



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

**EMC TEST REPORT**

**Test Report Number** – 24773-1JBC

**Report Date** – October 19, 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: October 19, 2011

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## 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 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:	Tablet
Signaling Capability:	Bluetooth+EDR, 802.11a/802.11b/802.11g/802.11n
FCC ID:	IHDP56MF3
Serial Numbers:	KPE00G0149
Testing Complete Date:	October 18, 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 with all the available ports populated.

**Equipment List**

Manufacturer	Equipment Type	Model No.	Serial Number	Calibration Due Date
Rohde & Schwarz	Receiver	ESIB26	100001	9/23/2011
Rohde & Schwarz	Receiver	ESIB40	100226	3/30/2012
Rohde & Schwarz	Receiver	ESI26	838786/010	12/23/2011
A. H. Systems	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	3008A00535	10/05/2011
Agilent	Microwave Preamplifier	8449B	3008A01442	9/22/2012
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
ETS	Loop Antenna	6507	00049471	2/17/2012
Rohde & Schwarz	Receiver	ESU40	100268	7/13/2012
HP	Monitor	HP2311X	CNT101X68Q	NA

Note that the power meter, signal generator and microwave preamplifier are on a two-year calibration cycle. All other equipment is on a one-year calibration cycle. All testing was performed using equipment that was within calibration at the time that the test was performed. No equipment listed in the table above was used after the specified calibration due date. If, during the course of product testing, a piece of equipment went out of calibration and that piece of equipment was needed to complete product testing, a similar piece of calibrated equipment was substituted. If a substitution was made, that new piece of equipment would be listed in the above table along with the piece that was removed from service.

The HP Monitor is 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 and peak 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.

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

#### **Test Setup**

The EUT and the peripheral equipment were setup according to the procedures in ANSI C63.4- 2003. The USB port of the EUT was connected to an AC outlet using an SPN5688A charger. A monitor, supporting both 720p and 1080p video resolution, was used as the display. The HDMI port of the EUT was connected to a monitor via HDMI cable SKN6377A and the EUT screen was mirrored on the monitor.

Additional EUT information:

Processor Speed – Up to 1.2 GHz

Xtal – 32.768 KHz, 12MHz

TCXO – 19.2MHz, 26 MHz

Memory Size – 1GB LPDDR2 SDRAM, 16/32/64GB eMMC

Video Resolution – 1280 x 800

Video Clock – Max 65.8MHz

Refresh rate – 59.9Hz

Testing was conducted up to and including 6GHz.

**Measurement Results**

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

Operating Mode – Video Display @1080p

Notes: Worst Case emissions reported.

30MHz – 1000MHz

Frequency MHz	Level dBµV/m	Measured dBµV	Transd dB	Cables dB	Limit dBµV/m	Margin dB	Height cm	Angle deg	Pol.
37.08	33.38	14.33	12.0	7.1	40	6.6	100	129	VERT
78.52	30.76	13.92	9.3	7.6	40	9.2	98	274	VERT
140.52	36.45	16.67	11.7	8.1	43.5	7.1	99	253	VERT
142.96	34.13	14.35	11.7	8.1	43.5	9.4	101	253	VERT
148.52	39.30	19.23	12.0	8.1	43.5	4.2	100	218	VERT
286.24	36.78	15.04	12.8	8.9	46	9.2	193	186	VERT
346.44	25.93	2.80	13.9	9.3	46	20.1	99	181	HORI
428.68	35.25	10.07	15.4	9.8	46	10.8	114	260	VERT
445.52	39.64	13.57	16.2	9.8	46	6.4	100	215	HORI
591.96	35.10	5.73	18.9	10.5	46	10.9	250	290	HORI
912.56	34.49	-0.46	23.5	11.5	46	11.5	250	359	VERT

