

TEST SYSTEM DETAILS

The FCC Identifiers for all equipment, plus descriptions of all cables used in the tested system (including inserted cards, which have grants) are:

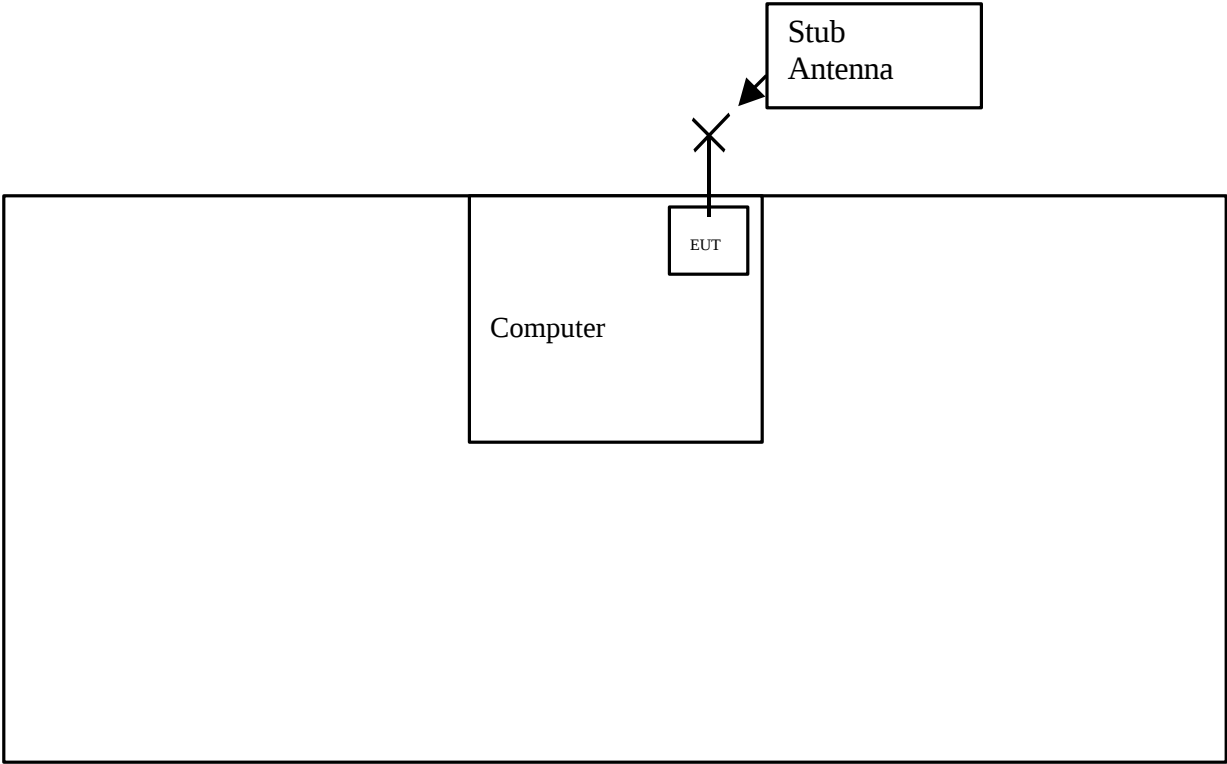
EXTERNAL COMPONENTS

PART	MANUFACTURER	MODEL	SERIAL NUMBER	FCC ID	CABLE DESCRIPTION	RTL BAR CODE
MOUSE	MICROSOFT	INTELLIMOUSE 1.1A	00332324	C3KKMP5	SHIELDED I/O	900589
KEYBOARD	NMB TECHNOLOGIES	PCB:44J	PS2	SAMPLE	SHIELDED I/O	012728
MONITOR	LG ELECTRONICS	EVF700 17"	N/A	SAMPLE	SHIELDED, FERRITE BOTH ENDS I/O UNSHIELDED POWER	011929
SYSTEM	CISCO SYSTEM, VA	N/A	253886	N/A	UNSHIELDED POWER	012956

