Nemko USA, Inc
11696 Sorrento Valley Rd., Suite F
San Diego, CA 92121-1024

EMC TEST REPORT

Kyocera Wireless Corp.

Dual Band Cellular Phone

Model: **S6000**

RADIATED EMISSIONS

FCC, PART 2.1053

FCC, PART 22 SUBPART H

FCC, PART 24 SUBPART E

TEST REPORT # 2007 023444 22/24 FCC

3444-KYO

NEMKO USA, INC.
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SAN DIEGO, CA 92121
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EMC TEST REPORT
For
Kyocera Wireless Corp.

Test Number : 3444

Product Name : Dual Band Cellular Phone

Regulation : FCC, Part 22, Subpart H, Part 24, Subpart E

Date : February 7, 2007

Report Reviewed

Accepted by: _____

Kyocera Wireless Corp.
10300 Campus Point Drive
San Diego, CA 92121
Phone: 858-882-3585
Fax: (619) 330-4977

Report Issued By: _____

Mike T. Krumweide, EMC Supervisor

Tested By: _____

Ferdinand Custodio, EMC Test Engineer

Administrative Data

Regulation : FCC, Part 22, Subpart H, Part 24, Subpart E

Test Method : ANSI C63.4 – 2004
: TIA/EIA 603B

Test Type : Certification
Manufacturer : Kyocera Wireless Corp.
EUT Type/:Model # : Dual Band Cellular Phone / S6000
Date(s) of Test : February 5, 2007 to February 6, 2007
Customer Personnel : Thuy To

Nemko Personnel : Ferdinand Custodio, EMC Test Engineer
:
Test Location : OPEN Area Test Site
Nemko USA, Inc.
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San Diego, CA 92121

EUT Description

DEVICE	MANUFACTURER MODEL # SERIAL #	POWER CABLE
EUT - Dual Band Cellular Phone	Kyocera Wireless Corp. Model: S6000 FFS60000000702	N/A

CONNECTION	I/O CABLE
No connection	

1.1. REASON FOR TEST

The EUT was tested to qualify for FCC Part 22 and Part 24.

1.2. CHANGES MADE DURING TEST

The following design modifications were made to the EUT during testing.

No design modifications were made to the EUT during testing.

1.3. DEVIATIONS FROM STANDARD TEST METHOD

None

CERTIFICATION AND TEST SUMMARY

Test Type	*In Accordance with Document*	*Frequency Range Investigated*	*EUT Complies*
Radiated Spurious Emissions	FCC, Part 22, Subpart H, Part 24, Subpart E	824 – 19990 MHz	PASS

The Dual Band Cellular Phone complied with FCC Part 22 and Part 24 when tested in the system configuration defined herein.

DESCRIPTION OF TEST SITE AND EQUIPMENT

1.4. Description of Test Site

The test site is located at 11696 Sorrento Valley Road, Suite F, San Diego, CA 92121. The site is physically located 18 miles Northwest of downtown San Diego. The general area is a valley 1.5 miles east of the Pacific Ocean. This particular part of the valley tends to minimize ambient levels, i.e. radio and TV broadcast stations and land mobile communications. The three and ten-meter Open Area Test Site (OATS) is located behind the office/lab building. It conforms to the normalized site attenuation limits and construction specifications as set in the EN 55022: 2006, CISPR 16: 2003 and ANSI C63.4: 2003 documents. The OATS normalized site attenuation characteristics are verified for compliance every year. The facility is NAVLAP accredited.

1.5. 1. DESCRIPTION OF TESTING METHODS

1.5.1. Introduction

As required in 47 CFR, Parts 2 and 15, the methods employed to test the radiated and conducted emissions (as applicable) of the EUT are those contained within the American National Standards Institute (ANSI) document C63.4-2004, titled "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz." All applicable FCC Rule Sections that provide further guidance for performance of such testing are also observed. In addition, TIA/EIA 603, "Land Mobile FM or PM Communications Equipment Measurement and Performance Standards," provides the method employed to check the radiated measurements known as Signal Substitution.

For General Test Configuration please refer to Figure 1 on the following page.

Digital devices sold in Canada are required to comply with the Interference Causing Equipment Standard for Digital Apparatus, ICES-003, Issue 4. These test methods and limits are specified in the Canadian Standards Association's Standard CAN/CSA-CISPR 22-02 and are "essentially equivalent" with the CISPR 22 (EN55022) rules for unintentional radiators per EMCAB-3, Issue 4 (December 2005). No additional testing is required for compliance to ICES-003.

1.5.2. Configuration and Methods of Measurements for Radiated Emissions

Section 8 of ANSI C63.4 determines the general configuration and procedures for measuring the radiated emissions of equipment under test. Initially, the primary emission frequencies are identified inside the test lab by positioning a broadband receive antenna one meter from the EUT to locate frequencies of significant radiation. Next, the EUT and associated system are placed on a turntable on a ten meter open area test site (registered with the FCC in accord with its Rules and ANSI C63.4) and the receive antenna is located at a distance of three meters from the EUT.

The EUT and associated system are configured to operate continuously, representing a "normally operating" mode. All significant radiated emissions are recorded when maximum radiation on each frequency is observed, in accordance with part 8 of ANSI C63.4 and Section 15.33 of the FCC Rules. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters and rotated to horizontal and vertical polarities, and the turntable is also rotated to determine the worst emitting configuration. The numerical results of the test are included herein to demonstrate compliance.

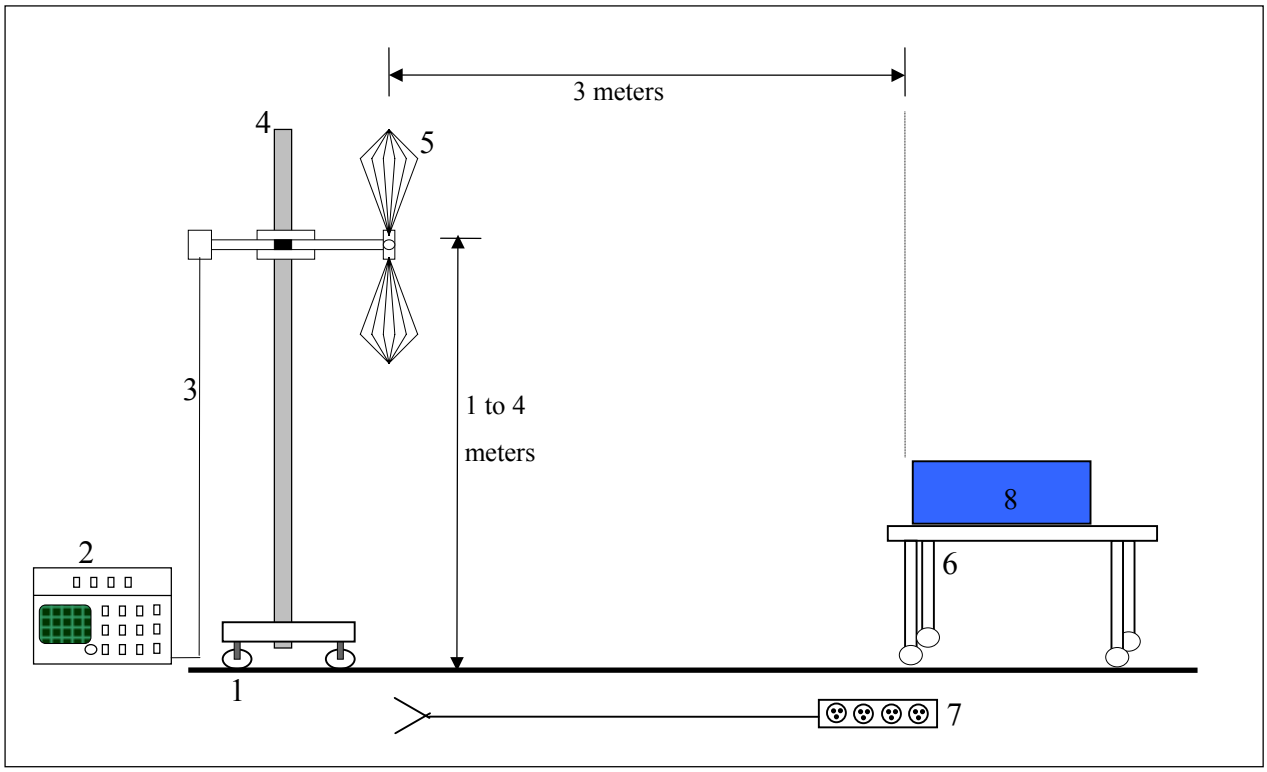
The numerical results that are applied to the emissions limits are arrived at by the following method:
Example: A=RR+CL+AF
A = Amplitude dBuV/M
RR = Receiver Reading dBuV
CL = cable loss dB
AF = antenna factor dBm-1

