EMC
TEST REPORT

Report No.: EME-040386
Model No.: 226CH
Issued Date: May 21, 2004

Applicant: **CHENGHAI MEIJIAXIN PLASTIC CEMEMT TOYS CO., LTD.**
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Summary of Tests

Wireless toy car -Model: 226CH
FCC ID: R6Q226CH

Test	Reference	Results
Field strength of fundamental frequency	15.227(a)	Complies
Radiated emission	15.227(b), 15.209	Complies

1. General information

1.1 Identification of the EUT

Applicant:	CHENGHAI MEIJIAXIN PLASTIC CEMEMT TOYS CO., LTD.
Product:	Wireless toy car
Model No.:	226CH
FCC ID.:	R6Q226CH
Frequency Range:	27.14MHz
Channel Number:	1 channel
Type of Modulation:	AM
Power Supply:	Tx: 9Vdc Rx: 12Vdc
Power Cord:	N/A
Sample Received:	Apr. 28, 2004
Test Date(s):	May 13, 2004 ~ May 20, 2004

1.2 Additional information about the EUT

The EUT is a Wireless toy car, and was defined as information technology equipment.

We verified that 0927CH and 0956CH are series models to 226CH(EUT), for these models are identical in hardware aspect, and the different are in enclosure shape and trade name listed below.

Trade Name	Model Number
TORNADO	226CH
CONQUEROR	0956CH
MOMENTAM	0927CH

For more detail features, please refer to User's manual as file name “Installation guide.pdf”

1.3 Antenna description

The EUT uses a permanently connected antenna.

Antenna Gain:	0dBi max
Antenna Type:	Monopole antenna
Connector Type:	N/A

2. Test specifications

2.1 Test standard

The EUT was performed according to the procedures in FCC Part 15 Subpart C Paragraph 15.227.

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band were all meet limit requirement, thus we evaluate the EUT pass the specified test.

2.2 Operation mode

During all of the tests, the transmitter was operated in transmitting continuously, and the receiver was operated in normal operation mode.

After verifying three steups of transmitter, we found the worst case was occurred at setup2. The final test was excute under this condition and recorded in this report.

2.3 Test equipment

Equipment	Brand	Frequency range	Model No.	Series No.	Last Cal.Date
EMI Test Receiver	Rohde & Schwarz	20Hz~26.5GHz	ESMI	825428/005	June 24, 2003
Bilog Antenna	SCHWARZBECK	25MHz~1.7GHz	VULB 9160	VULB 9160-3133	Feb. 21, 2004
Turn Table	HDGmbH	N/A	DS 420S	420/669/01	N/A
Antenna Tower	HDGmbH	N/A	MA 240	240/573	N/A

Note: The above equipments are within the valid calibration period.

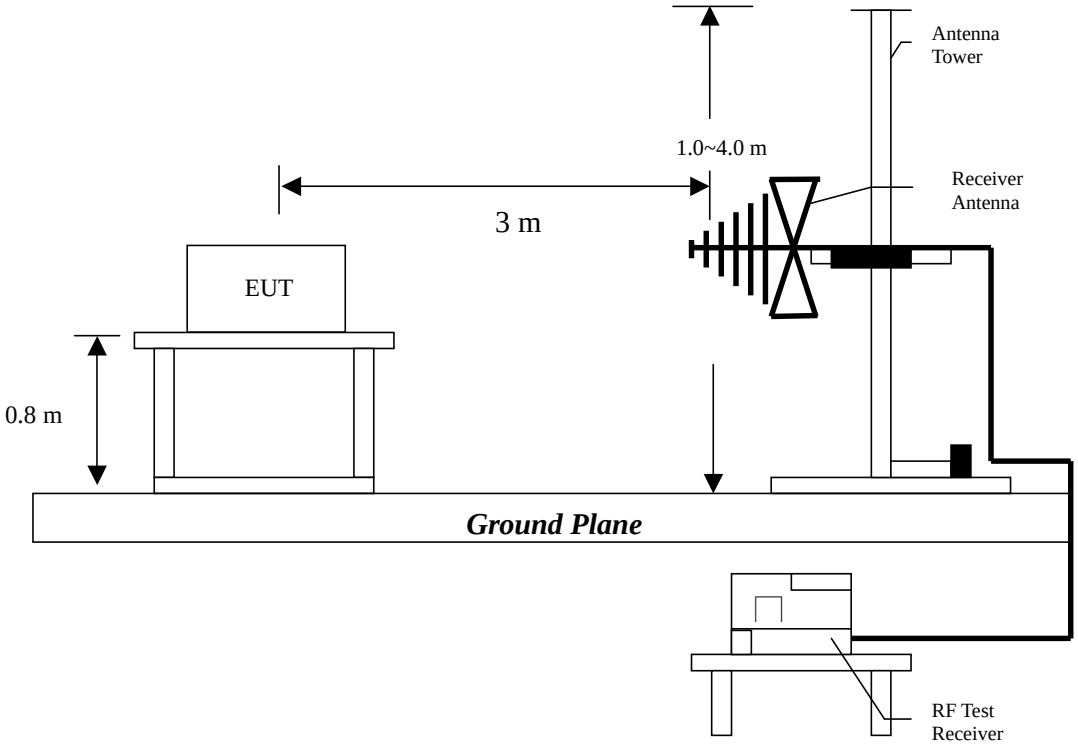
3. Radiated emission test FCC 15.227 (a)/(b)

3.1 Operating environment

Temperature:	22	℃	(10-40℃)
Relative Humidity:	52	%	(10-90%)
Atmospheric Pressure	1023	hPa	(860-1060hPa)

3.2 Test setup & procedure

The Diagram below shows the test setup, which is utilized to make these measurements.



