EUT ve	rtical or	table.		-				-			
Test No	tes 2	Fundar	nental a	ttenuated	by notch filter								
MicoMLabs  dBuV Vasona by EMiSoft 31 Mar 10 12:20 20.0  1													
Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dB uV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments	
4824.042	64.7	4.5	-9.4	59.7	Peak Max	Н	149	360	74.0	-14.3	Pass	RB	
4824.042	58.2	4.5	-9.4	53.2	Average	Н	149	360	54.0	-0.8	Pass	RB	
7232.505	48.6	5.4	-5.3	48.8	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB	
9648.076	53.4	6.3	-3.4	56.4	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB	
Legend:	TX = T	ransmit	ter Emis	sions; DIC	3 = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band Er	nission	
ŀ	NRR =	Non Re	on Restricted Band, Limit is 20dB below fundamental peak										

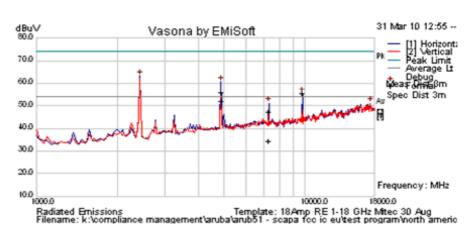


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Test Freq.	2437 MHz	Engineer	CSB					
Variant	802.11b; 1 Mbs	Temp (°C)	21					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37					
Power Setting	12 in ART test utility	1003						
Antenna	Integral Antennas	100%						
Test Notes 1	EUT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter							





## Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4874.048	56.9	4.5	-9.3	52.1	Average Max	Н	104	360	54.0	-1.9	Pass	RB
4874.048	60.5	4.5	-9.3	55.7	Peak Max	Н	104	360	74.0	-18.3	Pass	RB
7313.026	34.2	5.4	-5.0	34.7	Average Max	Н	98	327	54	-19.3	Pass	RB
7313.026	46.7	5.4	-5.0	47.2	Peak Max	Н	98	327	74	-26.8	Pass	RB
9748.114	52.7	6.4	-3.6	55.4	Peak [Scan]	Н	> 20dB below fundamental				Pass	NRB

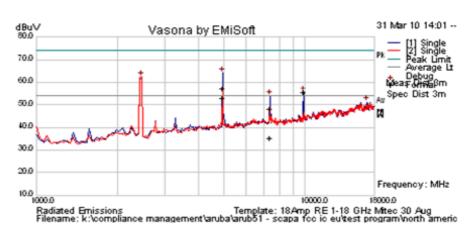


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Test Freq.	2462 MHz	Engineer	CSB					
Variant	802.11b; 1 Mbs	Temp (°C)	21					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37					
Power Setting	10.5 in ART test utility	1003						
Antenna	Integral Antennas	Integral Antennas Duty Cycle (%) 100%						
Test Notes 1	EUT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter							





## Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments	
4924.013	61.9	4.6	-9.1	57.4	Peak Max	Н	98	356	74.0	-16.6	Pass	RB	
4924.01293	57.5	4.6	-9.1	52.9	Average Max	Н	98	356	54.0	-1.1	Pass	RB	
7388.260	34.6	5.5	-4.8	35.3	Average Max	Н	98	314	54	-18.7	Pass	RB	
7388.260	47.4	5.5	-4.8	48.0	Peak Max	Н	98	314	74	-26.0	Pass	RB	
9848.041	52.4	6.4	-3.2	55.6	Peak [Scan]	Н	> 20dB below fundamental					NRB	



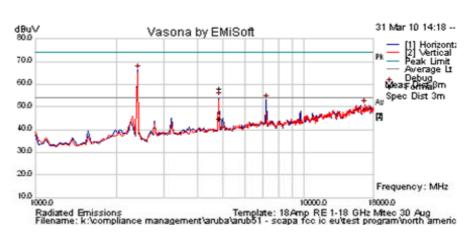
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## 2400 - 2483.5 MHz: 802.11g

Test Freq.	2412 MHz	Engineer	CSB						
Variant	802.11g; 6 Mbs	Temp (°C)	21						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37						
Power Setting	18 in ART test utility	Press. (m Bars)	1003						
Antenna	Integral Antennas	Duty Cycle (%)	100%						
Test Notes 1	EUT vertical on table.								
Test Notes 2	Fundamental attenuated by notch filter								





# Formally measured emission peaks

	Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
	4824.369	63.2	4.5	-9.4	58.2	Peak Max	Н	164	358	74.0	-15.8	Pass	RB
	4824.369	49.6	4.5	-9.4	44.6	Average Max	Н	164	358	54.0	-9.4	Pass	RB
I	7231.864	53.0	5.4	-5.3	53.2	Peak [Scan]	Н	> 20dB below fundamental			Pass	NRB	

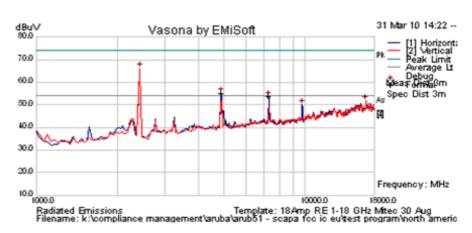


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Test Freq.	2437 MHz	Engineer	CSB
Variant	802.11g; 6 Mbs	Temp (°C)	21
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37
Power Setting	18 in ART test utility	Press. (m Bars)	1003
Antenna	Integral Antennas	Duty Cycle (%)	100%
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





## Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments	
4875.541	48.3	4.5	-9.3	43.5	Average Max	Н	132	360	54.0	-10.5	Pass	RB	
4875.541	63.0	4.5	-9.3	58.2	Peak Max	Н	132	360	74.0	-15.8	Pass	RB	
7312.745	40.4	5.4	-4.9	40.9	Average Max	Н	98	322	54	-13.1	Pass	RB	
7312.745	56.3	5.4	-4.9	56.8	Peak Max	Н	98	322	74	-17.2	Pass	RB	
9754.589	47.4	6.4	-3.7	50.1	Peak [Scan]	Н	> 20dB below fundamental				Pass	NRB	

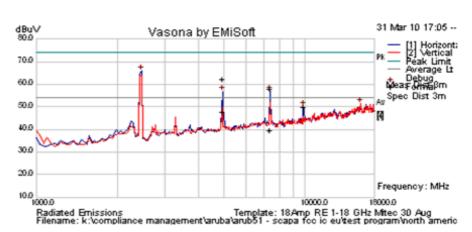


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Test Freq.	2462 MHz	Engineer	CSB
Variant	802.11g; 6 Mbs	Temp (°C)	21
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37
Power Setting	18 in ART test utility	Press. (m Bars)	1003
Antenna	Integral Antennas	Duty Cycle (%)	100%
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4926.172	66.6	4.6	-9.1	62.2	Peak Max	Н	98	360	74.0	-11.9	Pass	RB
4926.172	52.3	4.6	-9.1	47.8	Average Max	Н	98	360	54.0	-6.2	Pass	RB
7383.207	38.9	5.5	-4.8	39.5	Average Max	Н	157	329	54	-14.5	Pass	RB
7383.207	57.5	5.5	-4.8	58.1	Peak Max	Н	157	329	74	-15.9	Pass	RB
9836.874	46.7	6.4	-3.2	49.9	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB



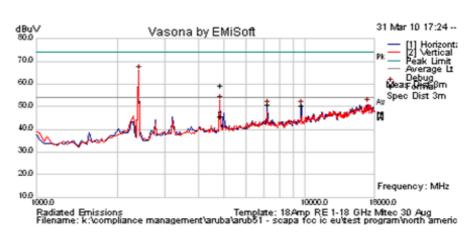
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2400 - 2483.5 MHz: 802.11n HT-20

Test Freq.	2412 MHz	Engineer	CSB
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37
Power Setting	18 in ART test utility	Press. (m Bars)	1003
Antenna	Integral Antenna	Duty Cycle (%)	100%
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





# Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dB uV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4822.255	50.7	4.5	-9.4	45.7	Average	Н	167	0	54.0	-8.3	Pass	RB
4822.255	64.2	4.5	-9.4	59.3	Peak	Н	167	0	74.0	-14.7	Pass	RB
7234.910	50.4	5.4	-5.2	50.6	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB
9653.306	47.6	6.3	-3.5	50.4	Peak [Scan]	Н	> 20dB below fundamental				Pass	NRB

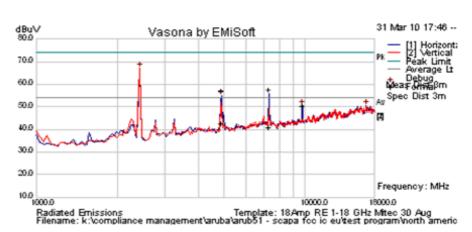


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Test Freq.	2437 MHz	Engineer	CSB
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37
Power Setting	18 in ART test utility	Press. (m Bars)	1003
Antenna	Integral Antenna	Duty Cycle (%)	100%
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4877.595	47.6	4.5	-9.3	42.7	Average Max	Н	118	0	54.0	-11.3	Pass	RB
4877.595	62.1	4.5	-9.3	57.2	Peak Max	Н	118	0	74.0	-16.8	Pass	RB
7311.022	40.5	5.4	-4.9	41.0	Average Max	Н	98	320	54	-13.0	Pass	RB
7311.022	57.1	5.4	-4.9	57.6	Peak Max	Н	98	320	74	-16.4	Pass	RB
9754.309	47.8	6.4	-3.7	50.5	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB

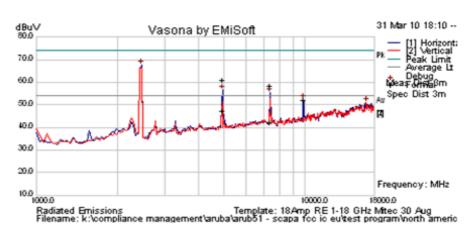


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Test Freq.	2462 MHz	Engineer	CSB
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37
Power Setting	18 in ART test utility	Press. (m Bars)	1003
Antenna	Integral Antenna	Duty Cycle (%)	100%
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





## Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4925.130	51.7	4.6	-9.1	47.2	Average Max	Н	98	360	54.0	-6.8	Pass	RB
4925.13	65.6	4.6	-9.1	61.1	Peak Max	Н	98	360	74.0	-12.9	Pass	RB
7386.693	41.7	5.5	-4.8	42.4	Average Max	Н	98	25	54	-11.6	Pass	RB
7386.693	57.9	5.5	-4.8	58.5	Peak Max	Н	98	25	74	-15.5	Pass	RB
9837.916	48.7	6.4	-3.2	52.0	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB



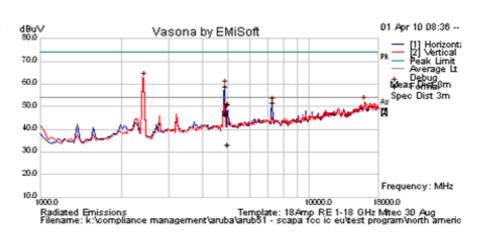
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### 2400 - 2483.5 MHz: 802.11n HT-40

Test Freq.	2422 MHz	Engineer	CSB
Variant	802.11n HT-40; 13.5 MCS	Temp (°C)	19
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36
Power Setting	18 in ART test utility	Press. (m Bars)	1008
Antenna	Integral Antenna	Duty Cycle (%)	100
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		

**MiC®MLabs** 



# Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4861.002	51.1	4.5	-9.3	46.3	Average Max	Н	98	346	54.0	-7.7	Pass	RB
4861.002	63.7	4.5	-9.3	58.9	Peak Max	Н	98	346	74.0	-15.1	Pass	RB
4989.259	37.8	4.6	-9.1	33.3	Average Max	Н	101	338	54	-20.8	Pass	RB
4989.259	55.9	4.6	-9.1	51.4	Peak Max	Н	101	338	74	-22.6	Pass	RB
7299.760	51.2	5.4	-4.9	51.7	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB

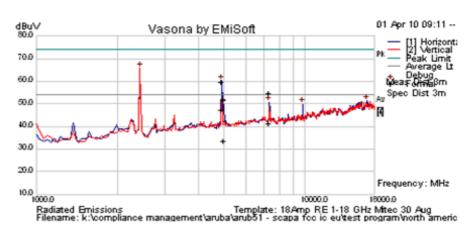


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Test Freq.	2437 MHz	Engineer	CSB
Variant	802.11n; HT-40; 13.5 MCS	Temp (°C)	19
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36
Power Setting	18 in ART test utility	Press. (m Bars)	1008
Antenna	Integral Antenna	Duty Cycle (%)	100
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4892.826	52.2	4.5	-9.3	47.4	Average Max	Н	98	347	54.0	-6.6	Pass	RB
4892.826	64.4	4.5	-9.3	59.6	Peak Max	Н	98	347	74.0	-14.4	Pass	RB
4988.497	56.0	4.6	-9.1	51.5	Peak Max	Н	98	346	74	-22.5	Pass	RB
4988.497	38.0	4.6	-9.1	33.5	Average Max	Н	98	346	54	-20.5	Pass	RB
7344.970	41.0	5.5	-5.0	41.5	Average Max	Н	102	343	54	-12.6	Pass	RB
7344.970	54.3	5.5	-5.0	54.8	Peak Max	Н	102	343	74	-19.2	Pass	RB
9793.828	46.9	6.4	-3.4	49.8	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB

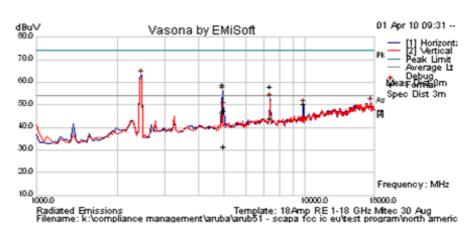


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Test Freq.	2452 MHz	Engineer	CSB
Variant	802.11n; HT-40; 13.5 MCS	Temp (°C)	19
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36
Power Setting	18 in ART test utility	Press. (m Bars)	1008
Antenna	Integral Antenna	Duty Cycle (%)	100
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dB uV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4925.491	50.8	4.6	-9.1	46.3	Average Max	Н	137	360	54.0	-7.7	Pass	RB
4925.491	63.3	4.6	-9.1	58.8	Peak Max	Н	137	360	74.0	-15.2	Pass	RB
4988.577	36.0	4.6	-9.1	31.5	Average Max	Н	115	360	54	-22.5	Pass	RB
4988.577	51.7	4.6	-9.1	47.2	Peak Max	Н	115	360	74	-26.9	Pass	RB
7383.687	43.2	5.5	-4.8	43.8	Average Max	Н	119	340	54	-10.2	Pass	RB
7383.687	57.2	5.5	-4.8	57.9	Peak Max	Н	119	340	74	-16.2	Pass	RB
9835.752	46.9	6.4	-3.2	50.1	Peak [Scan]	Н	> 20	OdB be	low funda	mental	Pass	NRB



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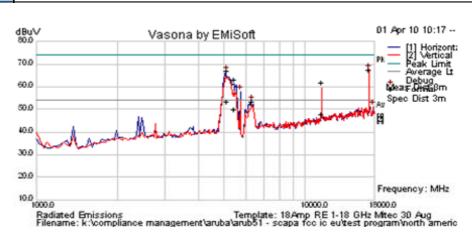
Serial #: ARUB51-U1 Rev A Issue Date: 18th May 2010

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5725 - 5850 MHz: 802.11a

Test Freq.	5745 MHz	Engineer	CSB
Variant	802.11a; 6 Mbs	Temp (°C)	19
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36
Power Setting	18 in ART test utility	Press. (m Bars)	1008
Antenna	Integral Antenna	Duty Cycle (%)	100
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





# Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dB uV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
5100.923	71.4	4.6	-8.8	67.1	Peak Max	Н	99	0	74.0	-6.9	Pass	RB
5100.923	57.7	4.6	-8.8	53.5	Average Max	V	108	27	54.0	-0.5	Pass	RB
5427.375	67.7	4.6	-9.2	63.1	Peak Max	Н	98	54	74	-10.9	Pass	RB
5427.375	54.4	4.6	-9.2	49.8	Average Max	Н	98	54	54	-4.2	Pass	RB
6329.218	54.8	5.1	-6.6	53.3	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB
11489.569	56.2	6.8	-1.1	61.8	Peak Max	Н	126	318	74	-12.2	Pass	RB
11489.569	42.3	6.8	-1.1	47.9	Average Max	Н	126	318	54	-6.1	Pass	RB
17241.603	57.4	8.6	1.6	67.7	Peak [Scan]	V	> 20	OdB be	low funda	mental	Pass	NRB

