



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

**EMC TEST REPORT**

**Test Report Number** – 24771-1JBC

**Report Date** – October 18, 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 18, 2011

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

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**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:	IHDP56MJ3
Serial Numbers:	KFLC140080
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, 12.0MHz  
TCXO – 19.2MHz, 26.0MHz  
Memory Size – 1GB LPDDR2 SDRAM, 16/32/64GB eMMC  
Video Resolution – 1280 x 800 (qHD)  
Video Clock – Max 65.8MHz  
Refresh rate – 59.9Hz

Testing was conducted up to and including 6 GHz.

**Measurement Results**

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

Operating Mode – Video Display @ 1080p

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.
32.24	37.35	17.36	13.0	7.0	40	2.6	100	176	VERT
32.56	37.51	17.54	12.9	7.0	40	2.5	100	75	VERT
32.80	35.62	15.68	12.9	7.0	40	4.4	100	45	VERT
48.76	39.28	21.96	10.1	7.2	40	0.7	101	248	VERT
49.12	36.31	19.01	10.1	7.2	40	3.7	100	45	VERT
114.56	41.08	22.24	10.9	7.9	43.5	2.4	150	196	HORI
198.12	32.06	8.75	14.9	8.4	43.5	11.4	100	237	HORI
445.52	45.37	19.30	16.2	9.8	46	0.6	100	316	HORI
594.00	43.44	14.06	18.9	10.5	46	2.6	204	250	VERT
891.00	39.12	6.19	21.5	11.4	46	6.9	100	71	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.
1131.8	30.95	29.62	23.9	22.6	54	23.0	99	228	HORI
1336.5	37.35	34.62	24.6	21.9	54	16.7	200	163	HORI
1485.0	47.46	44.03	24.8	21.4	54	6.5	100	239	VERT
1701.5	31.62	26.62	25.7	20.7	54	22.4	178	114	HORI
1967.5	33.83	26.00	27.6	19.8	54	20.2	100	73	HORI
3134.1	38.23	24.16	31.6	17.5	54	15.8	150	197	VERT
3998.3	39.37	22.95	32.2	15.8	54	14.6	100	175	VERT
4680.6	40.71	22.10	33.5	14.9	54	13.3	150	281	VERT
4956.3	41.19	21.83	33.8	14.5	54	12.8	145	323	VERT
5085.2	42.56	25.24	34.2	16.9	54	11.4	192	39	HORI
5220.6	42.77	25.41	34.0	16.7	54	11.2	177	23	HORI
5450.5	42.28	25.05	33.6	16.3	54	11.7	146	107	HORI
5786.6	43.38	25.25	34.0	15.8	54	10.6	99	168	VERT
5970.1	44.96	25.44	35.1	15.5	54	9.0	250	285	VERT
5985.9	44.88	25.29	35.1	15.5	54	9.1	245	193	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
1130.26	45.48	228	100	HOR	Pass
1132.26	44.74	228	200	HOR	Pass
1334.67	40.27	153	200	HOR	Pass
1336.67	47.74	158	200	HOR	Pass
1338.68	41.04	106	200	VER	Pass
1484.97	50.94	239	100	VER	Pass
1486.97	41.06	304	100	HOR	Pass
1701.40	43.10	179	100	HOR	Pass
1703.41	43.18	179	100	HOR	Pass
1965.93	44.75	222	200	VER	Pass
1967.94	45.93	95	100	HOR	Pass
3130.26	50.70	182	200	VER	Pass
3134.27	49.79	272	200	VER	Pass
3138.28	48.86	102	100	HOR	Pass
3995.99	51.92	173	100	VER	Pass
4000.00	50.00	54	100	HOR	Pass
4679.36	51.39	49	200	VER	Pass
4681.37	53.30	303	100	VER	Pass
4955.91	53.41	311	100	VER	Pass
4957.92	52.20	76	100	HOR	Pass
5084.17	54.97	45	200	HOR	Pass
5086.17	53.19	282	200	HOR	Pass
5218.44	55.14	45	200	HOR	Pass
5220.44	53.83	27	100	HOR	Pass
5222.44	53.54	196	100	VER	Pass
5448.90	55.31	129	100	HOR	Pass
5450.90	53.21	172	100	VER	Pass
5452.91	53.5	57	100	HOR	Pass
5785.57	55.64	147	100	VER	Pass
5787.58	54.03	53	100	HOR	Pass
5969.94	55.47	57	200	VER	Pass
5971.94	57.00	307	200	VER	Pass
5983.97	55.97	286	100	HOR	Pass
5985.97	55.80	241	200	HOR	Pass
5987.98	56.41	321	100	VER	Pass