Average Measurements Above 1GHz

Frequency MHz	Level dBµV/m	Measured dBµV	Transd dB	Gain dB	Limit dBµV/m	Margin dB	Height cm	Angle deg	Pol.
1145.2	31.82	30.47	23.9	22.6	54	22.2	100	234	HORI
1202.6	30.94	29.10	24.2	22.4	54	23.1	101	226	HORI
1336.5	36.00	33.24	24.7	21.9	54	18.0	100	221	HORI
1485.0	41.73	38.53	24.6	21.4	54	12.3	209	203	VERT
1972.9	34.29	26.33	27.7	19.8	54	19.7	150	217	VERT
3193.0	39.04	25.04	31.4	17.4	54	15.0	201	32	HORI
3518.9	37.25	24.24	29.7	16.7	54	16.7	150	280	VERT
3519.6	37.21	24.20	29.7	16.7	54	16.8	151	307	VERT
3948.9	39.05	23.49	31.5	15.9	54	14.9	150	296	VERT
4826.8	41.32	22.73	33.2	14.7	54	12.7	150	165	HORI
4947.7	41.59	22.66	33.4	14.5	54	12.4	100	79	VERT
4991.1	42.04	23.03	33.4	14.4	54	12.0	150	179	HORI
5197.7	42.89	25.48	34.1	16.7	54	11.1	149	93	HORI
5314.0	42.00	24.92	33.6	16.5	54	12.0	100	54	VERT
5526.5	42.64	25.17	33.7	16.2	54	11.4	147	205	HORI
5742.5	43.00	25.13	33.8	15.9	54	11.0	150	219	VERT
5887.4	44.17	25.18	34.7	15.7	54	9.8	100	359	HORI
5923.0	44.54	25.28	34.9	15.6	54	9.5	145	46	HORI
5990.3	45.00	25.39	35.1	15.5	54	9.0	101	300	HORI

Peak Radiated Data for Emissions Above 1GHz					
Frequency MHz	Level dB $\mu$ V/m	Angle deg	Height cm	Pol.	Limit 74dB $\mu$ V/m
1144.29	47.61	233	100	HOR	Pass
1146.29	42.05	145	200	HOR	Pass
1202.40	42.95	202	100	HOR	Pass
1204.41	45.84	248	100	HOR	Pass
1334.67	41.97	125	100	VER	Pass
1336.67	46.23	206	100	HOR	Pass
1338.68	41.95	208	100	HOR	Pass
1484.97	46.71	212	200	VER	Pass
1486.97	42.49	335	200	VER	Pass
1971.94	46.38	208	200	VER	Pass
1973.95	45.79	227	200	HOR	Pass
3190.38	52.01	34	200	HOR	Pass
3194.39	50.25	171	200	VER	Pass
3515.03	54.52	287	200	VER	Pass
3519.04	48.57	337	100	VER	Pass
3523.05	53.40	286	200	VER	Pass
3947.89	53.27	301	200	VER	Pass
3951.91	50.28	311	200	VER	Pass
4825.65	51.98	271	200	HOR	Pass
4827.66	54.08	182	100	HOR	Pass
4945.89	52.40	35	100	VER	Pass
4947.89	54.08	58	100	VER	Pass
4949.90	52.55	109	200	VER	Pass
4989.98	53.70	157	200	HOR	Pass
4991.98	52.91	159	100	VER	Pass
5196.39	55.63	74	200	HOR	Pass
5198.40	53.85	272	100	HOR	Pass
5312.63	53.45	256	100	VER	Pass
5314.63	53.09	332	200	HOR	Pass
5525.05	54.10	100	100	HOR	Pass
5527.05	54.09	47	200	VER	Pass
5741.48	56.01	241	200	VER	Pass
5743.49	54.71	174	100	HOR	Pass
5885.77	55.93	180	200	VER	Pass
5887.78	57.21	0	100	HOR	Pass
5921.84	55.02	193	200	VER	Pass
5923.85	57.50	68	100	HOR	Pass
5989.98	56.33	217	100	HOR	Pass
5991.98	55.94	344	100	HOR	Pass

Operating Mode – Video Display @ 720p

Notes: Worst Case emissions reported.

