

APPENDIX K OF TEST REPORT T60821_F

GRAPHS OF EMI MEASUREMENT

FCC ID: QVL-MIP9
Manufacturer: BQT Solutions (Australia) Pty Ltd
Test Sample: Contactless Smart Card Reader
Model: MiP9 and 900-PAC
Serial Number: None

Date: 29th August 2006

APPENDIX K

GRAPHS OF EMI MEASUREMENT

CONDUCTED

Results for the MiP9

Graph 1:	Active Line	0.145 to 30.5 MHz
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Graph 2:	Neutral Line	0.145 to 30.5 MHz
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Results for the 900-PAC

Graph 3:	Active Line	0.145 to 30.5 MHz
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Graph 4:	Neutral Line	0.145 to 30.5 MHz
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RADIATED EMI

Results for the MiP9

Graph 5:	Magnetic Loop Antenna	9 kHz to 30 MHz
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Results for the 900-PAC

Graph 6:	Magnetic Loop Antenna	9 kHz to 30 MHz
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Results for the MiP9

Graph 7:	Carrier 13.56 MHz	13.552 to 14.01 MHz
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Results for the 900-PAC

Graph 8:	Carrier 13.56 MHz	13.552 to 14.01 MHz
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Results for the MiP9

Graph 9:	Vertical Antenna Polarisation	29 to 1000 MHz
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Results for the 900-PAC

Graph 10:	Vertical Antenna Polarisation	29 to 1000 MHz
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Results for the MiP9

Graph 11:	Horizontal Antenna Polarisation	29 to 1000 MHz
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Results for the 900-PAC

Graph 12:	Horizontal Antenna Polarisation	29 to 1000 MHz
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EMC Technologies Pty. Ltd. - Global Product Certification

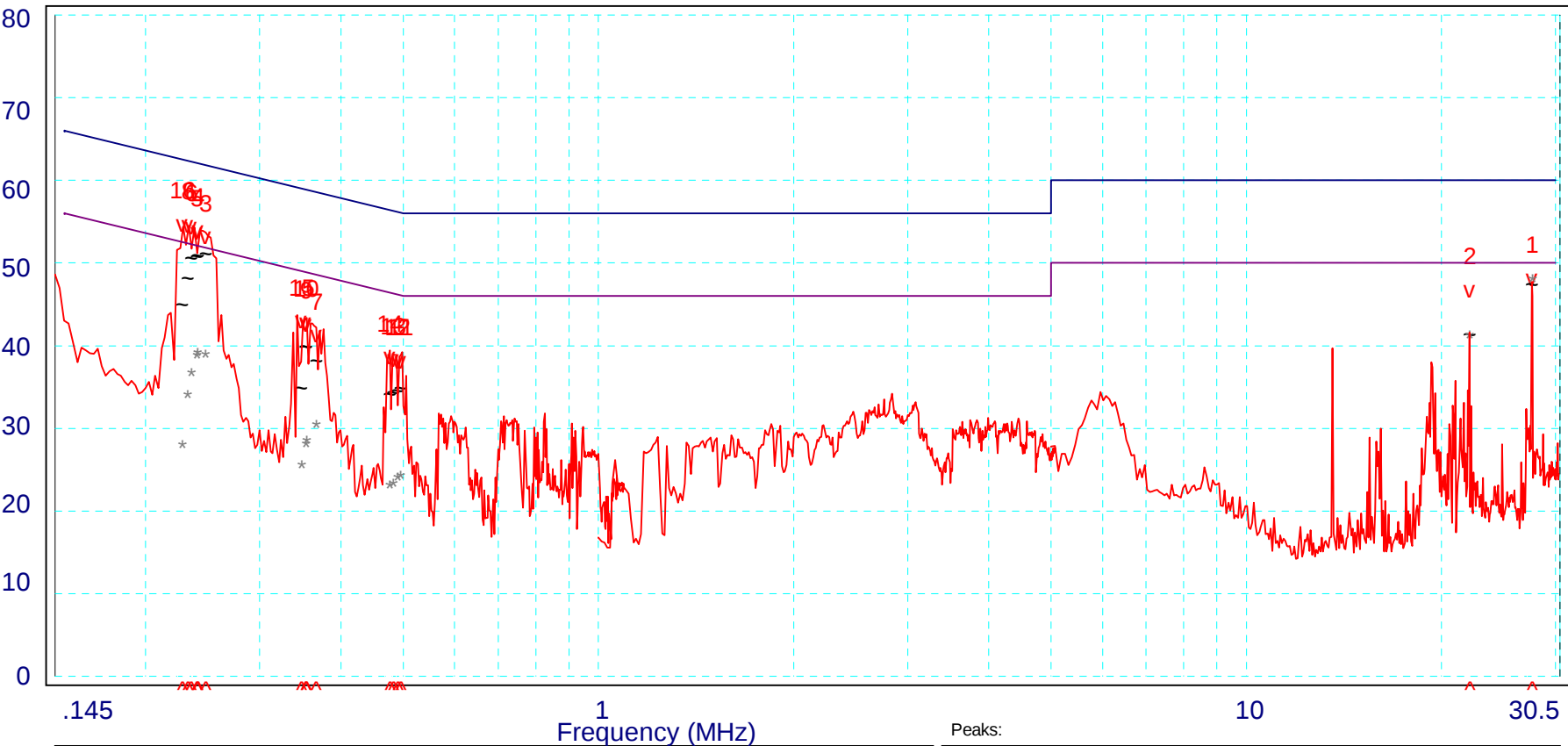
FCC Class B
Conducted Emissions (dBuV)

Job No:T60821

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Test Date: 17-08-2006

GRAPH No. 1



BQT Solutions (Australia) Pty Ltd
Contactless smart card reader
Model No: MiP9 (Wiegard)
AC Source - 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 0.55 Build 120

Source:
t:L0360107 c1:C0010906 c2:NONE p:NONE a:L0100407
Site ID: Syd Room#2,3/87 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

Peaks:								
No	Freq (MHz)	Peak (dBuV)	QP Val (dBuV)	FCCN_BQP (dBuV)	dL1 (dB)	Av Val (dBuV)	FCCN_BAV (dBuV)	dL2 (dB)
1	27.65	47.9	47.1	60.0	-13.0	47.2	50.0	-2.8
2	22.12	46.4	41.1	60.0	-19.0	40.5	50.0	-9.5
3	0.248	52.8	50.8	61.8	-11.1	38.2	51.8	-13.6
4	0.241	53.6	50.5	62.1	-11.5	38.3	52.1	-13.8
5	0.240	53.5	50.5	62.1	-11.6	38.0	52.1	-14.1
6	0.235	54.1	50.2	62.3	-12.1	35.9	52.3	-16.4
7	0.367	41.0	37.8	58.6	-20.8	29.7	48.6	-18.9
8	0.232	54.3	47.7	62.4	-14.6	33.2	52.4	-19.2
9	0.354	42.3	39.6	58.9	-19.3	27.8	48.9	-21.1
10	0.354	42.6	39.5	58.9	-19.4	27.3	48.9	-21.6
11	0.495	37.9	34.5	56.1	-21.6	23.4	46.1	-22.7
12	0.490	37.9	34.2	56.2	-22.0	23.2	46.2	-23.0
13	0.482	38.0	34.0	56.3	-22.3	22.5	46.3	-23.8
14	0.477	38.3	33.9	56.4	-22.5	22.3	46.4	-24.1
15	0.348	42.7	34.6	59.0	-24.4	24.8	49.0	-24.2
16	0.228	54.3	44.7	62.5	-17.9	27.2	52.5	-25.3

