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TEST REPORT

Woodsonix SB800U Wooden Pole Ultrasonic System Receiver

tested to the

Code of Federal Regulations (CFR) 47

47 Code of Federal Regulations

Part 15 - Radio Frequency Devices

Subpart A + B

for

Woodsonix Ltd

This Test Report is issued with the authority of:

A handwritten signature in black ink, appearing to read "Andrew Cutler", is shown within a rectangular box.

Andrew Cutler - General Manager



All tests reported
herein have been
performed in accordance
with the laboratory's
scope of accreditation

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1. STATEMENT OF COMPLIANCE

The **Millar Woodsonix SB800 Wooden Pole Ultrasonic System Receiver** complies with FCC Part 15 Subpart A + B as a Class B Device when the methods as described in ANSI C63.4 - 2003 are applied.

2. RESULTS SUMMARY

The results of testing carried out in August 2014 are detailed below.

| Clause | Parameter | Result |
|--------|--|---|
| 15.101 | Equipment authorisation requirement. | The device tested is a receiver operating on 914.5 MHz that contains a digital device. |
| 15.103 | Exempted devices. | Device is not exempt as it contains a receiver and a digital device. |
| 15.107 | Conducted Emissions 0.15 - 30 MHz | Not applicable. Internal battery powered devices that cannot be directly or indirectly connected to the public AC mains supply. |
| 15.109 | Radiated Emissions 30 - 3000 MHz | Complies. |
| 15.111 | Antenna Terminal Disturbance 30 – 950 MHz | Not applicable. Device does not have an antenna port. |

3. CLIENT INFORMATION

Company Name Woodsonix Ltd

Address PO Box 491
Drury

City Auckland 2247

Country New Zealand

Contact Mr Brian Mitchell

4. DESCRIPTION OF TEST SAMPLE

| | |
|--------------------------|--|
| Brand Name | Woodsonix |
| Model Number | SB800 |
| Product | Wooden Pole Ultrasonic System Receiver |
| Manufacturer | Woodsonix Ltd |
| Country of Origin | New Zealand |
| Serial Number | SB8000124 |
| FCC ID | 2AC4P-WSSB800 |

Product Description

This system consists of three items as detailed below:

- A receiver unit that operates on 914.500 MHz which then combines both transmissions and makes a measurement which is then displayed on the LCD screen.
- Ultrasonic transmitter (red probe) that transmits an ultrasonic pulse and then transmits a burst of RF on 914.500 MHz to indicate that a pulse has been transmitted.
- Ultrasonic receiver (blue probe) that receives an ultrasonic pulse and then transmits a burst of RF on 914.500 MHz to indicate that a pulse has been received.

This report describes the measurements made on the Ultrasonic System Receiver

5. ATTESTATION

This report describes the tests and measurements performed for the purpose of determining compliance with the specification with the following conditions:

The client selected the test sample.

The report relates only to the sample tested.

This report contains no corrections.

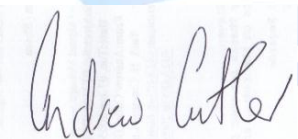
Measurement uncertainties with statistical confidence intervals of 95% are shown below test results. Both Class A and Class B uncertainties have been accounted for, as well as influence uncertainties where appropriate.

All compliance statements have been made with respect of the specification limit with no reference to the measurement uncertainty.

In addition this equipment has been tested in accordance with the requirements contained in the appropriate Commission regulations.

To the best of my knowledge, these tests were performed using measurement procedures that are consistent with industry or Commission standards and demonstrate that the equipment complies with the appropriate standards.

I further certify that the necessary measurements were made by EMC Technologies NZ Ltd, 47 MacKelvie Street, Grey Lynn, Auckland, New Zealand.



Andrew Cutler
General Manager
EMC Technologies NZ Ltd

6. TEST RESULTS

Standard

The sample was tested in accordance with 47 CFR Part 15 Subparts A and B as a Class B digital device.

Methods and Procedures

The measurement methods and procedures as described in ANSI C63.4 - 2003 were used.

