

# RF POWER AND SPURIOUS EMISSION TEST REPORT

ACCORDING TO: FCC 47CFR part 15 subpart C § 15.247 (FHSS) and  
RSS-210 issue 8 Annex 8

FOR:

**Visonic Ltd.**

**Control panel**

**Model: PMASTER-33**

**(PowerMaster 33 G2)**

**FCC ID:WP3PMMASTER20G2**

**IC:1467C-PMMASTER20G2**

This report is in conformity with ISO/IEC 17025. The "A2LA Accredited" symbol endorsement applies only to the tests and calibrations that are listed in the scope of Hermon Laboratories accreditation. The test results relate only to the items tested. This test report shall not be reproduced in any form except in full with the written approval of Hermon Laboratories Ltd.

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## 1 Applicant information

**Client name:** Visonic Ltd.  
**Address:** 24 Habarzel street, Tel Aviv 69710, Israel  
**Telephone:** +972 3645 6714  
**Fax:** +972 3645 6788  
**E-mail:** aelshtein@visonic.com  
**Contact name:** Mr. Arick Elshtein

## 2 Equipment under test attributes

**Product name:** Control Panel  
**Product type:** Transceiver  
**Model(s):** PMASTER-33 (PowerMaster 33 G2)  
**Serial number:** 4512024294  
**Hardware version:** PM33  
**Software release:** js123456\_M18.023.mot  
**Receipt date** 21-Jan-14

## 3 Manufacturer information

**Manufacturer name:** Visonic Ltd.  
**Address:** 24 Habarzel street, Tel Aviv 69710, Israel  
**Telephone:** +972 3645 6714  
**Fax:** +972 3645 6788  
**E-Mail:** aelshtein@visonic.com  
**Contact name:** Mr. Arick Elshtein

## 4 Test details





**Project ID:** 23965, 25870  
**Location:** Hermon Laboratories Ltd. Harakevet Industrial Zone, Binyamina 30500, Israel  
**Test started:** 21-Jan-14  
**Test completed:** 25-Jun-14  
**Test specification(s):** FCC 47CFR part 15, subpart C, §15.247 (FHSS)  
RSS-210 issue 8 Annex 8, RSS-Gen issue 3

## 5 Tests summary

Test	Status
<b>Transmitter characteristics</b>	
Section 15.247(b), RSS-210 section A8.4(1), Peak output power	Pass
Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	Pass
Section 15.203, RSS-Gen section 7.1.2, Antenna requirements	Pass
Section 15.247(i), RSS-Gen, section 5.5, RF exposure	Pass, the exhibit to the application of certification is provided

According to the applicant declaration the EUT is similar to the product approved under FCC ID:WP3PMASTER20G2 and IC:1467C-PMMASTER20G2. The relevant tests were performed to support Application for permissive changes certification.

The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
<b>Tested by:</b>	Mrs. E. Pitt, test engineer	June 25, 2014	 
	Mr. S. Samokha, test engineer		
<b>Reviewed by:</b>	Mrs. M. Cherniavsky, certification engineer	July 9, 2014	
<b>Approved by:</b>	Mr. M. Nikishin, EMC and radio group manager	July 11, 2014	

## 6 EUT description

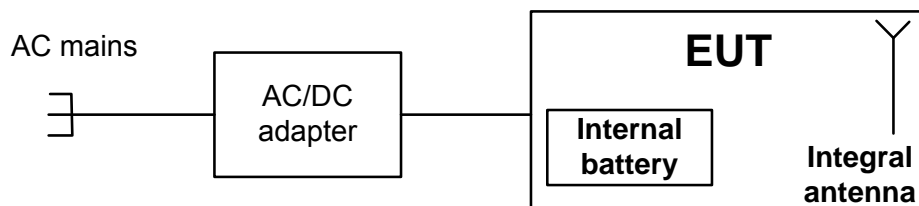
### 6.1 General information

The EUT, control panel, is a part of PCG2 Power Code II (PCG2) Wireless Alarm Control System operating in 912.750– 919.106 MHz. The EUT utilizes integral antennas separate for each radio. It may contain a GSM module manufactured by Telit, FCC ID:RI7GE864Q2, IC:5131A-GE864Q2 and BBA Module, model POWER LINK2. The EUT is powered from AC mains via AC/DC adapter and is equipped with an internal backup battery pack.

### 6.2 Ports and lines

Port type	Port description	Connected from	Connected to	Qty.	Cable type	Cable length, m
Power	AC power	AC mains	AC/DC adaptor	1	Unshielded	2.0

### 6.3 Test configuration



### 6.4 Changes made in the EUT

No changes were implemented in the EUT during the testing.



### 6.5 Transmitter characteristics

<b>Type of equipment</b>				
X	Stand-alone (Equipment with or without its own control provisions)			
	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)			
	Plug-in card (Equipment intended for a variety of host systems)			
<b>Intended use</b>		<b>Condition of use</b>		
	fixed	Always at a distance more than 2 m from all people		
X	mobile	Always at a distance more than 20 cm from all people		
	portable	May operate at a distance closer than 20 cm to human body		
<b>Assigned frequency ranges</b>		902 – 928 MHz		
<b>Operating frequencies</b>		912.750 – 919.106 MHz		
<b>Maximum rated output power</b>		At transmitter 50 Ω RF output connector	dBm	
		Peak output power	17.82 dBm	
<b>Is transmitter output power variable?</b>		X	No	
			Yes	
			continuous variable	
			stepped variable with stepsize	dB
			minimum RF power	dBm
	maximum RF power	dBm		
<b>Antenna connection</b>				
unique coupling	standard connector	X	integral	
			with temporary RF connector	
			X without temporary RF connector	
<b>Antenna/s technical characteristics</b>				
Type	Manufacturer	Model number	Gain	
Integral	Visonic	Built-in wire antenna	-4 dBi	
<b>Transmitter aggregate data rate/s</b>		50 kbps		
<b>Type of modulation</b>		GFSK		
<b>Modulating test signal (baseband)</b>		PRBS		
<b>Maximum transmitter duty cycle in normal use</b>		0.1%		
<b>Transmitter power source</b>				
	Battery	Nominal rated voltage	Battery type Lithium	
	DC	Nominal rated voltage		
X	AC mains	Nominal rated voltage 120 AC	Frequency	
<b>Common power source for transmitter and receiver</b>		X	yes	
			no	
<b>Spread spectrum technique used</b>		X	Frequency hopping (FHSS)	
			Digital transmission system (DTS)	
			Hybrid	
<b>Spread spectrum parameters for transmitters tested per FCC 15.247 only</b>				
FHSS	Total number of hops	50		
	Bandwidth per hop	99.5 kHz		
	Max. separation of hops	131 kHz		



<b>Test specification:</b>		<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>	
<b>Test procedure:</b>		Public notice DA 00-705	
<b>Test mode:</b>		Compliance	
<b>Date(s):</b>		21-Jan-14	
<b>Temperature:</b> 21 °C		<b>Air Pressure:</b> 1019 hPa	
		<b>Relative Humidity:</b> 51 %	
		<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b> EUT without GSM and BBA modules			
		<b>Verdict:</b> PASS	

## 7 Transmitter tests according to 47CFR part 15 subpart C and RSS-210 Annex 8 requirements

### 7.1 Peak output power (EUT without GSM and BBA modules)

#### 7.1.1 General

This test was performed to measure the maximum peak output power radiated by transmitter. Specification test limits are given in Table 7.1.1.

Table 7.1.1 Peak output power limits

Assigned frequency range, MHz	Peak output power*		Equivalent field strength limit @ 3m, dB(μV/m)*	Maximum antenna gain, dBi
	W	dBm		
902.0 – 928.0	1.0 (≥50 hopping channels)	30.0 (≥50 hopping channels)	131.2 (≥50 hopping channels)	6.0*
2400.0 – 2483.5	0.125 (<75 hopping channels)	21.0 (<75 hopping channels)	122.2 (<75 hopping channels)	
	1.0 (≥75 hopping channels)	30.0 (≥75 hopping channels)	131.2 (≥75 hopping channels)	
5725.0 – 5850.0	1.0	30.0	131.2	

\*- Equivalent field strength limit was calculated from the peak output power as follows:  $E = \sqrt{30 \times P \times G} / r$ , where P is peak output power in Watts, r is antenna to EUT distance in meters and G is transmitter antenna gain in dBi.

\*\* - The limit is provided in terms of conducted RF power at the antenna connector. If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power limit shall be reduced below the stated value as follows:

- by 1 dB for every 3 dB that the directional gain of antenna exceeds 6 dBi for fixed point-to-point transmitters operate in 2400-2483.5 MHz band;
- without any corresponding reduction for fixed point-to-point transmitters operate in 5725-5850 MHz band;
- by the amount in dB that the directional gain of antenna exceeds 6 dBi for the rest of transmitters.

#### 7.1.2 Test procedure

7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.

7.1.2.2 The EUT was adjusted to produce maximum available to end user RF output power.

7.1.2.3 The frequency span of spectrum analyzer was set approximately 5 times wider than 20 dB bandwidth of the EUT and the resolution bandwidth was set wider than 20 dB bandwidth of the EUT. To find maximum radiation the turntable was rotated 360° and the measuring antenna height was swept in both vertical and horizontal polarizations.

7.1.2.4 The maximum field strength of the EUT carrier frequency was measured as provided in Table 7.1.2 and associated plots.

7.1.2.5 The maximum peak output power was calculated from the field strength of carrier as follows:

$$P = (E \times d)^2 / (30 \times G),$$

where P is the peak output power in W, E is the field strength in V/m, d is the test distance and G is the transmitter numeric antenna gain over an isotropic radiator.

The above equation was converted in logarithmic units for 3 m test distance:

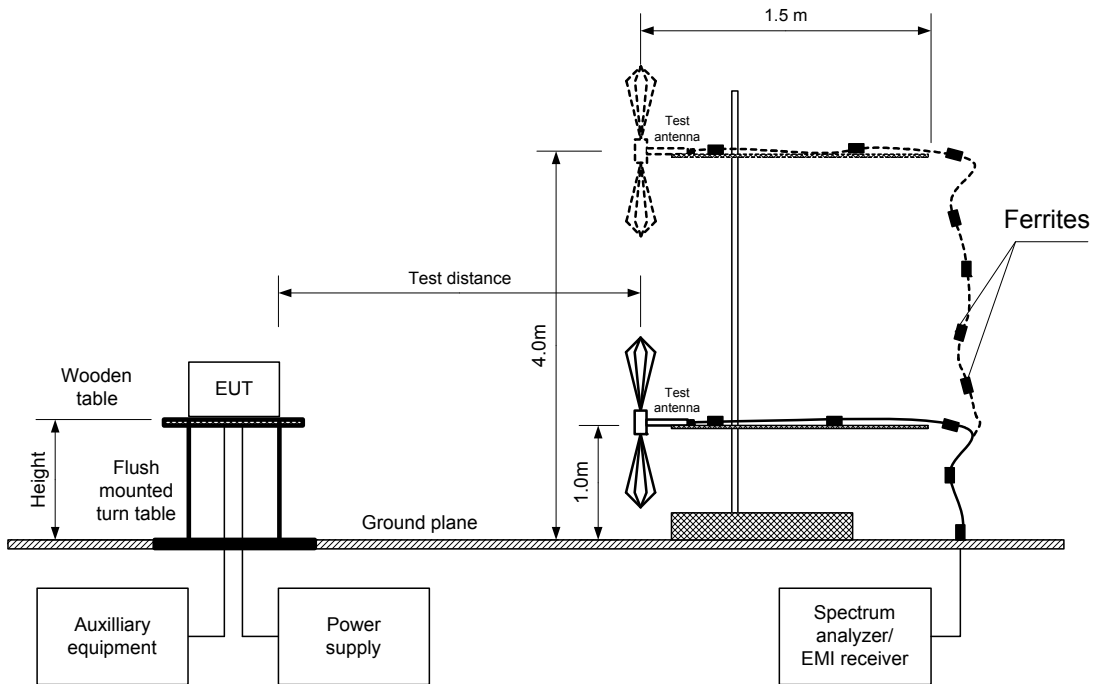
$$\text{Peak output power in dBm} = \text{Field strength in dB}(\mu\text{V/m}) - \text{Transmitter antenna gain in dBi} - 95.2 \text{ dB}$$

7.1.2.6 The worst test results (the lowest margins) were recorded in Table 7.1.2.



<b>Test specification:</b>	<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>		
<b>Test procedure:</b>	Public notice DA 00-705		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date(s):</b>	21-Jan-14		
<b>Temperature:</b> 21 °C	<b>Air Pressure:</b> 1019 hPa	<b>Relative Humidity:</b> 51 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT without GSM and BBA modules			

Figure 7.1.1 Setup for carrier field strength measurements







<b>Test specification:</b>	<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>		
<b>Test procedure:</b>	Public notice DA 00-705		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	21-Jan-14		
<b>Temperature:</b> 21 °C	<b>Air Pressure:</b> 1019 hPa	<b>Relative Humidity:</b> 51 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT without GSM and BBA modules			

Table 7.1.2 Peak output power test results

ASSIGNED FREQUENCY BAND: 902 – 928 MHz  
TEST DISTANCE: 3 m  
TEST SITE: SEMI ANECHOIC CHAMBER  
EUT HEIGHT: 0.8 m  
DETECTOR USED: Peak  
TEST ANTENNA TYPE: Biconilog (30 MHz – 1000 MHz)  
MODULATION: GFSK  
MODULATING SIGNAL: PRBS  
BIT RATE: 50 kbps  
TRANSMITTER OUTPUT POWER SETTINGS: Maximum  
DETECTOR USED: Peak  
EUT 20 dB BANDWIDTH: 99.5 kHz  
RESOLUTION BANDWIDTH: 120 kHz  
VIDEO BANDWIDTH: 300 kHz  
FREQUENCY HOPPING: Disabled  
NUMBER OF FREQUENCY HOPPING CHANNELS: 50

Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
912.750	106.9	V	1.00	229	-4.0	15.6	30.0	-14.4	Pass
915.863	108.5	V	1.00	229	-4.0	17.3	30.0	-12.7	Pass
919.106	105.8	V	1.00	62	-4.0	14.6	30.0	-15.4	Pass

\*- EUT front panel refer to 0 degrees position of turntable.

\*\* - Peak output power was calculated from the field strength of carrier as follows:  $P = (E \times d)^2 / (30 \times G)$ , where P is the peak output power in W, E is the field strength in V/m, d is the test distance in meters and G is the transmitter numeric antenna gain over an isotropic radiator. The above equation was converted in logarithmic units for 3 m test distance: *Peak output power in dBm = Field strength in dB(μV/m) - Transmitter antenna gain in dBi - 95.2 dB*

\*\*\* - Margin = Peak output power – specification limit.

Note: Maximum peak output power was obtained at 85%Unom input power voltage.

#### Reference numbers of test equipment used

HL 0521	HL 0604	HL 1205	HL 3521	HL 4352	HL 4353		
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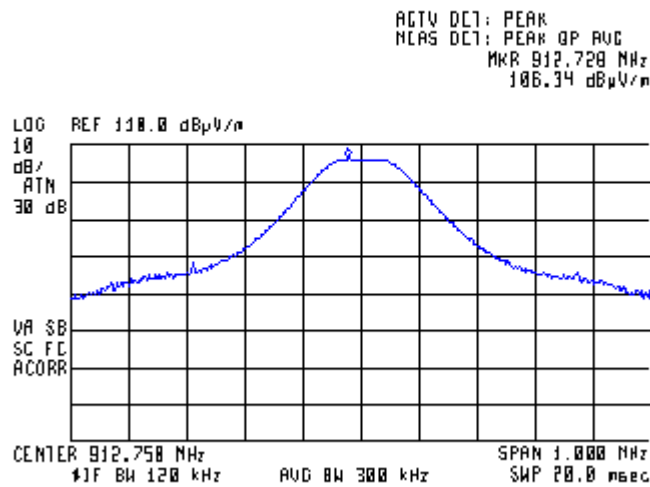
Full description is given in Appendix A.



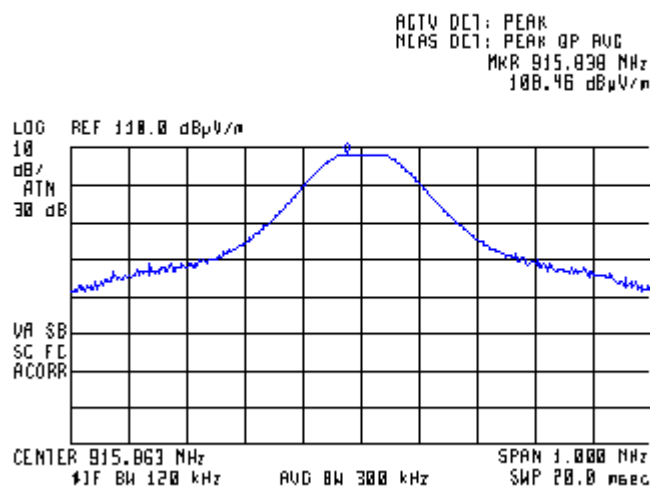
HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(b), RSS-210 section A8.4(1), Peak output power			
<b>Test procedure:</b> Public notice DA 00-705			
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS		
<b>Date(s):</b> 21-Jan-14			
<b>Temperature:</b> 21 °C	<b>Air Pressure:</b> 1019 hPa	<b>Relative Humidity:</b> 51 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT without GSM and BBA modules			

Plot 7.1.1 Field strength of carrier at low frequency and Unom



Plot 7.1.2 Field strength of carrier at mid frequency and Unom

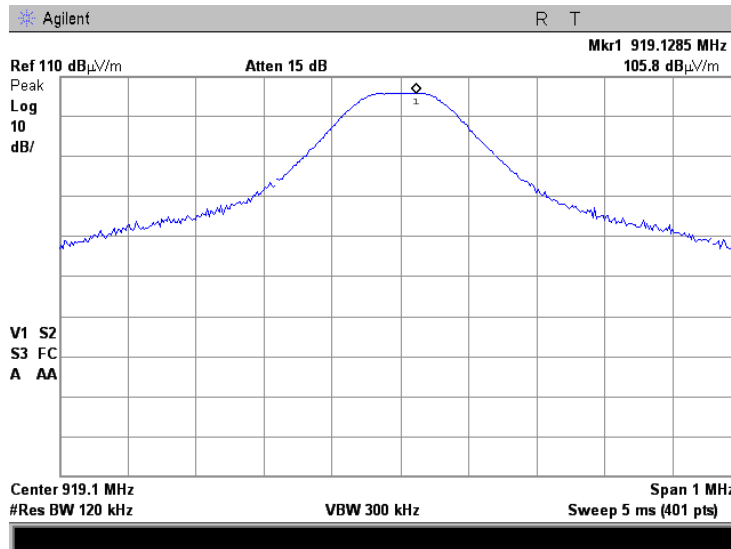




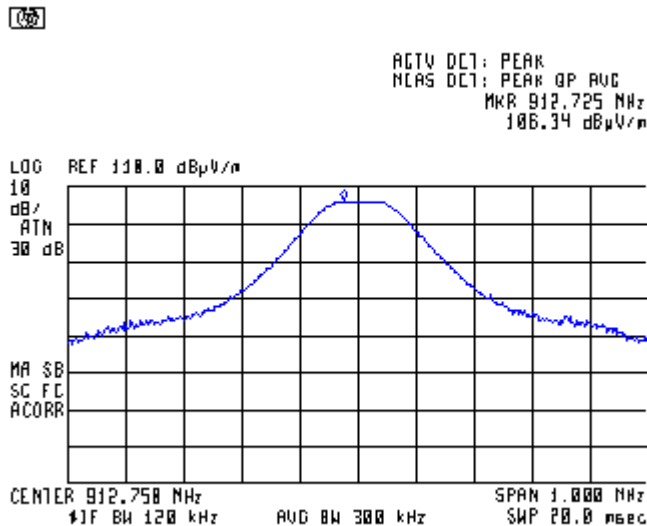
HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>	
<b>Test procedure:</b>		Public notice DA 00-705	
<b>Test mode:</b>		Compliance	
<b>Date(s):</b>		21-Jan-14	
<b>Temperature:</b> 21 °C		<b>Air Pressure:</b> 1019 hPa	
		<b>Relative Humidity:</b> 51 %	
		<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b> EUT without GSM and BBA modules			

Plot 7.1.3 Field strength of carrier at high frequency and Unom



Plot 7.1.4 Peak output power at low frequency and 115%Unom

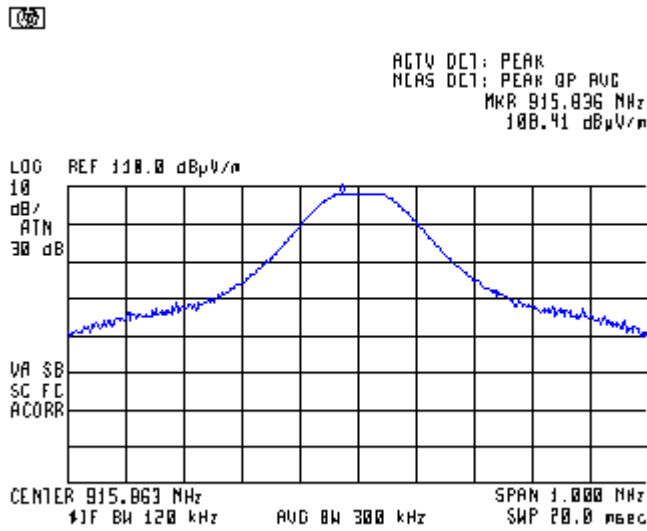




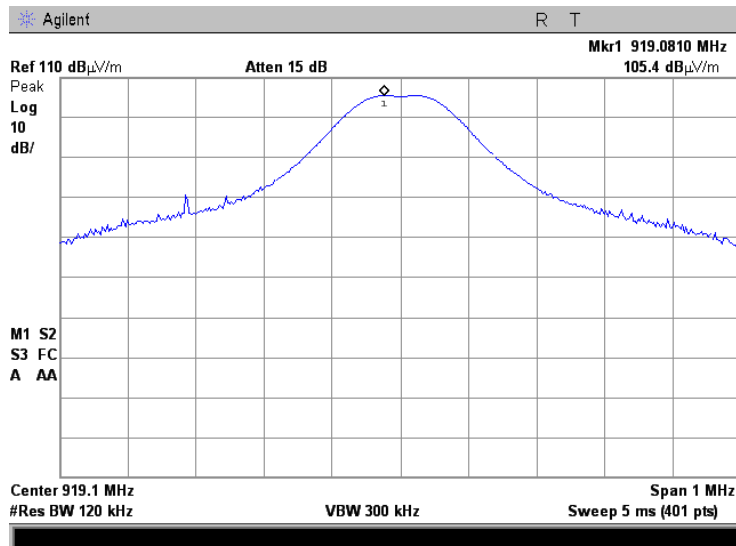
HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(b), RSS-210 section A8.4(1), Peak output power			
<b>Test procedure:</b> Public notice DA 00-705			
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS		
<b>Date(s):</b> 21-Jan-14			
<b>Temperature:</b> 21 °C	<b>Air Pressure:</b> 1019 hPa	<b>Relative Humidity:</b> 51 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT without GSM and BBA modules			

Plot 7.1.5 Peak output power at mid frequency and 115%Unom



Plot 7.1.6 Peak output power at high frequency and 115%Unom

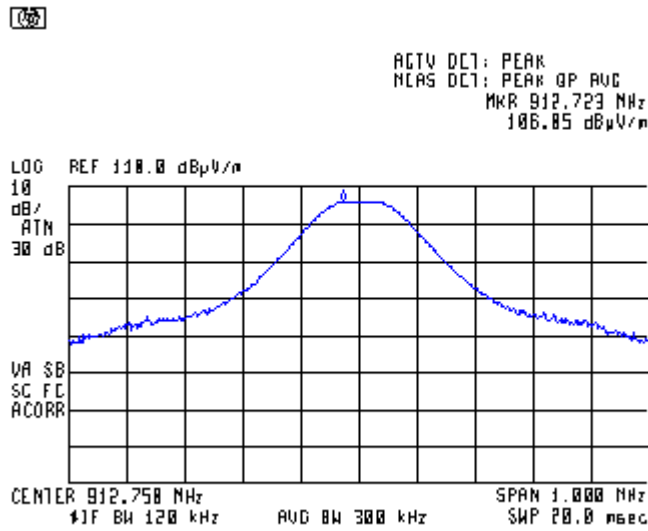




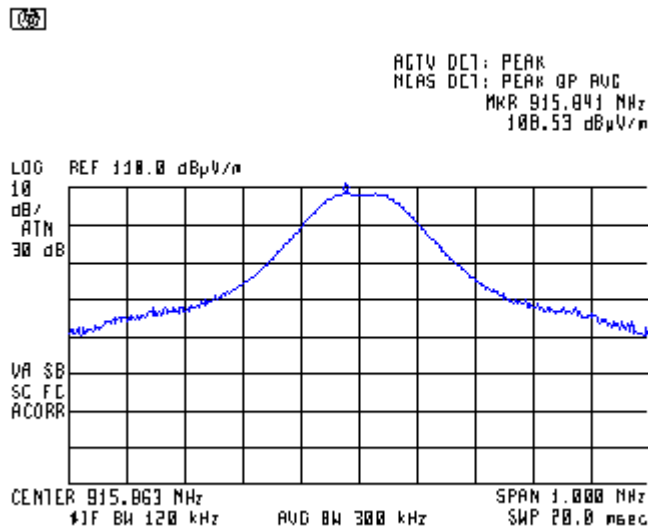
HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(b), RSS-210 section A8.4(1), Peak output power			
<b>Test procedure:</b> Public notice DA 00-705			
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS		
<b>Date(s):</b> 21-Jan-14			
<b>Temperature:</b> 21 °C	<b>Air Pressure:</b> 1019 hPa	<b>Relative Humidity:</b> 51 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT without GSM and BBA modules			

Plot 7.1.7 Peak output power at low frequency and 85%Unom



Plot 7.1.8 Peak output power at mid frequency and 85%Unom

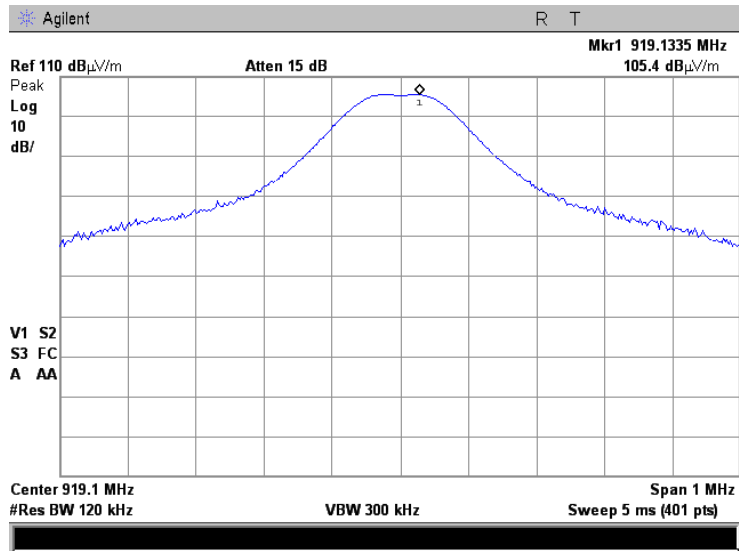




HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>	
<b>Test procedure:</b>		Public notice DA 00-705	
<b>Test mode:</b>		Compliance	
<b>Date(s):</b>		21-Jan-14	
<b>Temperature:</b> 21 °C		<b>Air Pressure:</b> 1019 hPa	
		<b>Relative Humidity:</b> 51 %	
		<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b> EUT without GSM and BBA modules			

Plot 7.1.9 Peak output power at high frequency and 85%Unom





<b>Test specification:</b>		<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>	
<b>Test procedure:</b>		Public notice DA 00-705	
<b>Test mode:</b>		Compliance	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 27 °C		<b>Air Pressure:</b> 1008 hPa	
		<b>Relative Humidity:</b> 58 %	
		<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b> EUT with GSM and BBA modules			
		<b>Verdict:</b> PASS	

## 7.2 Peak output power (EUT with GSM and BBA modules)

### 7.2.1 General

This test was performed to measure the maximum peak output power radiated by transmitter. Specification test limits are given in Table 7.2.1.

