

**MFA** **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

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Sub-part  
2.1033(c):

EQUIPMENT IDENTIFICATION

FCC ID: OGQ-BASE2010

NAMEPLATE DRAWING

ATTACHED, EXHIBIT 1.

LOCATION

AS PER LABEL DRAWING(S)

DATE OF REPORT

April 27, 1999

SUPERVISED BY:

  
Morton Flom, P. Eng.

LIST OF EXHIBITS  
(FCC CERTIFICATION (TRANSMITTERS) - REVISED 9/28/98)

APPLICANT: Bio-Medical Devices, Inc.

FCC ID: OGQ-BASE2010

BY APPLICANT:

- |                                                                      |             |
|----------------------------------------------------------------------|-------------|
| 1. LETTER OF AUTHORIZATION                                           |             |
| 2. IDENTIFICATION DRAWINGS, 2.1033(c) (11)                           |             |
| <input checked="" type="checkbox"/> LABEL                            |             |
| <input checked="" type="checkbox"/> LOCATION OF LABEL                |             |
| <input checked="" type="checkbox"/> COMPLIANCE STATEMENT             |             |
| <input checked="" type="checkbox"/> LOCATION OF COMPLIANCE STATEMENT |             |
| 3. PHOTOGRAPHS, 2.1033(c) (12)                                       |             |
| 4. DOCUMENTATION: 2.1033(c)                                          |             |
| (3) INSTALLATION/OPERATING MANUAL                                    | Instruction |
| (9) TUNE-UP/ALIGNMENT PROCEDURE                                      | Alignment   |
| (10) SCHEMATIC DIAGRAM                                               | 3           |
| (10) CIRCUIT DESCRIPTION                                             | att'd       |
| 5. PART 90.203(e) & (g) ATTESTATION                                  | n.a         |
| 6. BLOCK DIAGRAM                                                     | one         |
| 7. ACTIVE DEVICES                                                    | 6 pgs.      |

BY M.F.A. INC.

- A. TESTIMONIAL & STATEMENT OF CERTIFICATION
- B. STATEMENT OF QUALIFICATIONS

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: d9940079
- d) Client: Bio-Medical Devices, Inc.  
320 Kalmus Drive  
Costa Mesa, CA 92626  
(714) 432-8001; FAX: -8008
- e) Identification: Base Station 2010  
FCC ID: OGQ-BASE2010  
Description: Base Station
- f) EUT Condition: Not required unless specified in individual tests.
- g) Report Date: April 27, 1999  
EUT Received: February 18, 1999
- 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.

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LIST OF GENERAL INFORMATION REQUIRED FOR CERTIFICATIONIN ACCORDANCE WITH FCC RULES AND REGULATIONS,  
VOLUME II, PART 2 AND TO

74H

Sub-part 2.1033

(c) (1): NAME AND ADDRESS OF APPLICANT:Bio-Medical Devices, Inc.  
320 Kalmus Drive  
Costa Mesa, CA 92626  
(714) 432-8001; FAX: -8008MANUFACTURER:

APPLICANT

(c) (2): FCC ID: OGQ-BASE2010MODEL NO: Base Station 2010(c) (3): INSTRUCTION MANUAL(S):

PLEASE SEE ATTACHED EXHIBITS

(c) (4): TYPE OF EMISSION: **200KOF3E**(c) (5): FREQUENCY RANGE, MHz: 174 to 216(c) (6): POWER RATING, Watts: 0.025 to 0.045  
x Switchable      Variable      N/A(c) (7): MAXIMUM POWER RATING, Watts:

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Subpart 2.1033 (continued)

(c) (8): VOLTAGES & CURRENTS IN ALL ELEMENTS IN FINAL R. F. STAGE,  
INCLUDING FINAL TRANSISTOR OR SOLID STATE DEVICE:

COLLECTOR CURRENT, A = per manual  
COLLECTOR VOLTAGE, Vdc = per manual  
SUPPLY VOLTAGE, Vdc = 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

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Sub-part

2.1033(c) (14) :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 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1079, 2.1051, 2.1053, 2.1055, 2.1057 and the following individual Parts:

- \_\_\_\_\_ 21 - Domestic Public Fixed Radio Services
- \_\_\_\_\_ 22 - Public Mobile Services
- \_\_\_\_\_ 22 Subpart H - Cellular Radiotelephone Service
- \_\_\_\_\_ 22.901(d) - Alternative technologies and auxiliary services
- \_\_\_\_\_ 23 - International Fixed Public Radiocommunication services
- \_\_\_\_\_ 24 - Personal Communications Services
- x   74 Subpart H - Low Power Auxiliary Stations
- \_\_\_\_\_ 80 - Stations in the Maritime Services
- \_\_\_\_\_ 80 Subpart E - General Technical Standards
- \_\_\_\_\_ 80 Subpart F - Equipment Authorization for Compulsory Ships
- \_\_\_\_\_ 80 Subpart K - Private Coast Stations and Marine Utility Stations
- \_\_\_\_\_ 80 Subpart S - Compulsory Radiotelephone Installations for Small Passenger Boats
- \_\_\_\_\_ 80 Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes
- \_\_\_\_\_ 80 Subpart U - Radiotelephone Installations Required by the Bridge-to-Bridge Act
- \_\_\_\_\_ 80 Subpart V - Emergency Position Indicating Radiobeacons (EPIRB'S)
- \_\_\_\_\_ 80 Subpart W - Global Maritime Distress and Safety System (GMDSS)
- \_\_\_\_\_ 80 Subpart X - Voluntary Radio Installations
- \_\_\_\_\_ 87 - Aviation Services
- \_\_\_\_\_ 90 - Private Land Mobile Radio Services
- \_\_\_\_\_ 94 - Private Operational-Fixed Microwave Service
- \_\_\_\_\_ 95 Subpart A - General Mobile Radio Service (GMRS)
- \_\_\_\_\_ 95 Subpart C - Radio Control (R/C) Radio Service
- \_\_\_\_\_ 95 Subpart D - Citizens Band (CB) Radio Service
- \_\_\_\_\_ 95 Subpart E - Family Radio Service
- \_\_\_\_\_ 95 Subpart F - Interactive Video and Data Service (IVDS)
- \_\_\_\_\_ 101 - Fixed Microwave Services

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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, 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.

