



HURSLEY  
**EMC**  
SERVICES

# EMC TEST REPORT

No. 15R146 ER

Issue#1: 20<sup>th</sup> May 2015

EU Notified Body  
FCC & VCCI Registered  
BSMI Lab ID: SL2-IN-E-3008  
KC Lab ID: EU0184

**IEC61097-2 Section D4.2 & D4.3**

**and**

**AS/NZS 4280.1 D4.2,4.2.1,D4.2.2**

**Report**

**for the**

**ACR RLB-41 Beacon**

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Approval Signatory

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## 1.0 DECLARATION

### 1.1 IEC 61097-2

The Equipment Under Test (EUT) operates at a transmit frequency of 121.5MHz and a burst frequency of 406MHz transmit frequency. Testing was in accordance with 61097-2 D4.2 (Peak Effective Radiated Power) and 61097-21 D4.3 (Off Ground Plane Radiated Power Test) requirements.

Testing was in accordance with AS/NZS 4280.1 D4.2, D4.2.1 and D4.2.2.

### 1.2 Related Submittal(s) Grants

None

### 1.3 EUT Manufacturer

Trade name:	ACR Electronics, Inc.
Company name:	ACR Electronics, Inc
Company address:	5757 Ravenswood Road Fort Lauderdale FL 33312 USA
Manufacturing address:	As above.
Company representative:	Bill Cox T: +1(954) 981-3333

### 1.4 Modifications

Reflective tape around the conical part of the clear plastic top cap was removed.

(Note : Removing reflective tape from around the antenna itself made no difference to the test results and this was replaced).

## 2.0 EUT DESCRIPTION

### 2.1 Identity

EUT:	Beacon: RLB-41
Serial numbers:	Beacon: 75927040-TSR0068 Battery: 75927040-TSR0061 Antenna: 75927040-TSR0082
Sample build:	Production

### 2.2 Product Operation

The ACR-RLB-41 Beacon (EUT) device operates at the frequency of operates at a transmit frequency of 121.5MHz and a burst frequency of 406MHz. The following measurements were carried out on 121.5MHz.

### 2.3 Support Equipment

N/A

### 2.4 EMI Site Address & Test Date

EMI Company Offices	Hursley EMC Services Ltd Trafalgar House, Trafalgar Close, Chandlers Ford, Eastleigh Hampshire, SO53 4BW, UK
EMI Measurement Site	Hursley EMC Services Ltd Hursley Park, Winchester, SO21 2JK, UK; FCC Registered UK Designation number: UK0006 Canada Registration Number: 7104A
Test Dates	20 <sup>th</sup> April 2015
HEMCS References:	15R146

### 3.0 MEASUREMENT PROCEDURE AND INSTRUMENTATION

#ID	CP	Manufacturer	Type	Serial No	Description	Calibration due date
109	3	Schwarzbeck	VULB 9163	9163-321	Trilog antenna (OATS)	19/10/2015
289	1	R & S	ESCI7	100765	7GHz Receiver	12/06/2015

CP = Interval period [year] prescribed for external calibrations

**Note:** 'Calibration due date' means that the instrument is certified with a UKAS or traceable calibration certificate.  
 '\*\*' denotes that the calibration, as defined by Hursley EMC Services quality system, remains valid whilst within four calendar months of the due date.

### 3.1 General Operating Conditions

Testing was performed according to the procedures in 61097-2  
 Instrumentation, including receiver and spectrum analyser bandwidth, comply with the requirements.

### 3.2 Environmental Ambient

Test Type	Temperature	Humidity	Atmospheric Pressure
Radiated	20 degrees Celsius	45% relative	1021 millibars

### 3.3 IEC 61097-2 D4.2 Peak Effective Radiated Power

Testing was conducted at the Hursley Open Area Test Site (OATS). Antenna measuring distance was set at 11m to enable full 5 to 20 Degree measurement angle range to be achieved. The antenna height was adjusted to give maximum level. The unit was then rotated on the turn table and readings taken every 30 Degrees. Measurements are done with the antenna in vertical polarity.

### 3.3.1 Test 1:

Beacon: 75927040-TSR0068

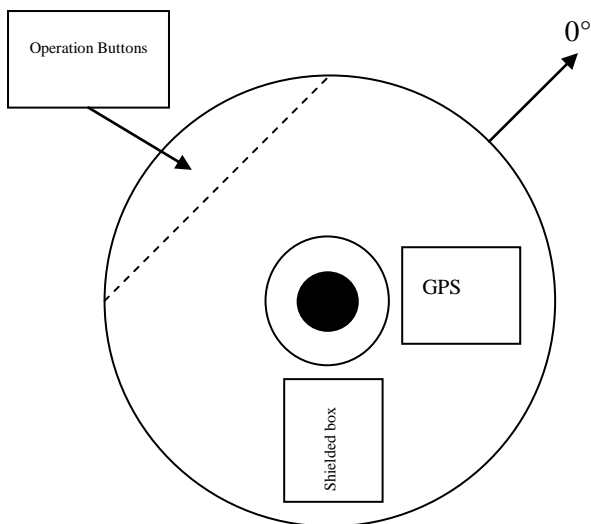
Battery: 75927040-TSR0061

Antenna: 75927040-TSR0082

EUT sunk in ground plane to float line with foil GP extension.



EUT orientation (top down view):



Height search showed 'main beam' at 18.12° elevation (3.6m):

Boresighted results (dBm) peak:

0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
-19.7	-19.8	-19.85	-19.84	-19.85	-19.85	-19.84	-19.7	-19.5	-19.5	-19.6	-19.7

Calculated EIRP (mW):

0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
30.44	29.75	29.41	29.48	29.41	29.41	29.48	30.44	31.88	31.88	31.15	30.44

**Limits:**

Median 25 - 100 mW: Pass (with modification applied)

Max value to 11th largest less than 4:1 (6dB): **Pass**

### 3.3.2 Test 2:

Beacon: 75927040-TSR0068

Battery: 75927040-TSR0061

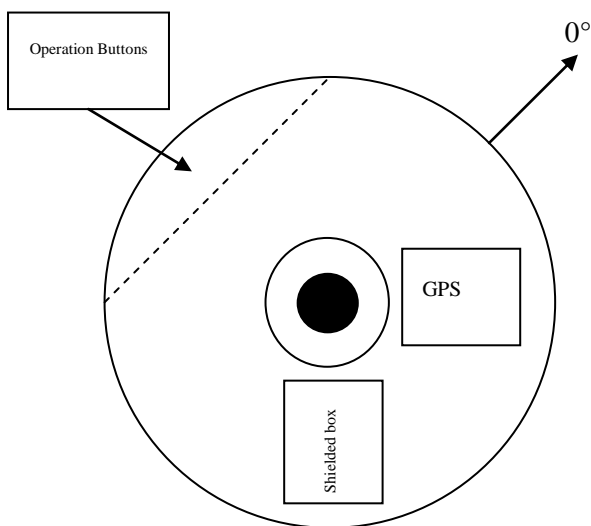
Antenna: 75927040-TSR0082

EUT elevated off GP by 450 mm on non-conductive platform





EUT orientation (top down view):



Height search showed 'main beam' at 6.56°  
 $\Delta m = 1.15m$  elevation, Height from ground plane = 1.6m:

Boresighted results (dBm) peak:

0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
-19.1			-19.2			-19.6			-19.4		

Calculated EIRP (mW):

0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
26.44			25.84			23.56			24.67		

**Limits:**

Min value greater than 2 mW: **Pass**