



## EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Emissions Spec: FCC Part 15 Subparts B and E	Class: B
Immunity Spec: N/A	Environment: -

# EMC Test Data

For The

**Atheros**

Model

**AR5BCB-00012**



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### EUT INFORMATION

#### General Description

The EUT is a PC Card bus standard UNII Radio which is designed to operate from 5.18 GHz to 5.32 GHz. The system is intended for indoor use only. Normally, the EUT would be placed in a laptop PC during normal use. The EUT was, therefore, placed in a laptop PC and treated as table-top equipment during testing to simulate the end user environment.

#### Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Atheros	AR5BCB-00012	CardBus UNII Radio	ECC26	PPD-AR5BCB-00012

#### EUT Enclosure

The EUT enclosure is primarily constructed of fabricated sheet steel. It measures approximately 7 cm wide by .5 cm deep by 10 cm high.

#### Modification History

Mod. #	Test	Date	Modification
1			



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### Test Configuration #1

#### Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	PP01L	Laptop PC	TW-0791UH-12800-OB4 3546	DoC
Hewlett Packard	2225C ThinkJet	Parallel Printer -ac	2636S40326	DS16XU2225C
USRobotics	Pilot 5000	Palm Computing Platform	604719G68390	MQ90001

Note: The printer and Palm pilot were not used during the emissions tests for the radio. They were only used for the digital device radiated emissions and for conducted emissions.

#### Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
None				

#### Interface Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Laptop Serial	Palm Pilot	Serial	Shielded	2
Laptop Parallel	Printer	Parallel	Shielded	3

#### EUT Operation During Emissions (Digital Device)

The EUT was transmitting at full power on the center channel (channel 12, 5240 MHz). The laptop was displaying a scrolling H pattern on its video screen and sending data to the printer.

#### EUT Operation During Emissions (Radio)

The radio was transmitting at full power on the specified channel with a duty cycle of 99% (maximum allowed). The EUT was tested in both normal mode (channel bandwidth of approximately 30 MHz) and turbo mode (channel bandwidth of approximately 60 MHz).

"Turbo Mode" allows data rates of up to 72Mb/s. At data rates higher than 12Mb/s the PA gain is reduced to improve signal fidelity. The device was, therefore, tested in turbo mode at the data rate that produced the highest output power for turbo mode (12Mb/s).



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### FCC Part 15 Subpart E Tests (Turbo Mode)

#### Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test:	7/23/2001, 8/6/2001 & 8/7/2001
Test Engineer:	Mark Briggs & Juan Martinez
Test Location:	Chamber #2 & SVOATS# 4

Config. Used: #1

Config Change: Printer and PDA disconnected  
Host Unit Voltage 120V/60Hz

#### General Test Configuration

The EUT was located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT unless stated otherwise.

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators and cables used.

**Ambient Conditions:** Temperature: 24°C  
Rel. Humidity: 80%

#### Summary of Results (Turbo Mode)

Run #	Test Performed	Limit	Result	Comments
1	Output Power	15.407(a) (1), (2)	Pass	13.5 dBm
2	Power Spectral Density (PSD)	15.407(a) (1), (2)	Pass	-3.2dBm/MHz
3	26dB Bandwidth	15.407	Pass	> 20 MHz
4	Peak Excursion Envelope	15.407(a) (6)	Pass	Peak to average excursion < 13dB
5	Antenna Conducted - Out of Band Spurious	15.407(b)	Pass	All emissions below the 27dBm/MHz limit
6	RE, 1000 - 40000 MHz - Spurious Emissions	15.407(b)(6)	Pass	-1.3dB @ 4168MHz



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### Modifications Made During Testing:

No modifications were made to the EUT during testing

### Deviations From The Standard

No deviations were made from the requirements of the standard.

### Run #1: Output Power (Turbo Mode)

The radio utilizes an integral antenna with a gain of approximately 1.45 dBi.

Maximum Antenna Gain: 1.45 dBi

Channel	Frequency (MHz)	99.7% Signal BW	Output Power	FCC Limit (dBm) (note 3)	Comments
Low (#9)	5210	64.2	12.7	17.0	Note 2
	5210	64.2	13.4	17.0	Note 1
Center (#13)	5250	63.2	12.6	17.0	Note 2
	5250	63.2	13.3	17.0	Note 1
High (#17)	5290	67.7	12.9	24.0	Note 2
	5290	67.7	13.5	24.0	Note 1

Note 1: Measured using spectrum analyzer's power measurement function (RBW = 1MHz, VBW = 30kHz)

Note 2: Measured using a Boonton Power Meter with a peak power sensor in average mode

Note 3: RSS 210 limit is 23dBm in the 5.15 to 5.25 GHz band, 6dB higher than the FCC limit.

### Run #2: Power Spectral Density (Turbo Mode)

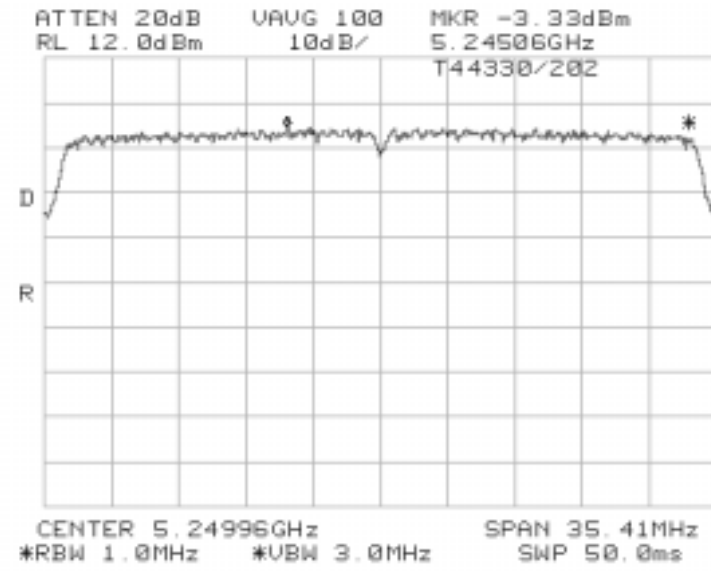
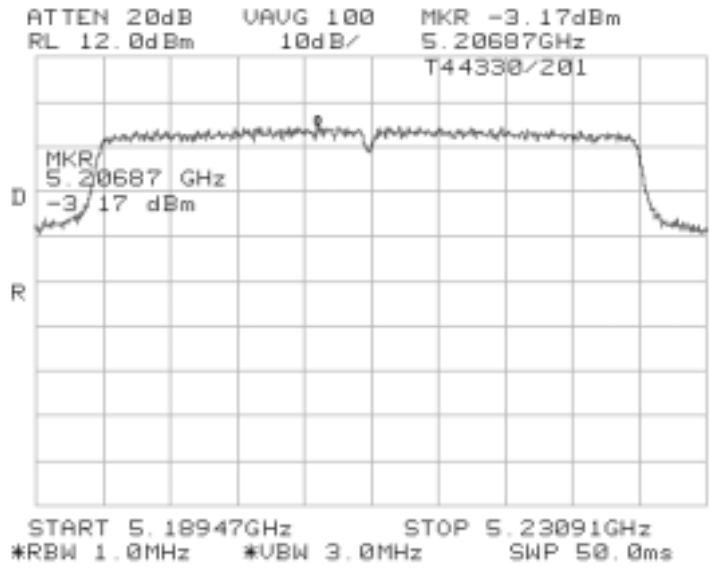
Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	FCC Limit (dBm)	Graph Reference	
9	5210	-3.2	4.0	T44330/201	See note
13	5250	-3.3	4.0	T44330/202	See note
17	5290	-3.5	11.0	T44330/203	See note

Note: The above measurements were made using RBW = 1MHz, VBW = 3MHz, video averaging on. To demonstrate compliance with RSS 210, the peak PSD was also measured using RBW= VBW=1MHz, video averaging off during the peak excursion measurements (run #4). The peak PSD of **6.4dBm** did not exceed the maximum permitted average PSD of 10dBm (5.15 to 5.25 GHz band) or 11dBm (5.25-5.35GHz band) so no restriction is placed on the output power or average PSD with respect to RSS 210.



# EMC Test Data

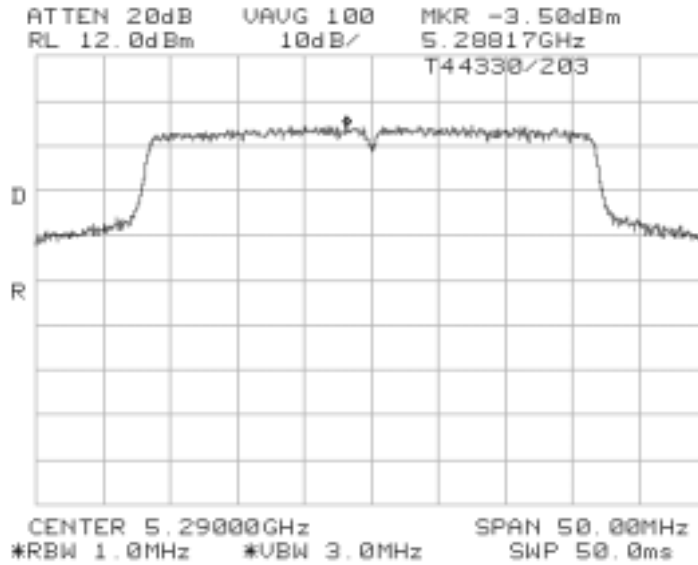
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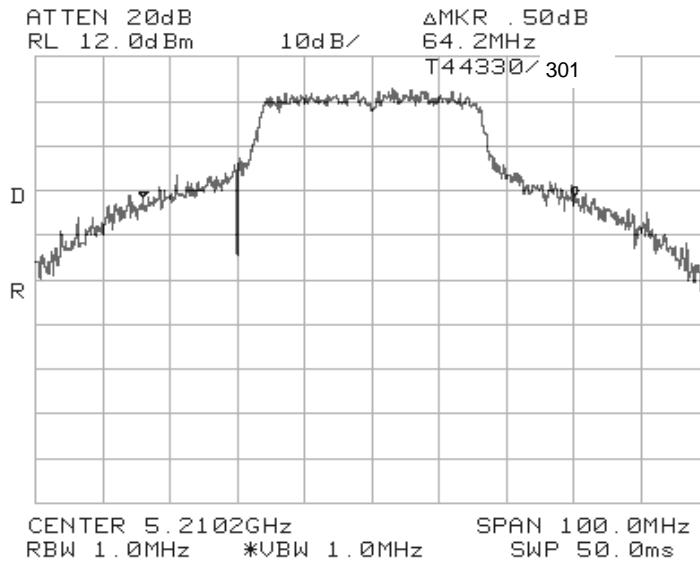


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Spec:	FCC Part 15 Subparts B and E	Class:	B

### Run #3: Signal Bandwidth (Turbo Mode)

Channel	Frequency (MHz)	Resolution Bandwidth	26dB Signal Bandwidth (MHz)	Graph reference #
9	5210	300 kHz	64.2	T4430/301
13	5250	300 kHz	63.2	T4430/302
17	5290	300 kHz	67.7	T4430/303

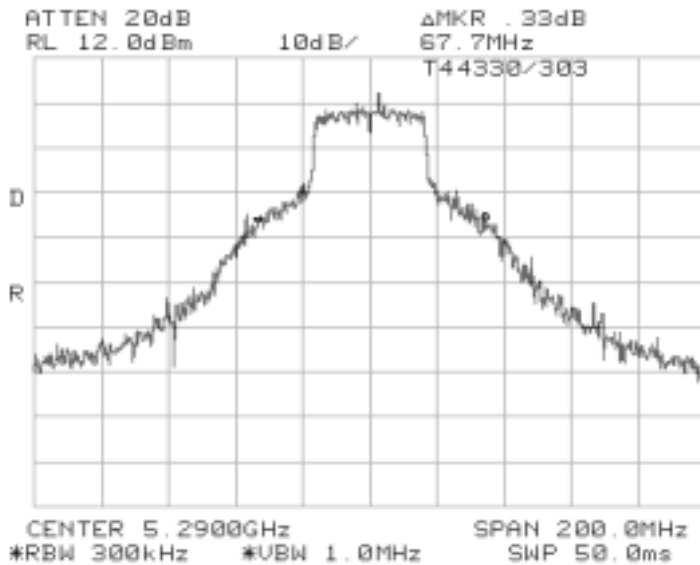
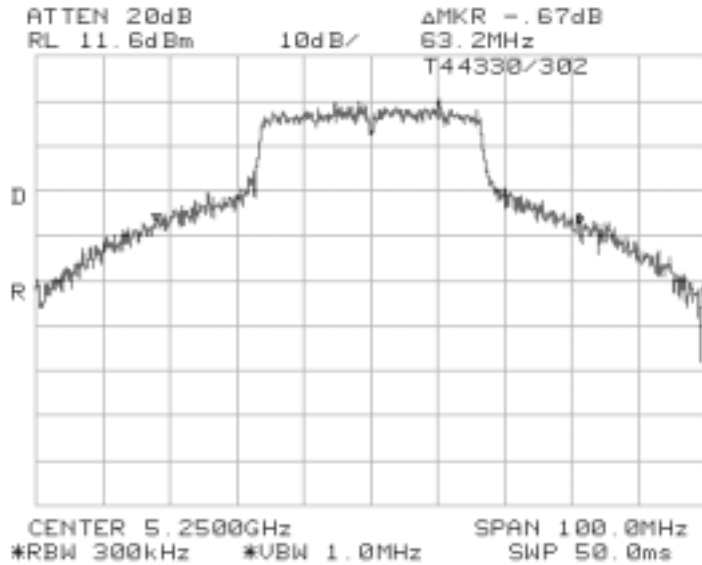






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Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B





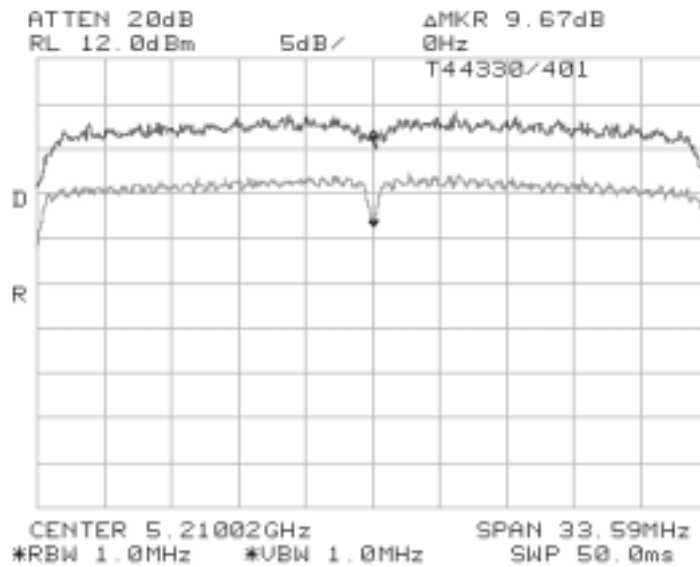
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Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B

### Run #4: Peak Excursion Measurement (Turbo Mode)

The plots below show that the peak excursion was less than 13dB on all three channels tested.

