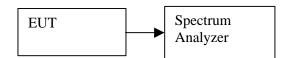
# 8.3. PEAK POWER SPECTRAL DENSITY

# TEST SETUP



# TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = VBW = 3KHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

### **RESULTS**

No non-compliance noted:

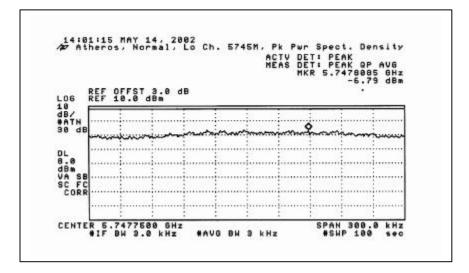
Base Mode

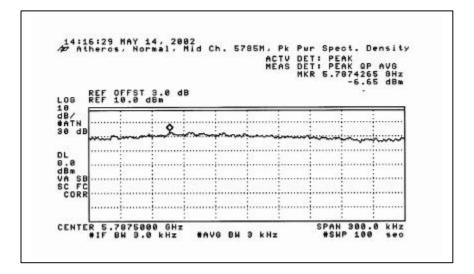
Channel	Frequency	PPSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	dB
Low	5745	-6.79	8	-14.79
Middle	5785	-6.65	8	-14.65
High	5825	-6.83	8	-14.83

Turbo Mode

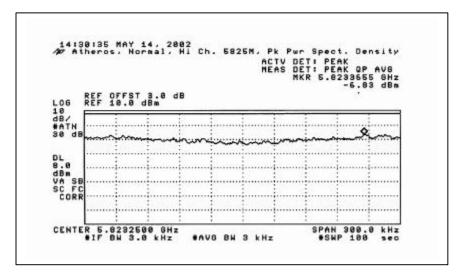
Channel	Frequency	PPSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	dB
Low	5760	-10.15	8	-18.15
Middle	N/A	N/A	N/A	N/A
High	5800	-9.09	8	-17.09

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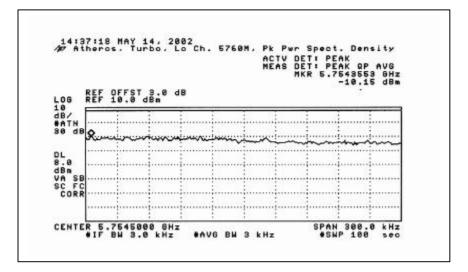


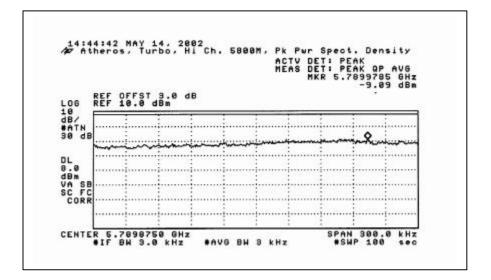


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# 8.4. RADIO FREQUENCY EXPOSURE (MPE)

# **CALCULATIONS**

Given

and

 $E = \sqrt{(30 * P * G)} / d$  $S = E^{2} / 3770$ 

where

E = Field Strength in Volts / meter P = Power in Watts G = Numeric antenna gain d = distance in metersS = Power Density in milliwatts / square centimeter

Combining equations and rearranging the terms to express the distance as a function of the remaining variables yields:

 $d = \sqrt{((30 * P * G) / (3770 * S))}$ 

Changing to units of mW and cm, using:

P(mW) = P(W) / 1000 and

d (cm) =100 \* d (m)

yields

 $d = 100 * \sqrt{((30 * (P / 1000) * G) / (3770 * S))}$ 

 $d = 0.282 * \sqrt{(P * G / S)}$ 

where

d = distance in cm P = Power in mW G = Numeric antenna gain S = Power Density in mW / cm^2

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Substituting the logarithmic form of power and gain using:

 $P(mW) = 10 \wedge (P(dBm) / 10)$  and

G (numeric) =  $10 \wedge (G (dBi) / 10)$ 

yields

 $d = 0.282 * 10^{(P+G)} / 20) / \sqrt{S}$  Equation (1)

where

d = MPE safe distance in cm P = Power in dBm G = Antenna Gain in dBi S = Power Density Limit in mW / cm^2

# **RESULTS**

No non-compliance noted:

P = 19.86 dBm EUT output power G = 1.50 dBi EUT antenna gain S = 1.00 mW/cm^2 from 1.1310 Table 1

Substituting these parameters into Equation (1) sbove:

MPE safe distance d = 3.29 cm

NOTE: For mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less.

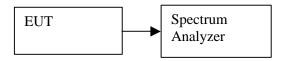
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# 8.5. SPURIOUS EMISSIONS – CONDUCTED MEASUREMENTS

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit.

Also, conducted RF measurements of the transmitter output over the 30 MHz to 26.5 GHz band were made in order to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

# TEST SETUP



# TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth and video bandwidth are both set to 100 kHz, and peak detection is used.

# BAND EDGE RESULTS

No non-compliance noted:

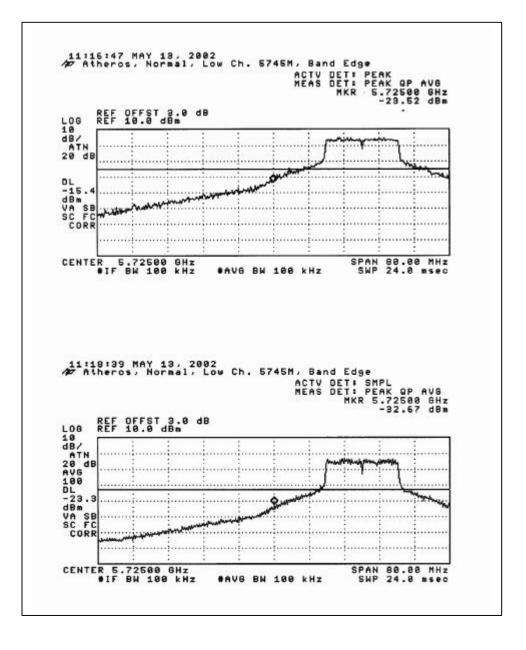
Normal Mode

Band	Frequency		In-Band	Out-Of-Band	Delta	Limit	Margin
Edge	(MHz)		Power	Power	(dBc)	(dBc)	(dB)
			(dBm)	(dBm)			
Low	5725	Peak	4.6	-23.52	-28.12	-20	-8.12
High	5850	Peak	5.4	-29.90	-35.30	-20	-15.3

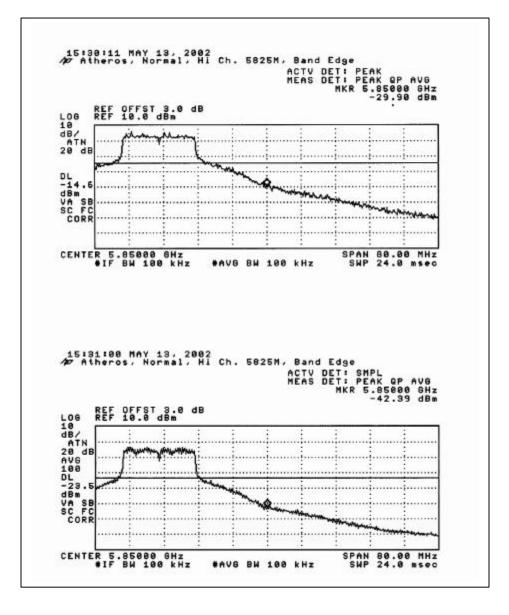
Turbo Mode

Band	Frequency		In-Band	Out-Of-Band	Delta	Limit	Margin
Edge	(MHz)		Power	Power	(dBc)	(dBc)	(dB)
_			(dBm)	(dBm)			
Low	5725	Peak	6.3	-20.25	-26.55	-20	-6.55
High	5850	Peak	6.6	-30.46	-37.06	-20	-17.1

