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

# C E R T I F I C A T I O N

of

MODEL: FRS-200A

FCC ID: AUIFRS-200A

to

FEDERAL COMMUNICATIONS COMMISSION

Part
Part 2.1031

DATE OF REPORT: July 12, 1999

ON THE BEHALF OF THE APPLICANT:

Musical Electronics Ltd.

AT THE REQUEST OF: P.O. Invoice 5-060-499

Askom Incorporated
Nagatani City Plaza 909
1-20-1, Hon-Cho, Kichijoji
Musashino-Shi, Tokyo 180-0004 Japan

Attention of: Aki Kagami
+0422-20-9440; FAX: -9442

SUPERVISED BY: Morton Flom, P. Eng.

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 equipm`ent 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.

# TABLE OF CONTENTS

*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: d9970011

d) Client: Askom Incorporated
Nagatani City Plaza 909
1-20-1, Hon-Cho, Kichijoji
Musashino-Shi, Tokyo 180-0004 Japan

e) Identification: FRS-200A
FCC ID: AUIFRS-200A
Description: UHF-FM Handheld FRS Transceiver

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

g) Report Date: July 12, 1999
EUT Received: 1999-Jun-16

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.

GENERAL INFORMATION REQUIRED FOR CERTIFICATION

Sub-part 2.948:

(a)(b) DESCRIPTION OF MEASUREMENT FACILITIES:
FILE: 31040/511

A description of the measurement facilities was filed with the Commission and was found to be in compliance with the requirements of Section 2.948, by letter dated March 3, 1997. All pertinent changes will be reported to the Commission by up-date prior to March 2000.

(b)(4): SUPPORTING STRUCTURES:

SKETCH - ATTACHED EXHIBITS

(b)(5)(6): TEST INSTRUMENTATION:

LIST - SEE EXHIBITS

2.925: IDENTIFICATION OF AN AUTHORIZED DEVICE:

DRAWING - SEE EXHIBITS

LOCATION OF LABEL - SEE PHOTOS

(c)(1): NAME AND ADDRESS OF APPLICANT:

Musical Electronics Ltd.
5/F, Wider Industrial Bldg. 58
Tsun Yip Street
Kwun Tong, Kowloon, Hong Kong
+2341-9281

VENDOR:

Askom Incorporated
Nagatani City Plaza 909
1-20-1, Hon-Cho, Kichijoji
Musashino-Shi, Tokyo 180-0004 Japan

(c)(2): FCC ID: AUIFRS-200A

MODEL NO: FRS-200A

PHOTOGRAPHS:

SEE LIST OF EXHIBITS

PAGE NO. 3 of 25.

LIST OF GENERAL INFORMATION REQUIRED FOR CERTIFICATION

IN ACCORDANCE WITH FCC RULES AND REGULATIONS,
VOLUME II, PART 2 AND TO

95.191

Sub-part 2.1033

(c)(1): NAME AND ADDRESS OF APPLICANT:

Musical Electronics Ltd.
5/F, Wider Industrial Bldg. 58
Tsun Yip Street
Kwun Tong, Kowloon, Hong Kong
+2341-9281

MANUFACTURER:

Applicant

(c)(2): FCC ID: AUIFRS-200A

MODEL NO: FRS-200A

(c)(3): INSTRUCTION MANUAL(S):

PLEASE SEE ATTACHED EXHIBITS

(c)(4): TYPE OF EMISSION: 11K0F3E

(c)(5): FREQUENCY RANGE, MHz: 462.5625 to 467.7125

(c)(6): POWER RATING, Watts: 0.5 Watts ERP
___ Switchable ___ Variable x N/A

(c)(7): MAXIMUM POWER RATING, Watts: 0.5

95.647: ANTENNA REQUIREMENT:

x The antenna is permanently attached to the EUT
___ The antenna uses a unique coupling
___ The EUT must be professionally installed
___ The antenna requirement does not apply

M. Flom Associates, Inc. is accredited by the American Association for Laboratory Association (A2LA) as shown in the scope below.

THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

**ACCREDITED LABORATORY**

A2LA has accredited

**M. FLOM ASSOCIATES, INC.**
**Chandler, AZ**

for technical competence in the field of

**Electrical (EMC) Testing**

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC Guide 25-1990 "General Requirements for the Competence of Calibration and Testing Laboratories" (equivalent to relevant requirements of the ISO 9000 series of standards) and any additional program requirements in the identified field of testing.

Presented this 24th day of November, 1998.

President
For the Accreditation Council
Certificate Number 1008.01
Valid to December 31, 2000

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical (EMC) Scope of Accreditation

American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC GUIDE 25-1990 AND EN 45001

M. FLOM ASSOCIATES, INC.
Electronic Testing Laboratory
3356 North San Marcos Place, Suite 107
Chandler, AZ 85226-1571
Morton Flom Phone: 602 926 3100

ELECTRICAL (EMC)

Valid to: December 31, 2000 Certificate Number: 1008-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following electromagnetic compatibility tests:

| Tests | Standard(s) |
|---|---|
| RF Emissions | FCC Part 15 (Subparts B and C) using ANSI C63.4-1992; CISPR 11; CISPR 13; CISPR 14; CISPR 22; EN 55011; EN 55013; EN 55014; EN 55022; EN 50081-1; EN 50081-2; FCC Part 18; ICES-003; AS/NZS 1044; AS/NZS 1053; AS/NZS 3548; AS/NZS 4251.1 |
| RF Immunity | EN 50082-1; EN 50082-2; AS/NZS 4251.1 |
| Radiated Susceptibility | EN 61000-4-3; ENV 50140; ENV 50204; IEC 1000-4-3; IEC 801-3 |
| ESD | EN 61000-4-2; IEC 1000-4-2; IEC 801-2 |
| EFT | EN 61000-4-4; IEC 1000-4-4; IEC 801-4 |
| Surge | EN 61000-4-5; ENV 50142; IEC 1000-4-5; IEC 801-5 |
| 47 CFR (FCC) | 2, 21, 22, 23, 24, 74, 80, 87, 90, 95, 97 |

5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8307 • Phone: 301 644 3280 • Fax: 301 662 2974

"This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this report have been determined in accordance with the laboratory's terms of accreditation unless stated otherwise in the report."

Should this report contain any data for tests for which we are not accredited, or which have been undertaken by a subcontractor that is not A2LA accredited, such data would not covered by this laboratory's A2LA accreditation.

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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
____ 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
__x__ 95 Subpart E - Family Radio Service
____ 95 Subpart F - Interactive Video and Data Service (IVDS)
____ 101 - Fixed Microwave Services

## 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 (Radiated)

SPECIFICATION: 47 CFR 2.1046(a)

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.1

TEST EQUIPMENT: As per attached page

## MEASUREMENT PROCEDURE (RADIATED)

1. The EUT was placed on an open-field site and its radiated field strength at a known distance was measured by means of a spectrum analyzer. Equivalent loading of a dipole was calculated from the equation $P_t=((E \times R)^2/49.2)$ watts, where R = 3m.

2. Measurement accuracy is ±1.5 dB.

## MEASUREMENT RESULTS

g9960167: 1999-Jun-16 Wed 10:01:00
STATE: 2:High Power

| FREQUENCY TUNED, MHz | FREQUENCY EMISSION, MHz | METER, dBuV/m | CF, dB | ERP, dBm | ERP, Watts |
|---|---|---|---|---|---|
| 462.5625 | 462.5625 | 98.07 | 23.76 | 24.5 | 0.28 |
| 467.7125 | 467.7125 | 97.46 | 23.75 | 23.9 | 0.24 |

SUPERVISED BY: Morton Flom, P. Eng.

