FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

PHONE WITH 802.11B/G/N AND BLUETOOTH 2.1+EDR

MODEL SERIES: P160UNA

REPORT NUMBER: 10U13357-4A

FCC ID: O8F-BROU
IC: 3905A-BROU

ISSUE DATE: JANUARY 18, 2011

Prepared for
PALM, INC.
950 WEST MAUDE AVENUE
SUNNYVALE, CA 9408, U.S.A.

Prepared by
COMPLIANCE CERTIFICATION SERVICES (UL CCS)
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
---	11/03/10	Initial Issue	T. Chan
A	01/18/11	Added KDB 680106 on Section 5.5	A. Zaffar

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: PALM, INC.
950 WEST MAUDE AVENUE
SUNNYVALE, CA 94085, U.S.A.

EUT DESCRIPTION: PHONE WITH 802.11B/G/N AND BLUETOOTH 2.1+EDR

MODEL: P160UNA

SERIAL NUMBER: BD2LN9UA6818

DATE TESTED: OCTOBER 28 TO NOVEMBER 1, 2010

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	Pass
INDUSTRY CANADA RSS-210 Issue 8	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

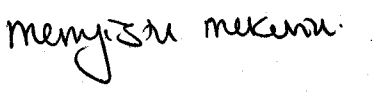
Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

THU CHAN
ENGINEERING MANAGER
UL CCS

Tested By:



MENGISTU MEKURIA
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT is 850/900/1800/1900 MHz GSM/GPRS/EDGE and 850/1900/2100 WCDMA/HSDPA/HSUPA phone with 802.11b/g/n and Bluetooth v2.1+EDR. The phone and the inductive charger (touchstone) form an inductively coupled battery charger system intended for charging the battery inside the phone.

The accessory back cover receives on a frequency of approximately 118.5 kHz and transmits on a frequency of approximately 3.1 MHz.

5.2. MAXIMUM FIELD STRENGTH

The transmitter has maximum radiated field strength as follows:

Frequency (MHz)	Field Strength (dBuV/m @ 30 m)	Field Strength (uV/m @ 30 m)
3.1	-9.92	0.319

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an integral loop antenna.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Palm Airboard Firmware, rev. 13P.

5.5. MODE(S) OF OPERATION

When the accessory cover is within approximately 0.2 mm of, and properly aligned with, the base the transmitters on both the base and the cover will operate.

The base provides power for charging the battery and for operating the radio devices in both the base and the cover.

5.6. TEST CONFIGURATIONS

The following configurations were investigated during preliminary testing:

EUT Configuration	Description
Standard	EUT were tested with a dead battery therefore draw the most current.

5.7. WORST-CASE CONFIGURATION AND MODE

Based on past experience, the EUT with dead battery, inductive Dock, and AC Adapter is considered as the worst-case.

KDB 680106 "Client Device Considerations" was considered and evaluation performed as applicable to this device. The inductive charger has been certified under FCC ID: O8F-TST1. IC: 3905A-TST1. EUT is working in charging mode with the inductive charger. The inductive back cover is not removable. For more information, please refer to this inductive charger FCC ID/ IC ID.

5.8. MODIFICATIONS

No modifications were made during testing.