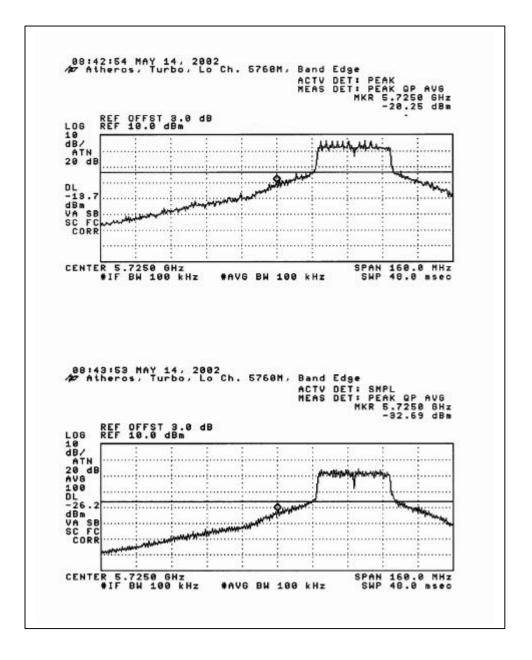
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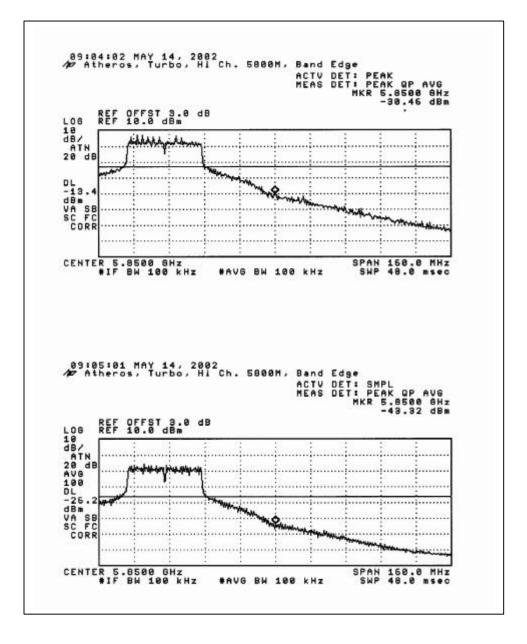
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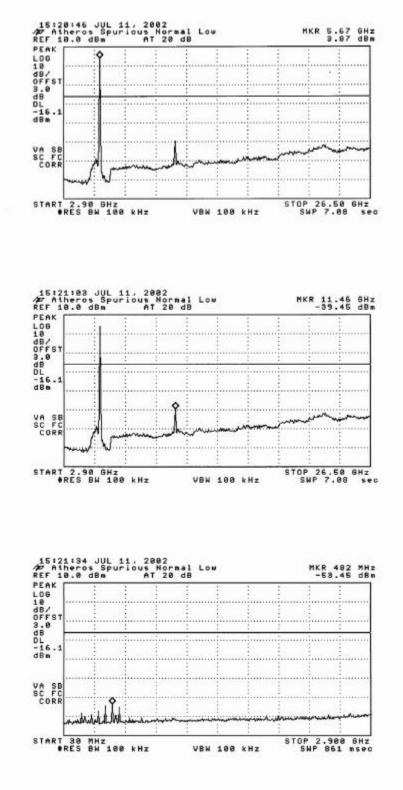


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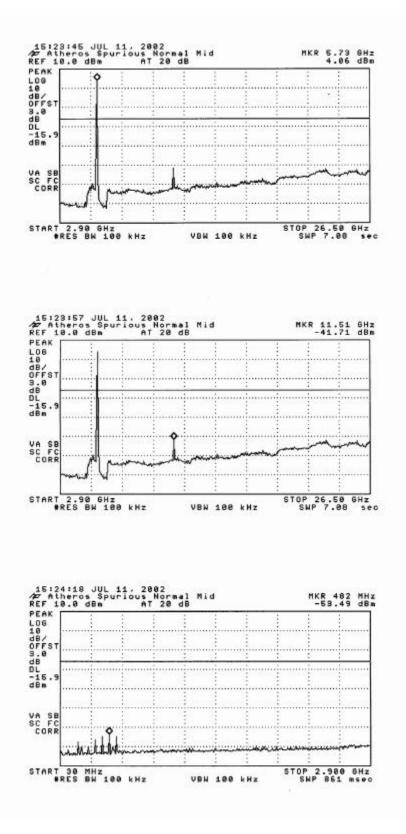


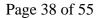
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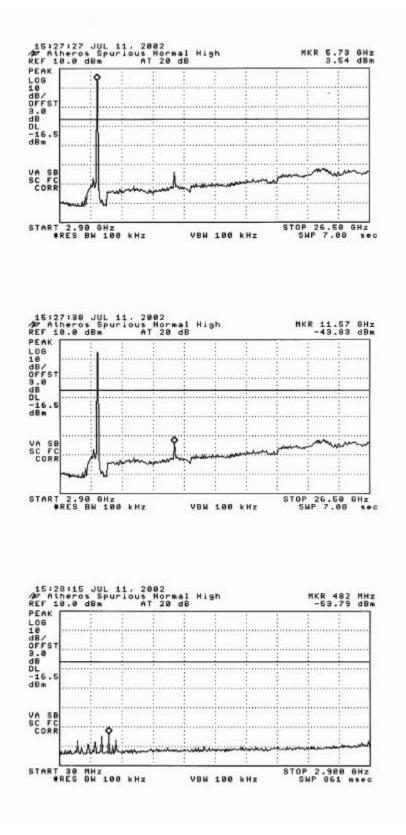
### SPURIOUS EMISSION RESULTS FROM 30 MHz TO 26 GHz

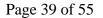


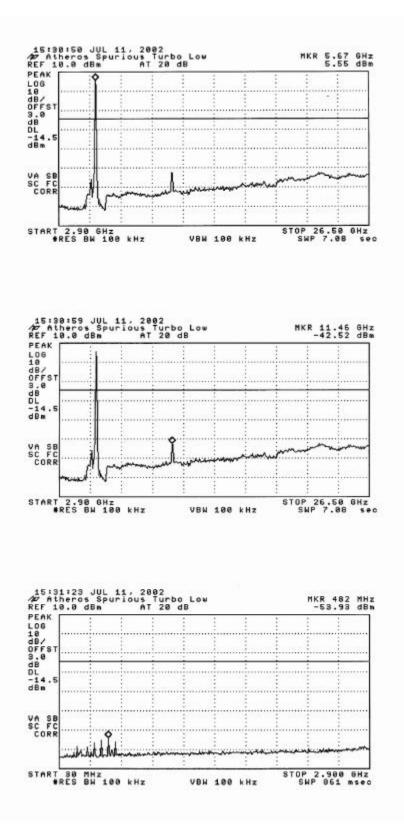




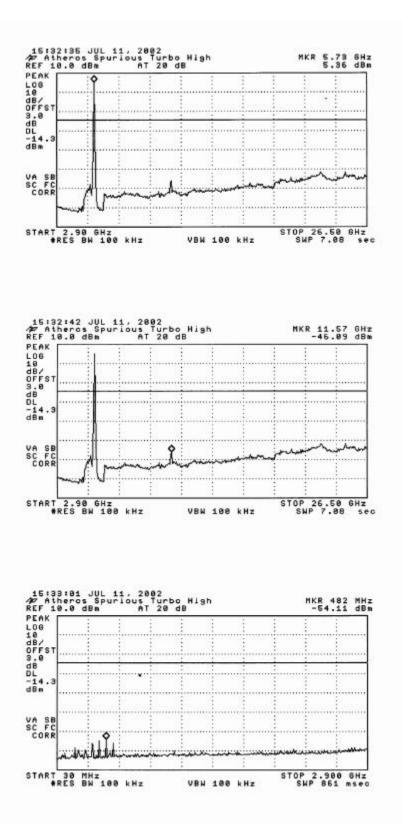








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# 8.6. SPURIOUS EMISSIONS – RADIATED MEASUREMENTS

# TEST SETUP

For measurements of the EUT as a digital device, the EUT and all other support equipment were placed on a wooden table 80 cm above the ground plane. For measurements of the EUT as a transmitter, the EUT and the laptop were placed on the wooden table. The antenna to EUT distance is 3 meters for measurements below 1 GHz and 1 meter for measurements above 1 GHz. The EUT is configured in accordance with Section 8 of ANSI C63.4/1992.

The EUT is set to transmit in a continuous mode.

