



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

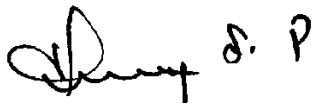
**EMC TEST REPORT**

**Test Report Number** – 24788-1 ANT+

**Report Date** – October 13, 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 13, 2011

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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  
 PH (847) 523-6167 Fax (847) 523-4538  
 FCC Registration Number: 316588  
 Industry Canada Number: 1090-1

Tests Requested By: Motorola Mobility, Inc.  
 Mobile Devices Business  
 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 12, 2011

**Applicable Standards**

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

  X   Part 15 Subpart C – Intentional Radiators

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

**Summary of Testing**

Test	Test Name	Pass/Fail
1	Spectrum Bandwidth	Pass
2	Peak Power	Pass
3	Dwell Time	pass
4	Spurious RF Conducted Emissions	Pass
5	AC Line Conducted Emissions	Pass

Test	Test Name	Results
1	Spectrum Bandwidth	See plots
2	Peak Power	See plots
3	Dwell Time	See Plots
4	Spurious RF Conducted Emissions	See plots
5	AC Line Conducted Emissions	See Plots

**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 stand-alone configuration that is representative of typical use.

## Measuring Equipment and Calibration Information

Manufacturer	Equipment Type	Model No.	Serial Number	Calibration Due Date
Rohde & Schwarz	Receiver	ESIB26	838786/010	12/21/2011
Agilent	Signal Analyzer	N9020A	US46470586	12/18/2011
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

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. All equipment is on a one-year calibration cycle.

## Description of Bluetooth Transmitter

The Equipment Under Test (EUT) offers ANT+ as a feature. The ANT+, is designed to operate at 2457 MHz. The ANT+ antenna is mounted inside of the EUT. The antenna installation is permanent. For a more thorough description of the functionality please refer to Exhibit 12 of this package.

As a ANT+, it is designed operate with other ANT+ devices as defined by the industrial standard. In this application, the device is battery operated.

### **De Facto EIRP Limit – Pursuant 47 CFR 15.247(b)(4); RSS-210 Section A8.4.**

Criterion: The conducted output power limit of 1-watt is based on the use of antennas with directional gains that do not exceed 6 dB<sub>i</sub>. If transmitting antennas of directional gain greater than 6 dB<sub>i</sub> are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB<sub>i</sub>.

The antenna employed by this transmitter is intended to be omni-directional, and thus will not exhibit directional gain in excess of 6 dB<sub>i</sub>. The conducted power is less than the limits set forth (see elsewhere in this report for details).

## **Measurement Procedures and Data**

### **Spectrum Bandwidth**

#### **Measurement Procedure**

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. The fully charged internal battery was used for the supply voltage.

