



**DATE: 23 December 2013**

**I.T.L. (PRODUCT TESTING) LTD.**  
**FCC Radio Test Report**  
for  
**Kyma Medical Technological  
Ltd.**

**Equipment under test:**

**µCOR System Monitor**

**µCOR V1.0.0**

Written by: R. Pinchuck  
R. Pinchuck, Documentation

Approved by: A. Sharabi  
A. Sharabi, Test Engineer

Approved by: I. Raz  
For: I. Raz, EMC Laboratory Manager

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This report relates only to items tested.



## Measurement/Technical Report for Kyma Medical Technological Ltd.

### **μCOR System Monitor**

#### **μCOR V1.0.0**

#### **FCC ID: 2ABHFUCOR100**

This report concerns:                      Original Grant:              X  
    Class I Change:  
    Class II Change:  
  
Equipment type:                              Spread Spectrum Transmitter  
  
Limits used:                                      47CFR15 Section 15.247  
  
Measurement procedure used is DA 00-705 and ANSI C63.4-2003.  
  
Application for Certification                      Applicant for this device:  
prepared by:    (different from "prepared by")  
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## 1. General Information

### 1.1 Administrative Information

Manufacturer: Kyma Medical Technological Ltd.

Manufacturer's Address: Atir-Yeda Industry Park,  
17 Atir-Yeda St.,  
Kfar-Sava, 4464313,  
Israel

Manufacturer's Representative: Moshik Mosesko

Equipment Under Test (E.U.T): μCOR System Monitor

Equipment Model No.: μCOR V1.0.0

Equipment Serial No.: Not Designated

Date of Receipt of E.U.T: 02.12.13

Start of Test: 03.12.13

End of Test: 04.12.13

Test Laboratory Location: I.T.L (Product Testing) Ltd.  
Kfar Bin Nun,  
ISRAEL 99780

Test Specifications: FCC Part 15, Subpart C



## **1.2 List of Accreditations**

The EMC laboratory of I.T.L. is accredited by the following bodies:

1. The American Association for Laboratory Accreditation (A2LA) (U.S.A.), Certificate No. 1152.01.
2. The Federal Communications Commission (FCC) (U.S.A.), Registration No. 90715.
3. The Israel Ministry of the Environment (Israel), Registration No. 1104/01.
4. The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) (Japan), Registration Numbers: C-1350, R-1285.
5. Industry Canada (Canada), IC File No.: 46405-4025; Site No. IC 4025B-1.

I.T.L. Product Testing Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this test report have been determined in accordance with I.T.L.'s terms of accreditation unless stated otherwise in the report.

### 1.3 **Product Description**

Kyma's non-invasive uCor system is an impedance-based device that assesses a patient's Fluid Status (FS) by measuring the electromagnetic properties of the thorax. The System is attached to the skin using an adhesive patch. It transmits stepped-frequency hopping signals in the UHF frequency band (0.5 GHz – 2.3 GHz) and measures the reflections from body tissues, indicative of the thoracic fluid status.

All raw data is captured into the device's memory and transmitted over a wireless ISM standard interface (Bluetooth) using its telemetry antenna (back antenna) to a general purpose off-the-shelf Bluetooth access point (gateway).

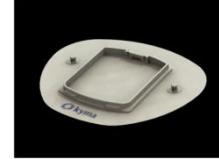
The uCor contains a Li-Pol rechargeable battery that is charged using a dedicated Kyma desktop cradle and power adaptor charger.



uCor Cartridge



Desktop cradle for charging



uCor Patch

### 1.4 **Test Methodology**

Both conducted and radiated testing was performed according to the procedures in DA 00-705 and ANSI C63.4: 2003. Radiated testing was performed at an antenna to EUT distance of 3 meters.

### 1.5 **Test Facility**

The radiated emissions tests were performed at I.T.L.'s testing facility at Kfar Bin-Nun, Israel. This site is a FCC listed test laboratory (FCC Registration No. 90715, date of listing November 21, 2012).

I.T.L.'s EMC Laboratory is also accredited by A2LA, certificate No. 1152.01.

### 1.6 **Measurement Uncertainty**

#### **Conducted Emission**

Conducted Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4) 0.15 – 30 MHz:

Expanded Uncertainty (95% Confidence, K=2):

± 3.6 dB

Note: See ITL Procedure No. PM 198.

#### **Radiated Emission**

Radiated Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4) for open site 30-1000MHz:

Expanded Uncertainty (95% Confidence, K=2):

± 4.98dB

Note: See ITL Procedure No. PM 198.



## 2. System Test Configuration

### 2.1 ***Justification***

The BT transmitter can be operated with the internal battery and while charging. Carrier tests were done conducted on the RF artificial. Spurious emissions were conducted on both modes, battery (mounted against a Phantom JIG, liquid tank, simulating the human body) and charging.

### 2.2 ***EUT Exercise Software***

No exercise software was used.

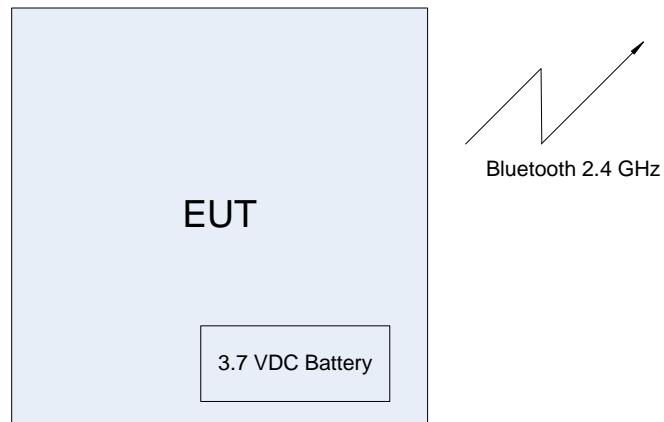
### 2.3 ***Special Accessories***

No special accessories were needed to achieve compliance.

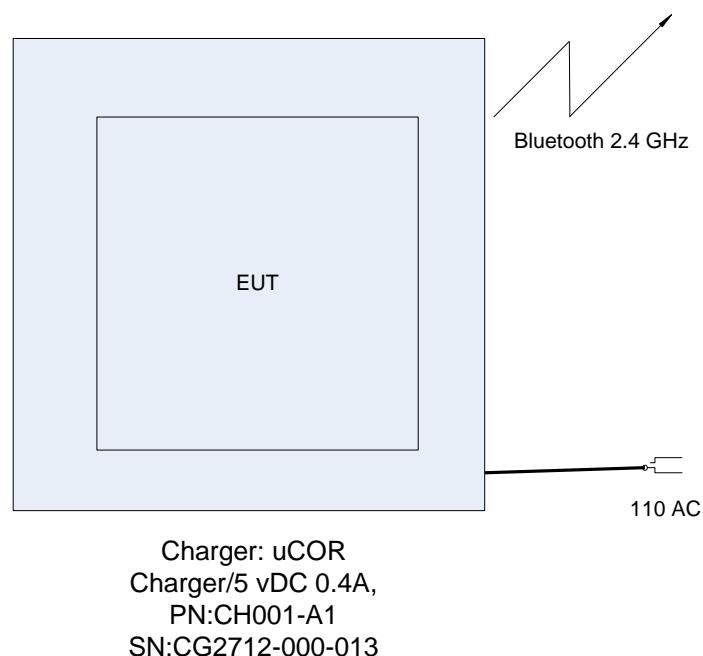
### 2.4 ***Equipment Modifications***

No equipment modifications were needed to achieve compliance.

## 2.5 Configuration of Tested System



**Figure 1. Configuration of Tested System – Battery Mode**



**Figure 2. Configuration of Tested System – Charger Mode**

### 3. Conducted and Radiated Measurement Test Set-up Photo



Figure 3. Conducted Emission on AC Mains Test



Figure 4. Conducted Emission from Antenna Port Test



**Figure 5. Radiated Emission Test as Stand-alone**



**Figure 6. Radiated Emission Test as Stand-alone**



**Figure 7. Radiated Emission Test as Stand-alone**



**Figure 8. Radiated Emission Test as Stand-alone**



**Figure 9. Radiated Emission Test in Charging Mode**



**Figure 10. Radiated Emission Test in Charging Mode**



**Figure 11. Radiated Emission Test in Charging Mode**



**Figure 12. Radiated Emission Test in Charging Mode**



## 4. Conducted Emission from AC Mains

### 4.1 **Test Specification**

F.C.C., Part 15, Subpart C

### 4.2 **Test Procedure**

The E.U.T operation mode and test set-up are as described in Section 3. In order to minimize background noise interference, the conducted emission testing was performed inside a shielded room, with the E.U.T placed on a 0.8 meter high wooden table, 0.4 meter from the room's vertical wall.

The E.U.T was powered from 115 V AC / 60 Hz via a 50 Ohm / 50  $\mu$ Hn Line Impedance Stabilization Network (LISN) on the phase and neutral lines. The LISN's were grounded to the shielded room ground plane (floor), and were kept at least 0.8 meters from the nearest boundary of the E.U.T

The center of the E.U.T AC cable was folded back and forth, in order to form a bundle less than 0.40 meters and a total cable length of 1 meter.

The emission voltages at the LISN's outputs were measured using a computerized receiver, complying with CISPR 16 requirements. The specification limits are loaded to the receiver via a 3.5" floppy disk and are displayed on the receiver's spectrum display.

A frequency scan between 0.15 and 30 MHz was performed at 9 kHz I.F. band width, and using peak detection.

The spectral components having the highest level on each line were measured using a quasi-peak and average detector.

### 4.3 **Measured Data**

JUDGEMENT: Passed by 22.11dB

The margin between the emission levels and the specification limit is, in the worst case, 22.11 dB for the phase line at 0.318 MHz and 35.04 dB at 3.958 MHz for the neutral line.

The EUT met the F.C.C. Part 15, Subpart C specification requirements.

The details of the highest emissions are given in *Figure 13* to *Figure 16*.

