FCC CERTIFICATION
On Behalf of
Golden Bright Manufacturer Ltd

27MHz R/C BOAT TRANSMITTER
Model No.: 9303, 9306, 9307

FCC ID: O2X93032

Prepared for	:	Golden Bright Manufacturer Ltd
Address	:	Room 1008-09, Peninsula Centre, No 67 Mody Road, TST East, Kowloon, Hong Kong
Prepared by	:	ACCURATE TECHNOLOGY CO. LTD
Address	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China Tel: (0755) 26503290 Fax: (0755) 26503396

Report Number	:	ATE20122647
Date of Test	:	November 20-December 5, 2012
Date of Report	:	December 5, 2012

TABLE OF CONTENTS

Description Page

Test Report Certification

Applicant	:	Golden Bright Manufacturer Ltd
Manufacturer	:	TAI SHAN GOLDEN HARVEST PLASTIC & ELECTRONIC MANUFACTURER LTD
EUT Description	:	27MHz R/C BOAT TRANSMITTER
		(A) MODEL NO.: 9303, 9306, 9307
		(B) SERIAL NO.: N/A
		(C) POWER SUPPLY: DC 9V ("6F22" batteries 1×)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.227
ANSI C63.4: 2009

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.227 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : November 20-December 5, 2012

Prepared by : Apple Lv

(Engineer)

Approved & Authorized Signer : Sean Liu

(Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	27MHz R/C BOAT TRANSMITTER
Model Number	:	9303, 9306, 9307 (Note: These samples are same except for the appearance color is difference. So we prepare the 9303 for EMC test.)
Type of modulation	:	FM
Power Supply	:	DC 9V ("6F22" batteries 1×)
Operation Frequency	:	27.095MHz
Applicant	:	Golden Bright Manufacturer Ltd
Address	:	Room 1008-09, Peninsula Centre, No 67 Mody Road, TST East, Kowloon, Hong Kong
Manufacturer	:	TAI SHAN GOLDEN HARVEST PLASTIC & ELECTRONIC MANUFACTURER LTD
Address	:	NO.3 Industrial Zone Of San Ba, Baisha Town, Taishan City, Guangdong Province, China
Date of sample received	:	November 20, 2011
Date of Test	:	November 20-December 5, 2012

1.2.Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen Listed by FCC The Registration Number is 752051 Listed by Industry Canada The Registration Number is 5077A-2 Accredited by China National Accreditation Committee for Laboratories The Certificate Registration Number is L3193
Name of Firm	:	ACCURATE TECHNOLOGY CO. LTD
Site Location	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China

1.3.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 8, 2012	Jan. 7, 2013
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 8, 2012	Jan. 7, 2013
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 8, 2012	Jan. 7, 2013
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 8, 2012	Jan. 7, 2013
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 8, 2012	Jan. 7, 2013
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 8, 2012	Jan. 7, 2013
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 8, 2012	Jan. 7, 2013
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 8, 2012	Jan. 7, 2013

3. SUMMARY OF TEST RESULTS

FCC Rules	**Description of Test**	**Result**
Section 15.207	Conducted Emission	N/A
Section 15.209 Section 15.227(b)	Harmonics and Spurious Radiated Emission	Compliant
Section 15.227(a)	Fundamental Radiated Emission	Compliant
Section 15.227	Band Edge	Compliant
Section 15.203	Antenna Requirement	Compliant

Remark: “N/A” means “Not applicable”.

