

## TEST REPORT

ACCORDING TO: FCC 47CFR part 15 subpart C § 15.209 and  
RSS-210 issue 8 section 2.5.1

FOR:

**Visonic Ltd.**

**RFID tag reader of Remote keypad**

**Model: KP-141 PG2**

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## 1 Applicant information

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

## 2 Equipment under test attributes

**Product name:** RFID tag reader of Remote keypad  
**Product type:** Transmitter  
**Model(s):** KP-141 PG2  
**Hardware version:** 90-204024  
**Software release:** JS-701195, version 1.0.09  
**Receipt date** 6/28/2011

## 3 Manufacturer information

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




## 4 Test details

**Project ID:** 21632  
**Location:** Hermon Laboratories Ltd. Harakevet Industrial Zone, Binyamina 30500, Israel  
**Test started:** 6/28/2011  
**Test completed:** 6/28/2011  
**Test specification(s):** FCC 47CFR part 15, subpart C, §15.209;  
RSS-210 issue 8 section 2.5.1, RSS-Gen issue 3 Table 6

## 5 Tests summary

Test	Status
<b>Transmitter characteristics</b>	
FCC section 15.209, RSS-Gen section 7.2.5, Field strength of emissions	Pass
FCC section 15.203, RSS-Gen section 7.1.2, Antenna requirement	Pass
RSS-Gen, Section 4.6.1, Occupied bandwidth	Tested

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.  
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

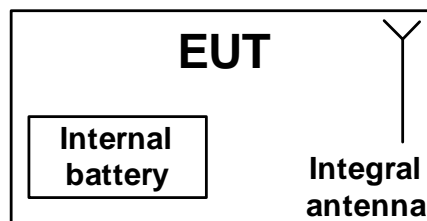
	Name and Title	Date	Signature
<b>Tested by:</b>	Mr. S. Samokha, test engineer	June 28, 2011	
<b>Reviewed by:</b>	Mrs. M. Cherniavsky, certification engineer	July 4, 2011	
<b>Approved by:</b>	Mr. M. Nikishin, EMC and radio group manager	July 5, 2011	

## 6 EUT description

### 6.1 General information

The EUT, RFID tag reader, operating at 120 kHz, is included in KP-141 PG2 remote keypad.

### 6.2 Test configuration



### 6.3 Changes made in the EUT

No changes were implemented in the EUT.

## 6.4 EUT positions during testing

Photograph 6.4.1 EUT in X-axis orthogonal position



Photograph 6.4.2 EUT in Y-axis orthogonal position



Photograph 6.4.3 EUT in Z-axis orthogonal position



<b>Test specification:</b>	<b>Section 15.209, RSS-Gen section 7.2.5, Field strength of emissions</b>		
<b>Test procedure:</b>	ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date:</b>	6/28/2011		
<b>Temperature:</b> 22.3 °C	<b>Air Pressure:</b> 1006 hPa	<b>Relative Humidity:</b> 44 %	<b>Power Supply:</b> 3 V battery
<b>Remarks:</b>			

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

### 7.1 Field strength of emissions

#### 7.1.1 General

This test was performed to measure field strength of fundamental and spurious emissions from the EUT. Specification test limits are given Table 7.1.1 and Table 7.1.2.

Table 7.1.1 Radiated fundamental emission limits

Fundamental frequency, kHz	Field strength at 3 m, dB(μV/m)
	Average
120.4	106

Table 7.1.2 Radiated spurious emissions limits

Frequency, MHz	Field strength at 3 m, dB(μV/m)		
	Within restricted bands		
	Peak	Quasi Peak	Average
0.009 – 0.090	148.5 – 128.5	NA	128.5 – 108.5**
0.090 – 0.110	NA	108.5 – 106.8**	NA
0.110 – 0.490	126.8 – 113.8	NA	106.8 – 93.8**
0.490 – 1.705	NA	73.8 – 63.0**	NA
1.705 – 30.0*		69.5	
30 – 88		40.0	
88 – 216		43.5	
216 – 960		46.0	
960 – 1000		54.0	
Above 1000	74.0	NA	54.0

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

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

where  $S_1$  and  $S_2$  – standard defined and test distance respectively in meters.

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

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

7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and the performance check was conducted.