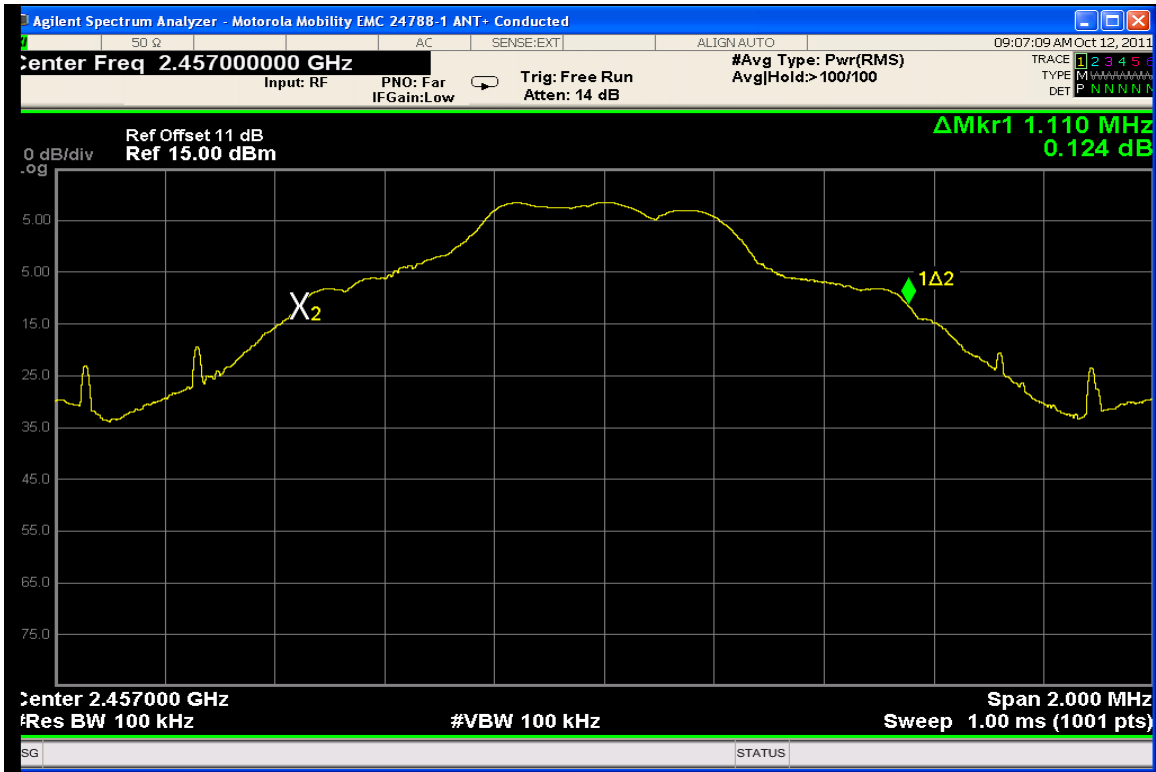
The spectrum analyzer used the following settings:

1. RBW  $\geq$  100 kHz
2. VBW  $\geq$  RBW
3. Sweep = auto
4. Detector function = peak
5. Trace = max hold

The trace was allowed to stabilize. The marker-to-peak function was used to set the marker to the peak of the emission. The marker-delta function was used to measure 20 dB down one side of the emission. The marker-delta function and marker was moved to the other side of the emission until it was even with the reference marker. The marker-delta reading at this point was the 20 dB bandwidth of the emission

