



**BUREAU
VERITAS**

Test Report No:FC110719N030

FCC ID:ZSYJXD76499972Q

TEST REPORT

Applicant	JINXINGDA PLASTIC TOYS FACTORY
Address	CHENGHAI DISTRICT,SHANTOU CITY,GUANGDONG PROVINCE,CHINA

Manufacturer or Supplier	JINXINGDA PLASTIC TOYS FACTORY
Address	CHENGHAI DISTRICT,SHANTOU CITY,GUANGDONG PROVINCE,CHINA
Product	R/C HELICOPTER SERIES
Brand Name	N/A
Model	333
Additional Model & Model Difference	See Item 2.1
Date of tests	July. 22 ~ Aug.1, 2011



- ☒ FCC Part 15, Subpart C:2009
☒ ANSI C63.4 : 2003

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Reviewed by Jade Yang Supervisor / EMC Department	Approved by Sam Tung Manager / EMC Department

Date: Aug. 3, 2011

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification



Table of Contents

RELEASE CONTROL RECORD	3
1 SUMMARY OF TEST RESULTS	4
1.1 MEASUREMENT UNCERTAINTY	5
2 GENERAL INFORMATION	6
2.1 GENERAL DESCRIPTION OF EUT	6
2.2 DESCRIPTION OF TEST MODES	7
2.3 DESCRIPTION OF SUPPORT UNITS	7
3 EMISSION TEST	8
3.1 CONDUCTED EMISSION MEASUREMENT	8
3.2 RADIATED EMISSION MEASUREMENT	8
3.2.1 TEST INSTRUMENTS	9
3.2.2 TEST PROCEDURE	10
3.2.3 DEVIATION FROM TEST STANDARD	11
3.2.4 TEST SETUP	11
3.2.5 EUT OPERATING CONDITIONS	11
3.2.6 TEST RESULTS	12
3.2.7 TEST RESULTS	13
3.3 26DB BANDWIDTH OF FUNDAMENTAL EMISSION	14
3.3.1 LIMITS FOR 26DB BANDWIDTH OF FUNDAMENTAL EMISSION:	14
3.3.2 TEST INSTRUMENTS	14
3.3.3 TEST PROCEDURE	14
3.3.4 TEST RESULTS	15
3.4 DUTY CYCLE CORRECTION DURING 100MSEC:	16
3.4.1 TEST RESULTS	17
4 PHOTOGRAPHS OF TEST CONFIGURATION	18
5 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	18



**BUREAU
VERITAS**

Test Report No:FC110719N030

FCC ID:ZSYJXD76499972Q

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Aug. 3, 2011

**Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch**

No. 34, Chenwulu Section, Guantai Rd., Houjie
Town, Dongguan City,
Guangdong 523942, China

Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart B			
Standard Section	Test Item	Result	Remark
15.207	Conducted Emission Test	N/A	-
15.209	Radiated Emission Test (30MHz ~ 1GHz)	PASS	Meets Class B Limit Minimum passing margin is -0.24 dBat 149.58MHz
15.235	26dB Bandwidth	PASS	-
	Duty Cycle	PASS	-

Note : 1. The maximum emission levels were compared with the requirements in section 15.209, 15.235 of FCC Part 15 regulation.



1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emission	0.15MHz ~ 30MHz	2.56 dB
Radiated emissions	30MHz ~ 1GHz	3.58 dB



2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	R/C HELICOPTER SERIES
MODEL NO.	333、331、332、335、337、338、339、340、 341、342、343、345、346、347、348、349、 350、351、352、353、354、355、356、357、 358、359、360、361、362、363、364、365、 366、367、368、369、370、371、372、373、 374、375、376、377、378、379、380、381、 382、383、384、385、386、387、388、389、 390、391、392、393、506、ODY-T6、ODY-333、 AG31333、AG31338、6182-9E、6182-9EB、 5852-7C BES
POWER SUPPLY	DC 9V (“AAA” size battery x 6)
DATA CABLE SUPPLIED	N/A
OPERATING FREQUENCY	49.86MHz

NOTE:

1. The EUT is a Wireless remote.
2. All of the models just different appearance sizes and model number.
3. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



2.2 DESCRIPTION OF TEST MODES

The EUT was tested under the following modes, the final worst mode were marked in boldface and recorded in this report.

