



EMC Technologies Pty Ltd

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**APPENDIX K
OF
TEST REPORT T61218_F**

GRAPHS OF EMI MEASUREMENT

FCC ID: TVN-MARS-24
Manufacturer: Magellan Technology
Test Sample: RFID Terminal
Model: MARS24
Serial Number: Production Prototype

Date: 15th January 2007

APPENDIX K

GRAPHS OF EMI MEASUREMENT

CONDUCTED

Graph 1: Active Line 0.145 to 30.5 MHz

Graph 2: Neutral Line 0.145 to 30.5 MHz

Antenna Terminated:

Graph 3: Active Line 0.145 to 30.5 MHz

Graph 4: Neutral Line 0.145 to 30.5 MHz

RADIATED EMI

Graph 5: Carrier 13.56 MHz 13.552 to 13.568 MHz

Graph 6: Magnetic Loop Antenna 9kHz to 30 MHz

Graph 7: Vertical Antenna Polarisation 30 to 1000 MHz

Graph 8: Horizontal Antenna Polarisation 30 to 1000 MHz

EMC Technologies Pty. Ltd. - Global Product Certification

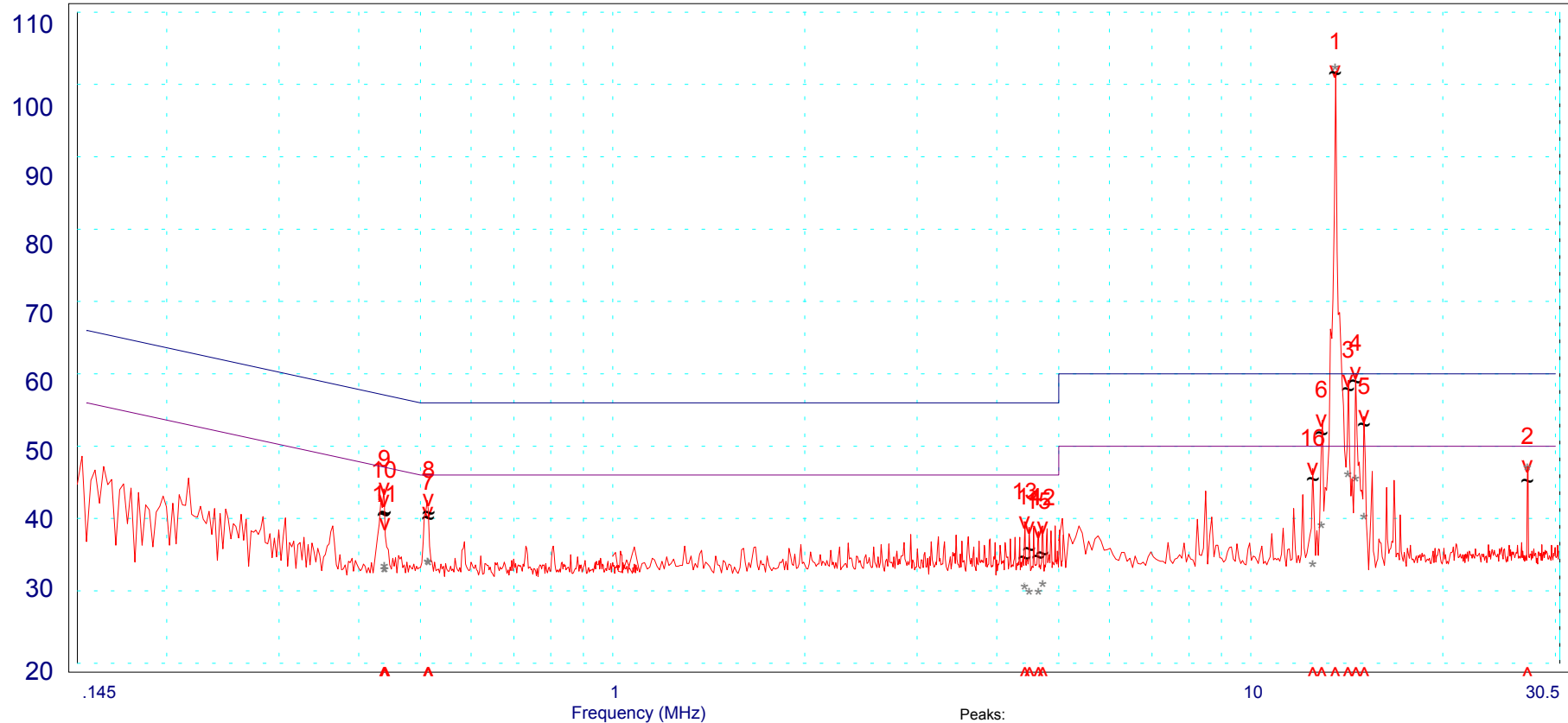
FCC Class B
Conducted Emissions (dBuV)

Job No:T61218

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Test Date: 13-12-2006

GRAPH No. 1



Magellan Technology
RFID Terminal
Model: MARS24

Limits:
 FCCN_BQP FCC CLASS B QP CONDUCTED LIMITS (CISPR)
 FCCN_BAV FCC CLASS B AV CONDUCTED LIMITS (CISPR)
 Legend:
 — Active Line

Ver 0.55 Build 143
 Source:
 t:L0110107 c1:C0020907 c2:NONE p:NONE a:L0030707
 Site ID: Syd Room#1,3/87 Station Rd, Seven Hills, NSW
 Test Officer:Kumar Thambiah

EMC Technologies (Sydney) 3/87 Station Rd, Seven Hills, NSW, 2147, NSW, Australia
 Phone +(612) 9624 2777 Fax+(612) 9838 4050

