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EMI TEST REPORT FOR CERTIFICATION
to
FCC PART 90 Subpart Z

FCC ID:	W3E-274H
Test Sample:	EtherMux TDMA
Model:	01-274H
Manufacturer:	EM Solutions Pty Ltd
Report Number:	M081041_Cert_TDMA_ETHERMUX
Issue Date:	16th February 2009

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Report No. M081041_Cert_TDMA_ETHERMUX

Test Sample:	EtherMux TDMA
Model:	01-274H
Serial:	0809049
FCC ID:	W3E-274H
Equipment Type:	Intentional Radiator (Transceiver)
Manufacturer:	EM Solutions Pty Ltd
Address:	101 Hyde Road Yeronga, Brisbane Qld Australia 4104
Contact:	Peter Woodhead
Test Standards:	FCC Part 90 Subpart Z – Wireless Broadband Services in the 3650 – 3700 MHz Band ANSI/TIA/EIA-603 ANSI C63.4 – 2003 OET Bulletin No. 65
Test Dates:	4th to 19th December 2008
Senior Engineer:	**Chieu Huynh** **B.Eng (Hons) Electronics**
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:	**Chieu Huynh** **Senior EMC Engineer** **EMC Technologies Pty Ltd**

EMI TEST REPORT FOR CERTIFICATION
to
FCC PART 90 Subpart Z

1.0 INTRODUCTION

EMI testing was performed on the EtherMux TDMA, Model: 01-274H. The test results and procedures were performed in accordance with the following Federal Communications Commission (FCC) standards/regulations. The test sample **complied** with the requirements of 47 CFR, Part 90 Subpart Z – Wireless Broadband Services in the 3650 – 3700 MHz Band.

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

47 CFR, Part 90, Subpart Z:	Wireless Broadband Services in the 3650 – 3700 MHz Band
Section 90.209:	Bandwidth
Section 90.210:	Emission mask
Section 90.213:	Frequency stability
Section 90.1321:	Power and antenna limits
Section 90.1323:	Emission limits
Section 90.1335:	RF Safety

The measurement procedure used was in accordance with ANSI/TIA/EIA-603, ANSI C63.4-2003 and OET Bulletin No. 65. The instrumentation conformed to the requirements of ANSI C63.2-1996.

1.1 Summary of Results

1.1.1 FCC Part 90 Subpart Z

FCC Part 90 Subpart Z Clauses	Test Performed	Results
90.209	Channel Bandwidth	**Complies**
90.210	Emission Mask	**Complies**
90.213	Frequency stability	**Complies**
90.1321	Power and antenna limits	**Complies**
90.1323	Emission limits	**Complies**
90.1335	RF Safety	**Complies**

1.1.2 FCC Part 15 Subpart B – Unintentional Radiator

FCC Part 15 Subpart B Clauses	Test Performed	Results
15.107	AC Mains Conducted Emissions	**Complies**
15.109	Radiated Emissions	**Complies**

1.2 Modifications by EMC Technologies

No modifications were required.

2.0 GENERAL INFORMATION

(Information supplied by the Client)

2.1 EUT Details

Test Sample:	EtherMux TDMA
Model:	01-274H
Serial:	0809049
Manufacturer:	EM Solutions Pty Ltd
Modulations:	QPSK ¾, 16 QAM ¾ and 64 QAM RS
Frequency Ranges:	3650 – 3675 MHz
Antenna Types and Gains:	Refer to User Manual
Power Supply:	100 – 250V
Clock Frequencies:	25 MHz, 33 MHz, 80 MHz, 480 MHz and 520 MHz

2.2 Test Configuration

A web browser was used to configure the EtherMux TDMA. The TDMA was transmitting and receiving continuously.

Power settings ranging from 0 dBm (min) to 13 dBm (max) were investigated. Testing was performed with maximum power setting.

