

EMC TEST REPORT

For

Radio Control System Transmitter

Model Number: TP4YF

FCC ID: VYWTP4YF

Report Number : WT088000075

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TEST REPORT DECLARATION

Applicant : TOWER PRO PTE LTD
Address : 5 BEDOK RESERVOIR VIEW, AQUARIUS BY THE PARK,#14-04
Singapore 478928
Manufacturer : BAI LI LONG PTE LTD
Address : 3F,#289,ChangFaDongRoad.BanTian,BuJi,LonggangDistrict,ShenZhen City,518131 PR China
EUT Description : Radio Control System Transmitter
Model Number : TP4YF
FCC ID : VYWTP4YF
Number

Test Standards:

FCC Part 95, Subpart C&E

FCC PART 2, Subpart J

FCC Part 15

ANSI/TIA/EIA-603-B-2002

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results. The tested sample complies with the requirements for R/C transmitters set forth in the code of Federal Regulations 47, Part 95, Subpart C&E , the code of Federal Regulations 47, Part 2, Subpart J. and the code of Federal Regulations 47, Part 15

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Tested by: *Winnie Hou* Date: 2008.01.15
(Winnie Hou)

Checked by: *Louis Lin* Date: 2008.01.15
(Louis Lin)

Approved by: *Peter Lin* Date: 2008.01.15
(Peter Lin)

1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	FCC Rules	Test Results
Maximum Transmitter Power	95.639	Pass
Unwanted Radiation	95.635, 2.1053	Pass
Emission types	95.631	Pass
Emission Bandwidth	95.633, 2.1049	Pass
Frequency Stability	95.623,2.1055	Pass
Transmitter Antenna	95.647	Pass
Control accessibility	95.645	Pass
CRYSTAL CONTROL	95.651	Pass
Power capability	95.649	Pass
Conducted Emission	15.207	Pass

2. GENERAL INFORMATION

2.1. Report information

- 2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.
- 2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

3. PRODUCT DESCRIPTION

3.1. EUT Description

Description : Radio Control System Transmitter
Manufacturer : TOWER PRO PTE LTD
Model Number : TP4YF
Input Power : DC9.6-12V
Operate Frequency : 72.710MHz
Modulation : FM
Antenna Designation : Non-User Replaceable
Fixed

3.2. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: VYWTP4YF filing to comply with FCC Part 95, Subpart C&E and FCC Part 2, Subpart J Rules.

3.3. Block Diagram of EUT Configuration



3.4. Operating Condition of EUT

Mode 1: TX

3.5. Special Accessories for test

Name: Ni-Cd Battery Charger
Model Number: FBC-18C
Input: 120V AC 60Hz 6W
Output: TX 9.6V DC 70mA
RX 4.8VDC 100mA

3.6. Equipment Modifications

Not available for this EUT intended for grant.

3.7. Test Conditions

Date of test: Jan.09-Jan.15, 2008
Date of EUT Receive: Jan.09-, 2008
Temperature: 22-24 °C
Relative Humidity: 45-55%

4. TEST EQUIPMENT USED

4.1. Test Equipment Used to Measure Radiated Disturbance and bandwidth

Table 2 Radiated Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2603	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.25, 2007	1 Year
SB3321	AMN	Rohde & Schwarz	ESH2-Z5	Jan.25, 2007	1 Year
SB2604	AMN	Rohde & Schwarz	ESH3-Z5	Jan.25, 2007	1 Year
SB3612	Audio generator	KENWOOD	AD-203D	Jun.19, 2007	1 Year
SB3436	EMI Test Receiver	Rohde & Schwarz	ESI26	Jan.25, 2007	1 Year
SB3440	Bilog Antenna	Chase	CBL6112B	Jan.25, 2007	1 Year
SB3435	Horn Antenna	Rohde & Schwarz	HF906	Jan.25, 2007	1 Year
SB3434	Horn Antenna	Rohde & Schwarz	HF906	Jan.25, 2007	1 Year
SB3435/01	Amplifier(1-18GH z)	Rohde & Schwarz	---	Jan.25, 2007	1 Year
SB3435/02	Amplifier(18-40G Hz)	Rohde & Schwarz	---	May.06, 2007	1 Year
SB3435/03	Horn Antenna	Rohde & Schwarz	AT4560	May.06, 2007	1 Year
SB3450/01	3m Semi-anechoic chamber	Albatross Projects	9X6X6	Jan.25, 2007	1 Year
SB2541	RF Communication Tester	HP	8920A	May 22,2007	1 Year
SB2597/01	Dipole Antenna	Schwarzbeck	VHAP	Jan 30,2005	3 Years
SB2597/02	Dipole Antenna	Schwarzbeck	UHAP	Jan 30,2005	3 Years
SB3438	Signal generator	Rohde & Schwarz	SMR20	Jan.25, 2007	1 Year
SB3732	Tem Chamber	Qingsheng	THS-C7C±1 00	Sep 24,2007	1 Year
SB2599	Spectrum Analyzer	Anritsu	MS2661C	Jan.25, 2007	1 Year
SB4032	Signal generator	Rohde & Schwarz	SMY01	Jan.25, 2007	1 Year

5. MAXIMUM TRANSMITTER POWER

5.1. Test Standard and Limit

5.1.1. Test Standard

FCC Part 95 Section 95.639

5.1.2. Test Limit

Table 3 Maximum Transmitter Power Test Limit

Frequency	Limit	
72–76 MHz	0.75W	28.8dBm

5.2. Test Procedure

- 1). On a test site, the EUT shall be placed on a turntable.
- 2). The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- 3). The output of the antenna shall be connected to the EMI test receiver(R&S ESIB26).
The setup of test receiver:
Detector: Peak
RBW: 120kHz for 30-1000MHz
1MHz for above1GHz
VBW: 300kHz for 30-1000MHz
3MHz for above1GHz
- 4). The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- 5). The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- 6). The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- 7). The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- 8). The maximum signal level detected by the measuring receiver shall be noted.
- 9). The measurement shall be repeated with the test antenna set to horizontal polarization.
- 10). Replace the antenna with a proper Antenna (substitution antenna).
- 11). The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- 12). The substitution antenna shall be connected to a calibrated signal generator.
- 13). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- 14). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- 15). The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.

16). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
 17). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

