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EMI TEST REPORT
for
CERTIFICATION to
FCC PART 90

FCC ID:	S490305SSR01
Test Sample:	Slope Stability Radar
Model:	
Tested for:	GroundProbe Pty Ltd
Report Number:	M050232_Cert_Tx_R
	Replaces Report M050232_Cert_Tx
Issue Date:	13th May 2005

EMI TEST REPORT FOR CERTIFICATION
to

FCC Part 90

EMC Technologies Report No. M050232_Cert_Tx_R

Issue Date: 30th March 2005

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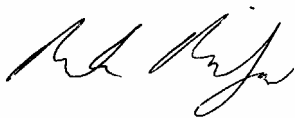
EMI TEST REPORT FOR CERTIFICATION
to
FCC PART 90

Report Number:	**M050232_Cert_Tx_R** Replaces Report M050232_Cert_Tx
Test Sample:	Slope Stability Radar
Model:	
Manufacturer:	GroundProbe Pty Ltd
Address:	8 Hockings Street, South Brisbane QLD 4101
Phone:	(617) 3010 8913
Fax:	(617) 3010 8988
Contact:	Pat Bellett (pat.bellett@groundprobe.com)
FCC ID:	S490305SSR01
Equipment Type:	Intentional Radiator
Tested for:	GroundProbe Pty Ltd
Address:	8 Hockings Street, South Brisbane QLD 4101
Phone:	(07) 3010 8913
Fax:	(07) 3010 8988
Responsible Party:	Pat Bellett
Test Standards:	FCC Part 90- Private Land Mobile Services
Test Dates:	21st to 25th February 2005



Test Officers:	**Mark Mifsud**	**Melbourne Manager**
	Jorge Lara	**OATS Manager**

Attestation: *I hereby certify that the device(s) described herein were tested as described in this report and that the data included is that which was obtained during such testing.*

Authorised Signatory: **Mark Mifsud**
Melbourne Manager
EMC Technologies Pty Ltd

EMI TEST REPORT FOR CERTIFICATION
to
FCC PART 90

1 INTRODUCTION

This report details the results of RF tests and measurements performed on the Slope Stability Radar (SSR).

Test results were obtained using procedures in accordance with the following Federal Communications Commission (FCC) standards/regulations:

The test sample **complied** with the requirements of:

1.1 Summary of Results

FCC Part 90,	Test Performed	Result
2.1046	Power Output	**Noted**
2.1047	Modulation	**Complied**
2.1049	Bandwidth	**Complied**
2.1051	Spurious	**Complied**
2.1053	Spurious	**Complied**
2.1055	Stability	**Complied**
2.1057	Frequency Range	**Noted**
2.202	Bandwidths	**Noted**

The measurement procedures used were in accordance with ANSI C63.4-2003 and OET Bulletin No. 65. The instrumentation conformed to the requirements of ANSI C63.2-1996.

1.2 Modifications by EMC Technologies

No modifications were required.

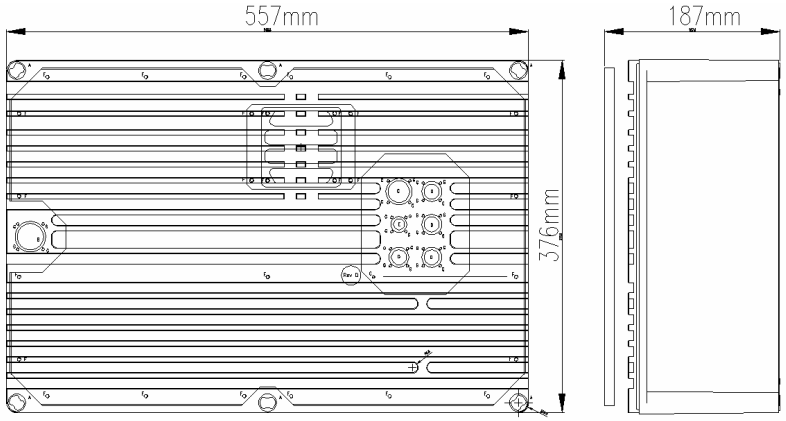
2 GENERAL INFORMATION

2.1 Test Sample Description

(as supplied by Client)

The sample tested has the following specifications:

a. Mean Transmitter Power: 30 mW
b. Peak Transmitter Power: 60 mW
c. Pulse Width: 4.522 microseconds
d. Pulse Repetition Frequency: 107.107 kHz
e. Antenna Gain: 38 dBi
f. Maximum EIRP: 25.8 dBW
g. Lowest generated RF: 107.107 kHz
h. Power Supply: 12V DC batteries charged intermittently by diesel generator.
Universal AC input battery charger for backup.
i. Temperature: -26 degrees to 55 degrees Centigrade



Refer to Appendix C for further details.

2.2 Test sample configuration

The SSR was transmitting continuously during the tests.

Testing was performed with the SSR rotated around 3 orthogonal planes. The worst-case results are reported.

Refer to Appendix B - Test Setup Photographs.

2.3 Test Sample Block Diagram

Refer to Appendix C – Test Sample Block Diagram

2.4 Test Procedure

Emissions measurements were performed in accordance with the procedures of ANSI C63.4-2003. Radiated emissions tests were performed at a distance of 3 and 10 metres from the EUT.

2.5 Test Conditions

The SSR was tested with the following test conditions:

a. Standard Temperature and Humidity
   i. Temperature: +25°C ± 4° maintained.
   ii. Relative Humidity: 60% ± 10% observed.
b. Standard Test Power Source
   i. Standard Test Voltage: 12.9 Vdc.
c. Extreme Temperature
   i. High Temperature: + 55°C maintained.
   ii. Low Temperature: - -26 °C maintained.
d. Extreme Voltage Conditions.
   i. Extreme High Supply Voltage 14.8 V dc.
   ii. Extreme Low Supply Voltage 11.0 V dc.

2.6 Test Facility

2.6.1 General

Radiated Emission measurements were performed at EMC Technologies open area test site (OATS) situated at Lerderderg Gorge, near the township of Bacchus Marsh in Victoria, Australia. Bandwidth and other conducted RF measurements were performed at EMC Technologies' laboratory in Tullamarine, (Melbourne) Victoria Australia.

The above sites have been fully described in a report submitted to the FCC office, and accepted in a letter dated June 14, 2002, **FCC Registration Number 90560**.

2.6.2 NATA Accreditation

EMC Technologies is accredited in Australia to test to the following standards by the National Association of Testing Authorities (NATA).

"FCC Part 15 unintentional and intentional emitters in the frequency range 9kHz to 18 GHz excluding TV receivers (15.117 and 15.119), TV interface devices (15.115), cable ready consumer electronic equipment (15.118), cable locating equipment (15.213) and unlicensed national information infrastructure devices (Sub part E)."

The current full scope of accreditation can be found on the NATA website: www.nata.asn.au It also includes a large number of emission, immunity, SAR, EMR and Safety standards. NATA is the Australian national laboratory accreditation body and has accredited EMC Technologies to operate to the IEC/ISO17025 requirements. A major requirement for accreditation is the assessment of the company and its personnel as being technically competent in testing to the standards. This requires fully documented test procedures, continued calibration of all equipment to the National Standard at the National Measurements Laboratory (NML) and an internal quality system to ISO 9002. NATA has mutual recognition agreements with the National Voluntary Laboratory Accreditation Program (NVLAP) and the American Association for Laboratory Accreditation (A2LA).

2.7 Units of Measurements

Conducted Emissions
Measurements are reported in units of dB relative to one microvolt. (dBμV).

Radiated Emissions
Measurements are reported in units of dB relative to one microvolt per metre (dBμV/m).

2.8 Test Equipment Calibration

All measurement instrumentation and transducers were calibrated in accordance with the applicable standards by an independent NATA registered laboratory such as Agilent Technologies (Australia) Pty Ltd or the National Measurement Laboratory (NML). All equipment calibration is traceable to Australia national standards at the National Measurements Laboratory. The reference antenna calibration was performed by NML and the working antennas (biconical and log-periodic) calibrated by the NATA approved procedures. The complete list of test equipment used for the measurements, including calibration dates and traceability is contained in Appendix A.

2.9 Ambients at OATS

The Open Area Test Site (OATS) is an area of low background ambient signals. No significant broadband ambients are present however commercial radio and TV signals exceed the limit in the FM radio, VHF and UHF television bands. Radiated prescan measurements were performed in the shielded enclosure to check for possible masked radiated emissions at the frequencies where the OATS ambient signals exceeded the test limit.

3 RF MEASURMENTS

3.1 Power Output, Section 2.1046

The mean conducted RF power output of the radar module (under normal pulse radar operation) was measured using a spectrum analyser.

Measurements were made with the input voltage set to 12.9 V DC and when varied by ±15%. Testing was carried out at maximum power output.

Frequency (GHz)	Battery Voltage (V dc)	Rated Power (dBm)	Temperature °C	Measured Power (dBm)
9.5525	12.9	14.77	-26	9.56
9.5525	14.8	14.77	-26	9.24
9.5525	11.0	14.77	-26	9.10
9.5525	12.9	14.77	55	9.31
9.5525	14.8	14.77	55	9.17
9.5525	11.0	14.77	55	9.27

Limits:
Clause 90.205(m) of Part 90 specifies that in the maximum allowable effective radiated power will be determined on case by case basis for transmitters not in defined bands.

Result: Noted.

Measurement Uncertainty: ±0.5dB

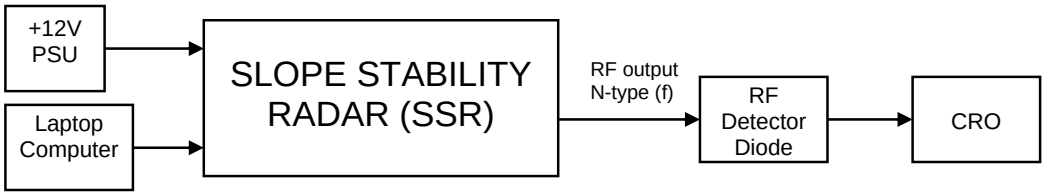
3.2 Modulation Characteristic, Section 2.1047

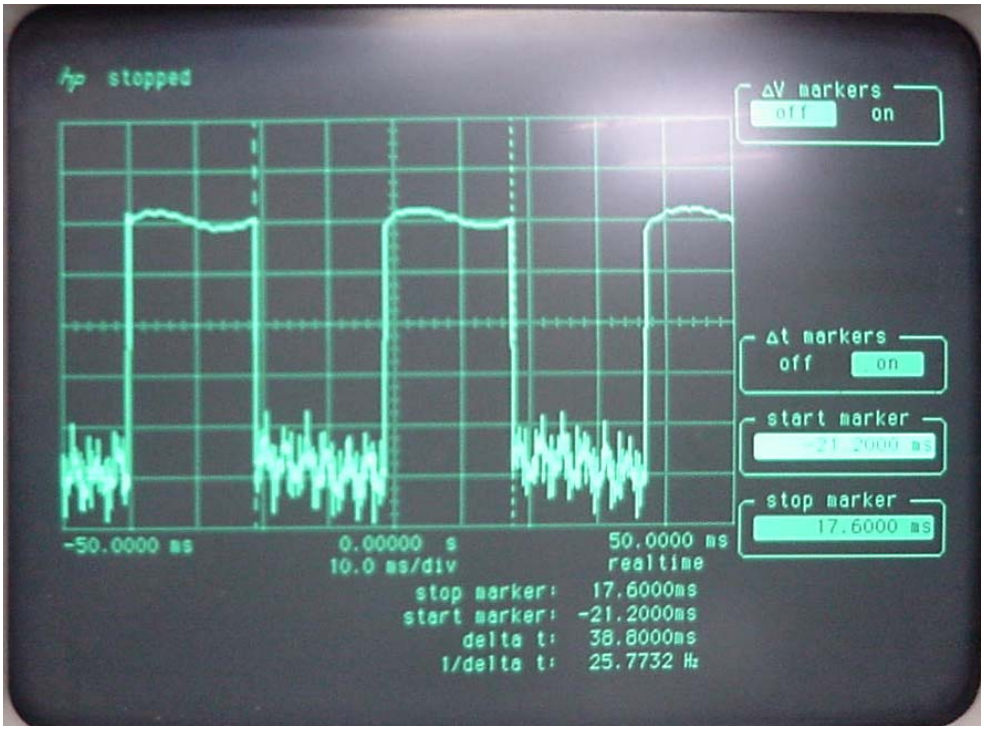
The duty cycle for the demodulated output is derived from the measured demodulated output of the radar.