Example Frequency = 110MHz
18.5 dBuV (spectrum analyzer reading)
+3.0 dB (cable loss @ frequency)
21.5 dBuV
+15.4 dBm-1 (antenna factor @ frequency)
36.9 dBuV/M Final adjusted value

The final adjusted value is then compared to the appropriate emission limit to determine compliance.

For Radiated Emissions Test Configuration please refer to Figure 4 on the following page.

Figure 1. Radiated Emissions Test Setup Diagram



NOT TO SCALE

CONFIGURATION LEGEND

1. Ground plane (11 X 17 meters)
2. Spectrum Analyzer with Quasi-Peak Adapter
3. Coax interconnect from Receive Antenna to Spectrum Analyzer
4. Antenna Mast with motorized mounting assembly
5. Receive Antenna (basic relative position)
6. Non-Conducting table 80 cm above ground plane
7. AC power for devices
8. EUT: Dual Band Cellular Phone

Radiated emissions were measured on three orthogonal axes. Only the maximum emissions of the three axes are stated in this report.

Test Results

1. Radiated Emissions Test Data

FCC Part 2, 22 & 24 Emissions Substitution

1) Methodology Used: TIA/EIA603 (see attached excerpt).

2) The Substitution Method is used for fundamental power levels and spurious emissions when RF emission signals are measured within 20 dB of the limit.

3) Formula Used to calculate the values:
   a) Measured value + antenna factor + cable loss - preamplifier = Max Level
   b) Margin = Max level - Limit
   c) Signal Generator power level - cable loss + antenna gain = ERP Part 22 or EIRP Part 24
   d) Substituted Margin = ERP (or EIRP) - Limit
   Note: gain for dipole = 0; antenna factor is not the same as antenna gain

Note: The signal generator power level is the power required when transmitting into the substituting antenna to duplicate the Measured Value. Substituted margin is reported in 731 forms pertaining to certification grants and Class II Permissive Changes when a direct conducted power reading cannot be performed.

Note: Per FCC Part 2:1051 the FCC does not require reporting of Spurious Emissions when they are more than 20dB below the permissible limit, therefore no signal substitution measurements will be performed on these signals.

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Radiated Emissions Data

Job # : 3444-KYO Test # : 2
Page 1 of 1

Client Name : Kyocera Wireless Corp.
EUT Name : Dual Band CDMA Mobile Phone
EUT Model # : S6000
EUT Serial # : FFS60000000702
EUT Config. : CDMA Tx

Specification : FCC Part 22 Reference :

Rod. Ant. #:	0	Temp. (°C) :	24	Date :	02/05/07
Bicon Ant.#:	0	Humidity (%) :	13	Staff :	FSCustodio
Log Ant.#:	110	EUT Voltage :	NA	Peak Bandwidth:	1 MHz
DRG Ant. #	877	EUT Frequency :	NA	Video Bandwidth	1 MHz
Dipole Ant.#:	758	Phase:	NA		
Cable#:	40ft	Location:	RN# 90579		
Preamp#:	842	Distance:	3m		
Spec An.#:	104	ERP conversion factor	7		

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (ERP) (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
824.70	97.6	98.4	26.31	27.5	38.4	-10.9		1.1	Pass	
1649.40	73.9	75.5	-18.43	-40.2	-13.0	-27.2		1.0	Pass	
2474.10	65.2	65.8	-13.89	-45.4	-13.0	-32.4		2.0	Pass	
3298.80	57.5	56.9	-9.831	-49.6	-13.0	-36.6		1.0	Pass	
4123.50	52.7	52.7	-5.042	-49.6	-13.0	-36.6			Pass	Noise Floor
4948.20			-4.342		-13.0					Noise Floor
5772.90			-2.361		-13.0					Noise Floor
6597.60			-1.308		-13.0					Noise Floor
7422.30			0.2167		-13.0					Noise Floor
8247.00			1.2778		-13.0					Noise Floor
836.49	97.1	98.3	25.83	26.8	38.4	-11.6		1.2	Pass	
1672.98	74.6	76.1	-18.43	-39.5	-13.0	-26.5		1.3	Pass	
2509.47	62.5	60.8	-13.09	-47.9	-13.0	-34.9		1.0	Pass	
3345.96	56.4	58.6	-9.831	-48.5	-13.0	-35.5		1.0	Pass	
4182.45	50.9	50.9	-5.042	-51.4	-13.0	-38.4			Pass	Noise Floor
5018.94			-1.661		-13.0					Noise Floor
5855.43			-2.361		-13.0					Noise Floor
6691.92			-1.308		-13.0					Noise Floor
7528.41			0.4167		-13.0					Noise Floor
8364.90			1.2778		-13.0					Noise Floor
848.98	97.3	98.2	26.24	27.2	38.4	-11.2		1.2	Pass	
1697.96	80.6	82.4	-18.43	-33.3	-13.0	-20.3		1.2	Pass	
2546.94	68.0	65.9	-13.09	-42.3	-13.0	-29.3		1.3	Pass	
3395.92	57.9	60.3	-9.831	-46.8	-13.0	-33.8		1.2	Pass	
4244.90	51.3	51.3	-5.042	-51.0	-13.0	-38.0			Pass	Noise Floor
5093.88			-1.661		-13.0					Noise Floor
5942.86			-2.361		-13.0					Noise Floor
6791.84			-1.308		-13.0					Noise Floor
7640.82			0.4167		-13.0					Noise Floor
8489.80			1.2778		-13.0					Noise Floor