4. HARMONICS AND SPURIOUS RADIATED EMISSION FOR FCC PART 15 SECTION 15.227(B)

4.1.Block Diagram of Test Setup

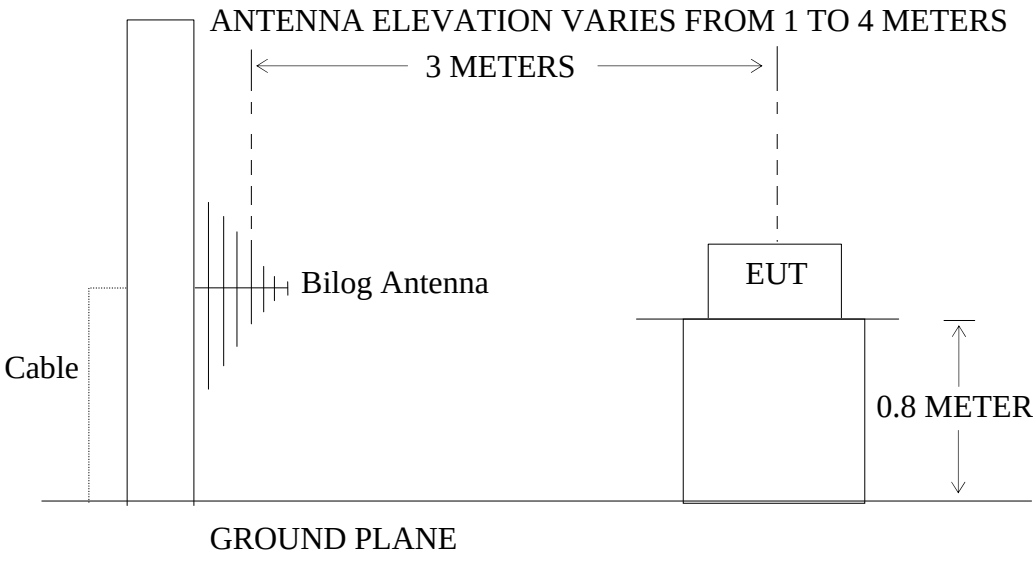
4.1.1.Block diagram of connection between the EUT and simulators

EUT

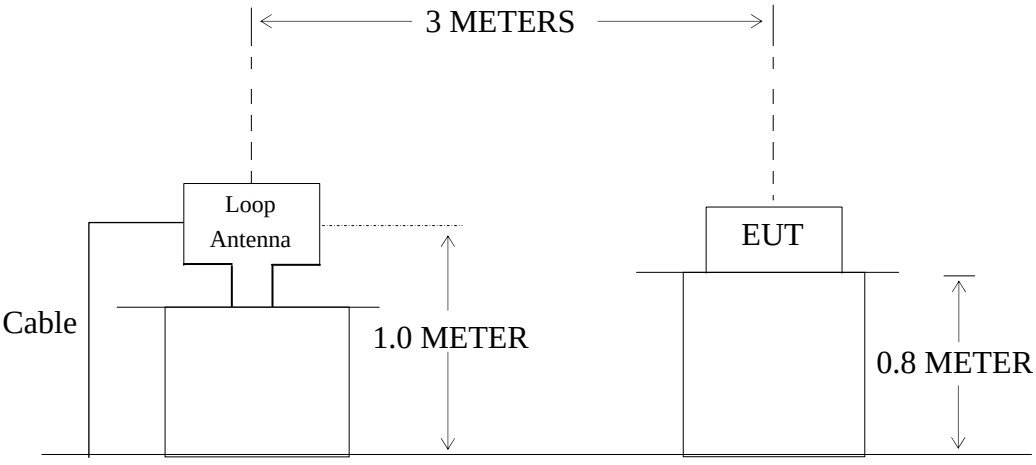
(EUT: 27MHz R/C BOAT TRANSMITTER)

4.1.2.Semi-Anechoic Chamber Test Setup Diagram

4.1.2.1. Above 30MHz



4.1.2.2. Below 30MHz



(EUT: 27MHz R/C BOAT TRANSMITTER)

4.2. The Field Strength of Radiation Emission Measurement Limits

4.2.1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in section 15.209.

Radiation Emission Measurement Limits According to Section 15.209(a)

Below 30MHz

Frequency (fundamental or spurious)	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490kHz	2400/F (F in kHz)	2400/377(F in kHz)	300
490-1705kHz	24000/F (F in kHz)	24000/377(F in kHz)	30
1705-30MHz	30	N/A	30

Above 30MHz

Frequency (MHz)	Limit		
	Field Strength of Quasi-peak Value (microvolts/m)	Field Strength of Quasi-peak Value (dBμV/m)	The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	

4.3. Configuration of EUT on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.3.1. 27MHz R/C BOAT TRANSMITTER (EUT)

Model Number : 9303
Serial Number : N/A
Manufacturer : TAI SHAN GOLDEN HARVEST PLASTIC & ELECTRONIC MANUFACTURER LTD

4.4. Operating Condition of EUT

4.4.1. Setup the EUT and simulator as shown as Section 4.1.

4.4.2. Turn on the power of all equipment.

4.4.3. Let the EUT work in TX modes and measure it.

4.5. Test Procedure

4.5.1. **Above 30MHz:** The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C 63.4: 2009 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 120kHz in 30-1000MHz.

