

# FCC Test Report

Product Name	Cardiac Monitor
Model No.	HR2000-HR2B9M
FCC ID	2ADB6-HR2B9M

Applicant	BioSenseTek Corp.
Address	6541 S.W. 127th Path Miami Florida United States

Date of Receipt	Oct. 20, 2014
Issued Date	Nov. 11, 2014
Report No.	14A0413R-RFUSP15V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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# Test Report

## QuieTek

Issued Date: Nov. 11, 2014

Report No.: 14A0413R-RFUSP15V00

Product Name	Cardiac Monitor
Applicant	BioSenseTek Corp.
Address	6541 S.W. 127th Path Miami Florida United States
Manufacturer	BioSenseTek Corp.
Model No.	HR2000-HR2B9M
EUT Rated Voltage	AC 100-240V~50-60Hz, 0.3A
EUT Test Voltage	AC 120V/60Hz
Trade Name	
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2013 ANSI C63.10: 2009
Test Result	Complied

Documented By

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Approved By

: Vincent Lin  
( Director / Vincent Lin )

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	Cardiac Monitor
Trade Name	
Model No.	HR2000-HR2B9M
FCC ID	2ADB6-HR2B9M
Frequency Range	922.3MHz~927.7MHz
Channel Control	Auto
Channel Separation	0.45MHz
Antenna Type	Dipole Antenna
Channel Number	13ch
Type of Modulation	GFSK
Power Adapter (Optional)	MFR: DVE, M/N: DSA-0101F-05A Input: AC 100-240V~ 50-60Hz, 0.3A Output: DC 5V, 2A Cable Out: Non-shielded, 1.8m

#### Antenna List

No.	Manufacturer	Part No.	Antenna Type	Antenna Gain
1	AIR WAVE	EA-231L	Dipole Antenna	-4.59dBi for 900MHz
2	AIR WAVE	EA-179E	Dipole Antenna	1.92dBi for 900MHz

Note: 1.The antenna of EUT is conform to FCC 15.203

2. Only the higher gain antenna was tested and recorded in this report.

Center Frequency of Each Channel

Channel	Frequency	Channel	Frequency	Channel	Frequency
01:	922.30	02:	922.75	03:	923.20
04:	923.65	05:	924.10	06:	924.55
07:	925.00	08:	925.45	09:	925.90
10:	926.35	11:	926.80	12:	927.25
13:	927.70				

Note:

1. The EUT is a Cardiac Monitor is including 922.3-927.7MHz transceiver.
2. Regarding to the operation frequency, the lowest and highest frequency are selected to perform the test.
3. At result of pretests, EUT include two antennas, only the worst case is shown in the report. (AIR WAVE, EA-179E)
4. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249 for spread spectrum devices.

Test Mode	Mode 1: Transmit
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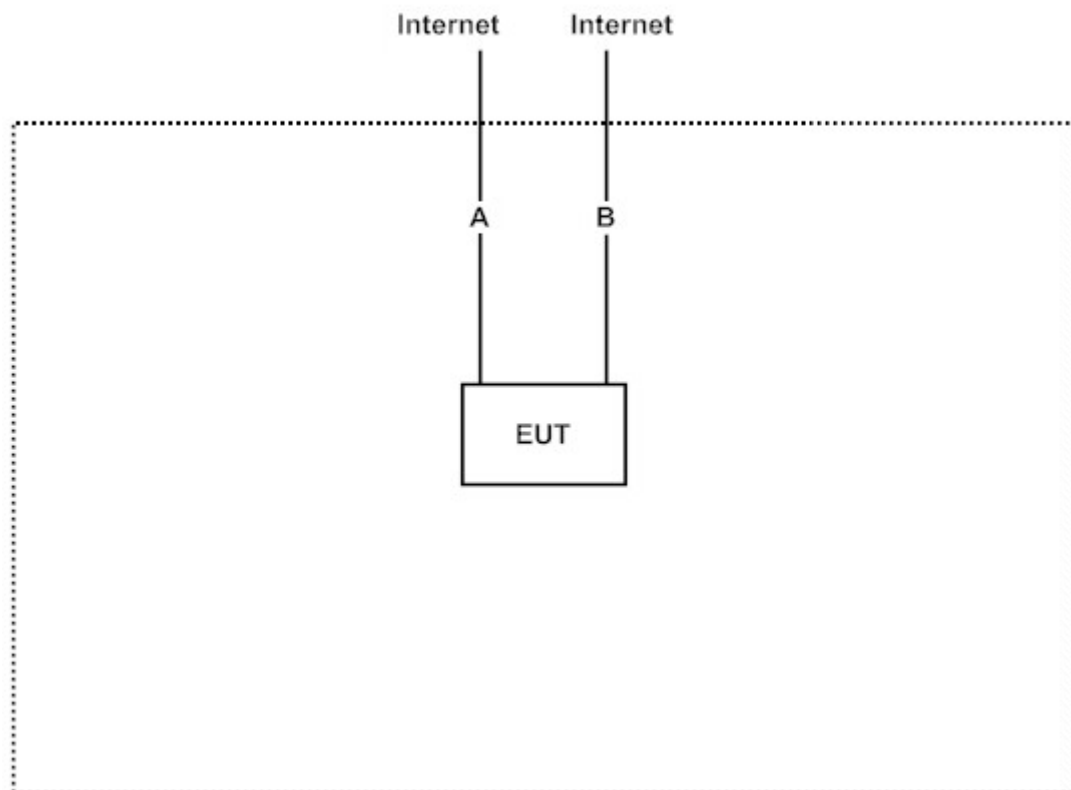
### 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
N/A				

