M. Flom Associates, Inc. - Global Compliance Center
3356 North San Marcos Place, Suite 107, Chandler, Arizona 85225-7176
www.mflom.com general@mflom.com (480) 926-3100, FAX: 926-3598

Transmitter Certification

of

FCC ID: MIKNUMET915G4
Model: NUMET915G4

to

Federal Communications Commission

Rule Part 15.245

Date of report: September 4, 2003
Date of Submission: March 3, 2003

On the Behalf of the Applicant:

Nu-Metrics

At the Request of: P.O. 30200-415

Nu-Metrics
P.O. Box 518
University Drive, RT 119
Uniontown, PA 15401

Attention of: Ed Nichols, Director, Engineering
email: ed.nichols@nu-metrics.com
(724) 438-8750; fax: -8769

Supervised by: Morton Flom, P. Eng.

List Of Exhibits
(FCC **Certification** (Transmitters) - Revised 9/28/98)

Applicant: Nu-Metrics

FCC ID: MIKNUMET915G4

By Applicant:

1. Letter Of Authorization x

2. Identification Drawings
   - x Label
   - x Location of Label
   - x Compliance Statement
   - x Location of Compliance Statement

3. Documentation: 2.1033(B)

(3)	User Manual	x
(4)	Operational Description	x
(5)	Block Diagram	x
(5)	Schematic Diagram	x
(7)	Photographs	x
	Active Devices	x

By M.F.A. Inc.

A. Testimonial & Statement of Certification

The applicant has been cautioned as to the following:

15.21 Information to User.

The users manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27(a) Special Accessories.

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a) **Test Report**

b) Laboratory: M. Flom Associates, Inc.
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107
(Canada: IC 2044) Chandler, AZ 85225

c) Report Number: d0390011

d) Client: Nu-Metrics
P.O. Box 518
University Drive, RT 119
Uniontown, PA 15401

e) Identification: NUMET915G4
FCC ID: MIKNUMET915G4
Description: Vehicle Sensor

f) EUT Condition: Not required unless specified in individual tests.

g) Report Date: September 4, 2003
EUT Received: June 3, 2003

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

l) Uncertainty: In accordance with MFA internal quality manual.

m) Supervised by:

Morton Flom, P. Eng.

n) Results: The results presented in this report relate only to the item tested.

o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

List of General Information Required for Certification

In Accordance With FCC Rules and Regulations,
Volume II, Part 2 and to

Part 15.245

Sub-part 2.1033
(c)(1): **Name and Address of Applicant**:

Nu-Metrics
P.O. Box 518
University Drive, RT 119
Uniontown, PA 15401

Manufacturer:

Applicant

(c)(2): **FCC ID**: MIKNUMET915G4

Model Number: NUMET915G4

(c)(3): **Instruction Manual(s)**:

Please See Attached Exhibits

(c)(4): Type Of Emission: N/A

(c)(5): **FREQUENCY RANGE, MHz**: 909 to 921

(c)(6): **Power Rating, W**: 0.010
____ Switchable ____ Variable _x_ N/A

(c)(7): **Maximum Power Rating, W**: 10 mv/m @ 3m

15.203: **Antenna Requirement**:
____ The antenna is permanently attached to the EUT
____ The antenna uses a unique coupling
____ The EUT must be professionally installed
_x_ The antenna requirement does not apply

Subpart 2.1033 (continued)
(c)(8): Voltages & currents in all elements in final RF Stage, including final transistor or solid state device:

Collector Current, A	=	0.70
Collector Voltage, Vdc	=	3.6
Supply Voltage, Vdc	=	3.6

(c)(9): **Tune-Up Procedure**:

Please See Attached Exhibits

(c)(10): **Circuit Diagram/Circuit Description**:
Including description of circuitry & devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation and limiting power.

Please See Attached Exhibits

(c)(11): **Label Information**:

Please See Attached Exhibits

(c)(12): **Photographs**:

Please See Attached Exhibits

(c)(13): **Digital Modulation Description**:

___ Attached Exhibits
_x_ N/A

(c)(14): **Test And Measurement Data**:

Follows

Industry Canada

Industry Canada
Industrie Canada

Certification and Engineering Bureau

M. Flom Associates Inc.

is recognized as an approved testing facility, in accordance with the provisions of the Industry Canada Terminal Attachment Programme, subject to any exclusions specified in their letter of approval.

