



Product Service

## FCC/IC - TEST REPORT

Report Number	: <b>68.760.12.168.01</b>	Date of Issue: <u>17 October 2012</u>
Model	: <b>M5P001</b>	
Product Type	: Medsense Dispenser Monitor	
Applicant	: General Sensing Limited	
Address	: Unit 716, Cyberport 1, 100 Cyberport Road, Pok Fu Lam, Hong Kong	
Manufacture	: General Sensing Limited	
Address	: Unit 716, Cyberport 1, 100 Cyberport Road, Pok Fu Lam, Hong Kong	
Test Result	: <input checked="" type="checkbox"/> <b>Positive</b> <input type="checkbox"/> <b>Negative</b>	
Total pages including Appendices	: <u>34</u>	

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## 2 Details about the Test Laboratory

### Details about the Test Laboratory

#### Test site1:

Company name: Jiangsu TÜV Product Service Ltd. – Shenzhen Branch  
6th Floor, H Hall,  
Century Craftwork Culture Square,  
No. 4001, Fuqiang Road,  
Futian District 518048,  
Shenzhen, P.R.C.

Telephone: 86 755 8828 6998  
Fax: 86 755 8828 5299

#### Test site2:

Company name: Audix Technology (shenzhen) Co.,Ltd  
Block Shenzhen, Science & Industry Park,  
Nantou, Shenzhen,  
Guangdong,  
China

Telephone: 86 755 2663 9496  
Fax: 86 755 2663 2877

### 3 Description of the Equipment Under Test

#### Description of the Equipment Under Test

Product: Medsense Dispenser Monitor

Model no.: M5P001

Brand Name: Medsense

Options and accessories: NIL

Rating: 3.0VDC(Supplied by 2\*1.5V AA batteries)

RF Transmission

Frequency: 2401.999MHz - 2480.920MHz  
Total three frequencies: 2401.999MHz, 2440.294MHz, 2480.920MHz

Antenna Gain: 5dBi

Description of the EUT: NIL

#### Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
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## 4 Summary of Test Standards

<b>Test Standards</b>	
FCC Part 15 Subpart C 10-1-2011 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators
RSS-Gen Issue 3 December 2010	General Requirements and Information for the Certification of Radio Apparatus
RSS-210 Issue 8 December 2010	RSS-210 — Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment

## 5 Summary of Test Results

Technical Requirements					
FCC Part 15 Subpart C, RSS-Gen, RSS-210					
Test Condition	Pages	Test Site	Test Result		
			Pass	Fail	N/A
15.207 & RSS-Gen A7.2.4 Conducted emission AC power port*	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
§15.205(a), §15.209(a), §15.249(a), §15.249(c) & RSS-210 A2.9(a), RSS-Gen 7.2.2 Field strength of emissions and Restricted bands	8	Site 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RSS-GEN 4.10 Receiver Spurious Emissions	18	Site 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§15.249(d) & RSS-210 A2.9(b) Out of band emissions	30	Site 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC §15.215(c) 20dB bandwidth & RSS-Gen 4.6.1 99% Occupied Bandwidth	34	Site 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE1 \*\* The requirement is not applicable to DC device.

## 6 General Remarks

### Remarks

This submittal(s) (test report) is intended for FCC ID: GPI-M5P001 & IC ID: 7310A-M5P001 complies with Section 15.205, 15.209, 15.249 of the FCC Part 15, Subpart C Rules; and RSS-210.

The Medsense Dispenser Monitor has 4 identical quarter-wave monopole antennas. The antennas are mounted vertically at 4 corners of the PCB, and the ground plane covers the majority of the PCB surface. and they can't transmit simultaneously, an RF switch is used to control them transmit circularly, so all the testing were only applied on antenna 1.

### SUMMARY:

All tests according to the regulations cited on page 5 were

- Performed

- **Not** Performed

The Equipment Under Test

- **Fulfills** the general approval requirements.

- **Does not** fulfill the general approval requirements.

Sample Received Date: 3 August 2011

Testing Start Date: 7 August 2011

Testing End Date: 12 October 2011

- Jiangsu TÜV Product Service Ltd. – Shenzhen Branch -

Reviewed by:

Prepared by:

Tested by:



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EMC Project Manager



Cookies Bu  
EMC Project Engineer



Leo Li  
EMC Test Engineer

## 7 Technical Requirement

### 7.1 Field strength of emissions and Restricted bands

#### Test Method

- 1 The EUT is placed on a turntable, which is 0.8m above ground plane.
- 2 The turntable shall be rotated for 360 degrees to determine the position of maximum emission level
- 3 EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4 The spectrum analyzer or receiver is set as:  
Below 1000MHz:  
Quasi-Peak: RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto  
Above 1000MHz:  
(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto  
(2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto
- 5 Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 6 Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

#### Limits

According to §15.249 (a) & RSS-210 A2.9(a) , the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

According to §15.249 (c)& RSS-210 A2.9(a), Field strength limits are specified at a distance of 3 meters.

According to §15.249 (d)& RSS-210 A2.9(b), Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209& RSS-Gen, whichever is the lesser attenuation.

According to §15.205 and RSS-GEN 7.2.2 Unwanted emissions falling into restricted bands in §15.205 (a) and RSS-GEN 7.2.2 Table 3 shall comply with the limits specified in §15.209 and RSS-Gen.

## Field strength of emissions and Restricted bands

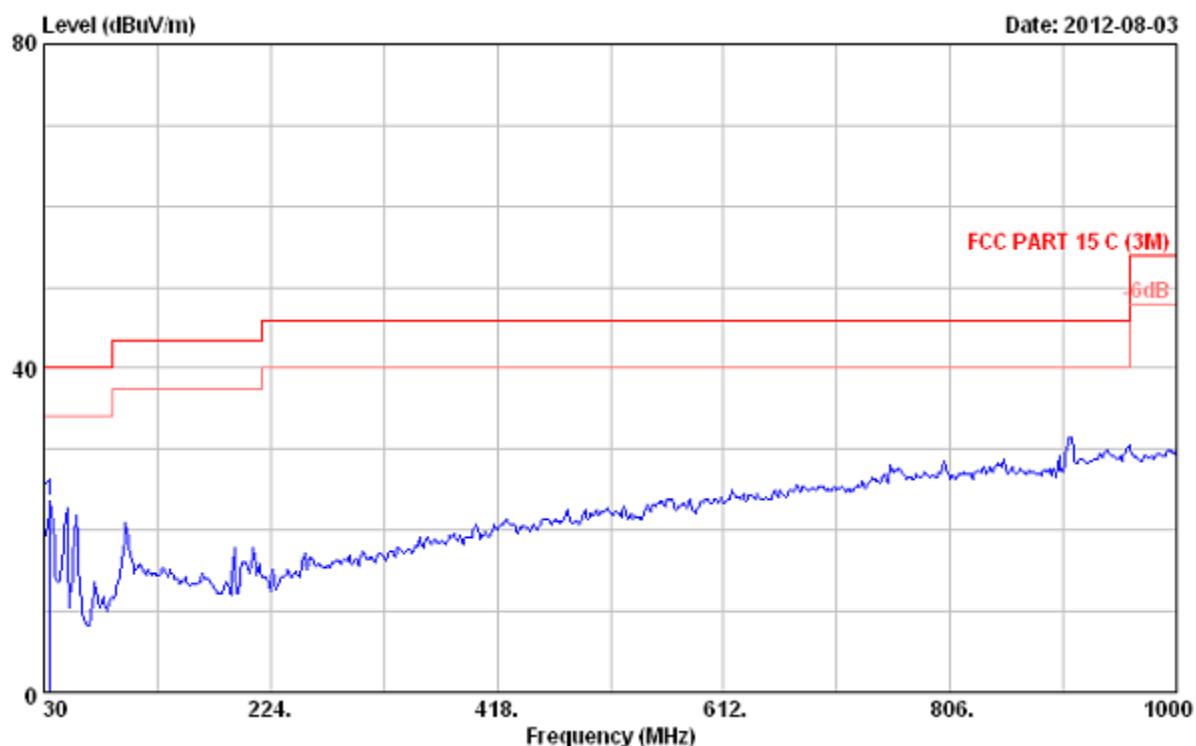
EUT: Medsense Dispenser Monitor

M/N: M5P001

Operating Condition: Tx

Ant. Polarity: Vertical

Comment: 30-1000MHz



No.	Freq. (MHz)	Ant.	Cable	Emission			Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)		
1	34.850	16.01	0.51	35.37	23.54	40.00	16.46	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

