



MOBILE DEVICES BUSINESS

**PRODUCT SAFETY AND COMPLIANCE
EMC LABORATORY**

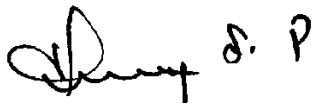
EMC TEST REPORT

Test Report Number – 24788-1 Supplement

Report Date – October 12, 2011

The test results contained herein relate only to the model(s) identified. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

As the responsible EMC Engineer, I hereby declare that the equipment tested as specified in this report conforms to the requirements indicated.

Signature: 

Name: Thanigaiselvan Palaniswami

Title: EMC Engineer

Date: October 12, 2011

This report must not be reproduced, except in full, without written approval from this laboratory.

THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY UKAS OR ANY AGENCY OF THE U.S. GOVERNMENT.



UKAS Certificate Number: 2404

Table of Contents

<u>Description</u>	<u>Page</u>
Test Report Details	3
Applicable Standards	3
Summary of Testing	4
General and Special Conditions	4
Equipment and Cable Configuration	5
Measurement Procedures and Data	6

Test Report Details

Tests Performed By: ADR Testing Service
Location Code: ADR LV
Motorola Mobility Inc
Product Safety and Compliance Group
600 North US Hwy 45
Libertyville, IL 60048
PH (847) 523-6167 Fax (847) 523-4538
FCC Registration Number: 316588
Industry Canada Number: 1090-1

Tests Requested By: Motorola Mobility Inc.
600 North US Hwy 45
Libertyville, IL 60048

Product Type: Fitness Device

Signaling Capability: Bluetooth LE + EDR, 802.11b/802.11g/802.11n,
ANT +

FCC ID: IHDP6MB1

Serial Numbers: TA3150005N

Testing Complete Date: October 11, 2011

Applicable Standards

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47:

 X Part 15 Subpart B – Unintentional Radiators

Applicable Standards: ANSI 63.4 2003, RSS-210 Issue 8

Summary of Testing

Test #	Test Name	Pass/Fail
1	Field Strength of Spurious Emissions from Unintentional Radiators	Pass
2	AC Line Conducted Emissions	Pass

Test #	Test Name	Margin with respect to the Limit
1	Field Strength of Spurious Emissions from Unintentional Radiators	see results
2	AC Line Conducted Emissions	see results

The margin with respect to the limit is the minimum margin for all modes and bands.

General and Special Conditions

This product utilizes an internal battery that is not removable. When applicable, EMC testing was performed with the internal battery fully charged.

All testing was done in an indoor controlled environment. The temperature and the relative humidity were maintained within the ANSI C63.4 2003 Standard requirements during the entire duration of testing.

Equipment and Cable Configurations

The EUT was tested in a configuration as specified by ANSI C63.4 2003 Standard requirements.

Equipment List

Manufacturer	Equipment Type	Model No.	Serial Number	Calibration Due Date
Rohde & Schwarz	Receiver	ESIB26	838786/010	12/21/2011
ETS	DRG Horn Antenna	SAS 200/571	365	8/24/2012
ETS	Log-Periodic Antenna	3148	1189	1/19/2012
ETS	Biconical Antenna	3110B	3370	1/19/2012
Agilent	Microwave Preamplifier	8449B	3008A01442	09/22/2012
Rohde & Schwarz	Receiver	ESU 40	100286	7/13/2012
Attenuator	Weinschel	AS-6	6675	NCR
Attenuator	Weinschel	AS-6	6677	NCR
ETS	LISN	3810/2NM	00023630	9/02/2012
ETS	LISN	3810/2NM	2179	9/02/2012
Hewlett Packard	Laptop Computer	8440P	CND04111C8	NA
Hewlett Packard	Monitor	HP2311X	CNT101X68Q	NA
Dell	Mouse	M-UVDEL1	HCJ43516737	NA

All equipment is on a one-year calibration cycle.

All test equipment was within their calibration date during the time of testing. When equipment went out of calibration during testing it was replaced using a similar piece of calibrated equipment. All these equipments are listed in the equipment list.

The HP 8440P Laptop Computer, HP Monitor and the Dell Mouse are labeled as DoC.

