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APPLICANT: M&G TECHNOLOGY, LTD.
FCC ID: O9TMTX2100

TEST REPORT:

EXHIBITS CONTAINING:

GENERAL INFORMATION REQUIRED
FOR TYPE ACCEPTANCE

2.1033(C)(1)(2) M & G TECHNOLOGY, LTD. will sell the FCC ID: O9TMTX2100 transmitter in quantity, for use under FCC RULES PART 90.

M & G TECHNOLOGY, LTD.
262 Chamberlayne Road
London England NW103LN

2.1033 (C) TECHNICAL DESCRIPTION

Type of Emission: 9M5F8F

21033(C)(5) Frequency Range: 2 channels 2425 and 2450 MHz

(6) Power Range and Controls: This UUT has a power output of 100 mW

(7) 2,1033(c)(b) Maximum Output Power Rating: 100 mWatts into a 50 ohm resistive load.

(8) DC Voltages and Current into Final Amplifier:
12 Volts and 0.150 Amperes

POWER INPUT	FINAL AMPLIFIER ONLY
POWER INPUT	1.80 Watts
Vce Volts	12 Volts
Ice Amps	0.15 Amps

2.1033(c)(9) The tune-up procedure is included in the service manual.

2.1033(c)(10) A schematic in included as in Exhibit 4.

2.1033(c)(11) Photograph or drawing of the label showing the FCC ID and the location of the label – See Exhibit # 1.

2.1033(c)(12) Photographs completely documenting the radio – See Exhibit #'s 2A-2E.

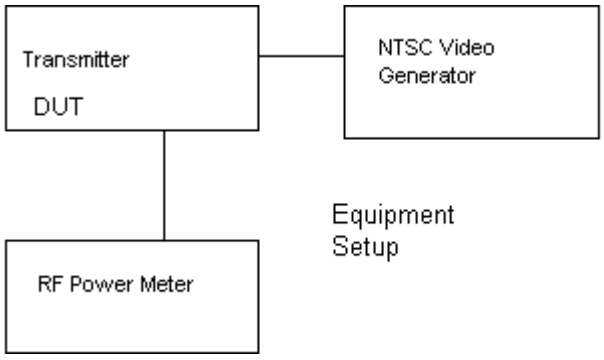
2.1033(c)(13) N/A This is for devices that use digital modulation.

2.1033(c)(14) The data required by 2.1046 through 2.1057 follows;

2.1046(a) RF power output. The test procedure used was TIA/EIA-603 S2.2.1. RF power is measured by connecting a 50 ohm, resistive wattmeter to the RF output connector. With a nominal battery voltage of 12.0V, and the transmitter properly adjusted the RF output measures:

INPUT POWER: (12V)(A) = 1.80 Watts
OUTPUT POWER: 100 mWatts Efficiency: 5.50%

2.1046(a) RF power output. The test procedure used was TIA/EIA-603 S2.2.1.



Equipment Setup

2.1047(a) <u>Modulation characteristics:</u>

AUDIO FREQUENCY RESPONSE The audio frequency response was measured in accordance with TIA/EIA Specification TIA/EIA-603 S2.2.6.2.1. The audio frequency response curve is shown in Exhibit # 7.

2.1049 AUDIO LOW PASS FILTER Transmitters utilizing analog emissions and meets the requirements of paragraph 90.210(c) therefore no low-pass filter response in included.

2.1049 Occupied bandwidth:

90.210 (c)

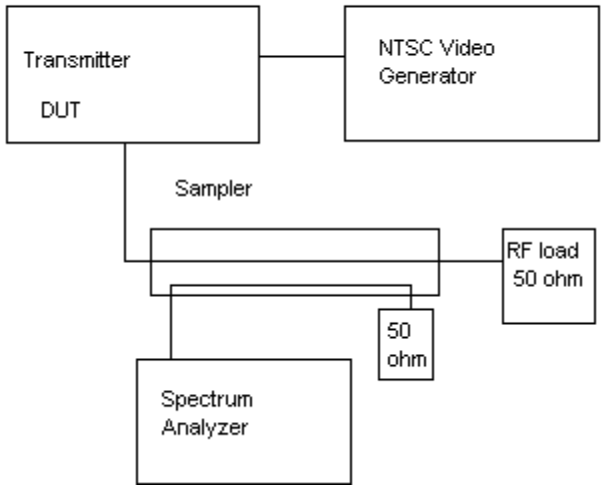
(1) On any frequency removed from the center of the authorize bandwidth by a displacement of (fd in kHz) of more than 5kHz but not more than 10kHz At least 83log(fd/5)dB.
(2) On any frequency removed from the center of the authorized bandwidth by a displacement of (fd in kHz) of more than 10kHz but not more than 250%of the authorized bandwidth: At least 29log(fd2/11)dB.
(3) On any frequency removed from the center of the author ized bandwidth by a displacement of (fd in kHz) of more than 250% of the authorized bandwidth: At least 43+ 10log(P) dB.

See Exhibit 14.

2.1049 Occupied bandwidth: Using TIA/EIA 2.2.11
Spectrum TIA/EIA-603 S2.2.11 was used to measure the occupied bandwidth. Plots were made of the spectrum modulated by an NTSC generator with a full video pattern. Data in the plots show that all sidebands beyond the authorized bandwidth are less than 0.5% of the unmodulated carrier. The plots show the transmitter modulation with;

The spectrum analyzer was set with the unmodulated carrier at the top of the screen. The test procedure diagram and occupied bandwidth plots follow.