The Pulse Width measured was 19.4ms.

The Pulse Repetition Rate measured was 25.77Hz.

The calculated duty cycle for the demodulated output of the radar was 50%





Result: Complied.

Measurement Uncertainty: +0.5dB

3.3 Occupied Bandwidth, Section 2.1049

The 99% effective bandwidth (EBW) of the radar module only (under normal pulse radar operation) was measured using a spectrum analyser with a 99% bandwidth function (Resolution bandwidth (RBW) was set to 1 MHz).

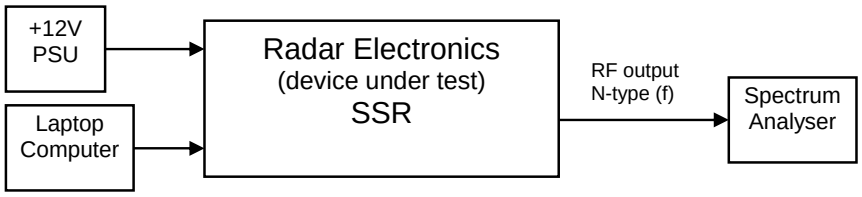


Figure 1 Configuration -Occupied Bandwidth Test

Span (MHz)	Resolution Bandwidth (MHz)	Video Bandwidth (MHz)	99% Bandwidth (MHz)	Attenuation (dB)	Graph No.
500	1	1	96.3	20	4
200	1	1	96.5	20	5
150	1	1	96.4	20	6

Limit: 105MHz

Result: Complied.

Measurement Uncertainty: 5%

3.4 Conducted Spurious Emissions, Section 2.1051

The conducted spurious emissions were measured using Rohde and Schwarz ESIB-40 connected to the antenna port of the radar. The resolution bandwidth settings were:

9-150 kHz:	300 Hz RBW
150kHz-30 MHz:	10 kHz RBW
30-1000 MHz:	100 kHz RBW
1-40 GHz:	1 MHz RBW

The permissible spurious levels are:

Frequency Range (MHz)	Limit (dBm)	Limit (dBuV)
0.09-30	-13	94
30-9500	-13	94
10000-40000	-13	94

All spurious results measured were > 20dB lower than the permissible levels.

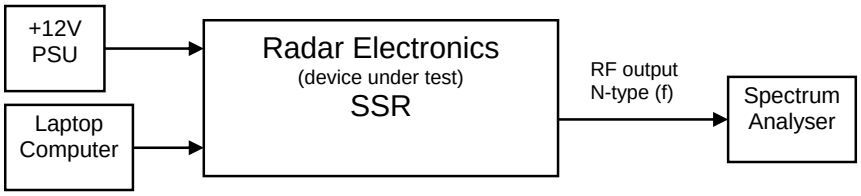


Figure 2 Test Configuration – Conducted Spurious Emissions Test

Graphical results are depicted in Graphs 1-3,11-12.

Result: Complied

Measurement Uncertainty: ±1dB

3.5 Frequency Stability, Section 2.1055

A spectrum analyser (Span and RBW as required to yield adequate marker frequency counter resolution) was used to measure the frequency stability of the carrier frequency, over temperature and supply voltage.

The temperature range was set between –26 deg C to +55 deg C. The primary voltage range was 85 % to 115% of nominal. This correlated to the input DC power supply being varied from 11.0V to 14.8V (12.9VDC nominal).

Note: The frequency stability must be adequate to ensure that emissions remain within the Authorized Band (9,500-10,000 MHz) over the specified temperature and voltage variations.

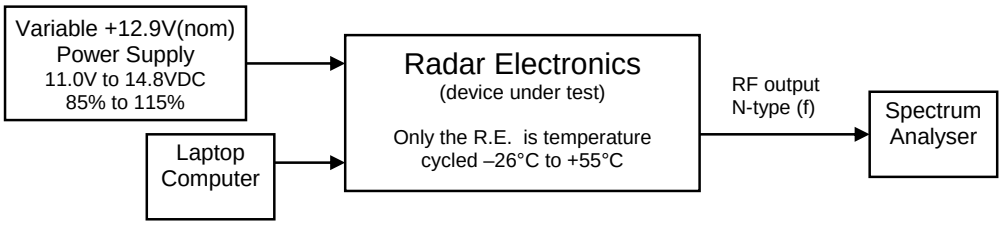


Figure 3 Test Configuration – Frequency Stability Test

Temperature ^{0}C	DC Input Voltage (11V)		DC Input Voltage (12.9V)		DC Input Voltage (14.8V)	
	F_L[1] (GHz)	F_H (GHz)[2]	F_L (GHz)	F_H (GHz)	F_L (GHz)	F_H (GHz)
-26	9.500	9.603	9.502	9.603	9.500	9.604
-15	9.505	9.603	9.505	9.603	9.505	9.599
-5	9.504	9.605	9.500	9.605	9.500	9.603
5	9.499	9.603	9.505	9.600	9.505	9.604
15	9.499	9.605	9.499	9.605	9.502	9.603
25	9.505	9.603	9.502	9.603	9.502	9.605
35	9.505	9.603	9.502	9.603	9.502	9.603
45	9.504	9.600	9.504	9.600	9.504	9.603
55	9.505	9.604	9.502	9.604	9.502	9.600

Result: Complies

Measurement Uncertainty: ±2.83MHz

[1] F_L denotes lowest extremity of the lower band of the transmission envelope
[2] F_H denotes lowest extremity of the upper band of the transmission envelope

4 RADIATED EMISSION MEASUREMENTS

4.1 Test Procedure

Testing was performed in accordance with the requirements of FCC Part 90.

4.2 Calculation of Peak and Average Field Strength

The peak field strength was calculated automatically by the software using all the pre-stored calibration data. The method of calculation is shown below:

E = V + AF - G + L Where:

E = Radiated Peak Field Strength in dBμV/m.
V = EMI Receiver Voltage in dBμV. (measured value)
AF = Antenna Factor in dB(m^{-1}). (stored as a data array)
G = Preamplifier Gain in dB. (stored as a data array)
L = Cable loss in dB. (stored as a data array of Insertion Loss versus frequency)

- **Example Peak Field Strength Calculation**

Assuming a receiver reading of 34.0 dBμV is obtained at 90 MHz, the Antenna Factor at that frequency is 9.2 dB. The cable loss is 1.9 dB while the preamplifier gain is 20 dB. The resulting Field Strength is therefore as follows:

34.0 + 9.2 + 1.9 - 20 = 25.1 dBμV/m

4.3 Relation between field-strength and E.I.R.P.

The field strength emission limits are converted to an E.I.R.P. level in dBm using the following equation:

$$E.I.R.P.(dBm) = E_0(dB(uV/m) + 20\ log_{10}\ D(m) - 104.8 \quad (1)$$

taken from section 2 of the NTIA document Assessment of Compatibility between Ultrawideband Devices and selected Federal systems, NTIA Special Publication 01-43, where

E.I.R.P. = E.I.R.P. corresponding with the electric field strength E_0 (in dBm)
E_0 = electric field strength (in dB(uV/m))
D = reference measurement distance (in meters).

Note: free-space propagation is assumed.

4.4 Radiated Spurious, Section 2.1053

The radiated field strength of spurious emissions (under normal pulse radar operation) was measured using a Rohde and Schwarz ESIB-40 receiver connected to a calibrated antenna. The radar module, transmitter cable and antenna was set up on an Open Area Test Site in accordance with ANSI C63.4-2003.

Limit:

Part 2.1051 states that emissions greater than 20 dB below the limit need not be specified.

Part 2.1057 states that the spectrum should be investigated up to the 10th harmonic if the transmitter operates below 10 GHz. Testing was performed up to 40GHz.

Based on an EIRP limit of -13dBm the equivalent E-field at 3m is:

$$E_0(dB(uV/m)) = -13dBm - 20\ log\ 3 + 104.8 = 82.3\ dBuV/m$$

If the initial measured field strength levels are more than 20dB below the 3 meter field strength limits equivalent to the EIRP limit, then the FCC does not demand the continuation of measurements by means of the substitution method. (*Refer to FCC OET Website Publication number 213318).*

Frequency MHz	Polarisation	Peak Level Measured dBµV/m	*Calculated Peak Limit dBuV/m	Δ Peak ± dB
2844.32	Horizontal	51.3	82.3	-31.0
2754.50	Horizontal	49.7	82.3	-32.6
1970.06	Vertical	48.6	82.3	-33.7
1820.36	Vertical	48.3	82.3	-34.0
1808.39	Horizontal	46.8	82.3	-35.5

Result : The highest radiated field strength emission complied with FCC limit by a margin of 31dB at 2844.32 MHz. Refer to Appendix D, graphs 7 to 10.

Conclusion: Complied.

Measurement Uncertainty: ±3.7 dB

5 COMPLIANCE STATEMENT

The Slope Stability Radar, Model:, tested on behalf of Groundprobe Ltd, complied with the requirements of 47 CFR, Part 90 - Rules for Radio Frequency Devices (intentional radiators).