Measurement Procedures and Data

FIELD STRENGTH OF EMISSIONS FROM UNINTENTIONAL RADIATORS

Measurement Procedure

The equipment under test is placed inside the semi-anechoic chamber on a wooden table on the turntable center. For each radiated emission, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum peak reading on the spectrum analyzer. The final radiated emissions are then measured using an EMI receiver employing a CISPR quasi-peak detector function below 1000 MHz and an average detector function above 1000 MHz. This is repeated for both horizontal and vertical polarizations of the receive antenna. Above 1 GHz, the EMI receiver RBW and VBW were set to 1 MHz

The field strength of each radiated emission is calculated by correcting the EMI receiver level for cable loss, amplifier gain and antenna correction factors.

$$\text{Field Strength (dBuV/m)} = \text{EMI Receiver Level (dBuV)} + \text{Cable Loss (dB)} - \text{Amplifier Gain (dB)} + \text{Antenna Correction Factor (1/m)}$$

Test Setup

The EUT and the host equipment were setup according to the procedures in ANSI C63.4-2003. The EUT was connected to a laptop computer using a USB data cable SKN6434A. The USB data cable is 6 inch in length. The USB and the display ports of the computer were populated. The EUT was communicating with the laptop computer continuously.

Additional EUT information:

Xtal – 23.78 kHz

TCXO – 26 MHz

Testing was conducted up to and including 5GHz.

Measurement Results

Operating Mode – Rx Mode, Data Transfer Mode.

Notes: Worst Case emissions reported.

9 kHz – 30 MHz

Radiated emissions were measured from 9 kHz to 30 MHz and all emissions were 20 dB below the limit.

30 MHz – 1000 MHz

Frequency MHz	Level dBμV/m	Measured dBμV	Transd dB	Cables dB	Limit dBμV/m	Margin dB	Height cm	Angle deg	Pol.
42.2	30.66	12.56	11	7.1	40	9.3	179	295	VERT
140.56	38.59	18.82	11.7	8.1	43.5	4.9	115	3	VERT
281.68	37.91	16.52	12.5	8.9	46	8.1	223	153	VERT
357.68	35.32	11.59	14.4	9.3	46	10.7	209	108	VERT
642.96	31.81	0.71	20.5	10.6	46	14.2	206	114	VERT
914.88	33.67	-1.01	23.2	11.5	46	12.3	150	95	VERT

Average Measurements Above 1 GHz

Frequency MHz	Level dB μ V/m	Measured dB μ V	Transd dB	Gain dB	Limit dB μ V/m	Margin dB	Height cm	Angle deg	Pol.
1000.1	35.68	34.35	23.3	22	54	18.3	100	196	VERT
1129.1	34.23	32.24	23.9	21.9	54	19.8	209	115	VERT
1134.8	34.19	32.17	24	21.9	54	19.8	150	138	VERT
1144	34.21	32.14	24	21.9	54	19.8	210	175	VERT
1191.3	34.31	31.96	24.2	21.9	54	19.7	99	178	HORI
1200.2	34.4	32	24.3	21.9	54	19.6	100	174	HORI
1263.2	34.74	32.14	24.5	21.9	54	19.3	100	188	VERT
1595.3	36.54	32.89	25.3	21.7	54	17.5	150	163	VERT
1972.2	36.06	29.92	27.7	21.5	54	17.9	213	191	VERT
3276.2	40.34	28.2	31.6	19.4	54	13.7	174	258	VERT
3967.7	40.47	26.34	32.2	18.1	54	13.5	194	21	HORI
4527	41.57	26.01	33	17.5	54	12.4	150	315	HORI
4553.8	41.56	25.9	33.1	17.4	54	12.4	100	99	VERT
4596	41.82	25.98	33.2	17.4	54	12.2	150	66	VERT
4668	41.91	25.79	33.4	17.3	54	12.1	250	64	HORI
4674.4	41.99	25.85	33.5	17.3	54	12	101	109	VERT
4710	42.05	25.81	33.5	17.3	54	12	150	119	VERT
4739.7	41.92	25.6	33.6	17.3	54	12.1	150	213	HORI
4745.4	41.89	25.56	33.6	17.3	54	12.1	239	317	HORI
4771.7	42	25.64	33.6	17.2	54	12	150	257	VERT
4914.7	42.08	25.43	33.7	17.1	54	11.9	150	293	HORI
4921.5	42.08	25.41	33.7	17.1	54	11.9	222	175	HORI
4945.1	42.18	25.41	33.8	17.1	54	11.8	97	53	HORI
4972.7	42.12	25.27	33.9	17	54	11.9	150	62	VERT
4982.8	42.19	25.3	33.9	17	54	11.8	142	169	HORI
4991.4	42.2	25.3	33.9	17	54	11.8	99	21	VERT

