



Global Product Certification
EMC-EMF Safety Approvals

EMC Technologies Pty Ltd

ABN 82 057 105 549
Unit 3/87 Station Road
Seven Hills NSW 2147 Australia

Telephone +61 2 9624 2777
Facsimile +61 2 9838 4050
Email syd@emctech.com.au
www.emctech.com.au

APPENDIX K OF TEST REPORT T150916

GRAPHS OF EMI MEASUREMENT

FCC ID: 2ACXQ-CL4NX-MR-1
Manufacturer: Sato Vicinity Pty Ltd
Test Sample: RFID Modular Read Write Reader
Model Number: MR-1 Module
Serial Number: Production Prototype

Date: 10th February 2016

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

RADIATED EMI

Graph 3:	Magnetic Loop Antenna, Carrier 90° Emissions	13.552 to 13.568 MHz
Graph 4:	Magnetic Loop Antenna, Carrier 0° Emissions	13.552 to 13.568 MHz
Graph 5:	Magnetic Loop Antenna 90° Emissions	9 kHz to 30 MHz
Graph 6:	Magnetic Loop Antenna 0° Emissions	9 kHz to 30 MHz
Graph 7:	Vertical Antenna Polarisation	30 to 1000 MHz
Graph 8:	Horizontal Antenna Polarisation	30 to 1000 MHz

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FCC Class B
Conducted Emissions (dBuV)

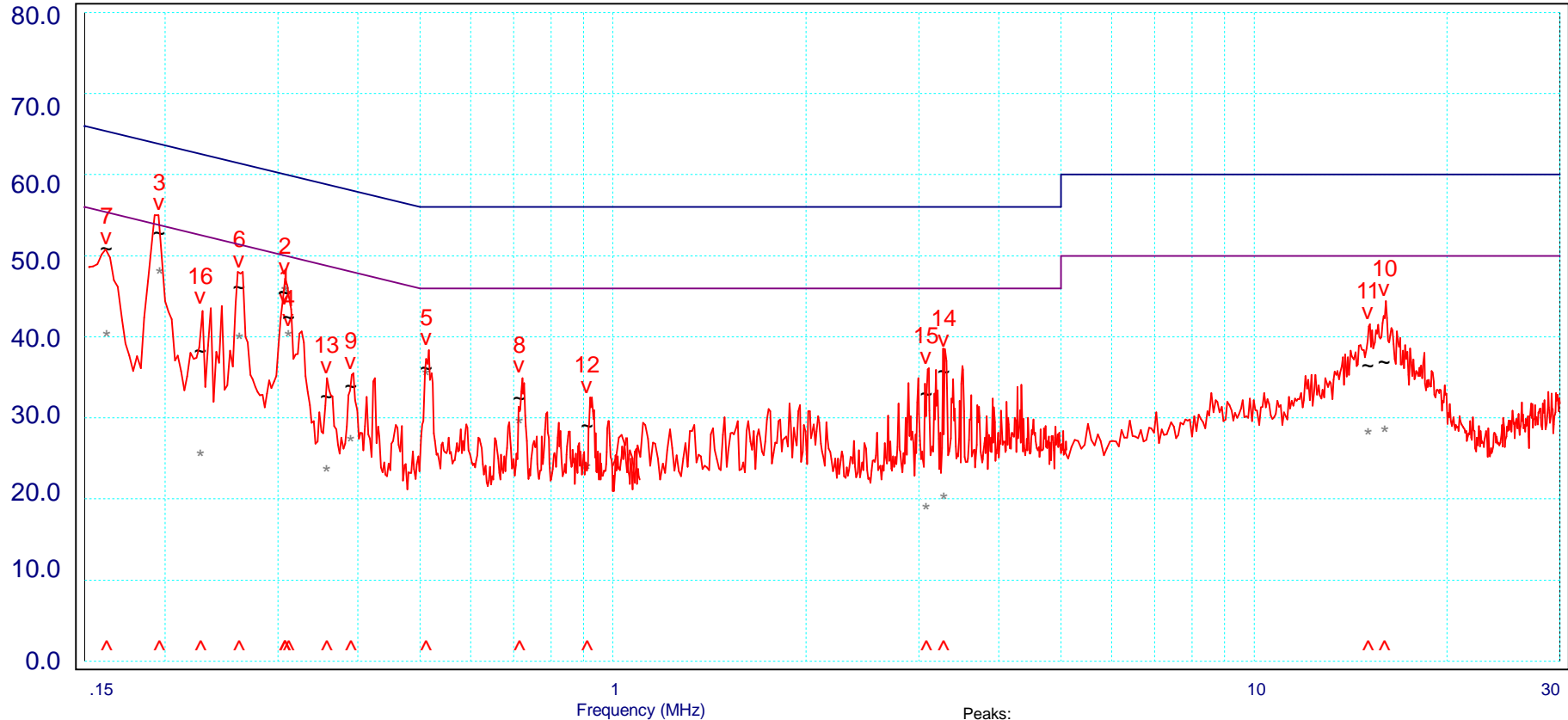
Job No:T150916

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Test Date: 29/01/16

GRAPH No. 1

~ = QP Value * = CISPR Av



Sato Vicinity Pty Ltd
RFID modular read write reader
Model: MR - 1 Module , Serial Number: None
Power Supply: 120VAC 60Hz

