

# **EXHIBIT 6**

## **Part 15 Technical Report** **SECTION 2.1033 (b) (6)**

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## Introduction

The Lucent Technologies **WaveACCESS NET 2400 CU232** has been subjected to the Part 15 requirements judged to be applicable. As an intentional radiator-frequency hopping device operating in the 2400 – 2483.5 MHz band the device falls under 15.247 (subpart C) of the rules. Each applicable rule section has been addressed and is outlined herein.

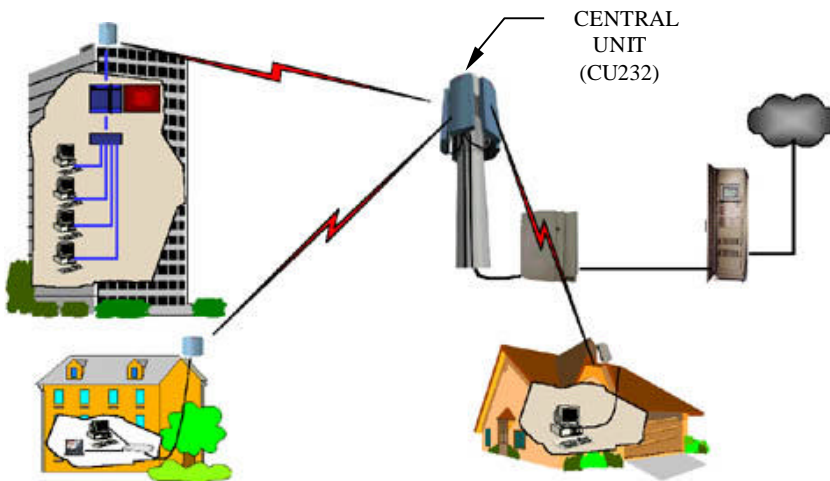
In addition, the device has been subjected to Part 15, subpart B, where applicable since it contains ITE functionally not directly related to the operation of the intentional radiator.

## Device Overview

The **WaveACCESS NET** system is a radio-based, high-capacity, high bit rate, low-cost packet switched wireless system that operates in the 2.4 Ghz ISM unlicensed band to provide point-to-multipoint wireless Internet access. It is designed to provide communications for several hundred users simultaneously accessing the Internet or intranet.

**WaveACCESS NET 2400 system** employs Frequency Hopping Spread-Spectrum (FHSS) technology at data rates of 3.2 and 1.6 Mbps. The fully digital FHSS radio provides protection against interference and enables operation of collocated systems, thereby increasing overall data throughput. **WaveACCESS NET** has been optimized for IP traffic and provides high-speed networking at distances of several miles.

The **WaveACCESS NET 2400** system consists of a central site known as the base station, and up to several hundred remote sites. The base station is where the system links to a backbone, for example, telephony, satellite, wireless, or digital cable data transmissions. The **WaveACCESS NET CU232** sits at the base station. The remote sites are the user locations, where remote **WaveACCESS NET xDR232** units act as LAN adapters, operating point to point



The **WaveACCESS NET** system is comprised of the following:

**WaveACCESS NET CU232:** A wireless point-to-multipoint central unit (See **Error! Reference source not found.**) that can support up to 60 remote units at a data rate of 3.2 Mbps each. Using unique **RFStacker™** technology, up to ten **CU232** units can be collocated in a single site, creating a cell of up to 600 remote units at a data rate of up to 25 Mbps. A remote unit does not necessarily indicate a single user

(for example, an **MDR232** can support an entire LAN). Therefore, the actual number of users the **WaveACCESS NET CU232** is able to support is considerably higher than the number of remote units.



Figure 1

**Sectorization of the Central Site**

**WaveACCESS NET CU232** units are typically installed in business or residential areas which do not have well-defined boundaries. It is not always possible to place the base station, with the central units and antennas, in the optimal location. Therefore, the **WaveACCESS NET 2400** system provides the ability to sectorize the base station by using multiple **CU232** units, each of which covers a sector of the total area to be covered. This allows an increase in cell range from approximately two miles, for an omnidirectional 8dBi antenna, to approximately four miles for the 13dBi internal flat panel antenna. If you have many users in one area, you may have more than one **CU232** covering the same area to provide optimal throughput for all the users.

Multiple CU232 units on the tower are interconnected with “sync” cables.

The **WaveACCESS NET 2400** units are fully ruggedized and suitable for outdoor installation, in weather conditions of -40°C to 55°C. An internal antenna is embedded in each unit, although there is also an option to use an external antenna for wider coverage. A single flexible cable is used to transmit data and supply the unit’s power. The **WaveACCESS NET 2400** product now includes a power/data adapter that connects to the AC power supply directly and provides an Ethernet connection.

Test Rationale

The Lucent Technologies **WaveACCESS NET 2400 CU232** was tested in accordance with the guidelines in ANSI C63.4 and with guidance from FCC Public Notice entitled “ Guidance on Measurements for Direct Sequence Spread Spectrum Systems”.

The CU 232 enclosure contains both an intentional radiator and a digital device and is typically located remote to the host, i.e., mounted on top of a building or supporting tower. Full system exercise of all components within the enclosure deem it necessary for the transmitter to be “live” and to establish an “over the air” file transfer link to a remote xDR232 wireless modem.

**Subpart A – General**

**15.15 General technical requirements**

The device has NO external controls accessible to the user that can be adjusted and operated in violation of the FCC regulations.

**15.19 Labeling requirements**

See Exhibit 2 for a drawing of the label.

**15.21 Information to user**

See Exhibit 3 for information supplied to user. Cautionary statements are provided in accordance with FCC regulations.

**15.27 Special accessories**

Accessory items are shown in Exhibit 9. Since the system requires professional installation all cautionary statements are provided in the installation guide manual.

**15.31 Measurement standards**

Measurements were carried out in accordance with ANSI C63.4 as applicable and with guidance provided by FCC Public Notice, entitled, “Guidance on measurements for Direct Sequence Spread Spectrum Systems”.

**15.33 Frequency range of radiated measurements**

Radiated measurement scans were made from 30 to 1000 MHz and from 1000 to 25, 000 MHz (tenth harmonic of the highest operating frequency)

**15.35 Measurement detector functions and bandwidths**

Measurement detector functions and bandwidths utilized for testing are shown in the table below.

