TEST REPORT N°: BVCK09AP098MTHS

TEST REPORT

To:	**MAY CHEONG TOY PRODUCTS FACTORY LTD. - TST**	To:	-
Attn:	HUANG HAI YU / JIANGLIJUN / ZHONGCHENG	Attn:	-
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Fax:	(86) 769-87753123	Fax:	-
E-mail:	huanghaiyu@maycheonggroup.cn / jianglijun@maycheonggroup.cn / electcqa@maycheonggroup.cn	E-mail:	-
Offer No.:	BVCK09AP06-01MTHS-A0		
Factory name:	--		
Location:	--		
Product:	**STREET TROOPERS SHADOW-2X** **MODEL: 08148/09003 / Assortment#: 81125**		

Sample No:	(5209) 092-0133
Test date:	April 15, 2009 to April 16, 2009
Test Requested:	FCC Part 15 - 2008
Test Method:	ANSI C63.4 - 2003
FCC ID:	PKG09003RC27

The results given in this report are related to the tested specimen of the described electrical apparatus.

CONCLUSION: The submitted sample was found to COMPLY with requirement of FCC Part 15 Subpart C.

Authorized Signature:

Reviewed by: Eric Wong	Approved by: Steven Tsang
Date: May 12, 2009	Date: May 12, 2009

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Location of the test site

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003. An Open Area Test Site and Full Anechoic Chamber (FCC Listed Site, Registration No. 642151) are set up for investigation and located at :

BUREAU VERITAS HONG KONG LIMITED, EMC CENTRE

No. 2106-2107, 21/F., Westin Centre,
26 Hung To Road,
Kwun Tong, Kowloon,
Hong Kong

List of measuring equipment

Radiated Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCI	100379	18-AUG-2009
HF LOOP ANTENNA	SCHAFFNER	HLA 6120	21728	14-NOV-2009
BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	31-JAN-2010
OPEN AREA TEST SITE	BVCPS	N/A	N/A	05-JULY-2009
ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	09-JULY-2009
HORN ANTENNA	SCHWARZBECK	BBHA9120D	9120D-692	29-JULY-2009
PREAMPLIFIER	SCHWARZBECK	BBV9718	9718-152	22-JULY-2009
COAXIAL CABLE 1-18GHz	SUHNER	N/A	N/A	23-JULY-2009
SPECTRUM ANALYZER	ADVANTEST	R3127	111000909	02-DEC-2009

Conducted Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCS30	830986/030	18-SEP-2009
LISN	R&S	ENV216	100024	25-MAR-2010

Remarks:-
N/A : Not Applicable or Not Available

The measurement instrumentation uncertainty would be taking into consideration on each of the test result

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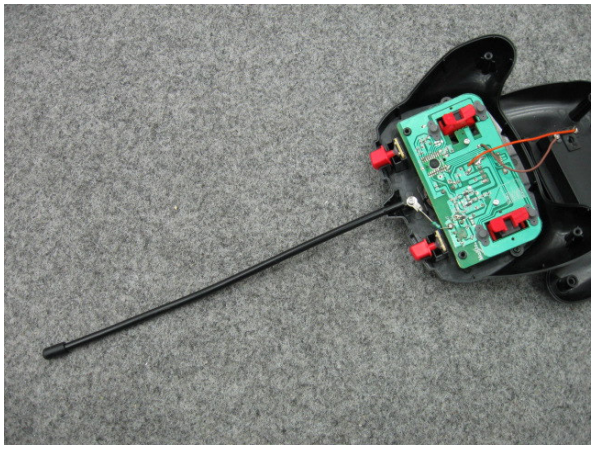
Equipment Under Test [EUT]
Description of Sample:
Model Name: STREET TROOPERS SHADOW-2X
Model Number: 08148/09003 (08148 is receiver and 09003 is transmitter)
Rating: 9Vd.c ("6F22" size battery x 1)

Description of EUT Operation:
The Equipment Under Test (EUT) is a MAY CHEONG TOY PRODUCTS FACTORY LTD.- TST of REMOTE CONTROL toy. The transmitter is 1 button transmitter, 2 switches, 2 sticks and operating at 27.15072MHz. The EUT continues to transmit when sticks is being pressed, Modulation by IC, and type is pulse modulation.
The transmitter has different control:

1. Left stick – Forward or Backward control
2. Right stick – Left or Right control
3. Button – Change style
4. Switch "A/B/C" – Choose A/B/C channel *(Test result of Channel A are recorded.)*
5. Switch "OFF/ON" – Choose OFF/ON to control turn ON or OFF the transmitter

Antenna Requirement (Section 15.203)
The EUT is use of a permanently antenna. The antenna consists of 24.7cm long metal spring covered with rubber. It is soldered on the PCB. The antenna is not replaceable or user serviceable. The requirement of S15.203 are met. There are no deviations or exceptions to the specifications.