Peak Excursion = 9.7 dB. Peak power spectral density (RSS210 only) = 6.3dBm.

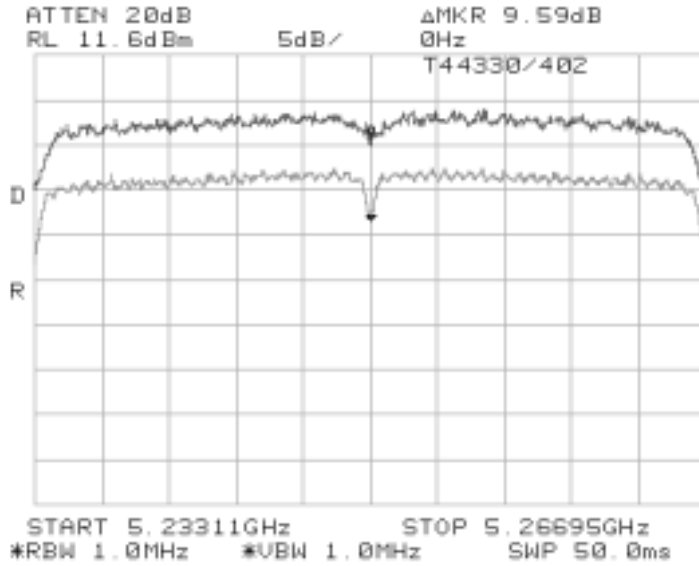




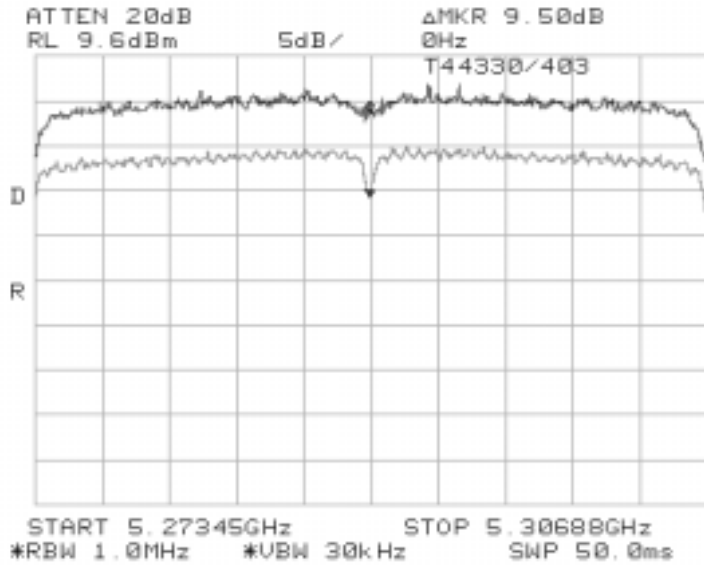
# EMC Test Data

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Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B

Peak Excursion = 9.6 dB. Peak power spectral density (RSS210 only) = 5.5dBm.



Peak Excursion = 9.5 dB. Peak power spectral density (RSS210 only) = 6.4dBm.





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### Run #5: Out Of Band Spurious Emissions - Antenna Conducted (Turbo Mode)

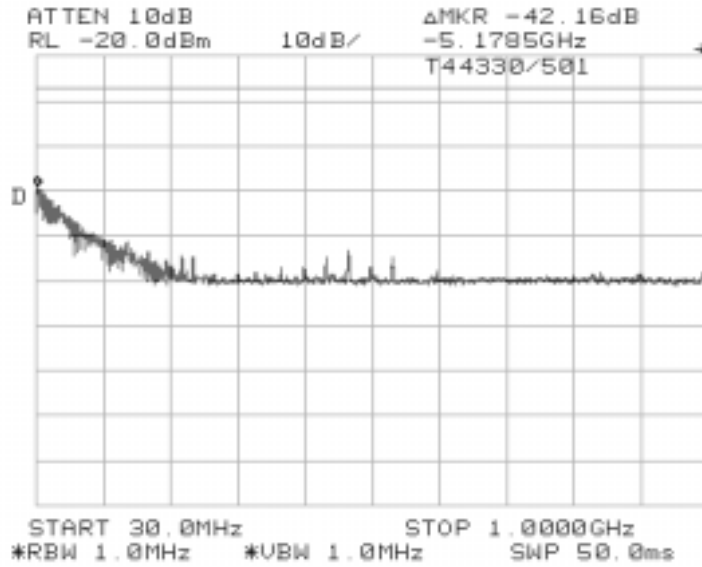
The antenna gain of the radios integral antenna is 1.45dBi. The EIRP limit is -27dBm/MHz for all out of band signals that do not fall in restricted bands. A limit of -28.5 dBm was, therefore, used for signals not in restricted bands and close to the intentional band with the assumption that the antenna gain was equal to 1.45 within 100 MHz of the upper and lower band edges. For signals removed from the band edge by more than 100MHz, radiated measurements were made (refer to run #6) if the signal amplitude exceeded -37dBm.

Channel	Frequency (MHz)	Frequency Range	Highest Spurious Signal	Graph reference #
9	5210	30 - 1000 MHz	Note 4	T44330/501
		1 to 5.2 GHz	-48dBm @ 4.1682 GHz (Note 1)	T44330/502
		5.3 to 10 GHz	-45.7 dBm @ 6.2521 GHz (Note 2)	T44330/503
		10 GHz to 20 GHz	-40.3 dBm @ 10.420GHz	T44330/504
		20 GHz to 40 GHz	No signals observed	T44330/505
13	5250	30 - 1000 MHz	Note 4	T44330/506
		1 to 5.2 GHz	-46.7dBm @ 4.200 GHz (note 1)	T44330/507
		5.3 to 10 GHz	-47.5dBm @ 6.300 GHz (Note 2)	T44330/508
		10 GHz to 20 GHz	-46.7dBm @ 10.4925 GHz (Note 3)	T44330/509
		20 GHz to 40 GHz	No signals observed	T44330/510
17	5290	30 - 1000 MHz	Note 4	T44330/511
		1 to 5.2 GHz	-44.2dBm @ 4.2321 GHz (Note 1)	T44330/512
		5.3 to 10 GHz	-47.2dBm @ 6.34817GHz (Note 2)	T44330/513
		10 GHz to 20 GHz	-51.7dBm @ 10.5825 GHz (Note 3)	T44330/514
		20 GHz to 40 GHz	No signals observed	T44330/515



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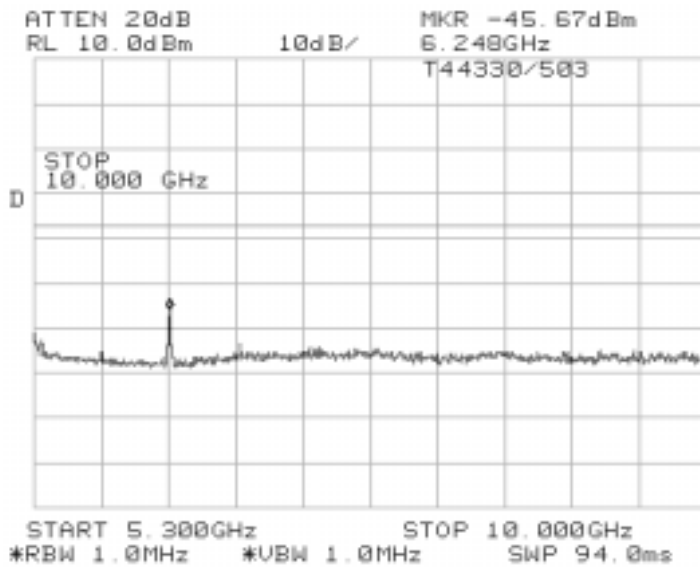
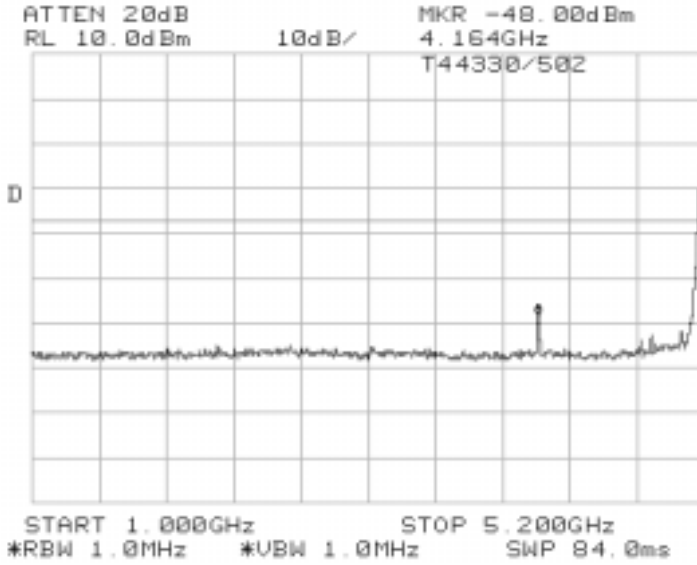
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Spec:	FCC Part 15 Subparts B and E	Class:	B
Note 1:	Signal is in a restricted band. Refer to run #6 for field strength measurements.		
Note 2:	Signal is not in restricted band. Limit is -27dBm eirp. As the signal strength is significantly lower than -27dBm no field strength measurements required.		
Note 3:	Signal is not in restricted band. Limit is -27dBm eirp. Although the signal strength is significantly lower than -27dBm field strength measurements were made (refer to run #6)		
Note 4:	Signals in this frequency band measured during digital device radiated emissions test.		





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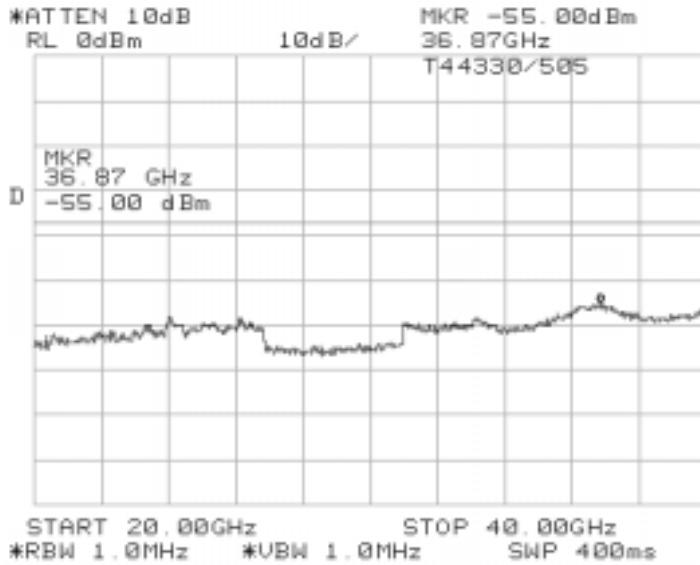
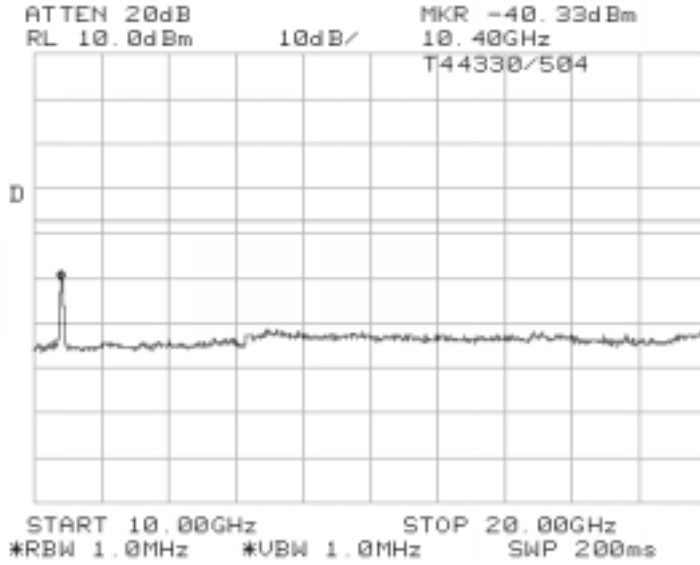
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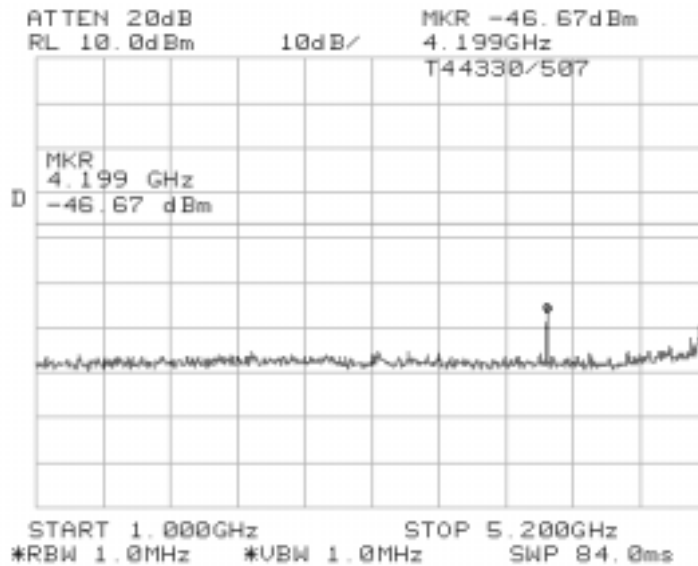
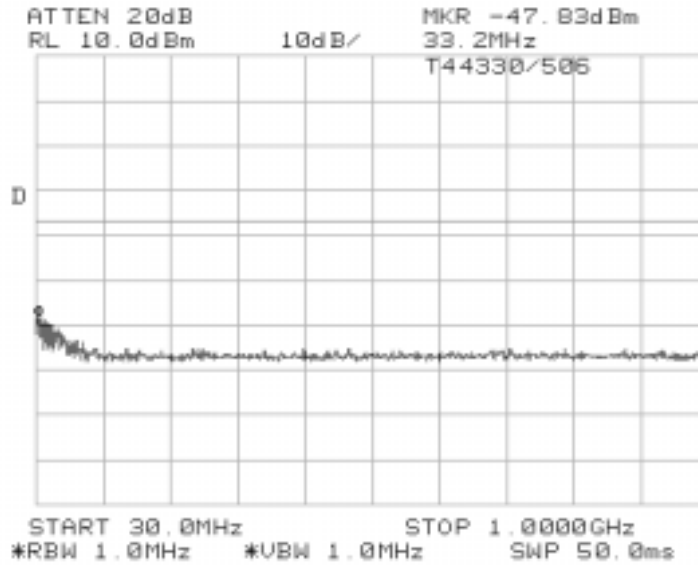
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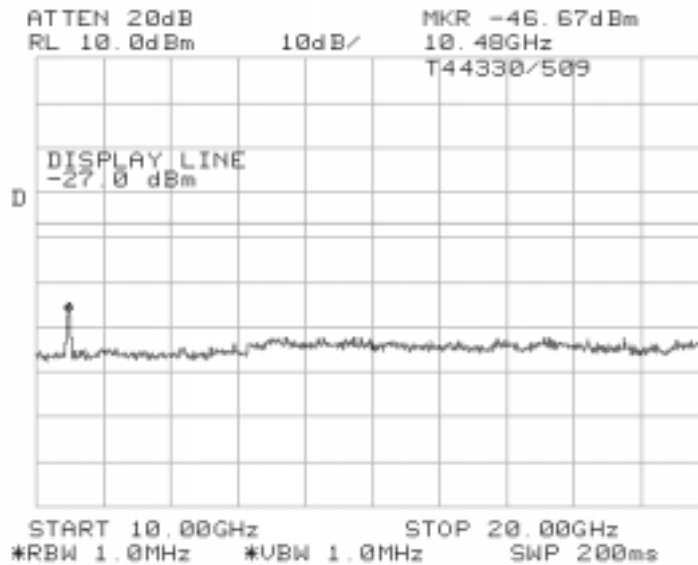
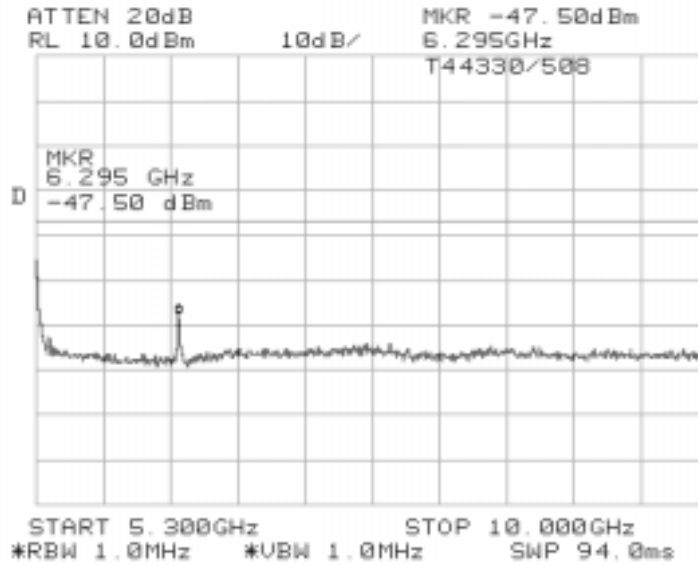