Signal Cable Type		Signal cable Description
A	LAN Cable	Shielded, 2.2m
B	LAN Cable	Shielded, 2.2m

### 1.4. Configuration of Test System



### 1.5. EUT Exercise Software

- (1) Setup the EUT as shown in section 1.4
- (2) Inserts the AC adapter, start continuous transmit
- (3) Verify that the EUT works correctly.

## 1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site: <http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site: <http://www.quietek.com/>

Site Description: File on  
Federal Communications Commission  
FCC Engineering Laboratory  
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Columbia, MD 21046  
Registration Number: 92195

Site Name: Quietek Corporation  
Site Address: No.5-22, Ruishukeng Linkou Dist., New Taipei City  
24451, Taiwan, R.O.C.

TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789  
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FCC Accreditation Number: TW1014

## 2. Conducted Emission

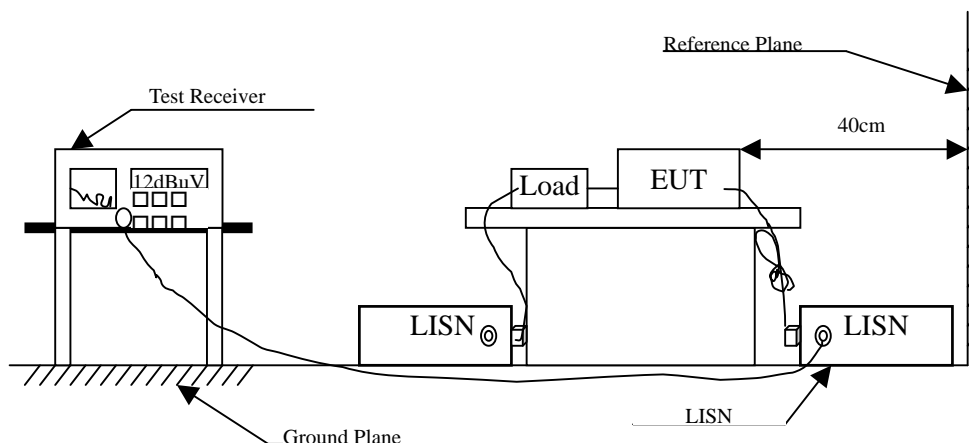
### 2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2014	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2014	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2014	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2014	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2014	
	No.1 Shielded Room				

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked by “X” are used to measure the final test results.

### 2.2. Test Setup





### 2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

### 2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2009 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

### 2.5. Uncertainty

$\pm 2.26$  dB

## 2.6. Test Result of Conducted Emission

Product : Cardiac Monitor  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 1: Transmit (922.3 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
<b>LINE 1</b>					
<b>Quasi-Peak</b>					
0.197	9.650	38.050	47.700	-16.957	64.657
0.291	9.655	25.430	35.085	-26.886	61.971
0.416	9.662	20.210	29.872	-28.528	58.400
0.486	9.666	25.210	34.876	-21.524	56.400
0.658	9.675	33.260	42.935	-13.065	56.000
1.341	9.723	26.820	36.543	-19.457	56.000
<b>Average</b>					
0.197	9.650	28.730	38.380	-16.277	54.657
0.291	9.655	13.050	22.705	-29.266	51.971
0.416	9.662	10.010	19.672	-28.728	48.400
0.486	9.666	15.450	25.116	-21.284	46.400
0.658	9.675	26.200	35.875	-10.125	46.000
1.341	9.723	16.090	25.813	-20.187	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Cardiac Monitor  
Test Item : Conducted Emission Test  
Power Line : Line 2  
Test Mode : Mode 1: Transmit (922.3 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
<b>LINE 2</b>					
<b>Quasi-Peak</b>					
0.205	9.661	34.960	44.621	-19.808	64.429
0.283	9.664	24.510	34.174	-28.026	62.200
0.380	9.660	22.540	32.200	-27.229	59.429
0.502	9.667	26.390	36.057	-19.943	56.000
0.650	9.675	34.010	43.685	-12.315	56.000
1.384	9.725	27.120	36.845	-19.155	56.000
<b>Average</b>					
0.205	9.661	26.980	36.641	-17.788	54.429
0.283	9.664	15.600	25.264	-26.936	52.200
0.380	9.660	13.430	23.090	-26.339	49.429
0.502	9.667	17.660	27.327	-18.673	46.000
0.650	9.675	24.770	34.445	-11.555	46.000
1.384	9.725	14.500	24.225	-21.775	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3. Radiated Emission

