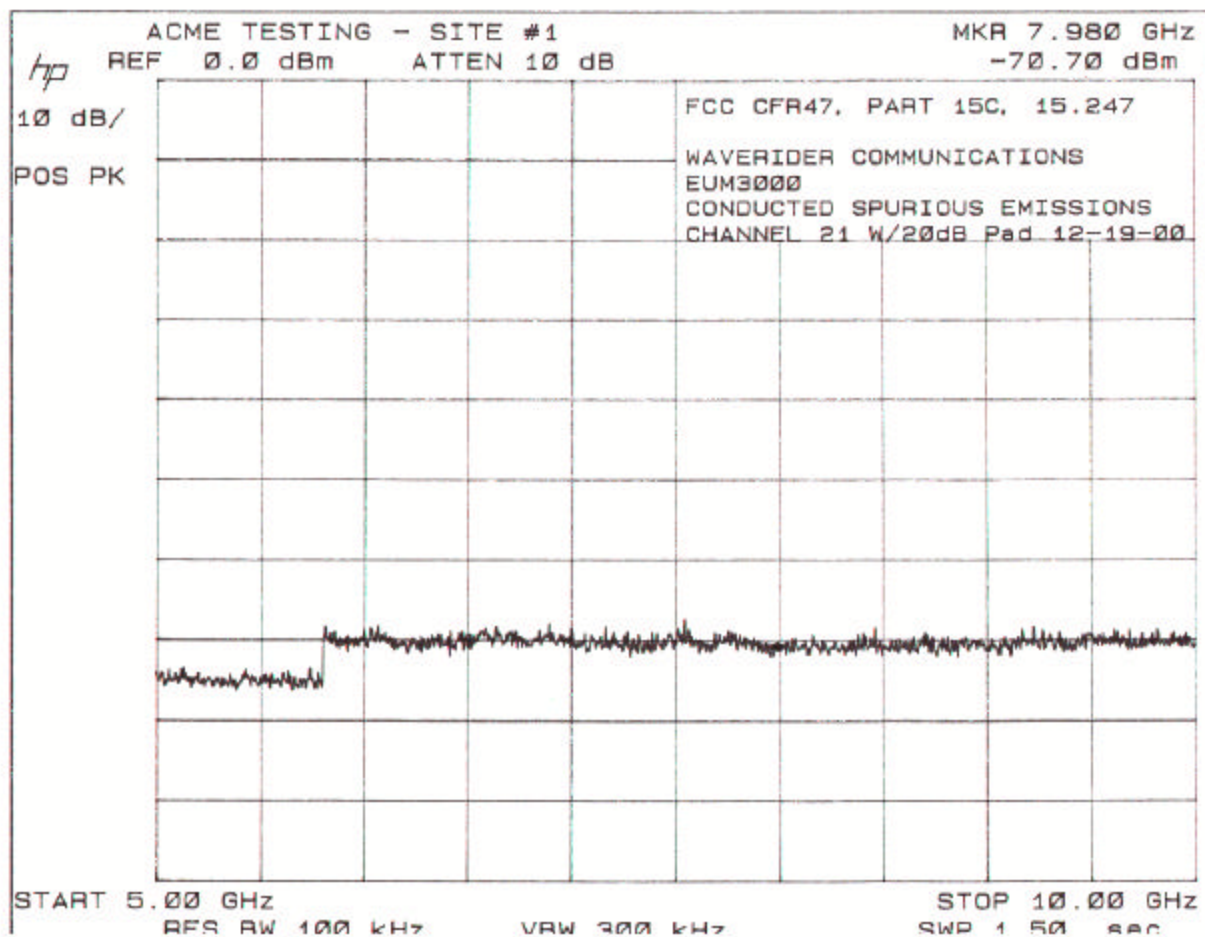
