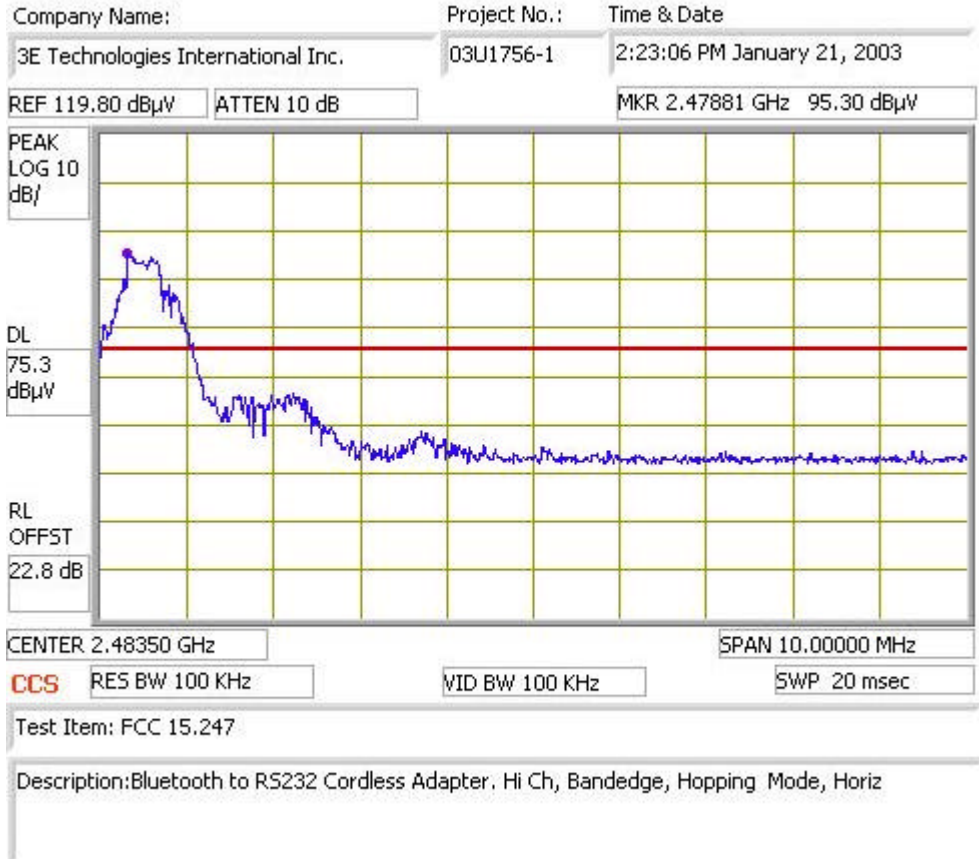


UPPER BANDEDGE, HOPPING



OTHER SPURIOUS EMISSIONS OUTSIDE RESTRICTED BANDS

01/21/03 High Frequency Measurement
 Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
 Project #: 03U1756-1
 Company: 3E Technologies International Inc.
 EUT Descr.: Bluetooth to RS232 Cordless Adapter
 EUT M/N: 3e-250
 Test Target: FCC 15.247
 Mode Oper: Tx Mode / Hopping Mode

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
15	T72; S/N: 6739		8566B Analyzer	

Peak Measurements:

100 KHz Resolution Bandwidth
 100 KHz Video Bandwidth


Average Measurements:

N/A
 N/A

f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
2.480	3.3	75.2		29.1	3.9	0.0	-9.5	0.0	98.6						
1.732	3.3	29.0		26.7	3.3	0.0	-9.5	0.0	49.5		78.6		-29.1		

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

SIGNIFICANT SPURIOUS EMISSIONS BELOW 1 GHZ

		Project #: 03U1756-1 Report #: 030127A1 Date & Time: 01/27/03 1:17 PM Test Engr: Chin Pang									
FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSMI, DHHS, NVLAP 561F MONTEREY ROAD, SAN JOSE, CA 95037-9001 PHONE: (408) 463-0885 FAX: (408) 463-0888											
Company: 3E Technologies International Inc. EUT Description: Bluetooth to RS232 Cordless Adapter Test Configuration: EUT only Type of Test: FCC 15.247 Mode of Operation: Tx / Hopping Mode											
<input type="button" value="Data Entry"/>		<input checked="" type="checkbox"/> A-Site Preamp									
		<input type="radio"/> FCC_A <input checked="" type="radio"/> FCC_B <input type="radio"/> EN_A <input type="radio"/> EN_B <input type="radio"/> EN11B_G2									
Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
133.40	52.60	13.11	1.78	26.90	40.60	43.50	-2.90	3mH	0.00	1.20	P
Above reading is in Hopping Mode											
37.30	45.50	12.86	0.94	27.03	32.28	40.00	-7.72	3mH	0.00	1.20	P
Above reading is TX set at Hi Ch											

7.10. UNDESIRABLE EMISSIONS – RADIATED MEASUREMENTS

TEST SETUP

The EUT is placed on the wooden table. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4/1992.

The EUT is set to transmit in a continuous mode.