EMC Technologies Pty. Ltd. - Global Product Certification

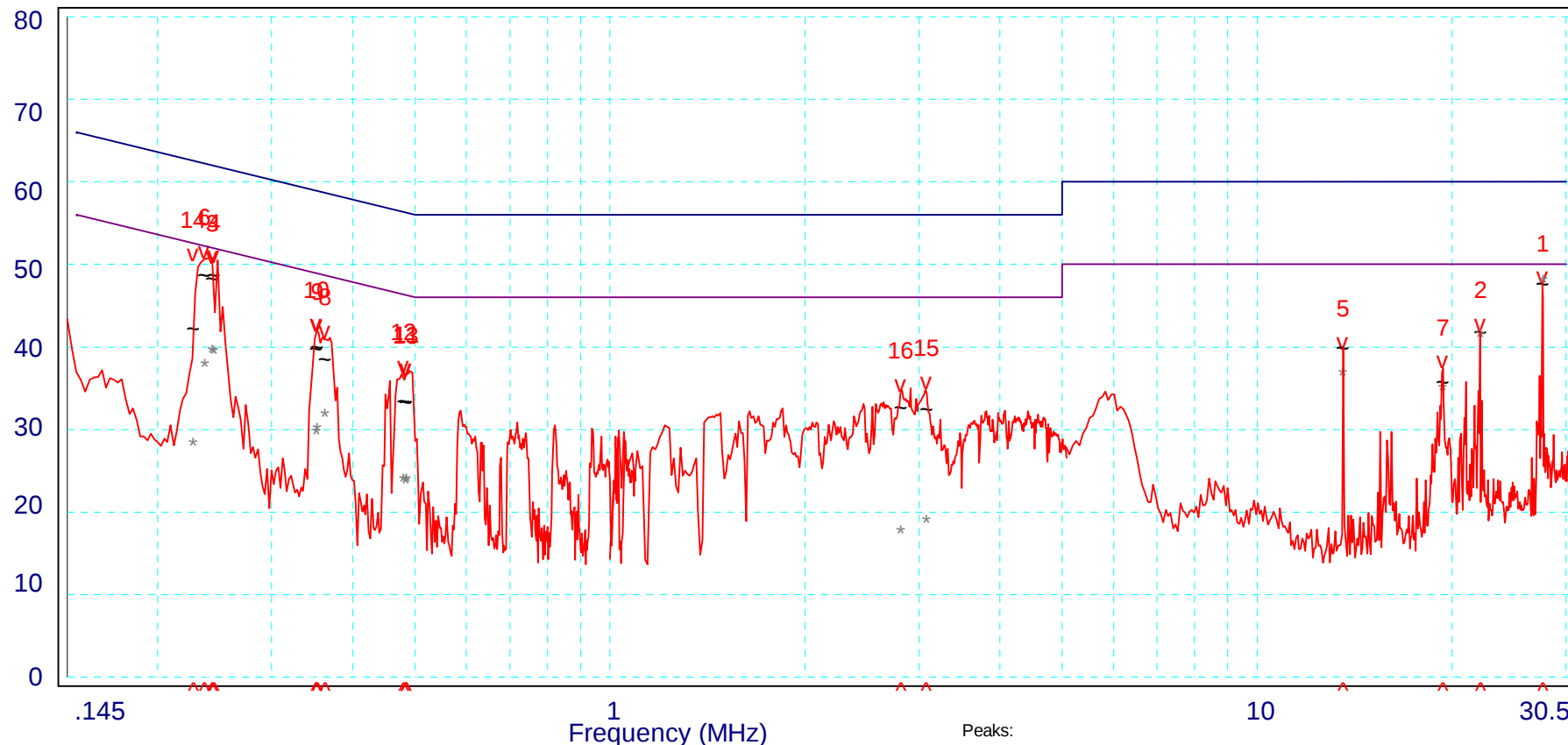
FCC Class B
Conducted Emissions (dBuV)

Job No:T60821

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Test Date: 17-08-2006

GRAPH No. 2



BQT Solutions (Australia) Pty Ltd	
Contactless smart card reader	
Model No: MiP9 (Wiegard)	
AC Source - 120VAC 60Hz	
Limits:	Legend:
FCCN_BQP FCC CLASS B QP CONDUCTED LIMITS (CISPR)	— Neutral Line
FCCN_BAV FCC CLASS B AV CONDUCTED LIMITS (CISPR)	
Ver 0.55 Build 120	
Source:	
t:L0360107 c1:C0010906 c2:NONE p:NONE a:L0100407	
Site ID: Syd Room#2,3/87 Station Rd, Seven Hills, NSW	
Test Officer: Kumar Thambialiah	
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	27.65	48.2	47.3	60.0	-12.7	47.4	50.0	-2.6
2	22.12	42.5	41.4	60.0	-18.6	40.8	50.0	-9.2
3	0.243	50.6	47.9	62.0	-14.1	38.9	52.0	-13.1
4	0.244	50.7	48.4	62.0	-13.6	38.7	52.0	-13.3
5	13.56	40.3	39.5	60.0	-20.5	36.1	50.0	-13.9
6	0.236	51.3	48.3	62.2	-13.9	37.2	52.2	-15.0
7	19.35	38.0	35.3	60.0	-24.7	34.3	50.0	-15.7
8	0.363	41.6	38.2	58.7	-20.5	31.2	48.7	-17.5
9	0.353	42.4	39.6	58.9	-19.3	29.5	48.9	-19.4
10	0.352	42.5	39.4	58.9	-19.6	29.0	48.9	-19.9
11	0.484	37.1	33.1	56.3	-23.2	23.2	46.3	-23.1
12	0.480	37.5	33.0	56.3	-23.3	23.2	46.3	-23.1
13	0.483	37.0	32.9	56.3	-23.3	23.1	46.3	-23.2
14	0.227	51.0	41.8	62.6	-20.7	27.6	52.6	-25.0
15	3.082	35.5	32.1	56.0	-24.0	18.3	46.0	-27.7
16	2.813	35.2	32.3	56.0	-23.7	17.0	46.0	-29.0

EMC Technologies Pty. Ltd. - Global Product Certification

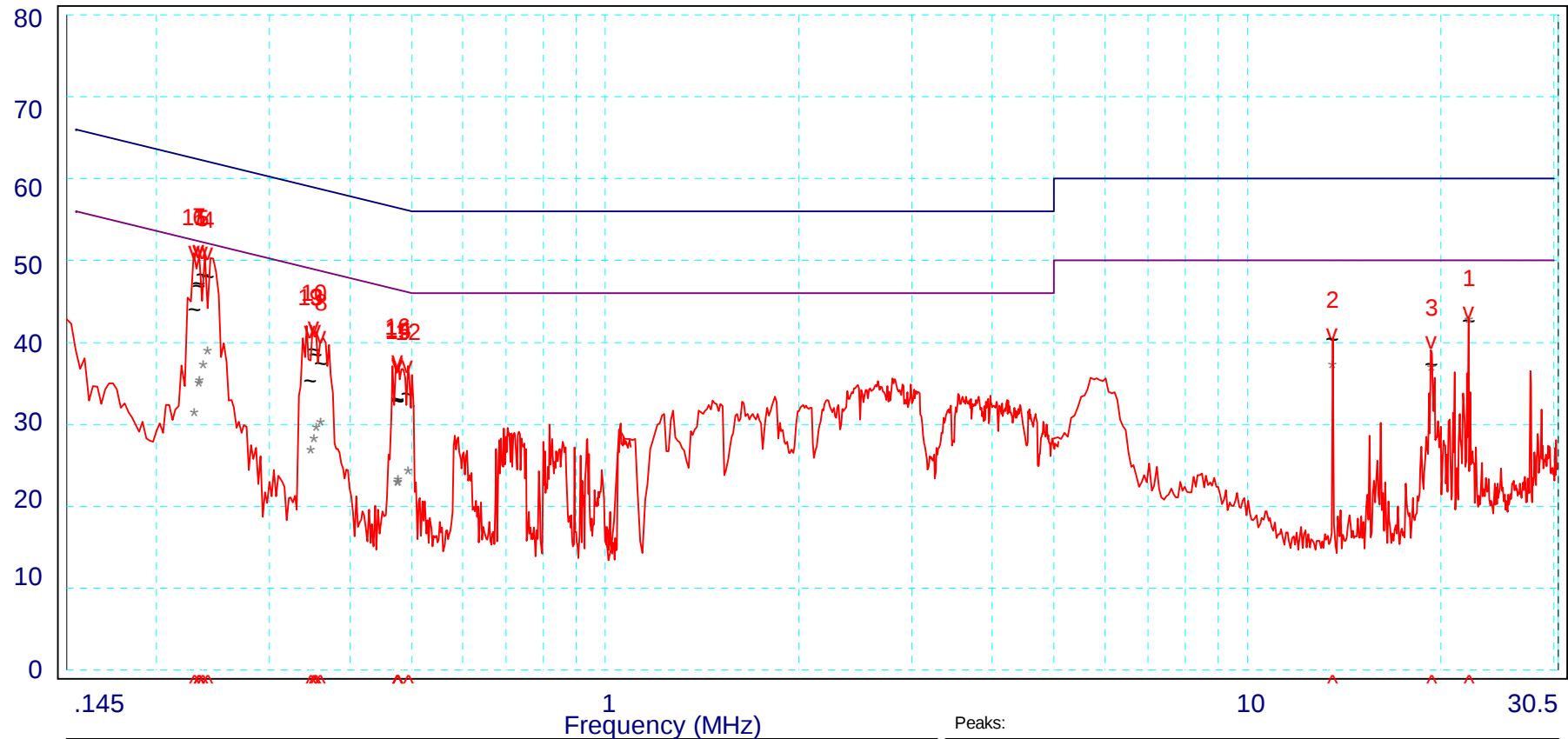
FCC Class B
Conducted Emissions (dBuV)