#### 3.1. Test Equipment

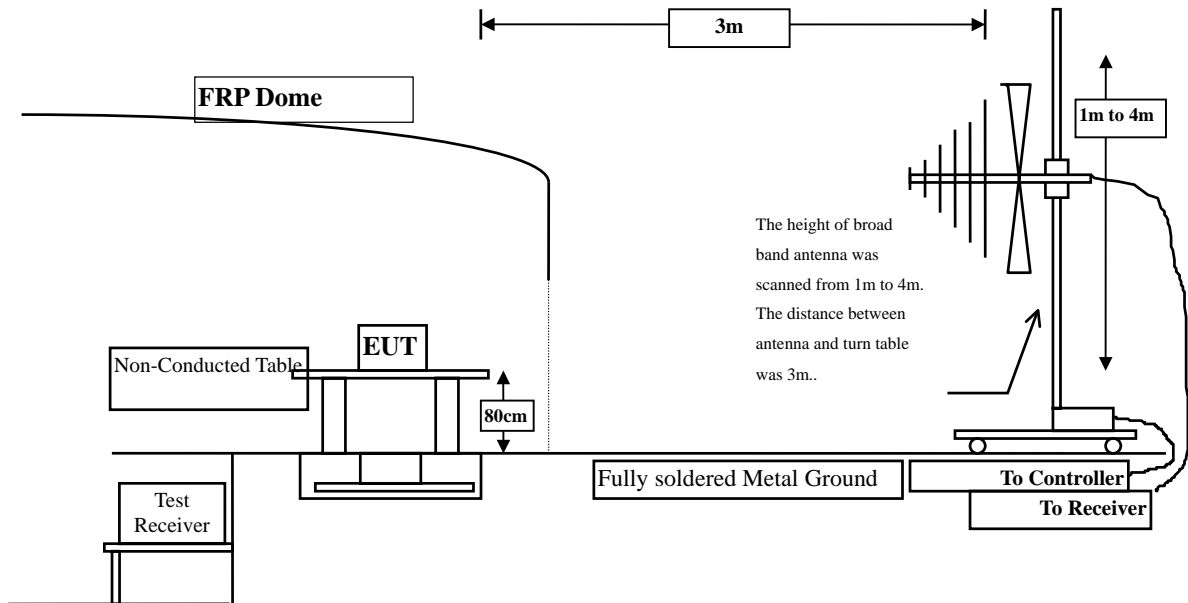
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
<input checked="" type="checkbox"/> Site # 3	X	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2014
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2014
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2014
	X	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2014
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

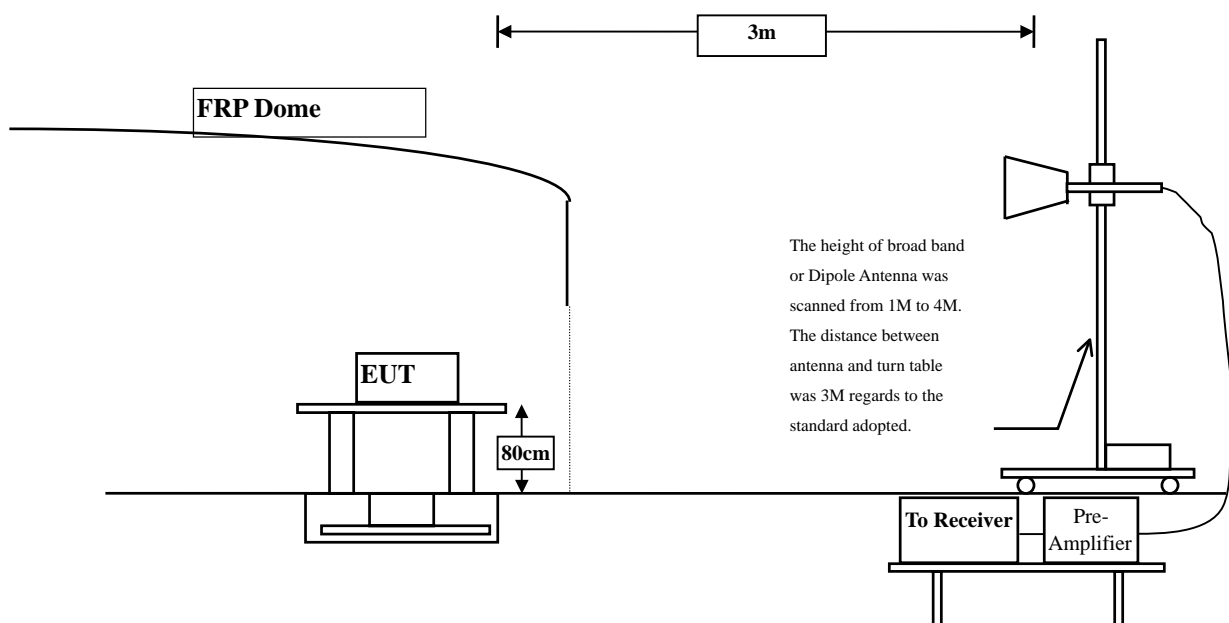
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
  2. The test instruments marked with "X" are used to measure the final test results.

