



SGS-CSTC Standards Technical Services Ltd.

1/F., Building No. 1 Building, Agriculture Machinery Materials Co.
Wushan Road, Shipai, Tianhe District, Guangzhou, China
Telephone: +86 (0) 20 3848 1001 Fax: +86 (0) 20 3848 1006
Email: sgs_internet_operations@sgs.com

FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

Report No.: SZEMO050901015RFE
Page: 1 of 9
FCC ID: TOGWDC8300S

TEST REPORT

Application No. : SZEMO050901015RF (SGS SZ NO.: SZTYR050901157/EL)
Applicant: Welly Die-Casting Fty. Ltd.
FCC ID: TOGWDC8300S
Fundamental Frequency : 27.145MHz
Equipment Under Test (EUT):
Name: Prportional Metal Diecast RC
Model No.: 83001/83002/83003/83004/83005/83006/83007/83008/83009/83010♣
Country of Origin: CHINA
Labelled Age Grading: 8 YEARS AND UP
♣ Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.
Standards: FCC PART 15, SUBPART C : 2004
Section 15.227
Date of Receipt: 12 September 2005
Date of Test: 12 to 25 September 2005
Date of Issue: 30 September 2005

Test Result :	PASS *
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

All test results in this report can be traceable to National or International Standards.

2 Test Summary

Test	Test Requirement	Standard Paragraph	Result
Radiated Emission (30MHz to 1000MHz)	FCC PART 15 :2004	Section 15.227	PASS *
Occupied Bandwidth	FCC PART 15 :2004	Section 15.215	PASS

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

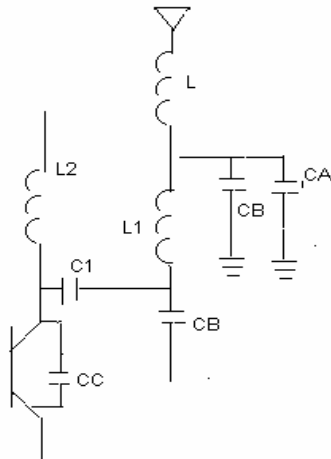
RF: In this whole report RF means Radiated Frequency.

♣Item No.: 83001/83002/83003/83004/83005/83006/83007/83008/83009/83010

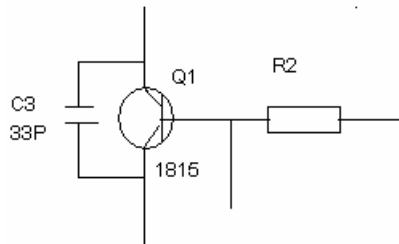
Only the item in the pictures in section 5.3.3 of this report was tested, since the electrical circuit design, layout, component used and internal wiring were identical for the above items, with only difference being the outer decoration and colours.

*The EUT passed the RE test after modifications specified below.

1. Changed the L1 from 3.3 μ H to 4.7 μ H;
2. Added four capacitances specified in the picture below. C3=82pF, C4=471pF, C5=102pF, C6=103pF.



3. Changed R2 from 68k Ω to 47k Ω (at PCB).
4. Added one capacitance specified in the picture below. C7=5pF.
5. Changed L3 from 1.0 μ H to 1.5 μ H.





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4 General Information

4.1 Client Information

Applicant Name: Welly Die-Casting Fty. Ltd.

Applicant Address: Flat H,I, 18/FI.,Shield Industrial Centre,84-92,Chai Wan Kok Street,
Tsuen Wan,n.t.,Hong Kong

4.2 Details of E.U.T.

EUT Name: PRPOTIONAL METAL DIECAST RC

Item No.: 83001/83002/83003/83004/83005/83006/83007/83008/83009/83010♣

Power Supply: 9V DC (1*9.0V '6F22' Size Battery) for Tx

Power Cord: N/A-

♣

Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.

4.3 Description of Support Units

The EUT was tested as an independent unit: a 27.145MHz radio transmitter.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Ltd., Guangzhou EMC Laboratory, 1/F, Building No. 1, Agriculture Machinery Materials Company Warehouse Ltd., Wushan Road Shipai, Tianhe District, Guangzhou, China. P.C. 510630.