Table 1

Frequency range (MHz)	Detector	RBW
0.450 – 30	Quasi-peak	9 kHz
30 – 1000	Peak and Quasi-peak	120 kHz
1000 +	Peak and Average	1 MHz

## Subpart C – Intentional Radiators (section rules as applicable)

### 15.201 Equipment authorization requirement

The WaveAccess NET 2400 CU232 shall be certified pursuant to the procedures in Subpart J of Part 2 prior to marketing

### 15.203 Antenna requirement

The WaveACCESS NET 2400 CU232 device **requires professional installation** and as such the installer is responsible for ensuring that the proper antenna is employed so that FCC limits in this part are maintained.

### 15.204 External radio frequency power amplifiers and antenna modifications.

As a transmission system the device is marketed as a complete system to be used strictly in the configuration for which it was authorized.

### 15.207 Conducted power-line limits

The **WaveACCESS NET 2400 CU232** complies with the conducted requirements in section 15.107 for a Class B device as well as the requirements in section 15.207. Test results are shown in Appendix C

### 15.209 Radiated emissions limits

The **WaveACCESS NET 2400 CU232** complies with the radiated requirements in section 15.109 for a Class B device as well as the requirements in section 15.207. Test results are shown in Appendix E.

### 15.247 Operations within the bands 902-928, 2400-2483.5, and 5725-5850 MHz

#### 15.247(a) Operation provisions

The system operates as frequency hopping only, therefore, 15.247 applies.

#### 15.247(a)(1) Hopping requirements

The device meets all of the requirements for this section. Minimum separation of channel carrier frequencies is greater than the 20 dB bandwidth of the hopping channel. A representative plot showing the 20 dB bandwidth for both QPSK and 16QAM modulation schemes Appendix B.

The system meets the requirements of this section as shown below.

Requirement	Device	FCC requirement
Hopping channels	79 channels	75 channels
Channel dwell (seconds)	0.0248	Maximum 0.4 sec within 30 second time frame
Hopping channel bandwidth (MHz)	0.902 MHz	1.0 MHz maximum
Hopping channel separation	> 20 dB hopping channel bandwidth	Minimum separation of 25 kHz or 20 dB bandwidth, whichever is greater

A discussion of the hopping algorithm and representative data is contained in Appendix A

15.247(b)(1) Maximum output power

Power output at the antenna port **does not** exceed 0.250 watt (24 dBm).

15.247(b)(3) Peak power reduction vs antenna gain.

The **WaveACCESS NET 2400 CU232** meets the requirement in the following manner:

The system is designed to work with a number of optional (**professionally installed**) antennas. The highest gain antenna is 14 dBi, (See Table 2). At time of installation, the antenna parameters are keyed into the operating software which then adjusts the output power to meet the FCC requirements. (The power, relative to 1.0 watt, is reduced by 1 dB for every 1 dB that the directional gain of the antenna exceeds 6 dBi.)

Based on the highest gain antenna and since the maximum power output is 24 dBm no power adjustment is necessary.

Antenna	Gain (dBi)
Internal	13
Omni-directional (OM08)	8

**Table 2**

15.247(b)(4) Radiofrequency exposure.

Installation procedures, warning instructions and/or labels are used to ensure compliance with FCC rules in section 1.1310 by providing professional installers with instructions to point the main beam of the antenna at locations not occupied by persons and to warn others to maintain specified distance from the antenna.

Guideline and warning notices are posted on pages 7.6, 7.8, 7.9, 7.10, and 7.11 of the installation manual.

15.247(c) Spurious emission requirements, conducted and radiated.

Antenna port conducted results.

Spectrum analyzer measurement scans at the antenna port (from 0 MHz to 25.000 GHz, tenth harmonic) were made at the antenna port for 3 fixed (low, middle, and high) non-hopping frequencies. Both 16QAM and QPSK modulation modes were tested. Test results show all out of band emissions as measured using a 100 kHz RSB<sup>1</sup> were much greater than 20 dB down from the in-band. Table 3 summarizes test results.

Test Frequency (MHz)	Modulation scheme	Test frequency range (MHz)	Test results Out of band emissions	Compliance statement
2402.0	QPSK 16QAM	0 – 25000	>> 20 dB below n-band	<b>Pass</b>
2440.0	QPSK 16QAM	0 – 25000	>> 20 dB below in-band	<b>Pass</b>
2480.0	QPSK 16QAM	0 - 25000	>> 20 dB below in-band	<b>Pass</b>

<sup>1</sup> Because the results exceeded 20 dB the actual plots are maintained on file at GPCL and available for inspection.

Table 3

The reference in-band spectrum plot for combined 16QAM and QPSK modulation schemes are shown in Figure 2. F1 and F2 mark the ISM band frequency edges.

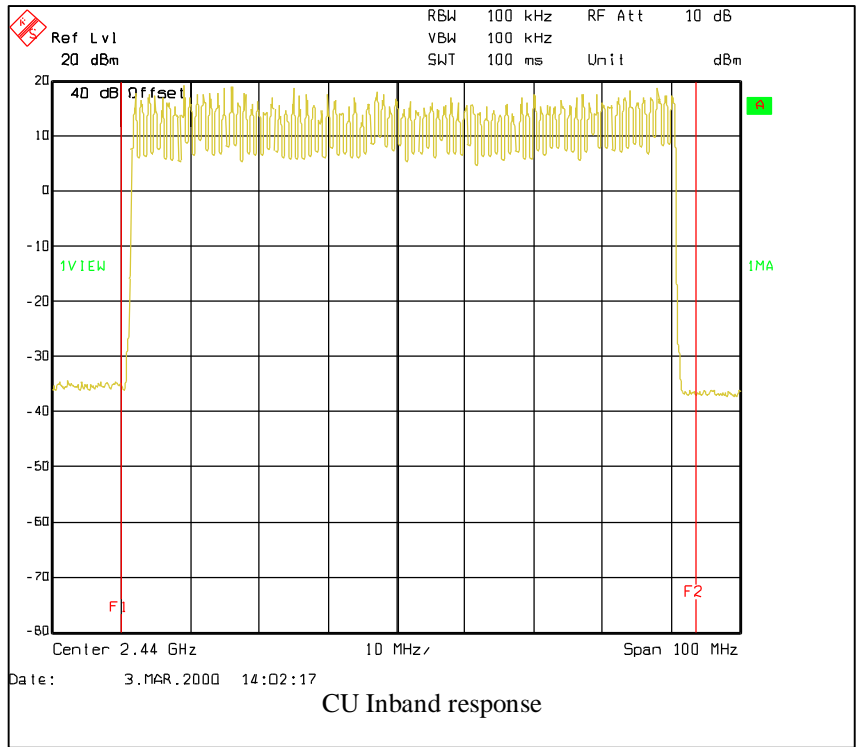


Figure 2



**Radiated results**

The system passed the requirements as specified in 15.209(a). Radiated test results are shown in Appendix D.

