



EMC Technologies (NZ) Ltd
PO Box 68-307
Newton, Auckland
Phone 09 360 0862
Fax 09 360 0861
E-Mail Address: aucklab@ihug.co.nz
Web Site: www.emctech.com.au

10 July 2002

Ref: 20714.1

Attn: Mr John Croft

SALCOM Ltd
PO Box 22-621
Christchurch
New Zealand

Dear Mr John Croft,

Attached are the results of measurements made upon the **Salcom 12-04-0000 UHF POCSAG Paging Receiver** recently submitted to this Laboratory for testing.

The results show that this device **complies with FCC Part 15 Subparts A and B.**

Yours faithfully,

A handwritten signature in black ink, reading "Andrew Cutler". The signature is written in a cursive, flowing style.

Andrew Cutler
General Manager

EMC Technologies (NZ) Ltd

Test Report No 20714.1

Report date: 10 July 2002

TEST REPORT

Salcom 12-04-0000 UHF POCSAG Paging Receiver

tested to

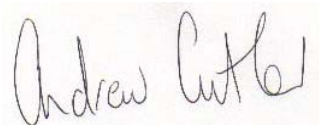
47 Code of Federal Regulations

Part 15 - Radio Frequency Devices

for

SALCOM Ltd

This Test Report is issued with the authority of:



Andrew Cutler - General Manager

Prepared By:



Karen Miller - Office Administrator



EMC Technologies (NZ) Ltd

STREET ADDRESS - 47 MacKelvie Street, Grey Lynn, Auckland, New Zealand
POSTAL ADDRESS - PO Box 68 307, Newton, Auckland, New Zealand

Telephone: +64 9 360 0862 Fax: +64 9 360 0861

E-mail: aucklab@ihug.co.nz

Web Site: www.emctech.com.au

EMC Technologies (NZ) Ltd

Test Report No 20714.1

Report date: 10 July 2002

Table of Contents

1.	STATEMENT OF COMPLIANCE	3
2.	RESULTS SUMMARY	3
3.	INTRODUCTION	3
4.	CLIENT INFORMATION	4
5.	DESCRIPTION OF TEST SAMPLE	4
6.	SETUPS AND PROCEDURES	5
7.	TEST EQUIPMENT USED	7
8.	ACCREDITATIONS	7
9.	RESULTS	8
10.	PHOTOGRAPH(S)	10

EMC Technologies (NZ) Ltd

Test Report No 20714.1

Report date: 10 July 2002

1. STATEMENT OF COMPLIANCE

The **Salcom 12-04-0000 UHF POCSAG Paging Receiver** complies with FCC Part 15 Subparts A and B when the methods, as described in ANSI C63.4 - 1992, are applied.

2. RESULTS SUMMARY

The results from testing are summarised in the following table:

Section	Result
15.107(f) – Conducted limits.	Complies with a 17.96 dB margin at 466.000 kHz (Quasi Peak).
15.109(f) – Radiated emission limits.	Not applicable. Device has external antenna terminals with measurements being made in accordance with section 15.111.
15.111(a) – Antenna power conduction limits for receivers.	Complies with a 6.1 dB margin at 610.1002 MHz.

3. INTRODUCTION

This report describes the tests and measurements performed on the **Salcom 12-04-0000 UHF POCSAG Paging Receiver** for the purpose of determining compliance with the specification.

The client selected the test sample.

This report relates only to the sample tested.

This report contains no 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.

EMC Technologies (NZ) Ltd

Test Report No 20714.1

Report date: 10 July 2002

4. CLIENT INFORMATION

Company Name	SALCOM Ltd
Address	PO Box 22-621
City	Christchurch
Country	New Zealand
Contact	Mr John Croft

5. DESCRIPTION OF TEST SAMPLE

Brand Name	Salcom
Model Number	12-04-0000
Product	UHF POCSAG Paging Receiver
Manufacturer	SALCOM Ltd
Country of Origin	New Zealand
Serial Number	1204-P001

The device tested is a POCSAG paging receiver designed to operate nominally in the band 450 – 470 MHz.

The sample tested was set up to receive on 457.5750 MHz.

The receiver is capable of receiving 512 and 1200 band POCSAG signals.

EMC Technologies (NZ) Ltd

Test Report No 20714.1

Report date: 10 July 2002

6. SETUPS AND PROCEDURES

Standard

The sample was tested in accordance with FCC Part 15 Subparts A and B.

Methods and Procedures

The measurement methods and procedures used, as described in ANSI C63.4 - 1992, were as follows:

6.1 Description of Conducted Emissions Test Setup

Conducted emissions testing was carried out over the frequency range of 450 kHz to 30 MHz.