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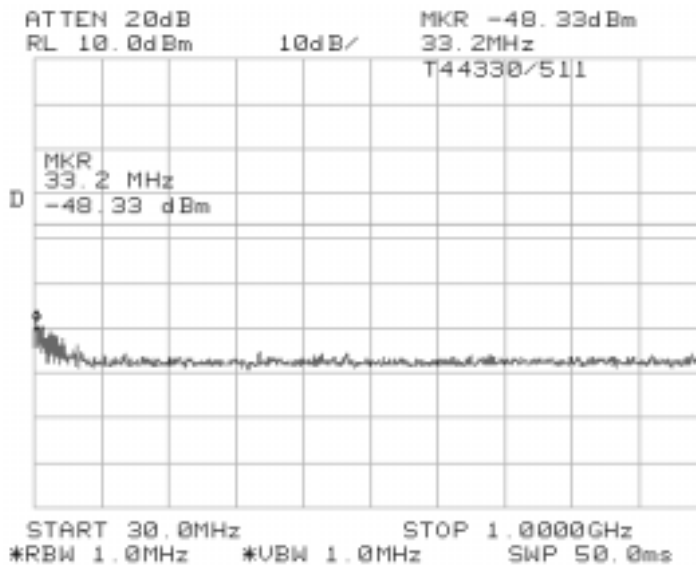
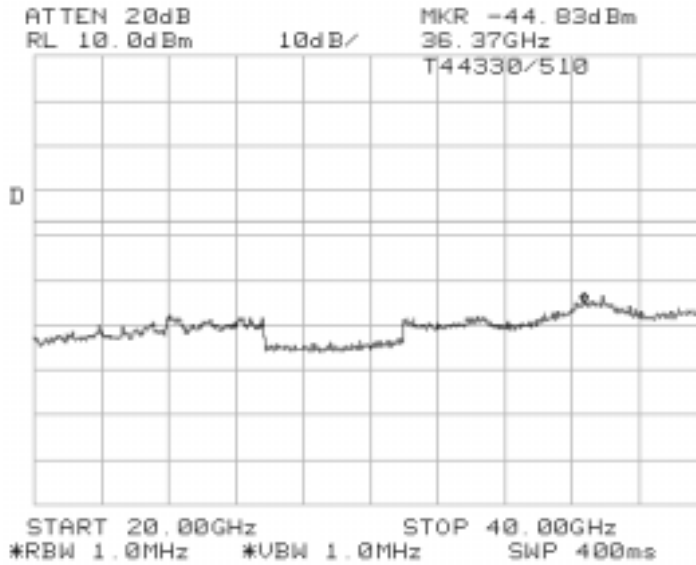
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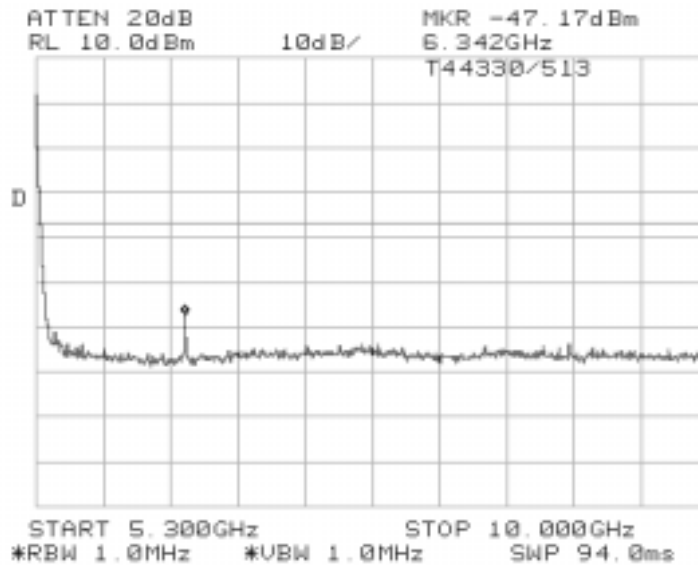
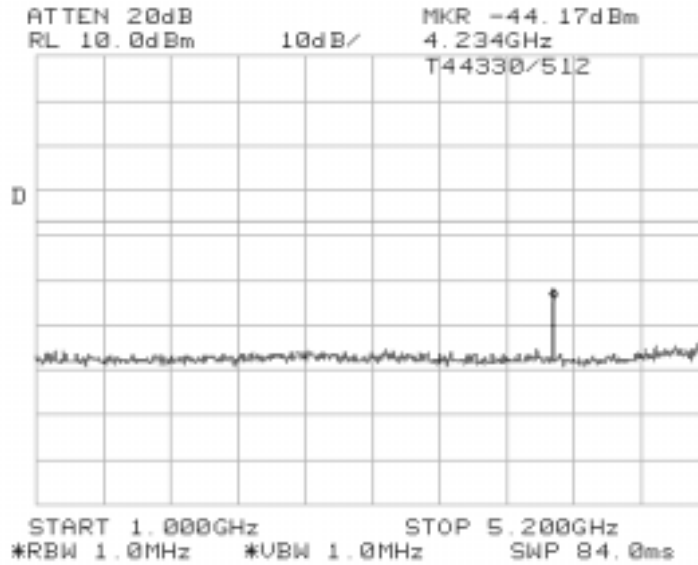
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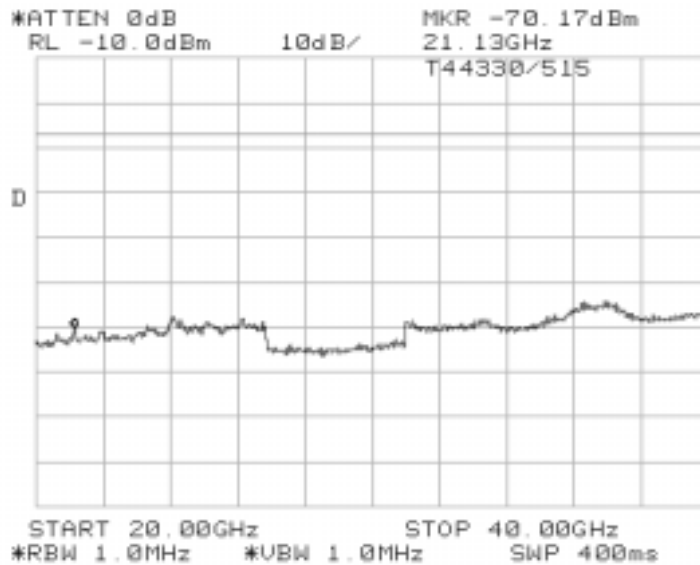
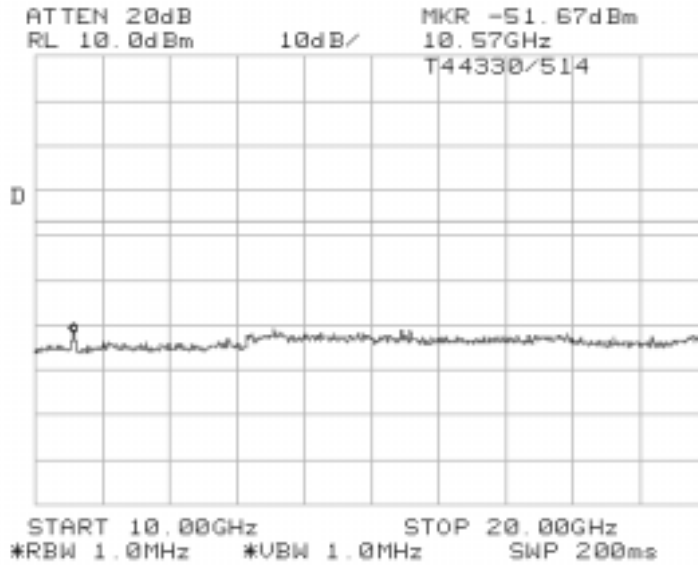
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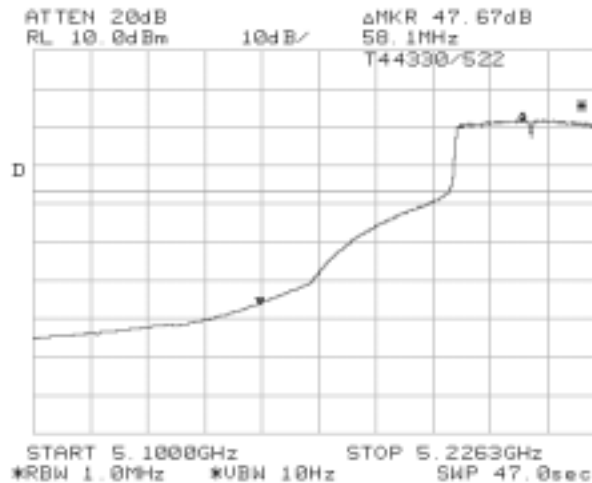
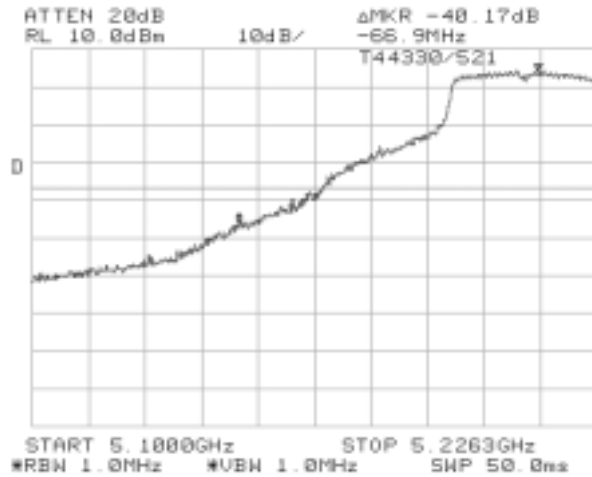
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### Band Edge Measurements:

For signals in the restricted bands immediately above and below the 5.15 to 5.35 GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was then applied to the average and peak field strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

5.15 GHz band edge EUT operating on channel 9 (lowest channel in turbo mode):  
The highest signal in the 4.5 to 5.15 GHz band was -40.2dBc (Peak) / -47.7dBc (Average)

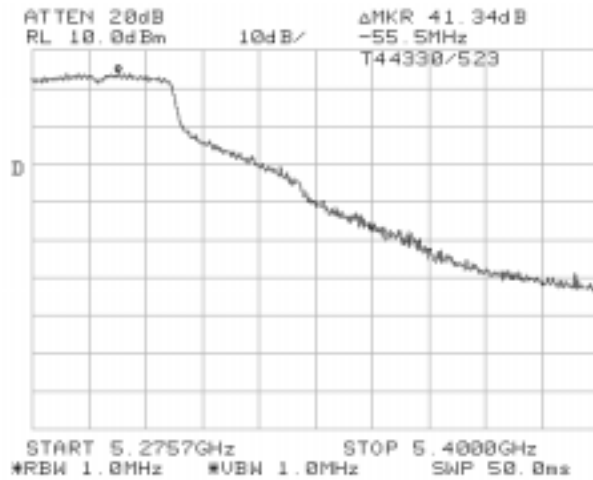




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5.35 GHz band edge EUT operating on channel 17 (highest channel):  
The highest signal in the 5.35 to 5.46 GHz band was -41.3dBc (Peak) / - 47.7dBc (Average)





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The following tests were performed on August 6 and August 7, 2001 at SVOATS #4:

### Run #6a: Fundamental measurement. (Turbo Mode)

EUT with single ground plane (S/N: ECC26). No echosorb installed.

Spurious emissions from 30 - 1000 MHz were measured while performing emissions measurements of the digital device. The emissions were below the FCC Class B limit.

