High Channel:

06/14/02 **FCC Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Thu Chan
Project #: 02U1357
Company: Palm, Inc.
EUT Descrip.: 2.4GHZ Bluetooth Handheld Unit
EUT M/N: M550
Test Target: FCC 15.247

Equipment for 1-26.5 GHz:
HP8593EM Analyzer
Miteq NSP2600-44 Preamp
EMCO 3115 Horn Antenna
ARA MWH 1826/B
Cable: 15.0 feet

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
High Channel:															
Fundamental:															
2.480	3.3	52.5	30.0	29.1	3.1	0.0	-9.5	0.0	75.2	52.6	115.0	95.0	-39.8	-42.4	V (Fixed Channel)
2.480	3.3	49.5	29.4	29.1	3.1	0.0	-9.5	0.0	72.2	52.1	115.0	95.0	-42.8	-42.9	H (Fixed Channel)
Top Bandedge:															
2.484	3.3	36.2	24.4	29.1	3.1	0.0	-9.5	0.0	58.9	47.1	74.0	54.0	-15.1	-6.9	V
2.390	3.3	38.5	24.3	28.9	3.1	0.0	-9.5	0.0	61.0	46.8	74.0	54.0	-13.0	-7.2	H
Harmonic & Spurious:															
4.960	3.3	63.7	36.0	34.2	5.8	-36.1	-9.5	1.0	59.2	31.5	74.0	54.0	-14.8	-22.5	V
7.440	3.3	48.5	35.0	37.5	7.4	-36.2	-9.5	1.0	48.6	35.1	74.0	54.0	-25.4	-18.9	V
9.920	3.3	46.2	34.0	40.1	8.7	-35.5	-9.5	1.0	51.0	38.8	74.0	54.0	-23.0	-15.2	V (Noise Floor)
12.400	3.3	47.0	35.0	39.1	9.7	-36.5	-9.5	1.0	50.8	38.8	74.0	54.0	-23.2	-15.2	V (Noise Floor)
14.880	3.3	50.0	37.5	40.6	11.0	-38.4	-9.5	1.0	54.6	42.2	74.0	54.0	-19.4	-11.8	V (Noise Floor)
17.360	3.3	51.0	38.5	44.5	12.5	-38.9	-9.5	1.0	60.7	48.2	74.0	54.0	-13.3	-5.8	V (Noise Floor)
19.840	3.3	51.0	40.5	32.1	13.8	-38.9	-9.5	1.0	49.5	39.0	74.0	54.0	-24.5	-15.0	V (Noise Floor)
22.320	3.3	55.0	42.0	32.4	15.1	-38.9	-9.5	1.0	55.1	42.1	74.0	54.0	-18.9	-11.9	V (Noise Floor)
24.800	3.3	55.0	42.0	32.9	16.9	-39.6	-9.5	1.0	56.6	43.6	74.0	54.0	-17.4	-10.4	V (Noise Floor)
4.960	3.3	62.0	36.0	34.2	5.8	-36.1	-9.5	1.0	57.5	31.5	74.0	54.0	-16.5	-22.5	H
7.440	3.3	48.0	34.5	37.5	7.4	-36.2	-9.5	1.0	48.1	34.6	74.0	54.0	-25.9	-19.4	H
9.920	3.3	46.0	34.0	40.1	8.7	-35.5	-9.5	1.0	50.8	38.8	74.0	54.0	-23.2	-15.2	H (Noise Floor)
12.400	3.3	47.1	35.0	39.1	9.7	-36.5	-9.5	1.0	50.9	38.8	74.0	54.0	-23.1	-15.2	H (Noise Floor)
14.880	3.3	50.0	38.4	40.6	11.0	-38.4	-9.5	1.0	54.6	43.1	74.0	54.0	-19.4	-10.9	H (Noise Floor)
17.360	3.3	51.0	39.0	44.5	12.5	-38.9	-9.5	1.0	60.7	48.7	74.0	54.0	-13.3	-5.3	H (Noise Floor)
19.840	3.3	51.0	40.5	32.1	13.8	-38.9	-9.5	1.0	49.5	39.0	74.0	54.0	-24.5	-15.0	H (Noise Floor)
22.320	3.3	55.0	42.0	32.4	15.1	-38.9	-9.5	1.0	55.1	42.1	74.0	54.0	-18.9	-11.9	H (Noise Floor)
24.800	3.3	55.0	42.0	32.9	16.9	-39.6	-9.5	1.0	56.6	43.6	74.0	54.0	-17.4	-10.4	H (Noise Floor)

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	FSY High Pass Filter (4.57 GHz S/N: 003)		