Results were as follows:

FCC Part 90,	Test Performed	Result
2.1046	Power Output	**Noted**
2.1047	Modulation	**Complied**
2.1049	Bandwidth	**Complied**
2.1051	Spurious	**Complied**
2.1053	Spurious	**Complied**
2.1055	Stability	**Complied**
2.1057	Frequency Range	**Noted**
2.202	Bandwidths	**Noted**

TEST REPORT APPENDICES

APPENDIX A: MEASUREMENT INSTRUMENT DETAILS

APPENDIX B: TEST SAMPLE PHOTOGRAPHS

APPENDIX C: TEST SAMPLE BLOCK DIAGRAM

APPENDIX D GRAPHS OF EMI MEASUREMENTS

EMC Technologies Report Number: M050232_Cert_Tx_R

APPENDIX A
MEASUREMENT INSTRUMENTATION DETAILS

EQUIPMENT TYPE	MAKE/MODEL SERIAL NUMBER	LAST CAL. DD/MM/YY	DUE DATE DD/MM/YY	CAL. INTERVAL
EMI RECEIVER	HP 8574B System Components	01/03/04	01/03/05	1 YEAR *2
	HP 8546A, S/N: 3549A00290	13/02/04	13/02/05	1 YEAR *2
	Rohde & Schwarz, Model ESIB-40 SN 1088 7490, 20 Hz – 40 GHz	20/07/04	20/07/05	1 YEAR *3
	HP 8593EM	8/7/04	8/7/05	1 YEAR *2
	8593EM			
ANTENNAS	EMCO 93110B Biconical	26/07/04	26/07/05	1 YEAR *1
	20 - 300 MHz Sn. 9804-3092			
	EMCO 93146A Log Periodic	19/07/04	19/07/05	1 YEAR *1
	200 -1000MHz Sn. 5033			
	EMCO 3115 Double Ridged Horn 1 - 18 GHz Sn: 8908-3282	29/01/03	29/01/06	3 YEAR *1
	EMCO 3116 Double Ridged Guide Horn 18 - 40 GHz Sn: 2276	--------	--------	*4
DIGITAL THERMOMETER	DSE Thermometer, Digital, Dual Input, Model Q1437	April 05	April 06	1 YEAR *1
STANDARD GAIN HORNS	ETS, M/N: 3160-05, 3.95 - 5.85 GHz	25/06/04	25/06/07	3 YEAR *1
	ETS, M/N: 3160-06, 5.85 - 8.20 GHz	25/06/04	25/06/07	3 YEAR *1
	ETS, M/N: 3160-07, 8.20 - 12.40 GHz	25/06/04	25/06/07	3 YEAR *1
	ETS, M/N: 3160-08, 12.40 - 18.00 GHz	25/06/04	25/06/07	3 YEAR *1
RF DIODE DETECTOR	HP 420A Detector	N/A	N/A	N/A
LISN	EMCO 3825/2 50ohm / 50 microH	31/03/04	31/03/05	1 YEAR *1
	0.009 – 30MHz Sn.9607-2567			

Note *1. In-house calibration. Refer to Quality Manual.
Note *2. NATA calibration by Agilent Technologies (Aust) Pty Ltd
Note *3. NATA calibration by Rohde & Schwarz
Note *4. Manufacturer's Calibration

TEST SITES

Shielded Room Test Laboratory	**Melbourne** 11m x 8m x 4m Chamber-semi-anechoic 8.8m x 5.8m x 3.1m Test Chamber 3.4m x 6.1m x 2.5m Test Chamber 3.4m x 7.3m x 7.5m Test Chamber	Feb 04 N/A N/A N/A	Feb 05 N/A N/A N/A	1 YEAR *1 N/A N/A N/A
Thermal Chamber	**Melbourne** Haereus Votsch Model HT4033 Temp Range -40^{0}C-180^{0}C	N/A	N/A	*2
Open Area Test Site	**Melbourne** 3/10 Metre site. 1-4 metre antenna mast. 1.2 metre/400 kg Turntable. (Situated at Lerderderg Gorge, near Bacchus Marsh, Victoria)	11/02/04	11/02/05	1 YEAR *1

Note *1. In-house calibration. Refer to Quality Manual
Note *2 Verified during use via Digital Thermometer.
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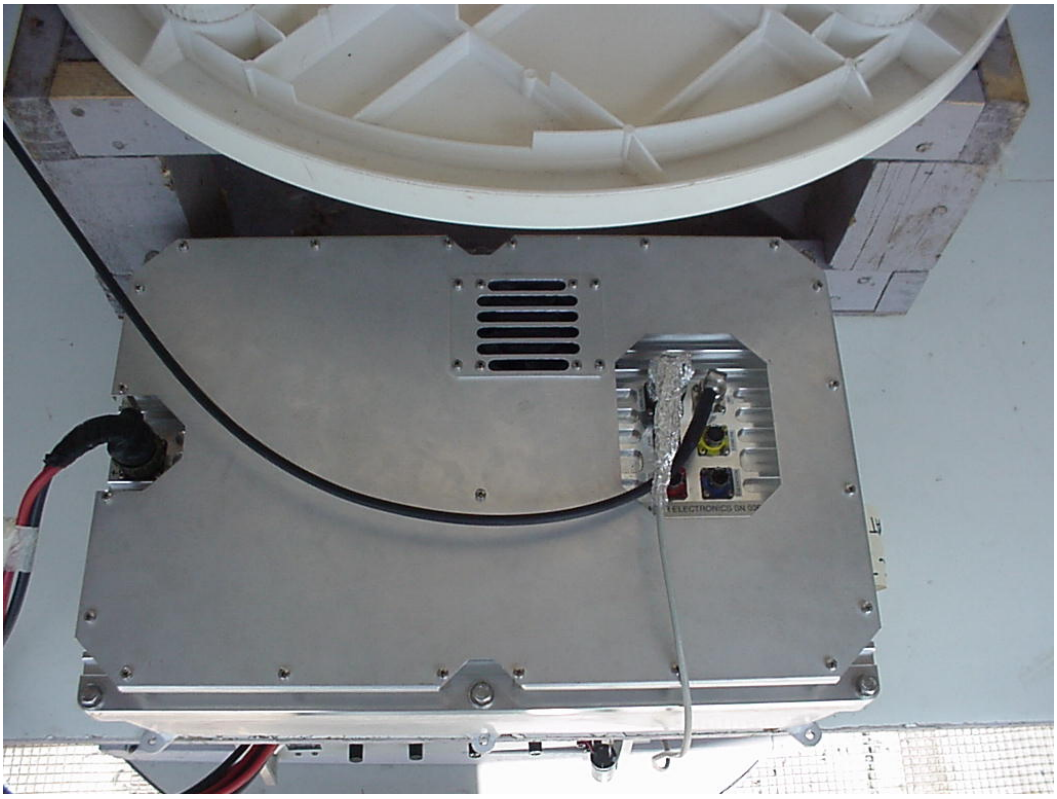
APPENDIX B – Test Setup Photographs