Radiated emissions were invested cover the frequency range from 30MHz to 1000MHz using a receiver RBW of 120kHz record QP reading, and the frequency over 1GHz using a spectrum analyzer RBW of 1MHz and 10Hz VBW record Average reading. (15.209 paragraph), the Peak reading (1MHz RBW/VBW) recorded also on the report.
The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

Setup 1

Setup 2

Setup 3

The EUT configuration please refer to the "Spurious set-up photo.pdf".

3.3 Emission limit

3.3.1 Fundamental and harmonics emission limits

Frequency (MHz)	Field Strength of Fundamental	
	(uV/m@3m)	(dBuV/m@3m)
26.96-27.28	10000	80

The emission limit above is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.

3.3.2 General radiated emission limits

Frequency MHz	15.209 Limits (dB μ V/m@3m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Remark:
1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring antenna and the closed point of any part of the device or system

Uncertainty was calculated in accordance with NAMAS NIS 81.
Expanded uncertainty (k=2) of radiated emission measurement is ±4.98 dB.

3.4 Radiated emission test data

3.4.1 Fundamental Radiated Emission Data

EUT : 226CH
Test Unit : Tx
Worst Case Condition : Setup 2
Antenna Length : Full extend

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
27.140	PK	V	12.92	35.09	48.01	100.00	-51.99	100	299
27.140	AV	V	12.92	34.91	47.83	80.00	-32.17	100	299
27.140	PK	H	12.92	36.72	49.64	100.00	-50.36	240	360
27.140	AV	H	12.92	36.51	49.43	80.00	-30.57	240	360

Remark:
1.Corrected Level = Reading Level + Correction Factor
2.Correction Factor = Antenna Factor + Cable Loss

3.4.2 Spurious Radiated Emission Data

EUT : 226CH
Test Unit : Tx
Worst Case Condition : Setup 2
Antenna Length : Full extend

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
162.870	QP	V	14.68	12.14	26.82	43.50	-16.68	100	213
190.030	QP	V	13.39	11.55	24.94	43.50	-18.56	141	258
217.240	QP	V	12.13	9.98	22.11	46.00	-23.89	124	21
244.290	QP	V	12.52	14.57	27.09	46.00	-18.91	121	311
271.440	QP	V	13.16	8.83	21.99	46.00	-24.01	100	154
325.740	QP	V	14.54	13.98	28.52	46.00	-17.48	107	222
162.860	QP	H	14.68	17.44	32.12	43.50	-11.38	245	194
190.010	QP	H	13.39	22.16	35.55	43.50	-7.95	139	192
217.160	QP	H	12.13	17.34	29.47	46.00	-16.53	100	187
244.300	QP	H	12.52	27.11	39.63	46.00	-6.37	125	193
298.590	QP	H	13.93	18.16	32.09	46.00	-13.91	100	146
325.730	QP	H	14.54	21.77	36.31	46.00	-9.69	100	148

Remark:
1.Corrected Level = Reading Level + Correction Factor
2.Correction Factor = Antenna Factor + Cable Loss

The radiated emissions at

Frequency(MHz)	Margin
592.670	-2.48
586.980	-3.31

are less than uncertainty. This is within the stated measurement uncertainty, this may affect compliance determined in other test arrangements.

EUT : 226CH
Test Unit : Rx
Test Condition : Normal operaion mode

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
176.570	QP	V	14.00	20.91	34.91	43.50	-8.59	114.00	231.00
220.030	QP	V	11.94	17.02	28.96	46.00	-17.04	154.00	253.00
433.540	QP	V	17.27	20.47	37.74	46.00	-8.26	142.00	78.00
592.670	QP	V	20.26	23.26	43.52	46.00	-2.48	100.00	21.00
722.680	QP	V	22.57	11.58	34.15	46.00	-11.85	141.00	252.00
786.130	QP	V	24.09	5.48	29.57	46.00	-16.43	111.00	202.00
175.640	QP	H	14.10	23.58	37.68	43.50	-5.82	187.00	145.00
222.170	QP	H	11.98	26.76	38.74	46.00	-7.26	122.00	174.00
307.540	QP	H	14.12	16.15	30.27	46.00	-15.73	188.00	292.00
459.980	QP	H	17.85	12.86	30.71	46.00	-15.29	177.00	313.00
586.980	QP	H	20.34	22.35	42.69	46.00	-3.31	102.00	287.00
887.730	QP	H	25.14	6.35	31.49	46.00	-14.51	259.00	222.00

Remark:
1.Corrected Level = Reading Level + Correction Factor
2.Correction Factor = Antenna Factor + Cable Loss