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APPLICANT: ASE TELECOM CO., LTD.

FCC ID: PM9MURS2

TEST REPORT:

EXHIBITS CONTAINING:

GENERAL_INFORMATION_REQUIRED
FOR_TYPE_ACCEPTANCE

2.1033(c)(1)(2) ASE TELECOM CO., LTD..will manufacture the FCC ID: PM9MURS2 MULTI USER RADIO SERVICE TRANSCEIVER in quantity, for use under FCC RULES PART 95. The UUT is a PTT Radio with a maximum duty cycle of 50%.

ASE TELECOM CO., LTD.
7F., YUNGCHANG B/D., 250 CHEOLSAN-DONG
KWANGMYONG-CITY KYUNGGI-DO KOREA

2.1033 (c) TECHNICAL_DESCRIPTION

2.1033(c)(3) Instruction book. A draft copy of the instruction manual is included as EXHIBIT 5.

2.1033(c) (4) Type of Emission: 9K6F3E
95.632 Bn = 2M + 2DK
M = 3000
D = 2.0K
Bn = 2(3.0)+2(2.1) = 9.6K

Authorized Bandwidth – 11.25 kHz for frequencies:
151.820, 151.880, 151.940 MHz

Authorized Bandwidth - 12.5 kHz for frequencies:
154.570, 154.600 MHz

2.1033(c)(5) Frequency Range: 1. 151.820
95.632 2. 151.880
3. 151.940
4. 154.570
5. 154.600

2.1033(c)(6)(7) Power Output shall not exceed 2.0 Watts effective
95.639 radiated power. There can be no provisions for
95.649 increasing the power or varing the power.

The antenna is an intergral part to the unit, it cannot be removed without rendering the unit inoperative. In order to remove the antenna the case must unscrewed, then the PCB assemblies must be removed then the antenna can be removed.

2.1033(c)(9) Tune-up procedure. The tune-up procedure is shown as EXHIBIT 8.

2.1033(c)(8) DC Voltages and Current into Final Amplifier:
FINAL AMPLIFIER ONLY

High - Vce = 6.0 Volts DC Ice = 0.5A
Pin = 3 Watts

Low - Vce = 6.0 Volts DC Ice = 0.13A
Pin = 0.78 Watts

2.1033(c)(10) Complete Circuit Diagrams: The circuit diagram is included as EXHIBIT 4. The block diagram is included as EXHIBIT 3 of this report.

2.1033(c)(11) A photograph or a drawing of the equipment identification label is included as exhibit No. 1.

2.1033(c)(12) Photographs(8"X10") of the equipment of sufficient clarity to reveal equipment construction and layout, including meters, labels for controls, including any view under shields - See EXHIBIT 6A-6F.

2.1033(c)(13) Digital modulation is not used in this device.

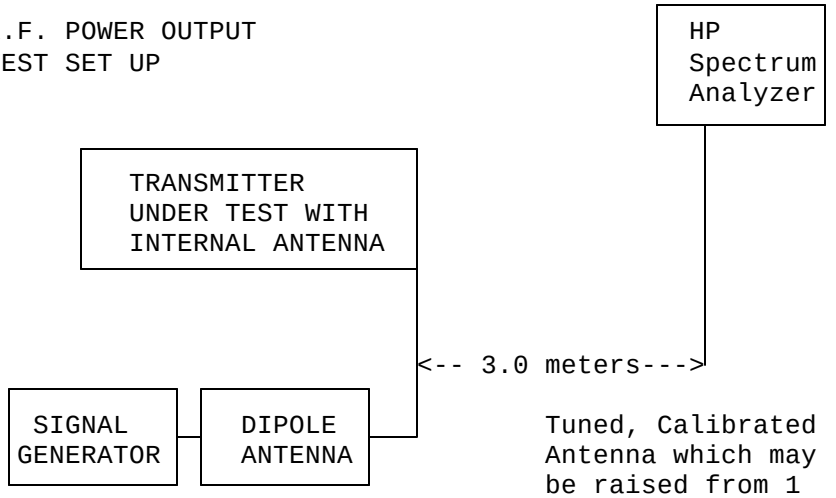
2.1033(c)(14) The data required by 2.1046 through 2.1057 is submitted below.

2.1046(a) RF_power_output.

95.639(g) RF power is measured by measuring the radiated power at 3 meters and then replacing the transmitter with a signal generator to determine the effective radiated power. The ERP shall not exceed 2.0 Watts.