APPENDIX B – Test Setup Photographs



EMC Technologies Report Number: M041205_Cert_Tx_R

APPENDIX C – Test Sample Block Diagram

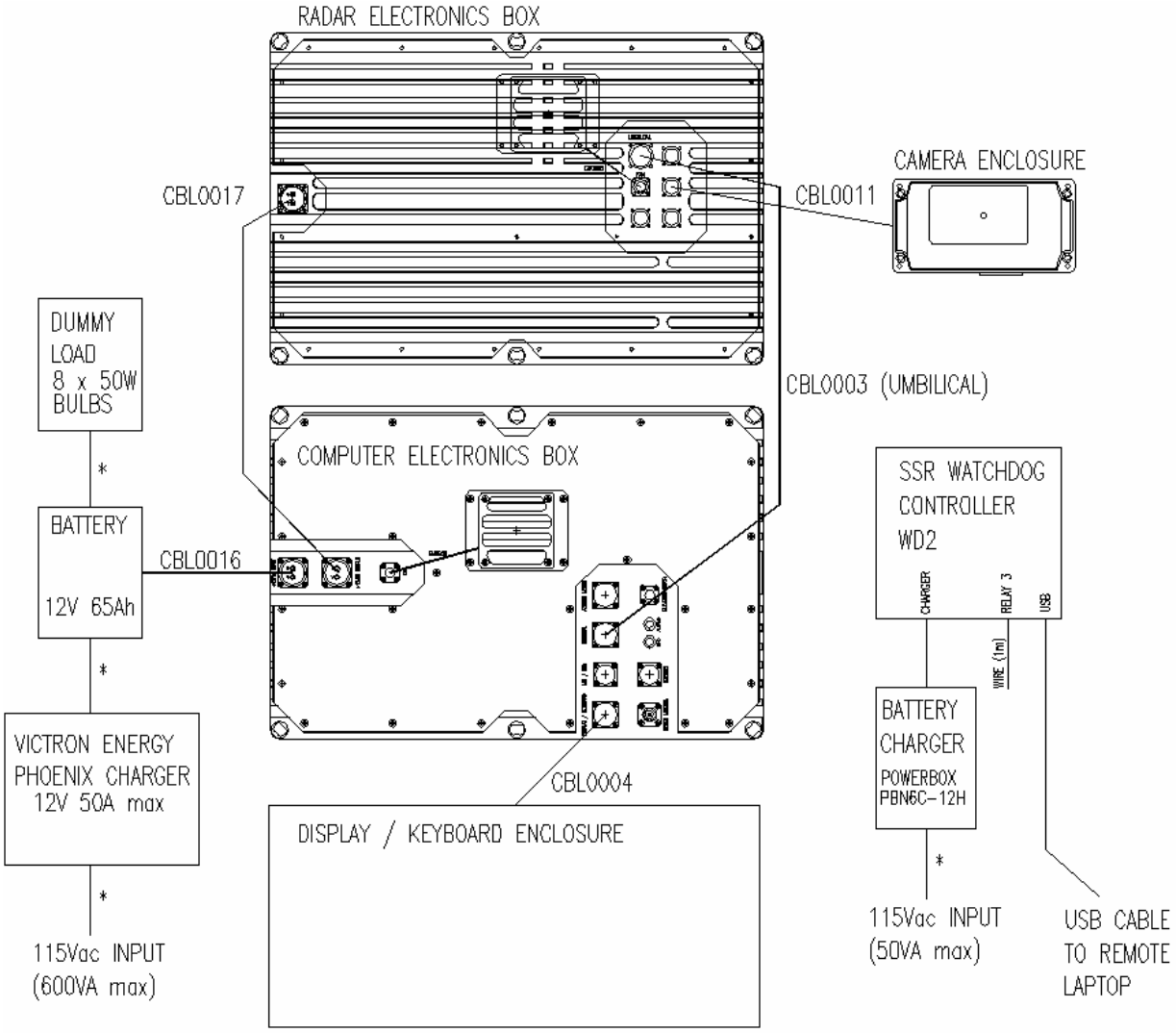


Figure 4 Test Configuration – For FCC Part 90 Tests

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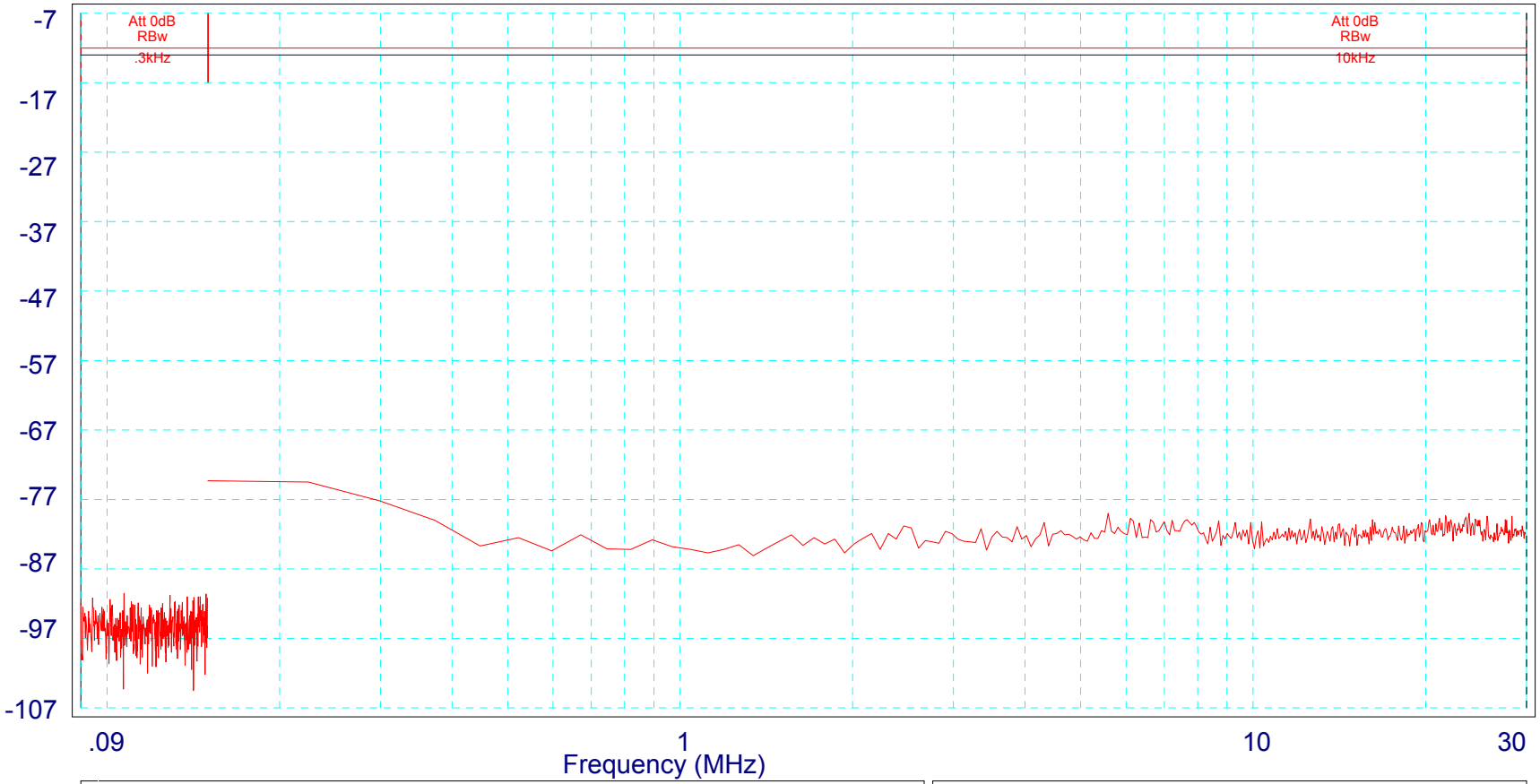
Appendix D: Emission Plots

EMC Technologies Pty. Ltd. - Global Product Certification

FCC Part 90
Conducted Emissions dBm

Job No:m050232 p:\PCF\m050232_1.PCF

Test Date: 23/2/05 GRAPH No. 1



FCC Pt 90 Conducted Spurious Emissions (Antenna Port)
Section 2.1051 0015-30MHz

Limits:
fcc2-1051 conducted limit FCC Part 90 test on SSR

Legend:
Antenna Port

Ver 5.5 Build 108
conducted lab 1 FCC part 90 antenna port
t:NONE c1:C2231005 c2:NONE p:NONE a:NONE
Site ID: Room#1,57 Assembly Drv. Tullamarine, VIC
Test Officer:Mark Mifsud

Source:
surments 1 2

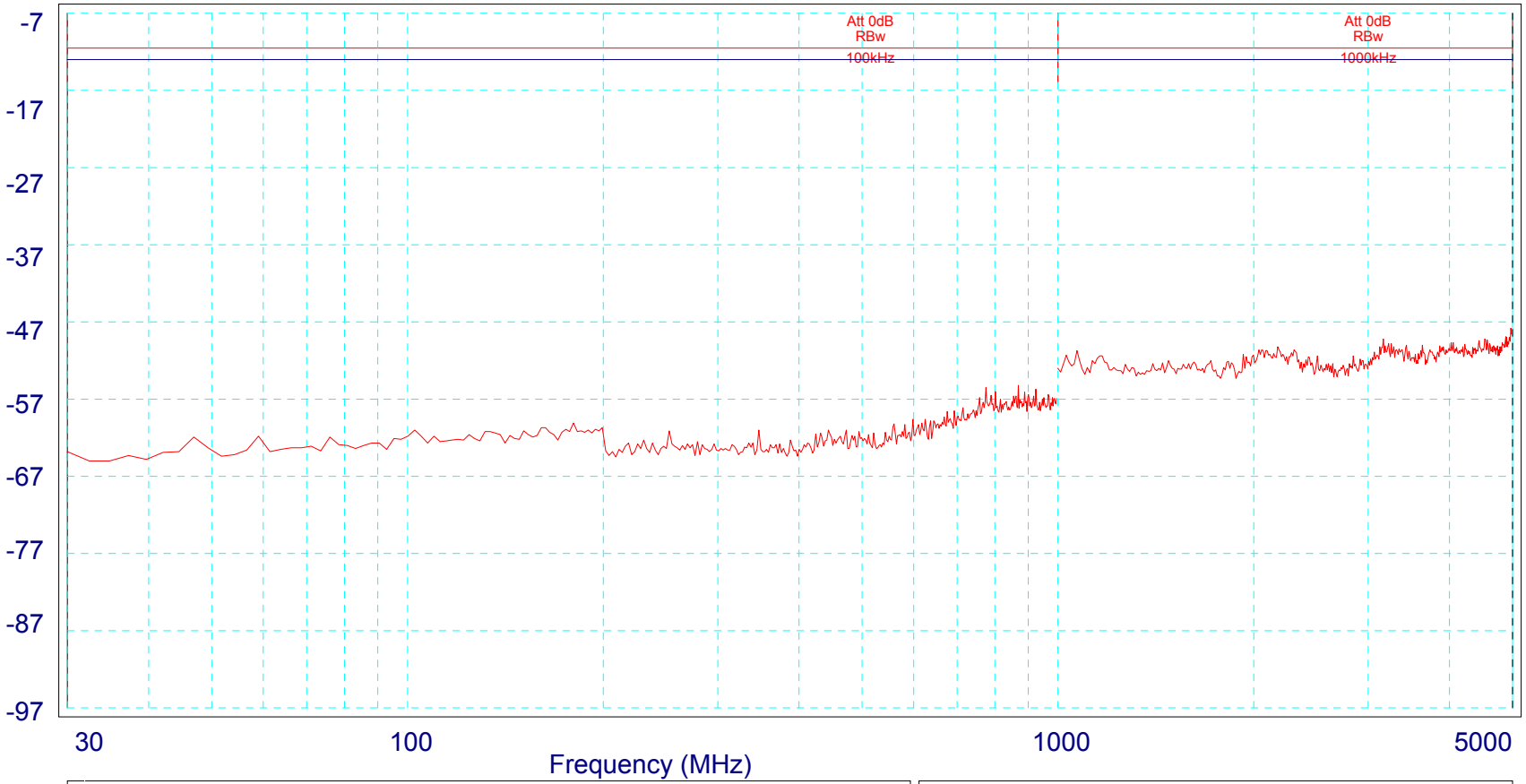
EMC Technologies (Melbourne) 57 Assembly Drv Tullamarine, 3043, Vic, Australia
Phone+(613) 9335 3333 Fax+(613) 9338 9260

EMC Technologies Pty. Ltd. - Global Product Certification

FCC Part 90
Conducted Emissions dBm

Job No:m050232 p:\PCF\m050232_2.PCF

Test Date: 23/2/05 GRAPH No. 2



FCC Pt 90 Conducted Spurious Emissions (Antenna Port)
Section 2.1051 30-5000MHz

Limits:
fcc2-1051 conducted limit FCC Part 90 test on SSR

Legend:
Antenna Port

Ver 5.5 Build 108
conducted lab 1 FCC part 90 antenna port
t:NONE c1:C2231005 c2:NONE p:NONE a:NONE
Site ID: Room#1,57 Assembly Drv. Tullamarine, VIC
Test Officer:Mark Mifsud

Source:
surments 3 4

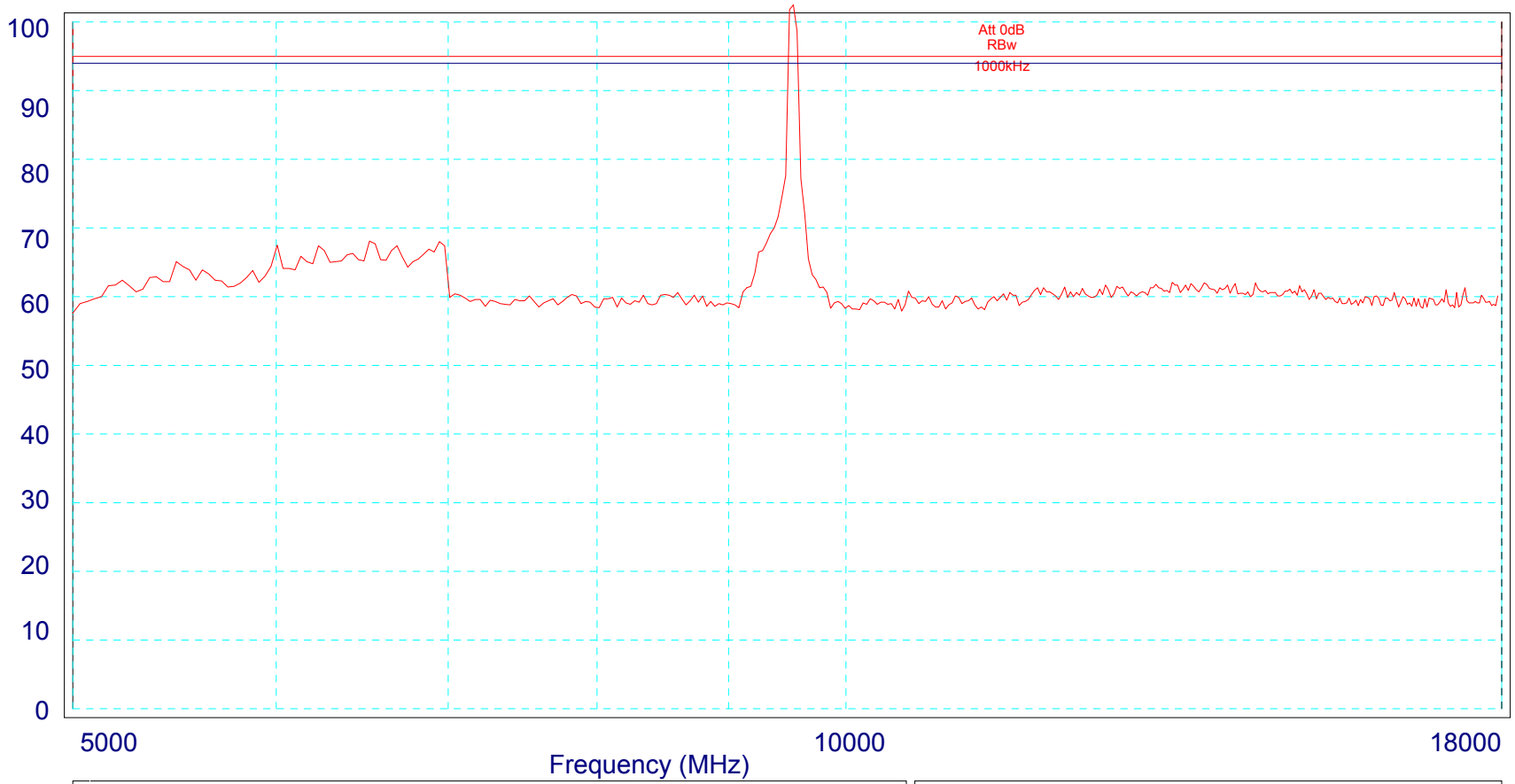
EMC Technologies (Melbourne) 57 Assembly Drv Tullamarine, 3043, Vic, Australia
Phone+(613) 9335 3333 Fax+(613) 9338 9260