5.3. TEST SETUP BLOCK DIAGRAM (block diagram of configuration)

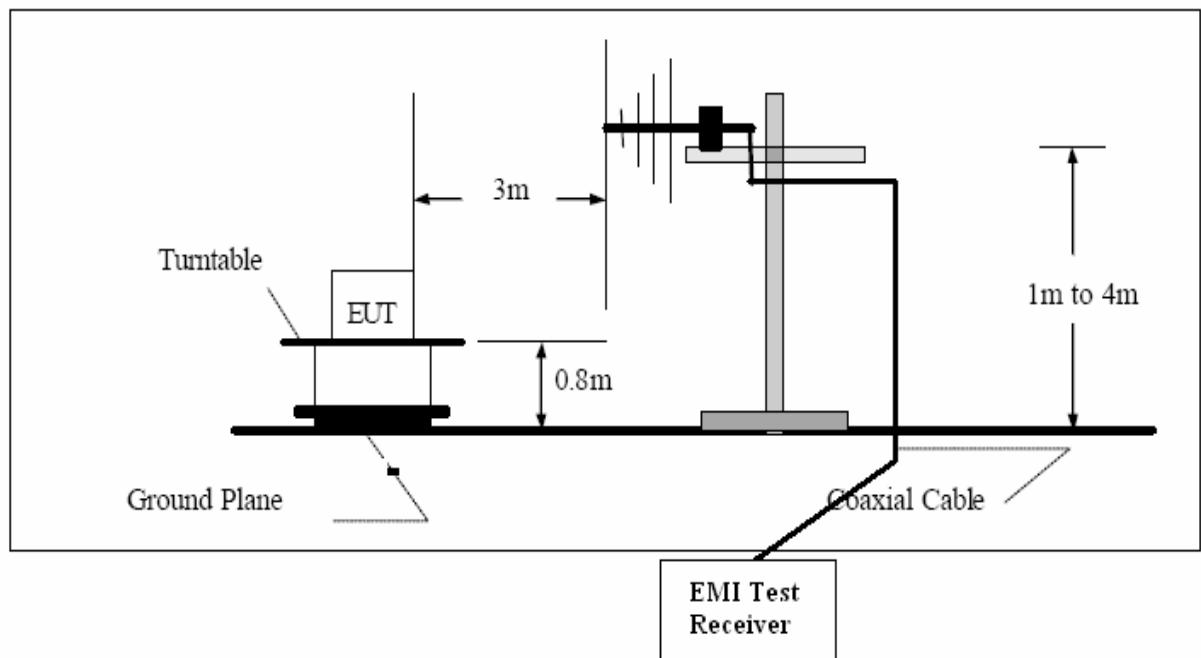


Figure 1 Radiation Test setup

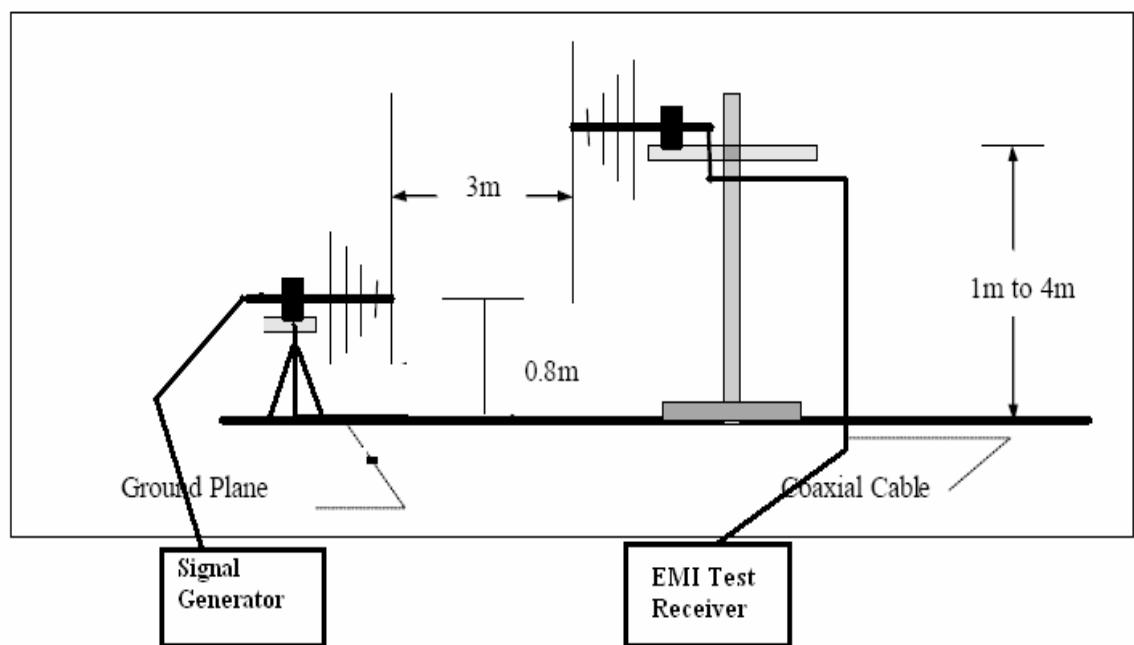


Figure 2 Substitution Method test setup

5.4. Test Data

Table 4 Maximum Transmitter Power Test Data

Model : TP4YF						
Mode: 1						
Frequency (MHz)	Emission Level (dBm)	Cable Loss (dB)	Antenna Gain(dB)	SG level (dBm)	Antenna Polarization (H/V)	Limits (dBm)
72.710	14.1	1.4	-9.88	25.4	V	28.8

REMARKS: 1. Emission level(dBm)=SG Level(dBm) - Cable loss(dB)+Antenna Gain(dB)

6. UNWANTED RADIATION

6.1. Test Standard and Limit

6.1.1. Test Standard

FCC Part 95 Section 95.635

6.1.2. Test Limit

The power of each unwanted emission shall be less than Transmitted Power as specified below:

- 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.
- 2) 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.
- 3) 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.
- 4) At least $56 + 10 \log (TP)$ dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

6.2. Radiated Spurious Emission

6.2.1. Test Procedure

- 1). Setting the equipment according to Figure 4
- 2). The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- 3). The output of the antenna shall be connected to the EMI test receiver(R&S ESIB26).
The setup of test receiver:
Detector: Peak
RBW: 120kHz for 30-1000MHz
1MHz for above 1GHz
VBW: 300kHz for 30-1000MHz
3MHz for above 1GHz
- 4). The signal generator shall be switched on; and the signal generator sweep from 30MHz to 1GHz.
- 5). The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- 6). Use a software to record the data from the EMI test receiver.
- 7). Calculate the Factor for dBuV transfer to dBm. And use the factor to do the pretest.
- 8). The test antenna shall be oriented initially for Horizontal polarization and repeat the step 4) to 7).

- 9) the EUT shall be placed on a turntable
- 10). The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- 11). The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.

- 12). The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- 13) recording the measure result, and used the cal factor to transfer the dBuV to dBm.and the data is should in the curve.
- 14). The test antenna shall be oriented initially for Horizontal polarization and repeat the step 9) to 13).
- 15) select the high emission form the curve, and use the Substitution Method to do the final test. The measurement is same as the section 5.2. and the data was shown in the follow form.

6.2.2.TEST SETUP BLOCK DIAGRAM (block diagram of configuration)