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

Ver 5.5 Build 160
Room 2
Pnts:400 t:L0420316 c1:C0020916 c2:L01110316 p:NONE a: T150916c 1 , 2 , 3
Site ID: Syd Room#2,3/87 Station Rd, Seven Hills, NSW
Test Officer: James Guo 01-29-2016 11:32:37

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

Peaks:

No	Freq (MHz)	Peak (dBuV)	QP Val (dBuV)	FCCN_BQP (dBuV)	dL1 (dB)	Av Val (dBuV)	FCCN_BAV (dBuV)	dL2 (dB)
1	0.308	43.4	45.7	60.0	-14.3	45.3	50.0	-4.7
2	0.308	47.1	45.6	60.0	-14.4	45.3	50.0	-4.7
3	0.196	55.0	53.0	63.8	-10.8	47.5	53.8	-6.3
4	0.312	40.7	42.6	59.9	-17.3	39.8	49.9	-10.1
5	0.511	38.4	36.4	56.0	-19.6	35.0	46.0	-11.0
6	0.261	47.9	46.3	61.4	-15.1	39.5	51.4	-11.9
7	0.162	50.8	51.1	65.4	-14.3	39.8	55.4	-15.6
8	0.714	35.0	32.6	56.0	-23.4	29.1	46.0	-16.9
9	0.390	35.5	34.1	58.1	-24.0	26.8	48.1	-21.3
10	15.98	44.4	37.1	60.0	-22.9	28.0	50.0	-22.0
11	15.07	41.6	36.7	60.0	-23.3	27.7	50.0	-22.3
12	0.911	32.5	29.3	56.0	-26.7	23.4	46.0	-22.6
13	0.357	34.9	32.9	58.8	-25.9	23.1	48.8	-25.7
14	3.280	38.2	35.9	56.0	-20.1	19.7	46.0	-26.3
15	3.081	36.0	33.2	56.0	-22.8	18.5	46.0	-27.5
16	0.227	43.5	38.5	62.5	-24.0	25.0	52.5	-27.5

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FCC Class B

Conducted Emissions (dBuV)

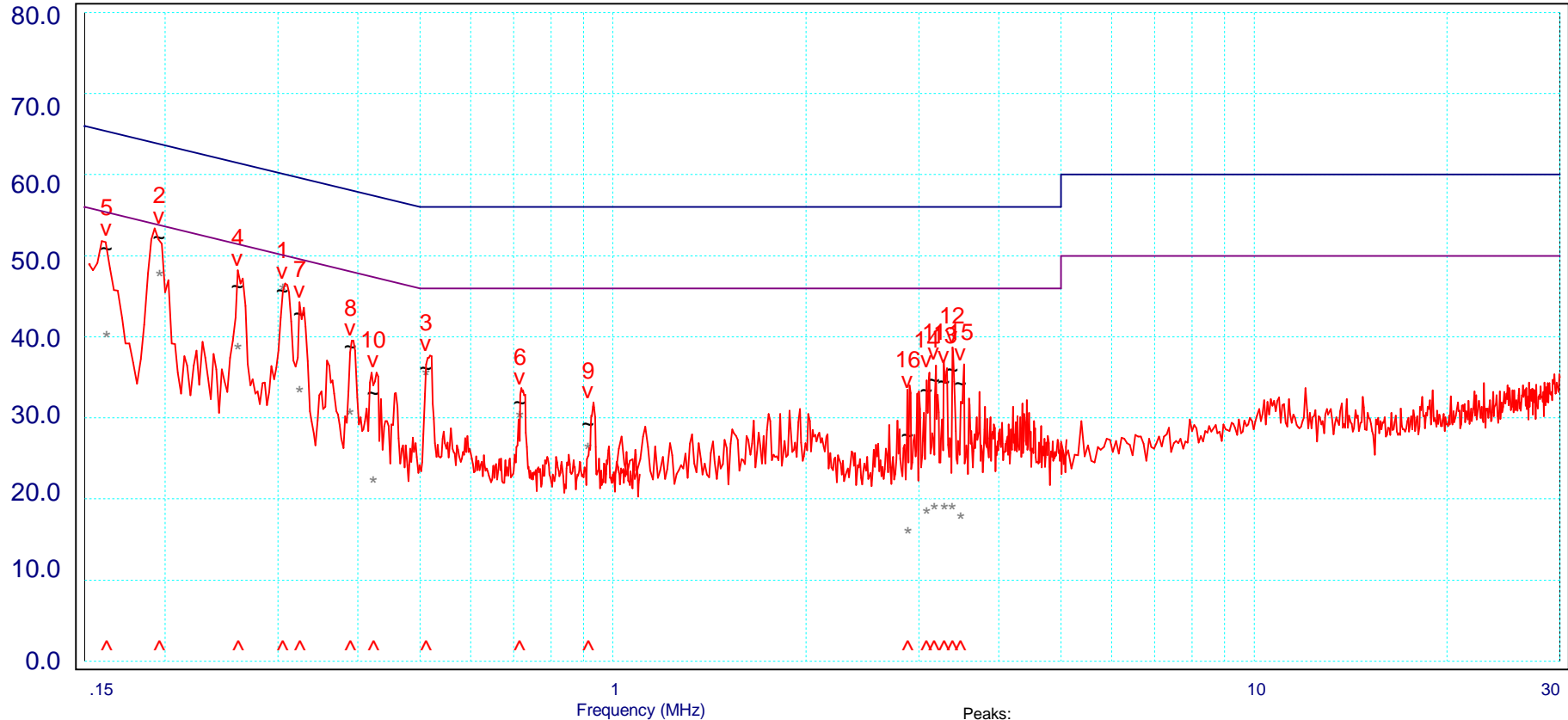
Job No:T150916

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Test Date: 29/01/16

GRAPH No. 2

~ = QP Value * = CISPR Av



Sato Vicinity Pty Ltd
 RFID modular read write reader
 Model: MR - 1 Module , Serial Number: None
 Power Supply: 120VAC 60Hz