**15.247(g) Hopping for Long/Short periods**

Each transmission starts upon the packet's time of arrival (if channel is free). This could be at any time and at any frequency or frequencies. The transmission frequency changes every 20 msec regardless of when the packet arrives or how long it is, therefore each frequency is used equally, statistically in manner. In other words, the time of arrival and thereby time of transmission, is random and uncoordinated with the hopping channel which by itself is uniformly distributed between 2402 MHz to 2480 MHz. In particular, if the transmitter is presented with a continuous data stream it would distribute its transmissions evenly over the 79 carrier frequencies.

**15.247(h) Hopping intelligence**

The transmitter **does not** employ intelligence to effect the hop sequence.

## Appendix A

### Hopping Algorithm

#### Hopping Patterns:

There are 78 hopping sequences according to the following formula:

$$\text{Hopping Sequence}_{k,m} [i] = -2402 + (b[i] + k + 3 \cdot m) \bmod 79 \text{ [MHz]}$$

where  $k=0,1$  or  $2$ ,  $m=0,1,2,\dots,25$ ,  $i=0,1,2,\dots,78$  and

i	b[i]	i	b[i]	i	b[i]	i	b[i]	i	b[i]	i	b[i]	i	b[i]	i	b[i]
0	0	10	76	20	18	30	34	40	14	50	20	60	48	70	55
1	23	11	29	21	11	31	66	41	57	51	73	61	15	71	35
2	62	12	59	22	36	32	7	42	41	52	64	62	5	72	53
3	8	13	22	23	72	33	68	43	74	53	39	63	17	73	24
4	43	14	52	24	54	34	75	44	32	54	13	64	6	74	44
5	16	15	63	25	69	35	4	45	70	55	33	65	67	75	51
6	71	16	26	26	21	36	60	46	9	56	65	66	49	76	38
7	47	17	77	27	3	37	27	47	58	57	50	67	40	77	30
8	19	18	31	28	37	38	12	48	78	58	56	68	1	78	46
9	61	19	2	29	10	39	25	49	45	59	42	69	28	-	-

Example A: for  $k=0$ ,  $m=0$ , we obtain the following hopping sequence, expressed in MHz:

2402, 2425, 2464, 2410, 2445, 2418, 2473, 2449, 2421, 2463, 2478, 2431, 2461 2424  
 2454, 2465, 2428, 2400, 2433, 2404, 2420, 2413, 2438, 2474, 2456, 2471, 2423, 2405  
 2439, 2412, 2436, 2468, 2409, 2470, 2477, 2406, 2462, 2429, 2414, 2427, 2416, 2459  
 2443, 2476, 2434, 2472, 2411, 2460, 2401, 2447, 2422, 2475, 2466, 2441, 2415, 2435  
 2457, 2437, 2455, 2426, 2446, 2453, 2407, 2419, 2408, 2469, 2451, 2442, 2403, 2430  
 2467, 2452, 2458, 2444, 2450, 2417, 2440, 2432 and 2448

Example B: for  $k=1$ ,  $m=3$ , we obtain the following hopping sequence, expressed in MHz:

2412, 2435, 2474, 2420, 2455, 2428, 2404, 2459, 2431, 2473, 2409, 2441, 2471, 2434  
 2464, 2475, 2438, 2410, 2443, 2414, 2430, 2423, 2448, 2405, 2466, 2402, 2433, 2415  
 2449, 2422, 2446, 2478, 2419, 2401, 2408, 2416, 2472, 2439, 2424, 2437, 2426, 2469  
 2453, 2407, 2444, 2403, 2421, 2470, 2411, 2457, 2432, 2406, 2476, 2451, 2425, 2445  
 2477, 2462, 2468, 2454, 2460, 2427, 2417, 2429, 2418, 2479, 2461, 2452, 2413, 2440  
 2467, 2447, 2465, 2436, 2456, 2463, 2450, 2442 and 2458

The system changes its carrier frequency at fixed intervals (every 20 msec) under the direction of the coded sequence specified above. The near term distribution of the frequencies appears random, the long

term distribution appears evenly distributed over the hop set (2402 to 2480 MHz), and sequential hops are randomly distributed in both direction and magnitude of change in the hop set.

WaveACCESS NET **2400** CU232 selects its hopping pattern randomly or enforced by the user. In any case there is no coordination between two links, thus any two links will collide (i.e. use the same channel simultaneously) in a random manner.

Each transmission starts upon the packet's time of arrival (if channel is free). This could be at any time and at any frequency or frequencies. The transmission frequency changes every 20 msec regardless of when the packet arrives or how long it is, therefore each frequency is used equally, statistically in manner. In other words, the time of arrival and thereby time of transmission, is random and uncoordinated with the hopping channel which by itself is uniformly distributed between 2402 MHz to 2480 MHz. In particular, if the transmitter is presented with a continuous data stream it would distribute its transmissions evenly over the 79 carrier frequencies.

**Receiver/Transmitter Matching:**

The receivers synchronize with the transmitter when they are powered on and stay synchronized until they are powered down. From this point the receiver hops together with the transmitter as well as all with the other device in the point-to-point link, using the same hopping sequence and channels.

The receiver mixes down the RF frequencies to a constant IF frequency of 350 MHz. Here the receiver bandwidth is set at a constant 1 MHz by a SAW filter (see block diagram and schematic attached). Repeated and multiple packets are synchronized to the transmitter RF frequency and mixed down to the receiver SAW filter.

**Dwell Time:**

The dwell time is 20.48 msec. The full hopping cycle is 1.618 sec (79 times the dwell time).