7.1.2.2 The EUT was tested in 3 orthogonal positions.

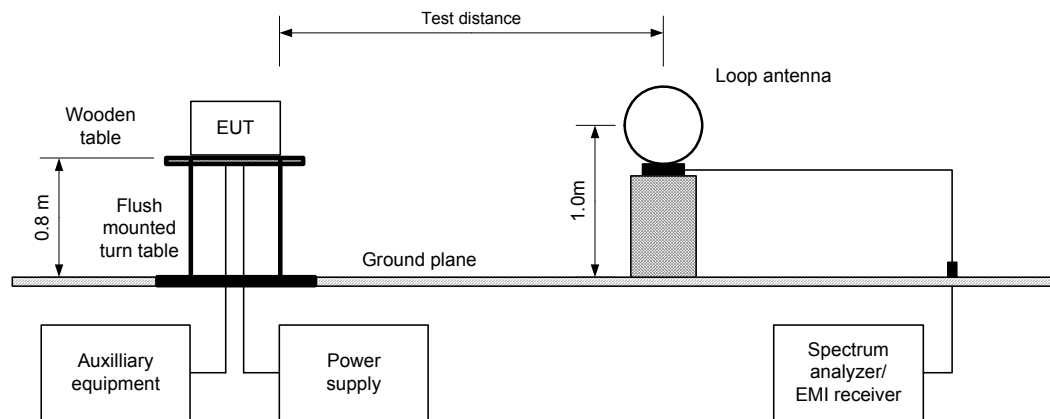
7.1.2.3 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360° and the measuring antenna was rotated around its vertical axis. The measuring antenna polarization was switched from vertical to horizontal.

7.1.2.4 The worst test results (the lowest margins) were recorded in Table 7.1.3 and shown in the associated plots.



<b>Test specification:</b>		<b>Section 15.209, RSS-Gen section 7.2.5, Field strength of emissions</b>	
<b>Test procedure:</b>		ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date:</b>	6/28/2011		
<b>Temperature:</b> 22.3 °C	<b>Air Pressure:</b> 1006 hPa	<b>Relative Humidity:</b> 44 %	<b>Power Supply:</b> 3 V battery
<b>Remarks:</b>			

Figure 7.1.1 Setup for spurious emission field strength measurements below 30 MHz





<b>Test specification:</b>	<b>Section 15.209, RSS-Gen section 7.2.5, Field strength of emissions</b>		
<b>Test procedure:</b>	ANSI C63.4, Section 13.1.4		
<b>Test mode:</b>	Compliance	<b>Verdict:</b> PASS	
<b>Date:</b>	6/28/2011		
<b>Temperature:</b> 22.3 °C	<b>Air Pressure:</b> 1006 hPa	<b>Relative Humidity:</b> 44 %	<b>Power Supply:</b> 3 V battery
<b>Remarks:</b>			

Table 7.1.3 Field strength of fundamental emission

TEST DISTANCE: 3 m  
 TEST SITE: Anechoic chamber  
 EUT POSITION: Typical (Vertical)  
 MODULATION: Unmodulated  
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum  
 INVESTIGATED FREQUENCY RANGE: 0.009 – 30 MHz  
 DETECTOR USED: Peak  
 RESOLUTION BANDWIDTH: 1 kHz (9 kHz – 150 kHz)  
 VIDEO BANDWIDTH: 9.0 kHz (150 kHz – 30 MHz)  
 TEST ANTENNA TYPE: ≥ Resolution bandwidth  
 Active loop (9 kHz – 30 MHz)

F, kHz	Antenna		Azimuth, degrees*	Peak field strength			Average field strength			Verdict
	Pol.	Height, m		Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	
120.4	Vert	1.0	0	66.58	126.0	-59.42	66.58	106.0	-39.42	Pass

Maximum peak output power was obtained in the EUT Z-axis orthogonal position.

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

\*\* - Margin (dB) = measured result - specification limit.