Testing for conducted emissions was carried out at the laboratory's MacKelvie Street premises in a screened room.

The device was placed 0.8 m away from the closest edge of the artificial mains terminal network on the emissions test table which is 1 m x 1.5 m, and is 0.8 m above the screened room floor which acts as the horizontal ground plane and is 0.6 m away from the screened room wall which acts as the vertical ground plane.

The device operates at 12 Vdc.

The device was powered at 110 V AC from the mains using a representative AC / DC adaptor in accordance with section 15.107(f).

Measurements were made using a Quasi Peak detector with a 10 kHz bandwidth.

Measurement uncertainty with a confidence interval of 95% is:

- Mains terminal tests (0.45 - 30 MHz) ± 2.2 dB

EMC Technologies (NZ) Ltd

Test Report No 20714.1

Report date: 10 July 2002

6.2 Description Of Antenna Power Conduction Limits for Receivers Test Method

In accordance with Section 15.109(f), testing has been carried out in accordance with Section 15.111(a) as the receiver has terminals for an external antenna.

Antenna power measurements have been carried out over the frequency range of 30.0 to 2000 MHz.

Testing for antenna power conduction was carried out at the laboratory's MacKelvie Street premises in a screened room.

The receiver operates in the nominal band of 450 – 470 MHz.

In accordance with Section 15.33(b)(1) testing has been carried out up to 2000 MHz as the highest frequency generated or used is in the band 108 – 500 MHz.

Measurements have been made with the antenna terminals shielded and terminated with a resistive termination equal to the impedance specified for the antenna.

The antenna impedance is 50 Ω .

The limit of 2 nanowatts has been expressed in dBm as –57.0 dBm.

Measurements have been made using a peak detector with a bandwidth of 120 kHz below 1000 MHz and a bandwidth of 1 MHz above 1000 MHz.

Measurement uncertainty with a confidence interval of 95% is:

- Antenna power conduction. (30 - 2000 MHz) $\pm$ 2.2 dB

EMC Technologies (NZ) Ltd

Test Report No 20714.1

Report date: 10 July 2002

7. TEST EQUIPMENT USED

Instrument	Manufacturer	Model	Serial No	Asset Ref
Artificial Mains Network	Rhode & Schwarz	ESH 2-Z5	881362/034	RFS 3628
Measurement Receiver	Rohde & Schwarz	ESHS 10	828404/005	RFS 3728
Variac	General Radio	1592	-	RFS 3690
Power Supply	Hewlett Packard	6032A	2743A-02859	E1069
Spectrum Analyser	Hewlett Packard	E7405A	US39150142	3776

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 March 20th, 2002.

The tests were carried out in accordance with the terms of EMC Technologies (NZ) Ltd's International Accreditation New Zealand (IANZ) Accreditation to NZS/ISO/IEC 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/ISO/IEC 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.

EMC Technologies (NZ) Ltd

STREET ADDRESS - 47 MacKelvie Street, Grey Lynn, Auckland, New Zealand
POSTAL ADDRESS - PO Box 68 307, Newton, Auckland, New Zealand