# TEST PROCEDURE

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 40 GHz is investigated.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The frequency span is set small enough to easily differentiate between broadcast stations, intermittent ambient signals and EUT emissions. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the suspected signal. Measurements were made with the antenna polarized in both the vertical and the horizontal positions.

# **RESULTS**

No non-compliance noted:

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### FUNDAMENTAL, HARMONIC AND SPURIOUS RADIATED EMISSIONS RESULTS

Test Engi Project # Company	:	Thu Chan 02U1295 AtherosCom	munications, In	ic.												
EUT Des			eless LAN Card													
EUT M/N Fest Targ		Tecra 8200 L FCC 15.407	aptop Compute	er												
Mode Op			Channel, 5745	5MHz												
			Range 5.725 - 5.													
		26 GHz:				Equipm	ent for 26									
		EM Analyzer SP2600-44 Pr					HP8566B A HP 11975A									
	EMCO 3	3115 Horn Ar					HP 11970A	Extern	nal mixer/ante	enna						
	ARA M Cable:	WH 1826/B 15.0		feet			Dico 1149 Cable: IF C									
	Cable.	15.0		icci			Cable. If C	my (52	.1 (0112.)							
Peak Mea						Average	Measuren									
		Resolution Ba					1MHz Reso 10Hz Video									
f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	HPF	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes	
GHz	feet	dBuV	dBuV	dB/m	dB	dB	dB	mr		dBuV/m		dBuV/m	dB	dB	Hotes	
undament																
5.745	5.0	77.3	66.9	35.3	5.1	0.0	-5.9	0.0	111.9	101.5					V	
5.745	5.0	69.9	59.6 damental output	35.3	5.1	0.0	-5.9	0.0	104.5	94.2					Н	
5.725	5.0	52.6	39.3	35.3	5.1	0.0	-5.9	0.0	87.2	73.8	91.9	81.5	-4.7	-7.7	** V	
5.725	5.0	46.3	36.8	35.3	5.1	0.0	-5.9	0.0	80.9	71.4	91.9	81.5	-11.0	-10.1	** H	
larmonic: 11.489	5.0	58.2	44.4	39.5	9.3	-36.0	-5.9	1.0	66.1	52.2	74.0	54.0	-7.9	-1.8	* V	
17.236	5.0	58.2	44.4	43.6	9.5	-36.0	-5.9	1.0	63.7	52.2	91.9	81.5	-28.2	-1.8	** V	
22.980	2.5	52.0	40.5	32.7	15.6	-39.1	-11.9	0.0	49.3	37.8	74.0	54.0	-24.7	-16.2	* V (Noise Floor)	
27.120	1.0	37.0	26.0	44.1	0.0	0.0	-19.9	0.0	61.2	50.2	91.9	81.5	-30.7	-31.3	** V (Noise Floor)	
28.725 34.470	1.0	37.1	26.1 26.2	44.1	0.0	0.0	-19.9 -19.9	0.0	61.3 61.4	50.3 50.4	91.9 91.9	81.5 81.5	-30.6 -30.5	-31.2 -31.1	** V (Noise Floor) ** V (Noise Floor)	
11.489	5.0	55.5	42.5	39.5	9.3	-36.0	-5.9	1.0	63.3	50.4	74.0	54.0	-10.7	-3.6	* H	
17.236	5.0	51.0	39.7	43.6	12.4	-38.9	-5.9	1.0	63.3	52.0	91.9	81.5	-28.6	-29.5	** H	
22.980 28.725	2.5	52.0 37.0	40.5 26.0	32.7 44.1	15.6	-39.1 0.0	-11.9	0.0	49.3 61.2	37.8 50.2	74.0 91.9	54.0 81.5	-24.7	-16.2 -31.3	* H (Noise Floor) ** H (Noise Floor)	
34.470	1.0	37.1	26.1	44.1	0.0	0.0	-19.9	0.0	61.3	50.2	91.9	81.5	-30.6	-31.2	** H (Noise Floor)	
purious:			10.5						10.0				10.1			
4.009 3.811	5.0 5.0	64.5 56.9	48.7 42.8	33.3 32.9	5.1 4.9	-36.1 -36.2	-5.9	0.0	60.9 52.6	45.1 38.6	74.0 74.0	54.0 54.0	-13.1 -21.4	-8.9 -15.4	* V (w/ 10dB attn) * V (w/ 10dB attn)	
4.682	5.0	62.5	44.6	33.4	5.6	-36.1	-5.9	0.0	59.6	41.7	74.0	54.0	-14.4	-12.3	* V (w/ 10dB attn)	
6.608	5.0	66.2	52.4	35.7	6.9	-36.4	-5.9	0.0	66.5	52.8	91.9	81.5	-25.4	-28.7	** V (w/ 10dB attn)	
6.812 7.475	5.0 5.0	62.8 73.8	47.5 51.0	36.1 37.4	7.0	-36.4 -36.2	-5.9	0.0	63.7 76.6	48.4 53.8	91.9 74.0	81.5 54.0	-28.2 2.6	-33.1	** V (w/ 10dB attn) * V (w/ 10dB attn)	
7.475	2.5	64.9	52.0	37.5	7.4	-36.2	-11.9	0.0	61.7	48.7	74.0	54.0	-12.3	-5.3	* V (w/ 20dB attn)	
6.608	5.0	57.0	45.0	35.7	6.9	-36.4	-5.9	0.0	57.4	45.4	91.9	81.5	-34.5	-36.1	** H (w/ 10dB attn)	
		cted Band Lii Restricted Ba	mit nd Liimit = -20	dBc from	the fun	damental o	output power									
ote:		Measurem	ent Frequenc	v		Amp	Preamp C	lain				Avolim	Average I	ield Strengt	h Limit	
lote:	f	wicasurelli		y			-		rt to 3 mete	rs		Pk Lim		0		
ote:	f Dist	Distance to	Antenna								č					
ote:	Dist														imit	
lote:	Dist	Distance to Analyzer F Antenna Fa	Reading			Avg Peak	Average	Field S		3 m			Margin vs			

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**Compliance Certification Services, Morgan Hill Open Field Site** 

Notes

Н

\*\* V

\* H

\*\* H

\* H (w/ 10dB attn)

\* H (w/ 10dB attn)

