

27 November 2000

Ref: 01127.1

Attn: Mr Martyn Chandler

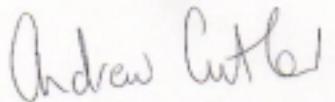
Gallagher Group Ltd
Private Bag 3026
Hamilton
New Zealand

Dear Mr Martyn Chandler,

Attached are the results of measurements made upon the **Premierprox 10102B Card Reader** recently submitted to this Laboratory for testing.

The results show that this device **complies with 47 CFR Part 15 Subpart C.**

Yours faithfully,



Andrew Cutler
General Manager

EMC Technologies (NZ) Ltd

Test Report No **01127.1**

Report date: 27 November 2000

TEST REPORT

Premierprox 10102B Card Reader

tested to the Specification

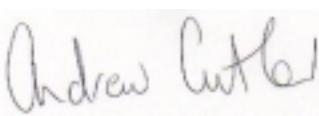
47 Code of Federal Regulations Ch. 1 (1996)

Part 15 - Radio Frequency Devices

for

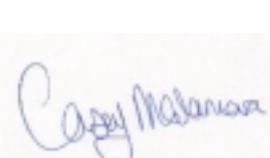
Gallagher Group Ltd

This Test Report is issued with the authority of:



Andrew Cutler - General Manager

Prepared By:



Casey McNamara - Office Administrator



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Table of Contents

1. STATEMENT OF COMPLIANCE	3
2. RESULTS SUMMARY	3
3. CLIENT INFORMATION	3
4. DESCRIPTION OF TEST SAMPLE	4
5. MEASUREMENT STANDARD, METHODS AND PROCEDURES	4
6. TEST EQUIPMENT USED	6
7. ACCREDITATIONS	6
8. RESULTS	7
9. PHOTOGRAPHS	12

EMC Technologies (NZ) Ltd

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Report date: 27 November 2000

1. STATEMENT OF COMPLIANCE

The **Premierprox 10102B Card Reader** complies with 47 CFR Part 15 Subpart C - 1996 when the methods, as described in ANSI C63.4 - 1992, are applied.

2. RESULTS SUMMARY

The results from testing the sample **Premierprox 10102B Card Reader** are summarised in the following table:

Clause	Parameter	Result
15.205	Restricted bands of operation	Complies
15.207	Conducted	Not applicable
15.209	Radiated emissions - Fundamental	Complies with a 20.9 dB margin.
15.209	Radiated emissions – Spurious Emissions	Complies with a 6.3 dB margin at 68.0325 MHz.

3. CLIENT INFORMATION

Company Name Gallagher Group Ltd

Address Private Bag 3026

City Hamilton

Country New Zealand

Contact Mr Martyn Chandler

EMC Technologies (NZ) Ltd

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4. DESCRIPTION OF TEST SAMPLE

Brand Name	Premierprox
Model Number	10102B
Product	Card Reader
Manufacturer	ReaDX Global Ltd
Country of Origin	New Zealand
Serial Number	0011154600455

5. MEASUREMENT STANDARD, METHODS AND PROCEDURES

Standard

The sample was tested in accordance with 47 CFR Part 15 Subpart C - 1996.

Methods and Procedures

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

5.1 Description Of Radiated Emissions Test Method

Radiated emissions testing was carried out over the frequency range of 100 kHz to 1000 MHz. Testing of the Device Under Test (DUT) for radiated emissions was carried out at the laboratory's open area test site - located at Dakota Lane, Ardmore Aerodrome, Auckland, New Zealand (Note: Site conforms to the requirements of CISPR 16, Part 1, Clause 16, and ANSI C63.4 - 1992.)

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Test Report No **01127.1**

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Before testing is carried out, a check of all connecting cables and antennas is carried out.

The device was placed on the test table top which is a total of 0.8 m above the test site ground plane.

Measurements were made with the antenna located 10 m from the device.

A Quasi-Peak detector was used between 30 and 1000 MHz.

An Average detector was used between 100 kHz and 30 MHz.

Testing is carried out in the various modes in which the device operates. Any external cables are orientated for the worst case emissions level.

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.

During the test, a number of ambient emissions were identified (list of which can be provided upon request).

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

$$\text{Level (dB}\mu\text{V/m)} = \text{Receiver Reading (dB}\mu\text{V)} + \text{Antenna Factor (dB)} + \text{Coax Loss (dB)}$$

Measurement uncertainty with a confidence interval of 95% is:

$$- \text{ Free radiation tests} \quad (100 \text{ kHz} - 1000 \text{ MHz}) \pm 4.8 \text{ dB}$$

The device was powered from a 12 V DC Power Supply.