Photo of Antenna



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TEST REPORT N°: BVCK09AP098MTHS

Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.227

Test Method: ANSI C63.4

Test Date(s): 2009-04-16

Mode of Operation: Transmission mode (Channel A)
(The transmitter has channel A, B and C. Channel selection in the controller must be paired with the vehicle channel with designated coding and decoding scheme. All transmission frequency and RF power among the channels are same.)

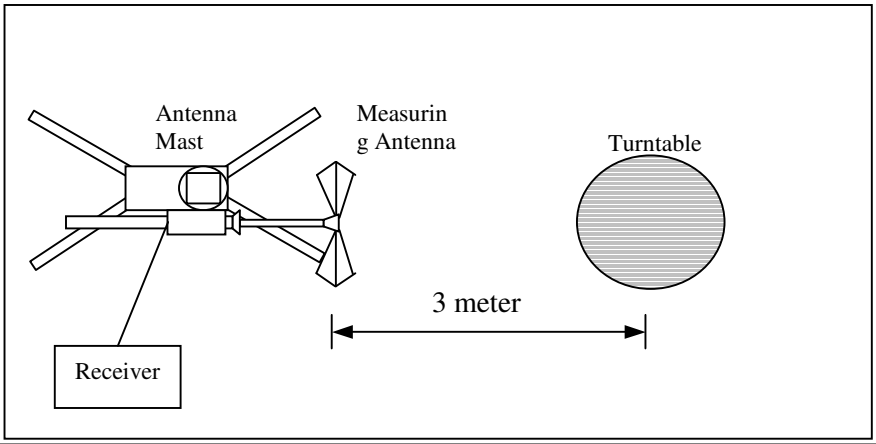
Test Procedure:

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. 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. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

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.

Test Setup: Open Area Test Site



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Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.227]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [μV/m]	Field Strength of Fundamental Emission [Average] [μV/m]
26.96 – 27.28	100,000 (100 dBμV/m)	10,000 (80 dBμV/m)

Measurement Data

Test Result of (Transmission mode): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V) and degree	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
27.151	V/0°	21.8	73.3	100	-26.7

Detection mode: # Average

Frequency (MHz)	Polarity (H/V) and degree	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
27.151	V/0°	21.8	**66.4	80	-13.6

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.
**Duty Cycle Correction = 20Log(0.453) =-6.9dB

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 100KHz
VBW = 300KHz

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TEST REPORT N°: BVCK09AP098MTHS

Radiated Emissions (9kHz – 1GHz)

Test Requirement: FCC Part 15 Section 15.209

Test Method: ANSI C63.4

Test Date(s): 2009-04-16

Mode of Operation: Transmission mode (Channel A)
(The transmitter has channel A, B and C. Channel selection in the controller must be paired with the vehicle channel with designated coding and decoding scheme. All transmission frequency and RF power among the channels are same.)

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [µV/m]
1.705-30	300
30-88	100
88-216	150
216-960	200
Above960	500

Measurement Data

Test Result of (Transmission mode): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
54.302	V	9.3	24.1	40.0	-15.9
81.453	V	10.6	17.3	40.0	-22.7
108.604	V	15.0	21.4	43.5	-22.1
135.755	V	14.9	21.1	43.5	-22.4
162.906	H	14.8	21.0	43.5	-22.5
190.057	V	15.0	21.0	43.5	-22.5
217.208	H	15.9	21.9	46.0	-24.1
244.359	H	17.5	23.6	46.0	-22.4
271.51	H	19.3	25.5	46.0	-20.5
298.661	H	21.0	27.8	46.0	-18.2

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz
VBW = 120KHz

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TEST REPORT N°: BVCK09AP098MTHS

26dB Bandwidth of Fundamental Emission

Test Requirement:	FCC 47 CFR 15.227
Test Method:	ANSI C63.4:2003 (Section 13.1.7)
Test Date:	2009-04-15
Mode of Operation:	Transmission mode

Test Method:

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.