MEASURED POWER OUTPUT = .35 Watts ERP HIGH POWER
.02 Watts ERP LOW POWER

R.F. POWER OUTPUT
TEST SET UP



Equipment placed 80cm above ground
on a rotatable platform.

2.1047(a)(b) Modulation_characteristics:

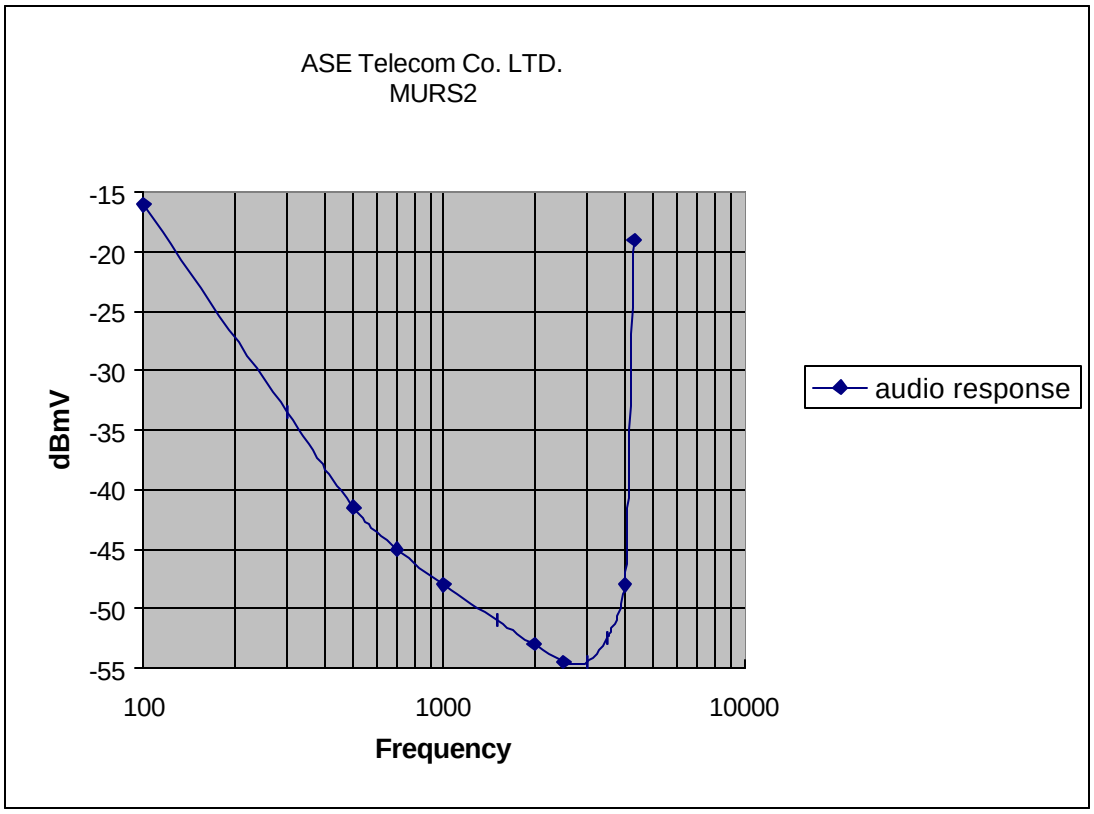
AUDIO_FREQUENCY_RESPONSE

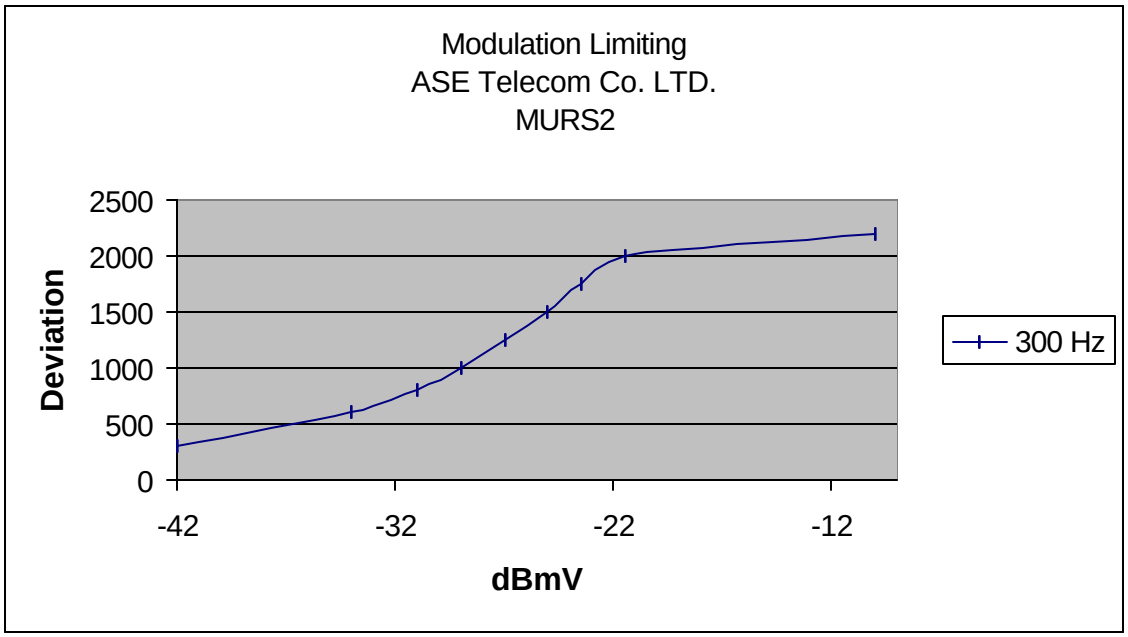