#### **Measurement Results**

See attached



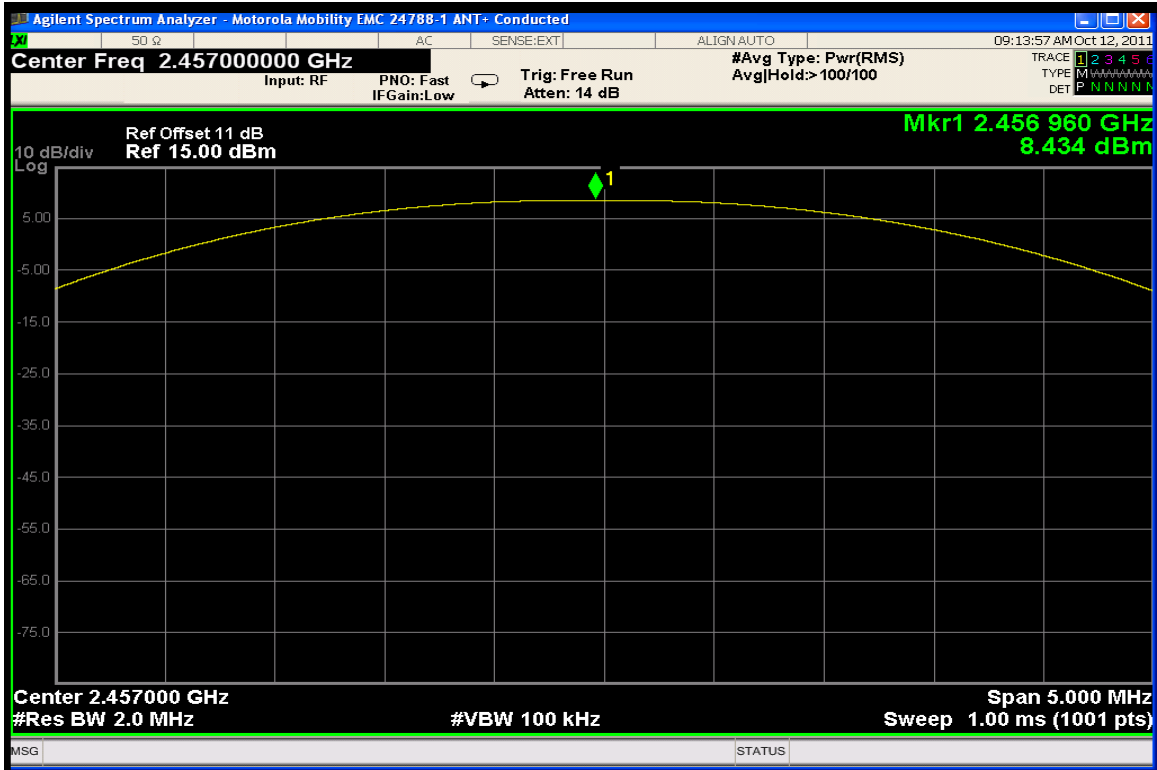
20 dB Bandwidth

**PEAK OUTPUT POWER****Measurement Procedure**

The RF output port of the Equipment-Under-Test is directly coupled to the input of the Spectrum analyzer through a specialized RF connector and a 10dB passive attenuator. The fully charged internal battery was used for the supply voltage. The power is then measured using a peak detector,