Director, Certification and Engineering Bureau

Canada

Industrie Canada Industry Canada

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

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

February 24, 1998

Our File: 46327- 2044
Submission: 19320 O

Mr. M. Flom
M. Flom Associates, Inc.
3356 North San Marcos Place, Suite 107
Chandler, Arizona 85224-1571

Dear Mr. Flom,

The Bureau has received your test report for the Open Area Test Site located at Chandler, Arizona, dated January 30, 1998 and the supplemental information received February 24, 1998. 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 2044 " 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. Your company has been added to our published list of qualified sites on the Bureau's web page. It is located at: http://spectrum.ic.gc.ca/~cert/ Please keep the contact information current by notifying us if it changes or is in error.

Keep informed of the latest Industry Canada regulations by visiting the Bureau's site on the World Wide Web;

http://spectrum.ic.gc.ca/~cert/
or the Industry Canada main site at;
http://strategis.ic.gc.ca

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

NIST

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

September 15, 1999

Mr. Morton Flom
M. Flom Associates Inc.
3356 N. San Marcos Place, Suite 107
Chandler, AZ 85224

Dear Mr. Flom:

I am pleased to inform you that your laboratory has been validated by the Chinese Taipei Bureau of Standards, Metrology, and Inspection (BSMI) under the Asia Pacific Economic Cooperation Mutual Recognition Arrangement (APEC MRA). Your laboratory is now formally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA between the American Institute in Taiwan (AIT) and the Taipei Economic and Cultural Representative Office (TECRO) in the United States, covering equipment subject to Electro-Magnetic Compatibility (EMC) requirements. The names of all validated and nominated laboratories will be posted on the NIST website at http://ts.nist.gov/mra under the "Asia" category.

As of August 1, 1999, you may submit test data to BSMI to verify that the equipment to be imported into Chinese Taipei satisfies the applicable EMC requirements. **Your assigned BSMI number is SL2-IN-E-041R; you must use this number when sending test reports to BSMI.** Your designation will remain in force as long as your NVLAP and/or A2LA and/or BSMI accreditation remains valid for the CNS 13438.

Please note that BSMI requires that the entity making application for the approval of regulated equipment must make such application in person at their Taipei office. BSMI also requests the names of the authorized signatories who are authorized to sign the test reports. You can send this information via fax to C-Taipei CAB Response Manager at 301-975-5414. **I am also enclosing a copy of the cover sheet that, according to BSMI requirements, must accompany every test report.**

If you have any questions, please contact Robert Gladhill at 301-975-4273 or Joe Dhillon at 301-975-5521. We appreciate your continued interest in our international conformity assessment activities.

Sincerely,

Belinda L. Collins, Ph.D.
Director, Office of Standards Services

Enclosure

NIST

Sub-part 2.1033(b): **Test And Measurement Data**

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2, Sub-part J, Sections 2.1031, 2.1033, 2.1035, 2.1041, 2.1043, 2.1045, and the following individual Parts:

_____	15.209	Radiated emission limits; general requirements
_____	15.211	Tunnel radio systems
_____	15.213	Cable locating equipment
_____	15.214	Cordless telephones
_____	15.217	Operation in the band 160-190 kHz
_____	15.219	Operation in the band 510-1705 kHz
_____	15.221	Operation in the band 525-1705 kHz (leaky coax)
_____	15.223	Operation in the band 1.705-10 MHz
_____	15.225	Operation in the band 13.553-13.567 MHz
_____	15.227	Operation in the band 26-27.28 MHz (remote control)
_____	15.229	Operation in the band 40.66-40.70 MHz
_____	15.231	Periodic operation in the band 40.66-40.70 MHz and above 70 MHz
_____	15.233	Operation within the bands 43.71-44.49, 46.60-46.98 MHz 48.75-49.51 MHz and 49.66-50.0 MHz
_____	15.235	Operation within the band 49.82-49.90 MHz
_____	15.237	Operation within the bands 72.0-73.0 MHz, 74.6-74.8 MHz and 75.2-76.0 MHz (auditory assistance)
_____	15.239	Operation in band 88-108 MHz
_____	15.241	Operation in the band 174-216 MHz (biomedical)
_____	15.243	Operation in the band 890-940 MHz (materials)
x	15.245	Operation within the bands 902-928 MHz, 2435-2465 MHz, 5785-5815 MHz, 10500-10550 MHz, and 24075-24175 MHz (field disturbance sensors)
_____	15.247	Operation within bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz (spread spectrum)
_____	15.249	Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz
_____	15.251	Operation within the bands 2.9-3.26 GHz, 3.267-3.332 GHz, 3.339-3.3458 GHz, and 3.358-3.6 GHz (vehicle identification systems)
_____	15.321	Specific requirements for asynchronous devices operating in the 1910-1920 MHz and 2390-2400 MHz bands (Unlicensed PCS)
	15.323	Specific requirements for isochronous devices operating in the 1920-1930 MHz sub-band (Unlicensed PCS)

Standard Test Conditions

and

Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992/2000 DRAFT, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst-case measurements.