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Radiated Emissions Data

Job # : 3444-KYO Test # : 3
Page 1 of 1

Client Name : Kyocera Wireless Corp.
EUT Name : Dual Band CDMA Mobile Phone
EUT Model # : S6000
EUT Serial # : FFS60000000702
EUT Config. : PCS Tx

Specification : FCC Part 24 Reference :

Rod. Ant. #:	0	Temp. (°C) :	24	Date :	02/05/07
Bicon Ant.#:	0	Humidity (%) :	13	Staff :	FSCustodio
Log Ant.#:	110	EUT Voltage :	NA	Peak Bandwidth:	1 MHz
DRG Ant. #	877	EUT Frequency :	NA	Video Bandwidth	1 MHz
Dipole Ant.#:	758	Phase:	NA		
Cable#:	SOATS	Location:	RN# 90579		
Preamp#:	842	Distance:	3m		
Spec An.#:	104	EIRP conversion factor	5.5		

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (ERIP) (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
1851.25	91.2	92.9	30.7	28.4	33.0	-4.6		1.0	Pass	
3702.50	89.7	87.9	-9.0	-14.6	-13.0	-1.6		1.3	Pass	
5553.75	72.6	72.3	-2.4	-25.0	-13.0	-12.0		1.2	Pass	
7405.00	54.2	54.2	0.2	-40.9	-13.0	-27.9			Pass	Noise Floor
9256.25			4.6		-13.0					Noise Floor
11107.50			8.9		-13.0					Noise Floor
12958.75			11.0		-13.0					Noise Floor
14810.00			12.2		-13.0					Noise Floor
16661.25			16.1		-13.0					Noise Floor
18512.50			27.4		-13.0					Noise Floor
1880.00	91.7	93.9	30.7	29.3	33.0	-3.7		1.0	Pass	
3760.00	88.8	84.9	-9.0	-15.5	-13.0	-2.5		1.2	Pass	
5640.00	71.4	71.4	-2.4	-26.2	-13.0	-13.2		1.2	Pass	
7520.00	53.6	53.6	0.4	-41.3	-13.0	-28.3			Pass	Noise Floor
9400.00	52.6	52.6	4.6	-38.1	-13.0	-25.1			Pass	Noise Floor
11280.00	52.4	52.4	8.9	-33.9	-13.0	-20.9			Pass	Noise Floor
13160.00	52.9	52.9	12.8	-29.6	-13.0	-16.6			Pass	Noise Floor
15040.00	53.0	53.0	12.4	-29.8	-13.0	-16.8			Pass	Noise Floor
16920.00	50.8	50.8	16.1	-28.4	-13.0	-15.4			Pass	Noise Floor
18800.00	50.5	50.5	27.4	-17.3	-13.0	-4.3			Pass	Noise Floor
1908.75	90.0	92.3	30.7	27.7	33.0	-5.3		1.0	Pass	
3817.50	88.0	85.0	-9.0	-16.3	-13.0	-3.3		1.4	Pass	
5726.25	67.7	66.8	-2.4	-30.0	-13.0	-17.0		1.2	Pass	
7635.00	53.6	53.6	0.4	-41.3	-13.0	-28.3			Pass	Noise Floor
9543.75			4.8		-13.0					Noise Floor
11452.50			8.9		-13.0					Noise Floor
13361.25			12.8		-13.0					Noise Floor
15270.00			12.4		-13.0					Noise Floor
17178.75			21.1		-13.0					Noise Floor
19087.50			27.4		-13.0					Noise Floor

2. Substitution Method Test Data

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NEMKO USA, Inc.

Substitution Method For Radiated Emissions

Complete	X			Job # :	3444-1
Preliminary				Page	1
Test # :	2				
of	1				

Client Name :	Kyocera Wireless Corp.				
EUT Name :	Dual Band CDMA Mobile Phone				
EUT Model # :	S6000				
EUT Serial # :	FFS60000000702				
EUT Part # :					
EUT Config. :					
Specification :	FCC Part 22 and 24			Reference :	
Rod. Ant. #:	NA	Temp. (deg. C) :	12	Date :	2/6/2007
Bicon Ant.#:	NA	Humidity (%) :	47	Time :	
Log Ant.#:	110	EUT Voltage :	NA	Staff :	FSCustodio
DRG Ant. #	752	EUT Frequency :	NA	Photo ID:	
Dipole Ant.#:	NA	Phase:	NA	Peak Bandwidth:	RBW-1MHz,
Cable#:	40ft	Location:	RN# 329550-01		VBW-1MHz
Preamp#:	842	Distance:	3m		
Spec An.#:	104				
QP #:	NA				
PreSelect#:	NA				

Part 22 Substitution

Target Frequency MHz	Target Level dBuV/m	dipole	Cable loss dB	Signal Generator dBm	Total (ERP) dBm	Spec dBm	Margin dBm
824.70	98.4	0	1.34	27.07	25.73	38.4	-12.7
836.49	98.3	0	1.37	27.52	26.15	38.4	-12.3
848.98	98.2	0	1.44	27.93	26.49	38.4	-11.9

Part 24 Substitution

Target Frequency MHz	Target Level dBuV/m	Horn Gain dBi	Cable loss dB	Signal Generator dBm	Total (EIRP) dBm	Spec dBm	Margin dBm
1851.25	92.9	5.73	2.93	22.76	25.56	33	-7.4
3702.50	89.7	7.94	5.89	-18.1	-16.05	-13	-3.1
5553.75	72.6	9.27	6.71	-27.7	-25.14	-13	-12.1
1880.00	93.9	5.78	3.25	24.3	26.83	33	-6.2
3760.00	88.8	7.95	5.67	-19.3	-17.02	-13	-4.0
5640.00	71.4	9.29	6.37	-28.7	-25.78	-13	-12.8
1908.75	92.3	5.83	3.25	23.05	25.63	33	-7.4
3817.50	88	7.96	5.70	-18.5	-16.24	-13	-3.2
5726.25	67.7	9.32	6.50	-34	-31.18	-13	-18.2

3. Radiated Emissions and Substitution Method Test Equipments

Client	Kyocera Wireless Corp.	EUT Name	Dual Band Cellular Phone
PAN #	3444	EUT Model	S6000

Device Type	*Model #*	*Asset #*	*Cal Done*	*Cal Due*
Pre-Amplifier				
High-Frequency	Nemko	842	Verified	02/05/2007
Antenna				
Antenna, Ridged Guide	3115	877	6/20/2006	6/20/2007
Antenna, LPA, Electrometrics	LPA-25	110	12/18/2006	12/18/2007
Antenna, DRWG, EMCO	3115	752	10/17/2006	10/17/2007
Antenna Dipole, Part of Set 765	3121C-DB4	764	06/27/2006	06/27/2007
Spectrum Analyzer / Receiver				
Spectrum Analyzer, HP	8566B	104	5/15/2006	05/15/07
Spectrum Analyzer Display, HP	85662A	404	5/15/2006	05/15/07
Signal Generator, Agilent	E8254A	836	7/27/06	7/27/07

APPENDIX A

A. Radiated Emissions Measurement Uncertainties

1. Introduction

ISO/IEC 17025:1999 and ANSI/NCSL Z540-1-1994 require that all measurements contained in a test report be "traceable". "Traceability" is defined in the *International Vocabulary of Basic and General Terms in Metrology* (ISO: 1993) as: "the property of the result of a measurement... whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons, *all having stated uncertainties*".