The audio frequency response was measured in accordance with TIA/EIA Specification 603. The audio frequency response curve is shown below.

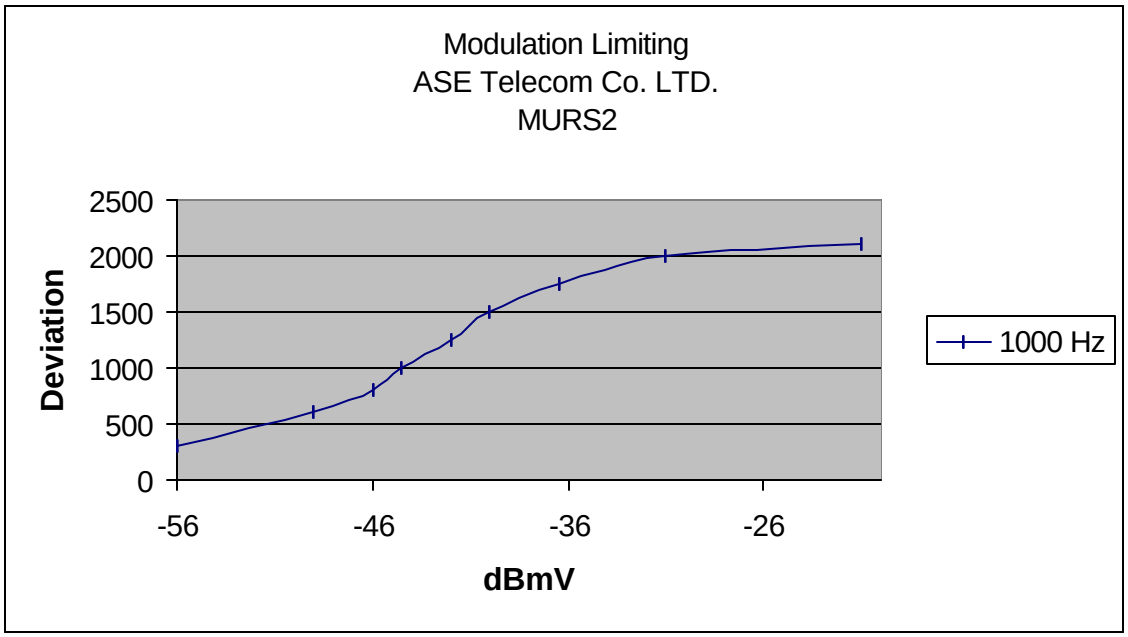
The audio signal was fed into a dummy microphone circuit and into the microphone connector. The input required to produce 30 percent modulation level was measured.