Test specification:	Section 15.209, RSS-Gen section 7.2.5, Field strength of emissions			
Test procedure:	ANSI C63.4, Section 13.1.4			
Test mode:	Compliance	Verdict: PASS		
Date:	6/28/2011			
Temperature: 22.3 °C	Air Pressure: 1006 hPa	Relative Humidity: 44 %	Power Supply: 3 V battery	
Remarks:				

Table 7.1.4 Field strength of spurious emissions

TEST DISTANCE: 3 m  
 TEST SITE: Anechoic chamber  
 EUT POSITION: Typical (Vertical)  
 MODULATION: Unmodulated  
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum  
 INVESTIGATED FREQUENCY RANGE: 0.009 – 30 MHz  
 DETECTOR USED: Peak  
 RESOLUTION BANDWIDTH: 1 kHz (9 kHz – 150 kHz)  
 9.0 kHz (150 kHz – 30 MHz)  
 VIDEO BANDWIDTH: ≥ Resolution bandwidth  
 TEST ANTENNA TYPE: Active loop (9 kHz – 30 MHz)

F, MHz	Antenna		Azimuth, degrees*	Peak field strength			Average field strength			Verdict
	Pol.	Height, m		Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	
No emissions were found										Pass

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

\*\* - Margin (dB) = measured result - specification limit.

Table 7.1.5 Restricted bands

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

## Reference numbers of test equipment used

HL 0446	HL 0521	HL 2871	HL 3623				
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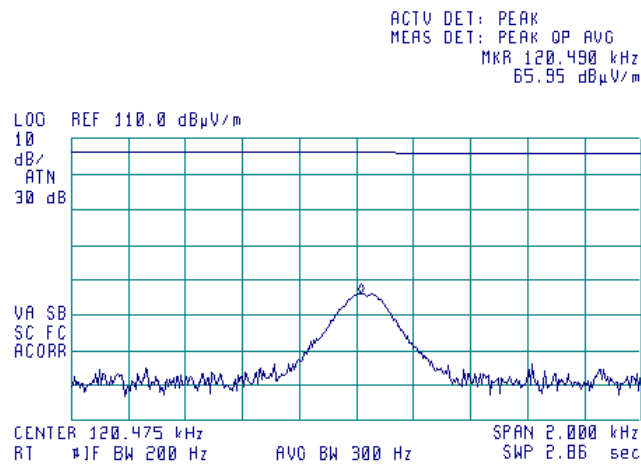
Full description is given in Appendix A.



Test specification:	Section 15.209, RSS-Gen section 7.2.5, Field strength of emissions		
Test procedure:	ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/28/2011		
Temperature: 22.3 °C	Air Pressure: 1006 hPa	Relative Humidity: 44 %	Power Supply: 3 V battery
Remarks:			

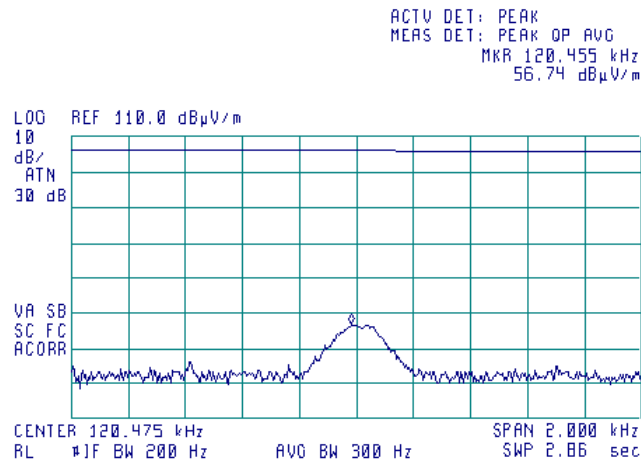
Plot 7.1.1 Radiated emission measurements at the fundamental frequency

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical  
EUT POSITION: X-axis orthogonal



Plot 7.1.2 Radiated emission measurements at the fundamental frequency

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Horizontal  
EUT POSITION: X-axis orthogonal