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

Ver 5.5 Build 160
 Room 2
 Pnts:400 t:L0420316 c1:C0020916 c2:L01110316 p:NONE a: T150916c 4 , 5 , 6
 Site ID: Syd Room#2,3/87 Station Rd, Seven Hills, NSW
 Test Officer: James Guo 01-29-2016 11:33:54

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

Peaks:

No	Freq (MHz)	Peak (dBuV)	QP Val (dBuV)	FCCN_BQP (dBuV)	dL1 (dB)	Av Val (dBuV)	FCCN_BAV (dBuV)	dL2 (dB)
1	0.306	46.6	45.9	60.1	-14.2	45.5	50.1	-4.6
2	0.196	53.4	52.6	63.8	-11.2	47.2	53.8	-6.6
3	0.511	37.7	36.4	56.0	-19.6	35.0	46.0	-11.0
4	0.260	48.2	46.4	61.4	-15.0	38.2	51.4	-13.2
5	0.162	51.9	51.2	65.4	-14.2	39.7	55.4	-15.7
6	0.715	33.5	32.2	56.0	-23.8	29.8	46.0	-16.2
7	0.324	44.3	43.1	59.6	-16.5	32.9	49.6	-16.7
8	0.389	39.5	39.1	58.1	-19.0	30.1	48.1	-18.0
9	0.915	31.8	29.4	56.0	-26.6	25.9	46.0	-20.1
10	0.423	35.6	33.3	57.4	-24.1	21.7	47.4	-25.7
11	3.170	36.6	34.9	56.0	-21.1	18.5	46.0	-27.5
12	3.381	38.6	36.2	56.0	-19.8	18.5	46.0	-27.5
13	3.284	36.1	34.6	56.0	-21.4	18.5	46.0	-27.5
14	3.084	35.6	33.6	56.0	-22.4	17.9	46.0	-28.1
15	3.486	36.5	34.5	56.0	-21.5	17.3	46.0	-28.7
16	2.883	33.1	28.1	56.0	-27.9	15.5	46.0	-30.5

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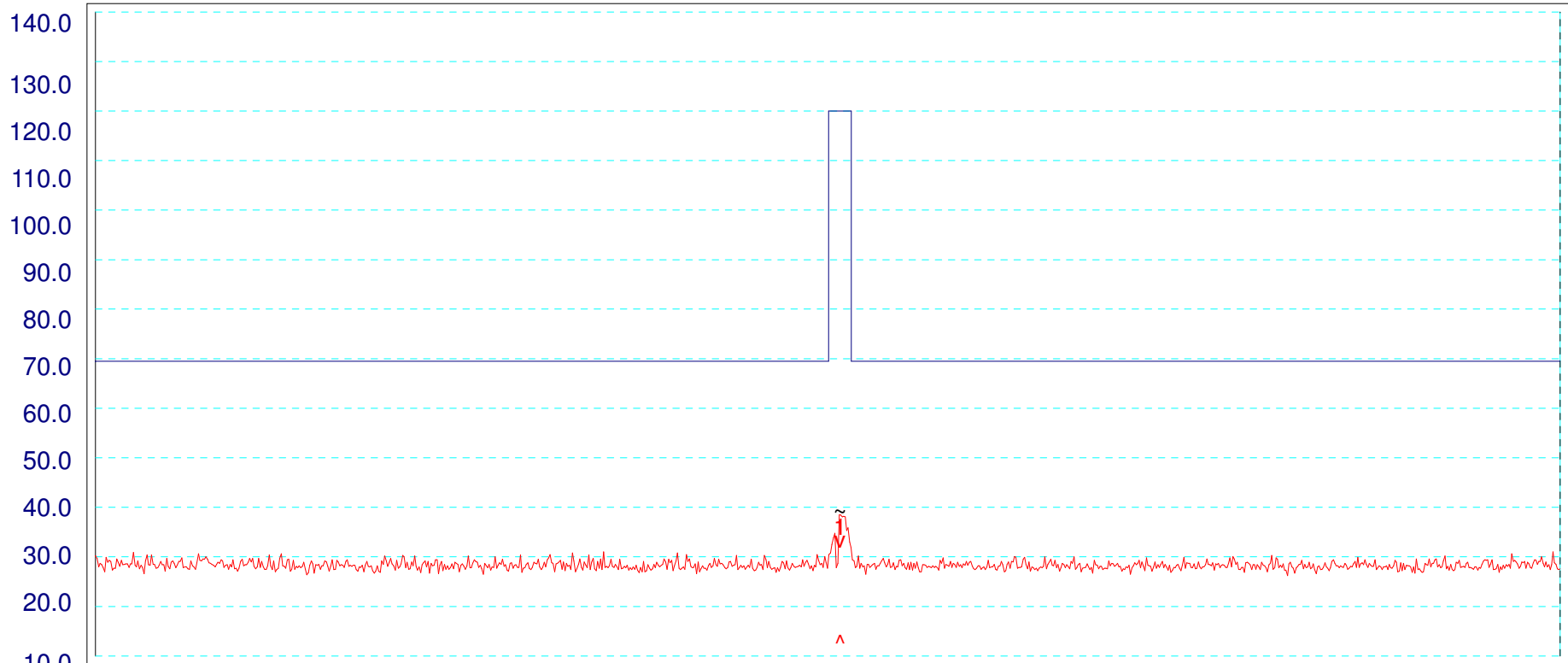
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient ~ = QP Value