30MHz – 1000MHz

Frequency MHz	Level dBµV/m	Measured dBµV	Transd dB	Cables dB	Limit dBµV/m	Margin dB	Height cm	Angle deg	Pol.
34.12	33.72	14.2	12.5	7.0	40	6.3	100	280	VERT
47.56	30.46	13.02	10.2	7.2	40	9.5	165	46	VERT
78.52	33.95	17.12	9.3	7.6	40	6.1	119	174	VERT
79.68	33.58	16.75	9.2	7.6	40	6.4	99	78	VERT
82.00	32.76	15.94	9.2	7.6	40	7.2	100	199	VERT
85.44	33.37	16.31	9.4	7.7	40	6.6	144	160	VERT
140.84	33.25	13.48	11.7	8.1	43.5	10.2	150	229	VERT
143.08	37.38	17.59	11.7	8.1	43.5	6.1	100	268	VERT
222.76	44.08	25.12	10.4	8.5	46	1.9	100	162	VERT
355.68	25.69	1.89	14.5	9.3	46	20.3	226	359	VERT
712.88	33.09	0.80	21.4	10.9	46	12.9	250	298	HORI

Average Measurements Above 1GHz

Frequency MHz	Level dB $\mu$ V/m	Measured dB $\mu$ V	Transd dB	Gain dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle deg	Pol.
1039.5	44.07	43.37	23.6	22.9	54	9.9	209	170	VERT
1039.6	42.18	41.47	23.6	22.9	54	11.8	199	202	VERT
1113.7	41.66	40.48	23.8	22.7	54	12.3	100	207	VERT
1113.8	41.64	40.46	23.8	22.7	54	12.4	100	213	VERT
1333.6	31.20	28.47	24.7	21.9	54	22.8	196	211	HORI
1968.3	35.18	27.34	27.6	19.8	54	18.8	204	218	VERT
3496.6	37.85	24.30	30.3	16.8	54	16.2	149	133	VERT
3516.6	38.07	24.53	30.3	16.7	54	15.9	213	263	VERT
3542.3	38.04	24.48	30.3	16.7	54	16.0	150	315	VERT
3570.8	37.91	24.34	30.2	16.6	54	16.1	150	292	VERT
3908.8	40.07	23.99	32.1	16.0	54	13.9	218	91	VERT
3914.4	39.96	23.86	32.1	16.0	54	14.0	150	288	VERT
3934.3	39.97	23.76	32.1	15.9	54	14.0	178	275	VERT
4524.5	41.30	23.35	33.0	15.1	54	12.7	204	327	HORI
4737.0	41.94	23.15	33.6	14.8	54	12.1	187	276	VERT
4742.8	41.94	23.13	33.6	14.8	54	12.1	240	270	HORI
4757.3	41.97	23.13	33.6	14.8	54	12.0	141	191	HORI
4867.8	42.06	23.02	33.6	14.6	54	11.9	100	233	VERT
4907.9	42.01	22.85	33.7	14.5	54	12.0	187	194	VERT
4948.7	42.20	22.86	33.8	14.5	54	11.8	196	321	VERT
4965.7	42.44	23.04	33.9	14.5	54	11.6	182	359	HORI
4980.6	42.68	23.23	33.9	14.4	54	11.3	231	323	HORI
4987.0	42.69	23.22	33.9	14.4	54	11.3	100	335	VERT
4990.2	42.75	23.27	33.9	14.4	54	11.2	250	70	VERT
4997.5	42.87	23.36	33.9	14.4	54	11.1	150	202	VERT
4999.7	42.91	23.40	33.9	14.4	54	11.1	149	89	VERT
5042.1	42.26	25.10	34.1	16.9	54	11.7	200	54	HORI
5221.8	42.73	25.38	34.0	16.7	54	11.3	250	186	HORI
5523.4	42.53	25.07	33.7	16.2	54	11.5	127	102	HORI
5770.5	43.33	25.30	33.9	15.8	54	10.7	240	30	VERT
5947.6	44.67	25.26	35.0	15.6	54	9.3	236	75	VERT
5998.8	45.02	25.37	35.2	15.5	54	9.0	192	220	HORI