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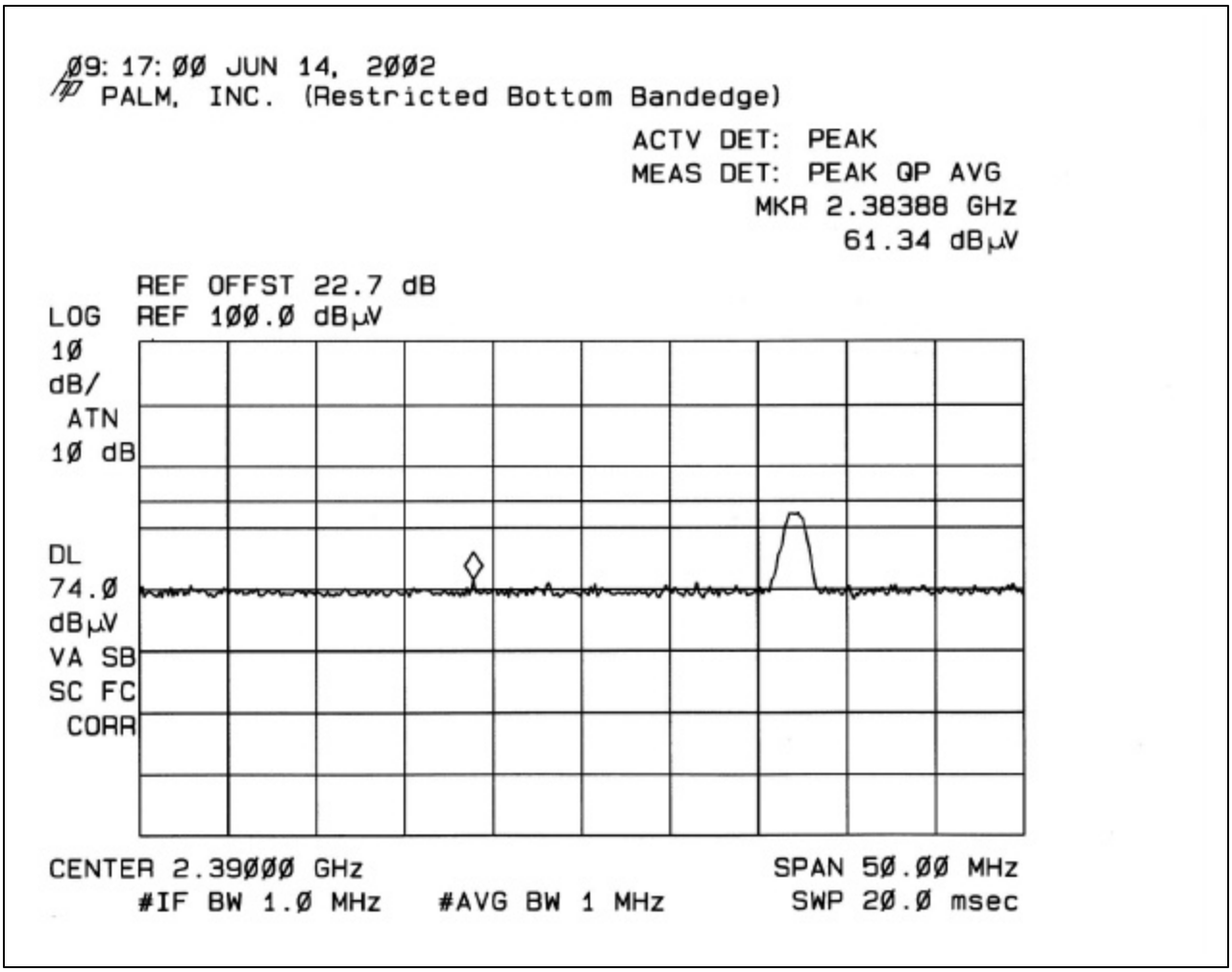
RESTRICTED BANDEDGE: 2310 – 2390 MHz and 2483.5 – 2500 MHz