### 3.2. Test Setup

#### Radiated Emission Below 1GHz



#### Radiated Emission Above 1GHz



### 3.3. Limits

#### ➤ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart C Paragraph 15.249 Limits				
Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m @3m)	(dBuV/m @3m)	(uV/m @3m)	(dBuV/m @3m)
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54

Remarks : 1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)  
 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

#### ➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

### **3.4. Test Procedure**

The EUT was setup according to ANSI C63.10, 2009 and tested compliance to FCC 47CFR 15.249 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2009 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

### **3.5. Uncertainty**

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

### 3.6. Test Result of Radiated Emission

Product : Cardiac Monitor  
 Test Item : Fundamental Radiated Emission  
 Test Site : No.3OATS  
 Test Mode : Mode 1: Transmit (Antenna: AIR WAVE, EA-179E)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Average Detector:</b>					
922.300	6.342	74.724	81.065	-12.935	94.000
927.700	6.785	74.476	81.261	-12.739	94.000
<b>Vertical</b>					
<b>Average Detector:</b>					
922.300	5.534	72.629	78.162	-15.838	94.000
927.700	6.100	72.162	78.263	-15.737	94.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.
3. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.



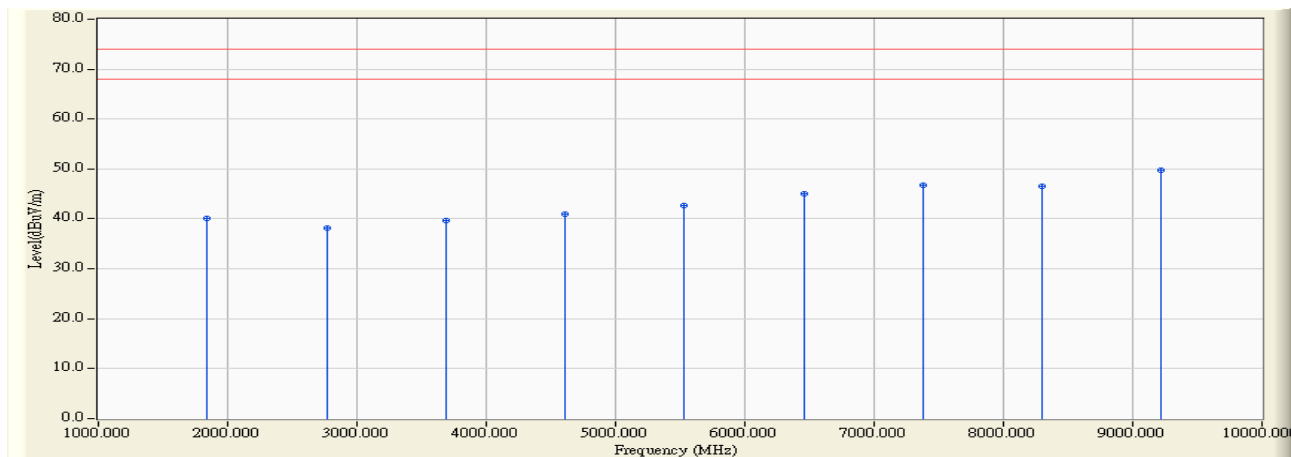
Product : Cardiac Monitor  
Test Item : Fundamental Radiated Emission  
Test Site : No.3OATS  
Test Mode : Mode 1: Transmit (Antenna: AIR WAVE, EA-231L)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Average Detector:</b>					
922.300	6.342	70.813	77.154	-16.846	94.000
927.700	6.785	71.338	78.123	-15.877	94.000
<b>Vertical</b>					
<b>Average Detector:</b>					
922.300	5.534	69.703	75.236	-18.764	94.000
927.700	6.100	72.024	78.125	-15.875	94.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.
3. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.

Product : Cardiac Monitor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (922.3MHz)



Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
1844.600	-4.237	50.468	46.230	-27.770	74.000
2766.900	-0.799	46.035	45.236	-28.764	74.000
3689.200	-0.955	48.319	47.364	-26.636	74.000
4611.200	2.079	43.158	45.236	-28.764	74.000
5533.800	4.617	43.647	48.264	-25.736	74.000
6456.100	7.386	39.828	47.213	-26.787	74.000
7378.400	12.048	34.183	46.231	-27.769	74.000
8300.700	15.290	31.740	47.031	-26.969	74.000
9223.000	13.048	34.983	48.031	-25.969	74.000