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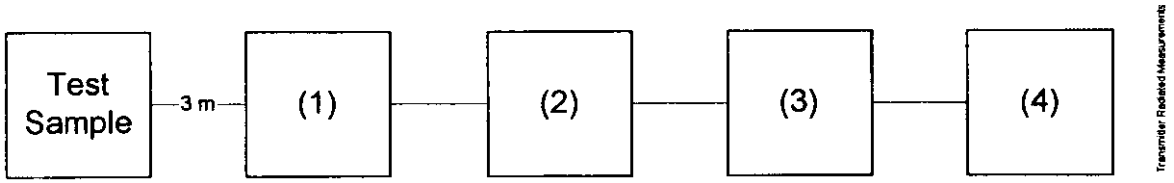
## TRANSMITTER RADIATED MEASUREMENTS




| | Asset | Description | s/n |
|---|---|---|---|
| | | (1) TRANSDUCER | |
| x | i00091 | Emco 3115 | 001469 |
| x | i00089 | Aprel Log Periodic | 001500 |
| | | (2) HIGH PASS FILTER | |
| x | i00 | Narda μPAD (In-Band Only) | |
| x | i00 | Trilithic (Out-Of-Band Only) | |
| | | (3) PREAMP | |
| x | i00028 | HP 8449 (+30 dB) | 2749A00121 |
| | | (4) SPECTRUM ANALYZER | |
| x | i00048 | HP 8566B | 2511A01467 |
| | i00057 | HP 8557A | 1531A00191 |
| x | i00029 | HP 8563E | 3213A00104 |

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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 attached 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 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.

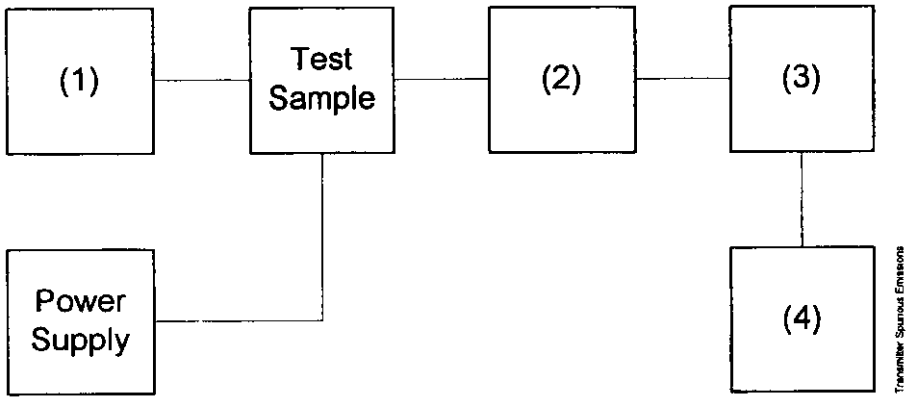
4. The Occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.

5. MEASUREMENT RESULTS: ATTACHED

PAGE NO. 10 of 25.

## TRANSMITTER SPURIOUS EMISSION

TEST A. OCCUPIED BANDWIDTH (IN-BAND SPURIOUS)
TEST B. OUT-OF-BAND SPURIOUS




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

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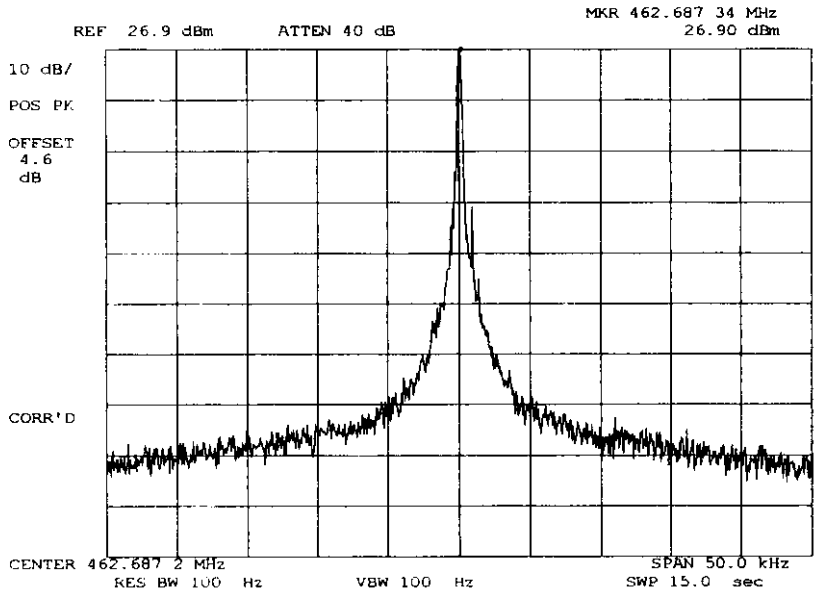
NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9960205: 1999-Jun-21 Mon 08:48:00
STATE: 2:High Power