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NAME OF TEST: Carrier Output Power (Conducted)  
SPECIFICATION: 47 CFR 2.1046(a)  
GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.1  
TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The EUT was connected to a resistive coaxial attenuator of normal load impedance, and the unmodulated output power was measured by means of an R. F. Power Meter.
2. Measurement accuracy is  $\pm 3\%$ .

MEASUREMENT RESULTS  
 (Worst case)

FREQUENCY OF CARRIER, MHz = 209

| POWER SETTING | R. F. POWER, WATTS |
|---------------|--------------------|
| Low           | 0.025              |
| High          | 0.045              |

SUPERVISED BY:

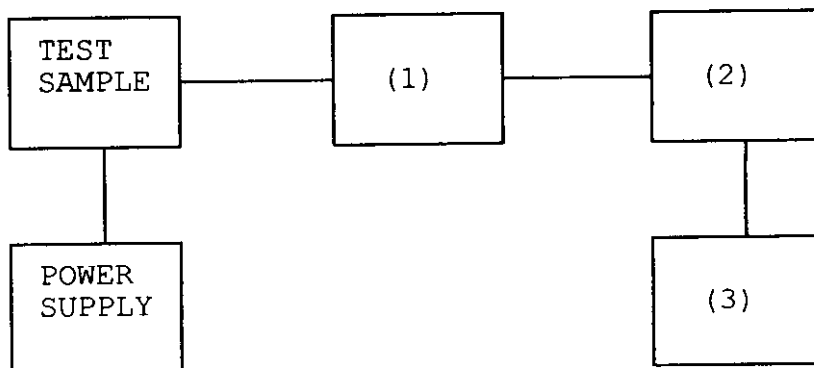
  
 Morton Flom, P. Eng.

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TRANSMITTER POWER CONDUCTED MEASUREMENTS

TEST 1: R. F. POWER OUTPUT  
 TEST 2: FREQUENCY STABILITY



| Asset    | Description                    | s/n        |
|----------|--------------------------------|------------|
| (1)      | <u>COAXIAL ATTENUATOR</u>      |            |
| _____    | i00122 Narda 766-10            | 7802       |
| _____    | i00123 Narda 766-10            | 7802A      |
| _____    | i00069 Bird 8329 (30 dB)       | 1006       |
| <u>x</u> | i00113 Sierra 661A-3D          | 1059       |
| (2)      | <u>POWER METERS</u>            |            |
| _____    | i00014 HP 435A                 | 1733A05836 |
| <u>x</u> | i00039 HP 436A                 | 2709A26776 |
| <u>x</u> | i00020 HP 8901A POWER MODE     | 2105A01087 |
| (3)      | <u>FREQUENCY COUNTER</u>       |            |
| _____    | i00042 HP 5383A                | 1628A00959 |
| <u>x</u> | i00019 HP 5334B                | 2704A00347 |
| <u>x</u> | i00020 HP 8901A FREQUENCY MODE | 2105A01087 |

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)

SPECIFICATION: 47 CFR 2.1051

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.13

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The emissions were measured for the worst case as follows:
  - (a): within a band of frequencies defined by the carrier frequency plus and minus one channel.
  - (b): from the lowest frequency generated in the EUT and to at least the 10th harmonic of the carrier frequency, or 40 GHz, whichever is lower.
2. The magnitude of spurious emissions that are attenuated more than 20 dB below the permissible value need not be specified.
3. MEASUREMENT RESULTS: ATTACHED FOR WORST CASE

FREQUENCY OF CARRIER, MHz = 209

SPECTRUM SEARCHED, GHz = 0 to 10 x F<sub>c</sub>

MAXIMUM RESPONSE, Hz = 5410

ALL OTHER EMISSIONS = ≥ 20 dB BELOW LIMIT

LIMIT(S), dBc

- (43+10xLOG P) = -27 (0.025 Watts)

- (43+10xLOG P) = -29.5 (0.045 Watts)

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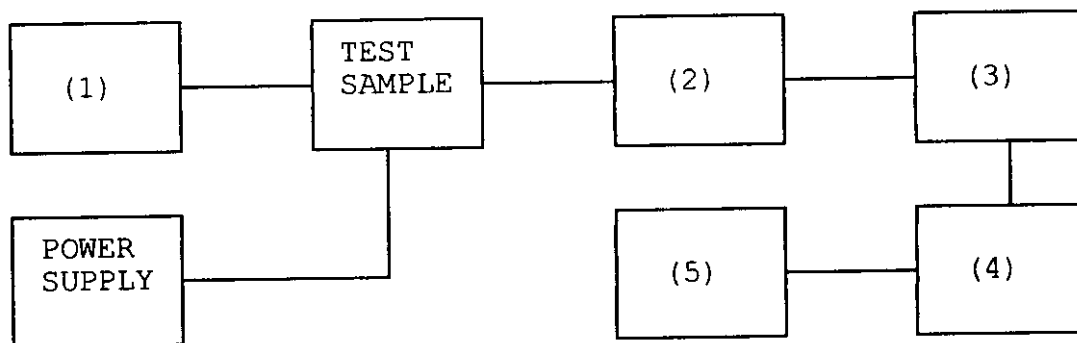
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TRANSMITTER SPURIOUS EMISSION

TEST A. OCCUPIED BANDWIDTH (IN-BAND SPURIOUS)

TEST B. OUT-OF-BAND SPURIOUS



| Asset                                 | Description              | s/n          |
|---------------------------------------|--------------------------|--------------|
| (1) <u>AUDIO OSCILLATOR/GENERATOR</u> |                          |              |
| _____                                 | i00010 HP 204D           | 1105A04683   |
| _____                                 | i00017 HP 8903A          | 2216A01753   |
| <u>x</u>                              | i00012 HP 3312A          | 1432A11250   |
| (2) <u>COAXIAL ATTENUATOR</u>         |                          |              |
| _____                                 | i00122 Narda 766-10      | 7802         |
| _____                                 | i00123 Narda 766-10      | 7802A        |
| <u>x</u>                              | i00069 Bird 8329 (30 dB) | 1006         |
| <u>x</u>                              | i00113 Sierra 661A-3D    | 1059         |
| (3) <u>FILTERS; NOTCH, HP, LP, BP</u> |                          |              |
| <u>x</u>                              | i00126 Eagle TNF-1       | 100-250      |
| <u>x</u>                              | i00125 Eagle TNF-1       | 50-60        |
| <u>x</u>                              | i00124 Eagle TNF-1       | 250-850      |
| (4) <u>SPECTRUM ANALYZER</u>          |                          |              |
| <u>x</u>                              | i00048 HP 8566B          | 2511A01467   |
| _____                                 | i00029 HP 8563E          | 3213A00104   |
| (5) <u>SCOPE</u>                      |                          |              |
| _____                                 | i00058 HP 1741A          | 2251A09356   |
| _____                                 | i00030 HP 54502A         | 2927A00209   |
| _____                                 | i00071 Tektronix 935     | 1935-B011343 |