Page Number 7 of 21.

Name of Test: Field Strength of Spurious Radiation

Specification: 47 CFR 2.1053(a)

Guide: ANSI/TIA/EIA-603-1992/2001, Paragraph 1.2.12 and Table 16, 47 CFR 22.917

Measurement Procedure

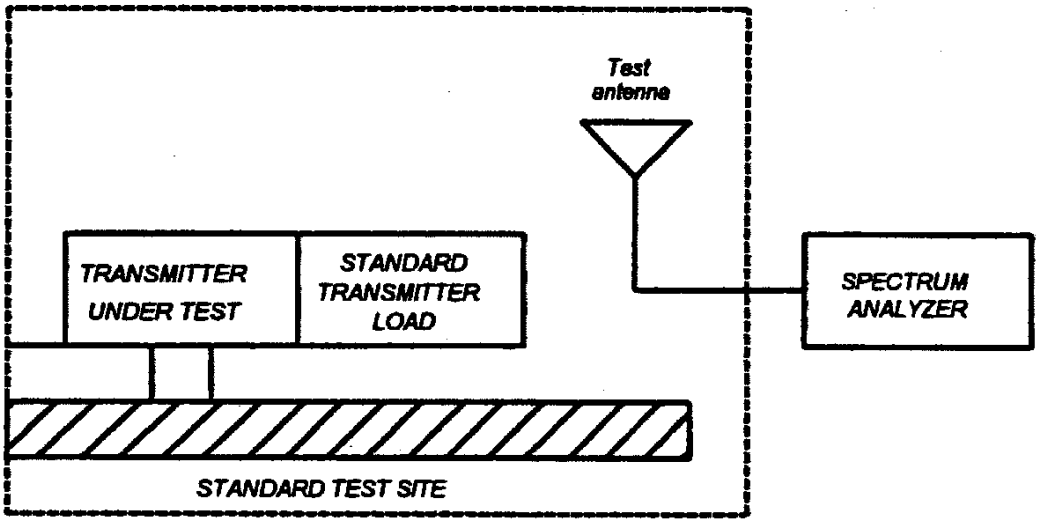
1.2.12.1 Definition: Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

1.2.12.2 Method of Measurement

A) Connect the equipment as illustrated

B) Adjust the spectrum analyzer for the following settings:
1) Resolution Bandwidth 100 kHz (<1 GHZ), 1 MHZ (> 1GHz).
2) Video Bandwidth ≥ 3 times Resolution Bandwidth, or 30 kHz (22.917)
3) Sweep Speed ≤2000 Hz/second
4) Detector Mode = Mean or Average Power

C) Place the transmitter to be tested on the turntable in the standard test site. The transmitter is transmitting into a non-radiating load which is placed on the turntable. The RF cable to this load should be of minimum length.