## Appendix B

### Occupied bandwidth

The occupied bandwidth was measured for both 16QAM and QPSK modulation schemes as shown in Figure 3 and Figure 4 respectively.

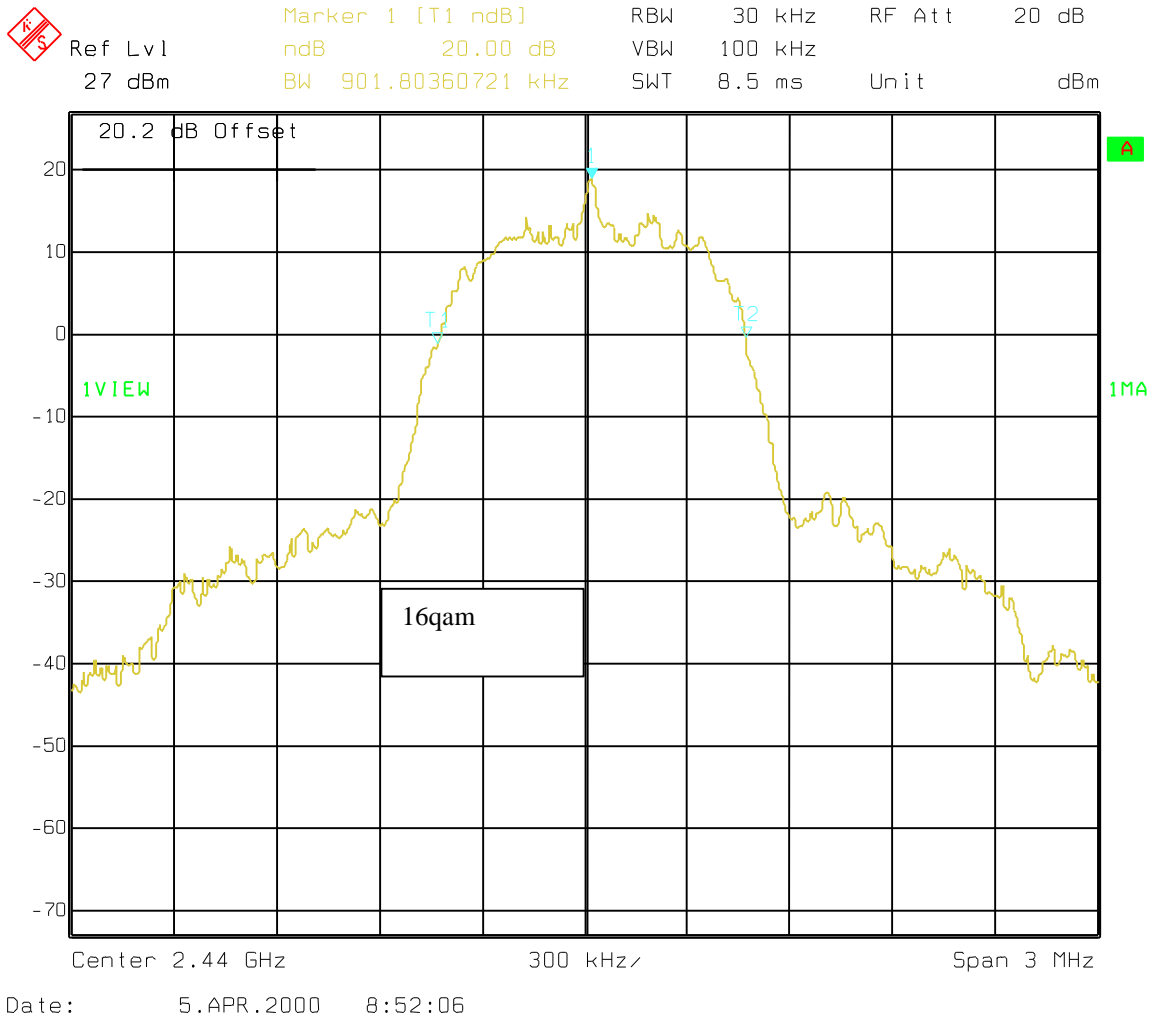


Figure 3

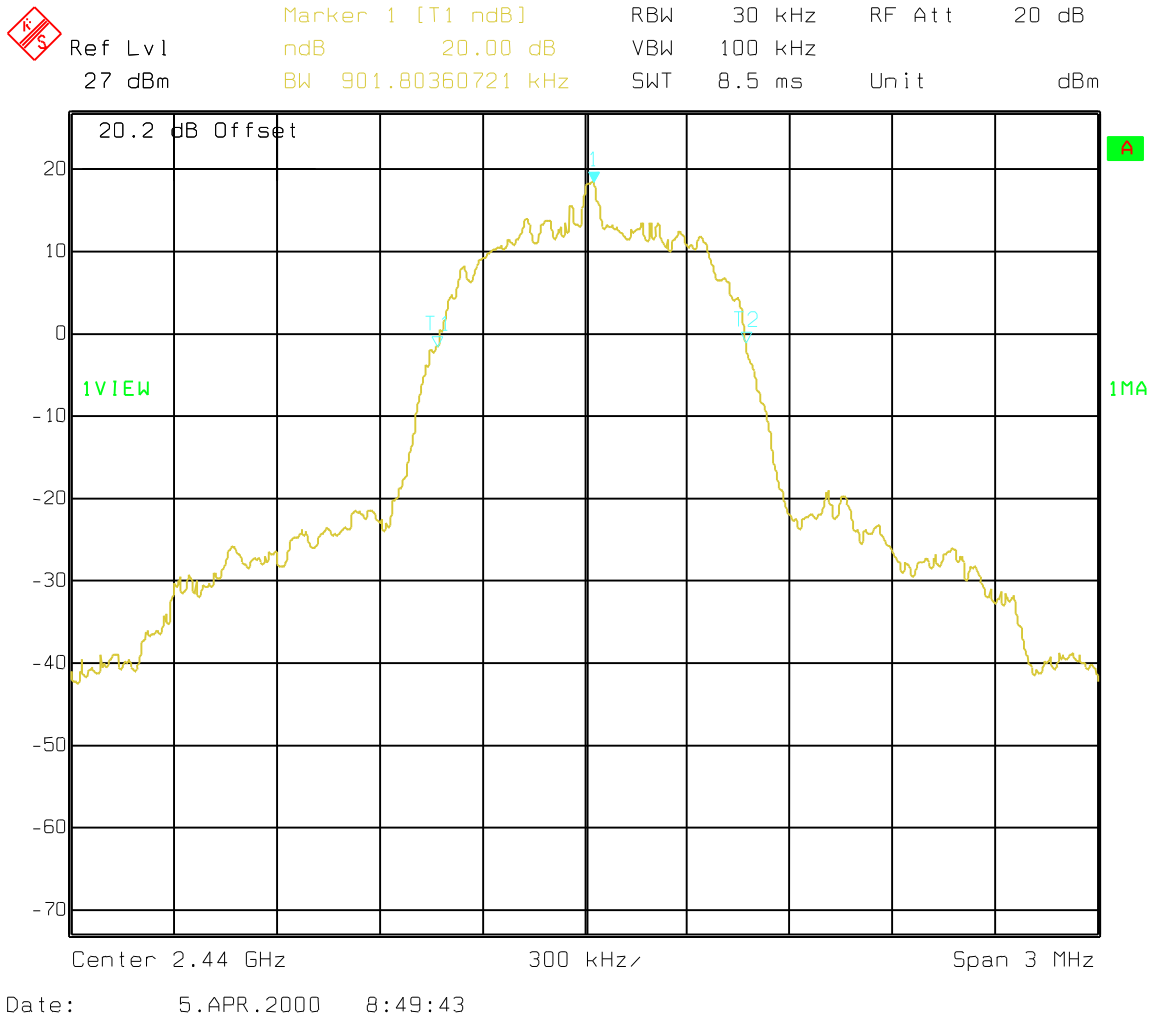
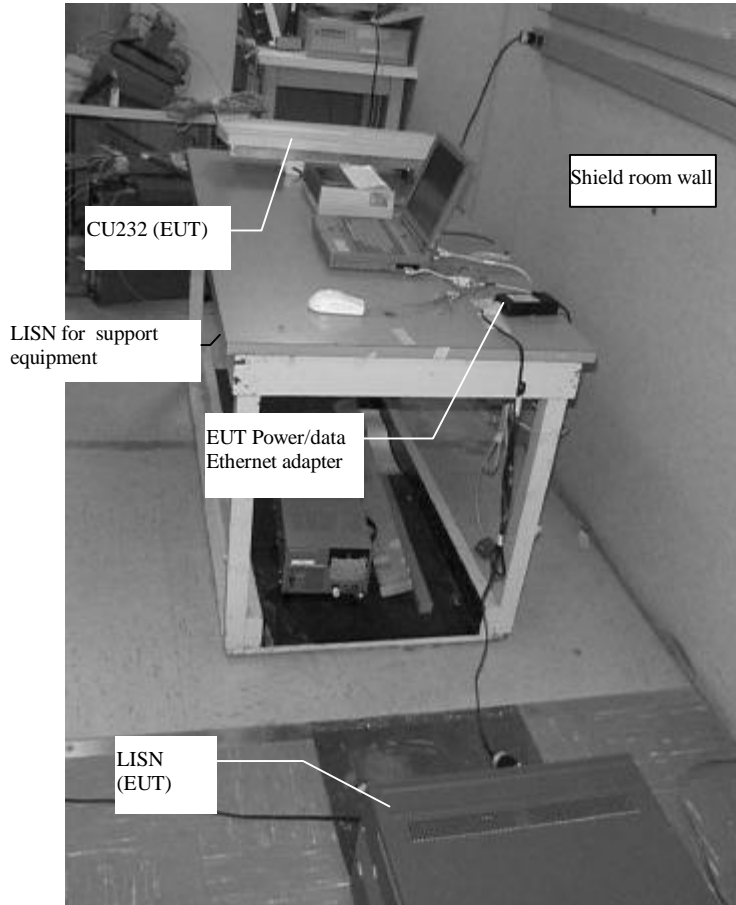


Figure 4

## Appendix C

### Conducted Power-line Emissions Data

Test setup



Test Results

**NEUTRAL**

13. Mar 00 19:46

**Conducted Emissions**

EUT: WIRELESS ACCESS POINT  
Manuf: Lucent  
Op Cond:  
Operator: SEG  
Test Spec: FCC Class B  
Comment: 24 C, 23% RH.  
120 VAC 60 Hz; Power Cable; 16QAM

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.48000	35.7	48.0
0.54000	41.6	48.0
0.72000	29.3	48.0
0.84000	28.9	48.0
0.90000	28.2	48.0
1.14500	27.8	48.0
1.26000	28.6	48.0
1.56500	28.6	48.0
1.98500	29.2	48.0
2.40500	30.3	48.0
2.76500	30.8	48.0
3.25000	30.9	48.0
3.43000	29.8	48.0
4.20500	29.5	48.0
5.47500	28.2	48.0