EMC Technologies Pty. Ltd. - Global Product Certification

FCC Part 90
Conducted Antenna Port Emissions dBuV

Job No:m050232 p:\PCF\m050232_3.PCF

Test Date: 23/2/05 GRAPH No. 3



FCC Pt 90 Conducted Spurious Emissions (Antenna Port)
Section 2.1051 5-18GHz

Limits:
fcc2-1051 conducted limit FCC Part 90 test on SSR

Legend:
Antenna Port

Ver 5.5 Build 108
conducted lab 1 FCC part 90 antenna port
t:NONE c1:C2231005 c2:NONE p:NONE a:NONE
Site ID:
Test Officer:Mark Mifsud

Source:
surments 5

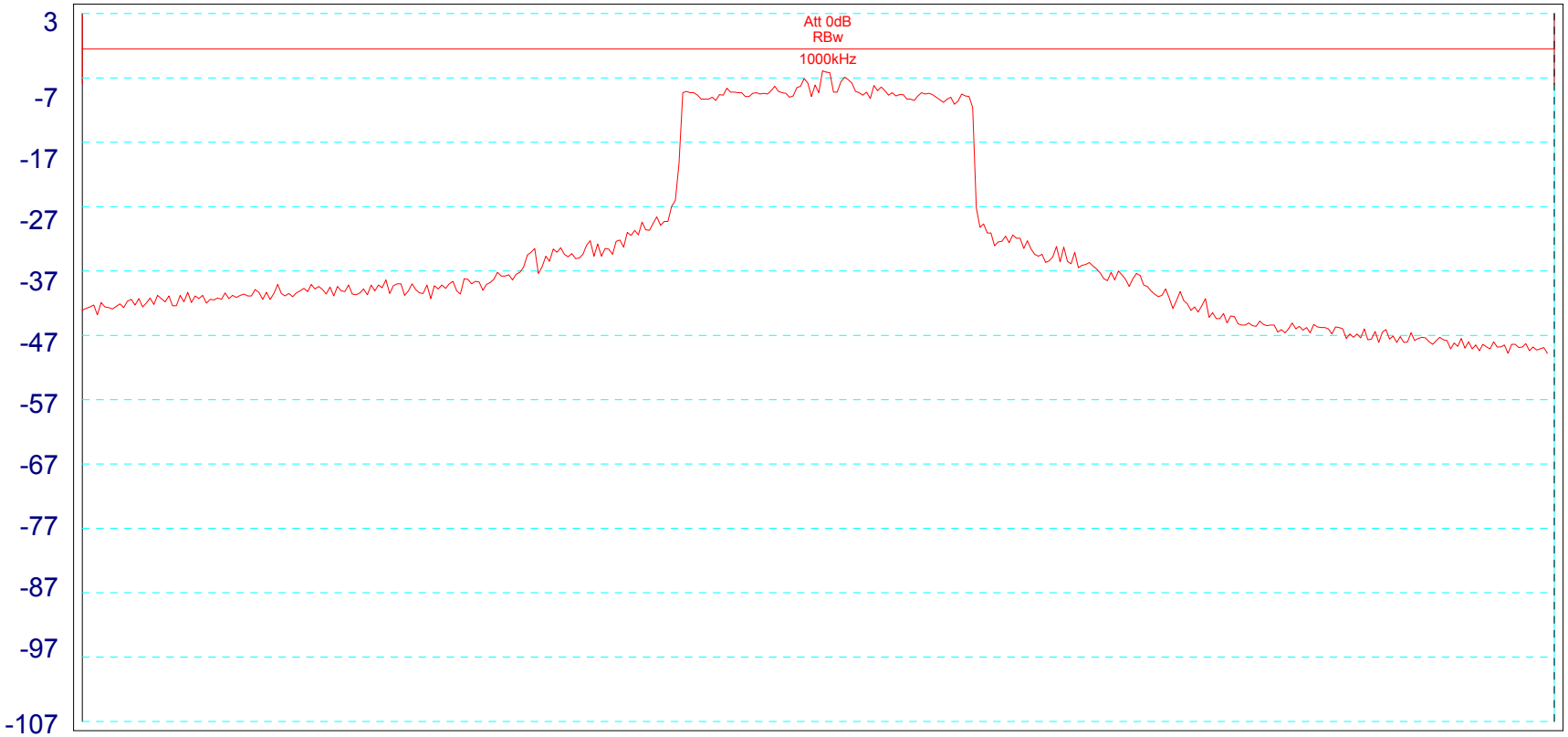
EMC Technologies (Melbourne) 57 Assembly Drv Tullamarine, 3043, Vic, Australia
Phone+(613) 9335 3333 Fax+(613) 9338 9260

EMC Technologies Pty. Ltd. - Global Product Certification

FCC Part 90
Conducted Emissions dBm

Job No:m050232 p:\PCF\m050232_4.PCF

Test Date: 24/2/05 GRAPH No. 4



99% Bandwidth Measurement
In accordance with 2.1049
On Ground Probe SSR

Limits: Legend:

Ver 5.5 Build 108
No factors
t:NONE c1:NONE c2:NONE p:NONE a:NONE
Site ID: Room#1,57 Assembly Drv. Tullamarine, VIC
Test Officer:Mark Mifsud

Source:
32\99%BW 1

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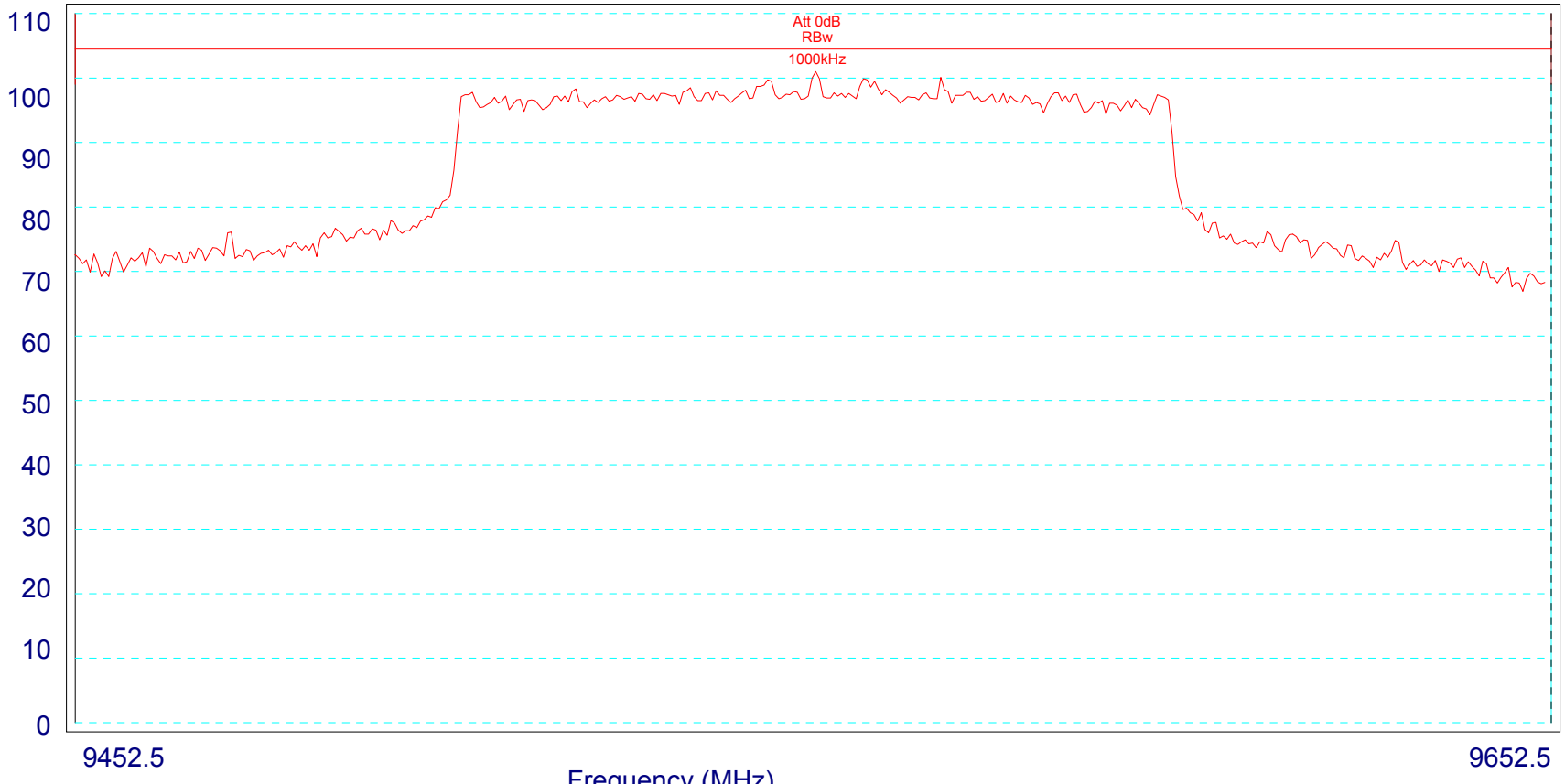
FCC Part 90
Conducted Antenna Port Emissions dBuV

Job No:m050232

p:\PCF\m050232_5.PCF
Test Date: 24/2/05

GRAPH No. 5



99% Bandwidth Measurement
In accordance with 2.1049
On Ground Probe SSR
200 MHz Span

Limits:

Legend:

Ver 5.5 Build 108
No factors
t:NONE c1:NONE c2:NONE p:NONE a:NONE
Site ID: Room#1,57 Assembly Drv. Tullamarine, VIC
Test Officer:Mark Mifsud

