



TEST REPORT N°: BVCK09MA186MTHS-A1

TEST REPORT

To:	JOIN STAR LIMITED	To:	-
Attn:	JESSIE TANG	Attn:	-
Address:	ROOM 1007, 10/F., CHINACHEM GOLDEN PLAZA, 77 MODY ROAD, TSIMSHATSUI EAST, KOWLOON, HONG KONG	Address:	-
Fax:	852-2311-8661	Fax:	-
E-mail:	sales2@joinstarltd.com	E-mail:	-
Offer No.:	BVCK09MA19-02MTHS-A1		

Factory name:	GUAN LAN DOLLYTECH PRODUCTS FACTORY
Location:	--
Product:	RADIO CONTROLLED TRACTOR MODEL: (811, 23828A/B, 23838A/B, 23868A/B, 23888A/B) TCK215086-01

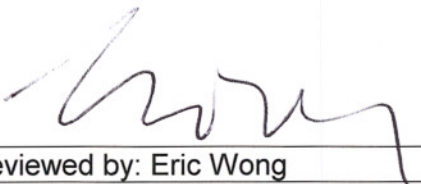
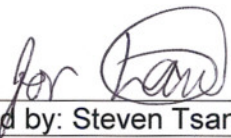


Sample No:	(5209)071-1042 / (5209)097-0631
Test date:	March 23, 2009 to April 23, 2009
Test Requested:	FCC Part 15 - 2008
Test Method:	ANSI C63.4 - 2003
FCC ID:	XCV811RC

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 4, 2009	Date: May 4, 2009

BUREAU VERITAS HONG KONG LIMITED -
Kowloon Bay Office
1/F Pacific Trade Centre,
2 Kai Hing Road, Kowloon Bay,
Kowloon, HONG KONG
Tel: +852 2331 0888
Fax: +852 2331 0889
www.cps.bureauveritas.com

This report is intended 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. Our report is limited to the test samples identified herein. The results set forth in this report are not necessarily indicative or representative of the statistical 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. You shall have thirty days from receipt of this report to request additional testing of the samples or to notify us of any errors or omissions relating to our report, provided, however, 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.



TEST REPORT N°: BVCK09MA186MTHS-A1

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

TEST REPORT N°: BVCK09MA186MTHS-A1

Equipment Under Test [EUT]

Description of Sample:

Model Name: RADIO CONTROLLED TRACTOR
Model Number: (811, 23828A/B, 23838A/B, 23868A/B, 23888A/B) TCK215086-01
Rating: 9Vd.c ("6F22" size battery x 1)

Description of EUT Operation:

The Equipment Under Test (EUT) is a JOIN STAR of Radio Control toy. The transmitter is 2 sticks and 1 switch transmitter and operating at 27.14112MHz. The EUT continues to transmit stick is being pressed, Modulation by IC, and type is pulse modulation.

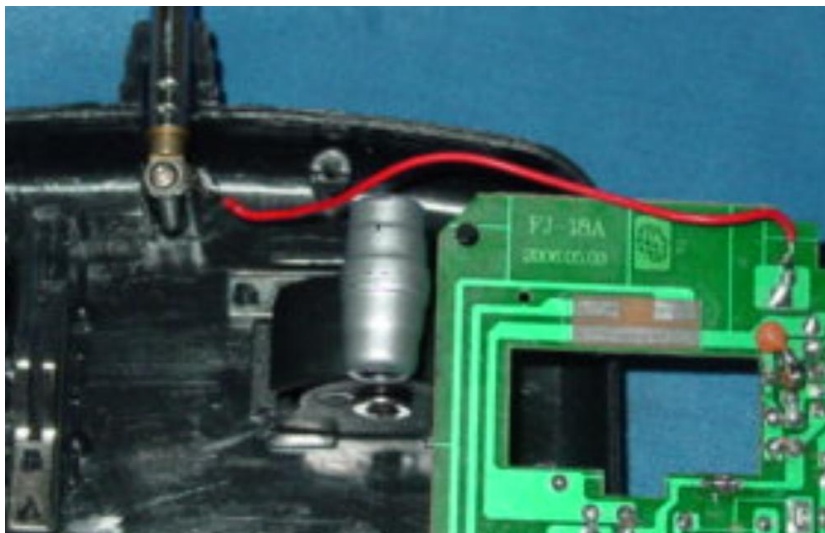
The transmitter has different control:

1. Left stick – Forward or backward control
2. Right stick – Left or right control
3. 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 49cm long metal antenna. 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 Connection



TEST REPORT N°: BVCK09MA186MTHS-A1

Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.227

Test Method: ANSI C63.4

Test Date(s): 2009-04-23

Mode of Operation: Transmission mode

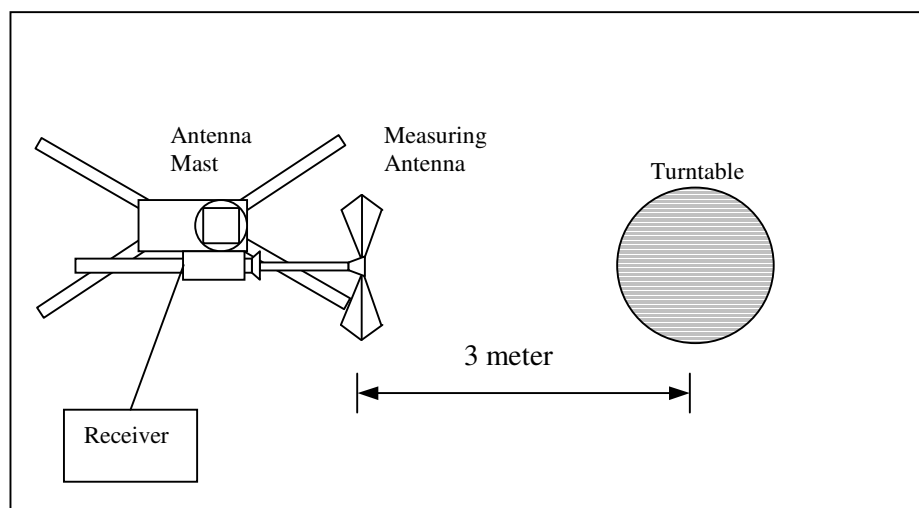
Test Procedure:

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 performed 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 placed 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



TEST REPORT N°: BVCK09MA186MTHS-A1

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)
27.14	V/0°	20.7	77.1	100	-22.9

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)
27.14	V/0°	20.7	**70.8	80	-9.2

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

**Duty Cycle Correction = $20\log(0.485) = -6.3\text{dB}$

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 100KHz
VBW = 300KHz



TEST REPORT N°: BVCK09MA186MTHS-A1

Radiated Emissions (9kHz – 1GHz)

Test Requirement: FCC Part 15 Section 15.209

Test Method: ANSI C63.4

Test Date(s): 2009-04-24

Mode of Operation: **Transmission mode**

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
Above 960	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)
32.72	H	19.5	26.4	40.0	-13.6
54.28	V	5.2	36.0	40.0	-4.0
108.52	H	9.2	29.0	43.5	-14.5
135.68	H	8.5	32.5	43.5	-11.0
162.80	H	7.3	30.5	43.5	-13.0
217.08	V	7.9	27.6	46.0	-18.4
352.72	H	12.4	34.2	46.0	-11.8
890.88	V	20.6	28.7	46.0	-17.3
893.32	V	20.6	29.8	46.0	-16.2
907.72	V	20.9	38.6	46.0	-7.4

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz
VBW = 120KHz



TEST REPORT N°: BVCK09MA186MTHS-A1

26dB Bandwidth of Fundamental Emission

Test Requirement: FCC 47 CFR 15.227
Test Method: ANSI C63.4:2003 (Section 13.1.7)
Test Date: 2009-03-20
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.