Peak Radiated Data for Emissions Above 1GHz					
Frequency MHz	Level dB $\mu$ V/m	Angle deg	Height cm	Pol.	Limit 74dB $\mu$ V/m
1038.08	53.73	181	200	VER	Pass
1040.08	52.57	181	200	VER	Pass
1112.22	50.66	206	100	VER	Pass
1114.23	50.95	206	100	VER	Pass
1332.67	47.07	205	200	HOR	Pass
1334.67	43.08	205	200	HOR	Pass
1967.94	48.14	220	200	VER	Pass
1969.94	46.10	88	200	VER	Pass
3494.99	53.86	142	100	VER	Pass
3498.99	49.24	59	200	VER	Pass
3515.03	55.51	281	200	VER	Pass
3519.04	49.31	167	200	HOR	Pass
3539.09	54.84	300	200	VER	Pass
3543.09	49.37	343	200	VER	Pass
3567.13	49.63	247	200	VER	Pass
3571.14	55.57	301	200	VER	Pass
3907.82	54.09	70	200	VER	Pass
3911.82	52.92	291	200	VER	Pass
3915.83	54.59	283	100	VER	Pass
3931.86	51.16	89	200	HOR	Pass
3935.87	54.44	289	200	VER	Pass
4523.05	52.23	305	100	HOR	Pass
4525.05	54.30	318	200	HOR	Pass
4735.47	53.55	240	200	VER	Pass
4737.47	54.82	254	200	VER	Pass
4741.48	53.40	107	100	VER	Pass
4743.49	54.40	249	200	HOR	Pass
4755.51	53.19	265	200	VER	Pass
4757.52	54.53	169	100	HOR	Pass
4867.74	54.65	217	100	VER	Pass
4869.74	52.84	267	200	VER	Pass
4907.82	52.84	127	200	HOR	Pass
4909.82	53.41	305	100	HOR	Pass
4947.90	55.36	304	200	VER	Pass
4949.90	53.53	15	100	VER	Pass
4963.93	54.55	7	200	HOR	Pass
4965.93	53.08	332	200	VER	Pass
4979.96	54.09	329	200	HOR	Pass
4981.96	53.69	102	200	HOR	Pass
4985.97	53.82	145	200	VER	Pass
4987.98	54.53	346	100	VER	Pass

Peak Radiated Data for Emissions Above 1GHz (cont.)					
4989.98	53.86	0	200	VER	Pass
4991.98	54.18	77	200	VER	Pass
4995.99	54.91	219	100	VER	Pass
4997.99	53.64	133	100	HOR	Pass
5000.00	54.42	111	200	VER	Pass
5040.08	53.65	298	200	HOR	Pass
5042.08	55.21	53	200	HOR	Pass
5044.09	53.04	314	100	VER	Pass
5220.44	53.30	187	100	VER	Pass
5222.44	54.22	286	200	HOR	Pass
5523.05	53.48	196	100	VER	Pass
5525.05	53.46	273	100	VER	Pass
5769.54	54.22	210	100	VER	Pass
5771.54	56.52	26	200	VER	Pass
5945.89	55.17	329	100	HOR	Pass
5947.90	55.16	251	200	VER	Pass
5997.99	55.46	118	200	HOR	Pass
6000.00	56.94	242	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  $\Omega$  LISN port, where permitted, terminated into a 50  $\Omega$  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  $\Omega$  measuring port is terminated by a 50  $\Omega$  radio-noise meter or a 50  $\Omega$  resistive load. All other ports are terminated in 50  $\Omega$ .

