



MOBILE DEVICES BUSINESS

**PRODUCT SAFETY AND COMPLIANCE
EMC LABORATORY**

EMC TEST REPORT

Test Report Number – 24585-1 Supplement

Report Date – June 21, 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: Albert J. Patapack

Title: EMC Engineer

Date: June 21, 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 A2LA 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: Cellular Phone

Signaling Capability: CDMA 800/1900, CDMA 1X/EV-DO Release A,
WCDMA 850/1900, GSM 850/1900,
HSDPA, HSUPA, EDGE, GPRS,
Bluetooth, 802.11b/802.11g/802.11n

FCC ID: IHDT56MF3

Serial Numbers: 355477040010663

Testing Complete Date: April 7, 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

All testing for this report was performed with a fully charged Model SNN5885A 1500mAH Battery.

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 stand-alone configuration that is representative of typical use.

Equipment List

Manufacturer	Equipment Type	Model No.	Serial Number	Calibration Due Date
Rohde & Schwarz	Receiver	ESIB26	100001	09/23/2011
ETS	DRG Horn Antenna	SAS 200/571	265	9/09/2011
ETS	Log-Periodic Antenna	3148	1189	1/19/2012
ETS	Biconical Antenna	3110B	3370	1/19/2012
Agilent	Microwave Preamplifier	8449B	3008A00535	10/05/2011
Attenuator	Weinschel	AS-6	6675	NCR
Attenuator	Weinschel	AS-6	6677	NCR
ETS	LISN	3810/2	00062907	9/08/2011
ETS	LISN	3810/2	00062912	9/08/2011
Dell	Laptop Computer	M20	NA	NA
Iomega	Zip Drive	Z250S	P9HM1992CK	NA
Olympus	Camera	D-600L	4020727	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 Dell M20 Laptop Computer, Iomega Z250S Zip Drive and the Olympus D-600L Camera 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.

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. The USB data cable is 1 m in length. The parallel and the serial ports of the computer were populated. The EUT was communicating with the laptop computer continuously.

Additional EUT information:

Processor Speed – Up to 1GHz

Xtal – 26KHz

TCXO – 19.2MHz

Memory Size – 512MB RAM, 16GB eMMC

Video Resolution – 540x960 (qHD)

Video Clock - 230MHz

Refresh rate – 60Hz

Testing was conducted up to and including 5GHz.

Measurement Results

Operating Mode – Rx Mode, Data Transfer Mode.

Notes: Worst Case emissions reported.

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.
39.08	27.78	9.10	11.6	7.1	40	12.2	100	131	VERT
43.00	29.23	11.29	10.8	7.1	40	10.8	100	149	VERT
67.00	33.24	16.50	9.3	7.4	40	6.8	99	211	VERT
67.40	37.71	20.97	9.3	7.4	40	2.3	150	202	VERT
68.20	37.12	20.37	9.3	7.5	40	2.9	100	223	VERT
70.08	35.92	19.15	9.3	7.5	40	4.1	119	212	VERT
70.96	36.62	19.83	9.3	7.5	40	3.4	127	208	VERT
147.28	38.84	18.83	11.9	8.1	43.5	4.7	100	193	VERT
192.36	36.46	13.49	14.6	8.4	43.5	7.0	213	250	HORI
309.96	35.41	13.25	13.1	9.1	46	10.6	100	256	HORI
320.64	42.94	20.36	13.5	9.1	46	3.1	100	258	HORI
352.68	37.70	14.13	14.3	9.3	46	8.3	99	246	HORI
366.44	33.80	10.52	13.9	9.4	46	12.2	177	19	VERT
384.76	38.22	13.93	14.8	9.5	46	7.8	100	163	HORI
480.96	34.42	7.18	17.2	10.1	46	11.6	169	255	VERT
625.00	35.76	6.08	19.1	10.6	46	10.2	196	187	HORI
794.76	32.29	0.15	21.0	11.1	46	13.7	100	31	VERT
797.76	32.53	0.63	20.8	11.1	46	13.5	100	33	VERT
912.52	34.50	-0.46	23.5	11.5	46	11.5	150	7	VERT
924.64	33.18	-0.91	22.6	11.5	46	12.8	185	208	VERT