Limits for 26dB Bandwidth of Fundamental Emission:

Frequency [MHz]	26dB Bandwidth [KHz]	Limits [MHz]
27.15072	74.88	within 26.96 – 27.28

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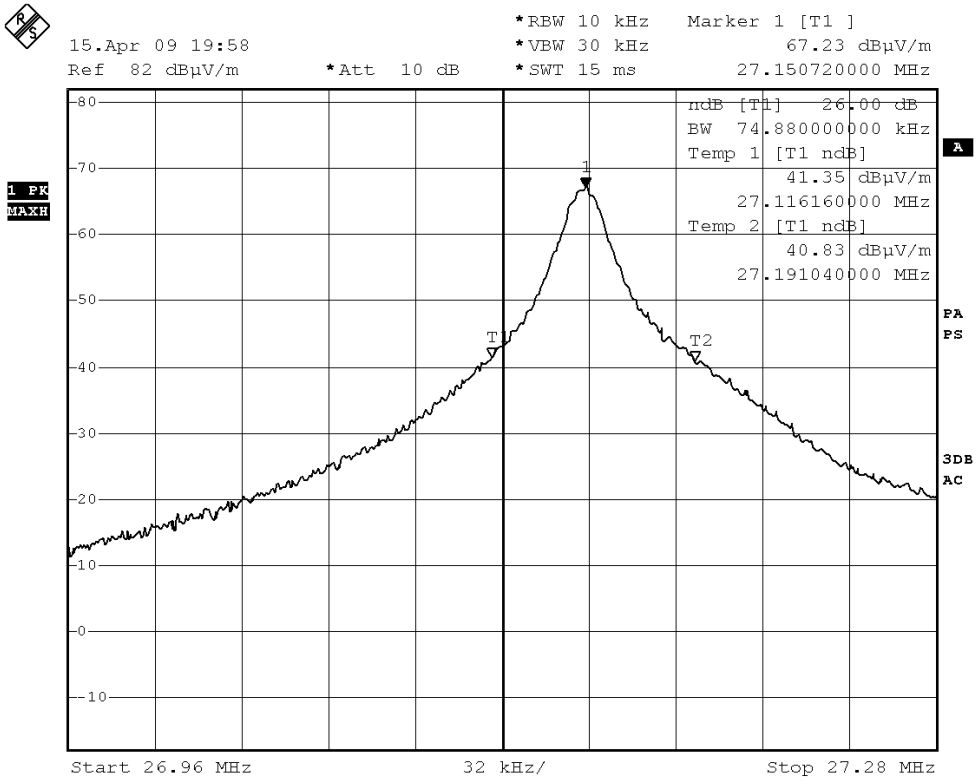
Measurement Data :

Test Result of 26dB Bandwidth of Fundamental Emission: PASS



Date: 15.APR.2009 19:58:13

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Duty Cycle Correction During 100msec:

Each function key sends a different series of characters, but each packet period (98.8msec) never exceeds a series of 7 pulses. Assuming any combination of short or long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered 6.4msec x 7 per 98.8msec=45.3% duty cycle. Figure A through B show the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction = 20Log(0.453) =-6.9dB

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

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Figure A [Pulse Train]

