

HARMONIC AND SPURIOUS RADIATED EMISSIONS **MIDDLE CHANNEL**

09/16/02 FCC Measurement

Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: NEELESH RAJ
Project #: 02U1521
Company: CLARIENT SYSTEM, INC.
EUT Descrip.: INFRARED ACCESS POINT WITH IEEE 802.11b UPLINK
EUT M/N: ES3011b
Test Target: FCC 15.247

Equipment for 1-22 GHz:

HP8566B Analyzer
Miteq NSP2600-44 Preamp
EMCO 3115 Antenna
Cable: 15.0 feet

Equipment for 22 - 58 GHz:

HP8566B Analyzer
HP 11975A Amplifier (LO)
HP 11970K External mixer/antenna
Cable: IF Only (321 MHz)

Peak Measurements:

1 MHz Resolution Bandwidth
1 MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
10 Hz Video Bandwidth

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
FUNDAMENTAL (MIDDLE CHANNEL)															
2.438	3.3	71.6		29.0	3.1		-9.5	0.0	94.2						V (RBW=VBW=100KHz)
2.438	3.3	70.9		29.0	3.1		-9.5	0.0	93.5						H (RBW=VBW=100KHz)
HARMONICS															
4.874	3.3	44.1	33.2	33.9	5.8	-36.1	-9.5	1.0	39.2	28.3	74.0	54.0	-34.8	-25.7	V
4.874	3.3	43.1	33.0	33.9	5.8	-36.1	-9.5	1.0	38.2	28.1	74.0	54.0	-35.8	-25.9	H
7.312	3.3	49.3	39.3	37.2	7.3	-36.3	-9.5	1.0	49.0	39.0	74.0	54.0	-25.0	-15.0	V
7.312	3.3	44.8	32.3	37.2	7.3	-36.3	-9.5	1.0	44.5	32.0	74.0	54.0	-29.5	-22.0	H
9.750	3.3	40.2		39.9	8.6	-35.5	-9.5	1.0	44.7		74.2		-29.5		V
9.750	3.3	39.8		39.9	8.6	-35.5	-9.5	1.0	44.3		74.2		-29.9		H
NO OTHER HARMONIC EMISISONS WERE SEEN															
SPURIOUS EMISSIONS															
4.125	3.3	54.0	52.9	33.2	5.2	-36.1	-9.5	1.0	47.8	46.7	74.0	54.0	-26.2	-7.3	V
4.125	3.3	53.2	51.6	33.2	5.2	-36.1	-9.5	1.0	47.0	45.4	74.0	54.0	-27.0	-8.6	H
4.491	3.3	49.0		32.9	5.5	-36.1	-9.5	1.0	42.8		74.2		-31.4		V
4.491	3.3	51.0		32.9	5.5	-36.1	-9.5	1.0	44.8		74.2		-29.4		H
6.188	3.3	46.8		35.4	6.7	-36.3	-9.5	1.0	44.1		74.2		-30.1		V
6.188	3.3	46.8		35.4	6.7	-36.3	-9.5	1.0	44.1		74.2		-30.1		H
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								

HARMONIC AND SPURIOUS RADIATED EMISSIONS

HIGH CHANNEL

09/16/02 FCC Measurement

Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: NEELESH RAJ

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Equipment for 22 - 58 GHz:

HP8566B Analyzer
HP 11975A Amplifier (LO)
HP 11970K External mixer/antenna
Cable: IF Only (321 MHz)

Peak Measurements:

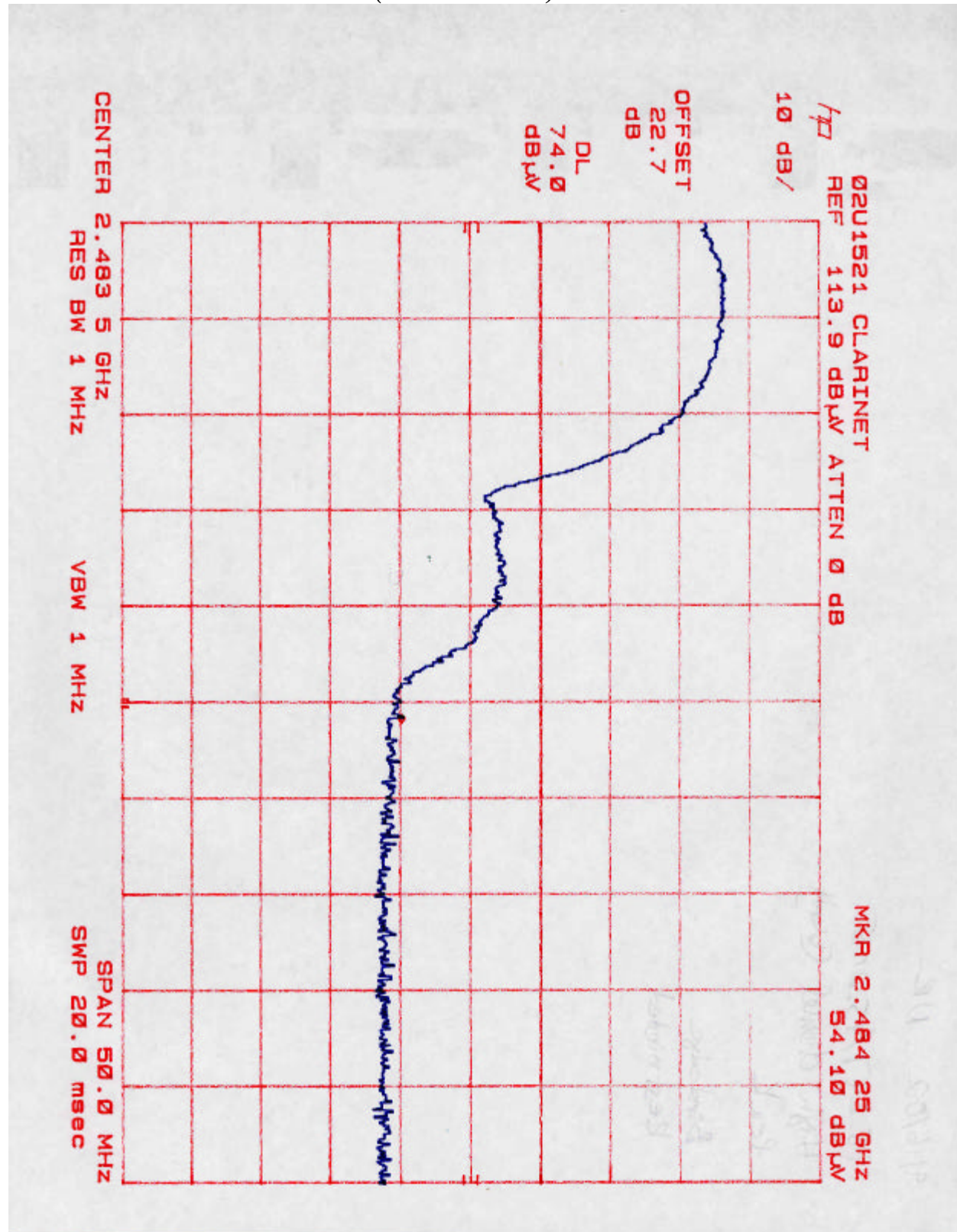
1 MHz Resolution Bandwidth
1MHz Video Bandwidth

Average Measurements:

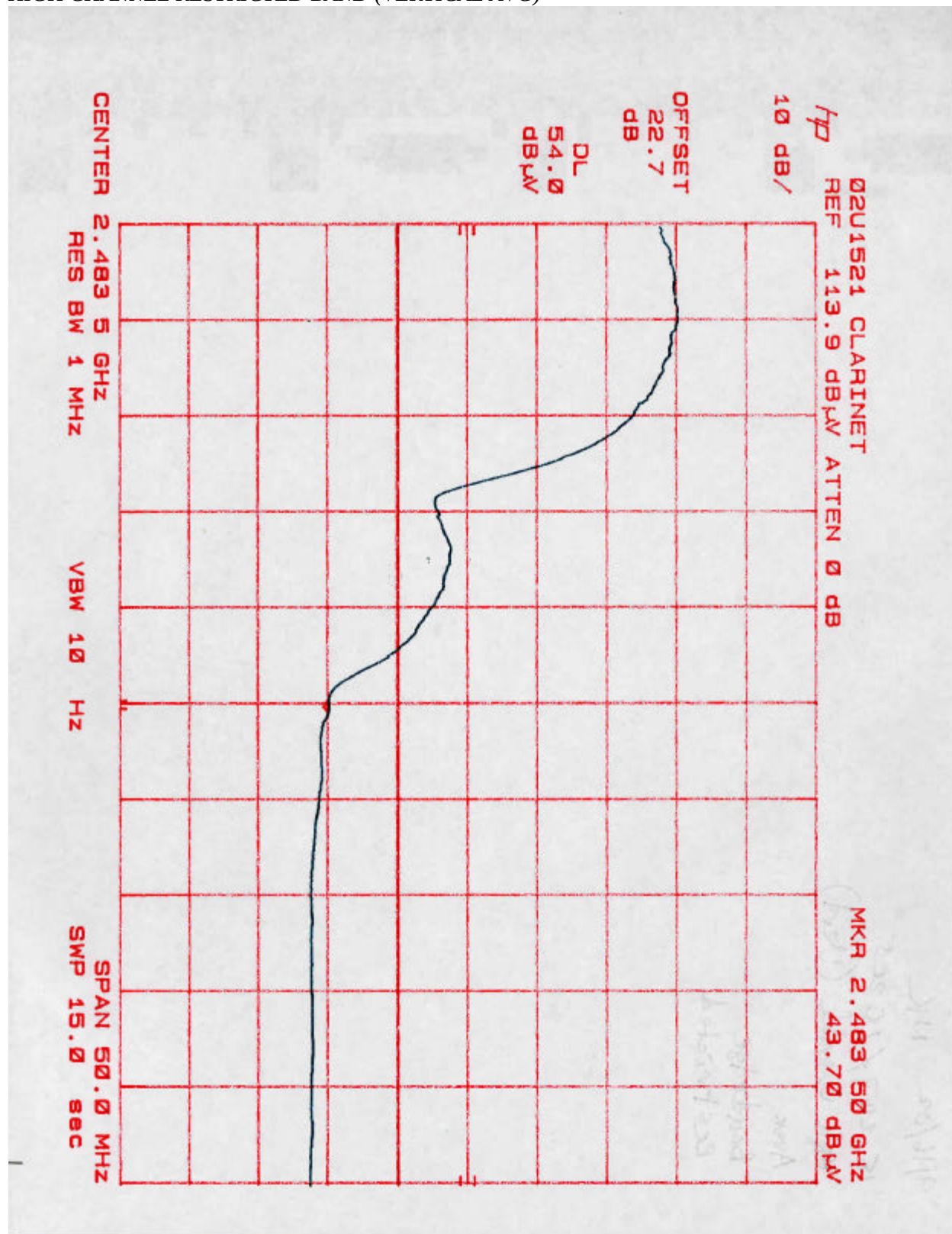
1MHz Resolution Bandwidth
10Hz Video Bandwidth

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
FUNDAMENTAL (HIGH CHANNEL)															
2.463	3.3	71.2		29.0	3.2		-9.5	0.0	93.9						V (RBW=VBW=100KHz)
2.463	3.3	70.6		29.0	3.2		-9.5	0.0	93.3						H (RBW=VBW=100KHz)
HARMONICS															
4.924	3.3	45.1	32.7	34.1	5.8	-36.1	-9.5	1.0	40.4	28.0	74.0	54.0	-33.6	-26.0	V
4.924	3.3	43.1	32.9	34.1	5.8	-36.1	-9.5	1.0	38.4	28.2	74.0	54.0	-35.6	-25.8	H
7.385	3.3	50.0	40.0	37.3	7.3	-36.2	-9.5	1.0	50.0	40.0	74.0	54.0	-24.0	-14.0	V
7.385	3.3	45.2	40.8	37.3	7.3	-36.2	-9.5	1.0	45.2	40.8	74.0	54.0	-28.8	-13.2	H
9.847	3.3	43.4		40.0	8.6	-35.5	-9.5	1.0	48.0		73.9		-25.9		V
9.847	3.3	42.0		40.0	8.6	-35.5	-9.5	1.0	46.6		73.9		-27.3		H
NO OTHER HARMONIC EMISSIONS WERE SEEN															
SPURIOUS EMISSIONS															
4.175	3.3	52.3	50.6	33.2	5.2	-36.1	-9.5	1.0	46.1	44.4	74.0	54.0	-27.9	-9.6	V
4.175	3.3	50.1	49.0	33.2	5.2	-36.1	-9.5	1.0	43.9	42.8	74.0	54.0	-30.1	-11.2	H
4.491	3.3	51.2		32.9	5.5	-36.1	-9.5	1.0	45.0		73.9		-28.9		V
4.491	3.3	50.0		32.9	5.5	-36.1	-9.5	1.0	43.8		73.9		-30.1		H
6.263	3.3	45.6		35.4	6.7	-36.3	-9.5	1.0	42.9		73.9		-31.0		V
6.263	3.3	46.9		35.4	6.7	-36.3	-9.5	1.0	44.2		73.9		-29.7		H
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															

