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DATE: 22 October 2013

I.T.L. (PRODUCT TESTING) LTD.

FCC Radio Test Report

for

Precyse Technologies Inc

Equipment under test:

915 Micro Beacon

BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014*

Written by: _____

R. Pinchuck, Documentation

Approved by: _____

A.Sharabi, Test Engineer

Approved by: _____

I. Raz, EMC Laboratory Manager

*See Customer's Declaration on Page 6

ISRAEL TESTING LABORATORIES
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TESTING Cert No.1152.01

Measurement/Technical Report for
Precyse Technologies Inc

915 Micro Beacon

BC91/005010, BC91/005011, BC91/005012,

BC91/005013, BC91/005014

FCC ID: WONBC91005010

This report concerns:	Original Grant:	X
	Class I Change:	
	Class II Change:	
Equipment type:	Digital Transmission System	
Limits used:	47CFR15 Section 15.247	

Measurement procedure used is according to KDB 558074 D01 9 April 2013 and ANSI 6.34: 2003.

Application for Certification
prepared by:
Ishaishou Raz
ITL (Product Testing) Ltd.
Kfar Bin Nun
D.N. Shimshon 99780
Israel
e-mail Sraz@itl.co.il

Applicant for this device:
(different from "prepared by")
Yossi Nurok
Precyse Technologies Ltd.
Ha'amal 11
Rosh Ha'ayin 48092
Israel
Tel: +972-3-922-7093
Fax: +972-3-922-7515
e-mail: ynurok@precysetech.com

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1. General Information

1.1 Administrative Information

Manufacturer:	Precyse Technologies Inc
Manufacturer's Address:	Ha'amal 11 Rosh Ha'ayin, 48092 Israel Tel: +972-3-922-7093 Fax: +972-3-922-7515
Manufacturer's Representative:	Yossi Nurok
Equipment Under Test (E.U.T):	915 Micro Beacon
Equipment Model No.:	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014*
Equipment Serial No.:	Not Designated
Date of Receipt of E.U.T:	11.08.13
Start of Test:	11.08.13
End of Test:	06.10.13
Test Laboratory Location:	I.T.L (Product Testing) Ltd. Kfar Bin Nun, ISRAEL 99780
Test Specifications:	47CFR15 Section 15.247

*See Customer's Declaration on next page.

Precyse Technologies
100 Ashford Center North
Suite 360
Atlanta, GA 30338

DECLARATION

Sunday, September 29, 2013

To Whom It May Concern,

I hereby declare that the only differences between the:

BC91/005010 915 Micro Beacon – II
BC91/005011 915 Micro Beacon - EI
BC91/005013 915 Micro Beacon - EE
BC91/005014 915 Micro ExBeacon – II and the
BC91/005012 915 Micro Beacon – IE (the tested unit)

Are as follows:

BC91/005010 915 Micro Beacon – II	Internal battery, internal antenna
BC91/005011 915 Micro Beacon – EI	External battery, internal antenna
BC91/005012 915 Micro Beacon – IE	Internal battery, external antenna
BC91/005013 915 Micro Beacon – EE	External battery, external antenna
BC91/005014 915 Micro ExBeacon – II	Internal battery, internal antenna, HZ

BC91/005010 and BC91/005014 are differentiated by HZ indication. HZ stands for Hazardous Locations certification.

Sincerely,

Yossi Nurok

Yossi Nurok
Hardware engineer

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.
6. TUV Product Services, England, ASLLAS No. 97201.

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

The Micro Beacon is used to define a location zone. It is based on a microcontroller and 4 RF transceivers.
It uses the iLocate proprietary protocol which provides a 2 way, half duplex communication with the base station and to transmit its ID to the SATs.
The unit is powered by an internal 3.6V battery pack/ 12vdc from external battery.

1.4 Test Methodology

Radiated testing was performed according to the procedures in KDB 558074 D01 9 April 2013 and ANSI 63.4: 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

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):
± 4.96 dB

2. System Test Configuration

2.1 Justification

The E.U.T. is a wall-mounted unit and was tested in the vertical position simulating wall-mounting.

The E.U.T. can use either an integral antenna (0dBi) or an external antenna (0 dBi). All tests except spurious radiated emission were performed conducted from the antenna port. Spurious radiated emission was tested using both the integral antenna and the external antenna.

A prescan of radiated emission was conducted inside the chamber on both digital configurations (internal battery and external 12VDC source) and the worst case was tested for spurious emission in the OATS at 2 configurations (integrated antenna and external dedicated antenna) .the table of the prescan results below.

Model Number	Configuration	2nd Harmonic level @ 1meter
BC91/005010	Internal battery, Integrated antenna	46.6
BC91/005011	External 12Vdc, Integrated antenna	37.0
BC91/005012	Internal battery, External antenna	46.7
BC91/005013	External 12Vdc, External antenna	35.2
BC91/005014	Internal battery, Integrated antenna, HZ	N/A

Due to the results above, model number BC91/005012 was tested as worst case.

Unit incorporates 4 RF chains:

- 3 identical RF chains transmitting different channels - this was tested only once due to similarity.
- one separate chain not identical to the chains above – tested separately.

Intermodulation was tested both conducted end radiated while all 4 chains transmitting continuously.

2.2 EUT Exercise Software

The unit was operated in continuous transmission mode.

2.3 Special Accessories

No special accessories were needed to achieve compliance.

2.4 Equipment Modifications

No modifications were necessary in order to achieve compliance.