TEST PERSONNEL:

Tester Signature:  Date: 11.02.14

Typed/Printed Name: A. Sharabi



## Conducted Emission

E.U.T Description      µCOR System Monitor  
Type                    µCOR V1.0.0  
Serial Number:        Not Designated

Specification:    F.C.C., Part 15, Subpart C  
Lead:                Phase  
Detectors:          Peak, Quasi-peak, Average

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	CE22BQP			
Trace2:	CE22BAP			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dB $\mu$ V	DELTA	LIMIT dB
1	Quasi Peak 218 kHz	26.52	-36.37	
2	Average 254 kHz	19.60	-32.02	
1	Quasi Peak 318 kHz	36.43	-23.32	
2	Average 318 kHz	27.64	-22.11	
1	Quasi Peak 478 kHz	27.75	-28.61	
2	Average 614 kHz	18.23	-27.76	
1	Quasi Peak 806 kHz	25.07	-30.93	
2	Average 810 kHz	16.32	-29.67	
2	Average 1.322 MHz	16.85	-29.15	
1	Quasi Peak 2.006 MHz	24.50	-31.49	
2	Average 2.522 MHz	15.70	-30.29	
1	Quasi Peak 2.538 MHz	23.52	-32.47	
2	Average 3.926 MHz	14.35	-31.65	
1	Quasi Peak 3.93 MHz	22.40	-33.60	
2	Average 6.214 MHz	10.27	-39.72	
1	Quasi Peak 8.054 MHz	13.41	-46.58	
2	Average 11.106 MHz	7.39	-42.60	
1	Quasi Peak 17.638 MHz	11.24	-48.75	
1	Quasi Peak 20.202 MHz	16.70	-43.29	
2	Average 21.478 MHz	10.26	-39.73	

Date: 3.DEC.2013 15:25:53

**Figure 13. Detectors: Peak, Quasi-peak, AVERAGE .**

*Note: QP Delta/Av Delta refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.*



## Conducted Emission

E.U.T Description μCOR System Monitor

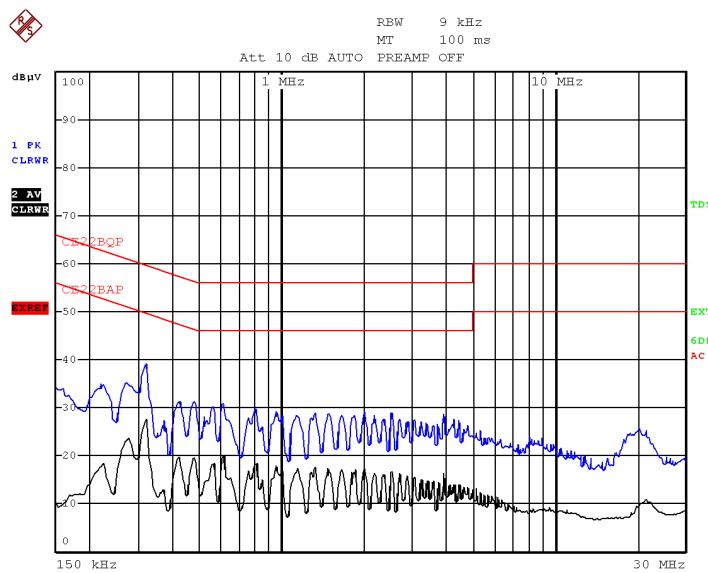
Type μCOR V1.0.0

Serial Number: Not Designated

Specification: F.C.C., Part 15, Subpart C

Lead: Phase

Detectors: Peak, Quasi-peak, Average



Date: 3.DEC.2013 15:24:29

**Figure 14. Detectors: Peak, Quasi-peak, Average**



## Conducted Emission

E.U.T Description      µCOR System Monitor  
Type                      µCOR V1.0.0  
Serial Number:              Not Designated

Specification:      F.C.C., Part 15, Subpart C  
Lead:                      Neutral  
Detectors:              Peak, Quasi-peak, Average

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	CE22BQP			
Trace2:	CE22BAP			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dB <sub>µV</sub>	DELTA	LIMIT dB
1	Quasi Peak 234 kHz	21.69	-40.61	
2	Average 254 kHz	10.02	-41.59	
1	Quasi Peak 310 kHz	26.27	-33.70	
2	Average 314 kHz	14.79	-35.06	
1	Quasi Peak 466 kHz	19.85	-36.72	
2	Average 606 kHz	8.85	-37.14	
2	Average 802 kHz	8.12	-37.87	
1	Quasi Peak 810 kHz	16.18	-39.81	
2	Average 1.718 MHz	10.78	-35.21	
1	Quasi Peak 1.854 MHz	14.08	-41.91	
1	Quasi Peak 2.214 MHz	13.43	-42.56	
2	Average 2.53 MHz	8.53	-37.46	
1	Quasi Peak 3.922 MHz	18.13	-37.86	
2	Average 3.958 MHz	10.95	-35.04	
1	Quasi Peak 7.866 MHz	12.47	-47.52	
2	Average 8.338 MHz	7.63	-42.36	
2	Average 16.706 MHz	8.01	-41.98	
1	Quasi Peak 17.474 MHz	11.53	-48.46	
1	Quasi Peak 19.286 MHz	12.97	-47.02	
2	Average 21.75 MHz	9.18	-40.81	

Date: 3.DEC.2013 15:32:00

**Figure 15. Detectors: Peak, Quasi-peak, AVERAGE**

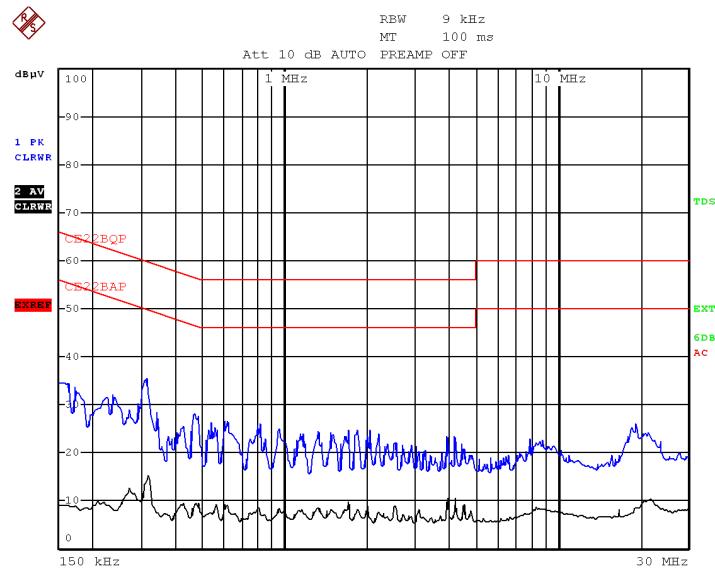
*Note: QP Delta/Av Delta refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.*



## Conducted Emission

E.U.T Description      µCOR System Monitor  
Type                      µCOR V1.0.0  
Serial Number:           Not Designated

Specification:      F.C.C., Part 15, Subpart C  
Lead:                      Neutral  
Detectors:              Peak, Quasi-peak, Average



Date: 3.DEC.2013 15:29:43

**Figure 16 Conducted Emission: NEUTRAL  
Detectors: Peak, Quasi-peak, Average**



#### 4.4 Test Instrumentation Used, Conducted Measurement

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Period
LISN	EMCO	3810/2BR	1297	December 16, 2012	1 Year
Transient Limiter	HP	11947A	3107A03041	February 25, 2013	1 Year
EMI Receiver	Rohde & Schwarz	ESCI7	100724	December 27, 2012	1 Year



## 5. Spurious Conducted Emission

### 5.1 Test procedure

The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator (30 dB) and an appropriate coaxial cable (cable loss = 1 dB). The spectrum analyzer was set to 100 kHz resolution BW except for the frequency range

9 kHz-150 kHz where the RBW was set to 1kHz and the frequency range 150 kHz-10 MHz where the RBW was set to 10kHz. The frequency range from 9 kHz to 25 GHz was scanned. Level of spectrum components out of the 2400-2483.5 MHz was measured at the selected operation frequencies.

The E.U.T. was tested at low, mid and high frequencies with CW mode.

### 5.1 Results table

E.U.T Description: μCOR System Monitor  
Model No.: μCOR V1.0.0  
Serial Number: Not Designated  
Specification: F.C.C. Part 15, Subpart C (15.247)