Detectors - Quasi Peak and Average Detector

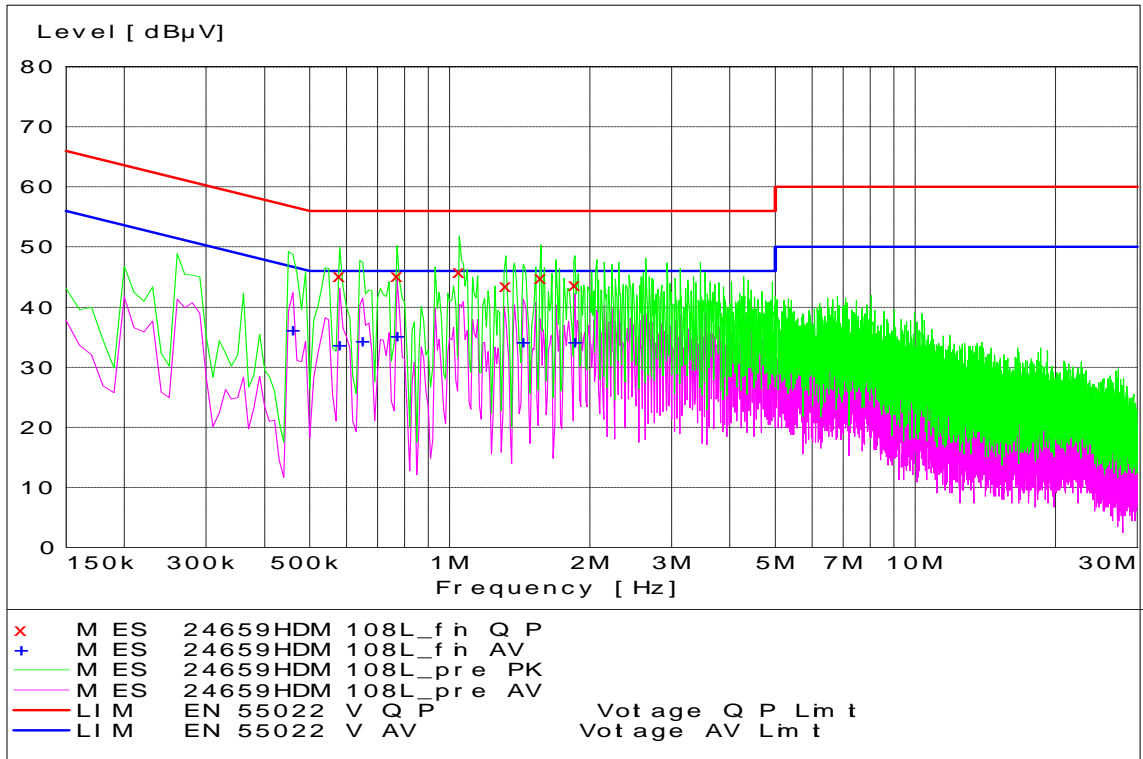
### **Test Setup**

The EUT and the peripheral equipment were setup according to the procedures in ANSI C63.4- 2003. The USB port of the EUT was connected to the LISN using an SPN5688A charger. A monitor, supporting both 720p and 1080p video resolution, was used as the display. The HDMI port of the EUT was connected to a monitor via HDMI cable SKN6377A and the EUT screen was mirrored on the monitor.