5.9. DESCRIPTION OF TEST SETUP

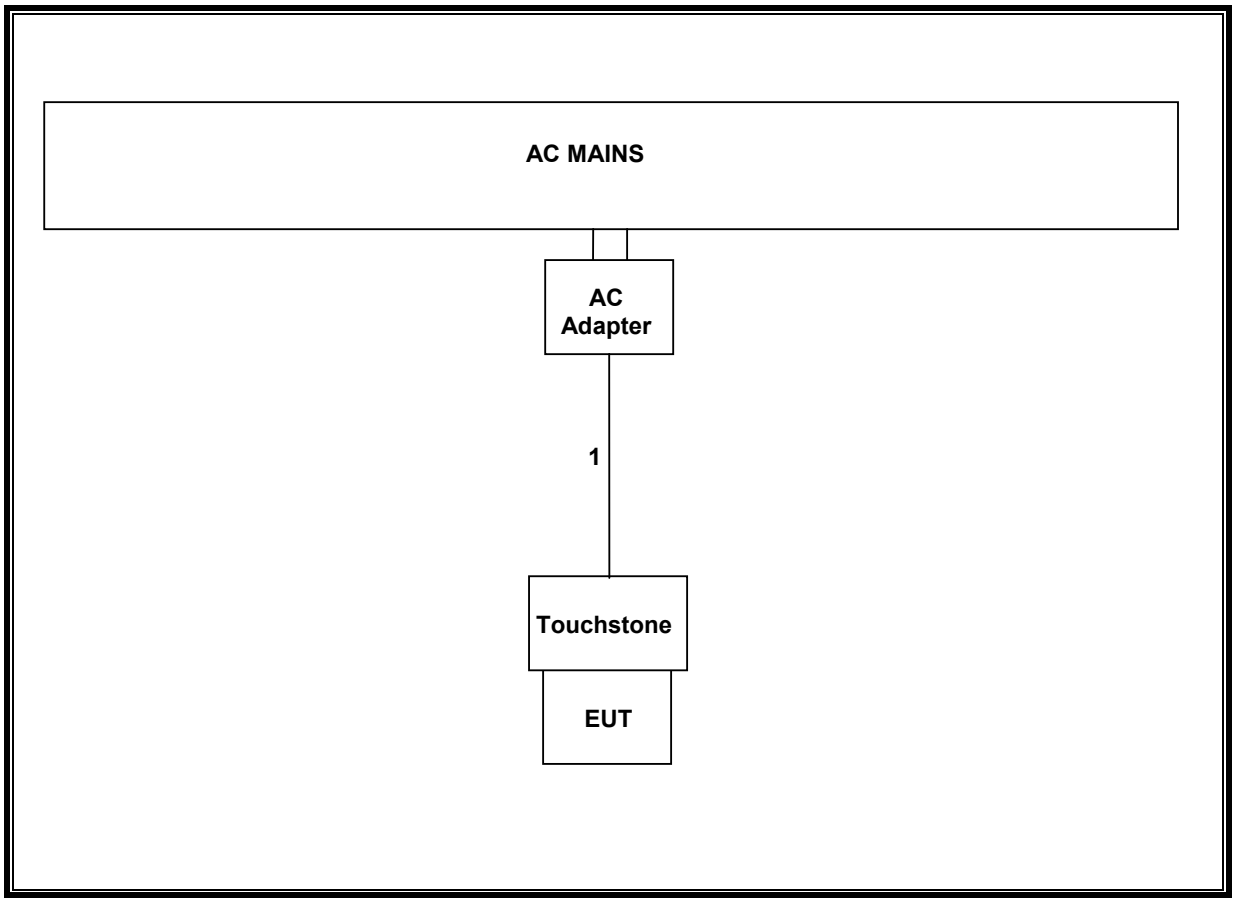
SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Touchstone	Palm, Inc.	157-10123-00	N/A	DoC
AC Adapter 1	Palm, Inc.	157-10124-00	N/A	DoC
AC Adapter 2	Palm, Inc.	157-10130-00	N/A	DoC

I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	USB	1	Micro USB	Shielded	1m	

SETUP DIAGRAM FOR TEST CONFIGURATIONS WITHOUT BATTERY



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset or Serial Number**	**Cal Due**
Antenna, Loop, 30 MHz	EMCO	6502	0035798	01/12/12
EMI Receiver, 2.9 GHz	Agilent / HP	8542E	C00957	03/24/11
RF Filter Section, 2.9 GHz	Agilent / HP	85420E	C00958	03/24/11
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	03/05/11
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01/06/11
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/12/11
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	N02481	11/05/10
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	05/06/11
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/06/01

7. 99% BANDWIDTH

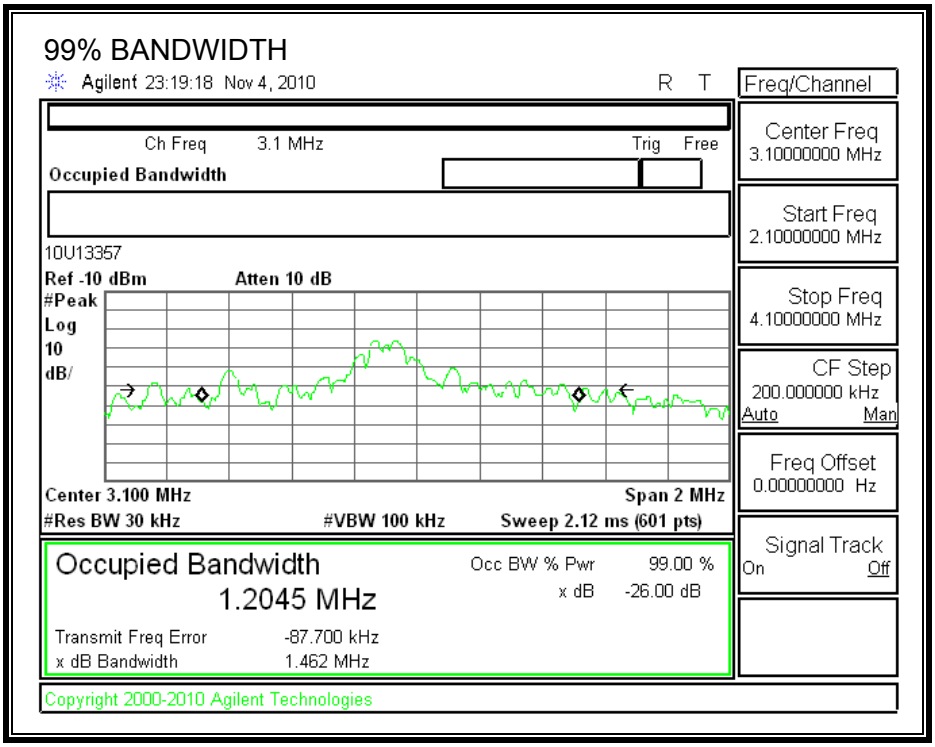
LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS



8. RADIATED EMISSIONS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.209 (a)
IC RSS-210, Section 2.6
IC RSS-GEN, Section 6

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (m)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100	3
88 to 216	150	3
216 to 960	200	3
Above 960 MHz	500	3
Note: The lower limit shall apply at the transition frequency.		