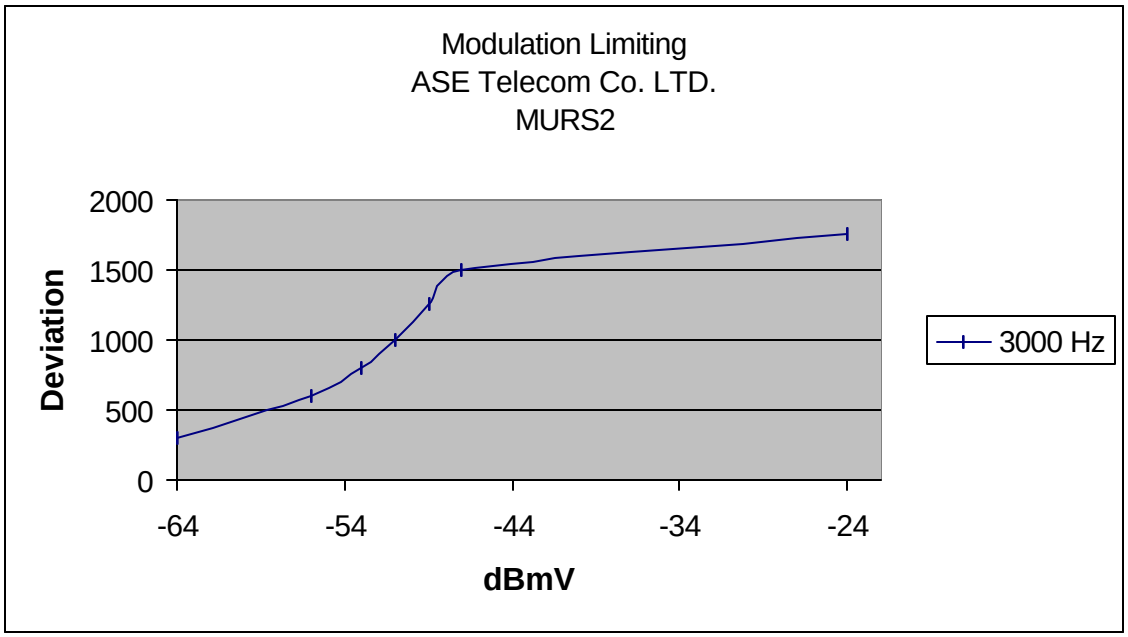
2.1047(b) Audio input versus modulation

The audio input level needed for a particular per-percentage of modulation was measured in accordance with TIA/EIA Specification 603. The audio input curves versus modulation are shown below. Curves are provided for audio input frequencies of 300, 1000, and 3000 Hz.


ASE Telecom Co. LTD.
MURS2
-15
-20
-25
-30
-35
-40
-45
-50
-55
dBmV
100
1000
10000
Frequency
audio response

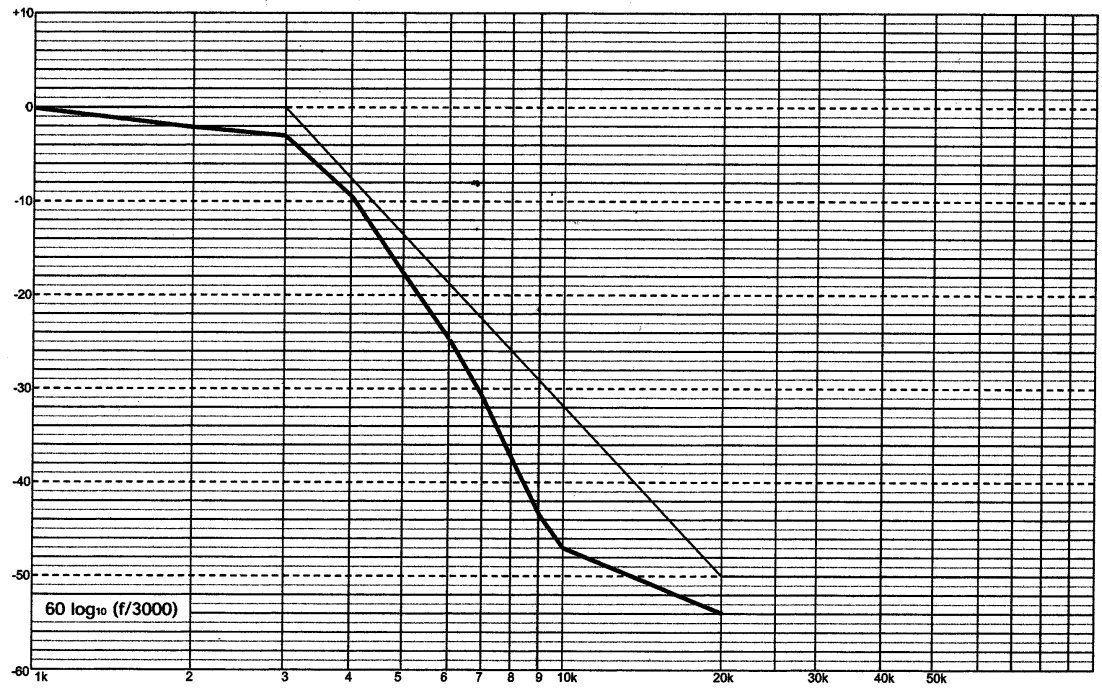

Modulation Limiting
ASE Telecom Co. LTD.
MURS2
Deviation
2500
2000
1500
1000
500
0
-42
-32
-22
-12
dBmV
300 Hz