Table 7.2.1 Peak output power limits

Assigned frequency range, MHz	Peak output power*		Equivalent field strength limit @ 3m, dB(μV/m)*	Maximum antenna gain, dBi
	W	dBm		
902.0 – 928.0	1.0 (≥50 hopping channels)	30.0 (≥50 hopping channels)	131.2 (≥50 hopping channels)	6.0*
2400.0 – 2483.5	0.125 (<75 hopping channels)	21.0 (<75 hopping channels)	122.2 (<75 hopping channels)	
	1.0 (≥75 hopping channels)	30.0 (≥75 hopping channels)	131.2 (≥75 hopping channels)	
5725.0 – 5850.0	1.0	30.0	131.2	

\*- Equivalent field strength limit was calculated from the peak output power as follows:  $E = \sqrt{30 \times P \times G} / r$ , where P is peak output power in Watts, r is antenna to EUT distance in meters and G is transmitter antenna gain in dBi.

\*\* - The limit is provided in terms of conducted RF power at the antenna connector. If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power limit shall be reduced below the stated value as follows:

- by 1 dB for every 3 dB that the directional gain of antenna exceeds 6 dBi for fixed point-to-point transmitters operate in 2400-2483.5 MHz band;
- without any corresponding reduction for fixed point-to-point transmitters operate in 5725-5850 MHz band;
- by the amount in dB that the directional gain of antenna exceeds 6 dBi for the rest of transmitters.

### 7.2.2 Test procedure

7.2.2.1 The EUT was set up as shown in Figure 7.2.1, energized and its proper operation was checked.

7.2.2.2 The EUT was adjusted to produce maximum available to end user RF output power.

7.2.2.3 The frequency span of spectrum analyzer was set approximately 5 times wider than 20 dB bandwidth of the EUT and the resolution bandwidth was set wider than 20 dB bandwidth of the EUT. To find maximum radiation the turntable was rotated 360° and the measuring antenna height was swept in both vertical and horizontal polarizations.

7.2.2.4 The maximum field strength of the EUT carrier frequency was measured as provided in Table 7.2.2 and associated plots.

7.2.2.5 The maximum peak output power was calculated from the field strength of carrier as follows:

$$P = (E \times d)^2 / (30 \times G),$$

where P is the peak output power in W, E is the field strength in V/m, d is the test distance and G is the transmitter numeric antenna gain over an isotropic radiator.

The above equation was converted in logarithmic units for 3 m test distance:

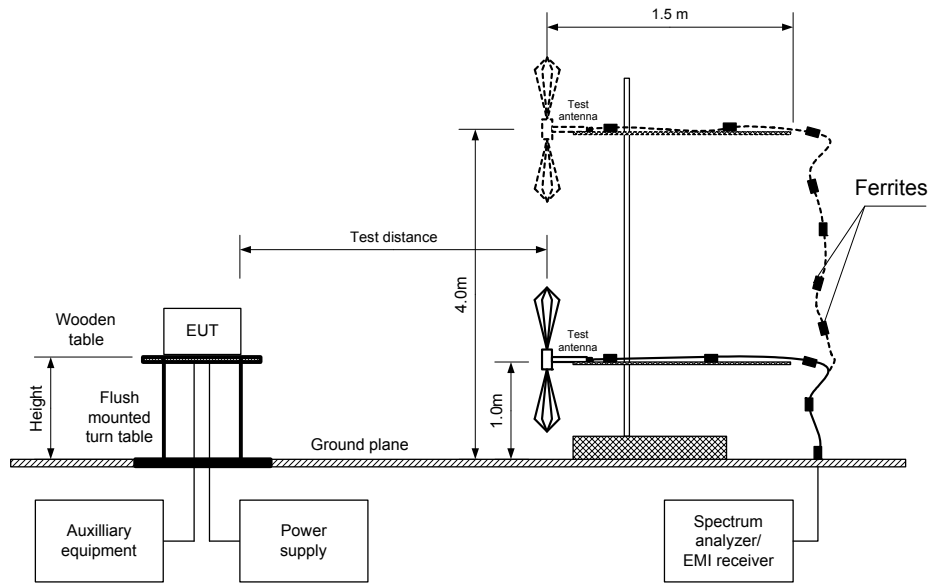
$$\text{Peak output power in dBm} = \text{Field strength in dB}(\mu\text{V/m}) - \text{Transmitter antenna gain in dBi} - 95.2 \text{ dB}$$

7.2.2.6 The worst test results (the lowest margins) were recorded in Table 7.2.2.



<b>Test specification:</b>	<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>		
<b>Test procedure:</b>	Public notice DA 00-705		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 27 °C	<b>Air Pressure:</b> 1008 hPa	<b>Relative Humidity:</b> 58 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT with GSM and BBA modules			

Figure 7.2.1 Setup for carrier field strength measurements







<b>Test specification:</b>	<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>		
<b>Test procedure:</b>	Public notice DA 00-705		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 27 °C	<b>Air Pressure:</b> 1008 hPa	<b>Relative Humidity:</b> 58 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT with GSM and BBA modules			

Table 7.2.2 Peak output power test results

ASSIGNED FREQUENCY BAND: 902 – 928 MHz  
TEST DISTANCE: 3 m  
TEST SITE: Semi anechoic chamber  
EUT HEIGHT: 0.8 m  
DETECTOR USED: Peak  
TEST ANTENNA TYPE: Biconilog (30 MHz – 1000 MHz)  
MODULATION: GFSK  
MODULATING SIGNAL: PRBS  
BIT RATE: 50 kbps  
TRANSMITTER OUTPUT POWER SETTINGS: Maximum  
DETECTOR USED: Peak  
EUT 20 dB BANDWIDTH: 99.5 kHz  
RESOLUTION BANDWIDTH: 120 kHz  
VIDEO BANDWIDTH: 300 kHz  
FREQUENCY HOPPING: Disabled  
NUMBER OF FREQUENCY HOPPING CHANNELS: 50

Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
912.723	106.73	Vert	1.6	135	-4.0	15.50	30.0	-14.50	Pass
915.830	109.05	Vert	1.0	101	-4.0	17.82	30.0	-12.18	Pass
919.075	106.74	Vert	1.0	101	-4.0	15.51	30.0	-14.49	Pass

\*- EUT front panel refer to 0 degrees position of turntable.

\*\* - Peak output power was calculated from the field strength of carrier as follows:  $P = (E \times d)^2 / (30 \times G)$ , where P is the peak output power in W, E is the field strength in V/m, d is the test distance in meters and G is the transmitter numeric antenna gain over an isotropic radiator. The above equation was converted in logarithmic units for 3 m test distance: *Peak output power in dBm = Field strength in dB(μV/m) - Transmitter antenna gain in dBi - 95.2 dB*

\*\*\* - Margin = Peak output power – specification limit.

Note: Maximum peak output power was obtained at Unom input power voltage.

#### Reference numbers of test equipment used

HL 0521	HL 0604	HL 2871	HL 4353				
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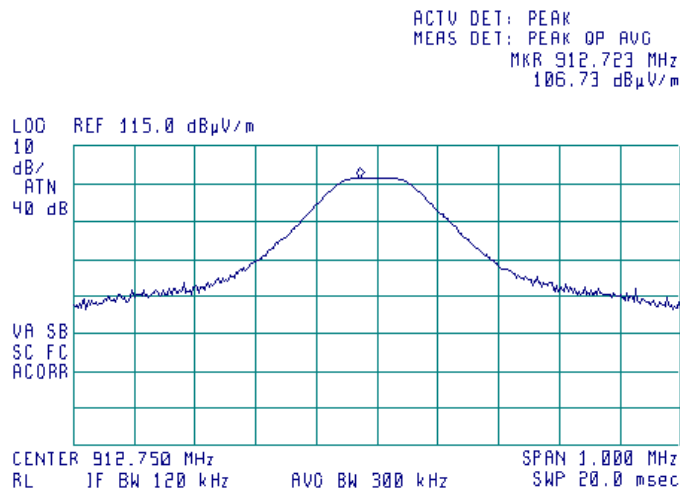
Full description is given in Appendix A.



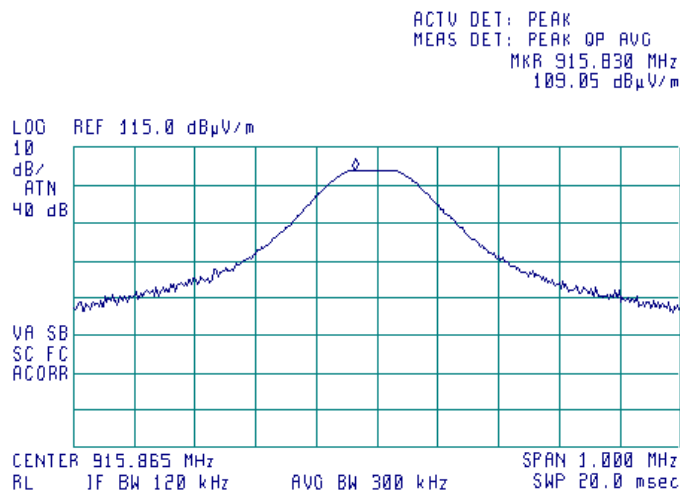
HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>	
<b>Test procedure:</b>		Public notice DA 00-705	
<b>Test mode:</b>		Compliance	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 27 °C	<b>Air Pressure:</b> 1008 hPa	<b>Relative Humidity:</b> 58 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT with GSM and BBA modules			

Plot 7.2.1 Field strength of carrier at low frequency and Unom



Plot 7.2.2 Field strength of carrier at mid frequency and Unom

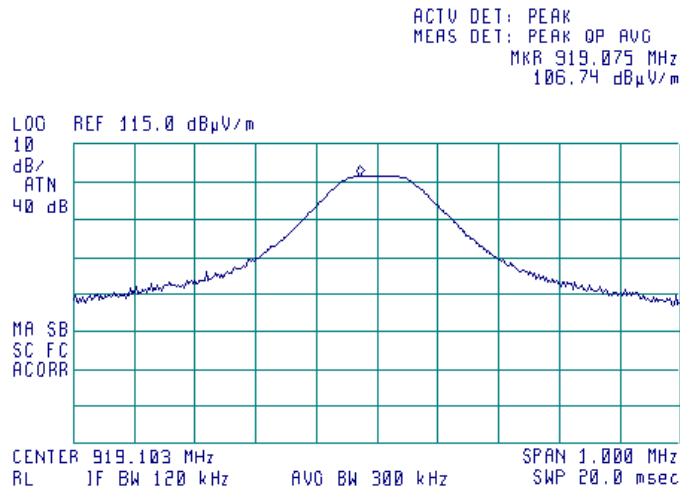




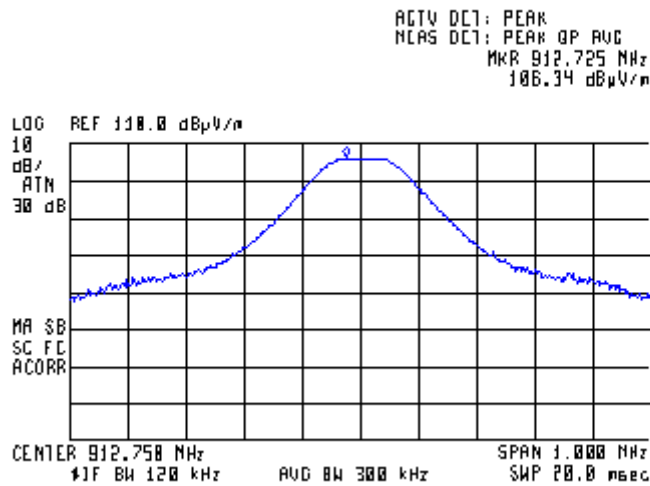
HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>	
<b>Test procedure:</b>		Public notice DA 00-705	
<b>Test mode:</b>		Compliance	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 27 °C	<b>Air Pressure:</b> 1008 hPa	<b>Relative Humidity:</b> 58 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT with GSM and BBA modules			

Plot 7.2.3 Field strength of carrier at high frequency and Unom



Plot 7.2.4 Peak output power at low frequency and 115%Unom

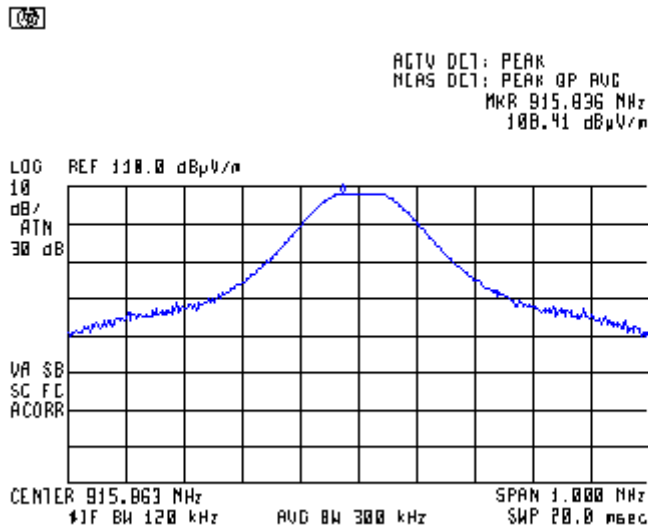




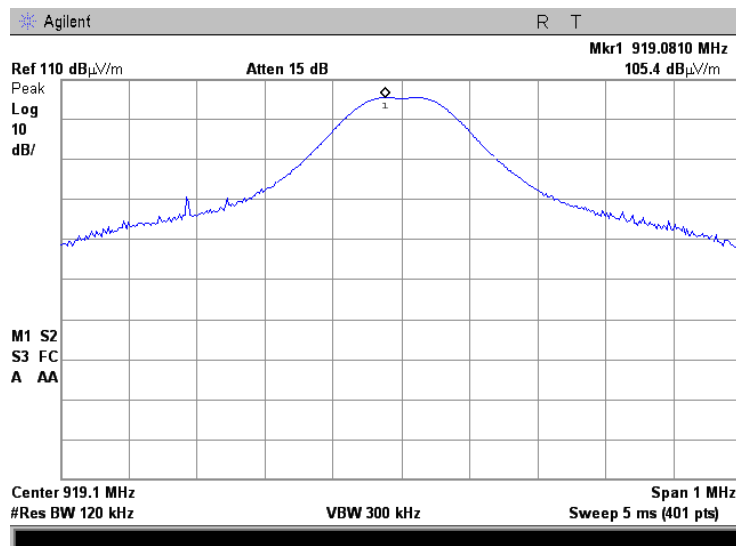
HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(b), RSS-210 section A8.4(1), Peak output power			
<b>Test procedure:</b> Public notice DA 00-705			
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS		
<b>Date(s):</b> 25-Jun-14			
<b>Temperature:</b> 27 °C	<b>Air Pressure:</b> 1008 hPa	<b>Relative Humidity:</b> 58 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT with GSM and BBA modules			

Plot 7.2.5 Peak output power at mid frequency and 115%Unom



Plot 7.2.6 Peak output power at high frequency and 115%Unom

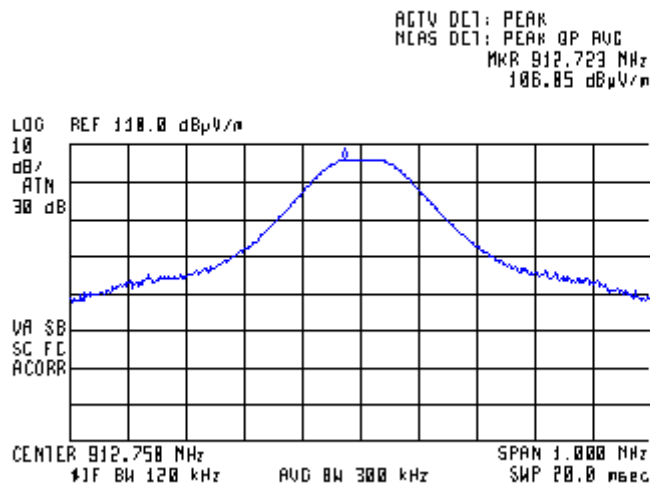




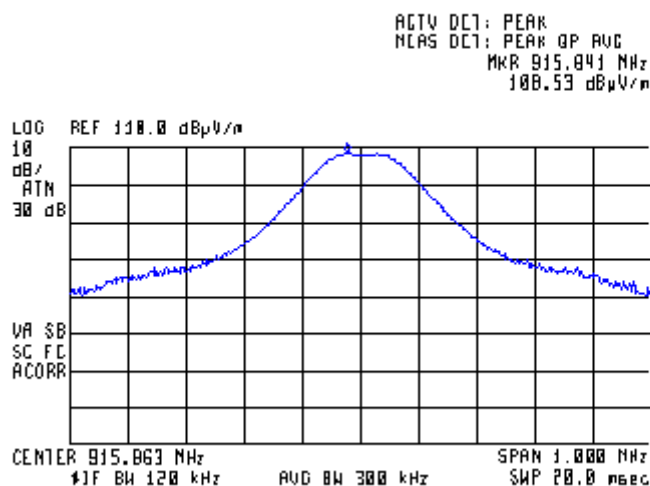
HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>	
<b>Test procedure:</b>		Public notice DA 00-705	
<b>Test mode:</b>		Compliance	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 27 °C	<b>Air Pressure:</b> 1008 hPa	<b>Relative Humidity:</b> 58 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b> EUT with GSM and BBA modules			

Plot 7.2.7 Peak output power at low frequency and 85%Unom



Plot 7.2.8 Peak output power at mid frequency and 85%Unom

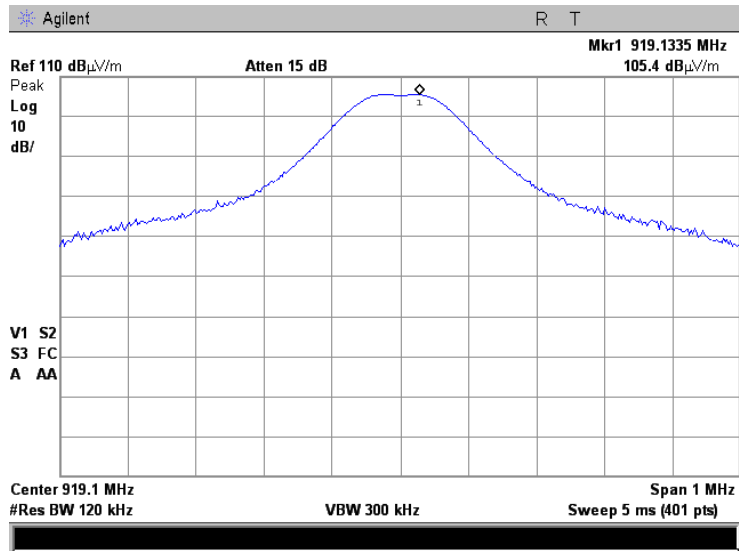




HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(b), RSS-210 section A8.4(1), Peak output power</b>	
<b>Test procedure:</b>		Public notice DA 00-705	
<b>Test mode:</b>		Compliance	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 27 °C		<b>Air Pressure:</b> 1008 hPa	
		<b>Relative Humidity:</b> 58 %	
		<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b> EUT with GSM and BBA modules			

Plot 7.2.9 Peak output power at high frequency and 85%Unom





<b>Test specification: Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>			
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4			
<b>Test mode:</b> Compliance		<b>Verdict: PASS</b>	
<b>Date(s):</b> 25-Jun-14			
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

### 7.3 Field strength of spurious emissions

#### 7.3.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.3.1. The EUT was tested in two configurations:

- 1) without the GSM and BBA modules
- 2) with the GSM and BBA modules.

The test results are shown in the associated plots. The worst test results obtained during testing in the both configurations were recorded in Table 7.3.2 to Table 7.3.5.

**Table 7.3.1 Radiated spurious emissions limits**

Frequency, MHz	Field strength at 3 m within restricted bands, dB(µV/m)***			Attenuation of field strength of spurious versus carrier outside restricted bands, dBc***
	Peak	Quasi Peak	Average	
0.009 – 0.090	148.5 – 128.5	NA	128.5 – 108.5**	20.0
0.090 – 0.110	NA	108.5 – 106.8**	NA	
0.110 – 0.490	126.8 – 113.8	NA	106.8 – 93.8**	
0.490 – 1.705	NA	73.8 – 63.0**	NA	
1.705 – 30.0*		69.5		
30 – 88		40.0		
88 – 216		43.5		
216 – 960		46.0		
960 - 1000		54.0		
1000 – 10 <sup>th</sup> harmonic	74.0	NA	54.0	

\*- The limit for 3 m test distance was calculated using the inverse square distance extrapolation factor as follows:

$$\text{Lim}_{S_2} = \text{Lim}_{S_1} + 40 \log (S_1/S_2),$$

where S<sub>1</sub> and S<sub>2</sub> – standard defined and test distance respectively in meters.

\*\* - The limit decreases linearly with the logarithm of frequency.

\*\*\* - The field strength limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency.

#### 7.3.2 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

7.3.2.1 The EUT was set up as shown in Figure 7.3.1, energized and the performance check was conducted.

7.3.2.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360° and the measuring antenna was rotated around its vertical axis.

7.3.2.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.

#### 7.3.3 Test procedure for spurious emission field strength measurements above 30 MHz

7.3.3.1 The EUT was set up as shown in Figure 7.3.2, energized and the performance check was conducted.

7.3.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

7.3.3.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.



<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

Figure 7.3.1 Setup for spurious emission field strength measurements below 30 MHz

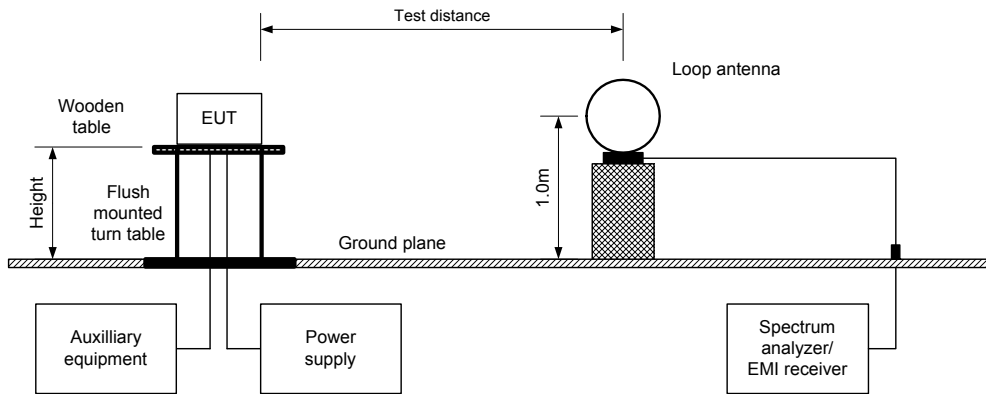
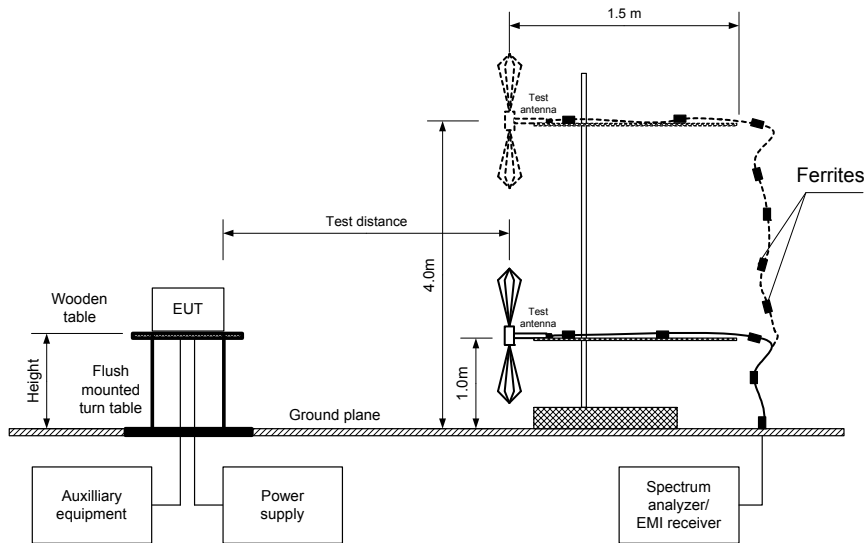


Figure 7.3.2 Setup for spurious emission field strength measurements above 30 MHz







<b>Test specification: Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>			
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4			
<b>Test mode:</b> Compliance		<b>Verdict: PASS</b>	
<b>Date(s):</b> 25-Jun-14			
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

Table 7.3.2 Field strength of emissions outside restricted bands

ASSIGNED FREQUENCY: 902-928 MHz  
 INVESTIGATED FREQUENCY RANGE: 0.009 - 9500 MHz  
 TEST DISTANCE: 3 m  
 MODULATION: GFSK  
 BIT RATE: 50 kbps  
 DUTY CYCLE: 100 %  
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum  
 DETECTOR USED: Peak  
 RESOLUTION BANDWIDTH: 100 kHz  
 VIDEO BANDWIDTH: 300 kHz  
 TEST ANTENNA TYPE: Active loop (9 kHz – 30 MHz)  
 Biconilog (30 MHz – 1000 MHz)  
 Double ridged guide (above 1000 MHz)  
 FREQUENCY HOPPING: Disabled

Frequency, MHz	Field strength of spurious, dB(µV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	Field strength of carrier, dB(µV/m)	Attenuation below carrier, dBc	Limit, dBc	Margin, dB**	Verdict
<b>All carrier frequencies</b>									
43.570	23.70	Vertical	1.0	330	105.8	82.10	20.0	62.10	Pass
55.675	25.70	Vertical	1.0	340		80.10		60.10	
65.150	25.60	Vertical	1.0	360		80.20		60.20	
75.440	26.90	Vertical	1.1	360		78.90		58.90	
92.700	23.90	Vertical	1.0	360		81.90		61.90	
144.050	22.40	Vertical	1.0	345		83.40		63.40	
162.900	23.20	Vertical	1.0	360		82.60		62.60	
200.023	19.60	Vertical	1.2	360		86.20		66.20	
312.200	22.50	Vertical	1.1	320		83.30		63.30	
809.800	34.50	Vertical	1.1	350		71.30		51.30	
902.011	34.20	Vertical	1.2	310	71.60	51.60			
<b>Low carrier frequency</b>									
1825.5500	62.32	Horizontal	1.1	50	106.9	44.58	20.0	24.58	Pass
5476.3470	57.43	Vertical	1.7	206		49.47		29.47	
6389.4180	58.49	Horizontal	1.8	166		48.41		28.41	
<b>Mid carrier frequency</b>									
1831.7725	65.43	Horizontal	1.1	50	108.5	43.07	20.0	23.07	Pass
5495.3236	63.80	Horizontal	1.4	150		44.70		24.70	
6410.8581	55.56	Vertical	1.6	178		52.94		32.94	
<b>High carrier frequency</b>									
1838.1545	58.73	Horizontal	1.1	34	105.8	47.07	20.0	27.07	Pass
5514.7835	62.42	Horizontal	1.5	156		43.38		23.38	
6433.5395	56.45	Horizontal	1.3	150		49.35		29.35	

\*- EUT front panel refers to 0 degrees position of turntable.  
 \*\*- Margin = Attenuation below carrier – specification limit.