TEST PROCEDURE

ANSI C63.4

The transmitter and receiver of the EUT are measured simultaneously.

8.2. RADIATED EMISSIONS 0.15 TO 30 MHz (WORST CASE CONFIGURATION)

FCC Part 15.209
Loop Antenna Measurement At Open Field below 30 MHz

Company: Palm, Inc.
Project #: 10U13357
Model #: Cell Phone with Touchstone and AC Adapter
Tester: Mengistu Mekuria
Date: 11/1/2010

Frequency	Reading	Measurement	Field Strength	Reading	Measurement	Field Strength	Antenna	Distance	Limit	Field Strength	Limit	Delta	Notes
	A	Distance A	A	B	Distance B	B	Factor	Factor	Distance	at Limit Distance			(Pk/QP/AV, etc.)
(MHz)	(dBuV)	(m)	(dBuV/m)	(dBuV)	(m)	(dBuV/m)	(dB/m)	(dB/decade)	(m)	(dBuV/m)	(dBuV/m)	(dB)	
Loop Antenna Maximized over Vertical and Horizontal:													
3.09	38.96	1	49.16				10.20	40.00	30	-9.92	29.54	-39.5	PK

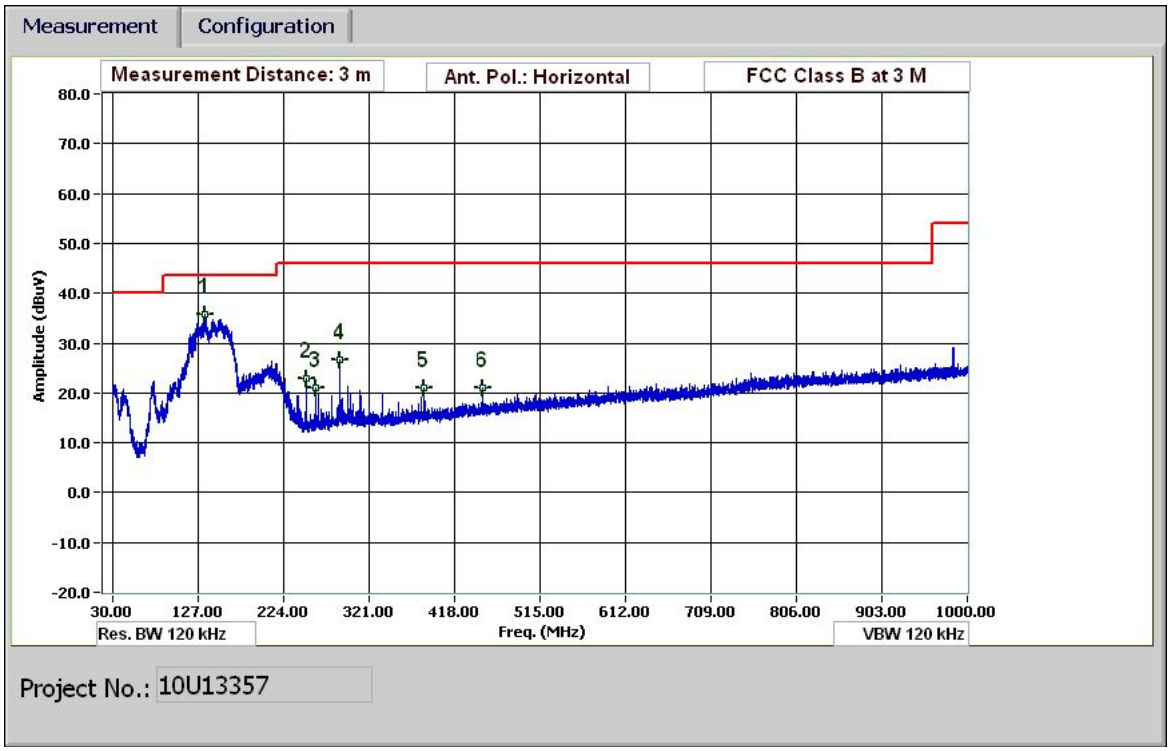
No other emissions observed up to 30 MHz

Notes: In accordance with 15.31 (f) (2):
For each frequency at which a measurement is made at only one distance, the square of an inverse linear distance extrapolation factor (40 dB/decade) is applied.
For each frequency at which measurements are made at two distances, the applied extrapolation factor is calculated from these two measurements.