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g9920335: 1999-Feb-24 Wed 15:24:00  
 STATE: 1:Low Power

| FREQUENCY TUNED,<br>MHz | FREQUENCY<br>EMISSION, MHz | LEVEL, dBm | LEVEL, dBc | MARGIN, dB |
|-------------------------|----------------------------|------------|------------|------------|
| 209.000000              | 417.934000                 | -39.8      | -53.8      | -26.8      |
| 209.000000              | 626.900000                 | -44        | -58        | -31        |
| 209.000000              | 836.140000                 | -37.7      | -51.7      | -24.7      |
| 209.000000              | 1044.827000                | -23.2      | -37.2      | -10.2      |
| 209.000000              | 1253.794000                | -22.6      | -36.6      | -9.6       |
| 209.000000              | 1463.290000                | -42.9      | -56.9      | -29.9      |
| 209.000000              | 1671.713000                | -53.3      | -67.3      | -40.3      |
| 209.000000              | 1880.821000                | -60.1      | -74.1      | -47.1      |
| 209.000000              | 2089.926000                | -60.6      | -74.6      | -47.6      |
| 209.000000              | 2299.174000                | -59.8      | -73.8      | -46.8      |
| 209.000000              | 2508.043000                | -63.4      | -77.4      | -50.4      |
| 209.000000              | 2716.534000                | -61.9      | -75.9      | -48.9      |
| 209.000000              | 2926.114000                | -63.4      | -77.4      | -50.4      |
| 209.000000              | 3135.328000                | -62.8      | -76.8      | -49.8      |

NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g9920334: 1999-Feb-24 Wed 15:21:00  
 STATE: 2:High Power

| FREQUENCY TUNED,<br>MHz | FREQUENCY<br>EMISSION, MHz | LEVEL, dBm | LEVEL, dBc | MARGIN, dB |
|-------------------------|----------------------------|------------|------------|------------|
| 209.000000              | 417.933000                 | -22.1      | -39.1      | -9.1       |
| 209.000000              | 626.899000                 | -45.7      | -62.7      | -32.7      |
| 209.000000              | 835.858000                 | -30.9      | -47.9      | -17.9      |
| 209.000000              | 1045.177000                | -28.4      | -45.4      | -15.4      |
| 209.000000              | 1253.796000                | -22        | -39        | -9         |
| 209.000000              | 1462.752000                | -34.2      | -51.2      | -21.2      |
| 209.000000              | 1672.288000                | -37        | -54        | -24        |
| 209.000000              | 1881.331000                | -59.1      | -76.1      | -46.1      |
| 209.000000              | 2090.352000                | -59.7      | -76.7      | -46.7      |
| 209.000000              | 2298.517000                | -57.6      | -74.6      | -44.6      |
| 209.000000              | 2508.323000                | -60.3      | -77.3      | -47.3      |
| 209.000000              | 2716.650000                | -62.3      | -79.3      | -49.3      |
| 209.000000              | 2926.027000                | -61.5      | -78.5      | -48.5      |
| 209.000000              | 3134.842000                | -62.7      | -79.7      | -49.7      |

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NAME OF TEST: Field Strength of Spurious Radiation  
SPECIFICATION: 47 CFR 2.1053(a)  
GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.12  
TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. A description of the measurement facilities was filed with the FCC and was found to be in compliance with the requirements of Section 2.948, by letter from the FCC dated March 3, 1997, FILE 31040/SIT. All pertinent changes will be reported to the Commission by up-date prior to March 2000.
2. At first, in order to locate all spurious frequencies and approximate amplitudes, and to determine proper equipment functioning, the test sample was set up at a distance of three meters from the test instrument. Valid spurious signals were determined by switching the power on and off.
3. In the field, the test sample was placed on a wooden turntable above ground at three (or thirty) meters away from the search antenna. Excess power leads were coiled near the power supply.  
  
The cables were oriented in order to obtain the maximum response. At each emission frequency, the turntable was rotated and the search antennas were raised and lowered vertically.
4. The emission was observed with both a vertically polarized and a horizontally polarized search antenna and the worst case was used.
6. The field strength of each emission within 20 dB of the limit was recorded and corrected with the appropriate cable and transducer factors.
7. The worst case for all channels is shown.
8. Measurement results: ATTACHED FOR WORST CASE



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NAME OF TEST: Field Strength of Spurious Radiation

ALL OTHER EMISSIONS =  $\geq$  20 dB BELOW LIMIT

| EMISSION, MHz/HARMONIC | SPURIOUS LEVEL, dBc |      |
|------------------------|---------------------|------|
|                        | Low                 | High |
| 2nd to 10th            | <-35                | <-35 |

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Morton Flom, P. Eng.

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NAME OF TEST: Field Strength of Spurious Radiation

g9920324: 1999-Feb-19 Fri 09:05:00

STATE: 2:High Power

| FREQUENCY<br>TUNED, MHz | FREQUENCY<br>EMISSION, MHz | METER,<br>dBuV | CF,<br>dB | uV/m @<br>3m | ERP,<br>dBm | MARGIN,<br>dB |
|-------------------------|----------------------------|----------------|-----------|--------------|-------------|---------------|
| 209.000000              | 418.013000                 | 43.9 P         | 23.86     | 2443.43      | -29.65      | -16.6         |
| 209.000000              | 627.013000                 | 24.26P         | 28.3      | 424.62       | -44.85      | -31.8         |
| 209.000000              | 836.016000                 | 33.67P         | 30.69     | 1651.96      | -33.05      | -20           |
| 209.000000              | 1045.030000                | 35.18P         | 27.1      | 1300.17      | -35.05      | -22.1         |
| 209.000000              | 1253.980000                | 42.24P         | 28.79     | 3560.41      | -26.35      | -13.4         |
| 209.000000              | 1462.950000                | 38.82P         | 30.22     | 2831.39      | -28.35      | -15.4         |
| 209.000000              | 1672.030000                | 28.43P         | 31.45     | 986.28       | -37.45      | -24.5         |
| 209.000000              | 1880.880000                | 15.28P         | 32.53     | 245.75       | -49.55      | -36.6         |
| 209.000000              | 2090.030000                | 15.09P         | 33.59     | 271.64       | -48.65      | -35.7         |