<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		Compliance	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C		<b>Air Pressure:</b> 1026 hPa	
		<b>Relative Humidity:</b> 43 %	
		<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b>			

Table 7.3.3 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY: 902-928 MHz  
 INVESTIGATED FREQUENCY RANGE: 1000 - 9500 MHz  
 TEST DISTANCE: 3 m  
 MODULATION: GFSK  
 MODULATING SIGNAL: PRBS  
 BIT RATE: 50 kbps  
 DUTY CYCLE: 100 %  
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum  
 DETECTOR USED: Peak  
 RESOLUTION BANDWIDTH: 1000 kHz  
 TEST ANTENNA TYPE: Double ridged guide  
 FREQUENCY HOPPING: Disabled

Frequency, MHz	Antenna		Azimuth, degrees*	Peak field strength(VBW=3 MHz)			Average field strength(VBW=1 kHz)				Verdict
	Polarization	Height, m		Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	Measured, dB(μV/m)	Calculated, dB(μV/m)	Limit, dB(μV/m)	Margin, dB***	
<b>Low carrier frequency</b>											
2738.300	Horizontal	1.0	120	65.01	74.00	-8.99	64.68	37.68	54.00	-16.32	Pass
3651.075	Vertical	1.7	210	61.65	74.00	-12.35	61.01	34.01	54.00	-19.99	
4563.825	Horizontal	1.7	245	62.20	74.00	-11.80	61.54	34.54	54.00	-19.46	
7301.950	Horizontal	1.3	135	57.23	74.00	-16.77	53.69	26.69	54.00	-27.31	
8214.792	Vertical	1.3	160	63.01	74.00	-10.99	61.41	34.41	54.00	-19.59	
9127.700	Vertical	1.3	166	62.26	74.00	-11.74	60.70	33.70	54.00	-20.30	
<b>Mid carrier frequency</b>											
2747.645	Horizontal	1.0	115	71.57	74.00	-2.43	71.40	44.40	54.00	-9.60	Pass
3663.552	Vertical	1.2	160	66.55	74.00	-7.45	66.20	39.20	54.00	-14.80	
4579.407	Vertical	1.1	185	63.81	74.00	-10.19	63.30	36.30	54.00	-17.70	
7327.004	Horizontal	1.4	150	65.02	74.00	-8.98	64.04	37.04	54.00	-16.96	
8243.017	Vertical	1.8	180	67.76	74.00	-6.24	67.09	40.09	54.00	-13.91	
9158.788	Vertical	1.8	50	66.32	74.00	-7.68	65.36	38.36	54.00	-15.64	
<b>High carrier frequency</b>											
2757.281	Horizontal	1.0	120	61.39	74.00	-12.61	60.69	33.69	54.00	-20.31	Pass
3676.474	Horizontal	1.5	116	59.53	74.00	-14.47	58.43	31.43	54.00	-22.57	
4595.567	Horizontal	1.6	233	61.71	74.00	-12.29	60.78	33.78	54.00	-20.22	
7352.963	Horizontal	1.4	140	60.68	74.00	-13.32	58.00	31.00	54.00	-23.00	
8271.831	Vertical	1.4	180	61.69	74.00	-12.31	59.10	32.10	54.00	-21.90	
9190.9875	Vertical	1.5	145	61.14	74.00	-12.86	58.30	31.30	54.00	-22.70	

\*- EUT front panel refers to 0 degrees position of turntable.  
 \*\*- Margin = Measured field strength - specification limit.  
 \*\*\*- Margin = Calculated field strength - specification limit,  
 where Calculated field strength = Measured field strength + average factor.



<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		Compliance	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C		<b>Air Pressure:</b> 1026 hPa	
<b>Remarks:</b>		<b>Verdict:</b> PASS	
		<b>Relative Humidity:</b> 43 %	
		<b>Power Supply:</b> 120 VAC	

Table 7.3.4 Average factor calculation

Transmission pulse		Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Period, s	Duration, ms	Period, ms		
4.4	2	NA	NA	NA	-27

\*- Average factor was calculated as follows

for pulse train shorter than 100 ms:

$$Average\ factor = 20 \times \log_{10} \left( \frac{Pulse\ duration}{Pulse\ period} \times \frac{Burst\ duration}{Train\ duration} \times Number\ of\ bursts\ within\ pulse\ train \right)$$

for pulse train longer than 100 ms:

$$Average\ factor = 20 \times \log_{10} \left( \frac{Pulse\ duration}{Pulse\ period} \times \frac{Burst\ duration}{100ms} \times Number\ of\ bursts\ within\ 100ms \right)$$

Table 7.3.5 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY: 902-928 MHz  
 INVESTIGATED FREQUENCY RANGE: 0.009 – 1000 MHz  
 TEST DISTANCE: 3 m  
 DUTY CYCLE: 100 %  
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum  
 RESOLUTION BANDWIDTH: 0.2 kHz (9 kHz – 150 kHz)  
 9.0 kHz (150 kHz – 30 MHz)  
 120 kHz (30 MHz – 1000 MHz)  
 VIDEO BANDWIDTH: > Resolution bandwidth  
 TEST ANTENNA TYPE: Active loop (9 kHz – 30 MHz)  
 Biconilog (30 MHz – 1000 MHz)  
 FREQUENCY HOPPING: Disabled

Frequency, MHz	Peak emission, dB(µV/m)	Quasi-peak			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
		Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*				
<b>Low carrier frequency</b>								
77.635	27.66	20.1	40.0	-19.9	Vertical	1.3	20	Pass
400.035	28.2	25.7	46.0	-20.3	Vertical	1.0	345	Pass
<b>Mid carrier frequency</b>								
77.635	28.11	20.5	40.0	-19.5	Vertical	1.3	22	Pass
<b>High carrier frequency</b>								
77.635	29.63	21.7	40.0	-18.3	Vertical	1.3	23	Pass

\*- Margin = Measured emission - specification limit.

\*\* - EUT front panel refer to 0 degrees position of turntable.

Reference numbers of test equipment used

HL 0446	HL 0604	HL 1984	HL 2780	HL 3818	HL 4150	HL 4160	HL 4352
HL 4353							

Full description is given in Appendix A.



HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>			
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4			
<b>Test mode:</b>		Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b>		25-Jun-14			
<b>Temperature:</b> 23 °C		<b>Air Pressure:</b> 1026 hPa		<b>Relative Humidity:</b> 43 %	
<b>Remarks:</b>		<b>Power Supply:</b> 120 VAC			

Table 7.3.6 Restricted bands according to FCC section 15.205

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.37625 - 8.38675	73 - 74.6	399.9 - 410	2690 - 2900	10.6 - 12.7
0.495 - 0.505	8.41425 - 8.41475	74.8 - 75.2	608 - 614	3260 - 3267	13.25 - 13.4
2.1735 - 2.1905	12.29 - 12.293	108 - 121.94	960 - 1240	3332 - 3339	14.47 - 14.5
4.125 - 4.128	12.51975 - 12.52025	123 - 138	1300 - 1427	3345.8 - 3358	15.35 - 16.2
4.17725 - 4.17775	12.57675 - 12.57725	149.9 - 150.05	1435 - 1626.5	3600 - 4400	17.7 - 21.4
4.20725 - 4.20775	13.36 - 13.41	156.52475 - 156.52525	1645.5 - 1646.5	4500 - 5150	22.01 - 23.12
6.215 - 6.218	16.42 - 16.423	156.7 - 156.9	1660 - 1710	5350 - 5460	23.6 - 24
6.26775 - 6.26825	16.69475 - 16.69525	162.0125 - 167.17	1718.8 - 1722.2	7250 - 7750	31.2 - 31.8
6.31175 - 6.31225	16.80425 - 16.80475	167.72 - 173.2	2200 - 2300	8025 - 8500	36.43 - 36.5
8.291 - 8.294	25.5 - 25.67	240 - 285	2310 - 2390	9000 - 9200	Above 38.6
8.362 - 8.366	37.5 - 38.25	322 - 335.4	2483.5 - 2500	9300 - 9500	

Table 7.3.7 Restricted bands according to RSS-Gen

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.291 - 8.294	16.80425 - 16.80475	399.9 - 410	3260 - 3267	10.6 - 12.7
2.1735 - 2.1905	8.362 - 8.366	25.5 - 25.67	608 - 614	3332 - 3339	13.25 - 13.4
3.020 - 3.026	8.37625 - 8.38675	37.5 - 38.25	960 - 1427	3345.8 - 3358	14.47 - 14.5
4.125 - 4.128	8.41425 - 8.41475	73 - 74.6	1435 - 1626.5	3500 - 4400	15.35 - 16.2
4.17725 - 4.17775	12.29 - 12.293	74.8 - 75.2	1645.5 - 1646.5	4500 - 5150	17.7 - 21.4
4.20725 - 4.20775	12.51975 - 12.52025	108 - 138	1660 - 1710	5350 - 5460	22.01 - 23.12
5.677 - 5.683	12.57675 - 12.57725	156.52475 - 156.52525	1718.8 - 1722.2	7250 - 7750	23.6 - 24
6.215 - 6.218	13.36 - 13.41	156.7 - 156.9	2200 - 2300	8025 - 8500	31.2 - 31.8
6.26775 - 6.26825	16.42 - 16.423	240 - 285	2310 - 2390	9000 - 9200	36.43 - 36.5
6.31175 - 6.31225	16.69475 - 16.69525	322 - 335.4	2655 - 2900	9300 - 9500	Above 38.6

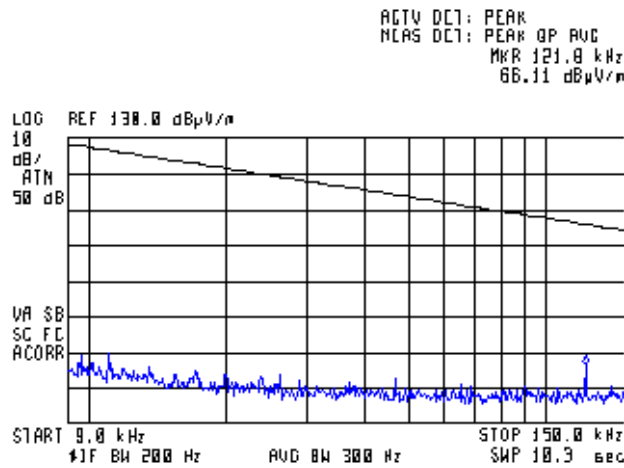


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

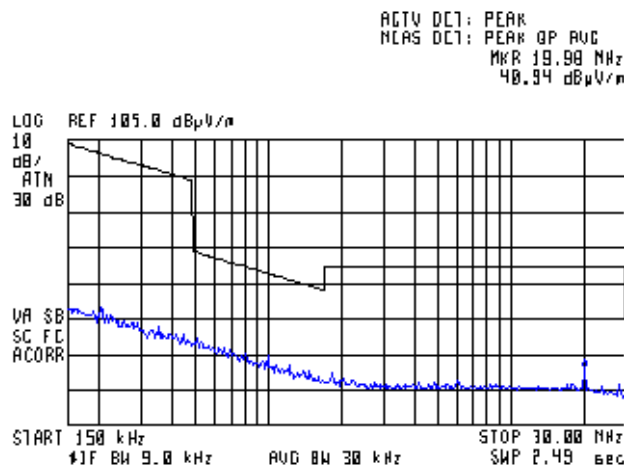
Plot 7.3.1 Radiated emission measurements from 9 to 150 kHz at the low, mid, high carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical



Plot 7.3.2 Radiated emission measurements from 0.15 to 30 MHz at the low, mid, high carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical

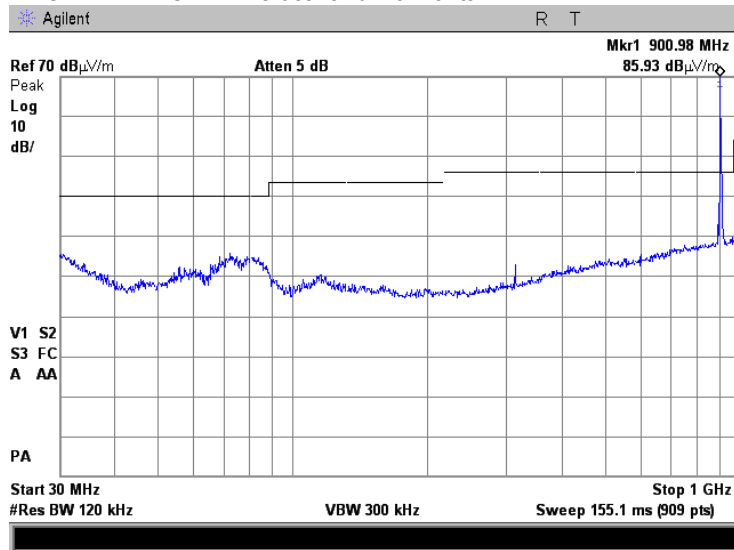




<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

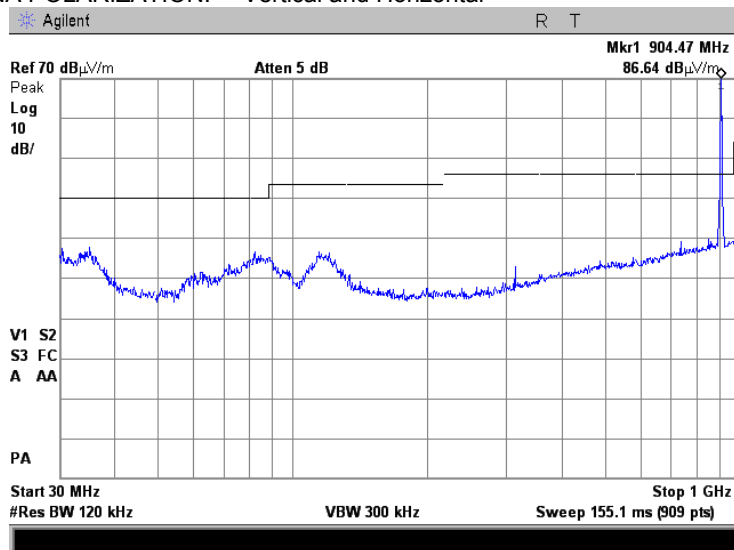
Plot 7.3.3 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.3.4 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal

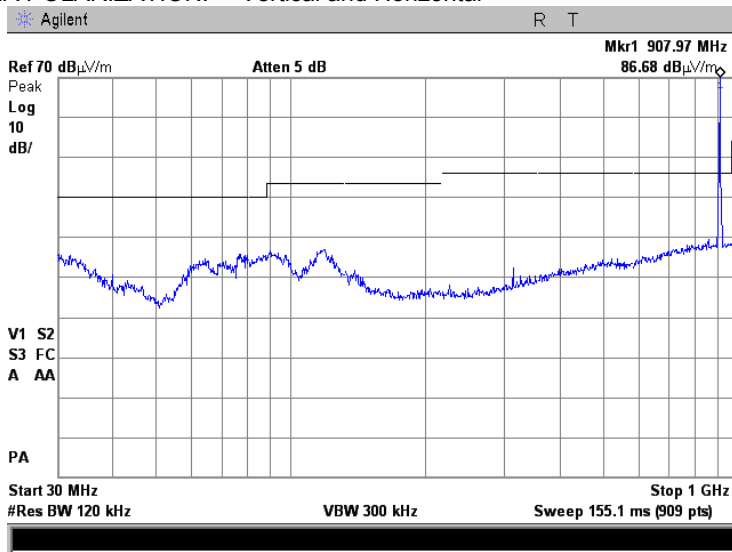




<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

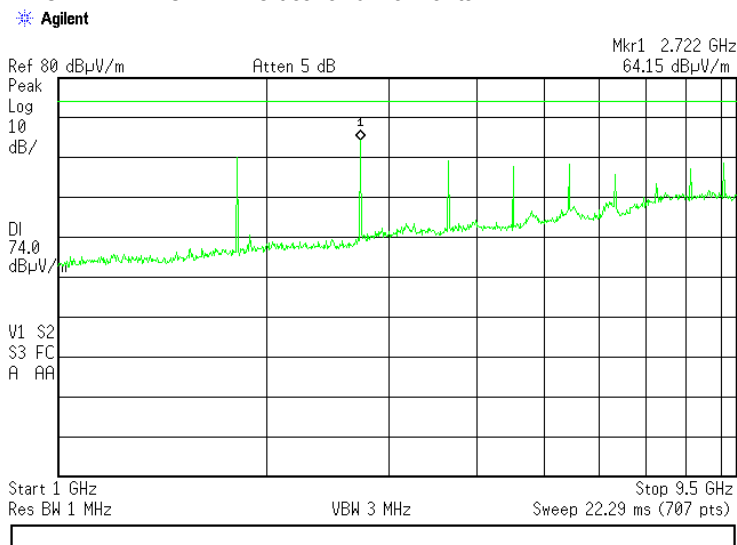
**Plot 7.3.5 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency**

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



**Plot 7.3.6 Radiated emission measurements from 1000 to 9500 MHz at the low carrier frequency**

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



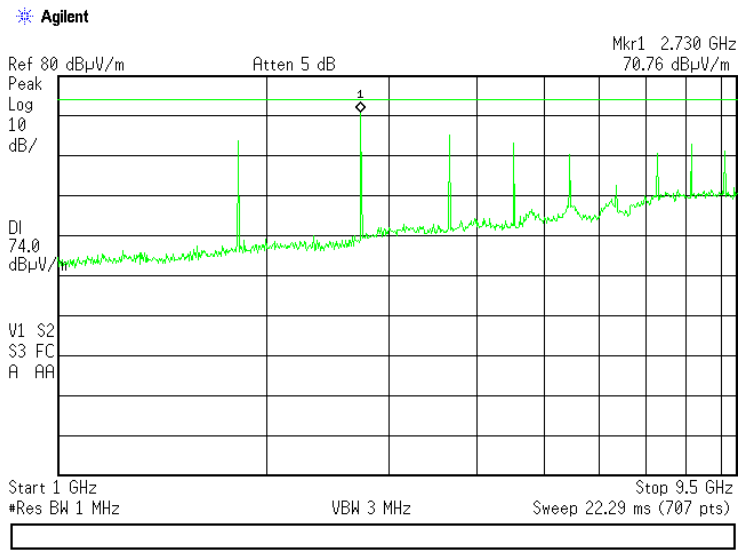


HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict:</b>	
Compliance		PASS	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

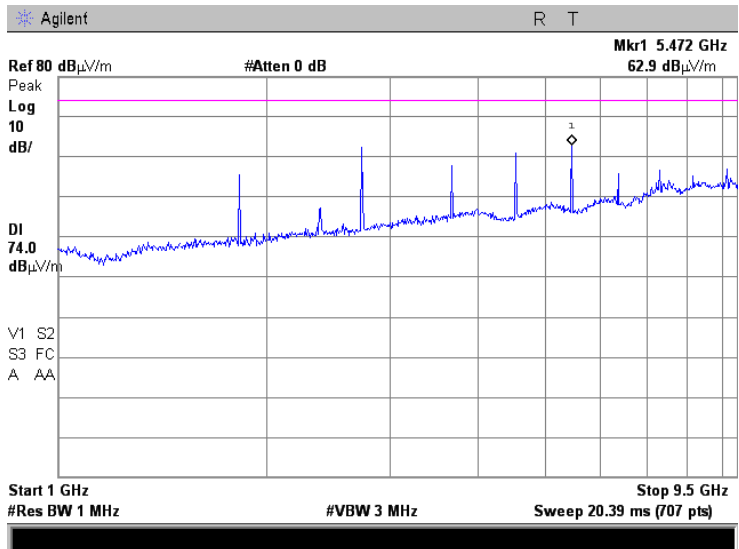
Plot 7.3.7 Radiated emission measurements from 1000 to 9500 MHz at the mid carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.3.8 Radiated emission measurements from 1000 to 9500 MHz at the high carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal





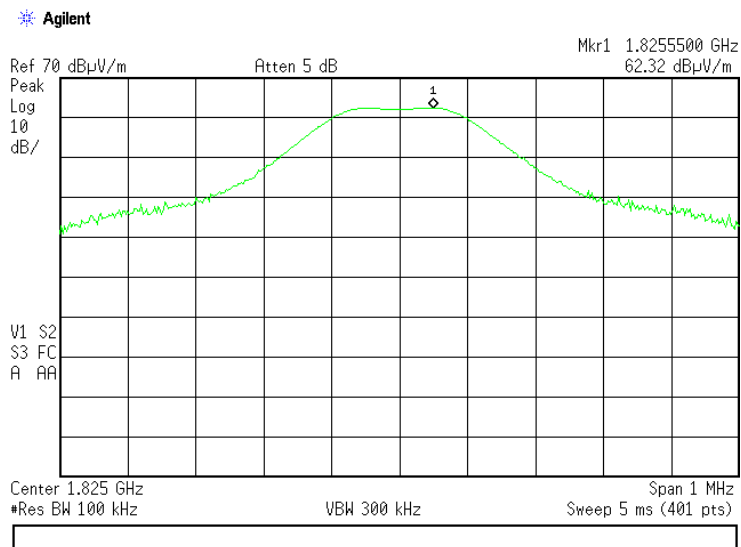


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

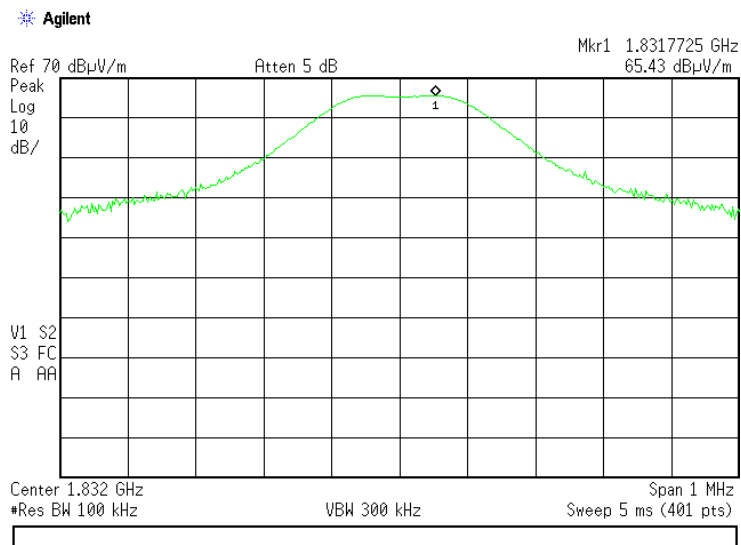
**Plot 7.3.9 Radiated emission measurements at the second harmonic of low carrier frequency**

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



**Plot 7.3.10 Radiated emission measurements at the second harmonic of mid carrier frequency**

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



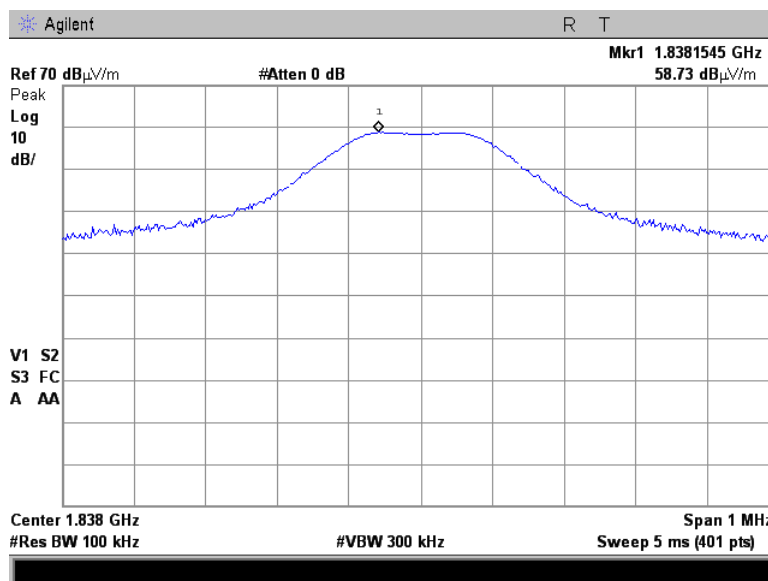


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

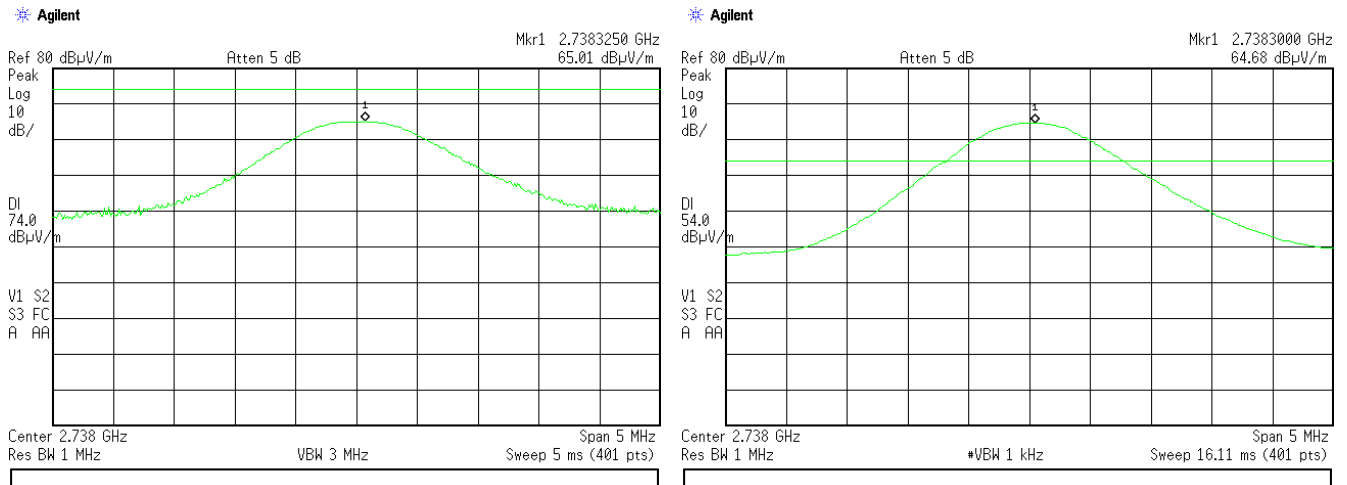
Plot 7.3.11 Radiated emission measurements at the second harmonic of high carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.12 Radiated emission measurements at the third harmonic of low carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



