

FCC TEST REPORT
for
Remote Controller for models
Model No.: Cougar P3i TPS-FM

of

Applicant: THUNDER TIGER CORP.
Address: NO.7, 6TH ROAD INDUSTRY PARK TAICHUNG. TAIWAN R.O.C. 407

Tested and Prepared
by



ETS Product Service (Taiwan) Co., Ltd.

FCC Registration No.: 930600

Industry Canada filed test laboratory Reg. No. IC 5679

A2LA Accredited No.: 2300.01

PTCRB Accredited Type Certification Test House

FCC ID: VEJ8306-75

Report No.: W6M20707-8295-C-1

TABLE OF CONTENTS

1. GENERAL INFORMATION	3
1.1 NOTES	3
1.2 TESTING LABORATORY	4
1.2.1 LOCATION	4
1.2.2 DETAILS OF ACCREDITATION STATUS	4
1.3 DETAILS OF APPROVAL HOLDER	4
1.4 APPLICATION DETAILS	5
1.5 GENERAL INFORMATION OF TEST ITEM	5
1.6 TEST STANDARDS	6
2. TECHNICAL TEST	7
2.1 SUMMARY OF TEST RESULTS	7
2.2 TEST ENVIRONMENT	7
2.3 DESCRIPTION OF TESTED SYSTEM	7
2.4 TEST EQUIPMENT LIST	8
2.5 GENERAL TEST PROCEDURE	10
3. TEST RESULTS (ENCLOSURE)	11
4. RF POWER OUTPUT (CONDUCTED), FCC 2.1046; 95.210	12
4.1 TEST PROCEDURE	12
4.2 TEST RESULTS	12
4.3 LIMITS:	12
5. RADIATED POWER	13
5.1 TEST PROCEDURE	13
5.2 TEST RESULTS	14
6 MODULATION DEVIATION, FCC 2.1047 (B)	15
6.1 TEST PROCEDURE	15
6.2 TEST RESULTS: ..	15
6.3 LIMITS: ...	15
7 AUDIO FREQUENCY RESPONSE, FCC 2.1047 (A)	16
7.1 TEST PROCEDURE	16
7.2 TEST RESULTS: ..	16
8 OCCUPIED BANDWIDTH/EMISSION MASK, FCC 2.1049 (C) ; 95.633	17
8.1 TEST RESULTS	17
8.2 LIMIT	17
9 SPURIOUS EMISSIONS AT ANTENNA TERMINALS FCC2.1051; 95.635	18
9.1 TEST PROCEDURE	18
9.2 TEST RESULTS	18
9.3 LIMIT	18
10 RADIATED SPURIOUS EMISSION, FCC 2.1053; 95.635	19
10.1 TEST PROCEDURE	19

Registration number: W6M20707-8295-C-1

FCC ID: VEJ8306-75

10.2	TEST RESULTS	19
10.2.1	SPURIOUS EMISSION NEAR THE CARRIER:	19
10.2.2	SPURIOUS EMISSION NOT NEAR THE CARRIER:	19
10.3	EXPLANATION OF TEST RESULT	21
10.4	LIMITS.....	21
11	FREQUENCY STABILITY VS. TEMPERATURE, FCC 2.1055, 95.623	22
11.1	TEST PROCEDURE	22
11.2	TEST RESULTS	22
11.3	LIMITS:	23
12	FREQUENCY STABILITY VS. VOLTAGE, FCC 2.1055 (D) ; 95.623	24
12.1	TEST PROCEDURE	24
12.2	TEST RESULTS	24
12.3	LIMITS:	24
APPENDIX	25

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

1. General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.


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Tester:

August 22, 2007

Jay Chaing



Date

ETS-Lab.

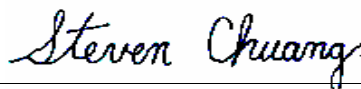
Name

Signature

Technical responsibility for area of testing:

August 22, 2007

Steven Chuang



Date

ETS

Name

Signature

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

1.2 Testing laboratory

1.2.1 Location

OATS

No.5-1, Shuang Sing Village,
LiShuei Rd., Wanli Township,
Taipei County 207, Taiwan (R.O.C.)

Company

ETS Product Service (Taiwan) Co., Ltd.
6F, NO. 58, LANE 188, RUEY-KUANG RD.
NEIHU, TAIPEI 114, TAIWAN R.O.C.
Tel : 886-2-66068877
Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory

A2LA accredited number: 2300.01

FCC filed test laboratory Reg. No. 930600

Industry Canada filed test laboratory Reg. No. IC 5679

PTCRB Accredited Type Certification Test House

1.3 Details of approval holder

Name	: THUNDER TIGER CORP.
Street	: NO.7, 6TH ROAD INDUSTRY PARK
City	: TAICHUNG.
Country	: TAIWAN R.O.C. 407
Telephone	: +886-4-2359-1616
Fax	: +886-4-2359-1902
Teletex	: ./.

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

1.4 Application details

Date of receipt of test item : July 13, 2007
Date of test : from July 14, 2007 to August 22, 2007

1.5 General information of Test item

Type of test item : Remote Controller for models
Model Number : Cougar P3i TPS-FM
Brand Name : ACE RC
Multi-listing model number : without
Photos : See appendix

Technical data

Operating frequency band:

Frequency(MHz)	Used Band
75.41~75.99	<input checked="" type="checkbox"/>

Sample tested frequency : 75.71 MHz
Number of RF-channels : 1
Type of modulation : FM
Designation of emission : 6K01F1D
Antenna Type : rod antenna
Connection of Antenna : ☐ detachable ☒ not detachable
Adapter: input 120VAC, output: 9.6VDC, 110mA
Power supply
Battery: 12VDC
End point of Battery voltage : 8.8 VDC
Operation modes : Simplex

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

Manufacturer: (if applicable)

Name : Thunder Tiger Corp. (Ningbo)
Street : CW5 YUYAO, FAR-EAST INDUSTRY PARK,
Town : ZHEJIANG PROVINCE,
Country : CHINA
Contact : ./.
Phone : ./.