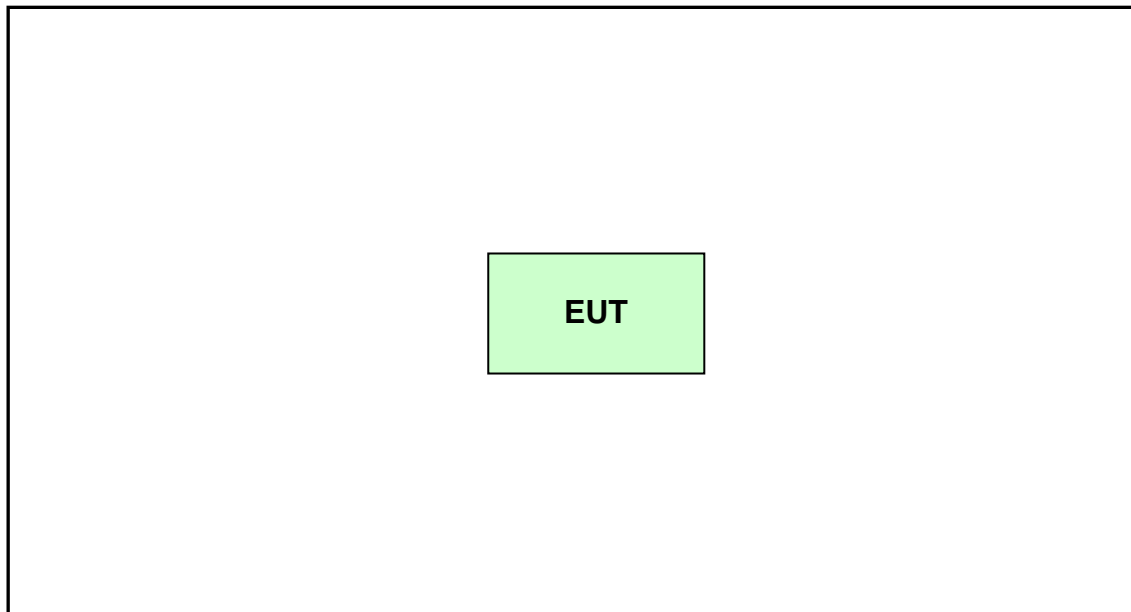
For the All test, the EUT was tested under the following modes:

Test Result	Description of Test Mode
1	TX Mode

2.3 DESCRIPTION OF SUPPORT UNITS

N/A

TEST CONFIGURATION





3 EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

The EUT'S power provide by battery. no data about this item test.

3.2 RADIATED EMISSION MEASUREMENT

Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.235]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [$\mu\text{V/m}$]	Field Strength of Fundamental Emission [Average] [$\mu\text{V/m}$]
49.82 – 49.90	100,000 (100 dB $\mu\text{V/m}$)	10,000 (80 dB $\mu\text{V/m}$)

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V/m}$]
1.705-30	300
30-88	100
88-216	150
216-960	200
Above960	500

Note: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dB $\mu\text{V/m}$) = 20 log Emission level ($\mu\text{V/m}$).

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

**3.2.1 TEST INSTRUMENTS****Frequency Range 30MHz~1GHz**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
EMI Test Receiver	ESVD	847398/003	May 25,11	May 25,12
Bilog Antenna	CBL 6111D	25757	Nov.29,10	Nov.29,11
Spectrum Analyzer	8593E	3448U00806	May 25,11	May 25,12
3m Semi-anechoic Chamber	9m*6m*6m	NSEMC003	May 2,11	May 2,12
Signal Amplifier	8447D	2944A10488	May 2,11	May 2,12
RF Cable	IMRO-400	966 Cable 1#	May 2,11	May 2,12

NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA and NIM/CHINA.

2. The test was performed at 966 Chamber..



3.2.2 TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4 (section 12).

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters Semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using new battery. The turntable was rotated to maximize the emission level.
- g. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.