Internal Components

PART	MANUFACTURER	MODEL	SERIAL NUMBER	FCC ID	CABLE DESCRIPTION	RTL BAR CODE
ANTENNA	CISCO SYSTEM, VA	ANTENNA FOR WIRELESS CARD	N/A	N/A	N/A	013055
CONTROLLER CARD	CATALYST COMMUNICATIONS TECHNOLOGIES, INC.	PCIA564	384-0030-002 REV B	N/A	N/A	013047
MINI PCI CARD	CATALYST COMMUNICATIONS TECHNOLOGIES, INC.	TYPE III	WIRELESS LAN SUPPORT	N/A	N/A	013053
WIRELESS LAN CARD (EUT)	CISCO SYSTEM, VA	AIR-MP1350 (100mW)	LDK102042 (001)	DOC	N/A	013054
CHIP	MURATA	PATCH ANTENNA	N/A	N/A	N/A	
INVERTED F	DELL	INVERTED F	N/A	N/A	N/A	
DIPLOE DIVERSITY	DELL	DIPLOE	N/A	N/A	N/A	
MODEM	CISCO SYSTEM, VA	V1456VQH-R7	00V237C0013548 0	DOC	N/A	013048
MOTHERBOARD	CISCO SYSTEM, VA	EP-693A	N/A	N/A	INTERNAL I/O INTERNAL POWER	013049
CD-ROM DRIVE	DELTA PRODUCTS CORPORATION, CA	CD5200A	011039052161	DOC	INTERNAL I/O INTERNAL POWER	013058
POWER SUPPLY	ASTEC CUSTOM POWER	SA320-3505-1412	99-3578	N/A	UNSHIELDED POWER	011211
FLOPPY DRIVE	MITSUMI	D359M3D	0J15AX0837	N/A	INTERNAL I/O INTERNAL POWER	013057

CONFIGURATION OF TESTED SYSTEM



Radiated Spurious Emissions

Radiated Spurious Emissions applies to harmonics and spurious emissions that fall in the restricted and non-restricted bands. The restricted bands are listed in Section 15.205. The maximum permitted average field strength for the restricted band is listed in Section 15.209. A 2.4 GHz notch filter was used to attenuate the carrier so that the spectrum analyzer would not be overloaded. The insertion loss of the notch filter was added to the spurious level on the table below.

DIVERSITY DIPOLE ANTENNA

RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 1)

Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dB μ V)	Site Correction Factor (dB/m)	Level in (dB μ V/m)	Limit in (dB μ V/m)	Margin (dB)
2372.13	AV	H	95	1.5	41.1	-2.2	38.9	54.0	-15.1
2372.13	PK	H	95	1.5	53.9	-2.2	51.7		
2375.13	AV	H	95	1.5	42.4	-2.2	40.2	54.0	-13.8
2375.13	PK	H	95	1.5	53.0	-2.2	50.8		
2383.63	AV	H	95	1.5	42.3	-2.2	40.1	54.0	-13.9
2383.63	PK	H	95	1.5	56.9	-2.2	54.7		
2413.07	AV	H	90	1.5	94.7	-2.2	92.5	Fundamental	
2413.07	PK	H	90	1.5	99.5	-2.2	97.3	Fundamental	
2439.00	AV	H	95	1.5	48.5	-2.2	46.3	72.5	-26.2
2439.00	PK	H	95	1.5	59.7	-2.2	57.5		
2448.88	AV	H	95	1.5	44.8	-2.2	42.6	72.5	-29.9
2448.88	PK	H	95	1.5	56.2	-2.2	54.0		
2452.00	AV	H	95	1.5	44.2	-2.2	42.0	72.5	-30.5
2452.00	PK	H	95	1.5	57.5	-2.2	55.3		
4826.17	AV	H	100	1.5	34.5	8.5	43.0	54.0	-11.0
4826.17	PK	H	100	1.5	44.0	8.5	52.5		

Average Measurement (AV: resolution bandwidth. =1 MHz, video bandwidth = 10 Hz; NF = noise floor

Peak Measurement (PK) : resolution bandwidth = 1 MHz, video bandwidth = 1 MHz

NF = Noise Floor

TEST PERSONNEL:

Typed/Printed Name: Rachid SEHB

Date: April 3, 2001



RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6)

Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBmV)	Site Correction Factor (dB/m)	Level in (dBmV/m)	Limit in (dBmV/m)	Margin (dB)
2406.28	AV	H	100	1.5	47.7	-2.2	45.5	73.3	-27.8
2406.28	PK	H	100	1.5	59.6	-2.2	57.4		
2410.00	AV	H	100	1.5	43.1	-2.2	40.9	73.3	-32.4
2410.00	PK	H	100	1.5	55.2	-2.2	50.0		
2416.50	AV	H	100	1.5	52.3	-2.2	50.1	73.3	-23.2
2416.50	PK	H	100	1.5	60.9	-2.2	58.7		
2443.25	AV	H	90	1.5	95.5	-2.2	93.3	Fundamental	
2443.25	PK		90		98.9	-2.2	96.7	Fundamental	
2467.75	AV	H	90	1.5	56.9	-2.2	54.7	73.3	-18.6
2467.75	PK	H	90	1.5	65.8	-2.2	63.6		
2470.63	AV	H	100	1.5	53.0	-2.2	50.8	73.3	-22.5
2470.63	PK	H	100	1.5	57.3	-2.2	55.1		
2479.88	AV	H	100	1.5	53.1	-2.2	50.9	73.3	-22.4
2479.88	PK	H	100	1.5	58.9	-2.2	56.7		
2489.88	AV	H	100	1.5	48.7	-2.2	46.5	54.0	-7.5
2489.88	PK	H	100	1.5	57.1	-2.2	54.9		
2511.75	AV	H	100	1.5	43.2	-2.2	41.0	73.3	-32.3
2511.75	PK	H	100	1.5	53.1	-2.2	51.9		
4886.50	AV	H	100	1.5	35.0	8.5	43.5	54.0	-10.5
4886.50	PK	H	100	1.5	54.0	8.5	62.5		

Average Measurement (AV: resolution bandwidth. =1 MHz, video bandwidth = 10 Hz; NF = noise floor

Peak Measurement (PK) = resolution bandwidth = 1 MHz, video bandwidth = 1 MHz

NF = Noise Floor

TEST PERSONNEL:

Typed/Printed Name: Rachid SEHB

Date: April 3, 2001



RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 11)

Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBmV)	Site Correction Factor (dB/m)	Level in (dBmV/m)	Limit in (dBmV/m)	Margin (dB)
2433.00	AV	H	100	1.5	42.4	-2.2	40.2	74.2	-34.0
2433.00	PK	H	100	1.5	57.2	-2.2	55.2		
2436.00	AV	H	100	1.5	43.4	-2.2	41.2	74.2	-33.0
2436.00	PK	H	100	1.5	54.5	-2.2	52.3		
2440.75	AV	H	100	1.5	47.8	-2.2	45.6	74.2	-28.6
2440.75	PK	H	100	1.5	56.2	-2.2	54.0		
2463.75	AV	H	95	1.5	96.4	-2.2	94.2	Fundamental	
2463.75	PK		95		99.2		97.0	Fundamental	
2487.88	AV	H	90	1.5	50.9	-2.2	48.7	54.	-5.3
2487.88	PK	H	90	1.5	61.3	-2.2	59.1		
2490.88	AV	H	100	1.5	48.8	-2.2	46.6	54.0	-7.4
2490.88	PK	H	100	1.5	60.7	-2.2	58.5		
2540.00	AV	H	100	1.5	44.8	-2.2	42.6	74.2	-31.6
2540.00	PK	H	100	1.5	58.4	-2.2	56.2		
2540.00	AV	H	100	1.5	33.4	8.5	41.9	54.0	-12.1
2540.00	PK	H	100	1.5	50.1	8.5	58.6		

Average Measurement (AV: resolution bandwidth. =1 MHz, video bandwidth = 10 Hz; NF = noise floor

Peak Measurement (PK) = resolution bandwidth = 1 MHz, video bandwidth = 1 MHz

NF = Noise Floor

TEST PERSONNEL:

Typed/Printed Name: Rachid SEHB

Date: April 3, 2001



INVERTED F ANTENNA

RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 1)

Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBμV)	Site Correction Factor (dB/m)	Level in (dBμV/m)	Limit in (dBμV/m)	Margin (dB)
2375.25	AV	H	95	1.5	41.1	-2.2	38.9	54.0	-15.1
2375.25	PK	H	95	1.5	50.2	-2.2	48.0		
2380.00	AV	H	95	1.5	40.0	-2.2	37.8	54.0	-16.2
2380.00	PK	H	95	1.5	51.4	-2.2	49.2		
2383.50	AV	H	95	1.5	41.7	-2.2	39.5	54.0	-14.5
2383.50	PK	H	95	1.5	52.1	-2.2	49.9		
2386.50	AV	H	95	1.5	39.9	-2.2	37.7	54.0	-16.3
2386.50	PK	H	95	1.5	53.2	-2.2	51.0		
2413.07	AV	H	90	1.5	97.1	-2.2	94.9	Fundamental	
2413.07	PK	H	90	1.5	100.0	-2.2	97.8	Fundamental	
2449.00	AV	H	95	1.5	47.5	-2.2	45.3	74.9	-29.6
2449.00	PK	H	95	1.5	58.5	-2.2	56.3		
2451.88	AV	H	95	1.5	46.6	-2.2	44.4	74.9	-30.5
2451.88	PK	H	95	1.5	58.7	-2.2	56.5		
4826.14	AV	H	95	1.5	36.2	8.5	44.7	54.0	-9.3
4826.14	PK	H	95	1.5	50.0	8.5	58.5		

Average Measurement (AV: resolution bandwidth. =1 MHz, video bandwidth = 10 Hz; NF = noise floor

Peak Measurement (PK) = resolution bandwidth = 1 MHz, video bandwidth = 1 MHz

NF = Noise Floor

TEST PERSONNEL:

Typed/Printed Name: Rachid SEHB

Date: April 3, 2001



RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6)

Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBmV)	Site Correction (dB/m)	Level in (dBmV/m)	Limit in (dBmV/m)	Margin (dB)
2394.25	AV	H	90	1.5	41.6	-2.2	39.4	74.0	-34.6
2394.25	PK	H	90	1.5	52.3	-2.2	50.1		
2402.80	AV	H	90	1.5	43.5	-2.2	41.3	74.0	-32.7
2402.80	PK	H	90	1.5	54.4	-2.2	52.2		
2407.06	AV	H	90	1.5	47.2	-2.2	45.0	74.0	-29.0
2407.06	PK	H	90	1.5	56.5	-2.2	54.3		
2412.88	AV	H	90	1.5	47.6	-2.2	45.4	74.0	-28.6
2412.88	PK	H	90	1.5	56.7	-2.2	54.5		
2416.50	AV	H	90	1.5	54.9	-2.2	52.7	74.0	21.3
2416.50	PK	H	90	1.5	67.7	-2.2	65.5		
2443.00	AV	H	100	1.5	96.2	-2.2	94.0	Fundamental	
2443.00	PK	H	100	1.5	99.7	-2.2	97.5	Fundamental	
2467.75	AV	H	90	1.5	56.4	-2.2	54.2	74.0	-19.8
2467.75	PK	H	90	1.5	62.5	-2.2	60.3		
2479.63	AV	H	90	1.5	48.7	-2.2	46.5	74.0	-27.5
2479.63	PK	H	90	1.5	51.4	-2.2	49.2		
2489.88	AV	H	90	1.5	44.8	-2.2	42.6	54.0	-11.4
2489.88	PK	H	90	1.5	51.8	-2.2	49.6		
4486.00	AV	AV	90	1.5	40.2	8.5	48.7	54.0	-5.3
4486.00	PK	PK	90	1.5	49.1	8.5	57.6		

Average Measurement (AV: resolution bandwidth. =1 MHz, video bandwidth = 10 Hz; NF = noise floor

Peak Measurement (PK) = resolution bandwidth = 1 MHz, video bandwidth = 1 MHz

NF = Noise Floor

TEST PERSONNEL:

Typed/Printed Name: Rachid SEHB

Date: April 3, 2001



RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 11)

Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBμV)	Site Correction Factor (dB/m)	Level in (dBμV/m)	Limit in (dBμV/m)	Margin (dB)
2433.58	AV	H	100	1.5	43.0	-2.2	40.8	71.5	-30.7
2433.58	PK	H	100	1.5	49.5	-2.2	47.3		
2440.88	AV	H	100	1.5	48.9	-2.2	46.7	71.5	-24.8
2440.88	PK	H	100	1.5	56.2	-2.2	54.0		
2463.75	AV	H	95	1.5	93.7	-2.2	91.5	Fundamental	
2463.75	PK	H	95	1.5	97.8	-2.2	95.6	Fundamental	
2487.75	AV	H	90	1.5	44.8	-2.2	42.6	54.0	-11.6
2487.75	PK	H	90	1.5	53.9	-2.2	51.7		
2490.50	AV	H	100	1.5	43.7	-2.2	41.5	54.0	-12.5
2490.50	PK	H	100	1.5	53.1	-2.2	50.9		
4927.50	AV	H	110	1.5	36.9	8.5	45.4	54.0	-8.5
4927.50	PK	H	110	1.5	45.0	8.5	53.5		

Average Measurement (AV: resolution bandwidth. =1 MHz, video bandwidth = 10 Hz; NF = noise floor

Peak Measurement (PK) = resolution bandwidth = 1 MHz, video bandwidth = 1 MHz

NF = Noise Floor

TEST PERSONNEL:

Typed/Printed Name: Rachid SEHB

Date: April 3, 2001



DIVERSITY DIPOLE ANTENNA

RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 1)

Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dB μ V)	Site Correction (dB/m)	Level in (dB μ V/m)	Limit in (dB μ V/m)	Margin (dB)
2372.13	AV	H	90	1.5	38.6	-2.2	36.4	54.0	-17.6
2372.13	PK	H	90	1.5	45.0	-2.2	42.8		
2375.25	AV	H	90	1.5	39.6	-2.2	37.4	54.0	-16.6
2375.25	PK	H	90	1.5	44.2	-2.2	42.0		
2383.50	AV	H	90	1.5	41.0	-2.2	39.0	54.0	-15.0
2383.50	PK	H	90	1.5	51.4	-2.2	49.2		
2385.00	AV	H	95	1.5	40.0	-2.2	37.8	54.0	-16.2
2385.00	PK	H	95	1.5	51.0	-2.2	48.8		
2413.07	AV	H	90	1.5	96.7	-2.2	94.5	Fundamental	
2413.07	PK	H	90	1.5	98.7	-2.2	96.5	Fundamental	
2449.00	AV	H	90	1.5	40.5	-2.2	38.3	74.5	-36.2
2449.00	PK	H	90	1.5	50.9	-2.2	48.7		
2452.25	AV	H	90	1.5	40.2	-2.2	38.0	74.5	-36.5
2452.25	PK	H	90	1.5	45.7	-2.2	43.5		
2452.25	AV	H	90	1.5	33.3	8.5	41.8	54.0	-12.2
2452.25	PK	H	90	1.5	39.6	8.5	48.3		

Average Measurement (AV: resolution bandwidth. =1 MHz, video bandwidth = 10 Hz; NF = noise floor

Peak Measurement (PK) = resolution bandwidth = 1 MHz, video bandwidth = 1 MHz

NF = Noise Floor

TEST PERSONNEL:

Typed/Printed Name: Rachid SEHB

Date: April 3, 2001



RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6)

Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBmV)	Site Correction Factor (dB/m)	Level in (dBmV/m)	Limit in (dBmV/m)	Margin (dB)
2406.00	AV	H	100	1.5	47.7	-2.2	45.5	73.3	-27.8
2406.00	PK	H	100	1.5	57.7	-2.2	55.5		
2410.00	AV	H	100	1.5	43.1	-2.2	40.9	73.3	-32.9
2410.00	PK	H	100	1.5	52.5	-2.2	50.3		
2416.50	AV	H	100	1.5	52.3	-2.2	50.1	73.3	-23.2
2416.50	PK	H	100	1.5	54.8	-2.2	52.6		
2443.88	AV	H	90	1.5	95.5	-2.2	93.3	Fundamental	
2443.88	PK	H	90	1.5	99.7	-2.2	97.5	Fundamental	
2470.88	AV	H	90	1.5	56.9	-2.2	54.7	73.3	-18.6
2470.88	PK	H	90	1.5	57.2	-2.2	55.0		
2479.00	AV	H	100	1.5	62.0	-2.2	50.8	73.3	-22.5
2479.00	PK	H	100	1.5	57.5	-2.2	55.3		
2482.00	AV	H	100	1.5	52.0	-2.2	49.8	73.3	-23.5
2482.00	PK	H	100	1.5	56.2	-2.2	54.0		
2489.80	AV	H	100	1.5	52.1	-2.2	50.9	54	-3.1
2489.80	PK	H	100	1.5	52.2	-2.2	50.0		
4887.76	AV	H	100	1.5	38.6	8.5	47.1	54	-6.9
4887.76	PK	H	100	1.5	44.0	8.5	52.5		

Average Measurement (AV: resolution bandwidth. =1 MHz, video bandwidth = 10 Hz; NF = noise floor

Peak Measurement (PK) = resolution bandwidth = 1 MHz, video bandwidth = 1 MHz

NF = Noise Floor

TEST PERSONNEL:

Typed/Printed Name: Rachid SEHB

Date: April 3, 2001



RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 11)

Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBmV)	Site Correction Factor (dB/m)	Level in (dBmV/m)	Limit in (dBmV/m)	Margin (dB)
2433.25	AV	H	100	1.5	42.4	-2.2	40.2	73.7	-33.5
2433.25	PK	H	100	1.5	50.4	-2.2	48.2		
2436.13	AV	H	100	1.5	43.4	-2.2	41.2	73.7	-32.5
2436.13	PK	H	100	1.5	49.6	-2.2	51.8		
2440.88	AV	H	100	1.5	48.6	-2.2	46.4	73.7	-27.3
2440.88	PK	H	100	1.5	54.2	-2.2	52.0		
2462.76	AV	H	90	1.5	95.9	-2.2	93.7	Fundamental	
2462.76	PK	H	100	1.5	99.5	-2.2	97.3	Fundamental	
2483.38	AV	H	95	1.5	50.3	-2.2	48.1	73.7	-25.6
2483.38	PK	H	95	1.5	56.9	-2.2	54.7		
2487.88	AV	H	95	1.5	46.1	-2.2	43.9	54.0	-10.1
2487.88	PK	H	95	1.5	57.2	-2.2	55.0		
2490.63	AV	H	100	1.5	43.2	-2.2	41.0	54.0	-13.0
2490.63	PK	H	100	1.5	53.6	-2.2	51.4		
4925.52	AV	H	90	1.5	39.0	8.5	47.5	54.0	-6.5
4925.52	PK	H	90	1.5	50.5	8.5	59.0		

Average Measurement (AV: resolution bandwidth. =1 MHz, video bandwidth = 10 Hz; NF = noise floor

Peak Measurement (PK) = resolution bandwidth = 1 MHz, video bandwidth = 1 MHz

NF = Noise Floor

TEST PERSONNEL:

Typed/Printed Name: Rachid SEHB

Date: April 3, 2001



Compliance With The Restricted Band Edge

Compliance with the band edges was performed using the FCC's "Radiated Measurement at a Band Edge" guidance document. The final data derived below were from radiated measurements only. The data taken in this report represents the worst case at 11 MBPS. Data rates of 5.5MBPS, 2 MBPS and 1 MBPS were investigated and found to be in compliance. Both absolute and delta method were performed with the same results.

Band edge Measurement					
Antenna	Channel Set to	Frequency tested MHz	Field Strength Level (dBmV/m)	FCC Limit (dBmV/m)	FCC Margin (dB)
Diversity dipole	1	2390.0	41.4	54.0	-12.6
Diversity dipole	11	2483.5	52.4	54.0	-1.6
Inverted F	1	2390.0	40.4	54.0	-13.6
Inverted F	11	2483.5	46.9	54.0	-7.1
Chip	1	2390.0	37.9	54.0	-16.1
Chip	11	2483.5	47.2	54.0	-6.8