Section 15.109 – Radiated emissions

Radiated emission testing was carried out over the frequency range of 30 to 5000 MHz as the receiver operates on 914.500 MHz.

Testing was carried out at the laboratory's open area test site - located at 670 Kawakawa Orere Rd, RD3, Papakura, New Zealand.

Before testing was carried out, a receiver Self Test and Internal Calibration was undertaken along with a check of all connecting cables and programmed antenna factors.

The device was placed on the test tabletop, which was a total of 0.8 m above the test site ground plane.

Measurements below 1000 MHz were made using a Quasi Peak Detector with a bandwidth of 120 kHz.

Above 1000 MHz measurements were made using a Peak Detector and an Average Detector with a bandwidth of 1 MHz

When an emission is located, it is positively identified and its maximum level is found by rotating the automated turntable, and by varying the antenna height with an automated antenna tower.

All emissions were measured in both vertical and horizontal antenna polarisations.

The emission level is determined in field strength by taking the following into consideration:

Level (dB μ V/m) = Receiver Reading (dB μ V) + Antenna Factor (dB/m) + Coax Loss (dB) – Amplifier Gain (dB)

The Class B limits have been applied.

Results

Testing was carried out using when the receiver was operating normally when powered using the supplied internal batteries.

During the test the receiver was receiving information from the Red and Blue probes and was observed to be calculating and displaying a reading.

The Red and Blue probes were placed on the ground approximately 10 metres behind the turntable.

Testing of the receiver was carried out in the X and Y planes with the X plane being determined to be the worst case plane.

| Frequency (MHz) | Vertical (dBuV/m) | Horizontal (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna | Detector | BW (kHz) |
|-----------------|-------------------|---------------------|----------------|-------------|-----------|------------|----------|
| 914.551 | 26.5 | 26.5 | 46.0 | 11.0 | Hort/Vert | Quasi Peak | 120 |
| 1829.102 | 49.0 | 49.0 | 74.0 | 25.0 | Hort/Vert | Peak | 1000 |
| 1829.102 | 33.0 | 33.0 | 54.0 | 21.0 | Hort/Vert | Average | 1000 |
| 2743.653 | 50.0 | 50.0 | 74.0 | 24.0 | Hort/Vert | Peak | 1000 |
| 2743.653 | 36.0 | 36.0 | 54.0 | 18.0 | Hort/Vert | Average | 1000 |
| 3658.204 | 53.0 | 53.0 | 74.0 | 21.0 | Hort/Vert | Peak | 1000 |
| 3658.204 | 40.0 | 40.0 | 54.0 | 14.0 | Hort/Vert | Average | 1000 |
| 4572.755 | 55.0 | 55.0 | 74.0 | 19.0 | Hort/Vert | Peak | 1000 |
| 4572.755 | 42.0 | 42.0 | 54.0 | 12.0 | Hort/Vert | Average | 1000 |

The emission levels recorded are noise floor measurements.

No emissions were detected from the device

Result: Complies.

Measurement uncertainty with a confidence interval of 95% is:

- Free radiation tests (30 MHz – 5000 MHz) ± 4.1 dB

7. TEST EQUIPMENT USED

| Instrument | Manufacturer | Model | Serial No | Asset Ref | Cal Due | Interval |
|-------------------|-----------------|------------|------------|-----------|--------------|----------|
| Aerial Controller | EMCO | 1090 | 9112-1062 | RFS 3710 | Not applic | - |
| Aerial Mast | EMCO | 1070-1 | 9203-1661 | RFS 3708 | Not applic | - |
| Biconical Antenna | Schwarzbeck | BBA 9106 | - | RFS 3612 | 7 Feb 2015 | 1 year |
| Horn Antenna | EMCO | 3115 | 9511-4629 | E1526 | 14 June 2017 | 3 year |
| Horn Antenna | EMCO | 3116 | 92035 | - | 10 May 2016 | 3 year |
| Log Periodic | Schwarzbeck | VUSLP 9111 | 9111-228 | 3785 | 7 Feb 2015 | 1 year |
| Receiver | R & S | ESIB 40 | 100171 | R-27-1 | 29 Jan 2015 | 1 year |
| Spectrum Analyser | Hewlett Packard | E7405A | US39150142 | 3771 | 7 July 2015 | 1 year |
| Turntable | EMCO | 1080-1-2.1 | 9109-1578 | RFS 3709 | Not applic | - |
| VHF Balun | Schwarzbeck | VHA 9103 | - | RFS 3603 | 7 Feb 2015 | 1 year |
| Loop Antenna | EMCO | 6502 | 9003-2485 | 3798 | 14 Jul 2017 | 3 year |