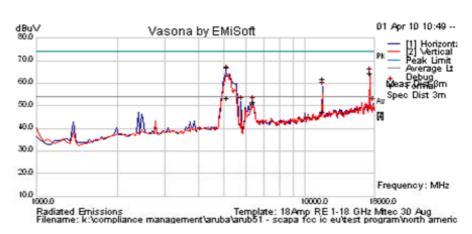


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Test Freq.	5785 MHz	Engineer	CSB
Variant	802.11a; 6 Mbs	Temp (°C)	19
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36
Power Setting	13.5 in ART test utility	Press. (m Bars)	1008
Antenna	Integral Antenna	Duty Cycle (%)	100
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





## Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dB uV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
5098.455	57.5	4.6	-8.8	53.4	Average	Н	98	16	54.0	-0.6	Pass	RB
5098.455	71.1	4.6	-8.8	66.9	Peak	Н	98	16	74.0	-7.1	Pass	RB
6375.391	53.1	5.1	-6.7	51.5	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB
11570.781	41.6	6.8	-1.2	47.2	Average Max	Н	98	325	54	-6.8	Pass	RB
11570.781	56.3	6.8	-1.2	61.9	Peak Max	Н	98	325	74	-12.1	Pass	RB
17348.937	53.9	8.7	1.9	64.5	Peak [Scan]	V	> 20	dB be	low funda	mental	Pass	NRB

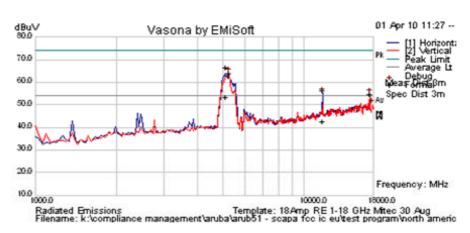


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Test Freq.	5825 MHz	Engineer	CSB
Variant	802.11a; 6 Mbs	Temp (°C)	19
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36
Power Setting	14 in ART test utility	Press. (m Bars)	1008
Antenna	Integral Antenna	Duty Cycle (%)	100
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5099.809	70.8	4.6	-8.8	66.6	Peak Max	V	104	33	74.0	-7.4	Pass	RB
5099.809	57.6	4.6	-8.8	53.4	Average Max	V	104	33	54.0	-0.6	Pass	RB
5224.449	69.0	4.6	-9.4	64.2	Peak [Scan]	V	> 20	dB be	low funda	mental	Pass	NRB
11648.958	37.8	6.8	-1.9	42.7	Average Max	Н	109	83	54	-11.3	Pass	RB
11648.958	51.4	6.8	-1.9	56.4	Peak Max	Н	109	83	74	-17.7	Pass	RB
17481.884	44.2	8.8	1.6	54.6	Peak [Scan]	V	> 20	dB be	low funda	mental	Pass	NRB



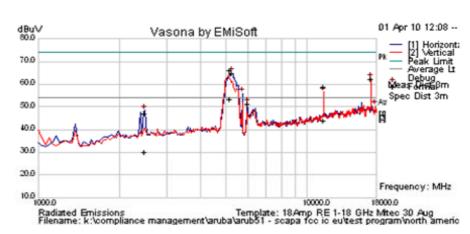
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5725 - 5850 MHz: 802.11n HT-20

Test Freq.	5745 MHz	Engineer	CSB
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	26
Power Setting	14 in ART test utility	Press. (m Bars)	1009
Antenna	Integral Antenna	Duty Cycle (%)	100
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





# Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	AF dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
2493.377	55.0	3.0	-11.1	46.9	Peak Max	Н	102	58	74.0	-27.1	Pass	RB
2493.377	38.3	3.0	-11.1	30.2	Average Max	Н	102	58	54.0	-23.8	Pass	RB
5137.675	58.0	4.6	-9.3	53.3	Average Max	V	100	46	54	-0.7	Pass	RB
5137.675	71.0	4.6	-9.3	66.3	Peak Max	V	100	46	74	-7.7	Pass	RB
5241.122	70.0	4.6	-9.7	64.9	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB
5985.571	54.4	4.9	-8.3	51.1	Peak [Scan]	Н	> 20	dB be	low funda	mental	Pass	NRB
11494.639	38.3	6.8	-1.2	44.0	Average Max	V	100	353	54	-10.0	Pass	RB
11494.639	53.4	6.8	-1.2	59.0	Peak Max	V	100	353	74	-15.0	Pass	RB
17238.348	52.1	8.6	1.5	62.2	Peak [Scan]	V	> 20	dB be	low funda	mental	Pass	NRB

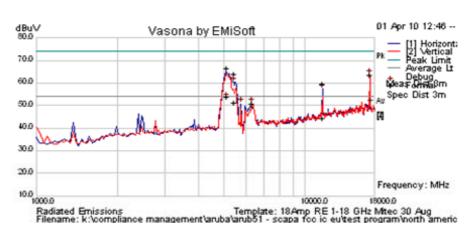


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Test Freq.	5785 MHz	Engineer	CSB
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	26
Power Setting	14 in ART test utility	Press. (m Bars)	1009
Antenna	Integral Antenna	Duty Cycle (%)	100
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





# Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
5099.125	58.0	4.6	-8.8	53.8	Average Max	Н	98	342	54.0	-0.2	Pass	RB
5099.125	71.0	4.6	-8.8	66.8	Peak Max	Н	98	342	74.0	-7.2	Pass	RB
5415.802	55.6	4.6	-9.2	51.0	Average Max	Н	142	21	54	-3.0	Pass	RB
5415.802	68.8	4.6	-9.2	64.2	Peak Max	Н	142	21	74	-9.8	Pass	RB
6348.697	52.6	5.1	-7.0	50.7	Peak [Scan]	V	> 20	dB be	low funda	mental	Pass	NRB
11568.737	38.9	6.8	-1.2	44.5	Average Max	Н	98	326	54	-9.5	Pass	RB
11568.737	54.2	6.8	-1.2	59.8	Peak Max	Н	98	326	74	-14.2	Pass	RB
17349.980	53.0	8.7	1.9	63.6	Peak [Scan]	V	> 20	dB be	low funda	mental	Pass	NRB

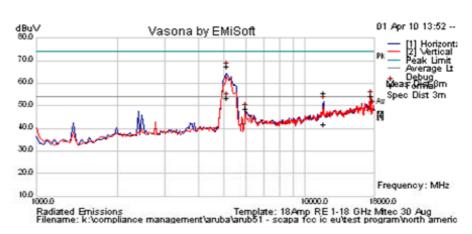


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Test Freq.	5825 MHz	Engineer	CSB					
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	26					
Power Setting	13.5 in ART test utility	Press. (m Bars)	1009					
Antenna	Integral Antenna	Duty Cycle (%)	100					
Test Notes 1	EUT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter							





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable	AF dB	Level dBuV	M easurement Type	Pol	Hgt	Azt Dea	Limit dBuV	M argin dB	Pass /Fail	Comments
								,				
5099.857	57.7	4.6	-8.8	53.5	Average	Н	98	11	54.0	-0.5	Pass	RB
5099.857	71.5	4.6	-8.8	67.3	Peak	Н	98	11	74.0	-6.7	Pass	RB
5986.052	52.1	4.9	-8.3	48.7	Peak [Scan]	Н	> 20dB below fundamental			mental	Pass	NRB
11646.032	50.6	6.8	-1.8	55.6	Peak Max	Н	98	84	74	-18.4	Pass	RB
11646.032	36.6	6.8	-1.8	41.6	Average Max	Н	98	84	54	-12.4	Pass	RB
17478.798	43.8	8.8	1.6	54.2	Peak [Scan]	V	> 20dB below fundamental			Pass	NRB	



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### 5725 - 5850 MHz: 802.11n HT-40

Test Freq.	5755 MHz	Engineer	CSB					
Variant	802.11n HT-40; 13.5 MCS	Temp (°C)	19					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36					
Power Setting	13.5 in ART test utility	Press. (mBars)	1008					
Antenna	Integral Antenna	Duty Cycle (%)	100					
Test Notes 1	EUT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter							





# Formally measured emission peaks

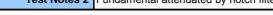
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5097.234	57.2	4.6	-8.8	53.1	Average	Н	98	17	54.0	-0.9	Pass	RB
5098.036	70.3	4.6	-8.8	66.1	Peak	Н	98	17	74.0	-7.9	Pass	RB
6314.629	53.6	5.0	-6.8	51.8	Peak [Scan]	Н	> 20dB below fundamental			mental	Pass	NRB
11500.040	49.0	6.8	-1.2	54.7	Peak Max	Н	101	89	74	-19.3	Pass	RB
11500.040	36.1	6.8	-1.2	41.7	Average Max	Н	101	89	54	-12.3	Pass	RB
17270.140	51.1	8.6	1.5	61.2	Peak [Scan]	V	> 20dB below fundamental			Pass	NRB	



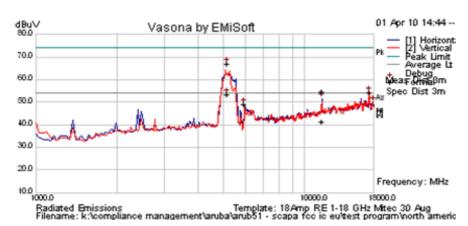
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Test Freq.	5785 MHz	Engineer	CSB					
Variant	802.11n; HT-40; 13.5 MCS	Temp (°C)	19					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36					
Power Setting	13.5 in ART test utility	Press. (mBars)	1008					
Antenna	Integral Antenna	Duty Cycle (%)	100					
Test Notes 1	EUT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter							







#### Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5138.577	58.1	4.6	-9.3	53.4	Average	٧	99	42	54.0	-0.7	Pass	RB
5138.577	71.7	4.6	-9.3	67.0	Peak	V	99	42	74.0	-7.0	Pass	RB
5973.948	52.4	4.9	-8.2	49.0	Peak [Scan]	Н	> 20dB below fundamental			mental	Pass	NRB
11573.387	49.0	6.8	-1.2	54.6	Peak Max	Н	109	324	74	-19.4	Pass	RB
11573.387	35.5	6.8	-1.2	41.1	Average Max	Н	109	324	54	-12.9	Pass	RB
17343.968	44.0	8.7	1.7	54.3	Peak [Scan]	V	> 20dB below fundamental			Pass	NRB	



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Test Freq.	5815 MHz	Engineer	CSB					
Variant	802.11n; HT-40; 13.5 MCS	Temp (°C)	19					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36					
Power Setting	14 in ART test utility	Press. (mBars)	1008					
Antenna	Integral Antenna	Duty Cycle (%)	100					
Test Notes 1	EUT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter							





#### Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5099.028	71.1	4.6	-8.8	66.9	Peak	Η	98	19	74.0	-7.1	Pass	RB
5099.028	57.9	4.6	-8.8	53.8	Average	Н	98	19	54.0	-0.2	Pass	RB
5411.062	55.9	4.6	-9.1	51.4	Average Max	Н	129	17	54	-2.6	Pass	RB
5411.062	69.5	4.6	-9.1	65.0	Peak Max	Н	129	17	74	-9.0	Pass	RB
5973.948	53.4	4.9	-8.2	50.0	Peak [Scan]	Н	> 20dB below fundamental			Pass	NRB	
17443.848	47.7	8.7	2.0	58.4	Peak [Scan]	V	> 20dB below fundamental			mental	Pass	NRB

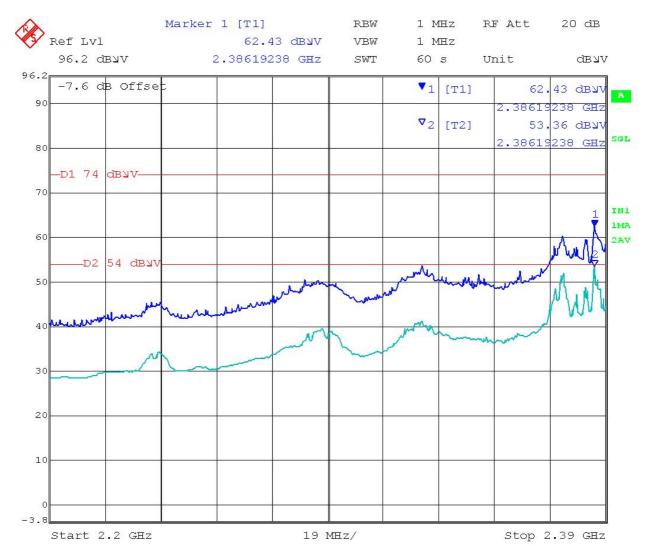


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# 7.6.2 <u>Integral Antenna - Transmitter Band edge spurious emissions</u>

# 2412 MHz - 802.11b; 2200 - 2390 MHz

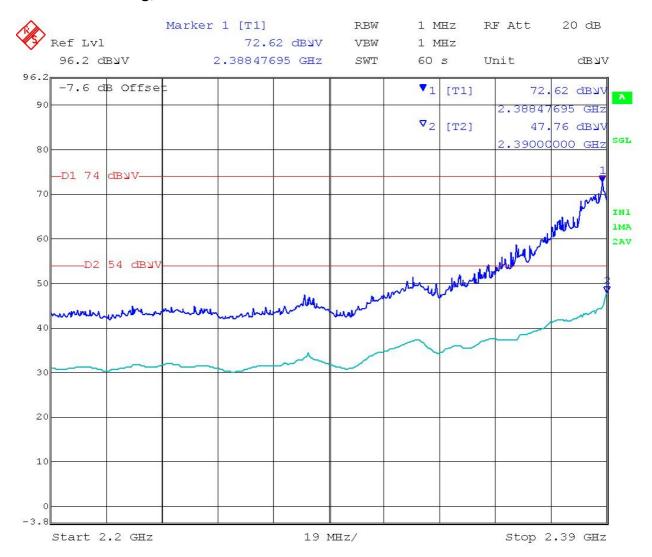




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# 2412 MHz - 802.11g; 2200 - 2390 MHz

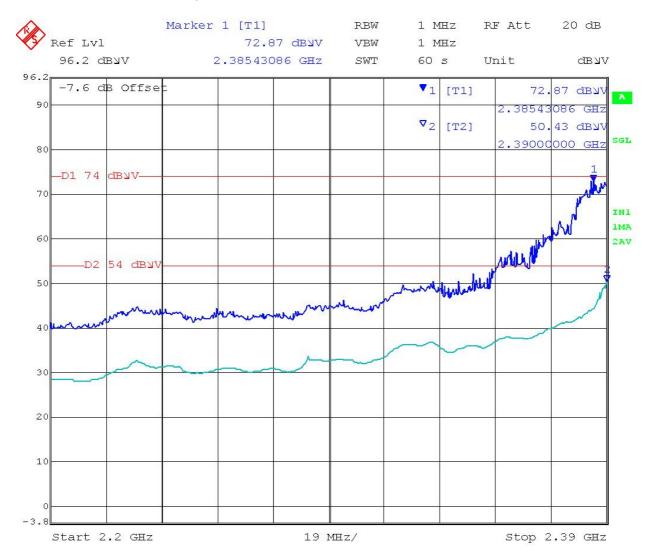




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## 2412 MHz - 802.11n HT-20; 2200 - 2390 MHz

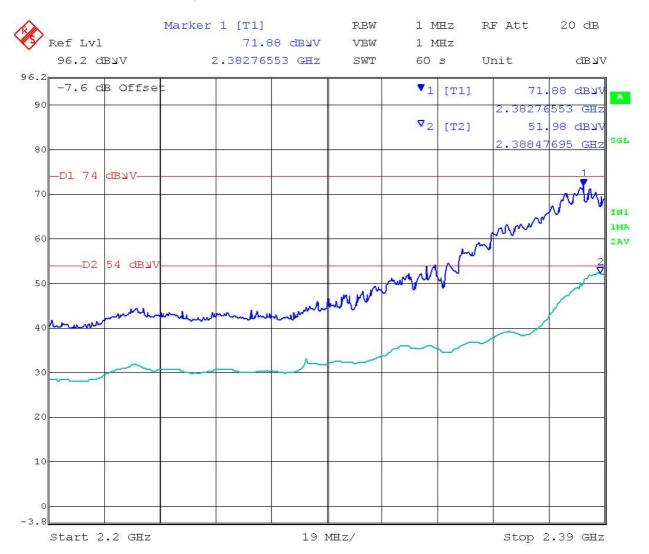




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## 2422 MHz - 802.11n HT-40; 2200 - 2390 MHz

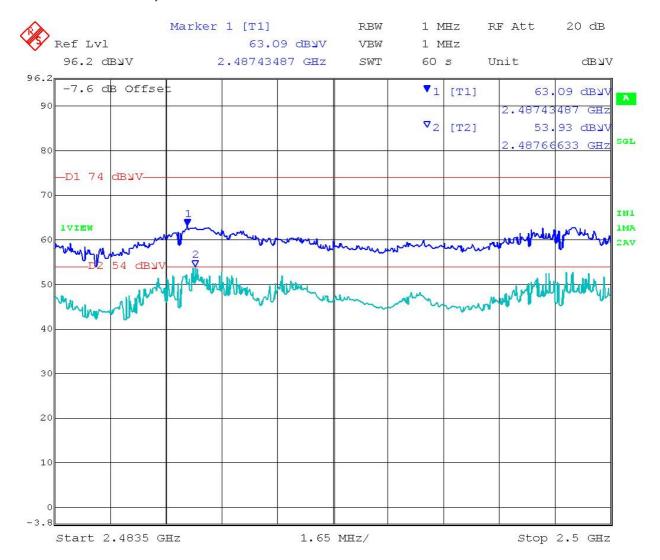




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# 2462 MHz - 802.11b; 2483.5 - 2500 MHz