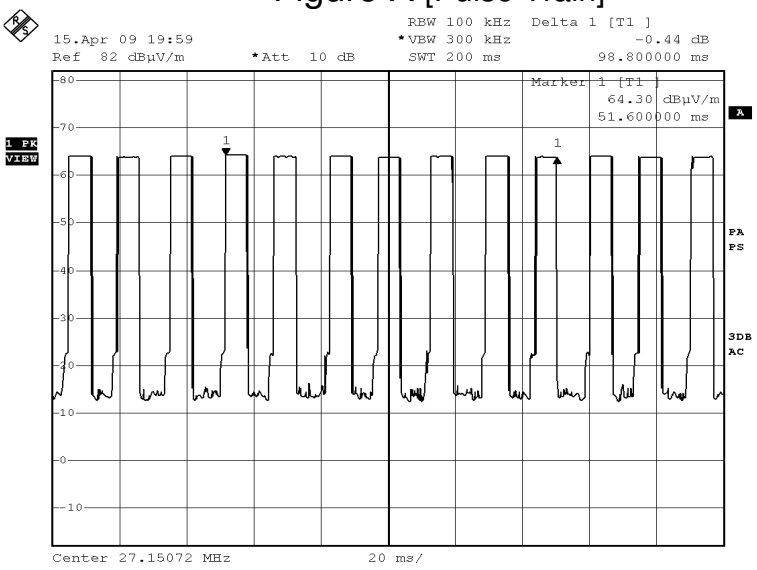

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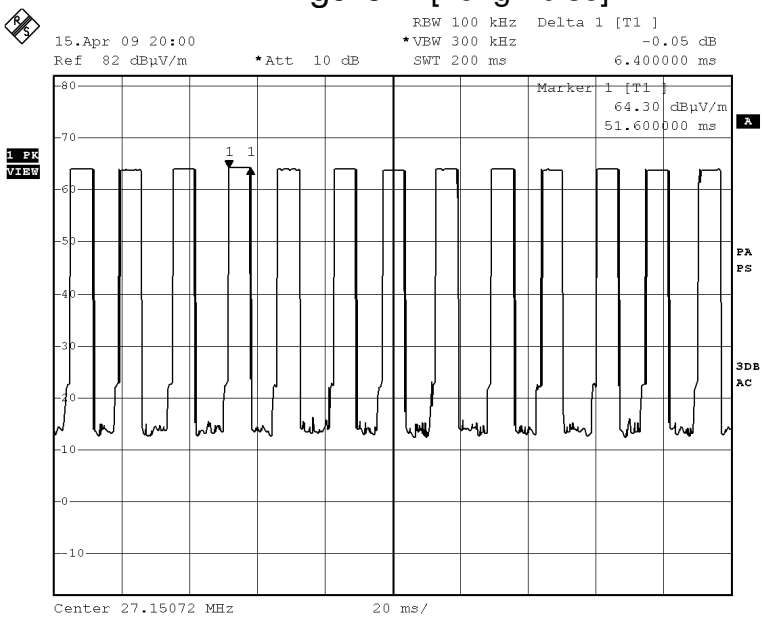
Figure B [Long Pulse]



Date: 15.APR.2009 20:00:10

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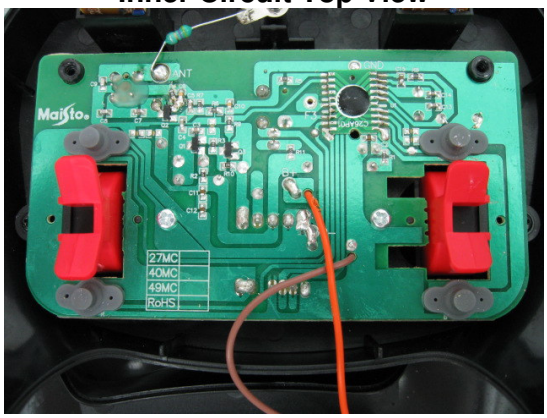
Photographs of EUT

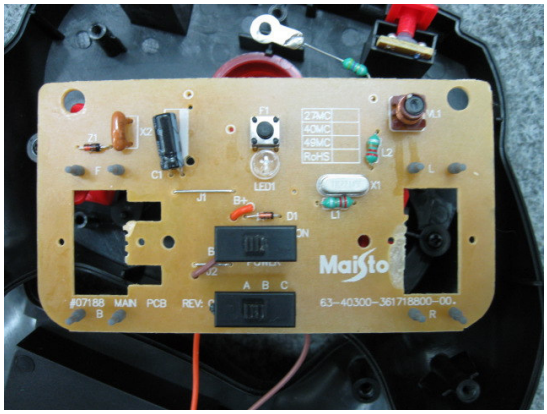
Front View of the product

Rear View of the product

Inner Circuit Top View



Inner Circuit Bottom View



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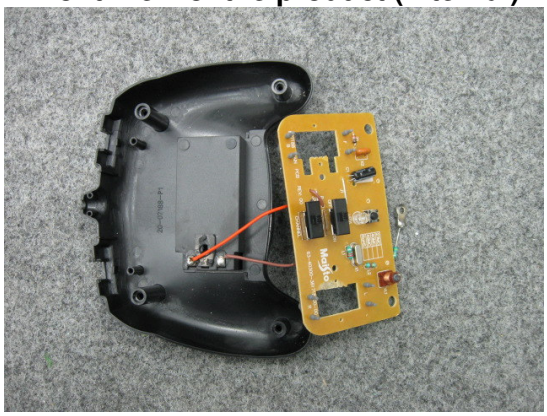
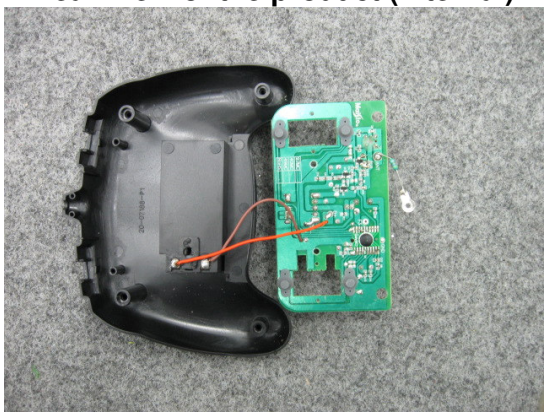
Battery compartment