Job No:T150916

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Test Date: 28/01/16

GRAPH No. 3



13.11

Frequency (MHz)

14.01

Peaks:

No	Freq (MHz)	Peak (dBuV/m)	QP Val	FCC_loop (dBuV/m)	dL1 (dB)
1	13.56	30.8	39.1	120.0	-80.9

Sato Vicinity Pty Ltd
RFID modular read write reader
Model: MR - 1 Module , Serial Number: None
Supply Voltage 120V 60Hz

Limits:
FCC_loop FCC Pt15 3 METRE LIMITS FOR LOOP ANTENNA

Legend:
— 90 Emissions

Wtst:0-Wplt:160 Rev:9-Rx:Rohde&Schwarz,ESU-40,100183/04 Source:
Radiated setup for Rm 3 with Loop Antenna
Pnts:1000 t:A0081118E c1:C0280716 c2:NONE p: a: T150916R 74
Site ID: Syd Room#3,3/87 Station Rd, Seven Hills, NSW
Test Officer:Robert Middleton 02-03-2016 14:23:04

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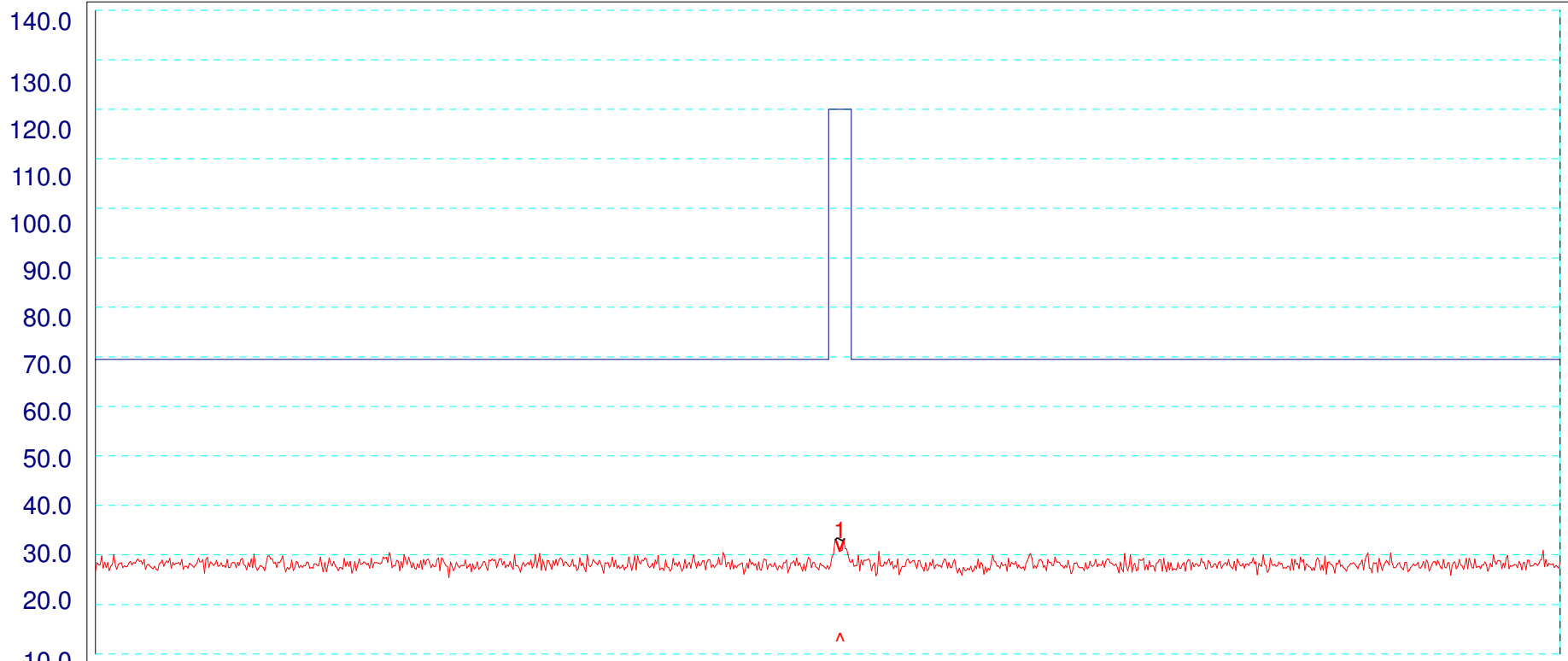
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient ~ = QP Value

Job No:T150916

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Test Date: 28/01/16

GRAPH No. 4



13.11

Frequency (MHz)

14.01

Sato Vicinity Pty Ltd
RFID modular read write reader
Model: MR - 1 Module , Serial Number: None
Supply Voltage 120V 60Hz