POWER: HIGH
MODULATION: NONE

SUPERVISED BY: Morton Flom, P. Eng.

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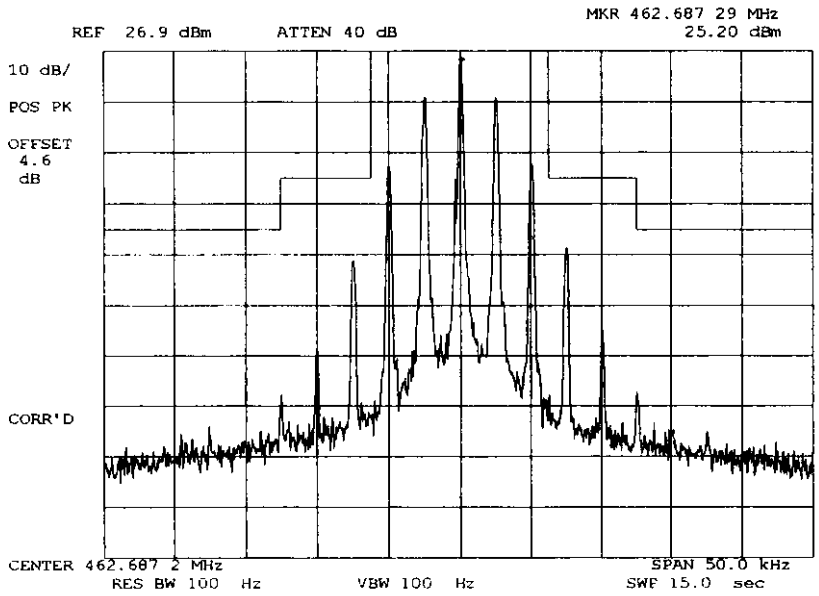
NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9960210: 1999-Jun-21 Mon 09:40:00
STATE: 2:High Power




POWER: HIGH
MODULATION: VOICE: 2500 Hz SINE WAVE
MASK: FRS, 95.633(c)

SUPERVISED BY: Morton Flom, P. Eng.

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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.

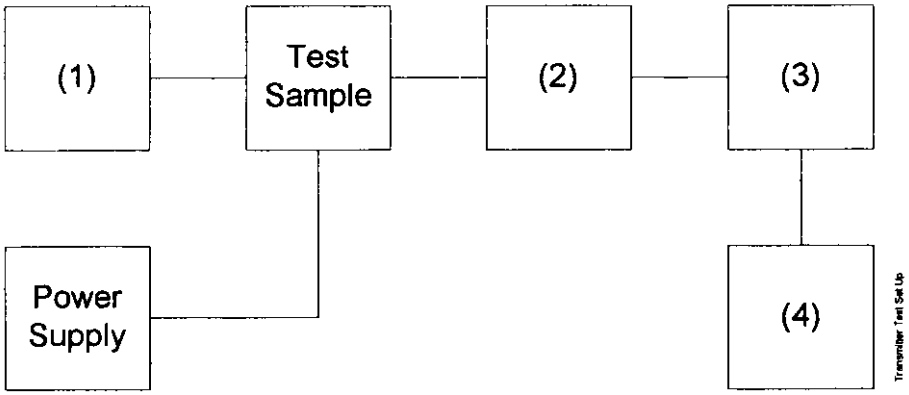
2. The audio output was connected at the output to the modulated stage.