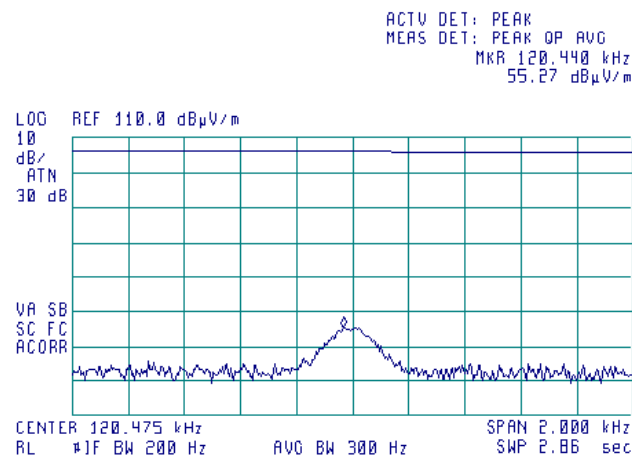




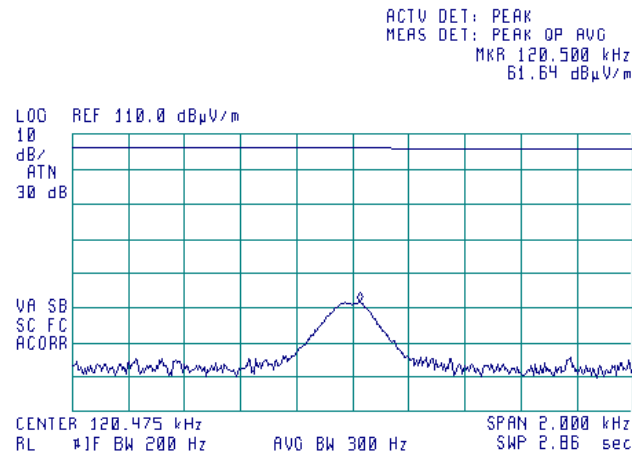
<b>Test specification:</b>		<b>Section 15.209, RSS-Gen section 7.2.5, Field strength of emissions</b>	
<b>Test procedure:</b>		ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		Compliance	<b>Verdict:</b> PASS
<b>Date:</b>		6/28/2011	
<b>Temperature:</b> 22.3 °C	<b>Air Pressure:</b> 1006 hPa	<b>Relative Humidity:</b> 44 %	<b>Power Supply:</b> 3 V battery
<b>Remarks:</b>			

**Plot 7.1.3 Radiated emission measurements at the fundamental frequency**

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical  
EUT POSITION: Y-axis orthogonal

**Plot 7.1.4 Radiated emission measurements at the fundamental frequency**

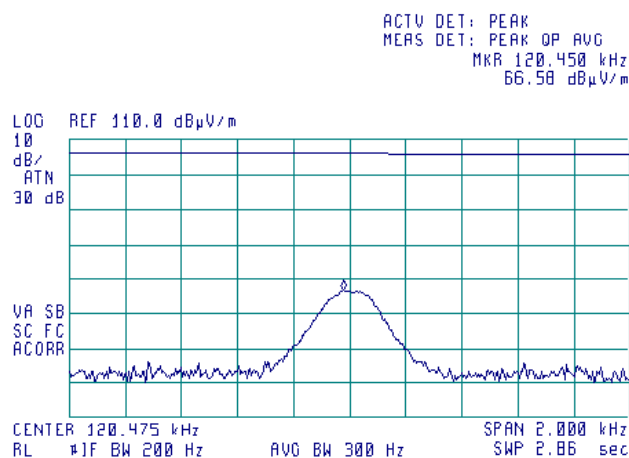
TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Horizontal  
EUT POSITION: Y-axis orthogonal



<b>Test specification:</b>		<b>Section 15.209, RSS-Gen section 7.2.5, Field strength of emissions</b>	
<b>Test procedure:</b>		ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>		Compliance	<b>Verdict:</b> PASS
<b>Date:</b>		6/28/2011	
<b>Temperature:</b> 22.3 °C	<b>Air Pressure:</b> 1006 hPa	<b>Relative Humidity:</b> 44 %	<b>Power Supply:</b> 3 V battery
<b>Remarks:</b>			

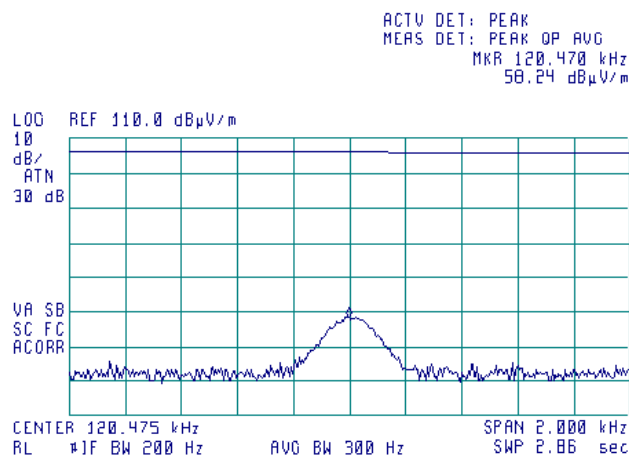
**Plot 7.1.5 Radiated emission measurements at the fundamental frequency**