Operating Mode – Video Display @ 720p  
 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.
32.12	38.35	18.34	13.0	7	40	1.7	100	213	VERT
32.36	37.56	17.58	13.0	7	40	2.4	100	262	VERT
32.44	38.16	18.18	13.0	7	40	1.8	100	166	VERT
33.12	38.04	18.16	12.9	7	40	2.0	99	260	VERT
54.12	35.92	18.96	9.7	7.3	40	4.1	100	108	VERT
71.52	34.47	17.67	9.3	7.5	40	5.5	133	152	VERT
114.56	39.22	20.38	10.9	7.9	43.5	4.3	250	189	HORI
280.48	28.89	7.65	12.4	8.9	46	17.1	192	147	VERT
282.88	35.80	14.26	12.6	8.9	46	10.2	191	167	VERT
371.24	42.42	19.05	13.9	9.4	46	3.6	177	188	VERT
715.80	34.68	2.25	21.6	10.9	46	11.3	151	170	VERT
838.36	31.72	-1.32	21.8	11.2	46	14.3	150	304	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.
1709.9	31.69	26.63	25.7	20.7	54	22.3	101	0	HORI
1949.2	33.77	26.18	27.4	19.9	54	20.2	120	21	VERT
1958.8	33.87	26.15	27.5	19.8	54	20.1	98	356	HORI
1993.0	34.34	26.19	27.9	19.7	54	19.7	150	358	HORI
3021.5	37.50	24.63	30.6	17.7	54	16.5	150	338	VERT
3103.9	38.53	24.71	31.4	17.5	54	15.5	150	359	HORI
3211.0	38.67	24.18	31.8	17.3	54	15.3	122	22	VERT
3248.5	38.42	23.92	31.8	17.3	54	15.6	150	349	VERT
3901.8	39.23	23.18	32.0	16.0	54	14.8	150	359	HORI
3970.1	39.38	23.04	32.2	15.9	54	14.6	101	6	HORI
3990.6	39.50	23.10	32.2	15.8	54	14.5	135	359	HORI
4563.1	40.60	22.48	33.1	15.0	54	13.4	150	22	VERT
4834.7	41.06	22.10	33.6	14.6	54	12.9	151	357	HORI
4946.5	41.39	22.06	33.8	14.5	54	12.6	150	354	VERT
4965.7	41.27	21.87	33.9	14.5	54	12.7	133	18	HORI
5156.0	42.56	25.10	34.2	16.8	54	11.4	137	110	HORI
5268.4	42.23	25.01	33.8	16.6	54	11.8	179	9	VERT
5534.0	42.68	25.20	33.7	16.2	54	11.3	99	284	HORI
5763.8	43.26	25.27	33.8	15.9	54	10.7	150	11	HORI
5920.1	44.49	25.25	34.9	15.6	54	9.5	100	54	VERT
5979.4	44.85	25.29	35.1	15.5	54	9.1	150	94	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
1707.41	42.96	225	200	VER	Pass
1709.42	42.47	210	100	VER	Pass
1711.42	44.36	167	100	HOR	Pass
1947.90	44.95	176	200	VER	Pass
1949.90	43.96	347	100	VER	Pass
1957.92	44.59	181	200	VER	Pass
1959.92	45.73	22	200	VER	Pass
1991.99	44.73	191	100	HOR	Pass
1993.99	45.73	15	100	HOR	Pass
3018.04	48.36	233	100	VER	Pass
3022.04	48.84	123	200	HOR	Pass
3102.20	50.32	175	200	HOR	Pass
3106.21	49.06	164	200	HOR	Pass
3210.42	49.42	157	100	HOR	Pass
3214.43	49.35	217	100	VER	Pass
3246.49	48.54	38	100	HOR	Pass
3250.50	49.06	273	200	HOR	Pass
3899.80	49.85	151	100	HOR	Pass
3903.81	50.64	147	200	VER	Pass
3967.94	51.71	164	200	HOR	Pass
3971.94	49.86	306	100	VER	Pass
3987.98	50.24	190	100	VER	Pass
3991.98	51.03	197	200	VER	Pass
4561.12	52.23	241	100	VER	Pass
4563.13	51.75	160	100	VER	Pass
4565.13	51.67	212	100	HOR	Pass
4833.67	51.45	332	100	VER	Pass
4835.67	51.83	293	100	HOR	Pass
4945.90	53.17	150	100	VER	Pass
4947.90	52.37	207	100	HOR	Pass
4963.93	52.38	8	200	VER	Pass
4965.93	51.44	203	100	VER	Pass
4967.94	52.09	186	100	VER	Pass
5154.31	53.58	112	200	HOR	Pass
5156.31	54.16	329	100	HOR	Pass
5158.32	53.98	1	100	VER	Pass
5266.53	54.07	192	200	HOR	Pass
5268.54	53.23	221	200	HOR	Pass
5270.54	53.56	113	100	VER	Pass
5533.07	53.57	196	200	VER	Pass
5535.07	54.68	263	100	HOR	Pass