Modulation Limiting
ASE Telecom Co. LTD.
MURS2
Deviation
2500
2000
1500
1000
500
0
-56
-46
-36
-26
dBmV
1000 Hz


Modulation Limiting
ASE Telecom Co. LTD.
MURS2
Deviation
2000
1500
1000
500
0
-64
-54
-44
-34
-24
dBmV
3000 Hz

10. Audio Low Pass Filter Response

Audio Low Pass Filter Response (FCC Part 90) TEST BY : H.B.KIM TEST DATE : OCT . 25 . 2001 .



MODEL NAME : MURS2

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ASE TELECOM CO., LTD

EMISSION BANDWIDTH:

95.633(c)

Emission Mask B. For transmitters that are equipped with an audio low pass filter pursuant to § 90.211(a), the power of any emission must be below the unmodulated carrier power (P) as follows :

(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth : At least 25dB.

(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth : At least 35dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43+10 log (P) dB.

Emission Mask D. 12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(1) On any frequency for the center of the authorized bandwidth f to 5.625 kHz removed from f : Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f in kHz) of more than 5.625 kHz but no more than 12.5 kHz: At least 7.27 (f - 2.88kHz) dB.

(4) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f in kHz) of more than 12.5kHz:
Atleast 50+10 log (P) dB or 70dB, whichever is the lesser attenuation.