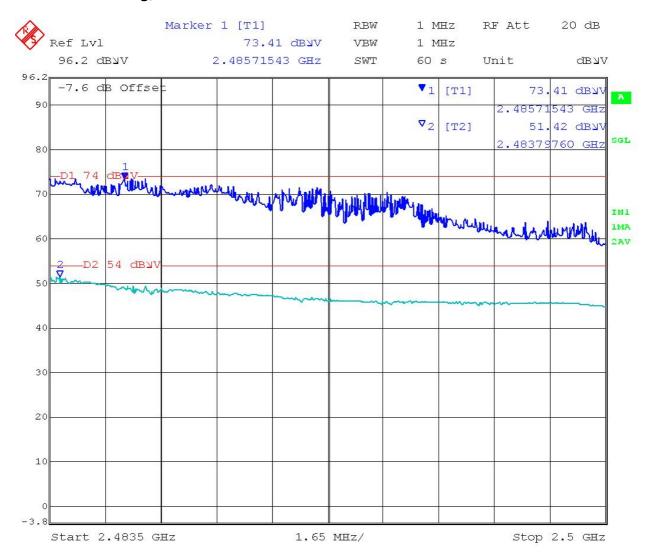




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# 2462 MHz - 802.11g; 2483.5 - 2500 MHz

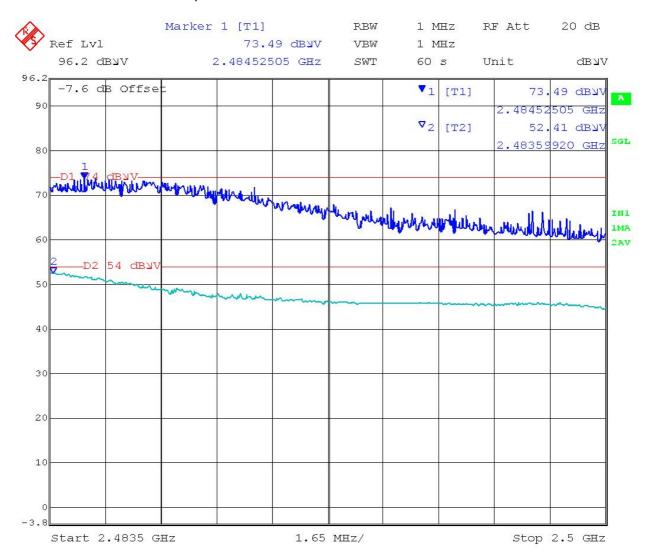




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## 2462 MHz - 802.11n HT-20; 2483.5 - 2500 MHz

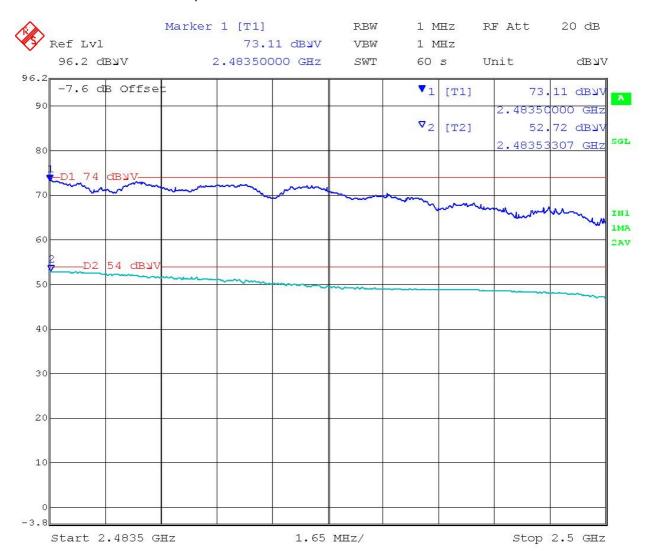




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## 2452 MHz - 802.11n HT-40; 2483.5 - 2500 MHz

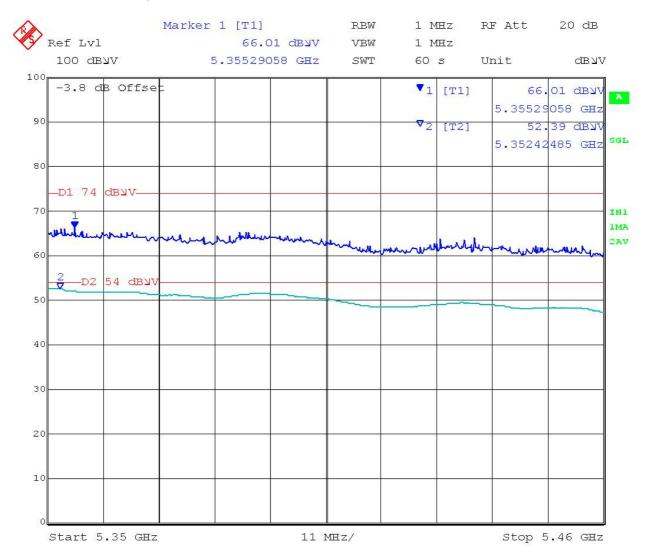




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## 5745 MHz - 802.11a; 5350 - 5460 MHz

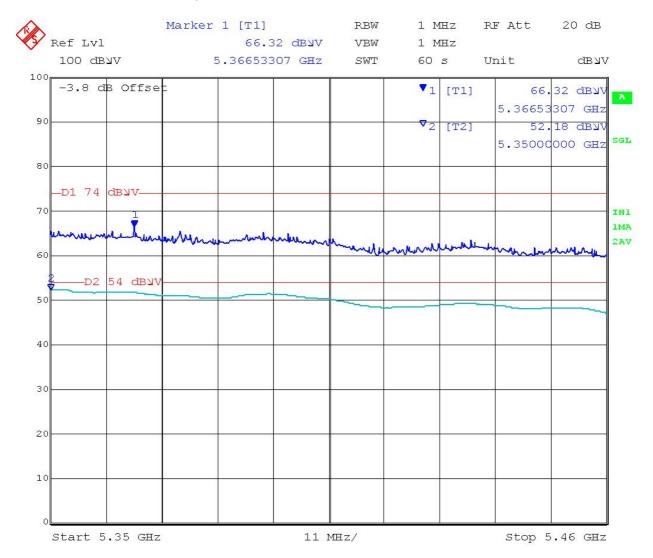




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## 5745 MHz - 802.11n HT-20; 5350 - 5460 MHz

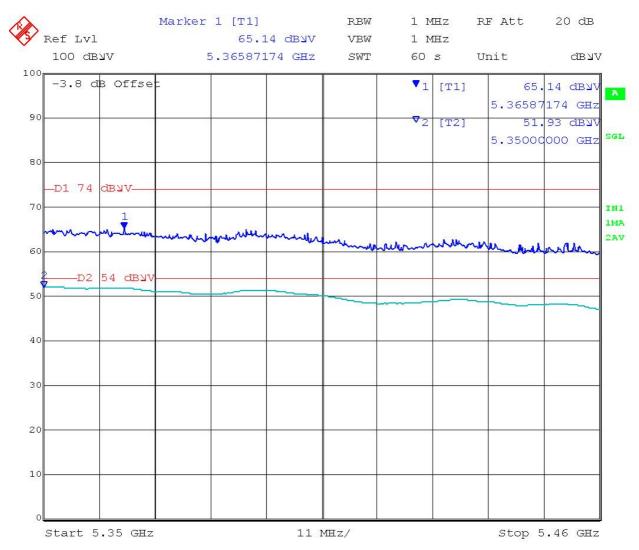




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### 5755 MHz - 802.11n HT-40; 5350 - 5460 MHz



Date: 30.MAR.2010 12:30:36

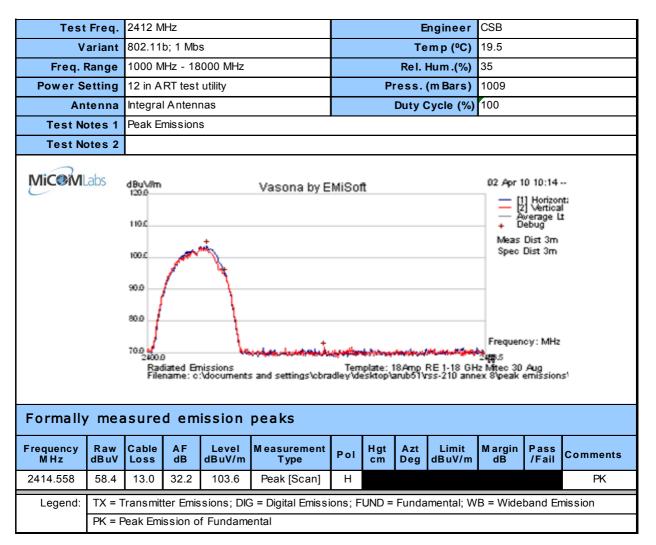


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## 7.6.3 Integral Antenna - Transmitter Peak Emissions (RSS-210/RSS-GEN)

#### 2400 - 2483.5 MHz: 802.11b





PK = Peak Emission of Fundamental

Title: Aruba AP-92/93 802.11a/b/g/n Wireless AP

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Test	Freq.	2437 N	1Hz					E	ngineer	CSB		
Va	ariant	802.11	b; 1 Mb:	s				Те	mp (°C)	19.5		
Freq. R	Range	1000 N	1Hz - 18	000 MHz				Rel. I	lum .(%)	35		
Power Se	etting	12 in A	RT test	utility			Pr	ess.	(m Bars)	1009		
Ant	tenna	Integra	l Antenr	nas				Duty C	ycle (%)	100		
Test No	tes 1	Peak E	mission	s								
Test No	tes 2											
Formally	Wilcold Wasona by EMiSoft  [1] Horizont:  [2] Vertical  Average Lt  Debug  Meas Dist 3m  Spec Dist 3m  Spec Dist 3m  Frequency: MHz  2005  Radiated Emissions Filename: c:\documents and settings\cbradley\desktop\arub61\vss-210 annex 8\peak emissions\chi											
Frequency	Raw	Sured	emiss	Level	ks Measurement		Hgt	Azt	Limit	M argin	Pass	
MHz	dBuV	Loss	dB	dBuV/m	Туре	Pol	cm	Deg	dBuV/m	dB	/Fail	Comments
2439.658	57.8	13.0	32.2	103.0	Peak [Scan]	Н						PK
Legend:	TX = T	= Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission										



PK = Peak Emission of Fundamental

**Title:** Aruba AP-92/93 802.11a/b/g/n Wireless AP

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Test	Freq.	2462 N	lHz					E	ngineer	CSB				
Va	ariant	802.11	b; 1 Mbs	S				Te	mp (°C)	19.5				
Freq. R	Range	1000 N	IHz - 18	000 MHz				Rel. I	lum .(%)	35				
Power Se	etting	10.5 in	ART tes	st utility			Pr	ess.	(m Bars)	1009				
Ant	tenna	Integra	l Antenr	nas				Duty C	ycle (%)	100				
Test No	tes 1	Peak E	missions	S										
Test No	tes 2													
MicciMLabs  dBuV/m Vasona by EMiSoft  1000  1100  1100  Meas Dist 3m Spec Dist 3m Spec Dist 3m  Prequency: MHz  Radiated Emissions Radiated Emissions Filename: c:\documents and settings\obradley\desktop\arub51\vss-210 annex 8\peak emissions\)											t:			
Formally	mea	sured	emiss	sion pea	ıks									
Frequency M Hz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments		
2459.571	58.8	13.0	32.3	104.0	Peak [Scan]	Н						PK		
Legend:	TX = T	X = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission												



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# 2400 - 2483.5 MHz: 802.11g

Test	Freq.	2412 N	1Hz					E	ngineer	CSB			
Va	ariant	802.11	g; 6 Mb:	s				Te	mp (°C)	19.5			
Freq. R	Range	1000 N	IHz - 18	000 MHz				Rel. I	lum .(%)	35			
Power Se	etting	18 in A	RT test	utility			Pr	ess.	(m Bars)	1009			
Ant	tenna	Integra	l Antenr	nas	100								
Test No	tes 1	Peak E	mission	s									
Test No	tes 2												
MicciMLabs  dBuV/m Vasona by EMiSoft  100											nti I I		
Frequency	Raw	Cable	AF dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments	
2415.562	65.9	13.0	32.2	111.1	Peak [Scan]	Н	CIII	Deg	abuv/III	ub	/1 all	PK	
Legend:	TX = T	X = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission											



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	2437 MHz	Engineer	CSB
Variant	802.11g; 6 Mbs	Temp (°C)	19.5
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	35
Power Setting	18 in ART test utility	Press. (m Bars)	1009
Antenna	Integral Antennas	Duty Cycle (%)	100
Test Notes 1	Peak Emissions		
Test Notes 2			
	110.c 100.c 90.0 80.0	The state of the s	Prequency: MHz  Frequency: MHz  Zigo 5  Zigo 5  Zigo 5  Zigo 5  Zigo 6  Zigo 6  Zigo 6  Zigo 6  Zigo 7  Zigo 6  Zigo 7  Zigo 6  Zigo 7  Zigo 7

Formally	measured	lemission	peaks
----------	----------	-----------	-------

		Cable Loss		Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
2442.838	67.0	13.0	32.3	112.2	Peak [Scan]	Н						PK

Legend:

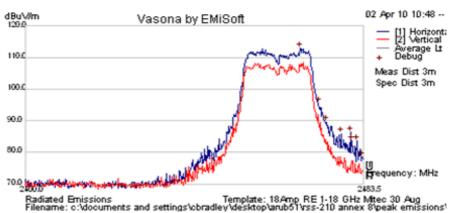
TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission



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1			
Test Freq.	2462 MHz	Engineer	CSB
Variant	802.11g; 6 Mbs	Temp (°C)	19.5
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	35
Power Setting	18 in ART test utility	Press. (m Bars)	1009
Antenna	Integral Antennas	Duty Cycle (%)	100
Test Notes 1	Peak Emissions		
Test Notes 2			
MiC@MLabs	dBu√/lm Vasona by E	MiSoft	02 Apr 10 10:48  [1] Horizont:  [2] Vertical



## Formally measured emission peaks

		Cable Loss		Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
2467.771	67.8	13.0	32.3	113.0	Peak [Scan]	Н						PK

Legend:

 ${\sf TX = Transmitter\ Emissions;\ DIG = Digital\ Emissions;\ FUND = Fundamental;\ WB = Wideband\ Emission}$ 



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## 2400 - 2483.5 MHz: 802.11n HT-20