The purposes of this Appendix are to "state the *Measurement Uncertainties*" of the conducted emissions and radiated emissions measurements contained in Section 5 of this Test Report, and to provide a practical explanation of the meaning of these measurement uncertainties.

2. Statement of the Worst-Case Measurement Uncertainties for the Conducted and Radiated Emissions Measurements Contained in This Test Report

Table 1: Worst-Case Expanded Uncertainty "U" of Measurement for a k=2 Coverage Factor

Radiated Emissions Measurement Detection Systems	Applicable Frequency Range	"U" for a k=2 Coverage Factor
Spectrum Analyzer with QPA & Preamplifier	30 MHz - 200 MHz	+3.9 dB, -4.0 dB
Spectrum Analyzer with QPA & Preamplifier	200 MHz-1000 MHz	+/- 3.5 dB
Spectrum Analyzer with Preamplifier	1 GHz - 18 GHz	+2.5 dB, -2.6 dB
Spectrum Analyzer with Preamplifier	18 GHz - 40 GHz	+/- 3.4 dB

NOTES:

1. Applies to 3 and 10 meter measurement distances
2. Applies to all valid combinations of Transducers (i.e. LISNs, Line Voltage Probes, and Antennas, as appropriate)
3. Excludes the Repeatability of the EUT

3. Practical Explanation of the Meaning of Radiated Emissions Measurement Uncertainties

In general, a "Statement of Measurement Uncertainty" means that with a certain (specified) confidence level, the "true" value of a measurand will be between a (stated) upper bound and a (stated) lower bound.

In the specific case of EMC Measurements in this test report, the measurement uncertainties of the conducted emissions measurements and the radiated emissions measurements have been calculated in accordance with the method detailed in the following documents:

- *ANSI Z540.2 (2002) Guide to the Expression of Uncertainty in Measurement*
- NIS 81:1994, *The Treatment of Uncertainty in EMC Measurements* (NAMAS, 1994)
- NIST Technical Note 1297(1994), *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results* (NIST, 1994)

The calculation method used in these documents requires that the stated uncertainty of the measurements be expressed as *an "expanded uncertainty", U, with a k=2 coverage factor*. The practical interpretation of this method of expressing measurement uncertainty is shown in the following example:

EXAMPLE: Assume that at 39.51 MHz, the (measured) radiated emissions level was equal to +26.5 dBuV/m, and that the +/- 2 standard deviations (i.e. 95% confidence level) measurement uncertainty was +/- 3.4 dB.

In the example above, the phrase "k = 2 Coverage Factor" simply means that the measurement uncertainty is stated to cover +/-2 standard deviations (i.e. a 95% confidence interval) about the measurand. The measurand is the radiated emissions measurement of +26.5 dBuV/m at 39.51 MHz, and the 95% bounds for the uncertainty are –3.4 dB to + 3.4 dB. One can thus be 95% confident that the "true" value of the radiated emissions measurement is between +23.1 dBuV/m and +29.5 dBuV/m. *In effect, this means that in the above example there is only a 2.5% chance that the "true" radiated emissions value exceeds +29.5 dBuV/m.*

APPENDIX B

B. Nemko USA, Inc. Test Equipment & Facilities Calibration Program

Nemko USA, Inc. operates a comprehensive Periodic Calibration Program in order to ensure the validity of all test data. Nemko USA's Periodic Calibration Program is fully compliant to the requirements of NVLAP Policy Guide PG-1-1988, ANSI/NCSL Z540-1-1994, ISO 10012:2003, ISO/IEC 17025:1999, and ISO-9000: 2000. Nemko USA, Inc.'s calibrations program therefore meets or exceeds the US national commercial and military requirements [N.B. ANSI/NCSL Z540-1-1994 replaces MIL-STD-45662A].

Specifically, all of Nemko USA's *primary reference standard devices* (e.g. vector voltmeters, multimeters, attenuators and terminations, RF power meters and their detector heads, oscilloscope mainframes and plug-ins, spectrum analyzers, RF preselectors, quasi-peak adapters, interference analyzers, impulse generators, signal generators and pulse/function generators, field-strength meters and their detector heads, etc.) and certain *secondary standard devices* (e.g. RF Preamplifiers used in CISPR 11/22 and FCC Part 15/18 tests) are periodically recalibrated by:

- A Nemko USA-approved independent (third party) metrology laboratory that uses NIST-traceable standards and that is ISO Guide 25-accredited as a calibration laboratories by NIST; or,
- A Nemko USA-approved independent (third party) metrology laboratory that uses NIST-traceable standards and that is ISO Guide 25-accredited as a calibration laboratory by another accreditation body (such as A2LA) that is mutually recognized by NIST; or,
- A manufacturer of Measurement and Test Equipment (M&TE), if the manufacturer uses NIST-traceable standards and is ISO Guide 25-accredited as calibration laboratory either by NIST or by another accreditation body (such as A2LA) that is mutually recognized by NIST; or
- A manufacturer of M&TE (or by a Nemko USA-approved independent third party metrology laboratory) that is not ISO Guide 25-accredited. (In these cases, Nemko USA conducts an annual audit of the manufacturer or metrology laboratory for the purposes of proving traceabilty to NIST, ensuring that adequate and repeatable calibration procedures are being applied, and verifying conformity with the other requirements of ISO Guide 25).

In all cases, the entity performing the Calibration is required to furnish Nemko USA with a calibration test report and/or certificate of calibration, and a "calibration sticker" on each item of M&TE that is successfully calibrated.

Calibration intervals are normally one year, except when the manufacture advises a shorter interval or if US Government directives or client requirements demand a shorter interval. Items of instrumentation/related equipment which fail during routine use, or which suffer visible mechanical damage (during use or while in transit), are sidelined pending repair and recalibration. (Repairs are carried out either in-house [if minor] or by a Nemko USA-approved independent [third party] metrology laboratory, or by the manufacturer of the item of M&TE).

Each antenna used for CISPR 11 and CISPR 22 and FCC Part 15 and Part 18 radiated emissions testing (and for testing to the equivalent European Norms) is calibrated annually by either a NIST (or A2LA) ISO Standard 17025-Accredited third-party Antenna Calibration Laboratory or by the antenna's OEM if the OEM is NIST or A2LA ISO Standard 17025-accredited as an antenna calibration laboratory. The antenna calibrations are performed using the methods specified in Annex G.5 of CISPR 16-1(2003) or ANSI C63.5-2004, including the "Three-Antenna Method". Certain other kinds of antennas (e.g. magnetic-shielded loop antennas) are calibrated annually by either a NIST (or A2LA) ISO Standard 17025-accredited third-party antenna calibration laboratory, or by the antenna's OEM if the OEM is NIST or A2LA ISO Standard 17025-accredited as an antenna calibration laboratory using the procedures specified in the latest version of SAE ARP-958.