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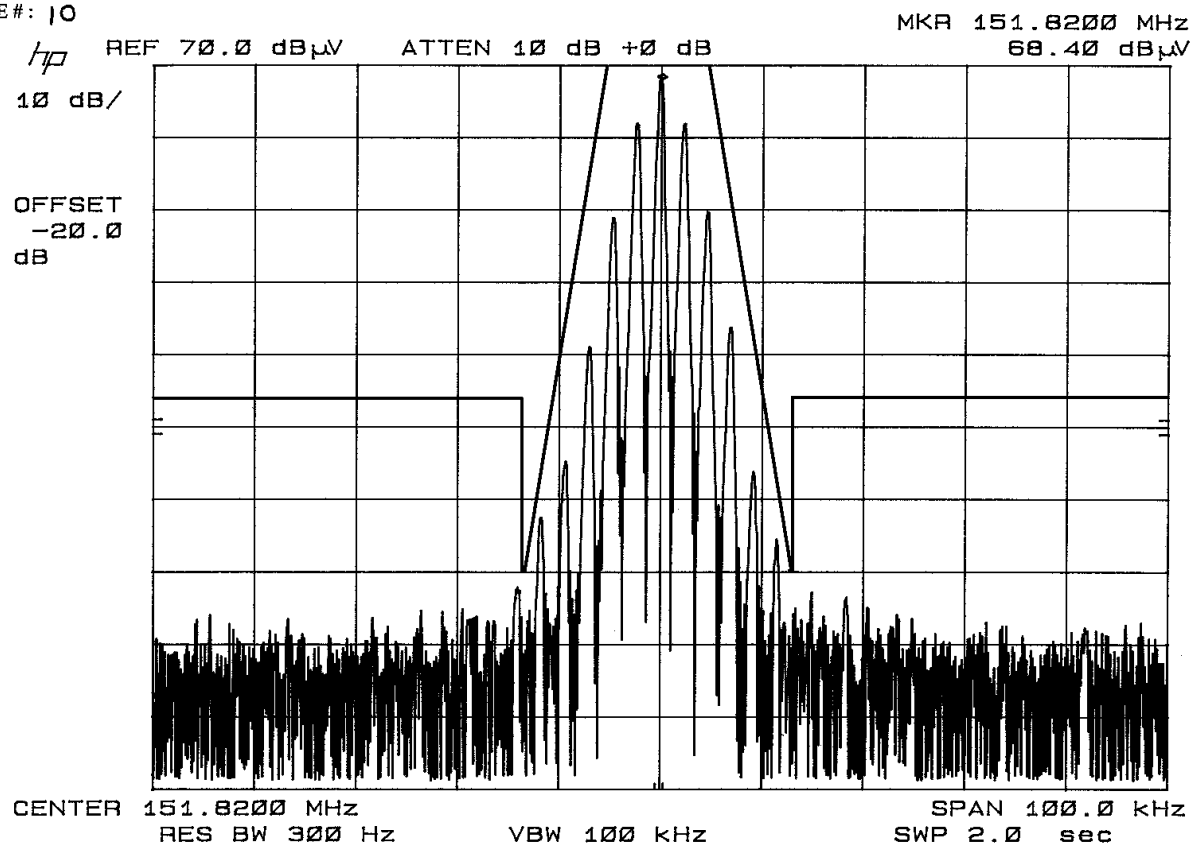
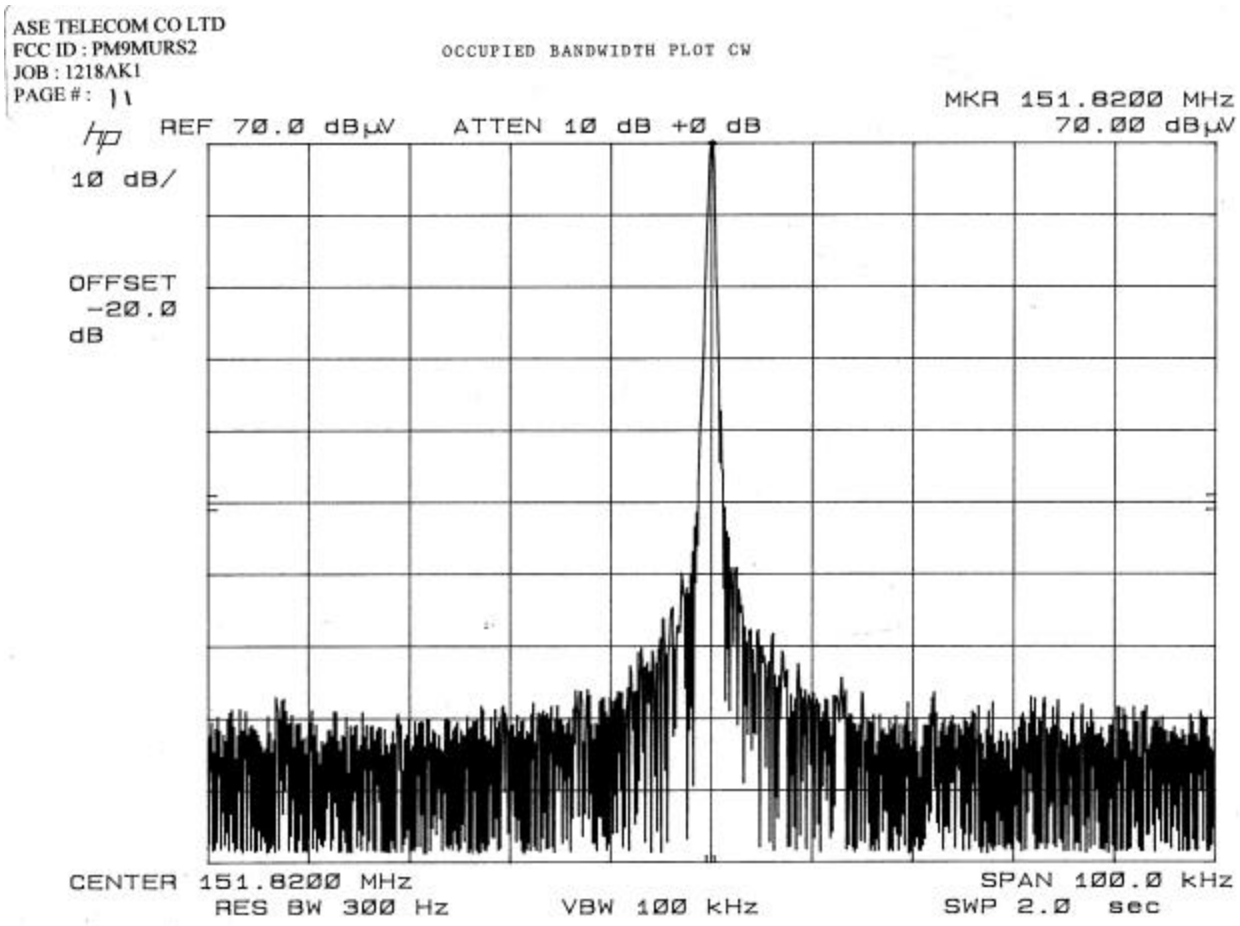
OCCUPIED BANDWIDTH PLOT