Peaks:

No	Freq (MHz)	Peak (dBuV/m)	QP Val	FCC_loop (dBuV/m)	dL1 (dB)
1	13.56	29.8	33.0	120.0	-87.0

Limits: FCC_loop FCC Pt15 3 METRE LIMITS FOR LOOP ANTENNA
Legend: O Emissions

Wtst:0-Wplt:160 Rev:9-Rx:Rohde&Schwarz,ESU-40,100183/04 Source:
Radiated setup for Rm 3 with Loop Antenna
Pnts:1000 t:A0081118E c1:C0280716 c2:NONE p: a: T150916R 78
Site ID: Syd Room#3,3/87 Station Rd, Seven Hills, NSW
Test Officer:Robert Middleton 02-03-2016 14:13:24

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Phone +(612) 9624 2777 Fax+(612) 9838 4050

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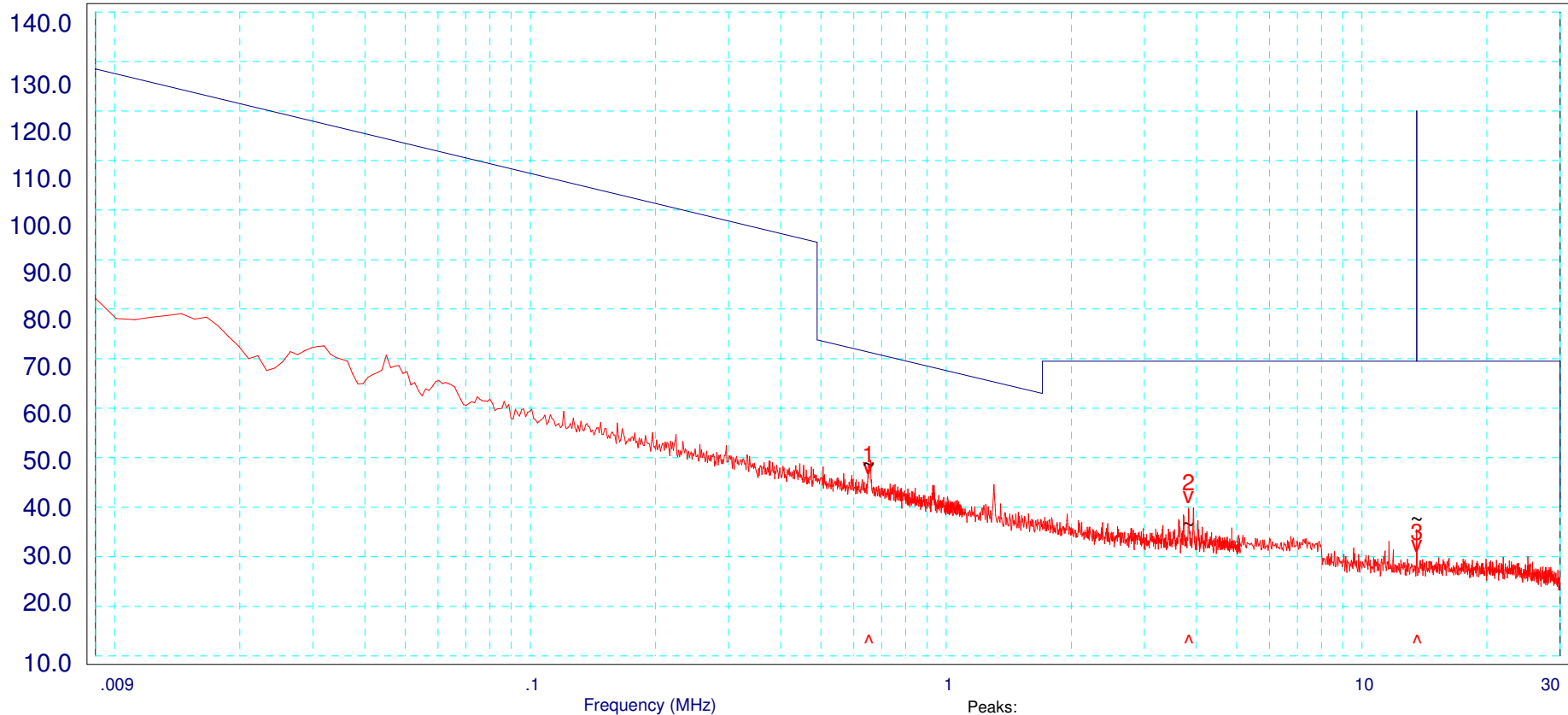
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient ~ = QP Value

Job No:T150916

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Test Date: 28/01/16

GRAPH No. 5



Sato Vicinity Pty Ltd
RFID modular read write reader
Model: MR - 1 Module, Serial Number: None
Supply Voltage 120V 60Hz

No	Freq (MHz)	Peak (dBuV/m)	QP Val	FCC_loop (dBuV/m)	dL1 (dB)
1	0.652	45.6	48.5	71.3	-22.8
2	3.829	39.8	36.5	69.5	-33.0
3	13.56	29.9	37.4	120.0	-82.6