At the time of testing all test equipment was within calibration.

8. ACCREDITATIONS

Testing was carried out in accordance with EMC Technologies NZ Ltd registration with the Federal Communications Commission as a listed facility, Registration Number: 90838, which was last updated in June 2014.

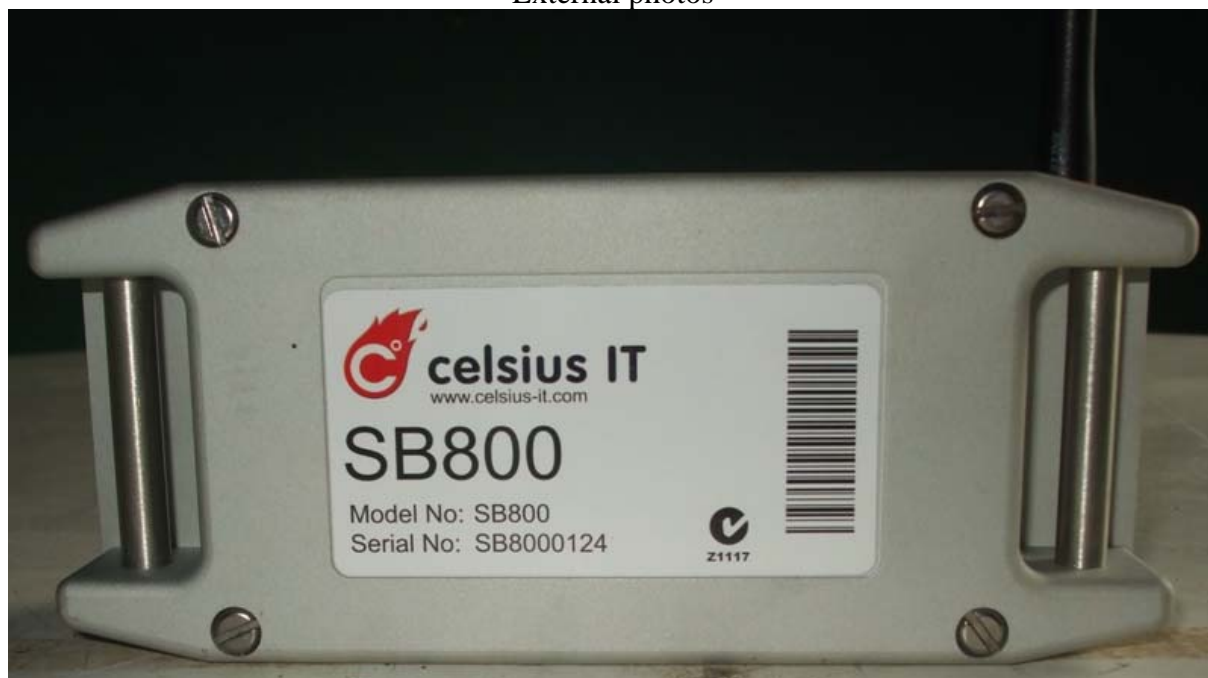
In addition testing was carried out in accordance with the terms of EMC Technologies (NZ) Ltd's International Accreditation New Zealand (IANZ) Accreditation to NZS/IEC/ISO 17025.

All measurement equipment has been calibrated in accordance with the terms of EMC Technologies (NZ) Ltd's International Accreditation New Zealand (IANZ) Accreditation to NZS/IEC/ISO 17025.