5.71500	27.8	48.0
7.58000	26.2	48.0
7.88000	25.1	48.0
28.47000	29.0	48.0

\* limit exceeded

**LINE**

13. Mar 00 19:54

**Conducted Emissions**

EUT: WIRELESS ACCESS POINT  
Manuf: Lucent  
Op Cond:  
Operator: SEG  
Test Spec: FCC Class B  
Comment: 24 C, 23% RH.  
120 VAC 60 Hz; Power Cable; 16QAM

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.48000	37.2	48.0
0.54000	41.9	48.0
0.72000	35.0	48.0
0.84000	33.5	48.0
0.96000	33.8	48.0
1.20000	33.8	48.0
1.26000	33.5	48.0
1.50000	33.2	48.0
1.80000	32.3	48.0
2.40000	30.7	48.0
2.75500	31.4	48.0
3.24000	31.7	48.0
3.78000	31.1	48.0
4.02000	31.1	48.0
5.40000	29.4	48.0
5.64000	29.3	48.0
6.96000	28.9	48.0
7.86000	28.1	48.0
29.27000	24.9	48.0

\* limit exceeded



LINE

13. Mar 00 19:16

Conducted Emissions

EUT: WIRELESS ACCESS POINT  
Manuf: Lucent  
Op Cond:  
Operator: SEG  
Test Spec: FCC Class B  
Comment: 24 C, 23% RH.  
120 VAC 60 Hz; Power Cable; QPSK