Limits: FCC_loop FCC Pt15 3 METRE LIMITS FOR LOOP ANTENNA
Legend: 90 Emissions

Wtst:0-Wplt:160 Rev:9-Rx:Rohde&Schwarz,ESU-40,100183/04 Source:
Radiated setup for Rm 3 with Loop Antenna
Pnts:1000 t:A0081118E c1:C0280716 c2:NONE p: a: T150916R 71 ,72 ,73
Site ID: Syd Room#3,3/87 Station Rd, Seven Hills, NSW
Test Officer:Robert Middleton 02-03-2016 14:23:48

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Phone +(612) 9624 2777 Fax+(612) 9838 4050

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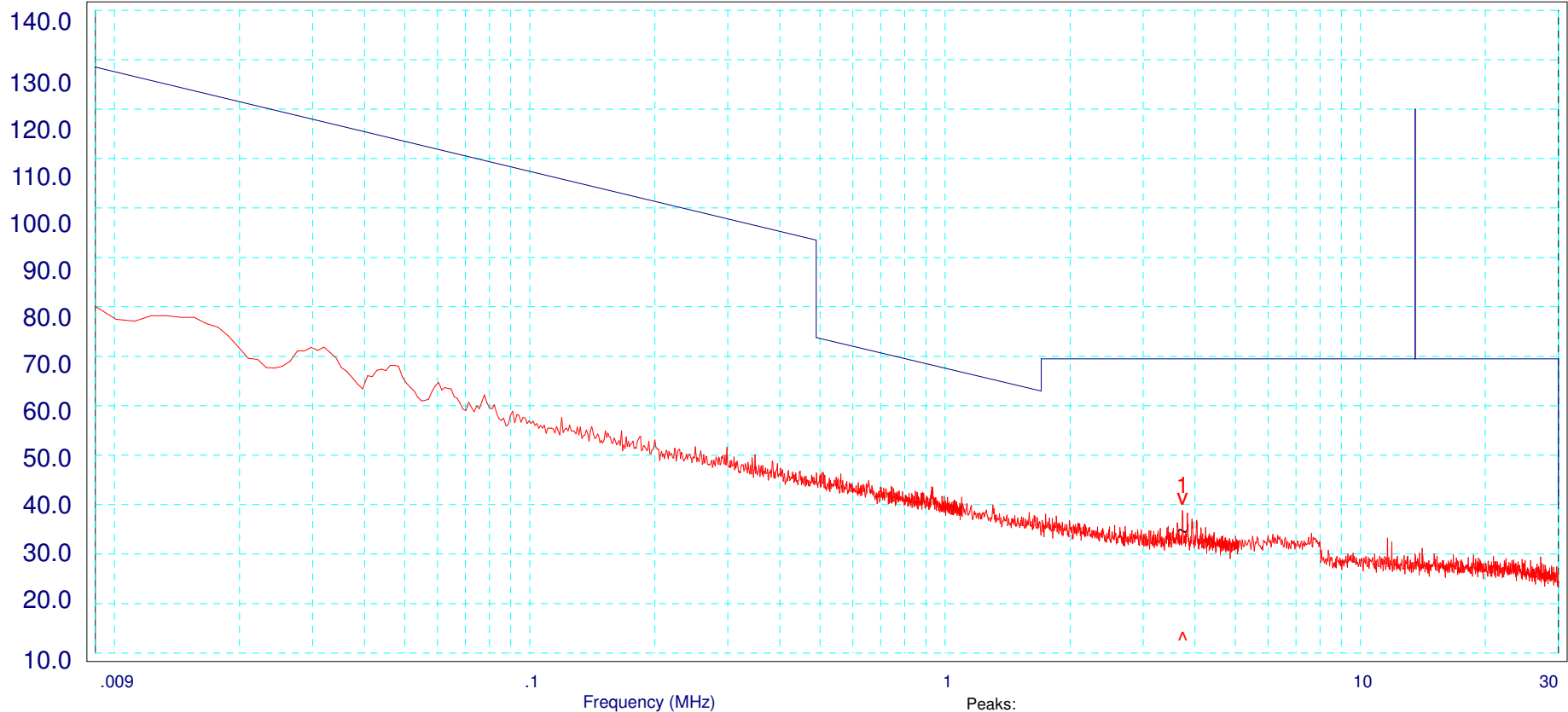
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient ~ = QP Value

Job No:T150916

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Test Date: 28/01/16

GRAPH No. 6



Sato Vicinity Pty Ltd
RFID modular read write reader
Model: MR - 1 Module , Serial Number: None
Supply Voltage 120V 60Hz

Peaks:

No	Freq (MHz)	Peak (dBuV/m)	QP Val	FCC_loop (dBuV/m)	dL1 (dB)
1	3.730	38.8	34.6	69.5	-34.9

Limits: FCC_loop FCC Pt15 3 METRE LIMITS FOR LOOP ANTENNA
Legend: ___ 0 Emissions

Wtst:0-Wplt:160 Rev:9-Rx:Rohde&Schwarz,ESU-40,100183/04 Source:
Radiated setup for Rm 3 with Loop Antenna
Pnts:1000 t:A0081118E c1:C0280716 c2:NONE p: a: T150916R 75,76,77
Site ID: Syd Room#3,3/87 Station Rd, Seven Hills, NSW
Test Officer:Robert Middleton 02-03-2016 14:24:19

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Phone +(612) 9624 2777 Fax+(612) 9838 4050