Peak Radiated Data for Emissions Above 1GHz					
Frequency MHz	Level dB μ V/m	Angle deg	Height cm	Pol.	Limit 74dB μ V/m
1000	49.47	187	100	VER	Pass
1128.25	48.81	155	200	VER	Pass
1130.26	50.23	130	200	VER	Pass
1132.26	49.59	144	200	VER	Pass
1144.28	50.78	160	200	VER	Pass
1192.38	51.08	157	100	HOR	Pass
1194.38	48.71	157	100	HOR	Pass
1198.39	50.34	162	100	HOR	Pass
1200.40	49.53	154	100	HOR	Pass
1262.52	49.87	197	100	VER	Pass
1264.52	45.98	284	200	HOR	Pass
1266.53	46.48	173	200	HOR	Pass
1595.19	50.46	185	200	VER	Pass
1597.19	49.89	194	200	VER	Pass
1971.94	50.1	213	200	VER	Pass
3278.55	51.94	182	200	VER	Pass
3282.56	51.48	162	200	VER	Pass
3967.93	53.07	18	200	HOR	Pass
3971.94	51.88	202	200	VER	Pass
4525.05	54.31	298	200	HOR	Pass
4527.05	53.01	317	100	VER	Pass
4529.05	52.48	6	200	HOR	Pass
4595.19	54.75	47	200	VER	Pass
4597.19	53.15	355	100	HOR	Pass
4669.33	54.23	78	200	HOR	Pass
4671.34	53.92	58	200	VER	Pass
4711.42	54.33	130	200	VER	Pass
4739.47	52.66	6	100	HOR	Pass
4745.49	54.18	302	200	HOR	Pass
4771.53	53.19	258	100	VER	Pass
4913.88	53.76	275	100	HOR	Pass
4915.83	54.19	272	100	HOR	Pass
4921.84	54.15	153	200	HOR	Pass
4945.89	54.61	75	100	HOR	Pass
4981.96	54.7	191	100	HOR	Pass
4983.96	53.1	87	200	VER	Pass
4991.98	53.59	208	200	VER	Pass
4993.98	53.27	335	200	HOR	Pass

AC LINE CONDUCTED EMISSIONS

Measurement Procedure

Measured levels of ac power line conducted emission shall be the radio-noise voltage from the line probe or across the 50 Ω LISN port, where permitted, terminated into a 50 Ω noise meter, or where permitted or required, the radio-noise current on the power line sensed by a current probe.

All radio-noise voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord or calibrated extension cord by the use of mating plugs and receptacles on the EUT and LISN. Equipment shall be tested with power cords that are normally supplied using an LISN, the 50 Ω measuring port is terminated by a 50 Ω radio-noise meter or a 50 Ω resistive load. All other ports are terminated in 50 Ω .

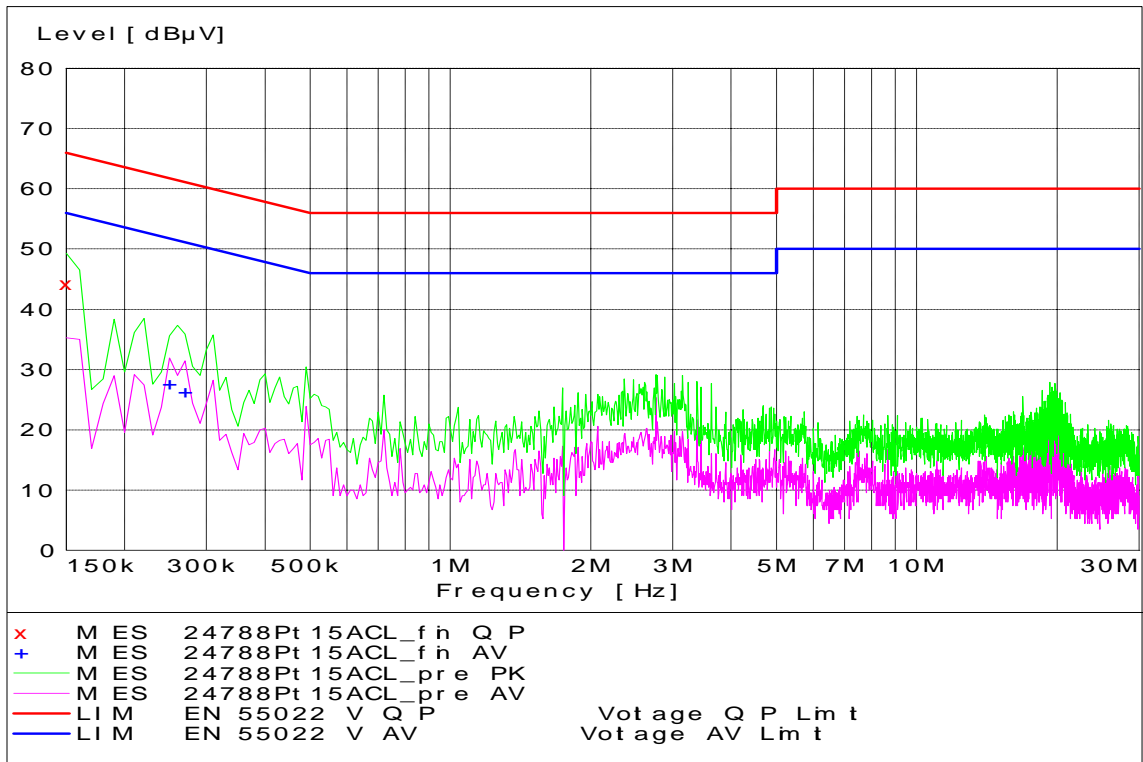
Detectors - Quasi Peak and Average Detector