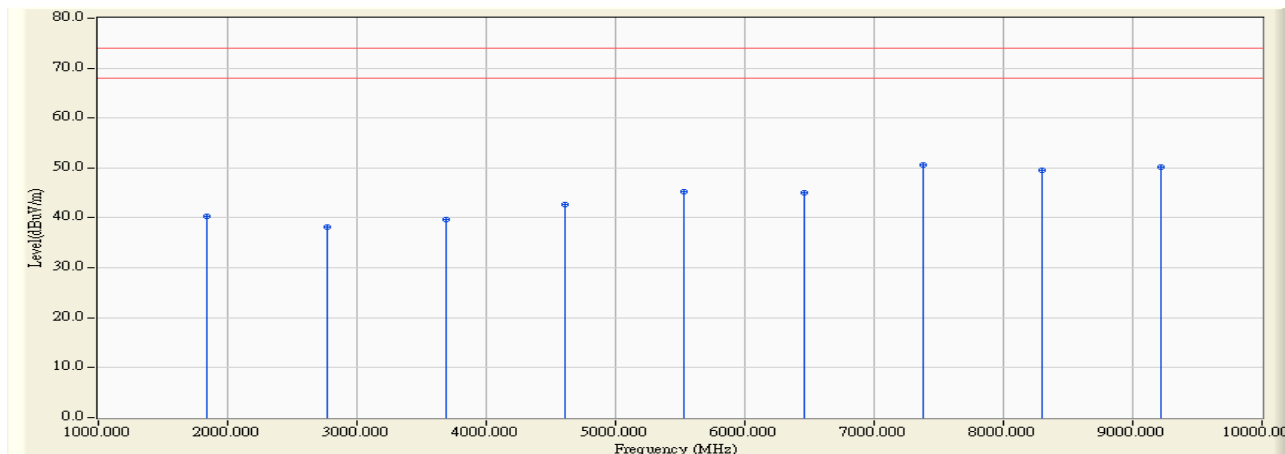
**Average Detector:**

--

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Cardiac Monitor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (922.3MHz)



Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
1884.600	-3.374	50.494	47.121	-26.879	74.000
2766.900	-0.980	45.216	44.236	-29.764	74.000
3689.200	0.175	46.146	46.321	-27.679	74.000
4611.500	5.923	38.313	44.236	-29.764	74.000
5533.800	6.107	39.124	45.231	-28.769	74.000
6456.800	8.642	39.594	48.236	-25.764	74.000
7378.400	13.145	33.886	47.031	-26.969	74.000
8300.700	15.355	32.675	48.031	-25.969	74.000
9223.000	12.944	34.057	47.001	-26.999	74.000

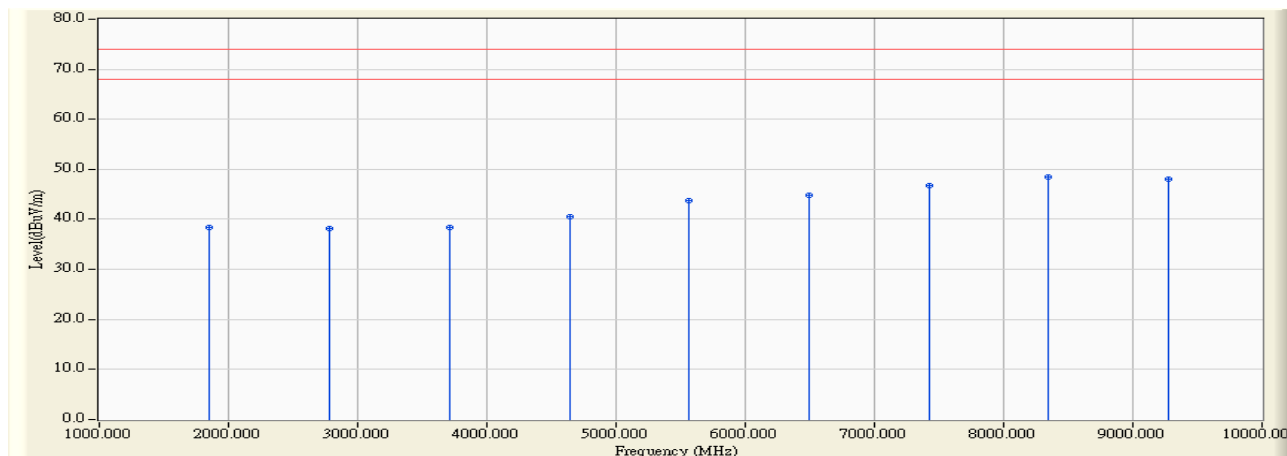
**Average Detector:**

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**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Cardiac Monitor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (927.7MHz)



Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level	dB	dBuV/m
	dB	dBuV	dBuV/m		
<b>Horizontal</b>					
<b>Peak Detector:</b>					
1855.400	-4.178	51.332	47.154	-26.846	74.000
2783.100	-0.692	46.955	46.263	-27.737	74.000
3710.800	-0.949	47.162	46.214	-27.786	74.000
4638.500	2.180	43.053	45.234	-28.766	74.000
5566.200	4.358	40.855	45.214	-28.786	74.000
6493.900	7.744	38.487	46.231	-27.769	74.000
7421.600	12.312	33.924	46.236	-27.764	74.000
8349.300	15.151	30.084	45.236	-28.764	74.000
9277.000	12.613	32.645	45.258	-28.742	74.000