Average Measurements Above 1 GHz

Frequency MHz	Level dBμV/m	Measured dBμV	Transd dB	Gain dB	Limit dBμV/m	Margin dB	Height cm	Angle deg	Pol.
1063.8	31.67	31.19	23.3	22.8	54	22.3	169	106	VERT
1125.7	30.20	29.26	23.6	22.6	54	23.8	173	338	VERT
1489.6	30.69	27.48	24.6	21.4	54	23.3	115	273	VERT
1505.1	31.35	28.10	24.6	21.3	54	22.7	150	265	VERT
1512.5	31.41	28.11	24.6	21.3	54	22.6	100	91	VERT
1596.0	32.09	28.20	24.9	21.0	54	21.9	150	305	VERT
1596.8	32.39	28.50	24.9	21.0	54	21.6	150	304	VERT
1599.5	31.27	27.36	24.9	21.0	54	22.7	150	161	VERT
1979.3	34.90	26.82	27.8	19.7	54	19.1	129	230	VERT
2492.5	37.28	27.30	28.7	18.7	54	16.7	101	307	VERT
3100.0	38.67	25.18	31.0	17.6	54	15.3	150	255	VERT
3144.6	38.78	25.12	31.1	17.5	54	15.2	149	206	HORI
3219.6	38.98	24.95	31.4	17.3	54	15.0	100	179	VERT
3904.4	39.12	23.75	31.4	16.0	54	14.9	142	191	VERT
3941.2	39.14	23.68	31.4	15.9	54	14.9	240	119	HORI
4562.3	40.35	23.08	32.3	15.0	54	13.7	101	181	HORI
4610.0	40.44	23.00	32.4	15.0	54	13.6	112	351	HORI
4814.0	41.20	22.83	33.0	14.7	54	12.8	173	202	VERT
4850.4	41.39	22.91	33.1	14.6	54	12.6	231	310	VERT
4881.6	41.43	22.86	33.2	14.6	54	12.6	201	197	VERT
4947.0	41.73	22.81	33.4	14.5	54	12.3	118	0	VERT
4955.7	41.90	22.92	33.5	14.5	54	12.1	250	215	VERT
4981.1	42.12	23.14	33.4	14.4	54	11.9	177	321	HORI
4995.4	42.17	23.14	33.5	14.4	54	11.8	250	62	HORI

Peak Radiated Data for Emissions Above 1GHz					
Frequency MHz	Level dB μ V/m	Angle deg	Height cm	Pol.	Limit 74dB μ V/m
1062.12	46.87	107	200	VER	Pass
1064.13	45.70	328	200	VER	Pass
1124.25	49.28	332	200	VER	Pass
1126.25	49.47	337	200	VER	Pass
1488.98	48.37	287	100	VER	Pass
1490.98	44.29	241	200	VER	Pass
1503.01	49.50	274	100	VER	Pass
1505.01	44.70	274	100	VER	Pass
1507.01	44.26	96	100	VER	Pass
1513.03	48.00	92	100	VER	Pass
1515.03	42.76	98	100	VER	Pass
1595.19	47.83	300	200	VER	Pass
1597.19	48.14	300	200	VER	Pass
1599.20	48.53	165	200	VER	Pass
1601.20	42.32	43	100	VER	Pass
1977.96	47.76	252	100	VER	Pass
1979.96	46.01	321	100	VER	Pass
1981.96	46.16	296	100	HOR	Pass
2488.98	50.35	309	100	VER	Pass
2492.99	48.72	304	100	VER	Pass
2496.99	48.96	307	100	VER	Pass
3098.20	51.15	247	100	VER	Pass
3102.20	50.07	175	100	HOR	Pass
3142.28	50.80	321	200	HOR	Pass
3146.29	51.47	184	200	HOR	Pass
3218.444	50.56	137	200	VER	Pass
3222.44	51.13	160	100	VER	Pass
3903.81	51.50	213	100	VER	Pass
3907.82	50.51	250	200	VER	Pass
3939.88	50.12	345	100	HOR	Pass
3943.89	52.37	106	200	HOR	Pass
4561.12	53.33	203	100	HOR	Pass
4563.13	51.13	36	200	HOR	Pass
4609.22	51.62	243	100	VER	Pass
4611.22	52.92	357	100	HOR	Pass
4813.63	53.66	224	200	VER	Pass
4815.63	52.42	54	100	VER	Pass
4849.70	52.76	167	200	VER	Pass
4851.70	53.53	312	200	VER	Pass
4879.76	53.64	181	200	VER	Pass
4881.76	53.39	152	100	VER	Pass