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical  
EUT POSITION: Z-axis orthogonal



**Plot 7.1.6 Radiated emission measurements at the fundamental frequency**

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Horizontal  
EUT POSITION: Z-axis orthogonal

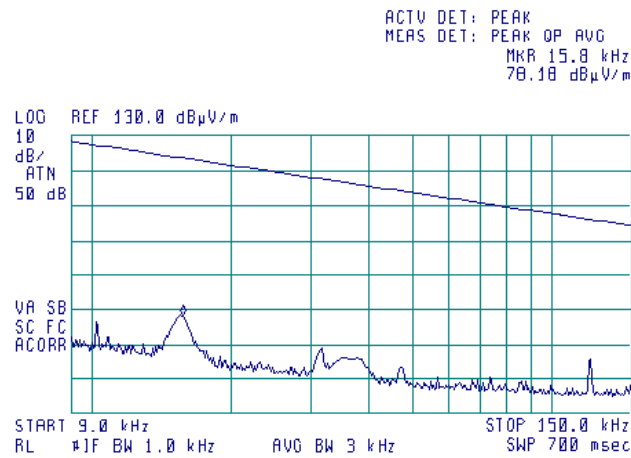




Test specification:	Section 15.209, RSS-Gen section 7.2.5, Field strength of emissions		
Test procedure:	ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/28/2011		
Temperature: 22.3 °C	Air Pressure: 1006 hPa	Relative Humidity: 44 %	Power Supply: 3 V battery
Remarks:			

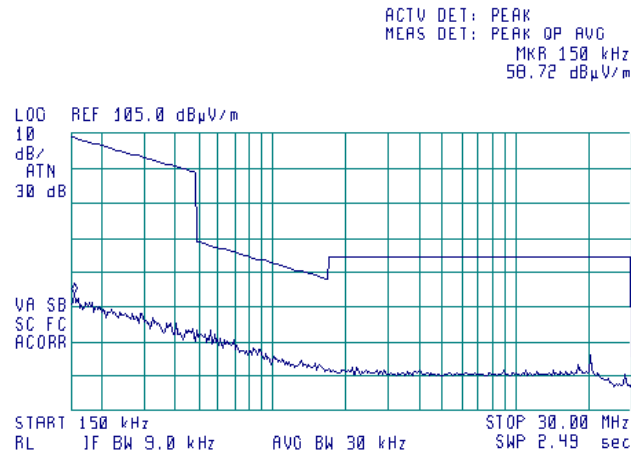
Plot 7.1.7 Radiated emission measurements from 9 to 150 kHz

TEST SITE: Anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical  
EUT POSITION: Z-axis orthogonal (worst case)



Plot 7.1.8 Radiated emission measurements from 0.15 to 30 MHz

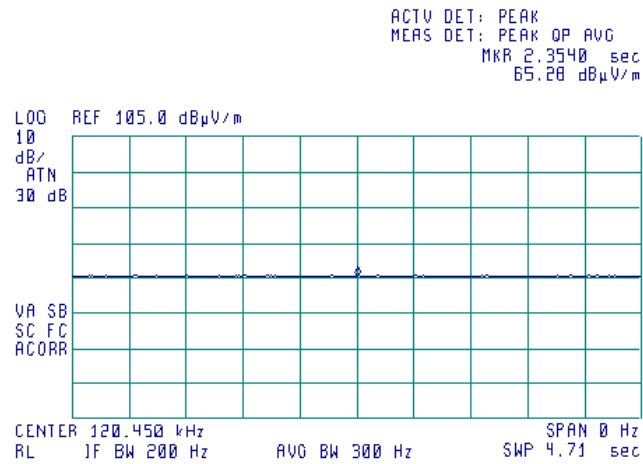
TEST SITE: Anechoic chamber  
TEST DISTANCE: 3 m  
ANTENNA POLARIZATION: Vertical  
EUT POSITION: Z-axis orthogonal (worst case)





<b>Test specification:</b>		<b>Section 15.209, RSS-Gen section 7.2.5, Field strength of emissions</b>	
<b>Test procedure:</b>		ANSI C63.4, Section 13.1.4	
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date:</b>	6/28/2011		
<b>Temperature:</b> 22.3 °C	<b>Air Pressure:</b> 1006 hPa	<b>Relative Humidity:</b> 44 %	<b>Power Supply:</b> 3 V battery
<b>Remarks:</b>			