No	Freq (MHz)	Peak (dBuV)	QP Val (dBuV)	FCCN_BQP (dBuV)	dL1 (dB)	Av Val (dBuV)	FCCN_BAV (dBuV)	dL2 (dB)
1	13.56	101.8	101.3	60.0	41.3	101.4	50.0	51.4
2	27.12	47.2	45.0	60.0	-15.0	46.1	50.0	-3.9
3	14.20	59.1	57.6	60.0	-2.4	45.2	50.0	-4.8
4	14.61	60.1	58.7	60.0	-1.3	44.6	50.0	-5.4
5	15.05	54.1	52.7	60.0	-7.3	39.4	50.0	-10.6
6	12.91	53.6	51.6	60.0	-8.4	38.2	50.0	-11.8
7	0.514	40.8	39.8	56.0	-16.2	33.2	46.0	-12.8
8	0.515	42.5	40.5	56.0	-15.5	33.0	46.0	-13.0
9	0.439	44.1	40.4	57.1	-16.7	32.6	47.1	-14.5
10	0.438	42.5	40.4	57.1	-16.7	32.1	47.1	-15.0
11	0.440	39.2	40.5	57.1	-16.6	32.1	47.1	-15.0
12	4.719	38.7	35.0	56.0	-21.0	30.0	46.0	-16.0
13	4.422	39.5	34.4	56.0	-21.6	29.7	46.0	-16.3
14	4.498	38.8	35.5	56.0	-20.5	29.0	46.0	-17.0
15	4.646	38.2	34.5	56.0	-21.5	29.0	46.0	-17.0
16	12.51	46.9	45.2	60.0	-14.8	32.8	50.0	-17.2

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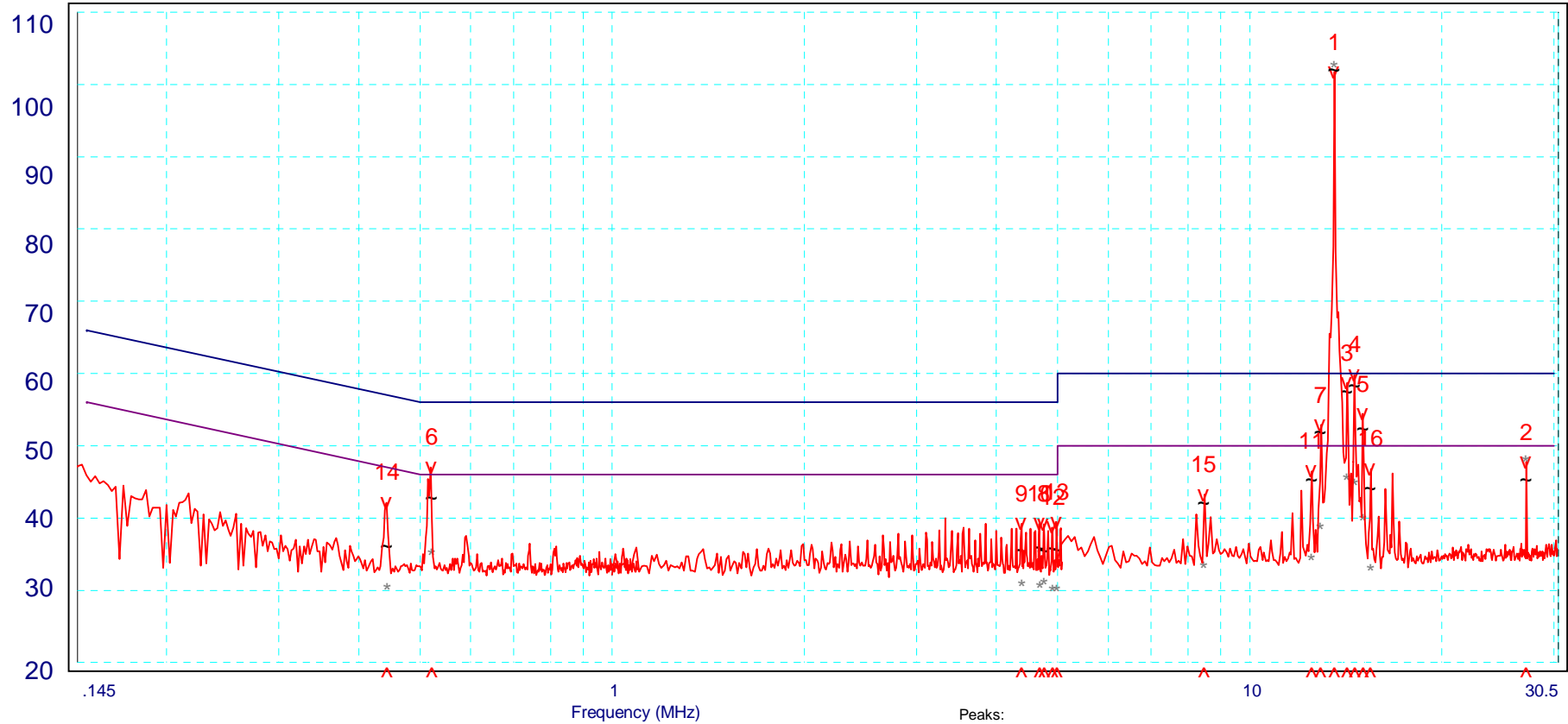
FCC Class B
Conducted Emissions (dBuV)

Job No:T61218

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Test Date: 13-12-2006

GRAPH No. 2



Magellan Technology
RFID Terminal
Model: MARS24
Test with antenna connected

Limits:
FCC_BQP FCC CLASS B QP CONDUCTED LIMITS (CISPR)
FCC_BAV FCC CLASS B AV CONDUCTED LIMITS (CISPR)
Legend:
— Neutral Line

Ver 0.55 Build 143
Source:
t:L0110107 c1:C0020907 c2:NONE p:NONE a:L0030707 \T61218c 5 6 7
Site ID: Syd Room#1,3/87 Station Rd, Seven Hills, NSW
Test Officer:Kumar Thambialah