2.3 Support Equipment

TDMA Subscriber (indoor unit), Serial number: 0810089
Dell Laptop, Model number: PP08L
Toshiba Laptop, Model number: PT230A-0048Z

2.4 Test Procedure

Emissions measurements were performed in accordance with the procedures of ANSI/TIA/EIA-603 and ANSI C63.4-2003. Radiated emissions tests were performed at a distance of 3 metres from the EUT. OET Bulletin 65 dated June 2001 was used for reference.

2.5 Test Facility

2.5.1 General

EMC Technologies Pty Ltd is listed by the FCC as a test laboratory able to perform compliance testing for the public. EMC Technologies is listed as an FCC part 47CFR2.948 test lab and may perform the testing required under Parts 15 and 18 – **FCC Registration Number 90560**

EMC Technologies Pty Ltd has also been accredited as a Conformity Assessment Body (CAB) by Australian Communications and Media Authority (ACMA) under the APECTEL MRA and is designated to perform compliance testing on equipment subject to Declaration of Conformity (DoC) and Certification under Parts 15 & 18 of the FCC Commission's rules – **Registration Number 494713 & Designation number AU0001.**

EMC Technologies open area test site (OATS) has also been accepted by Industry Canada for the performance of radiated measurements in accordance with RSS 212, Issue 1 (Provisional) - **Industry Canada OATS number - IC 3569B-1.**

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.

2.5.2 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 emissions, 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 Institute (NMI) 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 (A^2LA).

2.6 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 Institute (NMI). All equipment calibration is traceable to Australia national standards at the National Measurements Institute. The reference antenna calibration was performed by NMI 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

2.7 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 radiated emissions at the frequencies where the OATS ambient signals exceeded the test limit.

FCC Part 90 Subpart Z RESULTS

3.0 PEAK OUTPUT POWER and POWER DENSITY MEASUREMENTS

Testing was performed in accordance with the requirements of FCC Part 90.1321.

Measurements were performed while the transmitter continuously transmitted.

The transmitter output was connected to the spectrum analyser via a calibrated power divider in peak hold mode.

The resolution bandwidth of 1 MHz and the video bandwidth of 1 MHz were utilised.

The peak output power was integrated over a 1MHz step as the channel bandwidth is greater than the RBW setting.

Variation by +/- 15% of the supply voltage did not vary the output power observed.

Full measurements were performed with maximum Tx power setting. Partial measurements were also performed with lowest power setting. Results are reported below.

Initial investigations were performed with all modulations (QPSK ¾, 16 QAM ¾ and 64 QAM RS). No significant differences in emissions were observed. Final testing was performed while the transmitter continuously transmitted in QPSK ¾ mode.

Limits:
EIRP = 25 Watts/25MHz (44dBm/25MHz)
Power Density = 1 Watt/1MHz (30dBm/1MHz)

3.1 Maximum Tx Power Setting = 13 dBm

EUT antenna gain = 15 dBi
EUT cable loss = 1.5 dB

3.1.1 Peak Output Power (EIRP)

Channel Bandwidth MHz	Frequency MHz	EIRP Limits dBm	*EIRP dBm			Results
			QPSK ¾	16 QAM ¾	64 QAM RS	
6.25	3653.125	38	34.7	34.6	34.6	Pass
	3662.5		35.1	similar to QPSK ¾		Pass
	3671.875		35.0	similar to QPSK ¾		Pass
10	3655	40	36.0	35.8	35.8	Pass
	3662.5		35.9	similar to QPSK ¾		Pass
	3670		35.9	35.7	35.6	Pass
12.5	3656.25	41	36.9	36.1	36.1	Pass
	3662.5		36.8	36.0	36.1	Pass
	3668.75		36.8	similar to QPSK ¾		Pass
20	3660	43	37.6	36.6	36.5	Pass
	3665		37.5	lower than QPSK ¾		Pass
25	3662.5	44	38.1	36.6	36.2	Pass

*Cable loss and antenna gain are included in the EIRP calculations. There is also an extra 0.5 dB offset for other Tx/antenna gain combinations (ie: 17.5 dBi gain with 11 dBm power setting).