The frequency range from 30MHz to 1000MHz is checked.

4.5.2. **Below 30MHz:** The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. calibrated Loop antenna is used as receiving antenna. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C 63.4: 2009 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9kHz in 9kHz-30MHz.

The frequency range from 9kHz to 30MHz is checked.

The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

4.6. The Field Strength of Radiation Emission Measurement Results

PASS.

The frequency range 9kHz to 1000MHz is investigated.

Date of Test:	November 30, 2012	Temperature:	25°C
EUT:	27MHz R/C BOAT TRANSMITTER	Humidity:	50%
Model No.:	9303	Power Supply:	DC 9V
Test Mode:	TX	Test Engineer:	Pei

Below 30MHz:

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	-	-	-	-	-	-
Vertical	-	-	-	-	-	-

Above 30MHz:

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	54.9010	16.28	13.10	29.38	40.00	-10.62
Vertical	54.1349	22.32	13.31	35.63	40.00	-4.37
Vertical	81.6603	18.02	13.82	31.84	40.00	-8.16

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

   Result = Reading + Corrected Factor

   Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain
3. The spectral diagrams in appendix I display the measurement of peak values.

5. FUNDAMENTAL RADIATED EMISSION FOR FCC PART 15 SECTION 15.227(A)

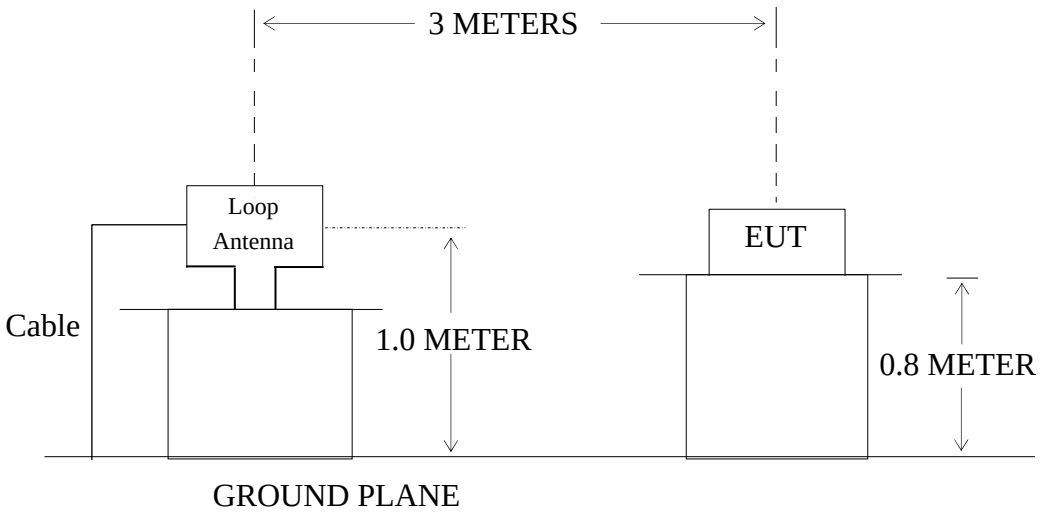
5.1.Block Diagram of Test Setup

5.1.1.Block diagram of connection between the EUT and simulators

EUT

(EUT: 27MHz R/C BOAT TRANSMITTER)

5.1.2.Semi-Anechoic Chamber Test Setup Diagram



(EUT: 27MHz R/C BOAT TRANSMITTER)

5.2.The Emission Limit For Section 15.227(a)

5.2.1.The field strength of any emission within this band shall not exceed 10,000microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emission apply.

5.3.EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.3.1.27MHz R/C BOAT TRANSMITTER (EUT)

Model Number	**:**	9303
Serial Number	**:**	N/A
Manufacturer	**:**	TAI SHAN GOLDEN HARVEST PLASTIC & ELECTRONIC MANUFACTURER LTD

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

5.4.3.Let the EUT work in TX mode and measure it.

5.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. A calibrated Loop antenna is used as receiving antenna. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C 63.4: 2009 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9kHz in 9kHz-30MHz.

5.6. The Emission Measurement Result

PASS.