In accordance with FCC and other regulations, Nemko USA recalibrates its suite of antennas used for radiated emissions tests on an annual basis. These calibrations are performed as a precursor to the FCC-required annual revalidation of the Normalized Site Attenuation properties of Nemko USA's Open Area Test Site. Nemko USA, Inc. uses the procedures given in both Sub clause 16.6 and Annex G.2 of CISPR 16-1 (2003), and, ANSI C63.4-2003 when performing the normalized site attenuation measurements.

APPENDIX C
C. NVLAP Certification

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:1999

NVLAP LAB CODE: 200116-0

Nemko USA, Inc. - San Diego EMC Division
San Diego, CA
USA

is recognized by the National Voluntary Laboratory Accreditation Program for conformance with criteria set forth in NIST Handbook 150:2001 and all requirements of ISO/IEC 17025:1999.
Accreditation is granted for specific services, listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

2007-01-01 through 2007-12-31
Effective dates

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2005-05-19)

NVLAP® National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:1999

Nemko USA, Inc. - San Diego EMC Division
11696 Sorrento Valley Road, Suite F
San Diego, CA 92121
USA
Ms. Rhonda Saxon
Phone: 858-755-5525 x226 Fax: 858-259-7170
E-Mail: rhonda.saxon@nemko.com
URL: http://www.nemko.com

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200116-0**

NVLAP Code	*Designation / Description*
Emissions Test Methods:	
12/100063c	IEC 61000-6-3 (1996), EN 61000-6-3 (2001), A1 (2004): Electromagnetic Compatibility (EMC) - Part 6: Generic standards - Section 3: Emission standard for residential, commercial, and light-industrial environments.
12/60E213	RTCA DO-160E: Section 21.3, RF Emissions, Conducted
12/60E214	RTCA DO-160E: Section 21.4, RF Emissions, Radiated
12/CIS11f	AS/NZS CISPR 11 (2002): Industrial, scientific and medical (ISM) radio frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement
12/CIS11g	IEC/CISPR 11, Ed. 4.1 (2004-06): Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurements
12/CIS11h	AS/NZS CISPR 11 (2004): Industrial, scientific and medical (ISM) radio frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement

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NVLAP® National Voluntary Laboratory Accreditation Program

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200116-0**

NVLAP Code	*Designation / Description*
12/CIS11i	IEC/CISPR 11, Ed. 4.1 (2004-06) + A1(2004): Industrial, scientific and medical (ISM) radio frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement
12/CIS11j	EN 55011 (1998) + A1(1999), A2(2002): Industrial, scientific and medical (ISM) radio frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement
12/CIS11k	IEC/CISPR 11 (2003), EN 55011 (1998), A2(2002): Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific, and Medical Radio-Frequency Equipment
12/CIS13c	CISPR 13 (2003) + Amdt 1(2003) & AS/NZS CISPR 13 (2004): Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement
12/CIS14	CISPR 14-1 (March 30, 2000): Limits and Methods of Measurement of Radio interference Characteristics of Household Electrical Appliances, Portable Tools and Similiar Electrical Apparatus - Part 1: Emissions
12/CIS14a	EN 55014-1 (1993), A1 (1997), A2 (1999).
12/CIS14b	AS/NZS 1044 (1995):
12/CIS14b1	AS/NZS CISPR 14-1 (2003): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
12/CIS14c	CNS 13783-1: Electromagnetic Compatibility Requirements for household appliances, electric tools and similar apparatus - Part 1: Emissions
12/CIS14x	IEC/CISPR 14-1, Ed. 4 (2003): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission

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NVLAP Code	*Designation / Description*
12/CIS15b	CNS 13439 (2000) + A1 (2001): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS22	IEC/CISPR 22 (1997) & EN 55022 (1998) + A1(2000): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22 (1993) and EN 55022 (1994): Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1 (1995) and Amendment 2 (1996)
12/CIS22a4	IEC/CISPR 22 (1993) & EN 55022 (1994)+A1(1995), A2(1997): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22b	CNS 13438 (1997): Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/CIS22c1	IEC/CISPR 22, Edition 5 (2005) and EN 55022 (1998): Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
12/CIS22c3	IEC/CISPR 22, Edition 5 (2005) + A1(2005): Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
12/CIS22e4	EN 55022 (1998) + A1(2000) + A2(2003): information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
12/CIS25b	IEC/CISPR 25, 2nd ed. (2002-08): Radio disturbance characteristics for the protection of receivers used on board vehicles, boats, and on devices – Limits and methods of measurement: Sections 6.2, 6.3, 6.4, & 6.5
12/EM02a	IEC 61000-3-2, Edition 2.1 (2001-10), EN 61000-3-2 (2000), and AS/NZS 2279.1 (2000): Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A)

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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200116-0**

NVLAP Code	*Designation / Description*
12/EM02d	IEC 61000-3-2, Edition 2.2 (2004-11): Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A per phase)
12/EM03b	IEC 61000-3-3, Edition 1.1(2002-03) & EN 61000-3-3, A1(2001): EMC - Part 3-3: Limits - Limitations of voltage changes, voltage fluctuations and flicker, in public low-voltage supply-systems, for equipment with rated current <=16 A per phase and not subject to conditional connections
12/EM03g	IEC 61000-3-3, Edition 1.1 (2003) +A2 (2005): EMC Part 3-3: Limits - Limitations of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connections
12/EM11en	EN 61000-3-11, 1st Ed (2000-08): EMC - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems -Equipment with rated current <=75A and subject to conditional connection
12/EM12	IEC 61000-3-12, Rev 04, November 2004: Electromagnetic Compatibility (EMC) - PART 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current greater than 16 A and less than or equal to 75 A
12/EN11	EN 61000-3-11, Rev 01, Feb 2001: Electromagnetic Compatibility (EMC) Limits, Limitation of Voltage Changes, Voltage Fluctuations and Flicker in public low-voltage supply systems - Equipment with rated voltage current < 75 A and subject to conditional connection
12/F18	FCC OST/MP-5 (1986): FCC Methods of Measurement of Radio Noise Emissions for ISM Equipment (cited in FCC Method 47 CFR Part 18 - Industrial, Scientific, and Medical Equipment)
12/FCC11	ANSI C63.4 (2003) with FCC Method - 47 CFR Part 11: Emergency Alert System (EAS)
12/FCC15b	ANSI C63.4 (2003) with FCC Method 47 CFR Part 15, Subpart B: Unintentional Radiators

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NVLAP Code	*Designation / Description*
12/FCC15c1	ANSI C63.4 (2003) and Millimeter Wave Test Procedures: IDB 20040420-001 with FCC Method - 47 CFR Part 15, Subpart C: Intentional Radiators
12/FCC15c2	DA 00-705 - March 30, 2000 and KDB Pub. No. 558074: with FCC Method - 47 CFR Part 15, Subpart C: Intentional Radiators - (Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems - and - New Guidance on Measurements for Digital Transmission Systems in Section 15.247)
12/FCC15c3	KDB Pub. No. 200433 Millimeter Wave Test Procedures: with FCC Method - 47 CFR Part 15, Subpart C: Intentional Radiators
12/FCC15d	ANSI C63.17(1998) and ANSI C63.4 (2003): with FCC Method - 47 CFR Part 15, Subpart D: Unlicensed Personal Communications Service Devices
12/T51a	AS/NZS CISPR 22 (2004): Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
12/VCCIb	Agreement of VCCI V-3 (2006.04): Agreement of Voluntary Control Council for Interference by Information Technology Equipment - Technical Requirements: V-3/2006.04
Immunity Test Methods:	
12/60E15	RTCA DO 160E: Section 15, Magnetic Effects
12/60E16	RTCA DO160E: Section 16, Power Input
12/60E17	RTCA DO-160E: Section 17, Voltage Spikes
12/60E18	RTCA DO-160E: Section 18, Audio Frequency Conducted Susceptibility
12/60E19	RTCA DO-160E: Section 19, Induced Signal Susceptibility
12/60E20A	RTCA DO-160E: Section 20.4, RF Susceptibility, Conducted
12/60E20S	RTCA DO-160E: Section 20.5, RF Susceptibility, Radiated