3. MEASUREMENT RESULTS: ATTACHED

PAGE NO. 14 of 25.

## TRANSMITTER TEST SET-UP

TEST A. MODULATION CAPABILITY/DISTORTION
TEST B. AUDIO FREQUENCY RESPONSE
TEST C. HUM AND NOISE LEVEL
TEST D. RESPONSE OF LOW PASS FILTER
TEST E. MODULATION LIMITING




Transmitter Test Set Up

| | Asset | Description | s/n |
|---|---|---|---|
| (1) | | Audio Generator | |
| ___ | i00010 | HP 204D | 1105A04683 |
| x | i00017 | HP 8903A | 2216A01753 |
| ___ | i00118 | HP 33120A | US36002064 |
| (2) | | COAXIAL ATTENUATOR | |
| x | i00122 | NARDA 766-10 | 7802 |
| ___ | i00123 | NARDA 766-10 | 7802A |
| ___ | i00113 | SIERRA 661A-3D | 1059 |
| ___ | i00069 | BIRD 8329 (30 dB) | 10066 |
| (3) | | MODULATION ANALYZER | |
| x | i00020 | HP 8901A | 2105A01087 |
| (4) | | AUDIO ANALYZER | |
| x | i00017 | HP 8903A | 2216A01753 |

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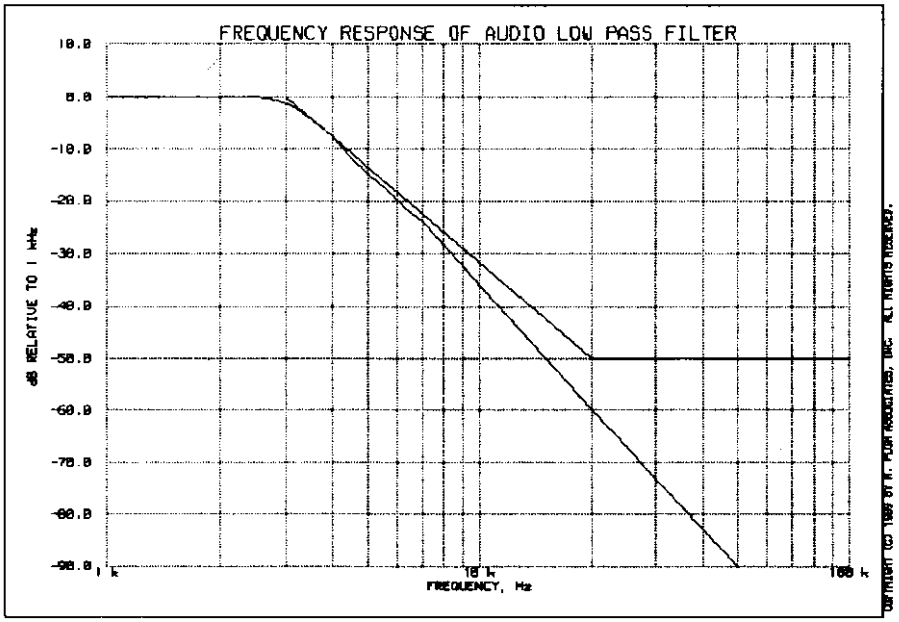
NAME OF TEST: Audio Low Pass Filter (Voice Input)
g9960151: 1999-Jun-18 Fri 14:12:00
STATE: 0:General




SUPERVISED BY: Morton Flom, P. Eng.