1.6 Test standards

Technical standard:

FCC RULES PART 95 - Personal Radio Service
Subpart C - Radio Control (R/C) Radio Service
Subpart E - Technical Regulations
FCC RULES PART 2 - Frequency Allocations General Rules and Regulations

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

2. Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.



or

The deviations as specified in 3 were ascertained in the course of the tests performed.



2.2 Test environment

Temperature : 23 °C

Relative humidity content : 20 ... 75 %

Air pressure : 86-103 KPa

2.3 Description of Tested System

The EUT was tested with the Accessories or Peripherals Listed below:

Equipment	Model No.	Series No.	Software	Cable information	Note
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

Explanation: The EUT was configured as stand alone device, and there are no accessories or peripherals during the test.

Registration number: W6M20707-8295-C-1
 FCC ID: VEJ8306-75

2.4 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2006/10/16	2007/10/15
ETSTW-CE 002	PREREULATOR MODE DC POWER SUPPLY	None	None		Function Test	
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2006/10/16	2007/10/15
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2006/10/16	2007/10/15
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	In House Certificate	
ETSTW-CE 008	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2005/10/24	2007/10/23
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2007/8/2	2008/8/1
ETSTW-CE 013	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T4-02	20242	FCC	2005/12/8	2007/12/7
ETSTW-CE 014	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T2-02	20241	FCC	2005/12/7	2007/12/6
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2006/11/7	2008/11/6
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2006/11/21	2007/11/20
ETSTW-RE 002	Function Generator	33220A	MY43004982	Agilent	2005/10/14	2007/10/13
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2006/10/20	2007/10/19
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2006/10/30	2007/10/29
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2006/10/12	2007/10/11
ETSTW-RE 010	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070181	MOTECH	Function Test	
ETSTW-RE 011	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070165	MOTECH	Function Test	
ETSTW-RE 017	Log-Periodic Antenna	HL025	352886/001	R&S	2006/5/4	2008/5/3
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2004/11/8	2007/11/7
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2006/10/11	2007/10/10
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	EMCO	In House Certificate	
ETSTW-RE 028	Log-Periodic Dipole Array Antenna	3148	34429	EMCO	2006/5/26	2008/5/25
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	2006/5/26	2008/5/25
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2006/5/3	2008/5/2
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2006/10/11	2007/10/10
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2005/10/17	2007/10/16
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2007/1/11	2009/1/10
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2006/5/8	2008/5/7
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2006/5/29	2008/5/28
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2005/3/22	2008/3/21

Registration number: W6M20707-8295-C-1

FCC ID: VEJ8306-75

ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2007/5/2	2009/5/1
ETSTW-RE 055	SPECTRUM ANALYZER	FSU-26	200074	R&S	2007/7/16	2008/7/15
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2007/7/2	2009/7/1

The follows is intended to leave blank.

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

2.5 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2003 using a 50 μ H LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.4-2003 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 23°C with a humidity of 40 %.

The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
- (4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

Measurements were made by at the registered open field test site located at The Registration Number: 930600. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

Registration number: W6M20707-8295-C-1
 FCC ID: VEJ8306-75

3. Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
RF Power Output	2.1046; 95.210	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Modulation Deviation	2.1047 (b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Audio Frequency Response	2.1047 (a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Occupied Bandwidth / Emission Mask	2.1049 (c)(1); 95.633	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions at Antenna Terminals	2.1051 95.635	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Spurious Emission	2.1053 95.635	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Frequency Stability vs. Temperature	2.1055 (b); 95.623	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Frequency Stability vs. Voltage	2.1055 (a)(1); 95.623	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The follows is intended to leave blank.

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

4. RF Power Output (conducted), FCC 2.1046; 95.210

4.1 Test procedure

This transmitter output was connected to a calibrated coaxial attenuator, the other end of which was connected to a spectrum analyzer. Transmitter output was derived with the spectrum analyzer in dBm. The power output at the transmitter antenna port was determined by assign the value of the attenuator to the spectrum analyzer reading.

An HP power meter was also used to measure the RF power.
Tests were performed with an unmodulated carrier at three frequencies (low, middle and high channels) and on all power levels, which can be set-up on the transmitters, if applicable.

4.2 Test Results

Frequency Channel	Peak Output Power (dBm)
--	--
--	--
--	--

4.3 Limits:

R/C transmitter	
Frequency [MHz]	Conducted output power [W]
26 - 27; except for 27.255	4
27.255	25
72 - 76	0.75

Explanation: This test is not required because the antenna of this EUT is not detachable.

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

5. Radiated Power

5.1 Test Procedure

The EUT was positioned on a non-conductive turntable, 0.8m above the ground on an open test site. The radiated emission at the fundamental frequency was measured at 3m distance with a test antenna and spectrum analyzer.