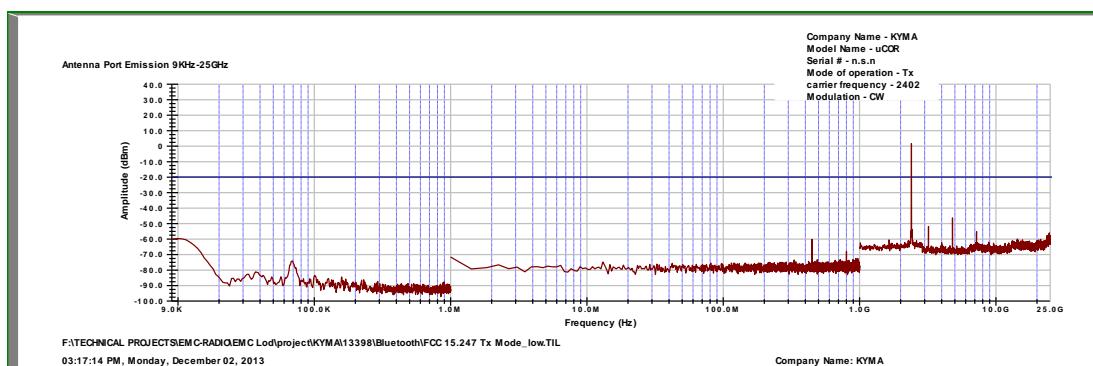


Figure 17 Spurious Conducted Emission – 2402 MHz

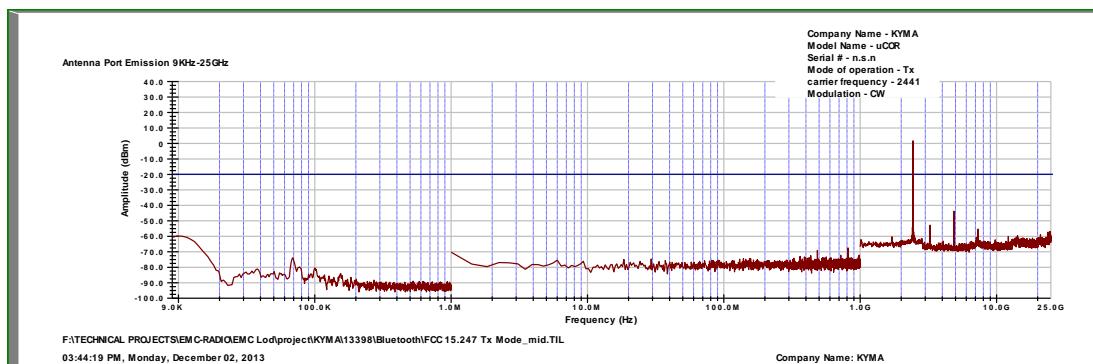
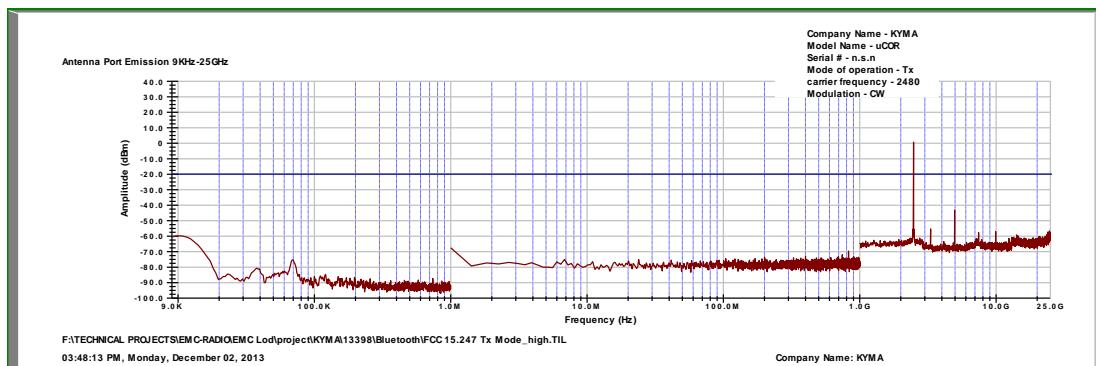


Figure 18 Spurious Conducted Emission – 2441 MHz



**Figure 19 Spurious Conducted Emission – 2480 MHz**

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: 

Date: 11.02.14

Typed/Printed Name: A. Sharabi

### 5.1 **Test Equipment Used.**

#### Spurious Conducted Emission

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date.	Period
Spectrum Analyzer	HP	8592L	3826A01204	February 28, 2013	1 year
Attenuator	Jyebao	-	FAT-AM5AF5G6G2W20	December 2, 2013	1 year
Cable	Rhophase	KPS-5000-KPS	A1674	December 2, 2013	1 year

**Figure 20 Test Equipment Used**



## 6. 20dB Bandwidth

### 6.1 Test Specification

Specification: FCC Part 15, Subpart C (15.247-a2)

### 6.2 Test procedure

The E.U.T. was set to the applicable test frequency. The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator (30 dB) and an appropriate coaxial cable (cable loss = 1 dB). The spectrum analyzer was set to 100 kHz resolution BW. The spectrum bandwidth of the E.U.T. at the point of 20 dB below maximum peak power was measured and recorded.

The E.U.T. was tested at the mid channel

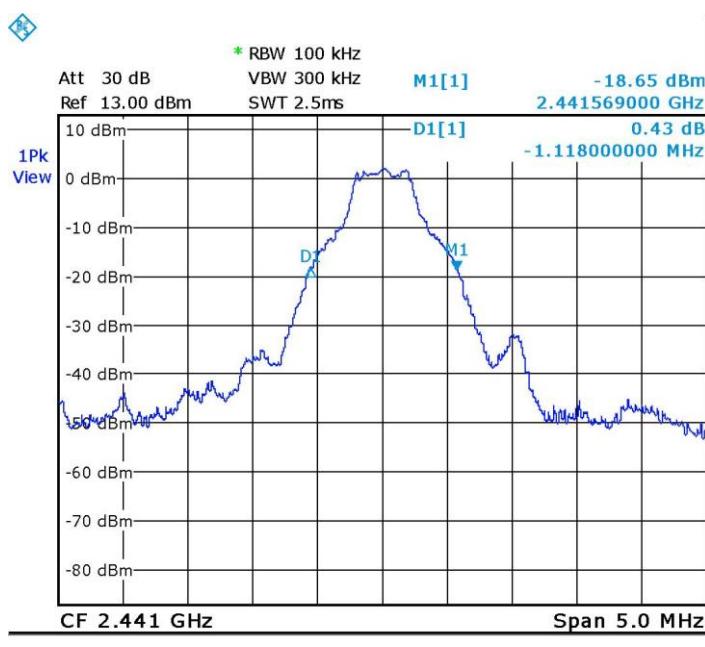


Figure 21. Mid Channel



### 6.3 **Test Results**

E.U.T Description: µCOR System Monitor

Model: µCOR V1.0.0

Serial Number: Not Designated

Operation Frequency (MHz)	Bandwidth Reading (MHz)
2441.00	-1.118

**Figure 22 Test Results**

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: 

Date: 11.02.14

Typed/Printed Name: A. Sharabi



## 6.4

### **Test Equipment Used.20dB Bandwidth**

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date.	Period
Spectrum Analyzer	HP	8592L	3826A01204	February 28, 2013	1 year
Attenuator	Jyebao	-	FAT-AM5AF5G6G2W20	December 2, 2013	1 year
Cable	Rhophase	KPS-5000-KPS	A1674	December 2, 2013	1 year

**Figure 23 Test Equipment Used**



## 7. Number of Hopping Frequencies Section 15.247(a)(1)(iii)

### 7.1 ***Test Specification***

F.C.C., Part 15, Subpart C

### 7.2 ***Test Procedure***

The E.U.T. was set to hopping mode.

The spectrum analyzer was set to the following parameters:

Span: Every 20 MHz Frequency

Band of Operation: 2402-2481 MHz

RBW: 10kHz

VBW: 30kHz

Detector Function: Peak

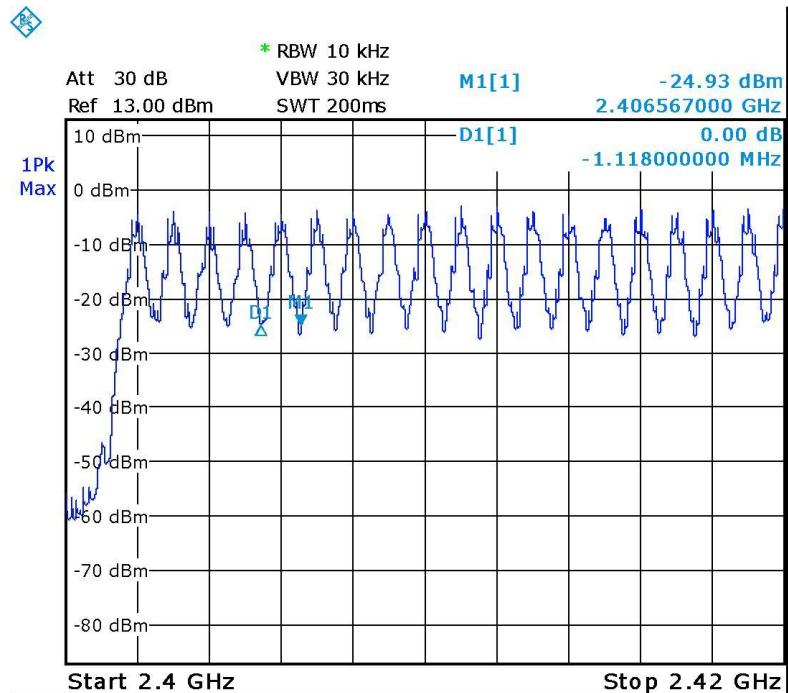
Trace: Maximum Hold

The number of hopping frequencies is 79 (See plots).



## Number of Hopping Frequencies

E.U.T Description      µCOR System Monitor  
Type                      µCOR V1.0.0  
Serial Number:           Not Designated

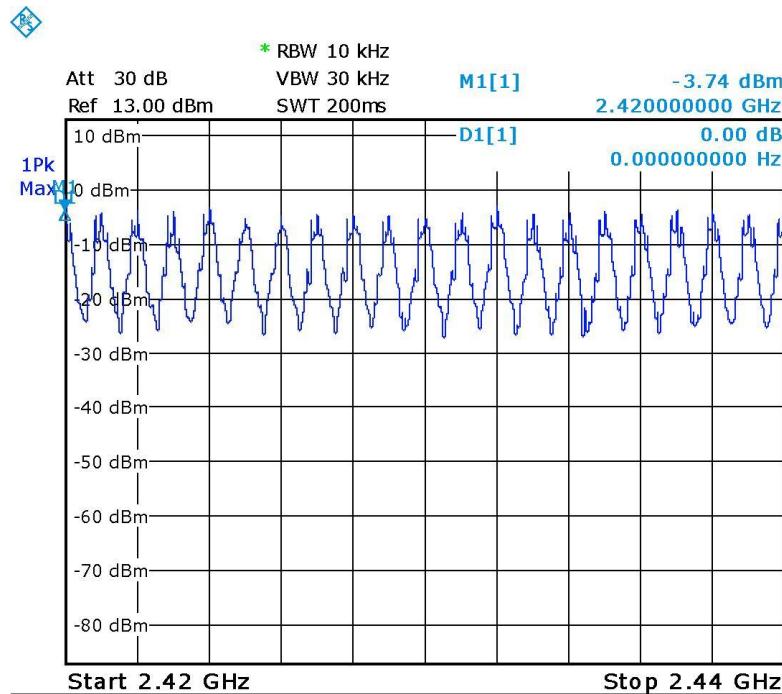


Date: 2.DEC.2013 10:35:47

**Figure 24. Frequency Hopping**

## Number of Hopping Frequencies

E.U.T Description      µCOR System Monitor  
Type                      µCOR V1.0.0  
Serial Number:           Not Designated