Variant 802.11n; HT-20; 6.5 MCS  Freq. Range 1000 MHz - 18000 MHz  Power Setting 18 in ART test utility  Press. (mBars) 1009  Antenna Integral Antennas  Duty Cycle (%) 100  Test Notes 1 Peak Emissions  Test Notes 2  Miccomplete: 18 App. RE 1-18 GHz Mitec 30 Aug. Frequency: MHz  Frequency Raw Cable AF Level Buv/m Hz Loss AB Buv/m Type Pol Hgt Azt Limit Deg dBuv/m Margin Pass Comments  Frequency Raw Cable AF Level Buv/m Type Pol Hgt Azt Limit Deg dBuv/m Margin Pass Comments	T 1 F	0	440 MIL	_							CSB		
Frequency: MHz  Formally measured emission peaks  Frequency Raw Bay Cable AF Level May Bay Bay Bay Bay Bay Bay Bay Bay Bay B		-											
Power Setting 18 in ART test utility Press. (m Bars) 1009  Antenna Integral Antennas Duty Cycle (%) 100  Test Notes 1 Peak Emissions  Test Notes 2  Micovillabs dBu/vim Vasona by EMiSoft 02 Apr 10 10:54	Varia	<b>ant</b> 80	02.11n;	HT-20	); 6.5 MCS	3			Те	mp (°C)			
Antenna Integral Antennas Duty Cycle (%) 100  Test Notes 1 Peak Emissions  Test Notes 2  Miccovillabs  dBuv/m Vasona by EMiSoft  100  100  100  100  100  100  100  1	Freq. Ran	<b>ge</b> 10	000 MHz	z - 18	000 MHz				Rel. I	Hum .(%)	35		
Test Notes 2  MiCOMLabs  dBuV/m  Vasona by EMISoft  100  Debug  Meas Dist 3m  Spec Dist 3m  Spec Dist 3m  Frequency: MHz  Formally measured emission peaks  Frequency  Raw Cable AF Level dBuV/m  Hz  Raw Cable AF Level dBuV/m  Hz  Raw Cable AF Level dBuV/m  Type  Pol Hgt Azt Limit Deg Limit Margin Pass Comments  Figure Azt Limit Deg Limit Margin Pass Comments	Power Setti	i <b>ng</b> 18	8 in AR	T test	utility			Pr	ess.	(m Bars)	1009		
Test Notes 2  MicoMLabs  dBuV/m Vasona by EMiSoft  02 Apr 10 10:54  [1] Horizont:  22 Vertical Average tz Debug  Meas Dist 3m Spec Dist 3m  Spec Dist 3m  Frequency: MHz  F	Anten	na In	ntegral A	ntenn	as				Duty C	ycle (%)	100		
MicoMLabs  dBuV/m  Vasona by EMiSoft  02 Apr 10 10:54  [1] Horizont:    Debug	Test Notes	<b>s 1</b> Pe	eak Emi	ssions	3								
Formally measured emission peaks  Frequency Raw Cable dB UV/m Measurement Type Pol Hgt Azt Cm Deg dBuV/m Margin Pass (Fail Comments)	Test Notes	s 2											
Frequency MHz Cable Loss AF Level Measurement Type Pol Hgt cm Deg Limit Margin Pass /Fail Comments	MiceMLabs	11 11 10 90	Wasona by EMISOII  [1] Horizont: [2] Vertical  Average Lt  Debug  Meas Dist 3m  Spec Dist 3m  Frequency: MHz										
MHz dBuV Loss dB dBuV/m Type Pol cm Deg dBuV/m dB /Fail Comments	Formally m	neas											
2417.570 66.1 13.0 32.2 111.2 Peak [Scan] H							Pol	_	7				Comments
	2417.570 66	3.1 1	13.0	32.2	111.2	Peak [Scan]	Н						PK
Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission	Legend: TX	( = Tra	nsmitter	r Emis	sions; DIC	6 = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band En	nission
PK = Peak Emission of Fundamental	PK	( = Pea	Peak Emission of Fundamental										



PK = Peak Emission of Fundamental

**Title:** Aruba AP-92/93 802.11a/b/g/n Wireless AP

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Test	Freq.	2437 N	1Hz					E	ngineer	CSB				
Va	ariant	802.11	n; HT-2	0; 6.5 MCS	6			Те	mp (°C)	20				
Freq. F	Range	1000 N	1Hz - 18	000 MHz				Rel. I	lum .(%)	35				
Power Se	etting	18 in A	RT test	utility			Pr	ess.	(m Bars)	1009				
Ant	tenna	Integra	l Antenr	nas				Duty C	ycle (%)	100				
Test No	tes 1	Peak E	mission	s										
Test No	tes 2													
MiCOMLabs  dBu\/m Vasona by EMiSoft  02 Apr 10 10:57  [1] Horizont:  [2] Vertical Awerage It Debug Meas Dist 3m Spec Dist 3m  Spec Dist 3m  Frequency: MHz Radiated Emissions Fillename: o:\documents and settings\cbradley\desktop\arubo\1\vrss-210 annex 8\peak emissions\frac{1}{2}  Apr 10 10:57  [1] Horizont:  [2] Vertical Awerage It Debug Meas Dist 3m  Spec Dist 3m														
Formally	mea	sured	emiss	sion pea	ks									
Frequency M Hz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments		
2443.005	66.5	13.0	32.3	111.7	Peak [Scan]	Н						PK		
Legend:	TX = T	( = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission												



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	Ta		000
Test Freq.	2462 MHz	Engineer	CSB
Variant	802.11n; HT-20; 6.5 MCS	Temp (°C)	20
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	35
Power Setting	18 in ART test utility	Press. (m Bars)	1009
Antenna	Integral Antennas	Duty Cycle (%)	100
Test Notes 1	Peak Emissions	-	
Test Notes 2			
<b>MiC®M</b> Labs	dBuVlim Vasona by E	MiSoft	02 Apr 10 11:00  [1] Horizont:  [2] Vertical  Average Lt  Debug  Meas Dist 3m  Spec Dist 3m

110.0	cin the second	month of the state	[1] Horizont: [2] Vertical Awerage Lt Debug  Meas Dist 3m
90.0		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Spec Dist 3m
0.08	Jak Marin Carlo	AND THE PROPERTY OF THE PROPER	Frequency: MHz
70.0 200.0 Radiated Filename	Emissions Template: 18An :: o:\documents and settings\cbradley\desktop\arubc	24	83.5

# Formally measured emission peaks

	Raw dBuV	Cable Loss		Level dBuV/m	M easurement Type	Pol	Hgt cm	Limit dBuV/m	Pass /Fail	Comments
2457.730	67.4	13.0	32.3	112.7	Peak [Scan]	Н				PK



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### 2400 - 2483.5 MHz: 802.11n HT-40

Test	Freq.	2422 M	lHz					E	ngineer	CSB		
V	ariant	802.11	n HT-40	); 13.5 MC	S			Te	mp (°C)	20		
Freq. F	Range	1000 M	lHz - 18	000 MHz				Rel. I	Hum .(%)	35		
Power Se	etting	18 in A	RT test	utility			Pı	ess.	(m Bars)	1009		
An	tenna	Integra	Anteni	nas				Duty (	Cycle (%)	100		
Test No	otes 1	Peak Er	mission	S								
Test No	otes 2											
Micem	abs	110.0 100.0 90.0 70.0 Rad Files	) liated En name: c	nissions 'documents	Vasona by E	Marije (	N.	SAmp I	RE 1-18 GH ss-210 ann	Meas Spec	0 11:04  ] Horizor ] Vertica verage Lebug  Dist 3m  Dist 3m  cy: MHz  Aug emission	viti I I
Formally	mea	sure	d em	ission	peaks							
Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
2426.774	63.5	13.0	32.2	108.7	Peak [Scan]	Η						PK
2426.774 Legend:					Peak [Scan]  B = Digital Emissi		UND =	Funda	mental; W	B = Wide	band Er	



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Test Freq.	2437 MHz	Engineer	CSB
Variant	802.11n; HT-40; 13.5 MCS	Temp (°C)	20
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	35
Power Setting	18 in ART test utility	Press. (m Bars)	1009
Antenna	Integral Antennas	Duty Cycle (%)	100
Test Notes 1	Peak Emissions		
Test Notes 2			
MiceMLabs	dBuV/m Vasona by E		02 Apr 10 11:07  [1] Horizont:  [2] Wetrioal  Average Lt  Debug  Meas Dist 3m  Spec Dist 3m  Spec Dist 3m

Formally	measured er	nission peaks
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		Cable Loss		Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
2442.503	64.5	13.0	32.3	109.7	Peak [Scan]	Н						PK

Legend:

TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission



PK = Peak Emission of Fundamental

**Title:** Aruba AP-92/93 802.11a/b/g/n Wireless AP

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		_								_		
Test	Freq.	2452 N	lHz					E	ngineer	CSB		
٧	ariant	802.11	n; HT-4	0; 13.5 MC	S			Те	mp (°C)	20		
Freq. I	Range	1000 N	IHz - 18	000 MHz				Rel. I	Hum .(%)	35		
Power S	etting	18 in A	RT test	utility			Pr	ess.	(m Bars)	1009		
An	tenna	Integra	l Antenr	nas				Duty C	Cycle (%)	100		
Test No	otes 1	Peak E	mission	S								
Test No	otes 2											
MiC®M					Vasona by E	and	per de la	8Amp I	RE 1-18 GH	Meas Spec	0 11:09 - ) Horizon ) Vertical verage to ebug  Dist 3m  Dist 3m  oy: MHz  Aug emission:	t;
Formally	, mea	surea	emiss	sion pea	IKS .							
Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
2456.224	64.1	13.0	32.3	109.3	Peak [Scan]	Н						PK
Legend:	TX = T	ransmit	ter Emis	sions; DIC	S = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band En	nission
- 5				,	J	- , -			,			



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### 5725 - 5850 MHz: 802.11a

Test Freq.	5745 MHz	Engineer	CSB
Variant	802.11a; 6 Mbs	Temp (°C)	20.5
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	35
Power Setting	18 in ART test utility	Press. (m Bars)	1010
Antenna	Integral Antennas	Duty Cycle (%)	100
Test Notes 1	Peak Emissions		
Test Notes 2			
MiceMLabs	dBuV/m Vasona by E	on the property was the same of the same o	02 Apr 10 11:49  [1] Horizont:  [2] Vertical  Average Iz  + Debug  Meas Dist 3m  Spec Dist 3m  Spec Dist 3m  Frequency: MHz  55500  Iz Mitec 30 Aug  ex 8 peak emissions
Formally mea	asured emission peaks		

	Frequency M Hz	Raw dBuV	Cable Loss		Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
ĺ	5737.776	65.2	14.8	35.0	114.9	Peak [Scan]	Н						PK



PK = Peak Emission of Fundamental

**Title:** Aruba AP-92/93 802.11a/b/g/n Wireless AP

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Test	Freq.	5785 N	1Hz					E	ngineer	CSB		
Va	ariant	802.11	a; 6 Mbs	s				Те	mp (°C)	20.5		
Freq. F	Range	1000 N	1Hz - 18	000 MHz				Rel. I	Hum .(%)	35		
Power Se	etting	13.5 in	ART te	st utility			Pr	ess.	(m Bars)	1010		
Ant	tenna	Integra	l Antenr	nas				Duty (	Cycle (%)	100		
Test No	tes 1	Peak E	mission	s						-		
Test No	tes 2											
MiC@ML Formally			o diated En name: o:		Vasona by E	A The state of the	You do	8Amp I	<b>N/N/Chile Are</b> RE 1-18 GH rss-210 ann	Meas Spec	0 11:52 - 1 Horizon 2 Vertical Werage Li ebug  Dist 3m  Dist 3m  Oy: MHz  Aug  emission:	t;
Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
5790.130	62.4	14.8	35.0	112.1	Peak [Scan]	Ι						PK
Legend:	TX = T	ransmit	ter Emis	sions; DIC	S = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band En	nission
-												



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Test Freq.	5825 MHz	Engineer	CSB
Variant	802.11a; 6 Mbs	Temp (°C)	20.5
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	35
Power Setting	14 in ART test utility	Press. (m Bars)	1010
Antenna	Integral Antennas	Duty Cycle (%)	100
Test Notes 1	Peak Emissions		
Test Notes 2			
MiC@MLabs	dBuV/m Vasona by E		02 Apr 10 11:55  [1] Horizont:  [2] Vertical  Average Lt  Debug  Meas Dist 3m  Spec Dist 3m  Spec Dist 3m

## Formally measured emission peaks

		Cable Loss		Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
5828.206	61.8	14.8	35.0	111.7	Peak [Scan]	Н						PK

Legend: TX = Transmitter E

TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission



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#### 5725 - 5850 MHz: 802.11n HT-20

Test Freq.	5745 MHz	Engineer	CSB
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	20.5
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	35
Power Setting	14 in ART test utility	Press. (m Bars)	1010
Antenna	Integral Antennas	Duty Cycle (%)	100
Test Notes 1	Peak Emissions		
Test Notes 2			
	Hong Vasona by E	«الإسرية» الأطلب الإستيان وي مورية إلى م	[1] Horizont: [2] Vertical Average Lt Debug Meas Dist 3m Spec Dist 3m Frequency: MHz 5350.0 Iz Mitec 30 Aug ex 8'speak emissions'

# Formally measured emission peaks

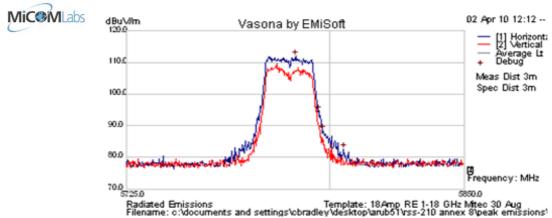
_	quency M Hz	Raw dBuV	Cable Loss		Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
574	49.549	62.6	14.8	35.0	112.3	Peak [Scan]	Н						PK



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Test Freq.	5785 MHz	Engineer	CSB
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	20.5
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	35
Power Setting	13.5 in ART test utility	Press. (m Bars)	1010
Antenna	Integral Antennas	Duty Cycle (%)	100
Test Notes 1	Peak Emissions		
Test Notes 2			
<b>MiC®M</b> Labs	dBuVlm Vasona by E	MiSoft	02 Apr 10 12:12  [1] Horizont:  [2] Vertical  Average Lt



Formally	measured	emission	peaks
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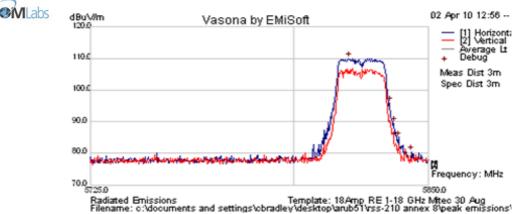
		Cable Loss		Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
5787.375	62.4	14.8	35.0	112.2	Peak [Scan]	Н						PK



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Test Freq.	5825 MHz	Engineer	CSB
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	20.5
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	35
Power Setting	13.5 in ART test utility	Press. (m Bars)	1010
Antenna	Integral Antennas	Duty Cycle (%)	100
Test Notes 1	Peak Emissions		
Test Notes 2			
MiceMLabs	dBu√/m Vasona by E	MiSoft	02 Apr 10 12:56  [1] Horizont:  [2] Vertical  Average Lt  Debug  Meas Dist 3m



Formally measured emission peaks													
	Frequency M Hz	Raw dBuV	Cable Loss		Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
	5820.441	60.3	14.8	35.0	110.1	Peak [Scan]	Н						PK



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### 5725 - 5850 MHz: 802.11n HT-40

Test	Freq.	5755 N	1Hz					Е	ngineer	CSB		
Va	ariant	802.11	n HT-40	; 13.5 MC	S			Те	mp (°C)	20.5		
Freq. R	ange	1000 N	lHz - 18	000 MHz				Rel. I	Hum .(%)	35		
Power Se	etting	13.5 in	ART te	st utility			Pr	ess.	(m Bars)	1010		
Ant	enna	Integra	l Antenr	nas				Duty C	Cycle (%)	100		
Test No	tes 1	Peak E	mission	s								
Test No	tes 2											
		RE 1-18 GH	Meas Spec	] Horizor J Vertica werage L ebug Dist 3m Dist 3m Oy: MHz Aug emission								
Formally	mea	sure	d em	ission	peaks							
Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission



PK = Peak Emission of Fundamental

**Title:** Aruba AP-92/93 802.11a/b/g/n Wireless AP

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Test	Freq.	5785 M	lHz					Е	ngineer	CSB		
Va	ariant	802.11	n HT-40	); 13.5 MC	S			Te	mp (°C)	20.5		
Freq. R	Range	1000 M	IHz - 18	000 MHz				Rel. I	Hum .(%)	35		
Power Se	etting	13.5 in	ART te	st utility			Pr	ess.	(m Bars)	1010		
Ant	tenna	Integra	l Anteni	nas				Duty C	Cycle (%)	100		
Test No	tes 1	Peak Er	mission	s								
Test No	tes 2											
MicoMLabs  dBuV/m Vasona by EMiSoft  02 Apr 10 13:07  [1] Horizont: [2] Vertical Average Lt Debug  Meas Dist 3m Spec Dist 3m Spec Dist 3m  Frequency: MHz  50:00  Radiated Emissions Filename: o:\documents and settings\cbradley\desktop\arubo1\vss-210 annex 8\peak emissions\square												
		asured emission peaks										
Frequency M Hz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5770.842	58.9	14.8	35.0	108.7	Peak [Scan]	Н						PK
Legend:	TX = T	ransmit	ter Emis	sions; DIC	S = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band En	nission



PK = Peak Emission of Fundamental

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Tool	F	5815 N	11 1-							CSB		
									ngineer			
	ariant			0; 13.5 MC	:S				mp (ºC)	20.5		
Freq. F	Range	1000 N	IHz - 18	000 MHz				Rel. I	Hum .(%)	35		
Power S	etting	14 in A	RT test	utility			Pr	ess.	(m Bars)	1010		
An	tenna	Integra	l Antenr	nas				Duty (	Cycle (%)	100		
Test No	otes 1	Peak E	mission	s						=		
Test No	otes 2											
MicoMLabs  dBuVlm Vasona by EMiSoft  110.0												
Formally	/ measured emission peaks											
Frequency M Hz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
5805.912	58.7	14.8	35.0	108.5	Peak [Scan]	Н						PK
Legend:	TX = T	ransmit	ter Emis	sions; DIG	G = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band En	nission