Telephone: +64 9 360 0862 Fax: +64 9 360 0861

E-mail: aucklab@ihug.co.nz
Web Site: www.emctech.com.au

EMC Technologies (NZ) Ltd

Test Report No 20714.1

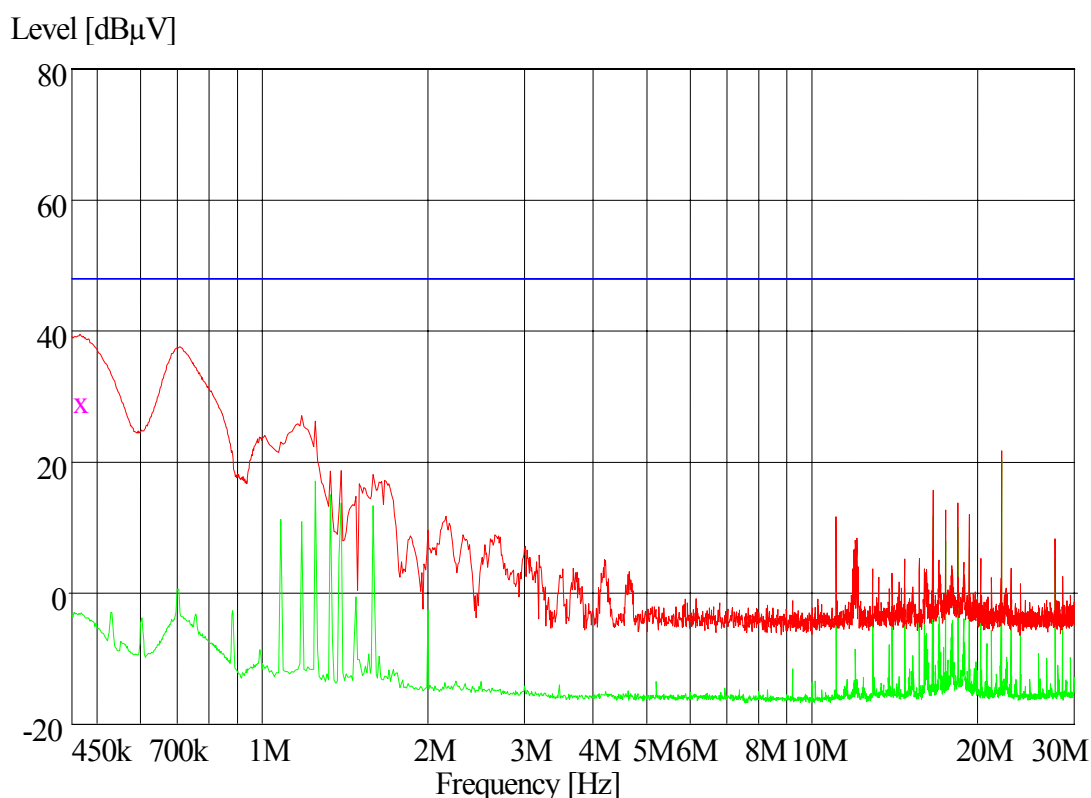
Report date: 10 July 2002

9. RESULTS

Conducted Emissions

Comments:	Test carried out using at 110 Vac using a representative AC adaptor while receiving a signal on 457.575 MHz.
------------------	--

KEY		
Peak		Quasi Peak X
Average		Average +



Quasi-Peak Measurements

Frequency MHz	Level dB μ V	Limit dB μ V	Margin dB	Exceed	Phase	Rechecks dB μ V
0.466000	30.04	48.00	17.96		L1	27.2

Average Measurements

Frequency MHz	Level dB μ V	Limit dB μ V	Margin dB	Exceed	Phase	Rechecks dB μ V
No results recorded						

EMC Technologies (NZ) Ltd

STREET ADDRESS - 47 MacKelvie Street, Grey Lynn, Auckland, New Zealand

POSTAL ADDRESS - PO Box 68 307, Newton, Auckland, New Zealand

Telephone: +64 9 360 0862 Fax: +64 9 360 0861

E-mail: aucklab@ihug.co.nz

Web Site: www.emctech.com.au

EMC Technologies (NZ) Ltd

Test Report No 20714.1

Report date: 10 July 2002

Antenna Power Conduction

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
76.2629	-87.3	-57.0	30.3
152.5251	-71.4	-57.0	14.4
228.7876	-78.1	-57.0	21.1
305.0504	-75.7	-57.0	18.7
381.3122	-91.3	-57.0	34.3
457.5750	-74.1	-57.0	17.1
533.8371	-75.9	-57.0	18.9
610.1002	-63.1	-57.0	6.1
686.3623	-77.9	-57.0	20.9
762.6247	-72.3	-57.0	15.3
838.8576	-85.3	-57.0	28.3
915.1500	-81.5	-57.0	24.5
991.4119	-82.1	-57.0	25.1
1220.1997	-79.5	-57.0	22.5

EMC Technologies (NZ) Ltd

STREET ADDRESS - 47 MacKelvie Street, Grey Lynn, Auckland, New Zealand
POSTAL ADDRESS - PO Box 68 307, Newton, Auckland, New Zealand

Telephone: +64 9 360 0862 Fax: +64 9 360 0861

E-mail: aucklab@ihug.co.nz
Web Site: www.emctech.com.au

EMC Technologies (NZ) Ltd

Test Report No 20714.1

Report date: 10 July 2002

10. PHOTOGRAPH(S)



EMC Technologies (NZ) Ltd

STREET ADDRESS - 47 MacKelvie Street, Grey Lynn, Auckland, New Zealand
POSTAL ADDRESS - PO Box 68 307, Newton, Auckland, New Zealand