Source:
32\99%BW 2

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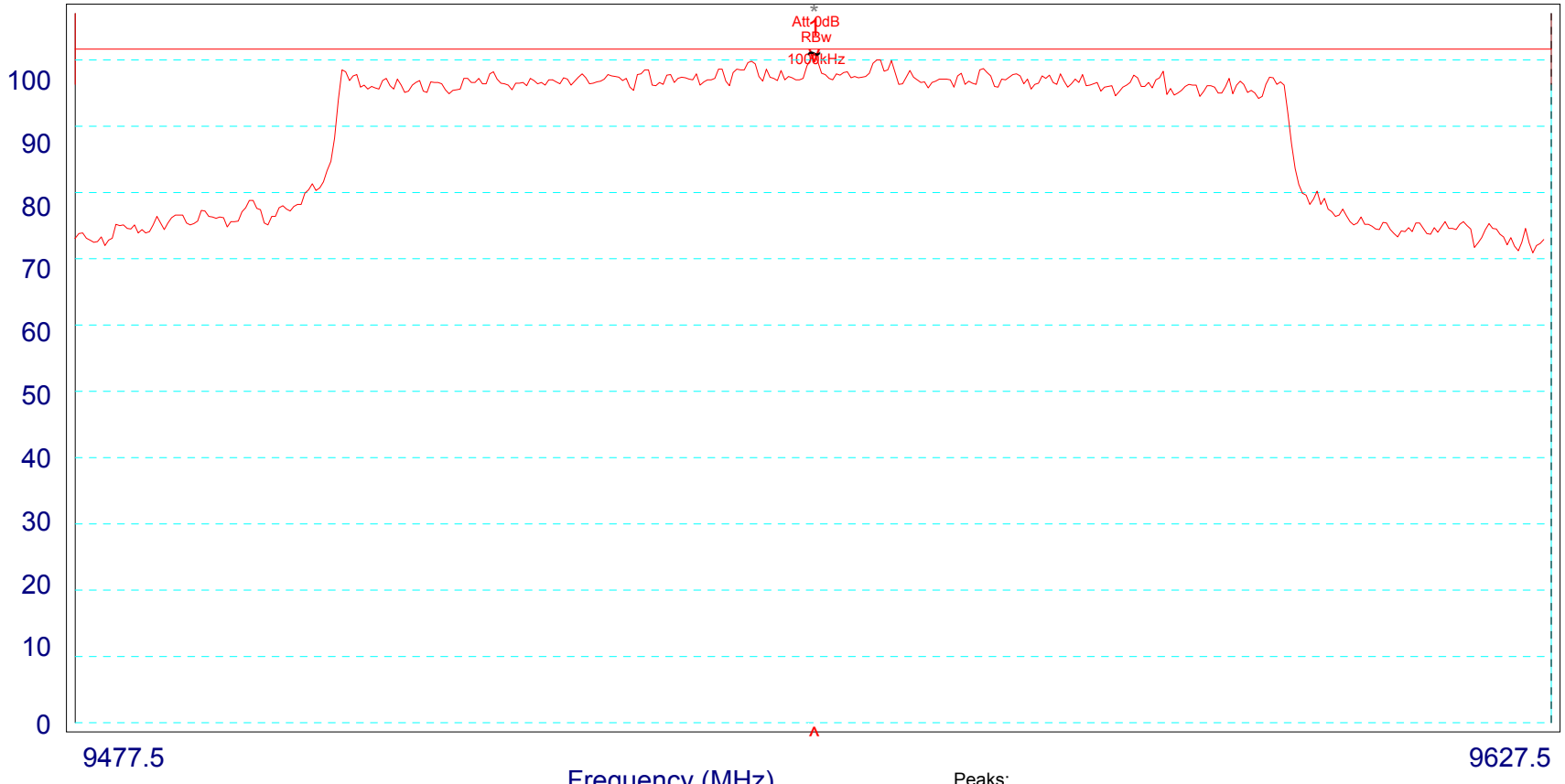
FCC Part 90
Conducted Antenna Port Emissions dBuV

Job No:m050232 p:\PCF\m050232_6.PCF

Test Date: 24/2/05 GRAPH No. 6



99% Bandwidth Measurement
In accordance with 2.1049
On Ground Probe SSR
150 MHz Span

Limits:

Legend:

Ver 5.5 Build 108
No factors
t:NONE c1:NONE c2:NONE p:NONE a:dBm2dBuV
Site ID: Room#1,57 Assembly Drv. Tullamarine, VIC
Test Officer:Mark Mifsud

Source:
32\99%BW 3

Peaks:

No	Freq (MHz)	Peak		dL1 (dB)
1	9552.31	101.0	.0	101.0

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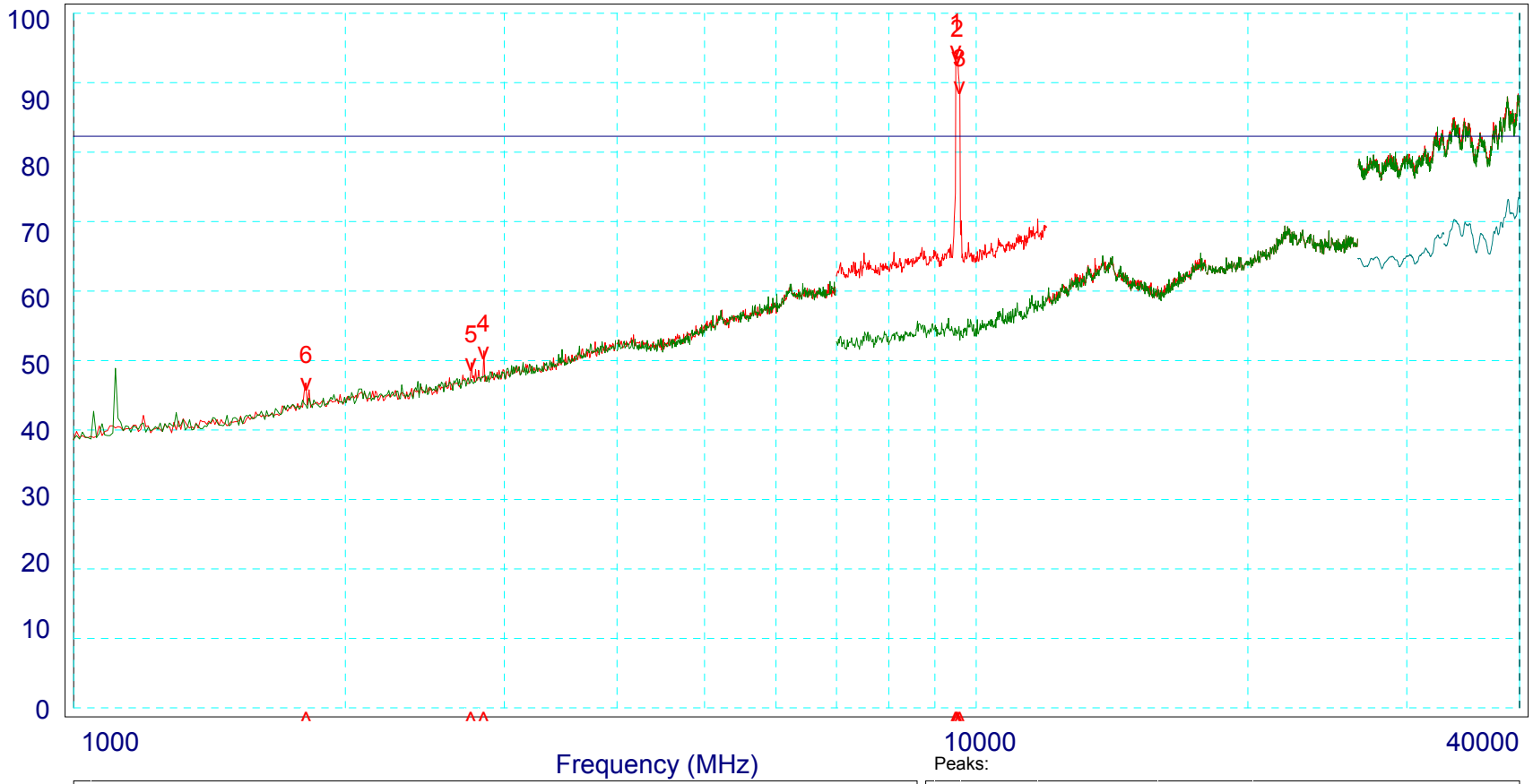
FCC Part 90

Radiated Emissions (dBuV/m)

Job No:m050232 p:\PCF\m050232_7.PCF

Test Date: 22/2/05 GRAPH No. 7

= Ambient



FCC Pt 90 Conducted Spurious Emissions (Antenna Port)
Section 2.1053 1-40GHz

Limits:
fcc2-1053 Radiated limit FCC Part 90 test on SSR

Legend:
Horizontal Ambients
Horizontal Emissions
Average Trace

Ver 5.5 Build 108
FCC RADIO TEST UP TO 40GHZ
t:A0421296 c1:C2221005 c2:NONE p:NONE a:NONE
Site ID: OATS1,Lerderderg Gorge Rd, Bacchus Marsh, VIC
Test Officer:Mark Mifsud

Source:
ldatahor 8 9 10 11 12 13 14
ldatahor 37 38 39 43 12 45 46
ldatahor 62 63

Peaks:

No	Freq (MHz)	Peak (dBuV/m)	fcc2-1053 (dBuV/m)	dL1 (dB)
1	9495.06	94.6	82.3	12.3
2	9525.00	93.8	82.3	11.5
3	9584.88	89.5	82.3	7.2
4	2844.32	51.3	82.3	-31.0
5	2754.50	49.7	82.3	-32.6
6	1808.39	46.8	82.3	-35.5

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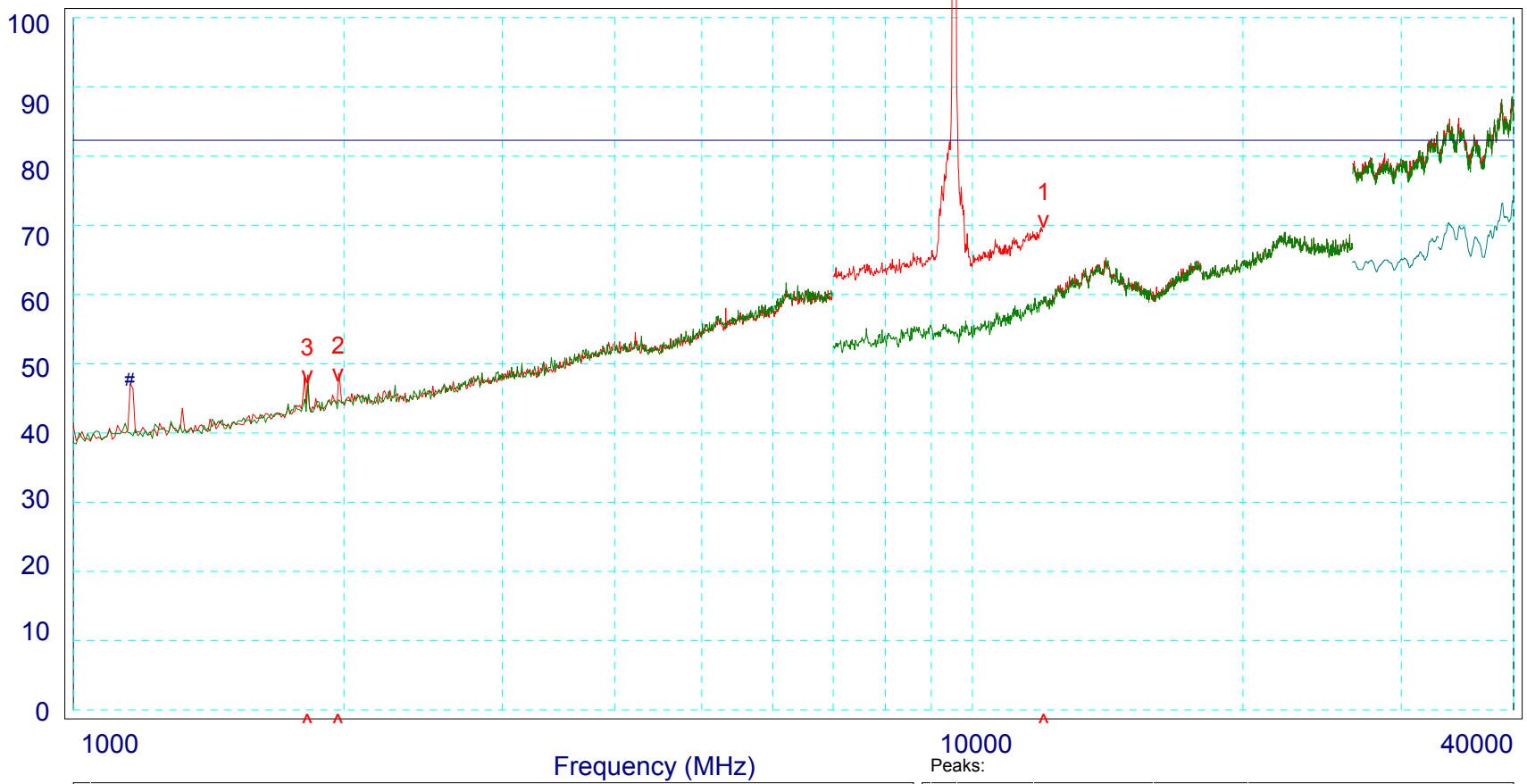
FCC Part 90

