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Laboratory Test Report

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Report No.: 8086A-00
Date Issued: 26 April 2004

SUBJECT:

Vendor Interface Unit
Model: VIU300: 71740
Rating: 27 V d.c., 50 mA nominal

REQUESTED BY:

Vending Management Services Limited
25 Norfolk Road
P.O. Box 925
Masterton
NEW ZEALAND

INSTRUCTIONS:

- Test compliance for compliance with AS / NZS CISPR 22: 2002 "Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement".
- Test for compliance with BS EN 55022: 1998 (CISPR 22: 1997) "Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement" excluding telecommunication ports.
- Test for compliance with the RF emission requirements of the Federal Communications Commission (FCC 47 Part 15: 2002).

CONTENTS:

SUMMARY:

All test results in this report in relation to the Vendor Interface Unit, Model VIU300: 71740 confirmed that the specimen Complied with the relevant provisions of AS / NZS CISPR 22:2002, BS EN 55022: 1998 (CISPR 22:1997) and FCC 47 Part 15: 2002 for Class A.

APPROVED BY:	*TESTED BY:*	*PREPARED BY:*
Manuel Shimasaki	Sherif Antoun	Clare Rochford
IANZ Signatory	EMC Compliance Engineer	Technical Writer

GENERAL

a) As detailed in this report, one specimen of the Vendor Interface Unit, Model VIU300: 71740 was received for testing.

b) The results detailed in this report are based on the specimen submitted by the manufacturer under Purchase Order Number 4000087.

c) The specimen was tested for compliance with Electromagnetic Interference (EMI) in accordance with BS EN 55022: 1998 (CISPR 22: 1997), FCC 47 Part 15: 2002 and AS / NZS CISPR 22: 2002.

d) All testing was carried out under the following environmental conditions, unless otherwise noted:

Ambient temperature	15 °C to 35 °C
Relative humidity	30 % to 60 %
Atmospheric pressure	86 kPa to 106 kPa.

e) Note: N/R = Not Relevant to design assessed, N/T = Not Tested at manufacturer's request, EUT = Equipment Under Test, DNC = Did Not Comply.

f) The reported expanded uncertainties (U) listed below are based on standard uncertainties multiplied by a coverage factor k = 2, and define an interval $\pm U$ providing a level of confidence of approximately 95 %. The uncertainty calculations have been carried out in accordance with IANZ requirements.

(i)	Conducted EMI Measurement (RFI Voltage Test)	0.15 – 30 MHz	± 3 dB
(ii)	Radiated EMI Measurement	30 – 1000 MHz	± 4.6 dB

g) For radiated emission measurements, maximum peak disturbance scans were performed over the entire frequency range of 30 MHz to 1 GHz while varying the products azimuth 0° to 360° and the antenna height, from 1 to 4 meters with both horizontal and vertical polarities. The disturbance scans maximum disturbance points were analysed. The 9 maxima were then subjected to a Quasi-Peak analysis for > 1 s at each point where the exact azimuth, height, polarity and frequency of the disturbance occurred. All 9 quasi-peak points were manually verified and ambient signal results removed.

h) Clause 15.107 part (e) & Clause 15.109 (g) of the "Code of Federal Regulations" states that by meeting the requirements of BS EN 55022: 1998, compliance with the FCC limits has been demonstrated. BS EN 55022:1998 is equivalent to CISPR 22: 1997.

TEST SPECIFICATION

Australian / New Zealand Standard AS / NZS CISPR 22: 2002 (Including No Amendments)	"Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement."
British Standard BS EN 55022: 1998 (CISPR 22: 1997) (Including One Amendment)	"Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement."
FCC 47 Part 0 to 19 :2002	"Federal Communications Commission & code of federal regulations."

These specifications were applicable at the time of testing.

DATE OF TEST

Testing was completed on 6 April 2004.