3.1.2 Power Density

Channel Bandwidth MHz	Frequency MHz	Limit dBm	*Power Density dBm			Results
			QPSK ¾	16 QAM ¾	64 QAM RS	
6.25	3653.125	30	28.9	28.8	28.8	Pass
	3662.5		29.3	similar to QPSK ¾		Pass
	3671.875		29.2	29.1	29.1	Pass
10	3655		29.3	similar to QPSK ¾		Pass
	3662.5		29.2	similar to QPSK ¾		Pass
	3670		29.2	29.3	29.2	Pass
12.5	3656.25		29.0	28.9	28.9	Pass
	3662.5		28.9	28.9	29.0	Pass
	3668.75		29.0	29.0	28.9	Pass
20	3660		27.6	27.3	27.4	Pass
	3665		27.4	similar to QPSK ¾		Pass
25	3662.5		27.9	27.2	26.7	Pass

*Cable loss and antenna gain are included in the EIRP calculations. There is also an extra 0.5 dB offset for other Tx/antenna gain combinations (ie: 17.5 dBi gain with 11 dBm power setting).
Refer to Appendix I for Spectral Density Plots

3.2 Lowest Tx Power Setting = 0 dBm

EUT antenna gain = 27.7 dBi
EUT cable loss = 1.5 dB

3.2.1 Peak Output Power (EIRP)

Channel Bandwidth MHz	Frequency MHz	EIRP Limits dBm	*EIRP dBm	Results
			QPSK ¾	
6.25	3662.5	38	34.2	Pass
10	3662.5	40	34.9	Pass
12.5	3668.75	41	35.4	Pass
20	3660	43	36.5	Pass
25	3662.5	44	36.4	Pass

*Cable loss and antenna gain are included in the EIRP calculations.

3.2.2 Power Density

Channel Bandwidth MHz	Frequency MHz	Limit dBm	*Power Density dBm	Results
			QPSK ¾	
6.25	3662.5	30	28.8	Pass
10	3662.5		28.6	Pass
12.5	3668.75		28.3	Pass
20	3660		27.2	Pass
25	3662.5		26.2	Pass

*Cable loss and antenna gain are included in the EIRP calculations.
Refer to Appendix I for Spectral Density Plots

4.0 CHANNEL BANDWIDTH

Testing was performed in accordance with the requirements of FCC Part 90.209.

Measurements were performed while the transmitter continuously transmitted.

The transmitter output was connected to the spectrum analyser via a calibrated power divider in peak hold mode.

Initial investigations were performed with all modulations (QPSK ¾, 16 QAM ¾ and 64 QAM RS). No significant differences in emissions were observed. Final testing was performed while the transmitter continuously transmitted in QPSK ¾ mode.

Channel Bandwidth MHz	Frequency MHz	BW Limit MHz	26 dB BW MHz	RBW Setting	VBW Setting	Results
6.25	3653.125	6.25	5.9	100kHz	1MHz	Pass
	3662.5		5.95	100kHz	1MHz	Pass
	3671.875		5.95	100kHz	1MHz	Pass
10	3655	10	9.72	300kHz	1MHz	Pass
	3662.5		similar to low or high frequency channel			
	3670		9.74	300kHz	1MHz	Pass
12.5	3656.25	12.5	12.1	300kHz	1MHz	Pass
	3662.5		similar to low or high frequency channel			
	3668.75		12.13	300kHz	1MHz	Pass
20	3660	20	19.19	1MHz	1MHz	Pass
	3665		19.05	1MHz	1MHz	Pass
25	3662.5	25	24.23	1MHz	1MHz	Pass

Refer to Appendix J for Bandwidth Plots

5.0 OUT of BAND EMISSIONS (Spurious and Harmonics)

Testing was performed in accordance with the requirements of FCC Part 90.1323 and FCC Part 15.109.

5.1 Radiated Emissions

As per 90.1323(a) – The limits of any emissions outside the frequency band shall be attenuated by at least 43 + 10log(P) dB, where P is the measured transmitter output power.

The measurements were made at the open area test site at a distance of 3 metres.

The receiver bandwidth was set to 6 dB.