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NVLAP Code	*Designation / Description*
12/60E22	RTCA DO-160E: Section 22, Lightning Induced Transient Susceptibility
12/60E25	RTCA DO-160E: Section 25, Electrostatic Discharge (ESD)
12/610006h	IEC 61000-6-1, 2nd edition (2005-03): Electromagnetic compatibility (EMC) - Part 6: Generic standards - Section 1: Immunity for residential, commercial and light-industrial environments
12/610006i	IEC 61000-6-2, Edition 2.0 (2005-01): Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
12/I01	IEC 61000-4-2, Ed. 1.2 (2001) + A1, A2; EN 61000-4-2: Electrostatic Discharge Immunity Test
12/I01b	IEC 61000-4-2 (2001); EN 61000-4-2 (2001), A2 (2001): Electrostatic Discharge Immunity Test
12/I01c	EN 61000-4-2 +A1(1998) +A2(2001): Electrostatic Discharge Immunity Test
12/I02	IEC 61000-4-3, Ed. 2.0 (2002-03); EN 61000-4-3 (2002): Radiated Radio-Frequency Electromagnetic Field Immunity Test
12/I02b	IEC/EN 61000-4-3, Ed. 2.1 (2002), A1 (2002); EN 61000-4-3: Radiated, radio-frequency, electromagnetic field immunity test
12/I02c	EN 61000-4-3 (2002) + A1(2002) + IS1(2004): Radiated, radio-frequency, electromagnetic field immunity test
12/I02f	EN 61000-4-3 (2002) + A1(2002): Radiated, radio-frequency, electromagnetic field immunity test
12/I03	IEC 61000-4-4(1995), A1(2000), A2(2001); EN 61000-4-4: Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical Fast Transient/Burst Immunity Test

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NVLAP Code	*Designation / Description*
12/I03c	IEC 61000-4-4, Ed. 2.0 (2004-07): Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test
12/I04	IEC 61000-4-5, Ed. 1.1 (2001-04); EN 61000-4-5: Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test
12/I04b	IEC 61000-4-5 (2001), A1(2000); EN 61000-4-5(2001), A1(2000): Surge Immunity Test
12/I05	IEC 61000-4-6, Ed. 2.0 (2003-05); EN 61000-4-6: Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
12/I05d	IEC 61000-4-6, Ed. 2.1 (2004); EN 61000-4-6: Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
12/I05e	EN 61000-4-6 (1996) + A1 (2001) + IS1(2004): Immunity to Conducted Disturbances, Induced by Radio Frequency Fields
12/I06	IEC 61000-4-8, Ed. 1.1 (2001); EN 61000-4-8: Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test
12/I06b	IEC 61000-4-8 (2001), A1(2000); EN 61000-4-8 (2001),A1(2000): Power Frequency Magnetic Field Immunity Test
12/I06c	EN 61000-4-8 (1993) + A1 (2001): Power Frequency Magnetic Field Immunity Test
12/I07	IEC 61000-4-11, Ed. 1.1 (2001-03); EN 61000-4-11: Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests
12/I07c	IEC 61000-4-11, Ed. 2 (2004-03) & EN 61000-4-11: Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests

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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200116-0**

NVLAP Code	*Designation / Description*
12/I07c	EN 61000-4-11 (1994), A1 (2001): Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests
12/I07f	EN 61000-4-11 (2004): Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests
12/I12	IEC 61000-4-12 , Edition 1.1 (2001-04): Testing and Measurement Techniques - Oscillatory Wave Immunity Test
12/KN11a	KN 61000-4-11 with RRL Notice No. 2005-130 (Dec 27, 2005): Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests
12/KN132	Korea RRL Notice 132 (october 2005): Conformity Assessment Procedure for Electromagnetic Susceptibility
12/KN150	EMS RRL Notice No. 2005-130: 2005.12.27: RRL Notice No. 2005-130: Technical Requirements for Electromagnetic Susceptibility Annex 1-7 (KN61000-4-2, -3, -4, -5, -6, -8, -11), RRL Notice No. 2005-132: Conformity Assessment Procedures for Electromagnetic Susceptibility
12/KN24	KN24 (December 2005) with RRL Notice No. 2005-83: Information Technology Equipment - immunity charateristics - limits and methods of measurements
12/KN2a	KN 61000-4-2 with RRL Notice No. 2005-130 (Dec. 27, 2005): Electrostatic Discharge Immunity Test
12/KN31	Korea RRL Notice No. 31 (2004): Conformity Assessment Procedures for Electromagnetic Susceptibility using KN 61000-4-2, KN 61000-4-3, KN 61000-4-4, KN 61000-4-5, KN 61000-4-8, KN 61000-4-11, KN 20, KN 41, and KN 50.
12/KN3a	KN 61000-4-3 with RRL Notice No. 2005-130 (Dec. 27, 2005): Radiated, radio-frequency, electromagnetic field immunity test

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For the National Institute of Standards and Technology

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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200116-0**

NVLAP Code	*Designation / Description*
12/KN4a	KN 61000-4-4 with RRL Notice No. 2005-130 (Dec. 27, 2005): Electromagnetic compatibility (EMC): Testing and measurement techniques - Electrical Fast Transient/Burst Immun
12/KN5a	KN 61000-4-5 with RRL Notice No. 2005-130 (Dec. 27, 2005): Surge Immunity Test
12/KN6a	KN 61000-4-6 with RRL Notice No. 2005-130 (Dec. 27, 2005): Electromagnetic compatibility (EMC): Testing and measurement techniques - Immunity to conducted disturbances,
12/KN70	Korea RRL Notice 70 (2004): Technical Requirements for Electromagnetic Susceptibility using KN 61000-4-2, KN 61000-4-3, KN61000-4-4, KN 61000-4-5, KN 61000-4-6, KN 61000-4-8, KN 20, KN 41, and KN 51
12/KN8a	KN 61000-4-8 with RRL Notice No. 2005-130 (Dec. 27, 2005): Power Frequency Magnetic Field Immunity Test
Product Safety Test Methods	
12/60601a	IEC 60601-1-2, Ed1(1993);Ed2(2001-09); JIS T0601-1-2(2002.7): Medical electrical equipment - Part 1 and Part 1-2: General requirements for safety: Collateral standard: EMC - Requirements and tests
MIL-STD-462 : Conducted Emissions:	
12/A01	MIL-STD-462 Method CE01
12/A04	MIL-STD-462 Method CE02
12/A06	MIL-STD-462 Method CE03
12/A08	MIL-STD-462 Method CE04
12/A10	MIL-STD-462 Method CE06