NOTE:

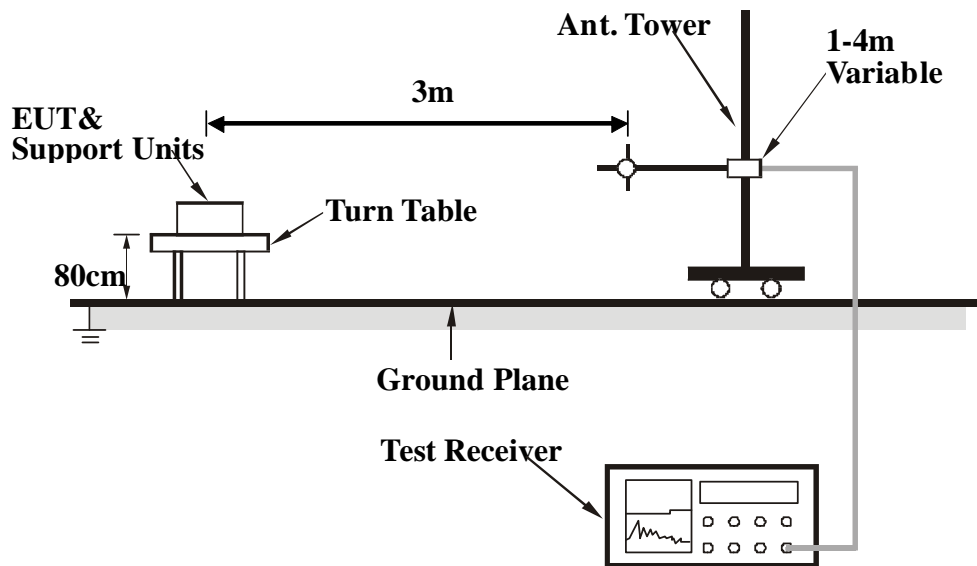
1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. $\text{Emission level(dBuV/m)} = \text{Raw Value(dBuV)} + \text{Correction Factor(dB/m)}$
3. $\text{Correction Factor(dB/m)} = \text{Antenna Factor (dB/m)} + \text{Cable Factor (dB)}$
4. $\text{Margin value} = \text{Emission level} - \text{Limit value}.$
5. $\text{Fundamental AV value} = \text{PK value} + \text{duty cycle}.$



3.2.3 DEVIATION FROM TEST STANDARD

No deviation

3.2.4 TEST SETUP



3.2.5 EUT OPERATING CONDITIONS

- Turned on the power of all equipment.
- EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.