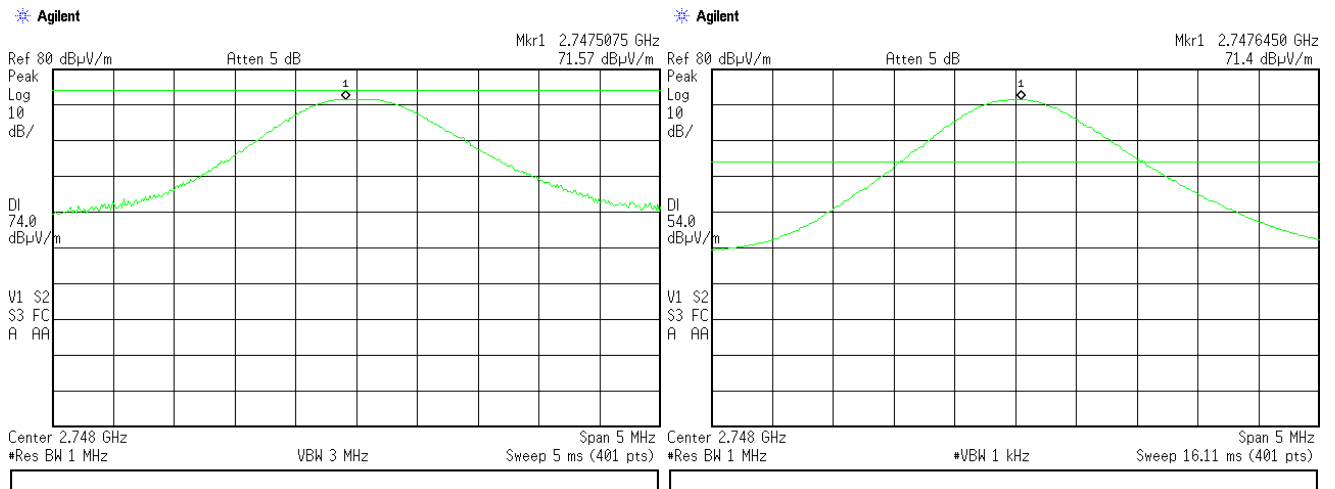


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
	<b>Relative Humidity:</b> 43 %
	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>	

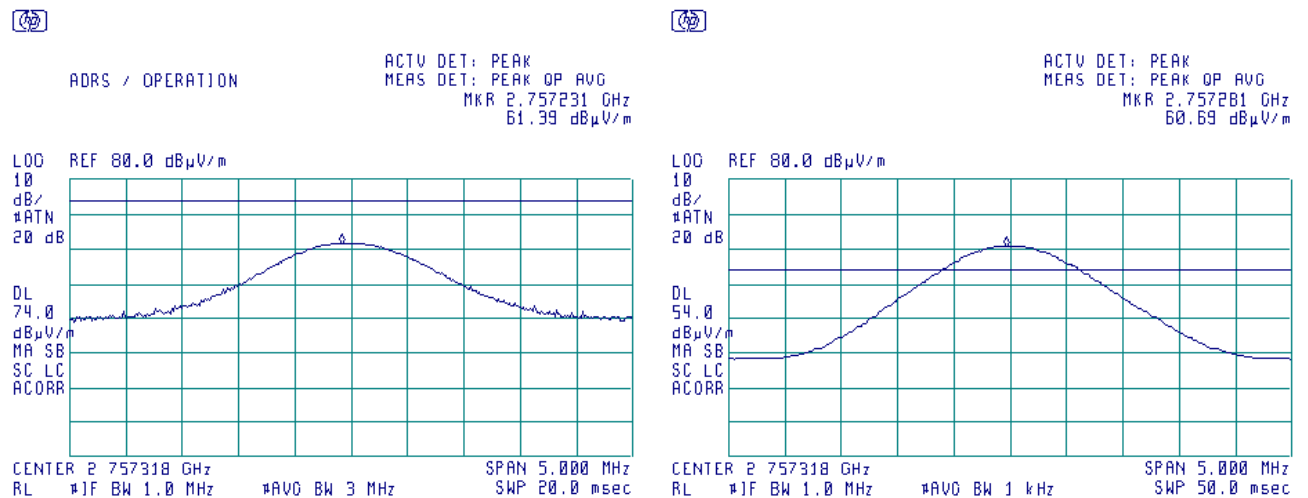
Plot 7.3.13 Radiated emission measurements at the third harmonic of mid carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.14 Radiated emission measurements at the third harmonic of high carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: OATS  
TEST DISTANCE: 3 m



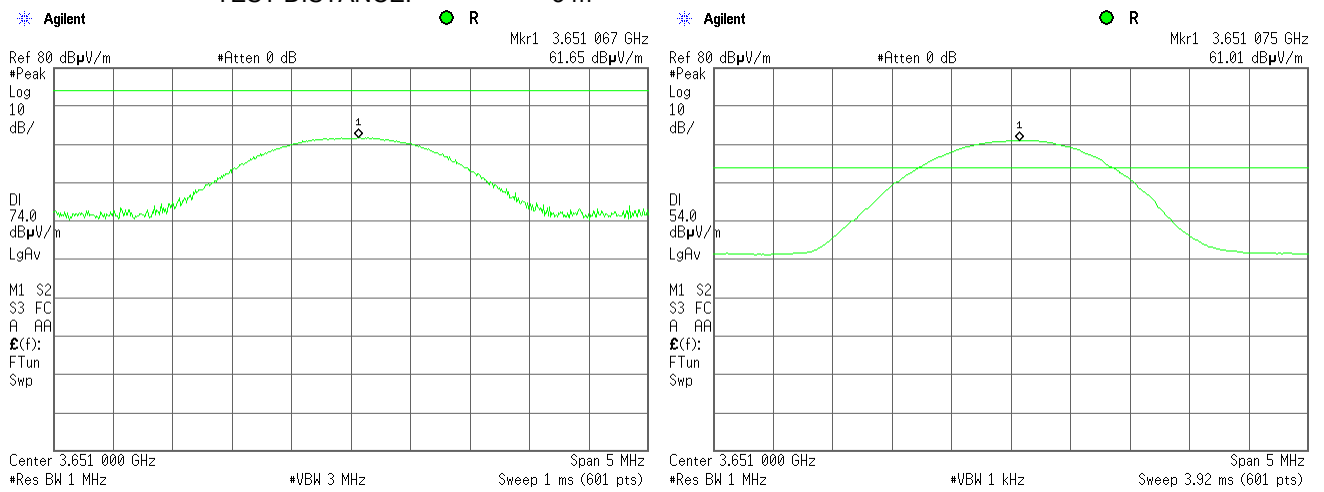


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature: 23 °C</b>	<b>Air Pressure: 1026 hPa</b>	<b>Relative Humidity: 43 %</b>	<b>Power Supply: 120 VAC</b>
<b>Remarks:</b>			

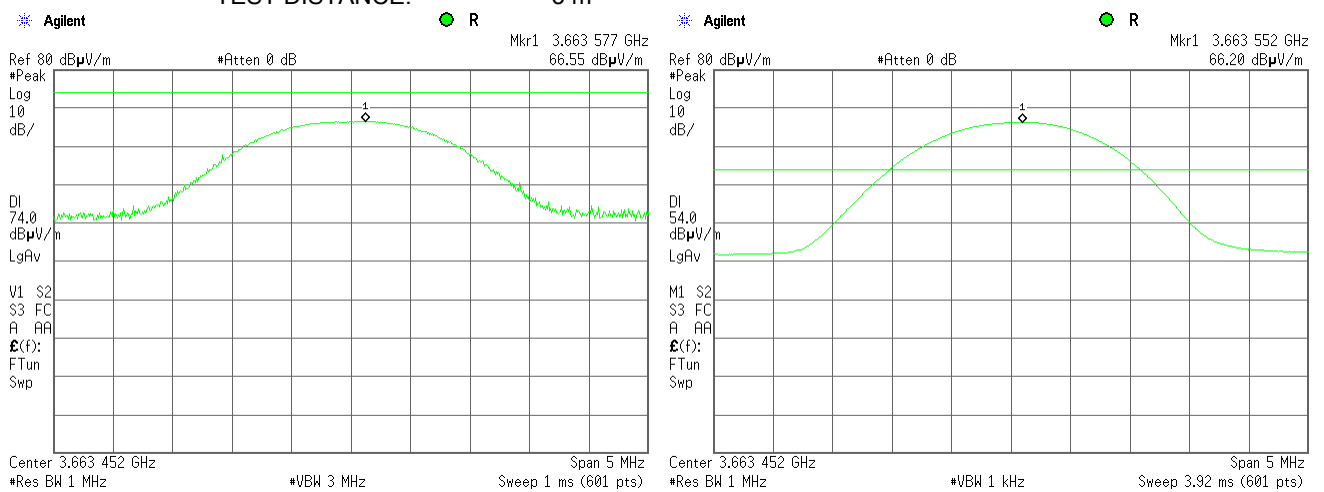
Plot 7.3.15 Radiated emission measurements at the fourth harmonic of low carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.16 Radiated emission measurements at the fourth harmonic of mid carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



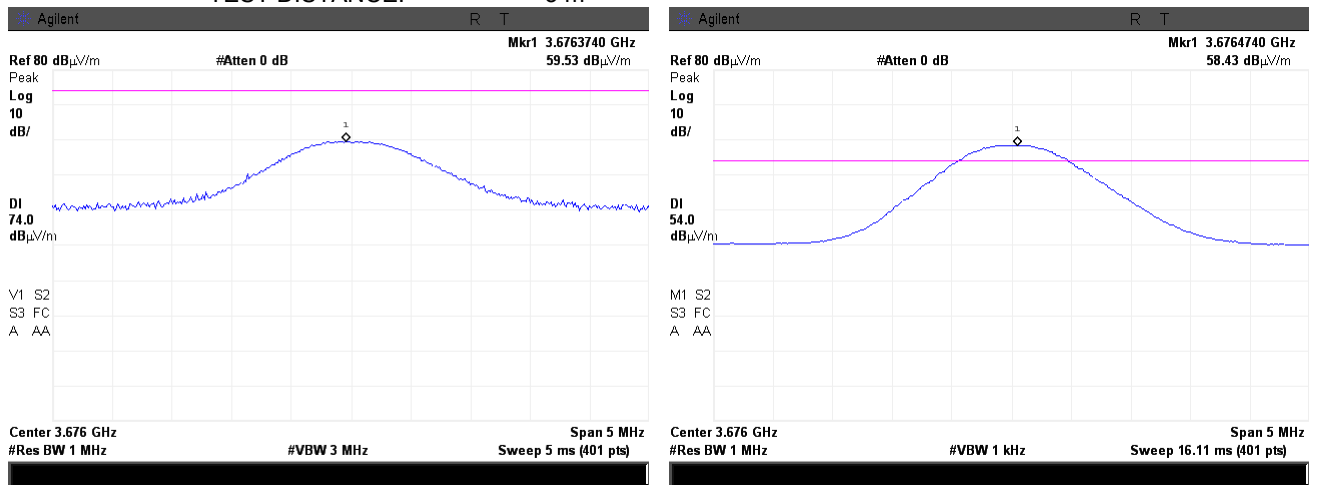


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

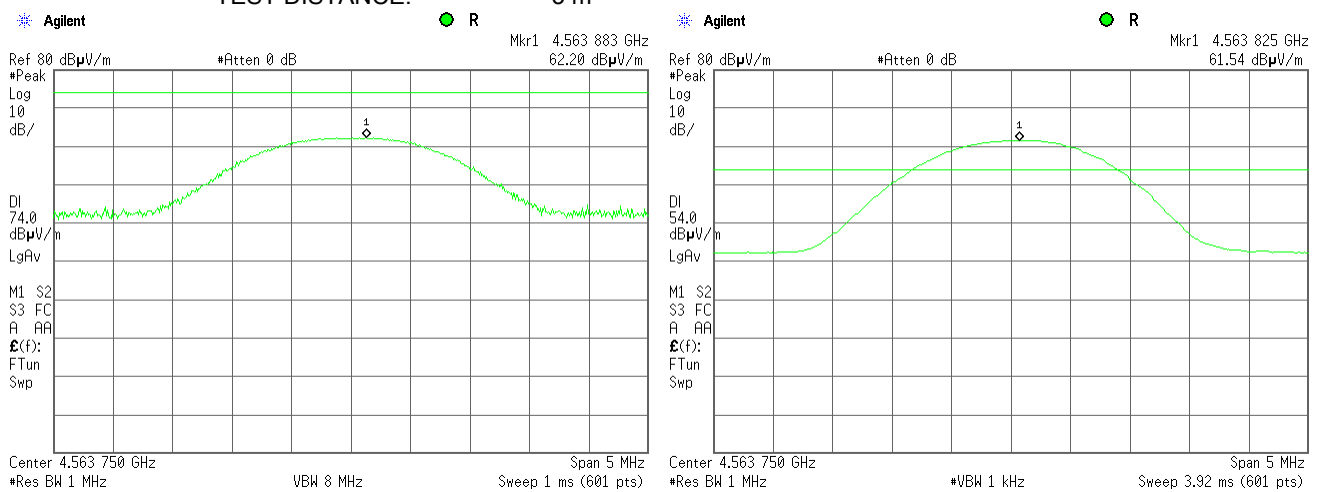
**Plot 7.3.17 Radiated emission measurements at the fourth harmonic of high carrier frequency**

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



**Plot 7.3.18 Radiated emission measurements at the fifth harmonic of low carrier frequency**

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



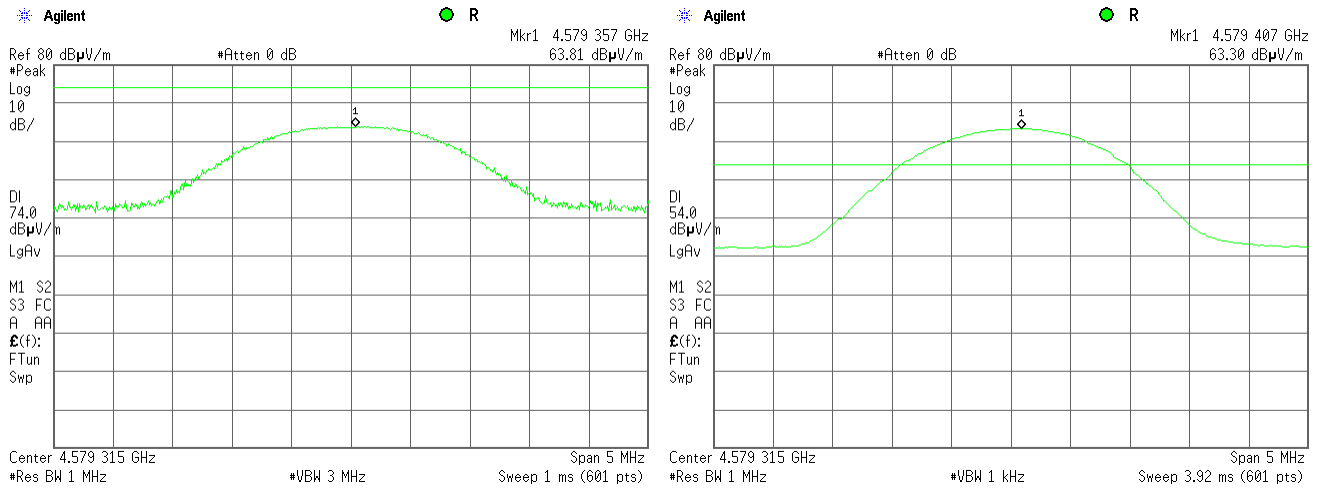


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature: 23 °C</b>	<b>Air Pressure: 1026 hPa</b>	<b>Relative Humidity: 43 %</b>	<b>Power Supply: 120 VAC</b>
<b>Remarks:</b>			

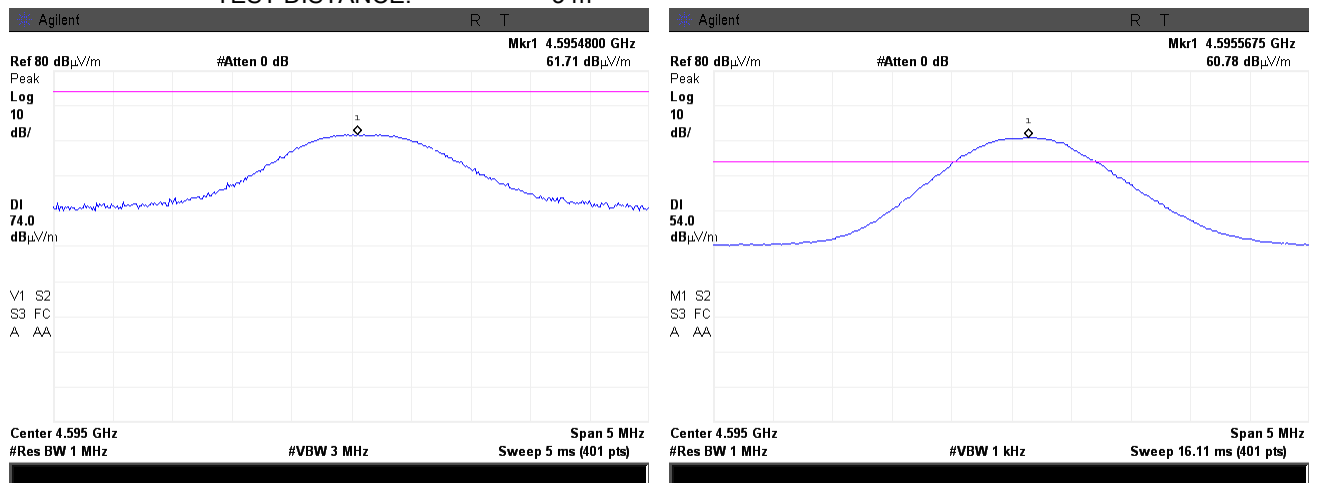
Plot 7.3.19 Radiated emission measurements at the fifth harmonic of mid carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.20 Radiated emission measurements at the fifth harmonic of high carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



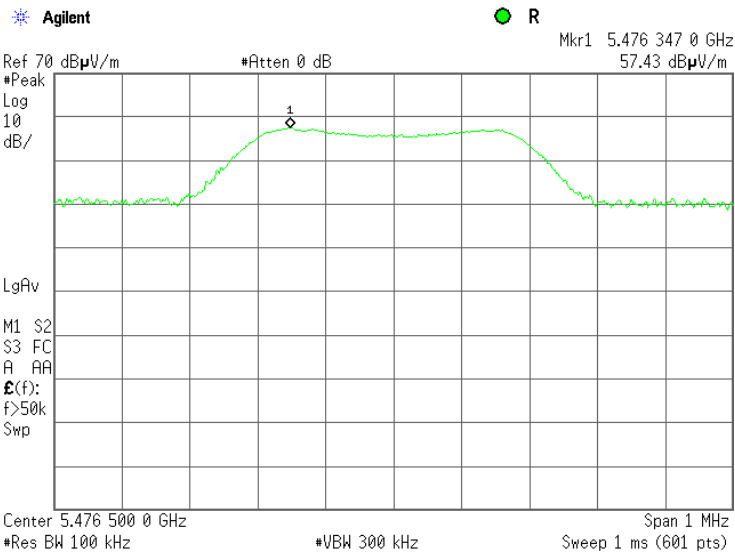


HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

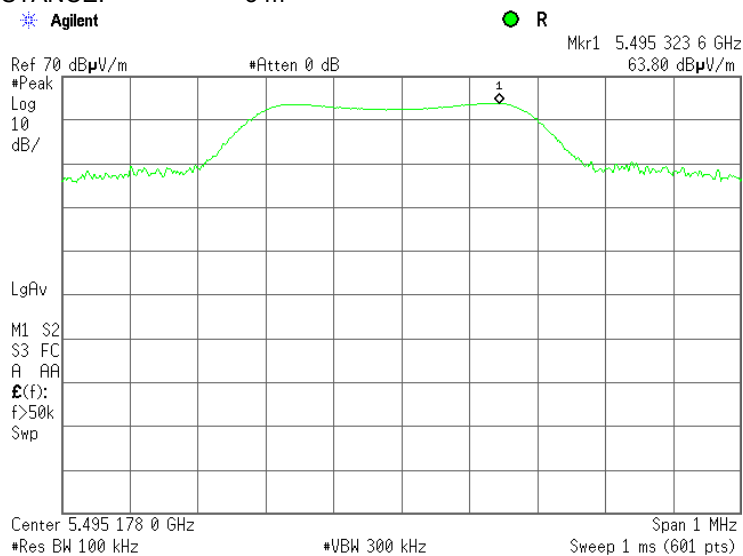
Plot 7.3.21 Radiated emission measurements at the sixth harmonic of low carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.22 Radiated emission measurements at the sixth harmonic of mid carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



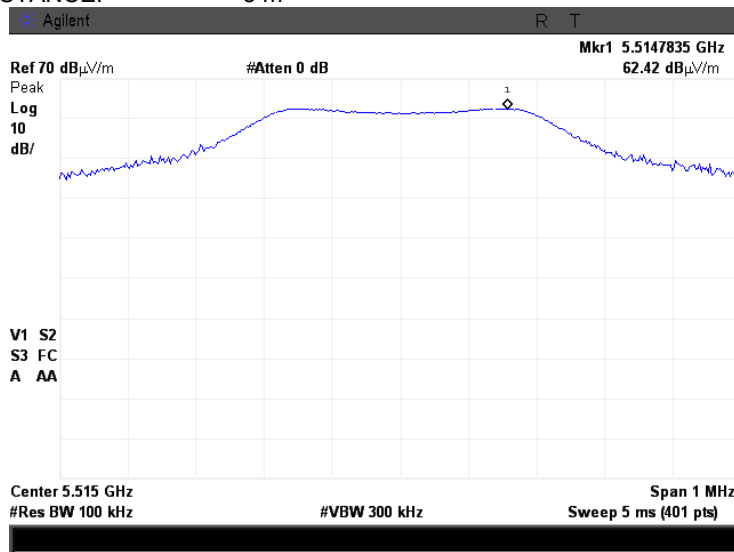


HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

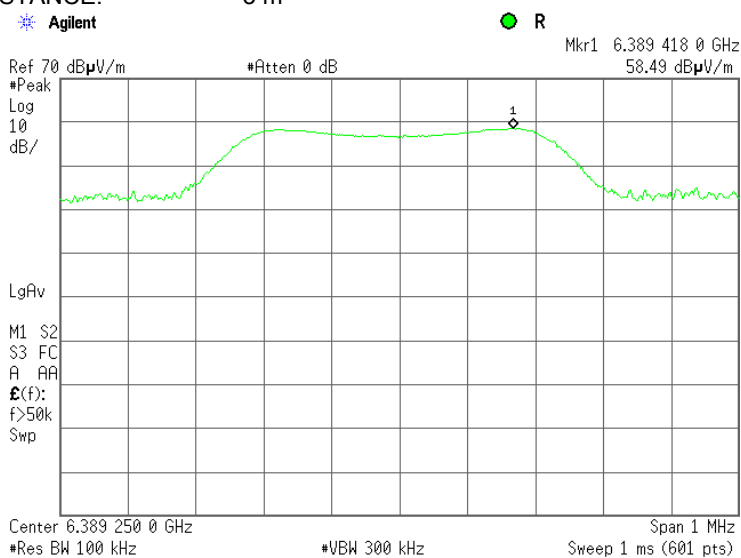
**Plot 7.3.23 Radiated emission measurements at the sixth harmonic of high carrier frequency**

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



**Plot 7.3.24 Radiated emission measurements at the seventh harmonic of low carrier frequency**

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m





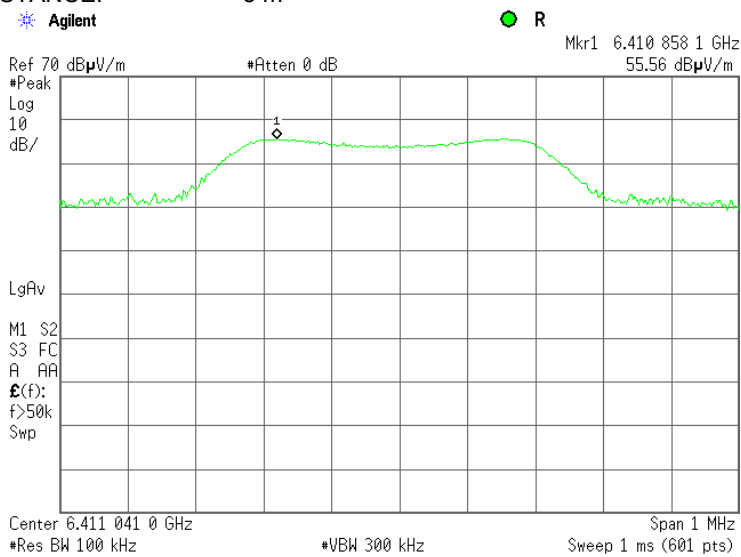


HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

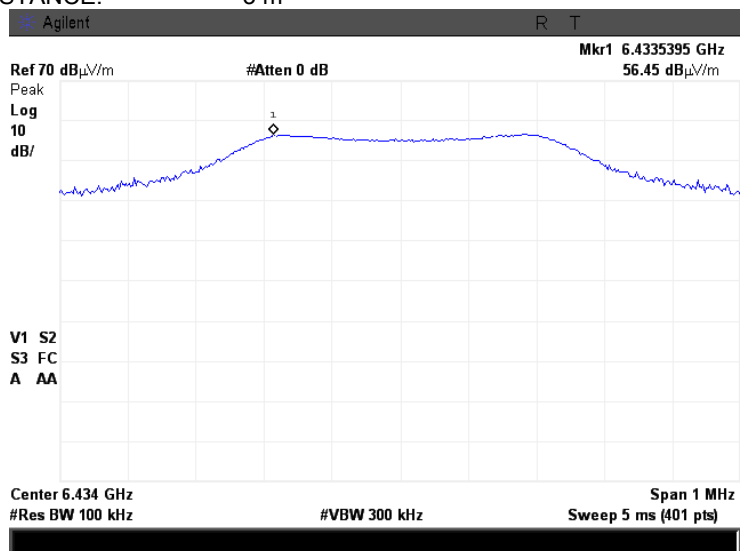
Plot 7.3.25 Radiated emission measurements at the seventh harmonic of mid carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.26 Radiated emission measurements at the seventh harmonic of high carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



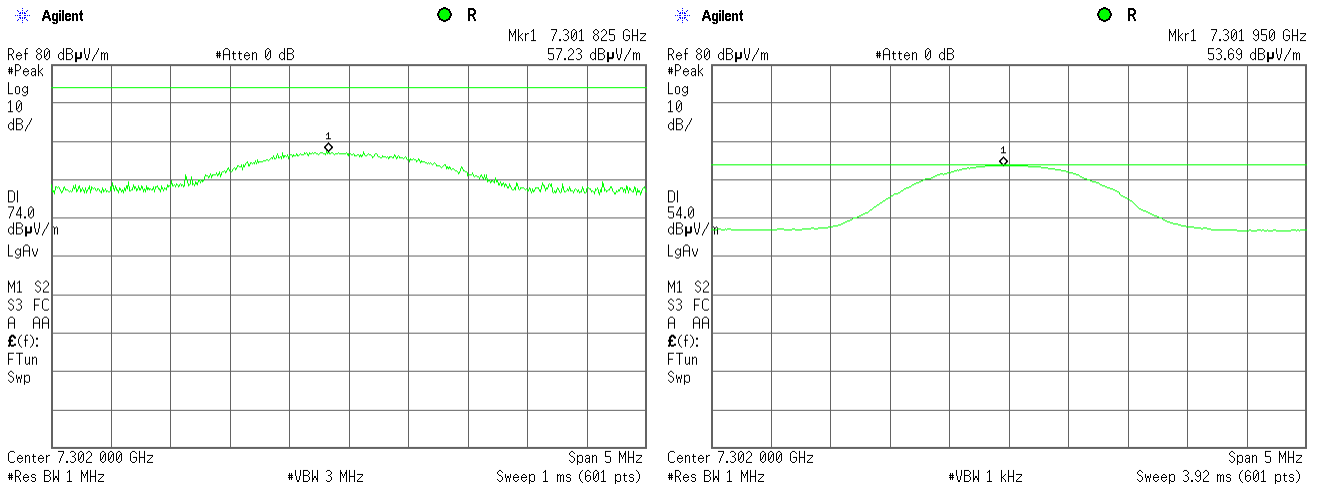


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
	<b>Relative Humidity:</b> 43 %
	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>	