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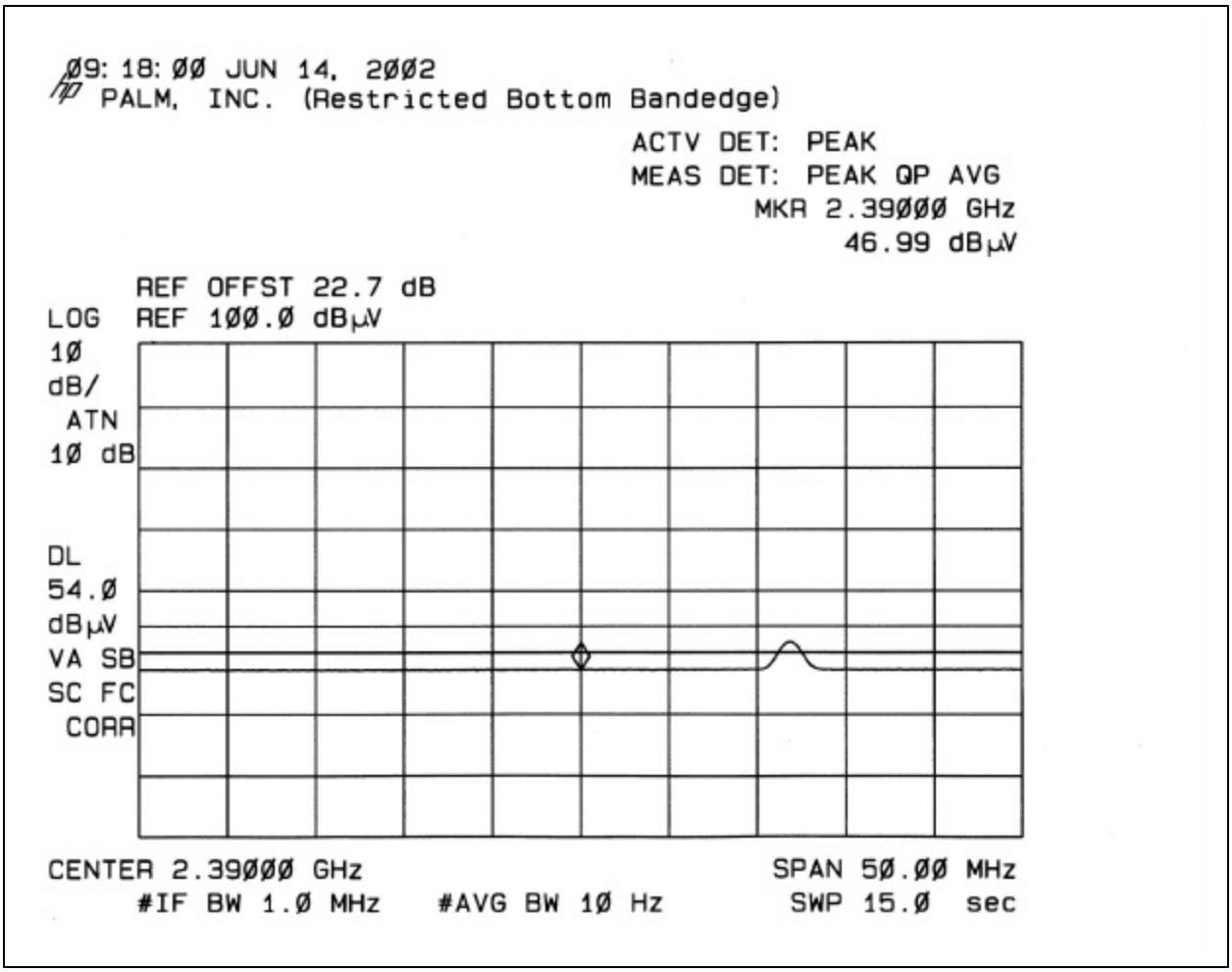

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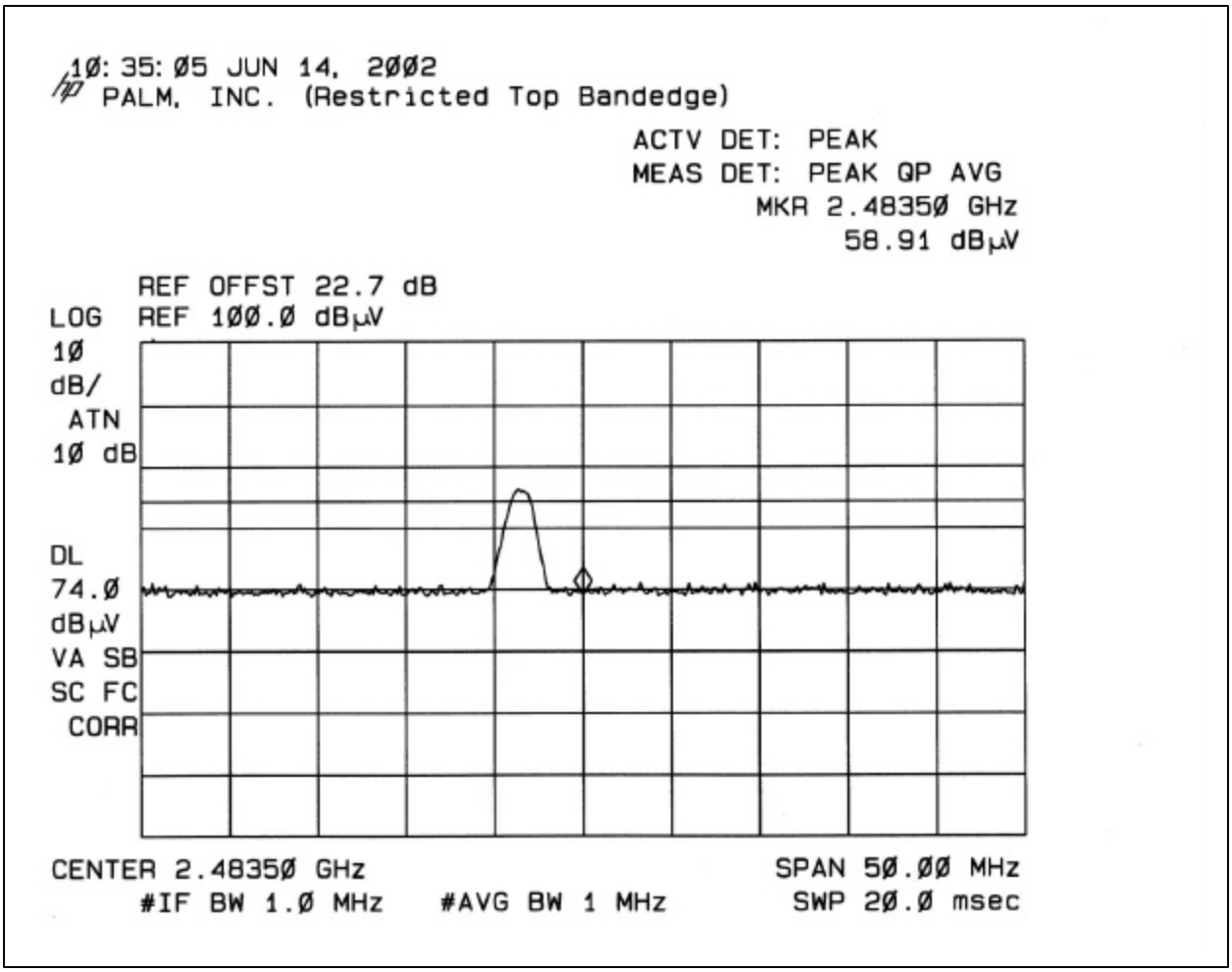