#### Test Engr: Thu Chan Project #: 02U1295 Company: AtherosCommunications, Inc. EUT Descrip.: 802.11a Wireless LAN Cardbus Card EUT M/N: Tecra 8200 Laptop Computer Test Target: FCC 15.407 UNII Mode Oper: Normal, Mid Channel, 5785MHz (Frequency Range 5.725 - 5.850GHz) Equipment for 1-26 GHz: Equipment for 26 - 40 GHz: HP8593EM Analyzer Miteq NSP2600-44 Preamp HP8566B Analyzer HP 11975A Amplifier (LO) EMCO 3115 Horn Antenna HP 11970A External mixer/antenna ARA MWH 1826/B Dico 1149 Horn Antenna Cable: 15.0 Cable: IF Only (321 MHz) feet Peak Measurements: Average Measurements: 1MHz Resolution Bandwidth 1 MHz Resolution Bandwidth 1MHz Video Bandwidth 10Hz Video Bandwidth Dist Read Pk Read Avg. Avg AF $\mathbf{CL}$ Amp D Corr HPF Peak Pk Lim Avg Lim Pk Mar Avg Mar f GHz feet dBuV dBuV dB/m dB dB dBuV/m dBuV/m dBuV/m dBuV/m dB dB dB Funda al Frequei 1CY 35.4 -5.9 113.0 102.1 5.785 5.0 78.3 67.4 5.2 0.0 0.0 5.785 5.0 71.7 60.7 35.4 5.2 0.0 -5.9 0.0 106.4 95.4 Harmonio 11.570 17.355 5.0 45.0 39.5 36.0 52.8 52.7 60.0 9.3 -5.9 1.0 67.8 74.0 5.0 50.8 39.4 44.5 12.5 -38.9 -5.9 1.0 64.1 93.0 82.1 -28.9 -29.4 2.5 52.5 -39.1 38.4 82.1 \*\* V (Noise Floor) 23.140 41.0 32.8 -11.9 0.0 49.9 -43.1 -43.7 1.0 26.8 27.0 44.1 0.0 0.0 0.0 61.9 62.0 51.0 51.2 82.1 82.1 -31.1 -31.0 -31.1 -30.9 \*\* V (Noise Floor) 28.924 19.9 93.0 34.710 37.8 93.0 \*\* V (Noise Floor) 44.1 0.0 -19.9 1.0 0.0 0.0 40.0 39.5 9.3 47.8 74.0 54.0 11.570 5.0 52.7 -36.0 -5.9 1.0 60.5 -13.5 -6.2 17.355 5.0 40.0 39.0 44.5 12.5 -38.9 -5.9 1.0 53.3 52.3 38.7 93.0 82.1 -39.1 -29.8 15.9 82.1 -42.8 23.400 32.9 -39.2 0.0 50.2 -43.4 \*\* H (Noise Floor) 2.5 37.6 26.7 26.9 50.9 51.1 82.1 82.1 28.925 1.0 44.1 0.0 0.0 -19.9 0.0 61.8 93.0 -31.2 -31.2 \*\* H (Noise Floor) 37.8 \*\* H (Noise Floor) 34.710 1.0 44.1 0.0 0.0 -19.9 0.0 93.0 62.0 Spurious 33.3 52.4 50.5 5.0 76.1 5.1 -36.1 -5.9 0.0 74.0 54.0 -1.5 -7.0 \* V (w/ 10dB attn) 4.026 56.0 -1.6 4.908 5.0 69.0 34.1 5.8 -36.1 -5.9 0.0 67.0 74.0 54.0 -3.5 \* V (w/ 10dB attn) 82.1 82.1 2.988 5.0 68.5 48.5 31.0 4.2 -36.2 -5.9 0.0 61.5 41.5 93.0 -31.5 -40.6\*\* V (w/ 10dB attn) 55.5 54.5 6.660 5.0 70.0 55.0 35.8 6.9 -36.4 -5.9 0.0 70.5 93.0 -22.5 -26.6 \*\* V (w/ 10dB attn) 65.5 62.0 -5.9 66.0 58.4 82.1 6.660 5.0 54.0 35.8 6.9 -36.4 0.0 93.0 \*\* H (w/ 10dB attn) 46.5 33.3 -36.1 42.9 54.0 -11.1

#### Note: \* Restricted Band Limit

5.0

5.0

Dist

AF

4.026

4.908

05/10/02 FCC Measurement

\*\* Non Restricted Band Liimit = -20dBc from the fundamental output power

34.1 58

46.0

5.1

-36.1

Measurement Frequency

593

Distance to Antenna

Read Analyzer Reading

Antenna Factor

CL Cable Loss

Amp Preamp Gain D Corr Distance Correct to 3 meters Average Field Strength @ 3 m Avg Peak Calculated Peak Field Strength HPF High Pass Filter

0.0

57.3

44.0

-5.9

-59 0.0

> Avg Lim Average Field Strength Limit Pk Lim Peak Field Strength Limit Avg Mar Margin vs. Average Limit Pk Mar Margin vs. Peak Limit

-10.0

-15.6

-167

74.0

74.0

54.0

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		tineation	Services, Mo	n gan 11	un op	ch r iciu	Site								
Fest Eng		Thu Chan													
Project #		02U1295													
Company EUT Des			munications, In eless LAN Card												
UT Des UT M/N			Laptop Compute												
Cest Tar		FCC 15.407	1 1 1	51											
Aode Op	9		Channel, 5825M	IHz											
		(Frequency I	Range 5.725 - 5.	.850GHz	)										
Cauipme	nt for 1	-26 GHz:				Equipm	ent for 26	- 40 G	Hz:						
		EM Analyzer					HP8566B								
		SP2600-44 P					HP 11975								
		3115 Horn Ai WH 1826/B	ntenna				HP 11970/ Dico 1149		al mixer/ante	enna					
	Cable:	15.0	1	feet			Cable: IF C								
								•	,						
Peak Me						Average	Measure		Don day 144						
		Resolution Ba					1MHz Res 10Hz Vide		Bandwidth width						
f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	HPF	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	feet	dBuV	dBuV	dB/m	dB	dB	dB		dBuV/m	0		dBuV/m	dB	dB	110000
undamen															
5.825 5.825	5.0 5.0	76.8 68.1	66.3 58.2	35.4 35.4	5.2	0.0	-5.9 -5.9	0.0	111.5 102.8	101.0 92.9					V H
			58.2 damental output		5.2	0.0	-5.9	0.0	102.8	92.9					H
5.850	5.0	41.0	28.0	35.4	5.2	0.0	-5.9	0.0	75.7	62.7	91.5	81.0	-15.8	-18.3	** V (RBW=VBW=100KH
5.850	5.0	36.7	25.5	35.4	5.2	0.0	-5.9	0.0	71.4	60.2	91.5	81.0	-20.1	-20.8	** H (RBW=VBW=100KH
Harmonic: 11.652	5.0	58.5	45.0	39.4	9.3	-36.1	-5.9	1.0	66.3	52.8	74.0	54.0	-7.7	-1.2	* V
17.468	5.0	51.6	38.5	45.4	12.6	-38.9	-5.9	1.0	65.7	52.6	91.5	81.0	-25.8	-28.4	** V
23.300	2.5	52.0	41.7	32.8	15.8	-39.2	-11.9	0.0	49.6	39.3	91.5	81.0	-41.9	-41.7	** V (Noise Floor)
29.125	1.0	37.9	26.9	44.1	0.0	0.0	-19.9	0.0	62.1	51.1	91.5	81.0	-29.4	-29.9	** V (Noise Floor)
34.950 11.560	1.0	38.0 52.1	27.0 39.5	44.1 39.5	0.0 9.3	0.0	-19.9 -5.9	0.0	62.2 59.9	51.2 47.3	91.5 74.0	81.0 54.0	-29.3	-29.8	** V (Noise Floor) * H
17.475	5.0	50.5	38.5	45.4	12.6	-38.9	-5.9	1.0	64.7	52.7	91.5	81.0	-26.8	-28.3	** H
23.300	2.5	52.0	41.7	32.8	15.8	-39.2	-11.9	0.0	49.6	39.3	91.5	81.0	-41.9	-41.7	** H (Noise Floor)
29.125	5.0	37.8	26.8	44.1	0.0	0.0	-5.9	0.0	76.0	65.0	91.5	81.0	-15.5	-16.0	** H (Noise Floor)
34.950 purious:	5.0	37.9	26.9	44.1	0.0	0.0	-5.9	0.0	76.1	65.1	91.5	81.0	-15.4	-15.9	** H (Noise Floor)
4.945	5.0	72.4	55.5	34.2	5.8	-36.1	-5.9	0.0	70.5	53.6	74.0	54.0	-3.5	-0.4	* V
4.889	5.0	60.0	47.4	34.1	5.8	-36.1	-5.9	0.0	57.9	45.3	74.0	54.0	-16.1	-8.7	* V (w/ 10dB attn)
6.686 7.554	5.0 2.5	72.5 71.0	56.5	35.9 37.5	7.0	-36.4	-5.9 -11.9	0.0	73.1 67.9	57.1 53.3	91.5 74.0	81.0 54.0	-18.4	-23.9 -0.7	** V (w/ 10dB attn) * V (w/ 20dB attn)
6.686	2.5	71.0	56.4 57.0	37.5	7.4	-36.1	-11.9	0.0	67.9	53.3	74.0 91.5	54.0 81.0	-6.1	-0.7	* V (w/ 20dB attn) ** V (w/ 20dB attn)
6.686	5.0	61.7	50.0	35.9	7.0	-36.4	-5.9	0.0	62.3	50.6	91.5	81.0	-29.2	-30.4	** H (w/ 10dB attn)
7.554	5.0	67.8	50.0	37.5	7.4	-36.1	-5.9	0.0	70.7	52.9	74.0	54.0	-3.3	-1.1	* H (w/ 10dB attn)
			mit nd Liimit = -20 ent Frequenc		the fun	damental o	output powe Preamp (					Avalim	Average	Field Streng	th I imit
lote:	f	measurelli		5		1	1		et to 3 mete	rs		Pk Lim	0	i Strength I	
ote:	f Dist	Distance to	h Antenna				Distance							0	
lote:	Dist	Distance to				$\Delta v \sigma$	Average	Field 9	Strength @	3 m		$\Delta v \sigma M \sigma^{\mu}$	Maroun W	Δ verage	imit
lote:	Dist	Distance to Analyzer F Antenna Fa	Reading			Avg Peak	0		Strength @ CField Stre			Avg Mar Pk Mar	0	. Average I . Peak Lim	