3.2.6 TEST RESULTS

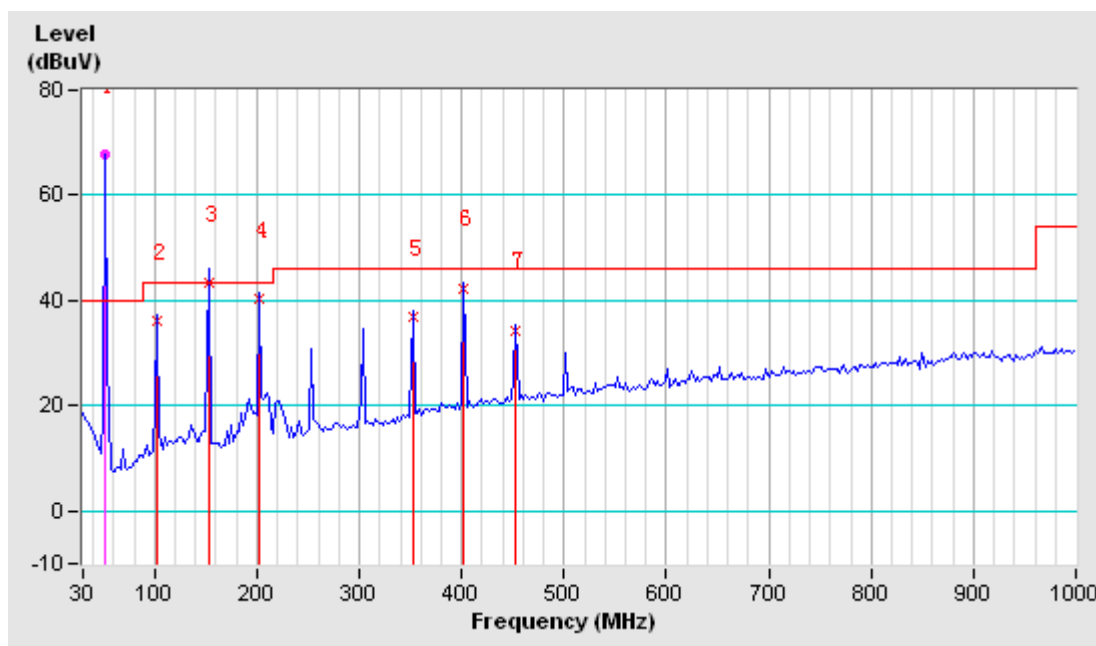
TEST MODE	TX Mode	FREQUENCY RANGE	30-1000MHz
INPUT POWER	DC 9V	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 55% RH, 101.52 kPa	TESTED BY: Madison	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	49.86	67.86	100.00	-32.14	271	329	59.40	8.46
2	49.86	60.26	80.00	-19.74	271	329	-	-
3	99.72 QP	36.17	43.50	-7.33	158	24	24.93	11.24
4	149.58 QP	43.26	43.50	-0.24	170	74	30.43	12.83
5	199.44 QP	40.48	43.50	-3.02	213	106	30.28	10.20
6	349.02 QP	36.96	46.00	-9.04	326	192	19.61	17.35
7	398.88 QP	42.43	46.00	-3.57	275	153	23.32	19.11
8	448.74 QP	34.40	46.00	-11.60	294	258	13.98	20.42

REMARKS: The emission levels of other frequencies were very low against the limit.

“*” : Fundamental





3.2.7 TEST RESULTS

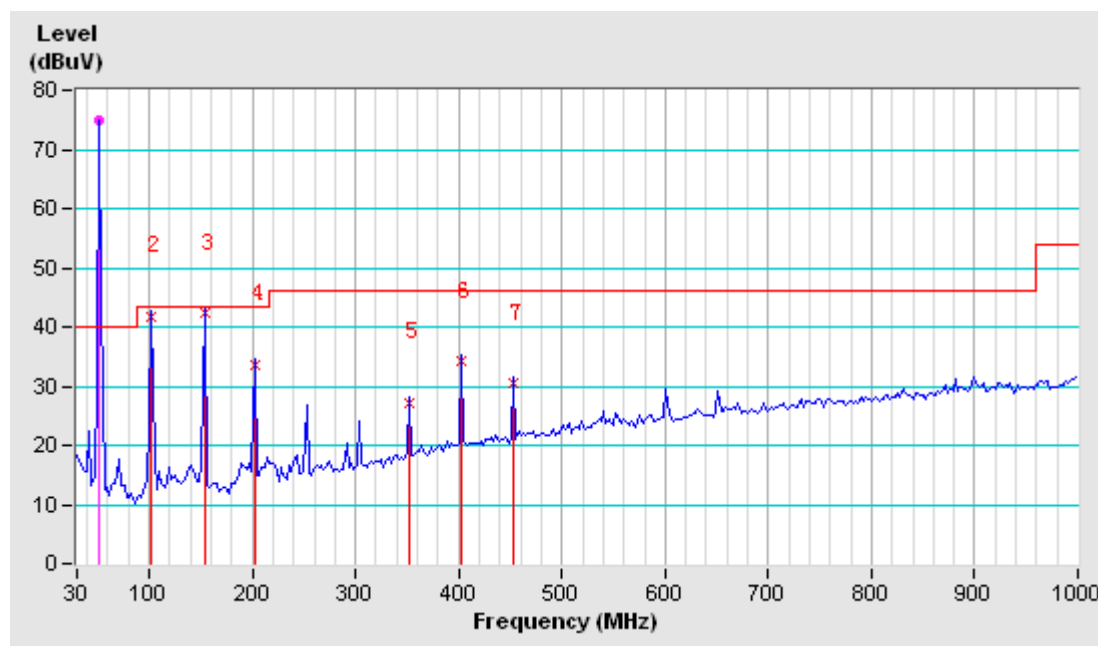
TEST MODE	TX Mode	FREQUENCY RANGE	30-1000MHz
INPUT POWER	DC 9V	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 55% RH, 101.52 kPa	TESTED BY: Madison	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	49.86	75.08 PK	100.00	-24.92	105	92	66.62	8.46
2	49.86	67.48 AV	80.00	-12.52	105	92	-	-
3	99.72 QP	41.71	43.50	-1.79	231	120	30.47	11.24
4	149.58 QP	42.26	43.50	-1.24	262	323	29.43	12.83
5	199.44 QP	33.66	43.50	-9.84	166	322	23.46	10.20
6	349.02 QP	27.26	46.00	-18.74	165	202	9.91	17.35
7	398.88 QP	34.14	46.00	-11.86	123	291	15.03	19.11
8	448.74 QP	30.39	46.00	-15.61	107	245	9.97	20.42