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Test Report No **01127.1**

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6. TEST EQUIPMENT USED

Instrument	Manufacturer	Model	Serial No	Asset Ref
Aerial Controller	EMCO	1090	9112-1062	RFS 3710
Aerial Mast	EMCO	1070-1	9203-1661	RFS 3708
Biconical Antenna	Schwarzbeck	BBA 9106		RFS 3612
DC Power Supply	Harrison	626A		E1266
Log Periodic Antenna	Schwarzbeck	UHALP 9107		RFS 3702
Loop Antenna	Schwarzbeck	FMZ 1514		RFS 3602
Magnetic Loops	Schwarzbeck	0.15-30.0 MHz		
Measurement Receiver	Rohde & Schwarz	ESCS 30	839873/1	
Turntable	EMCO	1080-1-2.1	9109-1578	RFS 3709
VHF Balun Antenna	Schwarzbeck	VHA 9103		RFS 3603

7. 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 11th, 2000.

Testing was carried out in accordance with the terms of EMC Technologies (NZ) Ltd's International Accreditation New Zealand (TELARC) Accreditation to the New Zealand Code of Laboratory Management Practice incorporating ISO Guide 25: 1990 and ISO 9002: 1987.

All measurement equipment has been calibrated in accordance with the terms of the Ministry of Commerce, Laboratory Services' International Accreditation New Zealand (TELARC) Accreditation to the New Zealand Code of Laboratory Management Practice incorporating ISO Guide 25: 1990 and ISO 9002: 1994.

International Accreditation New Zealand has Mutual Recognition Arrangements for testing and calibration with 25 accreditation bodies in 21 economies. This includes NATA (Australia), UKAS (UK), SANAS (South Africa), NVLAP (USA), A2LA (USA), SWEDAC (Sweden). Further details can be supplied on request.

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8. RESULTS

Section 15.205: Restricted bands of operation.

The device operates on 121 kHz.

This frequency falls between the restricted bands of 90 – 110 kHz and 495 – 505 kHz.

Result: Complies.

Section 15.209: Radiated Emissions – Fundamental Emission

Frequency kHz	Level dBuV	Level dBuV/m	Limit dBuV/m	Margin dB	Result
121.0000	31.4	65.0	85.9	20.9	Pass

Magnetic loop measurements were made at a distance of 10 metres.

The 300 metre limit (2400 / F (kHz)) of 19.8 dBuV (25.9 dBuV/m) has been scaled by a factor of 40 dB per decade as per section 15.31 (f) (2).

Result: Complies.

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Section 15.209: Radiated Emissions – Spurious Emissions

Frequency	Level		Recheck	Limit	Margin	Result	Worst Case Antenna
	Vertical	Horizontal					
MHz	dB μ V/m	dB μ V/m	dB μ V/m	dB μ V/m	dB		
30.0375	26.9			40.0	13.1	Pass	Vertical
30.2850	26.4			40.0	13.6	Pass	Vertical
30.5225	23.9			40.0	16.1	Pass	Vertical
30.7695	22.9			40.0	17.1	Pass	Vertical
31.0065	26.5			40.0	13.5	Pass	Vertical
31.2535	21.8			40.0	18.2	Pass	Vertical
31.4905	21.3			40.0	18.7	Pass	Vertical
31.7330	22.1			40.0	17.9	Pass	Vertical
31.9755	21.6			40.0	18.4	Pass	Vertical
32.2180	21.9			40.0	18.1	Pass	Vertical
32.4605	24.1			40.0	15.9	Pass	Vertical
32.7030	21.4			40.0	18.6	Pass	Vertical
32.9455	20.6			40.0	19.4	Pass	Vertical
33.1880	20.1			40.0	19.9	Pass	Vertical
33.4305	19.0			40.0	21.0	Pass	Vertical
33.9155	20.8			40.0	19.2	Pass	Vertical
34.3905	20.4			40.0	19.6	Pass	Vertical
34.8755	19.9			40.0	20.1	Pass	Vertical
35.3605	20.3			40.0	19.7	Pass	Vertical
41.2950	22.7			40.0	17.3	Pass	Vertical
41.4165	23.6			40.0	16.4	Pass	Vertical
41.5380	22.1			40.0	17.9	Pass	Vertical
41.7810	23.1			40.0	16.9	Pass	Vertical
42.0240	24.2			40.0	15.8	Pass	Vertical
42.2620	24.7			40.0	15.3	Pass	Vertical
42.5040	25.4			40.0	14.6	Pass	Vertical
42.7460	26.1			40.0	13.9	Pass	Vertical
42.9880	26.9			40.0	13.1	Pass	Vertical
43.2300	27.4			40.0	12.6	Pass	Vertical
43.4720	28.0			40.0	12.0	Pass	Vertical
43.7140	28.3			40.0	11.7	Pass	Vertical
43.9560	28.5			40.0	11.5	Pass	Vertical
44.1989	28.5			40.0	11.5	Pass	Vertical
44.4400	28.5			40.0	11.5	Pass	Vertical
44.6820	28.5			40.0	11.5	Pass	Vertical
44.9240	28.7			40.0	11.3	Pass	Vertical
45.4080	27.1			40.0	12.9	Pass	Vertical