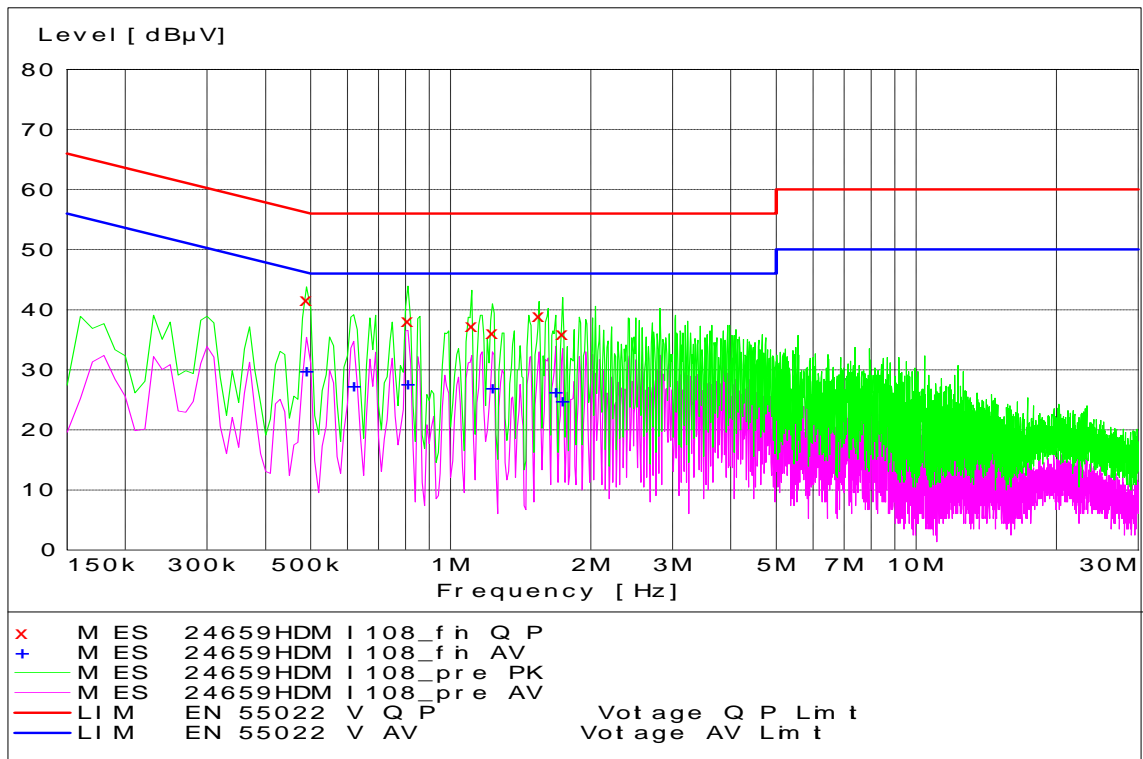
### **Measurement Results**

See attached:

Operating Mode – Charging and attached to Video Display @ 1080p via HDMI

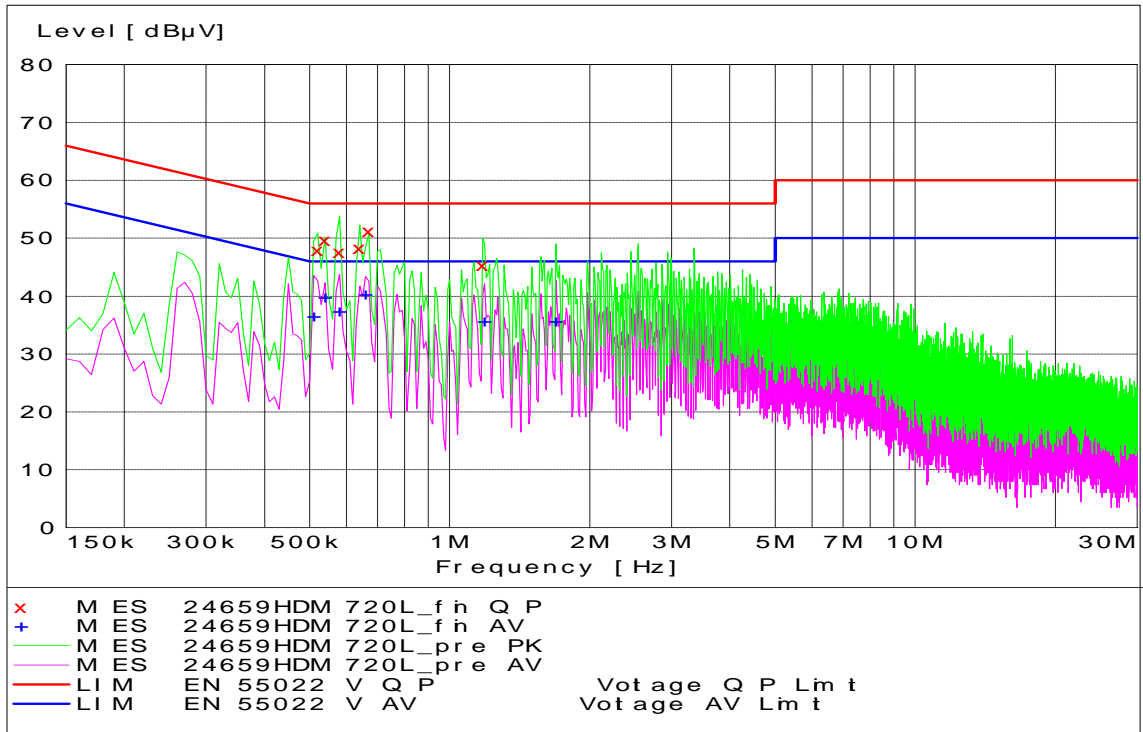


**Tx Mode - Line Coupling**

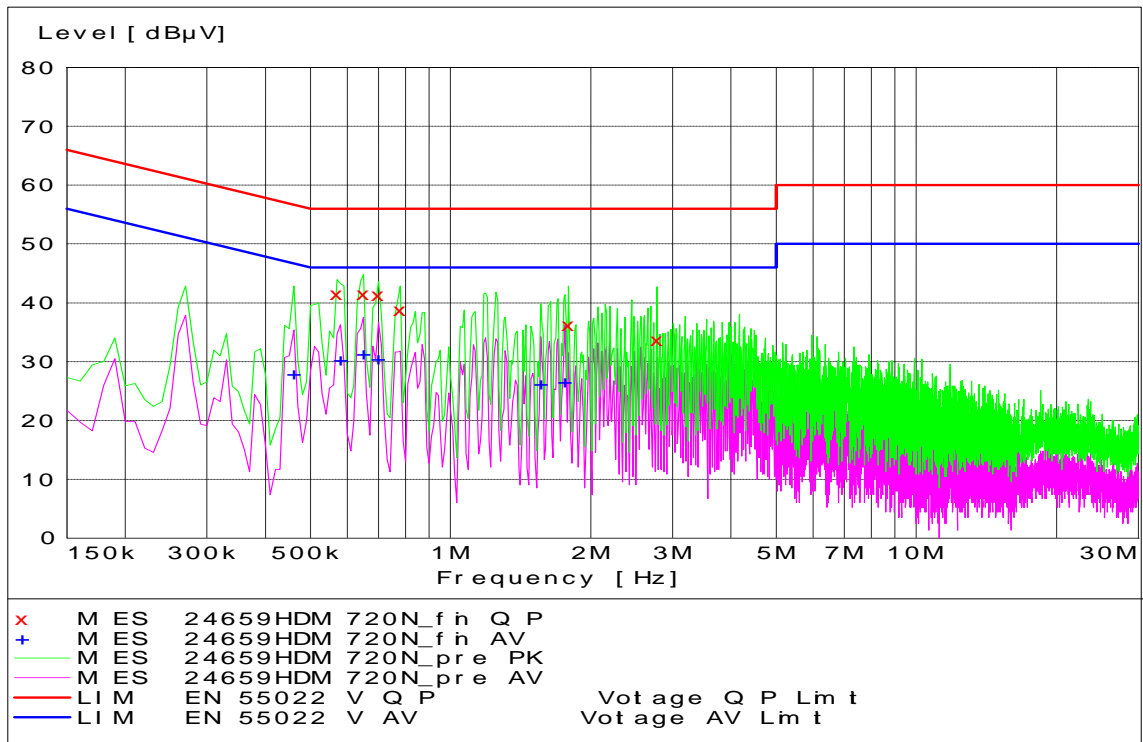


**Tx Mode - Neutral Coupling**

Operating Mode – Charging and attached to Video Display @ 720p via HDMI



**Tx Mode - Line Coupling**



**Tx Mode - Neutral Coupling**

**End of Test Report**