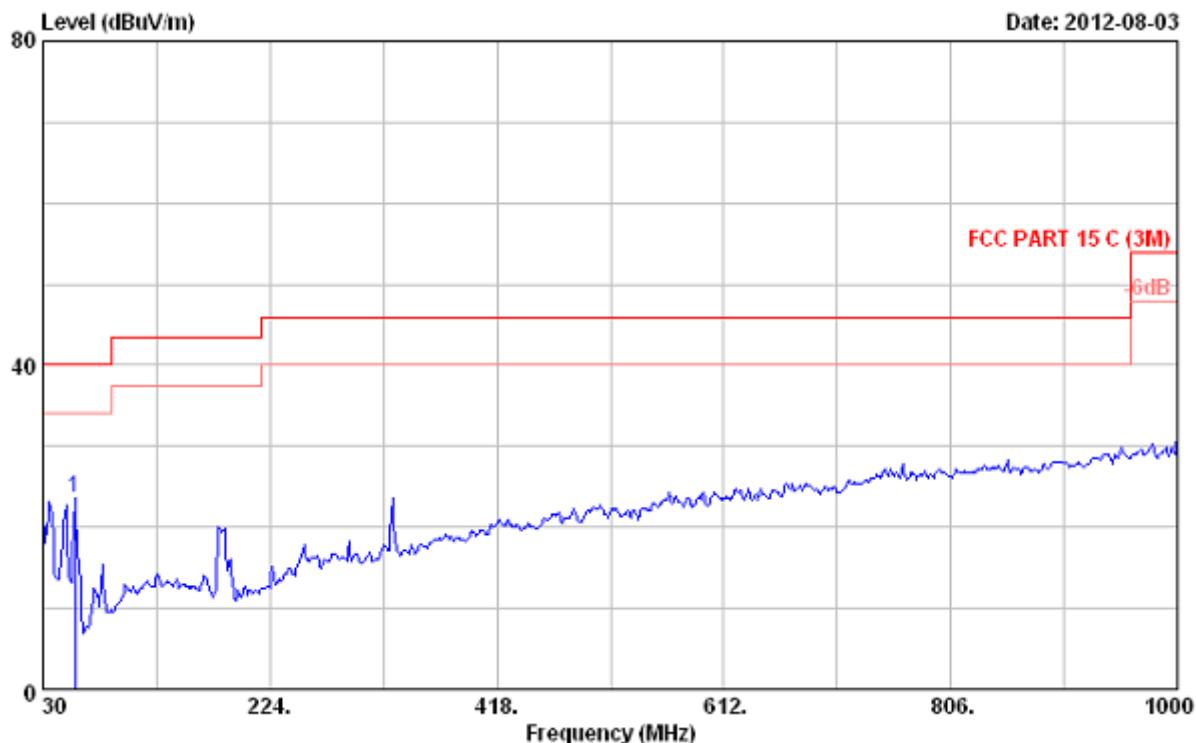
## Field strength of emissions and Restricted bands

EUT: Medsense Dispenser Monitor M/N: M5P001

Operating Condition: Tx

Ant. Polarity: Horizontal

Comment: 30-1000MHz



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Emission				Remark
				Reading (dB <sub>UV</sub> )	Level (dB <sub>UV</sub> /m)	Limits (dB <sub>UV</sub> /m)	Margin (dB)	
1	57.160	6.06	0.66	45.26	23.69	40.00	16.31	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

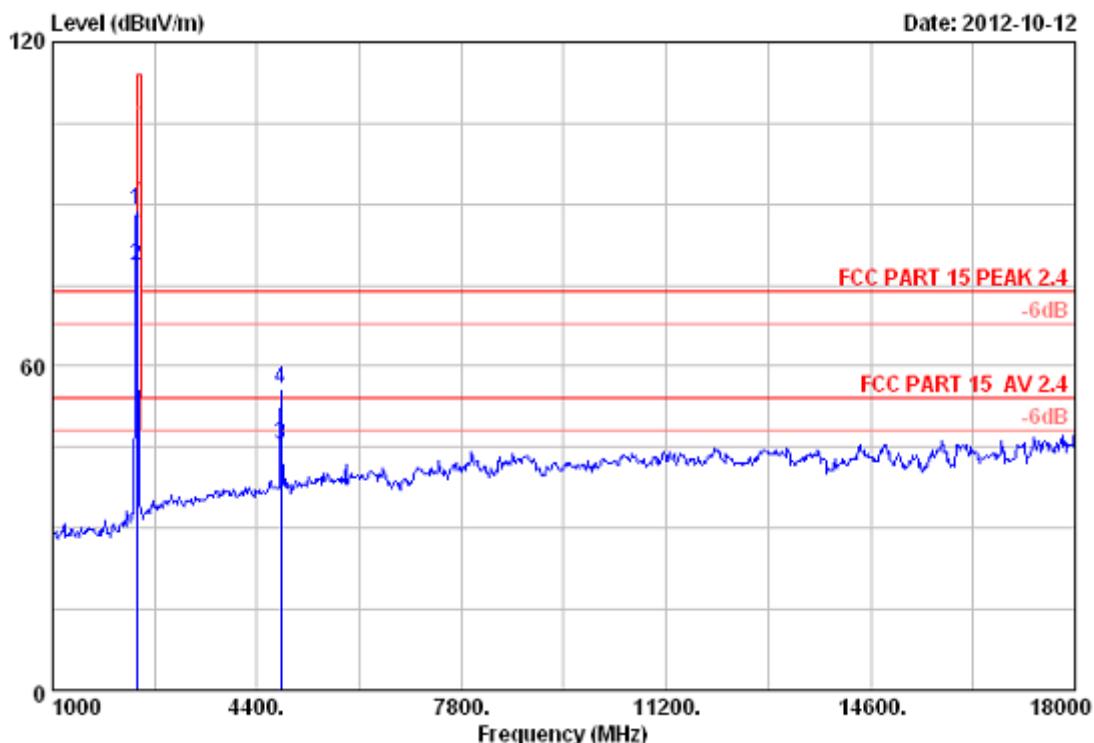
## Field strength of emissions and Restricted bands

EUT: Medsense Dispenser Monitor M/N: M5P001

Operating Condition: Tx, 2401.999MHz

Ant. Polarity: Vertical

Comment: Above 1GHz



Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission					Remark
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)		
1 2401.999	26.77	6.02	35.92	91.89	88.76	114.00	25.24	Peak	
2 2401.999	26.77	6.02	35.92	81.63	78.50	94.00	15.50	Average	
3 4803.998	32.47	8.67	35.72	40.19	45.61	54.00	8.39	Average	
4 4803.998	32.47	8.67	35.72	50.45	55.87	74.00	18.13	Peak	

## Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

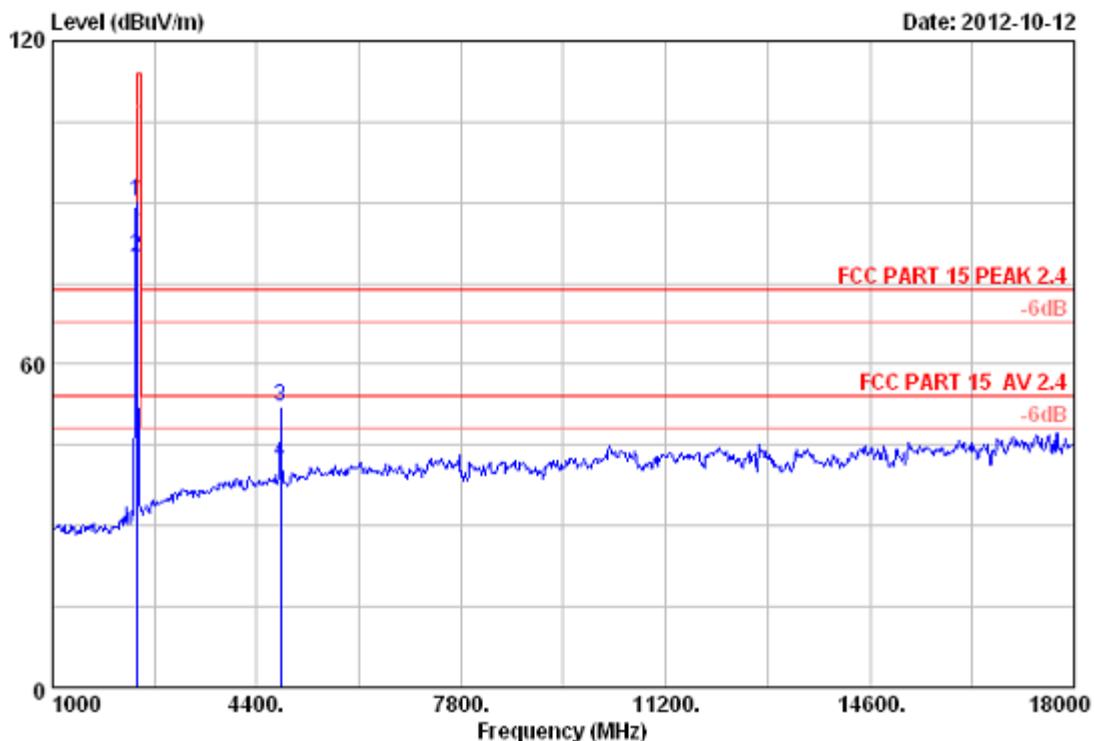
## Field strength of emissions and Restricted bands