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05/08/02 FCC Measurement

#### **Compliance Certification Services, Morgan Hill Open Field Site** Test Engr: Thu Chan Project #: 02U1295 Company: AtherosCommunications, Inc. EUT Descrip.: 802.11a Wireless LAN Cardbus Card EUT M/N: Tecra 8200 Laptop Computer Test Target: FCC 15.407 UNII Mode Oper: Turbo, Low Channel, 5760MHz (Frequency Range 5.725 - 5.850GHz) Equipment for 1-26 GHz: Equipment for 26 - 40 GHz: HP8593EM Analyzer Miteq NSP2600-44 Preamp HP8566B Analyzer HP 11975A Amplifier (LO) EMCO 3115 Horn Antenna HP 11970A External mixer/antenna ARA MWH 1826/B Dico 1149 Horn Antenna Cable: 15.0 Cable: IF Only (321 MHz) feet Peak Measurements: Average Measurements: 1MHz Resolution Bandwidth 1 MHz Resolution Bandwidth 1MHz Video Bandwidth 10Hz Video Bandwidth Dist Read Pk Read Avg. Avg AF $\mathbf{CL}$ Amp D Corr HPF Peak Pk Lim Avg Lim Pk Mar Avg Mar Notes f GHz feet dBuV dBuV dB/m dB dB dBuV/m dBuV/m dBuV/m dBuV/m dB dB dB al Frequency: Funda 35.4 100.1 5.760 5.760 5.0 76.6 65.5 5.1 0.0 -5.9 0.0 111.2 5.0 68.9 58.0 35.4 5.1 0.0 -5.9 0.0 103.5 92.6 Н Band Edg -20dBc 5.0 from the fun 46.7 mental out 36.0 35.3 35.3 0.0 -5.9 70.6 \*\* I 5.1 0.0 81.3 91.2 80.1 -9.9 -9.5 5.725 5.725 \*\* H 5.0 39.0 29.0 5.1 0.0 -5.9 0.0 73.6 63.6 91.2 80.1 -17.6 -16.5 Harmonic 11.520 17.280 5.0 55.2 51.3 43.1 39.5 39.5 9.3 63.1 51.0 52.2 74.0 54.0 80.1 \* V 36.0 -59 1.0 -10.9 -3.0 5.0 12.5 -27.9 \*\* V 5.9 44.0 -38.9 1.0 64.0 91.2 -27.2 54.0 41.0 15.6 -39.1 38.3 74.0 \* V (Noise Floor) 23.040 2.5 32.7 -11.9 0.0 51.3 -22.7 28.800 1.0 37.2 37.2 26.1 26.2 44.1 0.0 0.0 -19.9 0.0 61.4 50.3 91.2 80.1 -29.8 -29.8 \* V (Noise Floor) 80.1 29.8 -29.7 34.560 1.0 44.1 0.0 -19.9 0.0 50.4 91. \*\* V (Noise Floor) 61.4 11.489 5.0 50.0 38.0 39.5 9.3 -36.0-5.9 1.0 57.9 45.9 74.0 54.0 -16.1 -8.1 \* H \*\* H -5.9 80.1 17.236 5.0 39.5 -38.9 51.8 -28.3 50.0 43.6 12.4 1.0 62.3 91.2 -28.9 52.0 23.040 2.5 40.5 32.7 15.6 -39.1 -11.90.0 49.3 37.8 74.0 54.0 -24.7 -16.2 \* H (Noise Floor) \*\* H (Noise Floor) 28.800 1.0 37.1 26.0 44.1 0.0 0.0 -19.9 0.0 61.3 50.2 91.2 80.1 -29.9 -29.9 34.560 37.0 44.1 50.3 91.2 80.1 -30.0 -29.8 \*\* H (Noise Floor) 1.0 26.1 0.0 0.0 -19.9 0.0 61.2 Spurious 4.009 5.0 65.6 53.0 33.3 5.1 -36.1 -5.9 0.0 62.0 49.4 74.0 54.0 -12.0 -4.6 \* V (w/ 20dB attn) 4.884 5.0 65.0 53.7 34.1 5.8 -36.1 -5.9 0.0 62.9 51.6 74.0 54.0 -11.1 -2.4 \* V (w/ 20dB attn) 59.0 35.8 \*\* V (w/ 20dB attn) 6.640 2.5 70.0 6.9 -36.4 -11.9 0.0 53.4 91.2 80.1 -26.7 64.4 -26.8 6.640 69.5 58.0 35.8 6.9 -36.4 -11.9 0.0 63.9 52.4 91.2 80.1 -27.3 \*\* H (w/ 20dB attn) 7.475 2.5 37.5 52.0 48.7 54.0 \* V (w/ 20dB attn) -36.2 74.0 64.9 7.4 -11.9 0.0 61.7 Note: \* Restricted Band Limit \* Non Restricted Band Liimit = -20dBc from the fundamental output power Amp Measurement Frequency Preamp Gain Avg Lim Average Field Strength Limit f Dist Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit Read Analyzer Reading Avg Average Field Strength @ 3 m Avg Mar Margin vs. Average Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Limit

CL

Cable Loss

High Pass Filter HPF

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feet

### 05/08/02 FCC Measurement

### Compliance Certification Services, Morgan Hill Open Field Site

Test Engr:	Thu Chan
Project #:	02U1295
Company:	AtherosCommunications, Inc.
EUT Descrip.:	802.11a Wireless LAN Cardbus Card
EUT M/N:	Tecra 8200 Laptop Computer
Test Target:	FCC 15.407 UNII
Mode Oper:	Turbo, Hi Channel, 5800MHz
	(Frequency Range 5.725 - 5.850GHz)

### Equipment for 1-26 GHz:

HP8593EM Analyzer Miteq NSP2600-44 Preamp EMCO 3115 Horn Antenna ARA MWH 1826/B Cable: 15.0

#### Peak Measurements:

1 MHz Resolution Bandwidth 1MHz Video Bandwidth

# Equipment for 26 - 40 GHz: HP8566B Analyzer

HP 11975A Amplifier (LO) HP 11970A External mixer/antenna Dico 1149 Horn Antenna Cable: IF Only (321 MHz)