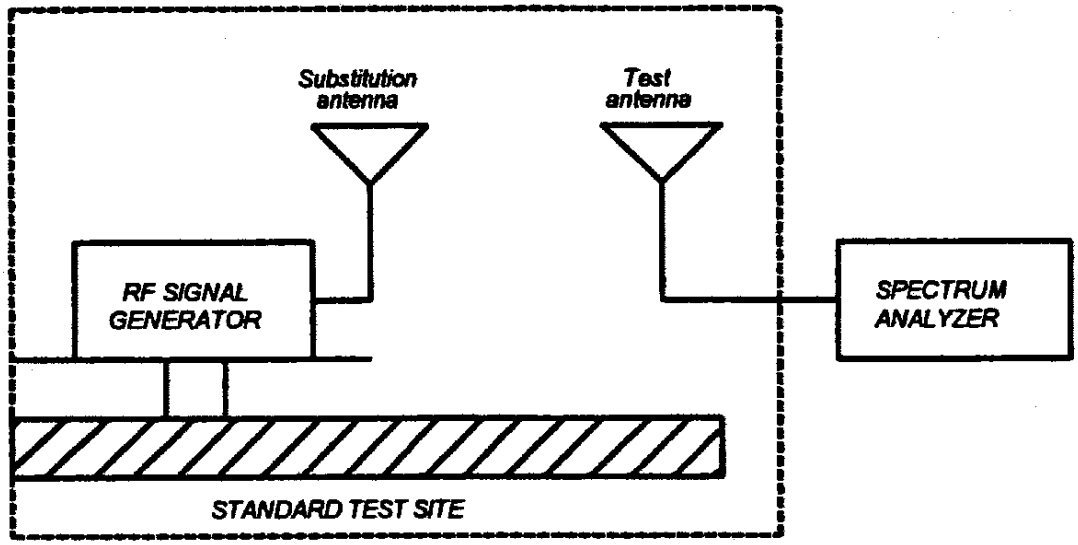


Name of Test: Field Strength of Spurious Radiation (Cont.)

D) For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier, except for the region close to the carrier equal to ± the test bandwidth (see section 1.3.4.4).

E) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.

F) Repeat step E) for each spurious frequency with the test antenna polarized vertically.



G) Reconnect the equipment as illustrated.

H) Keep the spectrum analyzer adjusted as in step B).

I) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.

Name of Test: Field Strength of Spurious Radiation (Cont.)

J) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

K) Repeat step J) with both antennas vertically polarized for each spurious frequency.

L) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps J) and K) by the power loss in the cable between the generator and the antenna and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna.

M) The levels recorded in step L) are absolute levels of radiated spurious emissions in dBm. The radiated spurious emissions in dB can be calculated by the following:

Radiated spurious emissions dB =
$10\log_{10}$(TX power in watts/0.001) – the levels in step l)

NOTE: It is permissible that other antennas provided can be referenced to a dipole.

Test Equipment:

Asset (as applicable)	Description	s/n	Cycle Per ANSI C63.4-1992/2000 Draft, 10.1.4	Last Cal
Transducer				
i00088	EMCO 3109-B 25MHz-300MHz	2336	12 mo.	Sep-03
i00065	EMCO 3301-B Active Monopole	2635	12 mo.	Sep-03
i00089	Aprel 2001 200MHz-1GHz	001500	12 mo.	Sep-03
i00103	EMCO 3115 1GHz-18GHz	9208-3925	12 mo.	Sep-03
Amplifier				
i00028	HP 8449A	2749A00121	12 mo.	Mar-03
Spectrum Analyzer				
i00029	HP 8563E	3213A00104	12 mo.	Jan-03
i00033	HP 85462A	3625A00357	12 mo.	Jan-03
i00048	HP 8566B	2511AD1467	12 mo.	Jul-03

Test Setup: Radiated Emissions

Measurement Results: Field Strength of Spurious Radiation

Frequency of Carrier, MHz = 915
Spectrum Searched, MHz = 1.0 to 10,000
All Other Emissions = ≥ 20dB Below Limit
Measurement Results = Attached

Meets general radiated emission limits (Rule 15.209) outside of the frequency band.

Per 47 CFR 15.245:

(a) EUT is, or makes use of, a field disturbance sensor.

(b) EUT complies with the following limits:

Fc Frequency, MHz	**Fc FIELD, mv/m**	**Spurious Field, mv/m**
902-928	500	1.6
2435-2465	500	1.6
5783-5815	500	1.6
10500-10550	2500	25.0
24075-24175	2500	25.0

(b)(1) Harmonic emissions in the restricted bands below 17.7 GHz do not exceed the field strength limits of 15.209. Harmonic emissions in the restricted bands at and above 17.7 GHz do not exceed the following field strength limits:

(b)(1)(I) For field disturbance sensors used only within a building or to open doors, 25.0 mv/m

(b)(1)(ii) For all other field disturbance sensors, 7.5 mv/m

(b)(1)(iii) Emissions in the restricted bands fully comply with the limits given in 15.209

(b)(2) Emissions were measured at a disturbance of 3 meters.

(b)(3) Emissions radiated outside of the specified frequency bands, other than harmonics, were attenuated by at least the lesser attenuation of 50 dB below the fundamental of 15.209.

(b)(4) The emissions were measured on instrumentation employing an average detector. The provisions in 15.35 for limiting peak emissions were met.