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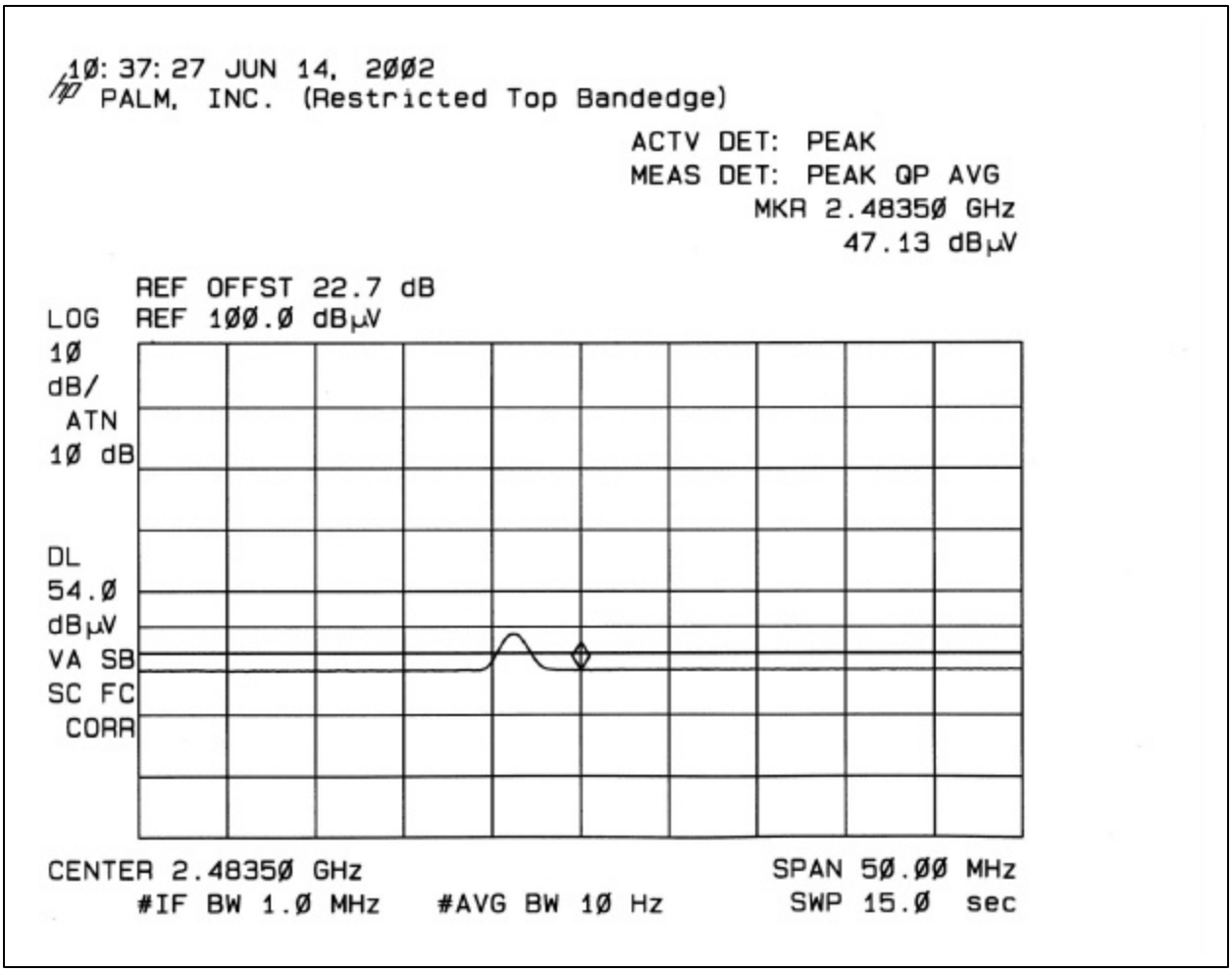