#### **Average Measurements:**

1MHz Resolution Bandwidth 10Hz Video Bandwidth

f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	HPF	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	feet	dBuV	dBuV	dB/m	dB	dB	dB		dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	
undament	al Freque	ency:													
5.800	5.0	73.9	63.1	35.4	5.2	0.0	-5.9	0.0	108.6	97.8					V
5.800	5.0	68.0	57.1	35.4	5.2	0.0	-5.9	0.0	102.7	91.8					Н
and Edge	(-20dBc	from the fund	lamental output	power):											
5.850	5.0	37.8	27.0	35.4	5.2	0.0	-5.9	0.0	72.5	61.7	88.6	77.8	-16.1	-16.1	** V
5.850	5.0	36.6	25.5	35.4	5.2	0.0	-5.9	0.0	71.3	60.2	88.6	77.8	-17.3	-17.6	** H
armonic:															
11.600	5.0	55.4	44.0	39.5	9.3	-36.1	-5.9	1.0	63.2	51.8	74.0	54.0	-10.8	-2.2	* V
17.400	5.0	51.6	39.0	44.9	12.5	-38.9	-5.9	1.0	65.2	52.6	88.6	77.8	-23.4	-25.2	** V
23.200	2.5	52.0	41.7	32.8	15.8	-39.1	-11.9	0.0	49.5	39.2	88.6	77.8	-39.1	-38.6	** V (Noise Floor)
29.000	1.0	38.0	27.0	44.1	0.0	0.0	-19.9	0.0	62.2	51.2	88.6	77.8	-26.4	-26.6	** V (Noise Floor)
34.800	1.0	38.2	27.1	44.1	0.0	0.0	-19.9	0.0	62.4	51.3	88.6	77.8	-26.2	-26.5	** V (Noise Floor)
11.600	5.0	49.5	38.0	39.5	9.3	-36.1	-5.9	1.0	57.3	45.8	74.0	54.0	-16.7	-8.2	* H
17.400	5.0	51.0	38.5	44.9	12.5	-38.9	-5.9	1.0	64.6	52.1	88.6	77.8	-24.0	-25.7	** H
23.200	2.5	52.0	41.7	32.8	15.8	-39.1	-11.9	0.0	49.5	39.2	88.6	77.8	-39.1	-38.6	** H (Noise Floor)
29.000	1.0	37.9	26.9	44.1	0.0	0.0	-19.9	0.0	62.1	51.1	88.6	77.8	-26.5	-26.7	** H (Noise Floor)
34.800	1.0	38.0	27.0	44.1	0.0	0.0	-19.9	0.0	62.2	51.2	88.6	77.8	-26.4	-26.6	** H (Noise Floor)
purious:															
6.656	5.0	71.3	58.0	35.8	6.9	-36.4	-5.9	0.0	71.8	58.5	88.6	77.8	-16.8	-19.3	** V (w/ 10dB attn)
6.656	5.0	62.0	49.7	35.8	6.9	-36.4	-5.9	0.0	62.5	50.2	88.6	77.8	-26.1	-27.6	** H (w/ 10dB attn)
4.942	5.0	66.6	53.6	34.2	5.8	-36.1	-5.9	0.0	64.7	51.7	74.0	54.0	-9.3	-2.3	* V (w/ 20dB attn)
4.076	5.0	65.0	53.0	33.2	5.2	-36.1	-5.9	0.0	61.4	49.4	74.0	54.0	-12.6	-4.6	* V (w/ 20dB attn)
4.942	5.0	65.0	53.5	34.2	5.8	-36.1	-5.9	0.0	63.1	51.6	74.0	54.0	-10.9	-2.4	* H (w/ 20dB attn)
4.076	5.0	64.0	53.1	33.2	5.2	-36.1	-5.9	0.0	60.4	49.5	74.0	54.0	-13.6	-4.5	* H (w/ 20dB attn)

f Measurement Frequency

- Dist Distance to Antenna
- Antenna Factor

Cable Loss

AF

CL

Read Analyzer Reading

#### Amp Preamp Gain D Corr Distance Correct to 3 meters Avg Average Field Strength @ 3 m

Peak Calculated Peak Field Strength High Pass Filter HPF

Avg Lim Average Field Strength Limit Pk Lim Peak Field Strength Limit Avg Mar Margin vs. Average Limit Pk Mar Margin vs. Peak Limit

