

TABLE OF CONTENTS LIST

APPLICANT: TOYTRONIX LLC

FCC ID: PGQ72FM-08T

TEST REPORT:

PAGE 1.....COVER SHEET - GENERAL INFORMATION & TECHNICAL DESCRIPTOR.
PAGE 2.....TECHNICAL DESCRIPT. CONTINUED. AND RF POWER OUTPUT
PAGE 3.....RF POWER OUTPUT, MODULATION CHAR., AND OCC. BANDWIDTH
PAGE 4.....OCCUPIED BANDWIDTH PLOT
PAGE 5.....FIELD STRENGTH OF SPURIOUS EMISSION
PAGE 6.....METHOD OF MEASURING RADIATED SPURIOUS EMISSIONS
PAGE 7.....FREQUENCY STABILITY
PAGE 8-10....TEST EQUIPMENT LIST

EXHIBIT CONTAINING:

EXHIBIT 1.....FCC ID LABEL SAMPLE AND LOCATION
EXHIBIT 2.....EXTERNAL PHOTOGRAPHS
EXHIBIT 3.....INTERNAL PHOTOGRAPHS
EXHIBIT 4.....BLOCK DIAGRAM
EXHIBIT 5.....SCHEMATIC
EXHIBIT 6.....USER'S MANUAL
EXHIBIT 7.....CIRCUIT DESCRIPTION
EXHIBIT 8.....ALIGNMENT PROCEDURE
EXHIBIT 9.....TEST SET UP PHOTO
EXHIBIT 10.....REQUEST FOR CONFIDENTIALITY LETTER

APPLICANT: TOYTRONIX LLC

FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc

TABLE OF CONTENTS

GENERAL INFORMATION

2.1033(c)(1)(2) TOYTRONIX LLC will sell the
FCCID: PGQ72FM-08T Radio Control
transmitter in quantity, for use
under FCC RULES PART 95 SUBPART C.

TOYTRONIX LLC
3370 N. HAYDEN ROAD # 123.296
SCOTTSDALE, AZ. 85251-6632

2.1033(c)(3) Instruction manual is included as exhibit #6.

2.1033 (4) Type of Emission: 6K4F1D
95.631(b)(1)

Bn = 2M + 2DK
M = 4,800 Bits per second
D = 800 Hz (Peak Deviation)
K = 1
Bn = 2(4800/2) + 2(800) = 4.8K + 1.6K = 6.4k
ALLOWED AUTHORIZED BANDWIDTH = 8 kHz

95.633(b) Authorized Bandwidth 8KHz for RC Transmitter

2.1033(c)(5) Frequency Range: 72-73 MHz

95.623(a)

95.649 (6) Power Range and Controls: There are NO user Power
controls.

(6) Function of each electron tube or semiconductor
device or other active circuit device:
See Exhibit # 7.

95.639(b)(3)
7) Maximum Output Power: 32 milli Watts ERP.

(8) DC Voltages and Current into Final Amplifier:

FINAL AMPLIFIER ONLY

Vce = 12.0 Volts DC
Ice = 0.039A.
Pin = 0.5 Watts

2.1033(c)(9) Tune-up procedure. The tune-up procedure is included as
Exhibit # 8.

APPLICANT: TOYTRONIX LLC

FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc

Page 1 of 10

2.1033(c)(10) Complete Circuit Diagrams: The circuit diagram is included as part of Exhibit # 5. The block diagrams are included as Exhibit #4 of this report.

(10) Description of all circuitry and devices provided for determining and stabilizing frequency is given in Exhibit 7 of this report.

2.1033(c)(11) The Equipment identification is shown as Exhibit # 1.

2.1033(c)(12) Photographs of the equipment are shown as Exhibits 2-3.