Date of Test:	November 30, 2012	Temperature:	25°C
EUT:	27MHz R/C BOAT TRANSMITTER	Humidity:	50%
Model No.:	9303	Power Supply:	DC 9V
Test Mode:	TX	Test Engineer:	Pei

Fundamental Radiated Emissions

Test conditions		Fundamental Frequency	
		27.095MHz	
T_{nom}(25°C)	V_{nom} (DC 9V)	(dBμV/m)/ (μ V/m) PEAK	(dBμV/m)/(μ V/m) AV
		83.26/14554.59	77.93/7879.52
Limit		100/100,000	80/10,000
Note: Measurement was performed with modulated signal with average detector and peak detector.			

Note: The product is FM modulation, it can't produce pulse signal

6. BAND EDGES

6.1.The Requirement

6.1.1.The wanted emission within the band 26.96-27.28MHz.

6.2.EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.2.1.27MHz R/C BOAT TRANSMITTER (EUT)

Model Number	**:**	9303
Serial Number	**:**	N/A
Manufacturer	**:**	TAI SHAN GOLDEN HARVEST PLASTIC & ELECTRONIC MANUFACTURER LTD

6.3.Operating Condition of EUT

6.3.1.Setup the EUT and simulator as shown as Section 6.1.

6.3.2.Turn on the power of all equipment.

6.3.3.Let the EUT work in TX mode and measure it.

6.4.Test Procedure

The useful radiated emission from the EUT was detected by the spectrum analyzer with peak detector. The vertical scale of is set to 10dB per division; the horizontal scale is set to 32kHz per division. Star frequency are 26.96MHz, stop frequency are 27.28MHz. RBW is set to 10kHz, VBW is set to 30kHz.

6.5.The Measurement Result

The EUT does meet the requirement.

The spectral diagrams attached in appendix 1.

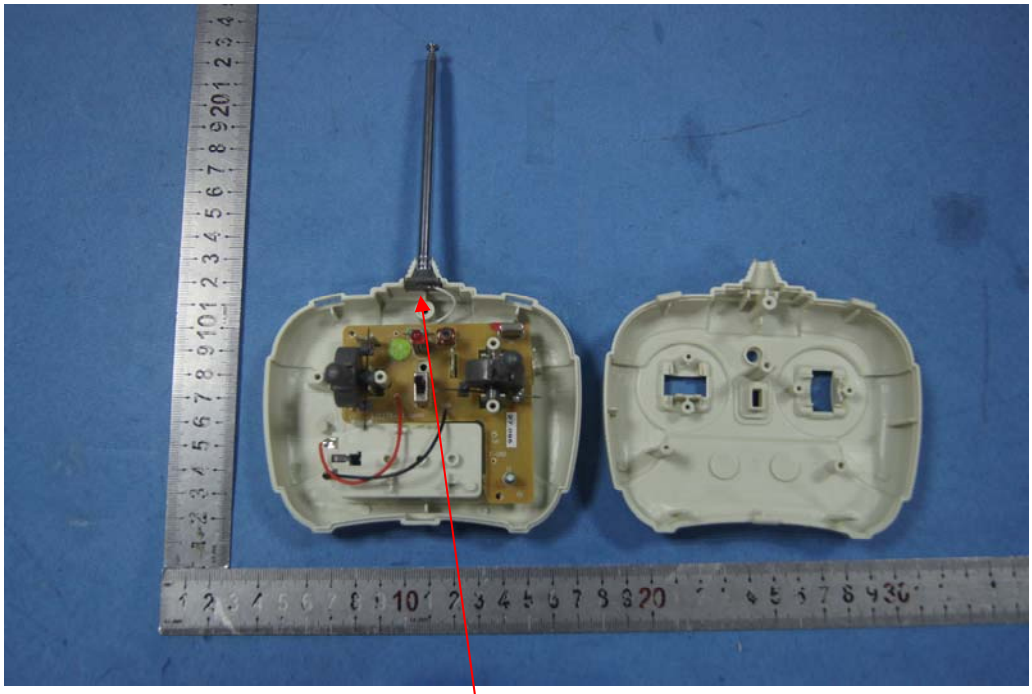
7. ANTENNA REQUIREMENT

7.1. The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

7.2. Antenna Construction

Device is equipped with unique antenna, which isn't displaced by other antenna. Therefore, the equipment complies with the antenna requirement of Section 15.203.