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	Fundamental		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5320.130	104.2	v			Pk	313	1.5	
5320.130	94.0	v			Avg	313	1.5	
5320.130	95.1	h			Pk	313	1.5	
5320.130	86.0	h			Avg	313	1.5	
5240.000	103.6	v			Pk			
5240.000	94.8	v			Avg			
5240.000	97.5	h			Pk			
5240.000	86.5	h			Avg			
5180.000	104.0	v			Pk	336	1.7	
5180.000	94.8	v			Avg	336	1.7	
5180.000	95.3	h			Pk	336	1.7	
5180.000	84.4	h			Avg	336	1.7	

### Band Edge Field Strength Calculations

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5150.0	47.1	v	54.0	-6.9	Avg	336	1.7	Note 1
5350.0	46.3	v	54.0	-7.7	Avg	313	1.5	Note 2
5150.0	63.8	v	74.0	-10.2	Pk	336	1.7	Note 1
5350.0	62.9	v	74.0	-11.1	Pk	313	1.5	Note 2

Note 1: EUT operating on channel **9** (lowest channel). Signal level calculated using the relative measurements in run #5 (-40.2dBc for peak and -47.7dBc for average) applied to the highest peak and average field strength measurements of the fundamental signal level.

Note 2: EUT operating on channel **17** (highest channel). Signal level calculated using the relative measurements in run #5 (-41.3dBc for peak and -47.7dBc for average) applied to the highest peak and average field strength measurements of the fundamental signal level.



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### Run #6b: Radiated Spurious Emissions, 1000 - 40000 MHz (Turbo Mode)

#### Other Spurious Emissions: EUT On Channel 9 (5.21 GHz)

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4168.00	52.7	v	54.0	-1.3	Avg	23	1.8	Note 2; Note 4
15630.00	50.6	v	54.0	-3.4	Avg	311	1.4	Note 2; Analyzer noise floor
4168.00	50.2	h	54.0	-3.8	Avg	345	2.0	Note 2; Note 4
15630.00	47.1	h	54.0	-6.9	Avg	75	1.5	Note 2; Analyzer noise floor
10420.00	45.2	v	54.0	-8.8	Avg	295	1.4	Note 5
10420.00	44.2	h	54.0	-9.8	Avg	0	1.4	Note 5
6252.00	57.8	v	68.3	-10.5	Pk	360	1.3	Not in restricted band
15630.00	62.8	v	74.0	-11.2	Pk	311	1.4	Note 2; Analyzer noise floor
15630.00	59.5	h	74.0	-14.5	Pk	75	1.5	Note 2; Analyzer noise floor
10420.00	58.7	v	74.0	-15.3	Pk	295	1.4	Note 5
10420.00	58.0	h	74.0	-16.0	Pk	0	1.4	Note 5
4168.00	55.4	v	74.0	-18.6	Pk	23	1.8	Note 2; Note 4
4168.00	54.4	h	74.0	-19.6	Pk	345	2.0	Note 2; Note 4

#### EUT On Channel 13 (5.25 GHz)

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4200.00	51.0	v	54.0	-3.0	Avg	29	2.0	Note 2,4
15750.00	50.4	v	54.0	-3.6	Avg	260	1.4	Note 2; Analyzer Noise Floor
4200.00	50.4	h	54.0	-3.7	Avg	360	2.0	Note 2; Note 4
10500.00	49.1	v	54.0	-4.9	Avg	306	1.4	Note 5
10500.00	48.2	h	54.0	-5.8	Avg	18	1.5	Note 5
15750.00	47.0	h	54.0	-7.0	Avg	360	1.4	Note 2; Analyzer Noise Floor
6300.00	58.6	v	68.3	-9.7	Pk	19	1.3	Not in restricted band
10500.00	64.1	v	74.0	-9.9	Pk	306	1.4	Note 5
15750.00	63.0	v	74.0	-11.0	Pk	260	1.4	Note 2; Analyzer Noise Floor
10500.00	62.8	h	74.0	-11.2	Pk	18	1.5	Note 5
15750.00	59.4	h	74.0	-14.6	Pk	360	1.4	Note 2; Analyzer Noise Floor
4200.00	54.8	v	74.0	-19.2	Pk	29	2.0	Note 2,4
4200.00	53.7	h	74.0	-20.3	Pk	360	2.0	Note 2; Note 4





## EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B

EUT On Channel 17 (5.29 GHz)								
Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4232.00	52.1	h	54.0	-1.9	Avg	347	2.0	Note 2,4
15870.00	50.4	v	54.0	-3.6	Avg	260	1.4	Note 2; Analyzer Noise Floor
4232.00	50.0	v	54.0	-4.0	Avg	9	1.7	Note 2,4
10580.00	49.1	v	54.0	-4.9	Avg	306	1.4	Note 5
10580.00	47.8	h	54.0	-6.2	Avg	349	1.5	Note 5
15870.00	47.1	h	54.0	-6.9	Avg	0	1.5	Note 2; Analyzer Noise Floor
10580.00	64.1	v	74.0	-9.9	Pk	306	1.4	Note 5
10580.00	63.2	h	74.0	-10.8	Pk	349	1.5	Note 5
15870.00	63.0	v	74.0	-11.0	Pk	260	1.4	Note 2; Analyzer Noise Floor
6348.00	56.8	v	68.3	-11.5	Pk	338	1.5	Not in restricted band; Noise Floor
15870.00	59.3	h	74.0	-14.7	Pk	0	1.5	Note 2; Analyzer Noise Floor
4232.00	54.9	h	74.0	-19.1	Pk	347	2.0	Note 2,4
4232.00	54.0	v	74.0	-20.0	Pk	9	1.7	Note 2,4

Test notes for run 6b are on the following page...

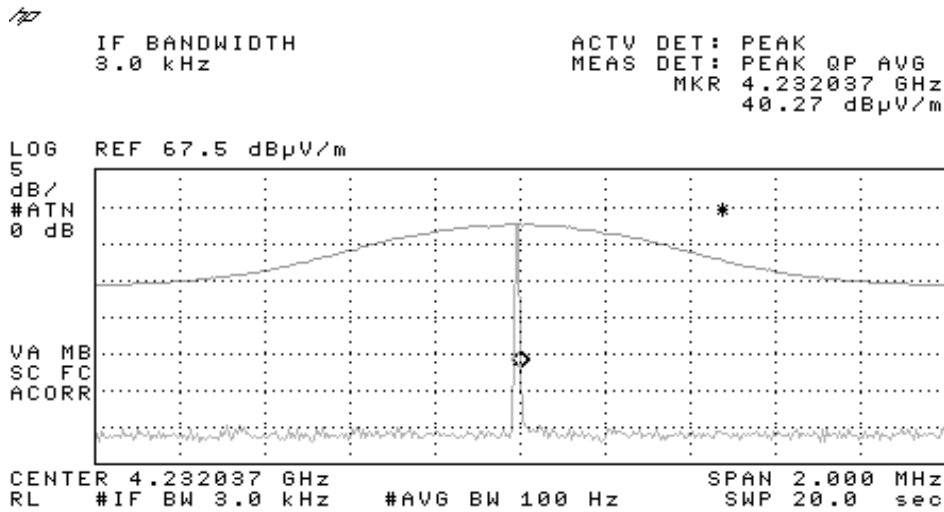


## EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B

### ...test notes for run 6b

Note 1:	For emissions falling in the restricted bands detailed in 15.205 the general limits of 15.209 apply. For all other emissions the limit is EIRP < -27dBm (equivalent to a field strength at 3m of 68dBuV/m)
Note 2:	Signal is in a restricted band
Note 3:	Restricted Band Peak Measurements: Resolution and Video BW: 1 MHz, Restricted Band Average Measurements: Resolution Bw: 1MHz and Video Bw: 10 Hz. All other measurements, RBW = 1MHz and VBW = 3MHz, video averaging on (100 samples).
Note 4:	This measurement was made using a resolution bandwidth of 3 kHz The instrumentation noise floor was too high to allow measurements with RBW = 1MHz because a preamplifier could not be used (with the EUT operating the intentional signal would overload the amplifier and there is no low pass filter with sufficient shape factor to reject the intentionally transmitted signal but pass the spurious signal). The signal was a narrowband signal (as verified during the conducted antenna measurements) and so the amplitude (peak/average) in a 3kHz bandwidth would be the same as that in a 1MHz bandwidth (please refer to the plot below).
Note 5:	Although the signal is not in a restricted band, the more stringent restricted band limits (and measurement bandwidths) were used for this signal.



Plot showing LO signal at 4GHz measured using RBW = 1MHz and RBW = 3kHz. Amplitude of the signal does not change with resolution bandwidth.



# EMC Test Data

Client:	Atheros	Job Number:	J44394
Model:	AR5BCB-00012	T-Log Number:	T44395
		Proj Eng:	Mark Briggs
Contact:	Eric Dukatz		
Spec:	FCC Part 15 Subparts B and E	Class:	B

## FCC Part 15 Subpart E Tests (Normal mode)

### Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test:	7/23/2001, 8/6/2001 & 8/7/2001
Test Engineer:	Mark Briggs & Juan Martinez
Test Location:	Chamber #2 & SVOATS# 4

Config. Used: #1

Config Change: Printer and PDA disconnected  
Host Unit Voltage 120V/60Hz

### General Test Configuration

The EUT was located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT unless stated otherwise.

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators and cables used.

**Ambient Conditions:** Temperature: 17°C  
Rel. Humidity: 72%

### Summary of Results (Normal mode)

Run #	Test Performed	Limit	Result	Comments
1	Output Power	15.407(a) (1), (2)	Pass	3.4dB below maximum permitted output power
2	Power Spectral Density (PSD)	15.407(a) (1), (2)	Pass	7.3db below the maximum permitted
3	26dB Bandwidth	15.407	Pass	
4	Peak Excursion Envelope	15.407(a) (6)	Pass	3.2dB below maximum permitted excursion of 13dB.
5	Antenna Conducted - Out of Band Spurious	15.407(b)	Pass	All emissions below the 27dBm/MHz limit
6	RE, 1000 - 40000 MHz - Spurious Emissions	15.407(b)(6)	Pass	-1.7dB @ 4256MHz



## EMC Test Data

Client:	Atheros	Job Number:	J44394
Model:	AR5BCB-00012	T-Log Number:	T44395
		Proj Eng:	Mark Briggs
Contact:	Eric Dukatz		
Spec:	FCC Part 15 Subparts B and E	Class:	B

### Modifications Made During Testing:

No modifications were made to the EUT during testing

### Deviations From The Standard

No deviations were made from the requirements of the standard.

### Run #1: Output Power (Normal mode)

The radio utilizes an integral antenna with a gain of approximately 1.45 dBi.

Maximum Antenna Gain: 1.45 dBi

Channel	Frequency (MHz)	99.7% Signal BW	Output Power	FCC Limit (dBm) (note 2)	Comments
Low	5180	36.8 MHz	13.0	17.0	Note 2
Low	5180	36.8 MHz	13.6	17.0	Note 1
Center	5240	27.8 MHz	12.5	17.0	Note 2
Center	5240	27.8 MHz	11.3	17.0	Note 1
High	5320	27.2 MHz	12.5	24.0	Note 2
High	5320	27.2 MHz	11.2	24.0	Note 1

Note 1: Measured using spectrum analyzer's power measurement function (RBW = 1MHz, VBW = 30kHz)

Note 2: Measured using a Boonton Power Meter with an average (thermal/diode) sensor

Note 2: RSS 210 limit is 23dBm in the 5.15 to 5.25 GHz band, 6dB higher than the FCC limit.

### Run #2: Power Spectral Density (Normal mode)

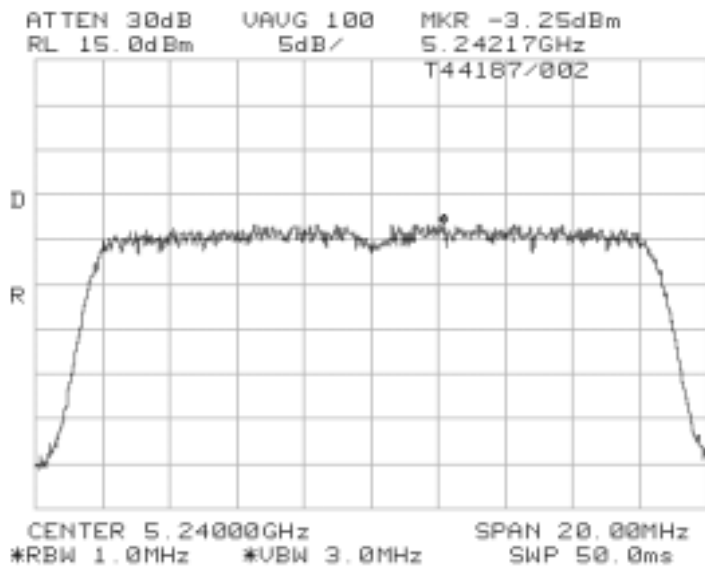
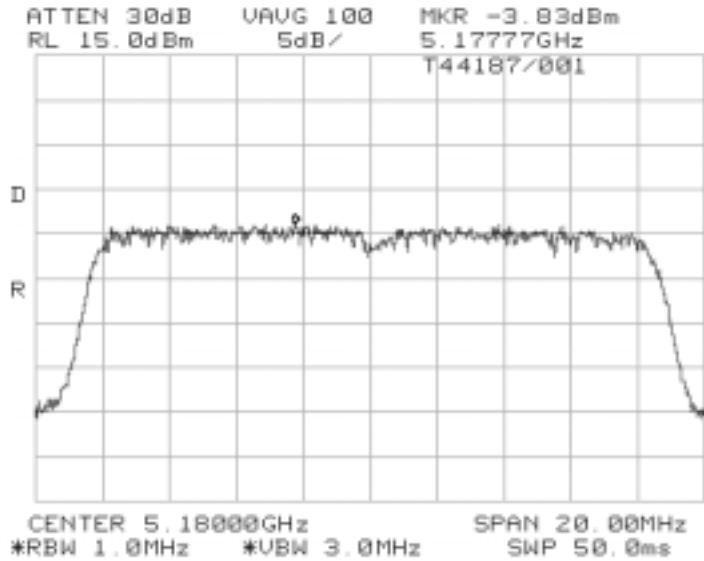
Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	FCC Limit (dBm)	Graph Reference	
Low	5180	-3.8	4.0	T44187/001	See note
Center	5240	-3.3	4.0	T44187/002	See note
High	5320	-3.4	11.0	T44187/003	See note

Note: The above measurements were made using RBW = 1MHz, VBW = 3MHz, video averaging on. To demonstrate compliance with RSS 210, the peak PSD was also measured using RBW= VBW=1MHz, video averaging off during the peak excursion measurements (run #4). The peak PSD of 6.7dBm did not exceed the maximum permitted average PSD of 10dBm (5.15 to 5.25 GHz band) or 11dBm (5.25-5.35GHz band) so no restriction is placed on the output power or average PSD with respect to RSS 210.