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NVLAP® National Voluntary Laboratory Accreditation Program

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200116-0**

NVLAP Code	*Designation / Description*
12/A12	MIL-STD-462 Method CE07
12/A13	MIL-STD-462 Version D Method CE101
12/A14	MIL-STD-462 Version D Method CE102
12/A15	MIL-STD-462 Version D Method CE106
12/A16	MIL-STD-461 Version E Method CE101
12/A17	MIL-STD-461 Version E Method CE102
12/A18	MIL-STD-461 Version E Method CE106
MIL-STD-462 : Conducted Susceptibility:	
12/B01	MIL-STD-462 Method CS01
12/B02	MIL-STD-462 Method CS02
12/B04	MIL-STD-462 Method CS03/CS04/CS05/CS08
12/B05	MIL-STD-462 Method CS06
12/B06	MIL-STD-462 Method CS07
12/B07	MIL-STD-462 Method CS09
12/B08	MIL-STD-462 Method CS10
12/B09	MIL-STD-462 Method CS11
12/B10	MIL-STD-462 Method CS12
12/B11	MIL-STD-462 Method CS13
12/B12	MIL-STD-462 Version D Method CS101

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NVLAP-01S (REV. 2005-05-19)

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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200116-0**

NVLAP Code	*Designation / Description*
12/B13	MIL-STD-462 Version D Method CS103
12/B14	MIL-STD-462 Version D Method CS104
12/B15	MIL-STD-462 Version D Method CS105
12/B16	MIL-STD-462 Version D Method CS109
12/B17	MIL-STD-462 Version D Method CS114
12/B18	MIL-STD-462 Version D Method CS115
12/B19	MIL-STD-462 Version D Method CS116
12/B20	MIL-STD-461 Version E Method CS101
12/B21	MIL-STD-461 Version E Method CS103
12/B22	MIL-STD-461 Version E Method CS104
12/B23	MIL-STD-461 Version E Method CS105
12/B24	MIL-STD-461 Version E Method CS109
12/B25	MIL-STD-461 Version E Method CS114
12/B26	MIL-STD-461 Version E Method CS115
12/B27	MIL-STD-461 Version E Method CS116
MIL-STD-462 : Radiated Emissions:	
12/D01	MIL-STD-462 Method RE01
12/D02	MIL-STD-462 Method RE02
12/D03	MIL-STD-462 Method RE03

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NVLAP-01S (REV. 2005-05-19)

NVLAP® National Voluntary Laboratory Accreditation Program

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200116-0**

NVLAP Code	*Designation / Description*
12/D04	MIL-STD-462 Version D Method RE101
12/D05	MIL-STD-462 Version D Method RE102
12/D06	MIL-STD-462 Version D Method RE103
12/D07	MIL-STD-461 Version E Method RE101
12/D08	MIL-STD-461 Version E Method RE102
12/D09	MIL-STD-461 Version E Method RE103
MIL-STD-462 : Radiated Susceptibility:	
12/E01	MIL-STD-462 Method RS01
12/E02	MIL-STD-462 Method RS02
12/E03	MIL-STD-462 Method RS03 (Consult laboratory for field strengths available)
12/E04	MIL-STD-462 Method RS03 employing RADHAZ procedures for high level testing (Consult laboratory for field strengths available)
12/E07	MIL-STD-462 Method RS06
12/E08	MIL-STD-462 Version D Method RS101
12/E09	MIL-STD-462 Version D Method RS103
12/E11	MIL-STD-461 Version E Method RS101
12/E12	MIL-STD-461 Version E Method RS103

2007-01-01 through 2007-12-31
Effective dates

For the National Institute of Standards and Technology

NVLAP-01S (REV. 2005-05-19)

APPENDIX D

D. Nemko Authorization

Nemko

Nemko Laboratory Authorisation

Aut. No.: ELA 137-b

R&TTE Directive

EMC Laboratory: **Nemko EESI, Inc.**
11696 Sorrento Valley Road, Suite F
San Diego, CA 92121
USA

Scope of Authorization: **All standards for EMC and radio transmission that are listed on the accompanying page with reference to the R&TTE Directive.**

Nemko has assessed the quality assurance system , the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA -10. During the visit by the Nemko representative it was found that the Laboratory is capable of performing tests within the Scope of the Authorisation.

Accordingly, Nemko will normally accept test results from the laboratory on a partial or complete basis for certification of the products.

In order to maintain the Authorisation, the information given in the pertinent NLA-10 must be carefully followed. Nemko is to be promptly notified about any changes in the situation at the Laboratory, which may affect the basis for this Authorisation. The Authorisation may be withdrawn at any time if the conditions are no longer considered to be fulfilled.

The Authorisation is valid through 31 December 2008.

Oslo, 01 January 2006

For Nemko AS:

TB Ketterling

TB Ketterling, Nemko Group EMC Co-ordinaton

NLA 3 ED2-2003

Nemko

Nemko Laboratory Authorisation

Aut. No.: ELA 137-b

R&TTE Directive

SCOPE OF AUTHORIZATION

BASIC TESTS AND ASSOCIATED STANDARDS

Capability to perform a basic test implies also that any product (family) standard calling up this basic test is also within the scope if mentioned below or not.

Disturbance emissions		
Electromagnetic radiation dist., 9 kHz to 30 MHz, re.: EN 55011 (CISPR 11), EN 60945 (IEC 60945)	***Electromagnetic radiation disturbance, 30 to 1000 MHz, re.:*** EN 55011 (CISPR 11), EN 55013 (CISPR 13), EN 55022 (CISPR 22),	***Electromagnetic radiation disturbance, above 1 GHz, re.:*** EN 55011 (CISPR 11), EN 55022 (CISPR 22)
Electromagnetic radiation dist., 9 kHz to 30 MHz, "Van Veen loop",: EN 55015 (CISPR 15)	***Electromagnetic radiation disturbance, 50 Hz to 50 kHz, re:*** EN 55103-1	***Conducted common-mode dist. power, 30-1000 MHz, re.:*** EN 55013 (CISPR 13) EN 55014-1 (CISPR 14-1)
Mains terminal dist. voltage, re.: EN 55011 (CISPR 11), EN 55013 (CISPR 13), EN 55014-1 (CISPR 14-1), EN 55015 (CISPR 15), EN 55022 (CISPR 22), EN 60945 (IEC 60945),	***Conducted terminal disturbance, Hi-Z probe, re:*** EN 55011 (CISPR 11) EN 55014-1 (CISPR 14-1)	***Conducted discontinuous disturbance on power port, re.:*** EN 55014-1 (CISPR 14-1), section 4.2
Conducted common-mode dist. at telecom/network ports, re.: EN 55022 (CISPR 22)	***Conducted antenna terminal disturbance, re:*** EN 55013 (CISPR 13)	***Luminaire insertion loss, re:*** EN 55015 (CISPR 15)
Mains inrush current, re: EN 55103-1	***Harmonic current emissions, re.:*** EN 61000-3-2 (IEC 61000-3-2)	***Voltage fluctuations and flicker in low-voltage supply systems, re.:*** EN 61000-3-3 (IEC 61000-3-3), EN 61000-3-11 (IEC 61000-3-11)
Immunity		
Electrostatic discharge immunity test, Re.: EN 61000-4-2 (IEC 61000-4-2)	***Radiated, radio-frequency, electromagnetic field immunity re.:*** EN 61000-4-3 (IEC 61000-4-3) ENV 50140:1993, ENV 50204:1995	***Power frequency magnetic field immunity test, re.:*** EN 61000-4-8 (IEC 61000-4-8)
Radiated audio-frequency H-field, re: EN 55103-2	***Radiated E-field, 150 kHz to 150 MHz, re:*** EN 55020 (CISPR 20)	***Electrical fast transient/burst immunity test, re.:*** EN 61000-4-4 (IEC 61000-4-4)
Surge immunity test, re.: EN 61000-4-5 (IEC 61000-4-5) ENV 50142:1994	***Immunity to conducted dist., induced by r-f, re.:*** EN 61000-4-6 (IEC 61000-4-6) ENV 50141:1993	***Immunity to voltage dips, short interruptions and voltage variation, re.:*** EN 61000-4-11 (IEC 61000-4-11)
Conducted antenna terminal, re: EN 55020 (CISPR 20)	***Conducted audio/video ports, re:*** EN 55020 (CISPR 20)	BLANK