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46.6500	26.1	40.0	13.9	Pass	Vertical
45.8920	25.9	40.0	14.1	Pass	Vertical
46.1340	28.1	40.0	11.9	Pass	Vertical
46.3760	26.3	40.0	13.7	Pass	Vertical
46.6180	26.1	40.0	13.9	Pass	Vertical
46.8600	26.0	40.0	14.0	Pass	Vertical
47.1020	25.2	40.0	14.8	Pass	Vertical
47.3440	24.1	40.0	15.9	Pass	Vertical
47.5860	23.4	40.0	16.6	Pass	Vertical
47.8280	24.5	40.0	15.5	Pass	Vertical
48.0700	23.0	40.0	17.0	Pass	Vertical
48.3120	23.0	40.0	17.0	Pass	Vertical
48.5540	23.5	40.0	16.5	Pass	Vertical
48.7960	23.9	40.0	16.1	Pass	Vertical
49.0380	23.7	40.0	16.3	Pass	Vertical
49.2800	23.6	40.0	16.4	Pass	Vertical
49.5220	23.7	40.0	16.3	Pass	Vertical
49.7640	23.4	40.0	16.6	Pass	Vertical
50.0060	23.6	40.0	16.4	Pass	Vertical
50.2480	21.5	40.0	18.5	Pass	Vertical
50.4900	21.5	40.0	18.5	Pass	Vertical
51.4580	23.1	40.0	16.9	Pass	Vertical
51.7000	23.1	40.0	16.9	Pass	Vertical
51.9420	22.7	40.0	17.3	Pass	Vertical
52.1840	22.3	40.0	17.7	Pass	Vertical
52.4260	22.5	40.0	17.5	Pass	Vertical
52.6680	22.4	40.0	17.6	Pass	Vertical
52.9100	22.9	40.0	17.1	Pass	Vertical
53.1520	23.7	40.0	16.3	Pass	Vertical
53.3940	24.3	40.0	15.7	Pass	Vertical
53.6360	25.0	40.0	15.0	Pass	Vertical
53.8780	25.4	40.0	14.6	Pass	Vertical
51.1200	25.3	40.0	14.7	Pass	Vertical
54.3620	29.6	40.0	10.4	Pass	Vertical
54.6040	30.8	40.0	9.2	Pass	Vertical
54.8460	28.5	40.0	11.5	Pass	Vertical
55.5720	30.3	40.0	9.7	Pass	Vertical
55.8140	29.0	40.0	11.0	Pass	Vertical
56.0560	28.7	40.0	11.3	Pass	Vertical
56.2980	27.4	40.0	12.6	Pass	Vertical
56.4500	26.6	40.0	13.4	Pass	Vertical
56.7820	25.4	40.0	14.6	Pass	Vertical
57.0240	24.7	40.0	15.3	Pass	Vertical
57.2660	24.1	40.0	15.9	Pass	Vertical
57.5080	23.8	40.0	16.2	Pass	Vertical