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.48500	28.3	48.0
0.54500	34.1	48.0
0.96500	27.4	48.0
3.32000	29.8	48.0
3.74500	28.3	48.0
4.71000	27.1	48.0
5.56500	24.5	48.0
6.52000	33.5	48.0
7.24500	41.0	48.0
7.85500	33.7	48.0
9.42000	27.4	48.0
20.20000	24.8	48.0

\* limit exceeded

**NEUTRAL**

13. Mar 00 19:24

**Conducted Emissions**

EUT: WIRELESS ACCESS POINT  
Manuf: Lucent  
Op Cond:  
Operator: SEG  
Test Spec: FCC Class B  
Comment: 24 C, 23% RH.  
120 VAC 60 Hz; Power Cable; QPSK

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.48000	29.1	48.0
0.54000	34.9	48.0
0.72500	25.0	48.0
2.46500	25.5	48.0
2.88500	28.9	48.0
3.42500	28.2	48.0
4.44000	18.9	48.0
5.34000	18.2	48.0
6.55000	35.4	48.0
7.15500	40.8	48.0
7.82500	34.4	48.0
9.32500	26.6	48.0
17.70000	23.3	48.0
20.10000	23.8	48.0

\* limit exceeded

## Appendix D

### Spurious Radiated Emission Data

#### Results

Name of EUT: WaveACCESS CU232 (ISM) (Config: File transfer 16QAM/QPSK)  
 Serial Number: Date of Test: 12 January, 2000  
 Temperature: 21°C Relative Humidity: 28%  
 Product Class: B Test Facility: Open Area Test Site  
 Test Specification: 47 CFR, Part 15.247 Measurement Distance: 3 meters  
 File Number: 99092 (AP-ISM) Test Engineer: W. Anderson

Channel Freq	EUT Azimuth (Degrees)	Antenna Height(cm)	Antenna Polarity (H/V)	Meter Reading (average dBuV)	Meter Reading (peak dBuV)	Cable Loss (dB)	Antenna Factor (dB/m)	Average Field Intensity (dBuV/m)	Peak Field Intensity (dBuV/m)	Signal Type	Av Limit (dBuV/m) 3 meters
<b>2402.0</b>	0	160	v	89	99	N/A	28.5	117.5	127.5	Intentional	
Har #	Freq.(MHz)										
2	4804	310	144	v	8	19	N/A	33.1	41.1	52.1	eut spurious 54
3	7206	0 -360	100-400	v/h	9	19	N/A	35.7	44.7	54.7	Ambient
4	9608	0 -360	100-400	v/h	11	21	N/A	37.2	48.2	58.2	Ambient
5	12010	0 -360	100-400	v/h	9	22	N/A	39.5	48.5	61.5	Ambient 54
6	14412	0 -360	100-400	v/h	7	20	N/A	38.7	45.7	58.7	Ambient
7	16814	0 -360	100-400	v/h	8	18	N/A	39.6	47.6	57.6	Ambient
8	19216	0 -360	100-400	v/h	2	14	4	40.3	46.3	54.3	Ambient 54
9	21618	0 -360	100-400	v/h	2	14	4.1	40.5	46.6	54.5	Ambient
10	24020	0 -360	100-400	v/h	2	14	4.4	40.5	46.9	54.5	Ambient
<b>2440.0</b>	0	160	v	88	98	N/A	28.5	121.3	122.9	Intentional	
2	4880.0	0 -360	100-400	v/h	8	20	N/A	33.4	41.4	53.4	Ambient
3	7320	0 -360	100-400	v/h	9	20	N/A	35.8	44.8	55.8	Ambient 54
4	9760.0	0 -360	100-400	v/h	13	22	N/A	37.5	50.5	59.5	Ambient
5	12200	0 -360	100-400	v/h	11	20	N/A	39.5	50.5	59.5	Ambient 54

6	14640.0	0 -360	100-400	v/h	7	18	N/A	39.3	46.3	57.3	Ambient	
7	17080.0	0 -360	100-400	v/h	8	18	N/A	40.5	48.5	58.5	Ambient	
8	19520	0 -360	100-400	v/h	2	14	4	40.3	46.3	54.3	Ambient	54
9	21960.0	0 -360	100-400	v/h	2	14	4.1	40.5	46.6	54.5	Ambient	
10	24400.0	0 -360	100-400	v/h	2	14	4.4	40.5	46.9	54.5	Ambient	
<b>2478.0</b>		0	160	v	88	98	N/A	28.6	119.6	120.7	Intentional	
2	4956	0 -360	100-400	v/h	7	18	N/A	33.8	40.8	51.8	Ambient	54
3	7434	0 -360	100-400	v/h	7	18	N/A	35.9	42.9	53.9	Ambient	54
4	9912.000	0 -360	100-400	v/h	13	22	N/A	37.7	50.7	59.7	Ambient	
5	12390	0 -360	100-400	v/h	10	21	N/A	39.5	49.5	60.5	Ambient	54
6	14868.000	0 -360	100-400	h/v	5	17	N/A	39.9	44.9	56.9	Ambient	
7	17346.000	0 -360	100-400	h/v	6	17	N/A	42.3	48.3	59.3	Ambient	
8	19824	0 -360	100-400	h/v	2	14	4	40.3	46.3	54.3	Ambient	54
9	22302.000	0 -360	100-400	h/v	2	14	4.2	40.5	46.7	54.5	Ambient	
10	24780.000	0 -360	100-400	h/v	2	14	4.4	40.5	46.9	54.5	Ambient	

Notes: Highlighted rows indicate emission in the restricted bands.

## Appendix E

### ***Radiated Emissions Tests (30 – 1000 MHz)***

Radiated emission scans were performed on the Lucent Technologies **WaveACCESS NET 2400 CU232** in order to identify and measure emanations resulting both from the system integrated digital device as a unintentional radiator (subpart B) and from the integrated radio-frequency device (subpart C). The 30 to 1000 MHz frequency range was investigated. Measurements above 1000 MHz are outlined in Appendix D.

### ***Test Results***

Test results show that the **WaveACCESS NET 2400 CU232** is compliant with the requirements of 15.109 and 15.209.