ASE TELECOM CO LTD
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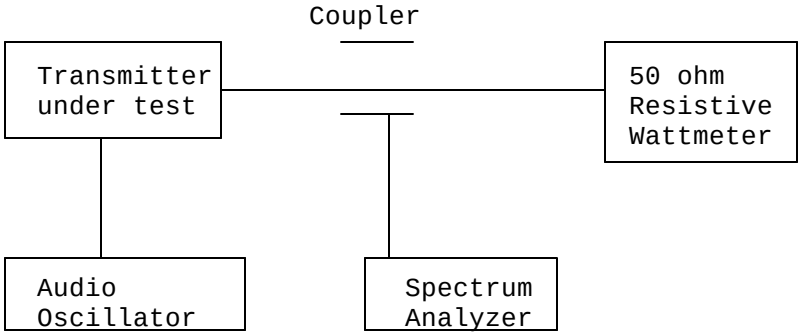
OCCUPIED BANDWIDTH PLOT CW
MKR 151.8200 MHz
70.00 dBµV
REF 70.0 dBµV
ATTEN 10 dB +0 dB
10 dB/
OFFSET
-20.0
dB
CENTER 151.8200 MHz
SPAN 100.0 kHz
RES BW 300 Hz
VBW 100 kHz
SWP 2.0 sec

Radiotelephone transmitter with modulation limiter.

Test procedure diagram

OCCUPIED BANDWIDTH MEASUREMENT



2.1051 Not Applicable, no external antenna terminal.

2.1053 SPURIOUS EMISSIONS:
95.635(c)

REQUIREMENTS: Emissions must be attenuated by at least the following below the output of the transmitter.

HIGH POWER	43 + 10log(.35) = 38.44 dB
LOW POWER	43 + 10log(.02) = 26.01 dB

TEST DATA:

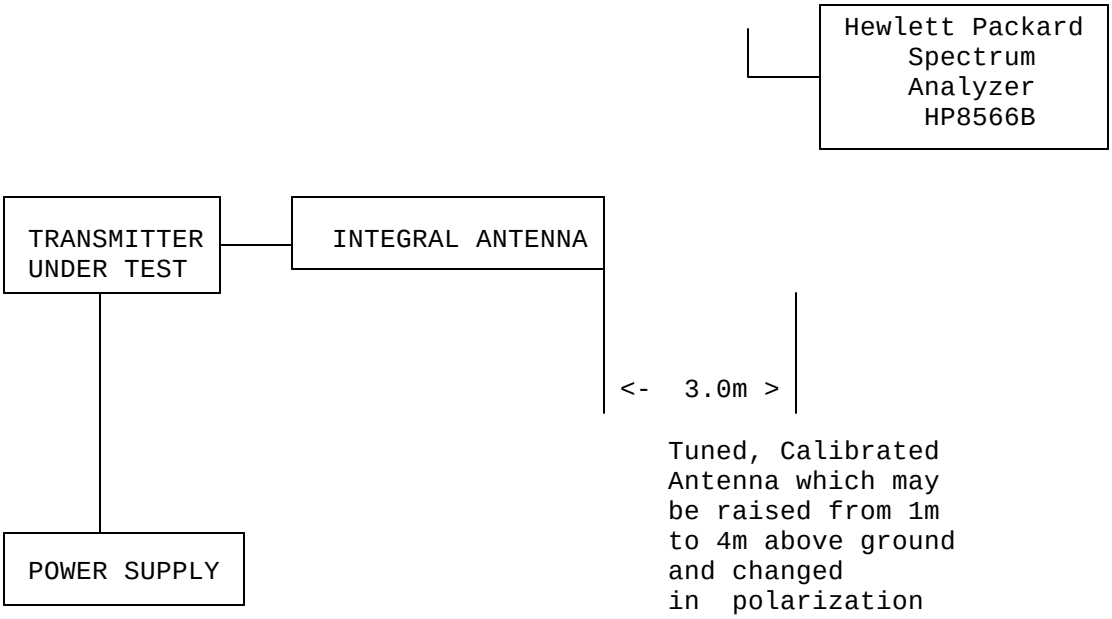
Emission Frequency MHz	Attn dBc	Margin dB
High Power		
154.60	00.00	00.00
309.20	59.80	21.36
463.80	61.86	23.42
618.40	70.54	32.10
773.00	72.43	33.99
927.60	75.54	37.10
1,082.20	65.28	26.84
1,236.60	68.22	29.78
1,391.40	82.35	43.91
1,546.00	74.35	35.91
Low Power		
154.61	00.00	00.00
309.20	49.40	23.39
463.80	52.00	25.99
618.40	62.38	36.37
773.00	60.43	34.42
927.60	53.44	27.43
1,082.20	54.88	28.87
1,236.60	59.32	33.31
1,391.40	68.35	42.34
1,546.00	61.85	35.84