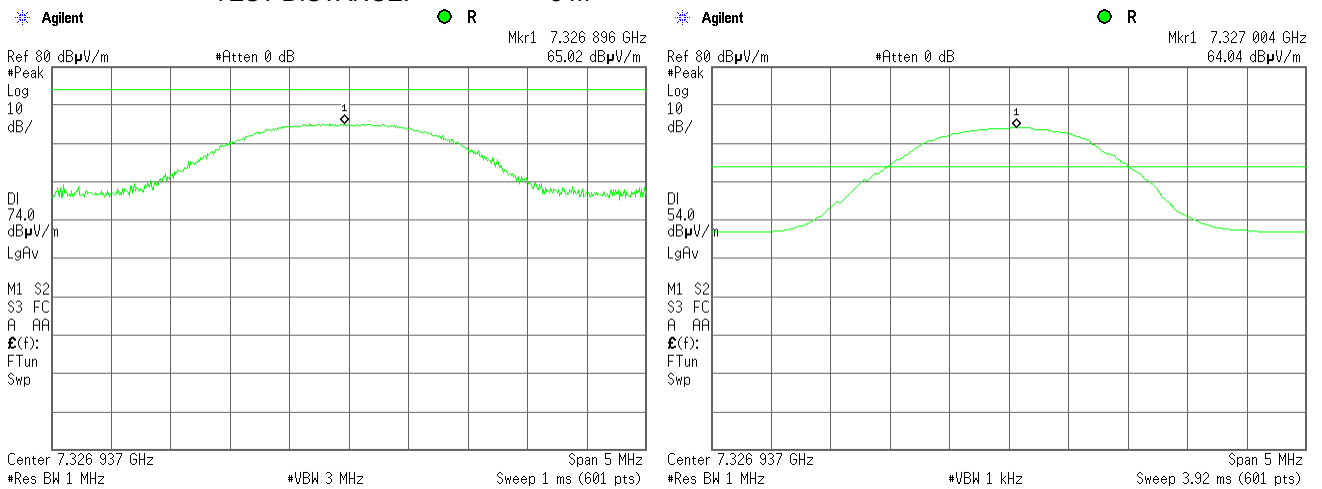
Plot 7.3.27 Radiated emission measurements at the eighth harmonic of low carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.28 Radiated emission measurements at the eighth harmonic of mid carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



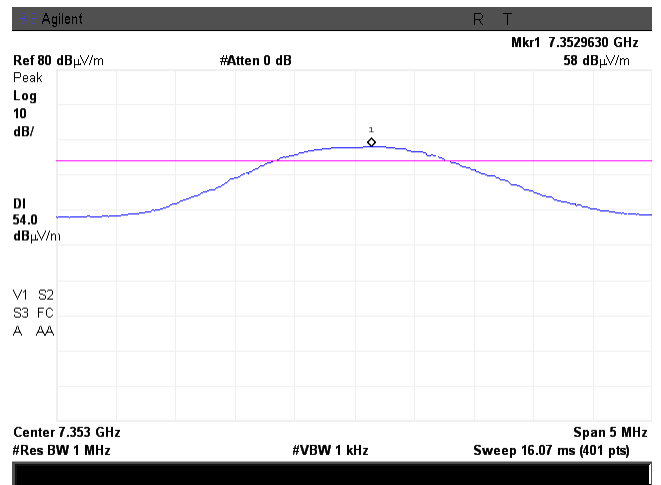
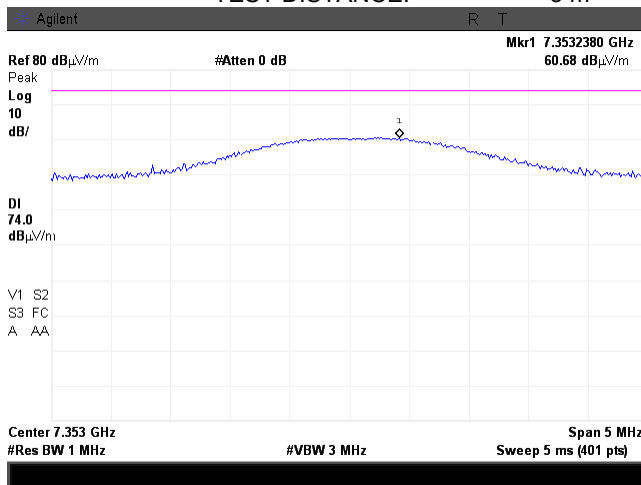


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

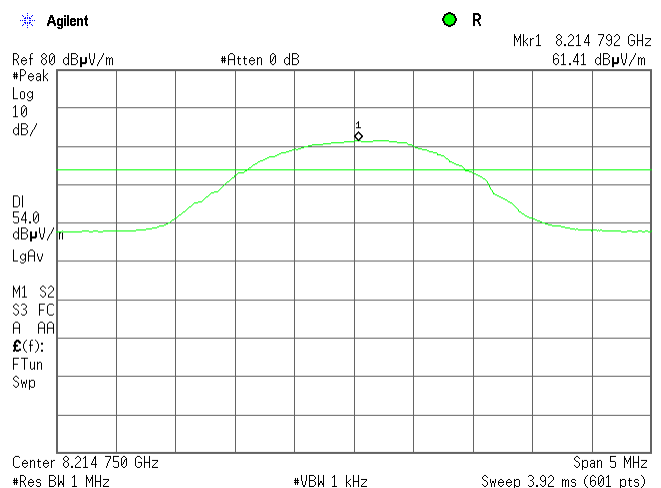
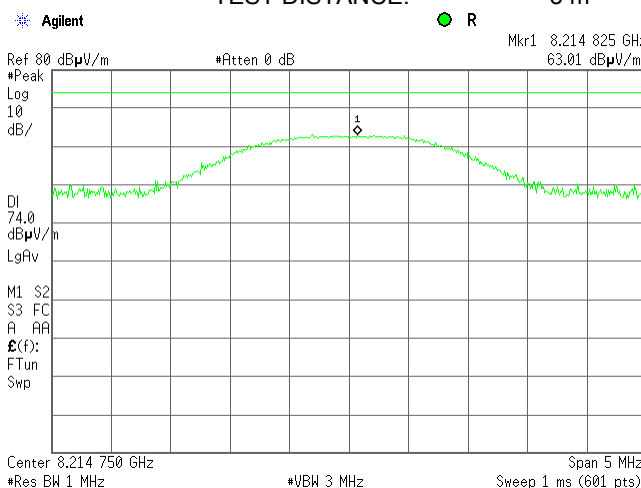
Plot 7.3.29 Radiated emission measurements at the eighth harmonic of high carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.30 Radiated emission measurements at the ninth harmonic of low carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



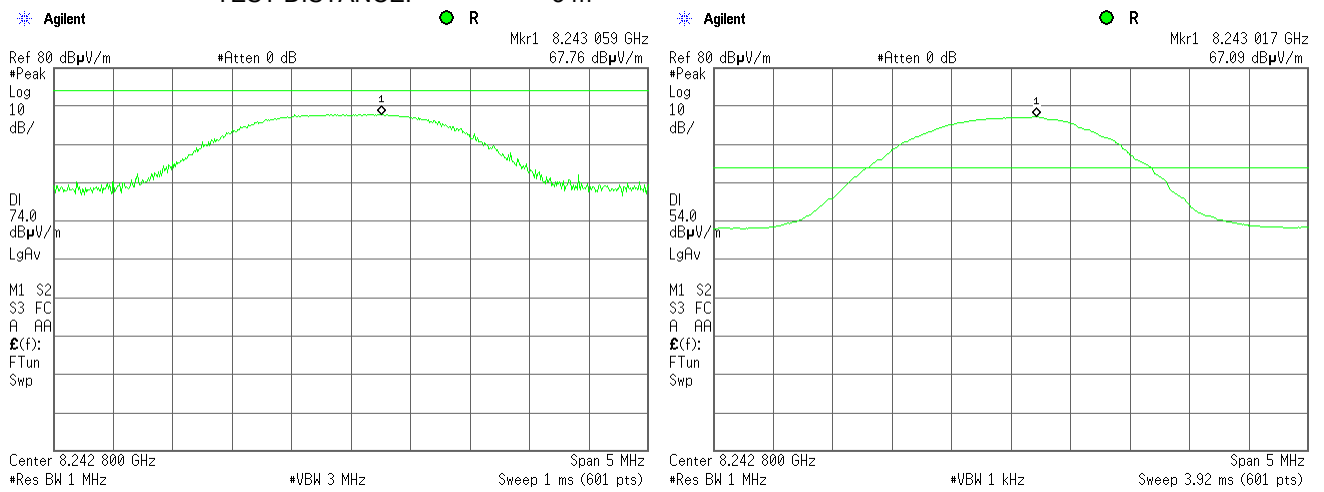


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

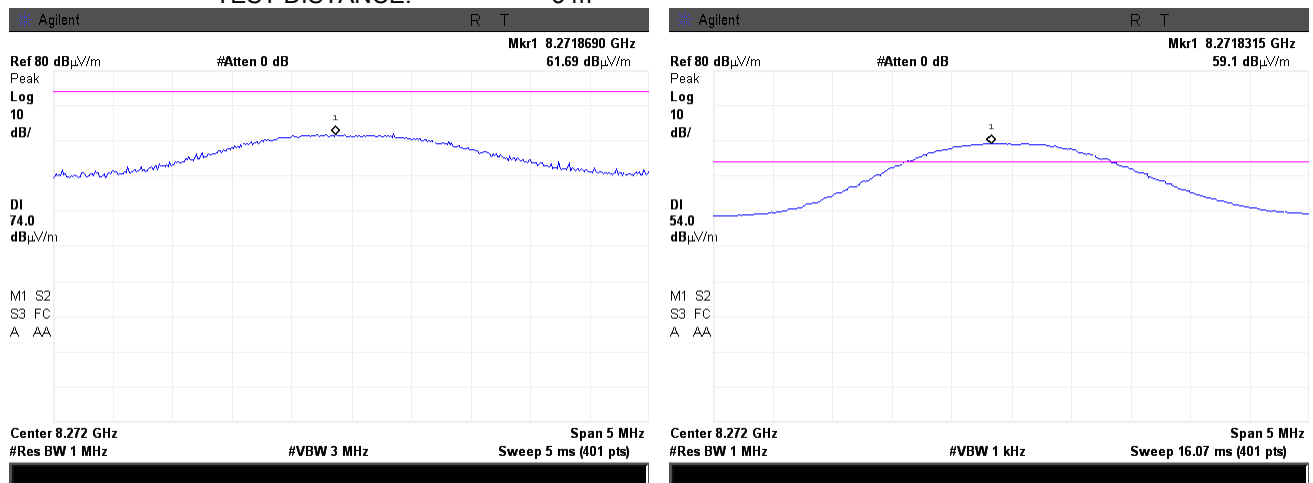
Plot 7.3.31 Radiated emission measurements at the ninth harmonic of mid carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.32 Radiated emission measurements at the ninth harmonic of high carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



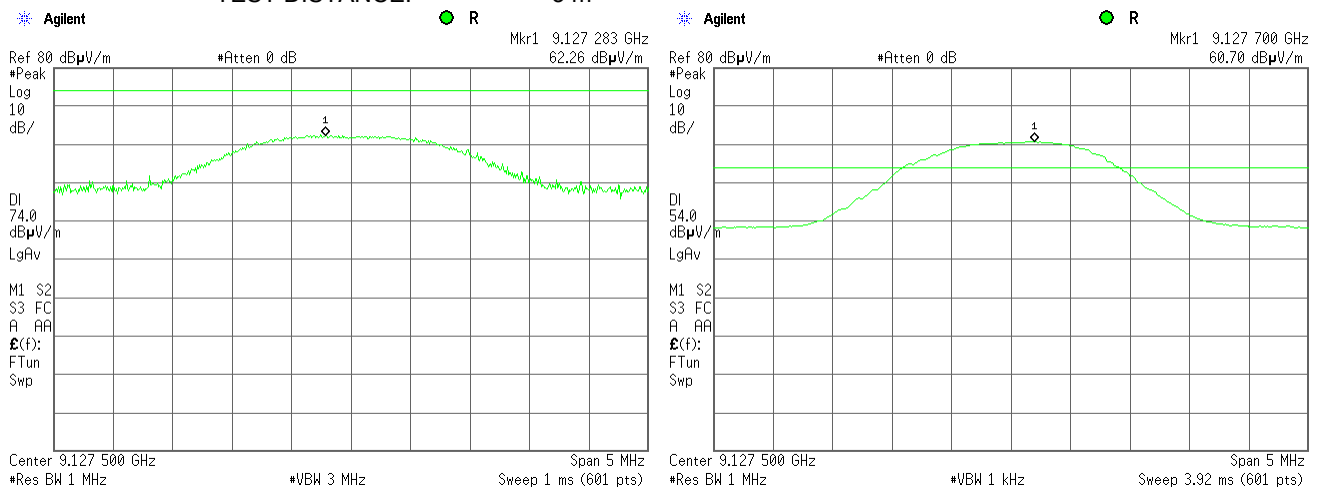


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
	<b>Relative Humidity:</b> 43 %
<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b>	

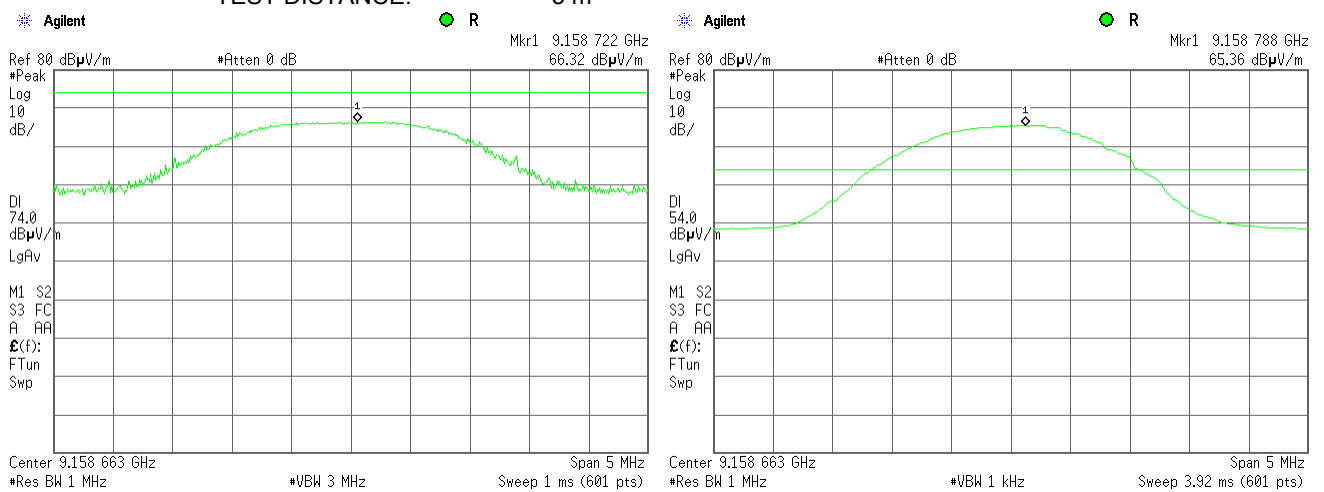
Plot 7.3.33 Radiated emission measurements at the tenth harmonic of low carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.34 Radiated emission measurements at the tenth harmonic of mid carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



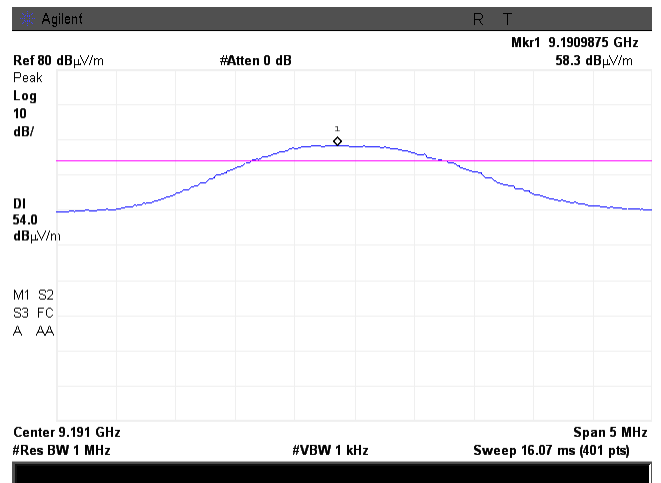
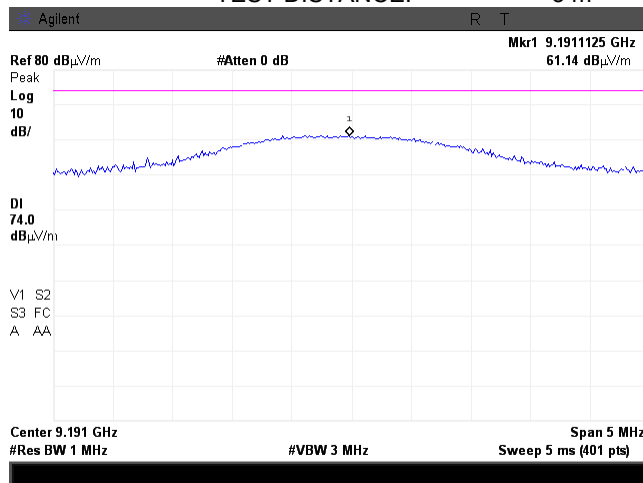


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

Plot 7.3.35 Radiated emission measurements at the tenth harmonic of high carrier frequency

EUT CONFIGURATION: Without GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m

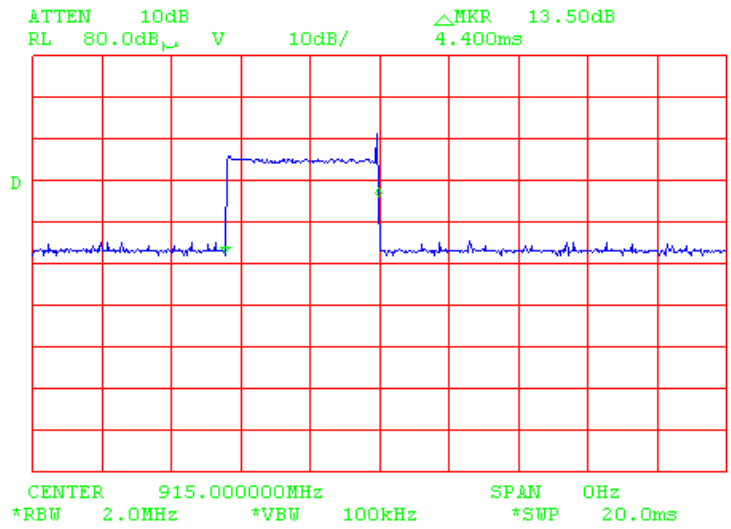




<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

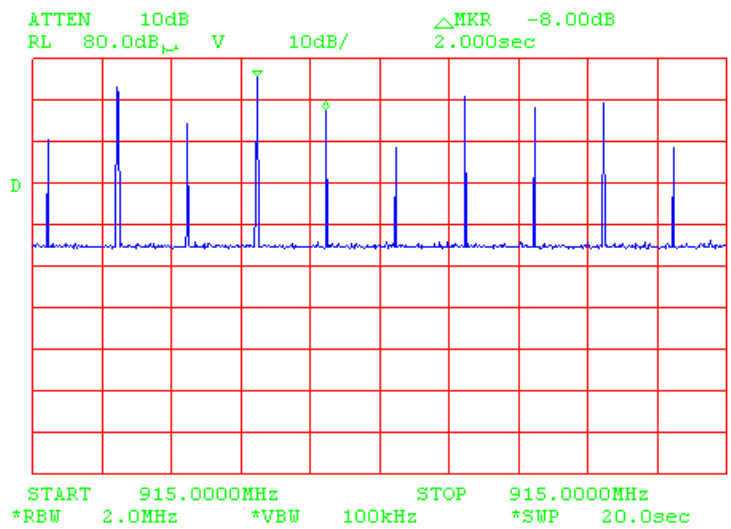
**Plot 7.3.36 Transmission pulse duration**

EUT CONFIGURATION: Without GSM and BBA modules



**Plot 7.3.37 Transmission pulse period**

EUT CONFIGURATION: Without GSM and BBA modules



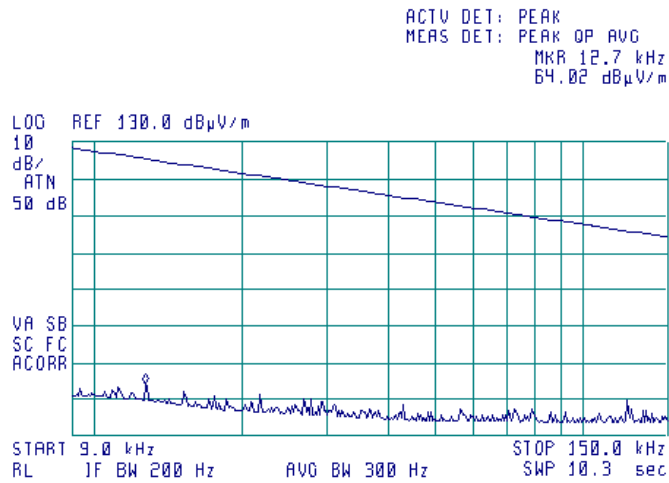


HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

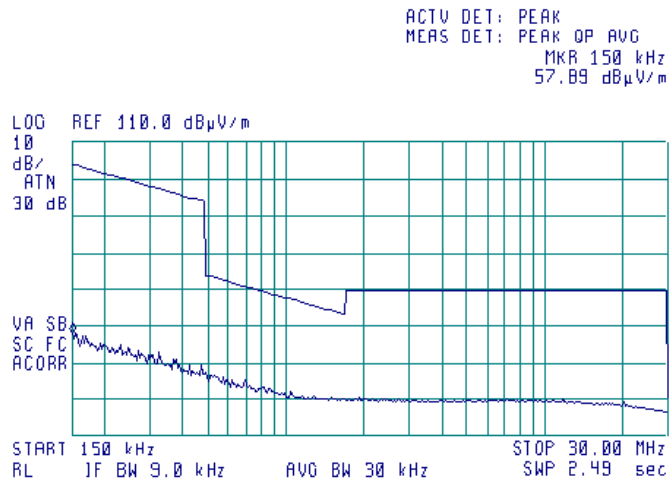
Plot 7.3.38 Radiated emission measurements from 9 to 150 kHz at the low, mid, high carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical



Plot 7.3.39 Radiated emission measurements from 0.15 to 30 MHz at the low, mid, high carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical



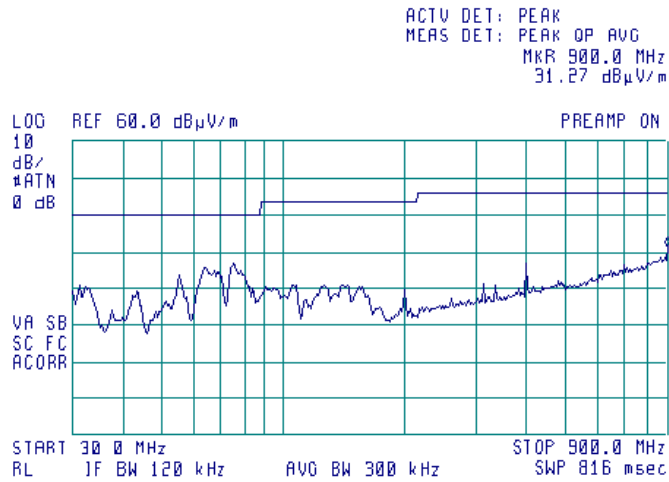




<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

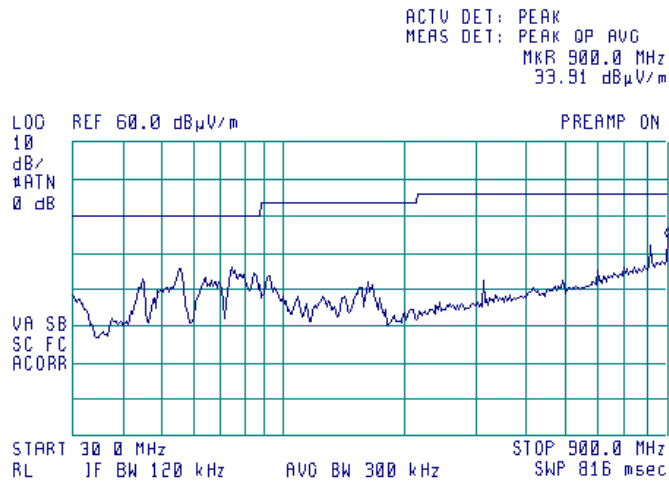
**Plot 7.3.40 Radiated emission measurements from 30 to 900 MHz at the low carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



**Plot 7.3.41 Radiated emission measurements from 30 to 900 MHz at the mid carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



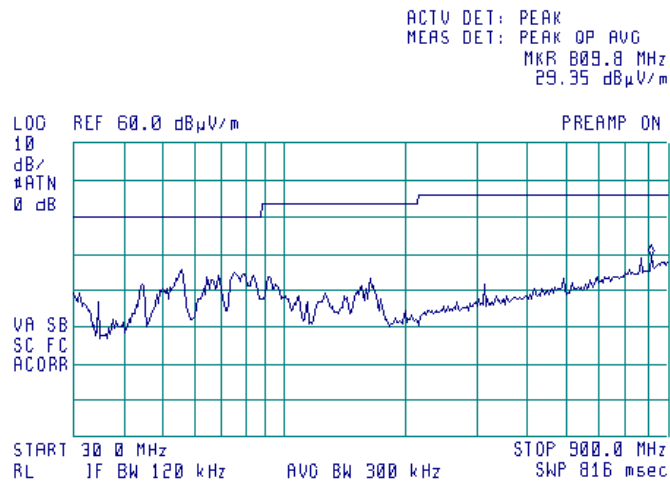


HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

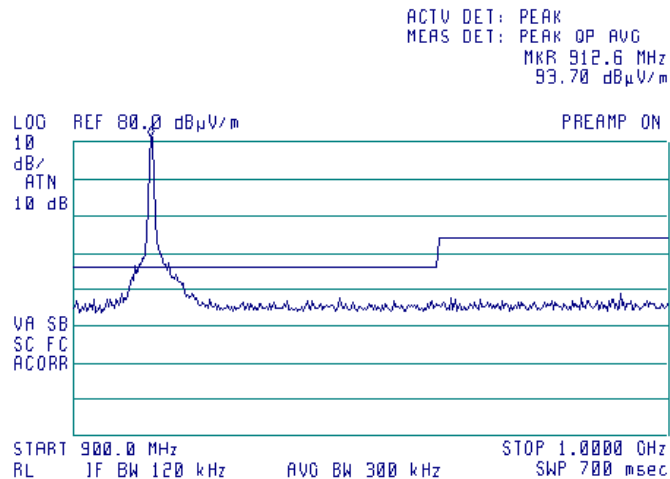
Plot 7.3.42 Radiated emission measurements from 30 to 900 MHz at the high carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.3.43 Radiated emission measurements from 900 to 1000 MHz at the low carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal