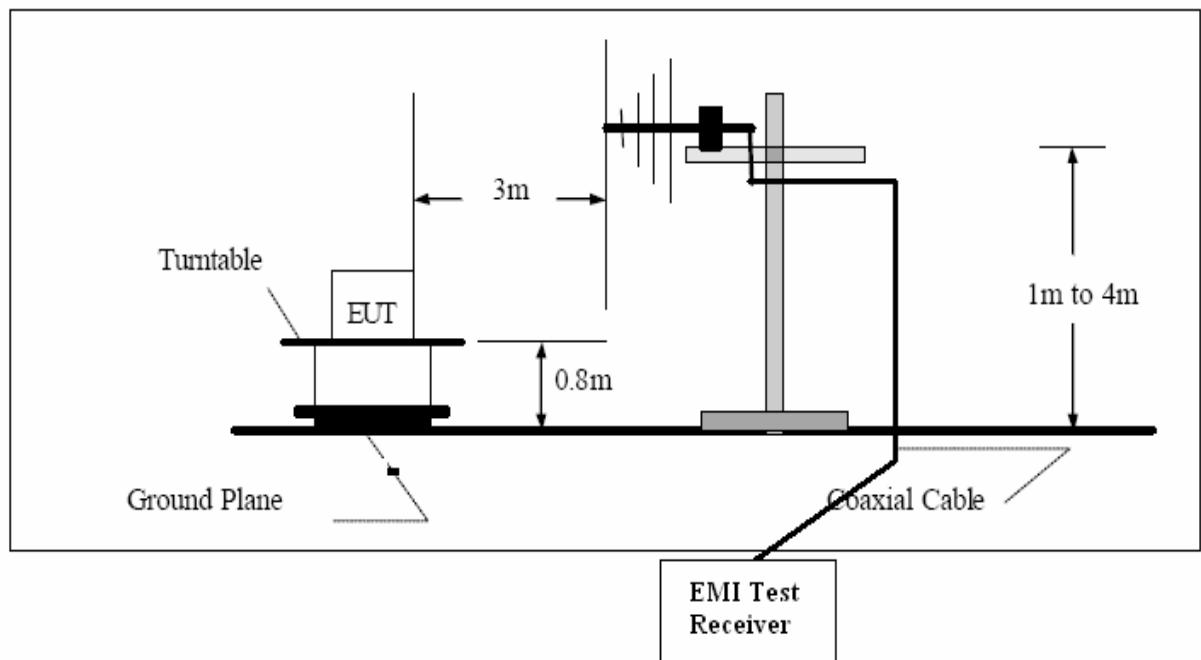


Figure 3 Radiation Test setup

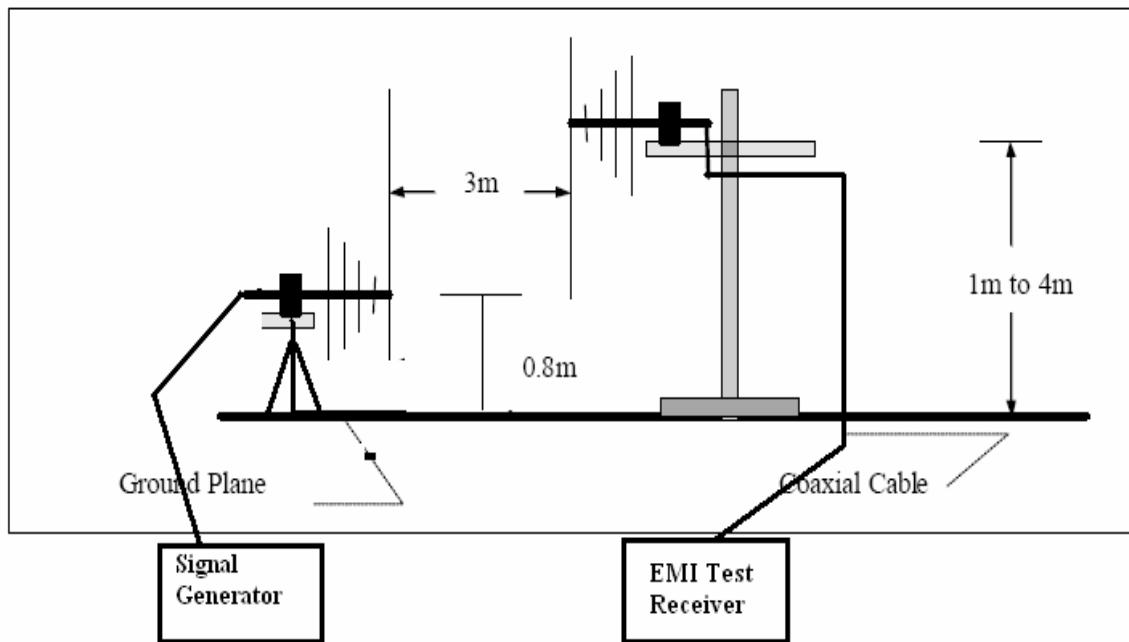


Figure 4 Substitution Method test setup

6.3. CONDUCTED EMISSION

6.3.1. MEASUREMENT PROCEDURE

- 1). The eut antenna port connect to the spectrum analyzer through a 20dB attenuator.
- 2). Let the eut working in transmitter and used the RF Communication Tester to measure the conducted emission.
- 3). The output of the antenna shall be connected to the EMI test receiver(R&S ESIB26).
The setup of test receiver:
Detector: Peak
RBW: 120kHz for 30-1000MHz
1MHz for above1GHz
VBW: 300kHz for 30-1000MHz
3MHz for above1GHz

6.3.2. TEST SETUP BLOCK DIAGRAM (block diagram of configuration)

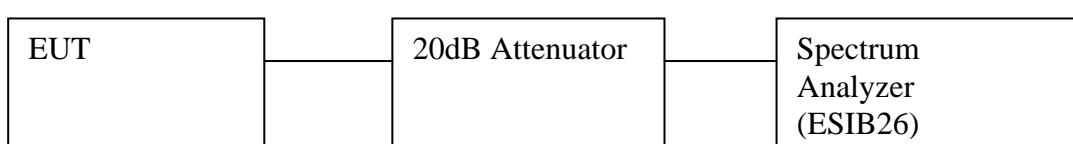
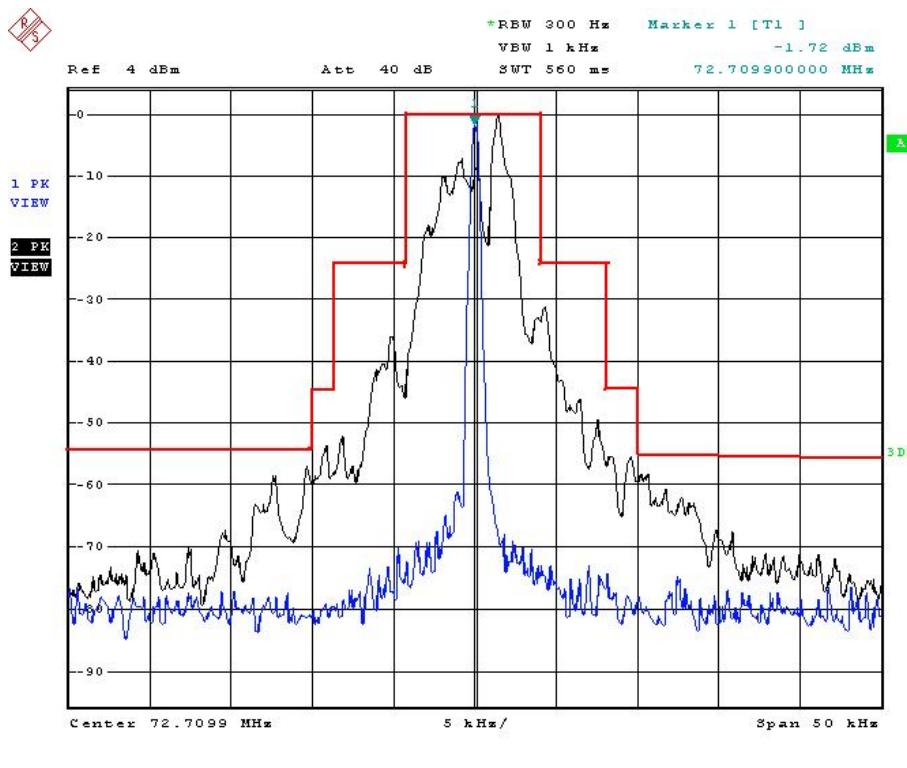