TEST PROCEDURE

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz, the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

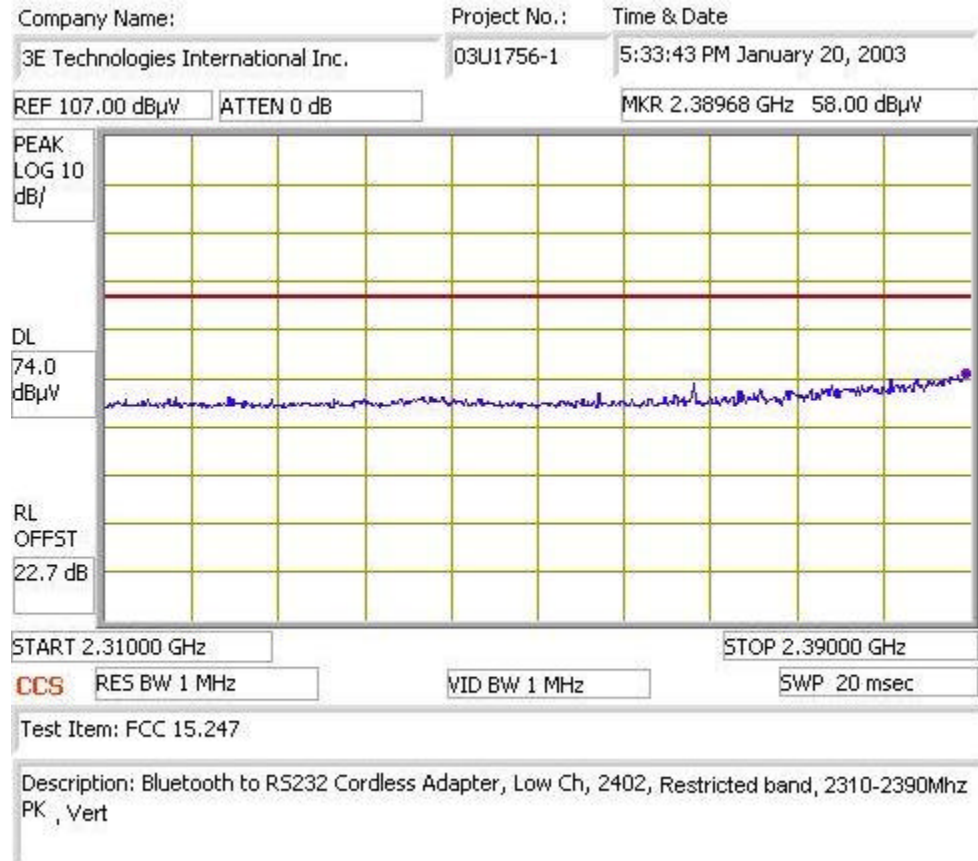
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

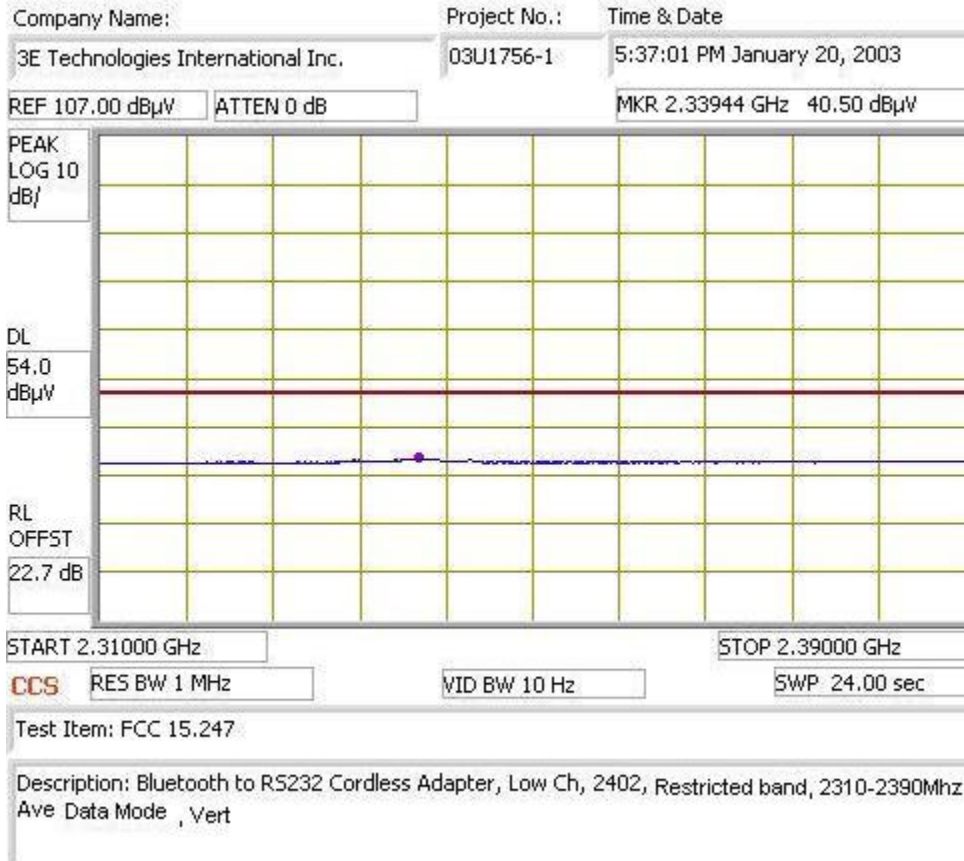
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The frequency span is set small enough to easily differentiate between broadcast stations, intermittent ambient signals and EUT emissions. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the suspected signal. Measurements were made with the antenna polarized in both the vertical and the horizontal positions.