REMARKS: The emission levels of other frequencies were very low against the limit.

“*” : Fundamental





3.3 26DB BANDWIDTH OF FUNDAMENTAL EMISSION

3.3.1 LIMITS FOR 26DB BANDWIDTH OF FUNDAMENTAL EMISSION:

FREQUENCY (MHz)	26dB Bandwidth	Limits
	[KHz]	[MHz]
49.86	88.22 kHz	within 49.82-49.90

3.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Rohde & Schwarz	ESPI	100302	May 31,11	May 31,12

NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA and NIM/CHINA.
2. The test was performed in Shielded Room 20.

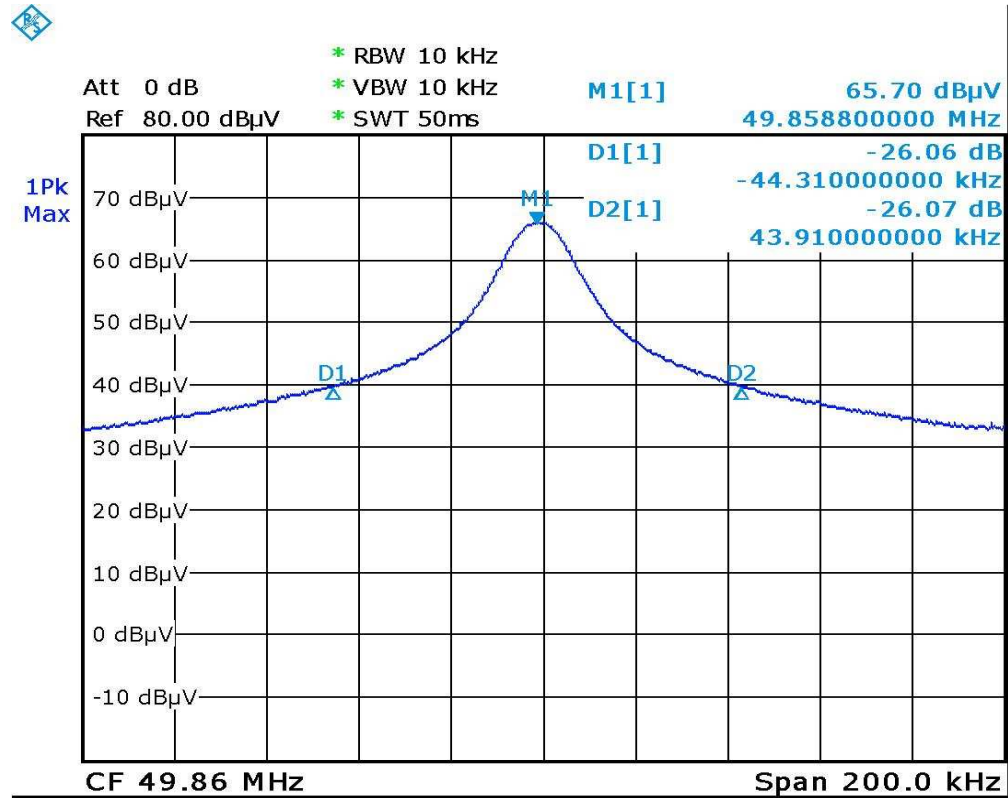
3.3.3 TEST PROCEDURE

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.