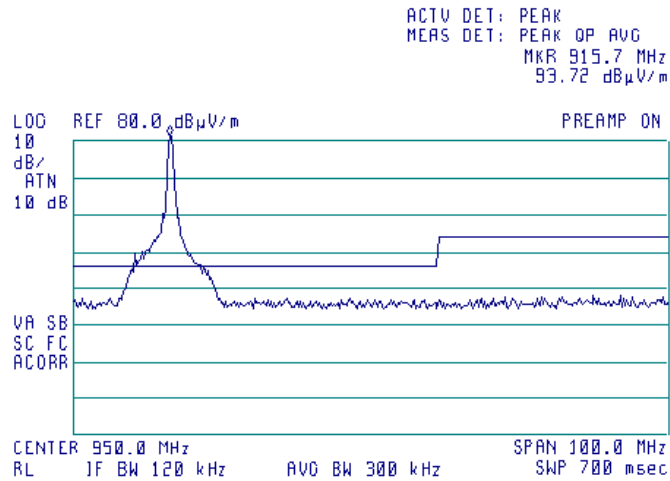




<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

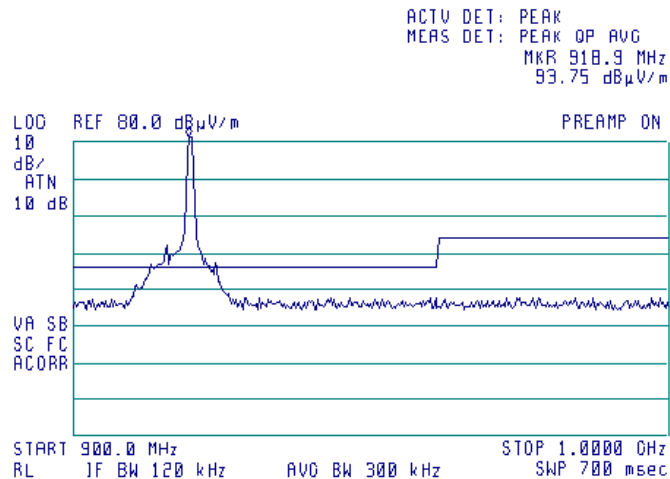
**Plot 7.3.44 Radiated emission measurements from 900 to 1000 MHz at the mid carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



**Plot 7.3.45 Radiated emission measurements from 900 to 1000 MHz at the high carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



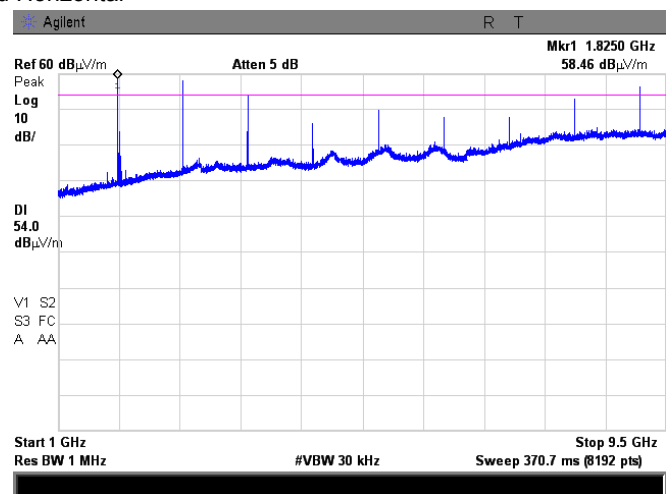
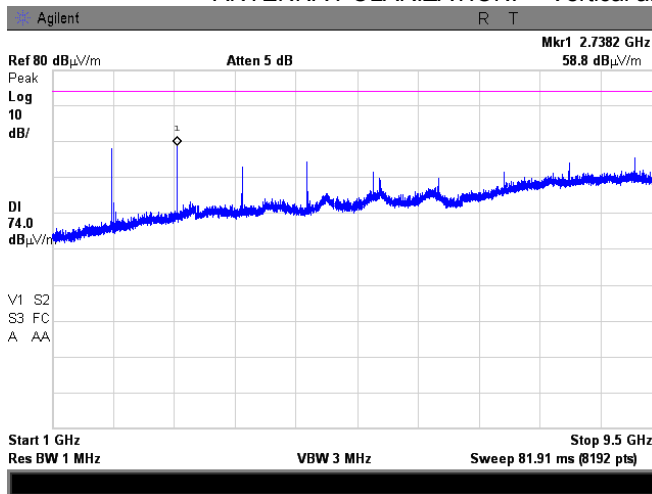


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
	<b>Relative Humidity:</b> 43 %
	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>	

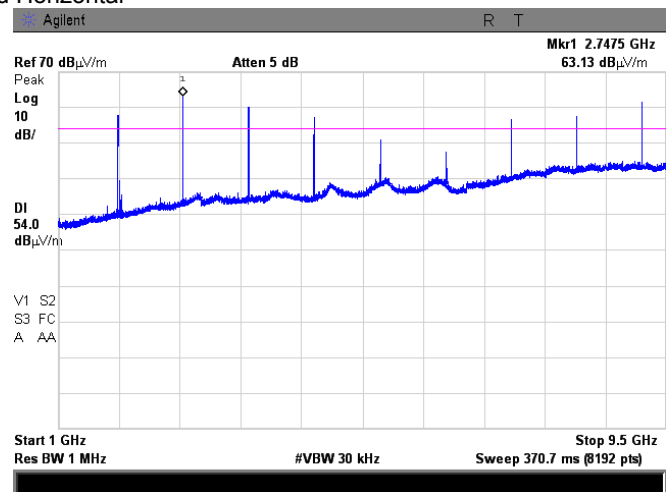
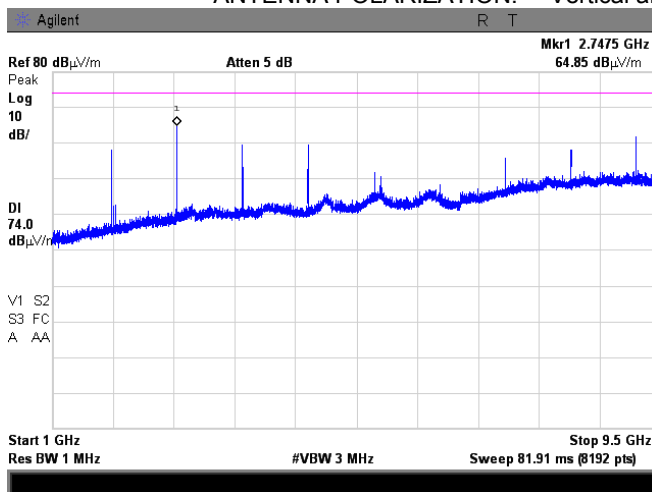
Plot 7.3.46 Radiated emission measurements from 1000 to 9500 MHz at the low carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.3.47 Radiated emission measurements from 1000 to 9500 MHz at the mid carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



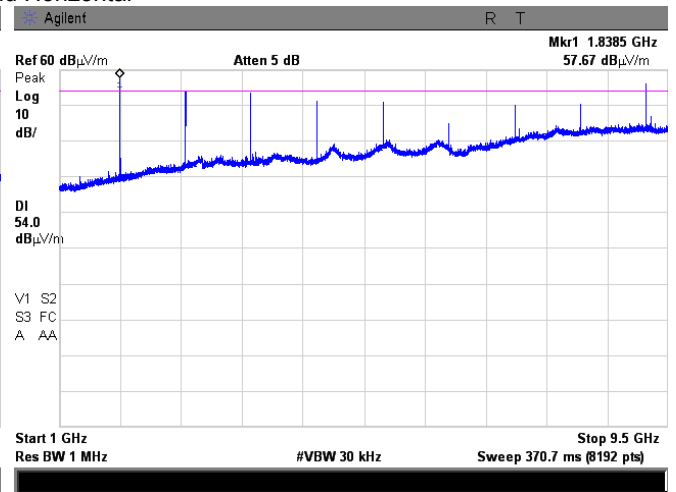
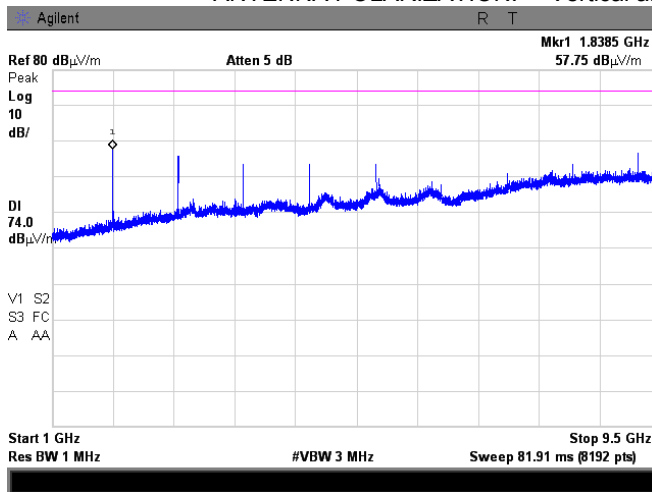


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
<b>Relative Humidity:</b> 43 %	
<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b>	

Plot 7.3.48 Radiated emission measurements from 1000 to 9500 MHz at the high carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical and Horizontal



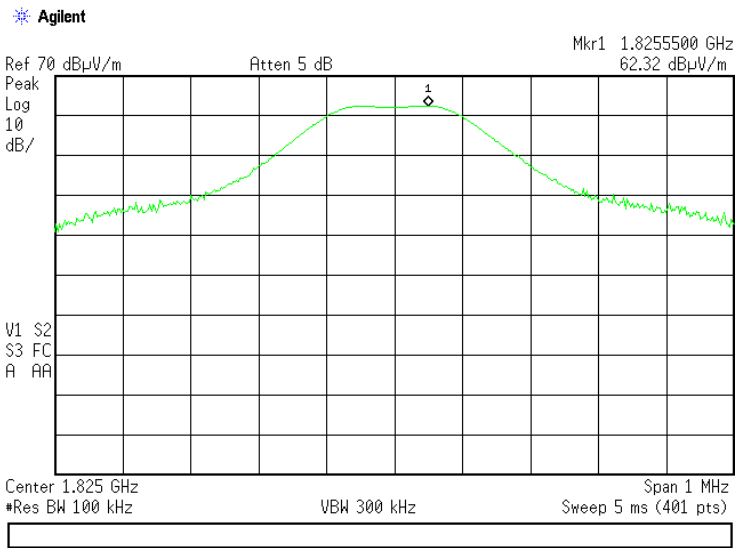


HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

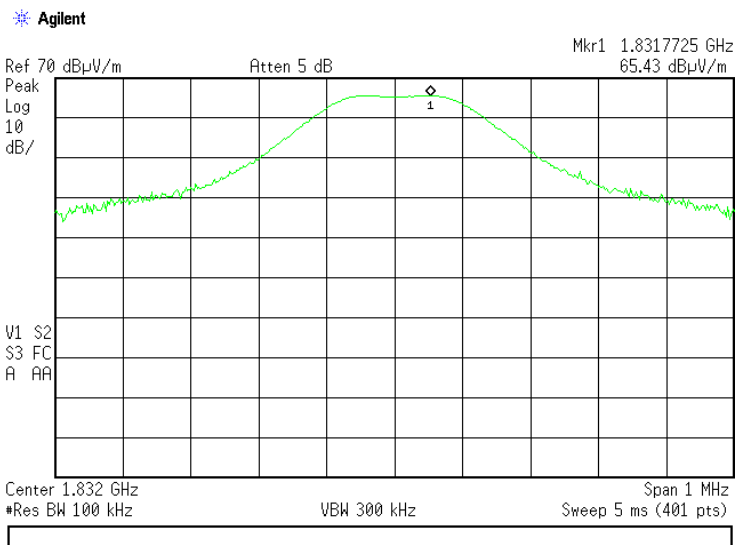
**Plot 7.3.49 Radiated emission measurements at the second harmonic of low carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



**Plot 7.3.50 Radiated emission measurements at the second harmonic of mid carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



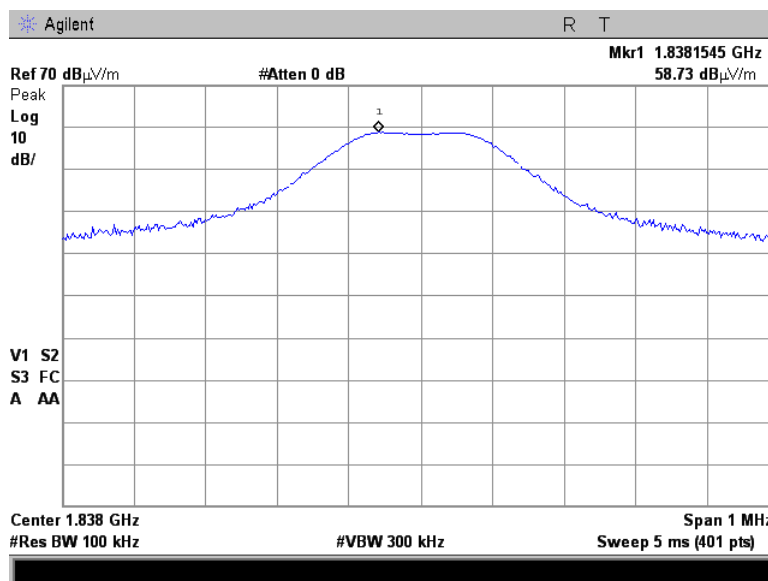


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

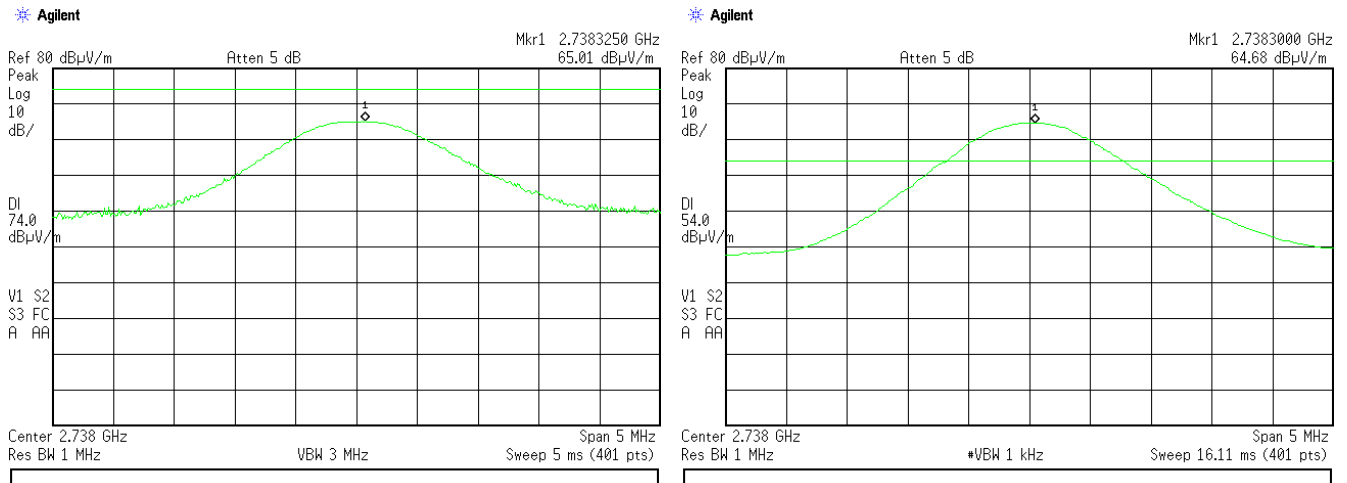
Plot 7.3.51 Radiated emission measurements at the second harmonic of high carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.52 Radiated emission measurements at the third harmonic of low carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



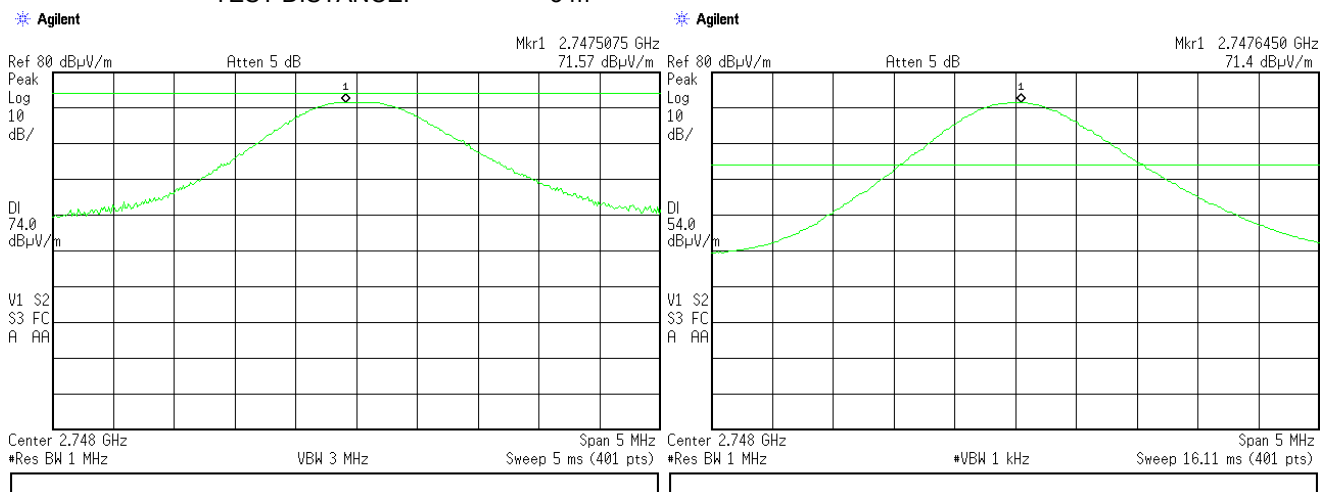


HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

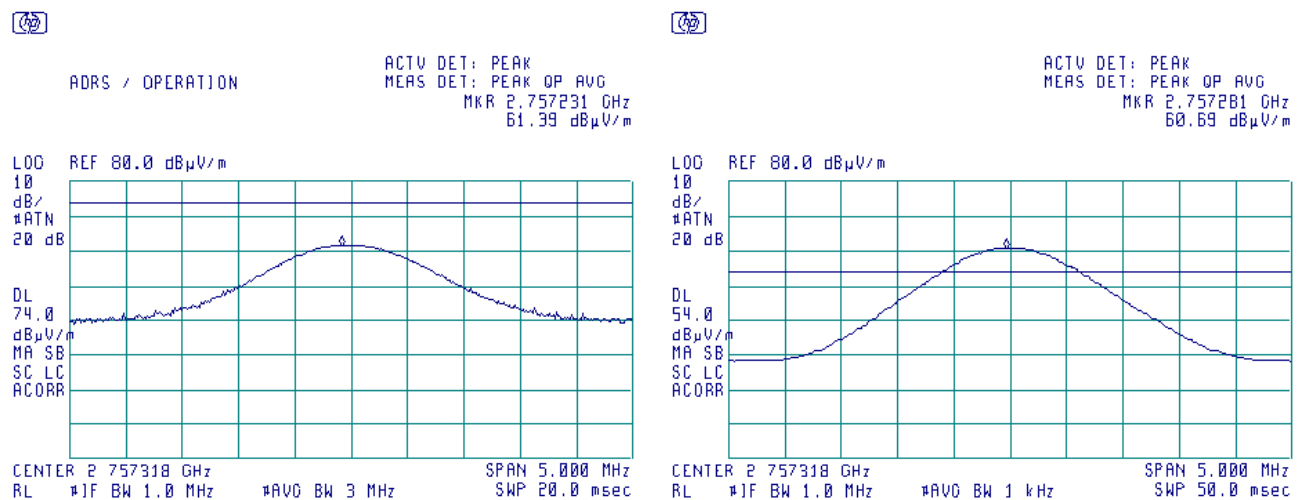
Plot 7.3.53 Radiated emission measurements at the third harmonic of mid carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.54 Radiated emission measurements at the third harmonic of high carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: OATS  
TEST DISTANCE: 3 m





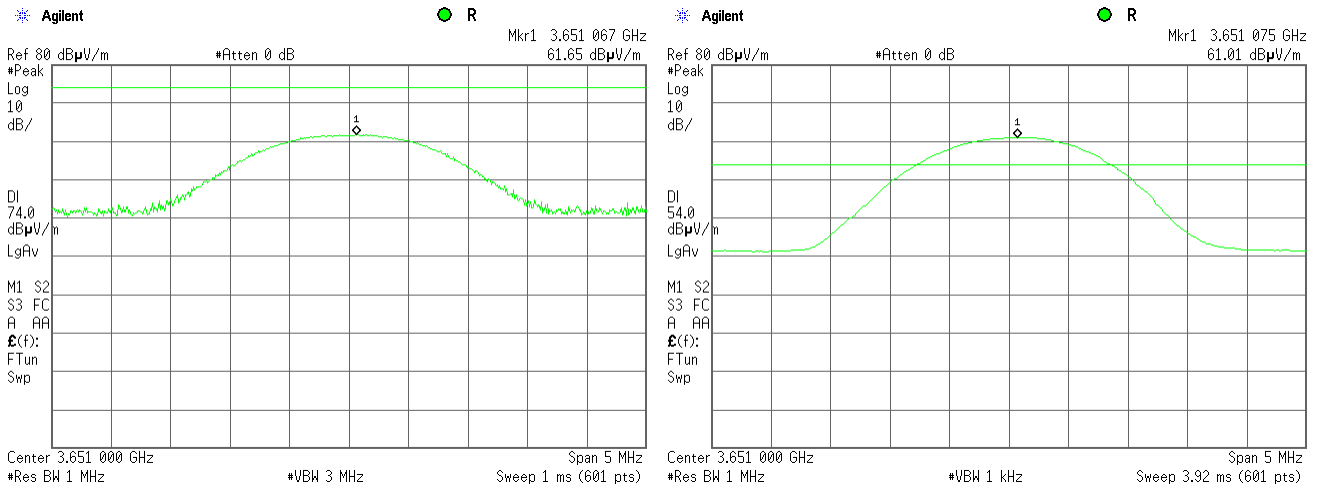


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
	<b>Relative Humidity:</b> 43 %
<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b>	

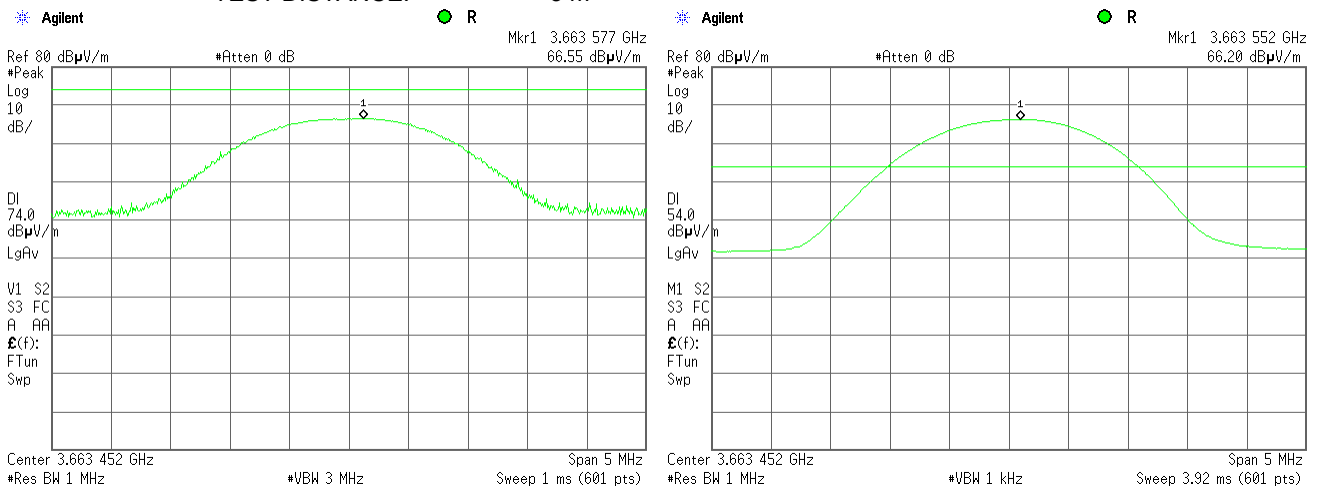
Plot 7.3.55 Radiated emission measurements at the fourth harmonic of low carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.56 Radiated emission measurements at the fourth harmonic of mid carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



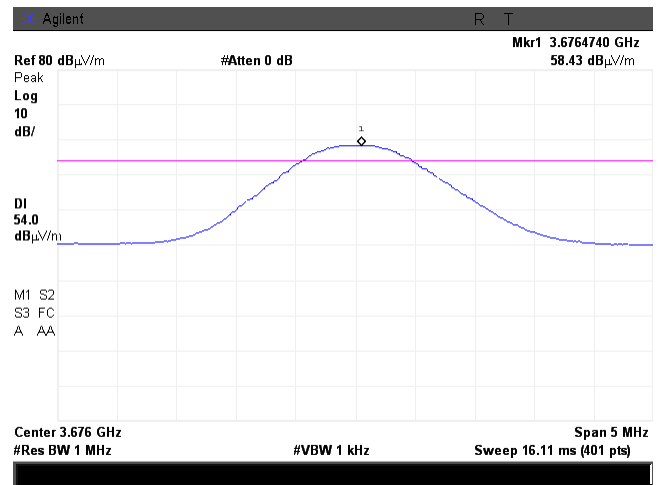
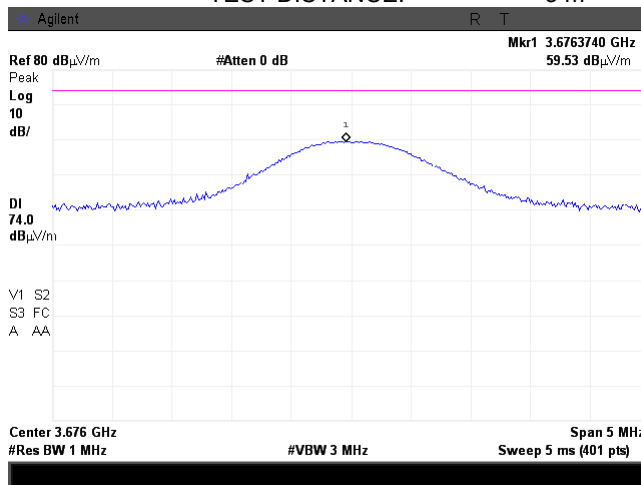