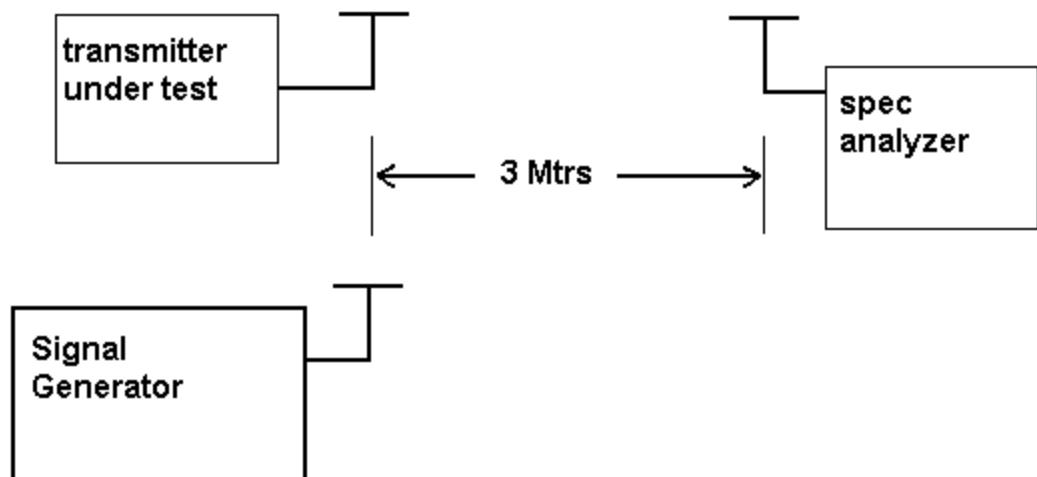
2.1033(c)(13) Equipment employing Digital modulation. N/A.

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

2.1046 RF power is measured by the ERP SUBSTITUTION METHOD. There is no provisions to vary the power. With a nominal battery voltage of 12.0 VDC, and the transmitter properly adjusted the RF output measures:

$$P_o = 0.032 \text{ W}$$

2.1046 RF power output.



APPLICANT: TOYTRONIX LLC

FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc

2.1047

Modulation characteristics:

AUDIO FREQUENCY RESPONSE

The Voice is NOT allowed in this band.

2.1049

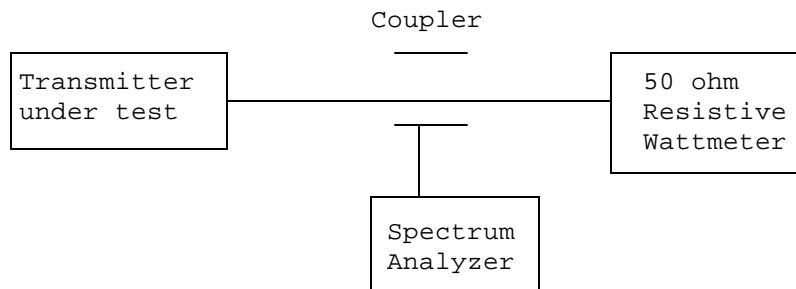
95.635(b)

Occupied bandwidth:

- (1) At least 25dB on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.
- (10) At least 45dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 125% of the authorized bandwidth.
- (11) At least 55dB on any frequency removed from the center of the authorized bandwidth by more than 125% up to and including 250% of the authorized bandwidth.
- (12) At least $56 + \log_{10}(T)$ on any frequency removed from the center of the authorized bandwidth by more than 250%.

