

6. Radiated Emissions Tests

Test Requirement: FCC Rules: 47CFR Part 15, Subpart C, 15.249(a), and 15.205(a) and (b)

Test Procedure: ANSI C63.4 - 1992

Date of Test: 23 & 24 December 2002

Laboratory: Test Site #2 (Acme, WA)

6.1 Test Equipment

- ⇒ Spectrum Analyzer (blue): Hewlett-Packard 8566B, Serial Number 2410A00168, Calibrated: 17 April 2002, Calibration Due Date: 17 April 2003
- ⇒ RF Preselector (blue): Hewlett-Packard 85685A, Serial Number 2648A00519, Calibrated: 17 April 2002, Calibration Due Date: 17 April 2003
- ⇒ Quasi Peak Adapter (blue): Hewlett-Packard 85650A, Serial Number 2043A00327, Calibrated: 17 April 2002, Calibration Due Date: 17 April 2003
- ⇒ 1 GHz to 26 GHz Preamplifier: Hewlett Packard HP8449B/H02, Serial Number 2933A00198, Calibrated: 03 May 2001, Calibration Due Date: 03 May 2003
- ⇒ Loop Antenna (10 kHz – 30 MHz): EMCO 6502, Serial Number 2178 Calibrated: 26 December 2001, Calibration Due Date: 26 December 2002
- ⇒ Biconical Antenna (blue) (20 MHz to 200 MHz): EMCO 3110, Serial Number 1180, Calibrated: 14 June 2002, Calibration Due Date: 14 June 2003
- ⇒ Log Periodic Antenna (red) (200 MHz to 1000 MHz): EMCO 3146, Serial Number 9008-2853, Calibrated: 05 August 2002, Calibration Due Date: 05 August 2003
- ⇒ Double Ridge Guide Horn Antenna: (1 GHz to 18 GHz): EMCO 3115, Serial Number 9807-5534, Calibrated: 16 September 2002, Calibration Due Date: 16 September 2003
- ⇒ Turntable: Rothenbuhler Engineering, Custom, No Calibration Required
- ⇒ Turntable Position Controller: EMCO 1051, Serial Number 9002-1457, No Calibration Required
- ⇒ Antenna Mast and Controller: EMCO 1061, Serial Number 9003-1440, No Calibration Required
- ⇒ Open Area Test Site: Acme Testing Co., Test Site Number 2, Calibrated: 22 June 2002, Calibration Due Date: 22 June 2003

6.2 Regulations:

6.2.1 Regulation (47 CFR Part 15 Subpart C, Section 15.249):

- a. The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902 - 928 MHz	50	500
2400 – 2483.5 MHz	50	500
5725 – 5875 MHz	50	500
24.0 – 24.25 GHz	250	2500

- b. Field strength limits are specified at a distance of 3 meters.
- c. Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.
- d. As shown in Section 15.35 (b), for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.
- e. Parties considering the manufacture, importation, marketing or operation of equipment under this section should also note the requirement in Section 15.37 (d).

6.2.2 Regulation (47 CFR Part 15 Subpart C, Section 15.205):**Section 15.205 Restricted Bands of Operation**

- (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.39675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(¹)
13.26 - 13.41			

- (b) Except as provided in paragraph (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209 shall be demonstrated using measurements instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.
- (c) Except as provided in paragraphs (d) and (e), regardless of the field strength limits specified elsewhere in this Subpart, provisions of this Section apply to emissions from any intentional radiator.
- (d) The following devices are exempt from the requirements of this Section:
1. Swept frequency field disturbance sensors operating between 1.705 and 37 MHz provided their emissions only sweep through the band listed in paragraph (a), the sweep is never stopped with the fundamental emission within the bands listed in paragraph (a), and the fundamental emission is outside of the bands listed in paragraph (a) more than 99% of the time the device is actively transmitting, without compensation for duty cycle.
 2. Transmitters used to detect buried electronic markers at 101.4 kHz which are employed by telephone companies.
 3. Cable locating equipment operated pursuant to Section 15.213.
 4. Any equipment operated under the provisions of Section 15.253 or Section 15.255 of this Part.
 5. Biomedical telemetry devices operation under the provisions of Section 15.242 of this part are not subject to the restricted band 608-614 MHz but are subject to compliance with the other restricted bands.
 6. Transmitters operating under the provisions of Subpart D or F of this Part.
- (e) Harmonic emissions appearing in the restricted bands above 17.7 GHz from field disturbance sensors operating under provisions of Section 15.245 shall not exceed the limits specified in Section 15.245(b).

6.3 Purpose

The purpose of this test was to evaluate the radiated electromagnetic interference characteristics of the EUT.

6.4 Test Procedures

The EUT was placed on a 1 meter long by 1.5 meters wide by 0.8 meter high nonconductive table that was placed directly onto a flush mounted turn table. The EUT was connected to its associated peripherals with any excess I/O cabling bundled to approximately 1 meter.

Prescan tests were performed to determine the “worst-case” mode of operation. With the EUT operating in “worst-case” mode, emissions from the unit were maximized by manipulating the cables, and by adjusting the polarization and height of the Detection System’s receive antenna and rotating the EUT on the turntable.

Note: During testing, the EUT’s Antennas were oriented in accordance with the manufacturer’s installation requirement.