Radiated Emissions (dBuV/m)

= Ambient

Job No:m050232 p:\PCF\m050232_8.PCF

Test Date: 22/2/05 GRAPH No. 8



FCC Pt 90 Radiated Spurious Emissions
Section 2.1053 1-40GHz
Vertical Polarisation

Limits:
fcc2-1053 Radiated limit FCC Part 90 test on SSR

Legend:
Vertical Ambients
Peak Trace
Average Trace

Ver 5.5 Build 108
FCC RADIO TEST UP TO 40GHZ
t:A0421296 c1:C2221005 c2:NONE p:NONE a:NONE
Site ID: OATS1,Lerderderg Gorge Rd, Bacchus Marsh, VIC
Test Officer:Jorge Lara

Source:
ldatahor 4 5 6 7 15 16 17
ldatahor 32 33 34 36 15 48 49
ldatahor 65 66

Peaks:

No	Freq (MHz)	Peak (dBuV/m)	fcc2-1053 (dBuV/m)	dL1 (dB)
1	12000.00	70.7	82.3	-11.6
2	1970.06	48.6	82.3	-33.7
3	1820.36	48.3	82.3	-34.0

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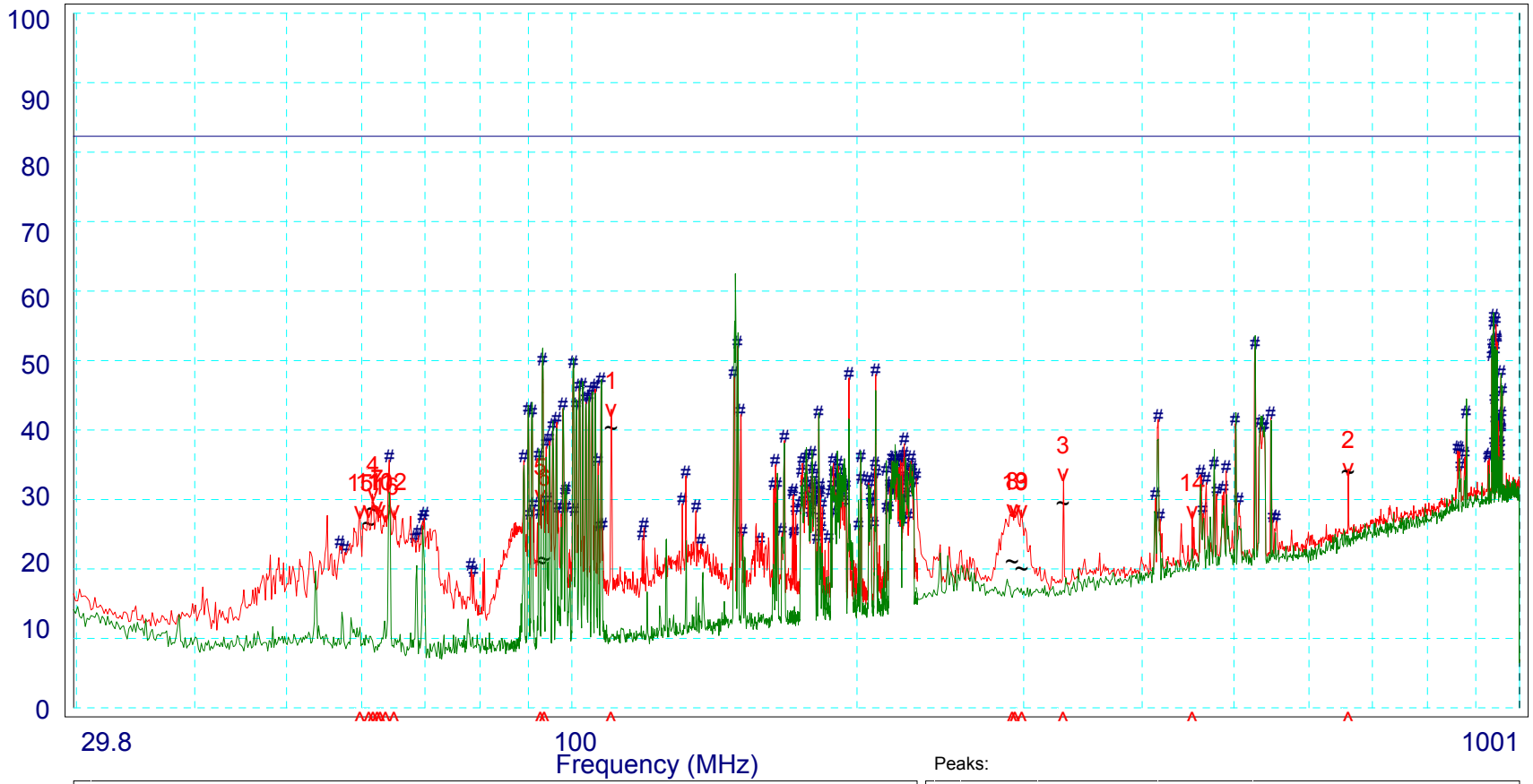
FCC Part 90

Radiated Emissions (dBuV/m)

= Ambient

Job No:m050232 p:\PCF\m050232_9.PCF

Test Date: 21/2/05 GRAPH No. 9



FCC Pt 90 Radiated Spurious Emissions
Section 2.1053 30MHz to 1GHz
Vertical Polarisation

Limits:
fcc2-1053 Radiated limit FCC Part 90 test on SSR

Legend:
Vertical Ambients
Vertical Emissions

Ver 5.5 Build 108
radiated emissions site 1 lerderderg
t:A1360705_10M c1:C1311205 c2:NONE p:NONE a:NONE
Site ID: OATS1,Lerderderg Gorge Rd, Bacchus Marsh, VIC
Test Officer:Jorge Lara

Source:
Analdata 2 3 1 4 5 14 15 16

Peaks:

No	Freq (MHz)	Peak (dBuV/m)	fcc2-1053 (dBuV/m)	dL1 (dB)
1	110.01	43.0	82.3	-39.3
2	660.00	34.5	82.3	-47.9
3	329.99	33.8	82.3	-48.5
4	61.69	30.9	82.3	-51.4
5	92.64	30.7	82.3	-51.7
6	93.53	29.2	82.3	-53.2
7	62.32	29.0	82.3	-53.3
8	291.72	28.6	82.3	-53.7
9	298.53	28.5	82.3	-53.8
10	62.75	28.5	82.3	-53.8
11	61.04	28.5	82.3	-53.8
12	64.89	28.4	82.3	-53.9
13	293.57	28.4	82.3	-53.9
14	451.85	28.3	82.3	-54.0
15	59.76	28.3	82.3	-54.0
16	63.61	27.8	82.3	-54.6

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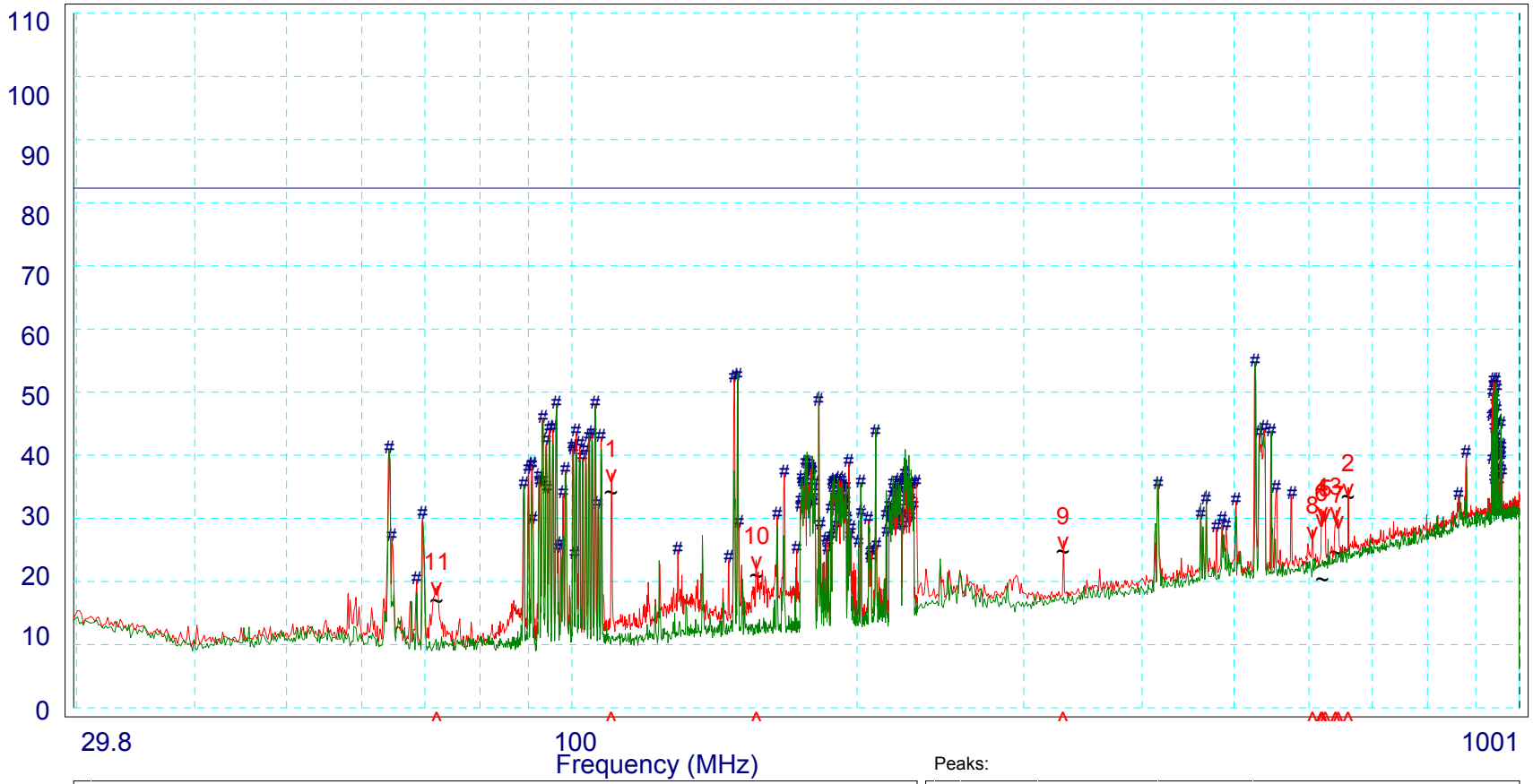
FCC Part 90