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

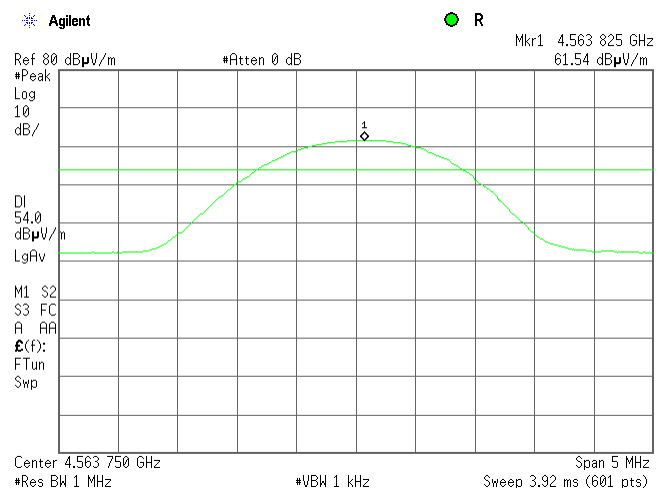
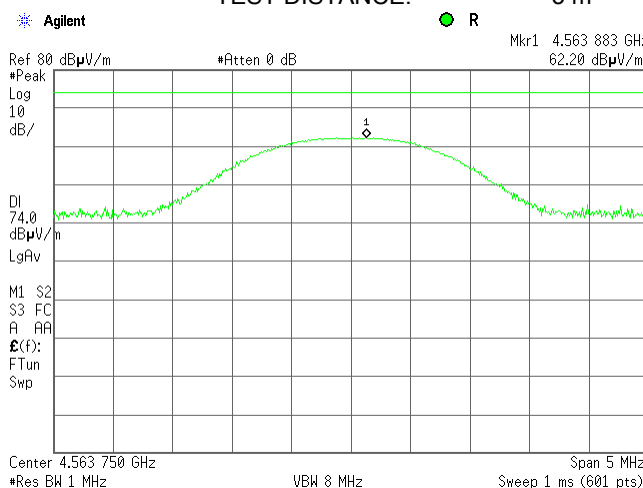
**Plot 7.3.57 Radiated emission measurements at the fourth harmonic of high carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



**Plot 7.3.58 Radiated emission measurements at the fifth harmonic of low carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



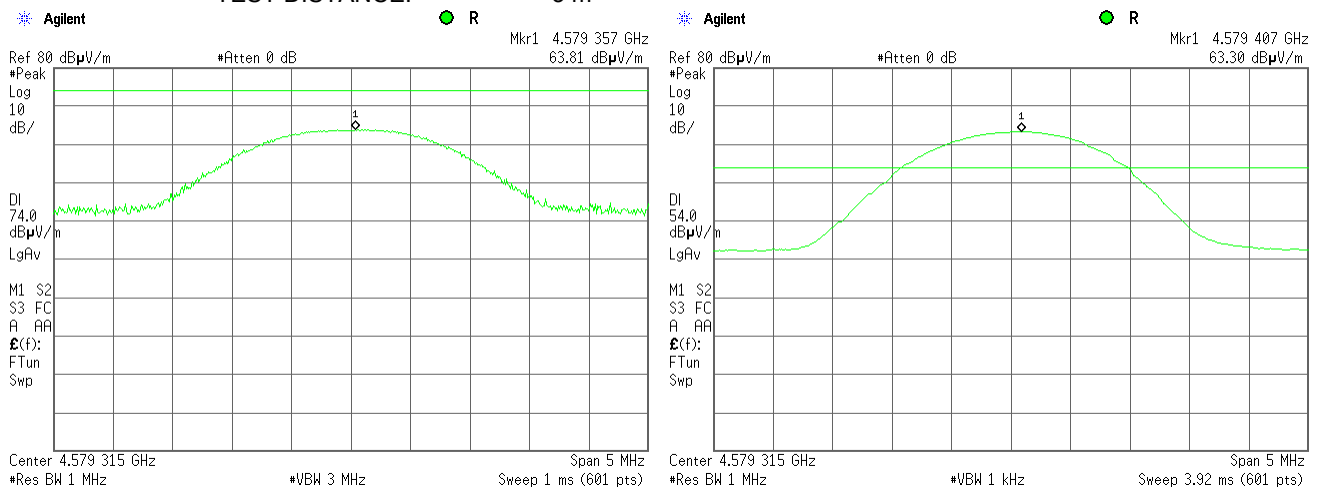


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

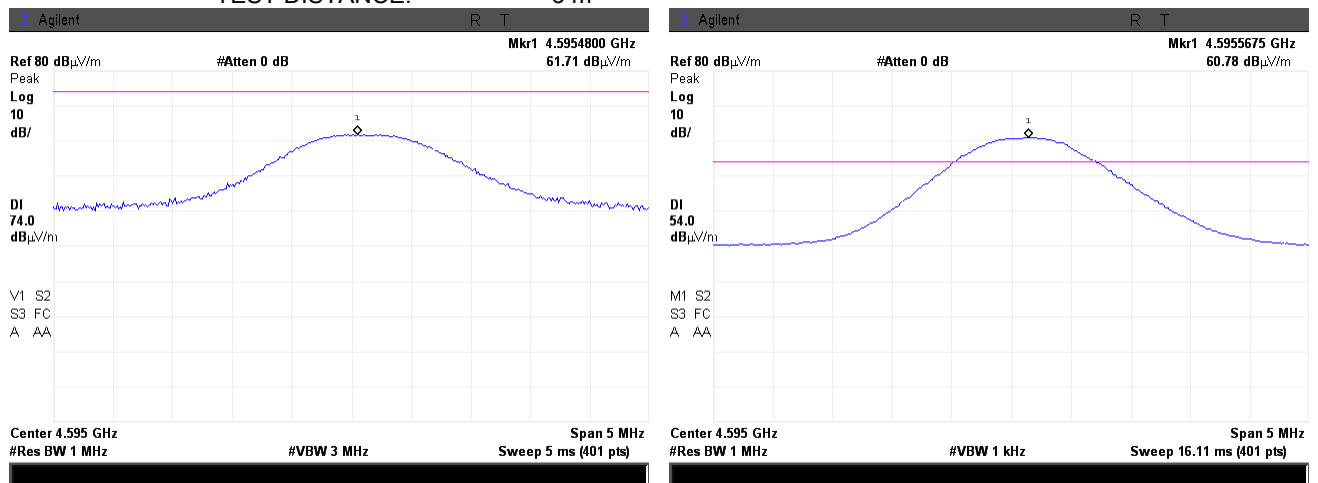
Plot 7.3.59 Radiated emission measurements at the fifth harmonic of mid carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.60 Radiated emission measurements at the fifth harmonic of high carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



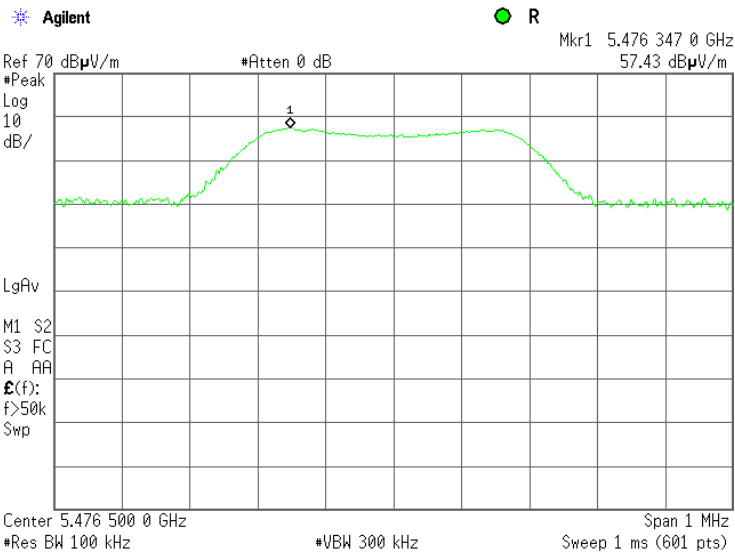


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

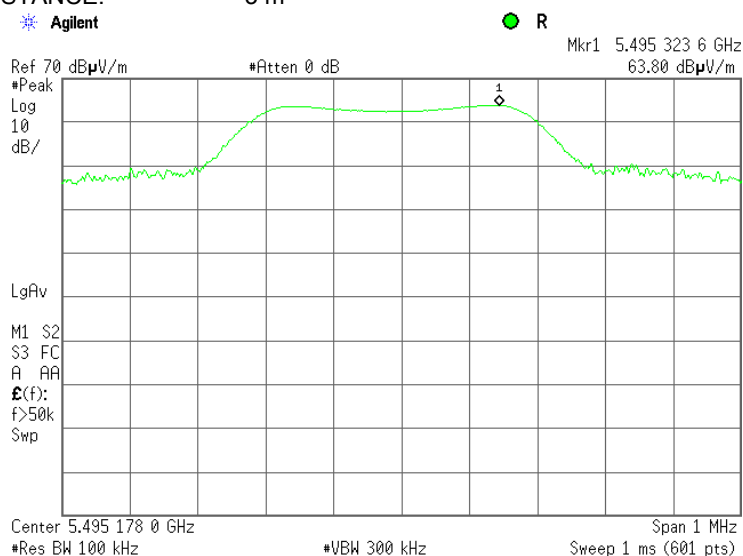
**Plot 7.3.61 Radiated emission measurements at the sixth harmonic of low carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



**Plot 7.3.62 Radiated emission measurements at the sixth harmonic of mid carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



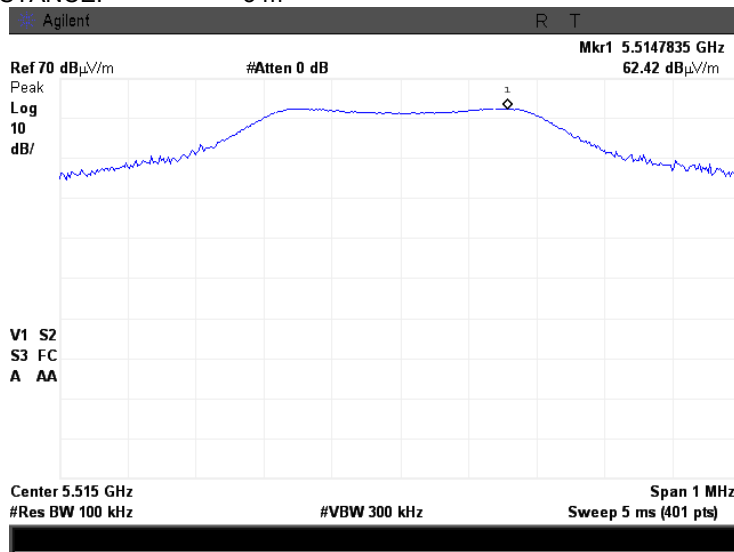


HERMON LABORATORIES

<b>Test specification:</b>		<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>	
<b>Test procedure:</b>		Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		<b>Verdict: PASS</b>	
<b>Date(s):</b>		25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

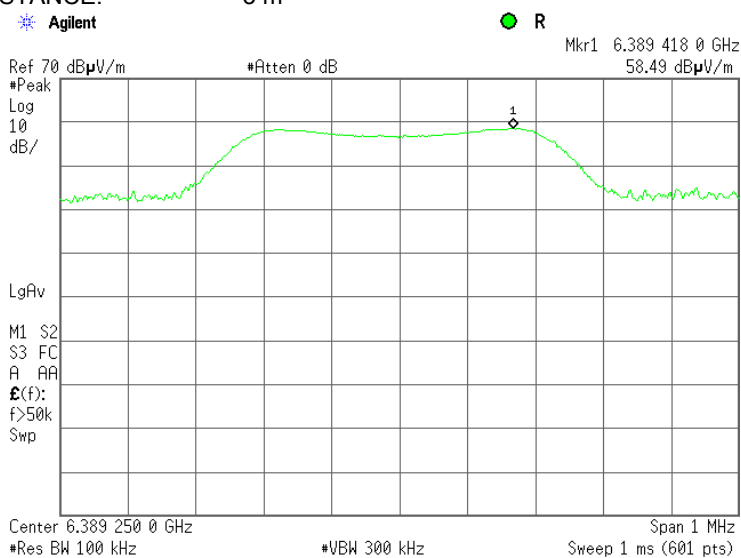
**Plot 7.3.63 Radiated emission measurements at the sixth harmonic of high carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



**Plot 7.3.64 Radiated emission measurements at the seventh harmonic of low carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



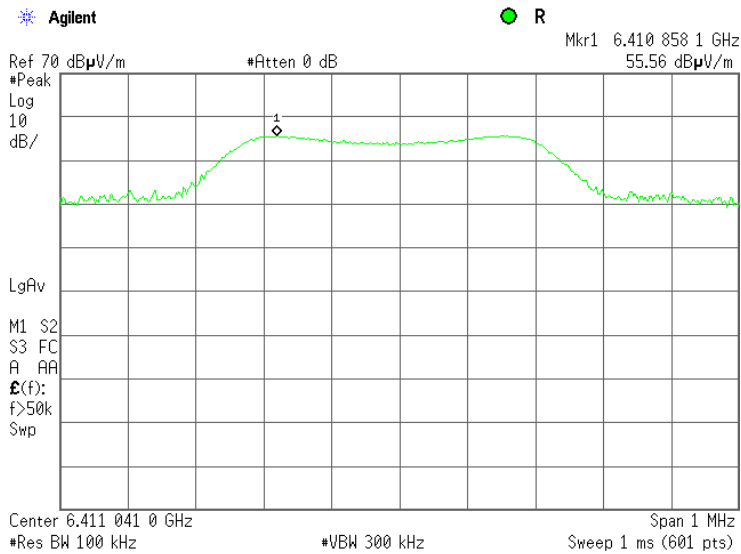


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
	<b>Relative Humidity:</b> 43 %
<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b>	

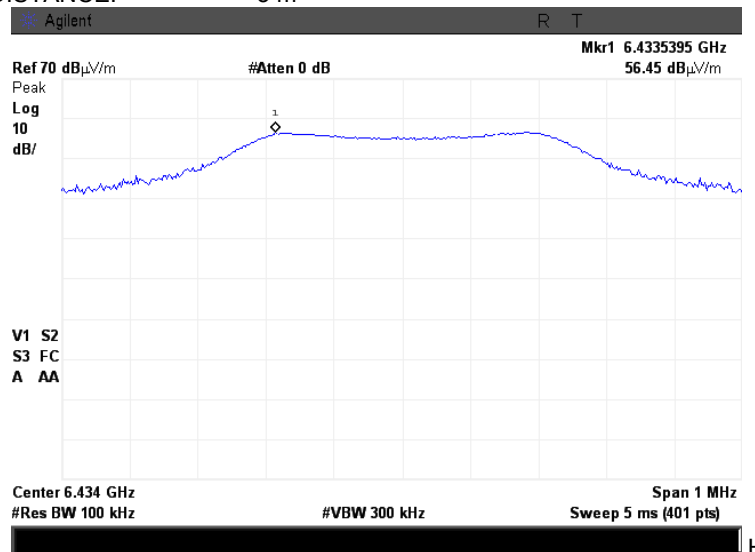
Plot 7.3.65 Radiated emission measurements at the seventh harmonic of mid carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.66 Radiated emission measurements at the seventh harmonic of high carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



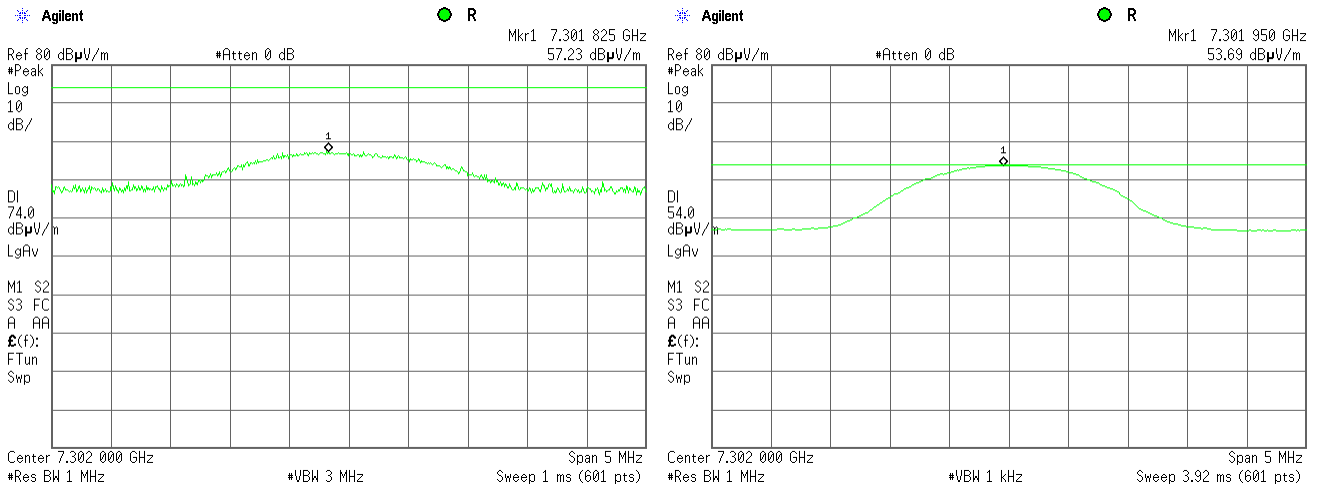


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
	<b>Relative Humidity:</b> 43 %
<b>Power Supply:</b> 120 VAC	
<b>Remarks:</b>	

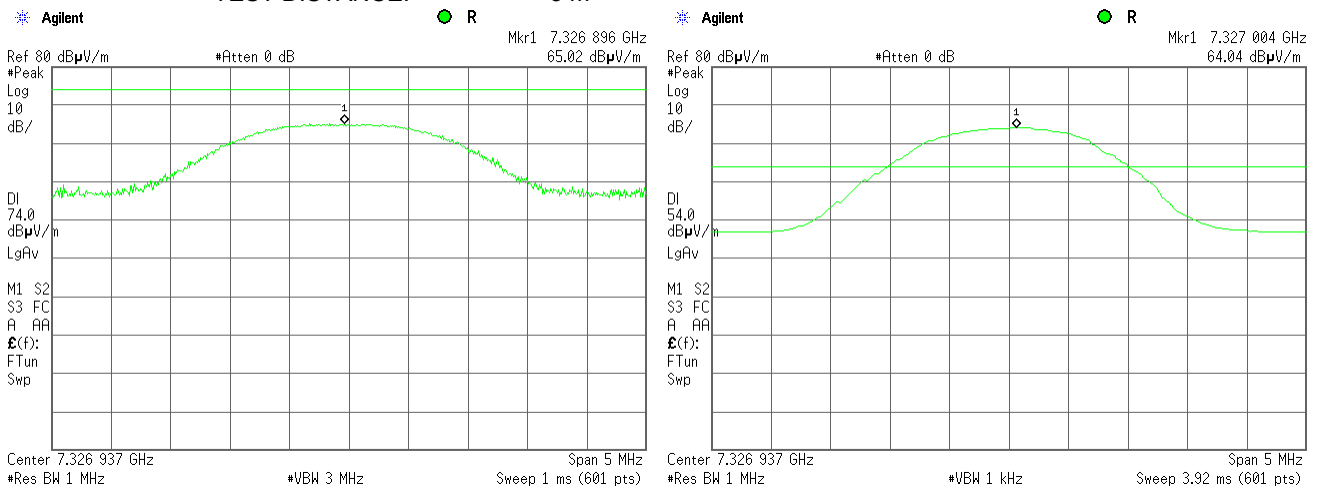
Plot 7.3.67 Radiated emission measurements at the eighth harmonic of low carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.68 Radiated emission measurements at the eighth harmonic of mid carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



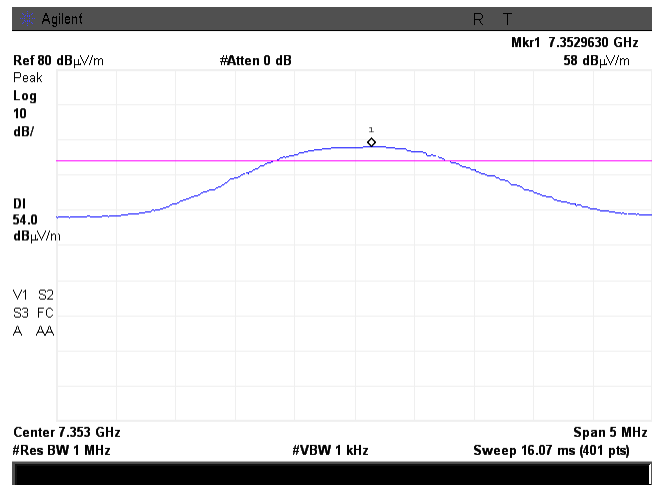
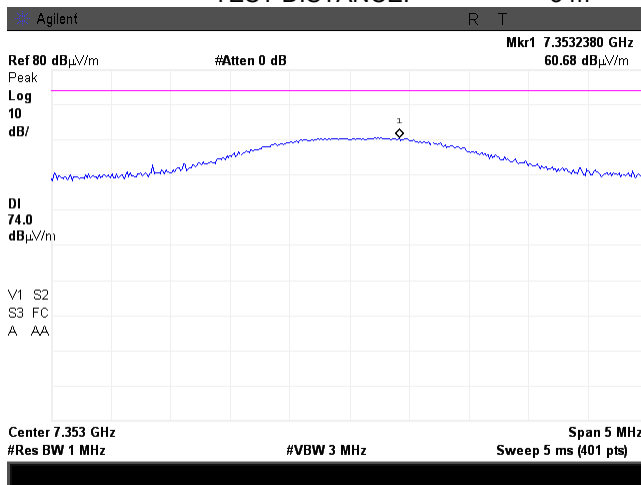


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
	<b>Relative Humidity:</b> 43 %
	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>	

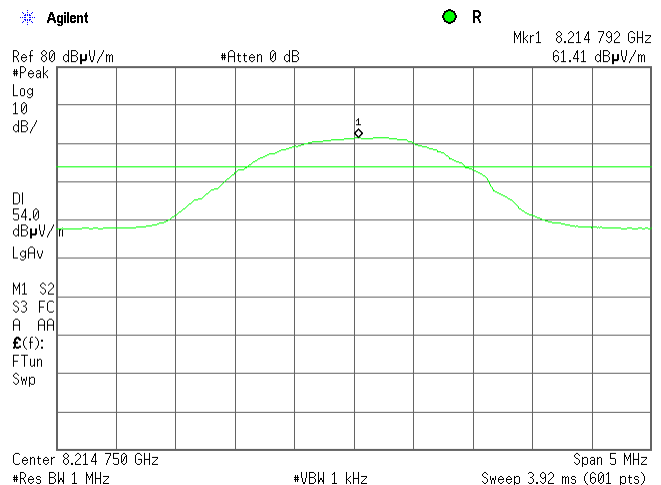
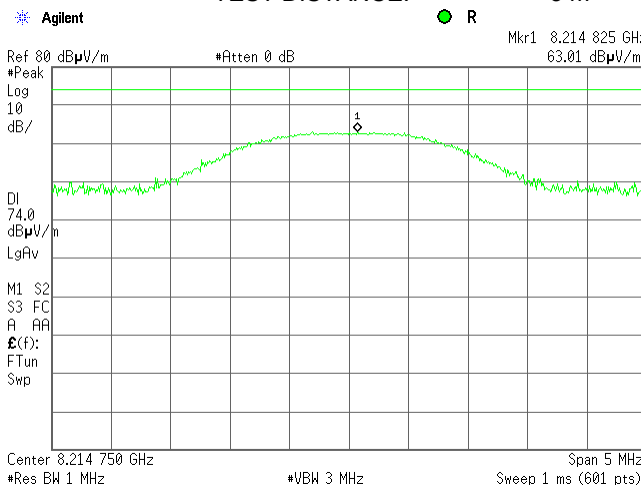
Plot 7.3.69 Radiated emission measurements at the eighth harmonic of high carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.70 Radiated emission measurements at the ninth harmonic of low carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m





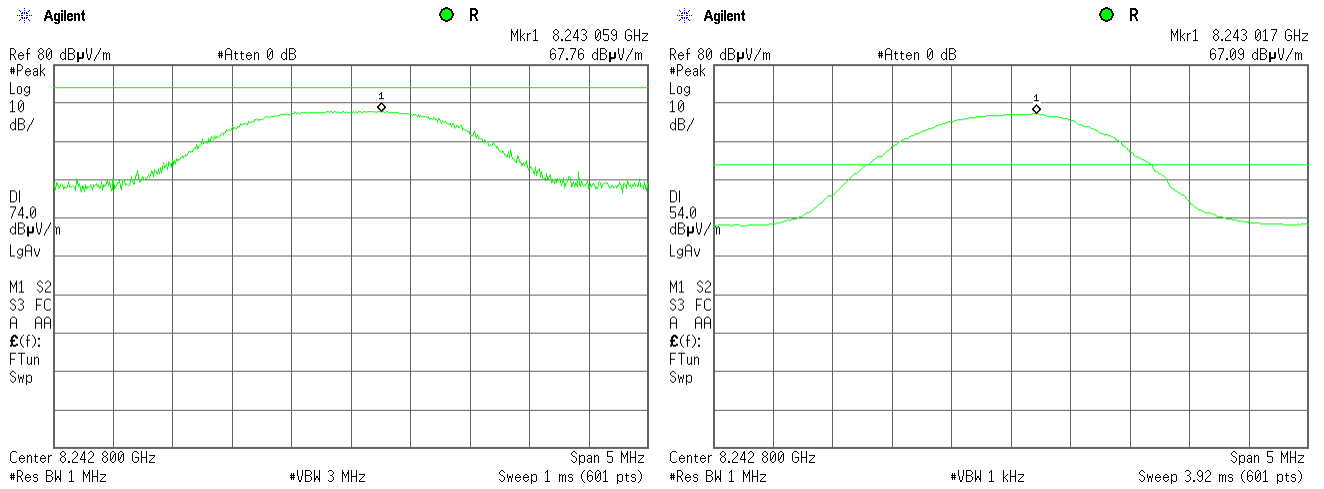


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
	<b>Relative Humidity:</b> 43 %
	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>	

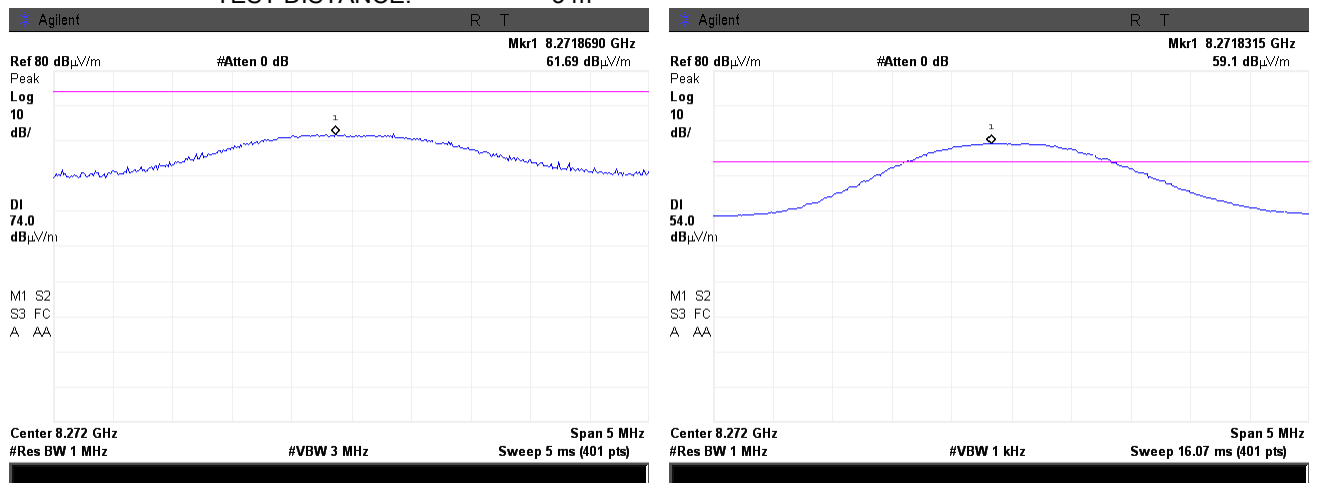
Plot 7.3.71 Radiated emission measurements at the ninth harmonic of mid carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.72 Radiated emission measurements at the ninth harmonic of high carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