Radiated Emissions Test Characteristics

Frequency range	14 MHz – 10,000 GHz
Test distance	3 m
Test instrumentation resolution bandwidth	9 kHz (150 kHz-30 MHz) 120 kHz (30 MHz – 1000 MHz) 1 MHz (1000 MHz –10 GHz)
Receive antenna scan height	1 m - 4 m
Receive antenna polarization	Vertical/Horizontal

6.5 Test Results

FCC RULES: 47CFR PART 15 SUBPART C SECTION 15.249(a) 60 Hz/120 VAC

**FUNDAMENTAL EMISSIONS,
Wake Up Antenna (#5) and Antenna #1****TX, Tag ID Only Mode**ACME TESTING - SITE #2 24 Dec 1902 09:50:50
ALL SUSPECTS

	FREQ	BND	PEAK	ANT	AZ	COMMENTS
No	MHz		LIM ABS P cm deg			
* 1	916.581	3	-1 92.8	H234	1	ANTENNA 1
* 2	916.589	3	1 94.6	V121	342	ANTENNA 1
* 3	916.742	3	0 94.3	H264	9	WAKEUP ANTENNA
* 4	916.754	3	2 95.9	V135	8	WAKEUP ANTENNA

* denotes a Final List signal

PRODUCT EMISSIONSACME TESTING - SITE #2
FCC 47CFR PART 15C, 15.249 Data File: i-PORT III,FUND TAG ID, 12-23-02

	EMISSION	SPEC	MEASUREMENTS	SITE	CORR	
No	FREQUENCY	LIMIT	ABS dLIM MODE POL HGT AZM	FACTOR	COMMENTS	
	MHz	dBuV/m	dB	cm deg	dB	
1	916.581	94.0	90.8 -3.2	QP H 234 1	29.5	ANTENNA 1
2	916.589	94.0	93.2 -0.9	QP V 121 342	29.5	ANTENNA 1
3	916.742	94.0	92.1 -1.9	QP H 264 9	29.5	WAKEUP ANTENNA
4	916.754	94.0	93.8 -0.2	QP V 135 8	29.5	WAKEUP ANTENNA

The EUT complied with the 94.0 dBµ V/m @ 3 Metre (i.e. 50 millivolt/Metre @ 3 Metre) Radiated Emission Limit specified in 47CFR Part 15 Subpart C Section 15.249(a) for fundamental emissions in the 902 – 928 MHz Band.

FCC RULES: 47CFR PART 15 SUBPART C SECTION 15.249(a) 60 Hz/120 VAC

**FUNDAMENTAL EMISSIONS,
Wake Up Antenna (#5) and Antenna #1****TX, Tag ID with Data Mode**ACME TESTING - SITE #2 24 Dec 1902 09:52:31
ALL SUSPECTS

No	FREQ MHz	BND	PEAK LIM ABS	ANT P cm	AZ deg	COMMENTS
* 1	916.585	3	-1 92.8	H242	4	ANTENNA 1
* 2	916.589	3	1 94.6	V120	341	ANTENNA 1
* 3	916.741	3	1 94.6	H253	14	WAKEUP ANTENNA
* 4	916.745	3	2 95.7	V133	7	WAKEUP ANTENNA

* denotes a Final List signal

PRODUCT EMISSIONSACME TESTING - SITE #2
FCC 47CFR PART 15C, 15.249 Data File: i-PORT III,FUND,ID W/DAT,12-23-02

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	COMMENTS
1	916.585	94.0	91.1 -2.9	QP	H	242	4	29.5	ANTENNA 1
2	916.589	94.0	93.2 -0.8	QP	V	120	341	29.5	ANTENNA 1
3	916.741	94.0	92.5 -1.5	QP	H	253	14	29.5	WAKEUP ANTENNA
4	916.745	94.0	93.7 -0.4	QP	V	133	7	29.5	WAKEUP ANTENNA

The EUT complied with the 94.0 dBµ V/m @ 3 Metre (i.e. 50 millivolt/Metre @ 3 Metre) Radiated Emission Limit specified in 47CFR Part 15 Subpart C Section 15.249(a) for fundamental emissions in the 902 – 928 MHz Band.

FCC RULES: 47CFR PART 15 SUBPART C SECTION 15.249(a)
(30 MHz – 10000 MHz) 60 Hz/120 VAC

HARMONICS

Wakeup Antenna (#5), TX Tag ID Only Mode

PRODUCT EMISSIONS										
ACME TESTING - SITE #2			Data File: HARM,WAKEUP,ID ONLY,							12-24-02
FCC 47CFR PART 15C, 15.249										
No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS dLIM dB		MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	COMMENTS
1	1833.16	54.0	40.2	-13.8	PK	H	100	1	37.3	WAKEUP ANTENNA
2	1833.17	54.0	40.3	-13.7	PK	V	100	1	37.3	WAKEUP ANTENNA
3	2749.42	54.0	30.5	-23.5	PK	V	137	357	-2.4	WAKEUP ANTENNA
4	2749.48	54.0	31.3	-22.7	PK	H	105	17	-2.4	WAKEUP ANTENNA
5	3666.32	54.0	32.5	-21.5	PK	H	100	1	1.3	WAKEUP ANTENNA
6	3666.33	54.0	32.8	-21.2	PK	V	100	1	1.3	WAKEUP ANTENNA
7	5499.48	54.0	35.3	-18.7	PK	H	100	1	5.2	WAKEUP ANTENNA
8	5499.49	54.0	35.6	-18.4	PK	V	100	1	5.2	WAKEUP ANTENNA
9	6416.05	54.0	37.3	-16.7	PK	H	100	1	6.	WAKEUP ANTENNA
10	6416.06	54.0	38.0	-16.0	PK	V	100	1	6.	WAKEUP ANTENNA
11	7332.64	54.0	39.1	-14.9	PK	H	100	1	7.4	WAKEUP ANTENNA
12	7332.65	54.0	39.2	-14.8	PK	V	100	1	7.4	WAKEUP ANTENNA
13	8249.22	54.0	40.8	-13.2	PK	H	100	1	8.5	WAKEUP ANTENNA
14	8249.23	54.0	41.0	-13.0	PK	V	100	1	8.5	WAKEUP ANTENNA
15	9165.80	54.0	41.4	-12.6	PK	H	100	1	11.	WAKEUP ANTENNA
16	9165.81	54.0	42.3	-11.7	PK	V	100	1	11.	WAKEUP ANTENNA

The EUT complied with the 54.0 dBu V/m @ 3 Metre (i.e. 500 millivolt/Metre @ 3 Metre) Radiated Emission Limit specified in 47CFR Part 15 Subpart C Section 15.249(a) for Harmonic emissions from transmitters with fundamental emission in the 902 – 928 MHz Band.