The EUT was slowly rotated with the Peak Detector set to Max-Hold. This was performed for two antenna heights. When an emission was located, it was positively identified and its maximum level found by rotating the automated turntable, and by varying the antenna height. Each significant peak was investigated. This process was performed for both horizontal and vertical antenna polarisations.

Initial investigations were performed with all modulations (QPSK ¾, 16 QAM ¾ and 64 QAM RS). No significant differences in emissions were observed. Final testing was performed while the transmitter continuously transmitted in QPSK ¾ mode.

Testing was performed while transmitter continuously transmitted on a low, middle and high frequency channel. Worst case levels of harmonics are reported.

ANT3500D24P Lanbowan antenna (24.5 dBi) was selected for the test. Tx power setting = 5 dBm.

5.1.1 Frequency Band: 1 – 40 GHz

Calibrated EMCO 3115, EMCO 3116 and ETS Standard Horn antennas were used for measurements between 1 to 40 GHz.

The resolution bandwidth of 1 MHz and the video bandwidth of 1 MHz were utilised.

No harmonics/spurious emissions were found. Emissions complied with the FCC limits (the limit is -13dBm) by a margin of greater than 25 dB.

5.1.2 Frequency Band: 30 - 1000 MHz

A calibrated Biconical antenna was used for measurements between 30 MHz to 232 MHz and a calibrated Logperiodic antenna used for measurements between 230 MHz to 1000 MHz.

The resolution bandwidth of 120 kHz and the video bandwidth of 300 kHz were utilised.

The worst case emission complied with the **FCC Part 90.1323 limits** (the limit is -13dBm) by a margin of greater than 30 dB. Refer to Appendix M (graphs 3 and 4) for plots. Limits on plots were for un-intentional radiator (FCC 15.109).

The worst case emission complied with the **FCC Part 15.109 Class B limits** by a margin of 0 dB. Refer to Appendix M (graphs 3 and 4) for plots. Limits on plots were for un-intentional radiator (FCC 15.109).

5.1.3 Frequency Band: 0.009 - 30 MHz

A calibrated loop antenna was used for measurements between 0.009 MHz to 30 MHz.

The resolution bandwidth of 9 kHz and the video bandwidth of 30 kHz were utilised.

The worst case emission complied with the FCC limits (the limit is -13dBm) by a margin of greater than 30 dB. Refer to Appendix M (graphs 1 and 2) for plots.

5.2 Conducted RF Measurements - Antenna Port

Testing was performed in accordance with the requirements of FCC Part 90.1323.

Measurements were performed while the transmitter continuously transmitted.

The transmitter output was connected to the spectrum analyser via a calibrated power divider in peak hold mode.

The resolution bandwidth of 1 MHz and the video bandwidth of 1 MHz were utilised.

Initial investigations were performed with all modulations (QPSK ¾, 16 QAM ¾ and 64 QAM RS). No significant differences in emissions were observed. Final testing was performed while the transmitter continuously transmitted in QPSK ¾ mode.

Complied - Refer to Appendix K for Conducted RF Plots

6.0 EMISSION MASK MEASUREMENTS

Testing was performed in accordance with the requirements of FCC Part 90.210(b).

Measurements were performed while the transmitter continuously transmitted.

The transmitter output was connected to the spectrum analyser via a calibrated power divider in peak hold mode.

The resolution bandwidth of 100 kHz to 1 MHz and the video bandwidth of 1 MHz were utilised.

Initial investigations were performed with all modulations (QPSK ¾, 16 QAM ¾ and 64 QAM RS). No significant differences in emissions were observed. Final testing was performed while the transmitter continuously transmitted in QPSK ¾ mode.

Complied - Refer to Appendix L for Emission Mask Plots

7.0 FREQUENCY STABILITY

Testing was performed in accordance with the requirements of FCC Part 90.213.

Measurements were performed while the transmitter continuously transmitted.

The transmitter output was connected to the spectrum analyser via a calibrated power divider in peak hold mode.

The resolution bandwidth of 1 MHz and the video bandwidth of 1 MHz were utilised.

The measurements were performed with the temperature from -30 to +50 ˚C and variation by +/- 15% of the supply voltage. The transmitter frequency was recorded every 10˚C step and the results are reported.