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PRODUCT-FAMILY STANDARDS

Unless specifically noted, only the sections of the standards below which are covered by the capability listing above are assumed covered by this authorisation. When the capability is expanded, more parts of the product standards will be covered.

Land mobile service analogue speech EN 300 086-2 V.1.2.1 (doc=exp)	***Land mobile service data*** EN 300 113-2 V.1.1.1 (doc=exp) EN 300 113-2 V.1.2.1 EN 300 113-2 V.1.3.1	***CB – Angle modulated*** EN 300 135-2 V.1.1.1 (doc=exp)
Maritime VHF service EN 300 162 –2 V.1.1.2 (doc=exp)	***SRD 25 – 1000 MHz, Art. 3.2*** EN 300 220-3 :2000 (doc=exp) EN 300 220-3 V1.1.1	***On-site pagers*** EN 300 224 –2 V.1.1.1 (doc=exp)
Land mobile service analogue speech – internal antenna EN 300 296 –2 V.1.1.1 (doc=exp)	***Spread spectrum 2,4 GHz, Art 3.2*** EN 300 328-1 V1.2.2 (2000) EN 300 328-1V.1.3.1 (2001) EN 300 328 V.1.4.1 (2002) EN 300 328 V.1.5.1 EN 300 328 V.1.6.1	***Land mobile service RP2*** EN 300 341 –2 V.1.1.1 (doc=exp)
Land mobile service integral antenna EN 300 390-2 V.1.1.1 (doc=exp)	***CB radio DSB/SSB*** EN 300 433-2 V.1.1.1 (doc=exp) EN 300 433-2 V.1.1.2 (doc=exp)	***SRD 1 GHz – 40 GHz. Art 3.2*** EN 300 440-02 V.1.1.1 (doc=exp)
Wideband audio links EN 300 454-2 V.1.1.1 (doc=exp)	***Maritime earth stn. Art. 3.1.b*** EN 300 829 :1998 (doc=exp)	***Radio paging. Art 3.1.b*** EN 301 489-01:2000 V.1.2.1 (doc=exp) EN 301 489-01:2001 V.1.3.1 (doc=30.06.03) EN 301 489-01:2002 V.1.4.1 (doc=30.11.05)
SRD 9 GHz – 40 GHz. Art 3.1.b EN 301 489-03 V.1.3.1 (2001) (doc=31.08.03) EN 301 489-03 V.1.2.1 (2000) (doc=31.10.03) EN 301 489-03 V.1.4.1 (2002)	***Fixed radio links. Art 3.1.b*** EN 301 489-04 V1.3.1 EN 301 489-04 :2000 (doc=31.12.02)	***PMR. Art. 3.1.b*** EN 301 489-05 :V1.3.1 EN 301 489-05 :V1.2.1 EN 301 489-05 :2000 (doc=exp)
DECT. Art 3.1.b EN 301 489-06:V1.1.1 EN 301 489-06:V1.2.1 EN 301 489-06:2000 (doc=31.03.03)	***GSM & DCS mobile & portable. Art 3.1.b*** EN 301 489-07 :V1.1.1 EN 301 489-07 :V1.2.1 EN 301 489-07:2000 (doc=exp)	**GSM & DCS base stn. Art 3.1.b** EN 301 489-08 V.1.1.1 EN 301 489-08 V.1.2.1
Wireless microphones. Art. 3.1.b EN 301 489-09 V.1.1.1 (doc=exp) EN 301 489-09:V.1.2.1 (doc=01.08.05) EN 301 489-09V.1.3.1 (doc=31.11.05)	***CT2. Art 3.1.b*** EN 301 489-10 V.1.1.1 (doc=exp) EN 301 489-10 V.1.2.1 (dos=01.08.05) EN 301 489-10 V.1.3.1 (dos=30.11.05)	***Terrestrial sound broadcastiing. Art. 3.1.b*** EN 301 489-11 V.1.1.1 (doc=01.08.05) EN 301 489-11 V.1.2.1 (doc=30.11.05)
VSAT fixed 4- 30 GHz. Art. 3.1.b EN 301 489-12 V.1.1.1 (doc=exp) EN 301 489-12 V.2.1.1 (doc=31.07.06)	***CB radio. Art. 3.1.b*** EN 301 489-13 V.1.1.1 (doc=exp) EN 301 489-13 V.1.2.1 (doc=30.11.2005)	***Commercial amateur radio. Art 3.1.b*** EN 301 489-15 V.1.1.1 (doc=exp) EN 301 489-15 V.1.2.1 (doc=30.11.05)
Wideband & Hiperlan. Art 3.1.b EN 301 489-17 V.1.1.1 (2000) (doc=exp) EN 301 489-17 V.1.2.1 (2002) (doc=30.11.05)	***TETRA. Art. 3.1.b*** EN 301 489-18 V.1.2.1 (doc=exp) EN 301 489-18 V.1.3.1 (doc=30.11.2005)	***MES. Art. 3.1.b*** EN 301 489-20 V.1.1.1 (doc=exp) EN 301 489-20 V.1.2.1 (doc=30.11.05)

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Marine radio equipment	***Harmonics. Art 3.1.b***	***Flicker. Art 3.1.b***
EN 301 843-2 V.1.1.1 (doc=exp) EN 301 843-2 V.1.2.1 (doc=exp) EN 301 843-2 V.1.3.1 (doc=28.02.07)	EN 61000-3-2 :2000 (doc=1.1.04)+A2 :2005 IEC 61000-3-2 :2000 (mod) + A1 :2001 +A2 :2004	EN 61000-3-3 :1995 (doc=exp) + A1 :2001 (doc=1.5.04) IEC 61000-3-3 :1994 + A1 :2001 EN 61000-3-11 :00 (doc=1.11.03) IEC 61000-3-11 :00

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