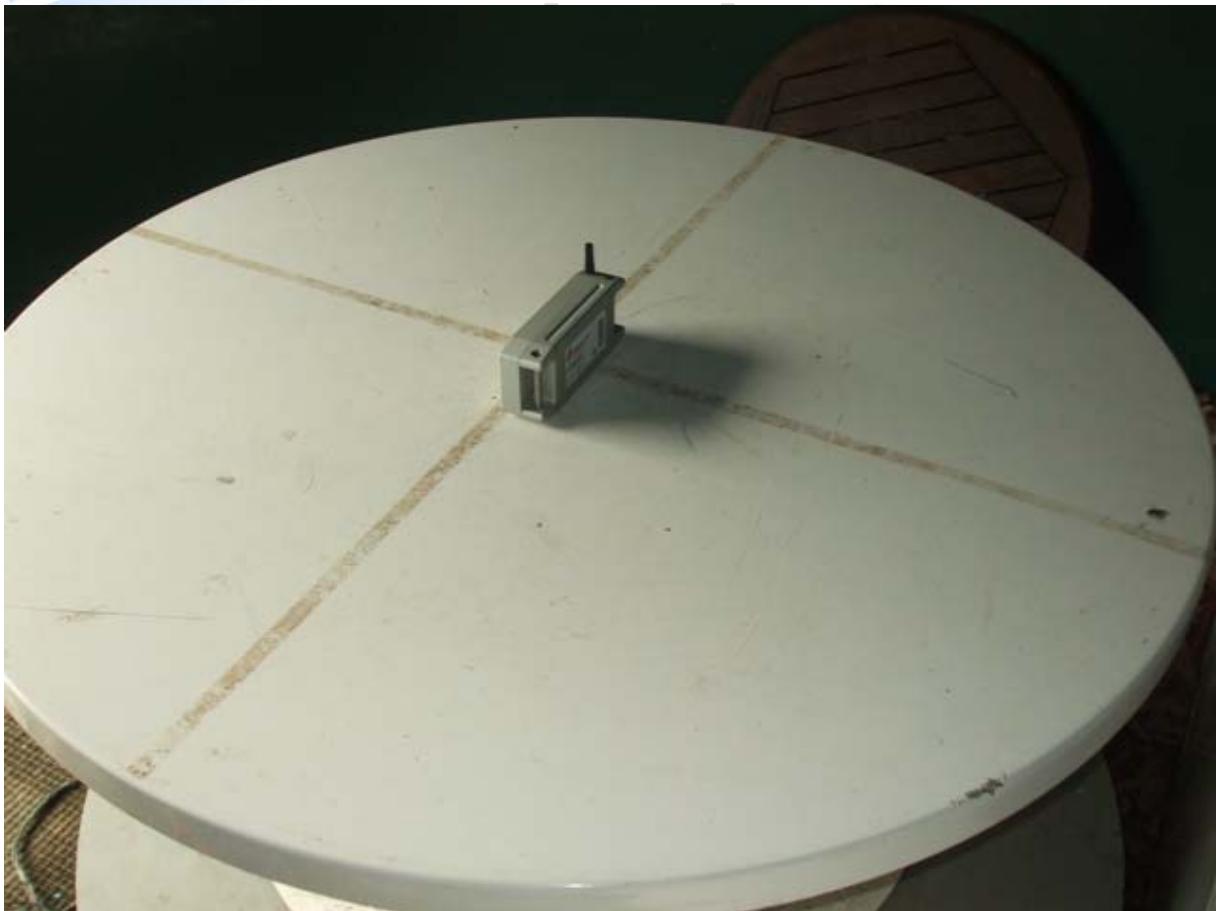
International Accreditation New Zealand has Mutual Recognition Arrangements for testing and calibration with a number of accreditation bodies in various economies. This includes NATA (Australia), UKAS (UK), SANAS (South Africa), NVLAP (USA), A2LA (USA), SWEDAC (Sweden). Further details can be supplied on request.

9. PHOTOGRAPHS

External photos



Test Set Up Photos





Technologies

Global Product Certification