Occupied BW Test Equipment Setup



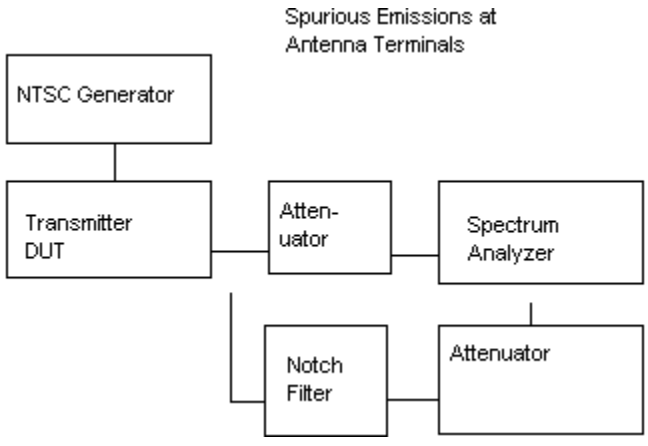
2.1051 Spurious emissions at antenna terminals(conducted): The following data shows the level of conducted spurious responses at the antenna terminal. The test procedure used was TIA/EIA 603 S2.2.13 with the exception that the emissions were recorded in dBc. The spectrum was scanned from 0.4 to at least the 10th harmonic of the fundamental.

NAME OF TEST: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

REQUIREMENTS: Emissions must be 43 +10log(Po) dB below the mean power output of the transmitter.

POWER OUTPUT 43 + 10log(0.1) = 33.0dB

Frequency MHz	dB below carrier
2425	0
4850	50.4
7275	50.7
9700	67.1
12125	62.7
14550	53.7
16975	>80
19400	>80
21825	>80
24250	>80



2.1053 (b) Field strength of spurious emissions:

The tabulated Data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 to the 10th harmonic. This test was conducted per ANSI C63.4-1992 with the exception of briefly connecting the transmitter to a half wave dipole for the purpose of establishing a reference.

NAME OF TEST: RADIATED SPURIOUS EMISSIONS

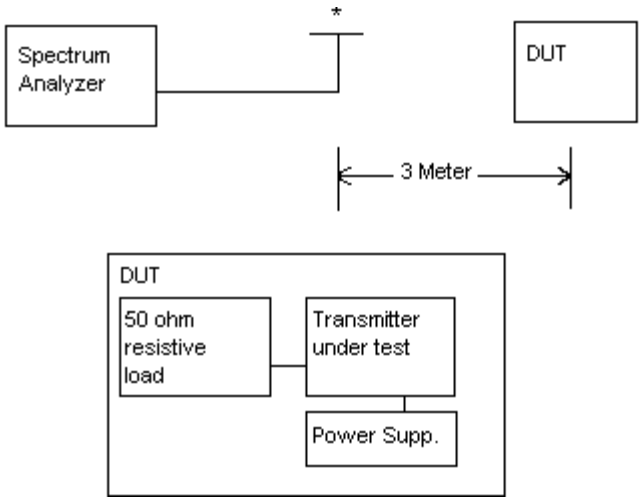
REQUIREMENTS:
POWER OUTPUT 43 + 10log(0.10) = 33.0dB

TEST DATA:

	EMISSION FREQUENCY MHz	ATT. LEVEL dB
Channel 2425		
	2525	0
	4850	55.1
	7275	58.8
	9700	71.8
	12125	71.2
	14550	71.3
	16975	>80
	19400	>80
	21825	>80
	24250	>80

METHOD OF MEASUREMENT:

Equipment Setup



(*) Is a tuned calibrated antenna which may be raised from 1 to 4 meters above ground and changed in polarization from vertical to horizontal.

Equipment is placed 80cm above ground on a rotatable platform.

2.1055 Frequency stability:
90.213

Temperature and voltage tests were performed to verify that the frequency remains within the manufacturer's specification limit. 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 & minus 15% of the supply voltage of 12.0 VDC.

MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 2450.000000 MHz

TEMPERATURE_C	FREQUENCY_MHz	PPM
REFERENCE_____	2450.000 000	00.00
-30_____	2449.926 400	-30.04
-20_____	2449.942 000	-23.67
-10_____	2449.952 200	-19.51
0_____	2449.957 100	-17.51
+10_____	2449.958 700	-16.86
+20_____	2449.958 000	-17.14
+30_____	2449.956 300	-17.84
+40_____	2449.954 200	-18.69
+50_____	2449.955 100	-18.33
-15% of battery voltage	2449.954 200	-18.69
+15% of battery voltage	2449.957 200	-17.47

The battery end point Voltage 11.90VDC 2449.956 600

RESULTS OF MEASUREMENTS: The maximum frequency variation over the temperature range was -30.04 to -16.86ppm. The maximum frequency variation over battery endpoint voltage range was -1.27 ppm.

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. 10/17/99
2._X_Biconnical Antenna: Eaton Model 94455-1, S/N 1057
3._X_Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
4._X_Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180, 1-18 GHz, S/N 2319 Cal. 4/27/99
5.___Horn 40-60GHz: ATM Part #19-443-6R
6.___Line Impedance Stabilization Network: Electro-Metrics Model ANS-25/2, S/N 2604 Cal. 2/9/00
7._X_Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
8._X_Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 10/6/99
9._X_Peak Power Meter: HP Model 8900C, S/N 2131A00545 Cal 7/19/99
10._X_Open Area Test Site #1-3meters Cal. 12/22/99
11.___Signal Generator: HP 8640B, S/N 2308A21464 Cal. 9/23/99
12.___Signal Generator: HP 8614A, S/N 2015A07428 Cal. 5/29/99
13.___Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N 9706-1211 Cal. 6/23/97
14.___Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153 Cal. 11/24/99
15.___AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 9/21/99
16.___Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
17.___Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 9/21/99
18.___Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 9/23/99

Applicant: M & G Technology, LTD.
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