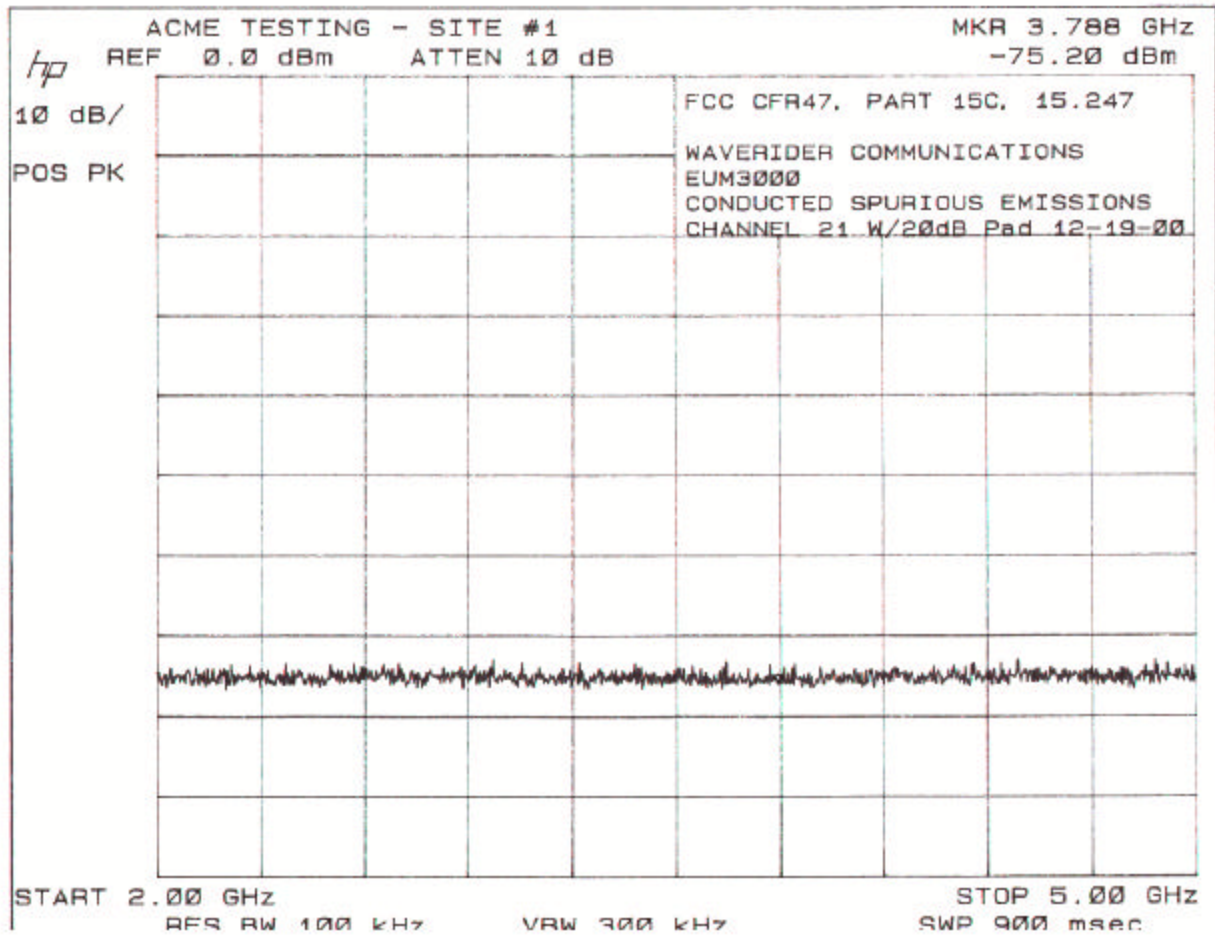