3.3.4 TEST RESULTS

Test Result of 26dB Bandwidth of Fundamental Emission: PASS



**3.4 DUTY CYCLE CORRECTION DURING 100MSEC:**

Each function key sends a different series of characters, but each packet period(100msec) never exceeds a series of 2 long (3.2msec) and 39 short(0.9msec).

Assuming any combination of short or long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered
(2x3.2msec) +(39x0.9msec) per 100msec=41.5% duty cycle. Figure A and E show the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction = $20\text{Log}(0.415) = -7.6\text{dB}$

The following figures [Figure A to Figure D] show the characteristics of the pulse train for one of these functions.



3.4.1 TEST RESULTS

Figure A

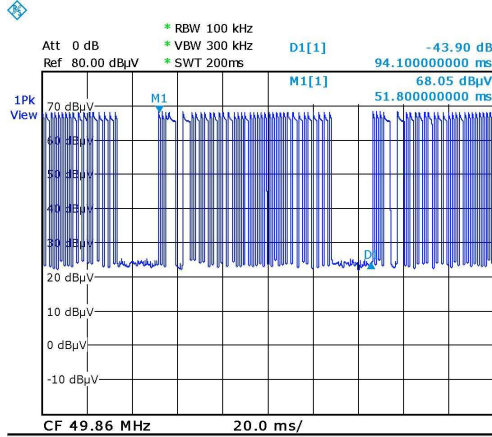


Figure B

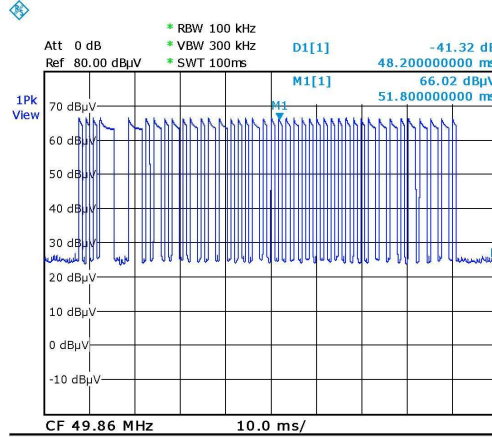


Figure C

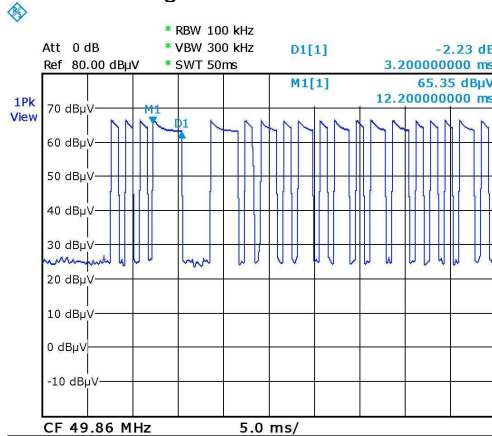
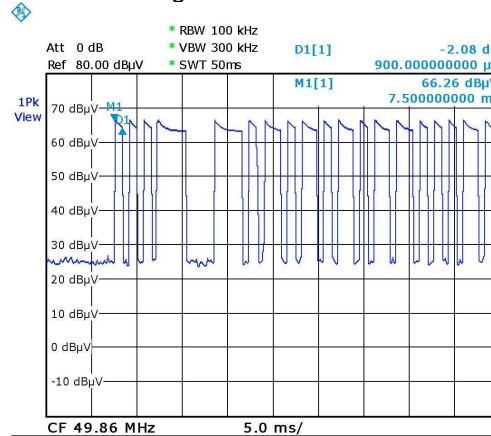


Figure D





Test Report No:FC110719N030

FCC ID:ZSYJXD76499972Q

4 PHOTOGRAPHS OF TEST CONFIGURATION

Please see test setup photo file.

5 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

---END---