Test 5, Item A - Test Set-Up Photo - Maximum Emissions Configuration:

Radiated Disturbance Emissions - Above 1 GHz

Test 6: Radiated Disturbance Emissions - Restricted Bands

Test Requirement: 47 CFR Part 15, Subpart C

Test Specification: 47 CFR Part 15, Subpart C, Section 15.205

Test Procedure:

The EUT is verified to produce only spurious emissions in the bands listed below. Where spurious emissions exist they must comply with the general limits from 47 CFR Part 15, Section 15.209.

Results from measurements are examined to ensure that no spurious emission in a restricted band (below) exceeds the general limits in Section 15.209. The restricted bands from Section 15.205 are:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	608 - 614	4.5 - 5.15
0.495 - 0.505	16.69475 - 16.69525	960 - 1240	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	1300 - 1427	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1435 - 1626.5	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1645.5 - 1646.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1660 - 1710	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1718.8 - 1722.2	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	2200 - 2300	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2310 - 2390	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2483.5 - 2500	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2655 - 2900	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	3260 - 3267	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3332 -3339	23.6 - 24.0
12.29 - 12.293	127.72 - 167.17	3345.8 - 3358	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3600 - 4400	36.43 - 36.5
12.57675 - 12.57725	332-335.4		Above 38.6
13.36 - 13.41	399.9 - 410		

All spurious emissions, including harmonics falling within restricted bands were observed to meet the general limits of 15.209.

Test Deviations:

None

Test Setup: Only the following ports were tested. See EUT Information for details.

Test Item	Port #	Port Name	EUT Operation Mode	EUT Configuration	Power Interface
A	1		1	1	1

Test 6 - Results: Radiated Disturbance Emissions - Restricted Bands

Test Results Summary:

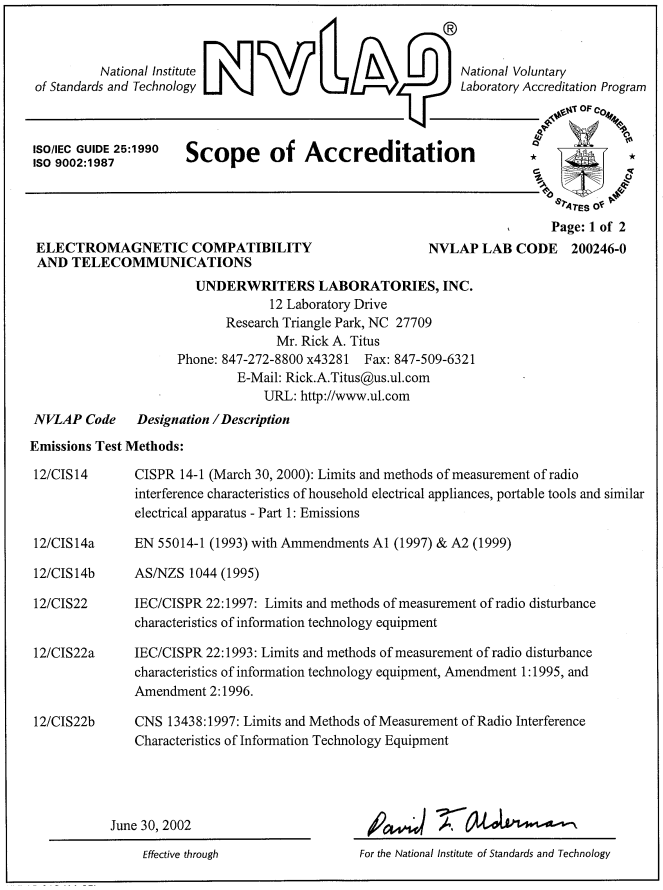
Test Item	Test Location	Humidity (%)	Temperature (ºC)	Pressure (kPa)	Pass/Fail (P/F)	Date Completed	Comment #
A	A	44.0	23.0	100.1	P	3/11/02	

The EUT was considered to **Pass** the Requirements.

Comments:

Comment #	Description
1	Restricted bands apply to spurious frequencies at 608 MHz, 1216 MHz, 1520 MHz, and 2736 MHz.
2	Emissions at these spuriour frequencies comply with General Limits of FCC Part 15.209. See Test 4 and Test 5 for measurements.

Accreditation Certificates:



National Institute of Standards and Technology NVLAP® National Voluntary Laboratory Accreditation Program

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Scope of Accreditation

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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200246-0**

UNDERWRITERS LABORATORIES, INC.
12 Laboratory Drive
Research Triangle Park, NC 27709
Mr. Rick A. Titus
Phone: 847-272-8800 x43281 Fax: 847-509-6321
E-Mail: Rick.A.Titus@us.ul.com
URL: http://www.ul.com

NVLAP Code	*Designation / Description*
Emissions Test Methods:	
12/CIS14	CISPR 14-1 (March 30, 2000): Limits and methods of measurement of radio interference characteristics of household electrical appliances, portable tools and similar electrical apparatus - Part 1: Emissions
12/CIS14a	EN 55014-1 (1993) with Ammendments A1 (1997) & A2 (1999)
12/CIS14b	AS/NZS 1044 (1995)
12/CIS22	IEC/CISPR 22:1997: Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22:1993: Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1:1995, and Amendment 2:1996.
12/CIS22b	CNS 13438:1997: Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment

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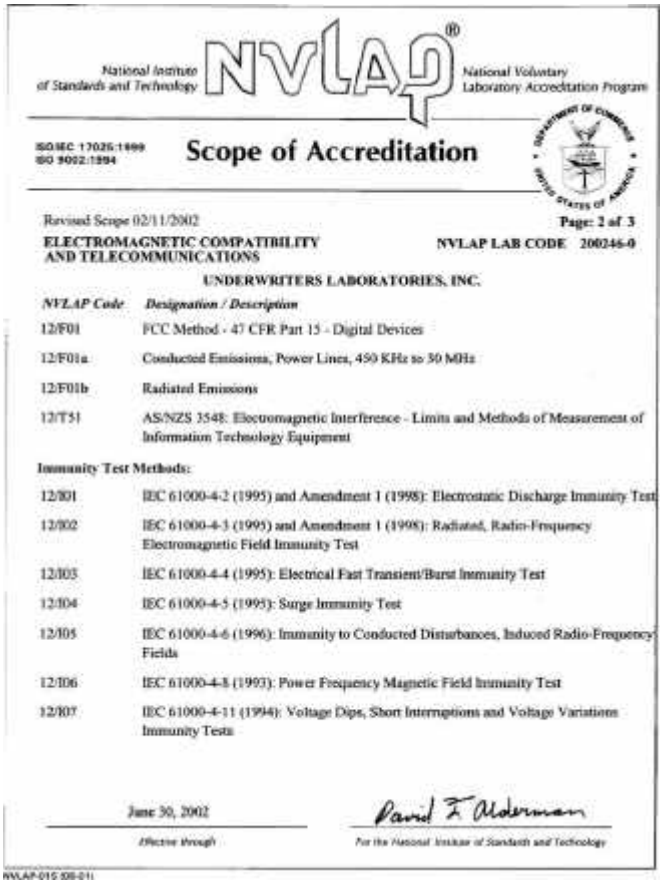
David F. Alderman — *For the National Institute of Standards and Technology*



National Institute of Standards and Technology NVLAP® National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Revised Scope 02/11/2002

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ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 200246-0**

UNDERWRITERS LABORATORIES, INC.

NVLAP Code	*Designation / Description*
12/F01	FCC Method - 47 CFR Part 15 - Digital Devices
12/F01a	Conducted Emissions, Power Lines, 450 KHz to 30 MHz
12/F01b	Radiated Emissions
12/T51	AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment
Immunity Test Methods:	
12/I01	IEC 61000-4-2 (1995) and Amendment 1 (1998): Electrostatic Discharge Immunity Test
12/I02	IEC 61000-4-3 (1995) and Amendment 1 (1998): Radiated, Radio-Frequency Electromagnetic Field Immunity Test
12/I03	IEC 61000-4-4 (1995): Electrical Fast Transient/Burst Immunity Test
12/I04	IEC 61000-4-5 (1995): Surge Immunity Test
12/I05	IEC 61000-4-6 (1996): Immunity to Conducted Disturbances, Induced Radio-Frequency Fields
12/I06	IEC 61000-4-8 (1993): Power Frequency Magnetic Field Immunity Test
12/I07	IEC 61000-4-11 (1994): Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests

June 30, 2002 — *Effective through*

David F. Alderman — *For the National Institute of Standards and Technology*

NVLAP-01S (08-01)

Measurement Uncertainty Statement

The limits and test levels used in this report are based on the referenced standards and/or specifications listed without regard to the estimated uncertainty of measurements factors listed below. Any statement in this report related to the compliance or non-compliance with the applicable limits does not include adjustments for the estimates of measurement uncertainty.

1. For those results that remain within the stated limits after the application of the estimate of measurement uncertainty factors, the statement of compliance of items, as tested, is confirmed.

2. For those results that do not remain within the stated limits after the application of the estimate of measurement uncertainty factors, the statement of compliance is **not** changed by UL; however, the manufacturer is advised that the margin of compliance should be improved to ensure that margin of compliance with condition 1 listed above is achieved.

Note: The final determination of compliance or non-compliance with the limits of a particular standard and/or specification may require including the application of the measurement uncertainty factors listed, if required by the standard or specification. Manufacturers are advised to consider this possible requirement in issuing declarations of conformity, certificates of compliance, or the like based on this test report.

Expanded Estimate of Uncertainty (k = 2, for 95% of a normal distribution)

1. **Radiated Emissions (ANSI C63.4 Test Methods)**

- 0.01 to 30 MHz = +/- 2.4 dB (Vertical Rod Antenna)
- 30 to 200 MHz = +/- 3.0 dB (Biconical or Dipole Antenna)
- 200 to 1000 MHz = +/- 3.1 dB (Log Periodic, Horn, or Dipole Antenna)
- Above 1000 MHz = +/- 3.1 dB (Horn Antenna)

2. Conducted Emissions (ANSI C63.4 Test Methods)

- 0.01 to 30 MHz = +/- 1.0 dB

Canadian Site Registration:

Industry Canada Industrie Canada

Certification and Engineering Bureau
1241 Clyde Avenue
Ottawa, Ontario
K2C 1Y3

Tel. No. (613) 952-3650
Fax. No. (613) 952-1088

December 11, 1997

Jodine E. Smyth
Underwriters Laboratory Inc.
333 Pfingsten Road
Northbrook, Illinois 60062-2096

Our File: 46390-2953
Submission: 20309 O

Dear Ms. Smyth,

The Bureau has received your test report for the Alternate Test Site located at Reasearch Triangle Park, North Carolina, dated December 5, 1997. I have reviewed the report and find it complies with RSP 100, Issue 7, section 3.3 Description of Open Area Test Site.

The site is acceptable to Industry Canada for the performance of radiated measurements. Please reference the file number " IC 2953 " in the body of all test reports containing measurements made on this site. This reference number is the indication of Industry Canada's acceptance of your site.

Whenever major construction or repairs to the site are completed, a re-submission of the site attenuation characteristics will be required.

Yours sincerely,

Brian Kasper

Brian Kasper
Head, EMC and Standards
Certification and Engineering Bureau

Canada