(P: Peak reading, A: Average reading)

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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

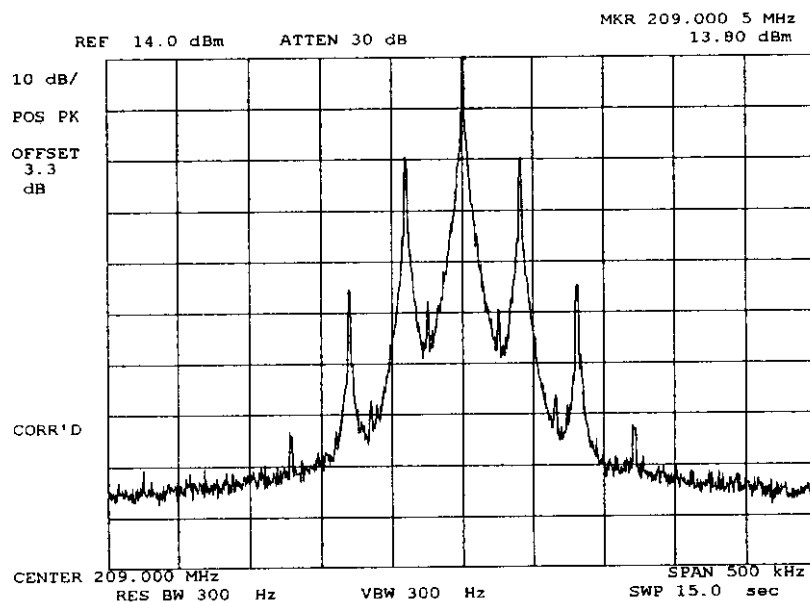
MEASUREMENT PROCEDURE

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  $\pm 2.5$  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

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g9920329: 1999-Feb-24 Wed 14:42:00  
STATE: 1:Low Power



POWER:  
MODULATION:

LOW  
NONE

SUPERVISED BY:

*M. Flom P. Eng.*  
Morton Flom, P. Eng.

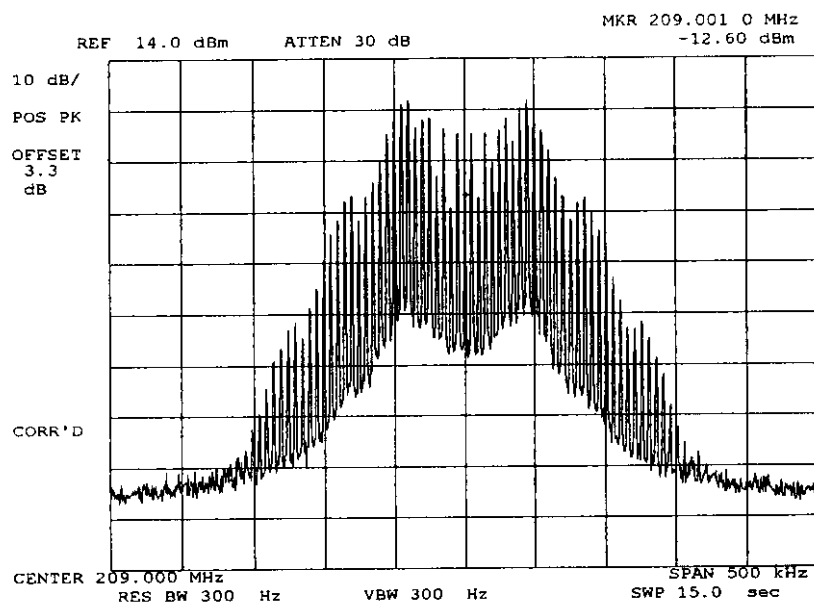
PAGE NO.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)

g9920340: 1999-Feb-26 Fri 08:58:00

STATE: 1:Low Power

POWER:  
MODULATION:LOW  
5 KHZ TONE 20 DB ABOVE  
REFERENCE

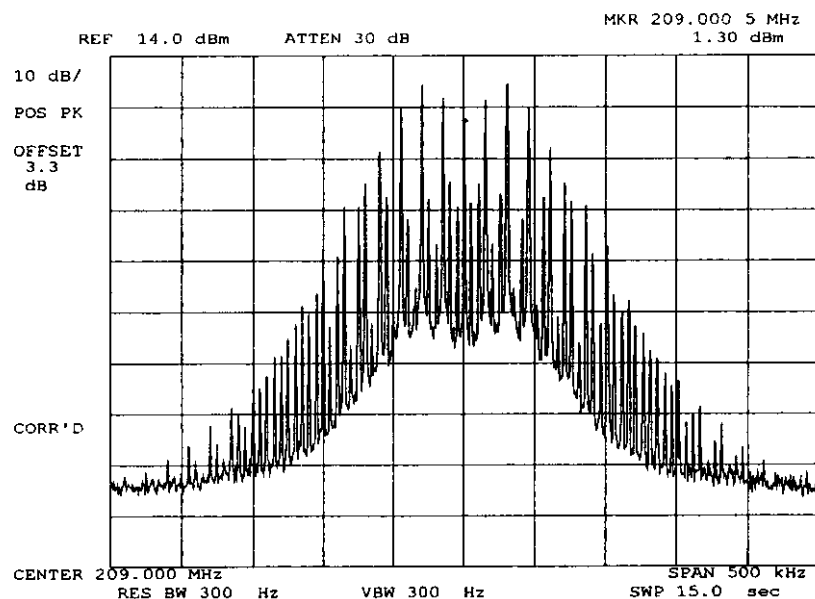
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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g9920331: 1999-Feb-24 Wed 15:12:00  
STATE: 1:Low Power



POWER:  
MODULATION:

LOW  
15 KHZ TONE 20 DB ABOVE  
REFERENCE

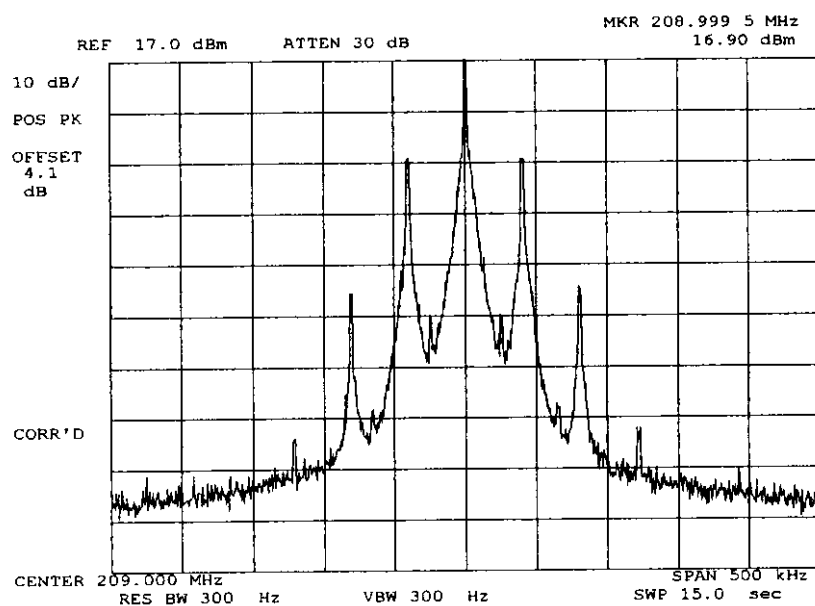
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*M. Flom P. Eng.*  
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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g9920328: 1999-Feb-24 Wed 14:33:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
NONE

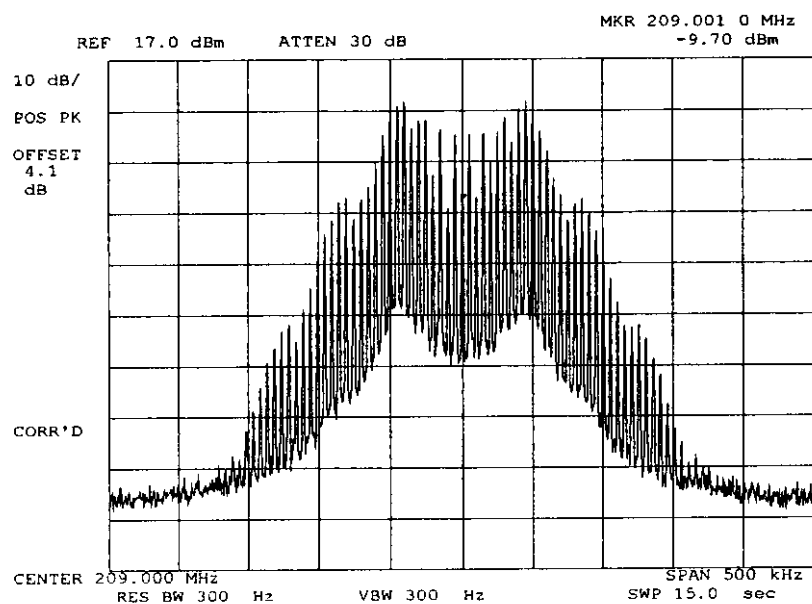
SUPERVISED BY:

Morton Flom, P. Eng.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g9920341: 1999-Feb-26 Fri 09:00:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
5 KHZ TONE 20 DB ABOVE  
REFERENCE

SUPERVISED BY:

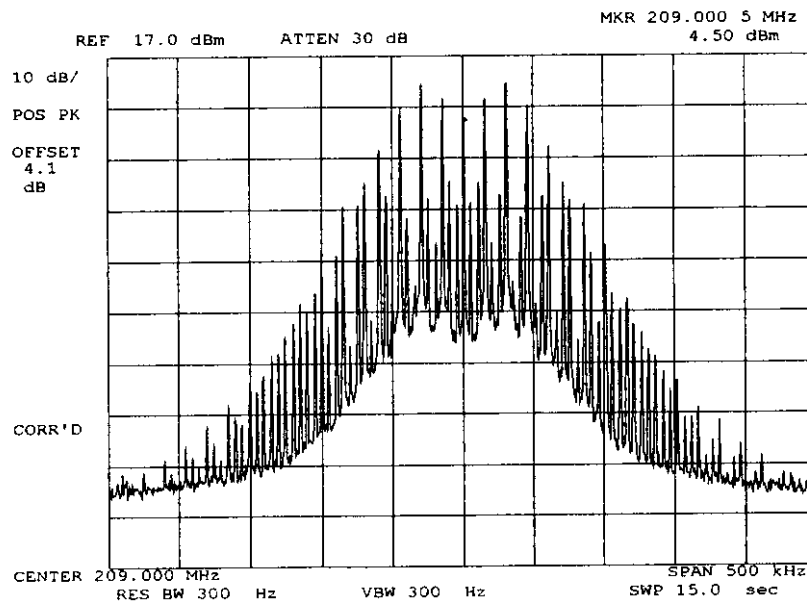
*Morton Flom P. Eng.*

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g9920330: 1999-Feb-24 Wed 15:09:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
15 KHZ TONE 20 DB ABOVE  
REFERENCE

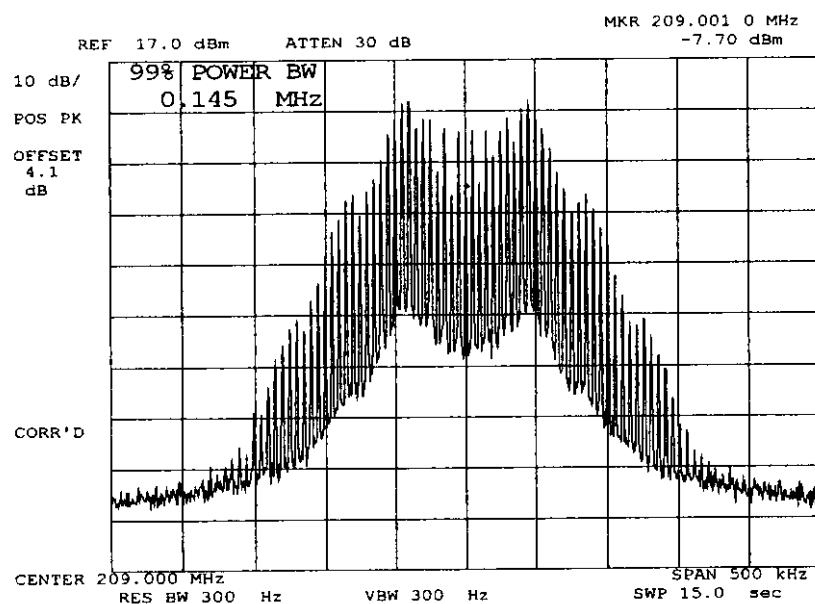
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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g9920338: 1999-Feb-26 Fri 08:43:00  
 STATE: 2:High Power