To: FCC 47 CFR Part 15.247 & IC RSS-210

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# 7.6.4 <u>AP-ANT-2 - Transmitter Radiated Spurious Emissions – Above 1 GHz</u>

# 2400 - 2483.5 MHz: 802.11b

Tool From	est Freq. 2412 MHz Engineer CSB											
•												
Variant		b; 1 Mb						mp (°C)	19			
Freq. Range			000 MHz				Rel. I	Hum .(%)	42			
Power Setting	6 in AF	RT test u	ıtility			Pı	ress.	(m Bars)	1000			
Antenna	AP-AN	IT-2					Duty C	Cycle (%)	100%			
Test Notes 1	EUT ve	ertical or	ı table.									
Test Notes 2	Funda	mental a	ttenuated	by notch filter								
Test Notes 2 Fundamental attenuated by notch filter    Miccombos   Superior   Superior												
Formally me	asure	d em	ission	peaks					<u> </u>	<u> </u>		
Frequency Raw MHz dBuV	Cable Loss	I am I man I man man I Doll I man I man I man I man I Commonte										
4824.011 61.4	4.5	-9.4	56.4	Peak	V	98	322	74.0	-17.6	Pass	RB	
4823.967 58.3	4.5	-9.4	53.3	Average	V	98	322	54.0	-0.7	Pass	RB	
Legend: TX =	Transmi	ter Emis	sions; DIC	G = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band Er	nission	
NRB	= Non Re	estricted	l Band, Lir	nit is 20dB below	/ fund	amenta	al peak	[				

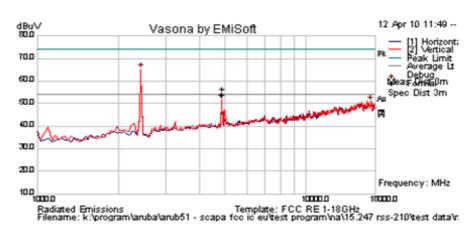


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Test Freq.	2437 MHz	Engineer	CSB						
Variant	802.11b; 1 Mbs	Temp (°C)	19						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	42						
Power Setting	7.5 in ART test utility	Press. (m Bars)	1000						
Antenna	AP-ANT-2	Duty Cycle (%)	100%						
Test Notes 1	EUT vertical on table.	UT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter								





## Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4874.029	61.0	4.5	-9.3	56.1	Peak Max	V	98	317	74.0	-17.9	Pass	RB
4874.029	58.6	4.5	-9.3	53.8	Average Max	V	98	317	54.0	-0.2	Pass	RB

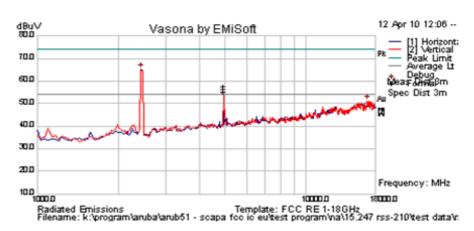


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Test Freq.	2462 MHz	Engineer	CSB						
Variant	802.11b; 1 Mbs	Temp (°C)	19						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	42						
Power Setting	7.0 in ART test utility	Press. (m Bars)	1000						
Antenna	AP-ANT-2	Duty Cycle (%)	100%						
Test Notes 1	EUT vertical on table.	UT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter								





## Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4924.037	62.1	4.6	-9.1	57.5	Peak Max	V	172	319	74.0	-16.5	Pass	RB
4923.987	57.4	4.6	-9.1	52.9	Average	V	172	319	54.0	-1.1	Pass	RB



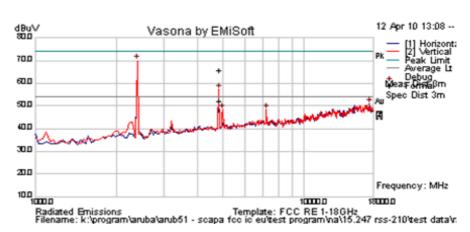
**To:** FCC 47 CFR Part 15.247 & IC RSS-210

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### 2400 - 2483.5 MHz: 802.11g

Test Freq.	2412 MHz	Engineer	CSB						
Variant	802.11g; 6 Mbs	Temp (°C)	21						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37						
Power Setting	13 in ART test utility	Press. (m Bars)	1003						
Antenna	AP-ANT-2	Duty Cycle (%)	100%						
Test Notes 1	EUT vertical on table.	UT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter								





# Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4823.608	70.7	4.5	-9.4	65.7	Peak Max	V	98	316	74.0	-8.3	Pass	RB
4823.608	56.9	4.5	-9.4	51.9	Average Max	V	98	316	54.0	-2.1	Pass	RB
7235.752	48.0	5.4	-5.2	48.2	Peak [Scan]	V	> 20 dB below fundamental			Pass	NRB	

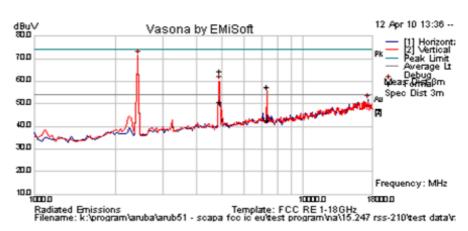


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Test Freq.	2437 MHz	Engineer	CSB						
Variant	802.11g; 6 Mbs	Temp (°C)	21						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37						
Power Setting	13 in ART test utility	Press. (m Bars)	1003						
Antenna	AP-ANT-2	Duty Cycle (%)	100%						
Test Notes 1	EUT vertical on table.	UT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter								





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4873.788	55.5	4.5	-9.3	50.7	Average Max	Н	190	227	54.0	-3.3	Pass	RB
4873.788	69.4	4.5	-9.3	64.6	Peak Max	Н	190	227	74.0	-9.4	Pass	RB
7310.035	42.0	5.4	-4.9	42.5	Average Max	V	98	10	54	-11.5	Pass	RB
7310.035	56.8	5.4	-4.9	57.4	Peak Max	V	98	10	74	-16.7	Pass	RB

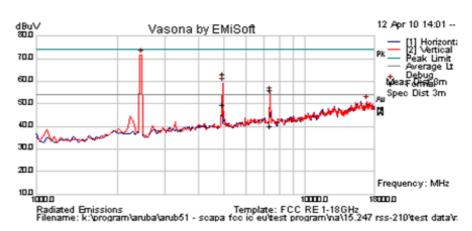


**To:** FCC 47 CFR Part 15.247 & IC RSS-210

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Test Freq.	2462 MHz	Engineer	CSB
Variant	802.11g; 6 Mbs	Temp (°C)	21
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37
Power Setting	13 in ART test utility	Press. (m Bars)	1003
Antenna	AP-ANT-2	Duty Cycle (%)	100%
Test Notes 1	EUT vertical on table.		
Test Notes 2	Fundamental attenuated by notch filter		





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4923.808	53.9	4.6	-9.1	49.3	Average Max	V	190	0	54.0	-4.7	Pass	RB
4923.808	67.9	4.6	-9.1	63.4	Peak Max	V	190	0	74.0	-10.6	Pass	RB
7385.070	39.5	5.5	-4.8	40.2	Average Max	V	116	11	54	-13.9	Pass	RB
7385.070	55.1	5.5	-4.8	55.8	Peak Max	V	116	11	74	-18.3	Pass	RB



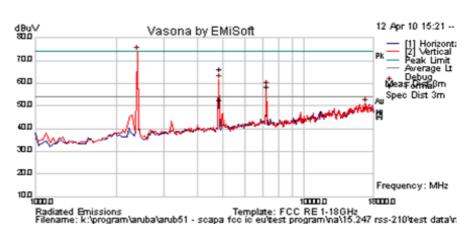
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#### 2400 - 2483.5 MHz: 802.11n HT-20

Test Freq.	2412 MHz	Engineer	CSB							
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21							
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37							
Power Setting	18 in ART test utility	Press. (m Bars)	1003							
Antenna	AP-ANT-2	Duty Cycle (%)	100%							
Test Notes 1	EUT vertical on table.	EUT vertical on table.								
Test Notes 2	Fundamental attenuated by notch filter									





# Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4818.357	71.1	4.5	-9.3	66.2	Peak	V	100	0	74.0	-7.8	Pass	RB
4818.357	57.5	4.5	-9.3	52.6	Average	V	100	0	54.0	-1.4	Pass	RB
7237.675	58.2	5.4	-5.1	58.5	Peak [Scan]	V	> 20 dB below fundamental			amental	Pass	NRB

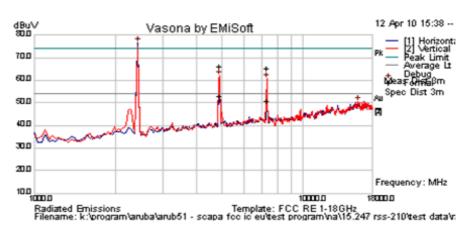


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Test Freq.	2437 MHz	Engineer	CSB						
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37						
Power Setting	18 in ART test utility	Press. (m Bars)	1003						
Antenna	AP-ANT-2	Duty Cycle (%)	100%						
Test Notes 1	EUT vertical on table.	UT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter								





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4873.547	57.9	4.5	-9.3	53.1	Average Max	V	98	26	54.0	-0.9	Pass	RB
4873.547	71.1	4.5	-9.3	66.3	Peak Max	V	98	26	74.0	-7.7	Pass	RB
7310.060	50.2	5.4	-4.9	50.8	Average Max	V	106	16	54	-3.2	Pass	RB
7310.060	64.9	5.4	-4.9	65.4	Peak Max	V	106	16	74	-8.6	Pass	RB

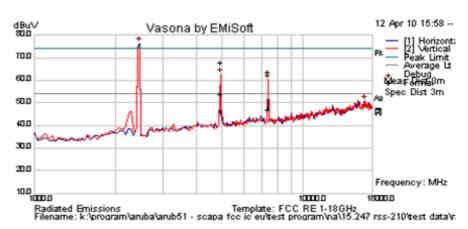


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Test Freq.	2462 MHz	Engineer	CSB					
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37					
Power Setting	18 in ART test utility	Press. (m Bars)	1003					
Antenna	AP-ANT-2	Duty Cycle (%)	100%					
Test Notes 1	EUT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter							





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4923.447	58.2	4.6	-9.1	53.6	Average Max	V	157	26	54.0	-0.4	Pass	RB
4923.447	72.4	4.6	-9.1	67.9	Peak Max	V	157	26	74.0	-6.2	Pass	RB
7389.259	46.3	5.5	-4.8	47.0	Average Max	V	180	12	54	-7.0	Pass	RB
7389.259	63.0	5.5	-4.8	63.7	Peak Max	V	180	12	74	-10.3	Pass	RB



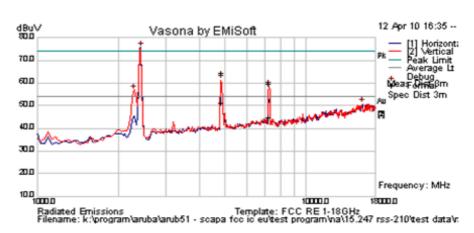
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2400 - 2483.5 MHz: 802.11n HT-40

Test Freq.	2422 MHz	Engineer	CSB						
Variant	802.11n HT-40; 13.5 MCS	Temp (°C)	19						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36						
Power Setting	18 in ART test utility	Press. (m Bars)	1008						
Antenna	AP-ANT-2	Duty Cycle (%)	100						
Test Notes 1	EUT vertical on table.								
Test Notes 2	Fundamental attenuated by notch filter								





## Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4841.924	55.9	4.5	-9.4	51.0	Average Max	Н	174	229	54.0	-3.0	Pass	RB
4841.924	69.2	4.5	-9.4	64.3	Peak Max	Н	174	229	74.0	-9.7	Pass	RB
7272.666	44.4	5.4	-5.1	44.8	Average Max	V	153	0	54	-9.3	Pass	RB
7272.666	59.3	5.4	-5.1	59.6	Peak Max	V	153	0	74	-14.4	Pass	RB

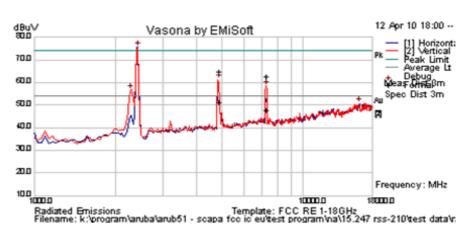


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Test Freq.	2437 MHz	Engineer	CSB					
Variant	802.11n; HT-40; 13.5 MCS	Temp (°C)	19					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36					
Power Setting	18 in ART test utility	Press. (m Bars)	1008					
Antenna	AP-ANT-2	Duty Cycle (%)	100					
Test Notes 1	EUT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter							





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4872.926	56.1	4.5	-9.3	51.3	Average Max	V	162	336	54.0	-2.7	Pass	RB
4872.926	69.9	4.5	-9.3	65.1	Peak Max	V	162	336	74.0	-8.9	Pass	RB
7308.017	47.4	5.4	-4.9	47.9	Average Max	V	136	8	54	-6.1	Pass	RB
7308.017	62.3	5.4	-4.9	62.9	Peak Max	٧	136	8	74	-11.1	Pass	RB

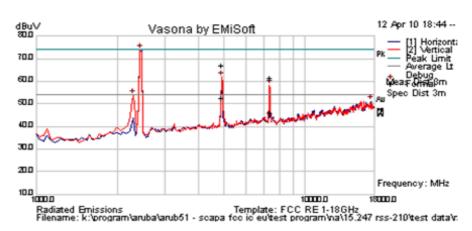


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Test Freq.	2452 MHz	Engineer	CSB					
Variant	802.11n; HT-40; 13.5 MCS	Temp (°C)	19					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36					
Power Setting	18 in ART test utility	Press. (m Bars)	1008					
Antenna	AP-ANT-2	Duty Cycle (%)	100					
Test Notes 1	EUT vertical on table.							
Test Notes 2	Fundamental attenuated by notch filter							





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4900.601	57.1	4.5	-9.3	52.3	Average Max	Н	191	236	54.0	-1.7	Pass	RB
4900.601	71.7	4.5	-9.3	67.0	Peak Max	Н	191	236	74.0	-7.0	Pass	RB
7363.046	45.7	5.5	-4.9	46.2	Average Max	V	115	14	54	-7.8	Pass	RB
7363.046	61.1	5.5	-4.9	61.7	Peak Max	V	115	14	74	-12.4	Pass	RB

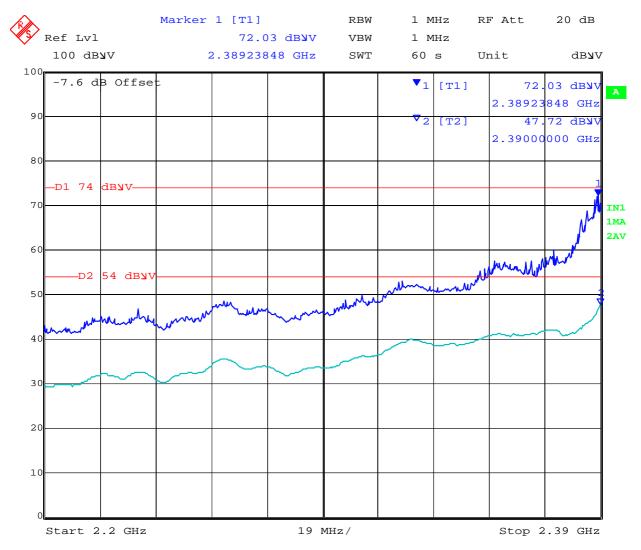


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# 7.6.5 AP-ANT-2 - Transmitter Band edge spurious emissions

# 2412 MHz - 802.11b; 2200 - 2390 MHz



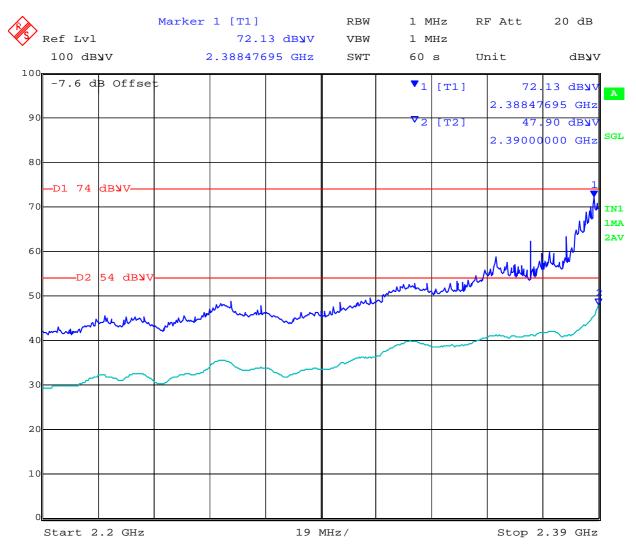
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### 2412 MHz - 802.11g; 2200 - 2390 MHz