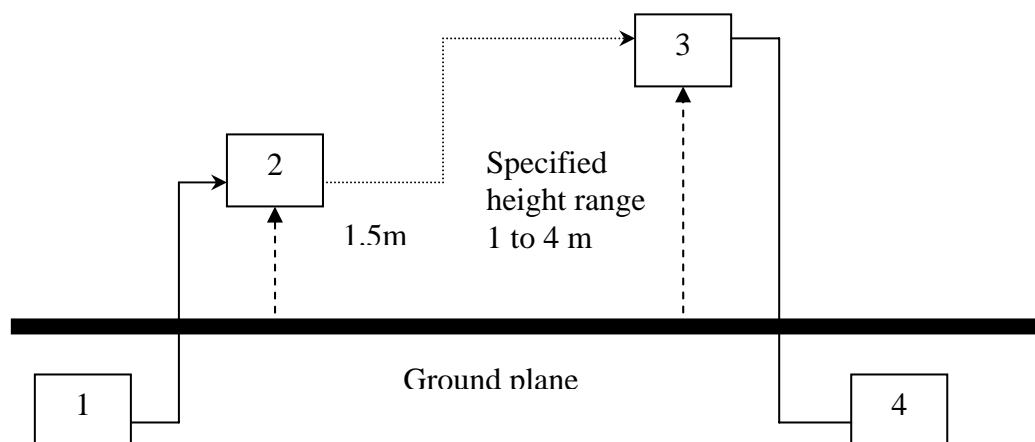
Worst case emission was recorded with the rotation of the turntable and the rising and lowering of the test antenna.

Substitution RF power Measurement at ETS Taiwan

General:

The applied substitution method follows ANSI/TIA/EIA-603, ANSI/TIA/EIA-102.CAAA or the appropriate ETSI rules respectively.

The actual signal generated by the EUT can be determined by means of a substitution measurement in which a known signal source replaces the device to be measured.



- 1) Signal generator ;
- 2) Substitution antenna ;
- 3) Test antenna ;
- 4) Spectrum analyzer or selective voltmeter.

The substitution antenna replaces the transmitter antenna at the same position and in vertical polarization. The frequency of the signal generator shall be adjusted to the measurement frequency. The test antenna shall be raised or lowered, if necessary, to ensure that the maximum signal is still received. The input signal to the substitution antenna shall be adjusted in level until an equal or a known related level to that detected from the transmitter is obtained in the measurement receiver. If a fully anechoic chamber is used as test site in order to provide free space conditions there is no need to change the height of the antenna.

The measurement will be repeated in horizontal position.

Registration number: W6M20707-8295-C-1
 FCC ID: VEJ8306-75

Calibration:

In order to make this kind of measurement more effective and to avoid subjective measurement faults ETS has installed automatic computer controlled measurement procedures.

With the above described substitution method a test site is calibrated over the full frequency range which is used in suitable frequency steps. For a certain power level on the substitution antenna the received power over the whole frequency range is documented. All necessary antenna gains, cable losses, filter losses and amplifications of preamplifiers are taken in consideration. The summary of this calibration measurement performs a transducer factor that is related to the considered test site and a certain measurement distance. Differences of the radiated power levels of different test samples are determined by internal attenuation of measurement receiver. The proper function of such test site will be maintained by short term plausibility checks and periodical re-calibration.

Testing:

Now the test sample will be putted on the table at the defined position and the radiated power will be receiver and documented by the measurement receiver.

On test sites with ground plane the measurement antenna will be lowered and raised to maximum values at significant frequencies.

For peak power measurements the sample is turned by the turntable over 360 degree in order to find the direction with the maximum radiation or to document the max reading with the MAXHOLD function during the rotation.

5.2 Test results

Model:		Cougar P3i TPS-FM		Date:		2007/8/6		Humidity:		60 %	
Mode:		P3i		Temperature:		26 °C		Engineer:		Michael	
Frequency	Reading	Factor	Result	Limit	Margin	Table	Ant.	Degree	High	cm	
(MHz)	(dBm)	(dB)									
75.7064	-0.99	22.13	21.14	28.8	-7.66	360	150				

Explanation: Please see attached diagram as appendix.

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 021
 ETSTW-RE 028 ETSTW-RE 029 ETSTW-RE 030 ETSTW-RE 042
 ETSTW-RE 043 ETSTW-RE 044

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

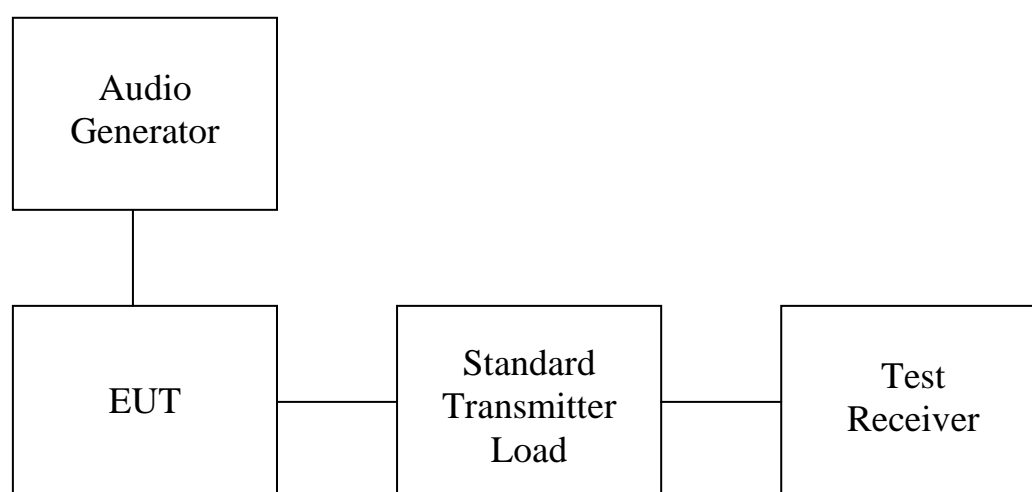
6 Modulation Deviation, FCC 2.1047 (b)

6.1 Test procedure

Modulation limiting is the transmitter circuit's ability to limit the transmitter from producing deviations in excess of rated system deviation.

The audio signal generator is connected to the audio input of the EUT with its full rating.

The modulation response is measured at certain modulation frequencies, related to 1000Hz reference signal. Tests are performed for positive and negative modulation.



6.2 Test results: --

6.3 Limits: ± 75 kHz

Explanation: This test is not applicable for Radio Control Service devices.