EUT: Medsense Dispenser Monitor M/N: M5P001

Operating Condition: Tx, 2401.999MHz

Ant. Polarity: Horizontal

Comment: Above 1GHz



Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission				
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2401.999	26.77	6.02	35.92	93.30	90.17	114.00	23.83	Peak
2 2401.999	26.77	6.02	35.92	83.04	79.91	94.00	14.09	Average
3 4803.998	32.47	8.67	35.72	46.68	52.10	74.00	21.90	Peak
4 4803.998	32.47	8.67	35.72	36.42	41.84	54.00	12.16	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

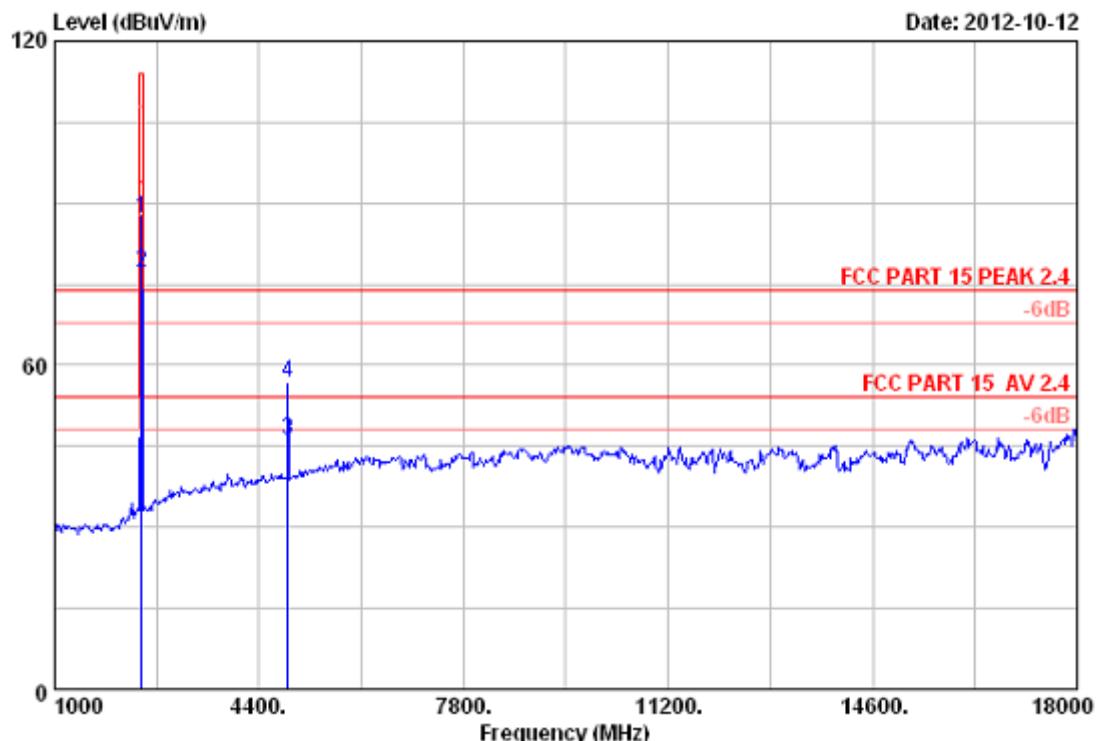
## Field strength of emissions and Restricted bands

EUT: Medsense Dispenser Monitor M/N: M5P001

Operating Condition: Tx, 2440.294MHz

Ant. Polarity: Vertical

Comment: Above 1GHz



Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission				Remark
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1 2440.294	27.02	6.09	35.92	90.14	87.33	114.00	26.67	Peak
2 2440.294	27.02	6.09	35.92	79.87	77.06	94.00	16.94	Average
3 4880.588	32.64	8.74	35.69	40.41	46.10	54.00	7.90	Average
4 4880.588	32.64	8.74	35.69	50.98	56.67	74.00	17.33	Peak

### Remarks:

1. Emission Level = Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

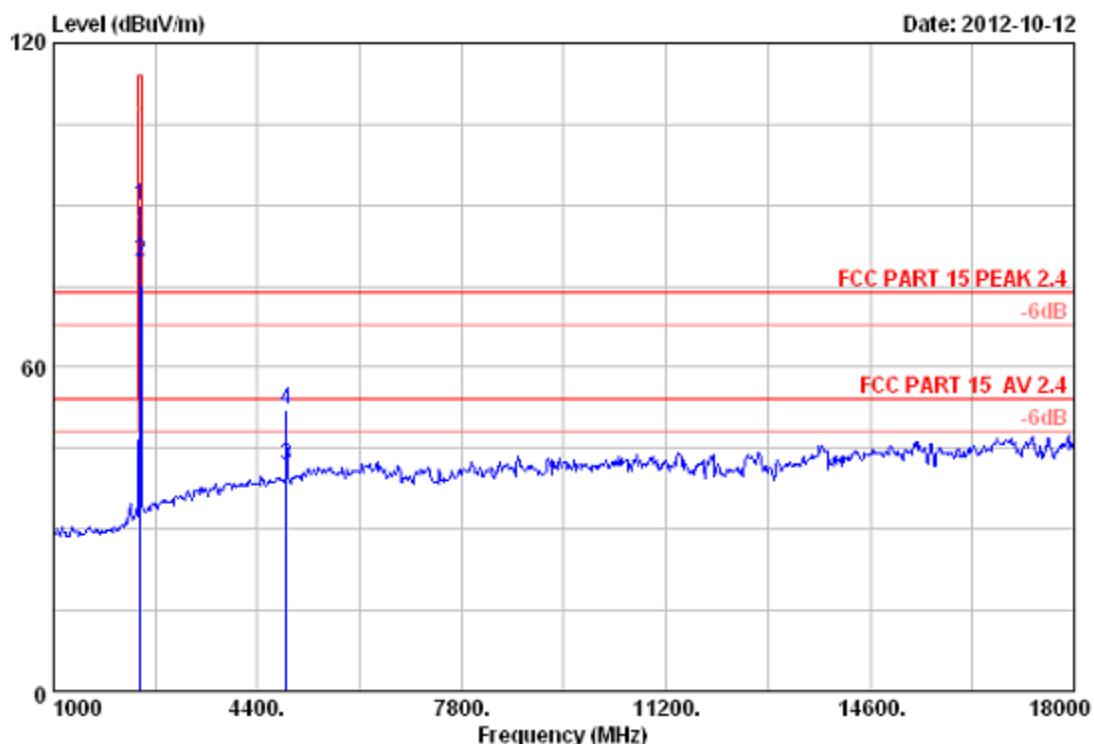
## Field strength of emissions and Restricted bands

EUT: Medsense Dispenser Monitor M/N: M5P001

Operating Condition: Tx, 2440.294MHz

Ant. Polarity: Horizontal

Comment: Above 1GHz



Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission				
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2440.294	27.02	6.09	35.92	92.65	89.84	114.00	24.16	Peak
2 2440.294	27.02	6.09	35.92	82.38	79.57	94.00	14.43	Average
3 4880.588	32.64	8.74	35.69	36.10	41.79	54.00	12.21	Average
4 4880.588	32.64	8.74	35.69	46.37	52.06	74.00	21.94	Peak