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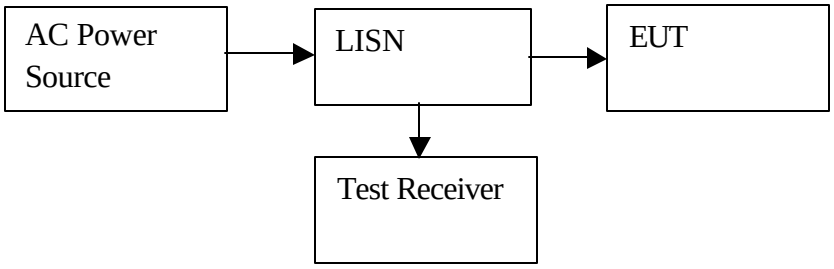
9.9 POWER LINE CONDUCTED EMISSION

TEST SETUP

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
450 KHz to 30 MHz	☐ Peak ☒ Quasi Peak	☒ 10 KHz	☒ 10 KHz



TEST PROCEDURE

1. The EUT was placed on a wooden table 80 cm above the horizontal ground plane and 40 cm away from the vertical ground plane. The EUT was set to transmit / receive in a continuous mode.

2. Conducted disturbance was measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.450 - 30 MHz was investigated.

RESULT

No non-compliance noted. See Line Conduction plot

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FCC 115Vac, 60Hz (Motorola 180-0711 Power Supply):

CONDUCTED EMISSIONS DATA (115VAC 60Hz) Motorola 180-0711									
Freq.	Reading			Closs	Limit	EN A	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
8.67	47.52	43.19	--	0.00	48.00	--	-4.81	--	L1
1.74	47.35	44.29	--	0.00	48.00	--	-3.71	--	L1
3.36	43.27	39.85	--	0.00	48.00	--	-8.15	--	L1
8.44	48.74	43.32	--	0.00	48.00	--	-4.68	--	L2
1.65	47.57	44.39	--	0.00	48.00	--	-3.61	--	L2
3.36	43.27	39.85	--	0.00	48.00	--	-8.15	--	L2
6 Worst Data									

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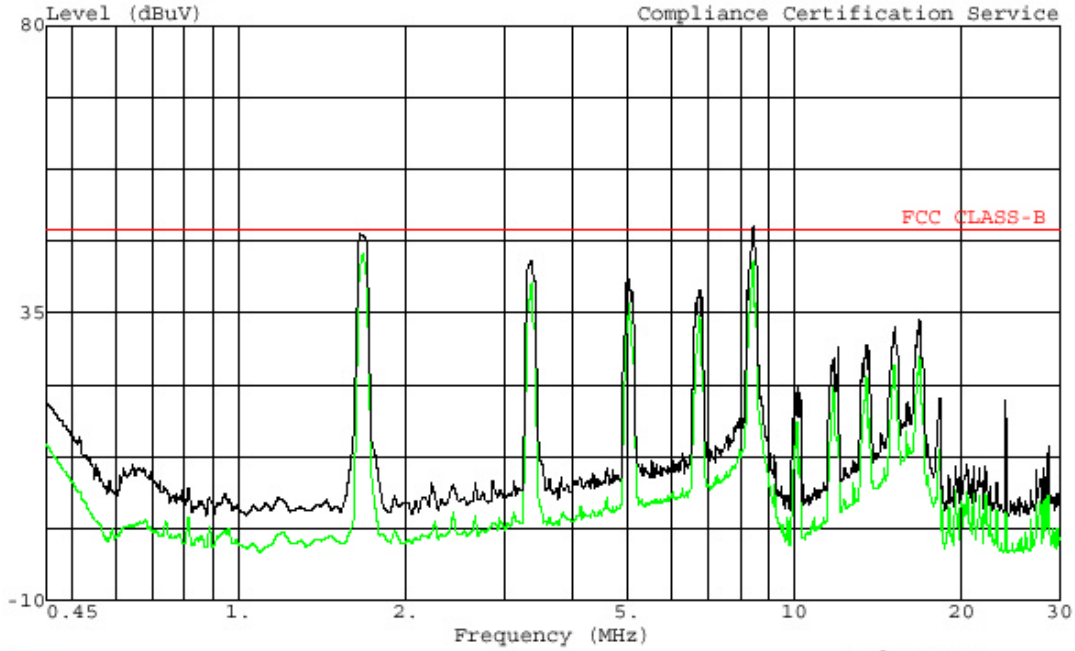