Peak Radiated Data for Emissions Above 1GHz (cont)					
Frequency MHz	Level dB μ V/m	Angle deg	Height cm	Pol.	Limit 74dB μ V/m
4883.78	52.17	341	100	VER	Pass
4945.89	52.95	80	200	HOR	Pass
4947.90	54.75	3	100	VER	Pass
4953.91	53.32	90	200	HOR	Pass
4955.91	53.86	237	200	VER	Pass
4957.92	53.03	68	200	VER	Pass
4979.96	54.30	321	200	HOR	Pass
4981.96	53.09	344	200	VER	Pass
4993.99	53.98	192	200	HOR	Pass
4995.99	54.01	41	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 .

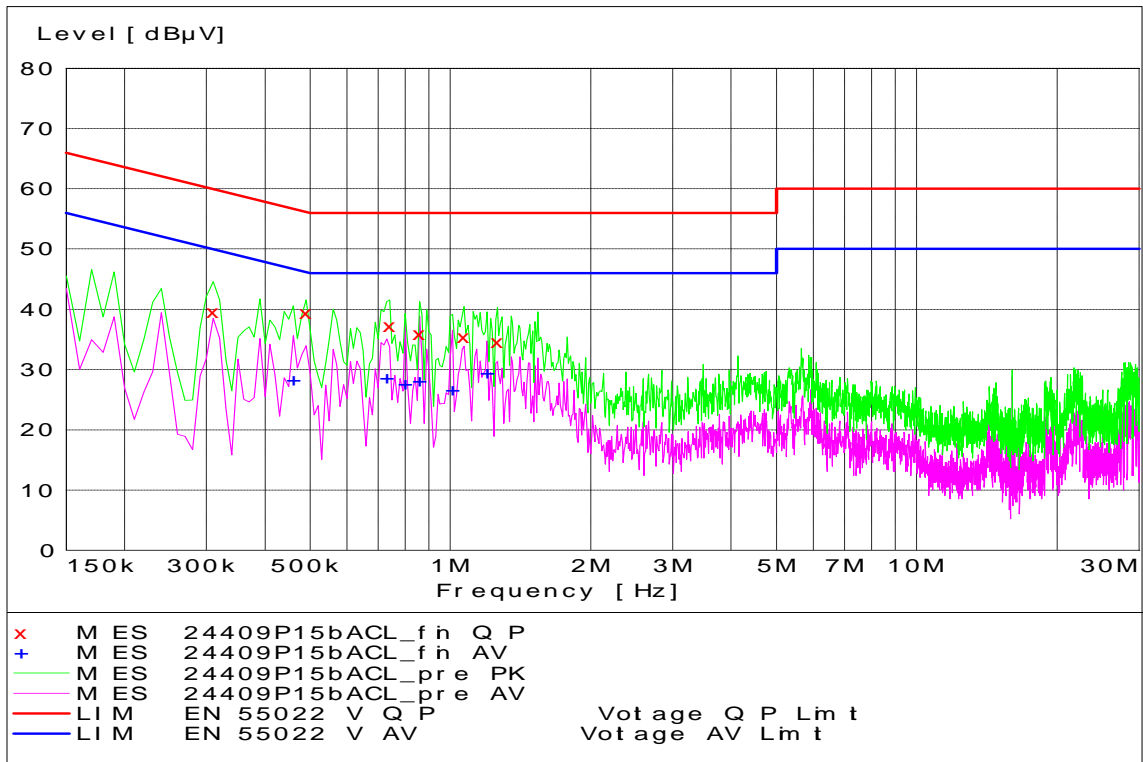
Detectors - Quasi Peak and Average Detector