6.25 MHz Channel Bandwidth - Low Channel (3653.125 MHz)

Temperature (˚C)	Frequency MHz	Frequency Error kHz	Frequency Error ppm	Limits ppm	Results
-30	3653.081	44	12.0	20	Pass
-20	3653.061	64	17.5		
-10	3653.110	15	4.1		
0	3653.181	56	15.3		
+10	3653.177	52	14.2		
+20	3653.121	4	1.1		
+30	3653.189	64	17.5		
+40	3653.177	52	14.2		
+50	3653.181	56	15.3		

10 MHz Channel Bandwidth - Low Channel (3655 MHz)

Temperature (˚C)	Frequency MHz	Frequency Error kHz	Frequency Error ppm	Limits ppm	Results
-30	3654.940	60	16.4	20	Pass
-20	3655.032	32	8.6		
-10	3654.974	26	7.1		
0	3655.0	0	0		
+10	3655.056	56	15.3		
+20	3655.012	12	3.3		
+30	3655.056	56	15.3		
+40	3654.970	30	8.2		
+50	3655.032	32	8.6		

12.5 MHz Channel Bandwidth - Mid Channel (3662.5 MHz)

Temperature (˚C)	Frequency MHz	Frequency Error kHz	Frequency Error ppm	Limits ppm	Results
-30	3662.432	68	18.6	20	Pass
-20	3662.508	8	2.2		
-10	3662.532	32	8.7		
0	3662.550	50	13.7		
+10	3662.454	46	12.6		
+20	3662.5	0	0		
+30	3662.550	50	13.7		
+40	3662.470	30	8.2		
+50	3662.550	50	13.7		

20 MHz Channel Bandwidth - High Channel (3665 MHz)

Temperature (˚C)	Frequency MHz	Frequency Error kHz	Frequency Error ppm	Limits ppm	Results
-30	3664.938	62	16.9	20	Pass
-20	3664.948	52	14.2		
-10	3665.061	61	16.6		
0	3664.952	48	13.1		
+10	3665.072	72	19.7		
+20	3665.064	64	17.5		
+30	3665.061	61	16.6		
+40	3665.064	64	17.5		
+50	3665.072	72	19.7		

25 MHz Channel Bandwidth – Single Channel (3662.5 MHz)

Temperature (˚C)	Frequency MHz	Frequency Error kHz	Frequency Error ppm	Limits ppm	Results
-30	3662.438	62	16.9	20	Pass
-20	3662.522	22	6.0		
-10	3662.476	24	6.6		
0	3662.570	70	19.1		
+10	3662.5	0	0		
+20	3662.534	34	9.3		
+30	3662.5	0	0		
+40	3662.570	70	19.1		
+50	3662.564	64	17.5		

8.0 CONDUCTED EMISSION MEASUREMENTS

Testing was performed in accordance with the requirements of FCC Part 15.107.

8.1 Test Procedure

The arrangement specified in ANSI/TIA/EIA-603 and ANSI C63.4-2003 was adhered to for the conducted EMI measurements. The EUT was placed in the RF screened enclosure and a CISPR EMI Receiver as defined in ANSI C63.2-1996 was used to perform the measurements.

The EMI Receiver was operated under program control using the Max-Hold function and automatic frequency scanning, measurement and data logging techniques. The specified 0.15 MHz to 30 MHz frequency range was sub-divided into sub-ranges to ensure that all short duration peaks were captured.

8.2 Peak Maximising Procedure

The various operating modes of the system were investigated. For each of the sub-ranges, the EMI receiver was set to continuous scan with the Peak detector set to Max-Hold mode. The Quasi-Peak detector and the Average detector were then invoked to measure the actual Quasi-Peak and Average level of the most significant peaks, which were detected.

8.3 Calculation of Voltage Levels

The voltage levels were automatically measured in software and compared to the test limit. The method of calculation was as follows:

VEMI = **VRx + LBPF**

Where: **VEMI =** the Measured EMI voltage in dBµV to be compared to the limit.
VRx = the Voltage in dBµV read directly at the EMI receiver.
LBPF = the loss in dB of the cables and the Limiter and Pass Filter.