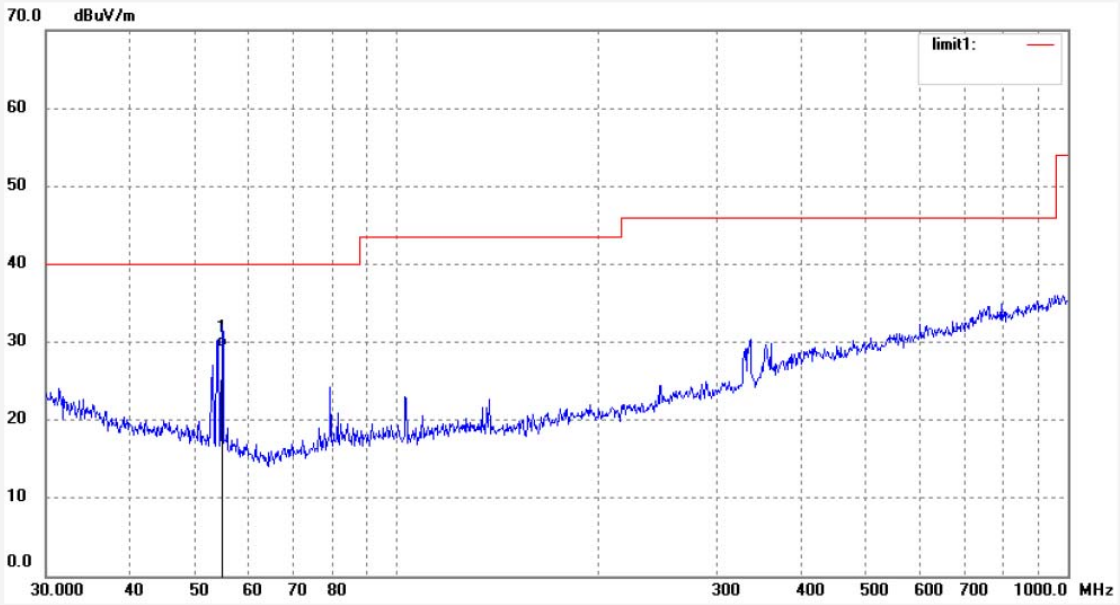
Antenna

APPENDIX I
(Test Curves)

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3295	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 12/11/30/
Temp.(C)/Hum.(%) 25 C / 51 %	Time: 8/54/42
EUT: 27MHz R/C BOAT TRANSMITTER93	Engineer Signature:
Mode: TX	Distance:
Model: 9303	
Manufacturer: GOLDEN	