Test procedure diagram

OCCUPIED BANDWIDTH MEASUREMENT

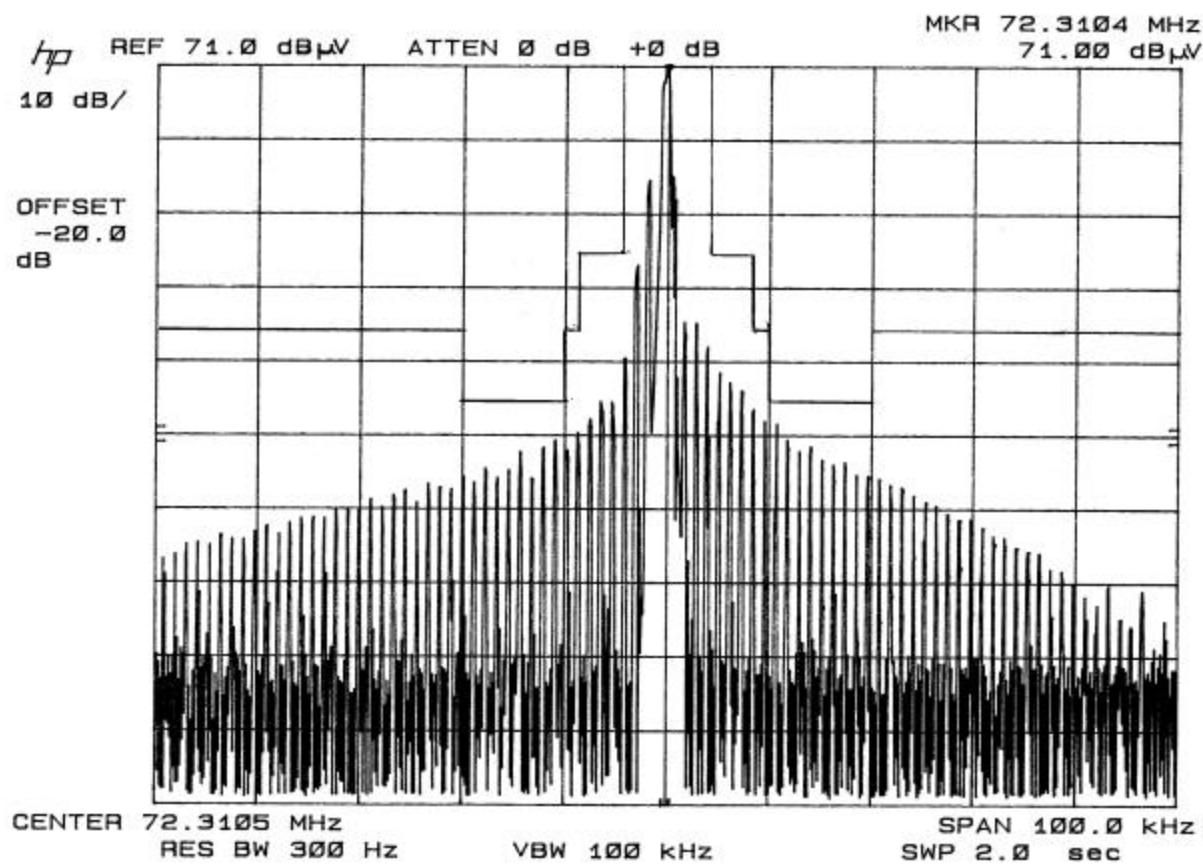


APPLICANT: TOYTRONIX LLC

FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc

OCCUPIED BANDWIDTH PLOT



APPLICANT: TOYTRONIX LLC

FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc

2.1051

SPURIOUS EMISSIONS AT ANTENNA TERMINALS.

NOT APPLICABLE, NO antenna port. This UUT has a permanently attached antenna.

2.1053

UNWANTED RADIATION:

95.635(1)(3)(7)(10)(11)(12)

REQUIREMENTS:

At least $56 + 10\log(T)$ on any frequency removed from the center of the authorized bandwidth by more than 250%.

$$56 + 10\log(0.032) = 41.05\text{dB}$$

TEST DATA:

Emission Frequency MHz	ATTN dBc	dBm	Margin dB
72.34	0.0	15.1	0.00
144.68	62	-47	20.95
216.96	70	-55	28.95
289.36	62	-47	20.95
361.66	69	-54	27.95
433.96	65	-50	23.95
506.26	61	-46	19.95
578.58	64	-49	22.95
650.86	59	-44	17.95
723.20	65	-50	23.95

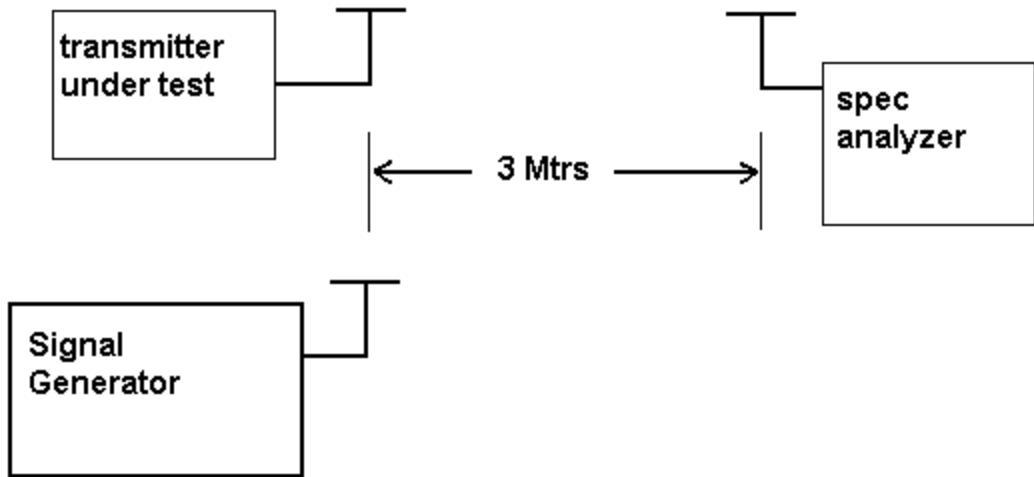
METHOD OF MEASUREMENT: The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at the open field test site of TIMCO ENGINEERING, INC. located at 849 NW State Road 45, Newberry, FL 32669