Figure 5 Radiation Test setup

6.4. MEASUREMENT RESULTS:

6.4.1. MEASUREMENT RESULTS NEAR CENTER FREQUENCY



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6.4.2. RADIATED SPURIOUS EMISSION MEASUREMENT RESULTS

Power: 12.7dBm=0.0186W Limit=12.7-(56 + 10 log (TP))=-26.0dBm

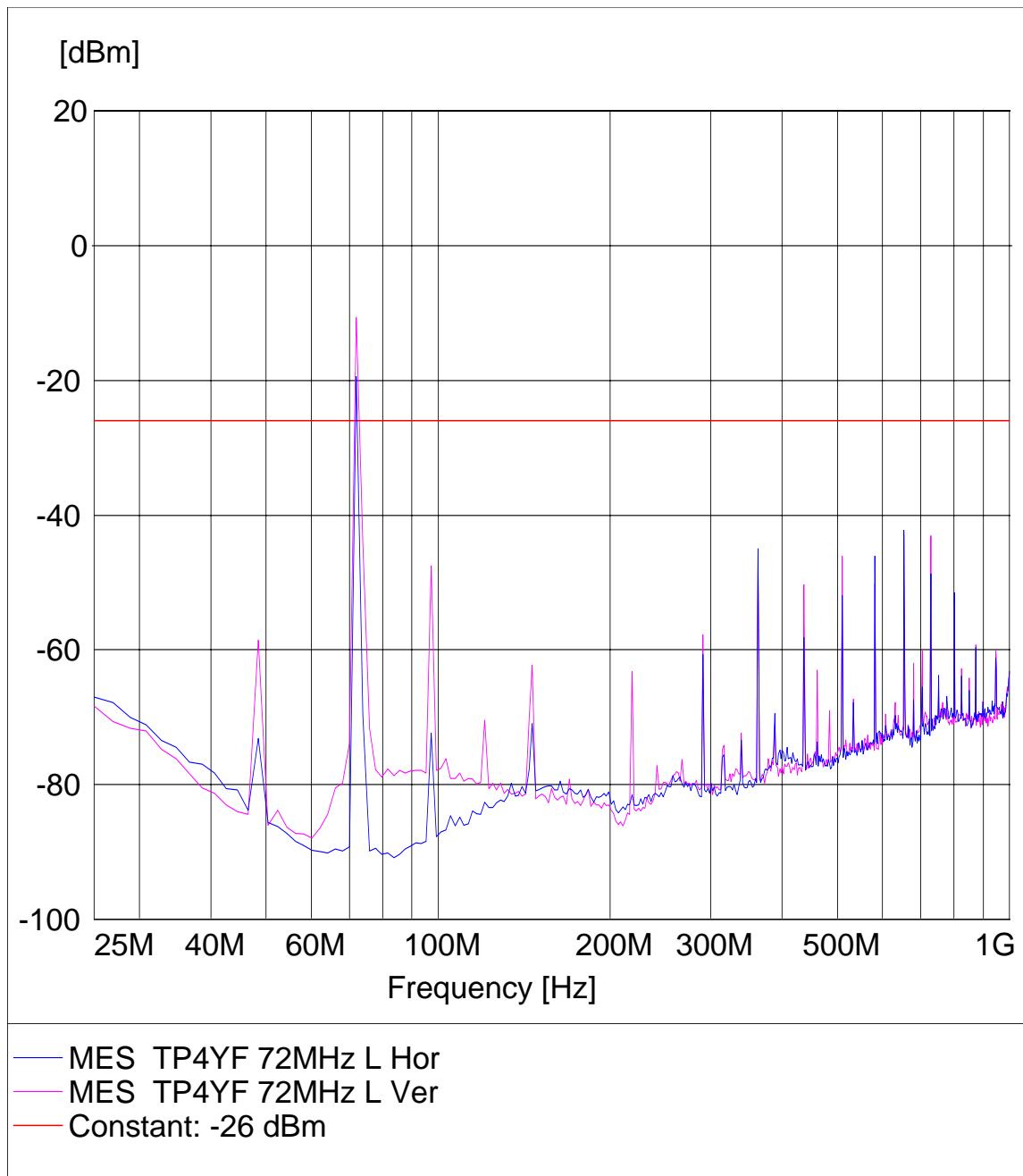
Table 3 Maximum Transmitter Power Test Data

Model : TP4YF						
Mode: 1						
Frequency (MHz)	Emission Level (dBm)	Cable Loss (dB)	Antenna Gain(dB)	SG Level (dBm)	Antenna Polarization (H/V)	Limits (dBm)
363.026	-45.1	3.2	-9.85	-32.1	H	-26.0
581.863	-45.7	3.9	-10.10	-31.7	H	-26.0
654.158	-42.0	4.2	-10.00	-27.8	H	-26.0
97.294	-47.1	0.9	-9.88	-36.3	V	-26.0
509.569	-46.5	3.7	-10.10	-32.7	V	-26.0
728.406	-43.0	4.5	-10.00	-28.5	V	-26.0

REMARKS: 1. Emission level(dBm)=SG Level(dBm) - Cable loss(dB)+Antenna Gain(dB)

Radiated Spurious

EUT: TP4YF
Manufacturer:
Operating Condition:
Test Site: SMQ No.1 Sac chamber
Test Specification: Horizontal & Vertical
Comment:



6.4.3.CONDUCTED SPURIOUS EMISSION MEASUREMENT RESULTS

There isn't antenna terminal on the device. So the test isn't applicable.

7. EMISSION TYPE

7.1. Test Standard and Limit

7.1.1. Test Standard

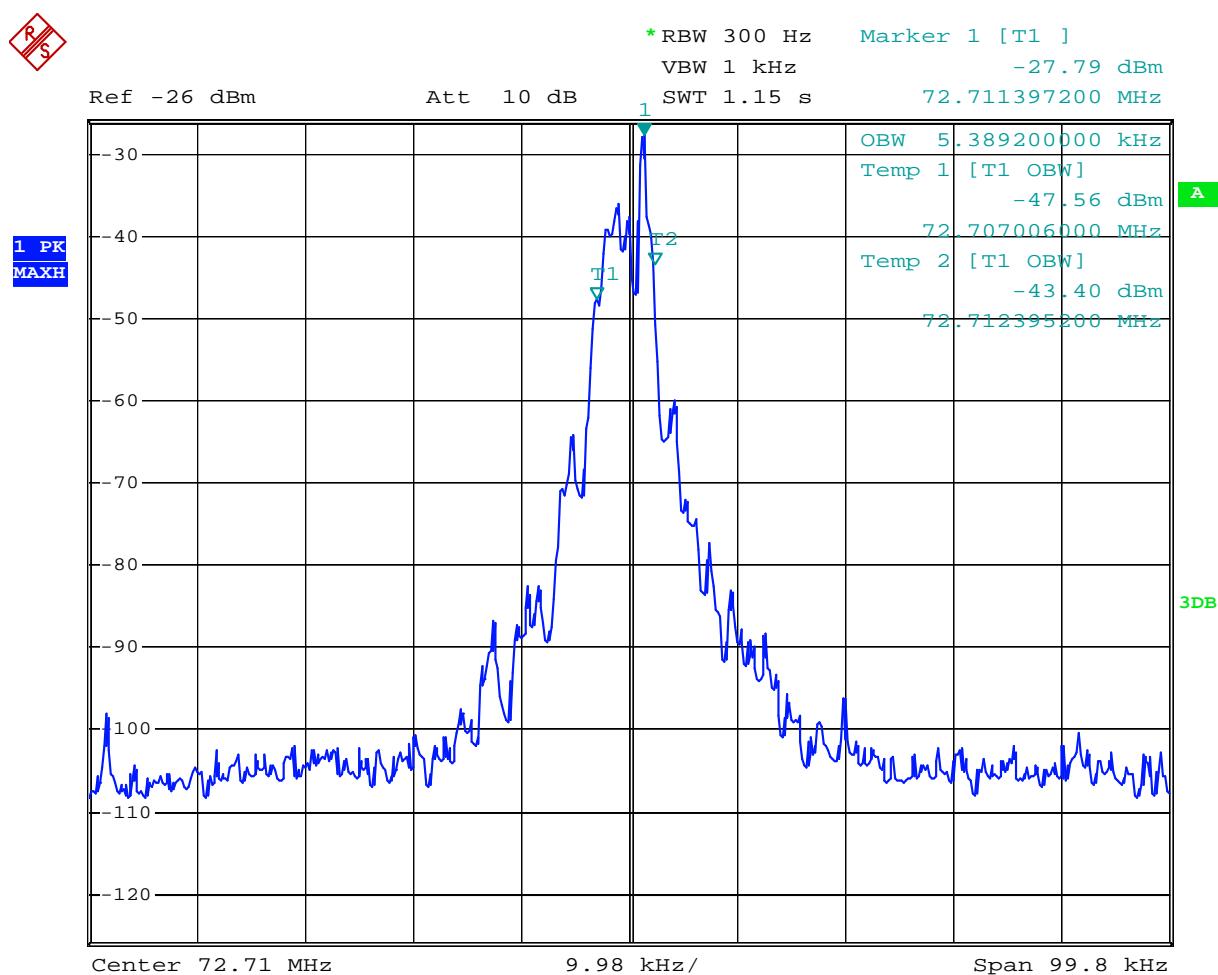
FCC Part 95 Section 95.631

7.1.2 Limit

An R/C transmitter may transmit any appropriate non-voice emission which meets the emission limitations of FCC Part 95 section 95.633.