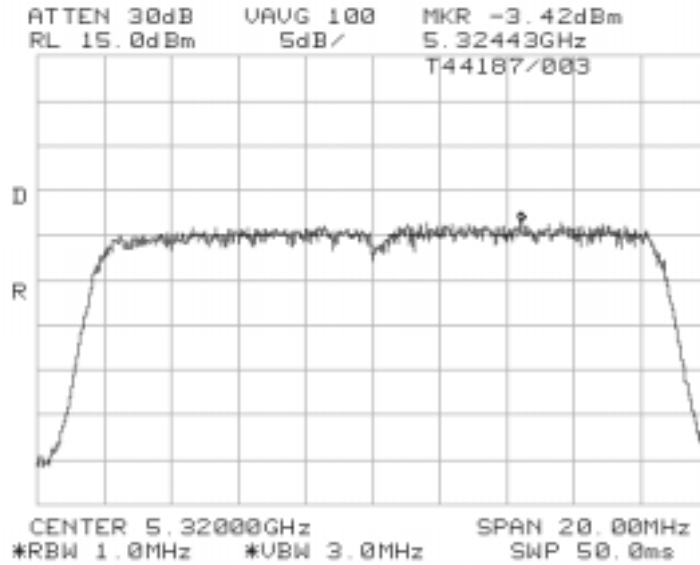


# EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B



Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B



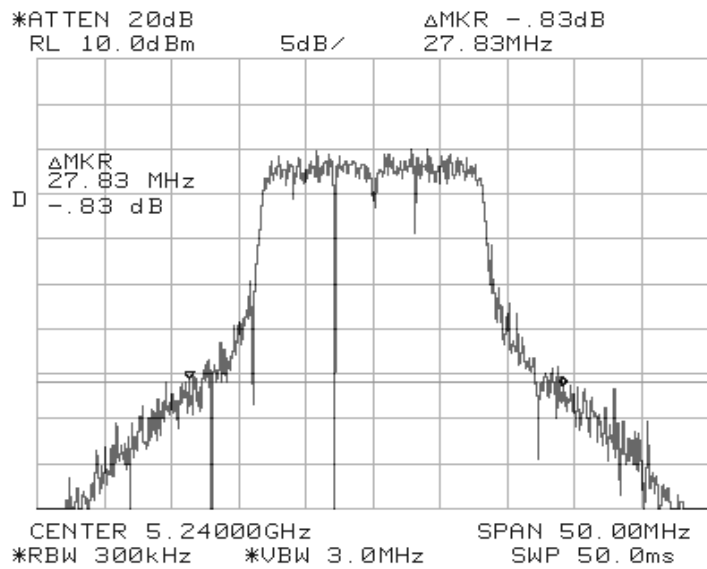
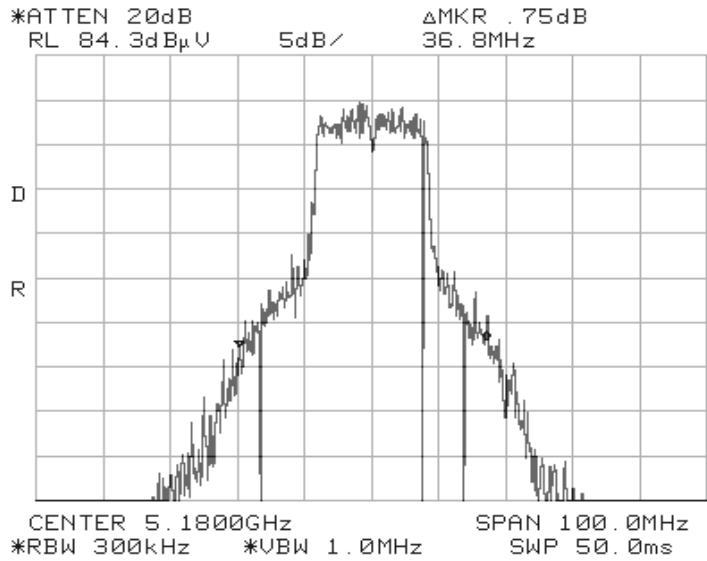
**Run #3: Signal Bandwidth (Normal mode)**

Channel	Frequency (MHz)	Resolution Bandwidth	26dB Signal Bandwidth	Graph reference #
6	5180	300 kHz	36.8 MHz	See below
12	5240	300 kHz	27.8 MHz	See below
20	5320	300 kHz	27.2 MHz	See below



# EMC Test Data

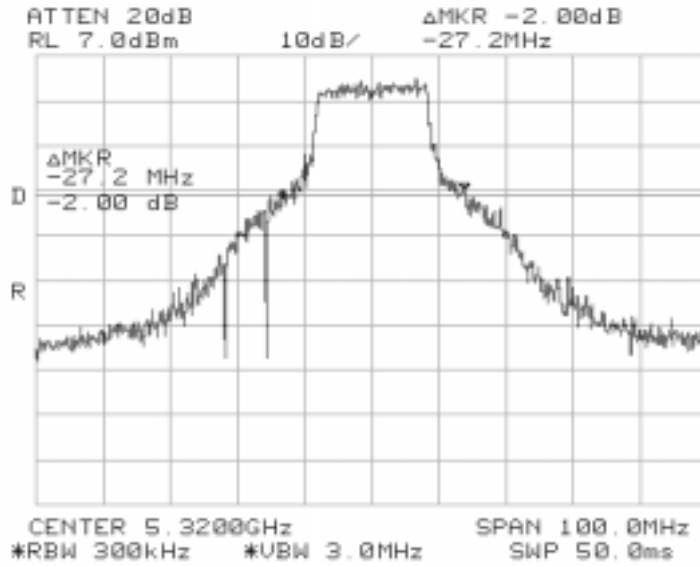
Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B





# EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B



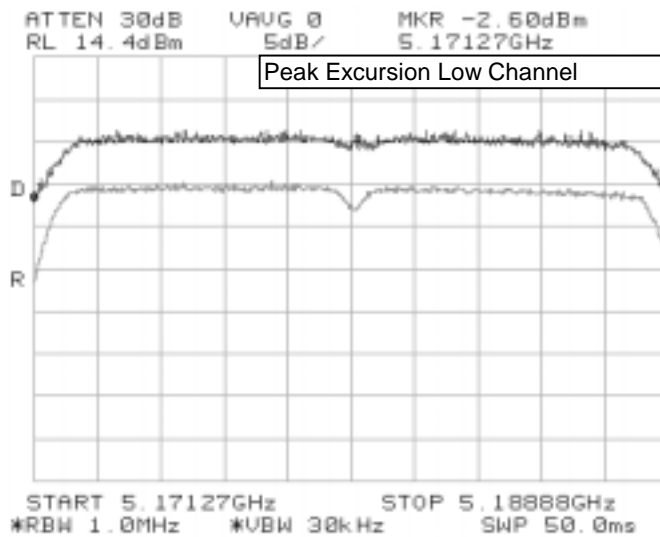


Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B

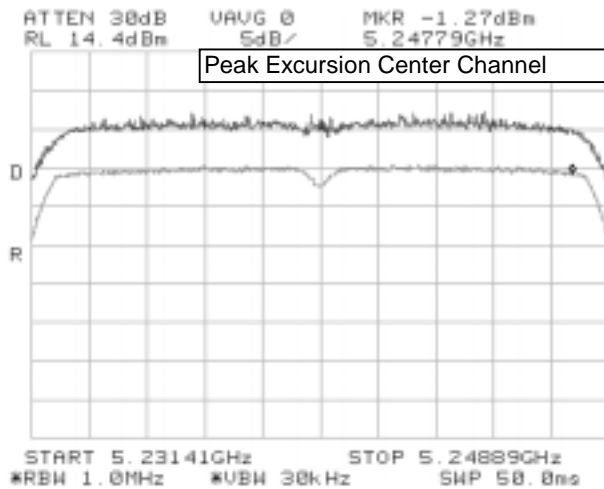
### Run #4: Peak Excursion Measurement (Normal mode)

The plots below show that the peak excursion was less than 13dB on all three channels tested.

Peak Excursion = 9.8 dB.



Peak Excursion = 8.8 dB.

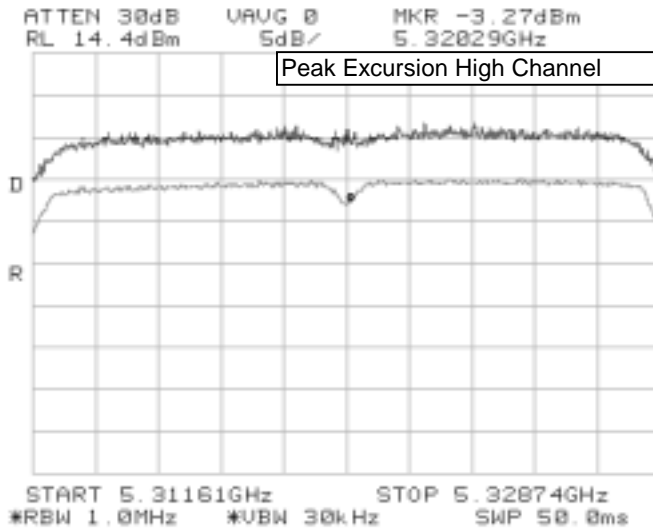




# EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B

Peak Excursion = 9.0 dB.





## EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B

### Run #5: Out Of Band Spurious Emissions - Antenna Conducted (Normal mode)

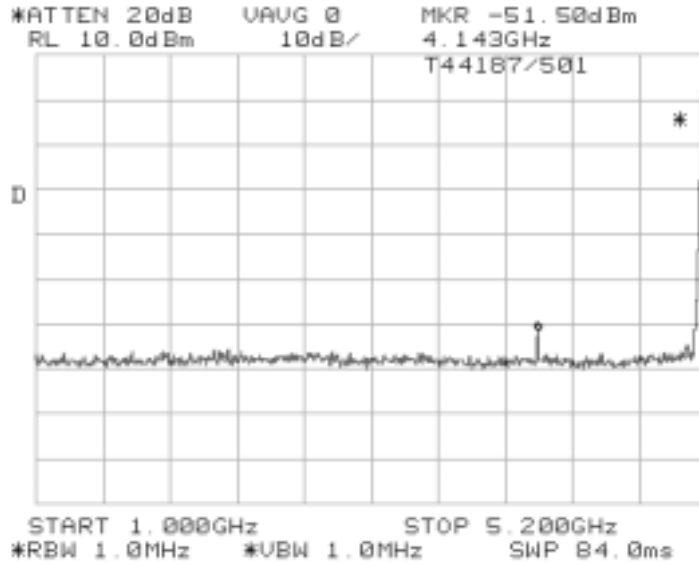
The antenna gain of the radios integral antenna is 1.45dBi. The EIRP limit is -27dBm/MHz for all out of band signals that do not fall in restricted bands. A limit of -28.5 dBm was, therefore, used for signals not in restricted bands and close to the intentional band with the assumption that the antenna gain was equal to 1.45 within 100 MHz of the upper and lower band edges. For signals removed from the band edge by more than 100MHz, radiated measurements were made (refer to run #6) if the signal amplitude exceeded -37dBm.

Channel	Frequency (MHz)	Frequency Range	Highest Spurious Signal	Graph reference #
6	5180	1 to 5.2 GHz	-51.5dBm @ 4143 MHz (Note 1)	T44187/501
		5.3 to 10 GHz	-46.8dBm @ 6216 MHz (Note 2)	T44187/502
		10 GHz to 20 GHz	-42 dBm @ 10.36 GHz (Note 3)	T44187/503
		20 GHz to 40 GHz	No significant signals observed	T44187/504
		30 MHz to 1 GHz	Note 4	T44187/505
20	5320	1 to 5.2 GHz	-45.2 dBm @ 4255 MHz (Note 1)	T44187/506
		5.3 to 10 GHz	-55.7 dBm @ 6381 MHz (Note 2)	T44187/507
		10 GHz to 20 GHz	-56.2dBm @ 10.6GHz; 66dBm @15.9GHz (Note 2)	T44187/508
		20 GHz to 40 GHz	-67.2dBm @ 21.2GHz (Note 2)	T44187/509
		30 MHz to 1 GHz	Note 4	T44187/510
12	5240	1 to 5.2 GHz	-46.8 dBm @ 4.19GHz (Note 1)	T44187/511
		5.3 to 10 GHz	-49.8dBm @ 6.29GHz (Note 2)	T44187/512
		10 GHz to 20 GHz	-38.3dBm @ 10.5GHz (Note 2); -65dBm @15.7GHz (Note 1)	T44187/513
		20 GHz to 40 GHz	-66.8dBm @ 20.9GHz (Note 1)	T44187/514
		30 MHz to 1 GHz	Note 4	T44187/515



## EMC Test Data

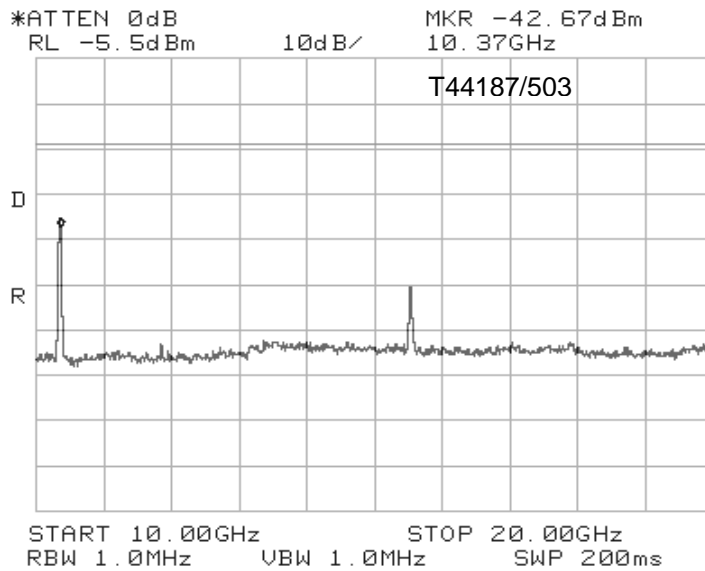
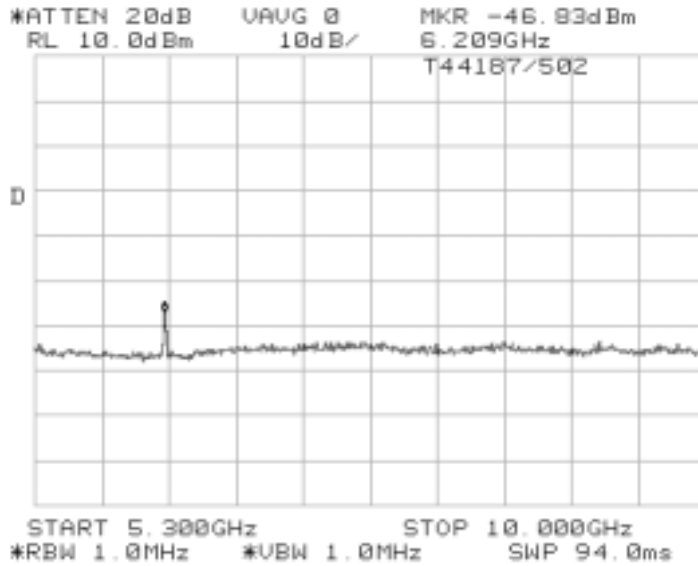
Client:	Atheros	Job Number:	J44394
Model:	AR5BCB-00012	T-Log Number:	T44395
Contact:	Eric Dukatz	Proj Eng:	Mark Briggs
Spec:	FCC Part 15 Subparts B and E	Class:	B
Note 1:	Signal is in a restricted band. Refer to run #6 for field strength measurements.		
Note 2:	Signal is not in restricted band. Limit is -27dBm eirp. As the signal strength is significantly lower than -27dBm no field strength measurements required.		
Note 3:	Signal is not in restricted band. Limit is -27dBm eirp (approx 68dBuV/m). Refer to run #5 for field strength measurement.		
Note 4:	Signals in this frequency band measured during digital device radiated emissions test.		