Test equipment used: --

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

7 Audio frequency response, FCC 2.1047 (a)

7.1 Test procedure

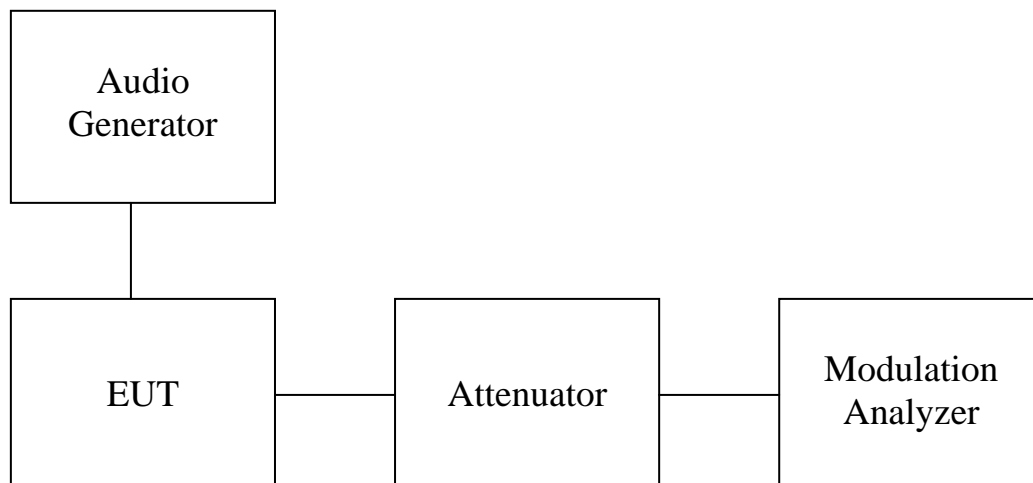
The audio frequency response is the degree of closeness to which the frequency deviation of the transmitter follows a prescribed characteristic.

The frequency response of the audio modulation part is measured over a frequency range of 100 Hz to 5000Hz.

For 1000Hz tone reference signal the audio generator level is adjusted to get 20% of the rated system deviation.

The deviations obtained over the frequency range from 100Hz to 5000Hz are recorded and compared with the reference deviation as follows:

$$\text{Audio Frequency Response} = 20 \log [\text{DEV}_{\text{Freq}} / \text{DEV}_{\text{ref}}].$$



7.2 Test results: --

Explanation: This test is not applicable for Radio Control Service devices.

Test equipment used: --

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

8 Occupied Bandwidth/Emission Mask, FCC 2.1049 (c) ; 95.633

An R/C transmitter is allowed to transmit any appropriate non-voice emission, which meets the emission limitations for an R/C transmitter. The authorized bandwidth for any emission type transmitted by an R/C transmitter is 8 kHz.

8.1 Test Results

Occupied Channel Bandwidth (kHz)	Authorized Bandwidth
6.012	8 kHz

8.2 Limit

The authorized bandwidth for any emission type transmitted by an R/C transmitter is 8 kHz.

Explanation: Please see attached diagram as appendix.

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

9 Spurious Emissions at Antenna Terminals FCC2.1051; 95.635

9.1 Test procedure

This transmitter output was connected to a calibrated coaxial attenuator, the other end of which was connected to a spectrum analyzer. Transmitter output was derived with the spectrum analyzer in dBm. The Spurious Emissions at Antenna Terminals was measured by the spectrum analyzer with a suitable notch filter and high-pass filter.

Tests were performed with an unmodulated carrier at three frequencies (low, middle and high channels) and on all power levels, which can be set-up on the transmitters, if applicable.

9.2 Test Results

Summary table with conducted data of the test plots for Carrier Test Frequency

Frequency Marker Indication [MHz]	Indication Power Level [dBm]	Compliance Limit [dBm]	Margin
--	--	--	--
--	--	--	--
--	--	--	--
--	--	--	--

9.3 Limit

Compliance with § 95.635 requires that any frequency removed from the center of the authorized bandwidth shall be less than below specific requirement for the transmitter operating in the 72-76 MHz:

- (1) At least as below 25 dB for more than 50% up to and including 100% of the authorized bandwidth.
- (2) At least as below 45 dB for more than 100% up to and including 125% of the authorized bandwidth.
- (3) At least as below 55 dB for more than 125% up to and including 250% of the authorized bandwidth.
- (4) At least $56 + 10 \log_{10} P$ (P = transmitter power in Watts) for more than 250%.

The compliance limit was calculated as an example for part (4) per the following table:

Maximum transmitter output power	-- dBm
Required attenuation	$56 + 10 \log_{10} -- W = -- \text{ dB}$
Maximum transmitter output power	-- dBm
<u>Required attenuation</u>	<u>-- dB</u>
Compliance limit	-26 dBm

Explanation: This test is not required because the antenna of this EUT is not detachable.

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

10 Radiated Spurious Emission, FCC 2.1053; 95.635

10.1 Test procedure

The EUT was positioned on a non-conductive turntable, 0.8m above the ground plane.

The radiated emission at the fundamental frequency was measured at 3 m distance with a test antenna and spectrum analyzer.

Worst case emission was recorded with the rotation of the turntable and the raising and lowering of the test antenna.

ERP was measured using a substitution method. The EUT was replaced by reference antenna connected to a signal generator.

The test of spurious radiated emission have been carried out with the validated test software. The measurements below 1GHz were performed with a measurement bandwidth of 100kHz, above 1GHz with a bandwidth of 1MHz.

Spurious emission limits near the carrier are defined by a emission mask.

10.2 Test Results

The measurements of the spurious emission at the upper, center and lower channel, if applicable.

The measurement diagrams show that all significant spurious emissions are well below the limit line.