7.2. Test Data

99% bandwidth=5.37kHz



Date: 16.JAN.2008 02:53:54

First Symbol—types of modulation of the main carrier:

(1) Emission of an unmodulated carrier	N
(2) Emission in which the main carrier is amplitude-modulated (including cases where sub-carriers are angle-modulated):	
—Double-sideband	A
—Single-sideband, full carrier	H
—Single-sideband, reduced or variable level carrier	R
—Single-sideband, suppressed carrier	J
—Independent sidebands	B
—Vestigial sideband	C
(3) Emission in which the main carrier is angle-modulated:	
—Frequency modulation	F
—Phase modulation	G

Note: Whenever frequency modulation "F" is indicated, Phase modulation "G" is also acceptable.

(4) Emission in which the main carrier is amplitude and angle-modulated either simultaneously or in a pre-established sequence	D
(5) Emission of pulses: ¹	
—Sequence of unmodulated pulses	P
—A sequence of pulses:	
—Modulated in amplitude	K
—Modulated in width/duration	L
—Modulated in position/phase	M
—In which the carrier is angle-modulated during the period of the pulse	Q
—Which is a combination of the foregoing or is produced by other means	V
(6) Cases not covered above, in which an emission consists of the main carrier modulated, either simultaneously or in a pre-established sequence, in a combination of two or more of the following modes: amplitude, angle, pulse	W
(7) Cases not otherwise covered	X

¹ Emissions where the main carrier is directly modulated by a signal which has been coded into quantized form (e.g. pulse code modulation) should be designated under (2) or (3).

Second Symbol—nature of signal(s) modulating the main carrier:

(1) No modulating signal	0
(2) A single channel containing quantized or digital information without the use of a modulating sub-carrier, excluding time-division multiplex	1
(3) A single channel containing quantized or digital information with the use of a modulating sub-carrier, excluding time-division multiplex	2
(4) A single channel containing analogue information	3
(5) Two or more channels containing quantized or digital information	7
(6) Two or more channels containing analogue information	8
(7) Composite system with one or more channels containing quantized or digital information, together with one or more channels containing analogue information	9
(8) Cases not otherwise covered	X

Third Symbol—type of information to be transmitted:2

² In this context the word “information” does not include information of a constant, unvarying nature such as is provided by standard frequency emissions, continuous wave and pulse radars, etc.

(1) No information transmitted	N
(2) Telegraphy—for aural reception	A
(3) Telegraphy—for automatic reception	B
(4) Facsimile	C
(5) Data transmission, telemetry, telecommand	D
(6) Telephony (including sound broadcasting)	E
(7) Television (video)	F
(8) Combination of the above	W
(9) Cases not otherwise covered	X

The 99% bandwidth=5.37kHz, the device is frequency modulation, a single channel containing digital information, Data transmission.

Emission designator:5K37F1D

8. EMISSION BANDWIDTH

8.1. Test Standard and Limit

8.1.1. Test Standard

FCC Part 95 Section 95.633

7.1.2 Limit

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

8.2. Test Procedure

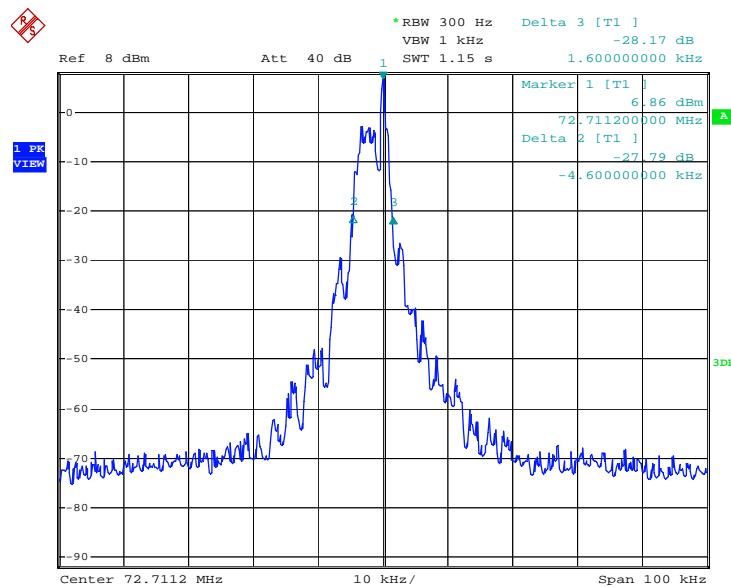
- 1) The EUT was placed on a turn table which is 0.8m above ground plane.
- 2) Set EUT as normal operation
- 3) Set EMI test receiver Center Frequency = fundamental frequency, RBW=3 kHz, VBW=10kHz, Span=100kHz, Trace mode to Max hold.
- 4) The 26dB bandwidth was measured and recorded.

8.3. Test Data

Table 6 Emission Bandwidth Test Data

Model : TP4YF		
Mode: 1		
Frequency (MHz)	Bandwidth ((kHz))	Limits (kHz)
72.71	6.2	8

8.4. Test Graph



9. FREQUENCY STABILITY

9.1. Test Standard and Limit

9.1.1. Test Standard

FCC Part 95 Section 95.623

9.1.2. Limit

Table 7 Frequency Stability Test Limit

FREQUENCY MHz	Limit
72 ~ 76	$\pm 0.002\%$ of nominal carrier frequency

9.2. Test Procedure

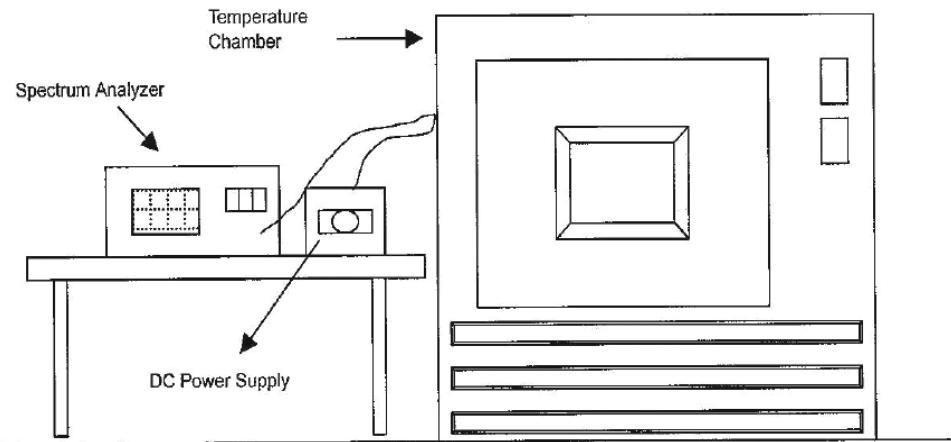
8.2.1 Frequency stability vs. temperature

1. The EUT was placed in a temperature chamber.
2. Set EUT as normal operation and couple its output to a spectrum analyzer. and the EUT work in the chamber half hour.
3. Set spectrum analyzer Center Frequency = fundamental frequency, RBW=3kHz, VBW= 10kHz, Span=100kHz, and use the frequency counter function to measure the working frequency.
4. Record the center frequency.
5. The temperature of chamber was then adjusted from -30~+50°C.
6. Repeat step 3&4.