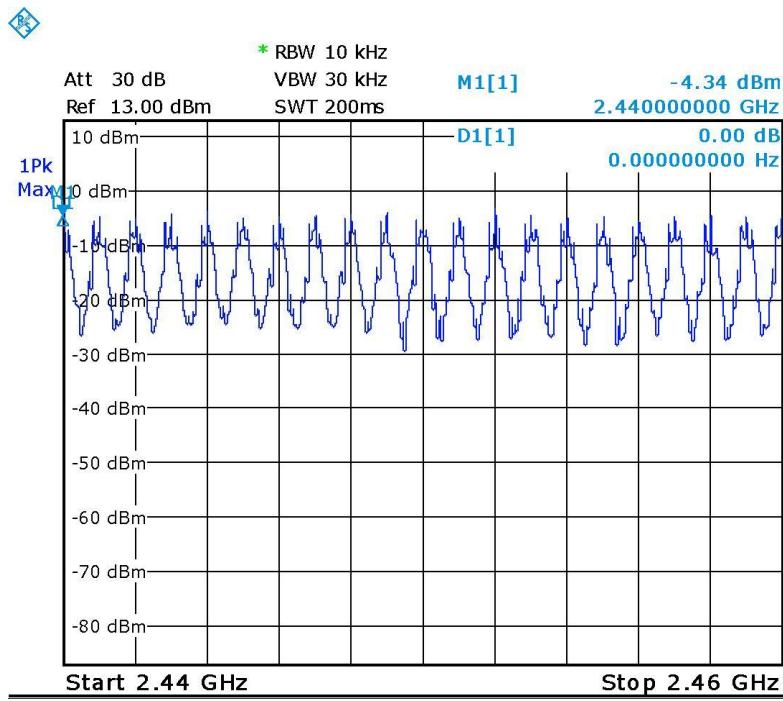
Date: 2.DEC.2013 11:08:32

**Figure 25. Frequency Hopping**



## Number of Hopping Frequencies

E.U.T Description      µCOR System Monitor  
Type                      µCOR V1.0.0  
Serial Number:            Not Designated

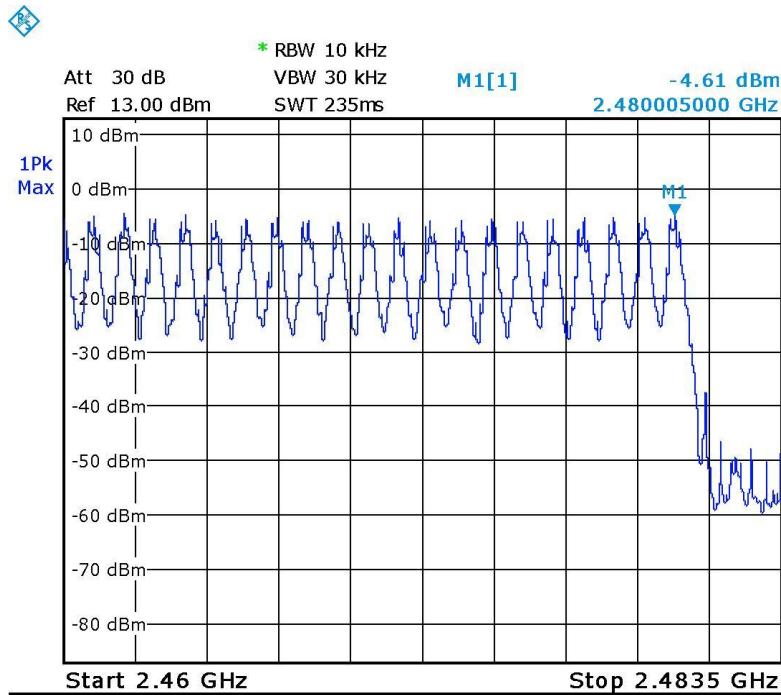


Date: 2.DEC.2013 11:22:29

Figure 26. Frequency Hopping

## Number of Hopping Frequencies

E.U.T Description      µCOR System Monitor  
Type                      µCOR V1.0.0  
Serial Number:           Not Designated



Date: 2.DEC.2013 11:24:41

**Figure 27. Frequency Hopping**



### 7.3 Results table

E.U.T. Description: μCOR System Monitor

Model No.: μCOR V1.0.0

Serial Number: Not Designated

Specification: FCC Part 15, Subpart C, 15.247(a)(1)(iii)

Number of Hopping Frequencies	Specification
79	>75

**Figure 28 Number of Hopping Frequencies**

TEST PERSONNEL:

Tester Signature:  Date: 11.02.14  
Typed/Printed Name: A. Sharabi



#### 7.4 **Test Instrumentation Used: Number of Hopping Frequencies**

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date.	Period
Spectrum Analyzer	Rodhe &Schwarz	FSL6	100194	December 1, 2013	1 year
Attenuator	Jyebao	-	FAT-AM5AF5G6G2W20	December 2, 2013	1 year
Cable	Rhophase	KPS-5000-KPS	A1674	December 2, 2013	1 year

## 8. Channel Frequency Separation

### 8.1 Test Specification

Specification: FCC Part 15, Subpart C, 15.247(a) (1)

### 8.2 Test procedure

The E.U.T. was set to hopping mode.

The spectrum analyzer was set to the following parameters:

Span: 2 MHz

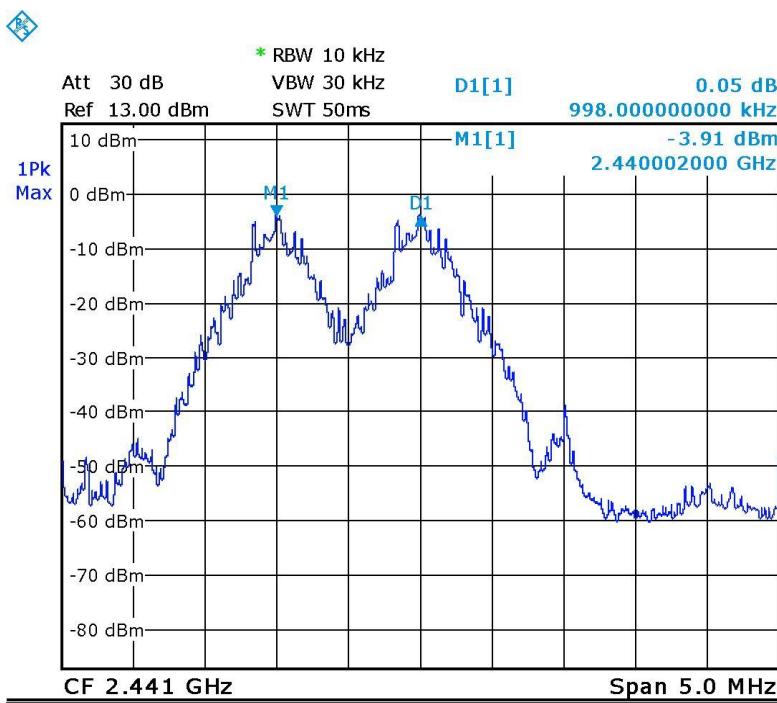
RBW: 10kHz

VBW: 30kHz

Detector Function: Peak

Trace: Maximum Hold

The marker delta function to determine the separation between the peaks of the adjacent channels was used.



Date: 2.DEC.2013 11:25:46

Figure 29. 2.441 GHz



### 8.3 Results table

E.U.T. Description: μCOR System Monitor

Model No.: μCOR V1.0.0

Serial Number: Not Designated

Specification: FCC Part 15, Subpart C, 15.247(a) (1)

Channel Frequency Separation (kHz)	Specification (kHz)	Result (kHz)	Margin (kHz)
2441.00	>786.00	998.00	212.00

**Figure 30 Channel Frequency Separation**

JUDGEMENT: Passed by 212.00 kHz

TEST PERSONNEL:

Tester Signature:   
Typed/Printed Name: A. Sharabi

Date: 11.02.14



#### **8.4 Test Instrumentation Used: Channel Frequency Separation**

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date.	Period
Spectrum Analyzer	Rodhe &Schwarz	FSL6	100194	December 1, 2013	1 year
Attenuator	Jyebao	-	FAT-AM5AF5G6G2W20	December 2, 2013	1 year
Cable	Rhophase	KPS-5000-KPS	A1674	December 2, 2013	1 year



## 9. Power Output

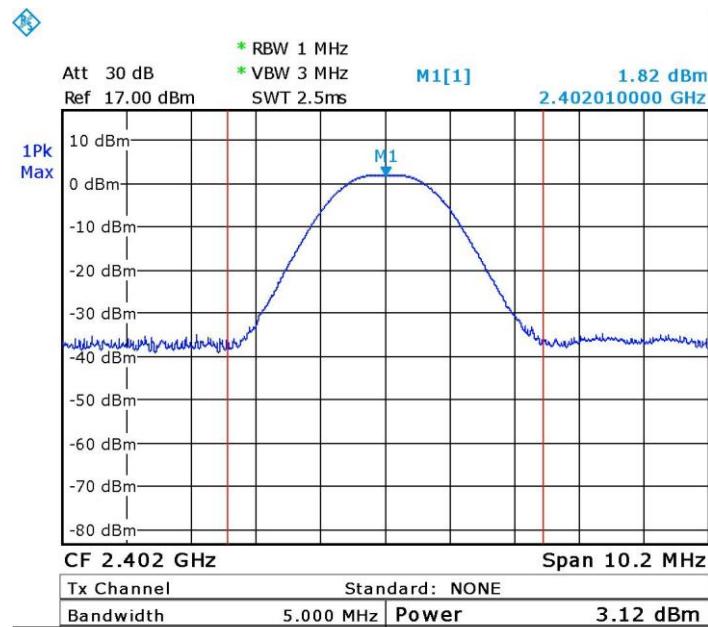
### 9.1 *Test Specification*

F.C.C. Part 15, Subpart C: 15.247(b)

### 9.2 *Test procedure*

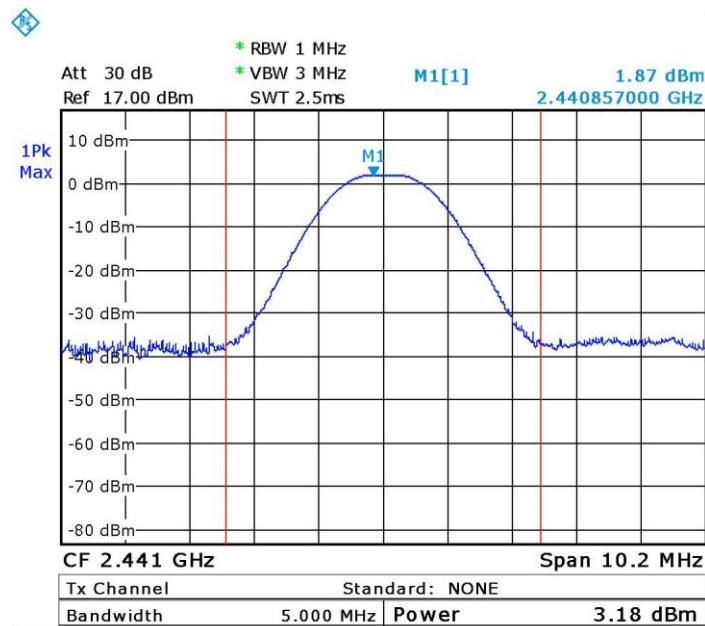
The E.U.T. antenna terminal was connected to the Spectrum Analyzer through an external attenuator (30 dB) and an appropriate coaxial cable (cable loss = 1 dB). The Spectrum Analyzer was set to 1.0 MHz resolution BW. Peak power level was measured at selected operation frequencies.