Job No:T60821

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Test Date: 17-08-2006

GRAPH No. 3



BQT Solutions (Australia) Pty Ltd
Contactless smart card reader
Model No: MiP9 (Serial Tx)
AC Source - 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 0.55 Build 120

Source:

t:L0360107 c1:C0010906 c2:NONE p:NONE a:L0100407
Site ID: Syd Room#2,3/87 Station Rd, Seven Hills, NSW
Test Officer: Kumar Thambialiah

\T60821c 7 8 9

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	22.12	43.5	42.3	60.0	-17.7	41.9	50.0	-8.1
2	13.56	40.9	40.1	60.0	-19.9	36.5	50.0	-13.5
3	19.35	39.9	36.9	60.0	-23.1	36.1	50.0	-13.9
4	0.240	50.6	47.7	62.1	-14.4	38.2	52.1	-13.9
5	0.236	50.8	47.9	62.2	-14.4	36.5	52.2	-15.7
6	0.233	50.9	46.9	62.3	-15.5	34.6	52.3	-17.7
7	0.233	51.0	46.5	62.4	-15.9	34.2	52.4	-18.2
8	0.360	40.5	37.0	58.7	-21.7	29.5	48.7	-19.2
9	0.354	41.2	38.1	58.9	-20.7	28.8	48.9	-20.1
10	0.352	41.7	38.7	58.9	-20.2	27.4	48.9	-21.5
11	0.229	50.9	43.6	62.5	-18.9	30.6	52.5	-21.9
12	0.493	36.9	33.4	56.1	-22.8	23.5	46.1	-22.6
13	0.348	41.1	35.0	59.0	-24.1	26.0	49.0	-23.0
14	0.475	37.2	32.7	56.4	-23.7	22.4	46.4	-24.0
15	0.475	36.9	32.5	56.4	-23.9	22.1	46.4	-24.3
16	0.475	37.5	32.5	56.4	-23.9	22.1	46.4	-24.3

EMC Technologies Pty. Ltd. - Global Product Certification

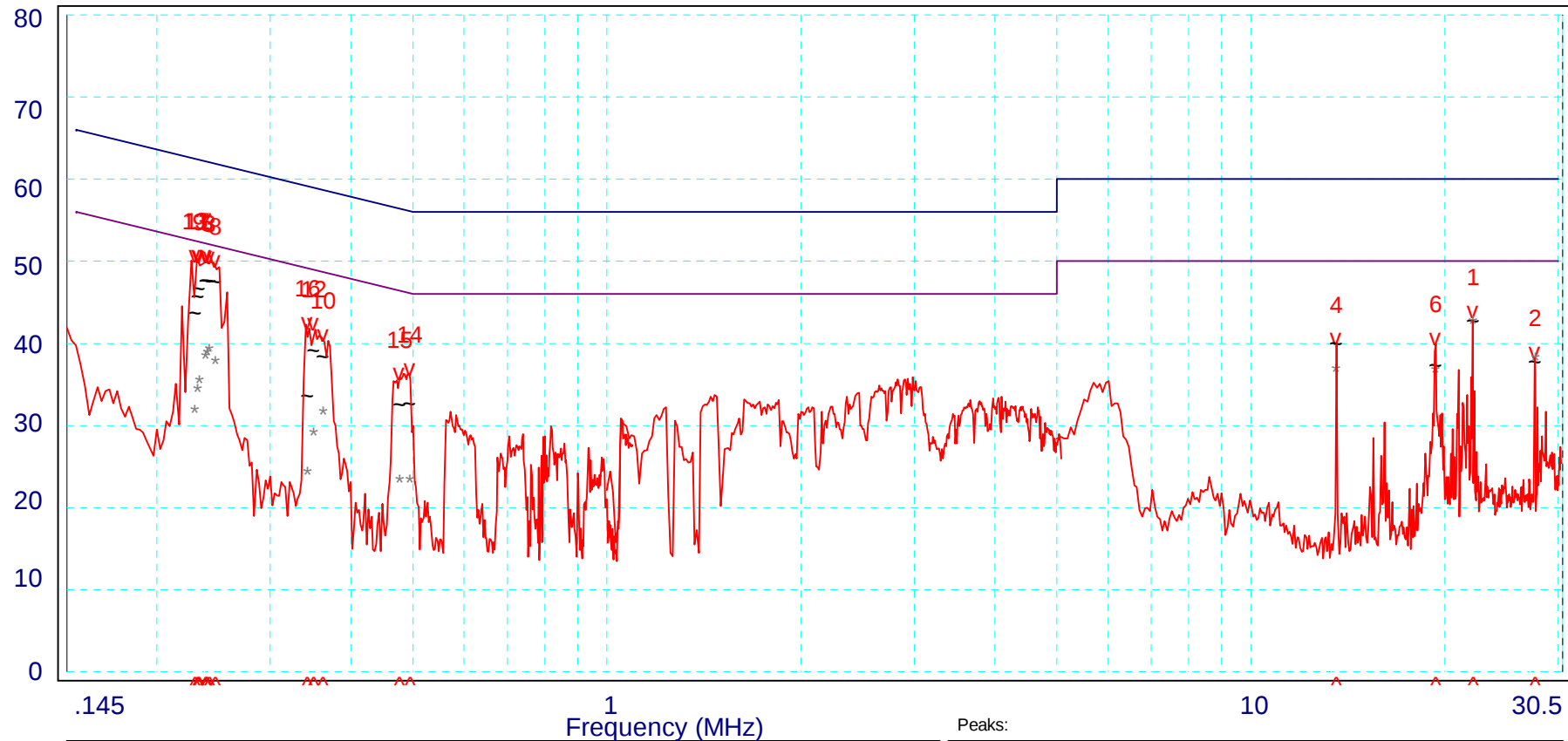
FCC Class B
Conducted Emissions (dBuV)

Job No:T60821

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Test Date: 17-08-2006

GRAPH No. 4



BQT Solutions (Australia) Pty Ltd
Contactless smart card reader
Model No: MiP9 (Serial Tx)
AC Source - 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 0.55 Build 120