2.5 Configuration of Tested System

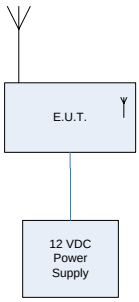

Figure 1. Configuration of Tested System – Conducted on RF Port

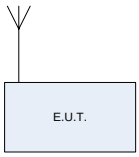

Figure 2. Configuration of Tested System – Radiated on RF Port

3. Test Setup Photos

Figure 3. Conducted Emission From Antenna Ports Tests

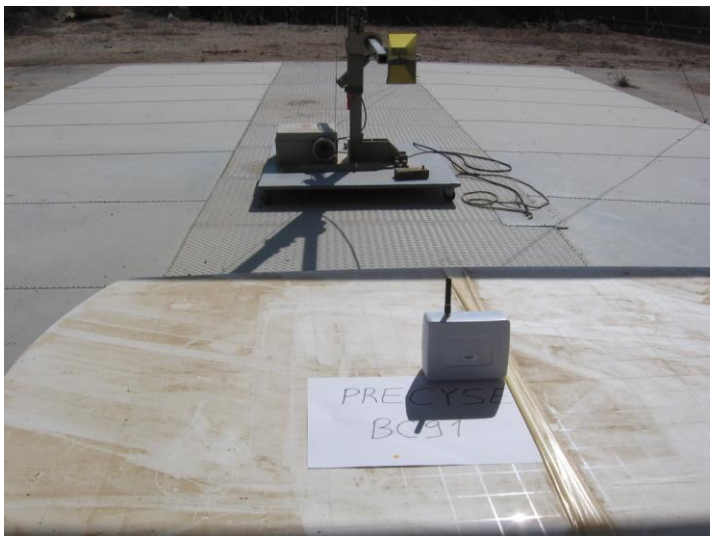

Figure 4. Radiated Emission Test External Antenna

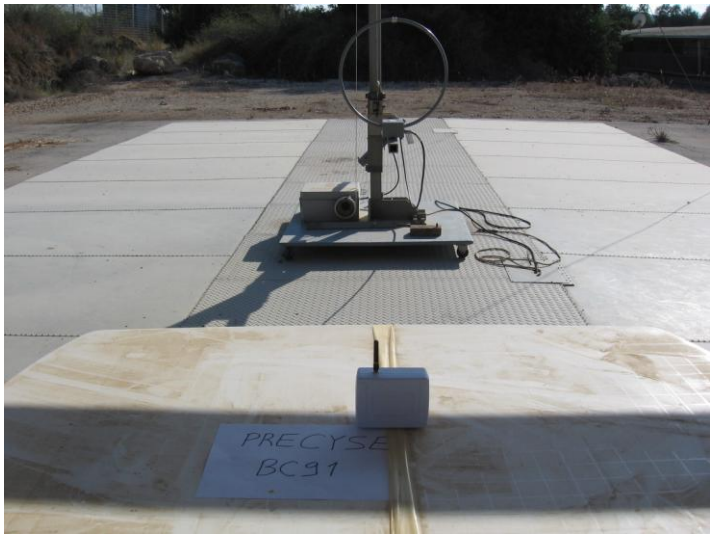

Figure 5. Radiated Emission Test External Antenna

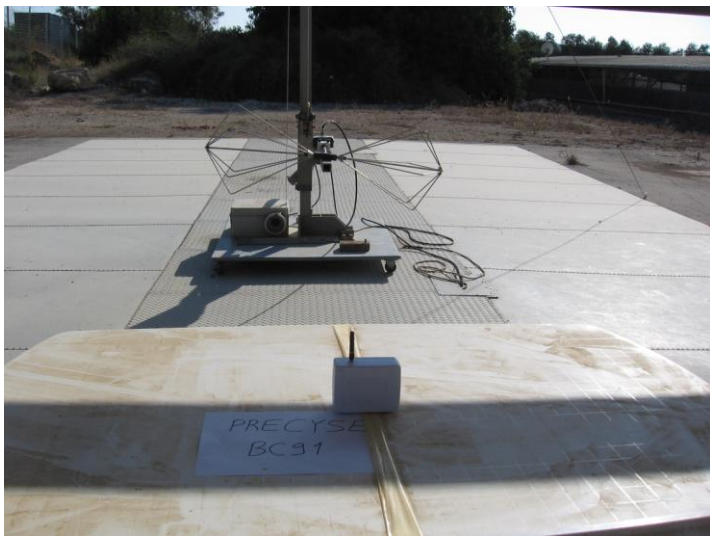

Figure 6. Radiated Emission Test External Antenna

Figure 7. Radiated Emission Test External Antenna

Figure 8. Radiated Emission Test Internal Antenna

Figure 9. Radiated Emission Test Internal Antenna

Figure 10. Radiated Emission Test Internal Antenna

Figure 11. Radiated Emission Test Internal Antenna

4. 6 dB Minimum Bandwidth

4.1 Test Specification

FCC Part 15, Subpart C Section 15.247-a2

4.2 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 (20 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 6 dB below maximum peak power was measured and recorded.

The E.U.T. was tested at 905.0, 911.4, and 917.0 MHz.

4.3 Test Results

RF Port	Operation Frequency (MHz)	Reading (kHz)	Specification (kHz)
Telemetry	905.0	650.0	>500
Telemetry	911.0	665.0	>500
Telemetry	917.0	660.0	>500
Beacon	905.0	640.0	>500
Beacon	911.0	650.0	>500
Beacon	917.0	660.0	>500

Figure 12 — 6 dB Minimum Bandwidth Test Results Table

See additional information in *Figure 13* to *Figure 18.*

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: _____ Date: 22.10.13

Typed/Printed Name: A.Sharabi

6 dB Minimum Bandwidth

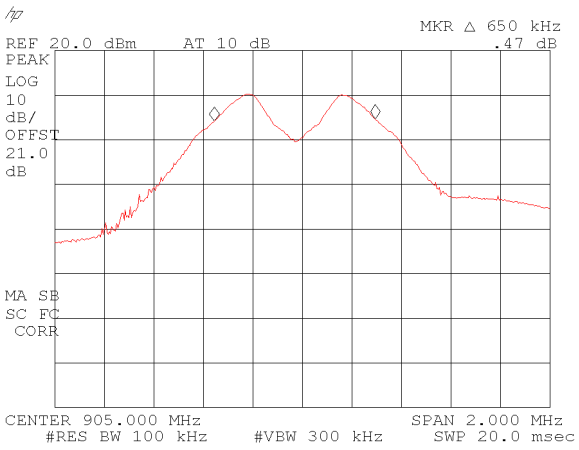

Figure 13 — 905.0 MHz - Telemetry

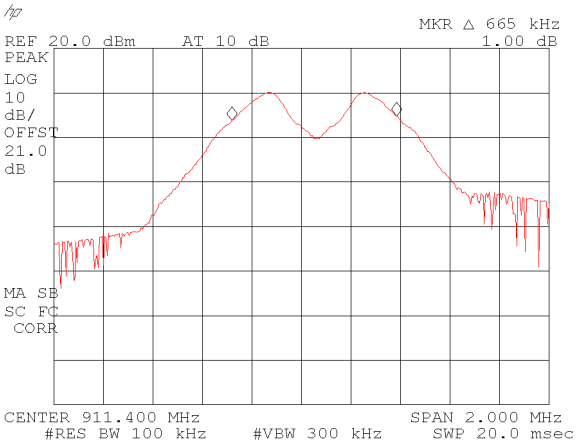

Figure 14 — 911.4 MHz - Telemetry

6 dB Minimum Bandwidth

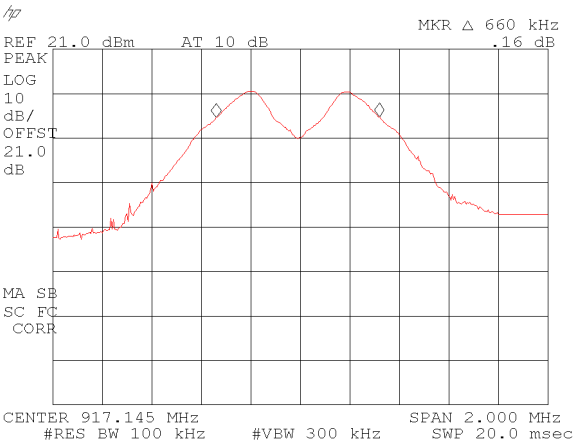

Figure 15 — 917.0MHz - Telemetry

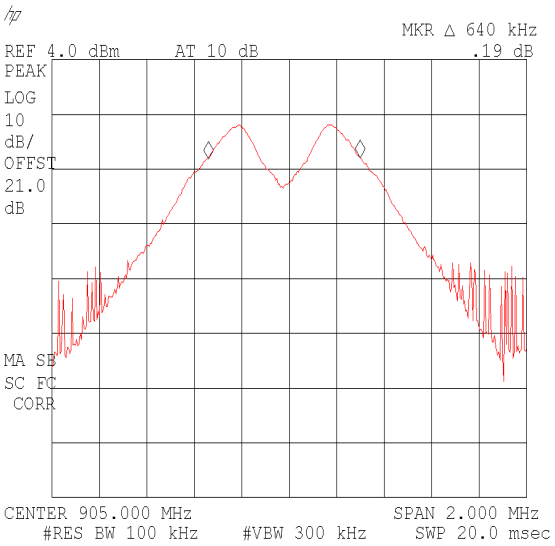

Figure 16 — 905.0MHz - Beacon

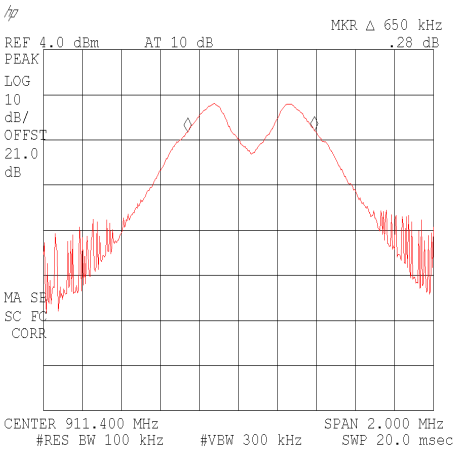

Figure 17 — 911.4MHz - Beacon

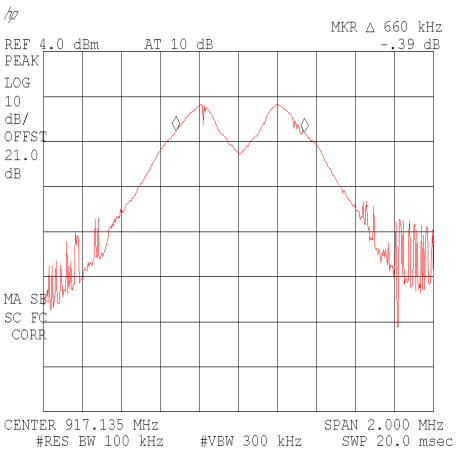

Figure 18 — 917.0MHz - Beacon

4.4 6 dB Minimum Bandwidth Test Equipment Used.

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date	Period
Spectrum Analyzer	HP	8592L	3826A01204	February 28, 2013	1 year
Attenuator	Mini-Circuits	20dB	-	August 11, 2013	1 year
Cable	Mini-Circuits	CBL-4FT-SMNM+	30084	August 11, 2013	1 year

Figure 19 Test Equipment Used

5. Maximum Peak Power Output

5.1 Test Specification

FCC Part 15, Subpart C Section 15.247(b)

5.2 Test Procedure

The E.U.T. antenna terminal was connected to the Spectrum Analyzer through an external attenuator (20 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 905.0, 911.4, and 917.0 MHz.