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# DIGITAL DEVICE RADIATED EMISSION RESULTS

FCC UL, 561F MONT	C, VCCI, C CSA, TU EREY RO	ation ISPR, CE, V, BSMI, D AD, SAN	AUSTEL, N DHHS, NVL	IES NZ AP 95037-9001	i.	Rep Date & 1	ort #: Time:	020513B 05/13/02	2 12:07 PM	
Test Cor 1 Mode o	Descrij nfigura Type of	ntion: tion : Test:	802.11a EUT/Sup FCC Cla Turbo, 11	Wireless oport Perip iss B 08Mb/s, 5	LAN Card oherals		d			
A-Site	<u> </u>	B-Site	0.0	Site	C F-Site		6 Worst D	)ata	Descending	
Reading	AF	Closs			Limit	Margin	Pol	Az	Height	Mark
<u> </u>	<u> </u>		(dB)	l(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A
		14257	29.34	29.56	43 50	-13 94	3mV	180.00	1.00	P
12012-02012	17.03	2000000	10 TO 10 CO 10 FO	36.05	0.0000000000000000000000000000000000000		3mV		1000	P
43.60	19.73	7.07	29.29	41.11	46.00	-4.89	3mV	180.00	1.00	P
44.60	10.38	3.17	29.03	29.12	46.00	-16.88	ЗmV	180.00	1.00	P
44.30	17.93	5.53	29.75	38.02	46.00	-7.98	ЗmV	180.00	1.00	P
44.20	14.20	4.12	29.04	33.47	46.00	-12.53	ЗmV	180.00	1.00	P
10.0000000000		1211220	100000000000000000000000000000000000000		2012/02/2021	100100215021	3mV		10000000	P
1006360.0		5.265226	- 영상의 영상 방송, 관계		100100100	523626.01	07202-022-03C	5074034703and	10000000	P
181020000000		230 200 CO		520.258.200740.2	10.0 kg (5.8 kg (5.8 kg	1111111111	8.00000830	12.00 C C C C C C C C C C C C C C C C C C	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	P
100233053500		100000000000000000000000000000000000000	1600000000000000		12.12.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	- 10 CONTRACTOR 10			0.0000	P P
1966-1976-1978-1976-1976-1976-1976-1976-1976-1976-1976		20030202	100000000000000	2 CO 10 CO 20 C	101002040020620	2002 100 100 100		1.1.1.1.2 (1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	2426000	
100 State 100 State		11.540034400	122420244985	53300,0246340,004	F1220132328000	- 101-101-01-01-01-01-01-01-01-01-01-01-01	3mH		100000	P
42.80	10.11	3.13	29.05	27.00	46.00	-19.00	ЗmН	180.00	1.00	P
ta#:14										
	Co FCC UL, 561F MONT HONE: (40) EUT Test Con 2 Mode o A-Site Reading (dBuV) 3 32Mhz 46.20 43.60 44.60 44.60 44.30 44.20 43.70 44.20 43.70 44.20 43.00 44.20 43.40 44.20 43.40 44.20 43.20 42.80	Certific FCC, VCCI, C UL, CSA, TU S61F MONTEREY RO PHONE: (408) 463-06 Com, EUT Descrip Test Configura Type of Mode of Open A-Site Reading AF (dBuV) (dB) 32Mhz step siz 46.20 10.03 43.60 17.03 43.60 19.73 44.60 10.38 44.30 17.93 44.20 14.20 43.70 16.09 44.20 10.03 44.20 10.03 44.20 10.38 44.20 10.38 44.20 10.38 44.20 10.38 44.20 10.38 44.20 10.38 44.20 10.38 44.20 10.93 44.20 10.93 44.20 10.91 43.20 17.60 42.80 10.11	Certification           FCC, VCCI, CISPR, CE, UL, CSA, TUV, BSM, D           561F MONTEREY ROAD, SAN           HONE: (408) 463-0885           FUT Description:           Test Configuration :           Type of Test:           Mode of Operation:           Call           A-Site           Call           Reading         AF           Closs           (dBuV)         (dB)           32Mhz step size           46.20         10.03           2.67           43.60         17.03           44.30         17.93           44.20         14.20           44.20         14.20           44.20         16.09           4.67         44.20           43.40         17.03           44.20         16.09           45.00         13.54           3.40         17.03           44.20         19.01           45.00         13.54           43.40         17.03           44.20         19.01           6.62         43.20           43.40         17.03           42.80         10.11 <td>Certification Service           FCC, VCCI, CISPR, CE, AUSTEL, NUL, CSA, TUV, BSMI, DHHS, NVL           S61F MONTEREY ROAD, SAN JOSE, CA 3           Company:         Atheros           B01/ HONE: (408) 463-0885         FAX: (408) 4           Company:         Atheros           B02.11a         B02.11a           Company:         Atheros           B02.11a         EUT Description:           Test Configuration :         FCC Cla           Type of Test:         FCC Cla           Mode of Operation:         C C           A-Site         C C           Reading         AF         Closs           Reading         AF         Closs           Reading         AF         Closs           Reading         AF         Closs           A320hz         step size         C           46.20         10.03         2.67         29.34           43.60         17.03         5.10         29.68           43.60         17.93         5.53         29.75           44.20         16.09         4.67         29.41           45.00         13.54         3.94         28.92           43.40         17.03         5.10</td> <td>Company:         Atheros communio           EUT Description:         802.11a Wireless           Test Configuration :         EUT/Support Perip           Type of Test:         FCC Class B           Mode of Operation:         Turbo, 108Mb/s, 5           A-Site         C C-Site           Reading         AF         Closs         Pre-amp         Level           (dBuV)         (dB)         (dB)         (dB)         (dB)         (dB)           32Mhz         step size         C         C-Site           46.20         10.03         2.67         29.34         29.56           43.60         17.03         5.10         29.68         36.05           43.60         19.73         7.07         29.29         41.11           44.60         10.38         3.17         29.03         29.12           44.30         17.93         5.53         29.75         38.02           44.20         14.20         4.67         29.41         35.55           45.00         13.54         3.94         28.92         33.55           43.40         17.03         5.10         29.68         35.85           45.00         13.54         3.94</td> <td>Certification Services           FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSM, DHHS, NVLAP           S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001           Ask: (408) 463-0688           Company: EUT Description: Test Configuration : Type of Test: Mode of Operation:         Atheros communications, Ir 802.11a Wireless LAN Card EUT/Support Peripherals           Mode of Operation:         EUT/Support Peripherals         FCC Class B           Mode of Operation:         C C.Site         C F-Site           A-Site         C B-Site         C C.Site         C F-Site           Reading         AF         Closs         Pre-amp         Level         Limit           (dBUV)         (dB)         (dB)         (dB)         (dB)         46.00           320Mhz         Step size         Q         C Site         C F-Site           Reading         AF         Closs         Pre-amp         Level         Limit           (dBUV)         (dB)         (dB)         (dB)         (dB)         43.00           320hz         Step size         Q         State         Q         State           AS2         Q         146.00         44.60         10.38         3.17         29.03         29.12         46.00</td> <td>Irroy         Certification Services         Rep.         Date &amp; C         Self MONTEREY ROAD, SAN JOSE, CA 95037-9001         Company:         Atheros communications, Inc.         B02182         Company:         Atheros communications, Inc.         B0211a Wireless LAN Cardbus Car         EUT Description:         Type of Test:         Mode of Operation:       Cosite       C F-Site         Reading       AF       Closs       Pre-amp       Level       Limit       Margin         (dBuV)       (dB)       (dB)       (dB)       (dB)       Quade of -9.95         32Mhz       Step size         46.20       10.03       2.67       29.34       29.56       43.50       -13.94         43.60       17.03       5.10       29.68       36.05       46.00       -9.95         43.60       17.03       5.10       29.68       36.05       46.00       -13.94         44.60       10.38       3.17       29.03       29.12</td> <td>Certification Services       Report #: Date&amp; Time: Test Engr:         S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001       Test Engr:         S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001       Atheros communications, Inc.         S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001       Mode of 463-0885         Company: FEUT Description:       Atheros communications, Inc.         B02.11a Wireless LAN Cardbus Card       EUT/Support Peripherals         Type of Test: Type of Test:       FCC Class B         Mode of Operation:       C CSite       C F-Site       6 Worst D         A-Site       B-Site       C CSite       C F-Site       6 Worst D         Additional Construction (dBuv)       (dB)       (dB)       (dB)       (dB)       (dB)         Additional Construction (dBuv)       C 10.03       2.67       29.34       29.56       43.50       -13.94       3mV         Additional Construction (dBuv)       (dB)       (dB)       (dBuv)       FCC_B       (dB)       Margin       Pol         (dBuv)       (dB)       (dB)       (dB)       (dB)       (dB)       Genesition       Struction         Assite       C 10.03       2.67       29.34       29.56       43.50       -13.94       3mV         44.60       10.38       3.17&lt;</td> <td>Certification Services         Report #: Bajor         0201295           FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSM, DHHS, NVLAP         Date &amp; Time: Test Engr:         020513B 05/13/02           S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001         Test Engr:         Chin Pan           S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001         Test Engr:         Chin Pan           S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001         Atheros communications, Inc.         Company:         Atheros communications, Inc.           EUT Description:         B02.11a Wireless LAN Cardbus Card         EUTSupport Peripherals         FCC Class B           Mode of Operation:         Turbo, 108Mb/s, 5.80GHz         6 Worst Data           A-Site         E B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site</td> <td>Certification Services         Report #: 202051382         02025522           ECC, VCCI, CISPR, CE, AUSTEL, NZ IL, CSA, TUV, BSM, DHHS, NVLAP         Test Engr:         02051382           Date&amp; Time: Tut, CSA, TUV, BSM, DHHS, NVLAP         Test Engr:         05/13/02 12:07 PM Chin Pang           SB1F MONTEREY ROAD, SAN JOSE, CA 95037-9001         Test Engr:         05/13/02 12:07 PM Chin Pang           SB1F MONTEREY ROAD, SAN JOSE, CA 95037-9001         B02.11a Wireless LAN Cardbus Card         EUT           BUT Description:         B02.11a Wireless LAN Cardbus Card         EUT/Support Peripherals         Descending           Afteros communications, Inc.         B02.11a Wireless LAN Cardbus Card         Descending           Afteros communications, Inc.         B02.11a Wireless LAN Cardbus Card         Descending           Afteros communications, Inc.         B02.11a Wireless LAN Cardbus Card         Descending           Asite         C Csite         C Fiste         6 Worst Data         Descending           Afteros terp size         C Csite         C Fiste         6 Worst Data         Descending           A6.20         10.03         2.67         29.34         29.56         43.50         -13.94         3mV         180.00         1.00           A3.60         17.03         5.10         29.88         36.05         46.00</td>	Certification Service           FCC, VCCI, CISPR, CE, AUSTEL, NUL, CSA, TUV, BSMI, DHHS, NVL           S61F MONTEREY ROAD, SAN JOSE, CA 3           Company:         Atheros           B01/ HONE: (408) 463-0885         FAX: (408) 4           Company:         Atheros           B02.11a         B02.11a           Company:         Atheros           B02.11a         EUT Description:           Test Configuration :         FCC Cla           Type of Test:         FCC Cla           Mode of Operation:         C C           A-Site         C C           Reading         AF         Closs           Reading         AF         Closs           Reading         AF         Closs           Reading         AF         Closs           A320hz         step size         C           46.20         10.03         2.67         29.34           43.60         17.03         5.10         29.68           43.60         17.93         5.53         29.75           44.20         16.09         4.67         29.41           45.00         13.54         3.94         28.92           43.40         17.03         5.10	Company:         Atheros communio           EUT Description:         802.11a Wireless           Test Configuration :         EUT/Support Perip           Type of Test:         FCC Class B           Mode of Operation:         Turbo, 108Mb/s, 5           A-Site         C C-Site           Reading         AF         Closs         Pre-amp         Level           (dBuV)         (dB)         (dB)         (dB)         (dB)         (dB)           32Mhz         step size         C         C-Site           46.20         10.03         2.67         29.34         29.56           43.60         17.03         5.10         29.68         36.05           43.60         19.73         7.07         29.29         41.11           44.60         10.38         3.17         29.03         29.12           44.30         17.93         5.53         29.75         38.02           44.20         14.20         4.67         29.41         35.55           45.00         13.54         3.94         28.92         33.55           43.40         17.03         5.10         29.68         35.85           45.00         13.54         3.94	Certification Services           FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSM, DHHS, NVLAP           S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001           Ask: (408) 463-0688           Company: EUT Description: Test Configuration : Type of Test: Mode of Operation:         Atheros communications, Ir 802.11a Wireless LAN Card EUT/Support Peripherals           Mode of Operation:         EUT/Support Peripherals         FCC Class B           Mode of Operation:         C C.Site         C F-Site           A-Site         C B-Site         C C.Site         C F-Site           Reading         AF         Closs         Pre-amp         Level         Limit           (dBUV)         (dB)         (dB)         (dB)         (dB)         46.00           320Mhz         Step size         Q         C Site         C F-Site           Reading         AF         Closs         Pre-amp         Level         Limit           (dBUV)         (dB)         (dB)         (dB)         (dB)         43.00           320hz         Step size         Q         State         Q         State           AS2         Q         146.00         44.60         10.38         3.17         29.03         29.12         46.00	Irroy         Certification Services         Rep.         Date & C         Self MONTEREY ROAD, SAN JOSE, CA 95037-9001         Company:         Atheros communications, Inc.         B02182         Company:         Atheros communications, Inc.         B0211a Wireless LAN Cardbus Car         EUT Description:         Type of Test:         Mode of Operation:       Cosite       C F-Site         Reading       AF       Closs       Pre-amp       Level       Limit       Margin         (dBuV)       (dB)       (dB)       (dB)       (dB)       Quade of -9.95         32Mhz       Step size         46.20       10.03       2.67       29.34       29.56       43.50       -13.94         43.60       17.03       5.10       29.68       36.05       46.00       -9.95         43.60       17.03       5.10       29.68       36.05       46.00       -13.94         44.60       10.38       3.17       29.03       29.12	Certification Services       Report #: Date& Time: Test Engr:         S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001       Test Engr:         S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001       Atheros communications, Inc.         S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001       Mode of 463-0885         Company: FEUT Description:       Atheros communications, Inc.         B02.11a Wireless LAN Cardbus Card       EUT/Support Peripherals         Type of Test: Type of Test:       FCC Class B         Mode of Operation:       C CSite       C F-Site       6 Worst D         A-Site       B-Site       C CSite       C F-Site       6 Worst D         Additional Construction (dBuv)       (dB)       (dB)       (dB)       (dB)       (dB)         Additional Construction (dBuv)       C 10.03       2.67       29.34       29.56       43.50       -13.94       3mV         Additional Construction (dBuv)       (dB)       (dB)       (dBuv)       FCC_B       (dB)       Margin       Pol         (dBuv)       (dB)       (dB)       (dB)       (dB)       (dB)       Genesition       Struction         Assite       C 10.03       2.67       29.34       29.56       43.50       -13.94       3mV         44.60       10.38       3.17<	Certification Services         Report #: Bajor         0201295           FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSM, DHHS, NVLAP         Date & Time: Test Engr:         020513B 05/13/02           S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001         Test Engr:         Chin Pan           S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001         Test Engr:         Chin Pan           S61F MONTEREY ROAD, SAN JOSE, CA 95037-9001         Atheros communications, Inc.         Company:         Atheros communications, Inc.           EUT Description:         B02.11a Wireless LAN Cardbus Card         EUTSupport Peripherals         FCC Class B           Mode of Operation:         Turbo, 108Mb/s, 5.80GHz         6 Worst Data           A-Site         E B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site         C F-Site         6 Worst Data           A-Site         B-Site         C C-Site	Certification Services         Report #: 202051382         02025522           ECC, VCCI, CISPR, CE, AUSTEL, NZ IL, CSA, TUV, BSM, DHHS, NVLAP         Test Engr:         02051382           Date& Time: Tut, CSA, TUV, BSM, DHHS, NVLAP         Test Engr:         05/13/02 12:07 PM Chin Pang           SB1F MONTEREY ROAD, SAN JOSE, CA 95037-9001         Test Engr:         05/13/02 12:07 PM Chin Pang           SB1F MONTEREY ROAD, SAN JOSE, CA 95037-9001         B02.11a Wireless LAN Cardbus Card         EUT           BUT Description:         B02.11a Wireless LAN Cardbus Card         EUT/Support Peripherals         Descending           Afteros communications, Inc.         B02.11a Wireless LAN Cardbus Card         Descending           Afteros communications, Inc.         B02.11a Wireless LAN Cardbus Card         Descending           Afteros communications, Inc.         B02.11a Wireless LAN Cardbus Card         Descending           Asite         C Csite         C Fiste         6 Worst Data         Descending           Afteros terp size         C Csite         C Fiste         6 Worst Data         Descending           A6.20         10.03         2.67         29.34         29.56         43.50         -13.94         3mV         180.00         1.00           A3.60         17.03         5.10         29.88         36.05         46.00