Name of Test: Field Strength of Spurious Radiation

g0370067: 2003-Jul-14 Mon 13:51:00
STATE: 2:High Power Ambient Temperature: 23°c + 3°c

Frequency Tuned, MHz	Frequency Emission, MHz	ERP, dBm	mv
909.750000	1820.580000	-43.2	13.5
909.750000	2740.390000	-24.6	13.5
909.750000	3640.874999	-57.3	13.5
909.750000	4546.866665	-61.1	13.5
909.750000	5458.641665	-61.1	13.5
909.750000	6369.224998	-59.9	13.5
909.750000	7279.749998	-56.4	13.5
909.750000	8186.258331	-57.2	13.5
909.750000	9097.799997	-55.4	13.5

g0370065: 2003-Jul-14 Mon 12:48:00
STATE: 2:High Power Ambient Temperature: 23°c + 3°c

Frequency Tuned, MHz	Frequency Emission, MHz	ERP, dBm	mv
915.000000	1829.970000	-19.9	25
915.000000	2744.900000	-28.3	25
915.000000	3659.783333	-25.9	25
915.000000	4574.716667	-33.4	25
915.000000	5489.691667	-41.8	25
915.000000	6404.891667	-53.1	25
915.000000	7319.891667	-58.8	25
915.000000	8234.500000	-53.4	25
915.000000	9149.633333	-57.1	25

g0370066: 2003-Jul-14 Mon 13:50:00
STATE: 2:High Power Ambient Temperature: 23°c + 3°c

Frequency Tuned, MHz	Frequency Emission, MHz	ERP, dBm	mv
920.250000	1838.613000	-42.5	12.3
920.250000	2749.490000	-23.4	12.3
920.250000	3678.974999	-56.9	12.3
920.250000	4601.974998	-61.6	12.3
920.250000	5521.441665	-59.4	12.3
920.250000	6440.724998	-59	12.3
920.250000	7361.666664	-56.4	12.3
920.250000	8280.608330	-56.5	12.3
920.250000	9201.491663	-55.3	12.3

15.209 LIMIT: 200 μv/m

Performed by: David Lee

Name of Test: Field Strength of Spurious Radiation
2004-Feb-20 Fri 13:51:00

Ambient Temperature: 23°c + 3°c

Frequency Tuned, MHz	Frequency Emission, MHz	LEVEL dBuV/m	@m	C.F. dB	CALC dBuV/m	@m	CALC uV/m	Flag
0.000	1829.613333	58.2	3	5.5	63.7	3	1522	A-
0.000	2744.548333	49.8	3	6.2	56.1	3	635	AR
0.000	3659.311666	40.3	3	10.4	50.8	3	345	AR
0.000	4574.263333	36.0	3	12.9	48.9	3	280	AR
0.000	5489.263333	33.2	3	13.0	46.2	3	203	A-

NOTE: Indicates that harmonics meet FCC Rule Part 15.205 Restricted Bands and 15.245(a)(1).

Performed by: David Lee

Page Number 15 of 21.

Name of Test: Emission Masks (Occupied Bandwidth)

Specification: 47 CFR 2.1049(c)(1)

Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.11

Test Equipment: As per previous page

Measurement Procedure

1. The EUT and test equipment were set up as shown on the following page, with the Spectrum Analyzer connected.

2. For EUTs supporting audio modulation, the audio signal generator was adjusted to the frequency of maximum response and with output level set for ±2.5/±1.25 kHz deviation (or 50% modulation). With level constant, the signal level was increased 16 dB.

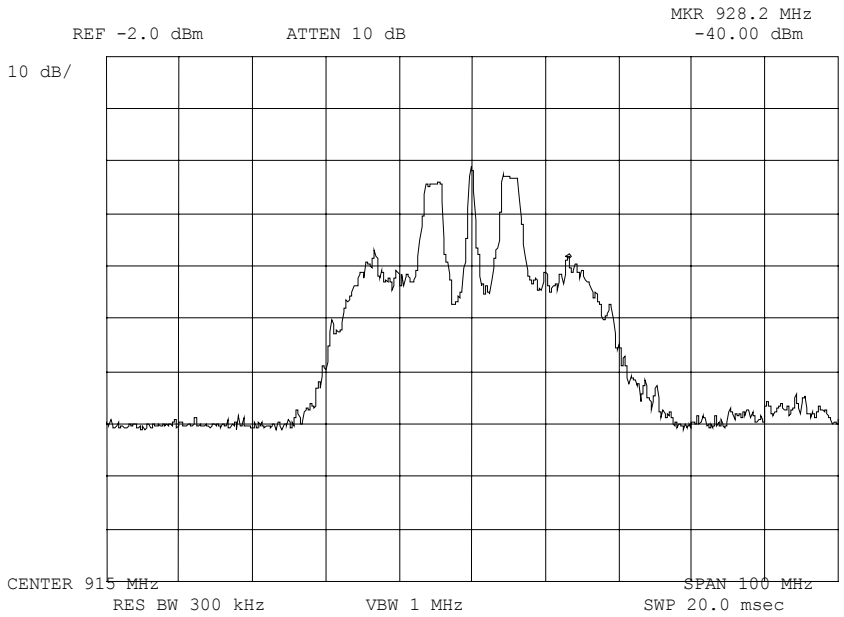
3. For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.