**Measurement Results**

See Attached



Max. Power – 2457 MHz

## **TIME OF OCCUPANCY (DWELL TIME)**

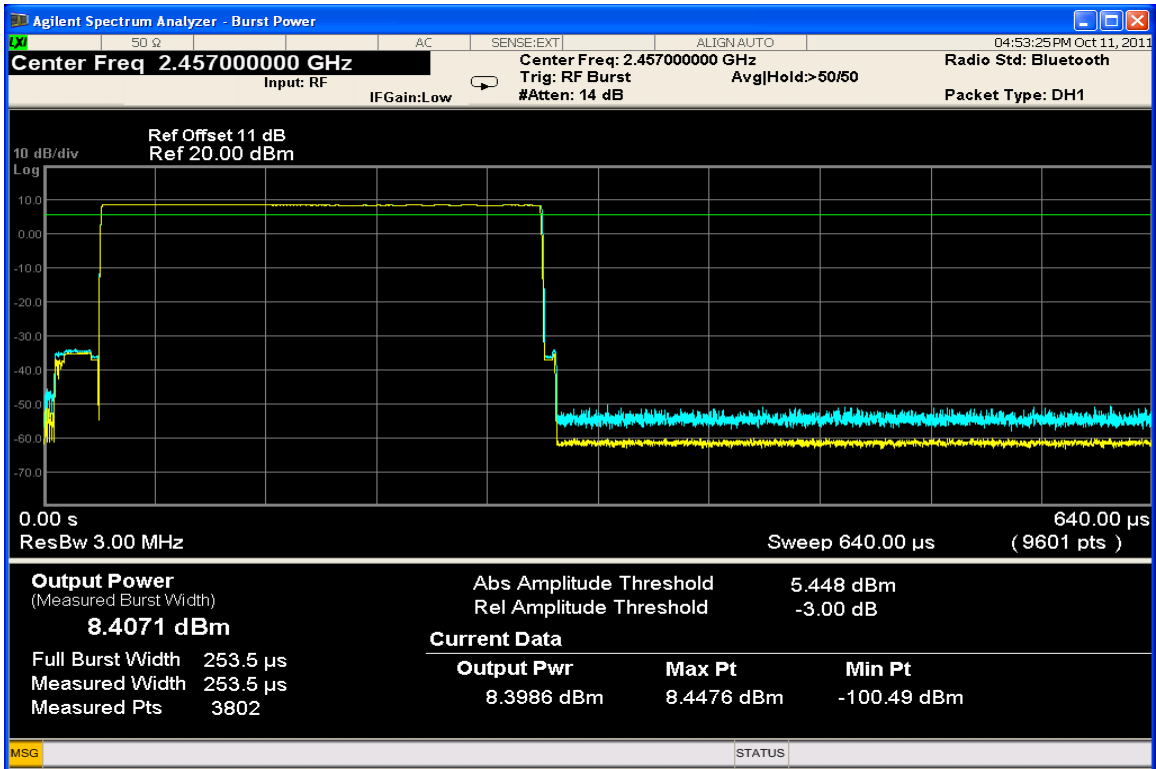
### **Measurement Procedure**

The RF output port of the EUT is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. The fully charged internal battery was used for the supply voltage.

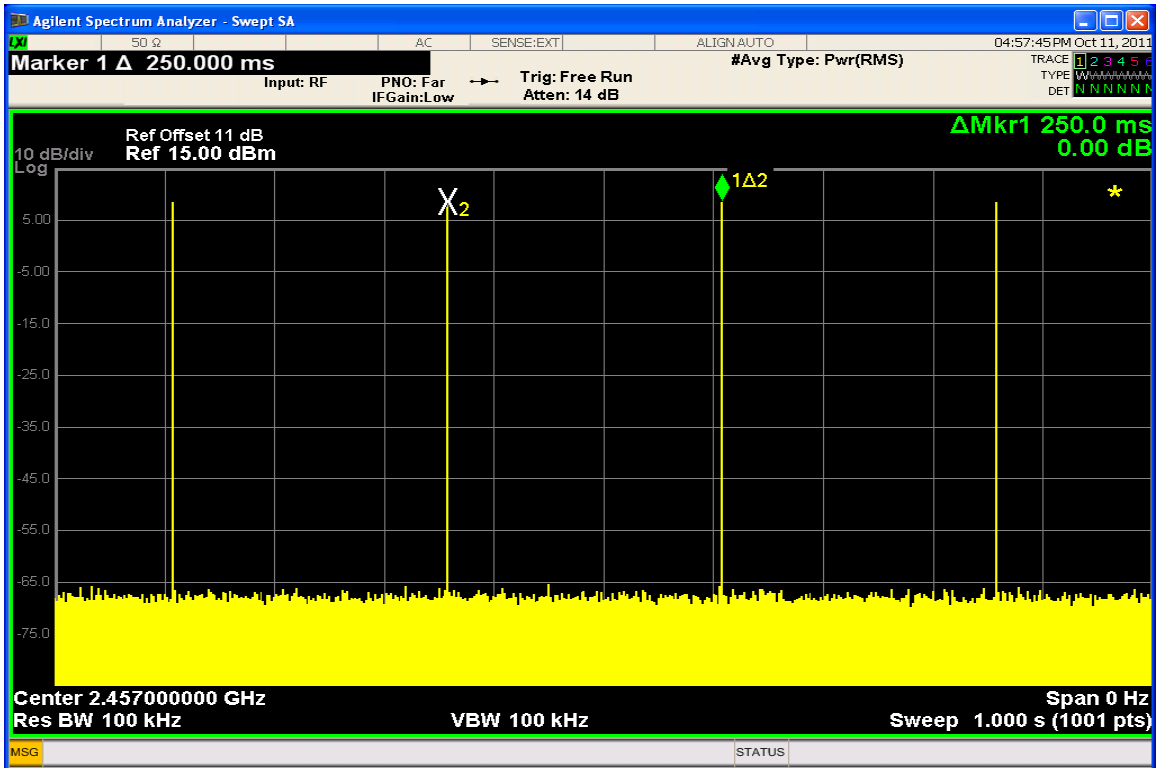
### **Measurement Results**

See attached

The signal ON time is 0.26 ms and the maximum period of the signal is 250 ms.