Tel: +86 20 3848 1001

Fax: +86 20 3848 1006

4.5 Other Information Requested by the Customer

None.



4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP – Lab Code: 200611-0**
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0. Effective through December 31, 2005.
- **ACA**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **VCCI**
The 3m Semi-anechoic chamber and Shielded Room (11.5m x 4m x 4m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1599 and C-1706 respectively.
Date of Registration: June 01, 2005. Valid until February 22, 2008
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**
Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.
- **CNAL – LAB Code: L0141**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of Testing Laboratories.
- **FCC – Registration No.: 282399**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002. With the above and NVLAP's accreditation, SGS-CSTC is an authorised test laboratory for the DoC process.
- **Industry Canada (IC)**
The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5169.



5 Test Results

5.1 Test Instruments

RE in Chamber					
Item	Test Equipment	Manufacturer	Serial No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	SEL0017	28-04-2005	27-04-2006
2	EMI Test Receiver	Rohde & Schwarz	100249	20-09-2005	19-09-2006
3	EMI Test software	AUDIX	E3	N/A	N/A
4	Coaxial cable	SGS	SEL0028	30-05-2005	29-05-2006
5	Coaxial cable	SGS	SEL0027	30-05-2005	29-05-2006
6	BiConiLog Antenna	ETS-LINDGREN	00042673	11-01-2005	10-01-2006
7	BiConiLog Antenna	ETS-LINDGREN	00042670	11-01-2005	10-01-2006

5.2 E.U.T. Operation

Input voltage:	9V DC (1*9.0v '6F22' Size Battery) for Tx
Operating Environment:	
Temperature:	25.0 °C
Humidity:	63% RH
Atmospheric Pressure:	1012mbar
EUT Operation:	Test the EUT in transmitting mode.

5.3 Test Procedure & Measurement Data

5.3.1 Radiated Emissions

Test Requirement:	FCC Part15 C Section 15.227
Test Method:	ANSI C63.4
Test Date:	12 September 2005 (Initial Test) 25 September 2005 (Test after modifications)
Measurement Distance:	3m (Semi-Anechoic Chamber)
Requirements:	Carrier frequency will not exceed 80dBuV/m AT 3m. Out of band emissions shall not exceed: 40.0 dBuV/m between 30MHz & 88MHz 43.5 dBuV/m between 88MHz & 216MHz 46.0 dBuV/m between 216MHz & 960MHz 54.0 dBuV/m above 960MHz
Detector:	Peak Scan (120kHz resolution bandwidth)



Test Procedure: The procedure used was ANSI Standard C63.4-2003. The receive was scanned from 30MHz to 1000MHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. The worst case emissions were reported.

An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities

The following measurements were performed on the EUT on 19 August 2005:

Test the EUT in transmitting mode.

Intentional emission

Test Frequency (MHz)	Peak (dB μ V/m)		Limits (dB μ V/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
27.145	56.6	47.4	100.0	43.4	52.6

Test Frequency (MHz)	Average (dB μ V/m)		Limits (dB μ V/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
27.145	50.1	41.8	80.0	29.9	38.2

Other emissions

Test Frequency (MHz)	Quasi-Peak (dB μ V/m)		Limits (dB μ V/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
54.290	34.40	26.13	40.0	5.60	13.87
81.435	22.99	23.59	40.0	17.01	16.41
108.580	30.7	28.19	43.5	12.8	15.31
135.725	22.63	27.24	43.5	20.87	16.26
162.870	36.01	33.91	43.5	7.49	9.59
190.015	39.78	30.99	43.5	3.72	12.51
217.160	34.09	25.85	46.0	11.91	20.15

Remark:

According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

Test Results: The unit does meet the FCC Part 15 C Section 15.227 requirements.



5.3.2 Occupied Bandwidth

Test Requirement: FCC Part 15 C Section 15.215(C)

Test Method: ANSI C63.4

Operation within the band 26.960 – 27.280 MHz

Test Date: 17 August 2005

Requirements: Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the 20 dB bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Method of measurement: The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector. The vertical Scale is set to 10dB per division. The horizontal scale is set to 32KHz per division.

The graph as below, represents the emissions take for this device.



The results: The unit does meet the FCC Part 15 C Section 15.215 requirements.