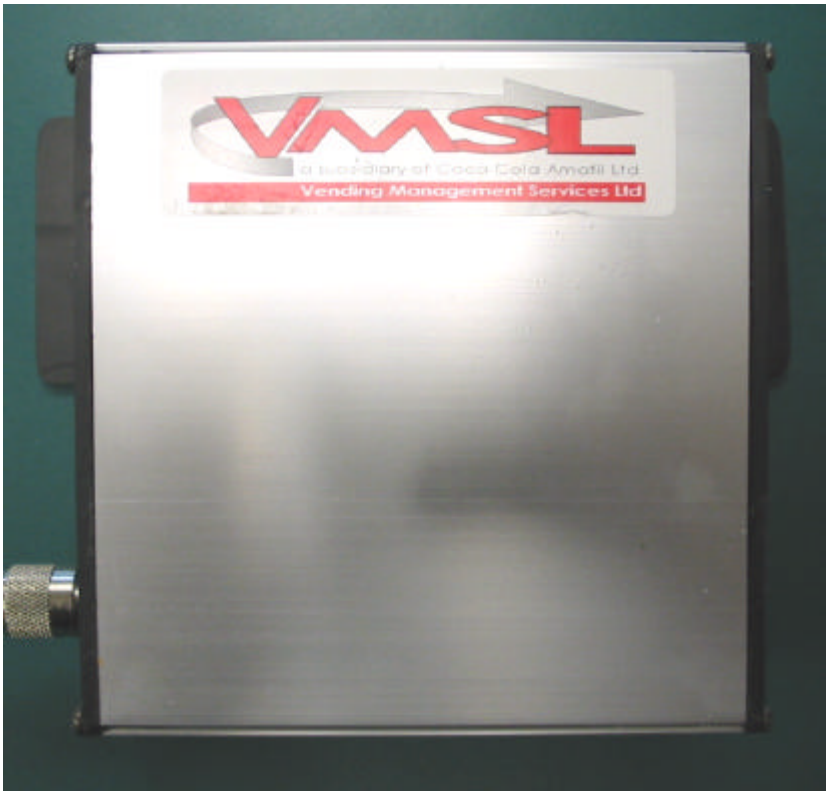
DESCRIPTION

The Vendor Interface Unit, Model VIU300: 71740 was rated at 27 V d.c., 50 mA nominal, 250 mA during a call and up to 1 A during lock/unlock. The case was made of a stainless steel like finishing with black plastic sides to hold the enclosure together. The EUT had wall-mounting supports on the back of the unit.

The Vendor Interface Unit, Model VIU300: 71740 had a red fill button on the front upper right corner of the unit, with a green LED below it. On the right side of the enclosure was MDB, Lock, I/O port, DEX, ext port and USB connections. On the same side of the enclosure was a test button.

The highest clock frequency of the sample was 16 MHz.