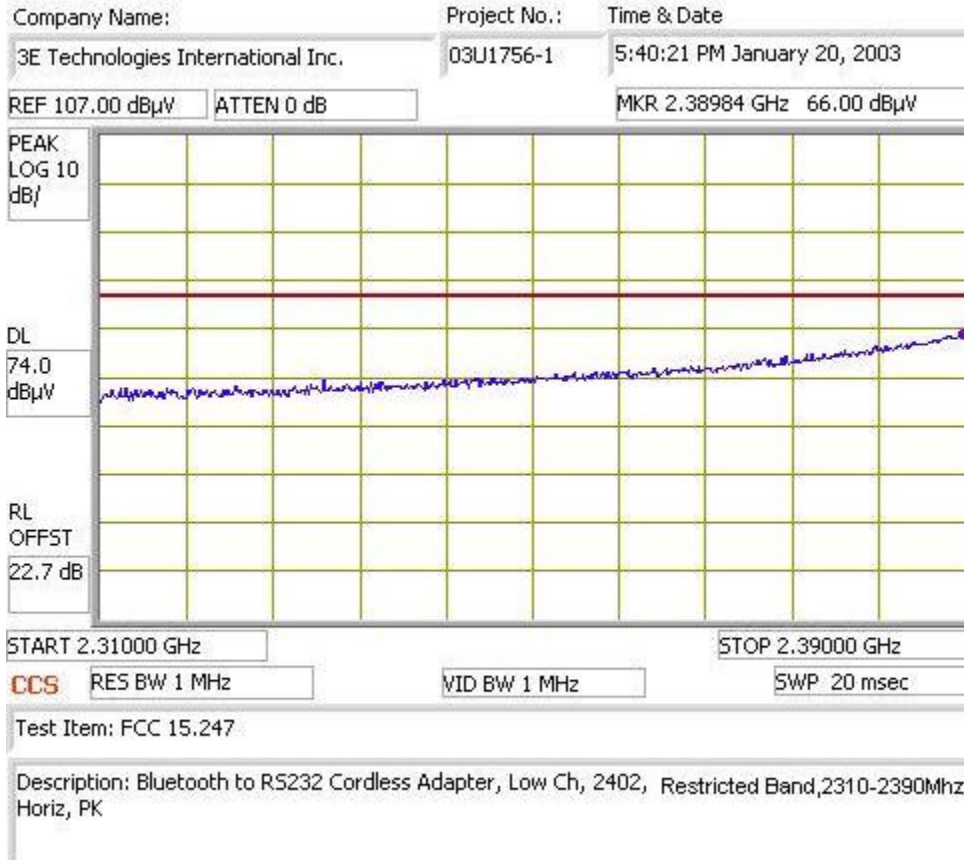
TEST RESULTS

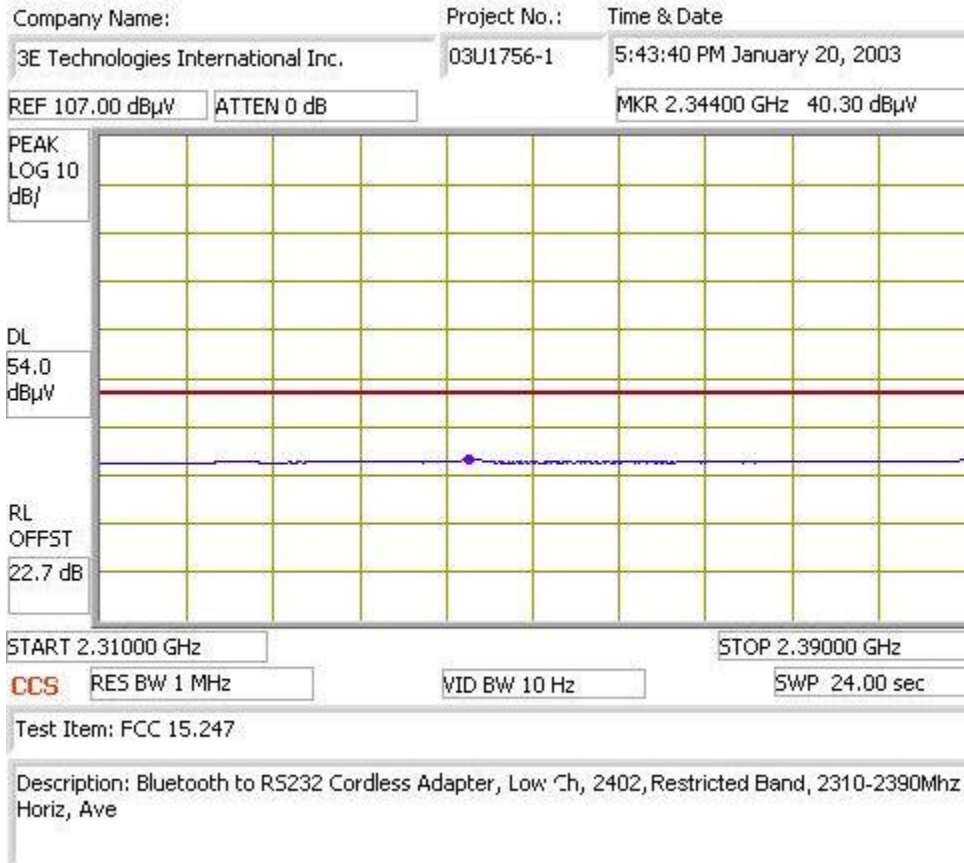
No non-compliance noted:

LOWER RESTRICTED BAND

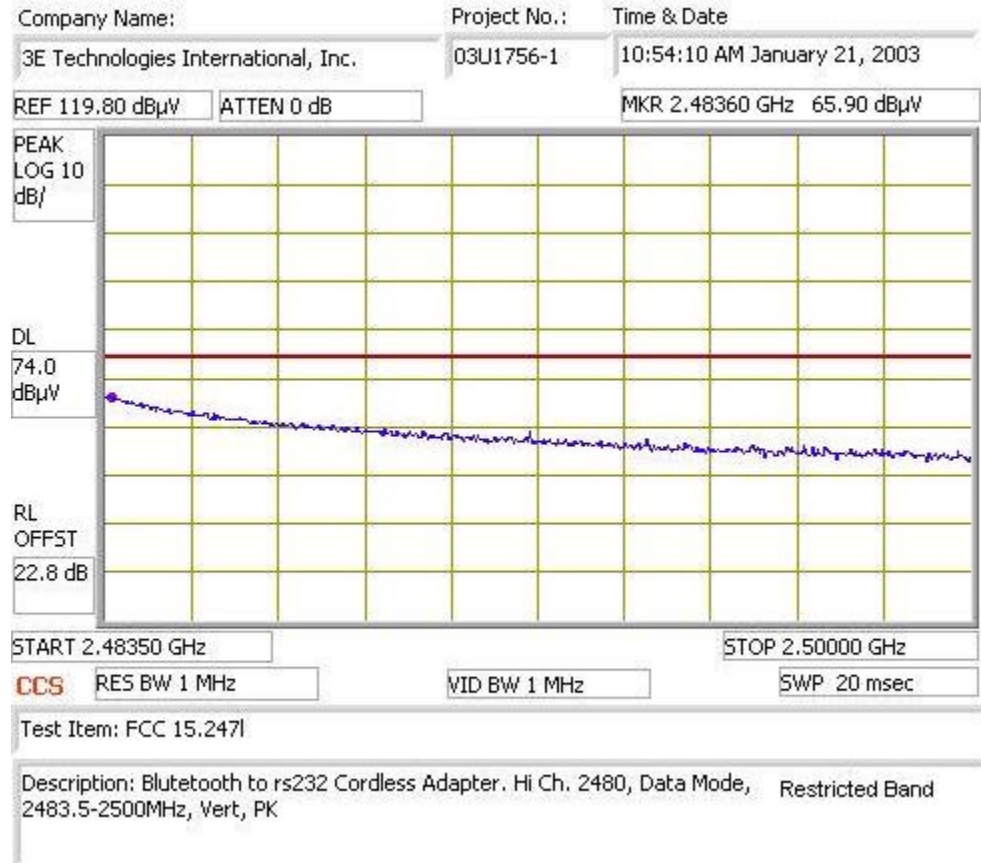


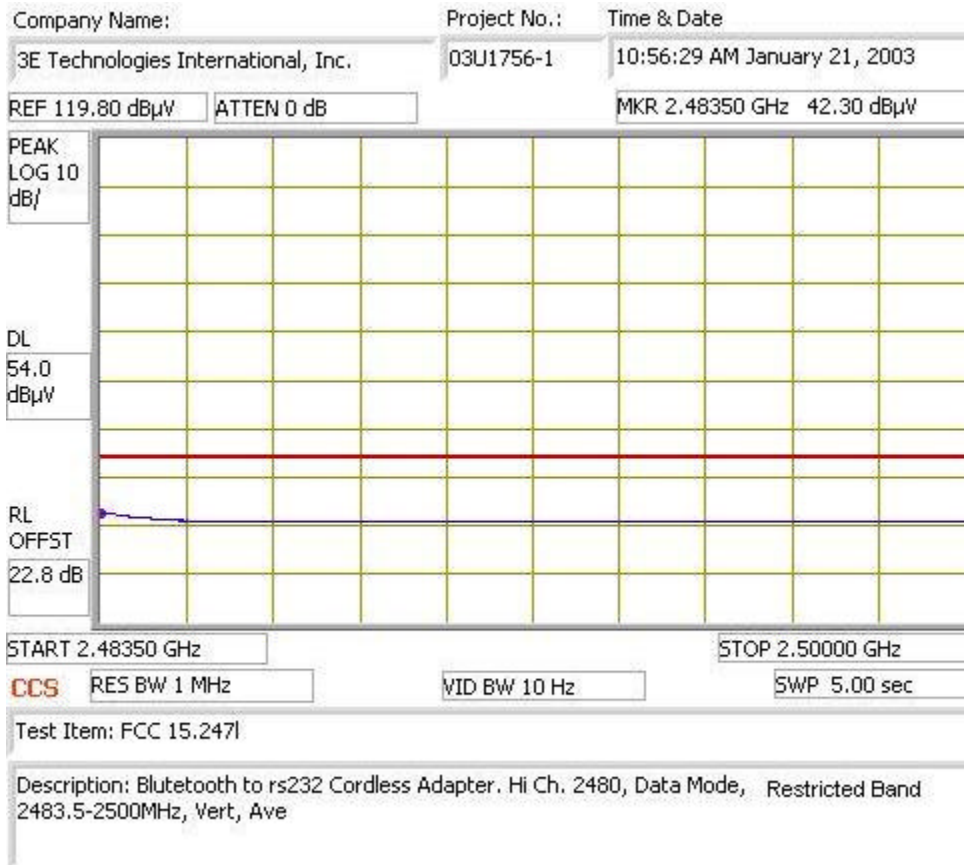


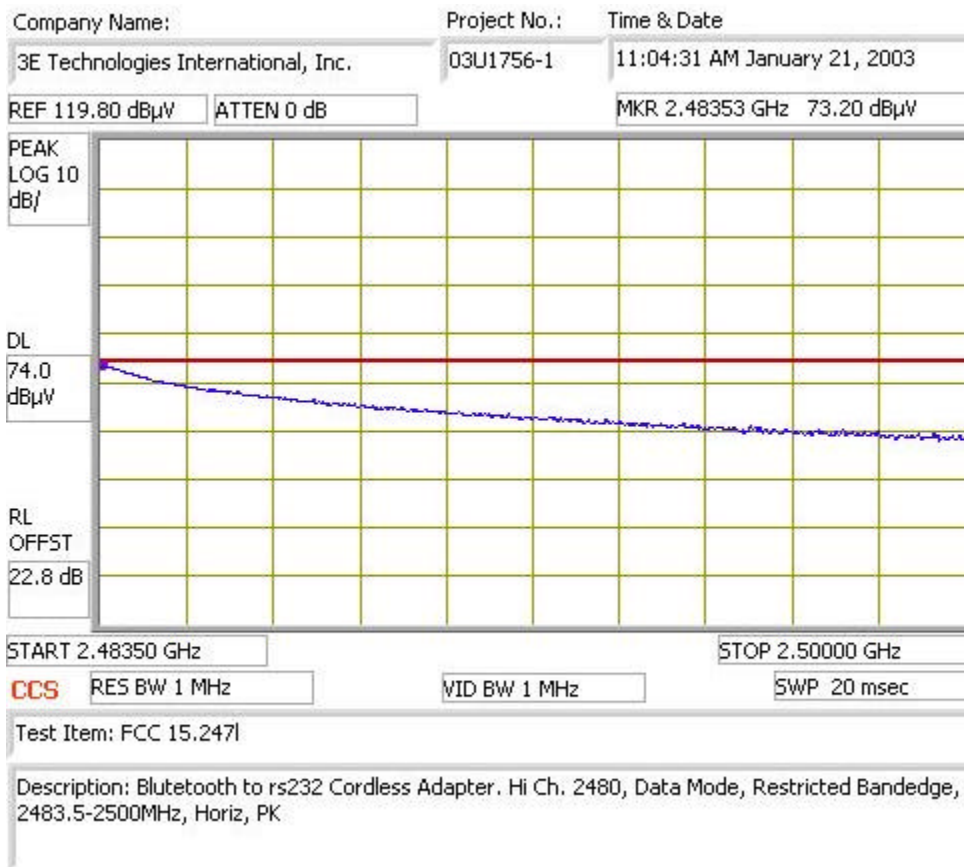


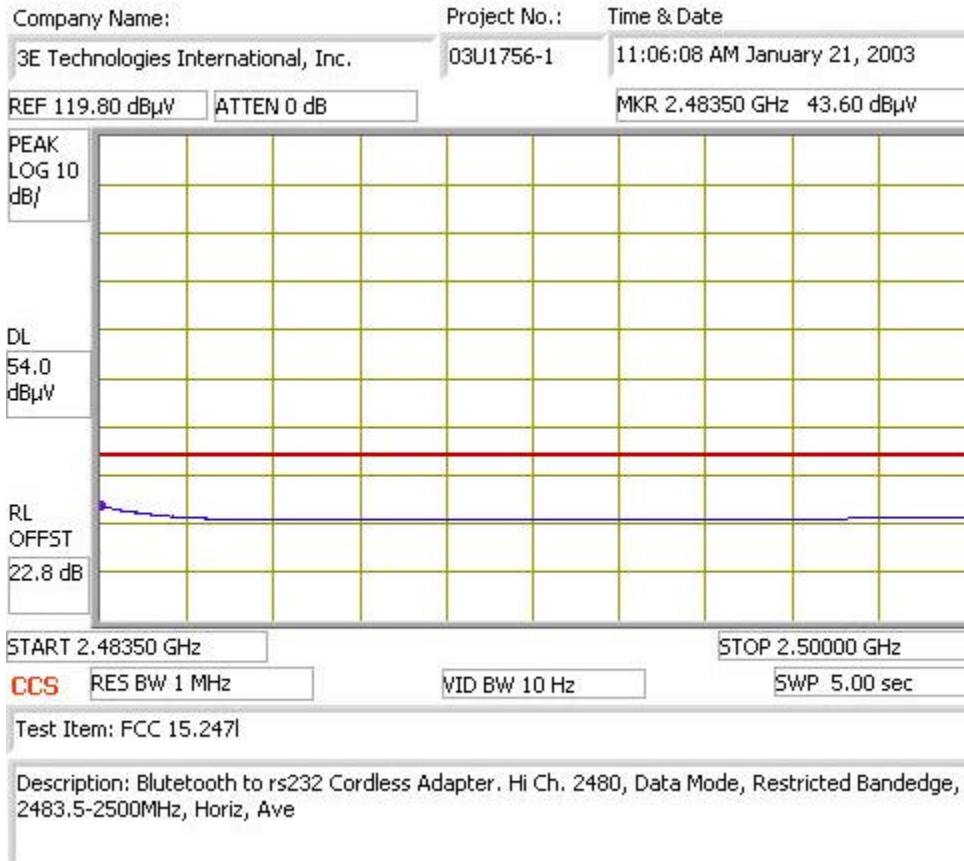


UPPER RESTRICTED BAND









TRANSMITTER HARMONIC AND SPURIOUS EMISSIONS WITHIN RESTRICTED BANDS

01/21/03 High Frequency Measurement
 Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
 Project #: 03U1756-1
 Company: 3E Technologies International Inc.
 EUT Descr.: Bluetooth to RS232 Cordless Adapter
 EUT M/N: 3e-250
 Test Target: FCC 15.247
 Mode Oper: Tx in Data Mode

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn >18GHz
15	T73; S/N: 6717	HP 8449B	8566B Analyzer	

Peak Measurements:

1 MHz Resolution Bandwidth
 1MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
 10Hz Video Bandwidth

Low Channel

f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
4.804	9.8	47.0	32.0	33.8	5.7	-34.6	0.0	1.0	52.8	37.8	74.0	54.0	-21.2	-16.2	V
4.804	9.8	50.8	34.0	33.8	5.7	-34.6	0.0	1.0	56.6	39.8	74.0	54.0	-17.4	-14.2	H

EUT Tested to 10th Harmonic 24.80GHz. No other emissions found in restricted bands.