8.2.2 Frequency stability vs. voltage

1. The EUT was supplied by regulated DC power supply (set to nominal voltage).
2. Set EUT as normal operation and couple its output to a spectrum analyzer.
3. Set EMI test receiver Center Frequency = fundamental frequency, RBW=3kHz, VBW= 10kHz, Span=100kHz, and use the frequency counter function to measure the working frequency..
4. Record the center frequency.
5. Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment; For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.
6. Repeat step 3&4.

9.3. Block Diagram of Test Setup



9.4. Test Data

Table 8 Frequency Stability Test Result(Temperature)

Temperatur e (°C)	Frequency measured (MHz)	Frequency tolerance (%)	Limit
-30	72.71139	0.0019	±0.002%
-20	72.71120	0.0017	±0.002%
-10	72.71115	0.0016	±0.002%
0	72.71110	0.0015	±0.002%
10	72.71100	0.0014	±0.002%
20	72.71110	0.0015	±0.002%
30	72.71139	0.0019	±0.002%
40	72.71140	0.0019	±0.002%
50	72.71131	0.0018	±0.002%

Table 9 Frequency Stability Test Result (Voltage)

Test Voltage (V)	Frequency Measured(MHz)	Frequency Tolerance (%)	Limit
13.8	72.71120	0.0017	±0.002%
12.0	72.71120	0.0017	±0.002%
11.2	72.71122	0.0017	±0.002%
10.4	72.71125	0.0017	±0.002%
9.6	72.71120	0.0017	±0.002%
8.8	72.71110	0.0015	±0.002%
8.0	72.71105	0.0014	±0.002%
7.2	72.71098	0.0013	±0.002%
6.4	72.71080	0.0011	±0.002%
5.6	72.71090	0.0012	±0.002%

10. TRANSMITTER ANTENNA

10.1. Test Standard and Limit

10.1.1. Test Standard

FCC Part 95 Section 95.647

10.1.2. Limit

The antenna of each R/C station transmitting in the 72–76 MHz band must be an integral part of the transmitter. The antenna must have no gain (as compared to a half-wave dipole) and must be vertically polarized.

10.2. Test Data

TP4YF can fulfill the requirement above.

The RF transmitter module can only be used for Tower Pro's transmitter. All the Tower Pro's transmitter used the same transmitter antenna. And the antenna was fixed in the transmitter.

11. CONTROL ACCESSIBILITY

11.1. Test Standard and Limit

11.1.1. Test Standard

FCC Part 95 Section 95.645

11.1.2. Limit

An R/C transmitter which incorporates plug-in frequency determining modules which are changed by the user must be certificated with the modules. Each module must contain all of the frequency determining circuitry including the oscillator. Plug-in crystals are not considered modules and must not be accessible to the user.

11.2. Test Data

TP4YF incorporate one plug-in frequency determining modules and the module was certificated with the transmitter..

12. CRYSTAL CONTROL REQUIRED

12.1. Test Standard and Limit

12.1.1. Test Standard

FCC Part 95 Section 95.651

12.1.2. Limit

All transmitters used in the Personal Radio Services must be crystal controlled, except an R/C station that transmits in the 26–27 MHz frequency band, a FRS unit, a LPRS unit, a MURS unit, a MICS transmitter, or a WMTS unit.

12.2. Test Data

The Crystal was plug in the transmitter by the manufacture, and not accessible to the user.

13. POWER CAPABILITY

13.1.PROVISIONS APPLICABLE

According to FCC Part 95 Section 95.649,no R/C unit shall incorporate provisions for increasing its transmitter power to any level in excess of the limits specified in §95.639

13.2.COMPLIANCE

All the components employed by EUT have the power capability less than 0.75W either being assembled or individual.

14. CONDUCTED DISTURBANCE TEST

14.1. Test Standard and Limit

14.1.1. Test Standard

FCC Part 15 15.207

14.1.2. Test Limit

Table 10 Conducted Disturbance Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

- Decreasing linearly with logarithm of the frequency
- The lower limit shall apply at the transition frequency.

14.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. According to the requirements in Section 7 and 13 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

14.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

14.4. Test Data

The follow was shown the worst data.

Table 11 Conducted Disturbance Test Data

Model: TP4YF

Mode: 1

Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
		Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)
3.010	10.0	0.8	10.8	56	-5.8	4.2	46

REMARKS: 1. Emission level(dBuV)=Read Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB) =LISN Factor (dB) + Cable Factor (dB)+Limiter Factor(dB)
 3. The other emission levels were very low against the limit.

Table 12 Conducted Disturbance Test Data

Model: TP4YF

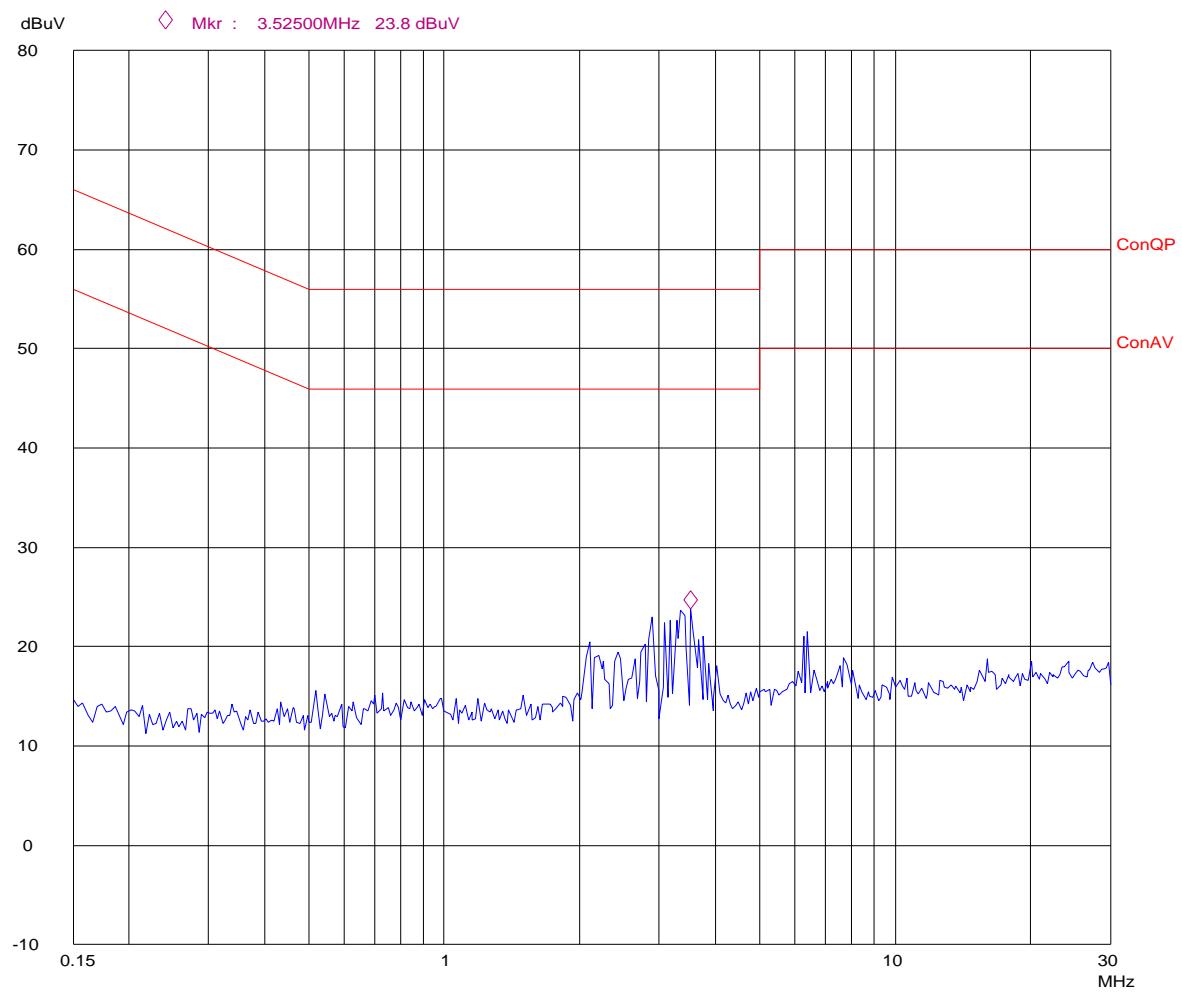
Mode: 1

Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
		Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)
3.525	10.0	3.6	13.6	56	-5.3	4.7	46

REMARKS: 1. Emission level(dBuV)=Read Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB) =LISN Factor (dB) + Cable Factor (dB)+Limiter Factor(dB)
 3. The other emission levels were very low against the limit.