561F MON PHONE: (4 EU1 Test Co	ertific CC, VCCI, C _, CSA, TU ITEREY RO 108) 463-08	Ation SPR, CE, V, BSMI, I AD, SAN 885 F pany: ption: tion: Test:	AX: (408) 4 Atheros 802.11a EUT/Suj FCC Cla	AZ AP 95037-9001 463-0888 communic Wireless oport Perip	ations, Ir LAN Carc herals	Rep Date & T Test J nc. Ibus Car	ort #: Time: Engr:	02U1295 020513B 05/13/02 Chin Pan	3 2:34 PM	
C A-Site	۰	B-Site	0 0	Site	O F-Site		6 Worst D	lata	Descending	
Freq. Readin	-	Closs	Pre-amp		Limit	Margin	Pol	Az	Height	Mark
(MHz) (dBuV)	+ • • •	(dB)	(dB)	(dBuV/m)		(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A)
589.83 44.70 544.00 44.00 160.00 46.50 800.00 43.00 288.00 45.00 544.00 44.00 800.00 42.00 Total data #. 7 √.2b	18.57 17.93 10.03 19.73 12.77 17.93 19.73	5.84 5.53 2.67 7.07 3.68 5.53 7.07	29.73 29.75 29.34 29.29 28.84 29.75 29.29	39.38 37.72 29.86 40.51 32.61 37.72 39.51	46.00 46.00 46.00 46.00 46.00 46.00	-6.62 -8.28 -13.64 -5.49 -13.39 -8.28 -6.49	3m∨ 3m∨ 3m∨ 3mH 3mH 3mH	180.00 180.00 180.00 0.00 0.00 0.00	1.00 1.00 1.00 1.00 1.00 1.00	P P P P P P

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# 8.7. POWER LINE CONDUCTED EMISSION

# TEST SETUP

The EUT is placed on a wooden table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane on the floor.

The EUT is set to transmit in a continuous mode.

# TEST PROCEDURE

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

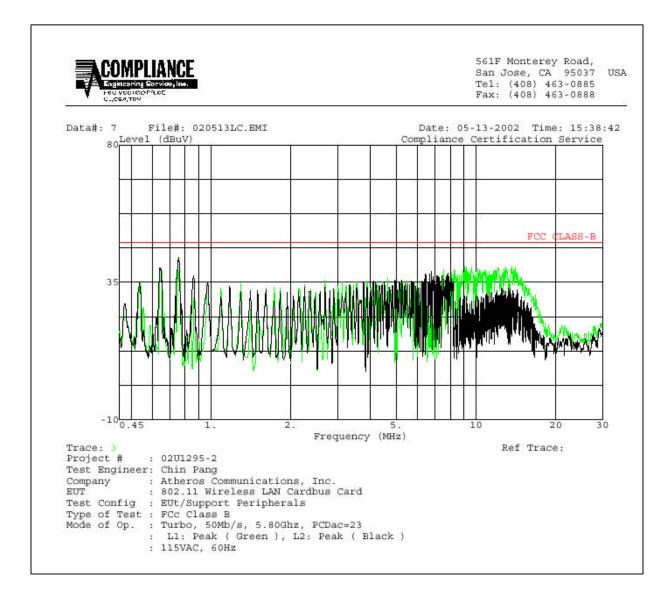
### <u>RESULTS</u>

No non-compliance noted:

Freq.		Reading		Closs	Limit	FCCB	Mar	gin	Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	( <b>dB</b> )	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.65	40.17			0	48.00		-7.83		L1
0.76	42.22			0	48.00		-5.78		L1
13.97	40.18			0	48.00		-7.82		L1
0.64	39.40			0	48.00		-8.60		L2
0.75	43.34			0	48.00		-4.66		L2
7.86	38.14			0	48.00		-9.86		L2

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### PLOT OF CONDUCTED EMISSIONS



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# 8.8. SETUP PHOTOS

# DIGITAL DEVICE RADIATED EMISSION SETUP





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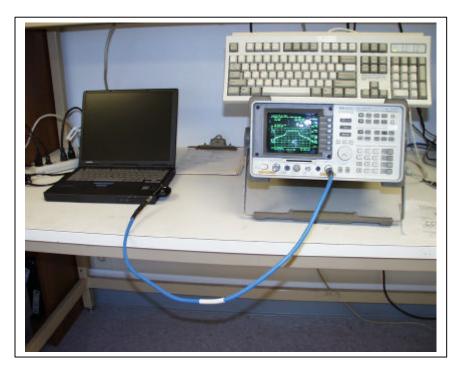
# TRANSMITTER RADIATED EMISSION SETUP





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# ANTENNA TERMINAL PORT MEASUREMENT SETUP





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# LINE CONDUCTION EMISSION SETUP



# **END OF REPORT**

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