10.2.1 Spurious emission near the carrier:

The Results of Emission Mask: ☒ PASSED ☐ NOT PASSED

10.2.2 Spurious emission not near the carrier:

Model: Cougar P3i TPS-FM Date: 2007/8/16
Mode: P3i Temperature: 26 °C Engineer: Michael
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
90.6413	-79.58	21.06	-58.52	-26	-32.52	360	150
151.6231	-75.94	22.10	-53.84	-26	-27.84	360	150
225.6513	-65.51	23.33	-36.18	-26	-10.18	360	150
302.6051	-68.82	29.47	-35.36	-26	-9.36	360	150
377.9559	-67.42	27.75	-35.89	-26	-9.89	360	150
453.3066	-79.26	28.93	-46.77	-26	-20.77	360	150
530.2605	-78.24	32.61	-42.29	-26	-16.29	360	150
605.6112	-85.05	32.99	-48.93	-26	-22.93	360	150
680.9619	-91.55	33.69	-54.95	-26	-28.95	360	150
757.9158	-88.23	33.67	-51.87	-26	-25.87	360	150
833.2665	-86.12	31.36	-52.28	-26	-26.28	360	150
908.6172	-89.73	31.90	-55.57	-26	-29.57	360	150
985.5711	-98.43	35.44	-60.95	-26	-34.95	360	150

Registration number: W6M20707-8295-C-1
 FCC ID: VEJ8306-75

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
60.3205	-77.69	21.07	-56.62	-26	-30.62	360	150
90.6413	-60.25	21.74	-38.51	-26	-12.51	360	150
151.6231	-50.74	23.25	-27.49	-26	-1.49	360	150
225.6513	-59.95	24.76	-29.19	-26	-3.19	360	150
302.6051	-73.64	27.32	-42.32	-26	-16.32	360	150
377.9559	-71.6	27.11	-40.49	-26	-14.49	360	150
453.3066	-80.46	30.48	-45.98	-26	-19.98	360	150
530.2605	-78.7	32.48	-42.22	-26	-16.22	360	150
605.6112	-87.58	31.67	-51.91	-26	-25.91	360	150
680.9619	-87	34.41	-48.59	-26	-22.59	360	150
757.9158	-86.88	33.97	-48.91	-26	-22.91	360	150
833.2665	-91.64	30.78	-56.86	-26	-30.86	360	150
908.6172	-97.18	31.49	-61.69	-26	-35.69	360	150
985.5711	-100.57	35.74	-60.83	-26	-34.83	360	150

Note:

- 1. Correction Factor = Antenna Gain + Cable Loss + Amplifier Gain**
- 2. The formula of measured value as: Test Result = Reading + Correction Factor**
- 3. Detector function in the form: PK = Peak, AV = Average**

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

10.3 Explanation of test result

The measurements of the spurious emissions at the equipment output terminals were performed pursuant to the test procedure above in order to verify that any emissions are below the limits given by § 95.635.

Calculation of test results:

Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

In the Table being listed the critical peak and average value an exhibit the compliance with the above calculated Limits.

10.4 Limits

Compliance with § 95.635 requires that any frequency removed from the center of the authorized bandwidth shall be less than below specific requirement for the transmitter operating in the 72-76 MHz:

- (1) At least as below 25 dB for more than 50% up to and including 100% of the authorized bandwidth.
- (2) At least as below 45 dB for more than 100% up to and including 125% of the authorized bandwidth.
- (3) At least as below 55 dB for more than 125% up to and including 250% of the authorized bandwidth.
- (4) At least $56 + 10 \log_{10} P$ (P = transmitter power in Watts) for more than 250%.

The compliance limit was calculated as an example for part (4) per the following table:

Maximum transmitter output power	21.14 dBm
Required attenuation	$56 + 10 \log_{10} 0.13 \text{ W} = 47.14 \text{ dB}$
Maximum transmitter output power	21.14 dBm
<u>Required attenuation</u>	<u>47.14 dB</u>
Compliance limit	-26 dBm

Explanation: See attached diagrams in appendix.

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 021
ETSTW-RE 028 ETSTW-RE 029 ETSTW-RE 030 ETSTW-RE 042
ETSTW-RE 043 ETSTW-RE 044

Registration number: W6M20707-8295-C-1
 FCC ID: VEJ8306-75

11 Frequency Stability vs. Temperature, FCC 2.1055, 95.623

11.1 Test procedure

The equipment under test was connected to an external DC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable, exited the chamber through an opening made for that purpose.

After the temperature stabilized the frequency output was recorded from the counter.

11.2 Test Results

Test frequency: 75.71 MHz Testing Voltage 9.6 VDC

Test Temp. (° C)	Power on time (Minutes)	Carrier Freq. (MHz)	Deviation (KHz)	Limit: 20 PPM (KHz)	Result
0	0	75.711009	-0.000096	-1.26798	pass
0	2	75.711041	-0.000128	-1.69064	pass
0	5	75.711041	-0.000128	-1.69064	pass
0	10	75.711041	-0.000128	-1.69064	pass
-10	0	75.711095	-0.000182	-2.40388	pass
-10	2	75.711111	-0.000198	-2.61521	pass
-10	5	75.711137	-0.000224	-2.95862	pass
-10	10	75.711169	-0.000256	-3.38128	pass
-20	0	75.711169	-0.000256	-3.38128	pass
-20	2	75.711137	-0.000224	-2.95862	pass
-20	5	75.711137	-0.000224	-2.95862	pass
-20	10	75.711137	-0.000224	-2.95862	pass
50	0	75.710817	0.000096	1.267981	pass
50	2	75.710785	0.000128	1.690641	pass
50	5	75.710753	0.000160	2.113302	pass
50	10	75.710721	0.000192	2.535962	pass
40	0	75.710761	0.000152	2.007637	pass
40	2	75.710743	0.000170	2.245383	pass
40	5	75.710715	0.000198	2.615211	Pass
40	10	75.710688	0.000225	2.97183	pass
30	0	75.710753	0.000160	2.113302	pass
30	2	75.710753	0.000160	2.113302	pass
30	5	75.710721	0.000192	2.535962	pass
30	10	75.710753	0.000160	2.113302	pass
20	0	75.710945	-0.000032	-0.42266	pass
*20	2	75.710913	0	0	pass
20	5	75.710881	0.000032	0.42266	pass
20	10	75.710817	0.000096	1.267981	pass
10	0	75.710932	-0.000019	-0.25095	pass
10	2	75.710904	0.000009	0.118873	pass
10	5	75.710881	0.000032	0.42266	pass
10	10	75.710817	0.000096	1.267981	pass

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

Note: * means the reference frequency.