Remarks:

1. Emission Level = Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

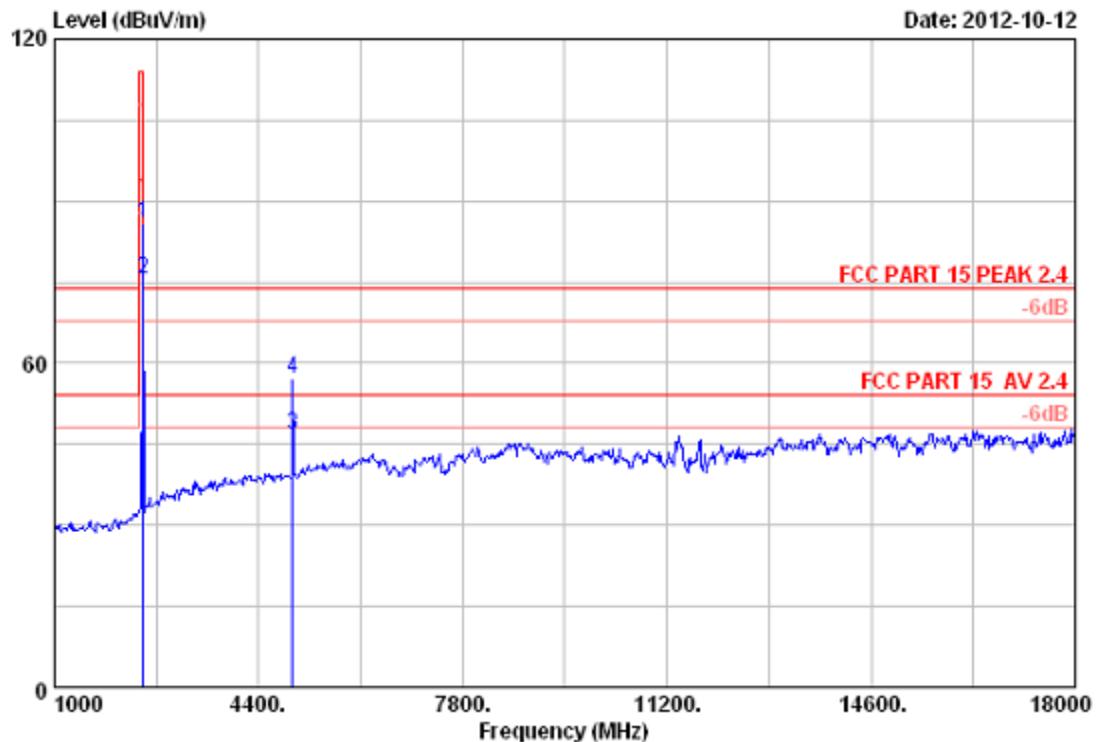
## Field strength of emissions and Restricted bands

EUT: Medsense Dispenser Monitor M/N: M5P001

Operating Condition: Tx, 2480.920MHz

Ant. Polarity: Vertical

Comment: Above 1GHz



Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission				
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2480.920	27.28	6.15	35.92	88.43	85.94	114.00	28.06	Peak
2 2480.920	27.28	6.15	35.92	78.17	75.68	94.00	18.32	Average
3 4961.840	32.82	8.81	35.66	40.90	46.87	54.00	7.13	Average
4 4961.840	32.82	8.81	35.66	51.17	57.14	74.00	16.86	Peak

## Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

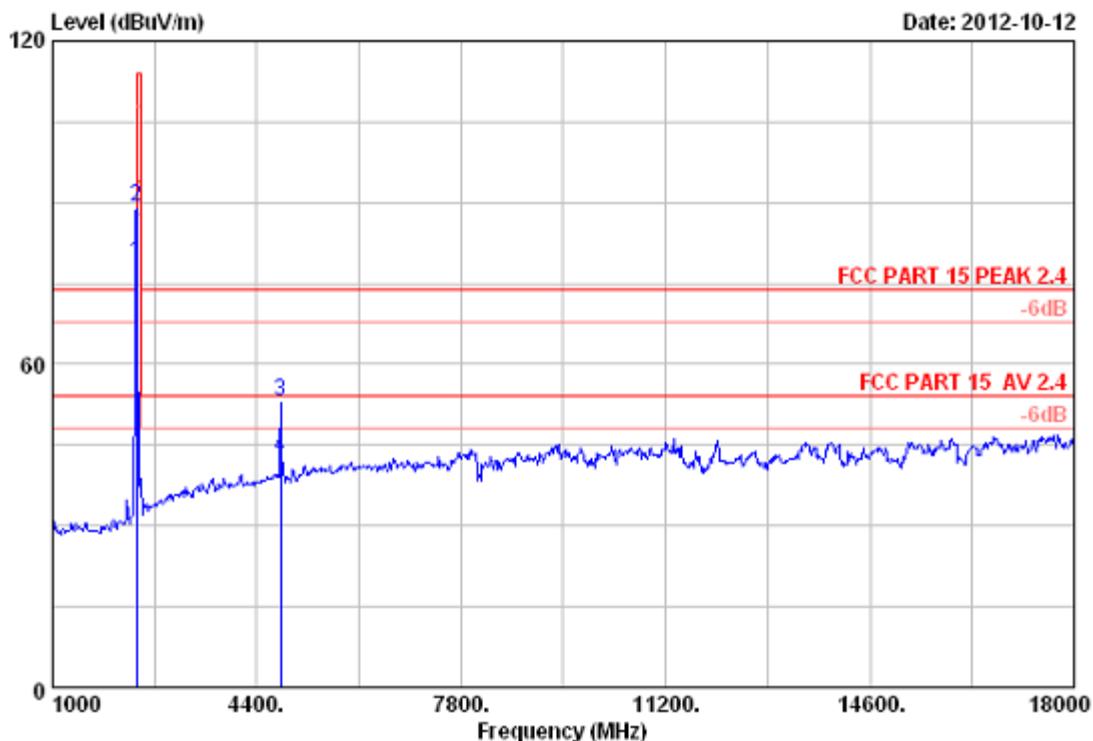
## Field strength of emissions and Restricted bands

EUT: Medsense Dispenser Monitor M/N: M5P001

Operating Condition: Tx, 2480.920MHz

Ant. Polarity: Horizontal

Comment: Above 1GHz



Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission				Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)			
1 2401.999	26.77	6.02	35.92	82.09	78.96	94.00	15.04	Average	
2 2401.999	26.77	6.02	35.92	92.35	89.22	114.00	24.78	Peak	
3 4803.998	32.47	8.67	35.72	47.59	53.01	74.00	20.99	Peak	
4 4803.998	32.47	8.67	35.72	37.33	42.75	54.00	11.25	Average	

Remarks:

1. Emission Level = Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Product Service

## Test Equipment

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum	Agilent	E4446A	US44300459	May 08, 2013
Amp	HP	8449B	3008A02495	May 08, 2013
Antenna	EMCO	3115	9607-4877	May 17, 2013
Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 2012
HF Cable	Hubersuhne	Sucoflex104	---	May 08, 2013

## 7.2 Receiver Spurious Emissions

### Test Method

- 1 The EUT is placed on a turntable, which is 0.8m above ground plane.
- 2 The turntable shall be rotated for 360 degrees to determine the position of maximum emission level
- 3 EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4 The spectrum analyzer or receiver is set as:

Below 1000MHz:

Quasi-Peak: RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000MHz:

- (1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
- (2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

- 5 Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 6 Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

### Limits

According to RSS-Gen 6.1, Spurious emissions from receivers shall not exceed the radiated limits shown in the table below:

Frequency (MHz)	Field Strength (Microvolt/m at 3 meters)
30 – 88	100
88 – 216	150
216 – 960	200
Above 960	500