POWER:  
 MODULATION:

HIGH  
 5 KHZ TONE 20 DB ABOVE  
 REFERENCE  
 99% POWER BANDWIDTH

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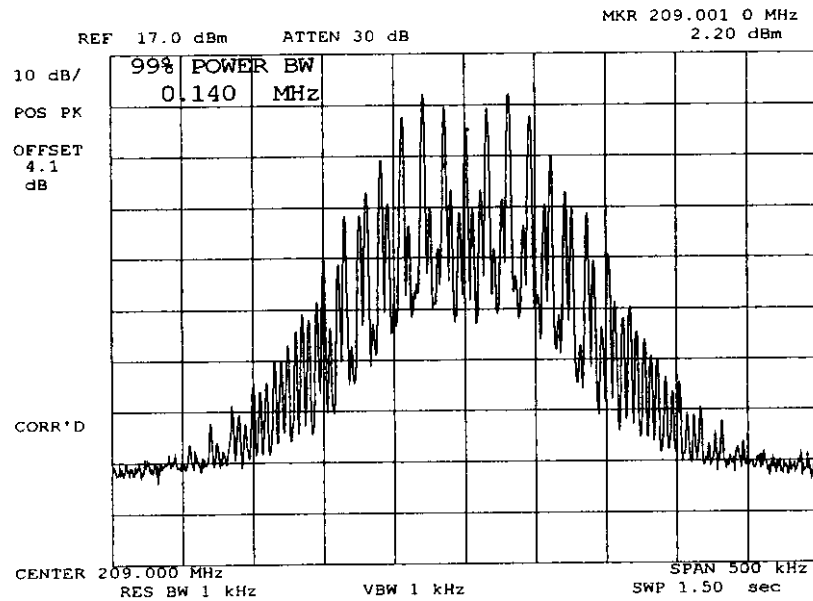
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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g9920332: 1999-Feb-24 Wed 15:15:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
15 KHZ TONE 20 DB ABOVE  
REFERENCE  
99 % POWER BANDWIDTH

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NAME OF TEST: Audio Low Pass Filter (Voice Input)

SPECIFICATION: 47 CFR 2.1047(a)

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.15

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

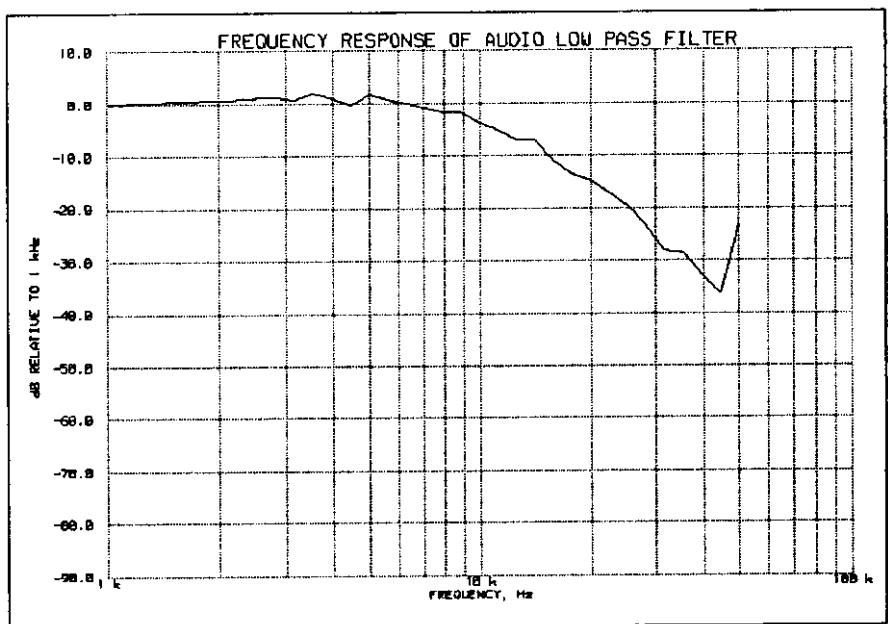
1. The EUT and test equipment were set up such that the audio input was connected at the input to the modulation limiter, and the modulated stage.
2. The audio output was connected at the output to the modulated stage.
3. MEASUREMENT RESULTS: ATTACHED



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NAME OF TEST: Audio Low Pass Filter (Voice Input)  
g9920229: 1999-Feb-25 Thu 08:44:00  
STATE: 0:General



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NAME OF TEST: Audio Frequency Response  
SPECIFICATION: 47 CFR 2.1047(a)  
GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.6  
TEST EQUIPMENT: As per previous page