11.3 Limits:

According to FCC 95.623(c), all R/C transmitters capable of operation in the 72-76 MHz band must be maintained within a frequency tolerance of 0.002%.

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055 ETSTW-CE 009

Registration number: W6M20707-8295-C-1
 FCC ID: VEJ8306-75

12 Frequency Stability vs. Voltage, FCC 2.1055 (d) ; 95.623

12.1 Test procedure

An external variable DC power supply was connected to the battery terminals of the equipment under test.

For hand carried, battery powered equipment primary supply voltage was reduced to the battery operating end point as specified by the manufacturer. The output frequency was recorded for each battery voltage.

12.2 Test Results

Test frequency: 75.71 MHz Testing Temperature: 20 °C

Test Voltage (V)	Power On Time (Minutes)	Carrier Freq. (MHz)	Deviation (KHz)	Limit: 20 PPM (KHz)	Result
9.6	0	75.710945	-0.000032	-0.42266	pass
9.6	*2	75.710913	0	0	pass
9.6	5	75.710881	0.000032	0.42266	pass
9.6	10	75.710817	0.000096	1.2679	pass
8.8	0	75.710753	0.00016	2.1133	pass
8.8	2	75.710721	0.000192	2.5359	pass
8.8	5	75.710689	0.000224	2.9586	Pass
8.8	10	75.710721	0.000192	2.5359	pass

Note: * means the reference frequency.

12.3 Limits:

According to FCC 95.623(c), all R/C transmitters capable of operation in the 72-76 MHz band must be maintained within a frequency tolerance of 0.002%.

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055 ETSTW-CE 009

Appendix

A Measurement diagrams

1. RF Power Output

2. Audio frequency response

(This test is not applicable for Radio Control Service devices.)

3. Occupied Bandwidth / Emission Mask

4. Spurious Emissions at Antenna Terminals

(This test is not required because the antenna of this EUT is not detachable.)

5. Radiation Spurious Emission

(The measurement diagrams plots attached below are preliminary wideband scan with a peak detector for reference only. The final test results are listed on section 10)