## Receiver Spurious Emissions

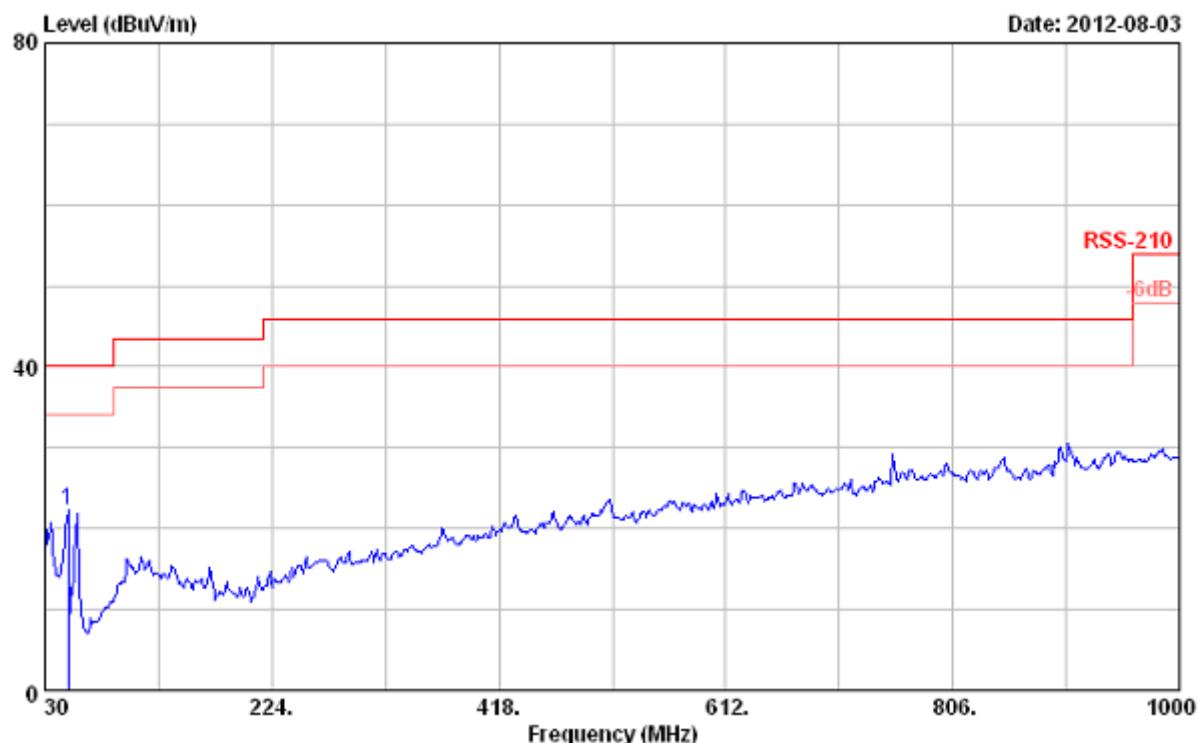
EUT: Medsense Dispenser Monitor

M/N: M5P001

Operating Condition: Rx

Ant. Polarity: Vertical

Comment: 30MHz-1000MHz



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Emission				Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)		
1	49.400	8.78	0.63	41.20	22.30	40.00	17.70	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

## Receiver Spurious Emissions

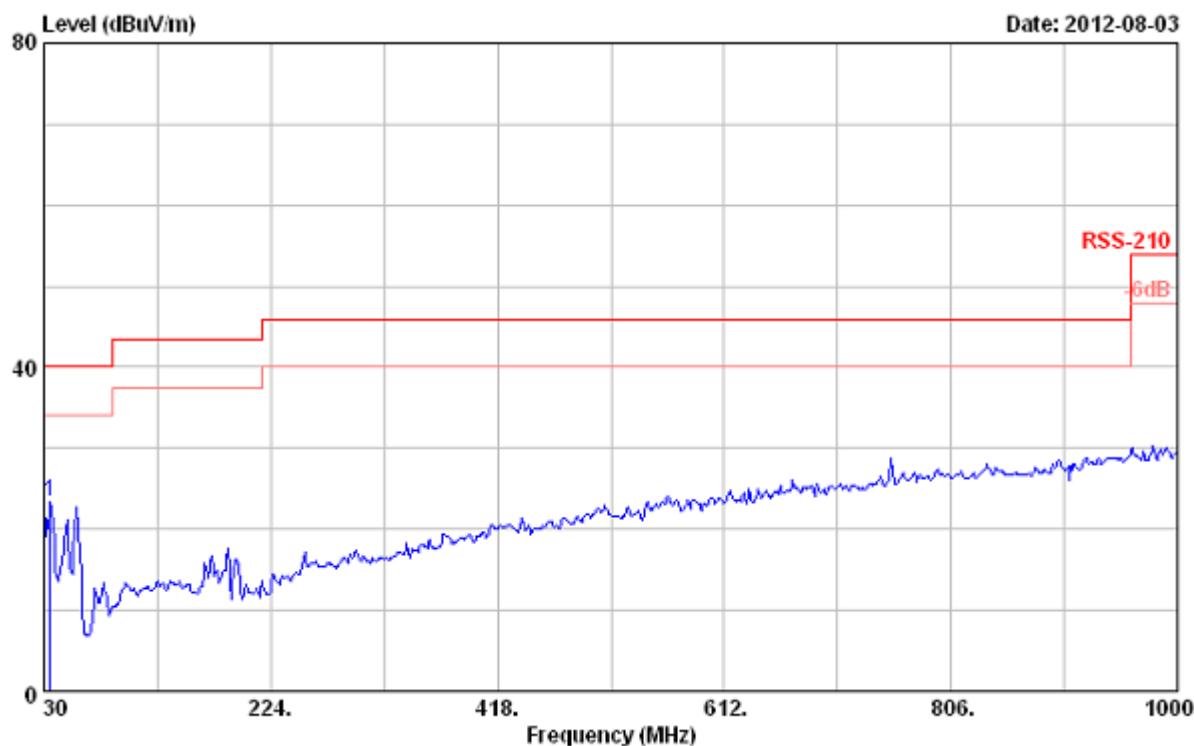
EUT: Medsense Dispenser Monitor

M/N: M5P001

Operating Condition: Rx

Ant. Polarity: Horizontal

Comment: 30MHz-1000MHz



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Emission			Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)		
1	34.850	16.01	0.51	35.30	23.47	40.00	16.53	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