Trace: 39 Ref Trace:
Project # : 02U1357-1
Test Engineer: Skip Doyle
Company : Palm, Inc.
EUT : 2.4GHz Bluetooth Handheld Unit (100mW)
: Model: M550 w/Motorola 180-0711 PS
Test Config : EUT/Charger/PC/KB/Mouse/Printer/Monitor
Type of Test : FCC, Class B
Mode of Op. :
: L1: PK (Black), QP (Green)
: 115VAc, 60Hz

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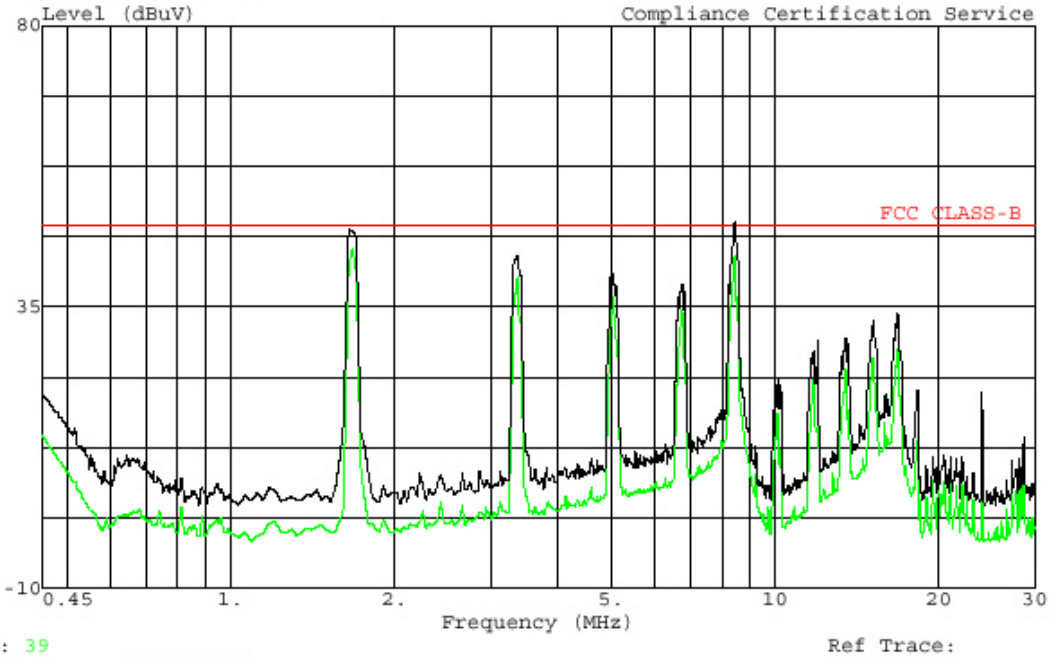

Trace: 39 Ref Trace:
Project # : 02U1357-1
Test Engineer: Skip Doyle
Company : Palm, Inc.
EUT : 2.4GHz Bluetooth Handheld Unit (100mW)
: Model: M550 w/Motorola 180-0711 PS
Test Config : EUT/Charger/PC/KB/Mouse/Printer/Monitor
Type of Test : FCC, Class B
Mode of Op. :
: L2: PK (Black), QP (Green)
: 115VAc, 60Hz

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FCC 115Vac, 60Hz (MEIMADA Power Supply):

CONDUCTED EMISSIONS DATA (115VAC 60Hz) MEI MADA-3025-PS									
Freq.	Reading			Closs	Limit	FCC_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
5.93	42.77		--	0.00	48.00	--	-5.23	--	L1
4.33	42.49		--	0.00	48.00	--	-5.51	--	L1
5.62	39.15		--	0.00	48.00	--	-8.85	--	L1
3.48	37.58		--	0.00	48.00	--	-10.42	--	L2
1.73	35.39		--	0.00	48.00	--	-12.61	--	L2
5.21	34.82		--	0.00	48.00	--	-13.18	--	L2
6 Worst Data									