6. Frequency Stability vs. Temperature

No diagrams

Refer to point 11.2

7. Frequency Stability vs. Voltage

No diagrams

Refer to point 12.2

B Photos

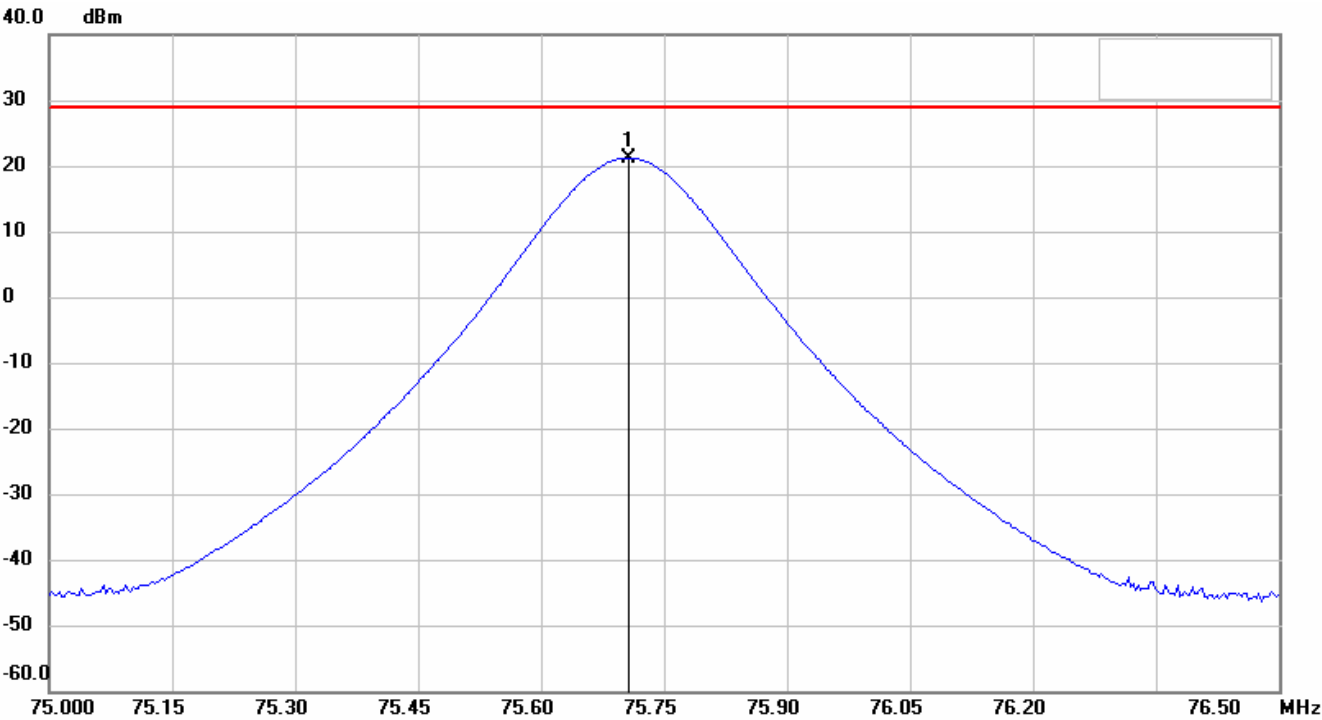
1. External Photos

2. Internal Photos

3. Set Up Photo of Radiated Emission

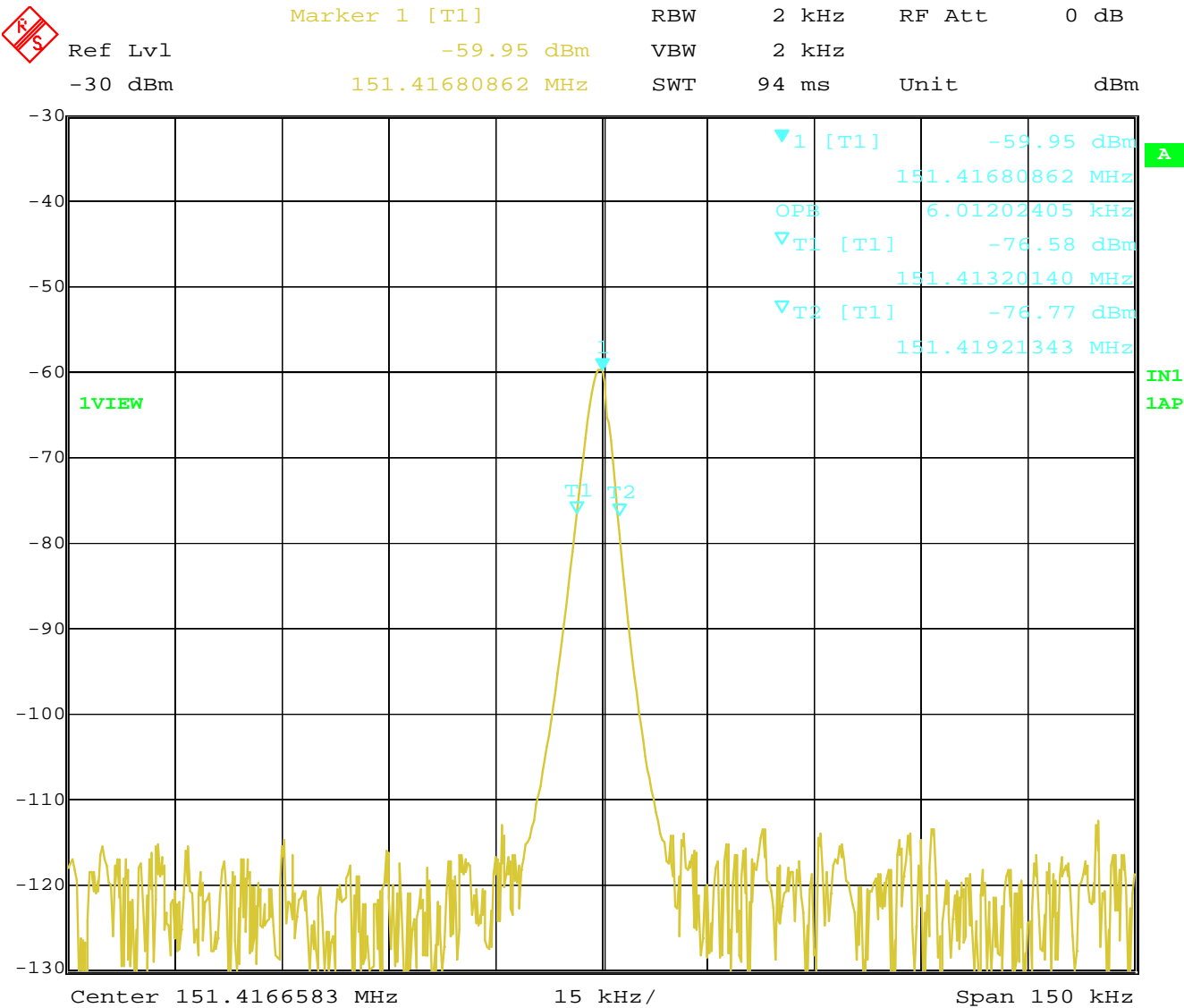
Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