Page 10 of 11 This report may not be reproduced except in full

Telephone: +64 9 360 0862 Fax: +64 9 360 0861

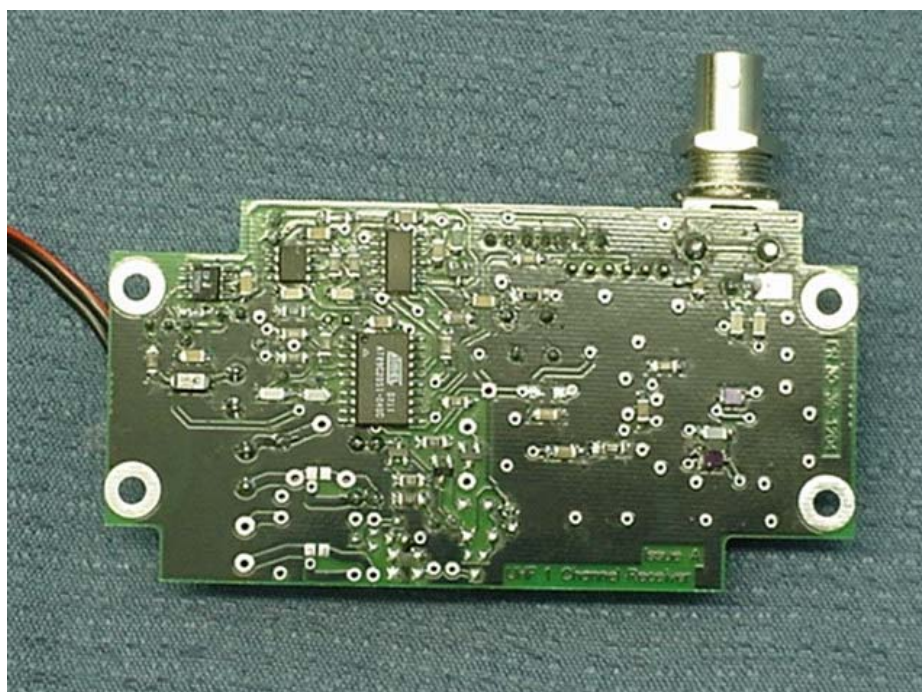
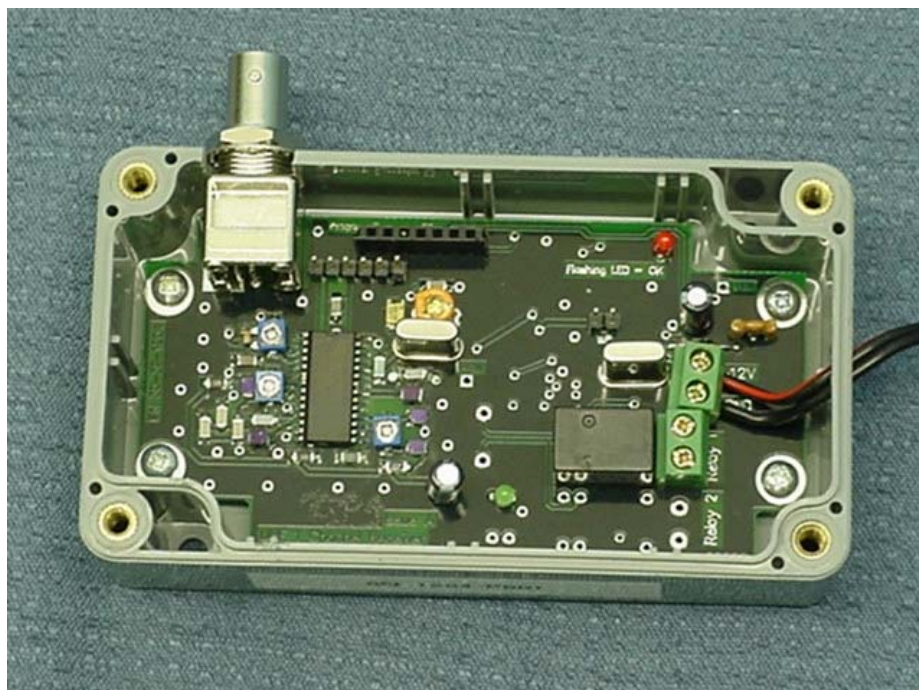
E-mail: aucklab@ihug.co.nz

Web Site: www.emctech.com.au

EMC Technologies (NZ) Ltd

Test Report No 20714.1

Report date: 10 July 2002



EMC Technologies (NZ) Ltd

STREET ADDRESS - 47 MacKelvie Street, Grey Lynn, Auckland, New Zealand

POSTAL ADDRESS - PO Box 68 307, Newton, Auckland, New Zealand

Page 11 of 11 This report may not be reproduced except in full

Telephone: +64 9 360 0862 Fax: +64 9 360 0861

E-mail: aucklab@ihug.co.nz

Web Site: www.emctech.com.au