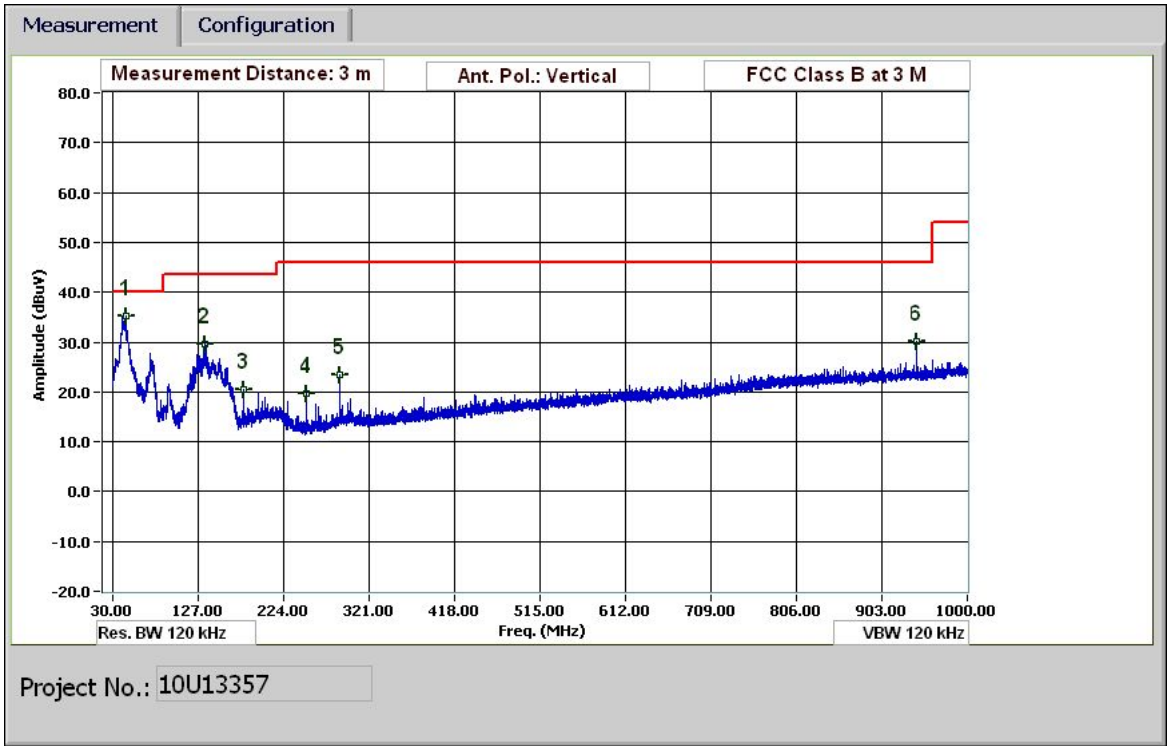
EUT WITH 157-10124-00 BATERY CHARGER

8.3. RADIATED EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)

HORIZONTAL PLOT



VERTICAL PLOT



TABULATED DATA

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Mengistu Mekuria
Date: 11/01/10
Project #: 10U13357
Company: Palm
Test Target: FCC Class B
Mode Oper: Charging Mode (10124)

f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters		
Read	Analyzer Reading	Filter	Filter Insert Loss		
AF	Antenna Factor	Corr.	Calculated Field Strength		
CL	Cable Loss	Limit	Field Strength Limit		