Test results are shown in Table 4. All of the emissions detected in the 30 – 1000 MHz range were identified as sourced from the EUT integrated unintentional radiator device and therefor are measured in a QP detector. A peak detector would be used to measure identified spurious products of the integrated intentional radiator device.

### Highest clock frequency

The highest clock frequency used in the digital device is 80 MHz. The lowest frequency generated for use in the radio frequency device is 32 MHz.

### Peripherals and support equipment

Component	MFG/Serial	FCC ID
Laptop Personal computer	Toshiba model PRS401U; SN:29430969R	FCC DoC
Mouse	Microsoft PS/2; SN5855023	C3KZB2
Printer	HP 2225C+	DS16XU2225
Power supply (Combined power/data Ethernet interface box)	Telkoor model LSE9911A24; SN 99	N/A
PCMCIA LAN 10BASE-T card	3COM 3CCFE574BT	DoC

### Cables

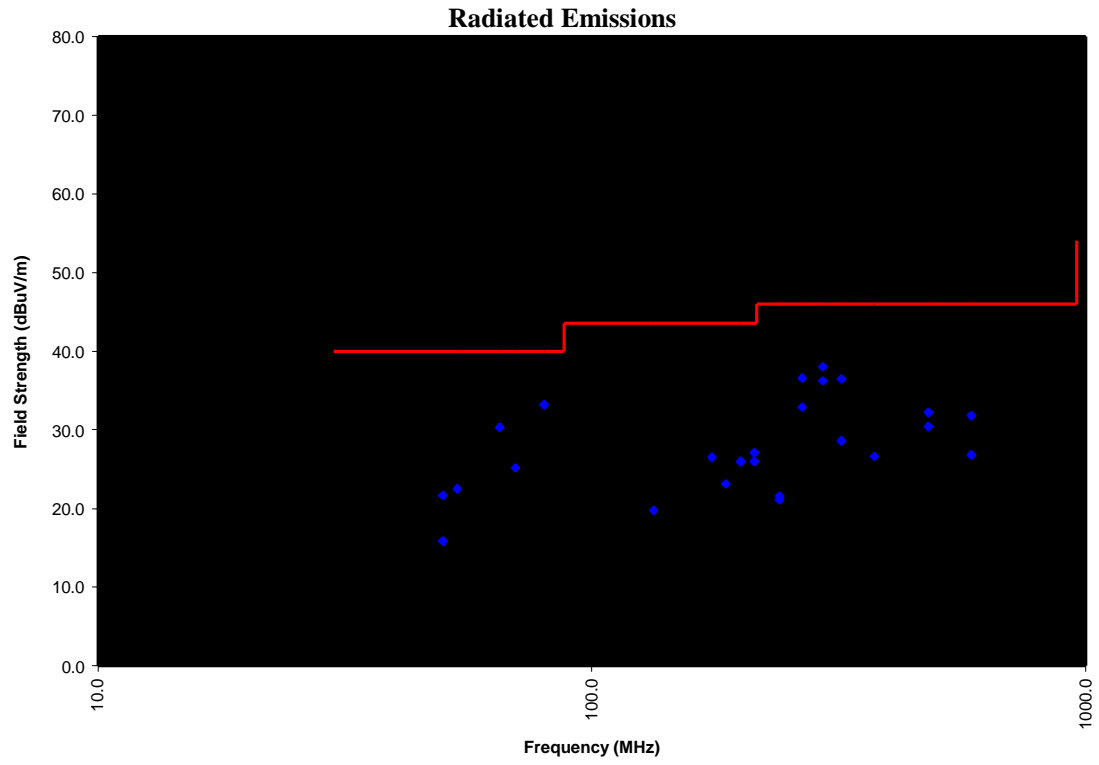
Cable type	Shielded – Y/N	Length
Printer cable	Y (metal hood)	1 meter
Power/data interface cable (Madison cable 1418)	Y (plastic hood)	7.4 meter
10BaseT	N	1.5 meter
Power cables	N	1 meter

Results

Name of EUT: WaveACCESS CU232 (ISM) (Config: File transfer 16QAM/QPSK)  
 Serial Number: Date of Test: 1 March, 2000  
 Temperature: 21°C Relative Humidity: 28%  
 Product Class: B Test Facility: Open Area Test Site  
 Test Specification: 47 CFR, Part 15.247 Measurement Distance: 3 meters  
 File Number: 99092 (AP-ISM) Test Engineer: W. Anderson  
 Detector: Peak and QP

Freq. (MHz)	EUT Azimuth (Degrees)	Antenna Height (cm)	Antenna Polarity (H/V)	Meter Reading (dBuV) QP	Cable Loss (dB)	Antenna Factor (dB/m)	Ambient Level (dBuV/m)	Field Intensity (dBuV/m) QP	Spec Limit (dBuV/m) QP	Margin (dB)
50.00	83.5	219	H	11.8	1.0	3.1	*	15.9	40.0	24.1
50.00	358.6	100	V	17.6	1.0	3.1	*	21.7	40.0	18.3
53.35	309.5	100	V	18.2	1.0	3.3	*	22.5	40.0	17.5
65.00	182.1	100	V	25.1	1.1	4.1	*	30.3	40.0	9.7
70.00	221.6	100	V	19.7	1.2	4.4	*	25.2	40.0	14.8
80.00	309.5	100	V	27.0	1.2	5.0	11.2	33.2	40.0	6.8
133.33	107.1	245	H	9.9	1.6	8.3	*	19.8	43.5	23.7
175.00	332.2	114	H	13.7	1.9	10.9	*	26.5	43.5	17.0
186.67	131.7	190	H	9.5	1.9	11.7	*	23.1	43.5	20.4
200.00	321.9	175	H	11.5	2.0	12.5	*	26.0	43.5	17.5
200.00	321.9	175	H	11.4	2.0	12.5	*	25.9	43.5	17.6
213.33	198.8	193	V	12.9	2.1	11.0	*	26.0	43.5	17.5
213.33	1.3	146	H	14.0	2.1	11.0	*	27.1	43.5	16.4
240.00	38.0	132	H	7.9	2.2	11.0	*	21.1	46.0	24.9
240.00	46.9	128	V	8.4	2.2	11.0	*	21.6	46.0	24.4
266.67	136.9	128	V	18.1	2.4	12.5	*	32.9	46.0	13.1
266.67	63.1	100	H	21.8	2.4	12.5	*	36.6	46.0	9.4
293.34	189.7	106	H	19.9	2.5	13.8	*	36.2	46.0	9.8
293.34	19.8	100	V	21.7	2.5	13.8	*	38.0	46.0	8.0
320.00	125.7	100	H	19.6	2.6	14.3	*	36.5	46.0	9.5
320.00	145.8	100	V	11.7	2.6	14.3	*	28.6	46.0	17.4
373.34	46.9	128	V	9.1	2.9	14.7	*	26.6	46.0	19.4
480.00	261.1	100	V	11.7	3.3	17.2	*	32.2	46.0	13.8
480.00	15.5	100	H	9.9	3.3	17.2	*	30.4	46.0	15.6
586.67	15.5	100	H	4.7	3.7	18.4	*	26.8	46.0	19.2
586.67	347.5	126	H	9.7	3.7	18.4	*	31.8	46.0	14.2