Test Setup

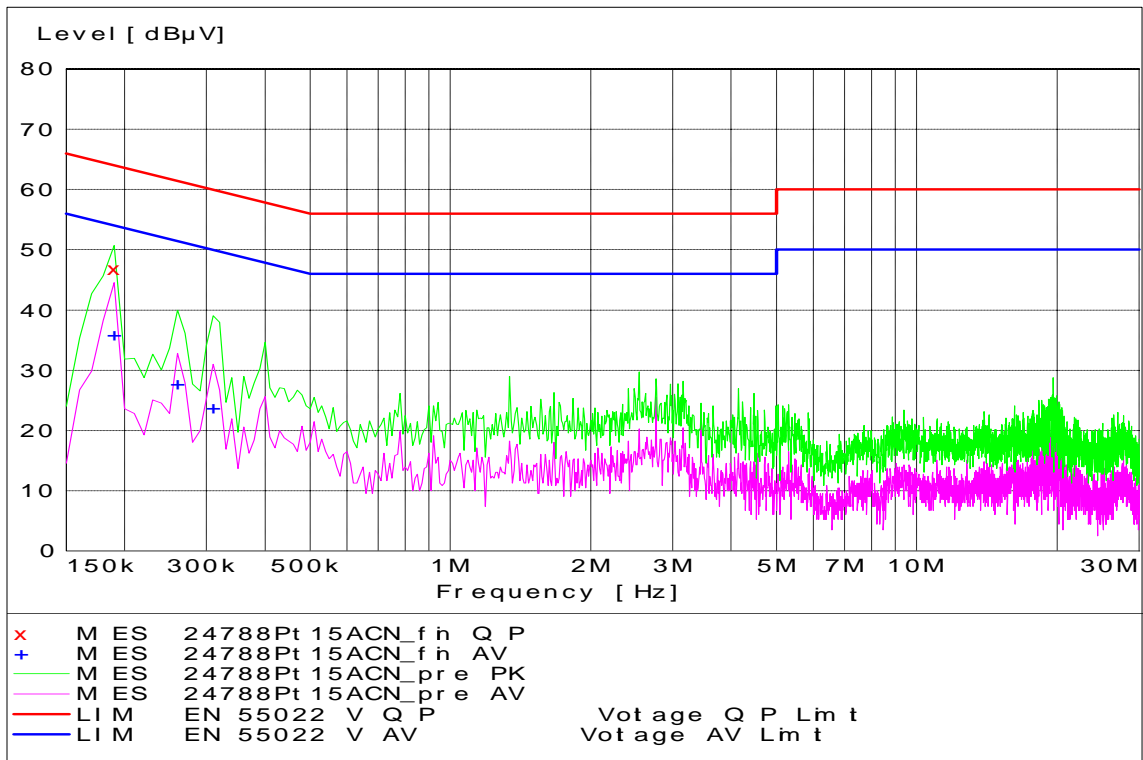
The EUT and the host equipment were setup according to the procedures in ANSI C63.4-2003. The EUT was connected to a laptop computer using a USB data cable. The USB data cable SKN5004A is 1 m in length. SPN5689A travel charger was connected to LISN. The parallel and the serial ports of the computer were populated. The EUT was communicating with the laptop computer continuously.

Measurement Results

See attached:



Tx Mode - Line Coupling



Tx Mode - Neutral Coupling

End of Test Report