Plot 7.1.9 Transmission pulse duration



Duty cycle 100%



<b>Test specification:</b>	<b>Section 15.203, RSS-Gen section 7.1.2, Antenna requirement</b>		
<b>Test procedure:</b>	Visual inspection / supplier declaration		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date:</b>	6/28/2011		
<b>Temperature:</b> 22.3 °C	<b>Air Pressure:</b> 1006 hPa	<b>Relative Humidity:</b> 44 %	<b>Power Supply:</b> 3 V battery
<b>Remarks:</b>			

## 7.2 Antenna requirements

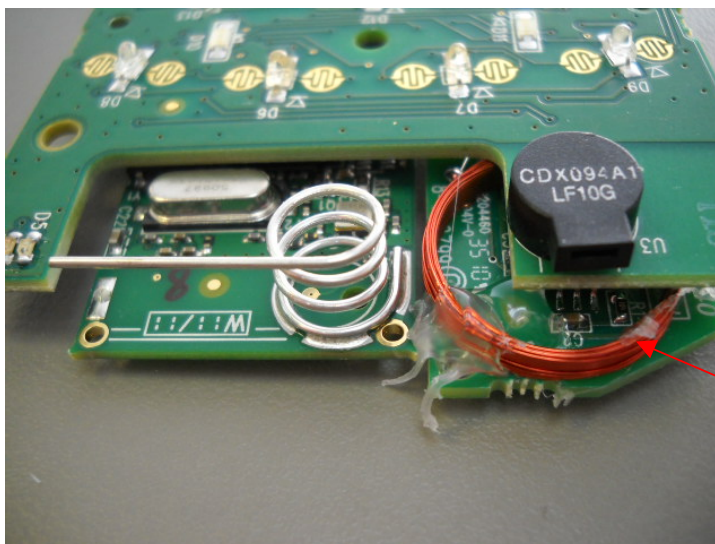
The EUT was verified for compliance with antenna requirements. A transmitter shall be designed to ensure that no antenna other than that furnished by the responsible party will be used with the device. It may be either permanently attached or employs a unique antenna connector for every antenna proposed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

The rationale for compliance with the above requirements was either visual inspection results or supplier declaration. The summary of results is provided in Table 7.2.1.

**Table 7.2.1 Antenna requirements**

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

**Photograph 7.2.1 Antenna assembly**



RFID reader antenna

Test specification:	RSS-Gen, Section 4.6.1, Occupied bandwidth		
Test procedure:	ANSI C63.4, Section 13.1.7		
Test mode:	Compliance	Verdict: PASS	
Date:	6/28/2011		
Temperature: 22.3 °C	Air Pressure: 1006 hPa	Relative Humidity: 44 %	Power Supply: 3 V battery
Remarks:			

## 7.3 Occupied bandwidth test

### 7.3.1 General

This test was performed to measure transmitter occupied bandwidth not specified by the standard.

### 7.3.2 Test procedure

**7.3.2.1** The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.

**7.3.2.2** The EUT was set to transmit modulated carrier at maximum data rate.

**7.3.2.3** The transmitter bandwidth was measured with spectrum analyzer as frequency delta between reference points on modulation envelope and provided in Table 7.3.1 and the associated plot.

**Figure 7.3.1 Occupied bandwidth test setup**



<b>Test specification:</b>		<b>RSS-Gen, Section 4.6.1, Occupied bandwidth</b>	
<b>Test procedure:</b>		ANSI C63.4, Section 13.1.7	
<b>Test mode:</b>	Compliance	<b>Verdict:</b> PASS	
<b>Date:</b>	6/28/2011		
<b>Temperature:</b> 22.3 °C	<b>Air Pressure:</b> 1006 hPa	<b>Relative Humidity:</b> 44 %	<b>Power Supply:</b> 3 V battery
<b>Remarks:</b>			

Table 7.3.1 Occupied bandwidth test results

DETECTOR USED: Peak  
SWEEP TIME: Auto  
RESOLUTION BANDWIDTH:  $\geq 1\%$  of the 20 dB bandwidth  
VIDEO BANDWIDTH:  $\geq$  RBW  
MODULATION ENVELOPE REFERENCE POINTS: 20.0 dBc