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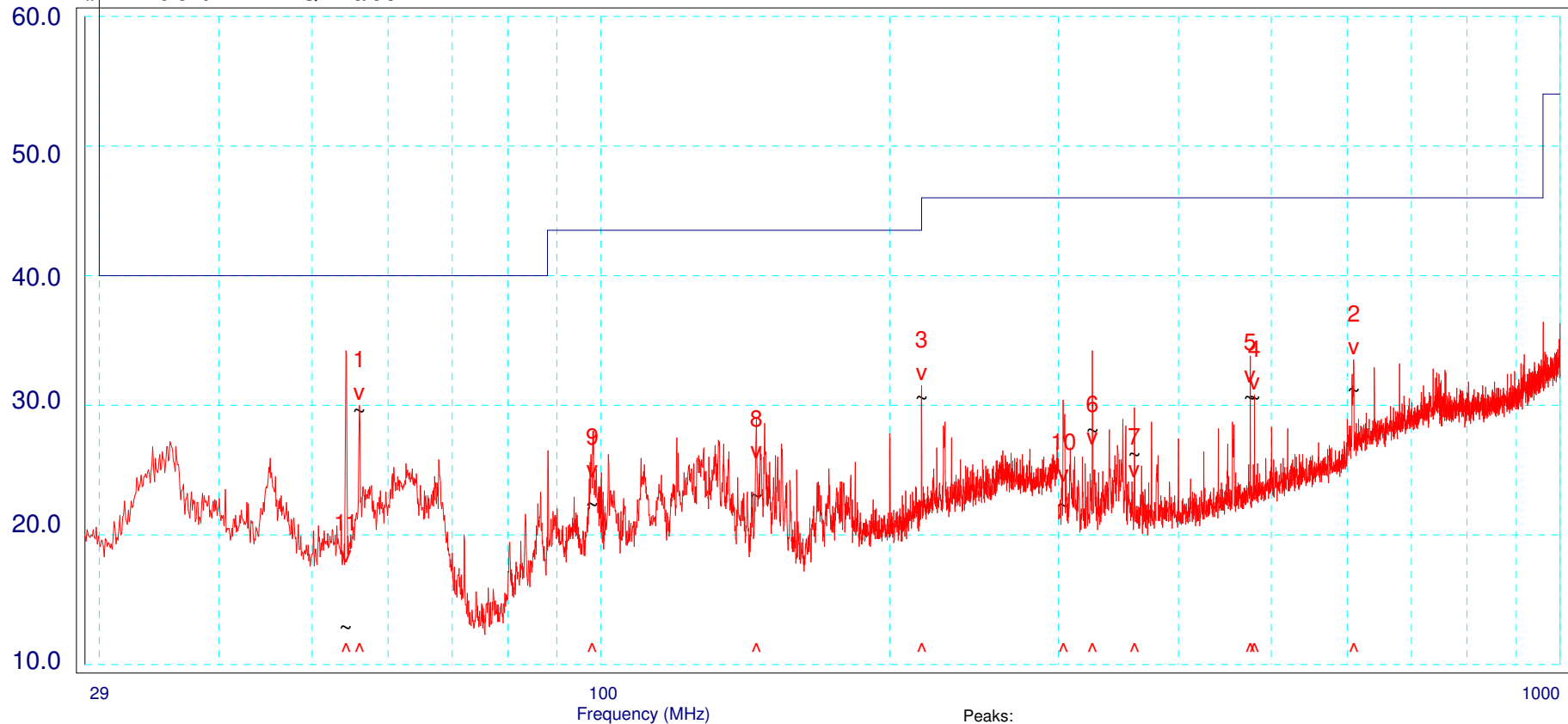
FCC Class B
 Radiated Emissions (dBuV/m)
 # = Ambient ~ = QP Value

Job No:T150916

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Test Date: 28/01/16

GRAPH No. 7



Sato Vicinity Pty Ltd
 RFID modular read write reader
 Model: MR - 1 Module, Serial Number: None
 Supply Voltage 120V 60Hz

Limits: FCC-B3 FCC CLASS B RAD 3M LIMITS
 Legend: Vertical Emissions

Wtst:0-Wplt:160 Rev:9-Rx:Rohde&Schwarz,ESU-40,100183/04
 Room 3
 Pnts:1000 t:A0030216 c1:C0280716 c2:NONE p: a: T150916R 62 , 63 , 64 , 68 , 69 , 70
 Site ID: Syd Room#3,3/87 Station Rd, Seven Hills, NSW
 Test Officer:Robert Middleton 02-03-2016 14:24:58

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 Phone +(612) 9624 2777 Fax+(612) 9838 4050

No	Freq (MHz)	Peak (dBuV/m)	QP Val	FCC-B3 (dBuV/m)	dL1 (dB)
1	56.00	30.0	29.5	40.0	-10.5
2	609.25	33.5	31.1	46.0	-14.9
3	216.00	31.5	30.6	46.0	-15.4
4	480.01	30.8	30.6	46.0	-15.4
5	475.00	31.3	30.5	46.0	-15.5
6	325.45	26.6	28.0	46.0	-18.0
7	360.01	24.0	26.1	46.0	-19.9
8	145.22	25.5	23.0	43.5	-20.5
9	97.96	24.1	22.4	43.5	-21.1
10	303.49	23.7	22.2	46.0	-23.8
11	54.24	17.4	12.8	40.0	-27.2