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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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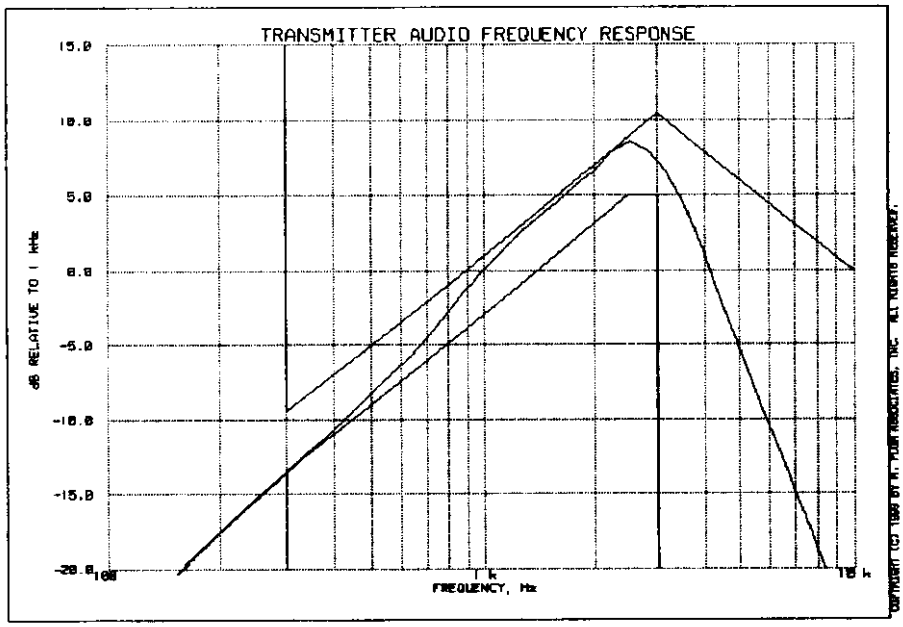
NAME OF TEST: Audio Frequency Response
g9960196: 1999-Jun-21 Mon 07:58:00
STATE: 0:General




Additional points:

| FREQUENCY, Hz | LEVEL, dB |
|---|---|
| 300 | -17.07 |
| 20000 | -19.25 |
| 30000 | -19.38 |
| 50000 | -19.19 |

SUPERVISED BY: Morton Flom, P. Eng.

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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 (±1.5 kHz deviation) to at least 20 dB higher than the saturation point.

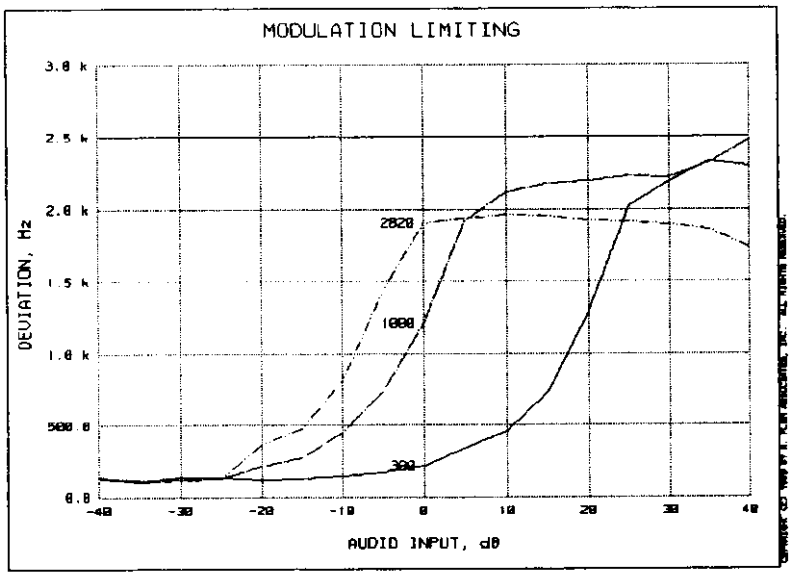
4. Measurements were performed for both negative and positive modulation and the respective results were recorded.