Source:

t:L0360107 c1:C0010906 c2:NONE p:NONE a:L0100407
Site ID: Syd Room#2,3/87 Station Rd, Seven Hills, NSW
Test Officer:Kumar Thambialiah

\T60821c 10 11 12

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	22.12	43.7	42.4	60.0	-17.6	42.0	50.0	-8.0
2	27.65	38.6	37.4	60.0	-22.6	37.5	50.0	-12.5
3	0.241	50.2	47.3	62.1	-14.7	38.6	52.1	-13.5
4	13.56	40.3	39.6	60.0	-20.4	36.1	50.0	-13.9
5	0.239	50.3	47.2	62.1	-14.9	38.1	52.1	-14.0
6	19.35	40.4	37.0	60.0	-23.0	36.0	50.0	-14.0
7	0.238	50.5	47.3	62.2	-14.9	37.7	52.2	-14.5
8	0.246	49.8	47.1	61.9	-14.8	37.1	51.9	-14.8
9	0.232	50.3	46.4	62.4	-16.0	34.7	52.4	-17.7
10	0.362	40.8	38.0	58.7	-20.7	30.9	48.7	-17.8
11	0.231	50.5	45.4	62.4	-17.0	33.6	52.4	-18.8
12	0.350	42.2	38.8	59.0	-20.2	28.3	49.0	-20.7
13	0.229	50.5	43.3	62.5	-19.1	31.1	52.5	-21.4
14	0.494	36.7	32.3	56.1	-23.9	22.6	46.1	-23.5
15	0.476	36.1	32.2	56.4	-24.2	22.6	46.4	-23.8
16	0.342	42.4	33.2	59.1	-25.9	23.6	49.1	-25.5

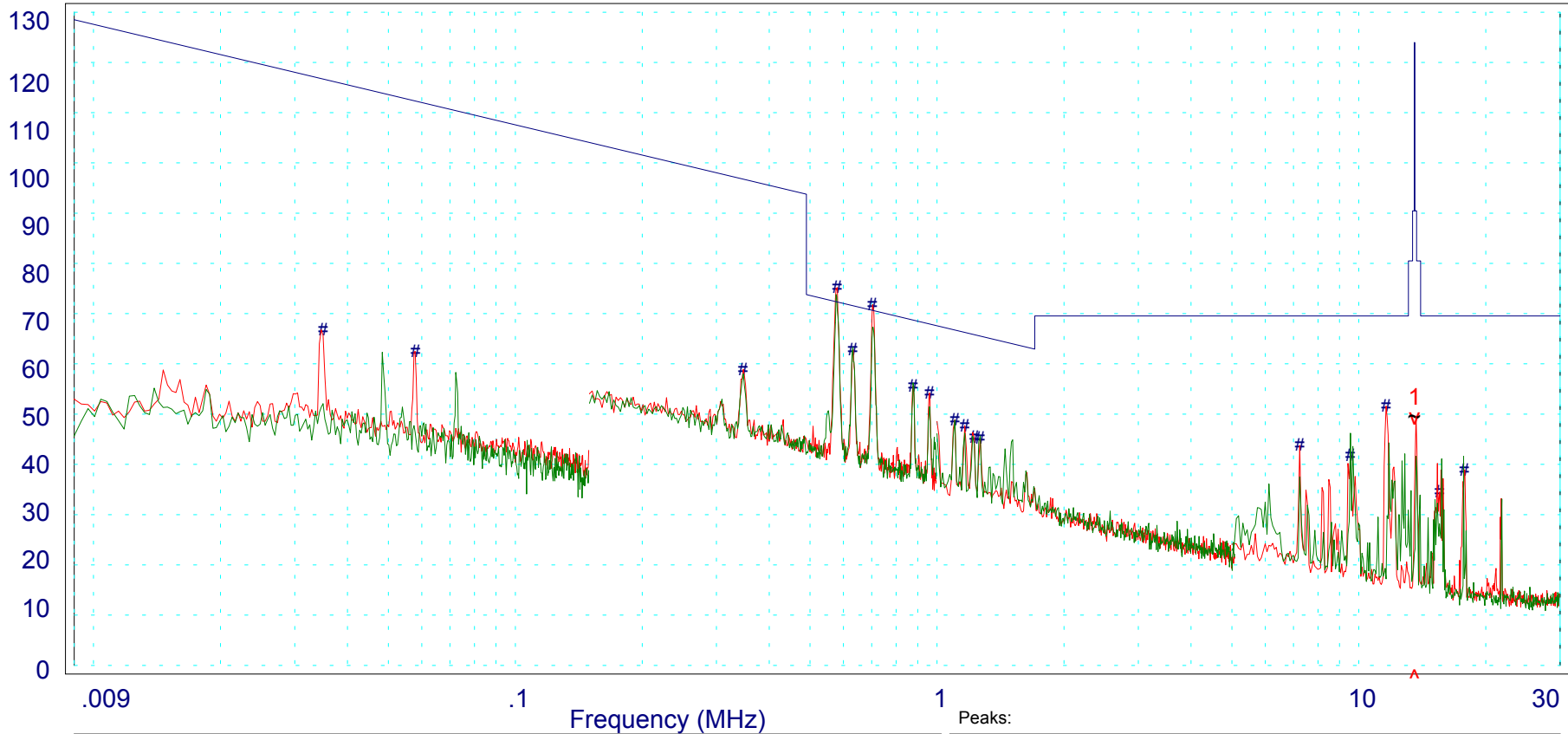
EMC Technologies Pty. Ltd. - Global Product Certification

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

Job No:T60821

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Test Date: 14-08-06

GRAPH No. 5



BQT Solutions (Australia) Pty Ltd
Contactless Smartcard Reader
Model: MiP9
Wiegand Interface

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

Legend:
— Ambients
— Emissions

Source:
rtsVAMBe 1 2 3 4
T60821r2 1 2 3 11

Ver 5.5 Build 107
Colo Radiated Test Setup Active Loop
t:A0080408E c1:C0201206 c2:NONE p:NONE a:NONE
Site ID: OATS#1,1247 Upper Colo Rd. Colo, NSW
Test Officer: Bruce Holdsworth

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/m)	Qp Val	FCC_loop_3dL1 (dBuV/m)	3dL1 (dB)
1	13.56	50.0	50.0	124.0	-74.0