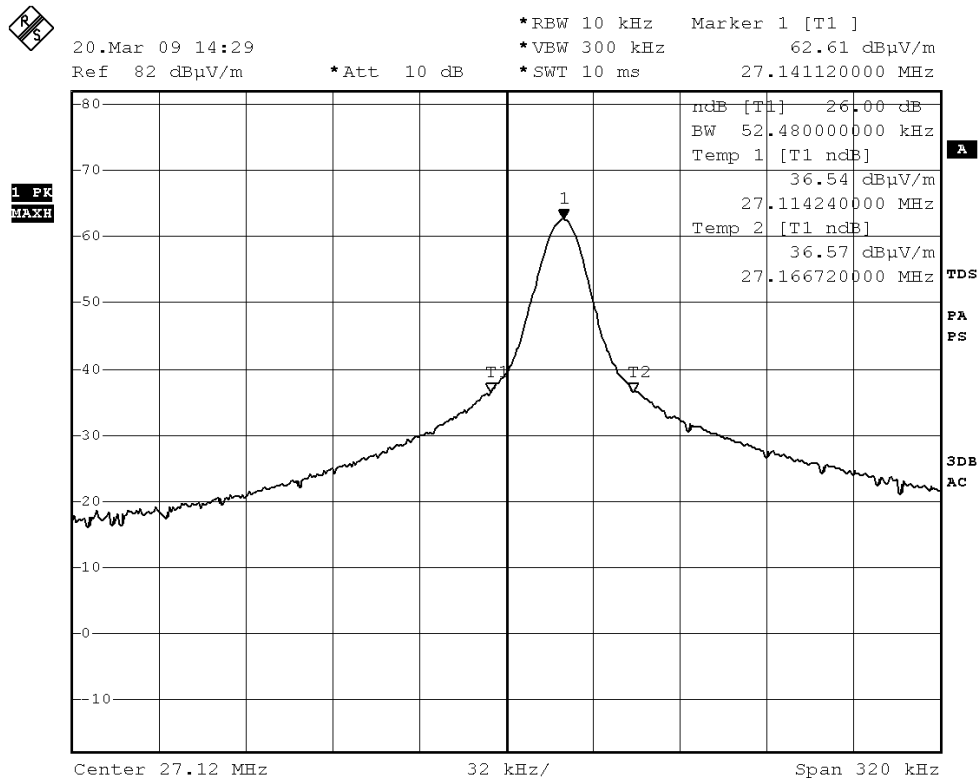
Limits for 26dB Bandwidth of Fundamental Emission:

Frequency [MHz]	26dB Bandwidth [KHz]	Limits [MHz]
27.141	52.48	within 26.96 – 27.28

TEST REPORT N°: BVCK09MA186MTHS-A1

Measurement Data :

Test Result of 26dB Bandwidth of Fundamental Emission: PASS



Date: 20.MAR.2009 14:29:39



TEST REPORT N°: BVCK09MA186MTHS-A1

Duty Cycle Correction During 100msec:

Each function key sends a different series of characters, but each packet period (46.18msec) never exceeds a series of 4 long (2.08msec) and 22 short (0.64msec) pulses. Assuming any combination of short or long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered $(4 \times 2.08\text{msec}) + (22 \times 0.64\text{msec})$ per 46.18msec = 48.5% duty cycle. Figure A and C show the characteristics of the pulse train for one of these functions.

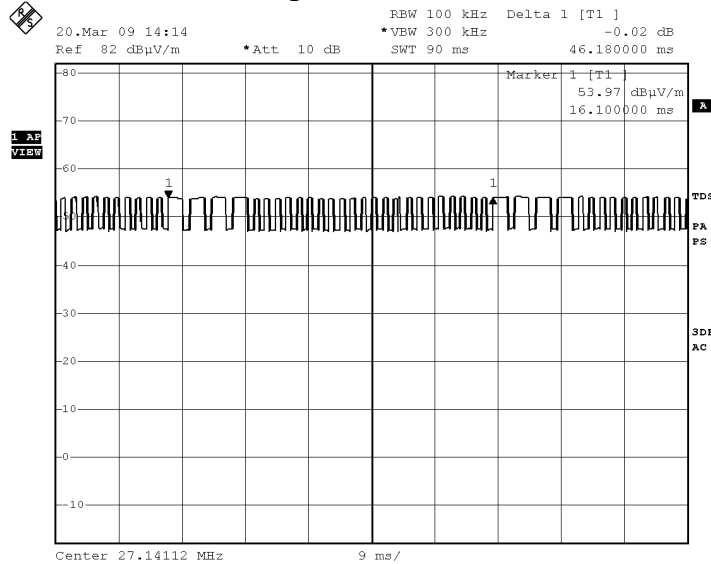
Remarks:

Duty Cycle Correction = $20\text{Log}(0.485) = -6.3\text{dB}$

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

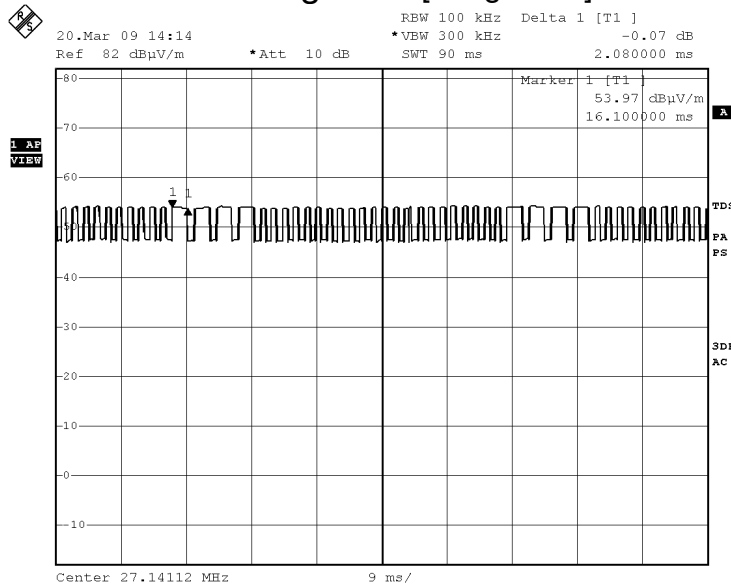
TEST REPORT N°: BVCK09MA186MTHS-A1

Figure A [Pulse Train]



Date: 20.MAR.2009 14:14:36

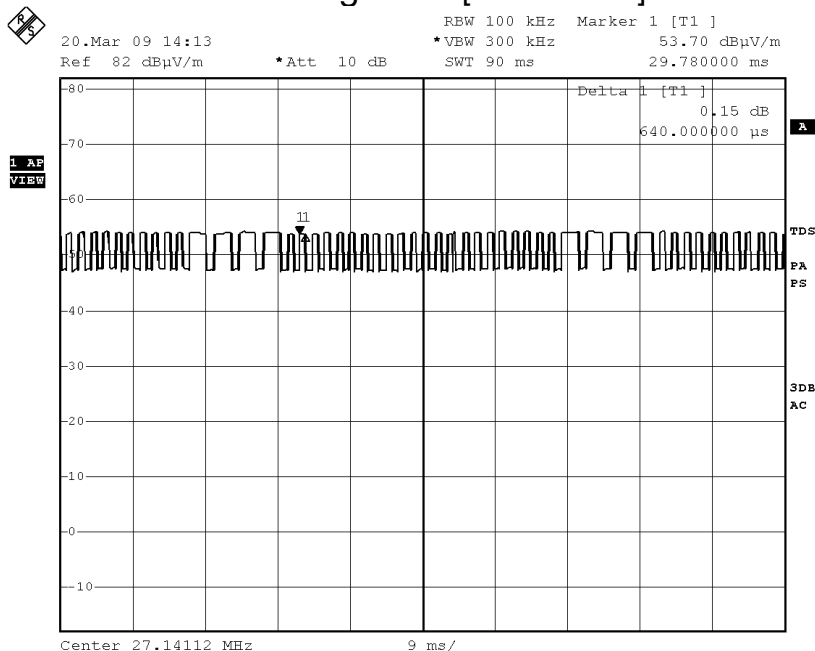
Figure B [Long Train]



Date: 20.MAR.2009 14:14:15

TEST REPORT N°: BVCK09MA186MTHS-A1

Figure C [Short Pulse]