## Receiver Spurious Emissions

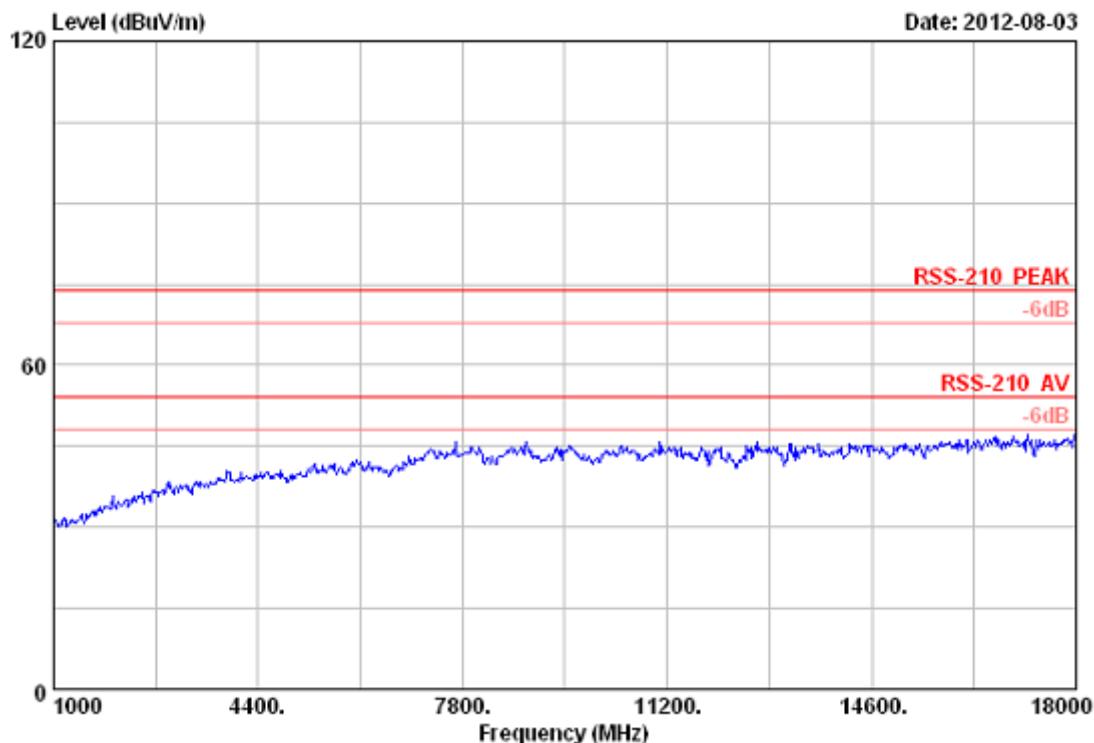
EUT: Medsense Dispenser Monitor

M/N: M5P001

Operating Condition: Rx

Ant. Polarity: Vertical

Comment: Above 1GHz



## Receiver Spurious Emissions

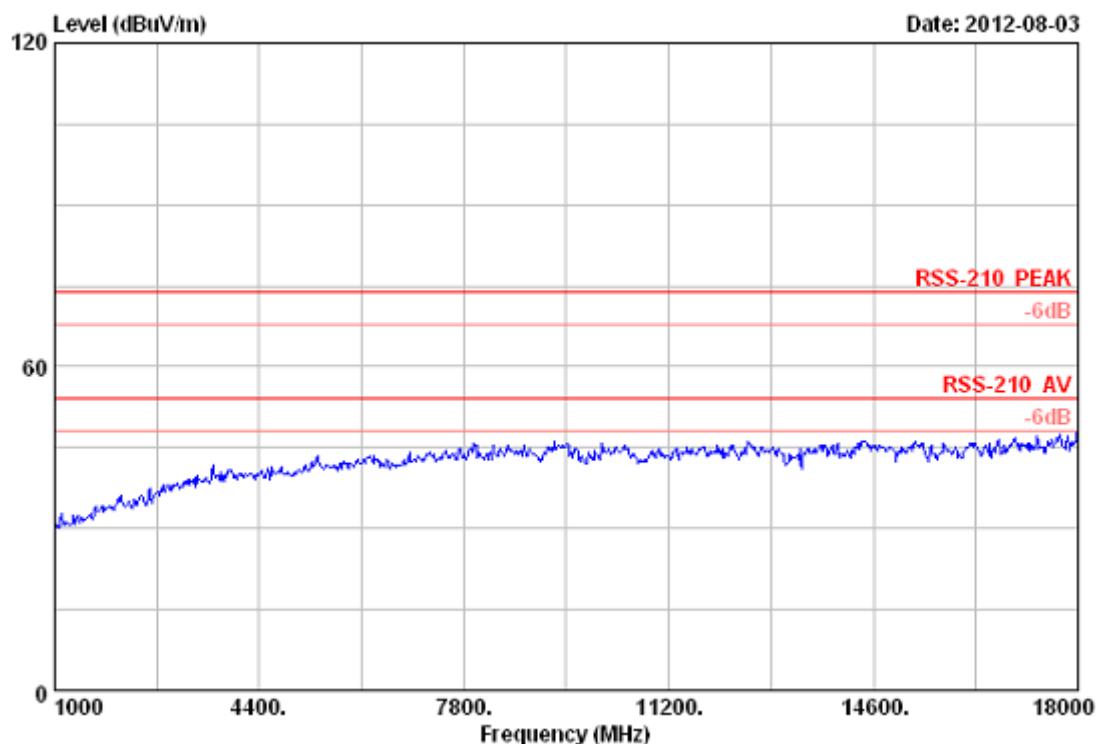
EUT: Medsense Dispenser Monitor

M/N: M5P001

Operating Condition: Rx

Ant. Polarity: Horizontal

Comment: Above 1GHz





Product Service

## Test Equipment

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum	Agilent	E4446A	US44300459	May 08, 2013
Amp	HP	8449B	3008A02495	May 08, 2013
Antenna	EMCO	3115	9607-4877	May 17, 2013
Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 2012
HF Cable	Hubersuhne	Sucoflex104	---	May 08, 2013

## 7.3 Out of Band Emissions

### Test Method

- 1 The EUT is placed on a turntable, which is 0.8m above ground plane.
- 2 The turntable shall be rotated for 360 degrees to determine the position of maximum emission level
- 3 EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4 The spectrum analyzer or receiver is set as:
  - (1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
  - (2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto
- 5 Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 6 Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

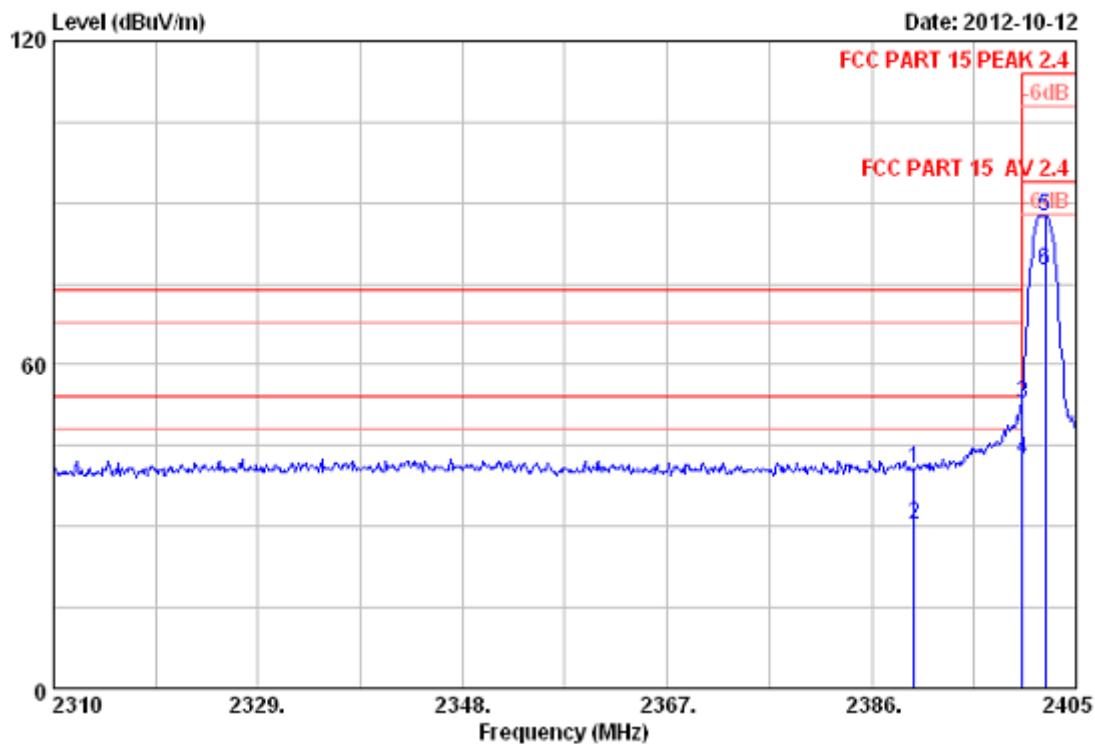
### Limits

According to §15.249(d) & RSS-210 A2.9(b) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209 and RSS-Gen, whichever is the lesser attenuation.

## Out of Band Emissions

EUT: Medsense Dispenser Monitor  
 Operating Condition: Tx, lower edge  
 Ant. Polarity: Vertical

M/N: M5P001



Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission					Remark
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)		
1 2390.000	26.70	6.00	35.92	43.97	40.75	74.00	33.25	Peak	
2 2390.000	26.70	6.00	35.92	33.71	30.49	74.00	43.51	Average	
3 2400.000	26.76	6.02	35.92	55.96	52.82	74.00	21.18	Peak	
4 2400.000	26.76	6.02	35.92	45.70	42.56	74.00	31.44	Average	
5 2402.150	26.77	6.02	35.92	90.86	87.73	114.00	26.27	Peak	
6 2402.150	26.77	6.02	35.92	80.60	77.47	114.00	36.53	Average	