EMC Technologies Pty. Ltd. - Global Product Certification

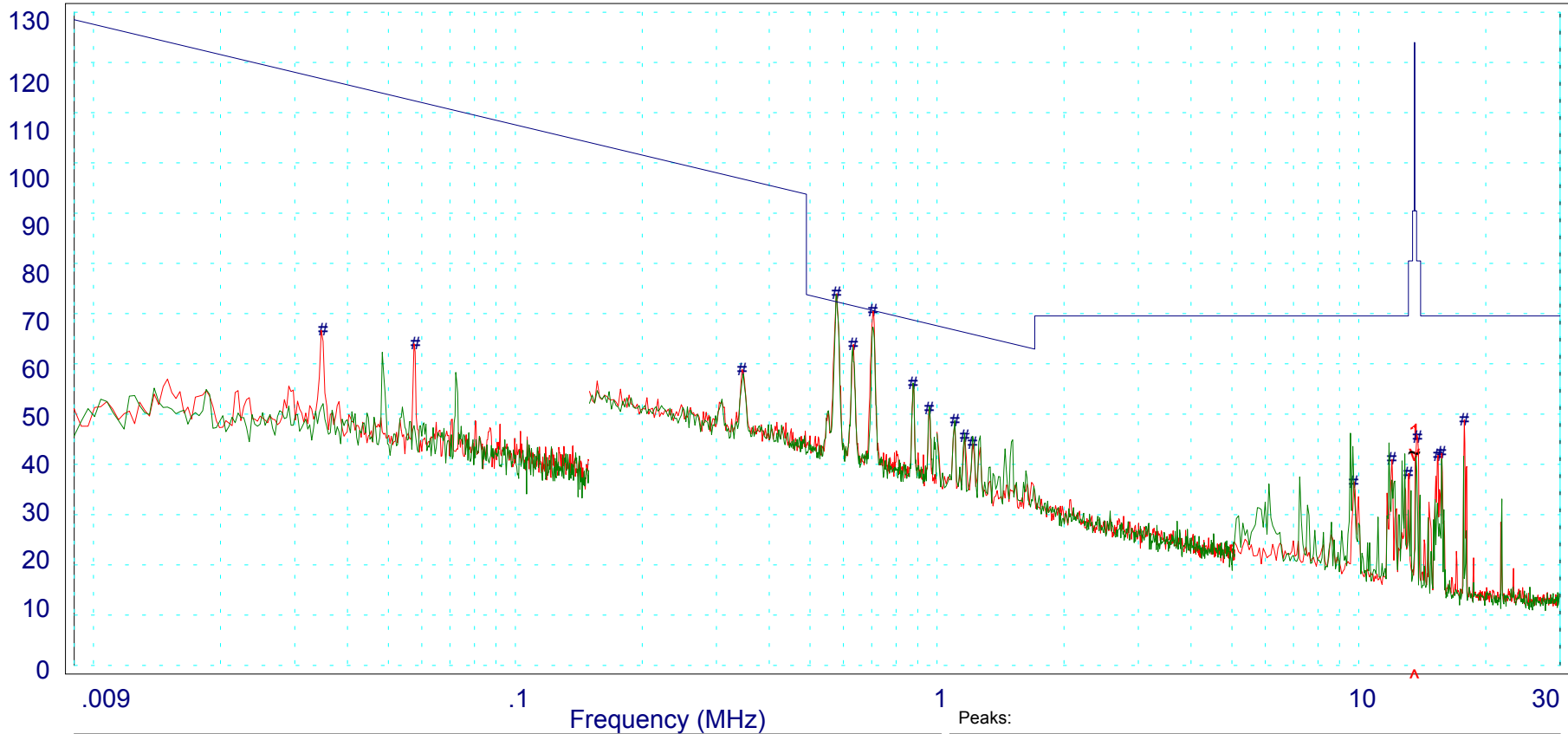
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient

Job No:T60821

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Test Date: 14-08-06

GRAPH No. 6



BQT Solutions (Australia) Pty Ltd
Contactless Smartcard Reader
Model: 900 PAC
Serial Interface

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

Legend:
— Ambients
— Emissions

Source:
rtsVAMBe 1 2 3 4
T60821r2 6 7 8 9

Ver 5.5 Build 107
Colo Radiated Test Setup Active Loop
t:A0080408E c1:C0201206 c2:NONE p:NONE a:NONE
Site ID: OATS#1,1247 Upper Colo Rd. Colo, NSW
Test Officer: Bruce Holdsworth

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/m)	Qp Val	FCC_loop_3dL1 (dBuV/m)	dL1 (dB)
1	13.56	42.9	42.9	124.0	-81.1

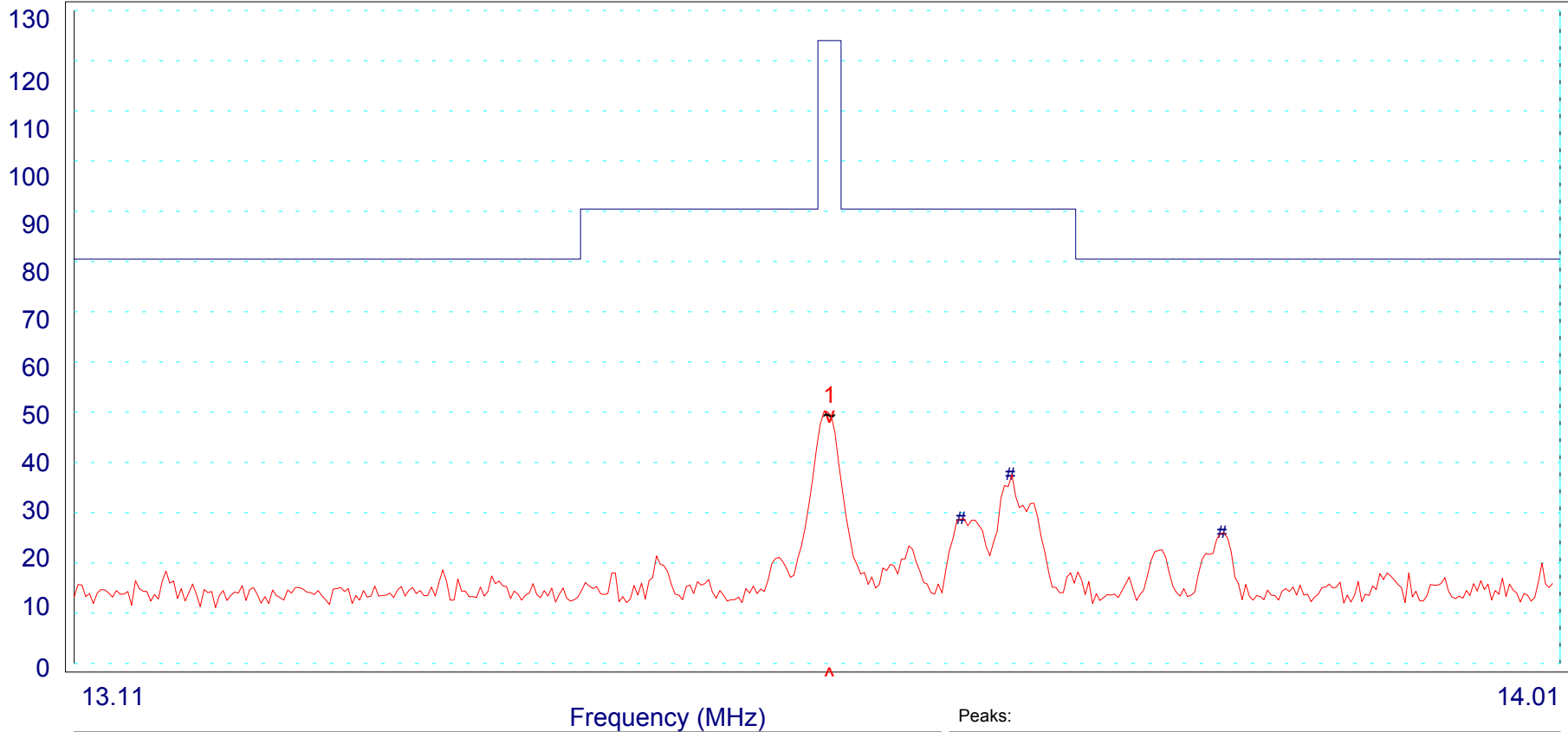
EMC Technologies Pty. Ltd. - Global Product Certification

FCC Class B
Radiated Emissions dBuV/m
= Ambient

Job No:T60821

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Test Date: 14-08-06

GRAPH No. 7



BQT Solutions (Australia) Pty Ltd
Contactless Smartcard Reader
Model: MiP9
Wiegand Interface

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

Legend:
Carrier

Ver 5.5 Build 107
Colo Radiated Test Setup Active Loop
t:A0080408E c1:C0201206 c2:NONE p:NONE a:NONE
Site ID: OATS#1,1247 Upper Colo Rd. Colo, NSW
Test Officer: Bruce Holdsworth

Source:
T60821r2 12

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/m	Qp Val	FCC_loop_3dL1 dBuV/m	3dL1 (dB)
1	13.56	50.1	49.9	124.0	-74.1