5.3 Test Results

RF Port	Operation Frequency (MHz)	Power (dBm)	Specification (dBm)	Margin (dB)
Telemetry	905.0	17.33	30.0	-12.67
Telemetry	911.0	17.69	30.0	-12.31
Telemetry	917.0	17.65	30.0	-12.35
Beacon	905.0	-5.97	30.0	-35.97
Beacon	911.0	-6.14	30.0	-36.14
Beacon	917.0	-5.91	30.0	-35.91

Figure 20 Maximum Peak Power Output Test Results Table

See additional information in *Figure 21* to *Figure 26*.

JUDGEMENT: Passed by 12.31 dB

TEST PERSONNEL:

Tester Signature: _____ Date: 22.10.13

Typed/Printed Name: A.Sharabi

Maximum Peak Power Output

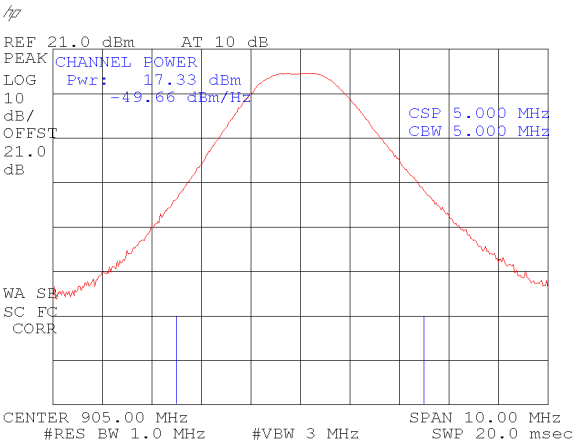

Figure 21 — 905.0 MHz - Telemetry

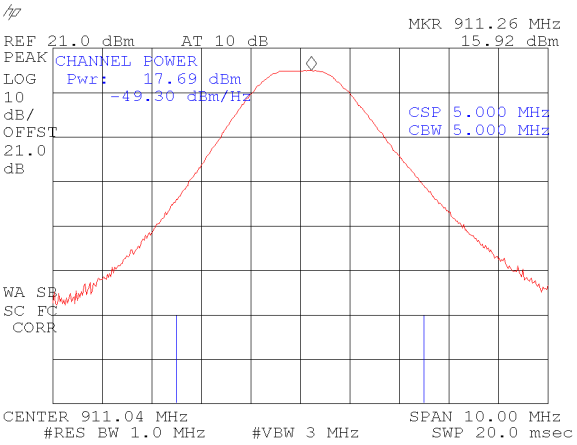

Figure 22 — 911.0 MHz - Telemetry

Maximum Peak Power Output

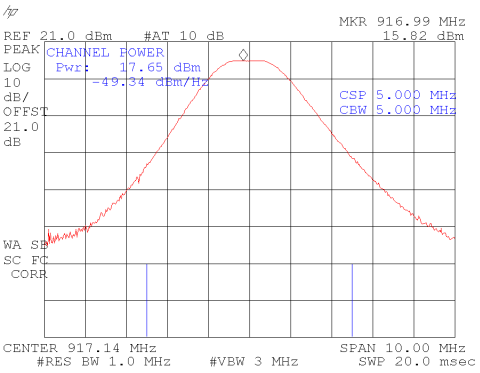

Figure 23 — 917.0 MHz - Telemetry

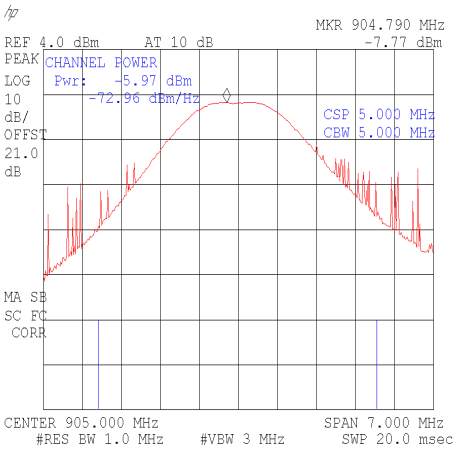

Figure 24 — 905.0 MHz - Beacon

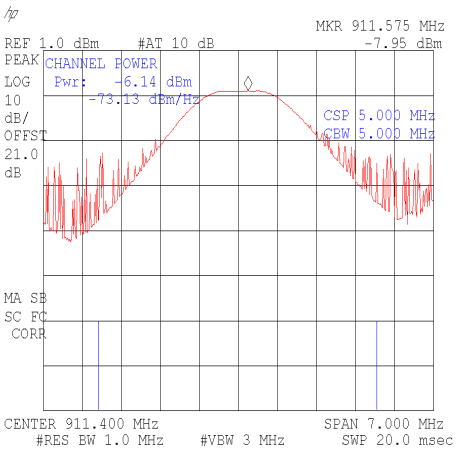

Figure 25 — 911.4 MHz – Beacon

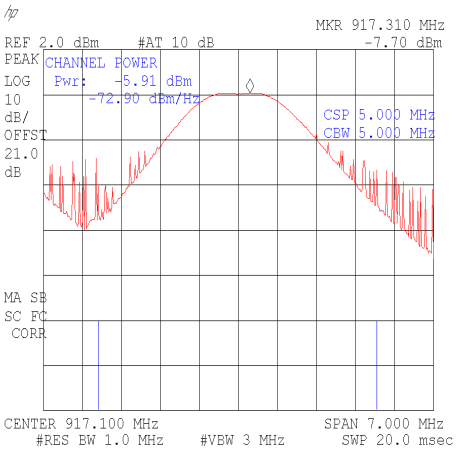

Figure 26 — 917.0 MHz – Beacon

5.1 Maximum Peak Output Power Test Equipment Used

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date	Period
Spectrum Analyzer	HP	8592L	3826A01204	February 28, 2013	1 year
Attenuator	Mini-Circuits	20dB	-	August 11, 2013	1 year
Cable	Mini-Circuits	CBL-4FT-SMNM+	30084	August 11, 2013	1 year

Figure 27 Test Equipment Used

6. Peak Power Output Out of 902-928 MHz Band

6.1 Test Specification

FCC Part 15, Subpart C, Section 15.247

6.2 Test Procedure

The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator (20 dB) and an appropriate coaxial cable (cable loss = 1 dB). The spectrum analyzer was set to 1 MHz resolution BW except for the frequency range 9 kHz-150 kHz where the RBW was set to 1 kHz, the frequency range 150 kHz-1 MHz where the RBW was set to 10 kHz, and the frequency range 1 MHz-1 GHz where the RBW was set to 100 kHz. The frequency range from 9 kHz to 10 GHz was scanned. Level of spectrum components out of the 902-928 MHz was measured at the selected operation frequencies.

The E.U.T. was tested at 905.0, 911.4, and 917.0 MHz.

Intermodulation testing was performed while all channels were transmitting continuously.

6.3 Test Results

RF Port	Operation Frequency (MHz)	Frequency (MHz)	Reading (dBm)	Specification (dBm)	Margin (dB)
Telemetry	905.0	7600	-30.9	-8.0	-22.9
Telemetry	911.0	7860	-30.9	-8.0	-22.9
Telemetry	917.0	8570	-30.9	-8.0	-22.9
Beacon	905.0	7600	-30.9	-8.0	-22.9
Beacon	911.0	7860	-30.9	-8.0	-22.9
Beacon	917.0	8570	-30.9	-8.0	-22.9

Figure 28 Peak Power Output of 902 - 928 MHz Band Test Results Table

See additional information in *Figure 29* to *Figure 35.*

JUDGEMENT: Passed by 22.9 dB

TEST PERSONNEL:

Tester Signature: _____ Date: 22.10.13

Typed/Printed Name: A.Sharabi

Peak Power Output Out of 902-928 MHz Band

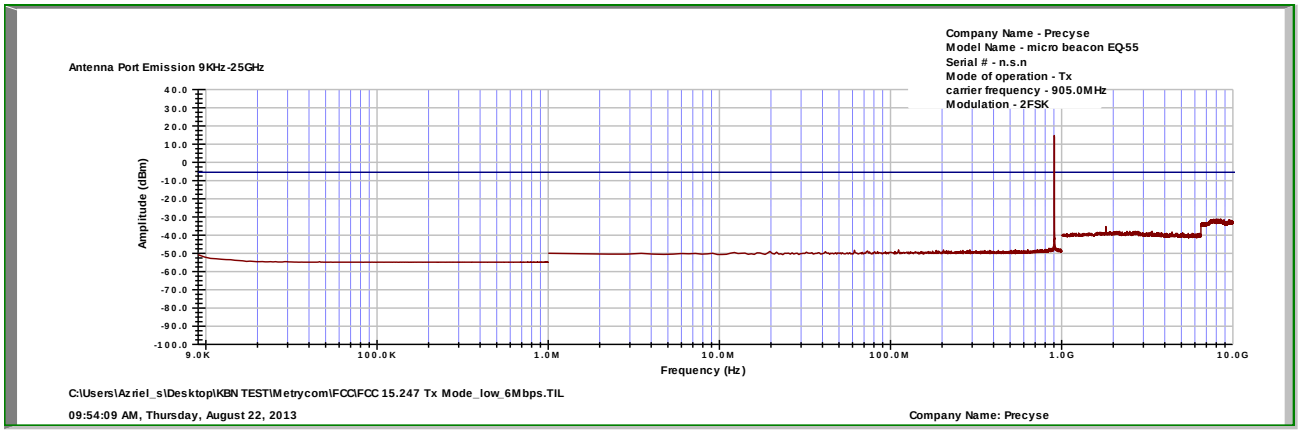

Figure 29 — 905.0 MHz - Telemetry

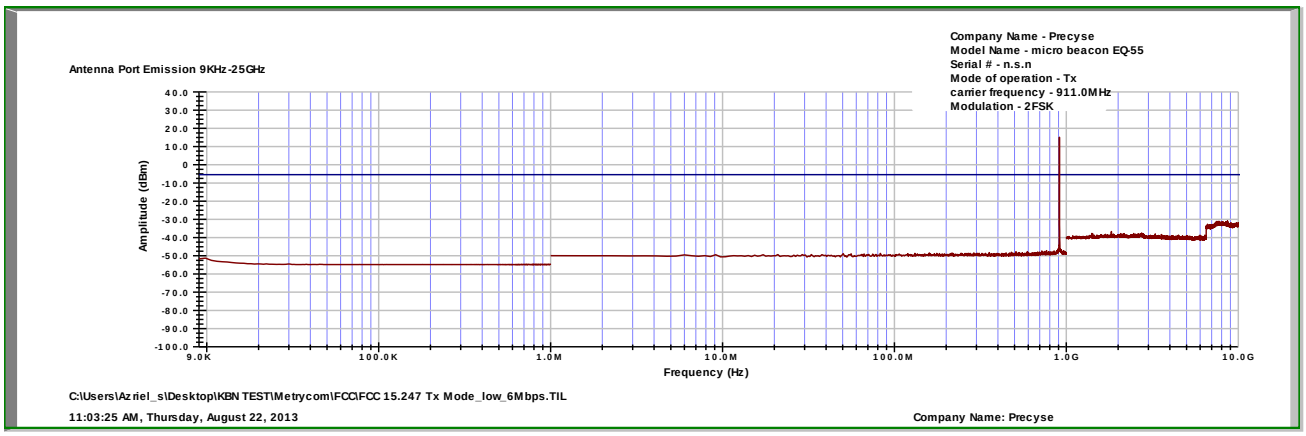

Figure 30 — 911.0 MHz - Telemetry

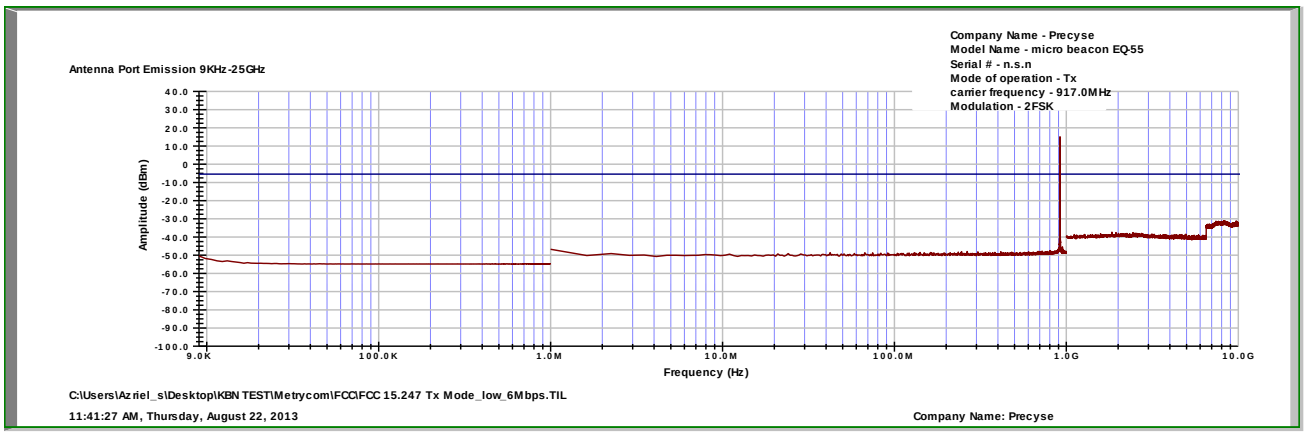

Figure 31 — 917.0 MHz - Telemetry

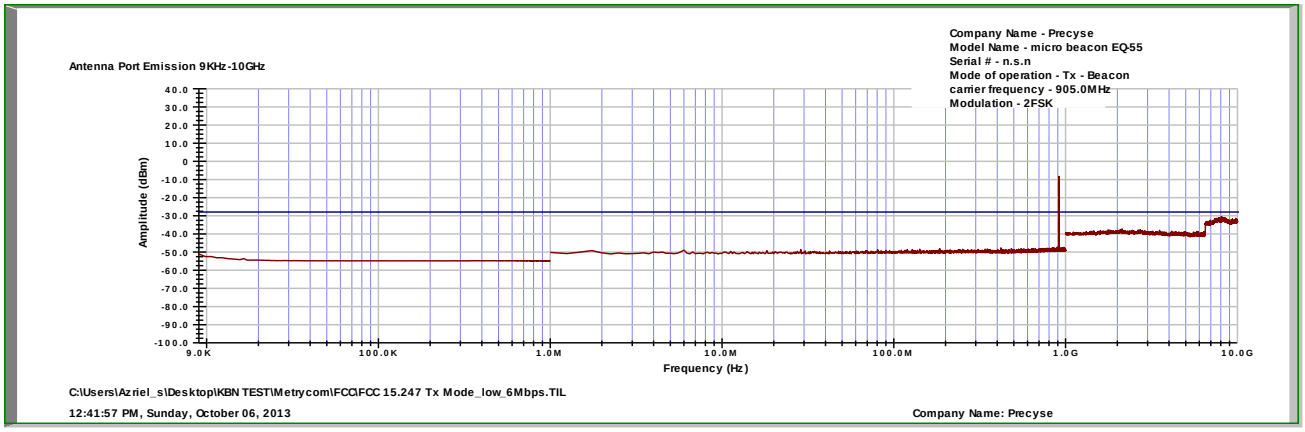

Figure 32 — 905.0 MHz - Beacon

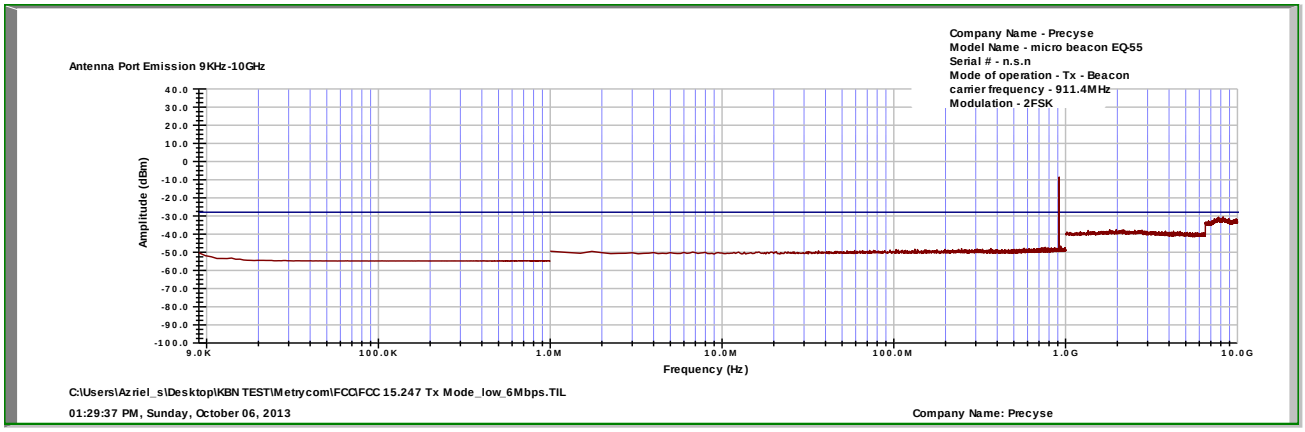

Figure 33 — 911.4 MHz - Beacon

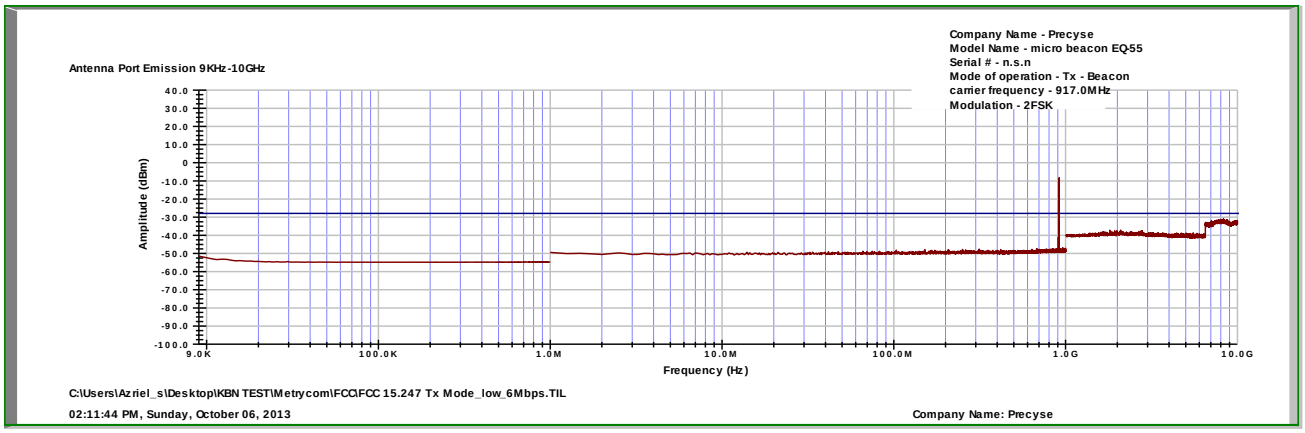

Figure 34 — 917.0 MHz - Beacon

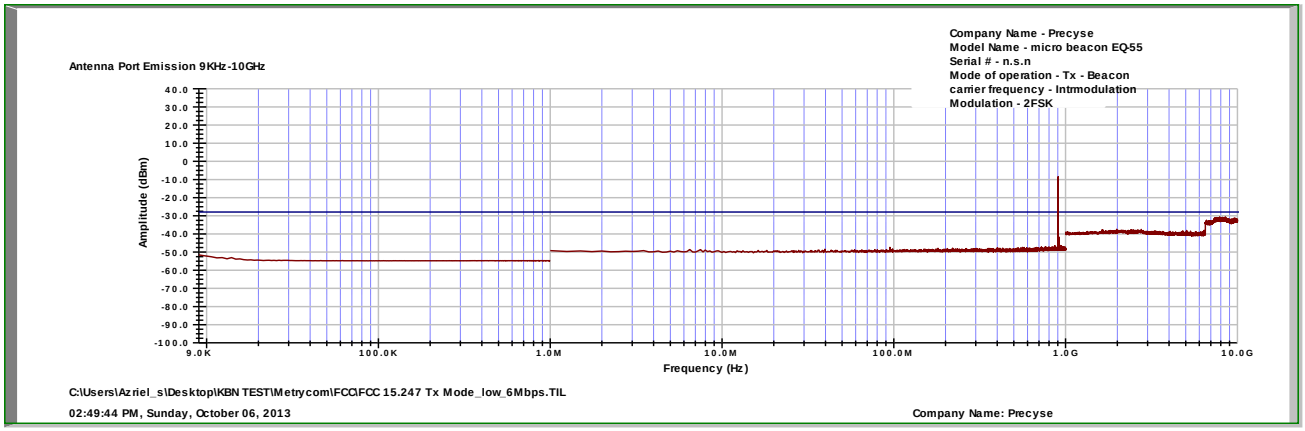

Figure 35 — Intermodulation

6.4 Peak Power Output of 902-928 MHz Band Test Equipment Used

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date	Period
Spectrum Analyzer	HP	8592L	3826A01204	February 28, 2013	1 year
Attenuator	Mini-Circuits	20dB	-	August 11, 2013	1 year
Cable	Mini-Circuits	CBL-4FT-SMNM+	30084	August 11, 2013	1 year

Figure 36 Test Equipment Used

7. Band Edge Spectrum

7.1 Test Specification

FCC Part 15, Subpart C, Section 15.247

7.2 Test Procedure

The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator (20 dB) and an appropriate coaxial cable
(cable loss = 1 dB). The spectrum analyzer was set to 100 kHz resolution BW. Maximum power level below 902 MHz and above 928 MHz was measured relative to power level at 905.0 MHz, and 917.0 MHz correspondingly.