Test Setup

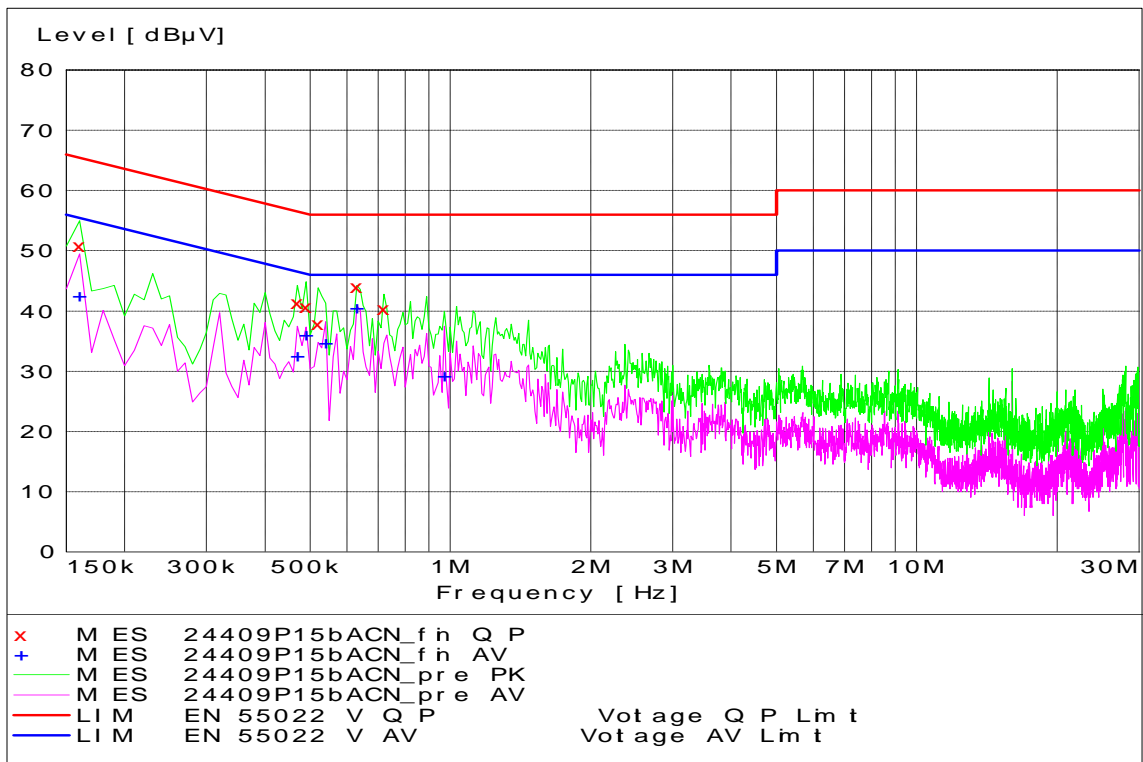
The EUT and the host equipment were setup according to the procedures in ANSI C63.4-2003. The EUT was connected to a laptop computer using a USB data cable. The USB data cable is 1 m in length. The parallel and the serial ports of the computer were populated. The EUT was communicating with the laptop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

Measurement Results

See attached:



Tx Mode - Line Coupling



Tx Mode - Neutral Coupling

End of Test Report