APPLICANT: TOYTRONIX LLC

FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc

Method of Measuring Radiated Spurious Emissions



APPLICANT: TOYTRONIX LLC

FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc

2.1055(a)(1) Frequency stability:
95.623(b)

Temperature and voltage tests were performed to verify that the frequency remains within the .002%, 20 ppm 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 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 umber was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 degrees C.

Readings were also taken at end point of the battery voltage of 12.0VDC.

MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 72.309 186

<u>TEMPERATURE °C</u>	<u>FREQUENCY MHz</u>	<u>PPM</u>
REFERENCE_____	72.309 186	0.00
-30_____	72.310 252	14.74
-20_____	72.310 325	15.75
-10_____	72.310 336	15.90
0_____	72.310 181	13.76
+10_____	72.309 902	9.90
+20_____	72.309 542	4.92
+30_____	72.309 16	-0.36
+40_____	72.308 747	-6.07
+50_____	72.308 388	-11.04
BATT. End-Point 12.0V/dc		0.36

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FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc

EMC Equipment List

	DEVICE	MFGR	MODEL	SERNO	CAL/CHAR DATE	DUE DATE or STATUS
X	3-Meter OATS	TEI	N/A	N/A	Listed 12/22/99	12/22/02
	3/10-Meter OATS	TEI	N/A	N/A	Listed 3/26/01	3/26/04
	Receiver, Beige Tower Spectrum Analyzer (Tan)	HP	8566B Opt 462	3138A07786 3144A20661	CAL 8/31/01	8/31/03
	RF Preselector (Tan)	HP	85685A	3221A01400	CAL 8/31/01	8/31/03
	Quasi-Peak Adapter (Tan)	HP	85650A	3303A01690	CAL 8/31/01	8/31/03
X	Receiver, Blue Tower Spectrum Analyzer (Blue)	HP	8568B	2928A04729 2848A18049	CHAR 10/22/01	10/22/03
X	RF Preselector (Blue)	HP	85685A	2926A00983	CHAR 10/22/01	10/22/03
X	Quasi-Peak Adapter (Blue)	HP	85650A	2811A01279	CHAR 10/22/01	10/22/03
X	Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/26/01	4/26/03
	Biconnical Antenna	Eaton	94455-1	1096	CAL 10/1/01	10/1/03
	Biconnical Antenna	Eaton	94455-1	1057	CHAR 3/15/00	3/15/02
	BiconiLog Antenna	EMCO	3143	9409-1043		
X	Log-Periodic Antenna	Electro-Metrics	LPA-25	1122	CAL 10/2/01	10/2/03
	Log-Periodic Antenna	Electro-Metrics	EM-6950	632	CHAR 10/15/01	10/15/03
	Log-Periodic Antenna	Electro-Metrics	LPA-30	409	CHAR 10/16/01	10/16/03
	Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	152	CAL 3/21/01	3/21/04
	Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	153	CHAR 11/24/00	11/24/03
	Double-Ridged Horn Antenna	Electro-Metrics	RGA-180	2319	CAL 12/19/01	12/19/03
	Horn Antenna	Electro-Metrics	EM-6961	6246	CAL 3/21/01	3/21/03
	Horn Antenna	ATM	19-443-6R	None	No Cal Required	
	Passive Loop Antenna	EMC Test Systems	EMCO 6512	9706-1211	CHAR 7/10/01	7/10/03