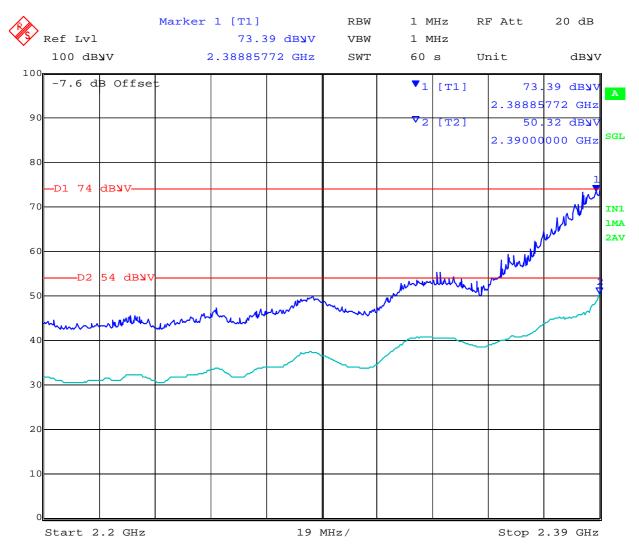
Date: 28.APR.2010 10:18:34



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### 2412 MHz - 802.11n HT-20; 2200 - 2390 MHz



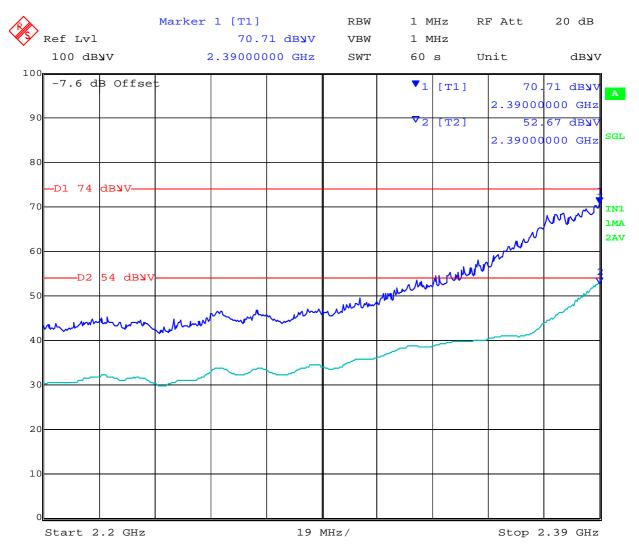
Date: 28.APR.2010 10:26:22



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### 2422 MHz - 802.11n HT-40; 2200 - 2390 MHz



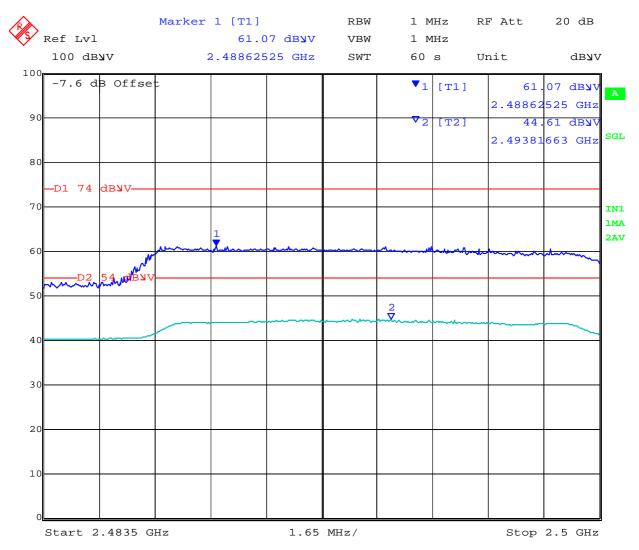
Date: 28.APR.2010 10:36:36



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### 2462 MHz - 802.11b; 2483.5 - 2500 MHz



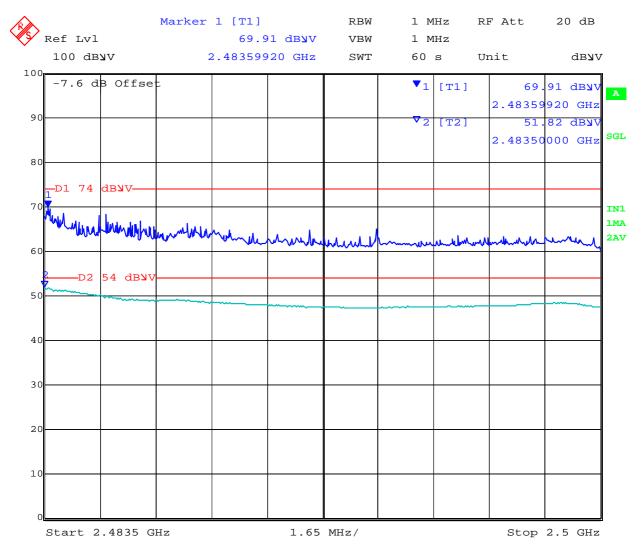
Date: 28.APR.2010 10:48:59



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## 2462 MHz - 802.11g; 2483.5 - 2500 MHz



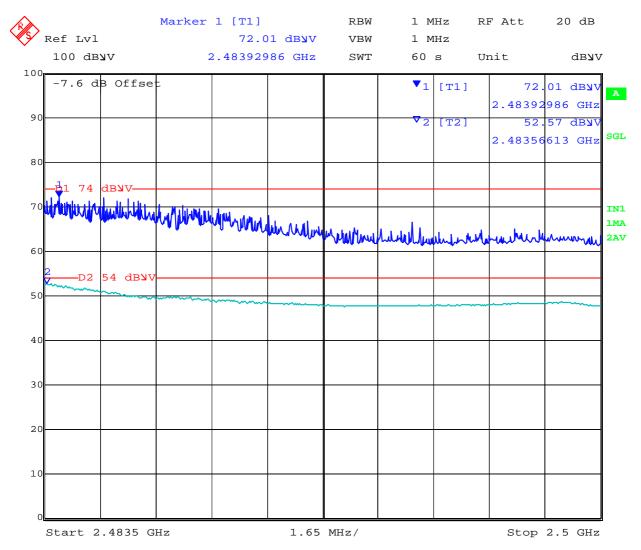
Date: 28.APR.2010 10:59:27



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### 2462 MHz - 802.11n HT-20; 2483.5 - 2500 MHz



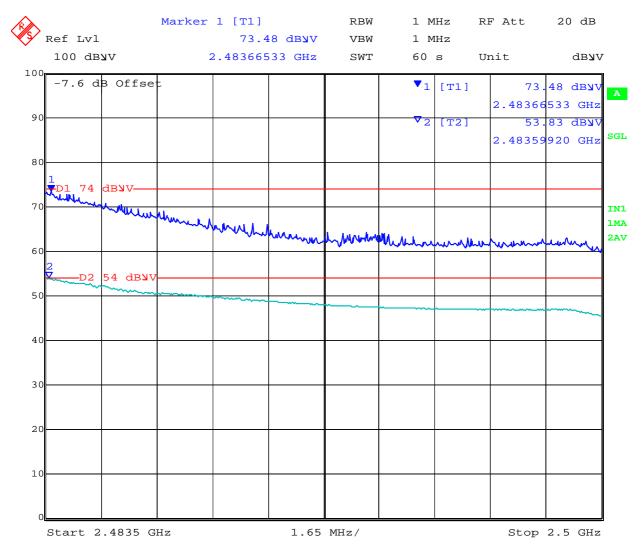
Date: 28.APR.2010 11:03:29



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### 2452 MHz - 802.11n HT-40; 2483.5 - 2500 MHz



Date: 28.APR.2010 11:06:33



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## 7.6.6 <u>AP-ANT-2 - Transmitter Peak Emissions (RSS-210/RSS-GEN)</u>

# 2400 - 2483.5 MHz: 802.11b

Test F	req.	2412 M	iHz					E	ngineer	CSB		
Var	riant	802.11	b; 1 Mb:	S				Те	mp (°C)	18.5		
Freq. Ra	nge	2400 - 2	2483.5	MHz				Rel. I	Hum .(%)	37		
Power Set	ting	6 in art					Pı	ess.	(m Bars)	1004		
Ante	nna	AP-AN	T-2					Duty (	Cycle (%)	100		
Test Note	es 1											
Test Note	es 2											
MiC@MLak	bs	125.0 115.0 105.0 95.0 2,05.0 125.0	liated En	nissions Program fil	Vasona by E		1	\$\$-211 61\ap-a	γγκ value int-2 pk\aru	Det Trace Sup & Ref 1 Att 1 RBw 1 Mode Meas Spec I	Horizon Vertical Limit L	t:
Formally	mea	sure	d em	ission	peaks							
	Raw IBuV	Cable Loss	A F dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
2414.752	72.7	7.1	30.4	110.2	Peak [Scan]	V						PK
Legend: T	ΓX = T	ransmitt	ter Emis	sions; DIC	G = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band Er	nission
			nitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission									



PK = Peak emissions of Fundamental

**Title:** Aruba AP-92/93 802.11a/b/g/n Wireless AP

**To:** FCC 47 CFR Part 15.247 & IC RSS-210

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Teat														
rest	Freq.	2437 N	lHz					Е	ngineer	CSB				
V	ariant	802.11	b; 1 Mbs	3				Те	mp (ºC)	18.5				
Freq. F	Range	2400 -	2483.5	MHz				Rel. I	Hum .(%)	37				
Power S	etting	7.5 in a	ırt				Pr	ess.	(m Bars)	1004				
An	tenna	AP-AN	T-2					Duty C	ycle (%)	100				
Test No	otes 1									-				
Test No	otes 2													
	MicoMLabs  dBuVlm Vasona by EMiSoft  26 Apr 10 13:17  [1] Horizont: [2] Vertical Pk Lmt Debug  Det Trace Swp #0.05s Ref 107dBuVlm Art 10dB VBw 1000kHz RBw 1000													
Formally	/ mea	sured	emiss	ion pea	ıks									
Formally Frequency MHz	/ mea	Sured Cable Loss	emiss	Level	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments		
Frequency	Raw	Cable	AF	Level	M easurement	Pol V						Comments		



Legend:

PK = Peak emissions of Fundamental

**Title:** Aruba AP-92/93 802.11a/b/g/n Wireless AP

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_												
Test F	Freq.	2462 N	1Hz					Е	ngineer	CSB		
Va	riant	802.11	b; 1 Mb	s				Te	mp (°C)	18.5		
Freq. Ra	ange	2400 -	2483.5	MHz				Rel.	Hum .(%)	37		
Power Set	tting	7 in art					Pr	ess.	(m Bars)	1004		
Ante	enna	AP-AN	T-2					Duty (	Cycle (%)	100		
Test Not	tes 1									-		
Test Not	tes 2											
MiC@MLa Formally			) háteir S name: c		Vasona by E			RSS-211 61 Jap-a	) PR 2400- int-2 pk\aru	Det Trace Swp # Ref 1 Att 1 VBw 11 RBw 1 Mode 1 Meas   Spec 0	Horizon Vertical Curnt bug  0.05s 07dBuV/ 0dB 0000kHz 0000kHz 000kHz 000st 3m 0ist 3m	ti T
	Raw	Cable	AF	Level	M easurement	Pol	Hgt	Azt	Limit	M argin	Pass	Comments
	72.5	<b>Loss</b> 7.2	<b>dB</b> 30.6	<b>dBuV/m</b> 110.3	Type Peak [Scan]	V	cm	Deg	dBuV/m	dB	/Fail	PK

TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission



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### 2400 - 2483.5 MHz: 802.11g

PK = Peak emissions of Fundamental

Variant   802.11g; 6 Mbs   Temp (°C)   18.5	Test	Freg.	2412 M	 ⁄IHz					Е	ngineer	CSB		
Press   Hum.			802.11	a: 6 Mb:							18.5		
Power Setting 13 in art Press. (m Bars) 1004  Antenna AP-ANT-2 Duty Cycle (%) 100  Test Notes 1  Test Notes 2  MiCOMLabs  dBuVim Vasona by EMiSoft 26 Apr 10 13:26  [1] Horizont: 2 Vertical  [2] Vertical  [3] Horizont: 2 Vertical  [4] Horizont: 2 Vertical  [5] Vertical  [6] PL Int Debug  Det  Trace Sup #0.05s Ref 107dBuV/m Art 10dB  Web 1000kHz Mode PAPS Meas Dist 3m Spec Dist 3m Frequency: MHz  283.5  Radiated Emissions Filename: c:/program files/emisoft - vasona/vesults/arub51/ap-ant-2 pk/aruba91 ant2 g 2412.e	Freg. I			<u> </u>						. , ,	37		
Antenna AP-ANT-2 Duty Cycle (%) 100  Test Notes 1  Test Notes 2  MiCOMLabs  dBu//m Vasona by EMiSoft 26 Apr 10 13:26  [1] Horizont:	Power S	etting						Pr	ess.	(m Bars)	1004		
Test Notes 1  Test Notes 2  MiCOMLabs  dBuV/m			AP-AN	T-2							100		
MicoMLabs  dBuVlm Vasona by EMiSoft  26 Apr 10 13:26  [1] Horizont:	Test No	otes 1											
Det Trace Sup #0.05s Ref 107dBu/\r Att 10dB West 1000kHz RBw 1000kHz Mode PAPS Meas Dist 3m Spec Dist 3m Spec Dist 3m Frequency: MHz 2000 Radiated Emissions Filename: o:\program files\emisoft - vasona\results\arub51\ap-ant-2 pk\aruba51 ant2 g 2412.e	Test No	otes 2											
Formally measured emission peaks	Fa		115.0 105.0 95.0 200.0 Rad Filet	name: o:	:'program fi		na vresu	plate: i its varub	35-21 51\ap-a	PK 2400-2	Det Trace Sup # Ref 1 At 1 VBu 1 RBu 1 Mode 1 Meas 1 Spec 0 Frequence 483.5	0.05s 07dBuV/ 0dB 000kHz 000kHz PAPS Dist 3m Dist 3m	п
Frequency Raw Cable AF Level Measurement Pol Hgt Azt Limit Margin Pass Commo	Frequency	Raw	Cable	AF	Level	M easurement	Pol	_					Comments
2416.283 84.0 7.1 30.4 121.6 Peak [Scan] V	MHz	IdBuV	,	""		. ,,,,		•	5		,	, . u.i	



PK = Peak emissions of Fundamental

**Title:** Aruba AP-92/93 802.11a/b/g/n Wireless AP

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Test	Freq.	2437 N	1Hz					Е	ngineer	CSB		
Va	ariant	802.11	g; 6 Mb	s				Те	mp (°C)	18.5		
Freq. R	Range	2400 -	2483.5	MHz				Rel. I	Hum .(%)	37		
Power Se	etting	13 in a	rt				Pr	ess.	(m Bars)	1004		
Ant	tenna	AP-AN	T-2					Duty (	Cycle (%)	100		
Test No	tes 1											
Test No	tes 2											
MiC@ML			name: o		Vasona by E	The second second		8\$\$-210 61\ap-a		Det Trace Swp # Ref 1 Att 1 VBw 1 RBw 1 Mode Meas Spec 1 Frequence	Horizoni Vertical Curnt ebug 00.05s 07dBuV/0 0dB 000kHz 000kHz 000kHz PAPS Dist 3m Dist 3m	ti T
Frequency	Raw	Sure a	AF	Level	M easurement		Hgt	Azt	Limit	M argin	Pass	
MHz	dBuV	Loss	dB	dBuV/m	Туре	Pol	cm	Deg	dBuV/m	dB	/Fail	Comments
2442.307	81.2	7.2	30.5	118.9	Peak [Scan]	V						PK
Legend:	TX = T	ransmit	ter Emis	sions; DIG	S = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band En	nission