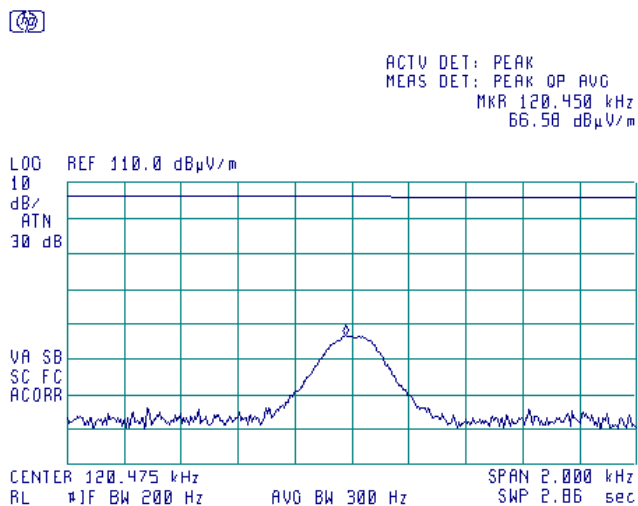
Carrier frequency, MHz	Occupied bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
120.45	0.475	NA	NA	Tested

Reference numbers of test equipment used

HL 0446	HL 0521	HL 2871	HL 3623					
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Full description is given in Appendix A.

Plot 7.3.1 Occupied bandwidth test result



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

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
0446	Antenna, Loop, Active, 10 kHz - 30 MHz	EMCO	6502	2857	3-July-11	3-July-12
0521	EMI Receiver (Spectrum Analyzer) with RF filter section 9 kHz-6.5 GHz	Hewlett Packard	8546A	3617A 00319, 3448A002 53	25-Aug-10	25-Aug-11
2871	Microwave Cable Assembly, 18 GHz, 6.4 m, SMA - SMA	Huber-Suhner	198-8155-00	2871	14-Sep-10	14-Sep-11
3623	Cable RF, 6.0 m, N type-N type, DC-6.5 GHz	Belden	MIL C-17	3623	19-May-11	19-May-12

## 9 APPENDIX B Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Radiated emissions at 3 m measuring distance	
Horizontal polarization	Biconilog antenna: $\pm 5.3$ dB Biconical antenna: $\pm 5.0$ dB Log periodic antenna: $\pm 5.3$ dB Double ridged horn antenna: $\pm 5.3$ dB
Vertical polarization	Biconilog antenna: $\pm 6.0$ dB Biconical antenna: $\pm 5.7$ dB Log periodic antenna: $\pm 6.0$ dB Double ridged horn antenna: $\pm 6.0$ dB

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

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

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

## 10 APPENDIX C Test laboratory description

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

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

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website: www.hermonlabs.com

Person for contact: Mr. Alex Usoskin, CEO.

## 11 APPENDIX D Specification references

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

## 12 APPENDIX E Test equipment correction factors

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

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

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

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

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



**Cable loss**  
**Cable coaxial, MIL C-17, N type-N type, 6 m**  
**Belden, HL 3623**

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	0.13	2600	4.38	5400	7.76
30	0.25	2700	4.53	5500	7.79
50	0.33	2800	4.64	5600	7.88
100	0.49	2900	4.79	5700	7.93
200	0.76	3000	4.93	5800	8.05
300	0.97	3100	5.02	5900	8.03
400	1.18	3200	5.18	6000	8.07
500	1.38	3300	5.27	6100	8.14
600	1.54	3400	5.41	6200	8.21
700	1.71	3500	5.57	6300	8.28
800	1.88	3600	5.65	6400	8.35
900	2.04	3700	5.82	6500	8.43
1000	2.19	3800	5.89		
1100	2.38	3900	6.02		
1200	2.61	4000	6.15		
1300	2.63	4100	6.26		
1400	2.79	4200	6.37		
1500	2.90	4300	6.52		
1600	3.08	4400	6.63		
1700	3.21	4500	6.74		
1800	3.31	4600	6.86		
1900	3.47	4700	6.98		
2000	3.59	4800	7.09		
2100	3.74	4900	7.17		
2200	3.86	5000	7.30		
2300	3.98	5100	7.41		
2400	4.12	5200	7.59		
2500	4.24	5300	7.71		

## 13 APPENDIX F Abbreviations and acronyms

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

END OF DOCUMENT