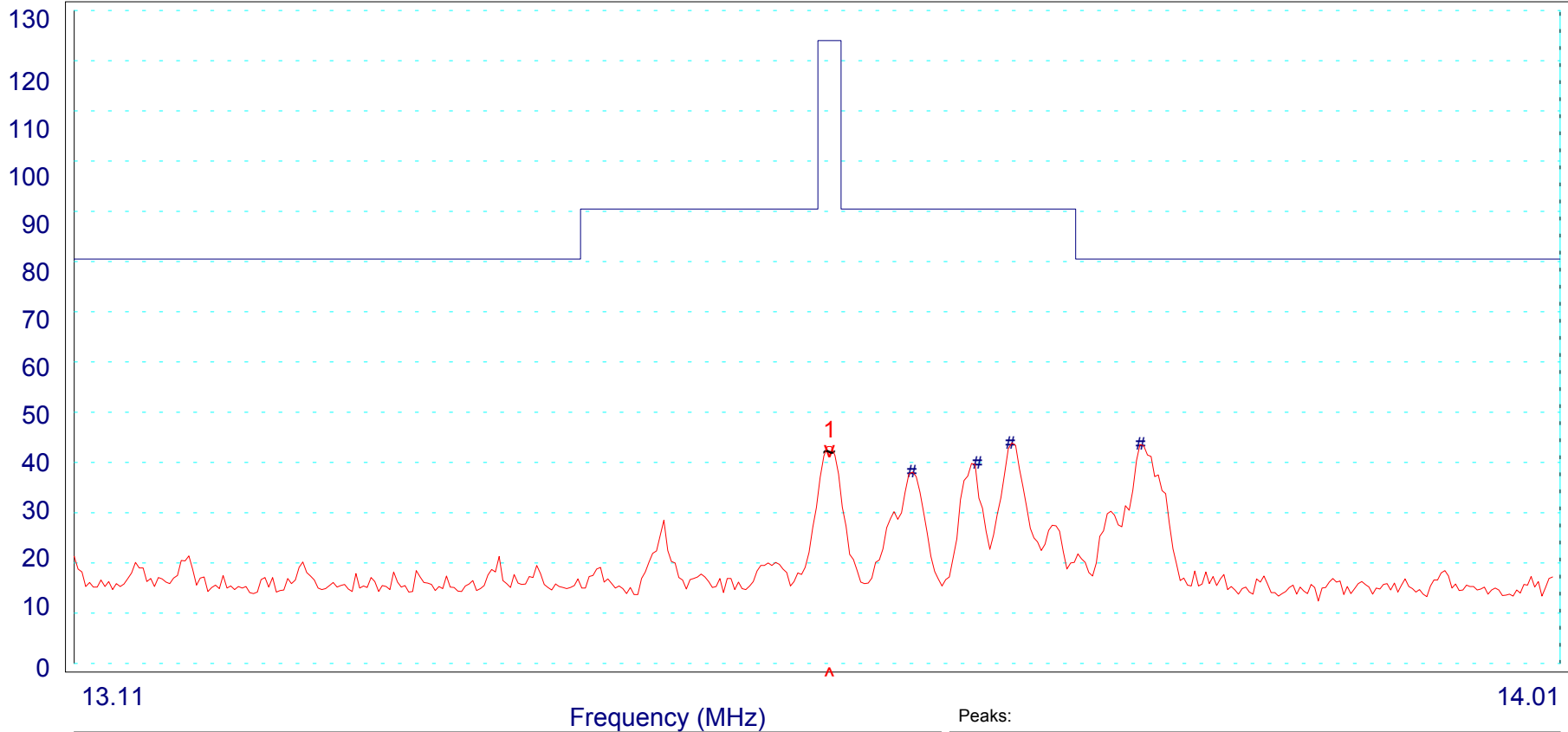
EMC Technologies Pty. Ltd. - Global Product Certification

Radiated Emissions (dBUV/m)
= Ambient

Job No:T60821

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Test Date: 14-08-06

GRAPH No. 8



BQT Solutions (Australia) Pty Ltd
Contactless Smartcard Reader
Model: 900 PAC
Serial Interface

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

Legend:
Carrier

Ver 5.5 Build 107
Colo Radiated Test Setup Active Loop
t:A0080408E c1:C0201206 c2:NONE p:NONE a:NONE
Site ID: OATS#1,1247 Upper Colo Rd. Colo, NSW
Test Officer: Bruce Holdsworth

Source:
T60821r2 10

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

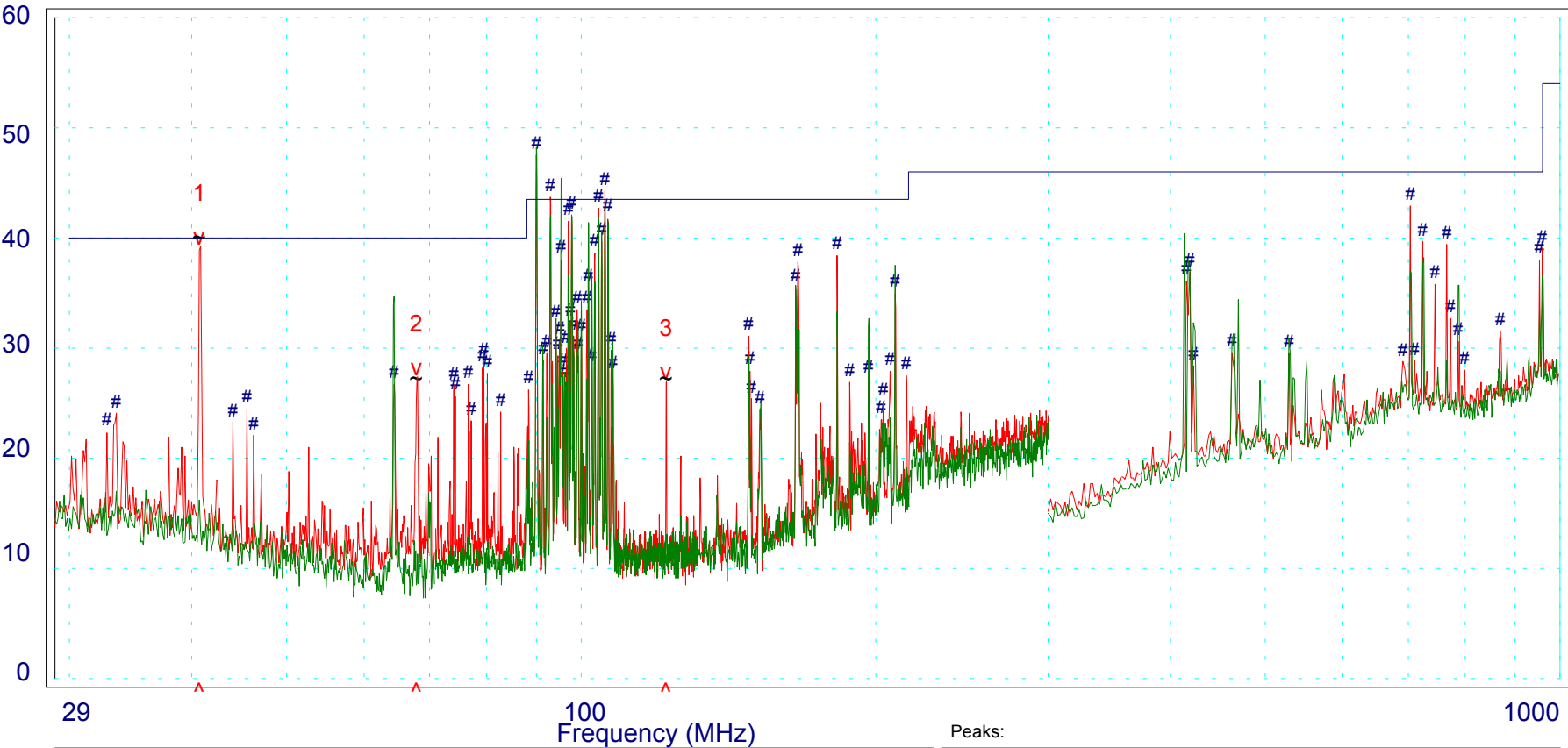
EMC Technologies Pty. Ltd. - Global Product Certification