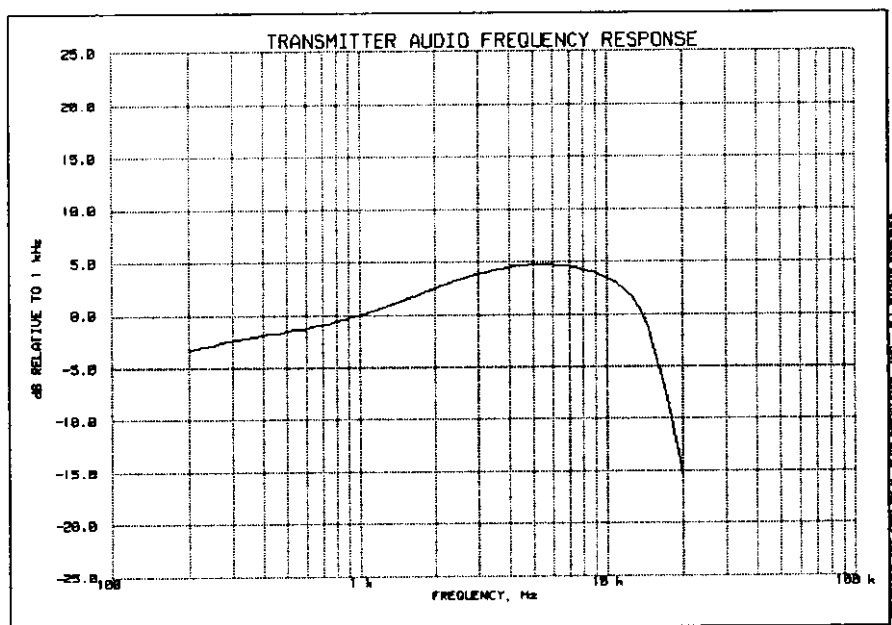
MEASUREMENT PROCEDURE

1. The EUT and test equipment were set up as shown on the following page.
2. The audio signal generator was connected to the audio input circuit/microphone of the EUT.
3. The audio signal input was adjusted to obtain 20% modulation at 1 kHz, and this point was taken as the 0 dB reference level.
4. With input levels held constant and below limiting at all frequencies, the audio signal generator was varied from 100 Hz to 50 kHz.
5. The response in dB relative to 1 kHz was then measured, using the HP 8901A Modulation Analyzer.
6. MEASUREMENT RESULTS: ATTACHED

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NAME OF TEST: Audio Frequency Response  
 g9920241: 1999-Feb-25 Thu 09:23:00  
 STATE: 0:General

Additional points:

| FREQUENCY, Hz | LEVEL, dB |
|---------------|-----------|
| 300           | -2.98     |
| 20000         | -25.46    |
| 30000         | -54.91    |
| 50000         | -73.19    |

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NAME OF TEST: Modulation Limiting  
SPECIFICATION: 47 CFR 2.1047(b)  
GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.3  
TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

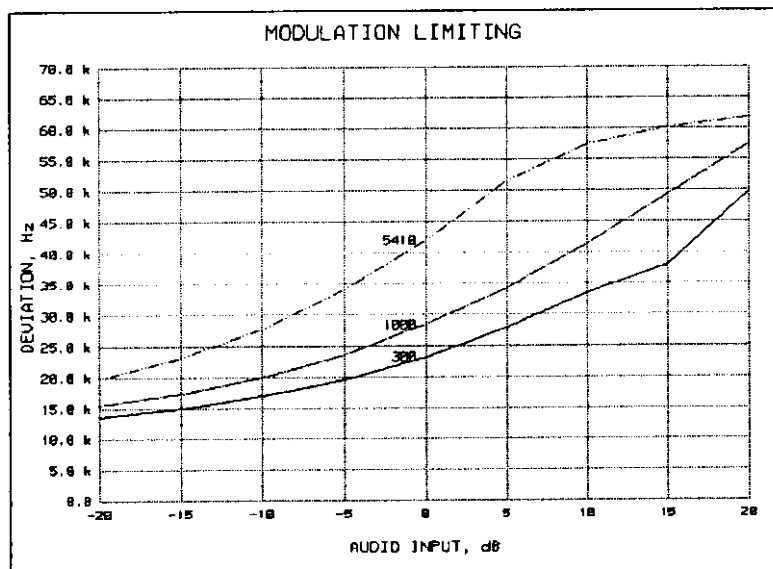
1. The signal generator was connected to the input of the EUT as for "Frequency Response of the Modulating Circuit."
2. The modulation response was measured for each of three frequencies (one of which was the frequency of maximum response), and the input voltage was varied and was observed on an HP 8901A Modulation Analyzer.
3. The input level was varied from 30% modulation ( $\pm 1.5$  kHz deviation) to at least 20 dB higher than the saturation point.
4. Measurements were performed for both negative and positive modulation and the respective results were recorded.
5. MEASUREMENT RESULTS: ATTACHED

PAGE NO.

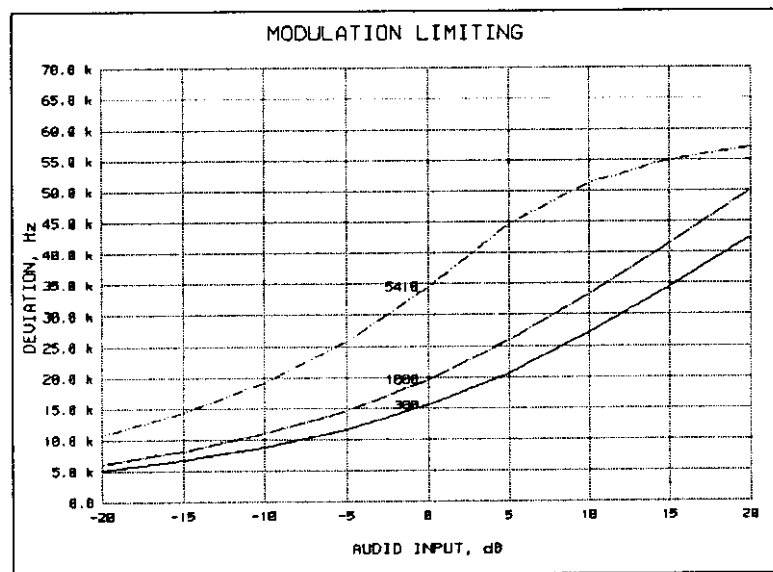
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NAME OF TEST: Modulation Limiting  
 g9920242: 1999-Feb-25 Thu 09:38:00  
 STATE: 0:General

Positive  
 Peaks:



Negative  
 Peaks:



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NAME OF TEST: Frequency Stability (Temperature Variation)

SPECIFICATION: 47 CFR 2.1055(a)(1)