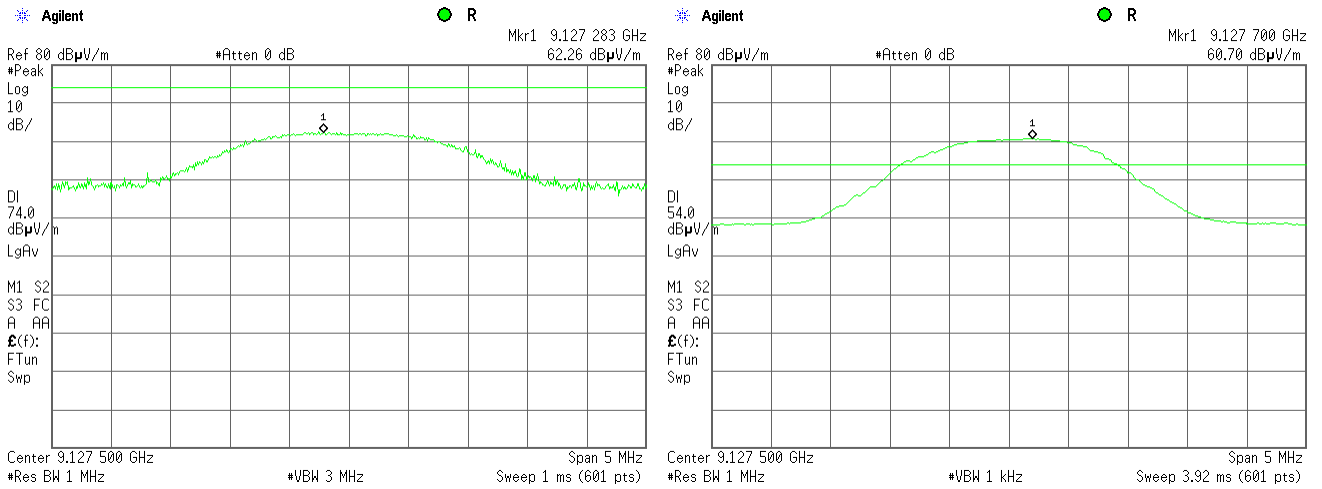


HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions	
<b>Test procedure:</b> Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4	
<b>Test mode:</b> Compliance	<b>Verdict:</b> PASS
<b>Date(s):</b> 25-Jun-14	
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa
	<b>Relative Humidity:</b> 43 %
	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>	

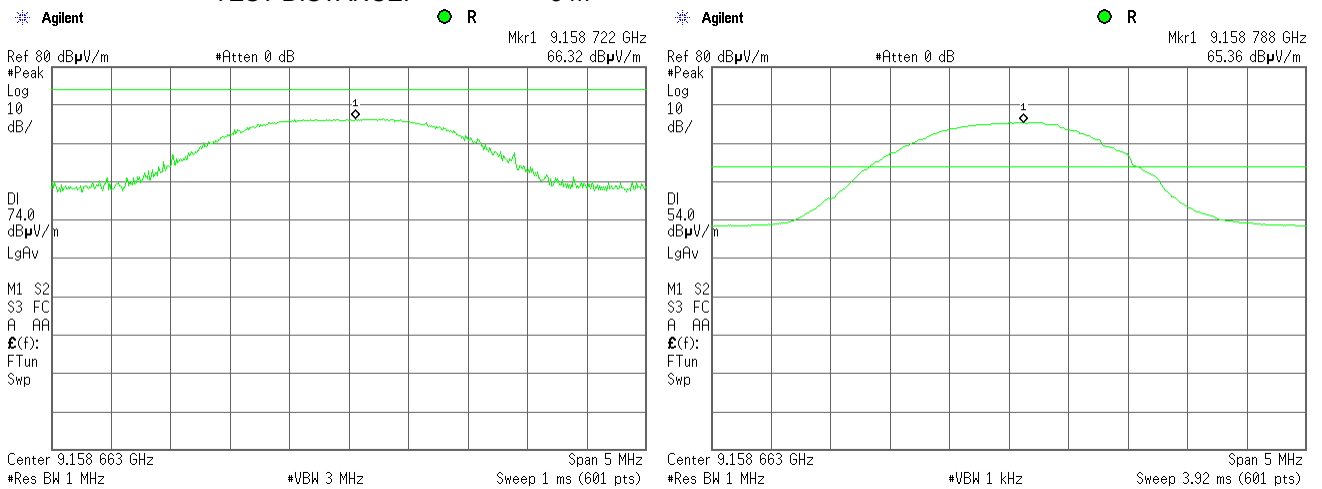
Plot 7.3.73 Radiated emission measurements at the tenth harmonic of low carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.3.74 Radiated emission measurements at the tenth harmonic of mid carrier frequency

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



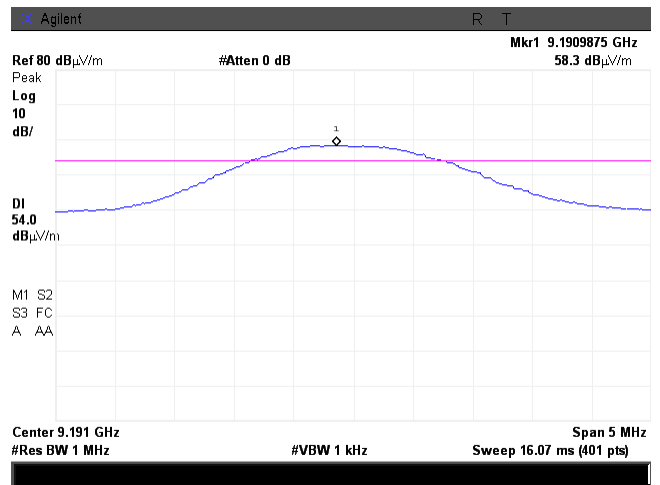
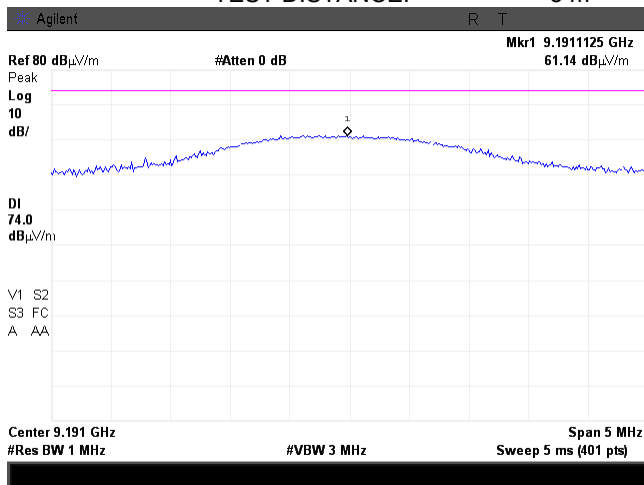


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

**Plot 7.3.75 Radiated emission measurements at the tenth harmonic of high carrier frequency**

EUT CONFIGURATION: With GSM and BBA modules  
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



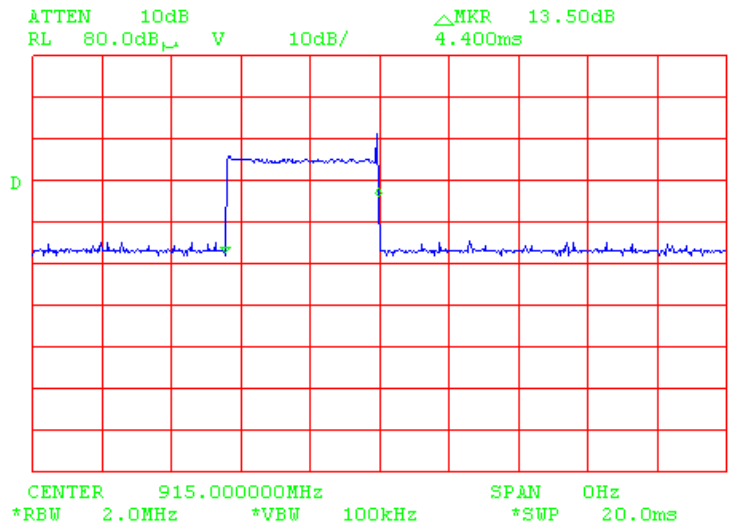


HERMON LABORATORIES

<b>Test specification:</b>	<b>Section 15.247(d), RSS-210 section A8.5, Radiated spurious emissions</b>		
<b>Test procedure:</b>	Public notice DA 00-705/ 47 CFR, Section 15.247(d) / ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict: PASS</b>	
<b>Date(s):</b>	25-Jun-14		
<b>Temperature:</b> 23 °C	<b>Air Pressure:</b> 1026 hPa	<b>Relative Humidity:</b> 43 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

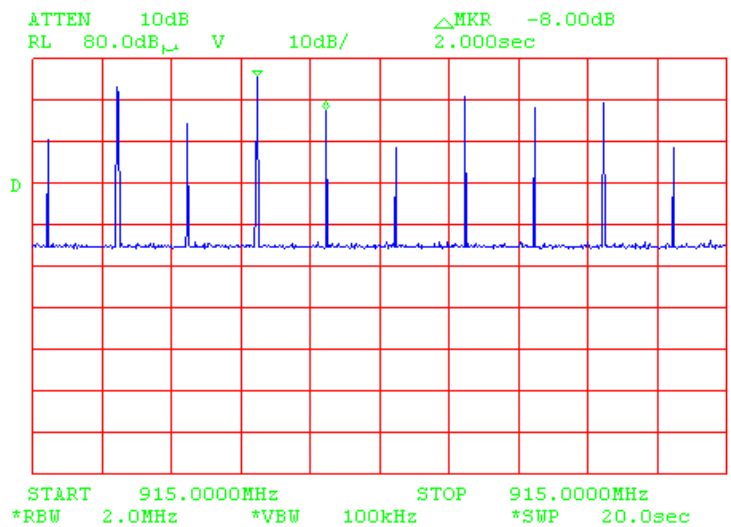
**Plot 7.3.76 Transmission pulse duration**

EUT CONFIGURATION: With GSM and BBA modules



**Plot 7.3.77 Transmission pulse period**

EUT CONFIGURATION: With GSM and BBA modules





<b>Test specification:</b>	<b>Section 15.203, RSS-Gen section 7.1.2, Antenna requirements</b>		
<b>Test procedure:</b>	Public notice DA 00-705		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date(s):</b>	13-Feb-14		
<b>Temperature:</b> 22 °C	<b>Air Pressure:</b> 1024 hPa	<b>Relative Humidity:</b> 30 %	<b>Power Supply:</b> 120 VAC
<b>Remarks:</b>			

### 7.4 Antenna requirements

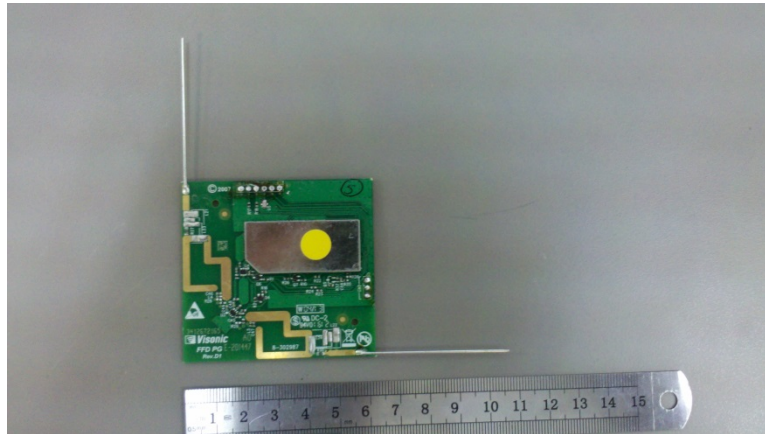
The EUT was verified for compliance with antenna requirements. A transmitter shall be designed to ensure that no antenna other than that furnished by the responsible party will be used with the device. It may be either permanently attached or employs a unique antenna connector for every antenna proposed for use with the EUT. This requirement does not apply to professionally installed transmitters.

The rationale for compliance with the above requirements was either visual inspection results or supplier declaration. The summary of results is provided in Table 7.4.1.

Table 7.4.1 Antenna requirements

Requirement	Rationale	Verdict
The transmitter antenna is permanently attached	Visual inspection	Comply
The transmitter employs a unique antenna connector	NA	
The transmitter requires professional installation	NA	

Photograph 7.4.1 Antenna assembly



**8 APPENDIX A Test equipment and ancillaries used for tests**

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal./ Check	Due Cal./ Check
0446	Antenna, Loop, Active, 10 kHz - 30 MHz	EMCO	6502	2857	21-Jan-14	21-Jan-15
0521	EMI Receiver (Spectrum Analyzer) with RF filter section 9 kHz-6.5 GHz	Hewlett Packard	8546A	3617A 00319, 3448A002 53	28-Oct-13	28-Oct-14
0604	Antenna BiconiLog Log-Periodic/T Bow-TIE, 26 - 2000 MHz	EMCO	3141	9611-1011	22-May-14	22-May-15
1205	One phase voltage regulator, 2kVA, 0-250V	Hermon Laboratories	TDGC-2	109	25-Feb-14	25-Feb-15
1984	Antenna, Double-Ridged Waveguide Horn, 1-18 GHz, 300 W	EMC Test Systems	3115	9911-5964	03-Jan-14	03-Jan-15
2780	EMC analyzer, 100 Hz to 26.5 GHz	Agilent Technologies	E7405A	MY451024 62	10-Jul-13	10-Jul-14
2871	Microwave Cable Assembly, 18 GHz, 6.4 m, SMA - SMA	Huber-Suhner	198-8155-00	2871	04-Dec-13	04-Dec-14
3521	Multimeter	Fluke	115	94771103	11-Jul-13	11-Jul-14
3818	PSA Series Spectrum Analyzer, 3 Hz- 44 GHz	Agilent Technologies	E4446A	MY482502 88	20-May-14	20-May-15
4150	Preamplifier, 0.1 to 18 GHz, Gain 25 dB, N-type(f) in, N-type(m) out.	Agilent Technologies	87405C	MY470105 91	02-Jul-14	02-Jul-15
4160	Preamplifier, 0.1 to 18 GHz, Gain 25 dB, N-type(f) in, N-type(m) out.	Agilent Technologies	87405C	MY470105 94	11-Aug-13	11-Aug-14
4352	Low Loss Armored Test Cable, DC - 18 GHz, 6.2 m, N type-M/N type-M	MegaPhase	NC29-N1N1-244	12025101 002	01-Jan-14	01-Jan-14
4353	Low Loss Armored Test Cable, DC - 18 GHz, 6.2 m, N type-M/N type-M	MegaPhase	NC29-N1N1-244	12025101 003	16-Mar-14	16-Mar-15



## 9 APPENDIX B Measurement uncertainties

### Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Conducted carrier power at RF antenna connector	Below 12.4 GHz: $\pm 1.7$ dB 12.4 GHz to 40 GHz: $\pm 2.3$ dB
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: $\pm 2.6$ dB 2.9 GHz to 6.46 GHz: $\pm 3.5$ dB 6.46 GHz to 13.2 GHz: $\pm 4.3$ dB 13.2 GHz to 22.0 GHz: $\pm 5.0$ dB 22.0 GHz to 26.8 GHz: $\pm 5.5$ dB 26.8 GHz to 40.0 GHz: $\pm 4.8$ dB
Occupied bandwidth	$\pm 8.0$ %
Duty cycle, timing (Tx ON / OFF) and average factor measurements	$\pm 1.0$ %
Conducted emissions with LISN	9 kHz to 150 kHz: $\pm 3.9$ dB 150 kHz to 30 MHz: $\pm 3.8$ dB
Radiated emissions at 3 m measuring distance Horizontal polarization	Biconilog antenna: $\pm 5.3$ dB Biconical antenna: $\pm 5.0$ dB Log periodic antenna: $\pm 5.3$ dB Double ridged horn antenna: $\pm 5.3$ dB
Vertical polarization	Biconilog antenna: $\pm 6.0$ dB Biconical antenna: $\pm 5.7$ dB Log periodic antenna: $\pm 6.0$ dB Double ridged horn antenna: $\pm 6.0$ dB

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.



## 10 APPENDIX C Test laboratory description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, safety, environmental and telecommunication testing facility.

Hermon Laboratories is listed by the Federal Communications Commission (USA) for all parts of Code of Federal Regulations 47 (CFR 47), Registration Numbers 90624 for OATS and 90623 for the anechoic chamber; by Industry Canada for electromagnetic emissions (file numbers IC 2186A-1 for OATS, IC 2186A-2 for anechoic chamber, IC 2186A-3 for full-anechoic chamber for RE measurements above 1 GHz), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, G-27 for full-anechoic chamber for RE measurements above 1 GHz, C-845 for conducted emissions site, T-1606 for conducted emissions at telecommunication ports), has a status of a Telefication - Listed Testing Laboratory, Certificate No. L138/00. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing and environmental simulation (for exact scope please refer to Certificate No. 839.01). The FCC Designation Number is US1003.

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Fax: +972 4628 8277  
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Person for contact: Mr. Alex Usoskin, CEO.

## 11 APPENDIX D Specification references

FCC 47CFR part 15: 2013	Radio Frequency Devices
Public notice DA 00- 705: 2000	Filing and measurement guidelines for frequency hopping spread spectrum systems.
ANSI C63.2: 1996	American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications
ANSI C63.4: 2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
RSS-210 Issue 8: 2010	Low Power Licence- Exempt Radiocommunication Devices
RSS-Gen Issue 3: 2010	General Requirements and Information for the Certification of Radiocommunication Equipment





## 12 APPENDIX E Test equipment correction factors

Active loop antenna  
Model 6502, S/N 2857, HL 0446

Frequency, MHz	Magnetic antenna factor, dB	Electric antenna factor, dB
0.009	-32.8	18.7
0.010	-33.8	17.7
0.020	-38.3	13.2
0.050	-41.1	10.4
0.075	-41.3	10.2
0.100	-41.6	9.9
0.150	-41.7	9.8
0.250	-41.6	9.9
0.500	-41.8	9.8
0.750	-41.9	9.7
1.000	-41.4	10.1
2.000	-41.5	10.0
3.000	-41.4	10.2
4.000	-41.4	10.1
5.000	-41.5	10.1
10.000	-41.9	9.6
15.000	-41.9	9.6
20.000	-42.2	9.3
25.000	-42.8	8.7
30.000	-44.0	7.5

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ V/m).



**Antenna factor**  
**Biconilog antenna EMCO Model 3141**  
**Ser.No.1011, HL 0604**

Frequency, MHz	Antenna factor, dB(1/m)	Frequency, MHz	Antenna factor, dB(1/m)	Frequency, MHz	Antenna factor, dB(1/m)
26	7.8	580	20.6	1320	27.8
28	7.8	600	21.3	1340	28.3
30	7.8	620	21.5	1360	28.2
40	7.2	640	21.2	1380	27.9
60	7.1	660	21.4	1400	27.9
70	8.5	680	21.9	1420	27.9
80	9.4	700	22.2	1440	27.8
90	9.8	720	22.2	1460	27.8
100	9.7	740	22.1	1480	28.0
110	9.3	760	22.3	1500	28.5
120	8.8	780	22.6	1520	28.9
130	8.7	800	22.7	1540	29.6
140	9.2	820	22.9	1560	29.8
150	9.8	840	23.1	1580	29.6
160	10.2	860	23.4	1600	29.5
170	10.4	880	23.8	1620	29.3
180	10.4	900	24.1	1640	29.2
190	10.3	920	24.1	1660	29.4
200	10.6	940	24.0	1680	29.6
220	11.6	960	24.1	1700	29.8
240	12.4	980	24.5	1720	30.3
260	12.8	1000	24.9	1740	30.8
280	13.7	1020	25.0	1760	31.1
300	14.7	1040	25.2	1780	31.0
320	15.2	1060	25.4	1800	30.9
340	15.4	1080	25.6	1820	30.7
360	16.1	1100	25.7	1840	30.6
380	16.4	1120	26.0	1860	30.6
400	16.6	1140	26.4	1880	30.6
420	16.7	1160	27.0	1900	30.6
440	17.0	1180	27.0	1920	30.7
460	17.7	1200	26.7	1940	30.9
480	18.1	1220	26.5	1960	31.2
500	18.5	1240	26.5	1980	31.6
520	19.1	1260	26.5	2000	32.0
540	19.5	1280	26.6		
560	19.8	1300	27.0		

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field strength in dB( $\mu$ V/m).



**Antenna factor**  
**Double-ridged wave guide horn antenna**  
**Model 3115, S/N 9911-5964, HL1984**

Frequency, MHz	Antenna factor, dB(1/m)
1000.0	24.7
1500.0	25.7
2000.0	27.6
2500.0	28.9
3000.0	31.2
3500.0	32.0
4000.0	32.5
4500.0	32.7
5000.0	33.6
5500.0	35.1
6000.0	35.4
6500.0	34.9
7000.0	36.1
7500.0	37.8
8000.0	38.0
8500.0	38.1
9000.0	39.1
9500.0	38.3
10000.0	38.6
10500.0	38.2
11000.0	38.7
11500.0	39.5
12000.0	40.0
12500.0	40.4
13000.0	40.5
13500.0	41.1
14000.0	41.6
14500.0	41.7
15000.0	38.7
15500.0	38.2
16000.0	38.8
16500.0	40.5
17000.0	42.5
17500.0	45.9
18000.0	49.4

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ V/m).



**Cable loss**  
Cable coaxial, Huber-Suhner, 18 GHz, 6.4 m, SMA - SMA, model 198-8155-00,  
HL 2871

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	0.12	5750	2.34	12000	3.55
30	0.14	6000	2.39	12250	3.61
100	0.27	6250	2.46	12500	3.67
250	0.45	6500	2.52	12750	3.74
500	0.63	6750	2.58	13000	3.79
750	0.76	7000	2.64	13250	3.82
1000	0.89	7250	2.68	13500	3.83
1250	1.01	7500	2.73	13750	3.83
1500	1.12	7750	2.78	14000	3.88
1750	1.23	8000	2.83	14250	3.93
2000	1.32	8250	2.88	14500	3.96
2250	1.41	8500	2.94	14750	4.01
2500	1.49	8750	2.97	15000	4.00
2750	1.58	9000	3.02	15250	4.01
3000	1.66	9250	3.07	15500	4.00
3250	1.73	9500	3.13	15750	4.13
3500	1.80	9750	3.18	16000	4.22
3750	1.87	10000	3.21	16250	4.29
4000	1.93	10250	3.26	16500	4.29
4250	2.01	10500	3.30	16750	4.32
4500	2.06	10750	3.36	17000	4.37
4750	2.12	11000	3.39	17250	4.45
5000	2.17	11250	3.44	17500	4.49
5250	2.24	11500	3.48	17750	4.53
5500	2.29	11750	3.52	18000	4.55



**Cable loss**  
**Low Loss Armored Test Cable, MegaPhase, 18 GHz, 6.2 m, N type-M/N type-M,**  
**NC29-N1N1-244S/N 12025101 002,**  
**HL 4352**

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
50	0.20	9000	2.81
100	0.28	9500	2.89
300	0.49	10000	3.00
500	0.63	10500	3.07
1000	0.90	11000	3.15
1500	1.10	11500	3.23
2000	1.28	12000	3.30
2500	1.44	12500	3.38
3000	1.57	13000	3.47
3500	1.71	13500	3.55
4000	1.85	14000	3.61
4500	1.95	14500	3.68
5000	2.05	15000	3.76
5500	2.14	15500	3.86
6000	2.27	16000	3.92
6500	2.38	16500	3.97
7000	2.47	17000	4.03
7500	2.58	17500	4.10
8000	2.65	18000	4.18
8500	2.74		



**Cable loss**  
**Low Loss Armored Test Cable, MegaPhase, 18 GHz, 6.2 m, N type-M/N type-M,**  
**NC29-N1N1-244S/N 12025101 003,**  
**HL 4353**

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
50	0.20	9000	2.71
100	0.27	9500	2.81
300	0.47	10000	2.90
500	0.61	10500	2.97
1000	0.87	11000	3.06
1500	1.07	11500	3.13
2000	1.24	12000	3.20
2500	1.39	12500	3.26
3000	1.53	13000	3.34
3500	1.65	13500	3.39
4000	1.77	14000	3.47
4500	1.89	14500	3.54
5000	1.99	15000	3.62
5500	2.07	15500	3.69
6000	2.20	16000	3.76
6500	2.30	16500	3.83
7000	2.39	17000	3.86
7500	2.51	17500	3.94
8000	2.58	18000	4.02
8500	2.65		



### 13 APPENDIX F Abbreviations and acronyms

A	ampere
AC	alternating current
A/m	ampere per meter
AM	amplitude modulation
AVRG	average (detector)
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
dB( $\mu$ V)	decibel referred to one microvolt
dB( $\mu$ V/m)	decibel referred to one microvolt per meter
dB( $\mu$ A)	decibel referred to one microampere
DC	direct current
EIRP	equivalent isotropically radiated power
ERP	effective radiated power
EUT	equipment under test
F	frequency
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
k	kilo
kHz	kilohertz
LO	local oscillator
m	meter
MHz	megahertz
min	minute
mm	millimeter
ms	millisecond
$\mu$ s	microsecond
NA	not applicable
NB	narrow band
OATS	open area test site
$\Omega$	Ohm
PM	pulse modulation
PS	power supply
ppm	part per million ( $10^{-6}$ )
QP	quasi-peak
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receive
s	second
T	temperature
Tx	transmit
V	volt
WB	wideband

END OF TEST REPORT

## 14 APPENDIX G Manufacturer declaration



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Fax: +972 3 645 6788 [www.visonic.com](http://www.visonic.com)

Attention  
Hermon labs  
Binyamina  
Israel

December 2013

### Declaration of Similarity

We, **Visonic Ltd.**, having a business address at 24 Habarzel St., Tel-Aviv 69710, Israel, Telephone number:+972 36456789, Fax number:+972 36456788 , declare under our sole responsibility that The Control panel PowerMaster 33 G2 is similar to Control panel PowerMaster 30 G2 and has the same PCB, except of the following variations.

Its housing does not include a display and keyboard, "instead" the PCB has 5 LEDs and an ENROLL push button..  
Its RF ID (PROX) is different, but similar to the one in KP141 PG2  
It does not have and internal sounder.

Yours truly,

31/12/2013  
Arick Eishtein,  
Certification Engineer

END OF DOCUMENT