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

Job No:T60821

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Test Date: 15-08-06

GRAPH No. 9



BQT Solutions (Australia) Pty Ltd
Contactless Smartcard Reader
Model: MiP9
Wiegand Interface

Limits:
FCC-B3 FCC CLASS B RAD 3M LIMITS

Legend:
— Vertical Ambients
— Vertical Emissions

Ver 5.5 Build 107
Colo Radiated Test Setup
t:A0690207 c1:C0200207 c2:NONE p:A0960906 a:NONE
Site ID: OATS#1,1247 Upper Colo Rd. Colo, NSW
Test Officer: Bruce Holdsworth

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/m)	Qp Val	FCC-B3 (dBuV/m)	dL1 (dB)
1	40.69	39.3	39.2	40.0	-8
2	67.83	27.4	26.4	40.0	-13.6
3	122.05	27.0	26.4	43.5	-17.1

EMC Technologies Pty. Ltd. - Global Product Certification

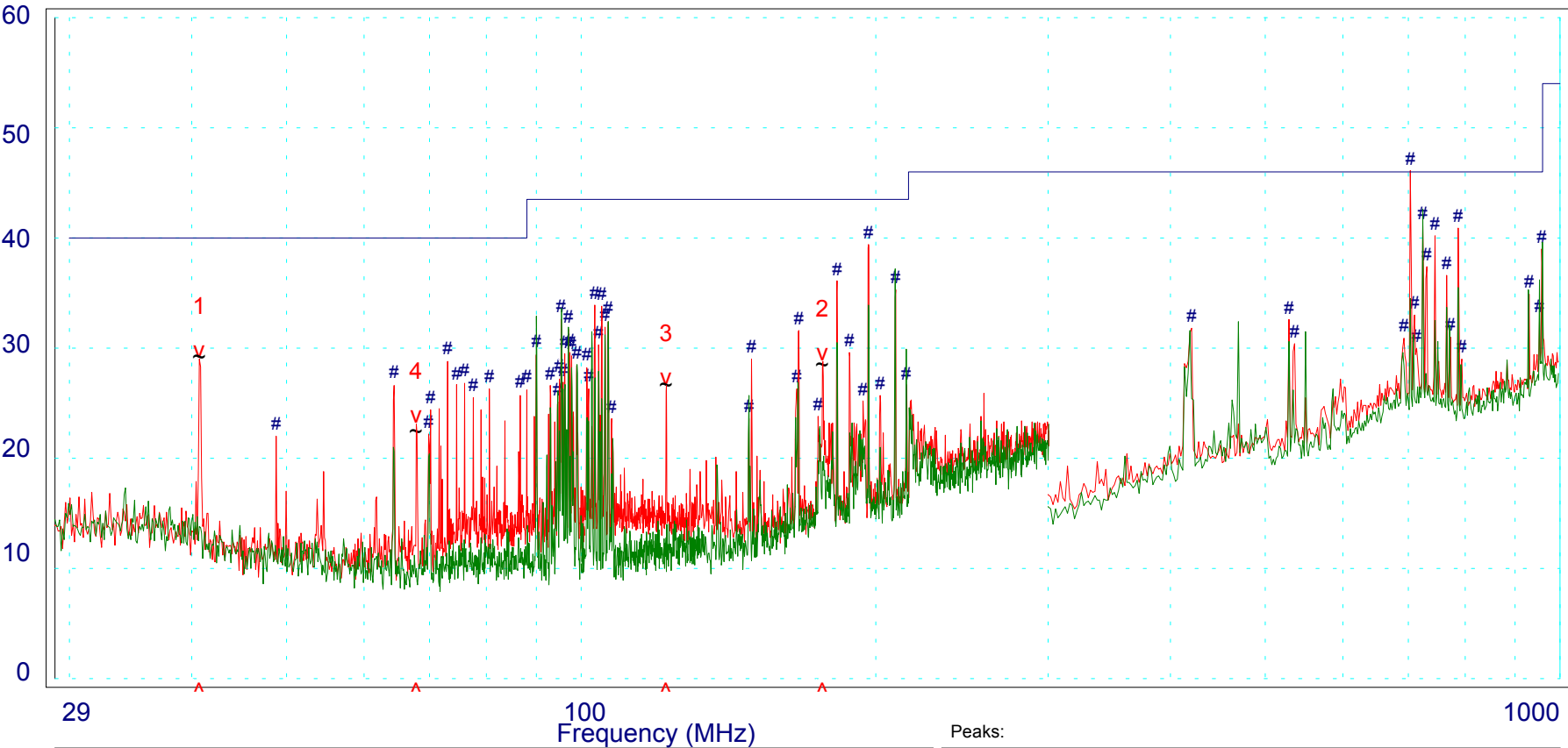
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient

Job No:T60821

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Test Date: 15-08-06

GRAPH No. 10



BQT Solutions (Australia) Pty Ltd
Contactless Smartcard Reader
Model: MiP9
Wiegand Interface

Peaks:

No	Freq (MHz)	Peak (dBuV/m)	Qp Val	FCC-B3 (dBuV/m)	dL1 (dB)
1	40.69	29.0	28.4	40.0	-11.6
2	176.30	28.8	27.6	43.5	-15.9
3	122.05	26.6	25.9	43.5	-17.7
4	67.79	23.1	21.6	40.0	-18.4

Limits: FCC-B3 FCC CLASS B RAD 3M LIMITS

Legend:
— Horizontal Ambients
— Horizontal Emissions

Source:
V Amb1108 6 7 8 9 10 12
T60821r3 6 7 8 9 10 12

Ver 5.5 Build 107
Colo Radiated Test Setup
t:A0690207 c1:C0200207 c2:NONE p:A0960906 a:NONE
Site ID: OATS#1,1247 Upper Colo Rd. Colo, NSW
Test Officer: Bruce Holdsworth

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

EMC Technologies Pty. Ltd. - Global Product Certification

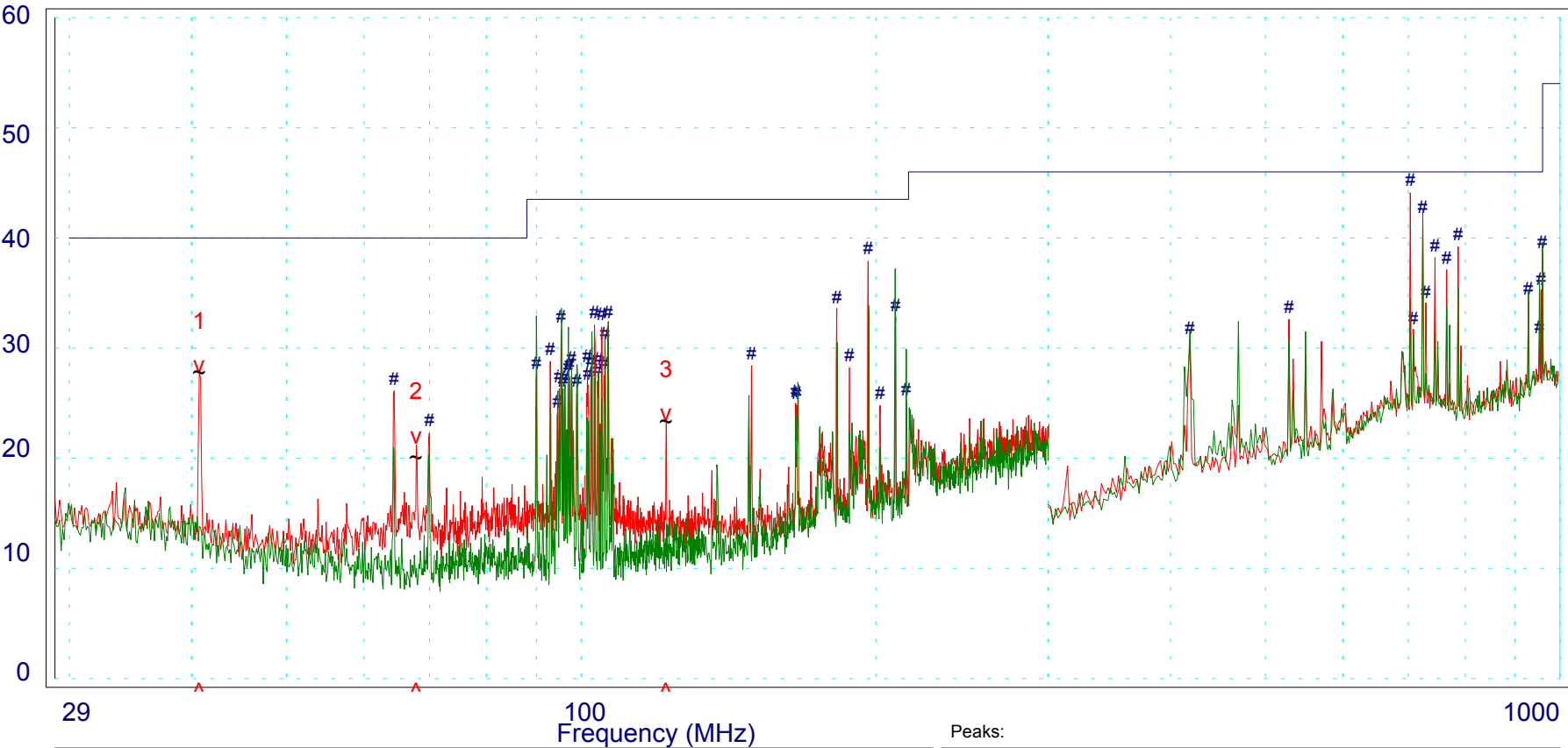
FCC Class B
Radiated Emissions (dBuV/m)
= Ambient