The E.U.T. was tested at low, mid and high channels.

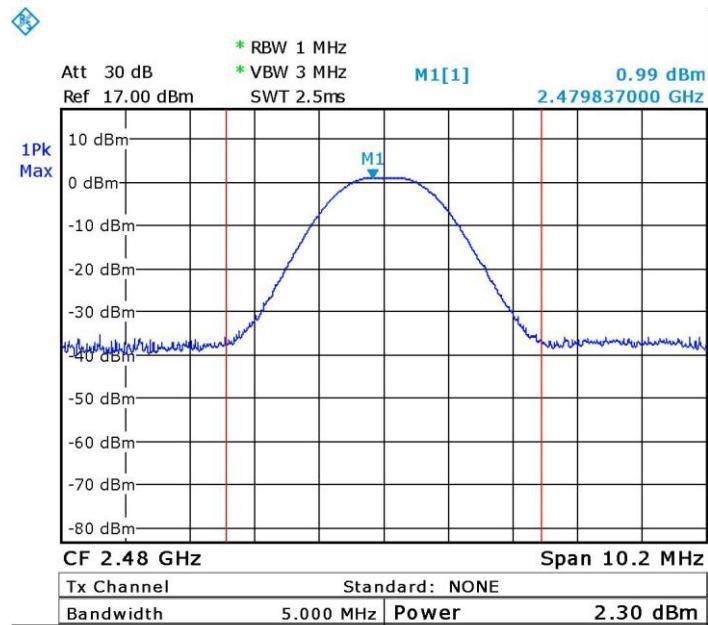


Date: 2.DEC.2013 12:46:37

**Figure 31 2402.00 MHz**



**Figure 32 2441.00 MHz – Horizontal**



**Figure 33 2480.00 MHz**



### 9.3 Results Calculation

E.U.T. Description: μCOR System Monitor

Model No.: μCOR V1.0.0

Serial Number: Not Designated

Specification: F.C.C. Part 15, Subpart C

Operation Frequency (MHz)	Power dBm	Specification (dBm)	Margin (dB)
2402.00	3.12	30	-26.88
2441.00	3.18	30	-26.82
2480.00	2.30	30	-27.70

**Figure 34 Conducted Power Output**

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: 

Date: 11.02.14

Typed/Printed Name: A. Sharabi



#### 9.4

#### **Test Equipment Used, Radiated Maximum Power Output**

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date.	Period
Spectrum Analyzer	Rodhe &Schwarz	FSL6	100194	December 1, 2013	1 year
Attenuator	Jyebao	-	FAT-AM5AF5G6G2W20	December 2, 2013	1 year
Cable	Rhophase	KPS-5000-KPS	A1674	December 2, 2013	1 year

**Figure 35 Test Equipment Used**

## 10. Dwell Time on Each Channel

### 10.1 *Test Specification*

FCC Part 15, Section 15.247(a)(1)(iii)

### 10.2 *Test Procedure*

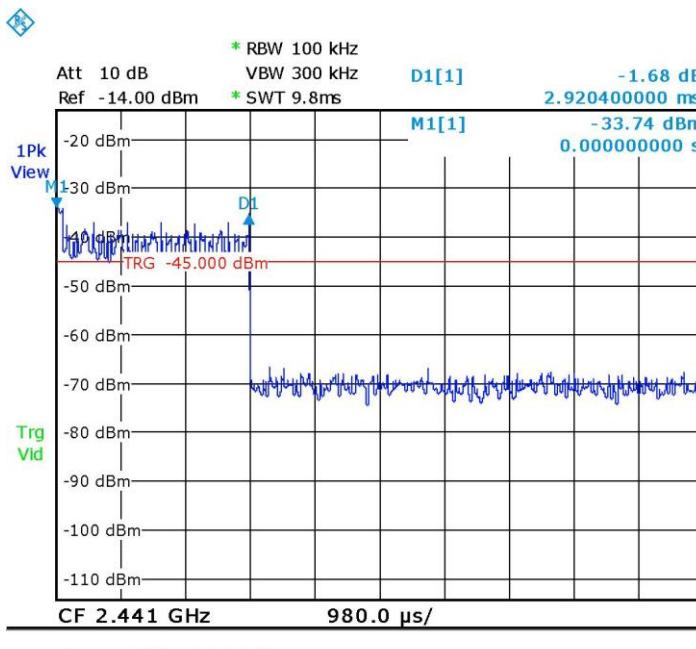
The E.U.T. was tested in conducted mode using a suitable attenuator. The spectrum analyzer was set to 100 kHz RBW and 300 kHz VBW.

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

### 10.3 *Test Results*

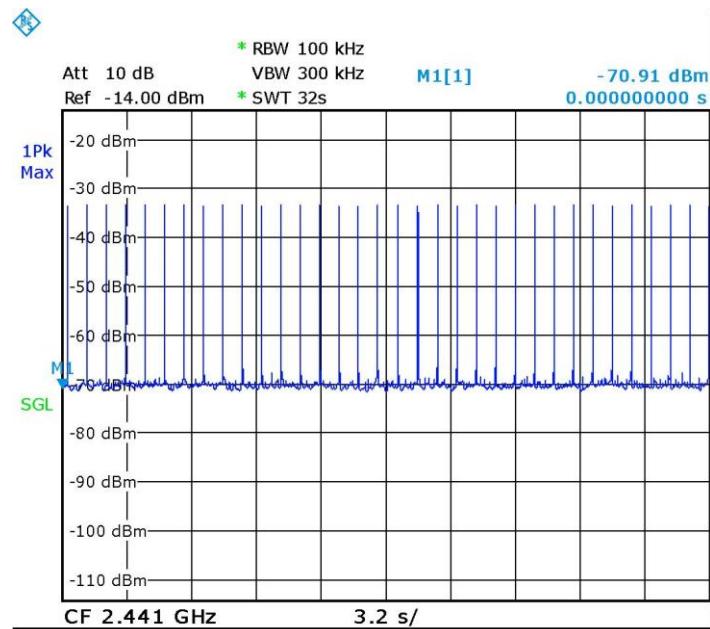
The E.U.T. met the requirements of the FCC Part 15, Section 15.247(a)(1)(iii).

Additional information of the results is given in *Figure 36 to Figure 37*.



Date: 2.DEC.2013 12:11:00

**Figure 36 — Ton=2.9msec**



Date: 2.DEC.2013 12:22:55

**Figure 37 — Dwell time at 2.441GHz**

**[32 X 2.9msec = 92.8msec, limit 400msec]**

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: A. Sharabi Date: 11.02.14

Typed/Printed Name: A. Sharabi



#### 10.4 **Test Equipment Used, Dwell Time.**

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date.	Period
Spectrum Analyzer	Rodhe &Schwarz	FSL6	100194	December 1, 2013	1 year
Attenuator	Jyebao	-	FAT-AM5AF5G6G2W20	December 2, 2013	1 year
Cable	Rhophase	KPS-5000-KPS	A1674	December 2, 2013	1 year

**Figure 38 Test Equipment Used**

## 11. Band Edge

[In Accordance with section 15.247(d)]

### 11.1 Test procedure

The E.U.T. antenna terminal was connected to the Spectrum Analyzer through an external attenuator (30 dB) and an appropriate coaxial cable (cable loss = 1 dB). The Spectrum Analyzer was set to 100 KHz resolution BW. Peak power level was measured at selected operation frequencies. The display line was set to 20 dBc and the SA was set to the band edge frequencies.

Maximum power level below 2400 MHz and above 2483.5 MHz was measured relative to power level at 2402 MHz, and 2480 MHz correspondingly. The E.U.T. was tested at low, mid and high channels.

Band edge Compliance procedures followed those mandated by DA 00-705.