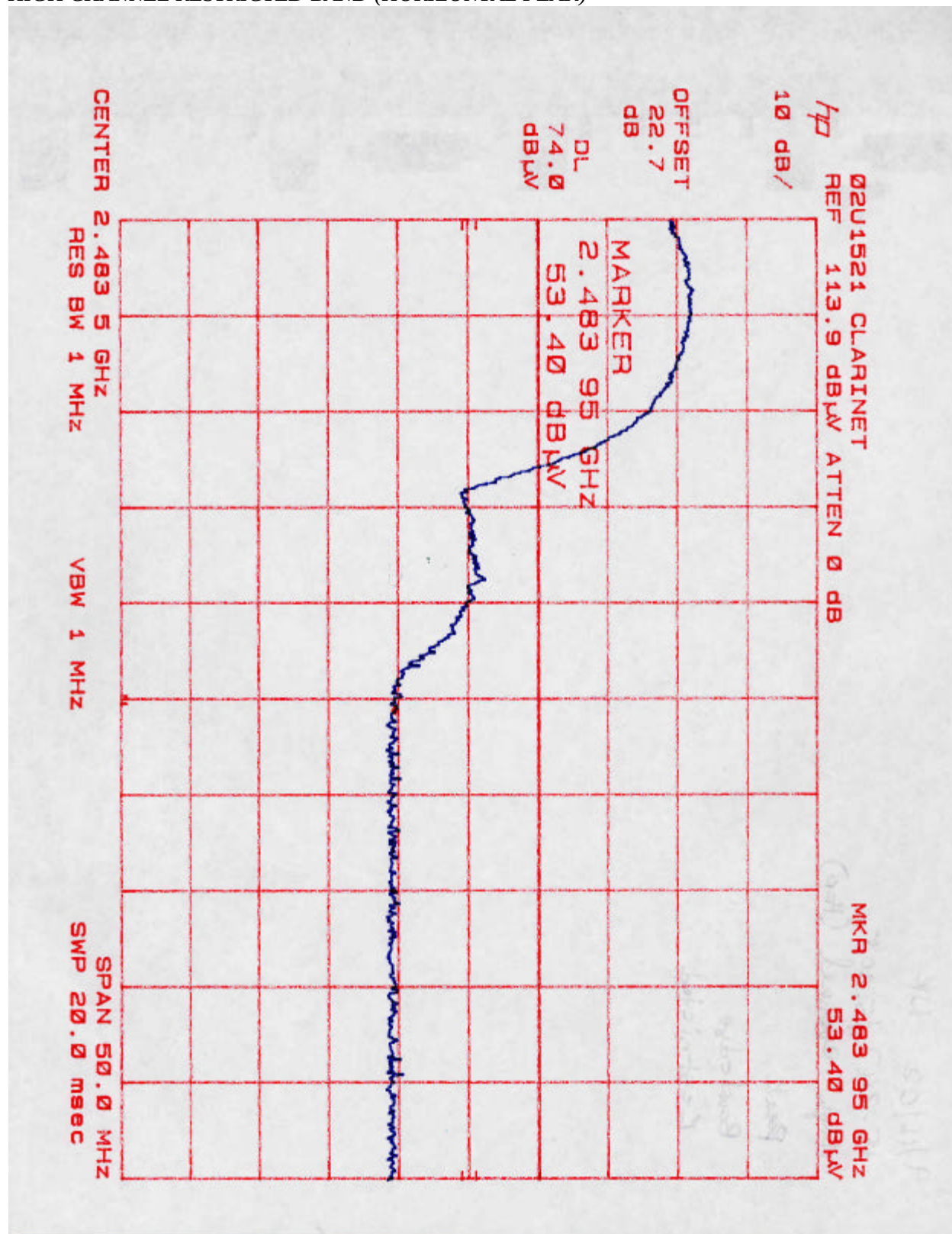
HIGH CHANNEL RESTRICTED BAND (VERTICAL PEAK)



