TEST REPORT

Escort REDi Wireless Receiver

tested to the

Code of Federal Regulations (CFR) 47

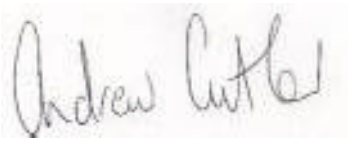
Part 15 – Radio Frequency Devices, Subpart C – Intentional Radiators

Section 15.249 – Operation in the band 902 – 928 MHz

for

Escort Data Logging Systems Ltd

This Test Report is issued with the authority of:



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. CLIENT INFORMATION

Company Name	Escort Data Logging Systems Ltd
Address	PO Box 15-639 New Lynn
City	Auckland
Country	New Zealand
Contact	Mr David Doo
Phone	0064-9-826-0960
Email	ddoo@escortdls.com

2. DESCRIPTION OF TEST SAMPLE

Brand Name	Escort
Model Number	REDi
Part Number	EA-RI-9
Product	Wireless Receiver
Manufacturer	Escort Data Logging System
Country of Origin	New Zealand
Serial Number	0541-0142
FCC ID	TZH-REDI

This report replaces report number 51104.1 REDi as it includes additional measurements required by Section 15.215

3. COMPLIANCE STATEMENT

The **Escort REDi Wireless Receiver** complies with 47 CFR Part 15 and in particular Sections, 15.205, 15.207, 15.209, 15.215 and 15.249 as detailed below

CLAUSE	TEST PERFORMED	RESULT
15.109	Radiated emission limits	Complies
15.203	Antenna requirement	Complies
15.205	Operation in restricted bands	Complies
15.207	Conducted emissions	Not applicable
15.209	Radiated emissions	Complies
15.215		
(b)	Spurious emissions do not exceed fundamental	Complies
(c)	Additional provisions – 20 dB bandwidth	Complies
15.249:		
(a)	Field strength of fundamental	Complies
(a)	Field strength of harmonics	Complies
(b)	Fixed, point to point operations	Not applicable
(c)	3 metre measurement distance	Noted
(d)	Spurious emission levels except harmonics	Complies
(e)	Detectors above 1000 MHz	Noted
(f)	Reference to section 15.37(d)	Noted

4. TEST SAMPLE DESCRIPTION

The sample tested is a data logging system whereby remote temperature loggers are interrogated by a handheld transceiver with all logged data being transferred to the handheld device.

This data can then be downloaded to a personal computer at a latter time for analysis.

Data Rate / Modulation system used

76.8 kbps

Rated Transmitter Output Power

1.4 mW (+1.5 dBm)

Antenna Type

Permanently attached whip antenna.

Test frequency

916.050 MHz

Power Supply

Internal batteries.

Battery charging is not provided for.

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.

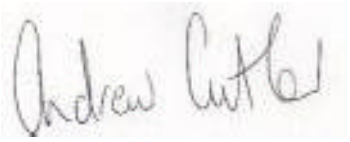
This report does not contain corrections or erasures.

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.

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. TRANSMITTER TEST RESULTS

Section 15.109 – Radiated emission limits

Emission measurements were made on the Wireless Receiver when in standby / receive modes with the limits as per this section being applied.

Results are contained within the section 15.249 result tables.

Section 15.203 – Antenna requirement

Both the Wireless Receiver and the Temperature logger have permanently attached whip antennas.

Section 15.205 – Restricted bands of operation

Refer to measurements made with reference to Section 15.249 (a).

Section 15.207 – Conducted emissions

Not applicable.

The Wireless Receiver is powered using internal batteries.

No provision has been made on either device for an external charger to be attached.

Result: Complies

Section 15.209 – Radiated emissions

In accordance with section 15.249(d) the general emission limits specified in Section 15.209(a) have been applied to all emissions except the transmitter harmonics.