Overall Dimensions [mm]: L 120 × W 120 × H 60

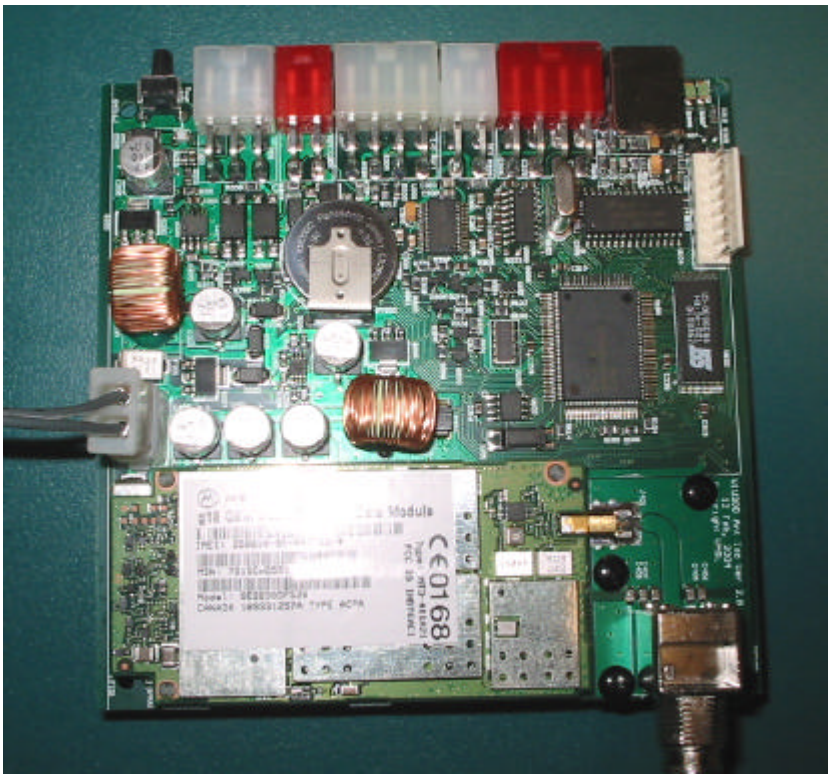


Vendor Interface Unit, Model VIU300: 71740 - Front View

Vendor Interface Unit, Model VIU300: 71740 - Back View

Vendor Interface Unit, Model VIU300: 71740 - Right Side View

Vendor Interface Unit, Model VIU300: 71740 - Left Side View, Showing Connectors



Vendor Interface Unit, Model VIU300: 71740 - PCB View

RESULTS - AS / NZS CISPR 22: 2002 and BS EN 55022: 1998 "Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement".

The Vendor Interface Unit, Model VIU300: 71740 was tested to the requirements of AS / NZS CISPR 22:2002 and BS EN 55022: 1998 "Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement". Clause 15.107 part (e) and Clause 15.109 (g) of the "Code of Federal Regulations" states that by meeting the requirements of CISPR 22: 1997, compliance with the FCC limits has been demonstrated.

CLAUSE 1 SCOPE AND OBJECT — Noted

CLAUSE 2 NORMATIVE REFERENCES — Noted

CLAUSE 3 DEFINITIONS — Noted

CLAUSE 4 CLASSIFICATION OF ITE — Noted

The Vendor Interface Unit, Model VIU300: 71740 was classified Class 'A'. Such equipment will not be restricted in its sale but for products marketed outside Australia or New Zealand the following warning shall be included in the instructions for use "This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures".

CLAUSE 5 LIMITS FOR CONDUCTED DISTURBANCE AT MAINS TERMINALS AND TELECOMMUNICATION PORTS — N/R

CLAUSE 6 LIMITS FOR RADIATED DISTURBANCE — Complied

CLAUSE 7 INTERPRETATION OF CISPR RADIO DISTURBANCE LIMITS — Noted

CLAUSE 8 GENERAL MEASUREMENT CONDITIONS — Applied

Within the frequency range 30 – 1000 MHz all measurable disturbances not caused by the Vendor Interface Unit, Model VIU300: 71740 gave an indication on the measuring set at least 6 dB below the limit to which it is desired to measure.

Clause 8.1 EUT configuration — Applied

The Vendor Interface Unit, Model VIU300: 71740 was arranged as per manufacturer's instructions.

Clause 8.1.1 Determination of maximum emission configuration — Applied

All modes of operation were tested to find the maximum emission configuration. The results produced in this report are from these tests.

Clause 8.1.2 EUT configuration with ground plane — Applied

Clause 8.2 Operation of the EUT — Applied

CLAUSE 9 METHOD AND MEASUREMENT OF CONDUCTED DISTURBANCE AT MAINS TERMINALS AND TELECOMMUNICATION PORTS — N/R

CLAUSE 10 METHOD OF MEASUREMENT OF RADIATED DISTURBANCE Complied

Clause 10.1 Measuring receivers Complied

Rohde & Schwarz Model ESCS.

Clause 10.2 Antenna Complied

Bi-log Antenna:	Schaffner-CBL6141A
Antenna Mast:	HD GmbH-MA240
Turntable:	HD GmbH-DS4125
Controller:	HD GmbH-HD100

Clause 10.2.1 Antenna to EUT distance Applied

The antenna distance to EUT was:

- 10 m, for the frequency range 30 - 1000 MHz

Clause 10.2.2 Antenna to ground distance Applied

The antenna height was adjusted between 100 cm and 400 cm above the ground plane.

Clause 10.2.3 Antenna to EUT azimuth Applied

The antenna to EUT azimuth was varied during the measurements from 0° to 360° by rotating the EUT.