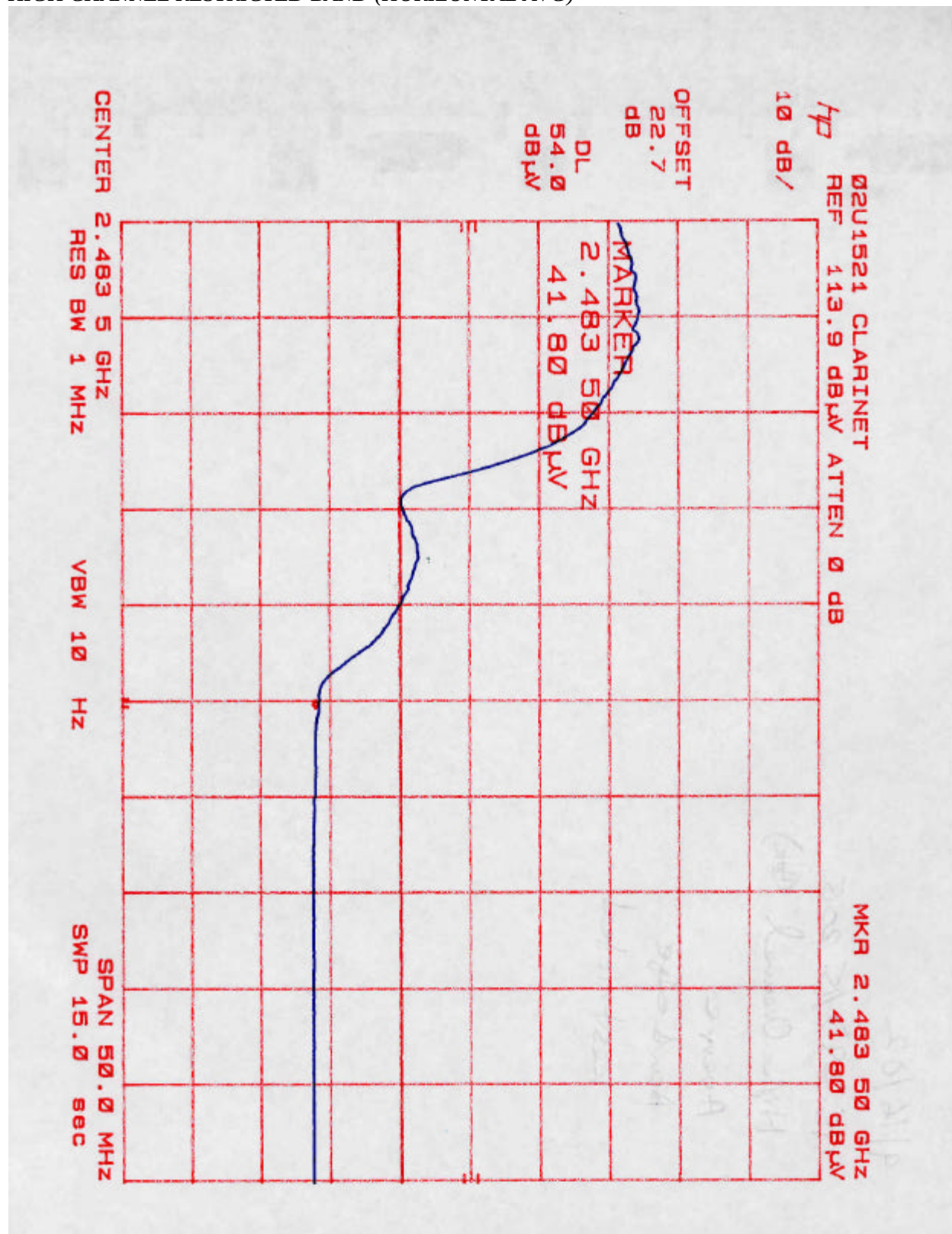
HIGH CHANNEL RESTRICTED BAND (VERTICAL AVG)



HIGH CHANNEL RESTRICTED BAND (HORIZONTAL PEAK)



HIGH CHANNEL RESTRICTED BAND (HORIZONTAL AVG)