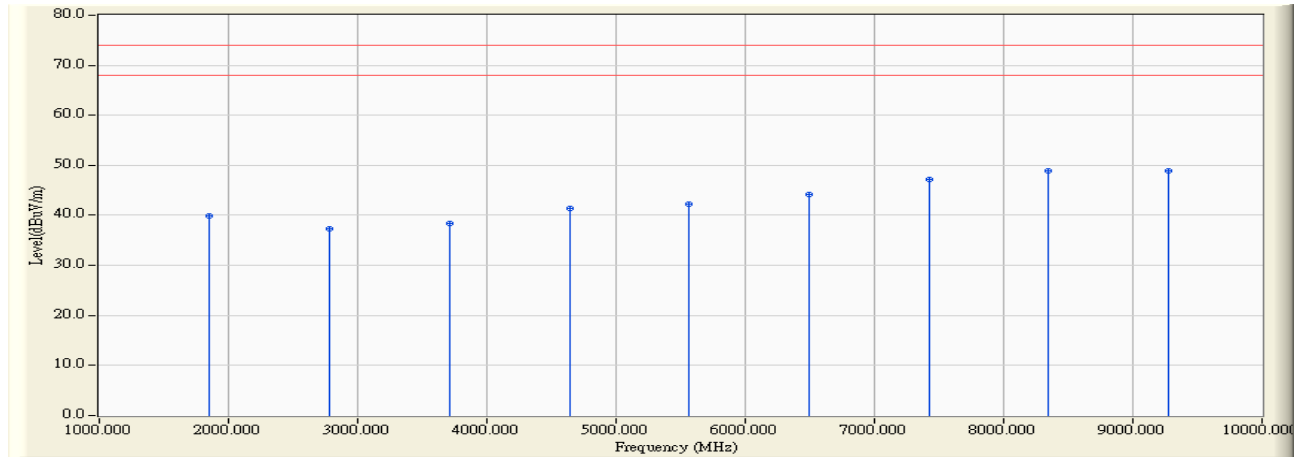
**Average Detector:**

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**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Cardiac Monitor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (927.7MHz)



Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
1855.400	-3.047	49.310	46.263	-27.737	74.000
2783.100	-0.884	46.466	45.582	-28.418	74.000
3710.800	0.239	44.021	44.261	-29.739	74.000
4638.500	6.045	40.274	46.320	-27.680	74.000
5566.200	5.904	40.417	46.321	-27.679	74.000
6493.900	8.869	38.367	47.236	-26.764	74.000
7421.600	13.319	33.050	46.369	-27.631	74.000
8349.300	15.108	28.917	44.025	-29.975	74.000
9277.000	12.782	34.817	47.599	-26.401	74.000

**Average Detector:**

--

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Cardiac Monitor  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (922.3MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
<b>Horizontal</b>					
125.000	-9.944	40.075	30.131	-13.369	43.500
250.000	-5.922	40.510	34.588	-11.412	46.000
500.000	0.076	37.104	37.181	-8.819	46.000
600.000	3.980	29.846	33.826	-12.174	46.000
675.000	2.904	30.365	33.269	-12.731	46.000
974.450	6.677	28.454	35.131	-18.869	54.000
<b>Vertical</b>					
57.740	-4.309	40.848	36.539	-3.461	40.000
125.000	-4.042	40.073	36.031	-7.469	43.500
250.000	-7.517	41.706	34.188	-11.812	46.000
500.000	-0.813	32.994	32.181	-13.819	46.000
675.000	-0.225	34.524	34.298	-11.702	46.000
974.450	2.719	34.434	37.153	-16.847	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

## 4. Band Edge

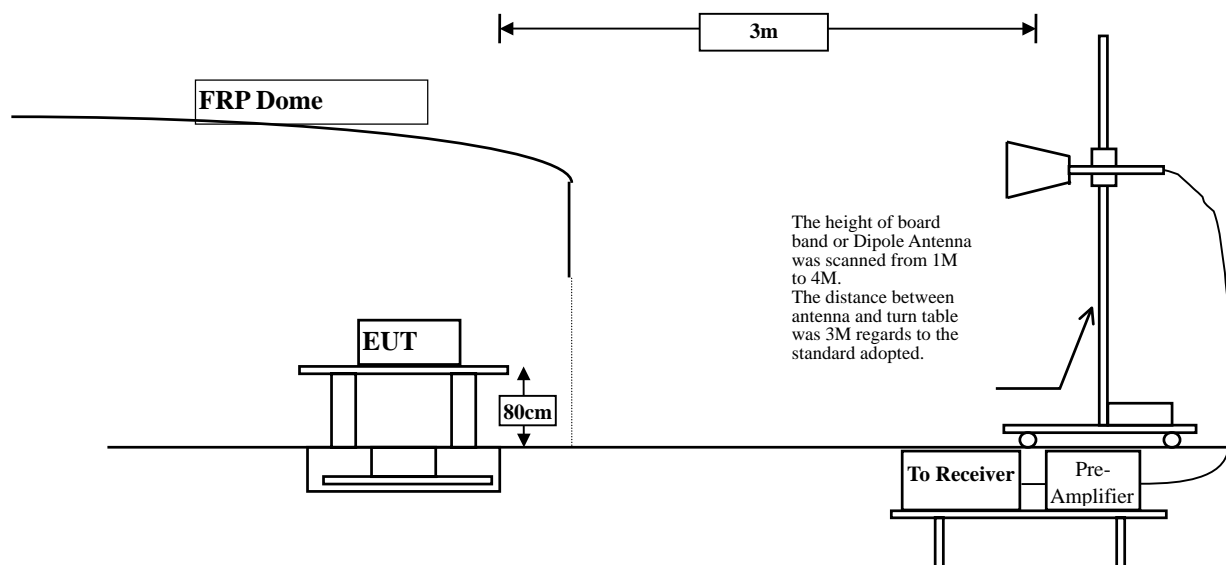
### 4.1. Test Equipment

The following test equipments are used during the band edge tests:

Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
		Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2014
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2014
		Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2014
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

- Note:
1. All equipments are calibrated every one year.
  2. The test equipments marked by “X” are used to measure the final test results.

### 4.2. Test Setup



### **4.3. Limits**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 50 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

### **4.4. Test Procedure**

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10 2009 on radiated measurement.

The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

### **4.5. Uncertainty**

Conducted is  $\pm 1.27$  dB

Radiated is  $\pm 3.9$  dB



#### 4.6. Test Result of Band Edge

Product : Cardiac Monitor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (922.3MHz)

##### RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Result
01 (Quasi-Peak)	902.000	5.628	20.432	26.060	46.000	Pass

##### RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Result
01 (Quasi-Peak)	902.000	3.155	23.696	26.850	46.000	Pass

Figure Channel 01:

Horizontal (Quasi-Peak)

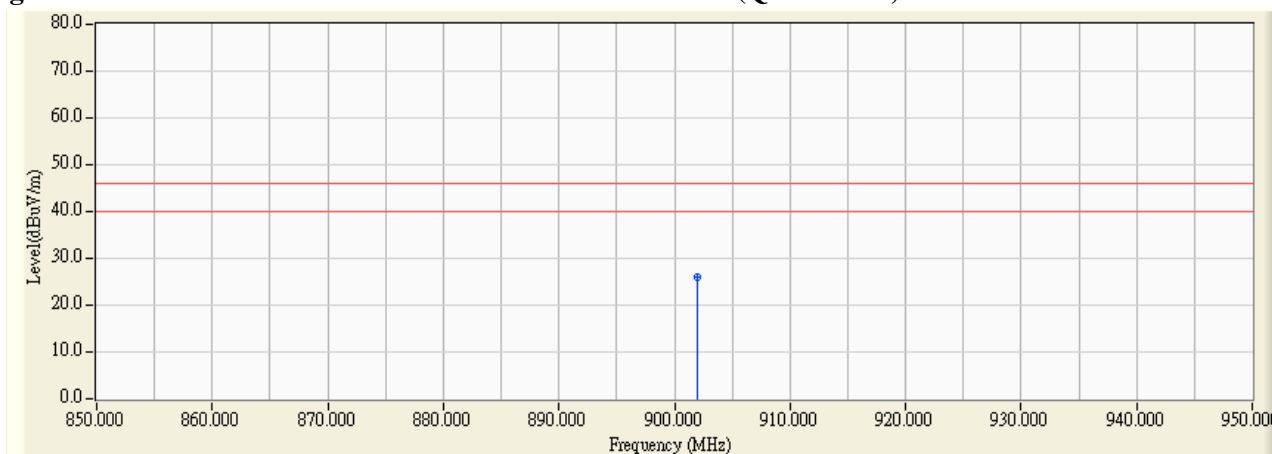
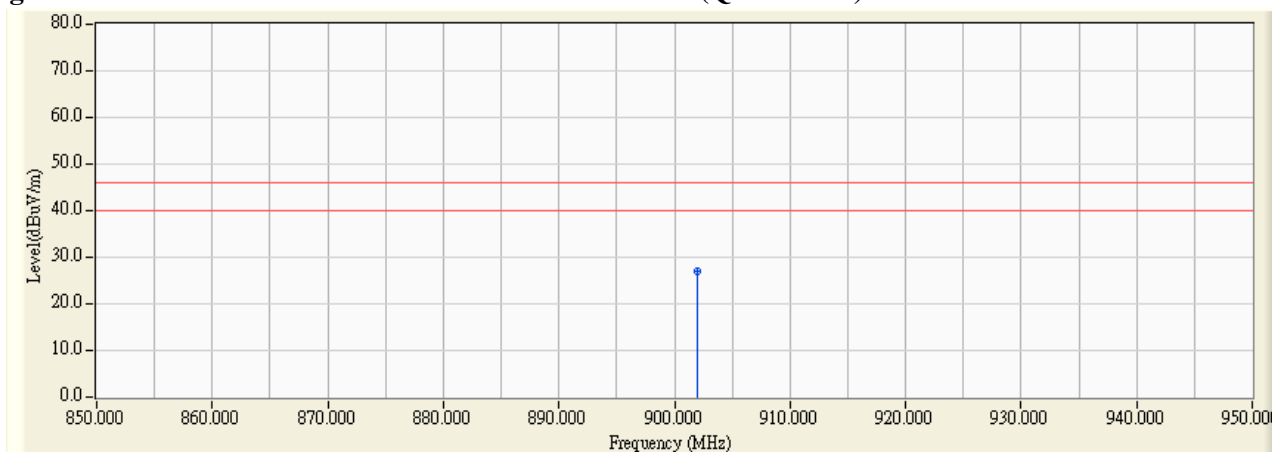


Figure Channel 01:

Vertical (Quasi-Peak)



- Note:1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Measurement Level = Reading Level + Correct Factor.  
 3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.