# EMC Test Data

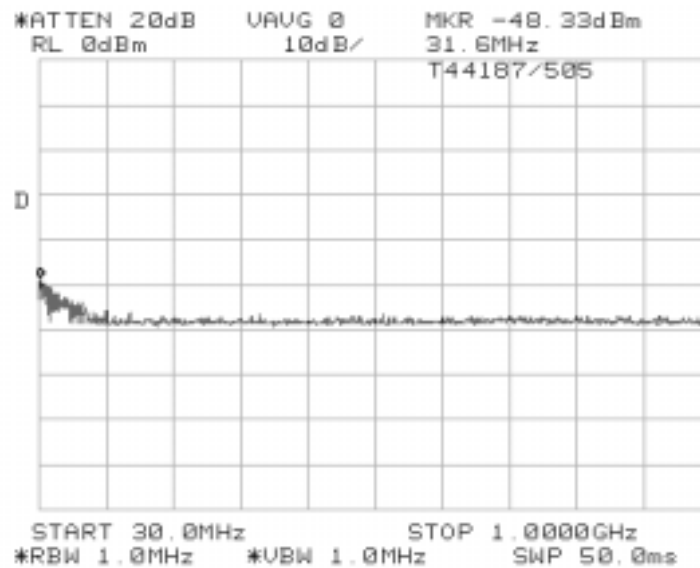
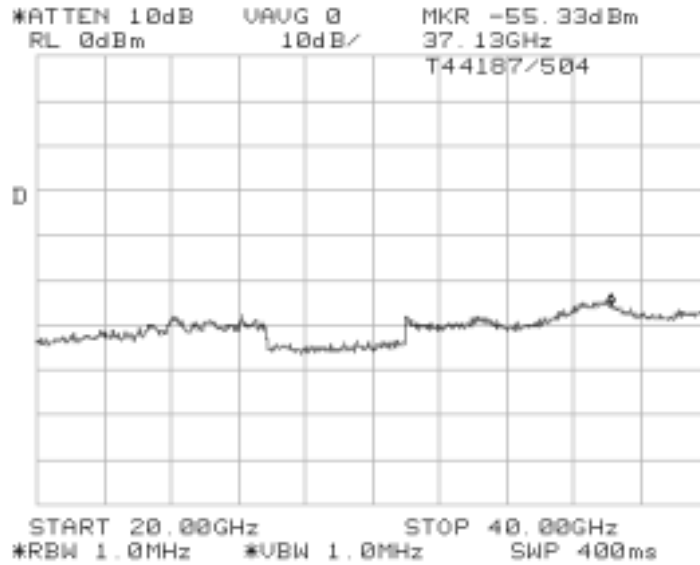
Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B





# EMC Test Data

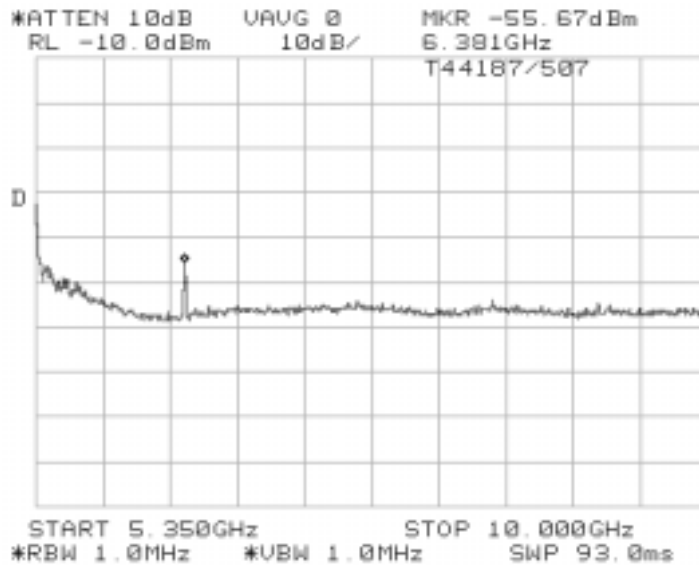
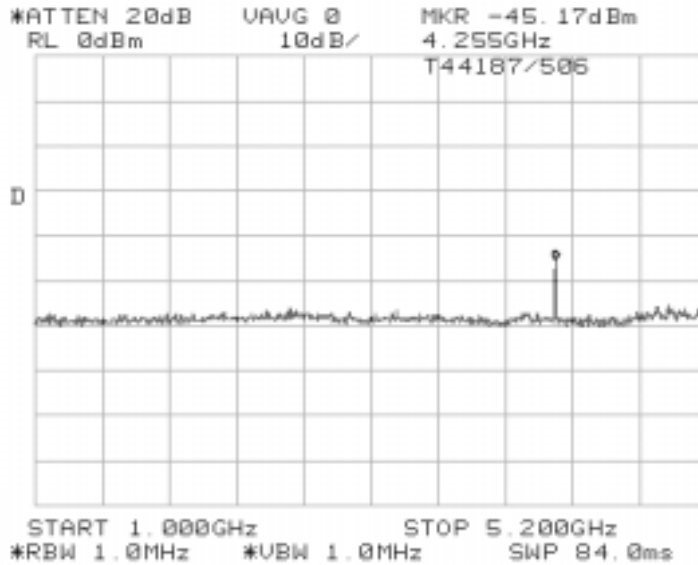
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Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B





# EMC Test Data

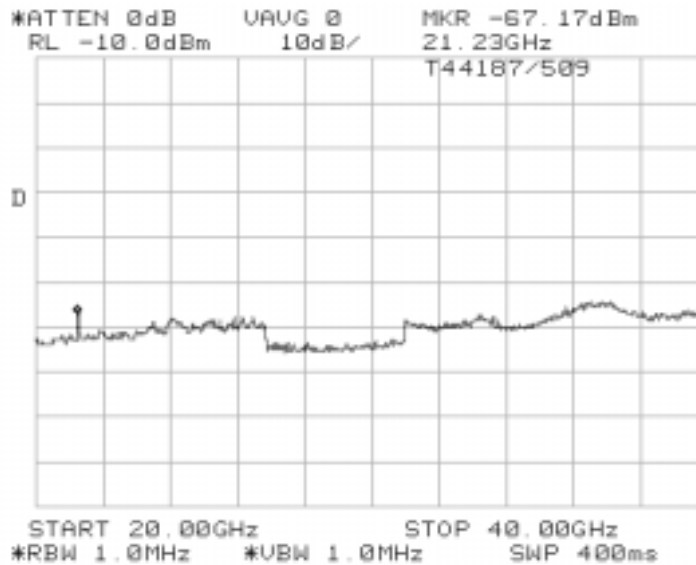
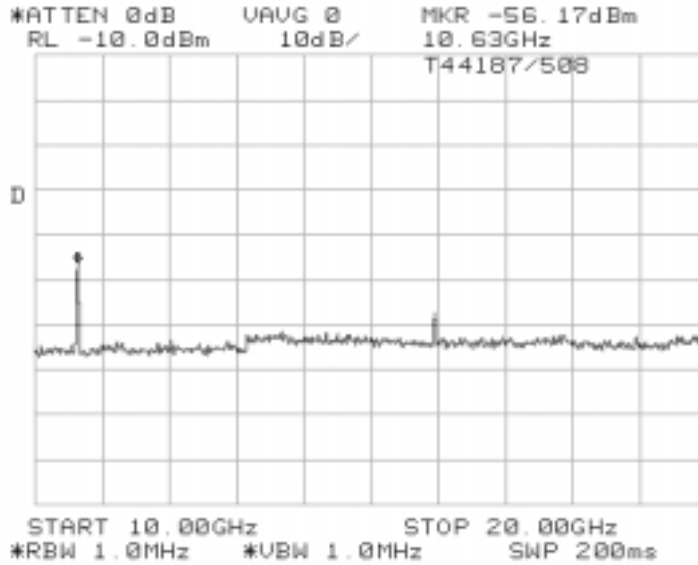
Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B





# EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B

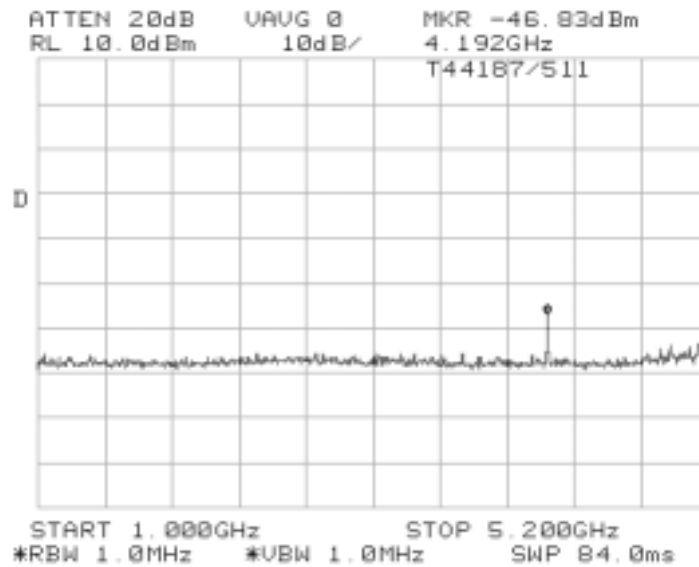
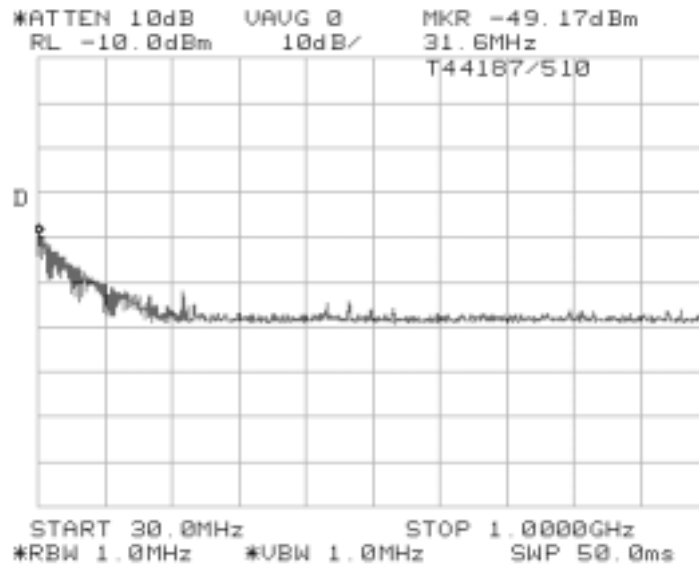






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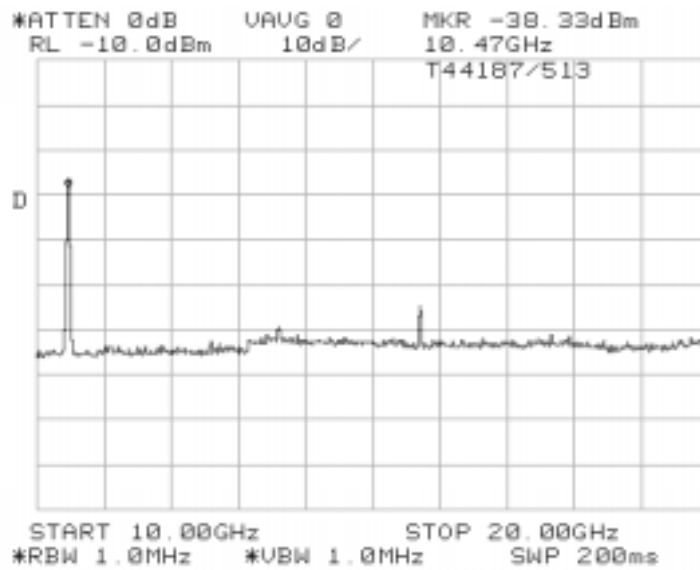
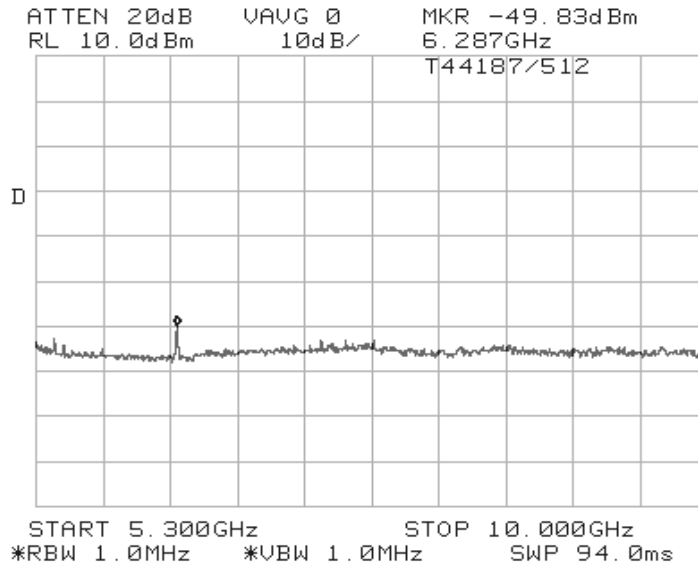
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Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B