RF Power Output



Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

Occupied Bandwidth / Emission Mask



Title: Occupied Bandwidth
Date: 23.AUG.2007 19:00:06

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75



Site : site #1

Condition : Part 95 Mask

Company : W6M20707-8295

EUT Model: Cougar P3i TPS-FM

Execute Program : P3i

Polarization: *Horizontal*

Power : 0

Distance: 3m

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75



Site : site #1

Condition : Part 95 Mask

Company : W6M20707-8295

EUT Model: Cougar P3i TPS-FM

Execute Program : P3i

Polarization: Vertical

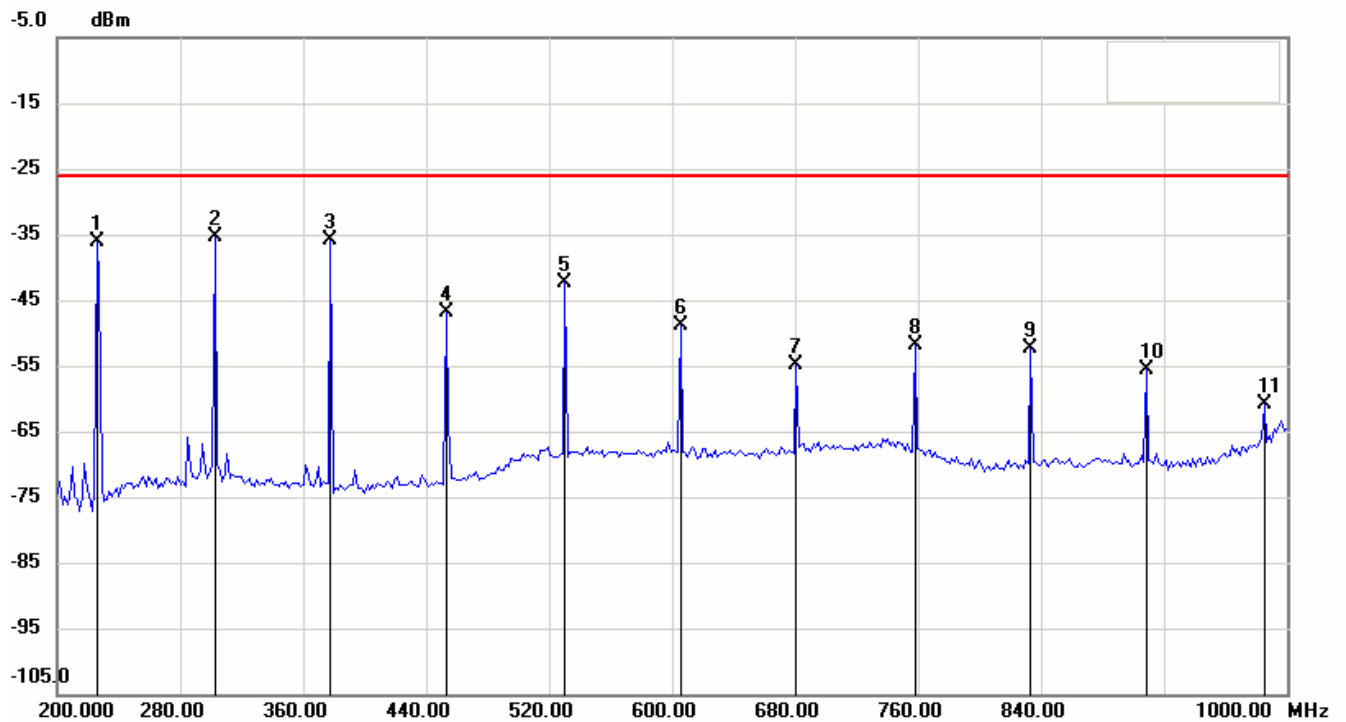
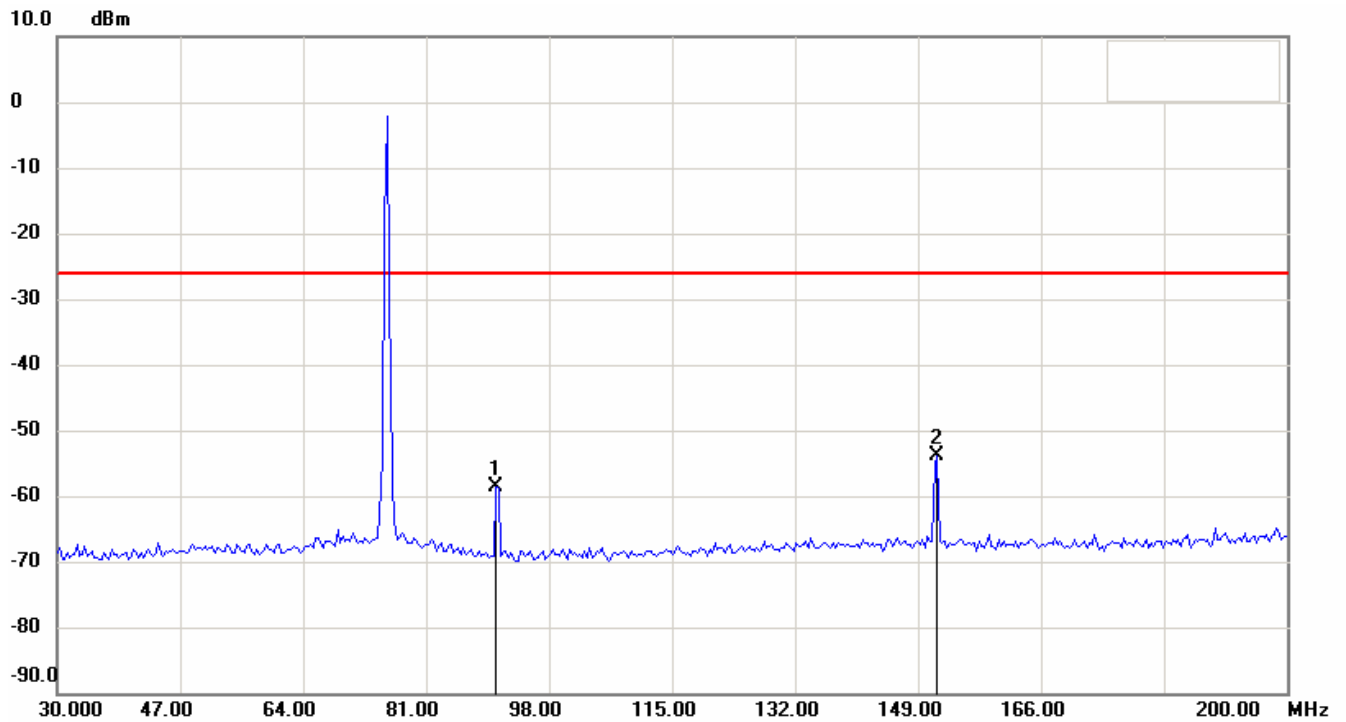
Power : 0

Distance: 3m

Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

Radiated emission

Antenna Polarization H



Registration number: W6M20707-8295-C-1
FCC ID: VEJ8306-75

Antenna Polarization V