MARGIN = (Field strength of Fund – 38.44 dB) - FS OF EMISSION (HIGH)
MARGIN = (Field strength of Fund – 26.01 dB) - FS OF EMISSION (LOW)

METHOD OF MEASUREMENT: The procedure used was TIT/EIA STANDARD 603 USING THE SUBSTITUTION method. The spectrum was scanned from 30 to at least the tenth harmonic of the fundamental using a HP model 8566B spectrum analyzer, and an appropriate antenna - see test equipment list. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, Newberry, FL 32669.

2.1053 SPURIOUS EMISSIONS:
95.635

Method of Measuring Radiated Spurious Emissions



Equipment placed 80cm above ground
on a rotatable platform.

95.632(c)
2.1055

Frequency_stability:

Temperature and voltage tests were performed to verify that the frequency remains within the 0.00050%, 5.0 ppm specification limit if the device is designed to operate with 11.25 kHz or 12.5 kHz authorized bandwidth and .00020%, 2.0 ppm if the device is designed to operate with 6.25 kHz authorized bandwidth. The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 degrees C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15 second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30 degrees C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15 second intervals. The worst case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 degrees C.

Readings were also taken at plus and minus 15% of the battery voltage of 6 VDC.

MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 151.820 021

TEMPERATURE°C	FREQUENCY_MHz	PPM
REFERENCE	151.820 021	00.00
-30	151.819 629	-2.58
-20	151.820 268	1.63
-10	151.819 891	-0.86
0	151.820 053	0.21
+10	151.820 007	-0.09
+20	151.820 122	0.67
+30	151.819 972	-0.32
+40	151.819 890	-0.86
+50	151.819 944	-0.51
BATT. End-Point 5.1V/dc	151.820 019	-0.01
BATT. End-Point 6.9V/dc	151.820 025	0.03

RESULTS OF MEASUREMENTS: The maximum frequency variation over the temperature range was –2.58 to +1.63 ppm. The maximum frequency variation with voltage was -0.01 to +0.03ppm.

TEST EQUIPMENT LIST

1._X_Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/ preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter HP 8565OA, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02, S/N 3008A00372 Cal. 8/31/01 Due 8/31/02
2._X_Biconnical Antenna: Eaton Model 94455-1, S/N 1057, Cal. 10/1/01 Due 10/1/02
3.__ Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171 Cal. 4/26/01 Due 4/26/03
4.__ Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632 Char. 10/15/01 Due 10/15/02
5._X_Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409 Char. 10/16/01 Due 10/16/02
6.__ Log-Periodic Antenna: Electro-Metrics Model LPA-25, S/N 1122 Char. 2/10/01 Due 3/10/02
7.__ Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180, 1-18 GHz, S/N 2319 Cal. 12/19/01 Due 12/19/02
8.__ 18-26.3GHz Systron Donner Standard Gain Horn #DBE-520-20 No Cal Required
9.__ Horn 40-60GHz: ATM Part #19-443-6R No Cal Required
10._X_Line Impedance Stabilization Network: Electro-Metrics Model EM-7820, w/NEMA Adapter S/N 2682 Cal. 3/16/01 Due 3/16/02
11.__ Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7 Char. 1/22/02 Due 1/22/03
12.__ Frequency Counter: HP Model 5385A, S/N 3242A07460 Char. 12/11/01 Due 12/11/02
13.__ Peak Power Meter: HP Model 8900C, S/N 2131A00545 Char. 1/26/01 Due 1/26/02
14._X_Open Area Test Site #1-3meters Cal. 12/22/99
15.__ Signal Generator: HP 8640B, S/N 2308A21464 Cal. 11/15/01 Due 11/15/02
16.__ Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N 9706-1211 Char. 7/10/01 Due 7/10/02
17.__ Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 152 Cal. 3/21/01 Due 3/21/02
18.__ AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 10/9/01 Due 10/09/02
19._X_Digital Multimeter: Fluke Model 77, S/N 35053830 Char. 1/8/02 Due 1/8/03
20.__ Oscilloscope: Tektronix Model 2230, S/N 300572 Char. 2/1/01 Due 2/1/02