5. MEASUREMENT RESULTS: ATTACHED

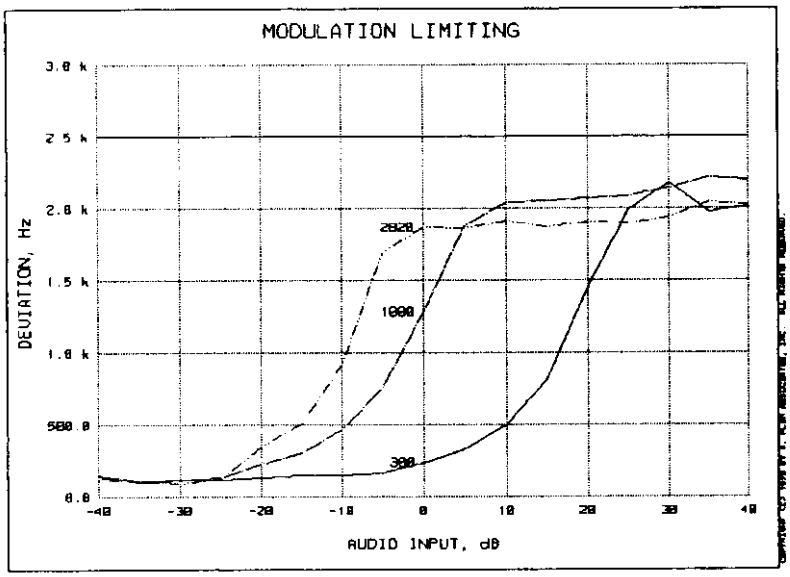
PAGE NO. 19 of 25.

NAME OF TEST: Modulation Limiting
g9960157: 1999-Jun-18 Fri 14:27:00
STATE: 0:General

Positive Peaks:




Negative Peaks:




SUPERVISED BY: Morton Flom, P. Eng.

| | |
|---|---|
| PAGE NO. | 20 of 25. |
| 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.

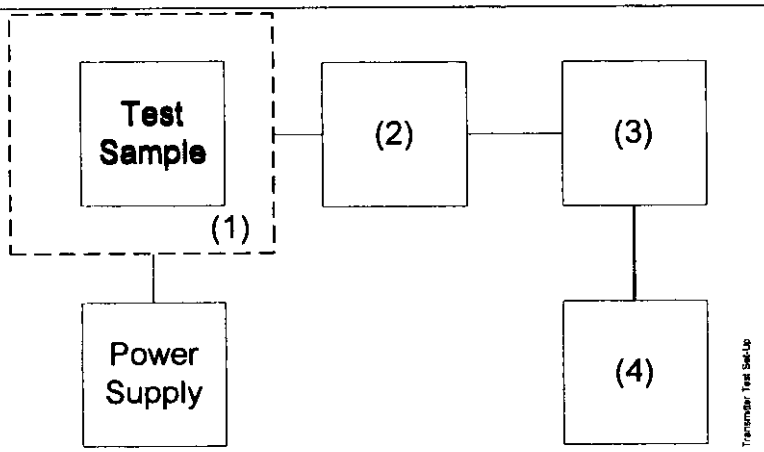
4. The temperature tests were performed for the worst case.

5. MEASUREMENT RESULTS: ATTACHED

PAGE NO. 21 of 25.