EMC Technologies (Sydney) 3/87 Station Rd, Seven Hills, NSW, 2147, NSW, Australia
Phone +(612) 9624 2777 Fax+(612) 9838 4050

No	Freq (MHz)	Peak (dBuV)	QP Val (dBuV)	FCCN_BQP (dBuV)	dL1 (dB)	Av Val (dBuV)	FCCN_BAV (dBuV)	dL2 (dB)
1	13.56	101.7	102.0	60.0	42.0	101.9	50.0	51.9
2	27.12	47.8	45.3	60.0	-14.7	47.2	50.0	-2.8
3	14.20	58.7	57.6	60.0	-2.4	44.8	50.0	-5.2
4	14.61	59.8	58.4	60.0	-1.6	44.1	50.0	-5.9
5	15.05	54.4	52.4	60.0	-7.6	39.2	50.0	-10.8
6	0.520	47.0	42.9	56.0	-13.1	34.4	46.0	-11.6
7	12.91	52.9	51.9	60.0	-8.1	38.0	50.0	-12.0
8	4.753	39.1	35.6	56.0	-20.4	30.3	46.0	-15.7
9	4.384	39.2	35.6	56.0	-20.4	30.1	46.0	-15.9
10	4.682	39.2	35.9	56.0	-20.1	29.8	46.0	-16.2
11	12.50	46.5	45.3	60.0	-14.7	33.7	50.0	-16.3
12	4.905	38.8	35.9	56.0	-20.1	29.3	46.0	-16.7
13	4.978	39.5	35.7	56.0	-20.3	29.3	46.0	-16.7
14	0.443	42.1	36.2	57.0	-20.8	29.6	47.0	-17.4
15	8.472	43.3	42.2	60.0	-17.9	32.6	50.0	-17.4
16	15.46	46.8	44.2	60.0	-15.8	32.2	50.0	-17.8

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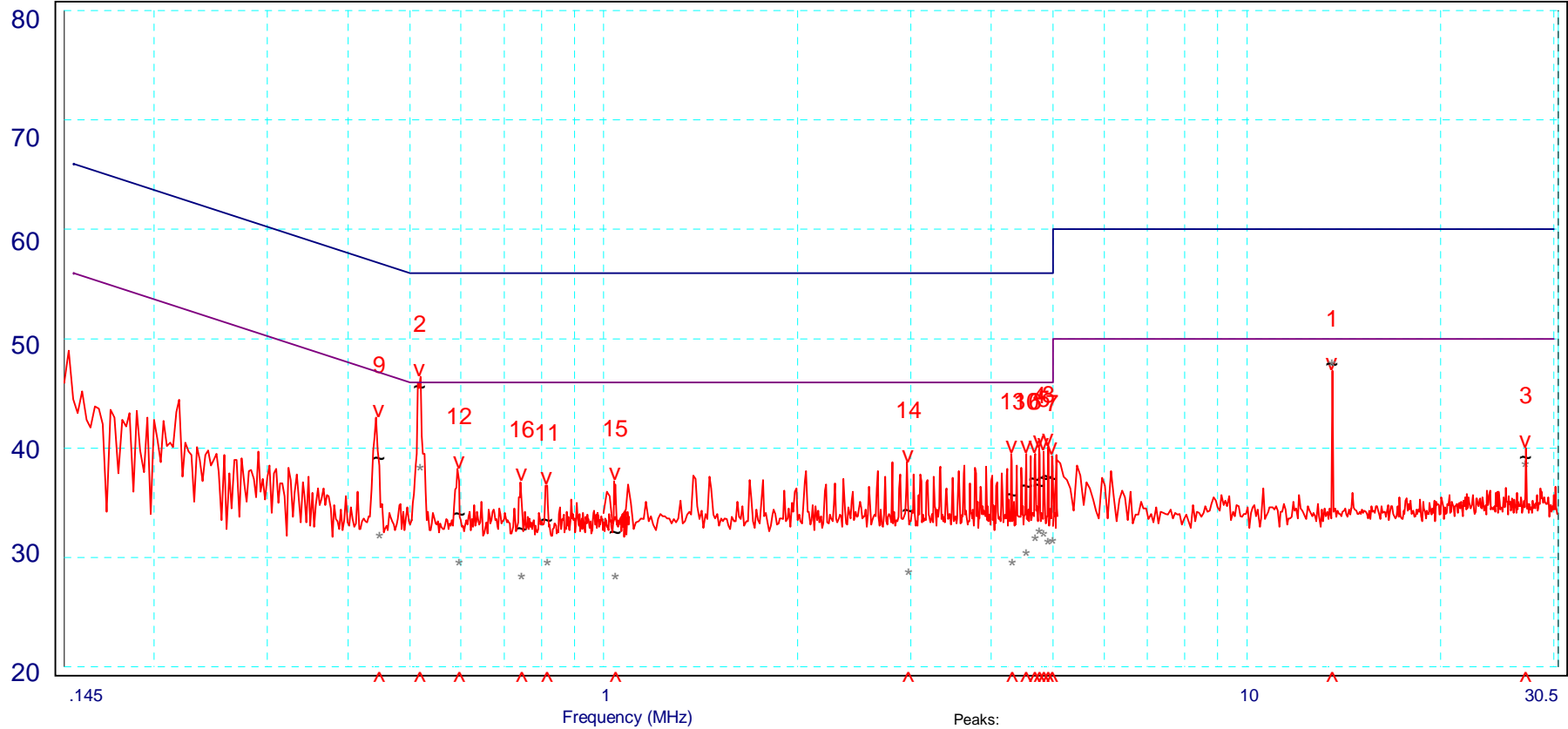
FCC Class B
Conducted Emissions (dBuV)