Job No:T60821

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Test Date: 15-08-06

GRAPH No. 11



BQT Solutions (Australia) Pty Ltd
Contactless Smartcard Reader
Model: 900 PAC
Serial Interface

Limits: FCC-B3 FCC CLASS B RAD 3M LIMITS

Legend:
Horizontal Ambients
Horizontal Emissions

Ver 5.5 Build 107
Colo Radiated Test Setup
t:A0690207 c1:C0200207 c2:NONE p:A0960906 a:NONE
Site ID: OATS#1,1247 Upper Colo Rd. Colo, NSW
Test Officer: Bruce Holdsworth

Source:
V Amb 1108 6 7 8 9 10 12
T 60821r4 6 7 8 9 10 12

Peaks:					
No	Freq (MHz)	Peak (dBuV/m)	Qp Val	FCC-B3 (dBuV/m)	dL1 (dB)
1	40.69	27.7	27.0	40.0	-13.0
2	67.80	21.3	19.2	40.0	-20.8
3	122.05	23.3	22.5	43.5	-21.0

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

EMC Technologies Pty. Ltd. - Global Product Certification

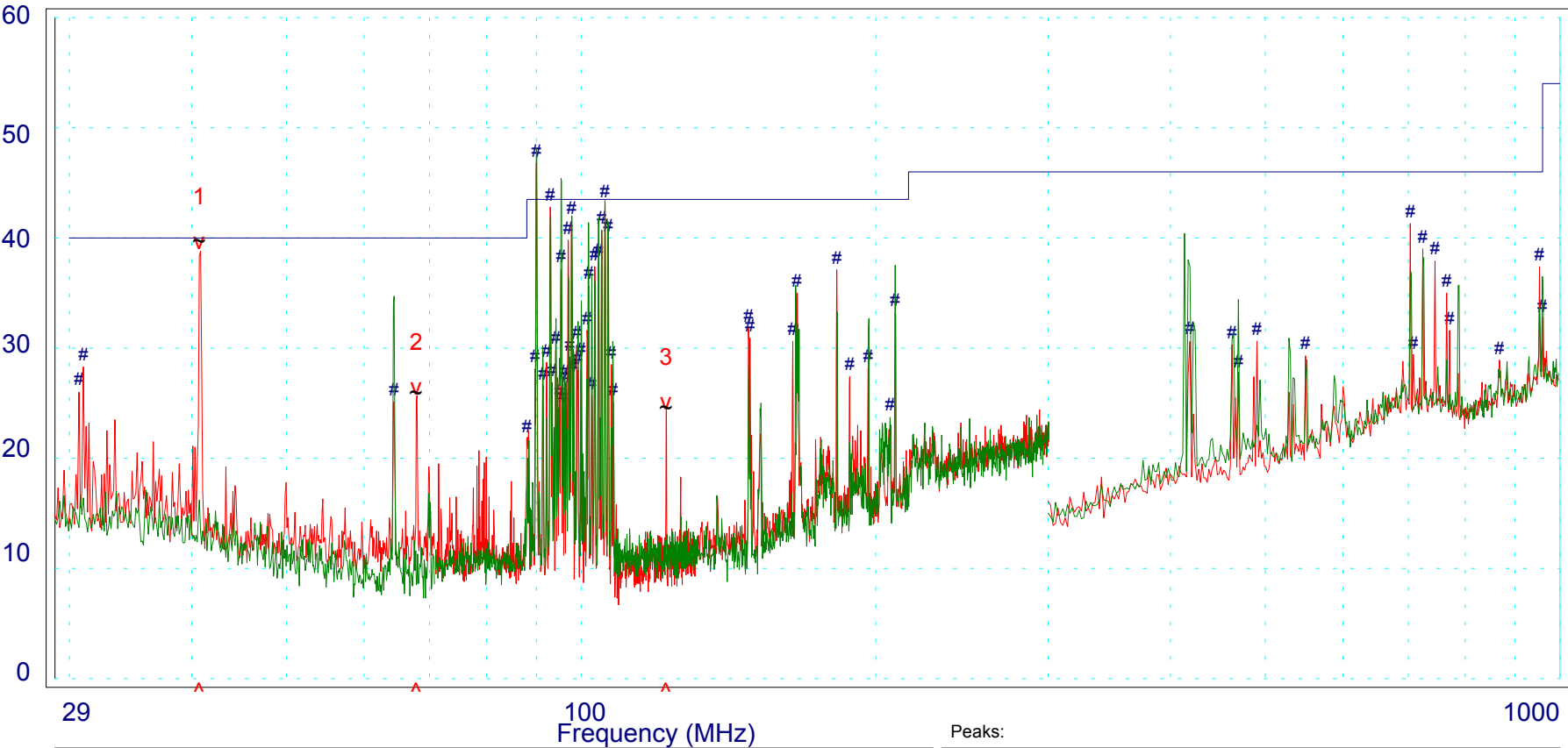
Radiated Emissions (dBUV/m)
= Ambient

Job No:T60821

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Test Date: 15-08-06

GRAPH No. 12



BQT Solutions (Australia) Pty Ltd
Contactless Smartcard Reader
Model: 900 PAC
Serial Interface

Limits: FCC-B3 FCC CLASS B RAD 3M LIMITS

Legend:
— Vertical Ambients
— Vertical Emissions

Ver 5.5 Build 107
Colo Radiated Test Setup
t:A0690207 c1:C0200207 c2:NONE p:A0960906 a:NONE
Site ID: OATS#1,1247 Upper Colo Rd. Colo, NSW
Test Officer: Bruce Holdsworth

Source:
V Amb1108 1 2 3 4 5 11
T60821r4 1 2 3 4 5 11

Peaks:					
No	Freq (MHz)	Peak (dBUV/m)	Qp Val	FCC-B3 (dBUV/m)	dL1 (dB)
1	40.69	38.9	38.9	40.0	-1.1
2	67.81	25.7	25.1	40.0	-14.9
3	122.05	24.4	23.8	43.5	-19.7

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