4. The Occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.

5. Measurement Results: Attached

Page Number 16 of 21.

Name of Test: Emission Masks (Occupied Bandwidth)
g0380062: 2003-Aug-25 Mon 14:38:00
State: 2:High Power Ambient Temperature: 23°c + 3°c

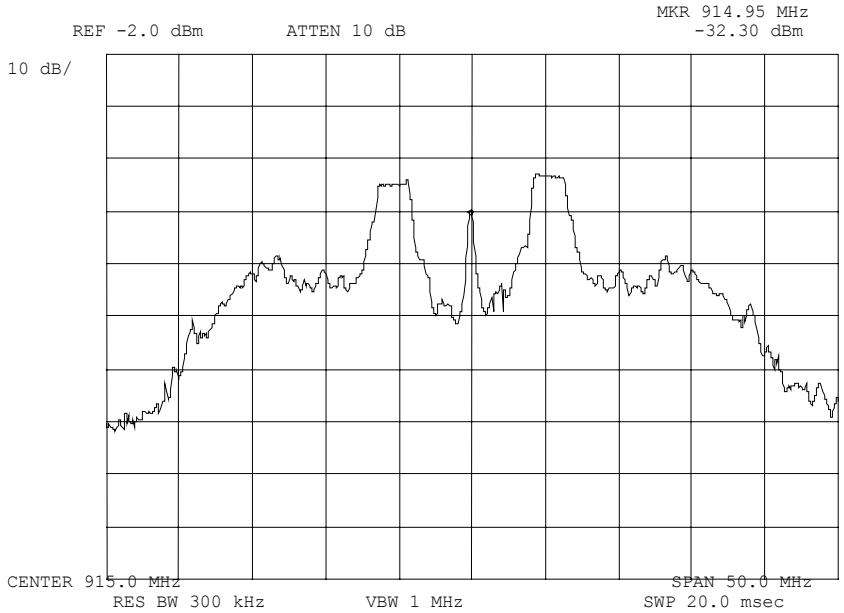


Power: HIGH
Modulation: SPREAD SPECTRUM
WIDE BAND PLOT CENTERED
ON 915MHZ

Performed By: Daniel M. Dillon, Test Engineer

Page Number 17 of 21.

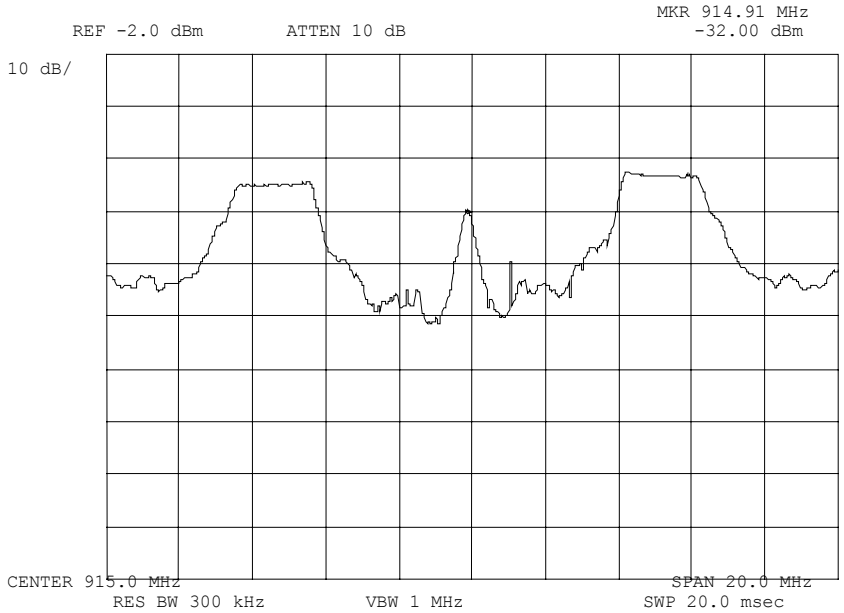
Name of Test: Emission Masks (Occupied Bandwidth)
g0380064: 2003-Aug-25 Mon 14:40:00
State: 2:High Power Ambient Temperature: 23°c + 3°c