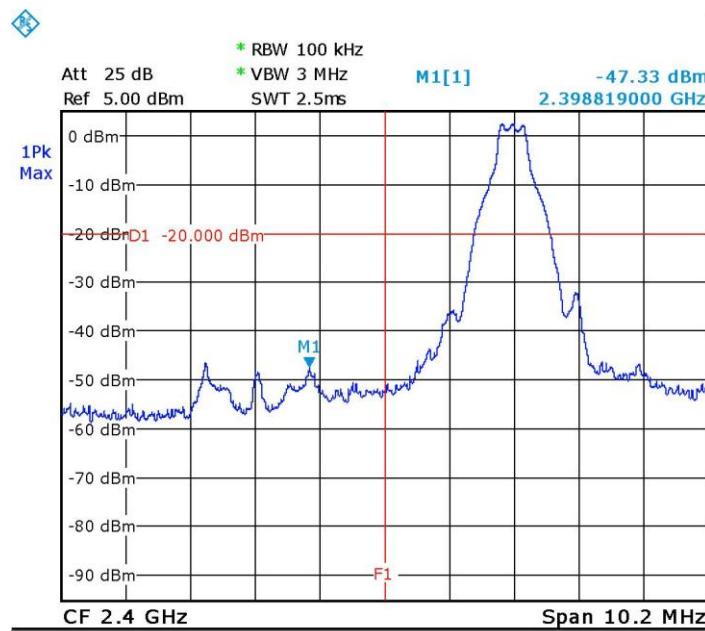


Figure 39 — Lower Band Edge

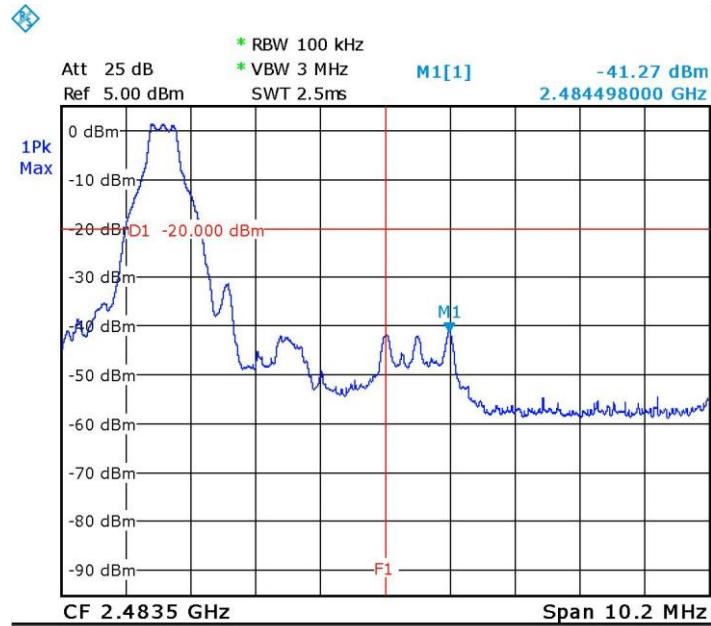


Figure 40 — Upper Band Edge



## 11.2 Results table

E.U.T. Description: μCOR System Monitor  
Model No.: μCOR V1.0.0  
Serial Number: Not Designated  
Specification: F.C.C. Part 15, Subpart C (15.247 (d))

Operation Frequency (MHz)	Band Edge Frequency (MHz)	Spectrum Level (dBm)	Specification (dBuV/m)	Margin (dB)
2402	2400.0	-47.33	-20.0	-27.33
2480	2483.5	-41.27	-20.0	-21.27

**Figure 41 Band Edge**

JUDGEMENT: Passed by 21.27 dB

TEST PERSONNEL:

Tester Signature:  Date: 11.02.14

Typed/Printed Name: A. Sharabi



### 11.3 Test Equipment Used, Band edge Spectrum

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date.	Period
Spectrum Analyzer	Rodhe &Schwarz	FSL6	100194	December 1, 2013	1 year
Attenuator	Jyebao	-	FAT-AM5AF5G6G2W20	December 2, 2013	1 year
Cable	Rhophase	KPS-5000-KPS	A1674	December 2, 2013	1 year

Figure 42 Test Equipment Used



## 12. Radiated Emission, 9 kHz – 30 MHz

### 12.1 ***Test Specification***

9 kHz-30 MHz, FCC, Part 15, Subpart C, Section 209

### 12.2 ***Test Procedure***

The E.U.T. operation mode and test set-up are as described in Section 3.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The configuration tested is shown in Figure 3.1.

The frequency range 9 kHz-30 MHz was scanned.

The emissions were measured using a computerized EMI receiver complying with CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 9 kHz-30MHz, the loop antenna was rotated on its vertical axis. The antenna height (center of loop) was 1 meter at a distance of 3 meters.

### 12.3 ***Measured Data***

JUDGEMENT: Passed

The EUT met the requirements of the F.C.C. Part 15, Subpart C, Section 209 specification.

The results for all three channels were the same.

No signals were detected in the frequency range of 9 kHz – 30 MHz.

TEST PERSONNEL:

Tester Signature: 

Date: 11.02.14

Typed/Printed Name: A. Sharabi



#### 12.4 ***Test Instrumentation Used, Radiated Measurements***

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	February 26, 2013	1 year
RF Section	HP	85420E	3705A00248	February 26, 2013	1 year
Active Loop Antenna	EMCO	6502	9506-2950	November 4, 2013	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

**Figure 43 Test Equipment Used**



## 12.5 **Field Strength Calculation**

The field strength is calculated directly by the EMI Receiver software, and a "Correction Factors" data disk, using the following equation:

$$FS = RA + AF + CF$$

FS: Field Strength [dB $\mu$ V/m]

RA: Receiver Amplitude [dB $\mu$ V]

AF: Receiving Antenna Correction Factor [dB/m]

CF: Cable Attenuation Factor [dB]

Example:  $FS = 30.7 \text{ dB}\mu\text{V (RA)} + 14.0 \text{ dB (AF)} + 0.9 \text{ dB (CF)} = 45.6 \text{ dB}\mu\text{V}$

No external pre-amplifiers are used.



## 13. Spurious Radiated Emission 30 – 25,000 MHz

### 13.1 ***Test Specification***

30 MHz- 25,000 MHz, F.C.C., Part 15, Subpart C

### 13.2 ***Test Procedure***

The E.U.T. operation mode and test set-up are as described in Section 3.

See Section 3.1 Justification of the System Test Configuration concerning the E.U.T. orientation for this test.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground.

The frequency range 30 MHz-1000 MHz was scanned and the list of the highest emissions was verified and updated accordingly.

The levels of the emissions within the frequency ranges of the restricted bands (Section 15.205 of FCC Part 15) were compared to the limits of the table in Section 15.209 (a), General Requirements.

The emissions were measured using a computerized EMI receiver complying with CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 30-1000 MHz, the readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

In the frequency range 1-2.9 GHz, a computerized EMI receiver complying with CISPR 16 requirements was used.

In the frequency range 2.9-25.0 GHz, a spectrum analyzer including a low noise amplifier was used. During average measurements the IF bandwidth was 1 MHz and the video bandwidth was 100Hz. During peak measurements the IF bandwidth was 1 MHz and the video bandwidth was 3 MHz.

The test distance was 3 meters.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

Verification of the E.U.T emissions was based on the following methods: turning the E.U.T on and off; using a frequency span less than 10 MHz; observation of the signal level during turntable rotation. (Background noise is not affected by the rotation of the E.U.T.)



### 13.3 **Test Data**

JUDGEMENT: Passed

The EUT met the requirements of the F.C.C. Part 15, Subpart C, specification.

For the operation channel 1 (2.402 GHz), the margin between the emission level and the specification limit is 20.1 dB in the worst case at the frequency of 4804.00 MHz, horizontal polarization for the battery operated set up and 21.2 dB in the worst case at the frequency of 4804.00 MHz, vertical polarization for the charging setup.

For the operation channel 8 (2.441 GHz), the margin between the emission level and the specification limit is 12.6 db in the worst case at the frequency of 4882.00 MHz, horizontal polarization for the battery operated set up and 13.6 dB in the worst case at the frequency of 4882.00 MHz, vertical polarization for the charging set up.

For the operation channel 14 (2.480 GHz), the margin between the emission level and the specification limit is 15.6 dB in the worst case at the frequency of 4960.00 MHz, horizontal polarization for the battery operated set up and 15.8 dB in the worst case at the frequency of 4960.00 MHz, vertical polarization for the charging set up.

TEST PERSONNEL:

Tester Signature: 

Date: 11.02.14

Typed/Printed Name: A. Sharabi



## Radiated Emission

E.U.T Description    μCOR System Monitor  
Type                    μCOR V1.0.0  
Serial Number:        Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical    Frequency range: 1.0 GHz to 25.0 GHz  
Test Distance: 3 meters                            Detector: Peak

<b>Operation Frequency</b> (MHz)	<b>Setup</b>	<b>Freq.</b>	<b>Polarity</b>	<b>Peak Reading</b>	<b>Peak Specification</b>	<b>Peak Margin</b>
		(MHz)	(H/V)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)
2402.0	Battery Operated	2390.0	H	47.6	74.0	-26.4
2402.0	Battery Operated	2390.0	V	47.6	74.0	-26.4
2402.0	Battery Operated	4804.0	H	53.9	74.0	-20.1
2402.0	Battery Operated	4804.0	V	48.9	74.0	-25.1
2441.0	Battery Operated	4882.0	H	61.4	74.0	-12.6
2441.0	Battery Operated	4882.0	V	58.8	74.0	-15.2
2480.0	Battery Operated	4960.0	H	58.4	74.0	-15.6
2480.0	Battery Operated	4960.0	V	54.5	74.0	-19.5
2480.0	Battery Operated	2483.5	H	47.8	74.0	-26.2
2480.0	Battery Operated	2483.5	V	47.8	74.0	-26.2

**Figure 44. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.  
Detector: Peak**



Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Peak Amp” includes correction factor.

\* “Correction Factor” = Antenna Factor + Cable Loss- Low Noise Amplifier Gain



## Radiated Emission

E.U.T Description      µCOR System Monitor  
Type                      µCOR V1.0.0  
Serial Number:            Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical      Frequency range: 1.0 GHz to 25.0 GHz  
Test Distance: 3 meters                              Detector: Average

Operation Frequency (MHz)	Setup	Freq.	Polarity	Average Reading	Average Specification	Average Margin
		(MHz)	(H/V)	(dBµV/m)	(dB µV/m)	(dB)
2402.0	Battery Operated	2390.0	H	16.9	54.0	-37.1
2402.0	Battery Operated	2390.0	V	16.9	54.0	-37.1
2402.0	Battery Operated	4804.0	H	23.2	54.0	-30.8
2402.0	Battery Operated	4804.0	V	18.2	54.0	-35.8
2441.0	Battery Operated	4882.0	H	30.7	54.0	-23.3
2441.0	Battery Operated	4882.0	V	28.1	54.0	-25.9
2480.0	Battery Operated	4960.0	H	27.7	54.0	-26.3
2480.0	Battery Operated	4960.0	V	23.8	54.0	-30.2
2480.0	Battery Operated	2483.5	H	17.1	54.0	-36.9
2480.0	Battery Operated	2483.5	V	17.1	54.0	-36.9

**Figure 45. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.  
Detector: Average**

Notes:

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Average Amp” includes correction factor.