Clause 10.2.4 Antenna to EUT polarisation Applied

Both horizontal and vertical polarisation of the antenna to the EUT was tested.

Clause 10.3 Measurement site Complied

The Open Area Test Site was verified to comply with the requirements of CISPR 16-1.

Clause 10.4 Equipment set-up — Complied

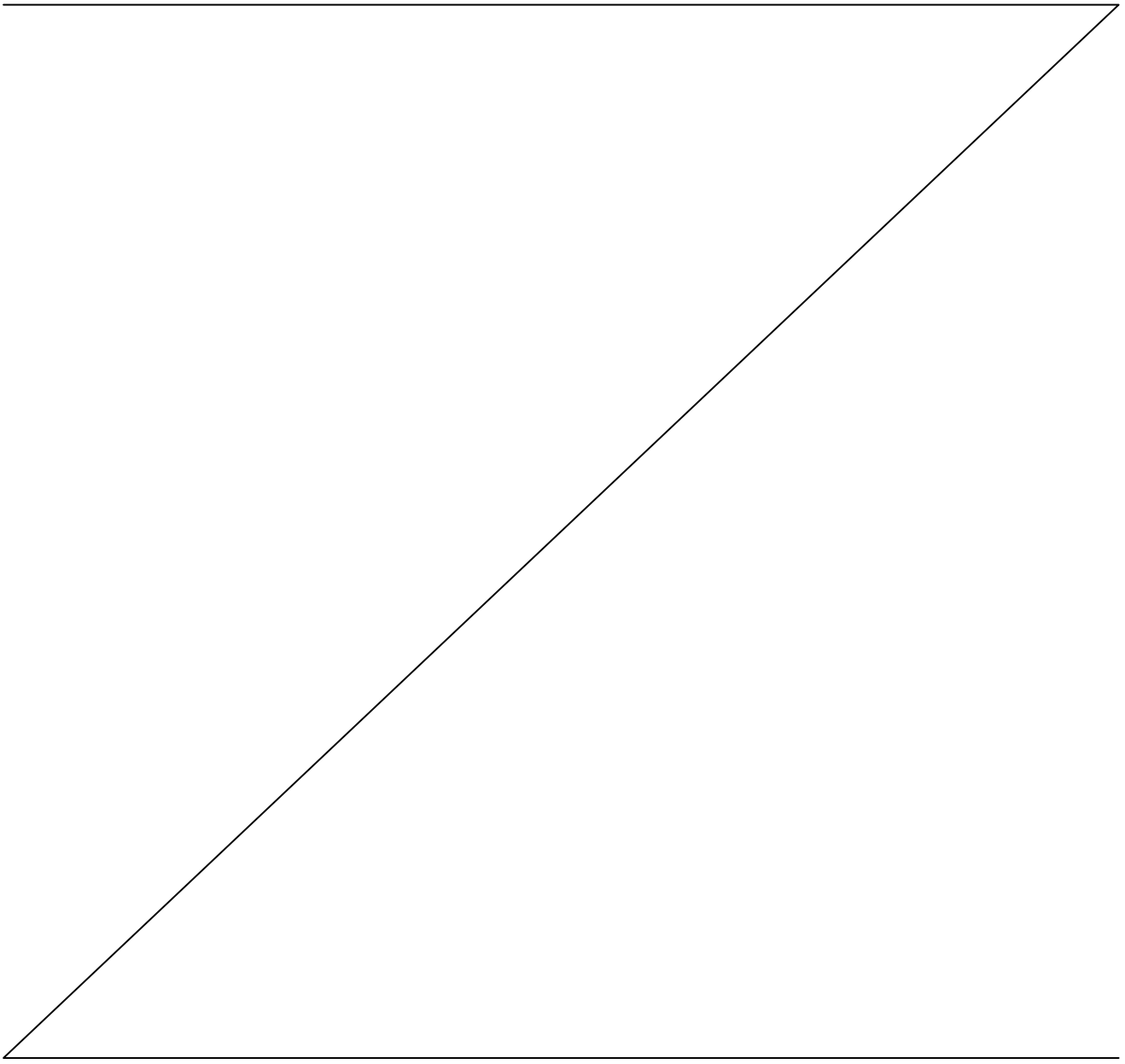
The Vendor Interface Unit, Model VIU300: 71740 was placed 0.8 m above the supporting plane on a wooden table and peripheral devices connected as per BS EN 55022 requirements.