8.7. POWER LINE 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

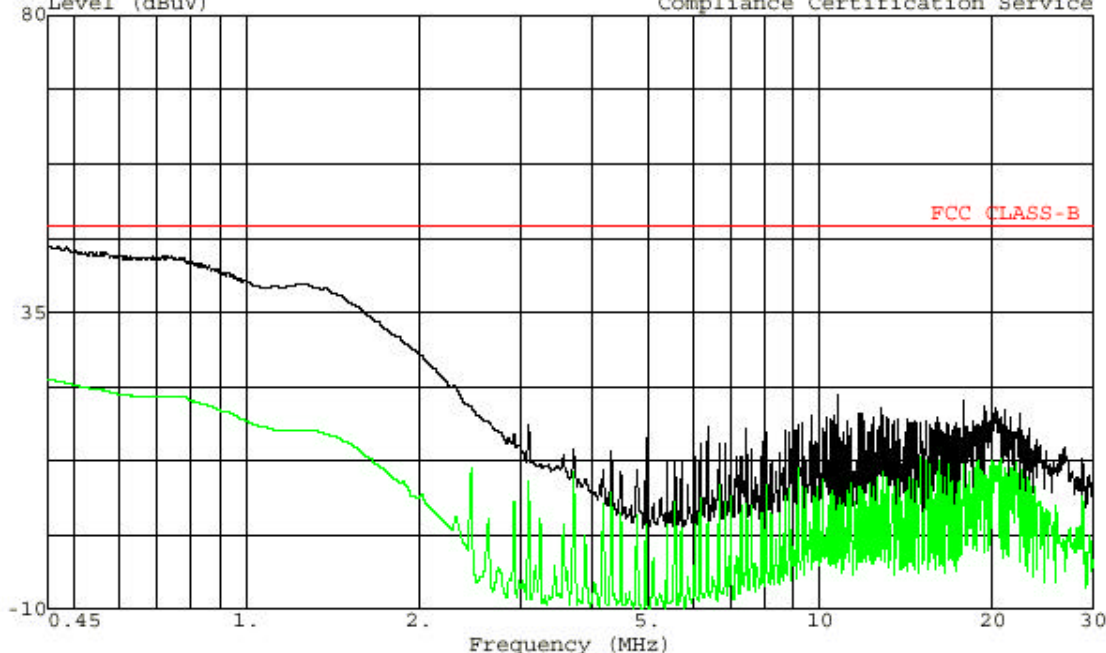
CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	FCC_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.45	45.20	24.84	--	0.00	48.00	--	-23.16	--	L1
0.60	43.10	22.59	--	0.00	48.00	--	-25.41	--	L1
0.78	43.10	22.22	--	0.00	48.00	--	-25.78	--	L1
0.45	42.86	23.24	--	0.00	48.00	--	-24.76	--	L2
0.81	41.32	20.92	--	0.00	48.00	--	-27.08	--	L2
1.34	39.12	18.14	--	0.00	48.00	--	-29.86	--	L2
6 Worst Data									

No non-compliance noted:



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

Data#: 7 File#: 02U1521A.EMI Date: 09-18-2002 Time: 14:23:25
Level (dBuV) Compliance Certification Service



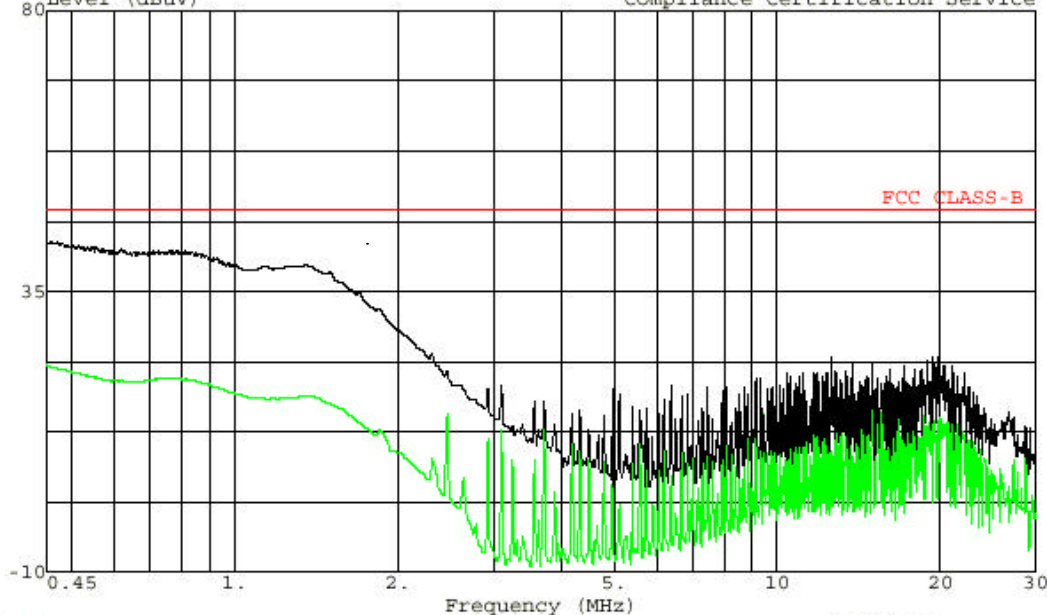
Trace: 5
Project # : 02U1521-1
Test Engineer : NEELESH RAJ
Company : CLARINET SYSTEMS INC.
EUT : 802.11b RADIO UNIT WITH INFRARED
: CONNECTION
Test Config. : EUT
Test of Target: FCC Class B
Mode of Op. : Continous Transmit
: 115VAC, 60 Hz
: Line 1 hot (peak:black) (quasi:green)