APPLICANT: TOYTRONIX LLC

FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc

	DEVICE	MFGR	MODEL	SERNO	CAL/CHAR DATE	DUE DATE or STATUS
	Line Impedance Stabilization . . .	Electro-Metrics	ANS-25/2	2604	CAL 10/9/01	10/9/03
	Line Impedance Stabilization . . .	Electro-Metrics	EM-7820	2682	CAL 3/16/01	3/16/03
	Termaline Wattmeter	Bird Electronic Corporation	611	16405	CAL 5/25/99	5/25/01
	Termaline Wattmeter	Bird Electronic Corporation	6104	1926	CAL 12/12/01	12/12/03
	Oscilloscope	Tektronix	2230	300572	CHAR 2/1/01	2/1/03
X	Temperature Chamber	Tenney Engineering	TTRC	11717-7	CHAR 1/22/02	1/22/04
	AC Voltmeter	HP	400FL	2213A14499	CAL 10/9/01	10/9/03
	AC Voltmeter	HP	400FL	2213A14261	CHAR 10/15/01	10/15/03
	AC Voltmeter	HP	400FL	2213A14728	CHAR 10/15/01	10/15/03
X	Digital Multimeter	Fluke	77	35053830	CHAR 1/8/02	1/8/04
	Digital Multimeter	Fluke	77	43850817	CHAR 1/8/02	1/8/04
	Digital Multimeter	HP	E2377A	2927J05849	CHAR 1/8/02	1/8/04
	Multimeter	Fluke	FLUKE-77-3	79510405	CAL 9/26/01	9/26/03
	Peak Power Meter	HP	8900C	2131A00545	CHAR 1/26/01	1/26/03
	Digital Thermometer	Fluke	2166A	42032	CAL 1/16/02	1/16/04
	Thermometer	Traulsen	SK-128		CHAR 1/22/02	1/22/04
X	Temp/Humidity gauge	EXTech	44577F	E000901	CHAR 1/22/02	1/22/04
	Frequency Counter	HP	5352B	2632A00165	CAL 11/28/01	11/28/03
	Power Sensor	Agilent Technologies	84811A	2551A02705	CAL 1/26/01	1/26/03
	Service Monitor	IFR	FM/AM 500A	5182	CAL 11/22/00	11/22/02
	Comm. Serv. Monitor	IFR	FM/AM 1200S	6593	CAL 5/12/02	5/12/04
	Signal Generator	HP	8640B	2308A21464	CAL 11/15/01	11/15/03
	Modulation Analyzer	HP	8901A	3435A06868	CAL 9/5/01	9/5/03

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FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc

DEVICE	MFGR	MODEL	SERNO	CAL/CHAR DATE	DUE DATE or STATUS
Near Field Probe	HP	HP11940A	2650A02748	CHAR 2/1/01	2/1/03
BandReject Filter	Lorch Microwave	5BR4-2400/ 60-N	Z1	CHAR 3/2/01	3/2/03
BandReject Filter	Lorch Microwave	6BR6-2442/ 300-N	Z1	CHAR 3/2/01	3/2/03
BandReject Filter	Lorch Microwave	5BR4-10525/ 900-S	Z1	CHAR 3/2/01	3/2/03
High Pas Filter	Microlab	HA-10N		CHAR 10/4/01	10/4/03
Audio Oscillator	HP	653A	832-00260	CHAR 3/1/01	3/1/03
Frequency Counter	HP	5382A	1620A03535	CHAR 3/2/01	3/2/03
Frequency Counter	HP	5385A	3242A07460	CHAR 12/11/01	12/11/03
Preamplifier	HP	8449B-H02	3008A00372	CHAR 3/4/01	3/4/03
Amplifier	HP	11975A	2738A01969	CHAR 3/1/01	3/1/03
Egg Timer	Unk			CHAR 8/31/01	8/31/03
Measuring Tape, 20M	Kraftixx	0631-20		CHAR 2/1/02	2/1/04
Measuring Tape, 7.5M	Kraftixx	7.5M PROFI		2/1/02	2/1/04
Coaxial Cable #51	Insulated Wire Inc.	NPS 2251-2880	Timco #51	CHAR 1/23/02	1/23/04
Coaxial Cable #64	Semflex Inc.	60637	Timco #64	CHAR 1/24/02	1/24/04
Coaxial Cable #65	General Cable Co.	E9917 RG233/U	Timco #65	CHAR 1/23/02	1/23/04
Coaxial Cable #106	Unknown	Unknown	Timco #106	CHAR 1/23/02	1/23/04

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FCC ID: PGQ72FM-08T

REPORT #: T:\T\Toytronix LLC\840ZUT2\840ZUT2TestReport.doc