Clause 10.5 Recording of measurements — Complied

See attached scan for results.

Clause 10.6 Measurement in presence of high ambient signals — Complied

Clause 10.7 User installation testing — N/R

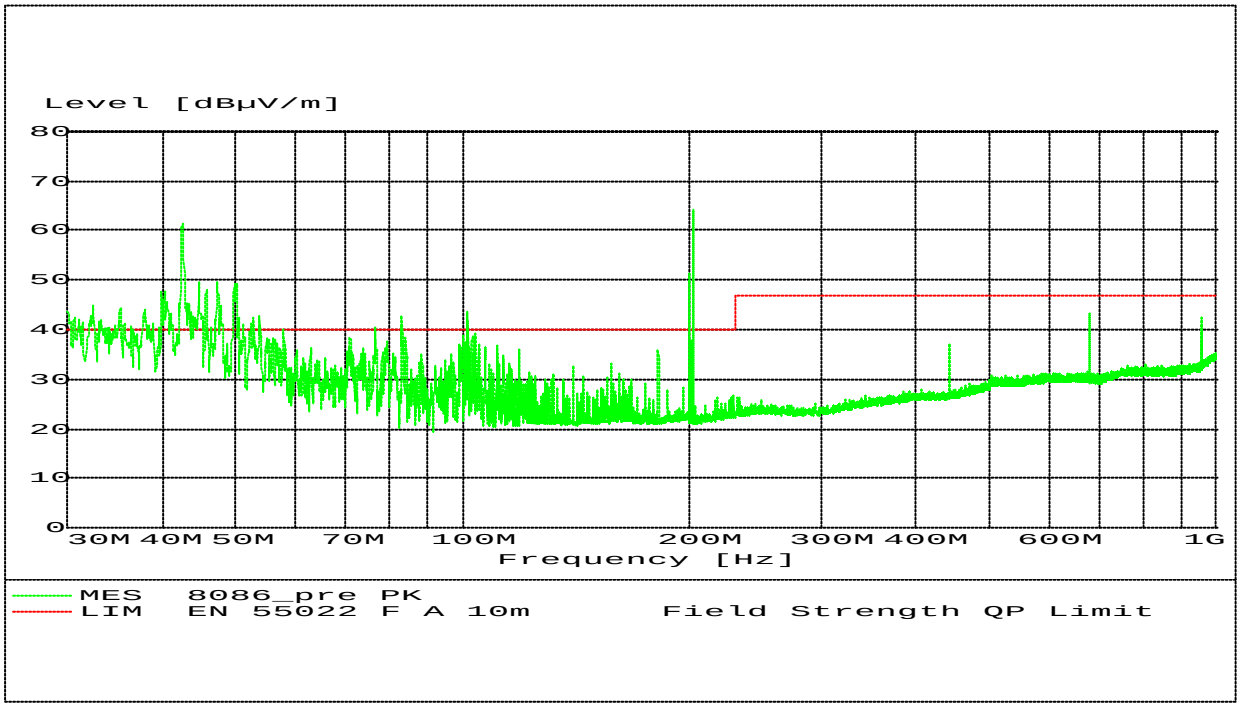


RADIATED EMISSIONS SCAN 30 MHz – 1 GHz

EUT: Vendor Interface Unit, Model VIU300: 71740
Manufacturer: VMSL
Operating Condition: 230 V, 50 Hz
Test Site: OATS
Operator: Sherif S Antoun
Test Specification: CISPR 22 Class A
Comment: 10 m
Start of Test: 19/03/04 / 10:20:21

SCAN TABLE: "EN 55022 Field"

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	MaxPeak	5.0 ms	120 kHz	CBL 6140 SN4156 RCV



Note : All the manual quasi peak measurements were at least 6 dB below the limit line.

END OF REPORT