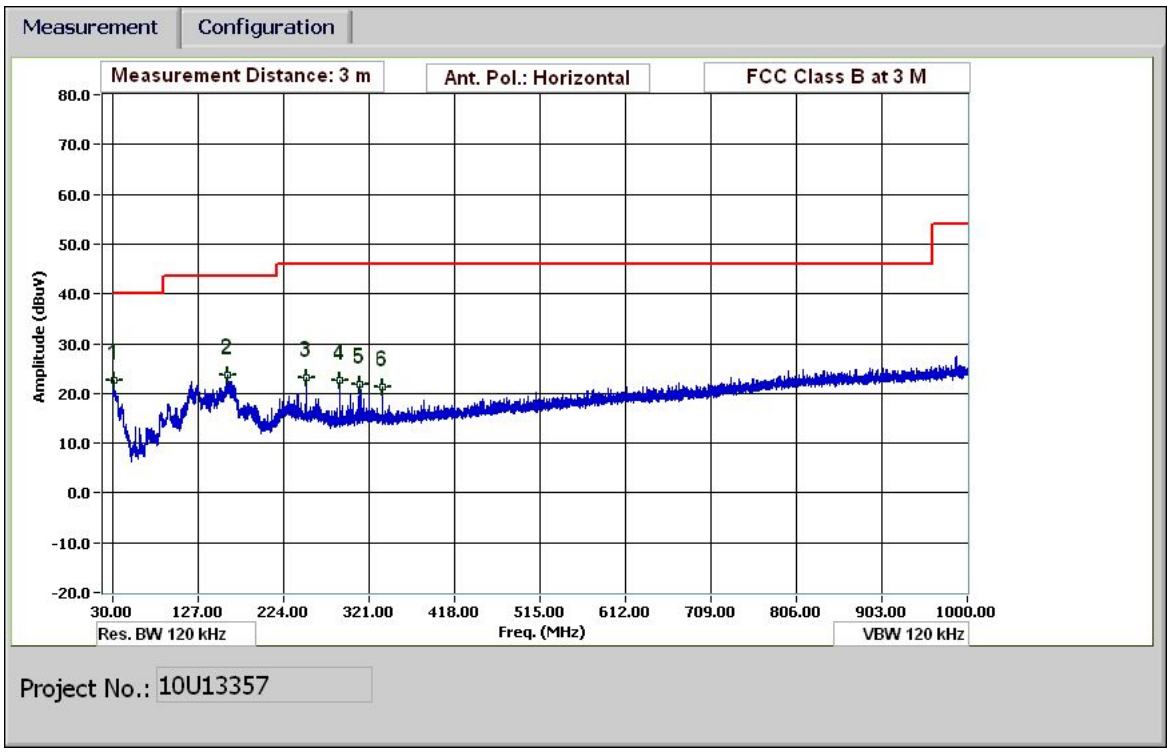
f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Pad dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
134.284	3.0	50.5	13.5	1.0	29.4	0.0	0.0	35.7	43.5	-7.8	H	P	
249.969	3.0	38.5	11.8	1.4	28.8	0.0	0.0	22.9	46.0	-23.1	H	P	
260.049	3.0	36.2	12.1	1.5	28.8	0.0	0.0	20.9	46.0	-25.1	H	P	
287.891	3.0	41.1	12.9	1.6	28.8	0.0	0.0	26.8	46.0	-19.2	H	P	
383.895	3.0	33.7	14.7	1.9	29.2	0.0	0.0	21.1	46.0	-24.9	H	P	
450.017	3.0	32.5	15.9	2.0	29.5	0.0	0.0	21.0	46.0	-25.0	H	P	
45.001	3.0	53.3	11.1	0.6	29.6	0.0	0.0	35.3	40.0	-4.7	V	P	
134.404	3.0	44.4	13.5	1.0	29.4	0.0	0.0	29.5	43.5	-14.0	V	P	
178.326	3.0	37.7	10.6	1.2	29.1	0.0	0.0	20.4	43.5	-23.1	V	P	
249.969	3.0	35.3	11.8	1.4	28.8	0.0	0.0	19.7	46.0	-26.3	V	P	
287.891	3.0	37.7	12.9	1.6	28.8	0.0	0.0	23.4	46.0	-22.6	V	P	
942.518	3.0	33.5	22.0	3.1	28.5	0.0	0.0	30.1	46.0	-15.9	V	P	

Rev. 1.27.09
Note: No other emissions were detected above the system noise floor.