Channel ON Time



Period

## **SPURIOUS RF CONDUCTED EMISSIONS**

CFR 47 Part 15.249

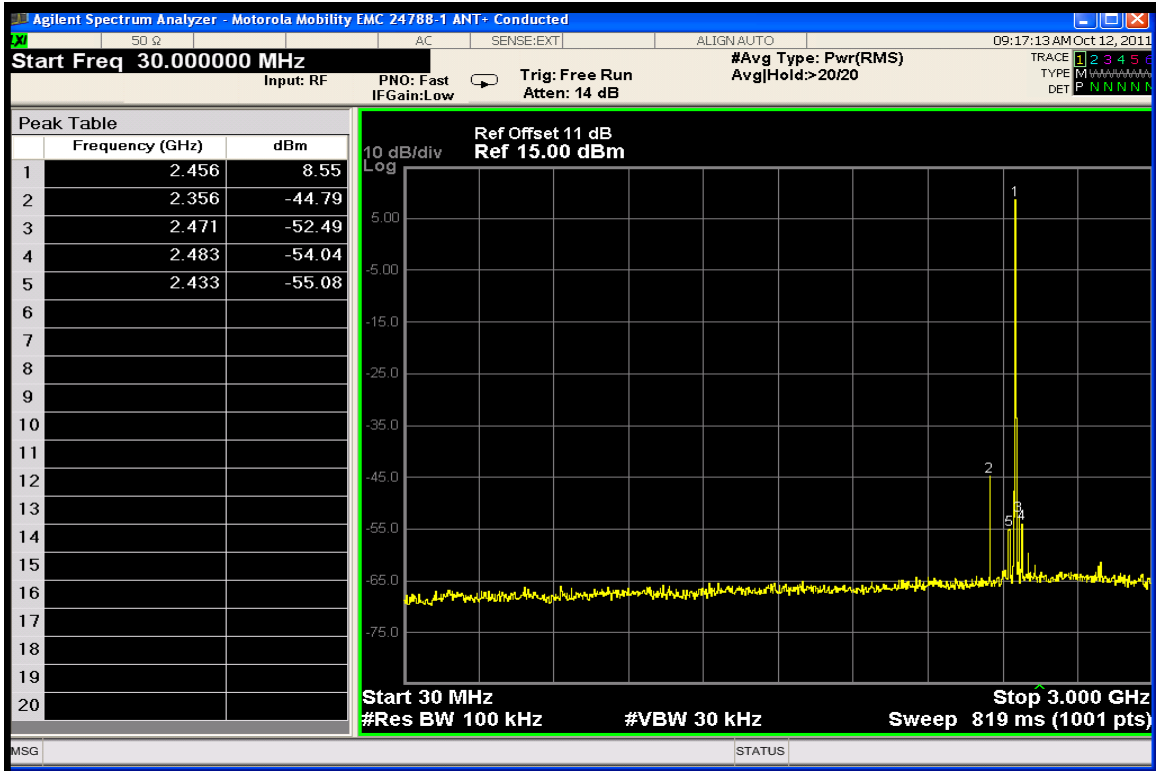
### **Measurement Procedure**

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. The fully charged internal battery was used for the supply voltage.