FCC RULES: 47CFR PART 15 SUBPART C SECTION 15.249(a)
(1833 MHz – 10,000 MHz) 60 Hz/120 VAC

HARMONICS

Wakeup Antenna (#5), TX Tag ID with Data Mode

PRODUCT EMISSIONS										
ACME TESTING - SITE #2										
FCC 47CFR PART 15C, 15.249										
Data File: HARM,WAKEUP,ID W/DATA. 12-24-02										
No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	COMMENTS	
1	1833.16	54.0	40.4 -13.6	PK	H	100	360	37.3	WAKEUP	ANTENNA
2	1833.17	54.0	40.4 -13.6	PK	V	100	360	37.3	WAKEUP	ANTENNA
3	2749.54	54.0	31.9 -22.1	PK	V	134	360	-2.4	WAKEUP	ANTENNA
4	2749.61	54.0	33.9 -20.1	PK	H	103	17	-2.4	WAKEUP	ANTENNA
5	3666.32	54.0	32.9 -21.1	PK	H	100	360	1.3	WAKEUP	ANTENNA
6	3666.33	54.0	32.8 -21.2	PK	V	100	360	1.3	WAKEUP	ANTENNA
7	5499.48	54.0	34.8 -19.2	PK	H	100	360	5.2	WAKEUP	ANTENNA
8	5499.49	54.0	35.8 -18.2	PK	V	100	360	5.2	WAKEUP	ANTENNA
9	6416.05	54.0	37.9 -16.1	PK	H	100	360	6.	WAKEUP	ANTENNA
10	6416.06	54.0	38.0 -16.0	PK	V	100	360	6.	WAKEUP	ANTENNA
11	7332.64	54.0	38.8 -15.2	PK	H	100	360	7.4	WAKEUP	ANTENNA
12	7332.65	54.0	39.3 -14.7	PK	V	100	360	7.4	WAKEUP	ANTENNA
13	8249.22	54.0	41.0 -13.0	PK	H	100	360	8.5	WAKEUP	ANTENNA
14	8249.23	54.0	41.2 -12.8	PK	V	100	360	8.5	WAKEUP	ANTENNA
15	9165.80	54.0	41.9 -12.1	PK	H	100	360	11.	WAKEUP	ANTENNA
16	9165.81	54.0	42.5 -11.5	PK	V	100	360	11.	WAKEUP	ANTENNA

The EUT complied with the 54.0 dBu V/m @ 3 Metre (i.e. 500 millivolt/Metre @ 3 Metre) Radiated Emission Limit specified in 47CFR Part 15 Subpart C Section 15.249(a) for Harmonic emissions from transmitters with fundamental emission in the 902 – 928 MHz Band.

FCC RULES: 47CFR PART 15 SUBPART C SECTION 15.249(a)
(1833 MHz – 10,000 MHz) 60 Hz/120 VAC

HARMONICS

Antenna #1, TX Tag ID Only Mode

PRODUCT EMISSIONS										
ACME TESTING - SITE #2										
FCC 47CFR PART 15C, 15.249					Data File: i-PORT III,HARM,ANT1,ID, 12-23-02					
No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	COMMENTS	
1	1833.16	54.0	40.2 -13.8	PK	H	100	0	37.3	ANTENNA	1
2	1833.17	54.0	40.1 -13.9	PK	V	100	0	37.3	ANTENNA	1
3	2749.74	54.0	30.7 -23.3	PK	H	100	0	-2.4	ANTENNA	1
4	2749.75	54.0	30.6 -23.4	PK	V	100	0	-2.4	ANTENNA	1
5	3666.32	54.0	32.7 -21.3	PK	H	100	0	1.3	ANTENNA	1
6	3666.33	54.0	32.7 -21.3	PK	V	100	0	1.3	ANTENNA	1
7	5499.48	54.0	34.5 -19.5	PK	H	100	0	5.2	ANTENNA	1
8	5499.49	54.0	35.4 -18.6	PK	V	100	0	5.2	ANTENNA	1
9	6416.05	54.0	37.6 -16.4	PK	H	100	0	6.	ANTENNA	1
10	6416.06	54.0	37.7 -16.3	PK	V	100	0	6.	ANTENNA	1
11	7332.64	54.0	38.8 -15.2	PK	H	100	0	7.4	ANTENNA	1
12	7332.65	54.0	39.1 -14.9	PK	V	100	0	7.4	ANTENNA	1
13	8249.22	54.0	40.7 -13.3	PK	H	100	0	8.5	ANTENNA	1
14	8249.23	54.0	40.8 -13.2	PK	V	100	0	8.5	ANTENNA	1
15	9165.80	54.0	41.9 -12.1	PK	H	100	0	11.	ANTENNA	1
16	9165.81	54.0	42.9 -11.1	PK	V	100	0	11.	ANTENNA	1

The EUT complied with the 54.0 dB μ V/m @ 3 Metre (i.e. 500 millivolt/Metre @ 3 Metre) Radiated Emission Limit specified in 47CFR Part 15 Subpart C Section 15.249(a) for Harmonic emissions from transmitters with fundamental emission in the 902 – 928 MHz Band.