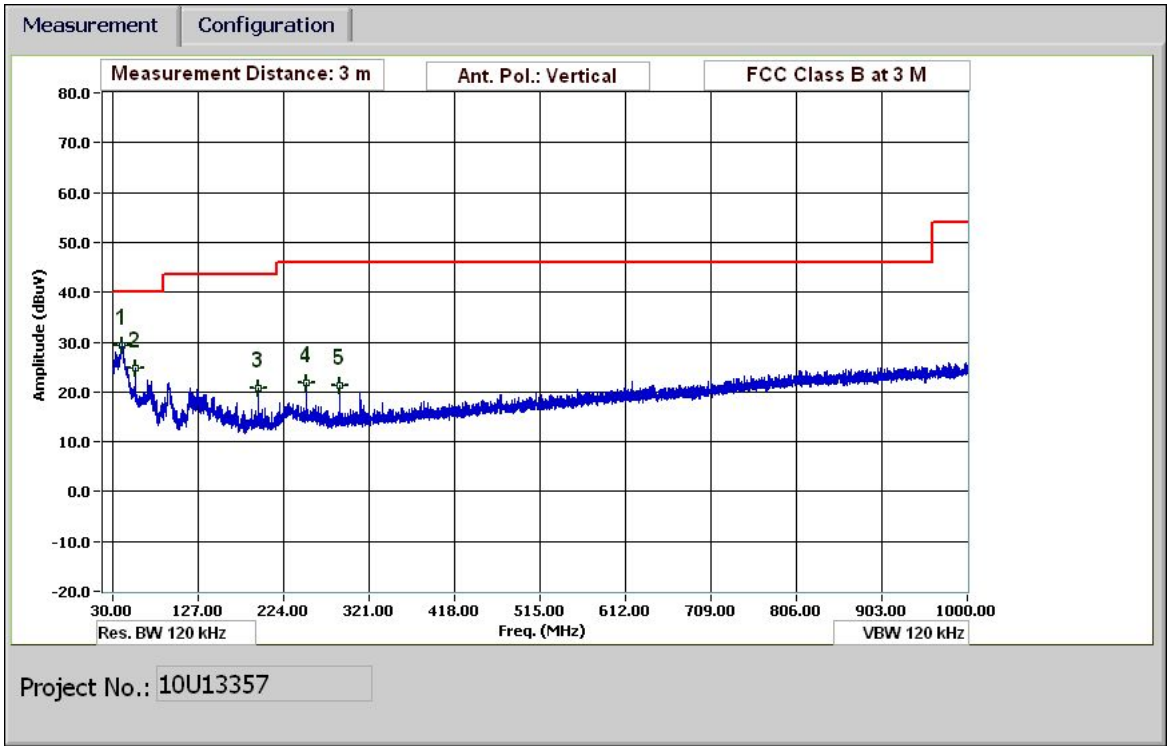
EUT WITH 157-10130-00 BATERY CHARGER

8.4. RADIATED EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)

HORIZONTAL PLOT



VERTICAL PLOT



TABULATED DATA

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Mengistu Mekuria
Date: 11/01/10
Project #: 10U13357
Company: Palm
Test Target: FCC Class B
Mode Oper: Charging Mode (10130)

f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters		
Read	Analyzer Reading	Filter	Filter Insert Loss		
AF	Antenna Factor	Corr.	Calculated Field Strength		
CL	Cable Loss	Limit	Field Strength Limit		

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Pad dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
31.2	3.0	32.1	19.8	0.5	29.7	0.0	0.0	22.7	40.0	-17.3	H	P	
160.085	3.0	40.9	10.8	1.2	29.3	0.0	0.0	23.6	43.5	-19.9	H	P	
249.969	3.0	38.6	11.8	1.4	28.8	0.0	0.0	23.1	46.0	-22.9	H	P	
287.891	3.0	37.0	12.9	1.6	28.8	0.0	0.0	22.7	46.0	-23.3	H	P	
309.972	3.0	35.6	13.5	1.6	28.8	0.0	0.0	21.8	46.0	-24.2	H	P	
335.893	3.0	34.6	13.9	1.7	29.0	0.0	0.0	21.3	46.0	-24.7	H	P	
40.44	3.0	44.6	13.8	0.6	29.6	0.0	0.0	29.3	40.0	-10.7	V	P	
56.041	3.0	45.8	7.9	0.6	29.6	0.0	0.0	24.7	40.0	-15.3	V	P	
195.367	3.0	36.7	11.6	1.3	28.9	0.0	0.0	20.7	43.5	-22.8	V	P	
249.969	3.0	37.4	11.8	1.4	28.8	0.0	0.0	21.8	46.0	-24.2	V	P	
287.771	3.0	35.7	12.9	1.6	28.8	0.0	0.0	21.4	46.0	-24.6	V	P	

Rev. 1.27.09
Note: No other emissions were detected above the system noise floor.

9. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207 (a)
IC RSS-GEN, Section 7.2.2

Frequency of emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50
* Decreases with the logarithm of the frequency.		

TEST PROCEDURE

ANSI C63.4

EUT WITH 157-10124-00 BATERY CHARGER

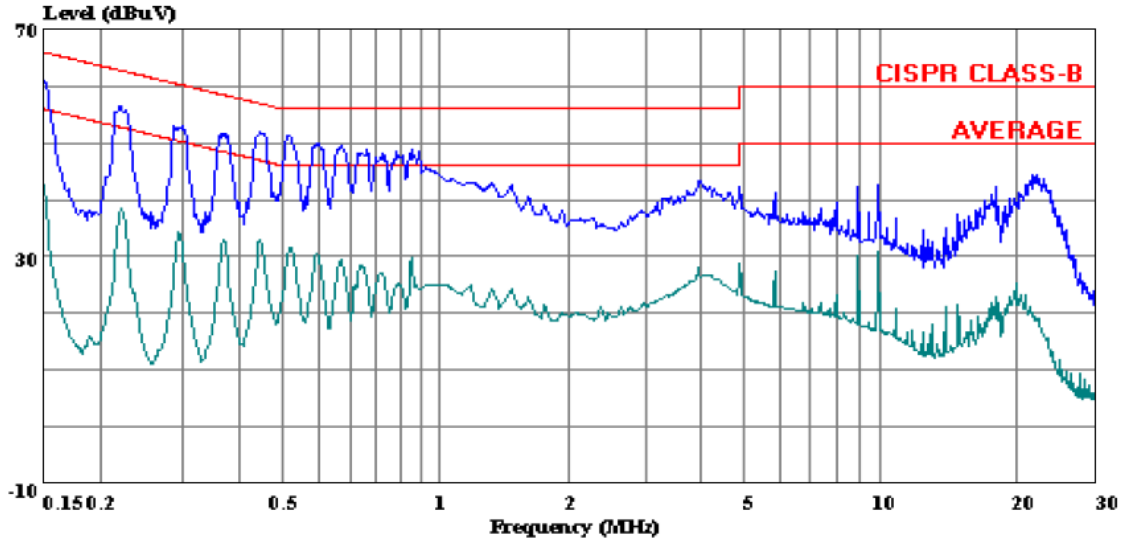
6 WORST EMISSIONS

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
0.45	52.00	--	32.86	0.00	56.93	46.93	-4.93	-14.07	L1
0.52	51.18	--	31.68	0.00	56.00	46.00	-4.82	-14.32	L1
0.60	50.05	--	30.61	0.00	56.00	46.00	-5.95	-15.39	L1
0.51	54.41	--	36.24	0.00	56.00	46.00	-1.59	-9.76	L2
0.60	53.91	--	36.91	0.00	56.00	46.00	-2.09	-9.09	L2
0.67	53.87	--	34.81	0.00	56.00	46.00	-2.13	-11.19	L2
6 Worst Data									