The E.U.T. was tested at the operation frequencies of 905.0 and 917.0 MHz.

7.3 Test Results

RF Port	Operation Frequency (MHz)	Band Edge Frequency (MHz)	Spectrum Level (dBm)	Specification (dBm)	Margin (dB)
Telemetry	905.0	902.0	-40.62	-5.5	-35.12
Telemetry	917.0	928.0	-48.39	-5.0	-43.39
Beacon	905.0	902.0	-35.68	-28.0	-7.68
Beacon	917.0	928.0	-48.84	-28.0	-20.84

Figure 37 Band Edge Spectrum Test Results Table

See additional information in *Figure 38* to *Figure 41*.

JUDGEMENT: Passed by 7.68dB

TEST PERSONNEL:

Tester Signature: _____ Date: 22.10.13

Typed/Printed Name: A.Sharabi

Band Edge Spectrum

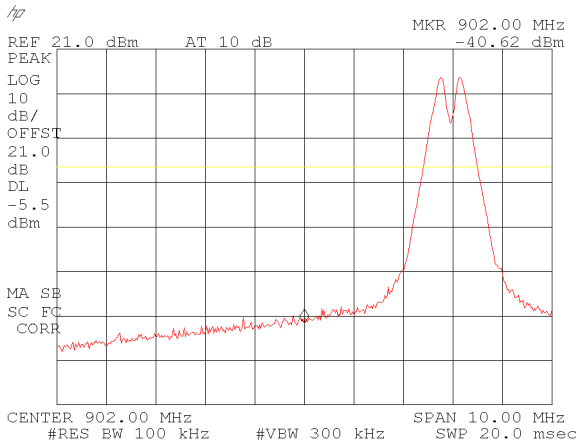

Figure 38 — 905.0 MHz- Telemetry

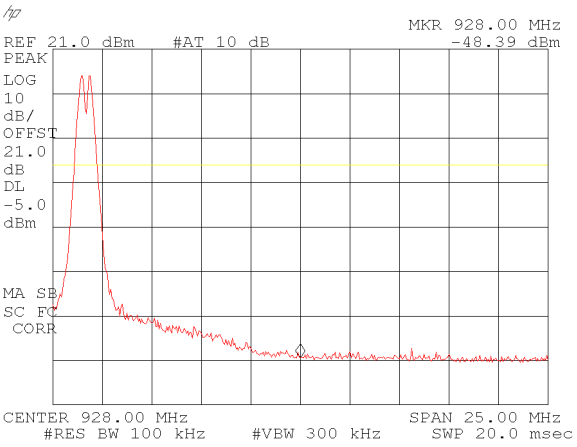

Figure 39 — 917.0 MHz - Telemetry

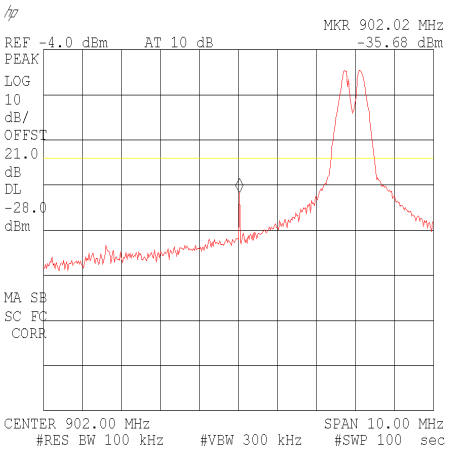

Figure 40 — 905.0 MHz - Beacon

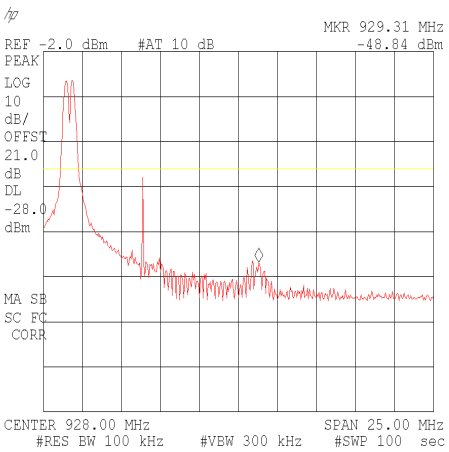

Figure 41 — 917.0 MHz - Beacon

Band Edge Spectrum

7.4 Band Edge Spectrum Test Equipment Used

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date	Period
Spectrum Analyzer	HP	8592L	3826A01204	February 28, 2013	1 year
Attenuator	Mini-Circuits	20dB	-	August 11, 2013	1 year
Cable	Mini-Circuits	CBL-4FT-SMNM+	30084	August 11, 2013	1 year