Job No:T61218

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Test Date: 13-12-2006

GRAPH No. 3



Magellan Technology
RFID Terminal
Model: MARS24
Test with antenna terminated

Limits: FCCN_BQP FCC CLASS B QP CONDUCTED LIMITS (CISPR)
FCCN_BAV FCC CLASS B AV CONDUCTED LIMITS (CISPR)

Legend:
— Active Line

Ver 0.55 Build 143

Source: T61218c 8 9 10

t:L0110107 c1:C0020907 c2:NONE p:NONE a:L0030707
Site ID: Syd Room#1,3/87 Station Rd, Seven Hills, NSW
Test Officer:Kumar Thambialah

EMC Technologies (Sydney) 3/87 Station Rd, Seven Hills, NSW, 2147, NSW, Australia
Phone +(612) 9624 2777 Fax+(612) 9838 4050

No	Freq (MHz)	Peak (dBuV)	QP Val (dBuV)	FCCN_BQP (dBuV)	dL1 (dB)	Av Val (dBuV)	FCCN_BAV (dBuV)	dL2 (dB)
1	13.56	47.1	47.1	60.0	-12.9	46.5	50.0	-3.5
2	0.518	46.5	45.0	56.0	-11.0	36.9	46.0	-9.1
3	27.12	40.0	38.5	60.0	-21.5	37.3	50.0	-12.7
4	4.757	40.0	36.0	56.0	-20.0	31.1	46.0	-14.9
5	4.833	39.7	36.6	56.0	-19.4	30.9	46.0	-15.1
6	4.686	39.5	36.6	56.0	-19.4	30.5	46.0	-15.5
7	4.985	39.3	36.6	56.0	-19.4	30.3	46.0	-15.7
8	4.908	40.1	36.8	56.0	-19.2	30.2	46.0	-15.8
9	0.448	42.8	38.5	56.9	-18.4	30.7	46.9	-16.2
10	4.539	39.5	36.0	56.0	-20.0	29.1	46.0	-16.9
11	0.817	36.6	32.8	56.0	-23.2	28.3	46.0	-17.7
12	0.596	38.1	33.4	56.0	-22.6	28.3	46.0	-17.7
13	4.315	39.5	35.1	56.0	-20.9	28.3	46.0	-17.7
14	2.977	38.7	33.7	56.0	-22.3	27.4	46.0	-18.6
15	1.042	37.0	31.7	56.0	-24.3	27.0	46.0	-19.0
16	0.745	36.9	32.0	56.0	-24.0	27.0	46.0	-19.0

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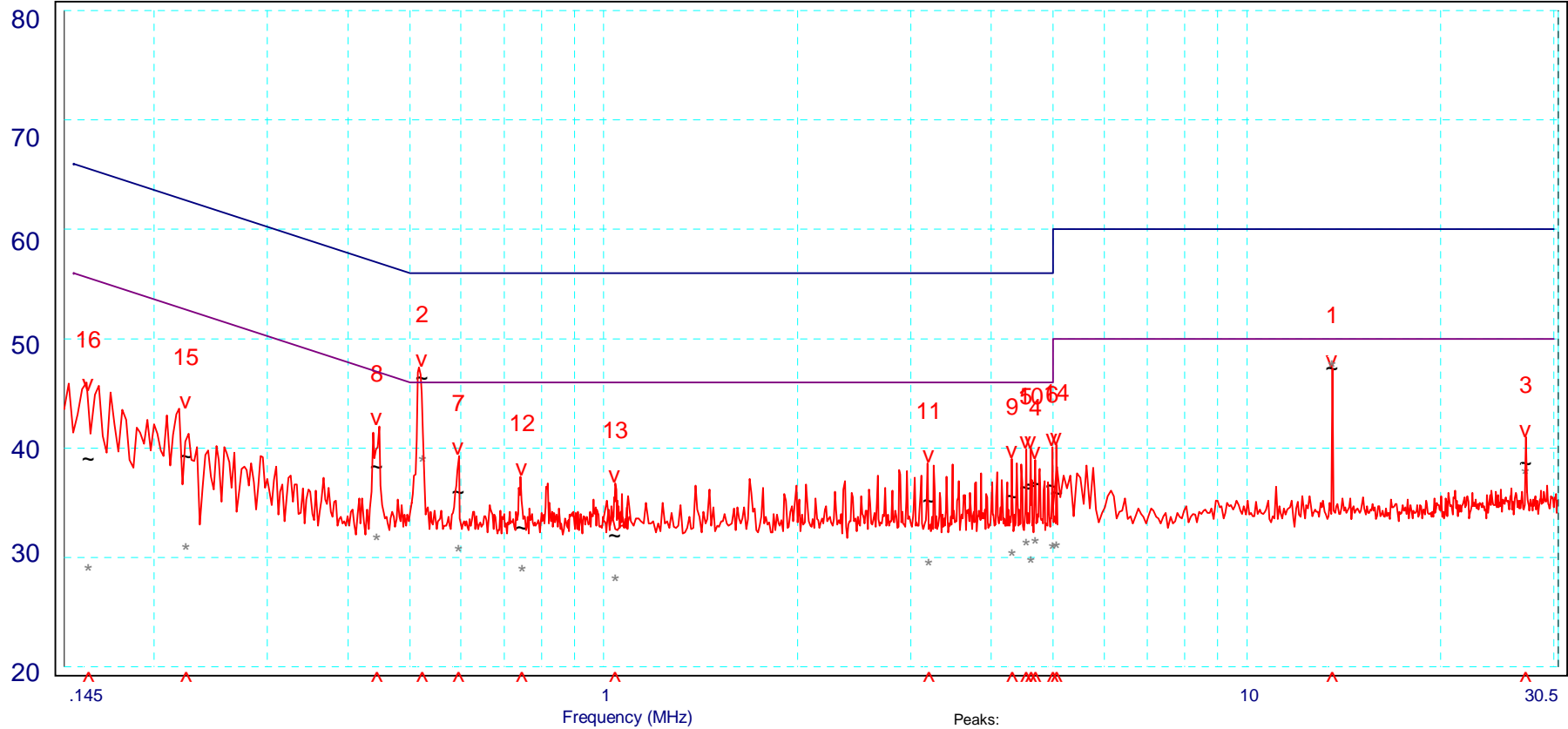
FCC Class B
Conducted Emissions (dBuV)