Note: Report No.:ATE20122647

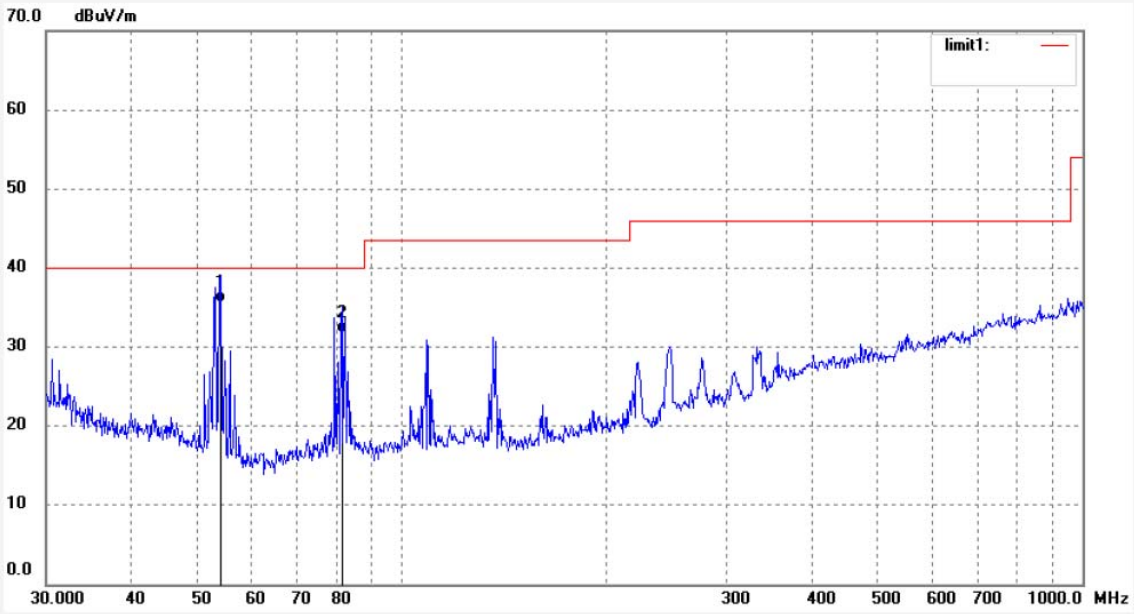


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	54.9010	16.28	13.10	29.38	40.00	-10.62	QP			

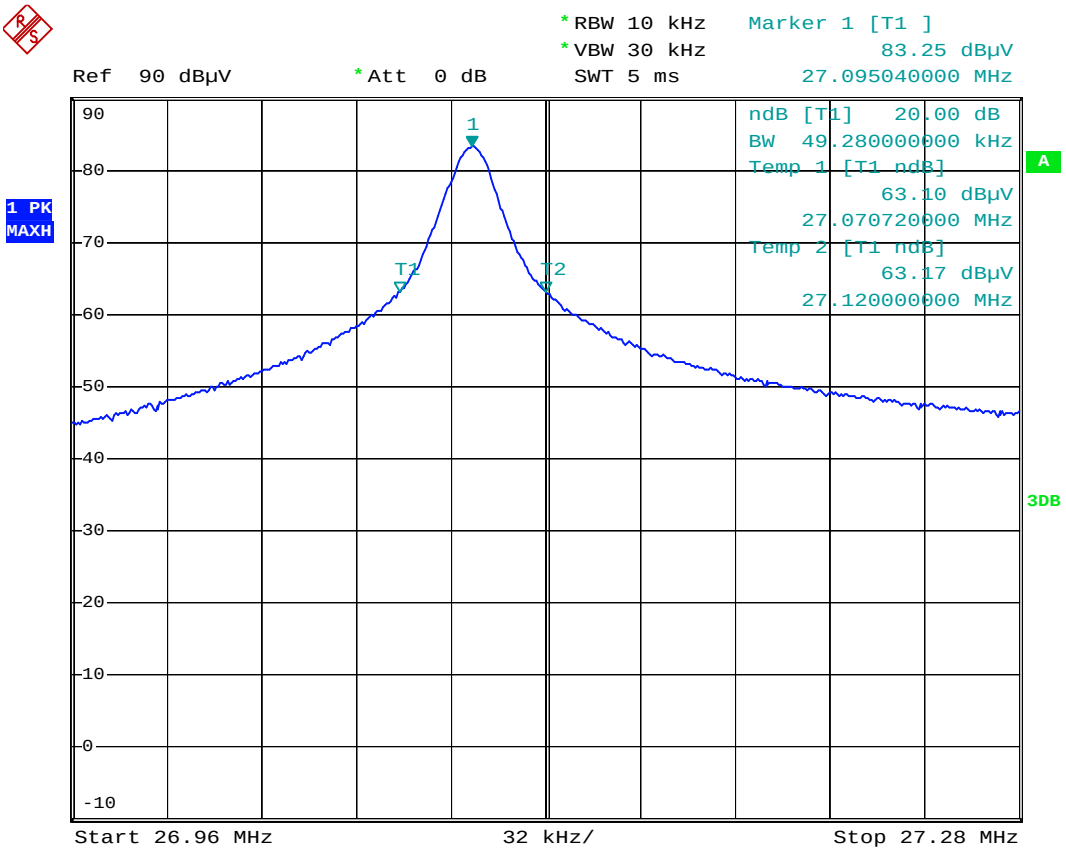
ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3296	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 12/11/30/
Temp.(C)/Hum.(%) 25 C / 51 %	Time: 8/58/30
EUT: 27MHz R/C BOAT TRANSMITTER	Engineer Signature:
Mode: TX	Distance:
Model: 9303	
Manufacturer: GOLDEN	

Note: Report No.:ATE20122647



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	54.1349	22.32	13.31	35.63	40.00	-4.37	QP			
2	81.6603	18.02	13.82	31.84	40.00	-8.16	QP			



Date: 5.DEC.2012 10:11:02