Figure 42 Test Equipment Used

8. Spurious Radiated Emission, 9 kHz – 30 MHz

8.1 Test Specification

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

8.2 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 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.

The E.U.T. was tested at the operating frequencies of 905.0, 911.4, and 917.0 MHz using both the integral and external antennas.

8.3 Test Results

JUDGEMENT: Passed

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

The results for all three operating frequencies were the same.

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

TEST PERSONNEL:

Tester Signature: _____ Date: 22.10.13

Typed/Printed Name: A.Sharabi

Spurious Radiated Emission, 9 kHz – 30 MHz

8.4 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 [dBμv/m]
RA: Receiver Amplitude [dBμv]
AF: Receiving Antenna Correction Factor [dB/m]
CF: Cable Attenuation Factor [dB]

No external pre-amplifiers are used.

8.5 Spurious Radiated Emission, 9 kHz – 30 MHz Test Equipment Used

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	October 21, 2012	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

9. Spurious Radiated Emission 30 MHz – 10 GHz

9.1 Test Specification

30 MHz - 10 GHz, F.C.C., Part 15, Subpart C

9.2 Test Procedure

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

See Section 2.1 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 configuration tested is shown in Figure 1.

The frequency range 30 MHz - 10 GHz 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.

In the frequency range of 30 MHz – 2.9 GHz, 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 2.9 - 10 GHz, a spectrum analyzer including a low noise amplifier was used. During peak measurements, the I.F. bandwidth was 1 MHz, and video bandwidth 3 MHz. During average measurements, the I.F. bandwidth was 1 MHz and video bandwidth was 100 Hz.

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.).
The E.U.T. was tested at the operating frequencies of 905.0, 911.4, and 917.0 MHz using both the integral and external antennas.

Intermodulation testing was performed while all channels were transmitting continuously.

9.3 Test Results

JUDGEMENT: Passed by 4.0 dB

TEST PERSONNEL:

Tester Signature: _____ Date: 22.10.13

Typed/Printed Name: A.Sharabi

External antenna:

For the operation frequencies of 905.00, 911.40, and 917.00 MHz, no signals were detected in the frequency range of 30 – 1000 MHz.

For the operation frequency 905.00MHz, the margin between the emission level and the specification limit is 5.6 dB in the worst case at the frequency of 2715.48 MHz, horizontal polarization.

For the operation frequency 911.40 MHz, the margin between the emission level and the specification limit is 4.0 dB in the worst case at the frequency of 2733.94 MHz, vertical polarization.

For the operation frequency 917.00 MHz, the margin between the emission level and the specification limit is 5.8 dB in the worst case at the frequency of 2751.12 MHz, horizontal polarization.

Internal antenna:

For the operation frequencies of 905.00, 911.40, and 917.00 MHz, no signals were detected in the frequency range of 30 – 1000 MHz.

For the operation frequency 905.00MHz, the margin between the emission level and the specification limit is 9.7 dB in the worst case at the frequency of 1810.00 MHz, vertical polarization.

For the operation frequency 911.40 MHz, the margin between the emission level and the specification limit is 10.1 dB in the worst case at the frequency of 1822.80 MHz, vertical polarization.

For the operation frequency 917.00 MHz, the margin between the emission level and the specification limit is 8.6 dB in the worst case at the frequency of 1833.82 MHz, vertical polarization.

The details of the highest emissions are given in *Figure 44* to *Figure 55*.

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical

Frequency range: 1.0 GHz to 10.0 GHz

Test Distance: 3 meters

Detector: Peak

Operation Frequency: 905.0 MHz

Telemetry, External Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1810.99	H	66.7	90.2	-23.5
1810.00	V	74.3	90.2	-15.9
2715.61	H	57.2	74.0	-16.8
2715.19	V	57.9	74.0	-16.1

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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 905.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Average
Telemetry, External Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Average Reading (dBµV/m)	Average Specification (dB µV/m)	Margin (dB)
1810.99	H	N/A	N/A	
1810.10	V	N/A	N/A	
2715.48	H	45.2	54.0	-8.8
2715.69	V	46.2	54.0	-7.8

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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical

Test Distance: 3 meters

Operation Frequency : 911.0 MHz

Frequency range: 1.0 GHz to 10.0 GHz

Detector: Peak

Telemetry, External Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1822.80	H	77.3	89.9	-12.6
1822.80	V	74.0	89.9	-15.9
2733.90	H	60.7	74.0	-13.3
2733.67	V	61.8	74.0	-12.2

Figure 46. 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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 911.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Average
Telemetry, External Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Average Reading (dBµV/m)	Average Specification (dB µV/m)	Margin (dB)
1822.80	H	N/A	N/A	
1822.80	V	N/A	N/A	
2733.32	H	49.2	54.0	-4.8
2733.94	V	50.0	54.0	-4.0

Figure 47. 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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 917.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Peak
Telemetry, External Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1834.34	H	74.7	89.9	-15.2
1833.82	V	70.8	89.9	-19.1
2751.12	H	57.9	74.0	-16.1
2751.91	V	59.9	74.0	-14.1

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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 917.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Average
Telemetry, External Antenna, Internal battery

Freq. (MHz)	Polarity (H/V)	Average Reading (dBµV/m)	Average Specification (dB µV/m)	Margin (dB)
1834.34	H	N/A	N/A	
1833.82	V	N/A	N/A	
2751.12	H	48.2	54.0	-5.8
2751.91	V	47.7	54.0	-6.3

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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 905.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Peak
Telemetry, Internal Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1810.99	H	69.0	89.9	-20.9
1810.00	V	80.2	89.9	-9.7
2715.61	H	50.0	74.0	-24.0
2715.19	V	50.0	74.0	-24.0

Figure 50. 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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 905.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Average
Telemetry, Internal Antenna, Internal battery

Frequency (MHz)	**Polarity** (H/V)	**Average Reading** (dBµV/m)	**Average Specification** (dB µV/m)	**Margin** (dB)
1810.99	H	N/A	N/A	
1810.10	V	N/A	N/A	
2715.48	H	35.0	54.0	-19.0
2715.69	V	35.0	54.0	-19.0

Figure 51. 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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency : 911.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Peak
Telemetry, Internal Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1822.80	H	70.8	89.9	-19.1
1822.80	V	79.8	89.9	-10.1
2733.90	H	52.9	74.0	-21.1
2724.67	V	48.6	74.0	-25.4

Figure 52. 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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 911.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Average
Telemetry, Internal Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Average Reading (dBµV/m)	Average Specification (dB µV/m)	Margin (dB)
1822.80	H	N/A	N/A	
1822.80	V	N/A	N/A	
2734.32	H	41.7	54.0	-12.3
2733.94	V	36.7	54.0	-17.3

Figure 53. 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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 917.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Peak
Telemetry, Internal Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1834.34	H	67.0	89.9	-22.9
1833.82	V	81.3	89.9	-8.6
2751.12	H	54.2	74.0	-19.8
2751.91	V	52.3	74.0	-21.7

Figure 54. 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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 917.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Average
Telemetry, Internal Antenna, Internal battery

Operation Frequency (MHz)	Polarity (H/V)	Average Reading (dBµV/m)	Average Specification (dB µV/m)	Margin (dB)
1833.80	H	N/A	N/A	
1833.79	V	N/A	N/A	
2751.15	H	42.3	54.0	-11.7
2751.46	V	39.2	54.0	-14.8

Figure 55. 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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical

Frequency range: 1.0 GHz to 10.0 GHz

Test Distance: 3 meters

Detector: Peak

Operation Frequency: 905.0 MHz

Beacon, External Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1810.99	H	50.9	90.2	-39.2
1810.00	V	50.7	90.2	-39.5
2715.61	H	51.5	74.0	-22.5
2715.19	V	51.6	74.0	-22.4

Figure 56. 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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Frequency range: 1.0 GHz to 10.0 GHz
Test Distance: 3 meters
Detector: Average
Operation Frequency: 905.0 MHz
Beacon, External Antenna, Internal battery

Frequency (MHz)	**Polarity** (H/V)	**Average Reading** (dBµV/m)	**Average Specification** (dB µV/m)	**Margin** (dB)
1810.99	H	N/A	N/A	
1810.10	V	N/A	N/A	
2715.48	H	48.4	54.0	-5.6
2715.69	V	47.7	54.0	-6.3

Figure 57. 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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical

Frequency range: 1.0 GHz to 10.0 GHz

Test Distance: 3 meters

Detector: Peak

Operation Frequency : 911.0 MHz

Beacon, External Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1822.80	H	56.2	89.9	-33.7
1822.80	V	56.2	89.9	-33.7
2733.90	H	48.9	74.0	-25.1
2733.67	V	47.9	74.0	-26.1

Figure 58. 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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 911.0 MHz

Frequency range: 1.0 GHz to 10.0 GHz
Detector: Average
Beacon, External Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Average Reading (dBµV/m)	Average Specification (dB µV/m)	Margin (dB)
1822.80	H	N/A	N/A	
1822.80	V	N/A	N/A	
2733.32	H	37.9	54.0	-16.1
2733.94	V	37.9	54.0	-16.1

Figure 59. 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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 917.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Peak
Beacon, External Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1834.34	H	56.3	89.9	-33.6
1833.82	V	56.3	89.9	-33.6
2751.12	H	51.4	74.0	-22.6
2751.91	V	50.4	74.0	-23.6

Figure 60. 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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical

Frequency range: 1.0 GHz to 10.0 GHz

Test Distance: 3 meters

Detector: Average

Operation Frequency: 917.0 MHz

Beacon, External Antenna, Internal battery

Freq. (MHz)	Polarity (H/V)	Average Reading (dBµV/m)	Average Specification (dB µV/m)	Margin (dB)
1834.34	H	N/A	N/A	
1833.82	V	N/A	N/A	
2751.12	H	38.0	54.0	-15.0
2751.91	V	38.0	54.0	-15.0

Figure 61. 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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical

Frequency range: 1.0 GHz to 10.0 GHz

Test Distance: 3 meters

Detector: Peak

Operation Frequency: 905.0 MHz

Beacon, Internal Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1810.99	H	51.0	89.9	-38.9
1810.00	V	50.9	89.9	-39.0
2715.61	H	55.9	74.0	-18.1
2715.19	V	54.9	74.0	-19.1

Figure 62. 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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Frequency range: 1.0 GHz to 10.0 GHz
Test Distance: 3 meters
Detector: Average
Operation Frequency: 905.0 MHz
Beacon, Internal Antenna, Internal battery

Frequency (MHz)	**Polarity** (H/V)	**Average Reading** (dBµV/m)	**Average Specification** (dB µV/m)	**Margin** (dB)
1810.99	H	N/A	N/A	
1810.10	V	N/A	N/A	
2715.48	H	40.2	54.0	-13.8
2715.69	V	41.0	54.0	-13.0

Figure 63. 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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical

Frequency range: 1.0 GHz to 10.0 GHz

Test Distance: 3 meters

Detector: Peak

Operation Frequency : 911.4 MHz

Beacon, Internal Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1822.80	H	50.0	89.9	-39.9
1822.80	V	51.2	89.9	-38.7
2733.90	H	55.0	74.0	-19.0
2724.67	V	54.9	74.0	-19.1

Figure 64. 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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 911.4 MHz

Frequency range: 1.0 GHz to 10.0 GHz
Detector: Average
Beacon, Internal Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Average Reading (dBµV/m)	Average Specification (dB µV/m)	Margin (dB)
1822.80	H	N/A	N/A	
1822.80	V	N/A	N/A	
2734.32	H	40.4	54.0	-13.6
2733.94	V	40.7	54.0	-13.3

Figure 65. 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 Reading" includes correction factor.

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

Spurious Radiated Emission, 30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Test Distance: 3 meters
Operation Frequency: 917.0 MHz
Frequency range: 1.0 GHz to 10.0 GHz
Detector: Peak
Beacon, Internal Antenna, Internal battery

Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
1834.34	H	50.5	89.9	-39.4
1833.82	V	51.9	89.9	-38.0
2751.12	H	54.9	74.0	-19.1
2751.91	V	55.9	74.0	-18.1

Figure 66. 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 Reading" includes correction factor.

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

Spurious Radiated Emission
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical
Frequency range: 1.0 GHz to 10.0 GHz
Test Distance: 3 meters
Detector: Average
Operation Frequency: 917.0 MHz
Beacon, Internal Antenna, Internal battery

Operation Frequency (MHz)	Polarity (H/V)	Average Reading (dBµV/m)	Average Specification (dB µV/m)	Margin (dB)
1833.80	H	N/A	N/A	
1833.79	V	N/A	N/A	
2751.15	H	41.5	54.0	-12.5
2751.46	V	43.0	54.0	-11.0

Figure 67. 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 Reading" includes correction factor.

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

Intermodulation
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical

Frequency range: 1.0 GHz to 10.0 GHz

Test Distance: 3 meters

Detector: Average

Operation Frequency: 905.0, 911.4, 917.0 MHz

Operation Frequency (MHz)	Polarity (H/V)	Peak Reading (dBµV/m)	Peak Specification (dB µV/m)	Margin (dB)
893.0	V	47.0	74.0	-27.0
2739.0	V	54.5	74.0	-19.5
1829.2	V	48.9	74.0	-25.1
2727.0	V	51.8	74.0	-22.2
1846.0	V	53.0	74.0	-21.0
2727.8	V	54.0	74.0	-20.0

Figure 68. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL. Detector: Peak

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 Reading" includes correction factor.

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

Intermodulation
30 MHz - 10 GHz

E.U.T Description	915 Micro Beacon
Part Number	BC91/005010, BC91/005011, BC91/005012, BC91/005013, BC91/005014
Serial Number:	Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical

Frequency range: 1.0 GHz to 10.0 GHz

Test Distance: 3 meters

Detector: Average

Operation Frequency: 905.0, 911.4, 917.0 MHz

Operation Frequency (MHz)	Polarity (H/V)	Average Reading (dBµV/m)	Average Specification (dB µV/m)	Margin (dB)
893.0	V	37.0	54.0	-17.0
2739.0	V	42.5	54.0	-11.5
1829.2	V	37.7	54.0	-16.3
2727.0	V	41.9	54.0	-12.1
1846.0	V	37.0	54.0	-17.0
2727.8	V	42.0	54.0	-12.0

Figure 69. 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 Reading" includes correction factor.

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

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:

[dBμv/m] FS = RA + AF + CF

FS:	Field Strength [dBμv/m]
RA:	Receiver Amplitude [dBμv]
AF:	Receiving Antenna Correction Factor [dB/m]
CF:	Cable Attenuation Factor [dB]

Example: FS = 30.7 dBμV (RA) + 14.0 dB (AF) + 0.9 dB (CF) = 45.6 dBμV

No external pre-amplifiers are used.

9.4 Spurious Radiated Emission 30 – 10000 MHz Test Equipment Used

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Period
EMI Receiver	HP	85422E	3906A00276	December 10, 2012	1Year
RF Filter Section	HP	85420E	3705A00248	December 10, 2012	1Year
Antenna Biconical	EMCO	3104	2606	August 30, 2013	1Year
Antenna Log Periodic	ARA	LPD-2010/A	1038	April 2, 2013	1 Year
Horn Antenna	ETS	3115	29845	March 14, 2012	2 Years
Low Noise Amplifier	DBS MICROWAVE	LNA-DBS-0411N313	013	August 21, 2013	1 Year
Spectrum Analyzer	HP	8592L	3826A01204	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	JPKGC19982	N/A	N/A

Figure 70 Test Equipment Used

10. Transmitted Power Density

10.1 Test Specification

FCC Part 15, Subpart C, section 15.247(d)

10.2 Test Procedure

The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator (20dB) and an appropriate coaxial cable (cable loss = 1 dB). The spectrum analyzer was set to 3 kHz resolution BW and sweep time of 1 second for each 3 kHz "window". The spectrum peaks were located at each of the 3 operating frequencies.