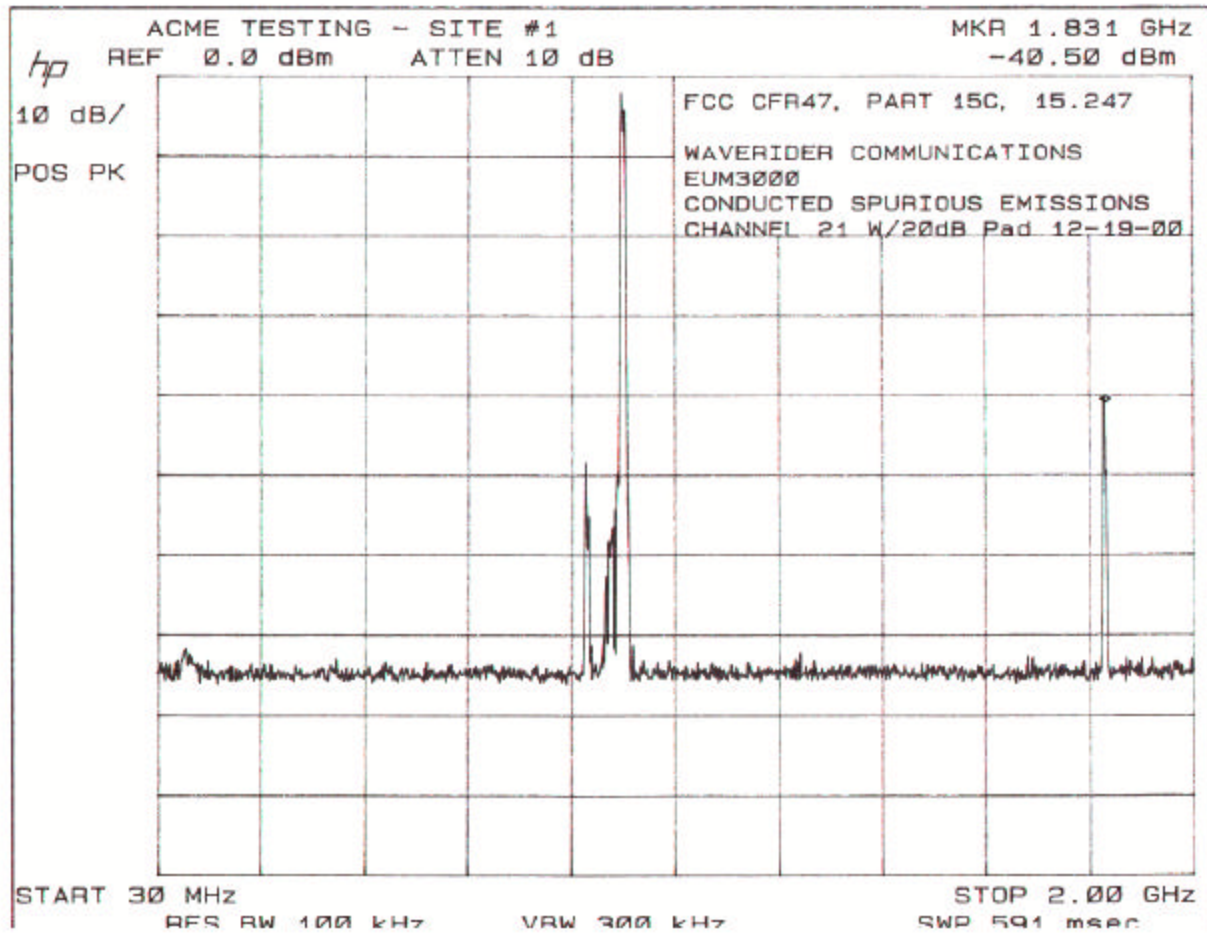