FCC RULES: 47CFR PART 15 SUBPART C SECTION 15.249(a)
(1833 MHz – 10,000 MHz) 60 Hz/120 VAC

HARMONICS

Antenna #1, TX Tag ID with Data Mode

PRODUCT EMISSIONS										
ACME TESTING - SITE #2										
FCC 47CFR PART 15C, 15.249				Data File: HARM,ANT 1,ID W/DATA,					12-23-02	
No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	COMMENTS	
1	1833.16	54.0	40.2 -13.8	PK	H	100	360	37.3	ANTENNA	1
2	1833.17	54.0	40.2 -13.8	PK	V	100	360	37.3	ANTENNA	1
3	2749.74	54.0	31.9 -22.1	PK	H	126	338	-2.4	ANTENNA	1
4	2749.76	54.0	31.3 -22.7	PK	V	113	333	-2.4	ANTENNA	1
5	3666.32	54.0	32.9 -21.1	PK	H	100	360	1.3	ANTENNA	1
6	3666.33	54.0	32.7 -21.3	PK	V	100	360	1.3	ANTENNA	1
7	5499.48	54.0	35.7 -18.3	PK	H	100	360	5.2	ANTENNA	1
8	5499.49	54.0	35.6 -18.4	PK	V	100	360	5.2	ANTENNA	1
9	6416.05	54.0	37.9 -16.1	PK	H	100	360	6.	ANTENNA	1
10	6416.06	54.0	37.8 -16.2	PK	V	100	360	6.	ANTENNA	1
11	7332.64	54.0	38.8 -15.2	PK	H	100	360	7.4	ANTENNA	1
12	7332.65	54.0	39.2 -14.8	PK	V	100	360	7.4	ANTENNA	1
13	8249.22	54.0	40.9 -13.1	PK	H	100	360	8.5	ANTENNA	1
14	8249.23	54.0	40.8 -13.2	PK	V	100	360	8.5	ANTENNA	1
15	9165.80	54.0	41.2 -12.8	PK	H	100	360	11.	ANTENNA	1
16	9165.81	54.0	43.3 -10.7	PK	V	100	360	11.	ANTENNA	1

The EUT complied with the 54.0 dBu V/m @ 3 Metre (i.e. 500 millivolt/Metre @ 3 Metre) Radiated Emission Limit specified in 47CFR Part 15 Subpart C Section 15.249(a) for Harmonic emissions from transmitters with fundamental emission in the 902 – 928 MHz Band.

FCC RULES: 47CFR PART 15 SUBPART C SECTION 15.205
(14 MHz – 10,000 MHz) 60 Hz/120 VAC

SPURIOUS EMISSIONS IN RESTRICTED BANDS

Antenna #1, TX Tag ID with Data Mode*

*Note: Prescans were used to determine that the worst-case Emissions occurred from the use of Antenna #1, in the “TX, Tag ID with Data” Mode.

No	EMISSION	SPEC	MEASUREMENTS			POL	SITE		CORR
	FREQUENCY MHz		ABS	dLIM	MODE		HGT	AZM	
		dBuV/m		dB			cm	deg	dB
1	133.734	43.5	35.4	-8.1	QP	V	107	237	16.3
2	205.743	43.5	37.6	-5.9	QP	H	144	100	14.3
3	212.385	43.5	40.6	-2.9	QP	H	184	123	14.2
4	464.517	46.0	37.9	-8.1	QP	H	100	285	22.3
5	497.709	46.0	38.7	-7.3	QP	H	100	304	23.2
6	564.052	46.0	42.0	-4.0	QP	H	185	153	24.5

Note 1: Only the 6 (six) highest amplitude radiated emissions are listed above.

Note 2: No Emissions (above the Noise Floor of the Detection System) were found at frequencies in excess of 518.2 MHz

The EUT complied with the Radiated Emissions Limits specified in 47CFR Part 15 Subpart C Section 15.209.