Ref Trace:



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

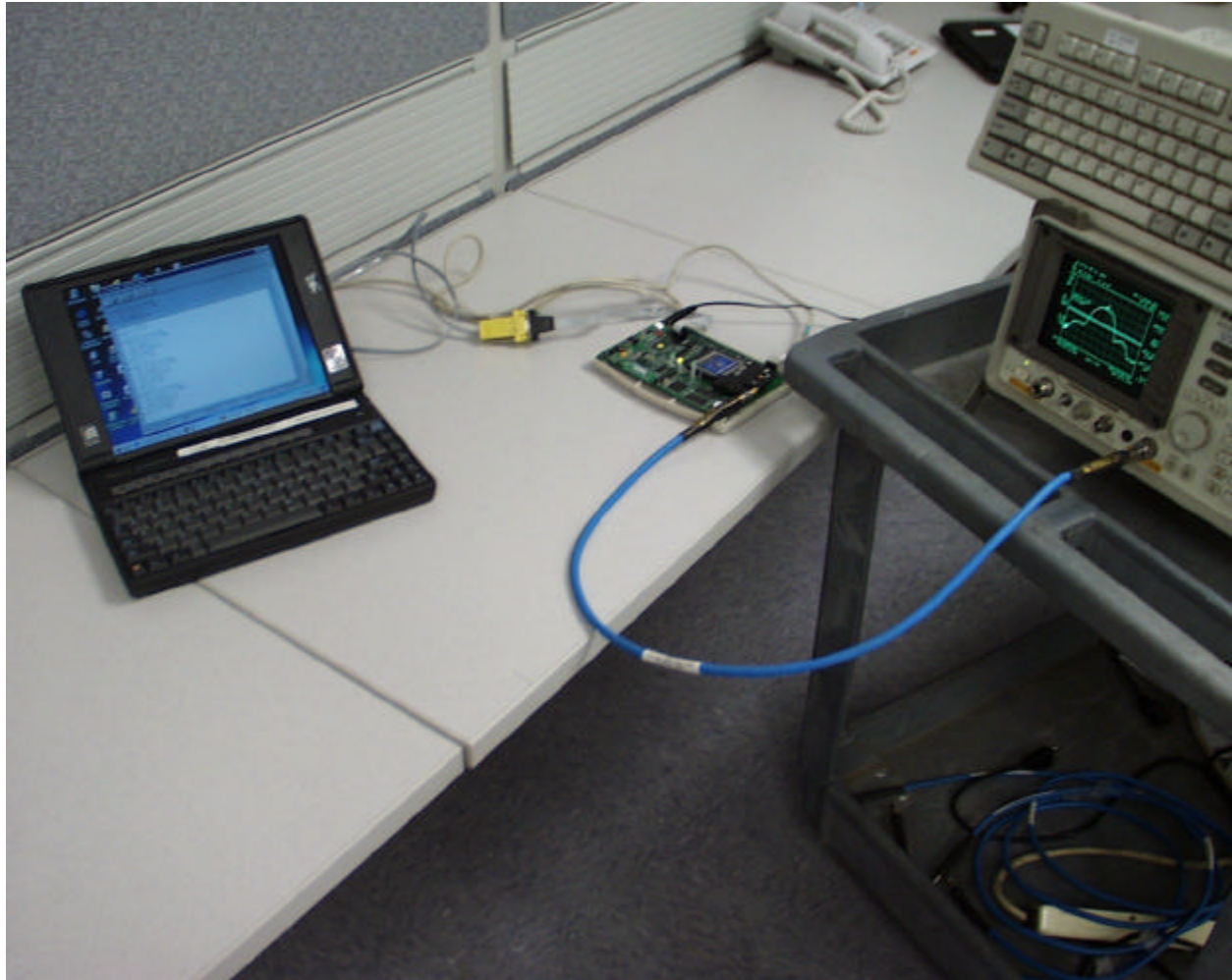
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Level (dBuV) Compliance Certification Service