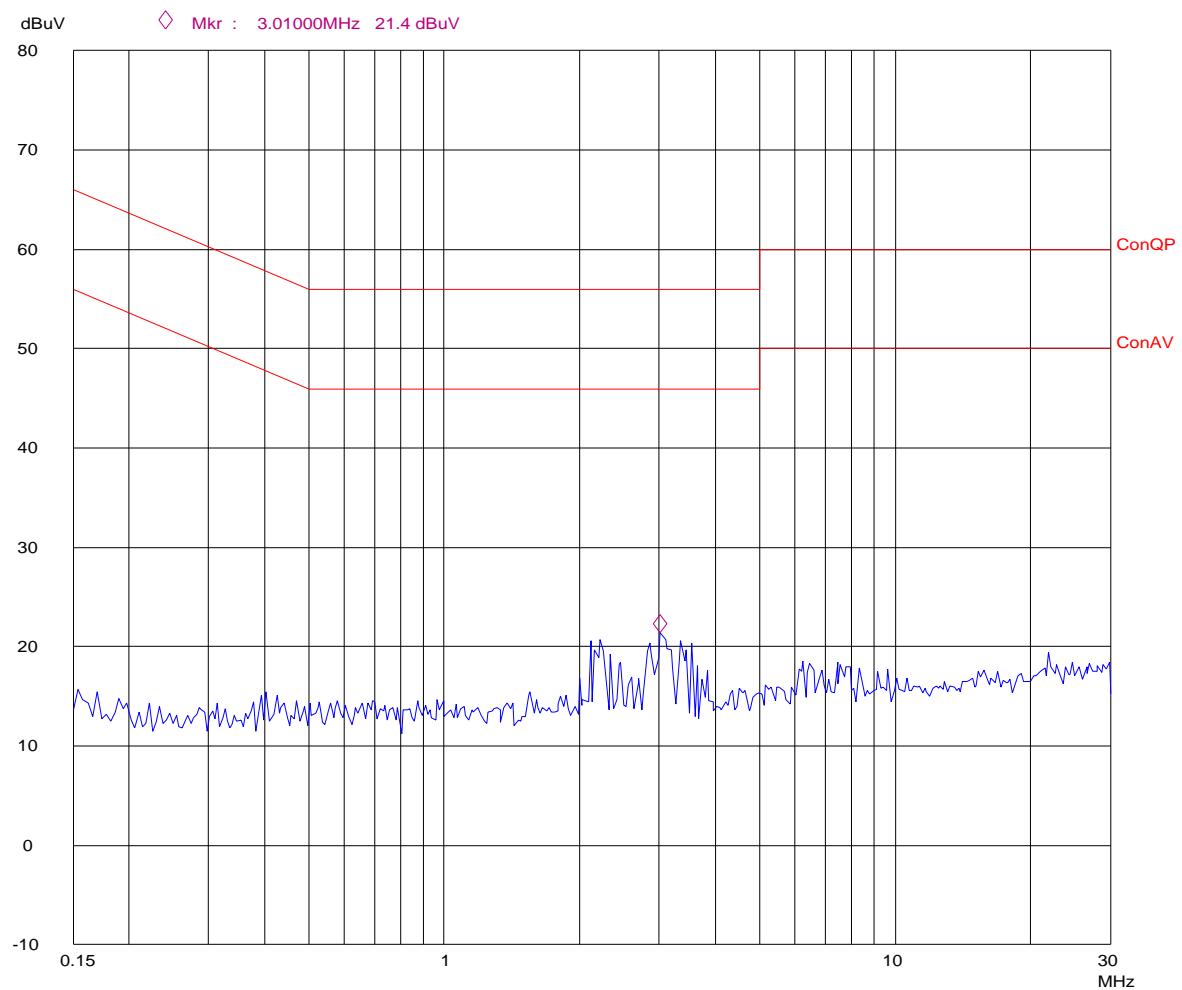
Conducted Disturbance

EUT: M/N:TP4YF
Op Cond: CHARGE
Test Spec: N
Comment: AC 230V/50Hz



Conducted Disturbance

EUT: M/N:TP4YF
Op Cond: CHARGE
Test Spec: L
Comment: AC 230V/50Hz



APPENDIX I TEST PHOTO

Photo 1 Unwanted Radiation Test



Photo 2 Frequency Stability Test



APPENDIX II EUT PHOTO

Photo 1 Appearance of EUT