Power: HIGH
Modulation: SPREAD SPECTRUM
PLOT CENTERED ON 915MHZ
SHOWING 2 SUB-BAND FREQUENCIES
REQUESTED 909.750MHZ AND
920.250MHZ

Performed By: Daniel M. Dillon, Test Engineer

Name of Test: Emission Masks (Occupied Bandwidth)
g0380063: 2003-Aug-25 Mon 14:39:00
State: 2:High Power Ambient Temperature: 23°c + 3°c

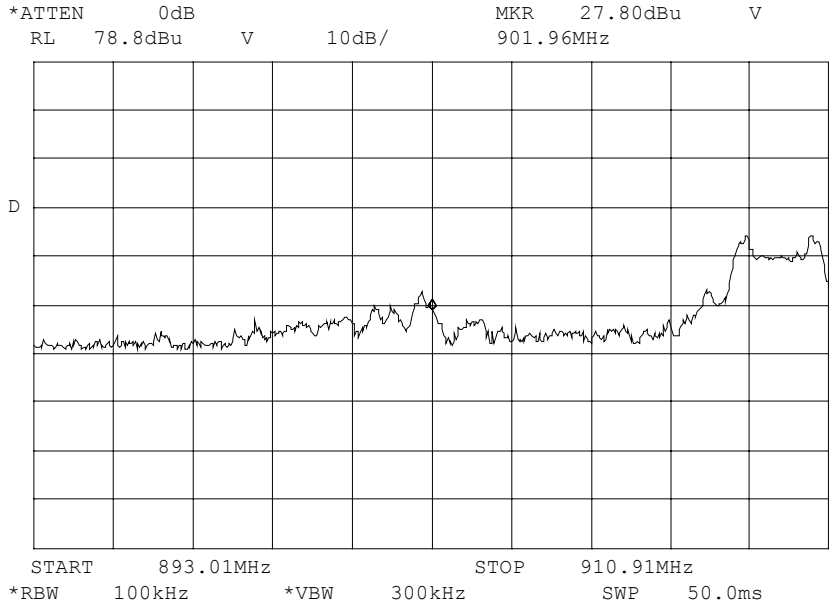


Power: HIGH
Modulation: SPREAD SPECTRUM
ISM BAND PLOT

Performed By: Daniel M. Dillon, Test Engineer

Page Number 19 of 21.

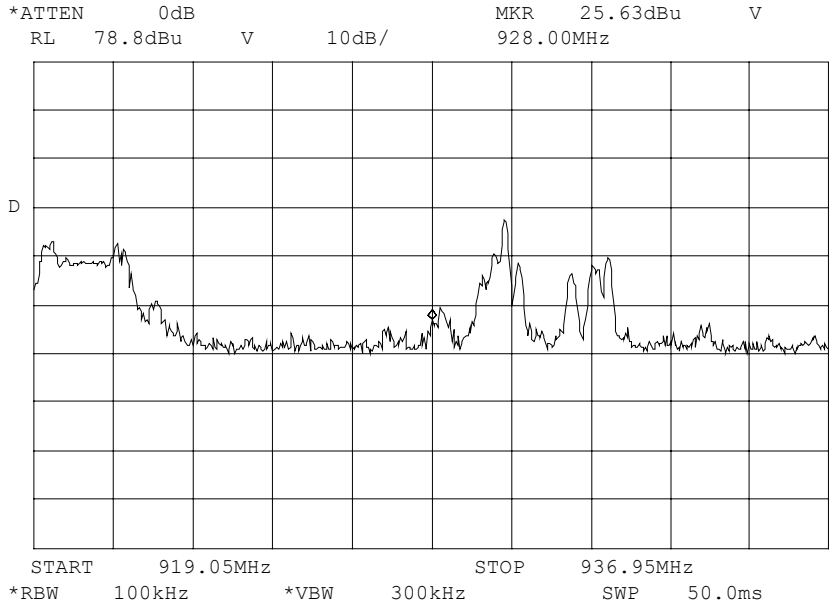
Name of Test: Emission Masks (Occupied Bandwidth)
g0380057: 2003-Aug-22 Fri 15:50:00
State: 0:General Ambient Temperature: 23°c + 3°c