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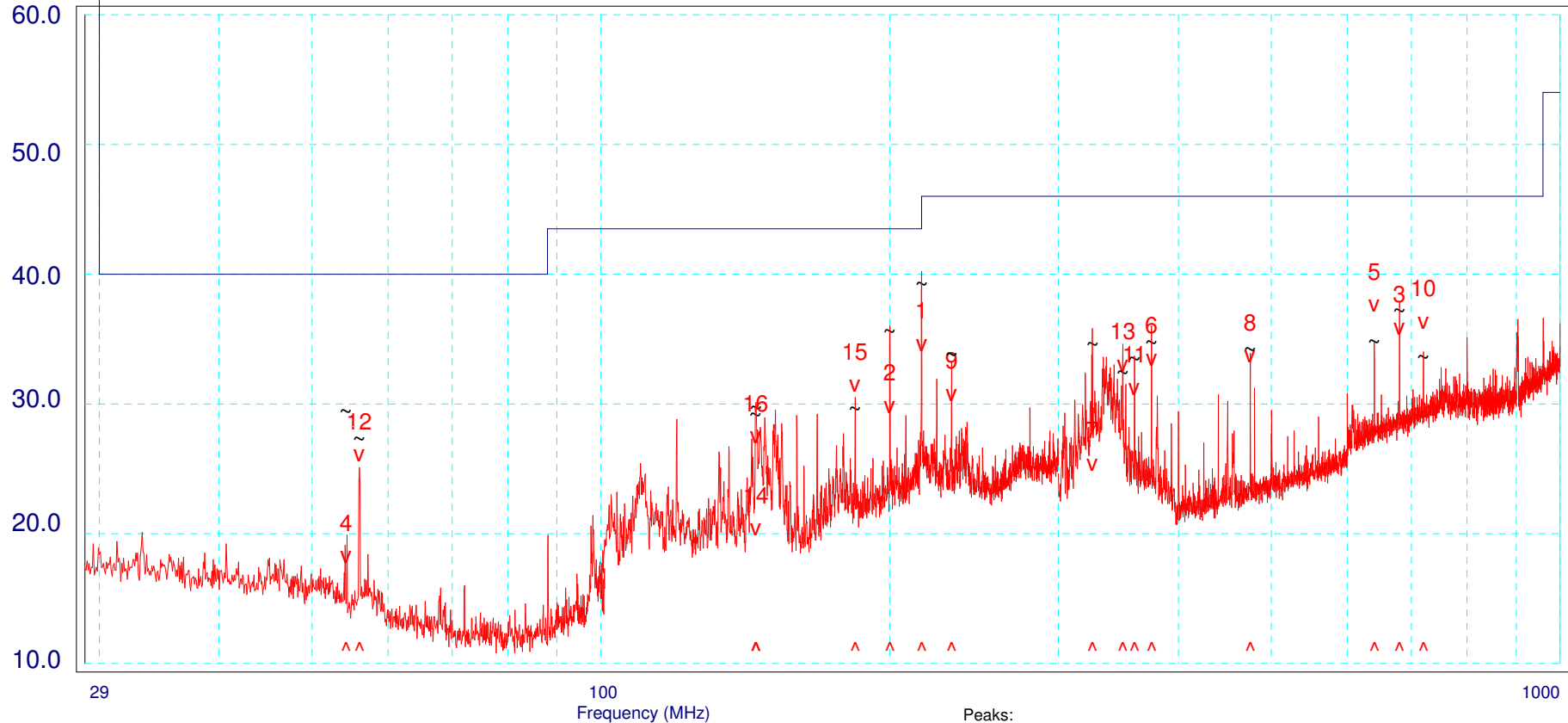
FCC Class B
 Radiated Emissions (dBuV/m)
 # = Ambient ~ = QP Value

Job No:T150916

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Test Date: 28/01/16

GRAPH No. 8



Sato Vicinity Pty Ltd
 RFID modular read write reader
 Model: MR - 1 Module , Serial Number: None
 Supply Voltage 120V 60Hz

Limits: FCC-B3 FCC CLASS B RAD 3M LIMITS
 Legend: Horizontal Emissions

Wtst:0-Wplt:160 Rev:9-Rx:Rohde&Schwarz,ESU-40,100183/04 Source:
 Room 3
 Pnts:1000 t:A0030216 c1:C0280716 c2:NONE p: a: T150916R 59 , 60 , 61 , 65 , 66 , 67
 Site ID: Syd Room#3,3/87 Station Rd, Seven Hills, NSW
 Test Officer:Robert Middleton 02-03-2016 14:25:36

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	216.00	33.6	39.2	46.0	-6.8
2	200.00	28.9	35.6	43.5	-7.9
3	680.01	34.9	37.2	46.0	-8.8
4	54.24	17.3	29.4	40.0	-10.6
5	640.01	36.7	34.8	46.0	-11.2
6	375.00	32.6	34.7	46.0	-11.3
7	325.46	24.5	34.6	46.0	-11.4
8	475.00	32.8	34.2	46.0	-11.8
9	232.00	29.8	33.8	46.0	-12.2
10	720.00	35.4	33.6	46.0	-12.4
11	360.01	30.3	33.4	46.0	-12.6
12	56.00	25.1	27.3	40.0	-12.7
13	350.01	32.1	32.4	46.0	-13.6
14	145.09	19.4	29.6	43.5	-13.9
15	184.00	30.5	29.6	43.5	-13.9
16	145.00	26.5	29.2	43.5	-14.3