Peak Radiated Data for Emissions Above 1GHz (cont.)					
5761.52	55.22	33	100	HOR	Pass
5763.53	54.79	42	100	HOR	Pass
5765.53	53.72	94	200	VER	Pass
5919.84	56.70	69	100	VER	Pass
5921.84	55.80	360	200	HOR	Pass
5977.96	56.94	87	200	HOR	Pass
5979.96	56.36	29	200	VER	Pass
5981.96	56.13	130	100	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

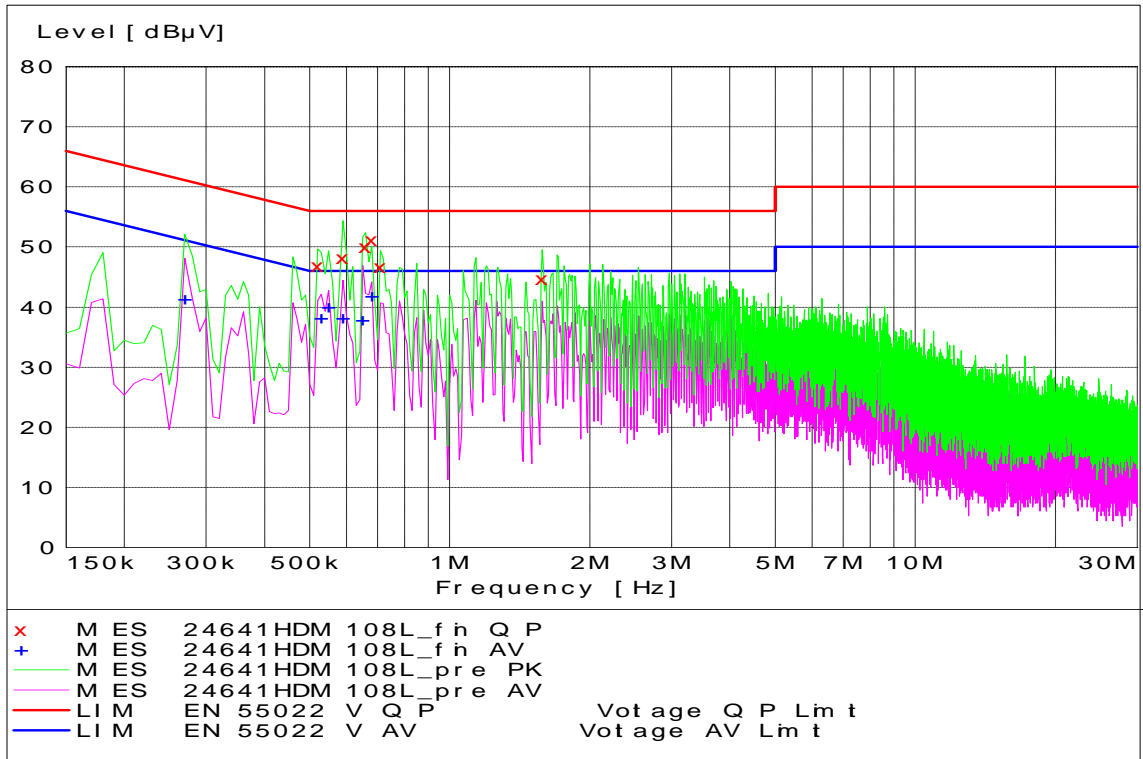
### **Test Setup**

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.