10.3 Test Results

RF Port	Operation Frequency (MHz)	Reading Spectrum Analyzer (dBm)	Specification (dBm)	Margin (dBm)
Telemetry	905.0	7.26	8.0	0.74
Telemetry	911.0	7.63	8.0	0.37
Telemetry	917.0	7.50	8.0	0.50
Beacon	905.0	-16.84	8.0	24.84
Beacon	911.0	-15.67	8.0	23.67
Beacon	917.0	-16.92	8.0	24.92

Figure 71 Transmitted Power Density Test Results Table

See additional information in Figure 72 to Figure 77.

JUDGEMENT: Passed by 0.37dB

TEST PERSONNEL:

Tester Signature: _____ Date: 22.10.13

Typed/Printed Name:

Transmitted Power Density

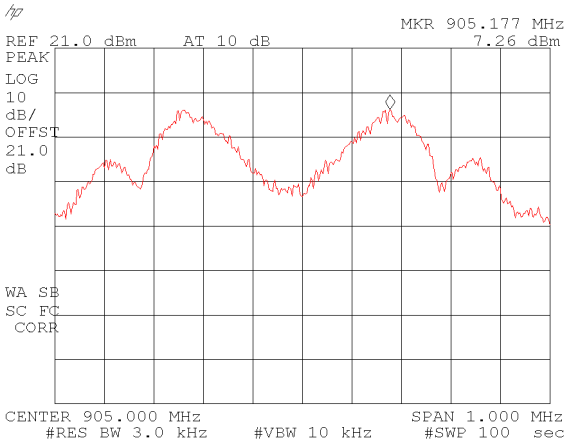

Figure 72 — 905.0 MHz - Telemetry

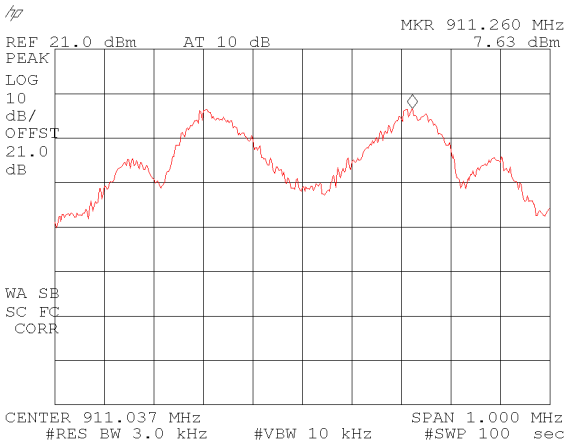

Figure 73 — 911.0 MHz - Telemetry

Transmitted Power Density

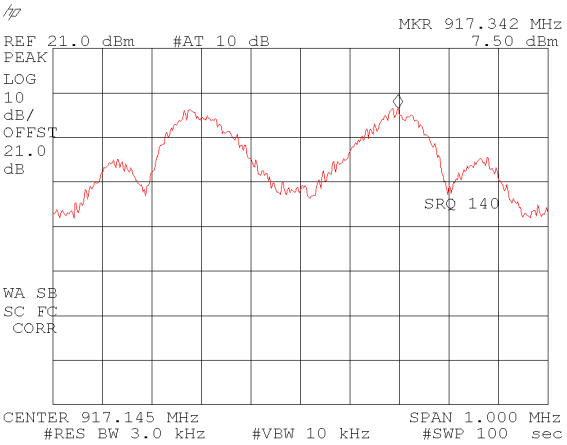

Figure 74 — 917.0 MHz - Telemetry

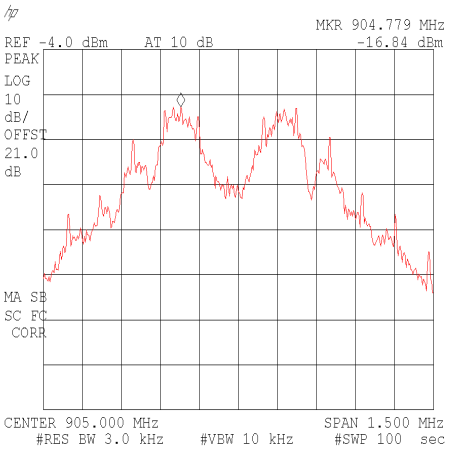

Figure 75 — 905.0 MHz - Beacon

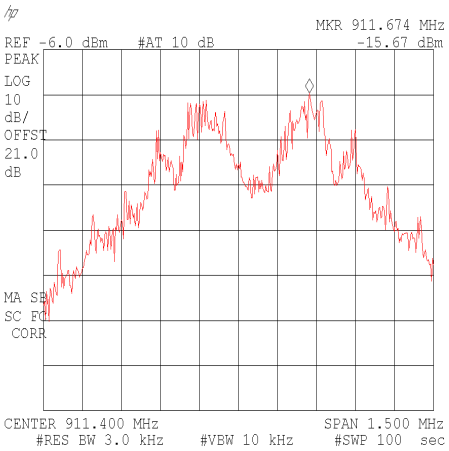

Figure 76 — 911.4 MHz - Beacon

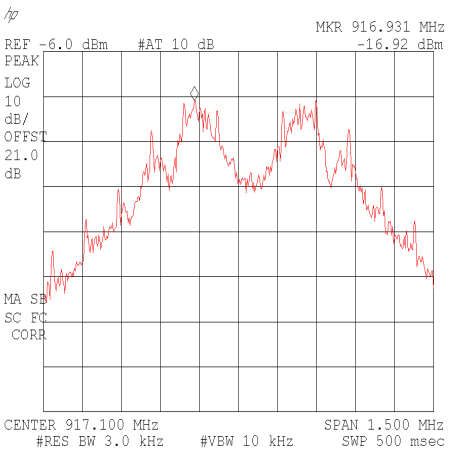

Figure 77 — 917.0 MHz - Beacon

10.1 Test Equipment Used Transmitted Power Density

Instrument	Manufacturer	Model	Serial/Part Number	Calibration	
				Last Calibration Date	Period
Spectrum Analyzer	HP	8592L	3826A01204	February 28, 2013	1 year
Attenuator	Mini-Circuits	20dB	-	August 11, 2013	1 year
Cable	Mini-Circuits	CBL-4FT-SMNM+	30084	August 11, 2013	1 year

Figure 78 Test Equipment Used

11. Antenna Gain/Information

External antenna:
Manufacturer: Antenna factor
Part number: ANT-916-CW-RH-SMA
Gain: 0dBi

Internal antenna:
Manufacturer: Antenna factor
Part number: SPLATCH 916-SP2
Gain: 0dBi (Peak)

12. R.F Exposure/Safety

Typical use of the E.U.T. is defining a location zone. The typical placement of the E.U.T. is wall mounted. The distance between the E.U.T. and the user is 0.2 m.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1310 Requirements

(a) FCC limits at 905.0 MHz is: $\frac{f}{1500} = 0.603 \frac{mW}{cm^2}$

FCC limits at 911.4 MHz is: $\frac{f}{1500} = 0.608 \frac{mW}{cm^2}$

FCC limits at 917.0 MHz is: $\frac{f}{1500} = 0.611 \frac{mW}{cm^2}$

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

P_t- Transmitted Power

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

G_T- Antenna Gain = 1dBi

R- Distance from Transmitter = 20cm

(c) Transmitter peak power

Frequency MHz	Pt dBm	Pt mW	S mW/m^2	Limit mW/cm^2
911.4	17.69	58.8	0.01	0.608

(d) This is below the FCC limit.

13. APPENDIX A - CORRECTION FACTORS

13.1 Correction factors for CABLE

from EMI receiver to test antenna at 3 meter range.

FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3
20.0	0.6
30.0	0.8
40.0	0.9
50.0	1.1
60.0	1.2
70.0	1.3
80.0	1.4
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

FREQUENCY (MHz)	CORRECTION FACTOR (dB)
1200.0	7.3
1400.0	7.8
1600.0	8.4
1800.0	9.1
2000.0	9.9
2300.0	11.2
2600.0	12.2
2900.0	13.0

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".

13.2 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.

13.3 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.

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 38M3O.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".*

13.4 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".*

13.5 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".

13.6 Correction factors for ACTIVE LOOP ANTENNA

Model 6502
S/N 9506-2950

FREQUENCY	Magnetic Antenna Factor	Electric Antenna Factor
(MHz)	(dB)	(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