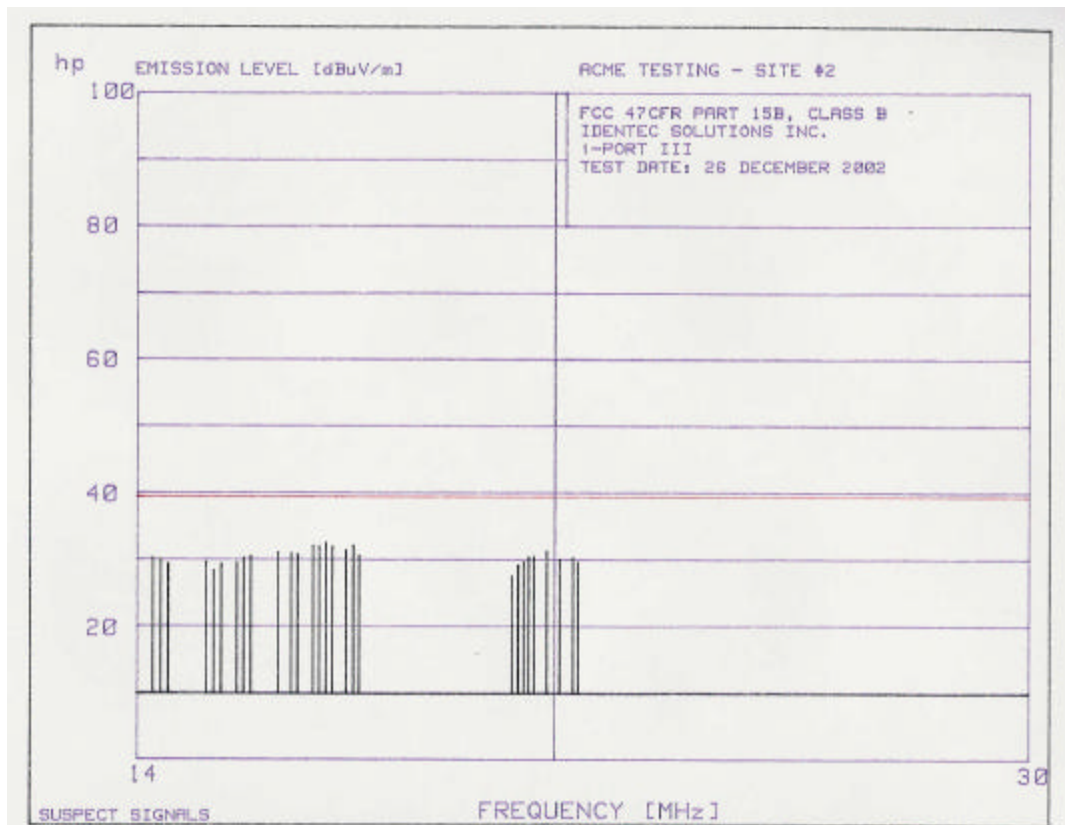
ACME TESTING - SITE #2
ALL SUSPECTS