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.2

TEST CONDITIONS: As Indicated

TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

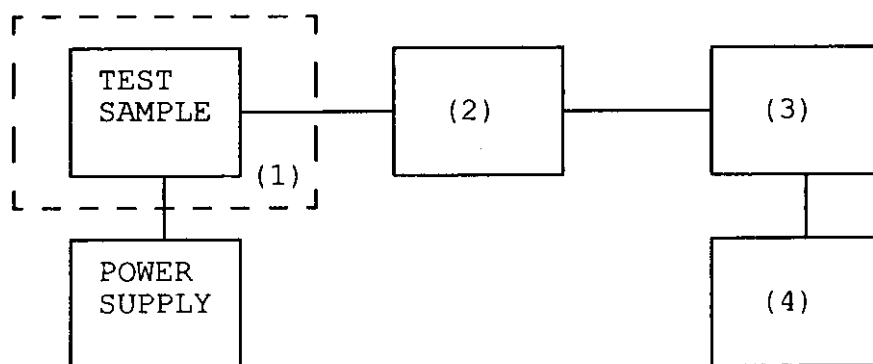
1. The EUT and test equipment were set up as shown on the following page.
2. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.
3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The temperature tests were performed for the worst case.
5. MEASUREMENT RESULTS: ATTACHED

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TRANSMITTER TEST SET-UP

TEST A. OPERATIONAL STABILITY  
 TEST B. CARRIER FREQUENCY STABILITY  
 TEST C. OPERATIONAL PERFORMANCE STABILITY  
 TEST D. HUMIDITY  
 TEST E. VIBRATION  
 TEST F. ENVIRONMENTAL TEMPERATURE  
 TEST G. FREQUENCY STABILITY: TEMPERATURE VARIATION  
 TEST H. FREQUENCY STABILITY: VOLTAGE VARIATION

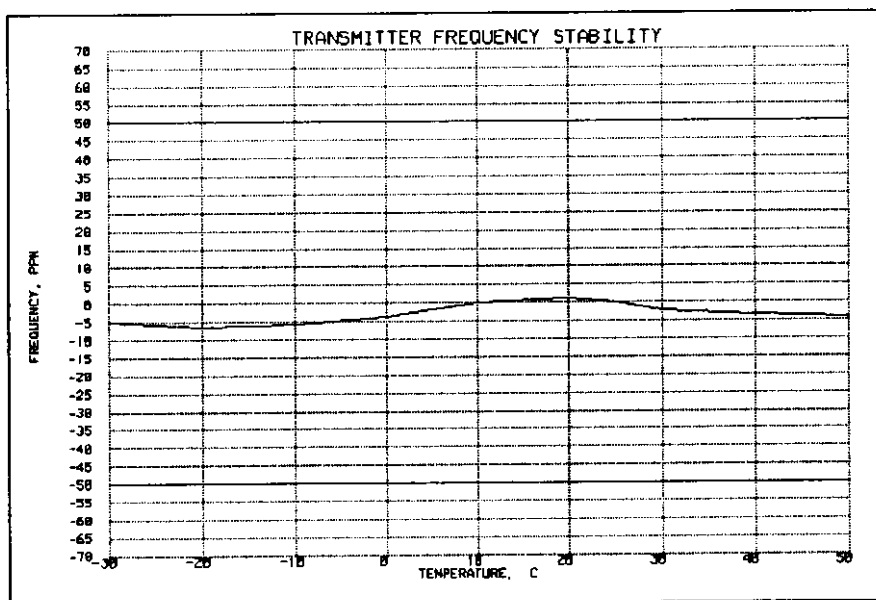


| Asset    | Description                             | s/n          |
|----------|-----------------------------------------|--------------|
| (1)      | <u>TEMPERATURE, HUMIDITY, VIBRATION</u> |              |
| <u>x</u> | i00027 Tenny Temp. Chamber              | 9083-765-234 |
| ___      | i00 Weber Humidity Chamber              |              |
| ___      | i00 L.A.B. RVH 18-100                   |              |
| (2)      | <u>COAXIAL ATTENUATOR</u>               |              |
| ___      | i00122 NARDA 766-10                     | 7802         |
| ___      | i00123 NARDA 766-10                     | 7802A        |
| <u>x</u> | i00113 SIERRA 661A-3D                   | 1059         |
| ___      | i00069 BIRD 8329 (30 dB)                | 10066        |
| (3)      | <u>R.F. POWER</u>                       |              |
| ___      | i00014 HP 435A POWER METER              | 1733A05839   |
| <u>x</u> | i00039 HP 436A POWER METER              | 2709A26776   |
| <u>x</u> | i00020 HP 8901A POWER MODE              | 2105A01087   |
| (4)      | <u>FREQUENCY COUNTER</u>                |              |
| ___      | i00042 HP 5383A                         | 1628A00959   |
| <u>x</u> | i00019 HP 5334B                         | 2704A00347   |
| <u>x</u> | i00020 HP 8901A                         | 2105A01087   |

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NAME OF TEST: Frequency Stability (Temperature Variation)  
g9920224: 1999-Feb-25 Thu 10:55:00  
STATE: 0:General



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NAME OF TEST: Frequency Stability (Voltage Variation)  
SPECIFICATION: 47 CFR 2.1055(b) (1)  
GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.2  
TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

1. The EUT was placed in a temperature chamber at  $25\pm 5^{\circ}\text{C}$  and connected as for "Frequency Stability - Temperature Variation" test.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

RESULTS: Frequency Stability (Voltage Variation)  
 g9940169: 1999-Apr-28 Wed 12:16:15  
 STATE: 0:General

LIMIT, ppm = 50  
 LIMIT, Hz = 10450  
 BATTERY END POINT (Voltage) = 6.9

| % of STV | Voltage | Frequency, MHz | Change, Hz | Change, ppm |
|----------|---------|----------------|------------|-------------|
| 85       | 7.65    | 209.000010     | 10         | 0.05        |
| 100      | 9       | 209.000000     | 0          | 0.00        |
| 115      | 10.35   | 208.999990     | -10        | -0.05       |
| 77       | 6.9     | 208.999990     | -10        | -0.05       |

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NAME OF TEST: Necessary Bandwidth and Emission Bandwidth  
SPECIFICATION: 47 CFR 2.202(g)

MODULATION = 200K0F3E

NECESSARY BANDWIDTH CALCULATION:

|                                    |       |
|------------------------------------|-------|
| MAXIMUM MODULATION (M), kHz        | = 54  |
| MAXIMUM DEVIATION (D), kHz         | = 65  |
| CONSTANT FACTOR (K)                | = 1   |
| NECESSARY BANDWIDTH ( $B_N$ ), kHz | = 238 |
|                                    | = 200 |

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