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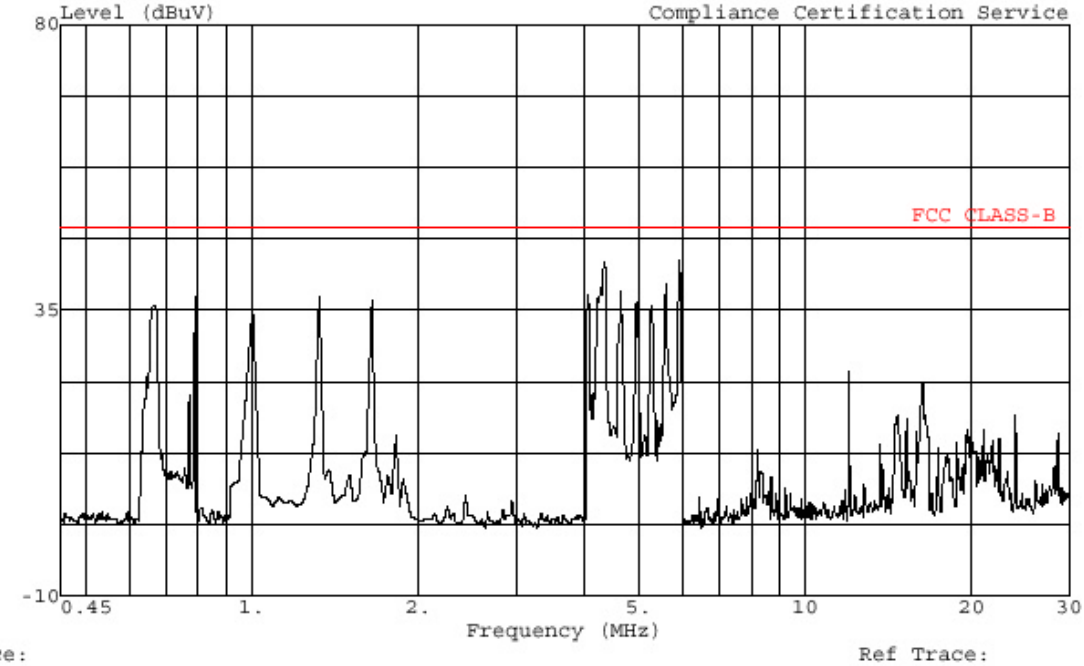

Trace: Ref Trace:
Project # : 02U1357-1
Test Engineer: Skip Doyle
Company : Palm, Inc.
EUT : 2.4GHz Bluetooth Handheld Unit (100mW)
: Model: M550 w/MEI MADA-3025 PS
Test Config : EUT/Charger/PC/KB/Mouse/Printer/Monitor
Type of Test : FCC, Class B
Mode of Op. :
: L1: PK (Black)
: 115VAc, 60Hz

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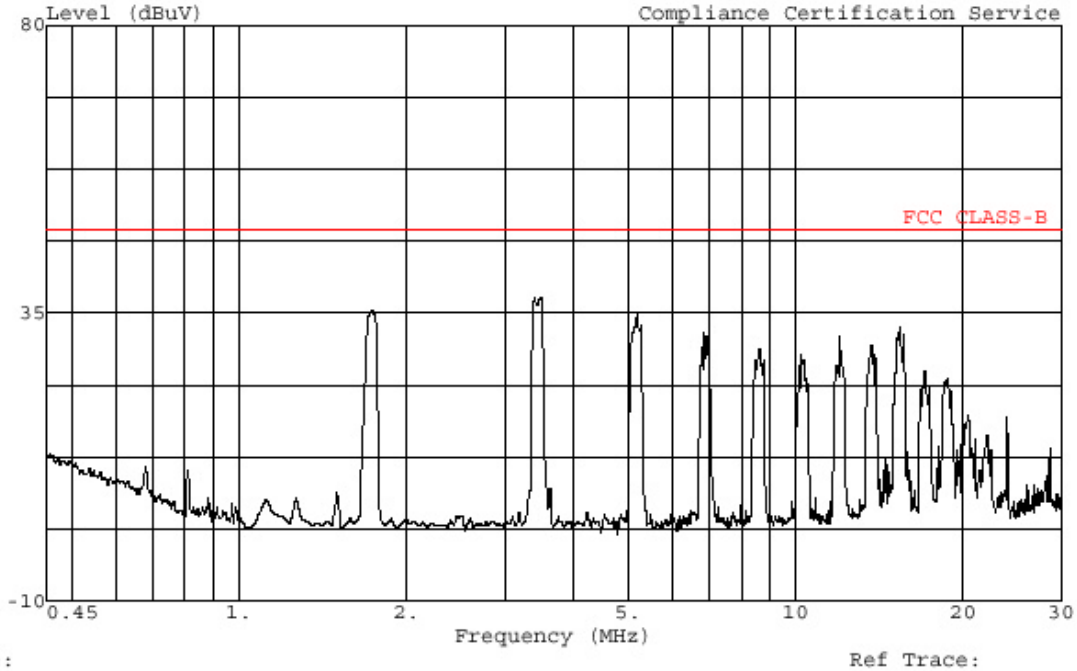