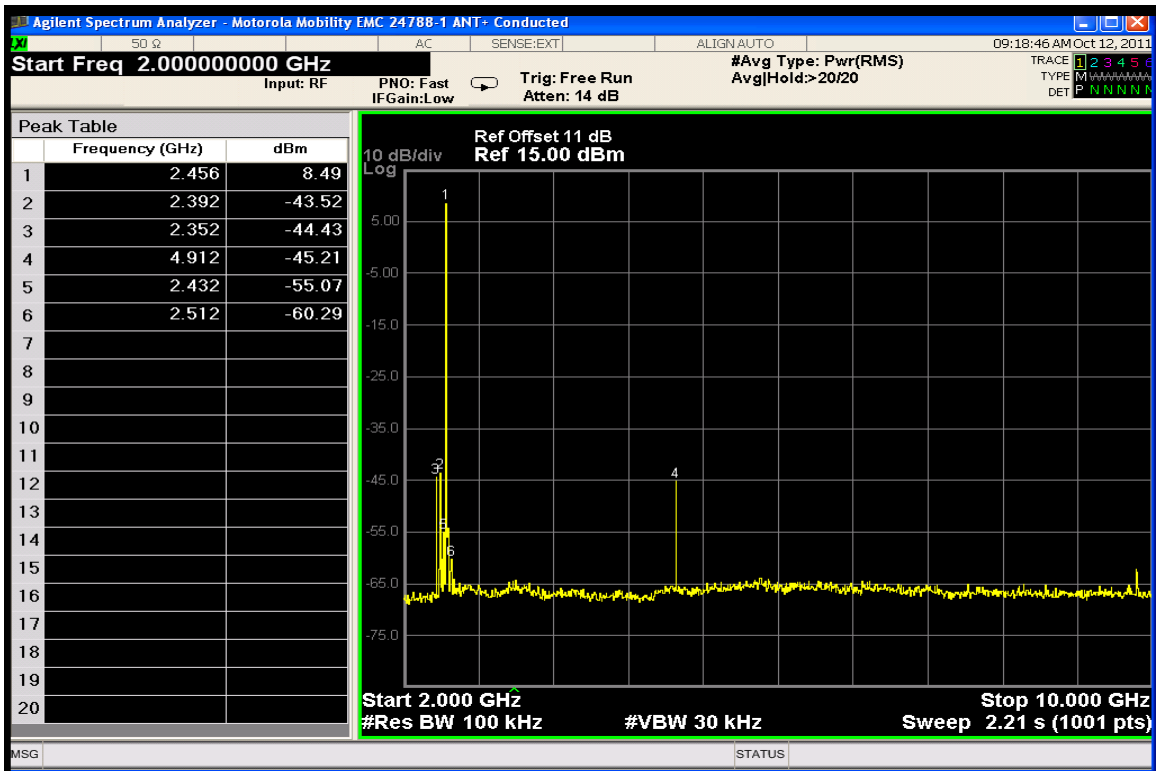
### **Measurement Results**

See attached:

All spurious emissions are 50 dB below the level of the fundamental.



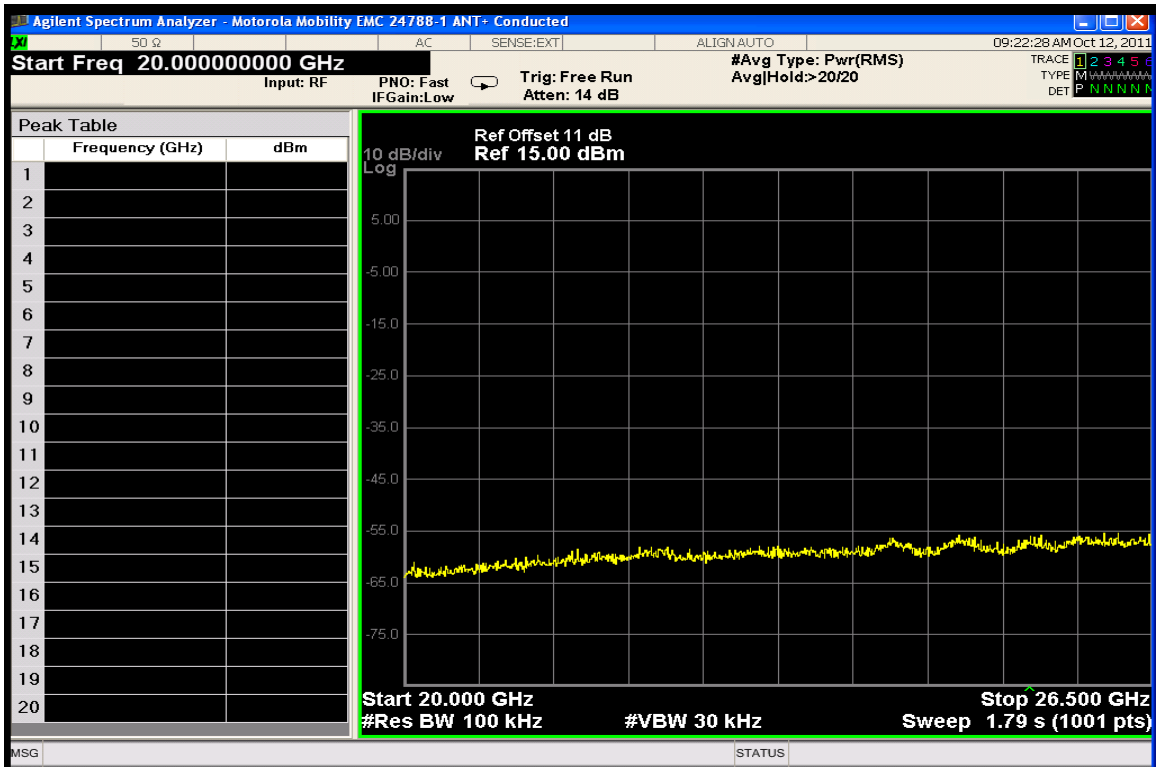
Conducted Spurious Emissions 30-3000 MHz (Low Channel)