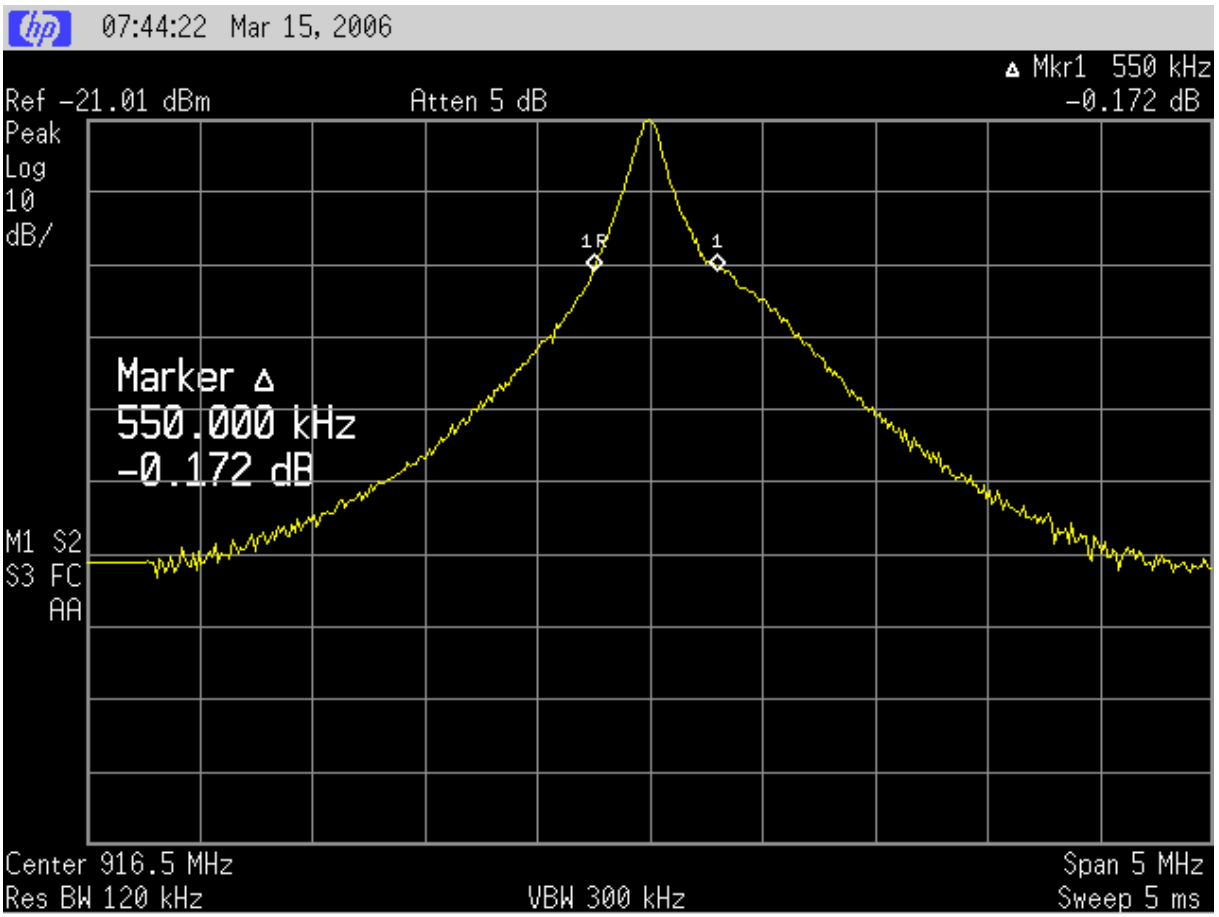
See Section 15.249(a) for further details.

Section 15.215(b)(c)– Additional provisions to the general radiated emission limitations

The spurious emission levels do not exceed the fundamental emission levels.

Approval is sought for this device under the alternative provisions contain in sections 15.217 through to 15.257.

Relative measurements have been made of the 20 dB bandwidth of this device using a spectrum analyser in peak hold mode.



The spectrum plot shows that the 20 dB bandwidth is completely contained within the allocated band of 902 – 927 MHz.

Result: Complies

Section 15.249 (a) – Field strength of the Fundamental and Harmonics

Standby / Receive modes

Wireless Receiver

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Polarity	Margin (dB)
61.620	18.4	40.0	Vertical	21.6
69.320	14.4	40.0	Vertical	25.6
77.020	16.1	40.0	Vertical	23.9
84.720	13.8	40.0	Vertical	26.2

Transmit modes

Wireless Receiver

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Polarity	Margin (dB)
916.460	90.8	94.0	Vertical	3.2
916.460	80.7	94.0	Horizontal	13.3

No transmitter spurious emissions were detected up to 10 x Fc when measurements were attempted using vertical and horizontal polarisations with either an Average or Peak detector and a bandwidth of 1 MHz.

As the transmitter has no external connections radiated emissions measurements were made at the open area test site.

The devices were placed on the test table, being 0.8 m above the ground plane, with the front display facing the test antenna.

All measurements were initially made over a distance of 3 metres.

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. The emission is measured in both vertical and horizontal antenna polarisations.

Below 1000 MHz a quasi peak detector was used with a bandwidth of 120 kHz.

Above 1000 MHz either an average or peak detector was used with a bandwidth of 1 MHz.