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

01/21/03 High Frequency Measurement
 Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
 Project #: 03U1756-1
 Company: 3E Technologies International Inc.
 EUT Descr.: Bluetooth to RS232 Cordless Adapter
 EUT M/N: 3e-250
 Test Target: FCC 15.247
 Mode Oper: Tx in Data Mode

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
15	T73; S/N: 6717	HP 8449B	8566B Analyzer	

Peak Measurements:

1 MHz Resolution Bandwidth
 1MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
 10Hz Video Bandwidth

Mid Channel

f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
4.882	9.8	47.8	31.3	34.0	5.8	-34.6	0.0	1.0	54.0	37.5	74.0	54.0	-20.0	-16.5	V
7.322	9.8	59.6	34.1	37.2	7.3	-34.6	0.0	1.0	70.5	45.0	74.0	54.0	-3.5	-9.0	V
4.882	9.8	48.8	32.3	34.0	5.8	-34.6	0.0	1.0	55.0	38.5	74.0	54.0	-19.0	-15.5	H
7.322	9.8	59.8	34.0	37.2	7.3	-34.6	0.0	1.0	70.7	44.9	74.0	54.0	-3.3	-9.1	H

EUT Tested to 10th Harmonic 24.80GHz. No other emissions found in restricted bands.

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

01/21/03 High Frequency Measurement
 Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
 Project #: 03U1756-1
 Company: 3E Technologies International Inc.
 EUT Descr.: Bluetooth to RS232 Cordless Adapter
 EUT M/N: 3e-250
 Test Target: FCC 15.247
 Mode Oper: Tx in Data Mode

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
15	T73; S/N: 6717	HP 8449B	8566B Analyzer	

Peak Measurements:

1 MHz Resolution Bandwidth
 1MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
 10Hz Video Bandwidth


High Channel

f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
4.960	9.8	50.3	32.9	34.2	5.8	-34.5	0.0	1.0	56.8	39.4	74.0	54.0	-17.2	-14.6	V
7.440	9.8	54.4	32.8	37.5	7.4	-34.6	0.0	1.0	65.6	44.0	74.0	54.0	-8.4	-10.0	V
4.960	9.8	50.5	32.8	34.2	5.8	-34.5	0.0	1.0	57.0	39.3	74.0	54.0	-17.0	-14.7	H
7.440	9.8	60.4	33.8	37.5	7.4	-34.6	0.0	1.0	71.6	45.0	74.0	54.0	-2.4	-9.0	H

EUT Tested to 10th Harmonic 24.80GHz. No other emissions found in restricted bands.

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

**TRANSMITTER SPURIOUS RADIATED EMISSIONS BELOW 1 GHZ AND DIGITAL DEVICE
 RADIATED EMISSIONS**

	Project #: 03U1756-1 Report #: 030122A1 Date & Time: 01/22/03 11:48 AM Test Engr: Chin Pang
	FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSMI, DHHS, NVLAP 561F MONTEREY ROAD, SAN JOSE, CA 95037-9001 PHONE: (408) 463-0885 FAX: (408) 463-0888
Company: 3E Technologies Internarional Inc EUT Description: Bluetooth to RS232 Cordless Adapter Test Configuration: EUT/Support Equipment Type of Test: FCC Class B Mode of Operation: TX	<< Main Sheet

Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
40.00	50.90	12.88	0.95	27.02	37.71	40.00	-2.29	3mH	0.00	1.50	P
33.00	50.20	12.68	0.90	27.03	36.75	40.00	-3.25	3mH	0.00	1.50	P
295.60	51.20	14.46	2.78	26.54	41.89	46.00	-4.11	3mH	0.00	1.50	P
462.00	48.60	17.08	3.52	27.54	41.65	46.00	-4.35	3mH	0.00	1.50	P
261.00	53.00	12.46	2.59	26.52	41.53	46.00	-4.47	3mH	0.00	2.00	P
33.00	48.10	12.68	0.90	27.03	34.65	40.00	-5.35	3mV	0.00	1.00	P
6 Worst Data											

7.11. POWERLINE CONDUCTED EMISSIONS

TEST SETUP

The EUT is placed on a wooden table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane on the floor.

The EUT is set to transmit in a continuous mode.

TEST PROCEDURE

The resolution bandwidth is set to 10 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

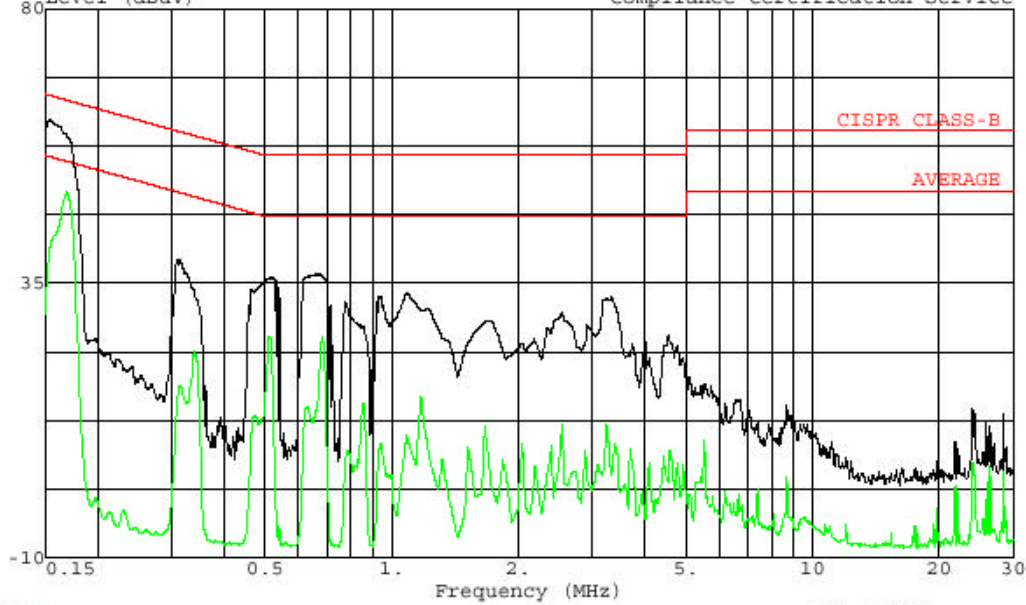
No non-compliance noted:

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.15	61.76	--	49.76	0.00	65.91	55.91	-4.15	-6.15	L1
0.31	38.84	--	23.34	0.00	61.34	51.34	-22.50	-28.00	L1
0.67	37.32	--	26.13	0.00	56.00	46.00	-18.68	-19.87	L1
0.16	61.33	--	50.48	0.00	65.83	55.83	-4.50	-5.35	L2
0.52	40.71	--	32.42	0.00	56.00	46.00	-15.29	-13.58	L2
0.66	39.78	--	29.54	0.00	56.00	46.00	-16.22	-16.46	L2
6 Worst Data									



561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 20 File#: 1756LC.EMI Date: 01-20-2003 Time: 12:17:49
Level (dBuV) Compliance Certification Service



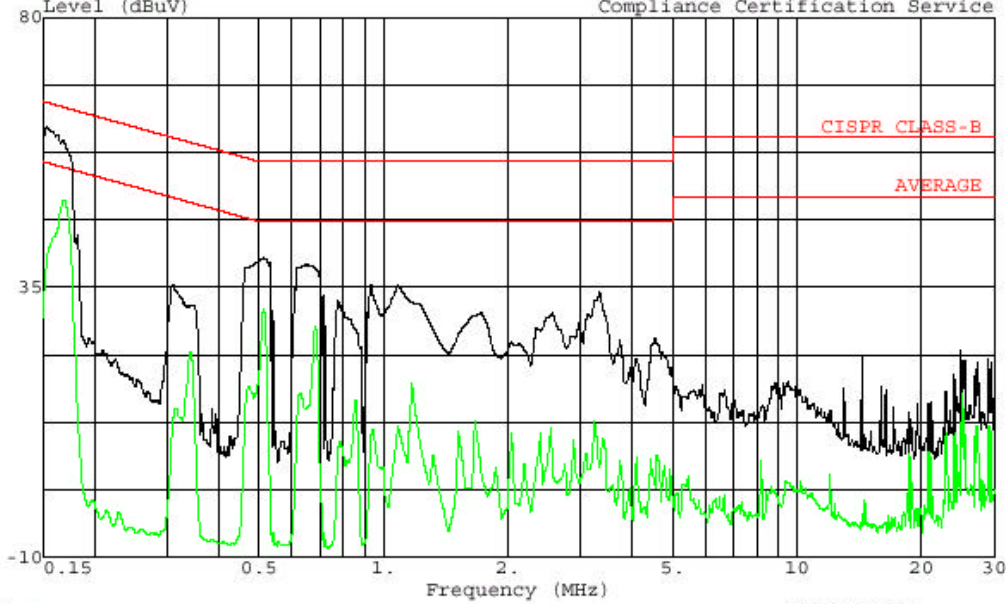
Trace: 18
Project # : 03U1756-1
Test Engineer : Chin Pang
Company : 3E Technologies International, Inc
EUT : Bluetooth to RS232 Cordless Adapter
Test Config. : EUT/Laptop
Model Name : 3e-250
Test of Target: FCC Class B
Mode of Op. : Tx, Hopping Mode & Data Mode
: L1: Peak (Black), Ave (Green)
: 115VAC, 60Hz

Ref Trace:



561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 10 File#: 1756LC.EMI Date: 01-20-2003 Time: 11:57:32
Level (dBuV) Compliance Certification Service