Photo 2 Appearance of EUT



Photo 3 Inside of EUT

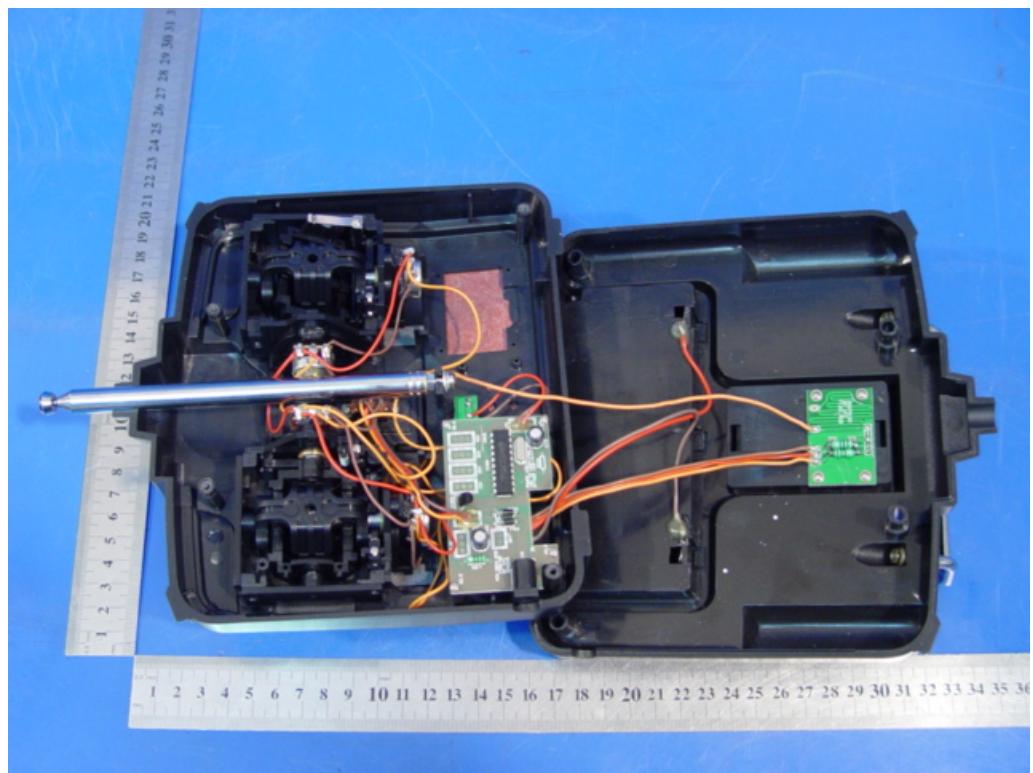


Photo 4 Inside of EUT

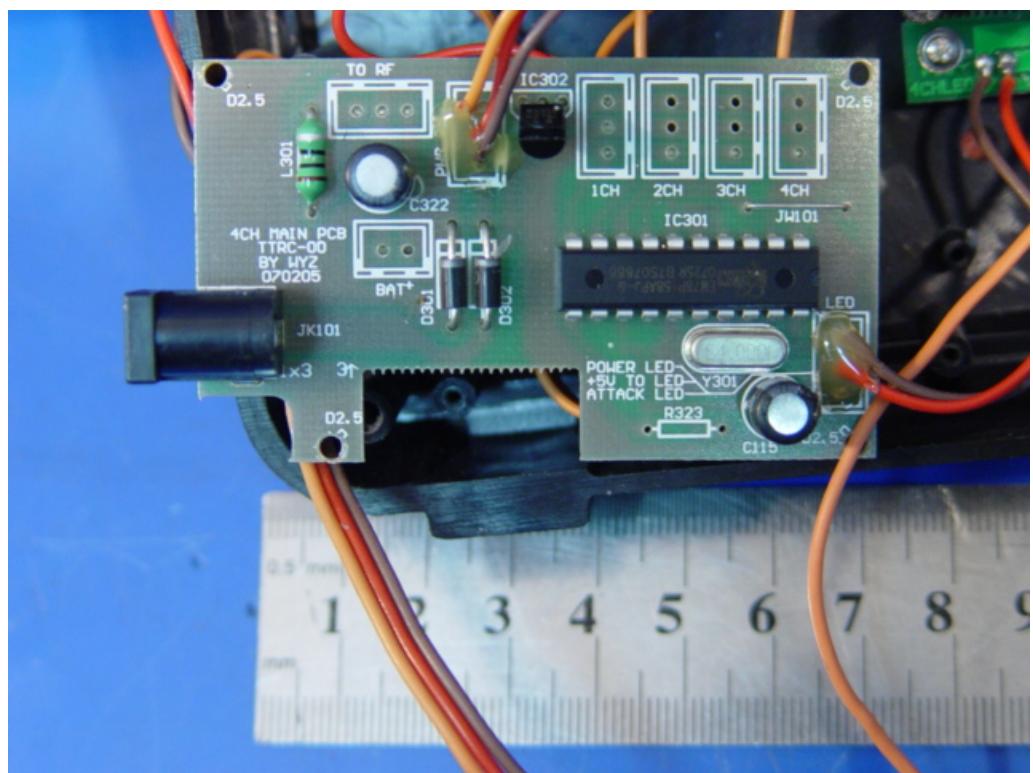


Photo 5 Inside of EUT

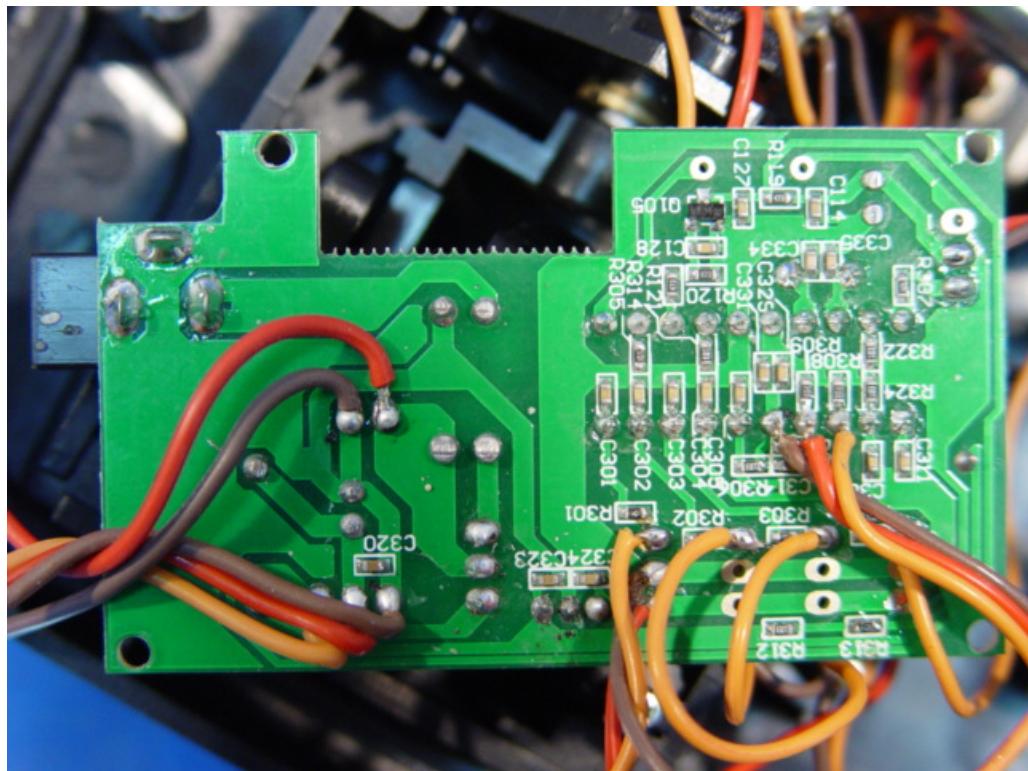


Photo 6 Inside of EUT



Photo 7 Inside of EUT



Photo 8 Inside of EUT



Photo 9 Inside of EUT

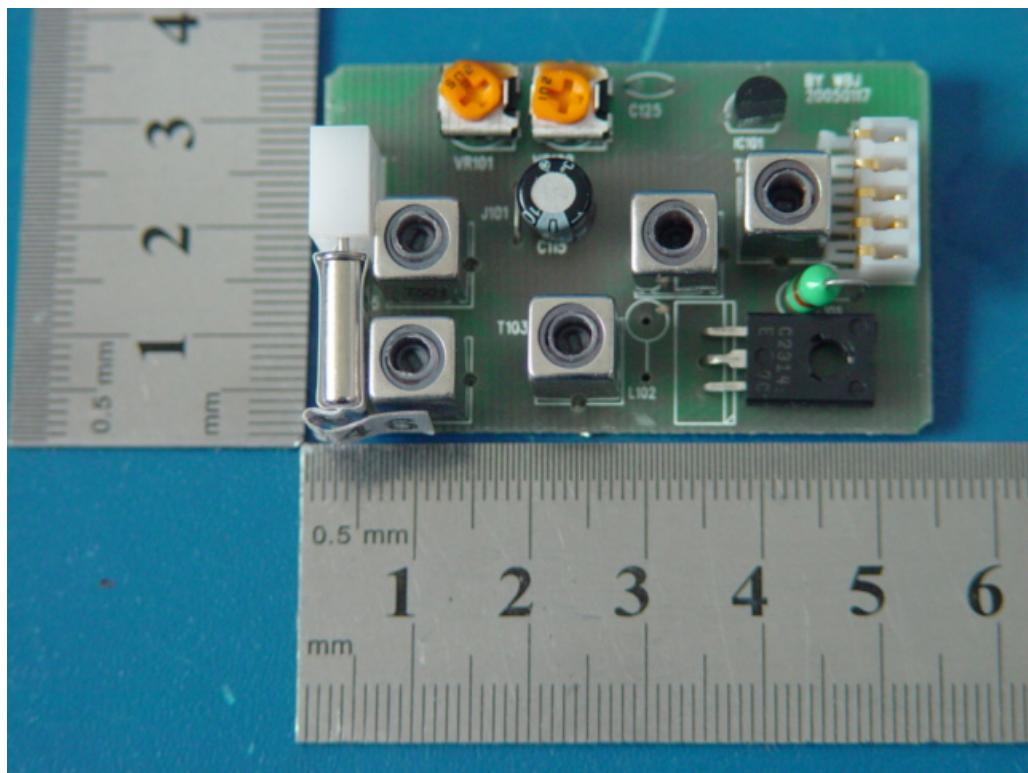


Photo 10 Inside of EUT