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

Level (dBµV/m) = Receiver Reading (dBµV) + Antenna Factor (dB) + Coax Loss (dB)

Measurement uncertainty with a confidence interval of 95% is:

- Free radiation tests (30 – 18,000 MHz) ± 4.1 dB

Result: Complies

7. TEST EQUIPMENT USED

Instrument	Manufacturer	Model	Serial No	Ref No
Aerial Controller	EMCO	1090	9112-1062	3710
Aerial Mast	EMCO	1070-1	9203-1661	3708
Turntable	EMCO	1080-1-2.1	9109-1578	3709
VHF Balun	Schwarzbeck	VHA 9103	-	3603
Biconical Antenna	Schwarzbeck	BBA 9106	-	3612
Log Periodic Antenna	Schwarzbeck	VUSLP 9111	9111-228	3785
Measurement Receiver	Rohde & Schwarz	ESCS 30	839873/1	E1595
Spectrum Analyser	Hewlett Packard	E7405A	US39150142	3776
Coax Cable	Sucoflex	104PA	2736/4PA	-
Horn Antenna	Electrometrics	RGA -60	6234	E1494

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 updated on February 17th, 2004.

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: 1999.

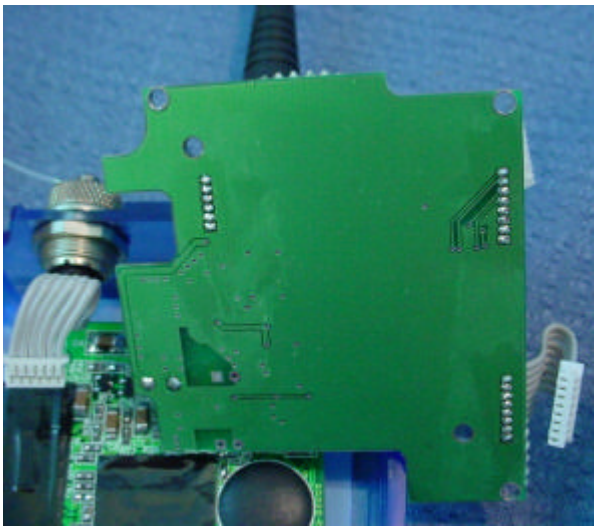
All measurement equipment has been calibrated in accordance with the terms of EMC Technologies (NZ) Ltd's International Accreditation New Zealand (IANZ) Accreditation to NZS/IEC/ISO 17025: 1999.

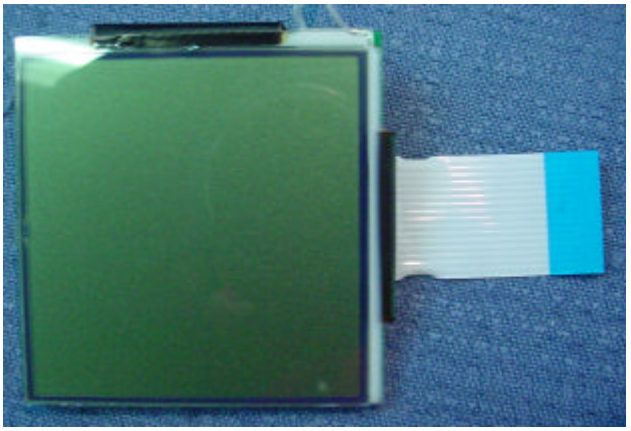
International Accreditation New Zealand has Mutual Recognition Arrangements for testing and calibration with 46 accreditation bodies in 34 economies. This includes NATA (Australia), UKAS (UK), SANAS (South Africa), NVLAP (USA), A2LA (USA), SWEDAC (Sweden). Further details can be supplied on request.

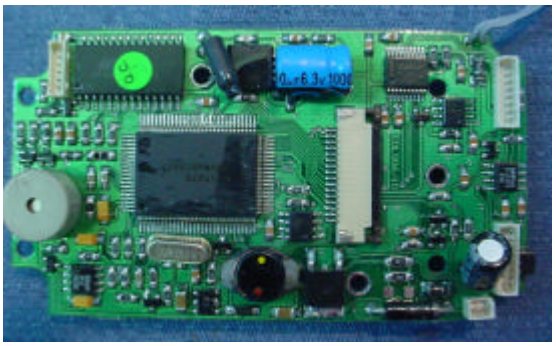
9. PHOTOGRAPHS

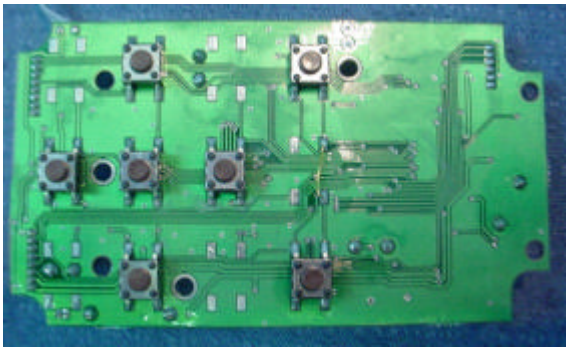
External Photos – Wireless Receiver

Internal Photos – Wireless Receiver









Radiated emissions test set up: Wireless Receiver