11. Radiated Spurious Emissions

11.1 Regulation

15.247 I In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

11.2 Test Equipment

- ⇒ Spectrum Analyzer (yellow): Hewlett-Packard 8566B, Serial Number 2403A06519, Calibrated: 20 November 2000, Calibration due Date: 20 November 2001
- ⇒ RF Preselector (yellow): Hewlett-Packard 85685A, Serial Number 2648A00392, Calibrated: 20 November 2000, Calibration due Date: 20 November 2001
- ⇒ Quasi Peak Adapter (yellow): Hewlett-Packard 85650A, Serial Number 2521A-00689, Calibrated: 20 November 2000, Calibration due Date: 20 November 2001
- ⇒ Line Impedance Stabilization Network: EMCO 3825/2, Serial Number 9002-1601, Calibrated: 2 January 2000, Calibration due Date: 2 January 2001
- ⇒ Broadband Biconical Antenna (red) (20 MHz to 200 MHz): EMCO 3110, Serial Number 1115, Calibrated: 26 December 2000, Calibration due Date: 26 December 2001
- ⇒ Broadband Log Periodic Antenna (red) (200 MHz to 1000 MHz): EMCO 3146, Serial Number 2853, 26 December 2000, Calibration due Date: 26 December 2001
- ⇒ EUT Turntable Position Controller: Rothenbuhler Engineering, Custom, No Calibration Required
- ⇒ Antenna Mast: Compliance Design, model M100/200, No Calibration Required
- ⇒ Pyramidal Horn Antenna: EMCO 3160-10, Serial Number 9708-1055, Calibration Not Required
- ⇒ 2 GHz to 10 GHz Low Noise Preamplifier: Milliwave 593-2898, Serial Number 2494, Calibrated: 5 May 2000, Calibration Due Date: 5 May 2001
- ⇒ Double Ridge Guide Horn Antenna: EMCO 3115, Serial Number 9807-5534, Calibrated: 30 December 2000, Calibration due Date: 30 December 2001
- ⇒ 8 – 22GHz Preamplifier: MITEQ AFS4-35LN, Serial Number 484280, Calibrated: 3 January 2000,

Calibration Due Date: 3 January 2001

11.3 Test Procedures

For tabletop equipment, the EUT is placed on a 1 meter by 1.5 meters wide and 0.8 meter high nonconductive table that sits on a flush mounted metal turntable. Floor standing equipment is placed directly on the flush mounted metal turntable. The EUT is connected to its associated peripherals with any excess I/O cabling bundled to approximately 1 meter.

Preview tests are performed to determine the “worst case” mode of operation. With the EUT operating in “worst case” mode, emissions from the unit are maximized by adjusting the polarization and height of the receive antenna and rotating the EUT on the turntable. Manipulating the system cables also maximizes EUT emissions.

Radiated Emissions Test Characteristics

Frequency range	30 MHz – 10000 MHz 15.205 RESTRICTED BANDS ONLY
Test distance	3 m
Test instrumentation resolution bandwidth	120 kHz (30 MHz – 1000 MHz) 1 MHz (1000 MHz – 10,000 MHz)
Receive antenna scan height	1 m – 4 m
Receive antenna polarization	Vertical/Horizontal

11.4 Test Results

With PATCH Antenna

Emission Number	Frequency (MHz)	EUT Emission (dBuV/m)	Spec limit (dBuV/m)	Delta to the limit dB	Detector Function (Peak, Quasi-Peak)	Polarity (Vertical/Horizontal)	Antenna Height (cm)	Table Azimuth (deg.)	Comments
1	2659.8	55.3	74	-18.7	PK	H	170	70	CHANNEL 11
2	2714.74	44.5	74	-29.5	PK	H	215	190	CHANNEL 1
3	2714.82	44.3	74	-29.7	PK	V	100	190	CHANNEL 1
4	2744.82	49.2	74	-24.8	PK	H	160	140	CHANNEL 11
5	2744.9	47.6	74	-26.4	PK	V	150	20	CHANNEL 11
6	2774.86	48.8	74	-25.2	PK	V	120	145	CHANNEL 21
7	2774.88	53.3	74	-20.7	PK	H	190	150	CHANNEL 21
8	2775.94	45.5	54	-8.5	AVG	H	190	150	CHANNEL 21
9	3619.74	54.4	74	-19.6	PK	H	170	359	CHANNEL 1
10	3619.82	54	74	-20	PK	V	115	0	CHANNEL 1
11	3619.87	45.7	54	-8.3	AVG	H	170	359	CHANNEL 1
12	3619.95	46.9	54	-7.1	AVG	V	115	0	CHANNEL 1
13	3659.8	54.4	74	-19.6	PK	V	150	2	CHANNEL 11