Date: 20.MAR.2009 14:13:45

TEST REPORT N°: BVCK09MA186MTHS-A1

Photographs of EUT

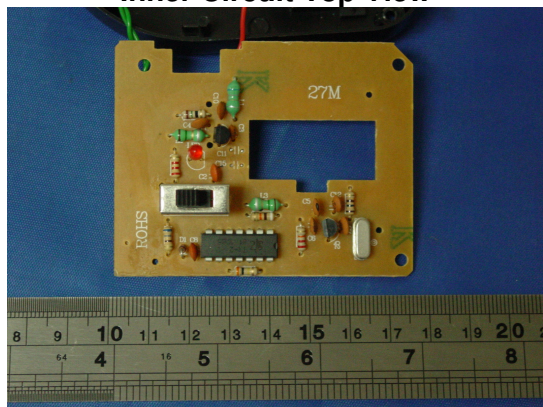
Front View of the product



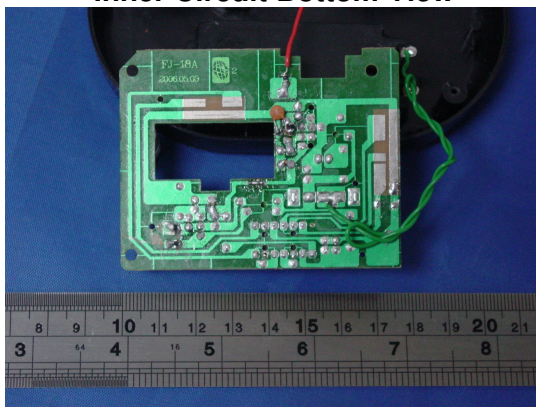
Rear View of the product



Inner Circuit Top View

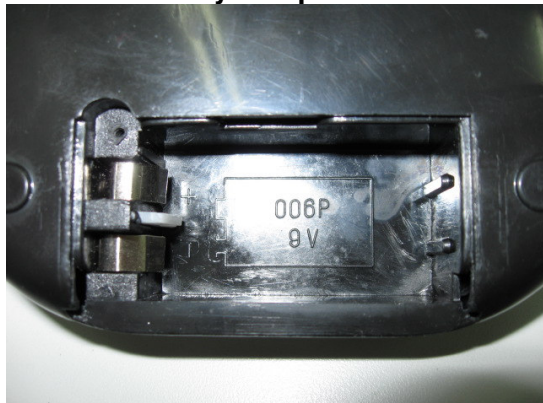


Inner Circuit Bottom View



TEST REPORT N°: BVCK09MA186MTHS-A1

Battery compartment



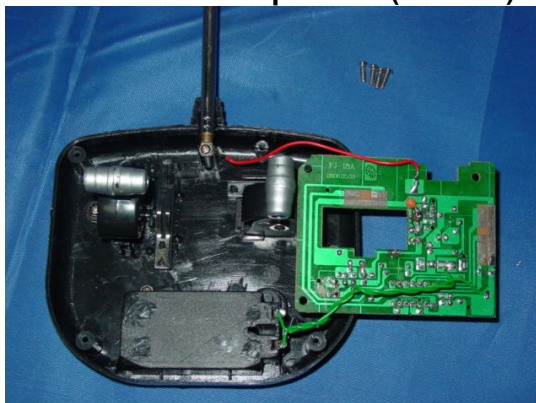
Battery Cover



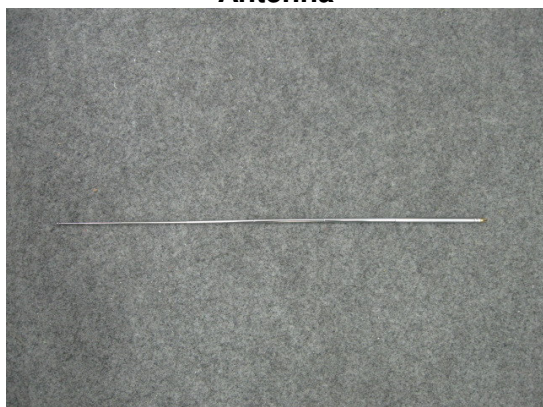
Front View of the product (Internal)



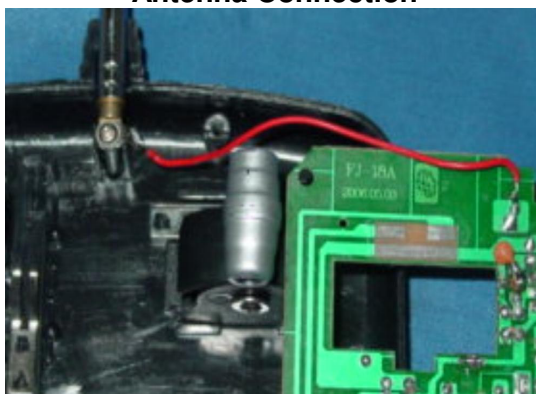
Rear View of the product (Internal)



Antenna



Antenna Connection



TEST REPORT N°: BVCK09MA186MTHS-A1

Measurement of Radiated Emission Test Set Up



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