# EMC Test Data

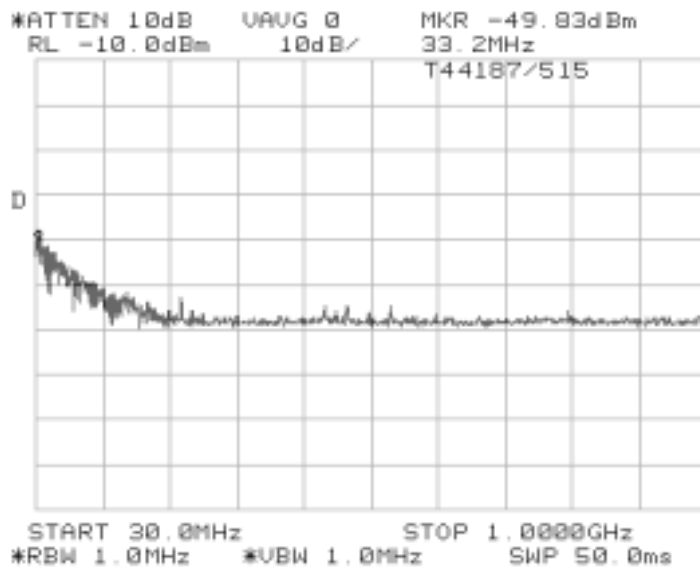
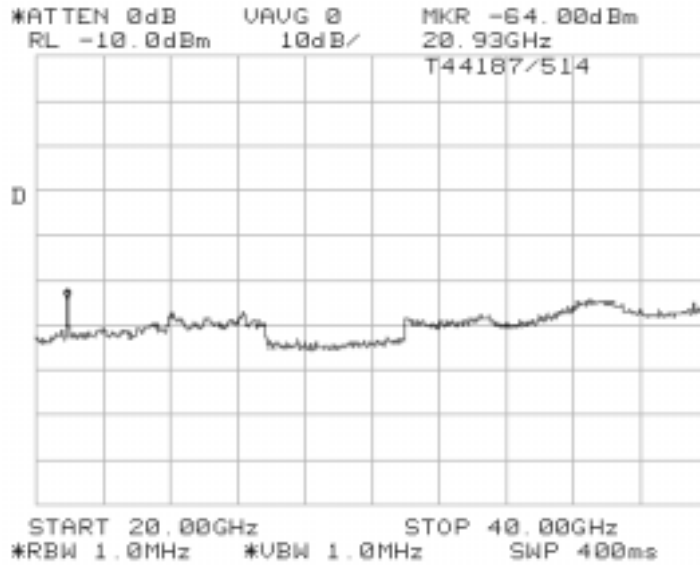
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Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B





# EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B





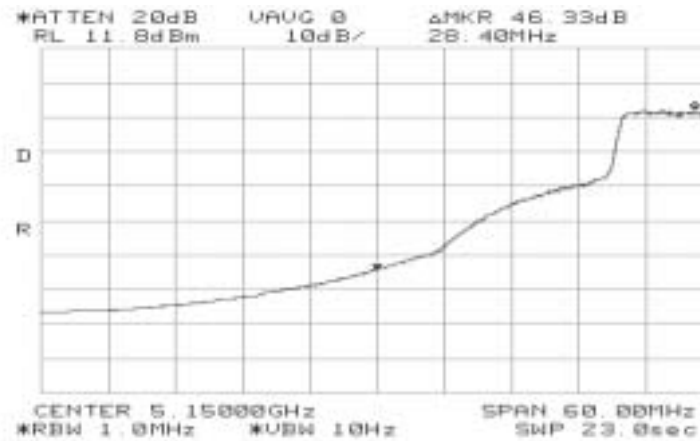
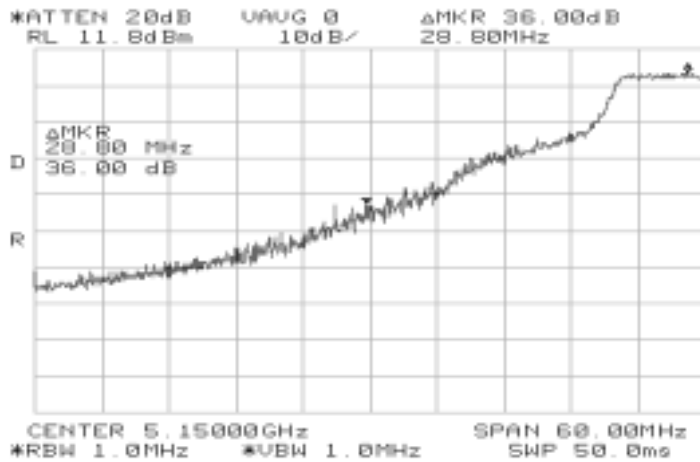
# EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B

## Band Edge Measurements (normal mode):

For signals in the restricted bands immediately above and below the 5.15 to 5.35 GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was then applied to the average and peak field strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

5.15 GHz band edge EUT operating on channel 6 (lowest channel):  
The highest signal in the 4.5 to 5.15 GHz band was -36dBc (Peak) / - 46.3dBc (Average)

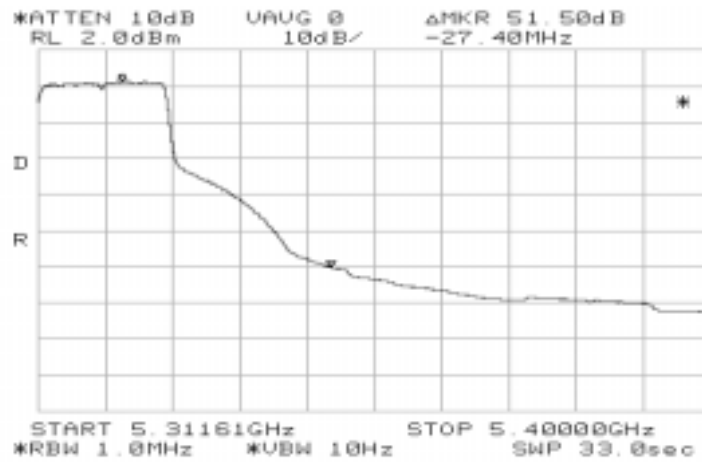
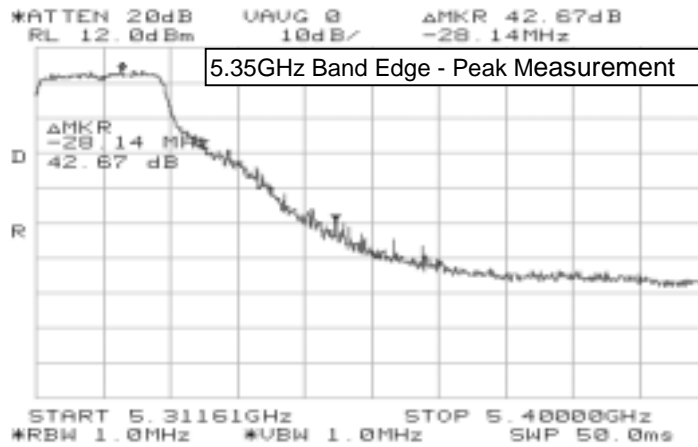




# EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B

5.35 GHz band edge EUT operating on channel 20 (highest channel):  
The highest signal in the 5.35 to 5.46 GHz band was -42.7dBc (Peak) / - 51.5dBc (Average)





## EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B

The following tests were performed on August 6 and August 7, 2001 at SVOATS #4:

**Run #6a: Radiated Spurious Emissions, 5.15GHz and 5.35GHz band edges (Normal mode)**

Limit for emissions in restricted bands:	54dBuV/m (Average)	74dBuV/m (Peak)
Limit for emissions outside of restricted bands:	EIRP < -27dBm/MHz	

**Fundamental signal measurements (to calculate the band edge field strengths):**

Frequency MHz	Level dBuV/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5180.000	104.0	v			Pk	208	2.0	RBW = VBW = 1 MHz
5180.000	94.8	v			Avg	208	2.0	RBW = 1MHz, VBW = 10Hz
5180.000	95.3	h			Pk	143	1.7	RBW = VBW = 1 MHz
5180.000	84.4	h			Avg	143	1.7	RBW = 1MHz, VBW = 10Hz
5320.130	104.2	v			Pk	224	1.4	RBW = VBW = 1 MHz
5320.130	94.0	v			Avg	224	1.4	RBW = 1MHz, VBW = 10Hz
5320.130	95.1	h			Pk	168	1.6	RBW = VBW = 1 MHz
5320.130	86.0	h			Avg	168	1.6	RBW = 1MHz, VBW = 10Hz

**Band Edge Field Strength Calculations: measurements (to calculate the band edge field strengths):**

Frequency MHz	Level dBuV/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5150.0	48.5	v	54.0	-5.5	Avg	208	2.0	Note 1
5150.0	68.0	v	74.0	-6.0	Pk	208	2.0	Note 1
5350.0	42.5	v	54.0	-11.5	Avg	224	1.4	Note 2
5350.0	61.5	v	74.0	-12.5	Pk	224	1.4	Note 2
5150.0	59.3	h	74.0	-14.7	Pk	143	1.7	Note 1
5150.0	38.1	h	54.0	-15.9	Avg	143	1.7	Note 1
5350.0	34.5	h	54.0	-19.5	Avg	168	1.6	Note 2
5350.0	52.4	h	74.0	-21.6	Pk	168	1.6	Note 2

Note 1: EUT operating on channel 6 (lowest channel). Signal level calculated using the relative measurements in run #5 (-36dBc for peak and -46.3dBc for average) applied to the highest peak and average field strength measurements of the fundamental signal level.

Note 2: EUT operating on channel 20 (highest channel). Signal level calculated using the relative measurements in run #5 (-42.7dBc for peak and -51.5dBc for average) applied to the highest peak and average field strength measurements of the fundamental signal level.



## EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B

**Run #6b: Radiated Spurious Emissions, 1000 - 40000 MHz (Normal mode)**  
 Spurious emissions from 30 - 1000 MHz were measured while performing emissions measurements of the digital device. The emissions were below the FCC Class B limit.

**Other Spurious Emissions: EUT On Channel 6 (5.18 GHz)**

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
15541.50	51.4	v	54.0	-2.6	Avg	302	1.4	Note 2, Analyzer Noise floor
15541.50	50.4	h	54.0	-3.6	Avg	302	1.4	Note 2, Analyzer Noise floor
4144.000	49.8	v	54.0	-4.3	Avg	349	1.7	Note 2,4
4144.000	48.0	h	54.0	-6.0	Avg	298	1.7	Note 2,4
10360.50	47.9	v	54.0	-6.1	Avg	280	1.4	Note 5
15541.50	64.9	v	74.0	-9.1	Pk	302	1.4	Note 2, Analyzer Noise floor
10360.50	43.0	h	54.0	-11.0	Avg	280	1.4	Note 5
10360.50	62.7	v	74.0	-11.3	Pk	280	1.4	Note 5
15541.50	62.7	h	74.0	-11.3	Pk	302	1.4	Note 2, Analyzer Noise floor
10360.50	55.6	h	74.0	-18.4	Pk	280	1.4	Note 5
4144.000	54.1	h	74.0	-19.9	Pk	298	1.7	Note 2,4
4144.000	53.6	v	74.0	-20.4	Pk	349	1.7	Note 2,4

**Other Spurious Emissions: EUT On Channel 12 (5.24 GHz)**

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
15720.0	50.1	v	54.0	-3.9	Avg	342	1.3	Note 2, Analyzer Noise floor
4192.0	49.9	v	54.0	-4.2	Avg	9	1.7	Note 2,4
15720.0	49.8	h	54.0	-4.2	Avg	298	1.7	Note 2, Analyzer Noise floor
20960.0	49.5	v	54.0	-4.5	Avg	322	1.4	Note 2
10480.0	48.0	h	54.0	-6.0	Avg	350	1.6	Note 5
20960.0	46.5	h	54.0	-7.5	Avg	21	1.1	Note 2
4192.0	46.5	h	54.0	-7.5	Avg	339	1.6	Note 2,4
10480.0	45.0	v	54.0	-9.0	Avg	310	1.5	Note 5
20960.0	64.0	v	74.0	-10.0	Pk	322	1.4	Note 2
10480.0	63.9	h	74.0	-10.1	Pk	350	1.6	Note 5
15720.0	62.9	v	74.0	-11.1	Pk	342	1.3	Note 2, Analyzer Noise floor
15720.0	62.0	h	74.0	-12.0	Pk	298	1.7	Note 2, Analyzer Noise floor
10480.0	61.4	v	74.0	-12.6	Pk	310	1.5	Note 5
20960.0	61.4	h	74.0	-12.6	Pk	21	1.1	Note 2
4192.0	51.5	v	74.0	-22.5	Pk	9	1.7	Note 2,4
4192.0	50.3	h	74.0	-23.7	Pk	339	1.6	Note 2,4



## EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
Contact: Eric Dukatz	Proj Eng: Mark Briggs
Spec: FCC Part 15 Subparts B and E	Class: B

### Other Spurious Emissions: EUT On Channel 20 (5.32 GHz)

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	15.209 / 15.407		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
4256.000	52.3	v	54.0	-1.7	Avg	360	1.6	Note 2,4
15956.50	49.3	h	54.0	-4.7	Avg	278	1.3	Note 2, Analyzer Noise floor
15956.50	49.1	v	54.0	-4.9	Avg	278	1.3	Note 2, Analyzer Noise floor
10640.00	48.4	v	54.0	-5.6	Avg	306	1.4	Note 2, Analyzer Noise floor
4256.000	48.0	h	54.0	-6.0	Avg	323	1.7	Note 2,4
21280.0	46.1	v	54.0	-7.9	Avg	329	1.4	Note 2
10640.00	65.8	v	74.0	-8.2	Pk	306	1.4	Note 2
10640.00	44.1	h	54.0	-9.9	Avg	306	1.4	Note 2
21280.0	43.3	h	54.0	-10.7	Avg	331	1.2	Note 2
15956.50	61.9	h	74.0	-12.1	Pk	278	1.3	Note 2, Analyzer Noise floor
15956.50	60.0	v	74.0	-14.0	Pk	278	1.3	Note 2, Analyzer Noise floor
21280.0	58.1	v	74.0	-15.9	Pk	329	1.4	Note 2
10640.00	57.4	h	74.0	-16.6	Pk	306	1.4	Note 2
4256.000	56.2	v	74.0	-17.8	Pk	360	1.6	Note 2,4
21280.0	56.0	h	74.0	-18.0	Pk	331	1.2	Note 2, Analyzer Noise floor
4256.000	55.0	h	74.0	-19.0	Pk	323	1.7	Note 2,4

### Test notes for run 6b

Note 1:	For emissions falling in the restricted bands detailed in 15.205 the general limits of 15.209 apply. For all other emissions the limit is EIRP < -27dBm (equivalent to a field strength at 3m of 68dBuV/m)
Note 2:	Signal is in a restricted band
Note 3:	Restricted Band Peak Measurements: Resolution and Video BW: 1 MHz, Restricted Band Average Measurements: Resolution Bw: 1MHz and Video Bw: 10 Hz. All other measurements, RBW = 1MHz and VBW = 3MHz, video averaging on (100 samples).
Note 4:	This measurement was made using a resolution bandwidth of 3 kHz The instrumentation noise floor was too high to allow measurements with RBW = 1MHz because a preamplifier could not be used (with the EUT operating the intentional signal would overload the amplifier and there is no low pass filter with sufficient shape factor to reject the intentionally transmitted signal but pass the spurious signal). The signal was a narrowband signal (as verified during the conducted antenna measurements) and so the amplitude (peak/average) in a 3kHz bandwidth would be the same as that in a 1MHz bandwidth.
Note 5:	Although the signal is not in a restricted band, the more stringent restricted band limits (and measurement bandwidths) were used for this signal.





# EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B

## Radiated Emissions

### Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 8/8/2001  
Test Engineer: Blair Wright  
Test Location: SVOATS #1

Config. Used:  
Config Change:  
EUT Voltage: 120V/60Hz

### General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated emissions testing.

On the OATS, the measurement antenna was located 10 meters from the EUT for the measurement range 30 - 1000 MHz.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

**Ambient Conditions:** Temperature: 15°C  
Rel. Humidity: 65%

### Summary of Results

Run #	Test Performed	Limit	Result	Margin
2	RE, 30 - 1000MHz - Maximized Emissions	FCC B	Pass	-.6dB @ 798.233MHz

### Modifications Made During Testing:

No modifications were made to the EUT during testing

### Deviations From The Standard

No deviations were made from the requirements of the standard.



## EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B

### Run #1: Preliminary Radiated Emissions, 30-1000 MHz

Frequency MHz	Level dBµV/m	Pol v/h	FCC B		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
798.233	45.4	v	46.0	-0.6	QP	16	1.0	Signal is from Laptop
499.500	41.6	v	46.0	-4.4	QP	74	1.0	Laptop Spread Spectrum
696.925	39.9	h	46.0	-6.1	QP	159	2.2	
798.233	39.2	h	46.0	-6.8	QP	30	1.9	Signal is from Laptop
800.000	39.0	v	46.0	-7.0	QP	11	1.0	
696.925	38.5	v	46.0	-7.5	QP	17	1.1	
65.003	32.3	v	40.0	-7.7	QP	0	1.0	BroadBand
931.275	35.7	v	46.0	-10.3	QP	34	1.0	
800.000	35.7	h	46.0	-10.3	QP	46	1.0	
34.310	29.5	v	40.0	-10.5	QP	80	1.0	BroadBand
410.255	34.2	v	46.0	-11.8	QP	35	1.0	
34.020	28.0	v	40.0	-12.0	QP	23	1.0	BroadBand
166.430	31.4	h	43.5	-12.1	QP	0	1.8	
499.500	33.8	h	46.0	-12.2	QP	48	1.6	Laptop Spread Spectrum
397.820	33.3	v	46.0	-12.7	QP	0	1.0	Laptop Spread Spectrum
895.105	32.5	h	46.0	-13.5	QP	0	1.0	
895.105	32.1	v	46.0	-13.9	QP	31	1.0	
430.785	32.1	h	46.0	-13.9	QP	65	1.7	
166.430	29.3	v	43.5	-14.2	QP	60	1.0	
40.000	25.8	v	40.0	-14.2	QP	0	1.0	
80.000	25.8	v	40.0	-14.2	QP	0	1.0	
60.000	25.4	v	40.0	-14.6	QP	50	1.0	
80.000	24.7	h	40.0	-15.3	QP	0	2.0	
430.785	30.5	v	46.0	-15.5	QP	45	1.0	
480.006	30.0	v	46.0	-16.0	QP	85	1.0	
360.000	30.0	v	46.0	-16.0	QP	0	1.0	
410.255	29.6	h	46.0	-16.4	QP	65	1.8	
397.820	29.3	h	46.0	-16.7	QP	66	1.6	Laptop Spread Spectrum
998.965	37.0	v	54.0	-17.0	QP	23	1.0	
220.012	28.6	h	46.0	-17.4	QP	184	2.0	
40.650	22.0	v	40.0	-18.0	QP	201	1.0	BroadBand
120.000	24.3	h	43.5	-19.2	QP	0	1.5	
266.080	26.7	v	46.0	-19.3	QP	97	1.0	
267.020	26.7	v	46.0	-19.3	QP	91	1.0	
266.080	26.7	h	46.0	-19.3	QP	87	1.2	

*Continued on following page....*



## EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B

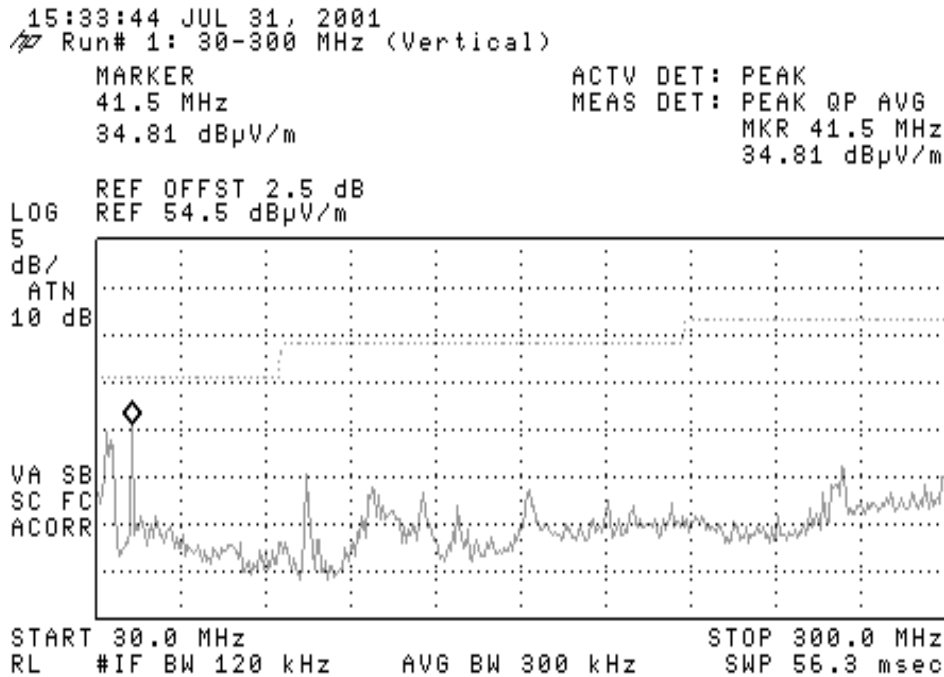
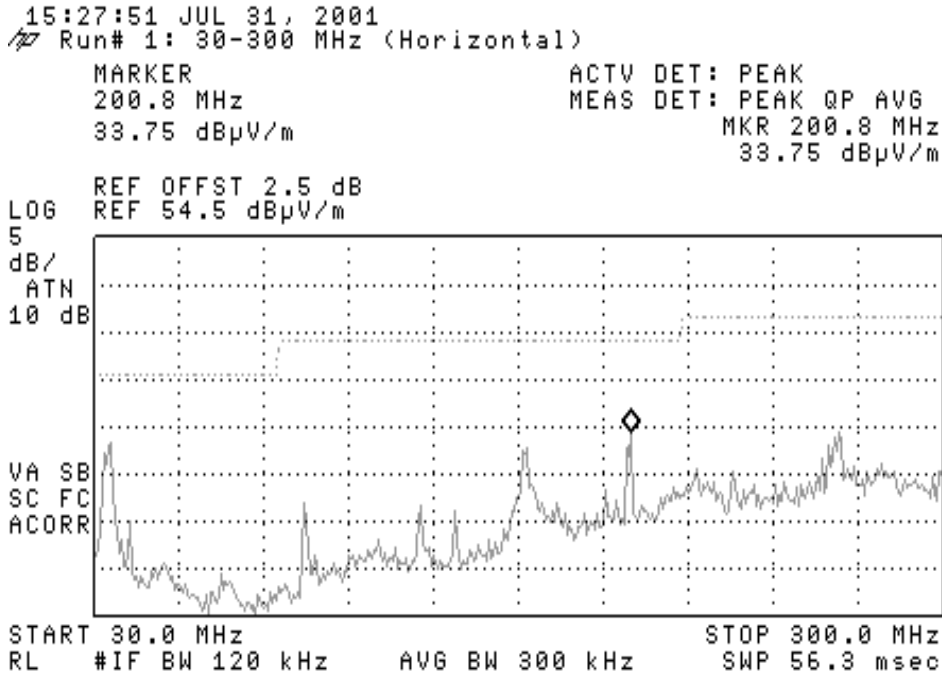
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160.000	24.1	h	43.5	-19.4	QP	0	1.8	
192.000	21.9	v	43.5	-21.6	QP	16	1.0	
267.014	24.0	h	46.0	-22.0	QP	0	1.2	

### Run #2: Maximized Readings From Run #1

Frequency MHz	Level dB $\mu$ V/m	Pol v/h	FCC B		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
798.233	45.4	v	46.0	-0.6	QP	16	1.0	Signal is from Laptop
499.500	41.6	v	46.0	-4.4	QP	74	1.0	Laptop Spread Spectrum
696.925	39.9	h	46.0	-6.1	QP	159	2.2	
798.233	39.2	h	46.0	-6.8	QP	30	1.9	Signal is from Laptop
800.000	39.0	v	46.0	-7.0	QP	11	1.0	
696.925	38.5	v	46.0	-7.5	QP	17	1.1	

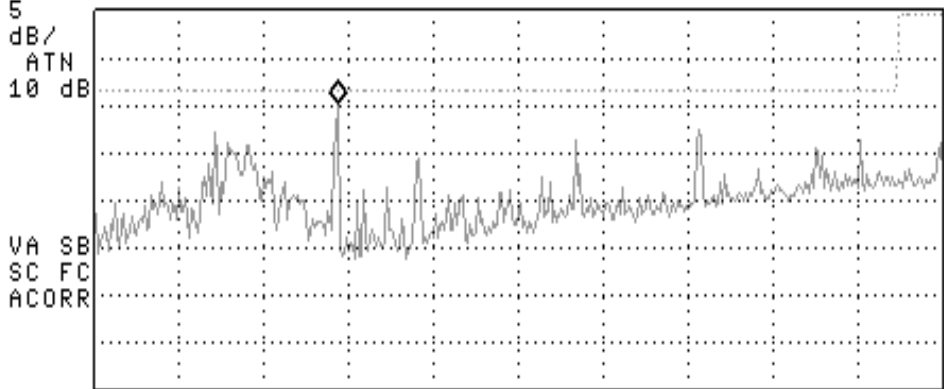
Preliminary Radaited Emissions Plots (test perfomed in Anechoic Chamber #2, 7/31/2001)



15:40:57 JUL 31, 2001  
Run# 1: 300-1000 MHz (Srial)

MARKER 501.3 MHz 44.53 dB $\mu$ V/m  
ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 501.3 MHz  
44.53 dB $\mu$ V/m

LOG REF OFFST 2.5 dB  
REF 54.5 dB $\mu$ V/m



START 300.0 MHz STOP 1.0000 GHz  
L #IF BW 120 kHz AVG BW 300 kHz SWP 146 msec



# EMC Test Data

Client:	Atheros	Job Number:	J44394
Model:	AR5BCB-00012	T-Log Number:	T44395
		Proj Eng:	Mark Briggs
Contact:	Eric Dukatz		
Spec:	FCC Part 15 Subparts B and E	Class:	B

## Conducted Emissions - Power Ports

### Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 7/23/2001	Config. Used: 1
Test Engineer: Vishal	Config Change: None
Test Location: SVOATS #1	EUT Voltage: 120V/60Hz

### General Test Configuration

For tabletop equipment, the EUT host system was located on a wooden table, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment.

**Ambient Conditions:**            Temperature: 17°C  
    Rel. Humidity: 72%

### Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power 120V/60Hz	FCC B	Pass	-10.8dB @ 5.351MHz

**Modifications Made During Testing:**  
 No modifications were made to the EUT during testing

**Deviations From The Standard**  
 No deviations were made from the requirements of the standard.



## EMC Test Data

Client: Atheros	Job Number: J44394
Model: AR5BCB-00012	T-Log Number: T44395
	Proj Eng: Mark Briggs
Contact: Eric Dukatz	
Spec: FCC Part 15 Subparts B and E	Class: B

### Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz

Frequency	Level	Power	FCC-B		Detector	Comments
			Limit	Margin		
MHz	dBuV	Lead			Function	
5.351	37.2	Neutral	48.0	-10.8	QP	
5.963	36.9	Neutral	48.0	-11.1	QP	
5.511	36.3	Line 1	48.0	-11.7	QP	
2.671	35.8	Line 1	48.0	-12.2	QP	
2.916	35.7	Neutral	48.0	-12.3	QP	
6.326	35.6	Line 1	48.0	-12.4	QP	
2.719	35.5	Line 1	48.0	-12.5	QP	
3.215	35.3	Neutral	48.0	-12.7	QP	
3.144	35.1	Line 1	48.0	-12.9	QP	
0.469	32.8	Neutral	48.0	-15.2	QP	
0.471	32.7	Line 1	48.0	-15.3	QP	
0.472	31.2	Neutral	48.0	-16.8	QP	

Note: The graphical plots are offset by +10dB.



## EMC Test Data

Client:	Atheros	Job Number:	J44394
Model:	AR5BCB-00012	T-Log Number:	T44395
		Proj Eng:	Mark Briggs
Contact:	Eric Dukatz		
Spec:	FCC Part 15 Subparts B and E	Class:	B

*Insert graphs for conducted emissions on neutral here*





## EMC Test Data

Client:	Atheros	Job Number:	J44394
Model:	AR5BCB-00012	T-Log Number:	T44395
		Proj Eng:	Mark Briggs
Contact:	Eric Dukatz		
Spec:	FCC Part 15 Subparts B and E	Class:	B

*Insert graphs for conducted emissions on neutral here*