Battery Cover

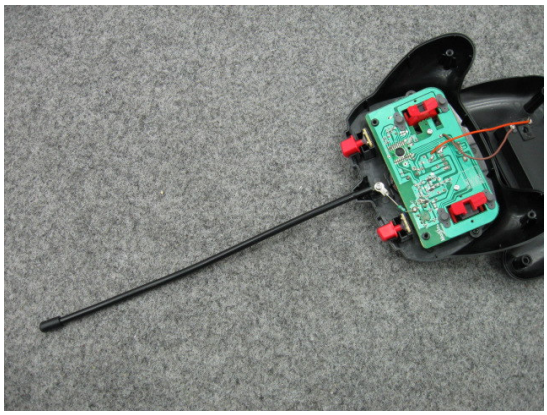
Front View of the product (Internal)



Rear View of the product (Internal)



Antenna



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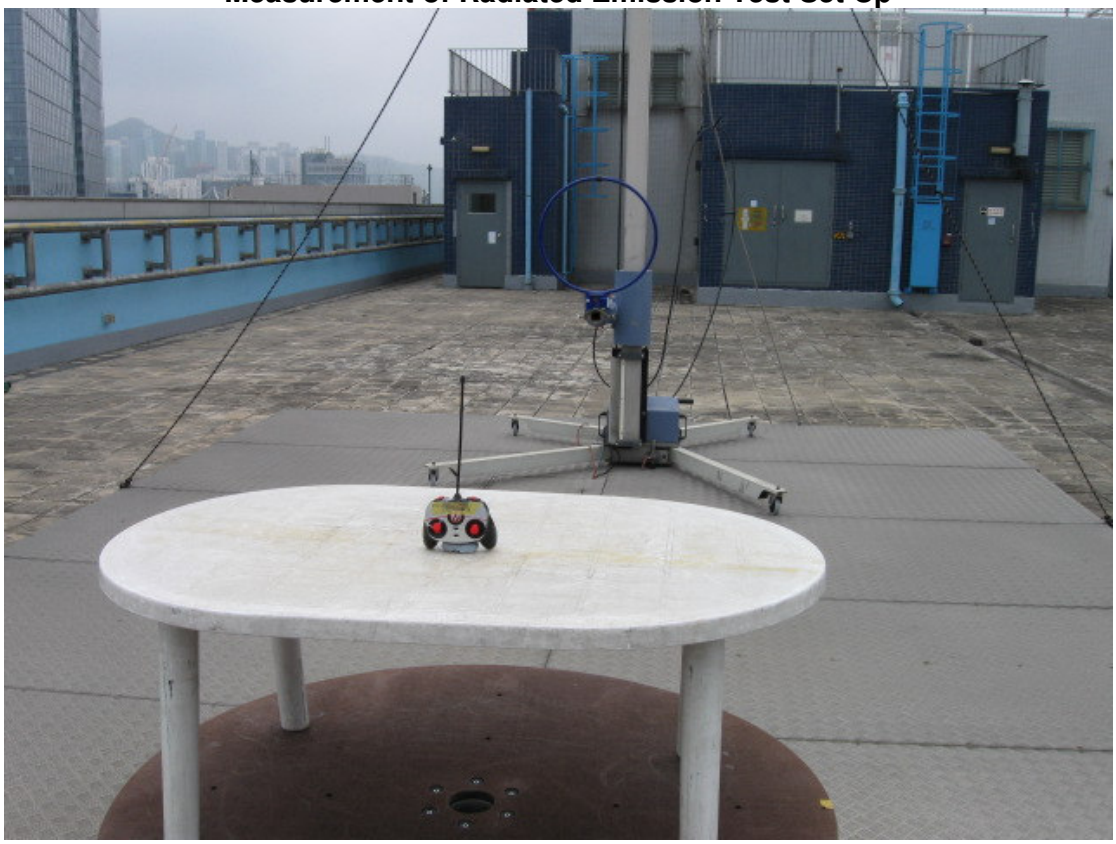
Measurement of Radiated Emission Test Set Up



***** End of Report *****

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