LINE 1 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 126 File#: 10U13357_LC.EMI Date: 10-31-2010 Time: 22:02:41



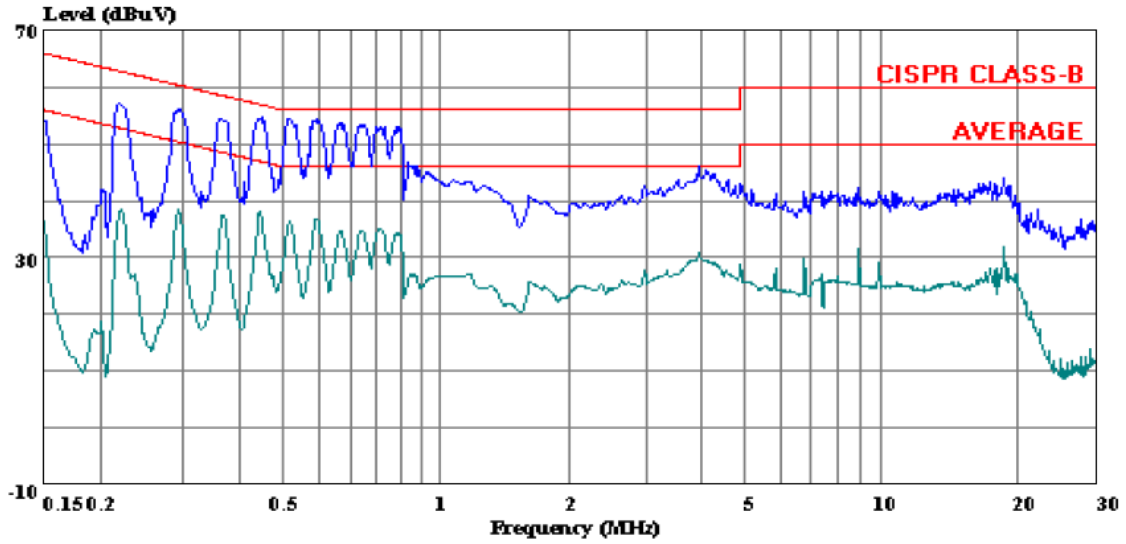
Trace: 124 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: Mengistu Mekuria
Project # : 10U13357
Company : Palm
Configuration: EUT With dead Battery, Incuctive Dock,
: & AC Adapter (10124)
Mode : Charging Mode
Target : FCC Class B
Voltage : 115VAC / 60Hz
: L1: (Peak: Blue, Average: Green)

LINE 2 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 140 File#: 10U13357_LC.EMI Date: 10-31-2010 Time: 22:24:01



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Condition: CISPR CLASS-B
Test Operator: Mengistu Mekuria
Project # : 10U13357
Company : Palm
Configuration: EUT With dead Battery, Incuctive Dock,
: & AC Adapter (10124)
Mode : Charging Mode
Target : FCC Class B
Voltage : 115VAC / 60Hz
: L2: (Peak: Blue, Average: Green)

EUT WITH 157-10130-00 BATERY CHARGER

6 WORST EMISSIONS

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
0.22	57.26	--	43.22	0.00	62.93	52.93	-5.67	-9.71	L1
0.46	52.74	--	38.04	0.00	56.77	46.77	-4.03	-8.73	L1
0.69	48.70	--	31.73	0.00	56.00	46.00	-7.30	-14.27	L1
0.21	59.81	--	43.38	0.00	63.28	53.28	-3.47	-9.90	L2
0.43	53.48	--	38.29	0.00	57.19	47.19	-3.71	-8.90	L2
1.08	51.37	--	27.50	0.00	56.00	46.00	-4.63	-18.50	L2
6 Worst Data									