Conducted Spurious Emissions 2-10 GHz (Low Channel)



Conducted Spurious Emissions 10-20 GHz (Low Channel)



Conducted Spurious Emissions 20-26.5 GHz (Low Channel)



**AC LINE CONDUCTED EMISSIONS**

CFR 47 Part 15.207

**Measurement Procedure**

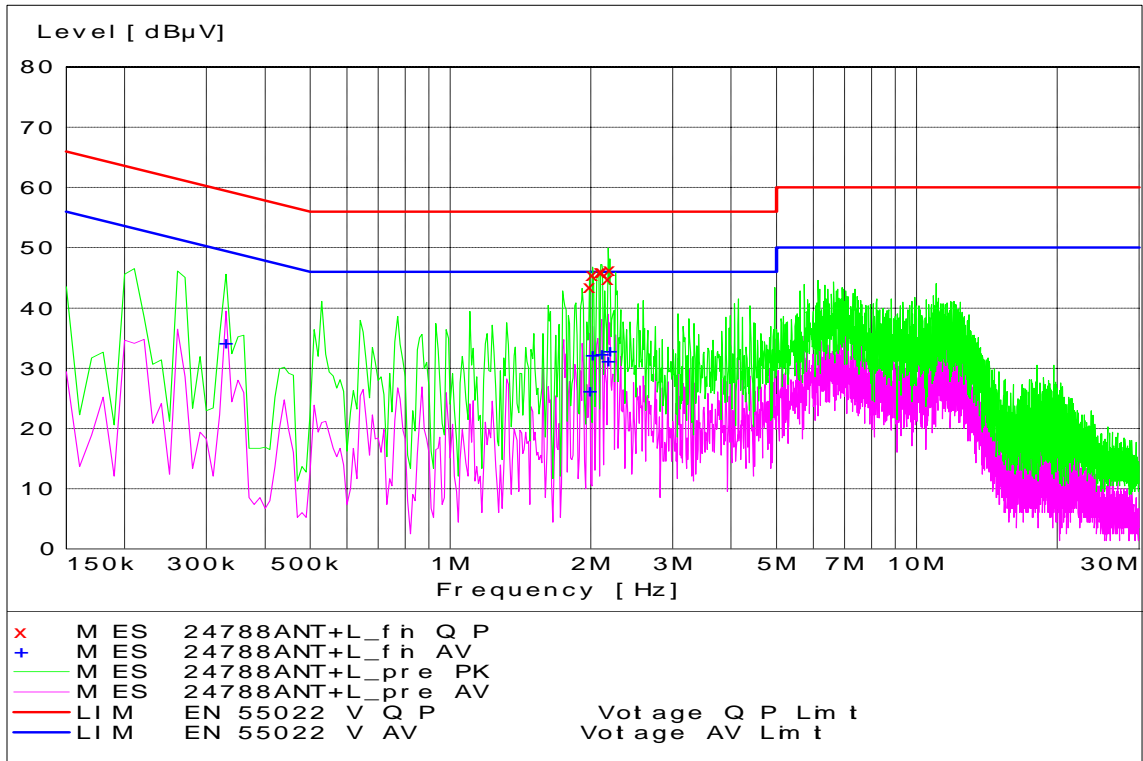
Measured levels of ac power line conducted emission shall be the radio-noise voltage from the line probe or across the 50  $\Omega$  LISN port, where permitted, terminated into a 50  $\Omega$  noise meter, or where permitted or required, the radio-noise current on the power line sensed by a current probe.