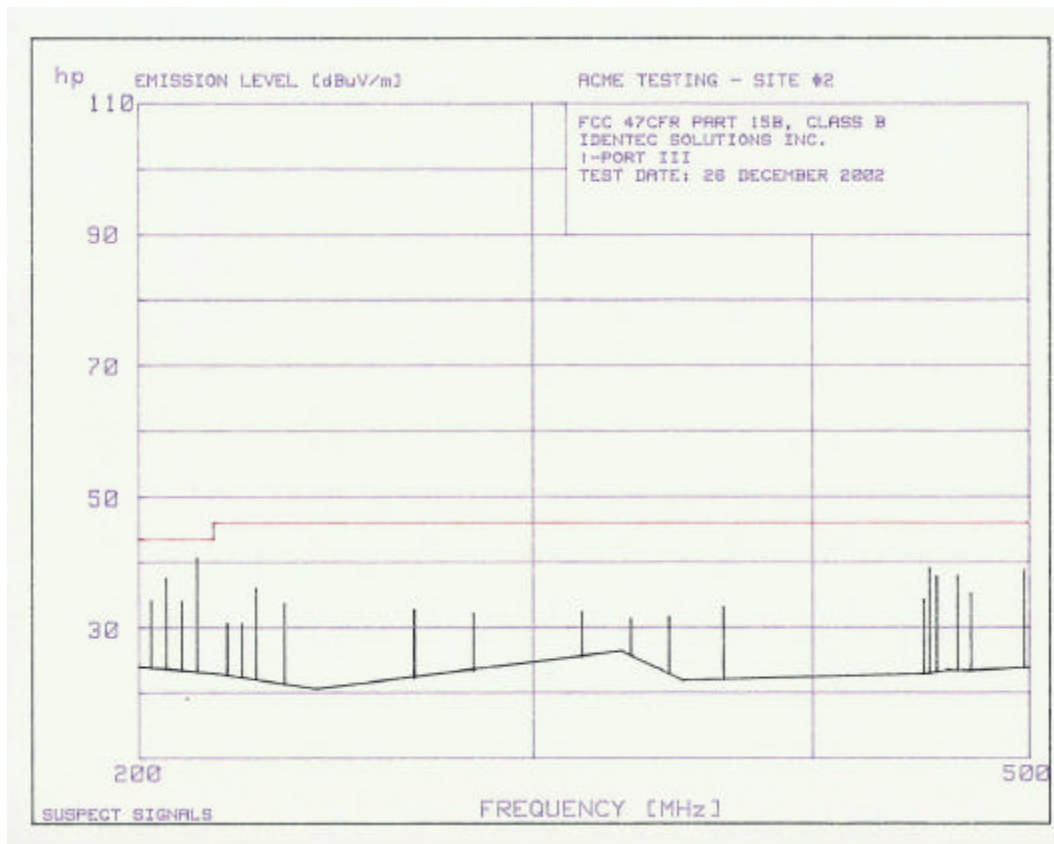
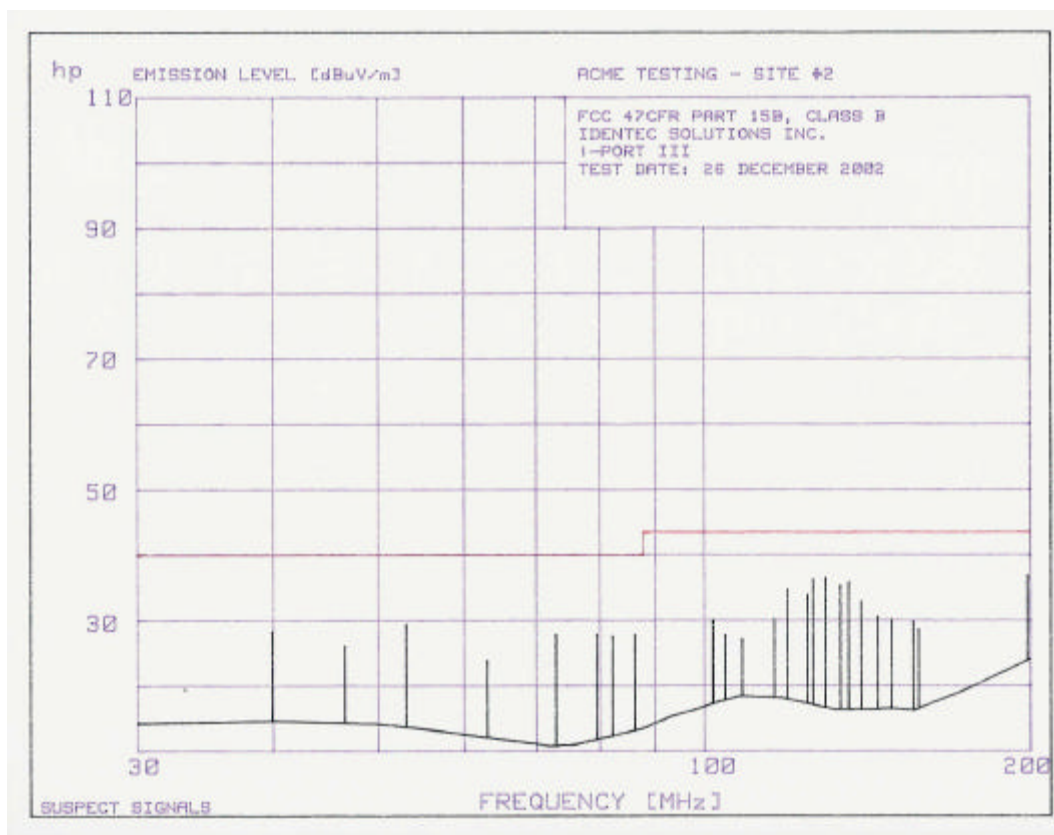
26 Dec 1902 13:40:25