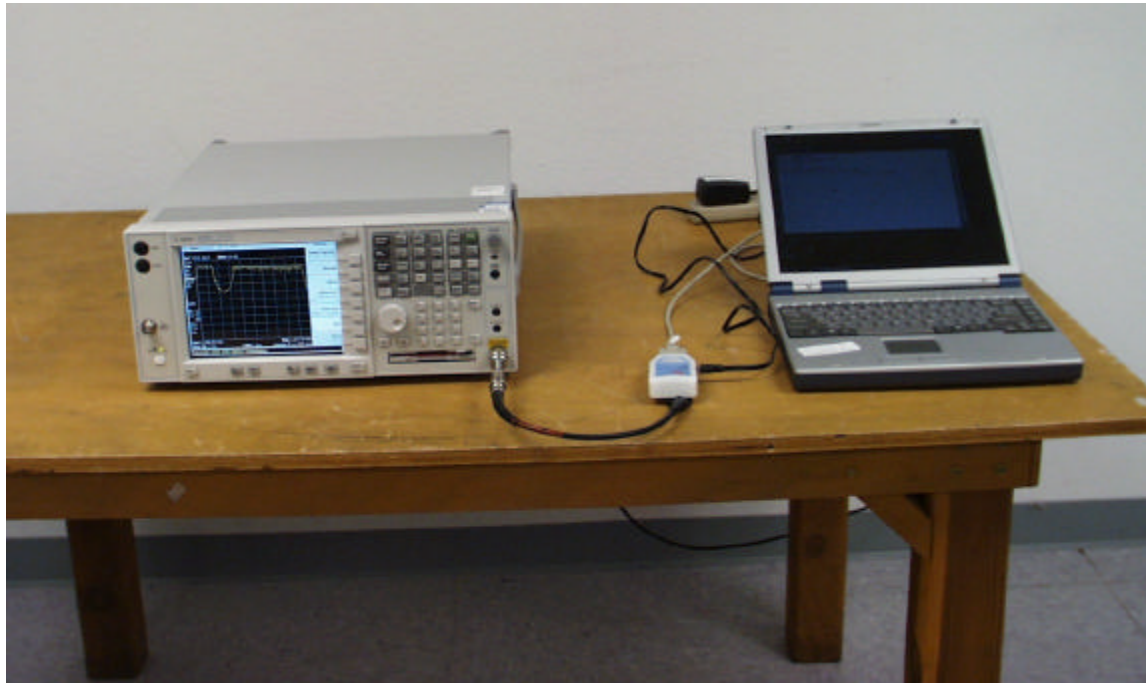


Trace: 8
Project # : 03U1756-1
Test Engineer : Chin Pang
Company : 3E Technologies International, Inc
EUT : Bluetooth to RS232 Cordless Adapter
Test Config. : EUT/Laptop
Model Name : 3e-250
Test of Target: FCC Class B
Mode of Op. : TX, Hopping Mode & Data Mode
: L2: Peak (Black), Ave (Green)
: 115VAC, 60Hz

Ref Trace:

8. SETUP PHOTOS

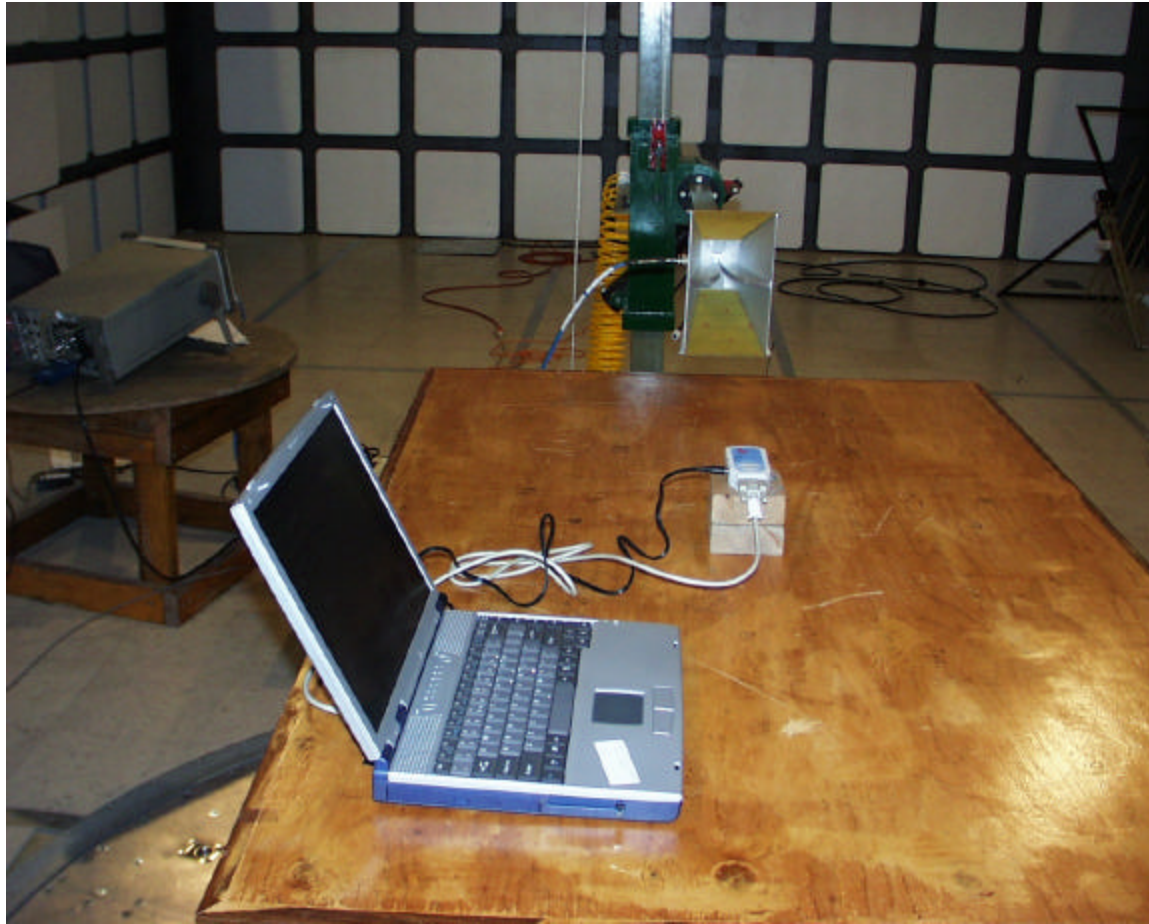
NEAR FIELD PICKUP ANTENNA SETUP



ANTENNA PORT AND TRANSMITTER RADIATED EMISSIONS MEASUREMENT SETUP



SPURIOUS EMISSIONS INITIAL SCAN SETUP



DIGITAL DEVICE RADIATED EMISSIONS MEASUREMENT SETUP



POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP



END OF REPORT