Job No:T61218

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Test Date: 13-12-2006

GRAPH No. 4



Magellan Technology
RFID Terminal
Model: MARS24
Test with antenna terminated

Limits: FCCN_BQP FCC CLASS B QP CONDUCTED LIMITS (CISPR)
FCCN_BAV FCC CLASS B AV CONDUCTED LIMITS (CISPR)
Legend: Neutral Line

Ver 0.55 Build 143
Source: T61218c 11 12 13
t:L0110107 c1:C0020907 c2:NONE p:NONE a:L0030707
Site ID: Syd Room#1,3/87 Station Rd, Seven Hills, NSW
Test Officer:Kumar Thambialah

EMC Technologies (Sydney) 3/87 Station Rd, Seven Hills, NSW, 2147, NSW, Australia
Phone +(612) 9624 2777 Fax+(612) 9838 4050

No	Freq (MHz)	Peak (dBuV)	QP Val (dBuV)	FCCN_BQP (dBuV)	dL1 (dB)	Av Val (dBuV)	FCCN_BAV (dBuV)	dL2 (dB)
1	13.56	47.3	46.6	60.0	-13.4	46.4	50.0	-3.6
2	0.522	47.4	45.8	56.0	-10.2	37.8	46.0	-8.2
3	27.12	41.0	38.0	60.0	-22.0	36.6	50.0	-13.4
4	4.688	38.9	36.2	56.0	-19.9	30.3	46.0	-15.7
5	4.537	39.9	35.7	56.0	-20.3	30.1	46.0	-15.9
6	4.985	40.2	35.9	56.0	-20.1	29.8	46.0	-16.2
7	0.594	39.3	35.4	56.0	-20.7	29.6	46.0	-16.4
8	0.444	42.0	37.6	57.0	-19.4	30.6	47.0	-16.4
9	4.314	39.0	35.0	56.0	-21.0	29.1	46.0	-16.9
10	4.616	39.9	36.0	56.0	-20.0	28.5	46.0	-17.5
11	3.202	38.6	34.5	56.0	-21.5	28.3	46.0	-17.7
12	0.746	37.4	32.1	56.0	-23.9	27.7	46.0	-18.3
13	1.041	36.8	31.4	56.0	-24.6	26.9	46.0	-19.1
14	5.059	40.3	35.3	60.0	-24.7	29.9	50.0	-20.1
15	0.224	43.6	38.6	62.7	-24.1	29.7	52.7	-23.0
16	0.158	45.1	38.3	65.6	-27.2	27.8	55.6	-27.8

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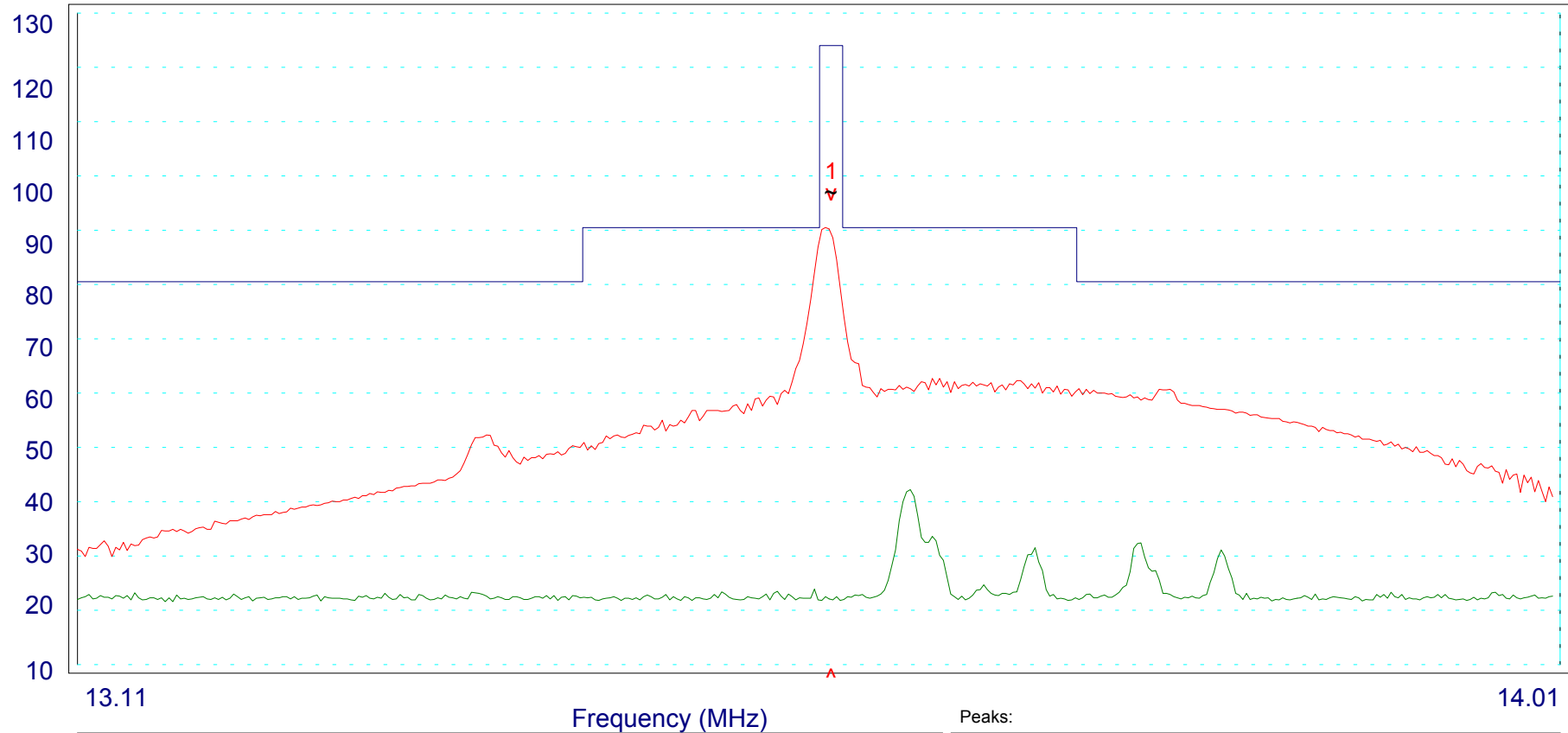
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient

Job No:T61218

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Test Date: 10-01-07

GRAPH No. 5



Magellan Technology
RFID Terminal
Model: MARS24

Peaks:

No	Freq (MHz)	Peak (dBuV/m)	Qp Val	FCC_loop_3dL1 (dBuV/m)	dL1 (dB)
1	13.56	97.3	97.3	124.0	-26.7

Limits:
FCC_loop_3mFcc Pt15 Subpart C Section 15.209(a) 3Metre Limits

Legend:
— Ambient
— Emissions

Ver 5.5 Build 107
Colo Radiated Test Setup Active Loop
t:A0080408E c1:C0200207 c2:NONE p:NONE a:NONE
Site ID: OATS#1,1247 Upper Colo Rd. Colo, NSW
Test Officer:Christian Kai

Source:
T61218r 34
T61218r 29

EMC Technologies (Sydney) 3/87 Station Rd, Seven Hills, NSW, 2147, NSW, Australia
Phone +(612) 9624 2777 Fax+(612) 9838 4050

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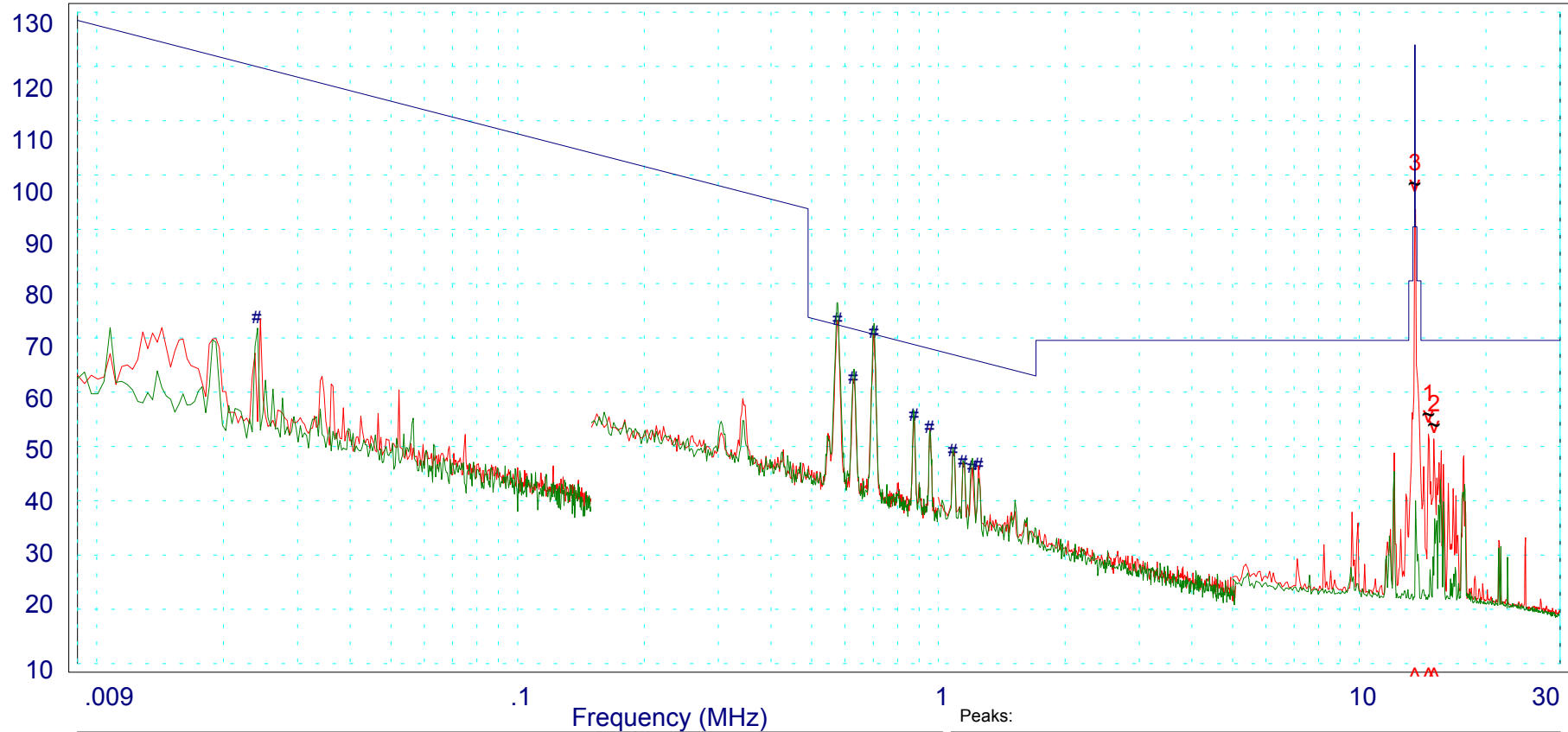
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient

Job No:T61218

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Test Date: 10-01-07

GRAPH No. 6



Magellan Technology
RFID Terminal
Model: MARS24

Peaks:

No	Freq (MHz)	Peak (dBuV/m)	Qp Val	FCC_loop_3dL1 (dBuV/m)	dL1 (dB)
1	14.61	56.3	56.3	69.5	-13.3
2	15.05	54.2	54.2	69.5	-15.3
3	13.56	98.6	98.6	124.0	-25.4

Limits: FCC_loop_3mFcc Pt15 Subpart C Section 15.209(a) 3Metre Limits
Legend: Ambient (green line), Emissions (red line)

Ver 5.5 Build 107
Colo Radiated Test Setup Active Loop
t:A0080408E c1:C0200207 c2:NONE p:NONE a:NONE
Site ID: OATS#1,1247 Upper Colo Rd. Colo, NSW
Test Officer:Christian Kai

Source:
T61218r 31 30 32 33
T61218r 25 26 27 28

EMC Technologies (Sydney) 3/87 Station Rd, Seven Hills, NSW, 2147, NSW, Australia
Phone +(612) 9624 2777 Fax+(612) 9838 4050

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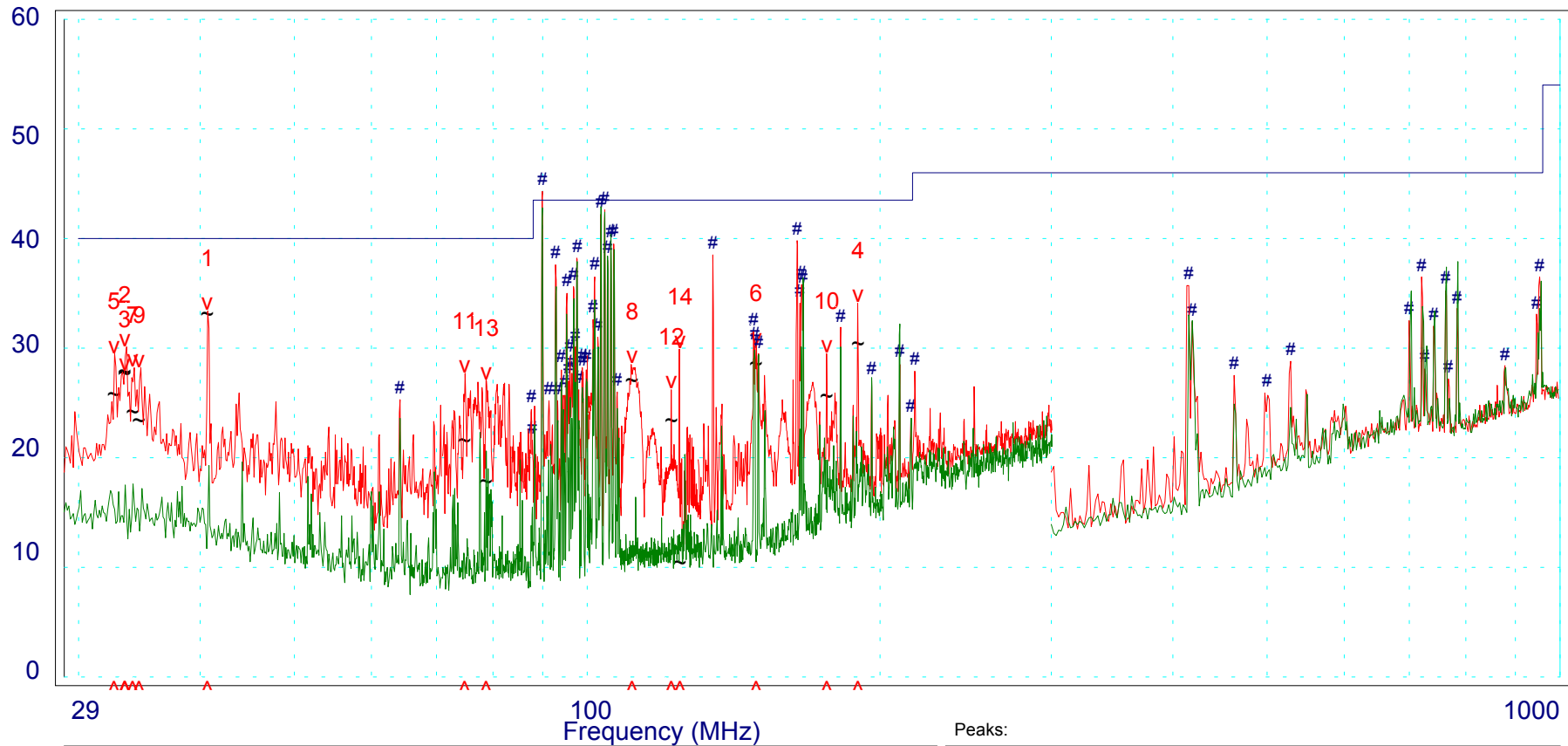
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient

Job No:T61218

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Test Date: 10-01-07

GRAPH No. 7



Magellan Technology
RFID Terminal
Model: MARS24

Limits: FCC-B3 FCC CLASS B RAD 3M LIMITS
Legend: Vertical Ambients (green line), Vertical Emissions (red line)
Source: \T61218r 1 2 3 4 5 11
 \T61218r 13 14 15 16 17 23

EMC Technologies (Sydney) 3/87 Station Rd, Seven Hills, NSW, 2147, NSW, Australia
Phone +(612) 9624 2777 Fax+(612) 9838 4050

No	Freq (MHz)	Peak (dBuV/m)	Qp Val	FCC-B3 (dBuV/m)	dL1 (dB)
1	40.68	33.4	32.3	40.0	-7.7
2	33.47	30.1	27.0	40.0	-13.0
3	33.47	27.8	26.9	40.0	-13.1
4	189.84	34.1	29.6	43.5	-13.9
5	32.62	29.5	25.0	40.0	-15.0
6	149.16	30.2	27.7	43.5	-15.8
7	34.10	28.2	23.4	40.0	-16.6
8	111.20	28.5	26.2	43.5	-17.3
9	34.62	28.2	22.6	40.0	-17.4
10	176.29	29.5	24.8	43.5	-18.7
11	74.83	27.7	20.8	40.0	-19.2
12	122.04	26.2	22.6	43.5	-21.0
13	78.71	27.0	17.0	40.0	-23.0
14	124.57	29.9	9.6	43.5	-33.9