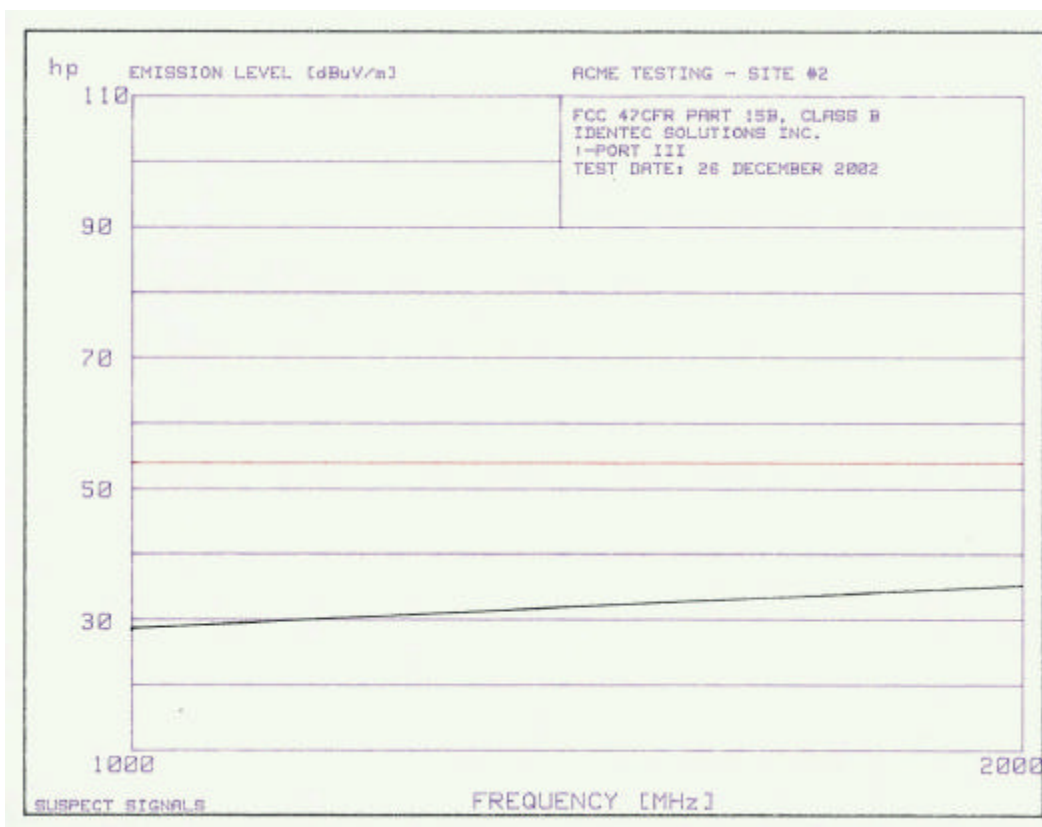
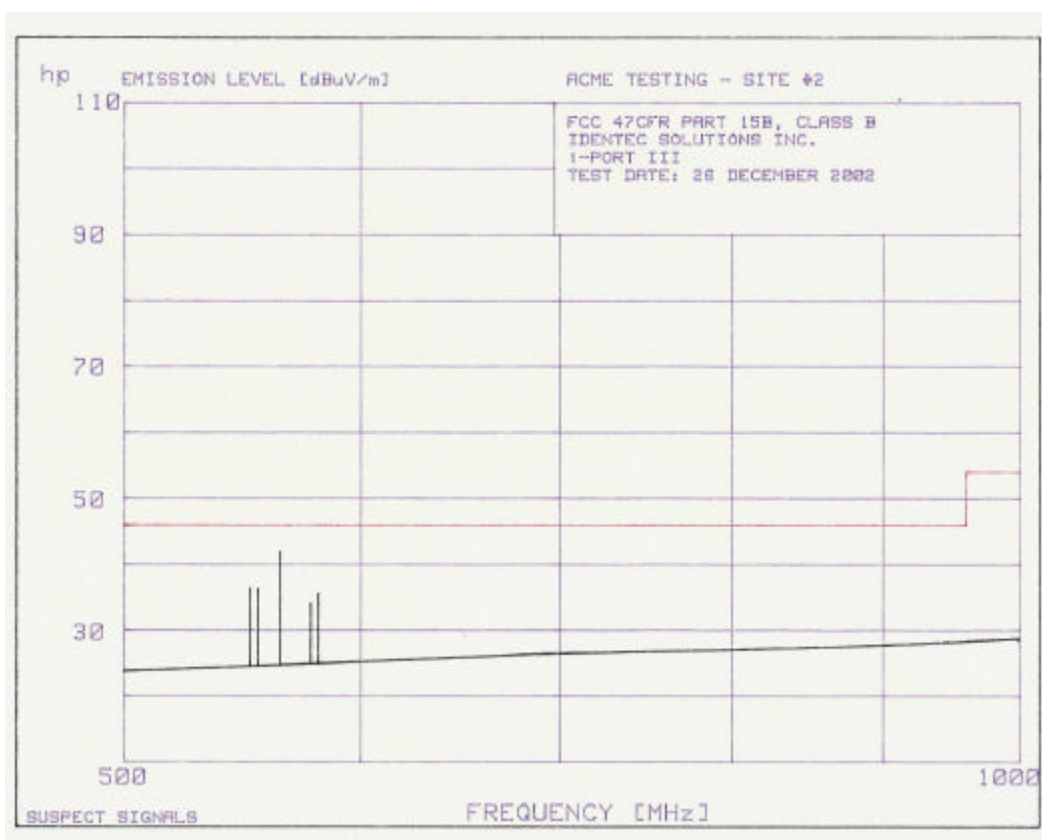
No	FREQ MHz	BND	PEAK LIM	ABS	ANT P	AZ cm deg	COMMENTS
1	14.192	22	-9	30.3	V150	189	
2	14.287	22	-9	30.0	V150	189	
3	14.378	22	-10	29.3	V150	189	
4	14.858	22	-10	29.7	V150	189	
5	14.949	22	-11	28.4	V150	189	
6	15.043	23	-10	29.3	V150	189	
7	15.246	23	-10	29.5	V150	189	
8	15.340	23	-9	30.3	V150	189	
9	15.429	23	-9	30.6	V150	189	
10	15.796	24	-8	31.1	V150	189	
11	15.974	24	-9	30.9	V150	189	
12	16.064	24	-9	30.7	V150	189	
13	16.273	24	-7	32.0	V150	189	
14	16.364	24	-8	31.9	V150	189	
15	16.454	24	-7	32.5	V150	189	
16	16.551	24	-8	31.9	V150	189	
17	16.744	24	-8	31.4	V150	189	
18	16.844	24	-7	32.1	V150	189	
19	16.933	24	-9	30.7	V150	189	
20	19.293	25	-12	27.5	V150	189	
21	19.395	25	-10	29.2	V150	189	
22	19.487	25	-10	29.7	V150	189	
23	19.573	25	-9	30.4	V150	189	
24	19.659	25	-9	30.5	V150	189	
25	19.873	25	-8	31.3	V150	189	
26	20.09	26	-9	30.1	V150	189	
27	20.32	26	-9	30.3	V150	189	
28	20.41	26	-10	29.6	V150	189	
29	39.92	27	-12	28.3	V107	274	
30	46.60	27	-14	26.1	V107	272	
31	53.125	27	-11	29.4	V107	315	
32	63.16	27	-16	23.9	V107	278	
33	73.016	27	-12	27.9	V107	31	
34	79.64	27	-12	27.9	V107	246	
35	82.34	27	-12	27.6	V107	246	
36	86.30	27	-12	27.8	V107	246	
37	101.988	27	-13	30.0	V107	224	
38	104.719	27	-16	27.8	V107	245	
39	108.43	27	-16	27.2	V107	245	
40	116.20	27	-13	30.2	V107	245	
41	119.49	27	-9	34.7	V107	240	
42	124.64	27	-10	34.0	V107	240	
43	126.15	27	-7	36.3	V107	240	
44	129.54	27	-7	36.6	V107	240	
* 45	133.734	27	-5	38.1	V107	237	
46	136.033	27	-8	35.9	V107	240	
47	139.684	27	-11	33.0	V107	240	
48	144.734	27	-13	30.6	V107	240	
49	149.022	27	-13	30.1	V107	209	
50	156.013	27	-14	29.8	V107	209	
51	157.89	27	-15	28.7	V107	217	
52	199.091	27	-7	36.9	V107	260	
53	202.46	28	-9	34.1	H142	100	
* 54	205.743	28	-3	40.0	H144	100	