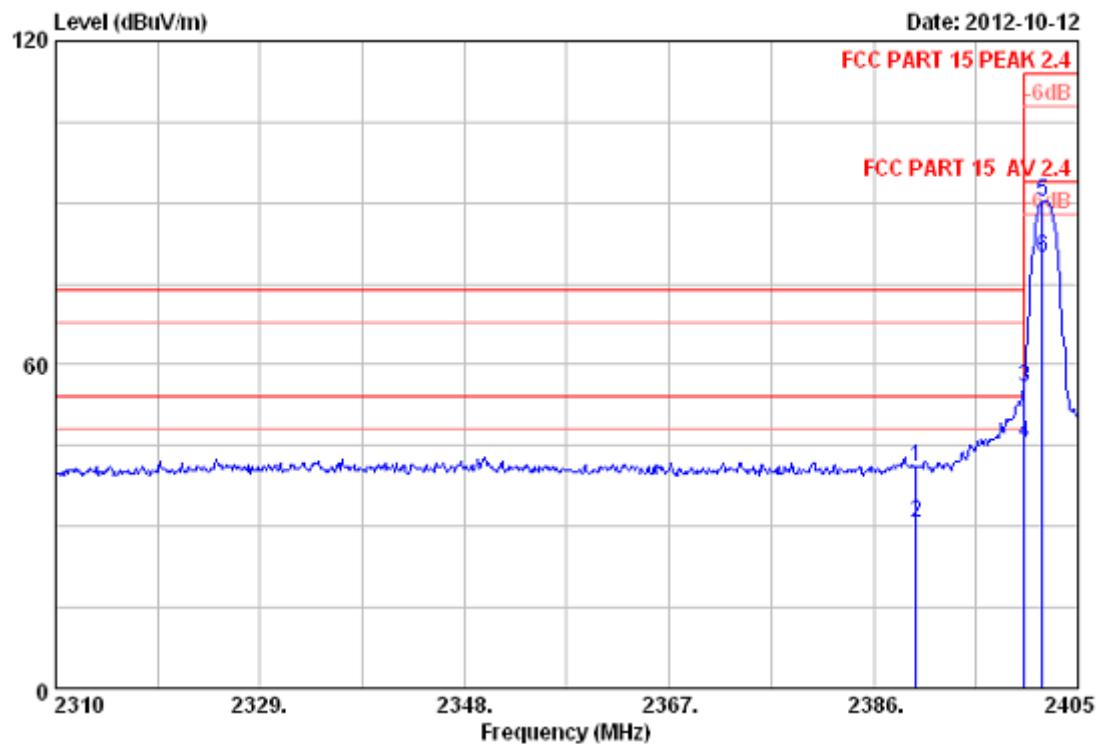
## Remarks:

1. Emission Level = Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## Out of Band Emissions

EUT: Medsense Dispenser Monitor  
 Operating Condition: Tx, lower edge  
 Ant. Polarity: Horizontal

M/N: M5P001



Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission				Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)			
1 2390.000	26.70	6.00	35.92	44.37	41.15	74.00	32.85	Peak	
2 2390.000	26.70	6.00	35.92	34.11	30.89	54.00	23.11	Average	
3 2400.000	26.76	6.02	35.92	58.86	55.72	74.00	18.28	Peak	
4 2400.000	26.76	6.02	35.92	48.60	45.46	54.00	8.54	Average	
5 2401.675	26.77	6.02	35.92	93.24	90.11	114.00	23.89	Peak	
6 2401.675	26.77	6.02	35.92	82.98	79.85	94.00	14.15	Average	

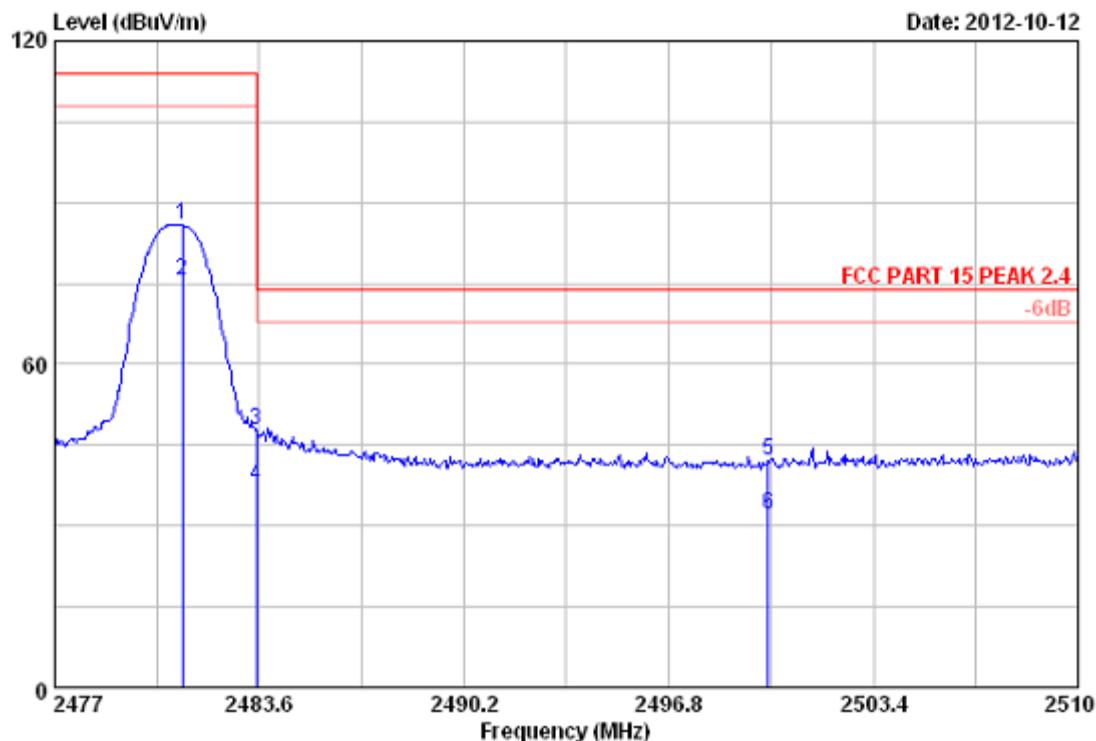
## Remarks:

1. Emission Level = Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## Out of Band Emissions

EUT: Medsense Dispenser Monitor  
 Operating Condition: Tx, upper edge  
 Ant. Polarity: Vertical

M/N: M5P001



Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission				
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2481.125	27.28	6.16	35.92	88.28	85.80	114.00	28.20	Peak
2 2481.125	27.28	6.16	35.92	78.01	75.53	114.00	38.47	Average
3 2483.500	27.29	6.16	35.92	50.13	47.66	74.00	26.34	Peak
4 2483.500	27.29	6.16	35.92	39.87	37.40	74.00	36.60	Average
5 2500.000	27.40	6.19	35.93	44.61	42.27	74.00	31.73	Peak
6 2500.000	27.40	6.19	35.93	34.35	32.01	74.00	41.99	Average

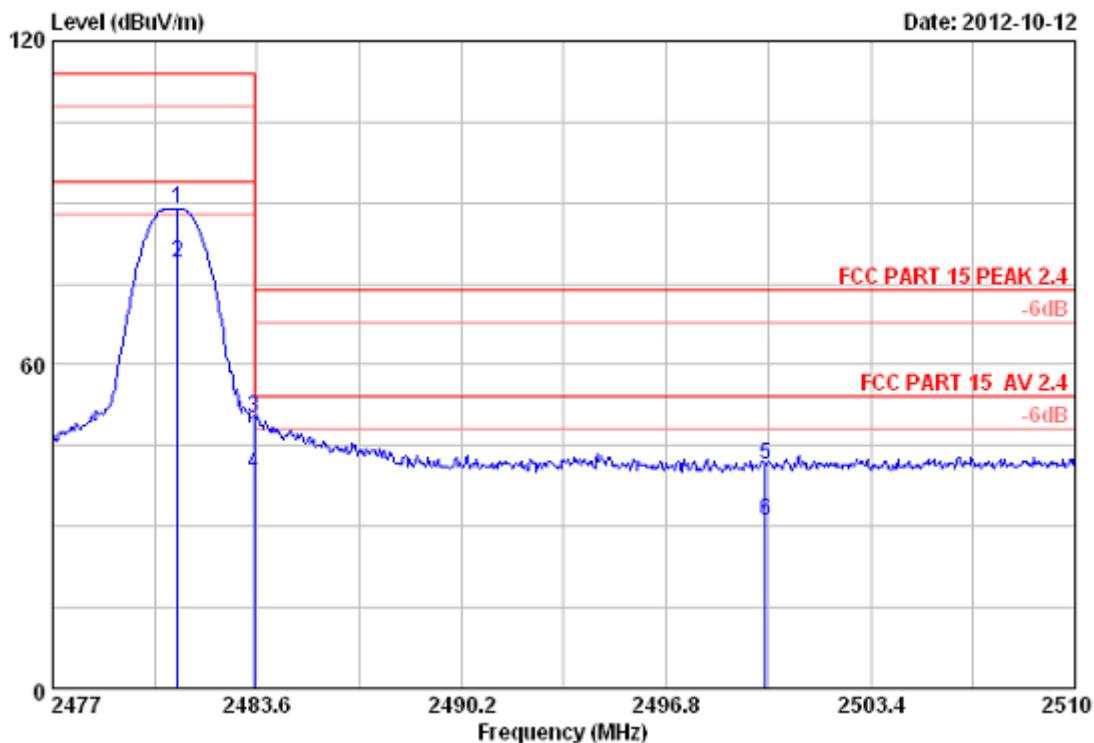
## Remarks:

1. Emission Level = Antenna Factor + Cable Loss + Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## Out of Band Emissions

EUT: Medsense Dispenser Monitor  
 Operating Condition: Tx, upper edge  
 Ant. Polarity: Horizontal

M/N: M5P001



Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission				
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2481.026	27.28	6.16	35.92	91.56	89.08	114.00	24.92	Peak
2 2481.026	27.28	6.16	35.92	81.29	78.81	94.00	15.19	Average
3 2483.500	27.29	6.16	35.92	52.66	50.19	74.00	23.81	Peak
4 2483.500	27.29	6.16	35.92	42.40	39.93	54.00	14.07	Average
5 2500.000	27.40	6.19	35.93	43.63	41.29	74.00	32.71	Peak
6 2500.000	27.40	6.19	35.93	33.37	31.03	54.00	22.97	Average

Remarks:

1. Emission Level = Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Product Service

## Test Equipment

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum	Agilent	E4446A	US44300459	May 08, 2013
Amp	HP	8449B	3008A02495	May 08, 2013
Antenna	EMCO	3115	9607-4877	May 17, 2013
Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 2012
HF Cable	Hubersuhne	Sucoflex104	---	May 08, 2013

## 7.4 20dB Bandwidth & 99% Occupied Bandwidth

### Test Method

- 1 Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2 Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- 3 Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.

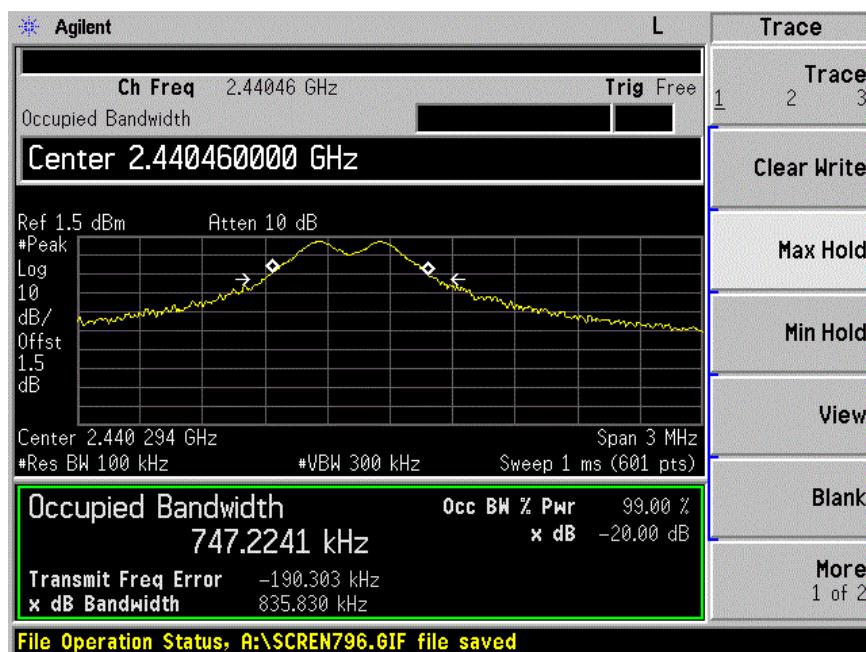
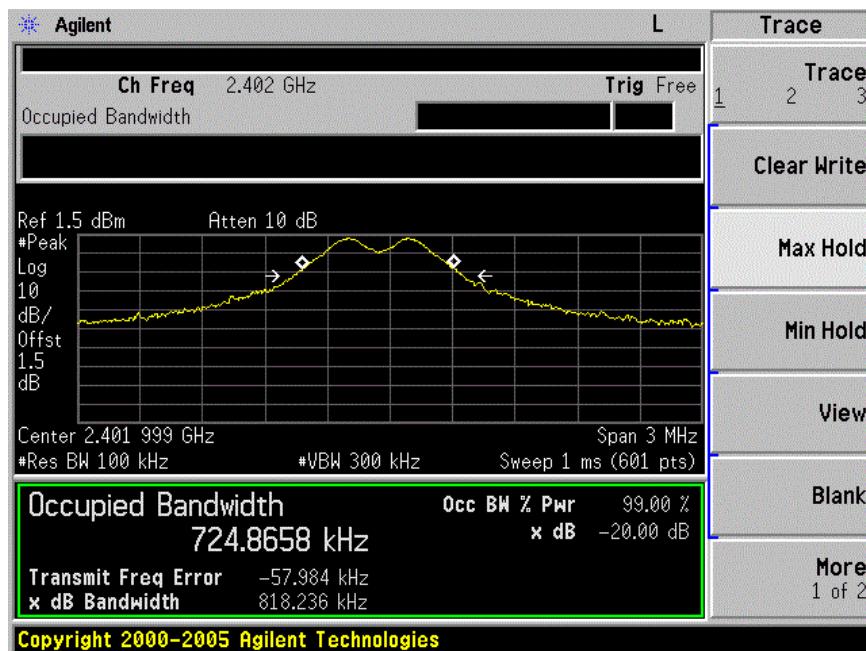
### Limits:

According to 15.215 (c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

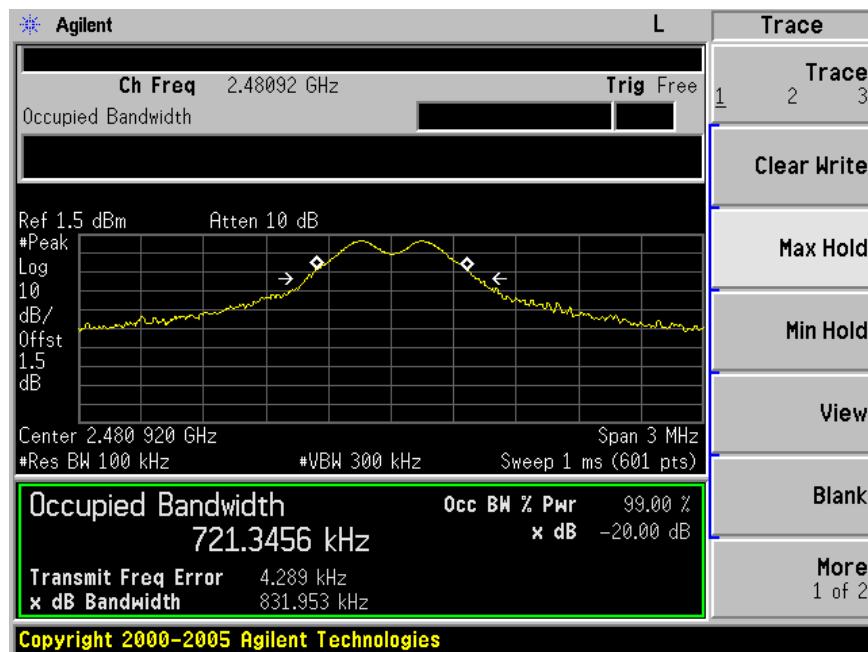
According to RSS-Gen 4.6.1 When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

## 20dB Bandwidth & 99% Occupied Bandwidth

Frequency MHz	20dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz	Result
2401.999	818.236	724.8658	--	Pass
2440.294	835.830	747.2241	--	Pass
2480.920	831.953	721.3456	--	Pass



## 20dB Bandwidth & 99% Occupied Bandwidth





Product Service

## Test Equipment

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum	Agilent	E4446A	US44300459	May 08, 2013
HF Cable	Hubersuhne	Sucoflex104	---	May 08, 2013

## 8 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

**System Measurement Uncertainty**

<b>Items</b>		<b>Extended Uncertainty</b>
RE	Field strength (dB $\mu$ V/m)	U=4.2dB (30MHz-1GHz) U=3.57dB (1GHz-25GHz)