EMC Technologies Pty. Ltd. - Global Product Certification

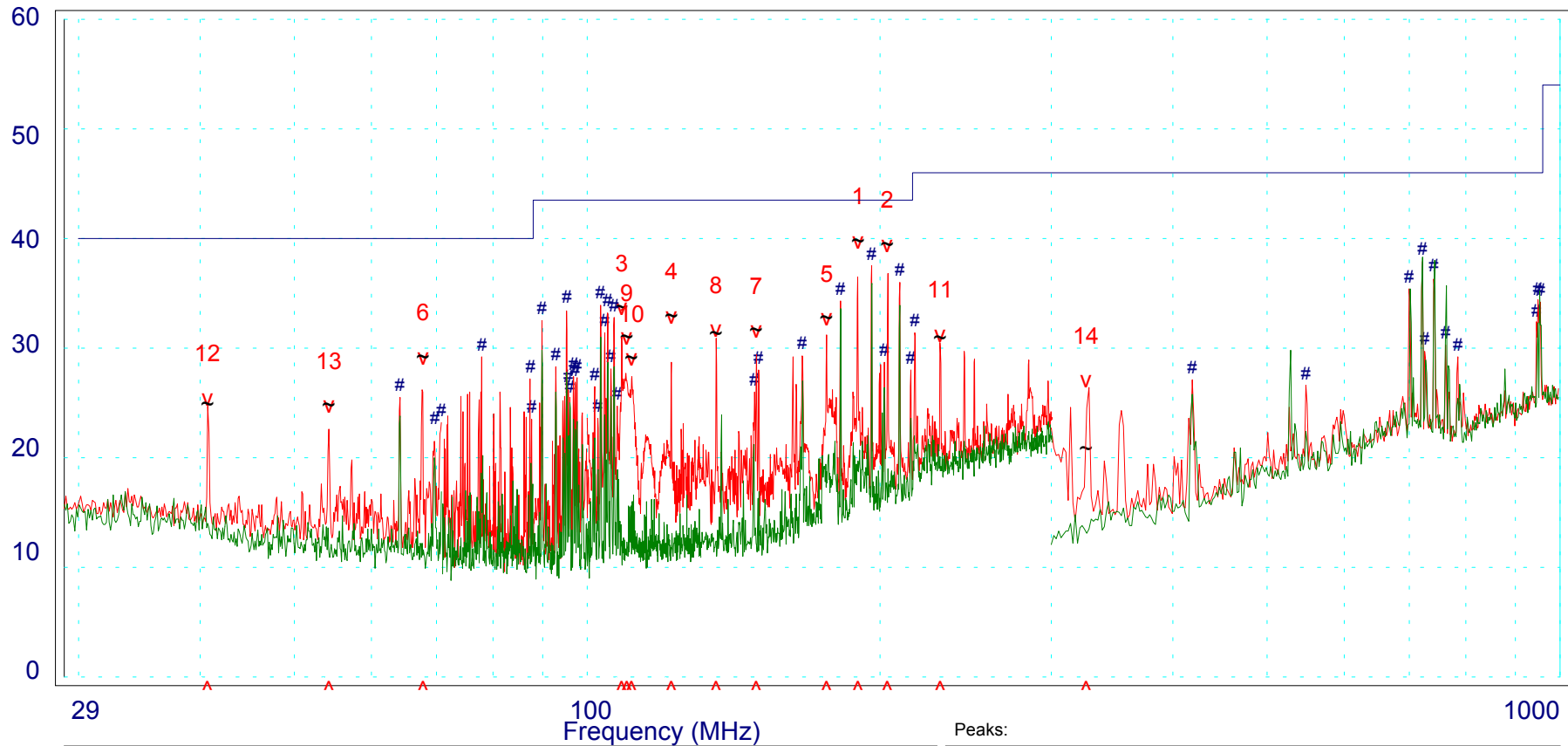
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient

Job No:T61218

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Test Date: 10-01-07

GRAPH No. 8



Magellan Technology
RFID Terminal
Model: MARS24

Limits: FCC-B3 FCC CLASS B RAD 3M LIMITS
Legend: Horizontal Ambients (green line), Horizontal Emissions (red line)
Source: \T61218r 6 7 8 9 10 12
 \T61218r 18 19 20 21 22 24

EMC Technologies (Sydney) 3/87 Station Rd, Seven Hills, NSW, 2147, NSW, Australia
Phone +(612) 9624 2777 Fax+(612) 9838 4050

No	Freq (MHz)	Peak (dBuV/m)	Qp Val	FCC-B3 (dBuV/m)	dL1 (dB)
1	189.84	39.0	39.0	43.5	-4.5
2	203.39	38.7	38.7	43.5	-4.8
3	108.48	32.9	32.9	43.5	-10.6
4	122.03	32.2	32.2	43.5	-11.3
5	176.25	32.0	32.0	43.5	-11.5
6	67.80	28.4	28.4	40.0	-11.6
7	149.16	30.8	30.8	43.5	-12.7
8	135.60	31.0	30.5	43.5	-13.0
9	109.80	30.2	30.2	43.5	-13.3
10	111.02	28.3	28.3	43.5	-15.2
11	230.53	30.5	30.2	46.0	-15.8
12	40.69	24.7	24.1	40.0	-15.9
13	54.26	24.0	24.0	40.0	-16.0
14	325.64	26.3	20.0	46.0	-26.0