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  $\Omega$ .

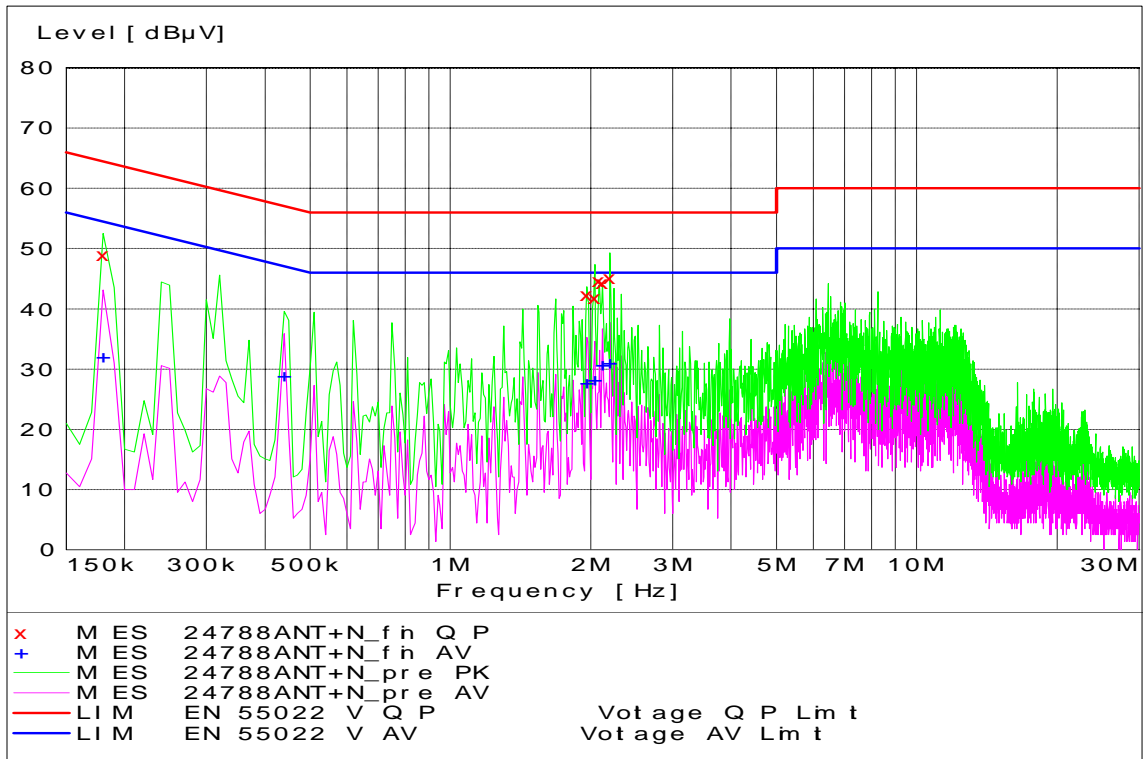
Detectors – Quasi Peak and Average Detector.

**Measurement Results**

See attached:



**Tx Mode - Line Coupling**



**Tx Mode - Neutral Coupling**

**End of Test Report**