Product : Cardiac Monitor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (927.7MHz)

**RF Radiated Measurement (Horizontal):**

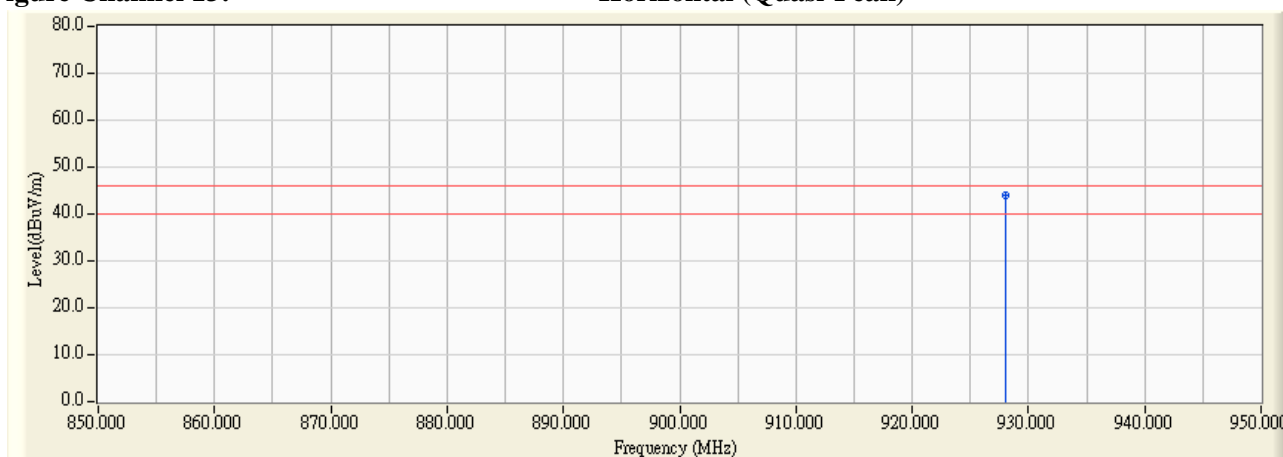
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Result
13 (Quasi-Peak)	928.000	6.848	37.279	44.126	46.000	Pass

**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Result
13 (Quasi-Peak)	928.000	6.160	24.076	30.236	46.000	Pass

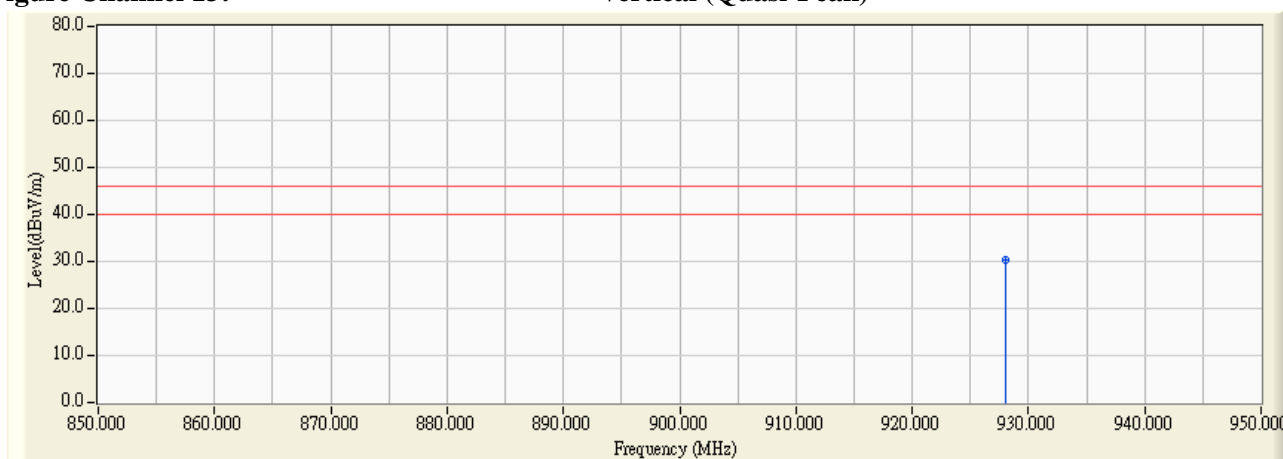
**Figure Channel 13:**

**Horizontal (Quasi-Peak)**



**Figure Channel 13:**

**Vertical (Quasi-Peak)**



- Note:1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Measurement Level = Reading Level + Correct Factor.  
 3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

**5. EMI Reduction Method During Compliance Testing**

No modification was made during testing.

## Attachment 1: EUT Test Photographs

## Attachment 2: EUT Detailed Photographs