Trace: Ref Trace:
Project # : 02U1357-1
Test Engineer: Skip Doyle
Company : Palm, Inc.
EUT : 2.4GHz Bluetooth Handheld Unit (100mW)
: Model: M550 w/MEI MADA-3025 PS
Test Config : EUT/Charger/PC/KB/Mouse/Printer/Monitor
Type of Test : FCC, Class B
Mode of Op. :
: L2: PK (Black)
: 115VAc, 60Hz

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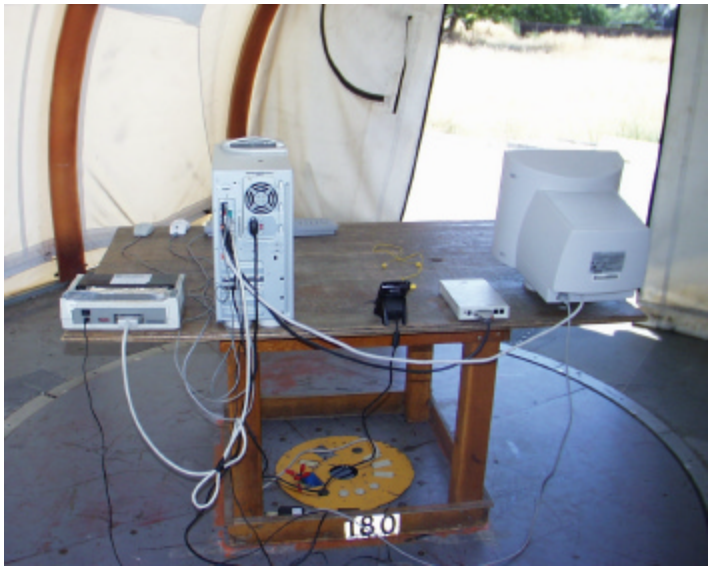
9.10 SETUP PHOTOS

Radiated Emission below 1 GHz measurement (15.209)



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Conducted Emission measurement (15.207)

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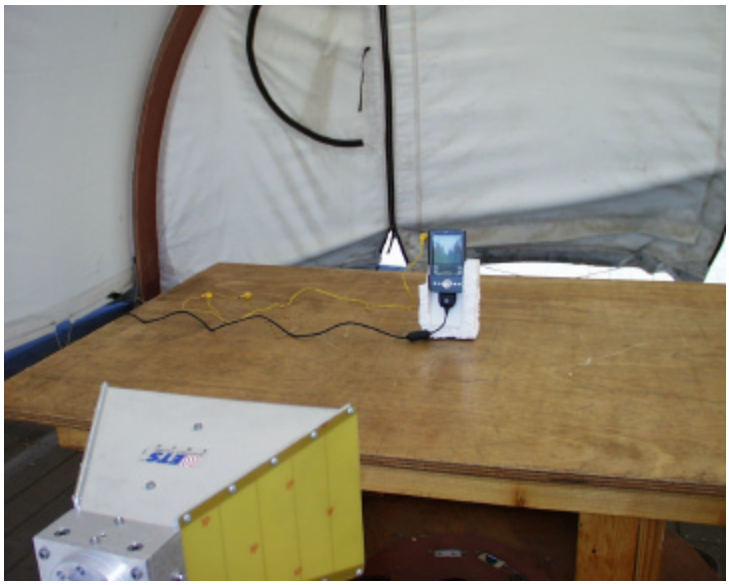
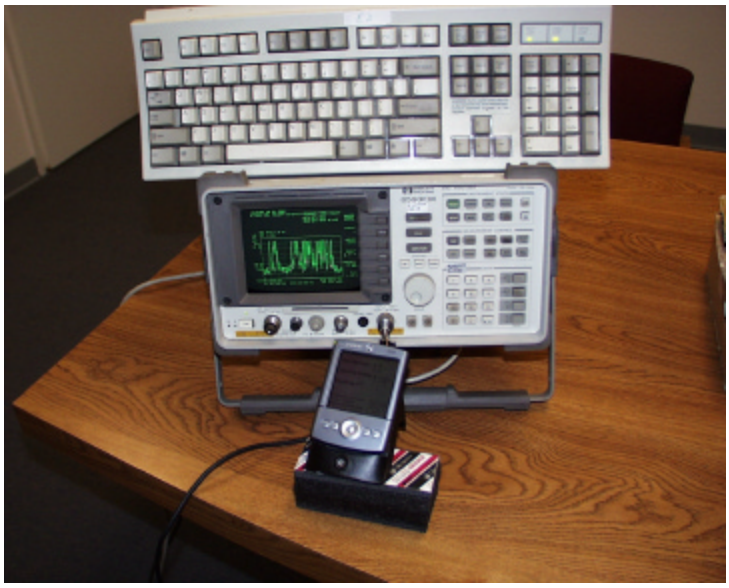
Radiated Harmonic & Spurious Emissions measurement



Antenna Port Terminal measurement



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