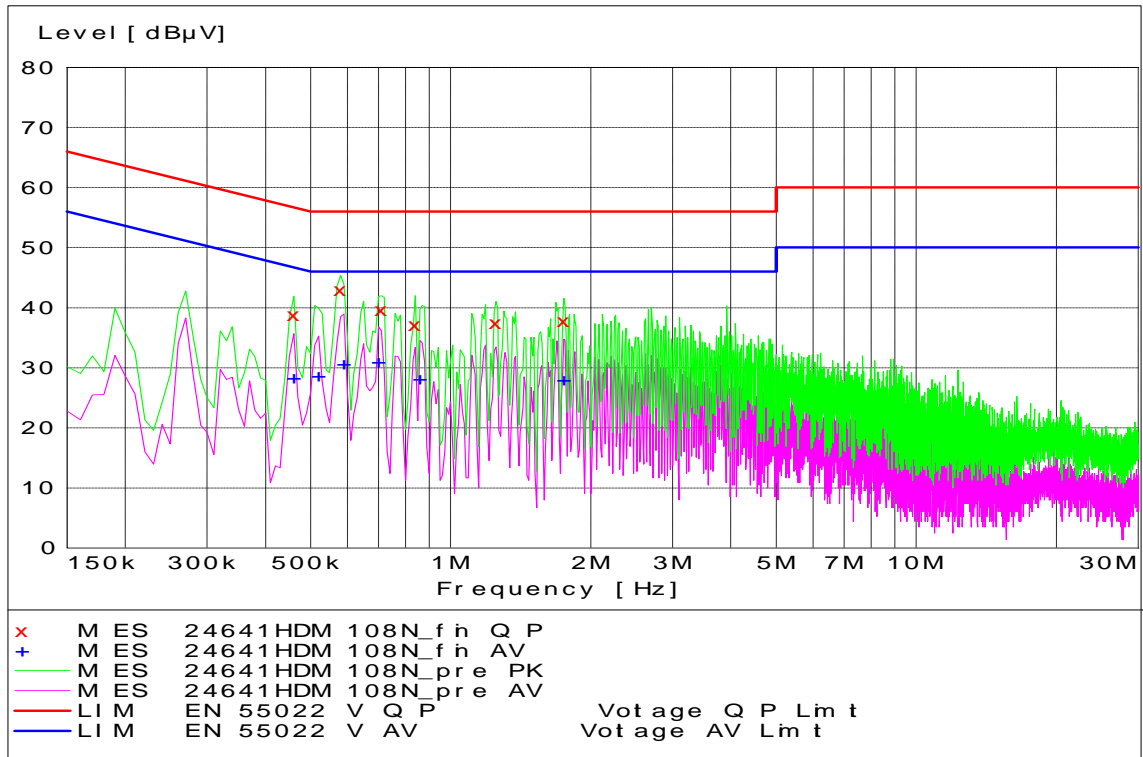
### **Measurement Results**

See attached:

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

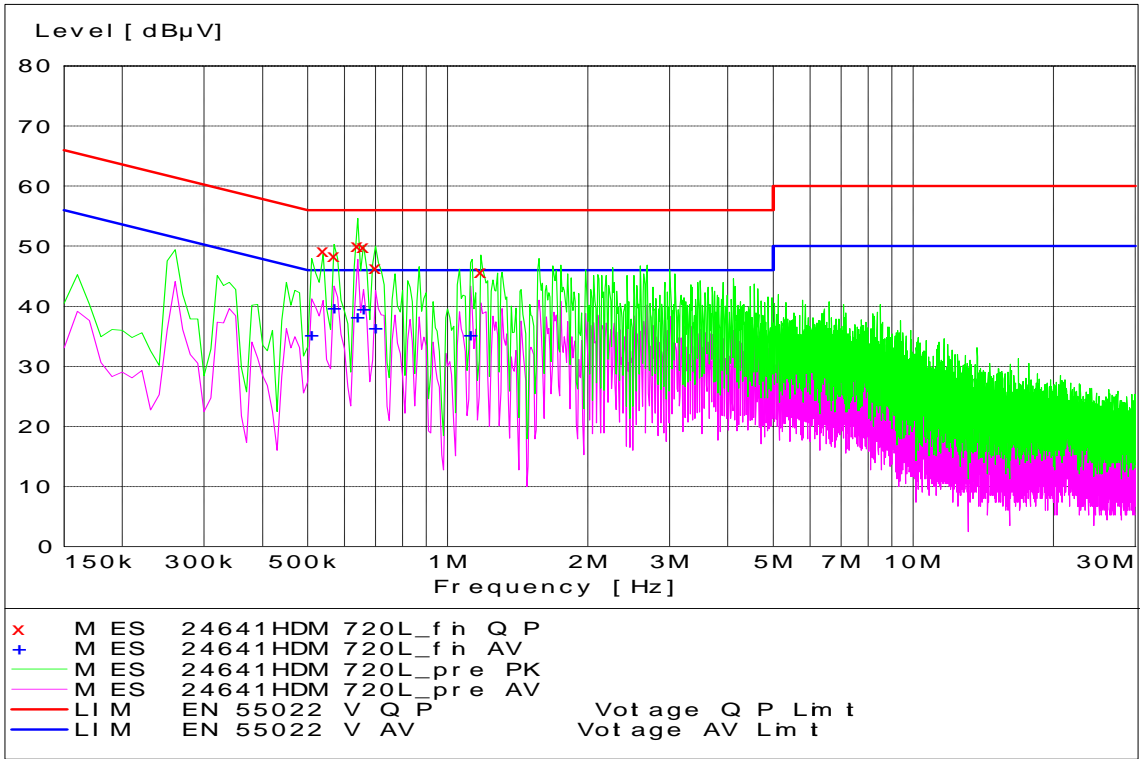


**Tx Mode - Line Coupling**

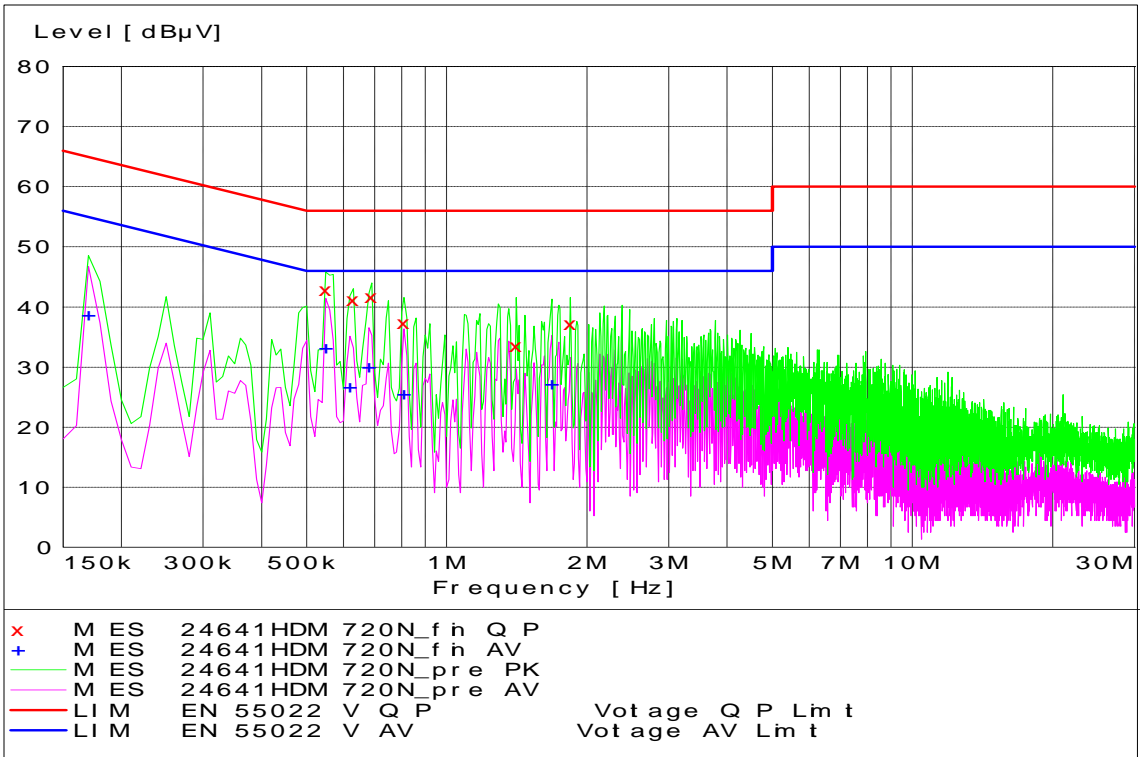


**Tx Mode - Neutral Coupling**

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



**Tx Mode - Line Coupling**



**Tx Mode - Neutral Coupling**

**End of Test Report**