- \* Correction Factor = Antenna Factor + Cable Loss- Low Noise Amplifier Gain
- \* Avg. Factor calculation:

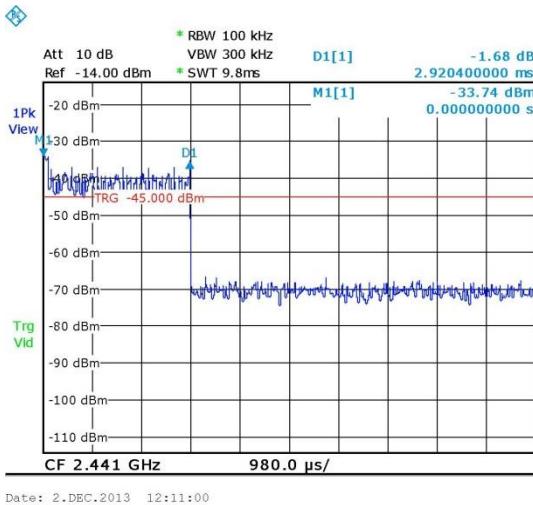


Figure 46. Avg. Factor – burst duration 2.92msec

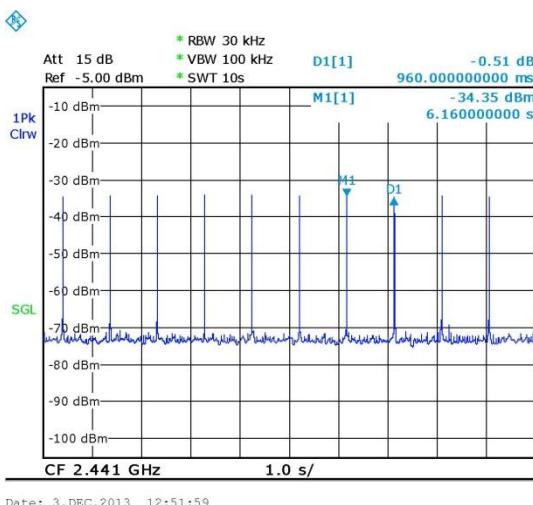


Figure 47. Avg. Factor – transmission within 100msec = $20\log(2.91/100) = -30.7$  dB



## Radiated Emission

E.U.T Description      µCOR System Monitor  
Type                      µCOR V1.0.0  
Serial Number:            Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical      Frequency range: 1.0 GHz to 25.0 GHz  
Test Distance: 3 meters                              Detector: Peak

Operation Frequency (MHz)	Setup	Freq.	Polarity	Peak Reading	Peak Specification	Peak Margin
		(MHz)	(H/V)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)
2402.0	Charging	2390.0	H	46.8	74.0	-27.2
2402.0	Charging	2390.0	V	45.9	74.0	-28.1
2402.0	Charging	4804.0	H	51.8	74.0	-22.2
2402.0	Charging	4804.0	V	52.8	74.0	-21.2
2441.0	Charging	4882.0	H	58.7	74.0	-15.3
2441.0	Charging	4882.0	V	60.4	74.0	-13.6
2480.0	Charging	4960.0	H	55.0	74.0	-19.0
2480.0	Charging	4960.0	V	58.2	74.0	-15.8
2480.0	Charging	2483.5	H	46.9	74.0	-27.1
2480.0	Charging	2483.5	V	48.0	74.0	-26.0

**Figure 48. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.  
Detector: Peak**

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Peak Amp” includes correction factor.

\* “Correction Factor” = Antenna Factor + Cable Loss- Low Noise Amplifier Gain



## Radiated Emission

E.U.T Description μCOR System Monitor  
Type μCOR V1.0.0  
Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical      Frequency range: 1.0 GHz to 25.0 GHz  
Test Distance: 3 meters      Detector: Average

Operation Frequency (MHz)	Setup	Freq. (MHz)	Polarity (H/V)	Average Reading (dBμV/m)	Average Specification (dB μV/m)	Average Margin (dB)
2402.0	Charging	2390.0	H	16.1	54.0	-37.9
2402.0	Charging	2390.0	V	15.2	54.0	-38.8
2402.0	Charging	4804.0	H	21.1	54.0	-32.9
2402.0	Charging	4804.0	V	22.1	54.0	-32.9
2441.0	Charging	4882.0	H	28.0	54.0	-26.0
2441.0	Charging	4882.0	V	29.7	54.0	-24.3
2480.0	Charging	4960.0	H	24.3	54.0	-29.7
2480.0	Charging	4960.0	V	27.5	54.0	-26.5
2480.0	Charging	2483.5	H	16.2	54.0	-37.8
2480.0	Charging	2483.5	V	17.3	54.0	-36.7

**Figure 49. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.  
Detector: Average**

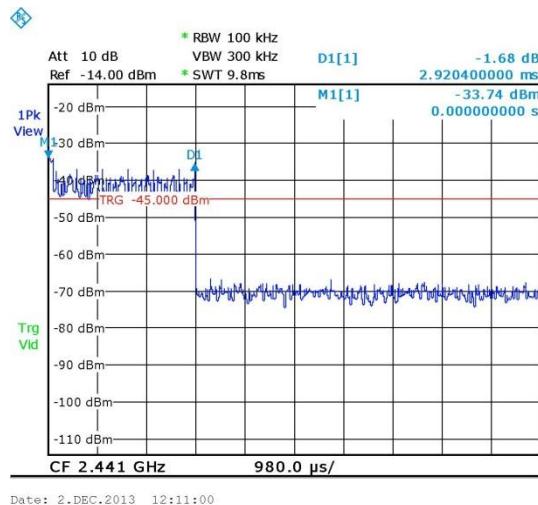
### Notes:

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Average Amp” includes correction factor.

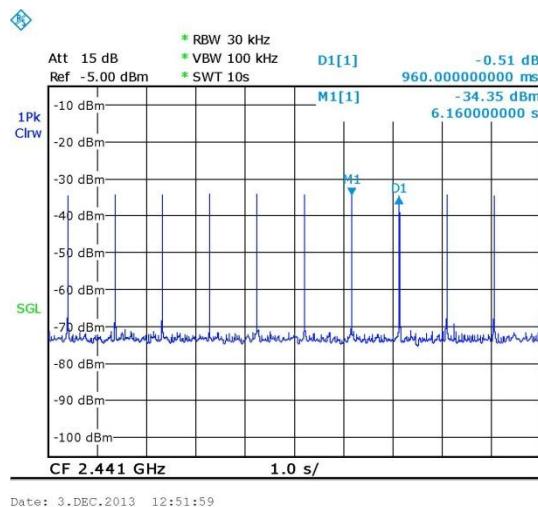
\* Correction Factor = Antenna Factor + Cable Loss- Low Noise Amplifier Gain

\* Avg. Factor calculation:



Date: 2.DEC.2013 12:11:00

**Figure 50. Avg. Factor – burst duration 2.92msec**



Date: 3.DEC.2013 12:51:59

**Figure 51. Avg. Factor – transmission within 100msec =20log (2.91/100) = -30.7dB**



### ***Test Instrumentation Used, Radiated Measurements***

<b>Instrument</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial No.</b>	<b>Last Calibration Date</b>	<b>Period</b>
EMI Receiver	HP	85422E	3906A00276	February 26, 2013	1 Year
RF Filter Section	HP	85420E	3705A00248	February 26, 2013	1 Year
Antenna Biconical	EMCO	3104	2606	August 30, 2013	1 Year
Antenna Log Periodic	ARA	LPD-2010/A	1038	April 2, 2013	1 Year
Double Ridged Waveguide Horn Antenna	EMCO	3115	29845	March 14, 2012	2 Years
Horn Antenna	ARA	SWH-28	1007	January 26, 2011	3 Years
Horn Antenna	ETS	3115	29845	March 14, 2012	2 Years
Low Noise Amplifier	DBS MICROWAVE	LNA-DBS-0411N313	013	August 21, 2013	1 Year
Low Noise Amplifier	Sophia Wireless	LNA 28-B	232	August 28, 2013	1 Year
Spectrum Analyzer	HP	8592L	3826A01204	February 28, 2013	1 Year
Spectrum Analyzer	HP	8564E	3442A00275	February 28, 2013	1 Year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A



### 13.4 **Field Strength Calculation 30 – 1000 MHz**

The field strength is calculated directly by the EMI Receiver software, and a "Correction Factors" data disk, using the following equation:

$$[\text{dB}\mu\text{v}/\text{m}] \text{ FS} = \text{RA} + \text{AF} + \text{CF}$$

FS: Field Strength [dB $\mu$ v/m]

RA: Receiver Amplitude [dB $\mu$ v]

AF: Receiving Antenna Correction Factor [dB/m]

CF: Cable Attenuation Factor [dB]

Example: FS = 30.7 dB $\mu$ V (RA) + 14.0 dB (AF) + 0.9 dB (CF) = 45.6 dB $\mu$ V

No external pre-amplifiers are used.



## 14. Antenna Gain/Information

BlueTooth Antenna:

Part number PB0017-A2 (by Kyma)

Operation frequency: 2400 – 2490 MHz

Gain: 2.5 dBi

VSWR: 2:1

Polarization: Linear, Horizontal

3 dB beamwidth: 100 deg.



## 15. R.F Exposure/Safety

Typical use of the E.U.T. is as a non invasive sensing device that assesses and displays a patient's thoracic fluid content. The typical distance between the E.U.T. and the user is 0.25 cm.

### Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1310 Requirements

(a) FCC limits at 2441 MHz is:  $1 \frac{mW}{cm^2}$

Using table 1 of Section 1.1310 limit for general population/uncontrolled exposures, the above level is an average over 30 minutes.

(b) The power density produced by the E.U.T. is

$$S = \frac{P_t G_t}{4\pi R^2}$$

P<sub>t</sub>- Transmitted Power 3.18 dBm (Peak) = 2.1 mW

Duty Cycle – 2.92%

P<sub>AVG</sub> – 2.1 x 0.0292 = 0.0613

G<sub>T</sub>- Antenna Gain, 2.5 dBi = 1.78 numeric

R- Distance from Transmitter using 0.25 cm worst case

(c) The AVG power density is :

$$S_{AVG} = \frac{0.0613 \times 1.78}{4\pi(0.25)^2} = 0.138 \frac{mW}{cm^2}$$

(d) This is below the FCC limit.