Radiated Emissions (dBuV/m)

= Ambient

Job No:m050232 p:\PCF\m050232_10.PCF

Test Date: 21/2/05 GRAPH No. 10



FCC Pt 90 Radiated Spurious Emissions
Section 2.1053 30MHz-1GHz
Vertical Polarisation

Limits:
fcc2-1053 Radiated limit FCC Part 90 test on SSR

Legend:
Vertical Emissions

Ver 5.5 Build 108
radiated emissions site 1 lerderderg
t:A1360705_10M c1:C1311205 c2:NONE p:NONE a:NONE
Site ID: OATS1,Lerderderg Gorge Rd, Bacchus Marsh, VIC
Test Officer:Jorge Lara

Source:
Analdata 6 7 8 9 10 11 12 13

Peaks:

No	Freq (MHz)	Peak (dBuV/m)	fcc2-1053 (dBuV/m)	dL1 (dB)
1	110.02	37.2	82.3	-45.1
2	660.00	34.9	82.3	-47.4
3	640.20	31.2	82.3	-51.1
4	619.93	31.1	82.3	-51.2
5	624.24	30.9	82.3	-51.4
6	618.39	30.1	82.3	-52.2
7	644.29	29.9	82.3	-52.5
8	605.03	28.2	82.3	-54.2
9	329.99	26.5	82.3	-55.8
10	156.63	23.4	82.3	-58.9
11	72.00	19.3	82.3	-63.0

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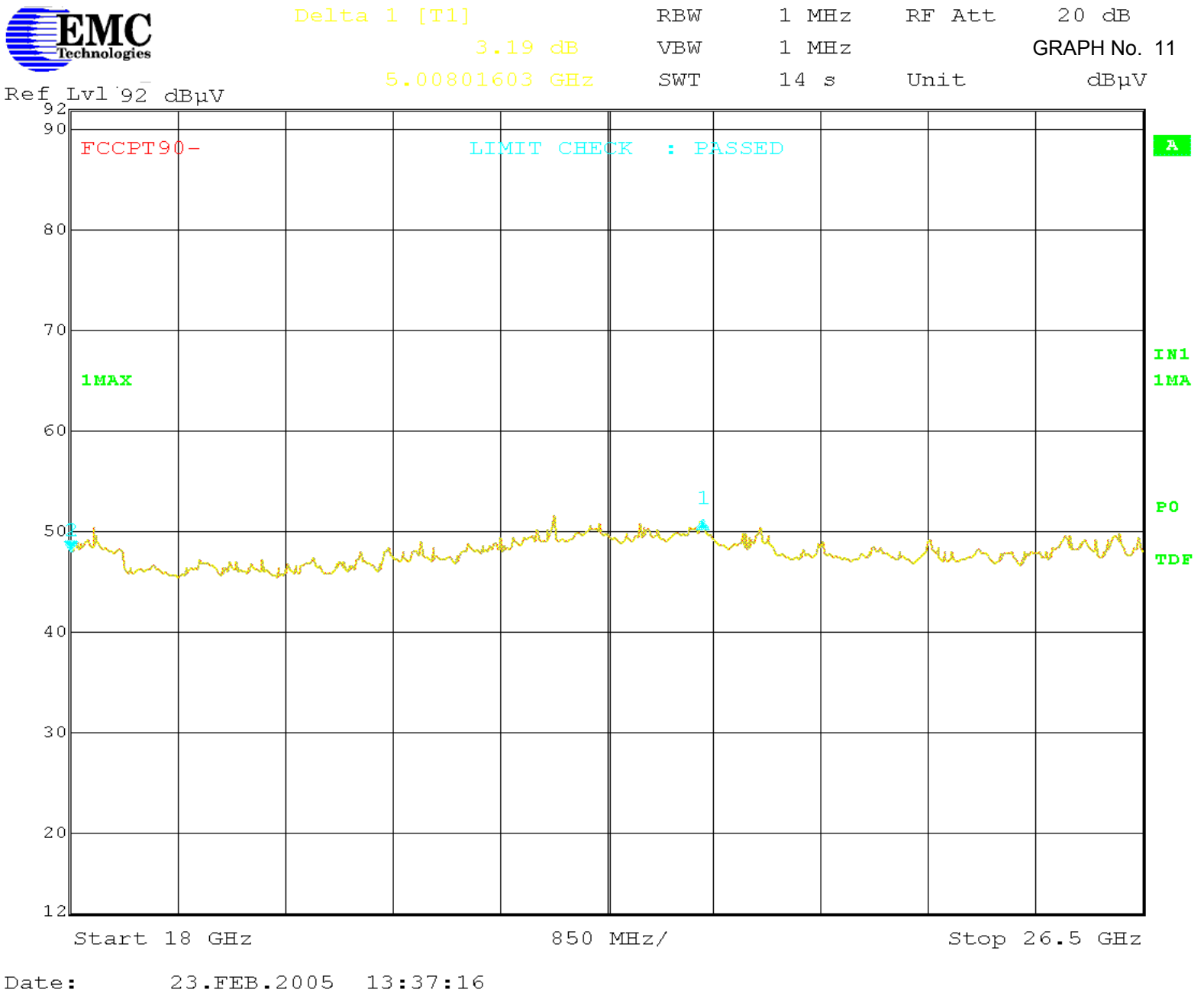
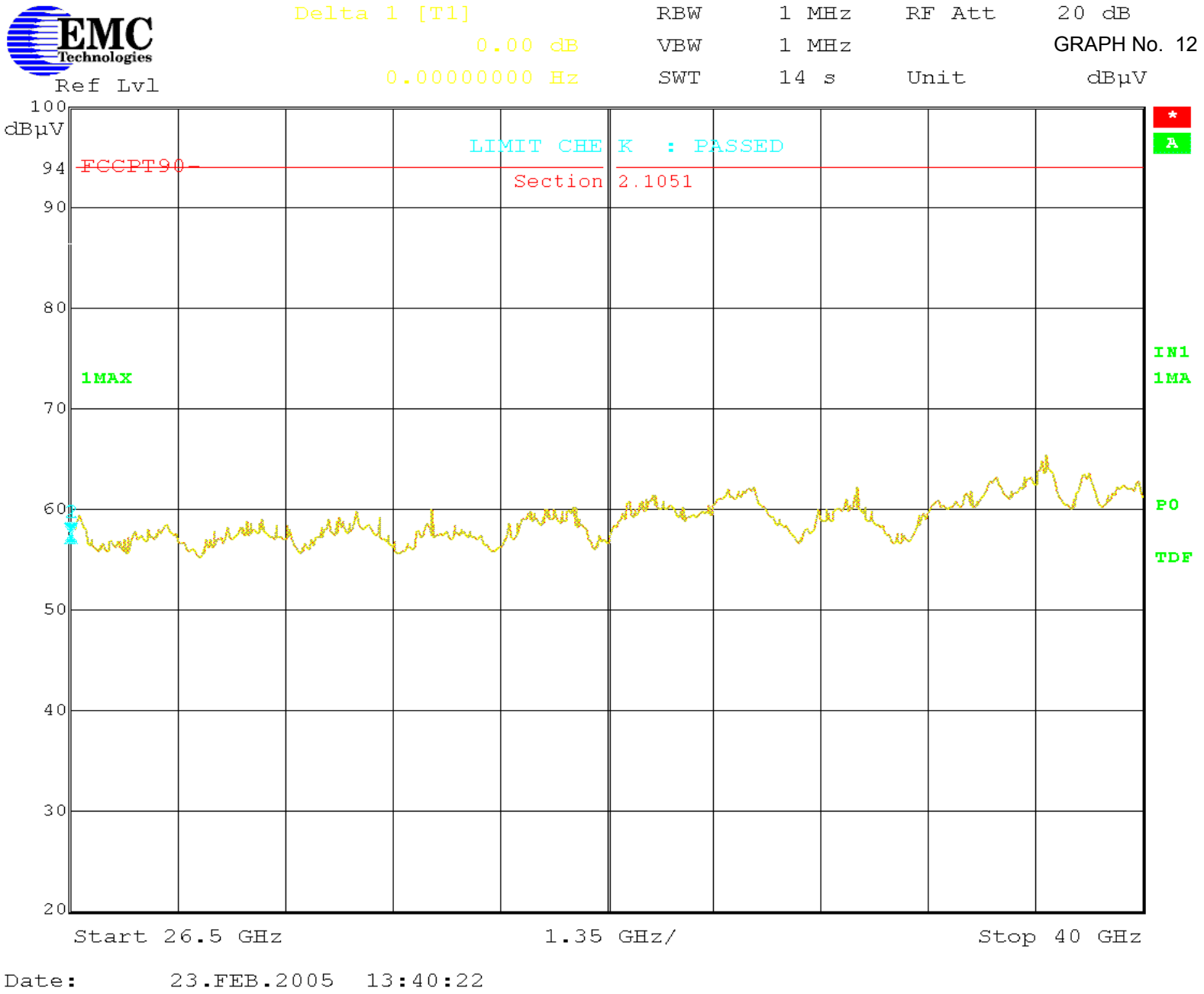

Delta 1 [T1]
3.19 dB
5.00801603 GHz
RBW 1 MHz
VBW 1 MHz
SWT 14 s
RF Att 20 dB
Unit dBµV
Ref Lvl 92 dBµV
92
90
80
70
60
50
40
30
20
12
FCCPT90-
LIMIT CHECK : PASSED
A
1MAX
IN1
1MA
1
PO
TDF
Start 18 GHz
850 MHz/
Stop 26.5 GHz
Date: 23.FEB.2005 13:37:16

GRAPH No. 11


Delta 1 [T1]
0.00 dB
0.00000000 Hz
RBW 1 MHz
VBW 1 MHz
SWT 14 s
RF Att 20 dB
Unit dBµV
Ref Lvl
100 dBµV
94
90
80
70
60
50
40
30
20
LIMIT CHECK : PASSED
FCCPT90-
Section 2.1051
1MAX
IN1
1MA
PO
TDF
Start 26.5 GHz
1.35 GHz/
Stop 40 GHz
Date: 23.FEB.2005 13:40:22

GRAPH No. 12