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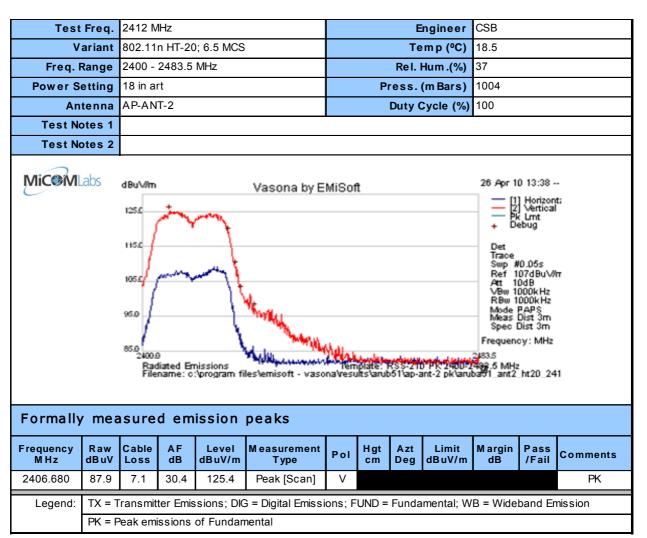
Test	Freq.	2462 N	lHz					E	ngineer	CSB				
٧	ariant	802.11	g; 6 Mb:	s				Те	mp (°C)	18.5				
Freq. F	Range	2400 -	2483.5	MHz				Rel.	Hum .(%)	37				
Power S	etting	13 in aı	rt				Pı	ress.	(m Bars)	1004				
An	tenna	AP-AN	T-2					Duty (	Cycle (%)	100				
Test No	otes 1									<u></u>				
Test No	otes 2													
	MiCOMLabs  dBuV/lm Vasona by EMiSoft  26 Apr 10 13:33  [1] Horizont: [2] Vertical Pk Lmt Debug  Det Trace Swp #0.05s Ref 107dBuV/ln Art 10dB VBw 1000kHz Rbw 1000kHz Mode PAPS Meas Dist 3m Spec Dist 3m Spec Dist 3m Frequency: MHz  283.5 Hadvace Emissions Frequency: MHz Pilename: c.'program files/emisoft - vasona/results/arub51/ap-ant-2 pk/aruba51_ant2_g_2462.e													
Formally	/ mea	sured	emiss	sion pea	ks									
Frequency M Hz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments		
2468.888	81.0	7.2	30.6	118.8	Peak [Scan]	V						PK		
Legend:	TX = T	ransmit	ter Emis	sions; DIC	6 = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band En	nission		
-	PK = F	Peak emi	ssions	of Fundan	nental									



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#### 2400 - 2483.5 MHz: 802.11n HT-20





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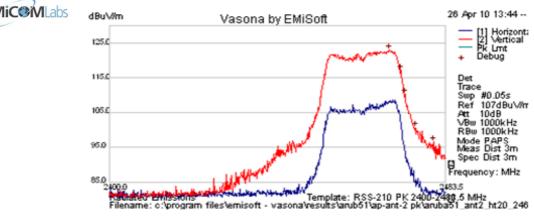
Test Freq.   2437 MHz													
Frequency	Test	Freq.	2437 M	lHz					E	ngineer	CSB		
Power Setting 18 in art Press. (m Bars) 1004  Antenna AP-ANT-2 Duty Cycle (%) 100  Test Notes 1  Test Notes 2  Miccon Labs  dBuVim Vasona by EMISoft 26 Apr 10 13:41 12 Hericall Fit Lunt Lebeug 155 Supply 20.55	V	ariant	802.11	n HT-20	); 6.5 MCS				Te	mp (°C)	18.5		
Antenna AP-ANT-2 Duty Cycle (%) 100  Test Notes 1  Test Notes 2  Micon Labs  dBuvim Vasona by EMISoft 26 Apr 10 13:41 [1] Horizont:	Freq. F	Range	2400 -	2483.5	MHz				Rel.	Hum .(%)	37		
Test Notes 2  Mico MLabs  dBuv/m  Vasona by EMISoft  26 Apr 10 13:41  [1] Horizont;    Vertical   Vertical	Power So	etting	18 in ar	t				Pı	ess.	(m Bars)	1004		
Test Notes 2  MiCOMLabs  dBuVim Vasona by EMISoft  26 Apr 10 13:41  [1] Horizonti [2] Vertical Floating Trace Sup 90.05s Sup 90.0	An	tenna	AP-AN	T-2					Duty (	Cycle (%)	100		
## Vasona by EMiSoft  26 Apr 10 13:41  11 Horizont: 22 Vertical 4 Limit Debug  Debu	Test No	otes 1									•		
Formally measured emission peaks  Frequency MHz dBuV Loss dB dB dBuV/m Measurement Type Pol Hgt Cost Deg dBuV/m Margin Pass Comments  2440.776 86.4 7.2 30.5 124.0 Peak [Scan] V PK  Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission	Test No	otes 2											
Frequency MHz Cable Coss dB UV Coss dB UV Coss DE Comments  2440.776 86.4 7.2 30.5 124.0 Peak [Scan] V Limit Deg	MiceM	abs	125.0 115.0 106.0 96.0	gjilliteral Matelor 125 name: c	Testons fi		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	mulayl,	*\$\$*211 61\ap-a	7470-1 2 pk\aru	Det Trace Sup # Ref 1 Att 1 I Mode Meas Spec I Frequence 2483.5	Horizon Vertical Curnt bug  10.05s 07dBuV/0 00B 000kHz 000kHz 000kHz PAPS Dist 3m Dist 3m	t: T
Mi Hz dBuV Loss dB dBuV/m Type Pol cm Deg dBuV/m dB /Fail Comments  2440.776 86.4 7.2 30.5 124.0 Peak [Scan] V PK  Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission	Formally	mea	sured	emiss	sion pea	ıks							
Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission							Pol						Comments
	2440.776	86.4	7.2	30.5	124.0	Peak [Scan]	V						PK
PK = Peak emissions of Fundamental	Legend:	TX = T	ransmit	ter Emis	sions; DK	G = Digital Emissi	ons; F	UND =	Funda	mental; W	/B = Wide	band En	nission
		PK = F	eak emi	ssions	of Fundan	nental							



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Test Freq.	2462 MHz	Engineer	CSB
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	18.5
Freq. Range	2400 - 2483.5 MHz	Rel. Hum.(%)	37
Power Setting	18 in art	Press. (m Bars)	1004
Antenna	AP-ANT-2	Duty Cycle (%)	100
Test Notes 1			
Test Notes 2			
<b>MiC®M</b> Labs	dBu√lm Vasona by E	MiSoft	26 Apr 10 13:44  [1] Horizont:  [2] Vertical  Pk Lmt  Debug



Formally	y mea	sured	emiss	sion pea	ıks							
Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
2469.305	85.2	7.2	30.6	123.0	Peak [Scan]	V						PK

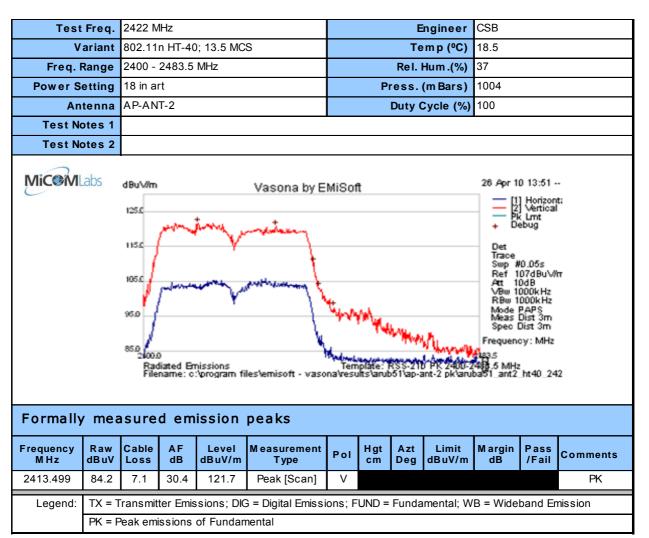
Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
PK = Peak emissions of Fundamental



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#### 2400 - 2483.5 MHz: 802.11n HT-40





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Test	Freq.	2437 M	Hz					E	ngineer	CSB		
٧	ariant	802.11	n HT-40	); 13.5 MC	S			Te	mp (°C)	18.5		
Freq. F	Range	2400 - 1	2483.5	MHz				Rel.	Hum .(%)	37		
Power S	etting	18 in ar	t				Pı	ess.	(m Bars)	1004		
An	tenna	AP-AN	T-2					Duty (	Cycle (%)	100		
Test No	otes 1									•		
Test No	otes 2											
Miceim	abs	125.0 115.0 105.0 95.0 105.0 105.0 105.0 105.0 105.0 105.0 105.0	ateo En	nissions Porogram fi	Vasona by E	yddir yr a	7	nedy SS-211 61 ap-a	PK 2400-2	Det Trace Sup # Ref 1 Att 1 VBw 1 RBw 1 Mode Meas Spec 1	Horizon Vertical Limit ebug  60.05s 07dBuV/0 0dB 0000kHz 0000kHz 000kHz 001st 3m Dist 3m oy: MHz	t: T
Formally	/ mea	sured	emiss	sion pea	ks							
Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	M argin dB	Pass /Fail	Comments
2432.287	83.7	7.1	30.5	121.3	Peak [Scan]	٧						PK
Legend:	TX = T	ransmit	ter Emis	sions; DIC	G = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band En	nission
-	PK = F	Peak emi	ssions	of Fundan	nental							



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Test	Freq.	2452 M	Hz					E	ngineer	CSB			
Va	ariant	802.11	n HT-40	); 13.5 MC	S			Te	mp (°C)	18.5			
Freq. R	ange	2400 -	2483.5	MHz				Rel.	Hum .(%)	37			
Power Se	etting	18 in ar	t				Pı	ess.	(m Bars)	1004			
Ant	enna	AP-AN	T-2					Duty (	Cycle (%)	100			
Test No	tes 1												
Test No	tes 2												
MicomLabs  dBuV/m Vasona by EMiSoft  26 Apr 10 14:11  [1] Horizont:													
Formally	mea	surea	emiss	sion pea	ıks					<u> </u>			
Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV/m	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments	
2465.965	83.0	7.2	30.6	120.8	Peak [Scan]	V						PK	
Legend:	TX = T	ransmit	ter Emis	sions; DIC	G = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band En	nission	
			nsmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission										



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## 7.6.7 <u>AP-ANT-7 - Transmitter Radiated Spurious Emissions – Above 1 GHz</u>

# 2400 - 2483.5 MHz: 802.11b

	_		41.1					_		000		
	Freq.	2412 N							ngineer	CSB		
V	ariant	802.11	b; 1 Mb:	S				Те	mp (°C)	19		
Freq. F	Range	1000 N	1Hz - 18	000 MHz				Rel. I	Hum .(%)	42		
Power Se	etting	6 in AF	RT test u	ıtility			Pı	ress.	(m Bars)	1000		
An	tenna	AP-AN	T-7					Duty C	Cycle (%)	100%		
Test No	tes 1	EUT Ho	rizontal	on table.								
Test No	otes 2	Fundar	nental a	ttenuated	by notch filter							
MiCOMLabs  Vasona by EMiSoft  13 Apr 10 09:51  [1] Horizont:  PR Peak Limit  Average Li  Debug  Debug  Rediated Emissions  Filename: k.'brogram\aruba\arubb1 - scapa foc io eu'test program\na\15.247 rss-210'test data\v.												
Frequency M Hz	Raw	Cable	AF	Level dBuV	M easurement	Pol	Hgt	Azt	Limit dBuV	M argin dB	Pass /Fail	Comments
	dBuV	Loss	dB		Type	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	cm	Deg				DD
4824.032	60.7	4.5	-9.4	55.7	Peak	V	100	104	74.0	-18.3	Pass	RB
4824.032	58.1	4.5	-9.4	53.2	Average	V	100	104	54.0	-0.9	Pass	RB
Legend:	TX = T	ransmit	ter Emis	sions; DIC	3 = Digital Emissi	ons; F	UND =	Funda	mental; W	B = Wide	band En	nission
	NRB =	Non Re	estricted	l Band, Lir	nit is 20dB below	/ fund	amenta	al peak				

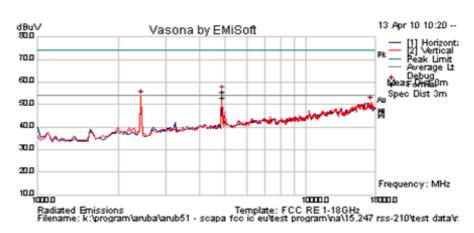


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Test Freq.	2437 MHz	Engineer	CSB
Variant	802.11b; 1 Mbs	Temp (°C)	19
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	42
Power Setting	6.5 in ART test utility	Press. (m Bars)	1000
Antenna	AP-ANT-7	Duty Cycle (%)	100%
Test Notes 1	EUT Horizontal on table.		
Test Notes 2	Fundamental attenuated by notch filter		





### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4873.956	60.4	4.5	-9.3	55.6	Peak	V	98	103	74.0	-18.4	Pass	RB
4873.956	57.9	4.5	-9.3	53.1	Average	V	98	103	54.0	-0.9	Pass	RB

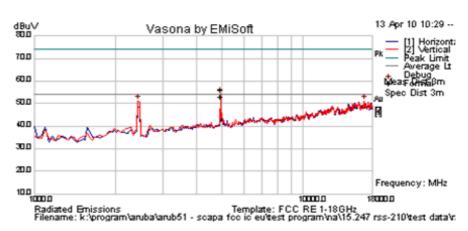


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Test Freq.	2462 MHz	Engineer	CSB					
Variant	802.11b; 1 Mbs	Temp (°C)	19					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	42					
Power Setting	7.0 in ART test utility	Press. (m Bars)	1000					
Antenna	AP-ANT-7	Duty Cycle (%)	100%					
Test Notes 1	EUT Horizontal on table.							
Test Notes 2	Fundamental attenuated by notch filter							





### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4924.057	60.4	4.6	-9.1	55.9	Peak Max	V	98	122	74.0	-18.2	Pass	RB
4924.057	57.3	4.6	-9.1	52.8	Average Max	V	98	122	54.0	-1.3	Pass	RB



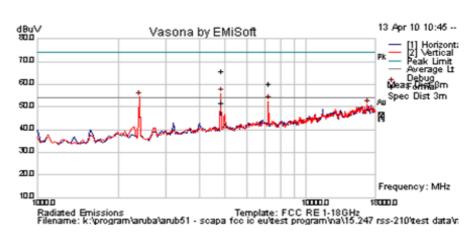
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### 2400 - 2483.5 MHz: 802.11g

Test Freq.	2412 MHz	Engineer	CSB						
Variant	802.11g; 6 Mbs	Temp (°C)	21						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37						
Power Setting	13 in ART test utility	Press. (m Bars)	1003						
Antenna	AP-ANT-7	Duty Cycle (%)	100%						
Test Notes 1	EUT Horizontal on table.	EUT Horizontal on table.							
Test Notes 2	Fundamental attenuated by notch filter								





### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4823.568	70.6	4.5	-9.4	65.6	Peak Max	V	101	104	74.0	-8.4	Pass	RB
4823.568	56.6	4.5	-9.4	51.7	Average Max	V	101	104	54.0	-2.3	Pass	RB
7236.885	60.0	5.4	-5.2	60.2	Peak	V	> 20dB below fundamental Pass				NRB	

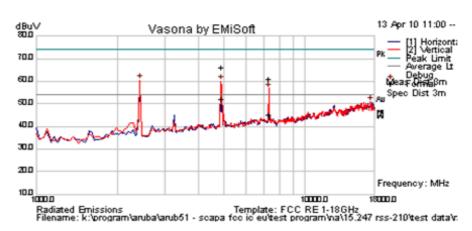


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Test Freq.	2437 MHz	Engineer	CSB					
Variant	802.11g; 6 Mbs	Temp (°C)	21					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37					
Power Setting	13 in ART test utility	Press. (m Bars)	1003					
Antenna	AP-ANT-7	Duty Cycle (%)	100%					
Test Notes 1	EUT Horizontal on table.							
Test Notes 2	Fundamental attenuated by notch filter							





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4873.525	57.0	4.5	-9.3	52.2	Average Max	V	102	88	54.0	-1.9	Pass	RB
4873.525	71.0	4.5	-9.3	66.1	Peak Max	V	102	88	74.0	-7.9	Pass	RB
7307.500	44.4	5.4	-4.9	45.0	Average Max	V	129	117	54	-9.0	Pass	RB
7307.500	60.7	5.4	-4.9	61.3	Peak Max	V	129	117	74	-12.8	Pass	RB

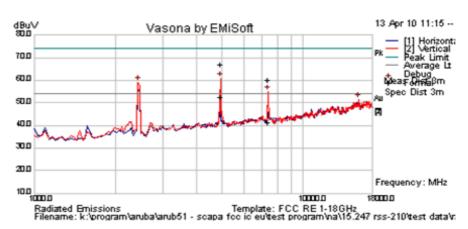


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Test Freq.	2462 MHz	Engineer	CSB						
Variant	802.11g; 6 Mbs	Temp (°C)	21						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37						
Power Setting	13 in ART test utility	Press. (m Bars)	1003						
Antenna	AP-ANT-7	Duty Cycle (%)	100%						
Test Notes 1	EUT Horizontal on table.	UT Horizontal on table.							
Test Notes 2	Fundamental attenuated by notch filter								





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4923.530	57.2	4.6	-9.1	52.7	Average Max	V	98	116	54.0	-1.3	Pass	RB
4923.53	71.5	4.6	-9.1	66.9	Peak Max	V	98	116	74.0	-7.1	Pass	RB
7381.082	40.8	5.5	-4.8	41.4	Average Max	V	98	116	54	-12.6	Pass	RB
7381.082	59.7	5.5	-4.8	60.3	Peak Max	V	98	116	74	-13.7	Pass	RB