Table 4



**This sheet discusses any special test procedures or changes made to EUT.**

(X) There were no special test considerations required.

() The following special considerations occurred during test.

**GENERAL NOTES:**

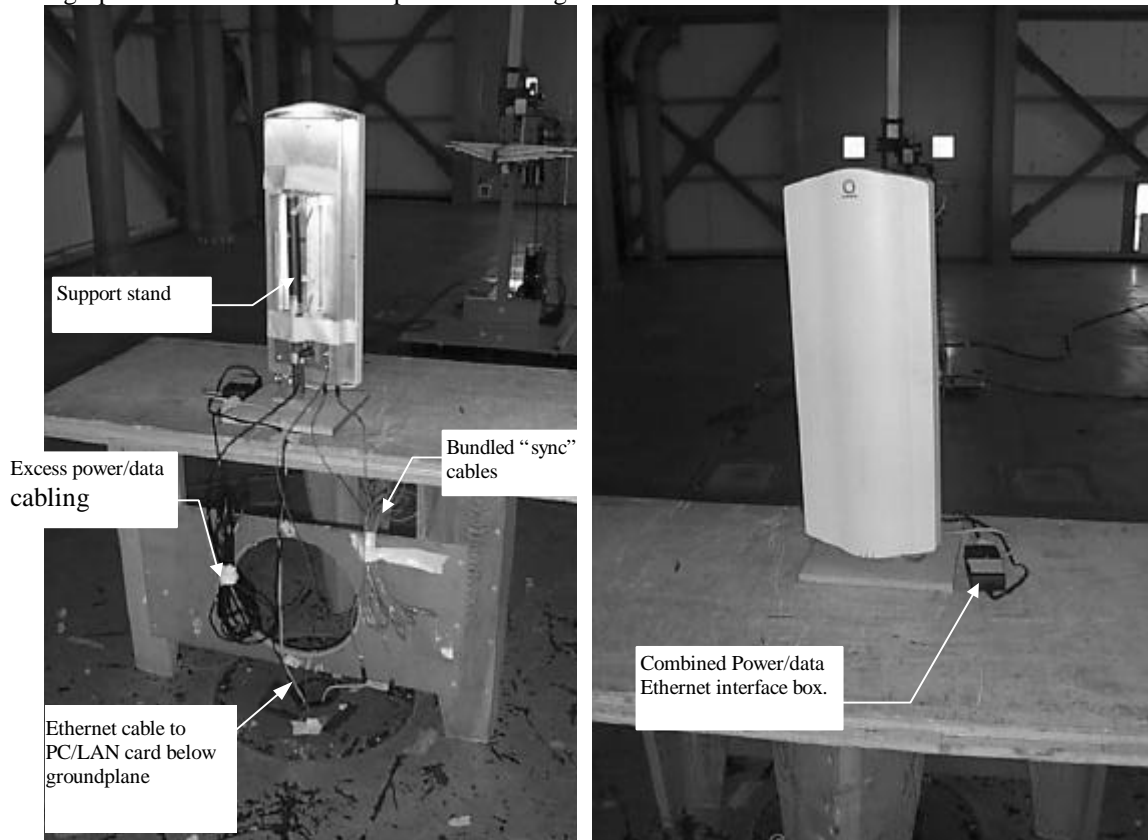
1. Other emissions may have been observed but were not considered significant, therefore not recorded.
2. A complete scan was made with the antenna oriented horizontally and again vertically.
3. Unless otherwise noted, emissions were measured with the antenna positioned at the specified horizontal distance from the center of turntable as shown on the radiated final measurement data sheets.
4. (\*) indicates ambient not measured. Ambient level measured only for emission frequency producing least margin.

**SPECIFIC NOTES:**

The following changes were implemented as a result of radiated and conducted emission testing and must be incorporated into the production units to insure compliance: **None required**

Test setup

Photographs of the radiated test setup are shown Figure 5.



Rear view of EUT as seen looking at test measurement antenna with turntable at 180°.

Front view of EUT as seen looking toward measurement antenna. Turntable azimuth at 0D

**Figure 5**



## Appendix F

### Test Equipment

Manufacturer	Model Number	Serial Number	Description	Last Calibrated mm/dd/yy	Cal Cycle Month
Eaton	96002	2436	Biconical Antenna	08/31/99	12
Electro-Metrics	EM- 2135/EMC-60	44174	Test Receiver	11/19/99	12
EMCO	3146	4164	Log-Periodic Antenna	7/23/99	12
EMCO	3146	2082	Log-Periodic Antenna	3/19/99	12
EMCO	3115	9006-3460	Double Ridged Horn 1-18 Ghz	5/27/99	12
Rohde & Schwarz	ESVP	879529/047	Test Receiver 20 - 1300MHz	10/26/99	12
Rohde & Schwarz	EPM	883613/014	Panorama Monitor	N/A	N/A
Hewlett Packard	8563E	3728A07536	Spectrum Analyzer 30 Hz - 26.5 GHz	5/27.99	12
Rohde & Schwarz	FSEK	DE1239	Spectrum Analyzer 20 Hz - 40 GHz	6/30/99	12
Rohde & Schwarz	ESH2-Z5	881493/027	LISN	9/15/1999	12
Rohde & Schwarz	ESHS-30	832354/009	Test Receiver ".09 - 30MHz"	6/9/1999	12