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

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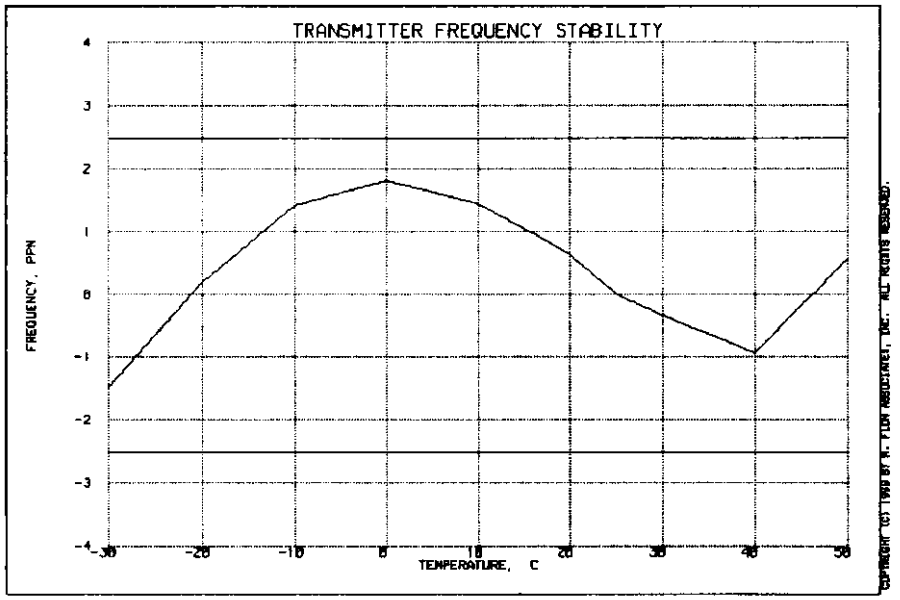
NAME OF TEST: Frequency Stability (Temperature Variation)
g9960203: 1999-Jun-21 Mon 12:13:00
STATE: 0:General




SUPERVISED BY: Morton Flom, P. Eng.

PAGE NO. 23 of 25.

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±5°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)
g9960204: 1999-Jun-21 Mon 08:29:43
STATE: 0:General

LIMIT, ppm = 2.5
LIMIT, Hz = 1157
BATTERY END POINT (Voltage) = 4.8

| % of STV | Voltage | Frequency, MHz | Change, Hz | Change, ppm |
|---|---|---|---|---|
| 85 | 5.1 | 462.687000 | 0 | 0.00 |
| 100 | 6 | 462.687000 | 0 | 0.00 |
| 115 | 6.9 | 462.686970 | -30 | -0.06 |
| 80 | 4.8 | 462.686950 | -50 | -0.11 |

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NAME OF TEST: Necessary Bandwidth and Emission Bandwidth

SPECIFICATION: 47 CFR 2.202(g)

MODULATION = 11K0F3E

NECESSARY BANDWIDTH CALCULATION:

| | |
|---|---|
| MAXIMUM MODULATION (M), kHz | = 3 |
| MAXIMUM DEVIATION (D), kHz | = 2.5 |
| CONSTANT FACTOR (K) | = 1 |
| NECESSARY BANDWIDTH ($B_N$), kHz | = (2 x M) + (2 x D x K) |
| | = 11.0 |

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NAME OF TEST: Summary of Applicant Supplied Attestations

SPECIFICATION: 47 CFR 95

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

TEST CONDITIONS: As Indicated

TEST EQUIPMENT: As per previous page

95.647

Antenna has no gain (as compared to a half-wave dipole) and is vertically polarized.

95.649

There are no provisions for increasing transmitter power.

95.653

Users manual includes instructions and warnings.

# 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.

# STATEMENT OF QUALIFICATIONS

EDUCATION:

1. B. ENG. in ENGINEERING PHYSICS, 1949, McGill University, Montreal, Canada.

2. Post Graduate Studies, McGill University & Sir George Williams University, Montreal.

PROFESSIONAL AFFILIATIONS:

1. ARIZONA SOCIETY OF PROFESSIONAL ENGINEERS (NSPE), #026 031 821.

2. ORDER OF ENGINEERS (QUEBEC) 1949. #45 34.

3. ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOPHYSICISTS & GEOLOGISTS OF ALBERIA #5916.

4. REGISTERED ENGINEERING CONSULTANT - INDUSTRY CANADA, Certification & Engineering Bureau.

5. IEEE, Lifetime member no. 041/204 (Member since 1947).

EXPERIENCE:

1. Research/Development/Senior Project Engineer. R.C.A. LIMITED (4 years).

2. Owner/Chief Engineer of Electronics. Design/Manufacturing & Cable TV Companies (10 years)

3. CONSULTING ENGINEER (over 25 years).

M. Flom P. Eng.

MORTON FLOM, P. Eng.