8.4 Plotting of Conducted Emission Measurement Data

The measurement data pertaining to each frequency sub-range were then concatenated to form a single graph of (peak) amplitude versus frequency. This was performed for both Active and Neutral lines and the composite graph were subsequently plotted. A list of the highest relevant peaks and the respective Quasi-Peak and Average values were also plotted on the graph.

8.5 Results of Conducted Emission Measurements (AC Mains Ports)

Initial investigations were performed with all modulations (QPSK ¾, 16 QAM ¾ and 64 QAM RS). No significant differences in emissions were observed. Final testing was performed while the transmitter continuously transmitted in QPSK ¾ mode.

The worst case conducted EMI complied with both quasi peak and average limits (Class B) by margins of 10.0 dB and 3.7 dB respectively. Refer to Appendix M (graphs 5 and 6) for plots.

9.0 RADIO FREQUENCY EXPOSURE (HAZARD) INFORMATION

The EUT operating in the 3650 - 3675 MHz bands are required to be operated in a manner that ensures that the public is not exposed to RF energy levels in accordance with CFR 47, Section 1.1307(b)(1).

In accordance with Section 1.1310, the Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure of 1.0 has been applied, i.e 1mW/cm^2.

Friis transmission formula: $Pd = (P*G) / (4*\pi*r^2)$
where: Pd = power density (mW/cm^2) = 1 mW/cm^2
P = power input to the antenna (mW)
G = antenna gain (numeric)
P*G = EIRP = 38.1 dBm = 6456.5 mW
r = distance to the center of radiation of the antenna (cm)

RF Exposure distance limit: $r = (P*G / 4*\pi*Pd)^{½}$ OR $r = (EIRP / 4*\pi*Pd)^{½}$
Therefore, $r = (6456.5 / 4*\pi)^{½}$ = 22.7 cm

Conclusions: Recommended minimum RF safety distance is 23 cm.

10.0 COMPLIANCE STATEMENT

The EtherMux TDMA, Model: 01-274H **complied** with the requirements of 47 CFR, Part 90 Subpart Z – Wireless Broadband Services in the 3650 – 3700 MHz Band.

10.1 FCC Part 90 Subpart Z

FCC Part 90 Subpart Z Clauses	Test Performed	Results
90.209	Channel Bandwidth	**Complies**
90.210	Emission Mask	**Complies**
90.213	Frequency stability	**Complies**
90.1321	Power and antenna limits	**Complies**
90.1323	Emission limits	**Complies**
90.1335	RF Safety	**Complies**

10.2 FCC Part 15 Subpart B – Unintentional Radiator

FCC Part 15 Subpart B Clauses	Test Performed	Results
15.107	AC Mains Conducted Emissions	**Complies**
15.109	Radiated Emissions	**Complies**

11.0 MEASUREMENT UNCERTAINTIES

EMC Technologies has evaluated the equipment and the methods used to perform the emissions testing. The estimated measurement uncertainties for emissions tests shown within this report are as follows:

Conducted Emissions:	9 kHz to 30 MHz	±3.2 dB
Radiated Emissions:	9 kHz to 30 MHz	±4.1 dB
	30 MHz to 300 MHz	±5.1 dB
	300 MHz to 1000 MHz	±4.7 dB
	1 GHz to 18 GHz	±4.6 dB

The above expanded uncertainties are based on standard uncertainties multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

12.0 TEST REPORT APPENDICES

APPENDIX A: MEASUREMENT INSTRUMENT DETAILS
APPENDIX B: PHOTOGRAPHS
APPENDIX C: OPERATIONAL DESCRIPTION
APPENDIX D: BLOCK DIAGRAM
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APPENDIX I: POWER DENSITY
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APPENDIX K: CONDUCTED RF
APPENDIX L: EMISSION MASK
APPENDIX M: EMI PLOTS

Attachment 1: RF Exposure Information
Attachment 2: Tune-up Statement