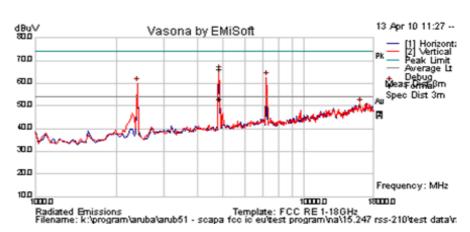
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#### 2400 - 2483.5 MHz: 802.11n HT-20

Test Freq.	2412 MHz	Engineer	CSB						
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37						
Power Setting	16 in ART test utility	Press. (m Bars)	1003						
Antenna	AP-ANT-7	Duty Cycle (%)	100%						
Test Notes 1	EUT Horizontal on table.	UT Horizontal on table.							
Test Notes 2	Fundamental attenuated by notch filter								





### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4823.136	71.2	4.5	-9.4	66.3	Peak	V	98	121	74.0	-7.7	Pass	RB
4823.136	58.0	4.5	-9.4	53.1	Average	V	98	121	54.0	-0.9	Pass	RB
7233.788	62.5	5.4	-5.2	62.7	Peak [Scan]	V	> 20dB below fundamental Pass			Pass	NRB	

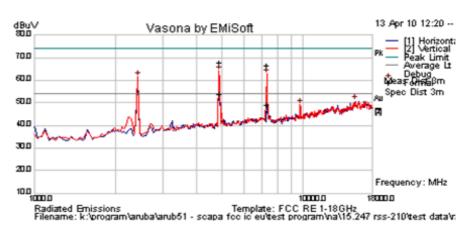


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Test Freq.	2437 MHz	Engineer	CSB					
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37					
Power Setting	16 in ART test utility	Press. (m Bars)	1003					
Antenna	AP-ANT-7	Duty Cycle (%)	100%					
Test Notes 1	EUT Horizontal on table.							
Test Notes 2	Fundamental attenuated by notch filter							





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4872.876	58.5	4.5	-9.3	53.7	Average Max	V	98	129	54.0	-0.3	Pass	RB
4872.876	72.9	4.5	-9.3	68.1	Peak Max	V	98	129	74.0	-5.9	Pass	RB
7310.461	48.7	5.4	-4.9	49.3	Average Max	V	98	119	54	-4.7	Pass	RB
7310.461	66.1	5.4	-4.9	66.7	Peak Max	V	98	119	74	-7.3	Pass	RB
9737.956	46.3	6.4	-3.5	49.2	Peak [Scan]	V	> 20dB below fundamental			Pass	NRB	

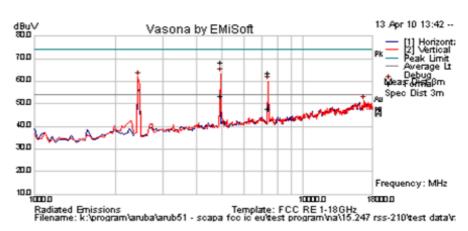


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Test Freq.	2462 MHz	Engineer	CSB					
Variant	802.11n HT-20; 6.5 MCS	Temp (°C)	21					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	37					
Power Setting	15.5 in ART test utility	Press. (m Bars)	1003					
Antenna	AP-ANT-7	Duty Cycle (%)	100%					
Test Notes 1	EUT Horizontal on table.							
Test Notes 2	Fundamental attenuated by notch filter							





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4922.555	73.1	4.6	-9.1	68.5	Peak Max	V	98	121	74.0	-5.5	Pass	RB
4922.556	58.0	4.6	-9.1	53.4	Average	V	98	121	54.0	-0.6	Pass	RB
7382.044	46.9	5.5	-4.8	47.6	Average Max	V	98	116	54	-6.4	Pass	RB
7382.044	62.9	5.5	-4.8	63.5	Peak Max	V	98	116	74	-10.5	Pass	RB



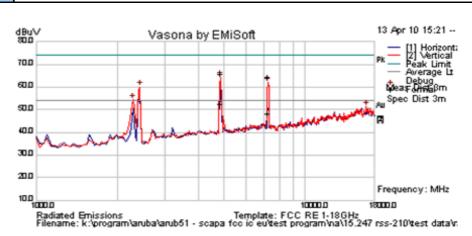
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2400 - 2483.5 MHz: 802.11n HT-40

Test Freq.	2422 MHz	Engineer	CSB						
Variant	802.11n HT-40; 13.5 MCS	Temp (°C)	19						
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36						
Power Setting	18 in ART test utility	Press. (m Bars)	1008						
Antenna	AP-ANT-7	Duty Cycle (%)	100						
Test Notes 1	EUT Horizontal on table.								
Test Notes 2	Fundamental attenuated by notch filter								





### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4842.991	70.7	4.5	-9.4	65.8	Peak Max	V	98	124	74.0	-8.2	Pass	RB
4842.991	57.3	4.5	-9.4	52.4	Average Max	V	98	124	54.0	-1.6	Pass	RB
7275.271	47.8	5.4	-5.1	48.1	Average Max	V	106	118	54	-5.9	Pass	RB
7275.271	64.1	5.4	-5.1	64.4	Peak Max	V	106	118	74	-9.6	Pass	RB

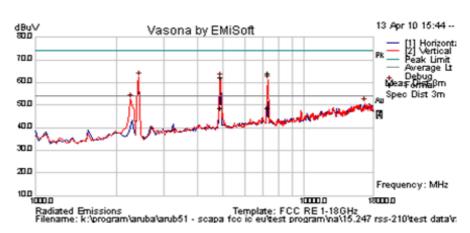


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Test Freq.	2437 MHz	Engineer	CSB					
Variant	802.11n; HT-40; 13.5 MCS	Temp (°C)	19					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36					
Power Setting	18 in ART test utility	Press. (m Bars)	1008					
Antenna	AP-ANT-7	Duty Cycle (%)	100					
Test Notes 1	EUT Horizontal on table.							
Test Notes 2	Fundamental attenuated by notch filter							





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4870.982	67.3	4.5	-9.3	62.5	Peak Max	V	169	119	74.0	-11.5	Pass	RB
4870.982	53.5	4.5	-9.3	48.7	Average Max	V	169	119	54.0	-5.3	Pass	RB
7308.537	48.3	5.4	-4.9	48.8	Average Max	V	98	119	54	-5.2	Pass	RB
7308.537	63.3	5.4	-4.9	63.9	Peak Max	V	98	119	74	-10.1	Pass	RB

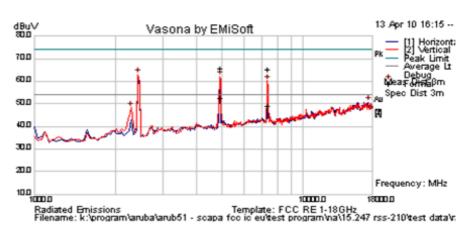


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Test Freq.	2452 MHz	Engineer	CSB					
Variant	802.11n; HT-40; 13.5 MCS	Temp (°C)	19					
Freq. Range	1000 MHz - 18000 MHz	Rel. Hum.(%)	36					
Power Setting	18 in ART test utility	Press. (m Bars)	1008					
Antenna	AP-ANT-7	Duty Cycle (%)	100					
Test Notes 1	EUT Horizontal on table.							
Test Notes 2	Fundamental attenuated by notch filter							





#### Formally measured emission peaks

Frequency M Hz	Raw dBuV	Cable Loss	A F dB	Level dBuV	M easurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	M argin dB	Pass /Fail	Comments
4902.575	57.4	4.5	-9.3	52.6	Average Max	V	110	118	54.0	-1.4	Pass	RB
4902.575	70.6	4.5	-9.3	65.8	Peak Max	V	110	118	74.0	-8.2	Pass	RB
7350.942	48.4	5.5	-4.9	48.9	Average Max	V	98	112	54	-5.1	Pass	RB
7350.942	64.6	5.5	-4.9	65.1	Peak Max	V	98	112	74	-8.9	Pass	RB

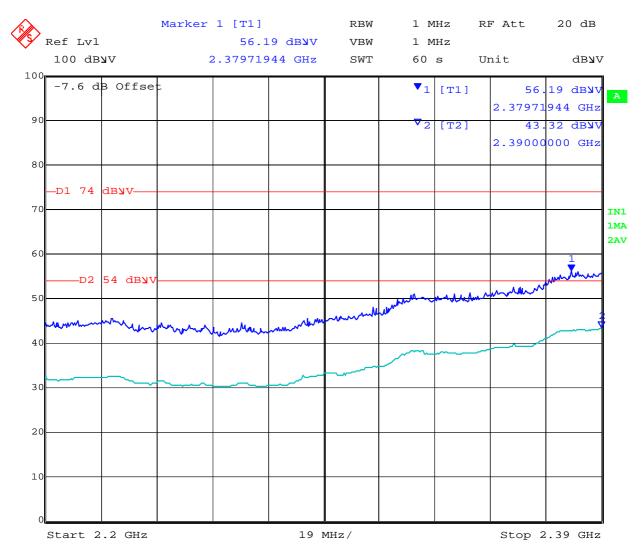


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### 7.6.8 AP-ANT-7 - Transmitter Band edge spurious emissions

### 2412 MHz - 802.11b; 2200 - 2390 MHz



Date: 28.APR.2010 11:53:10



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## 2412 MHz - 802.11g; 2200 - 2390 MHz



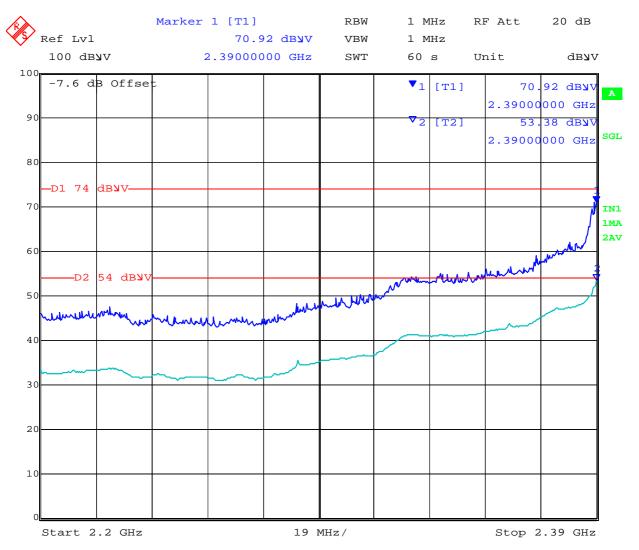
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### 2412 MHz - 802.11n HT-20; 2200 - 2390 MHz



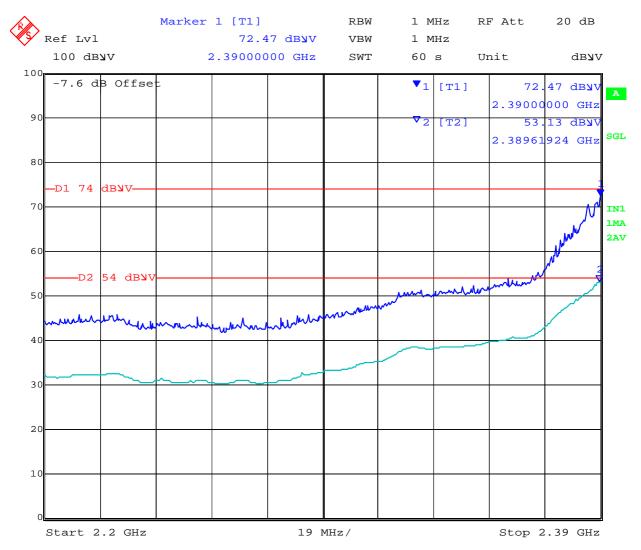
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### 2422 MHz - 802.11n HT-40; 2200 - 2390 MHz



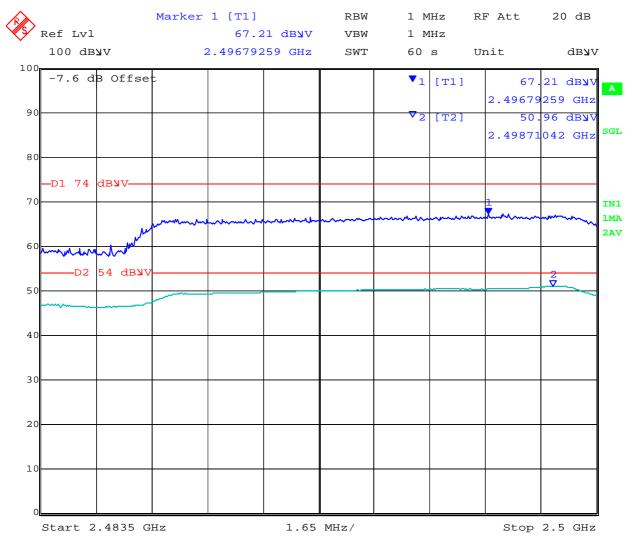
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### 2462 MHz - 802.11b; 2483.5 - 2500 MHz



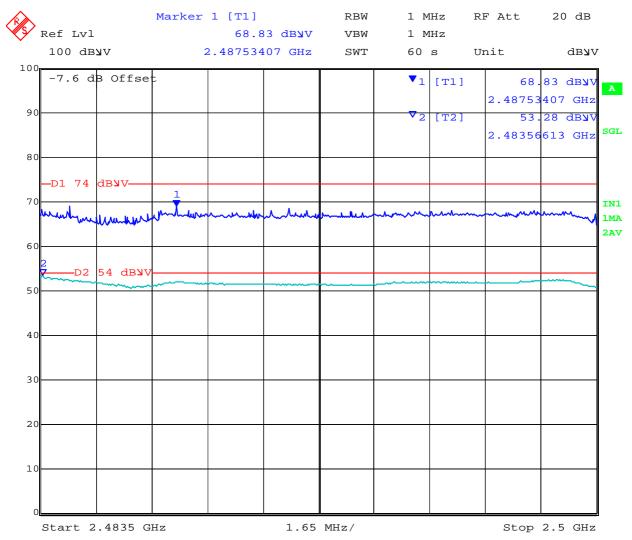
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## 2462 MHz - 802.11g; 2483.5 - 2500 MHz



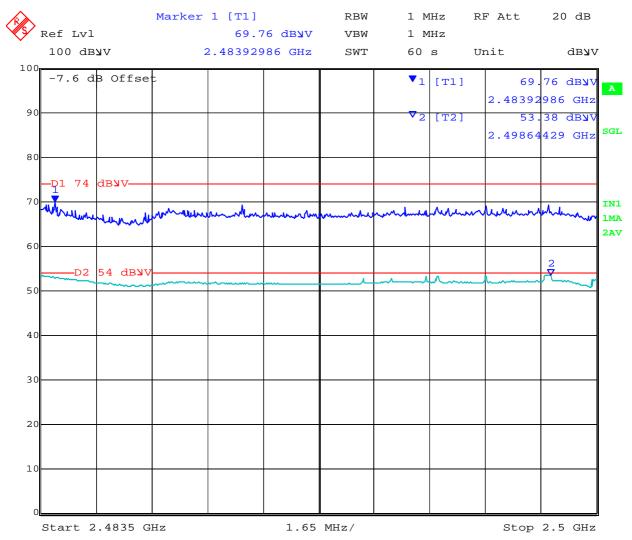
Date: 28.APR.2010 11:39:31



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### 2462 MHz - 802.11n HT-20; 2483.5 - 2500 MHz



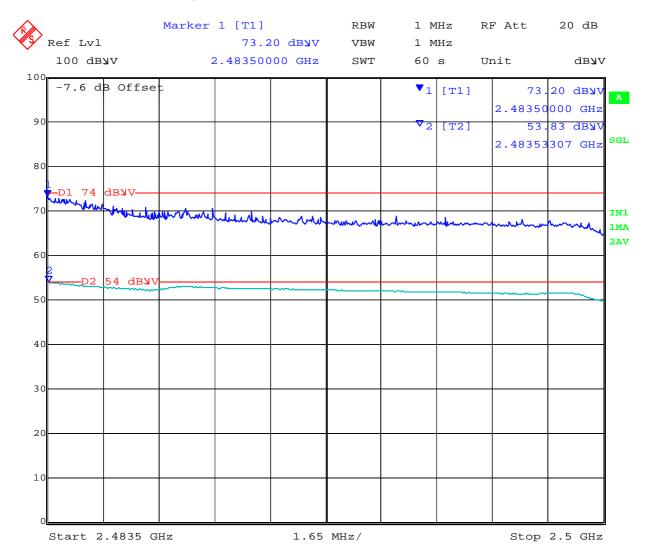
Date: 28.APR.2010 11:44:22



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### 2452 MHz - 802.11n HT-40; 2483.5 - 2500 MHz



Date: 28.APR.2010 11:47:33