With OMNI DIRECTIONAL Antenna

Emission Number	Frequency (MHz)	EUT Emission (dBuV/m)	Spec Limit (dBuV/m)	Delta to the limit dB	Detector Function (Peak, Quasi-Peak)	Polarity (Vertical/Horizontal)	Antenna Height (cm)	Table Azimuth (deg.)	Comments
1	2714.96	42.9	74	-31.1	PK	V	145	20	CHANNEL 1
2	2714.98	45.7	74	-28.3	PK	H	195	150	CHANNEL 1
3	2744.86	47.9	74	-26.1	PK	V	100	160	CHANNEL 11
4	2745.00	47.7	74	-26.3	PK	H	175	145	CHANNEL 11
5	2774.64	49.6	74	-24.4	PK	V	270	170	CHANNEL 21
6	2774.86	50.9	74	-23.1	PK	H	185	145	CHANNEL 21
7	3619.68	49.2	74	-24.8	PK	V	180	359	CHANNEL 1
8	3619.94	50.6	74	-23.4	PK	H	200	70	CHANNEL 1
9	3659.82	54.6	74	-19.4	PK	V	145	0	CHANNEL 11
10	3659.82	58.7	74	-15.3	PK	H	195	90	CHANNEL 11
11	3659.84	50.6	54	-3.4	AVG	H	195	90	CHANNEL 11
12	3659.96	49.9	54	-4.1	AVG	V	145	0	CHANNEL 11
13	3699.76	60.3	74	-13.7	PK	V	115	180	CHANNEL 21
14	3699.76	61.8	74	-12.2	PK	H	200	100	CHANNEL 21
15	3699.86	50.7	54	-3.3	AVG	V	115	180	CHANNEL 21
16	3700.00	52.0	54	-2.0	AVG	H	200	100	CHANNEL 21
17	4524.96	43.7	74	-30.3	PK	H	155	60	CHANNEL 1
18	4525.02	41.8	74	-32.2	PK	V	100	359	CHANNEL 1
19	4574.56	46.1	74	-27.9	PK	V	120	0	CHANNEL 11
20	4574.94	48.6	74	-25.4	PK	H	155	110	CHANNEL 11
21	4624.66	49.0	74	-25.0	PK	H	200	180	CHANNEL 21
22	4625.26	46.2	74	-27.8	PK	V	130	355	CHANNEL 21







12. Peak Power Spectral Density

12.1 Regulation

For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

12.2 Test Equipment

⇒ Spectrum Analyzer (yellow): Hewlett-Packard 8566B, Serial Number 2403A06519, Calibrated: 20 November 2000, Calibration due Date: 20 November 2001

⇒ RF Preselector (yellow): Hewlett-Packard 85685A, Serial Number 2648A00392, Calibrated: 20 November 2000, Calibration due Date: 20 November 2001

12.3 Test Procedures

The RF output of the EUT is connected to the RF input port of the RF preselector through a 20 dB pad. The following measurements were made with a RBW = 3 kHz, VBW = 10 kHz and Sweep Time = 667 seconds.

12.4 Test Results

Maximum peak power spectral density of channel 1 is 7.8 dBm.

Maximum peak power spectral density of channel 11 is 7.7 dBm.

Maximum peak power spectral density of channel 21 is 8 dBm.

12.5 Graphical Data