LINE 1 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

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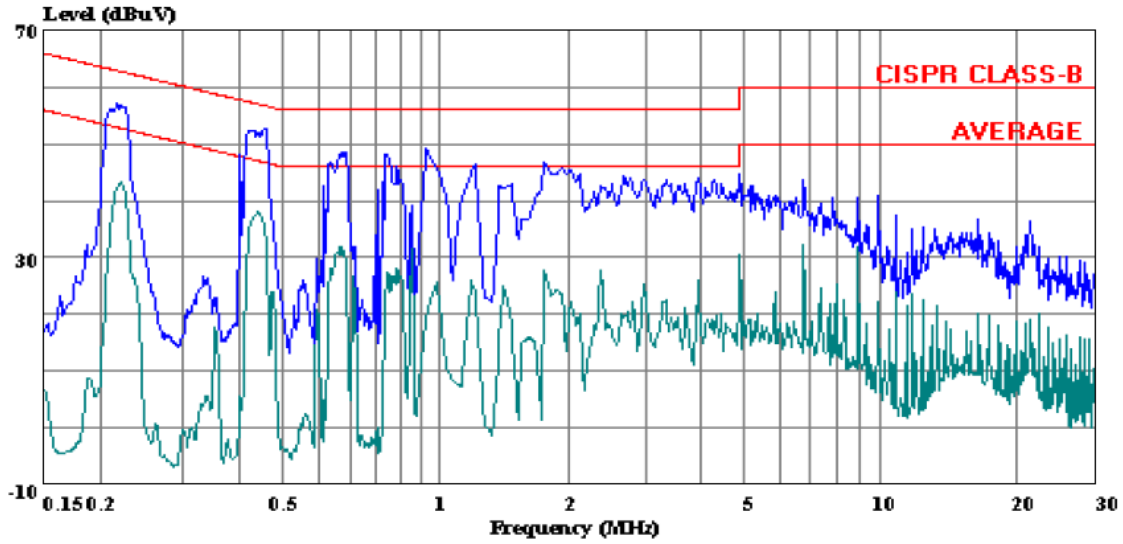

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Condition: CISPR CLASS-B
Test Operator: Mengistu Mekuria
Project # : 10U13357
Company : Palm
Configuration: EUT With dead Battery, Incuctive Dock,
: & AC Adapter (10130)
Mode : Charging Mode
Target : FCC Class B
Voltage : 115VAC / 60Hz
: L1: (Peak: Blue, Average: Green)

LINE 2 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

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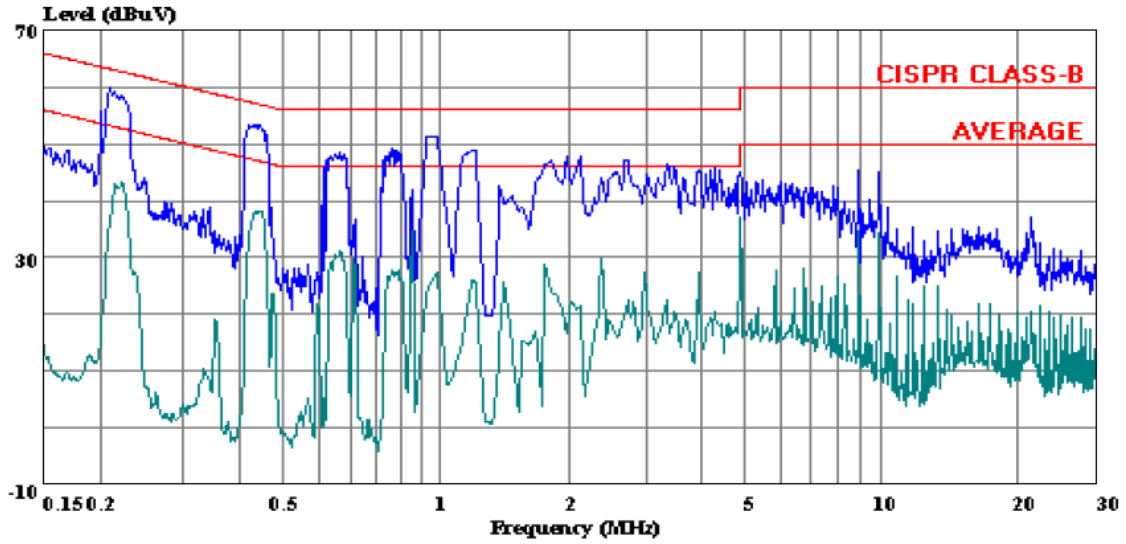

Trace: 159 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: Mengistu Mekuria
Project # : 10U13357
Company : Palm
Configuration: EUT With dead Battery, Incuctive Dock,
: & AC Adapter (10130)
Mode : Charging Mode
Target : FCC Class B
Voltage : 115VAC / 60Hz
: L2: (Peak: Blue, Average: Green)

10. MAXIMUM PERMISSIBLE EXPOSURE

IC RULES

RSS-102 Clause 2.5.2 Exemption from Routine Evaluation Limits – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and the device is greater than 20 cm, except when the device operates:

• below 1.5 GHz and its e.i.r.p. is equal to or less than 2.5 W;
• at or above 1.5 GHz and the e.i.r.p. of the device is equal to or less than 5 W.

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

RESULTS

The frequency of operation is below 1.5 GHz and the EIRP is less than 2.5 W (33.98 dBm), therefore this device is exempt from Routine Evaluation.

Frequency (MHz)	Reading A (dBuV)	Measurement Distance A (m)	Field Strength A (dBuV/m)	Antenna Factor (dB/m)	Distance Factor (dB/decade)	Extrapolated Distance (m)	Field Strength at 3 m Distance (dBuV/m)	EIRP (dBm)
3.0975	38.96	1	49.16	10.20	40.00	3	30.08	-65.12