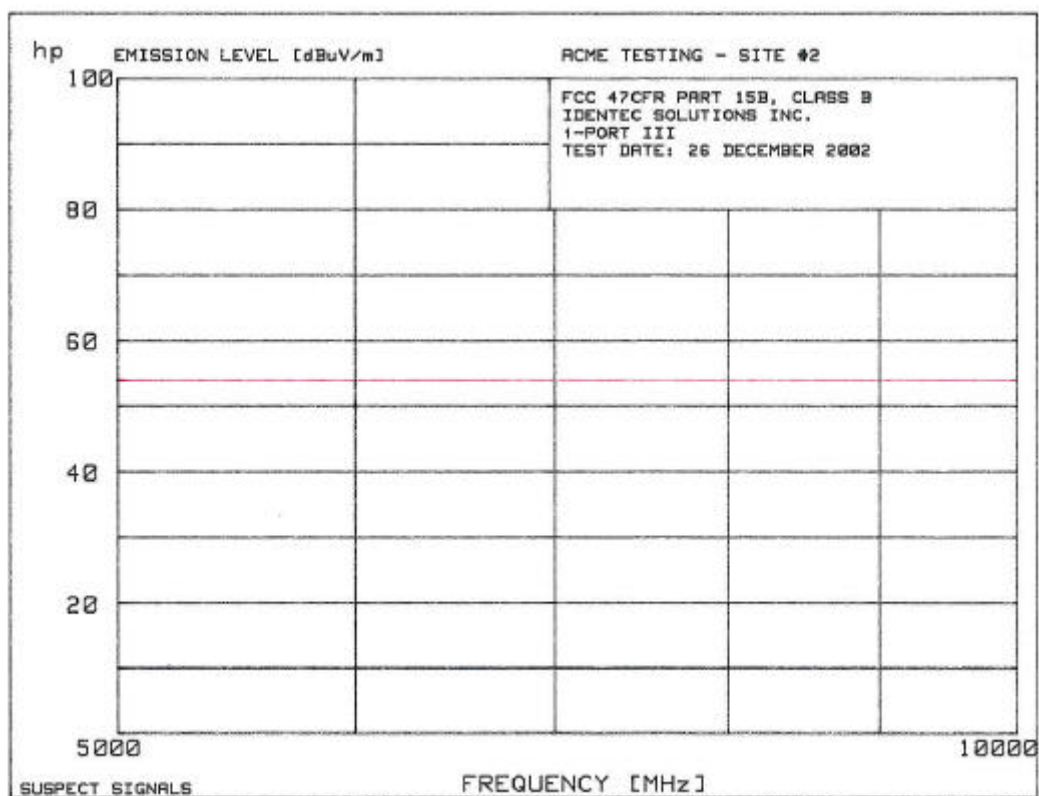
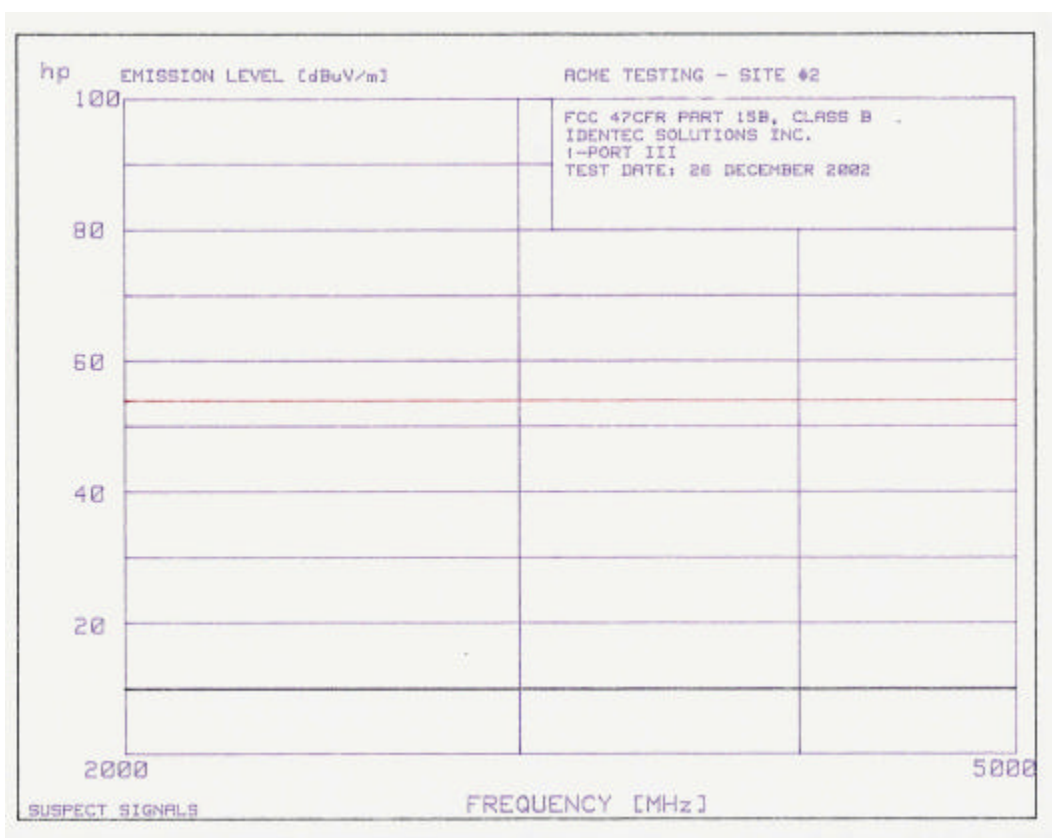
55	209.10	28	-9	34.0	H142	100
*	56	212.385	28	-2	41.4	H184 123
57	219.05	28	-15	30.7	H143	98
58	222.37	28	-15	30.6	H143	98
59	225.66	28	-10	36.1	H143	98
60	232.35	28	-12	33.7	H143	98
61	265.51	28	-13	32.7	H118	93
62	282.25	28	-14	32.2	H118	93
63	315.63	28	-14	32.4	H100	145
64	331.82	28	-15	31.4	H100	150
65	345.19	28	-14	31.7	H100	150
66	365.0	28	-13	33.2	H100	153
67	448.5	28	-12	34.3	H100	72
68	451.277	28	-7	39.0	H100	284
69	454.60	28	-8	37.9	H100	284
*	70	464.517	28	-6	39.8	H100 285
71	471.0	28	-11	35.2	H100	285
*	72	497.709	28	-6	40.0	H100 304
73	551.1	28	-10	36.4	H100	285
74	554.4	28	-10	36.3	H100	285
*	75	564.052	28	-3	43.0	H185 153
76	577.8	28	-12	34.1	H100	150
77	581.2	28	-10	35.6	H100	150

* denotes a Final List signal









6.6 Test Setup Photographs