## 16. APPENDIX B - CORRECTION FACTORS

### 16.1 Correction factors for CABLE

**from EMI receiver  
to test antenna  
at 3 meter range.**

FREQUENCY (MHz)	CORRECTION FACTOR (dB)	FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3	1200.0	7.3
20.0	0.6	1400.0	7.8
30.0	0.8	1600.0	8.4
40.0	0.9	1800.0	9.1
50.0	1.1	2000.0	9.9
60.0	1.2	2300.0	11.2
70.0	1.3	2600.0	12.2
80.0	1.4	2900.0	13.0
90.0	1.6		
100.0	1.7		
150.0	2.0		
200.0	2.3		
250.0	2.7		
300.0	3.1		
350.0	3.4		
400.0	3.7		
450.0	4.0		
500.0	4.3		
600.0	4.7		
700.0	5.3		
800.0	5.9		
900.0	6.3		
1000.0	6.7		

#### NOTES:

1. The cable type is RG-214.
2. The overall length of the cable is 27 meters.
3. The above data is located in file 27MO3MO.CBL on the disk marked "Radiated Emission Tests EMI Receiver".



## 16.2 Correction factors for CABLE

from EMI receiver  
to test antenna  
at 3 meter range.

FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.2
2.0	1.6
3.0	2.0
4.0	2.4
5.0	3.0
6.0	3.4
7.0	3.8
8.0	4.2
9.0	4.6
10.0	5.0
12.0	5.8

### NOTES:

1. The cable type is RG-8.
2. The overall length of the cable is 10 meters.



### 16.3 Correction factors for CABLE

from spectrum analyzer  
to test antenna above 2.9 GHz

FREQUENCY (GHz)	CORRECTION FACTOR (dB)	FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.9	14.0	9.1
2.0	2.7	15.0	9.5
3.0	3.5	16.0	9.9
4.0	4.2	17.0	10.2
5.0	4.9	18.0	10.4
6.0	5.5	19.0	10.7
7.0	6.0	20.0	10.9
8.0	6.5	21.0	11.2
9.0	7.0	22.0	11.6
10.0	7.5	23.0	11.9
11.0	7.9	24.0	12.3
12.0	8.3	25.0	12.6
13.0	8.7	26.0	13.0

NOTES:

1. The cable type is SUCOFLEX 104 E manufactured by SUHNER.
2. The cable is used for measurements above 2.9 GHz.
3. The overall length of the cable is 10 meters.



#### 16.4 Correction factors for CABLE

from EMI receiver  
to test antenna  
at 10 meter range.

FREQUENCY (MHz)	CORRECTION FACTOR (dB)	FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3	1200.0	9.8
20.0	0.8	1400.0	10.0
30.0	0.9	1600.0	11.3
40.0	1.2	1800.0	12.2
50.0	1.4	2000.0	13.1
60.0	1.6	2300.0	14.5
70.0	1.8	2600.0	15.9
80.0	1.9	2900.0	16.4
90.0	2.0		
100.0	2.1		
150.0	2.6		
200.0	3.2		
250.0	3.8		
300.0	4.2		
350.0	4.6		
400.0	5.1		
450.0	5.3		
500.0	5.6		
600.0	6.3		
700.0	7.0		
800.0	7.6		
900.0	8.0		
1000.0	8.7		

*NOTES:*

1. The cable type is RG-214.
2. The overall length of the cable is 34 meters.
3. The above data is located in file 34M10MO.CBL on the disk marked "Radiated Emissions Tests EMI Receiver".



**12.6 Correction factors for LOG PERIODIC ANTENNA  
Type LPD 2010/A  
at 3 and 10 meter ranges.**

**Distance of 3 meters**

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.1
250.0	10.2
300.0	12.5
400.0	15.4
500.0	16.1
600.0	19.2
700.0	19.4
800.0	19.9
900.0	21.2
1000.0	23.5

**Distance of 10 meters**

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.0
250.0	10.1
300.0	11.8
400.0	15.3
500.0	15.6
600.0	18.7
700.0	19.1
800.0	20.2
900.0	21.1
1000.0	23.2

**NOTES:**

1. Antenna serial number is 1038.
2. The above lists are located in file number 38M30.ANT for a 3 meter range, and file number 38M100.ANT for a 10 meter range.
3. The files mentioned above are located on the disk marked "Radiated Emission Test EMI Receiver".



## 16.5 Correction factors for LOG PERIODIC ANTENNA

Type SAS-200/511  
at 3 meter range.

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
1.0	24.9
1.5	27.8
2.0	29.9
2.5	31.2
3.0	32.8
3.5	33.6
4.0	34.3
4.5	35.2
5.0	36.2
5.5	36.7
6.0	37.2
6.5	38.1

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
7.0	38.6
7.5	39.2
8.0	39.9
8.5	40.4
9.0	40.8
9.5	41.1
10.0	41.7
10.5	42.4
11.0	42.5
11.5	43.1
12.0	43.4
12.5	44.4
13.0	44.6

### NOTES:

1. Antenna serial number is 253.
2. The above lists are located in file number SAS3M0.ANT for a 3 meter range.
3. The files mentioned above are located on the disk marked "Antenna Factors".



## 16.6 Correction factors for BICONICAL ANTENNA

### Type BCD-235/B, at 3 meter range

FREQUENCY (MHz)	AFE (dB/m)
20.0	19.4
30.0	14.8
40.0	11.9
50.0	10.2
60.0	9.1
70.0	8.5
80.0	8.9
90.0	9.6
100.0	10.3
110.0	11.0
120.0	11.5
130.0	11.7
140.0	12.1
150.0	12.6
160.0	12.8
170.0	13.0
180.0	13.5
190.0	14.0
200.0	14.8
210.0	15.3
220.0	15.8
230.0	16.2
240.0	16.6
250.0	17.6
260.0	18.2
270.0	18.4
280.0	18.7
290.0	19.2
300.0	19.9
310	20.7
320	21.9
330	23.4
340	25.1
350	27.0

#### NOTES:

1. Antenna serial number is 1041.
2. The above list is located in file 19BC10M1.ANT on the disk marked "Radiated Emissions Tests EMI Receiver".



**16.7 Correction factors for BICONICAL ANTENNA  
Type BCD-235/B,  
10 meter range**

FREQUENCY (MHz)	AFE (dB/m)
30.0	12.1
40.0	10.6
50.0	10.6
60.0	8.9
70.0	8.5
80.0	9.6
90.0	9.4
100.0	9.6
110.0	10.3
120.0	10.7
130.0	12.6
140.0	12.7
150.0	12.7
160.0	13.8
170.0	13.7
180.0	14.9
190.0	13.4
200.0	13.1
210.0	14.0
220.0	14.5
230.0	15.8
240.0	16.0
250.0	16.6
260.0	16.7
270.0	18.3
280.0	18.5
290.0	19.3
300.0	20.9

*NOTES:*

1. Antenna serial number is 1041.
2. The above list is located in file 41BC10M1.ANT on the disk marked "Radiated Emissions Tests EMI Receiver".



**16.8 Correction factors for Double-Ridged Waveguide Horn**

**Model: 3115, S/N 29845  
at 3 meter range.**

FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENN A Gain (dBi)	FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENNA Gain (dBi)
1.0	24.8	5.4	10.0	38.8	11.4
1.5	26.1	7.6	10.5	38.9	11.8
2.0	28.6	7.7	11.0	39.0	12.1
2.5	29.8	8.4	11.5	39.6	11.8
3.0	31.4	8.4	12.0	39.8	12.0
3.5	32.4	8.7	12.5	39.6	12.5
4.0	33.7	8.6	13.0	40.0	12.5
4.5	33.4	9.9	13.5	39.8	13.0
5.0	34.5	9.7	14.0	40.2	13.0
5.5	35.1	9.9	14.5	40.6	12.9
6.0	35.4	10.4	15.0	41.3	12.4
6.5	35.6	10.8	15.5	39.5	14.6
7.0	36.2	10.9	16.0	38.8	15.5
7.5	37.3	10.4	16.5	40.0	14.6
8.0	37.7	10.6	17.0	41.4	13.4
8.5	38.3	10.5	17.5	44.8	10.3
9.0	38.5	10.8	18.0	47.2	8.1
9.5	38.7	11.1			



**16.9 Correction factors for**

**Horn Antenna**

**Model: SWH-28  
at 1 meter range.**

<b>FREQUENCY</b> (GHz)	<b>AFE</b> (dB /m)	<b>Gain</b> (dB1)
18.0	40.3	16.1
19.0	40.3	16.3
20.0	40.3	16.1
21.0	40.3	16.3
22.0	40.4	16.8
23.0	40.5	16.4
24.0	40.5	16.6
25.0	40.5	16.7
26.0	40.6	16.4



**16.10 Correction factors for**

**Horn Antenna**

**Model: V637**

<b>FREQUENCY</b> (GHz)	<b>AFE</b> (dB /m)	<b>Gain</b> (dB1)
26.0	43.6	14.9
27.0	43.7	15.1
28.0	43.8	15.3
29.0	43.9	15.5
30.0	43.9	15.8
31.0	44.0	16.0
32.0	44.1	16.2
33.0	44.1	16.4
34.0	44.1	16.7
35.0	44.2	16.9
36.0	44.2	17.1
37.0	44.2	17.4
38.0	44.2	17.6
39.0	44.2	17.8
40.0	44.2	18.0



**16.11 Correction factors for ACTIVE LOOP ANTENNA**

**Model 6502**  
**S/N 9506-2950**

<b>FREQUENCY</b> (MHz)	<b>Magnetic Antenna Factor</b> (dB)	<b>Electric Antenna Factor</b> (dB)
.009	-35.1	16.4
.010	-35.7	15.8
.020	-38.5	13.0
.050	-39.6	11.9
.075	-39.8	11.8
.100	-40.0	11.6
.150	-40.0	11.5
.250	-40.0	11.6
.500	-40.0	11.5
.750	-40.1	11.5
1.000	-39.9	11.7
2.000	-39.5	12.0
3.000	-39.4	12.1
4.000	-39.7	11.9
5.000	-39.7	11.8
10.000	40.2	11.3
15.000	-40.7	10.8
20.000	-40.5	11.0
25.000	-41.3	10.2
30.000	42.3	9.2