Power: HIGH
Modulation: SPREAD SPECTRUM
LOWER RESTRICTED BAND

Performed By: Daniel M. Dillon, Test Engineer

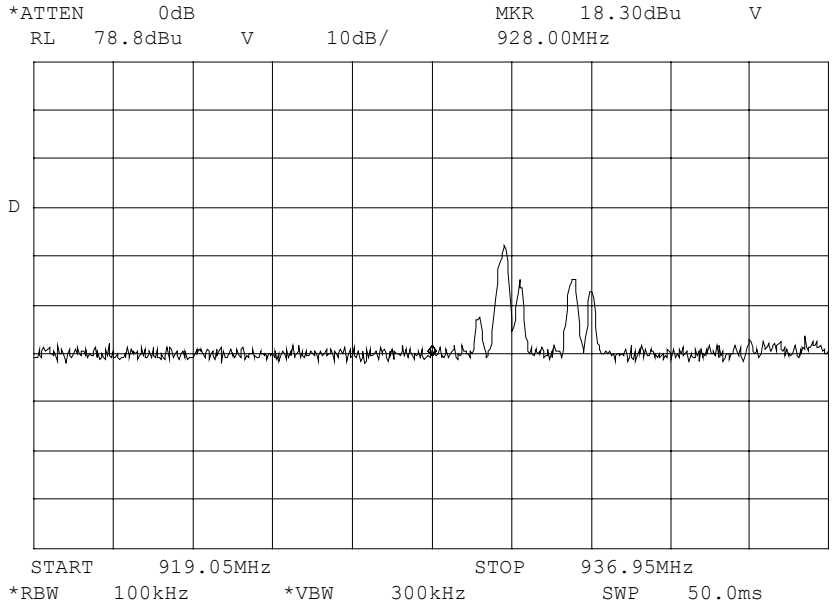
Name of Test: Emission Masks (Occupied Bandwidth)
g0380059: 2003-Aug-22 Fri 16:06:00
State: 0:General Ambient Temperature: 23°c + 3°c



Power: HIGH
Modulation: SPREAD SPECTRUM
UPPER RESTRICTED BAND
SPURIOUS IN BAND DUE TO OFF AIR
SIGNALS ON OATS

Performed By: Daniel M. Dillon, Test Engineer

Name of Test: Emission Masks (Occupied Bandwidth)
g0380060: 2003-Aug-22 Fri 16:07:00
State: 0:General Ambient Temperature: 23°c + 3°c



Power: NONE
Modulation: NONE
OFF AIR SPURIOUS IN ABSENCE OF EUT SIGNAL

Performed By: Daniel M. Dillon, Test Engineer

Radiated Measurements
For Part 15 Transmitters with Integral Antennas

Radiated Measurements

Range Of Measurement	Specification	Resolution B/W	Video B/A
30 to 1000 MHz	CISPR	≥100 kHz	≥100 kHz
>1000 MHz	FCC, 15.37(b)	1 MHz	≥1 MHz
(if averaging)	FCC, 15.37(b)	1 MHz	10 Hz

Measuring Equipment

a. **Antennas**:

EMCO 3109	20 - 300 MHz
APREL AALP2001	200 - 1000 MHz
APREL AAB20200	20 - 200 MHz
APREL AAH118	1 - 18 GHz

b. **Instruments**:

HP8566B	Spectrum Analyzer
HP85685A	Preselector, w/ preamp below 2 GHz
HP85650A	Quasi Peak Adapter
HP8449	Preamp, above 2 GHz

All test instrumentation is calibrated every January and every July. In addition, all test instrumentation is calibrated daily, or as required by the manufacturer. A Calibration Agreement is maintained with Hewlett Packard.

Occupied Bandwidth

Occupied Bandwidth is measured as a radiated signal without attenuators and/or filter. RBW, VBW and scan settings as shown were set to produce a meaningful result in accordance with ANSI C63.4, Section 13.1.7.

Part 15.21, Information to User

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly avoided by the party responsible for compliance could void the user's authority to operate the equipment.

§ 15.205 Restricted Bands of Operation

(a) Except as shown in paragraph (b) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.25
0.495-0.505	16.69475-16.69625	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-339.4	3600-4400	(2)
13.36-13.41			

Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. Above 38.6

Testimonial
And
Statement Of Certification

This is to certify that:

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.

2. **That** the technical data supplied with the application was taken under my direction and supervision.

3. **That** the data was obtained on representative units, randomly selected.

4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

Certifying Engineer: Morton Flom, P. Eng.