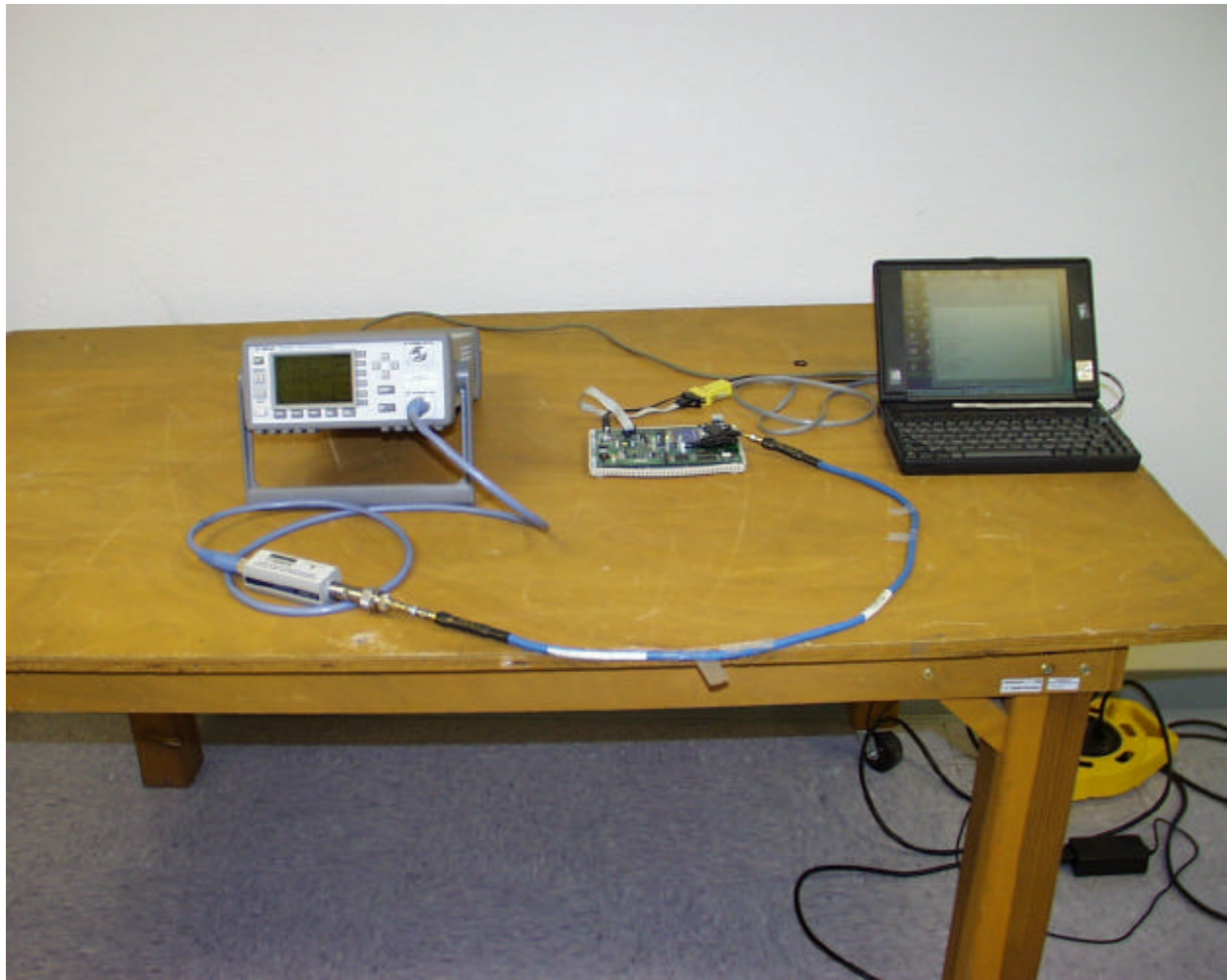


Trace: 5
Project # : 02U1521-1
Test Engineer : NEELESH RAJ
Company : CLARINET SYSTEMS INC.
EUT : 802.11b RADIO UNIT WITH INFRARED
: CONNECTION
Test Config. : EUT
Test of Target: FCC Class B
Mode of Op. : Continous Transmit
: 115VAC, 60 Hz
: Line 2 neutral (peak:black) (quasi:green)

8.8. SETUP PHOTOS

ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP





TRANSMITTER RADIATED RF MEASUREMENT SETUP





DIGITAL DEVICE RADIATED EMISSIONS MEASUREMENT SETUP





POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP





END OF REPORT

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