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57.7500	24.1	40.0	15.9	Pass	Vertical	
57.9920	24.0	40.0	16.0	Pass	Vertical	
58.2340	24.0	40.0	16.0	Pass	Vertical	
58.4760	24.1	40.0	15.9	Pass	Vertical	
58.7180	24.5	40.0	15.5	Pass	Vertical	
58.9600	23.7	40.0	16.3	Pass	Vertical	
59.2020	22.6	40.0	17.4	Pass	Vertical	
59.4440	22.5	40.0	17.5	Pass	Vertical	
59.6860	27.3	40.0	12.7	Pass	Vertical	
59.9280	22.6	40.0	17.4	Pass	Vertical	
60.1700	21.3	40.0	18.7	Pass	Vertical	
60.4120	21.3	40.0	18.7	Pass	Vertical	
61.3800	24.1	40.0	15.9	Pass	Vertical	
61.6220	21.4	40.0	18.6	Pass	Vertical	
61.8640	24.1	40.0	15.9	Pass	Vertical	
62.5900	22.6	40.0	17.4	Pass	Vertical	
62.8320	22.6	40.0	17.4	Pass	Vertical	
63.0740	24.0	40.0	16.0	Pass	Vertical	
63.3160	22.6	40.0	17.4	Pass	Vertical	
63.5580	23.0	40.0	17.0	Pass	Vertical	
63.8000	22.8	40.0	17.2	Pass	Vertical	
64.0420	23.3	40.0	16.7	Pass	Vertical	
64.6465	26.1	40.0	13.9	Pass	Vertical	
64.8885	27.1	40.0	12.9	Pass	Vertical	
65.1305	28.2	40.0	11.8	Pass	Vertical	
65.3725	29.3	40.0	10.7	Pass	Vertical	
65.6145	30.2	40.0	9.8	Pass	Vertical	
65.8565	30.9	40.0	9.1	Pass	Vertical	
66.5810	32.3	40.0	7.7	Pass	Vertical	
67.0635	32.6	40.0	7.4	Pass	Vertical	
67.5485	32.8	40.0	7.2	Pass	Vertical	
68.0325	33.7	33.9	40.0	6.3	Pass	Vertical
68.2745	32.8	40.0	7.2	Pass	Vertical	
68.5165	31.5	40.0	8.5	Pass	Vertical	
69.0005	30.4	40.0	9.6	Pass	Vertical	
69.4845	29.7	40.0	10.3	Pass	Vertical	
69.9685	29.4	40.0	10.6	Pass	Vertical	
70.9365	28.5	40.0	11.5	Pass	Vertical	
71.9045	27.6	40.0	12.4	Pass	Vertical	
72.8725	26.2	40.0	13.8	Pass	Vertical	
73.8405	24.3	40.0	15.7	Pass	Vertical	
74.8085	23.0	40.0	17.0	Pass	Vertical	
75.7765	24.0	40.0	16.0	Pass	Vertical	
76.7445	21.7	40.0	18.3	Pass	Vertical	
77.7125	20.9	40.0	19.1	Pass	Vertical	

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78.6805	20.8		40.0	19.2	Pass	Vertical
79.6485	20.4		40.0	19.6	Pass	Vertical
80.6165	20.9		40.0	19.1	Pass	Vertical
81.5845	24.2		40.0	15.8	Pass	Vertical
82.5525	22.4		40.0	17.6	Pass	Vertical
83.5205	22.1		40.0	17.9	Pass	Vertical
84.4885	20.7		40.0	19.3	Pass	Vertical
85.4565	18.2		40.0	21.8	Pass	Vertical
122.0110	20.1		43.5	23.4	Pass	Vertical
123.9470	21.9		43.5	21.6	Pass	Vertical
127.5770	26.4		43.5	17.1	Pass	Vertical
128.5450	27.0		43.5	16.5	Pass	Vertical
129.9970	28.1		43.5	15.4	Pass	Vertical
130.9650	28.7		43.5	14.8	Pass	Vertical
131.9330	28.7		43.5	14.8	Pass	Vertical
132.9010	28.4		43.5	15.1	Pass	Vertical
133.6270	28.2		43.5	15.3	Pass	Vertical
134.3530	27.9	23.3	43.5	15.6	Pass	Vertical
135.3210	26.9	23.9	43.5	16.6	Pass	Vertical
136.4140	28.3	24.4	43.5	15.2	Pass	Vertical
137.3820	28.2	24.1	43.5	15.3	Pass	Vertical
138.3500	27.9	24.0	43.5	15.6	Pass	Vertical
139.3180	27.3	23.3	43.5	16.2	Pass	Vertical
140.2860	27.5	22.9	43.5	16.0	Pass	Vertical
141.2540	28.0	23.7	43.5	15.5	Pass	Vertical
142.2220	28.0	22.0	43.5	15.5	Pass	Vertical
147.7880	30.9	21.4	43.5	12.6	Pass	Vertical
150.6920	32.8	22.4	43.5	10.7	Pass	Vertical
153.3540	34.2	25.8	43.5	9.3	Pass	Vertical
156.0160	30.9	20.1	43.5	12.6	Pass	Vertical
157.4680	29.9		43.5	13.6	Pass	Vertical
160.3720	26.9		43.5	16.6	Pass	Vertical
163.2760	23.0		43.5	20.5	Pass	Vertical
168.9670	21.8		43.5	21.7	Pass	Vertical
220.5230	20.2		46.0	25.8	Pass	Vertical

Result: Complies

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9. PHOTOGRAPHS

