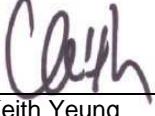




TEST REPORT No.: (5215)187-1697

TEST REPORT

To:	NKOK, INC	
Attn:	LANNY HALIM	
Address:	5354 IRWINDALE AVE, UNIT A, IRWINDALE, CA 91706	
Fax:	--	
E-mail:	testing@nkok.com	
Folder No.:	--	
Factory Name:	--	
Location:	--	
Product:	R/C Rock Crawler Vehicle Model: 81501 Additional Model No.: 81502, 81503, 81504	
		Sample No: (5215)187-1697
		Test Date(s): July 10, 2015
		Test Requested: FCC Part 15 – 2012
		Test Method: ANSI C63.4 – 2009
		FCC ID: XQPNS061649TX
The results given in this report are related to the tested specimen of the described electrical apparatus.		
CONCLUSION: The submitted sample was found to <u>COMPLY</u> with requirement of FCC Part 15 Subpart C.		
Authorized Signature:		
		
Reviewed by: Keith Yeung	Approved by: Law Man Kit	
Date: September 05, 2016	Date: September 05, 2016	

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TEST REPORT No.: (5215)187-1697

Test Result Summary

EMISSION TEST			
Test requirement: FCC Part 15 – 2012	Test Method	Test Result	
		Pass	Failed
Radiated Emission Test, 9kHz to 1GHz	ANSI C63.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Frequency range of Fundamental Emission	ANSI C63.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>
26dB Bandwidth of Fundamental Emission	ANSI C63.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Duty Cycle Correction During 100mesc	ANSI C63.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Report Revision & Sample Re-submit History:

--

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TEST REPORT No.: (5215)187-1697

Test Laboratory & Test Instruments List

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009. 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

Test Instrument List

Radiated Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCI	100379	20-JAN-2016
SIGNAL ANALYZER 40GHZ	R&S	FSV 40	100977	11-MAY-2016
LOOP ANTENNA	ETS-LINDGREN	6502	00102266	19-OCT-2015
BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	02-JAN-2016
OPEN AREA TEST SITE	BVCPS	N/A	N/A	06-JUL-2016
ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	04-FEB-2016
COAXIAL CABLE	SUHNER	RG214	N/A	22-SEP-2015

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 No.: (5215)187-1697

Equipment Under Test [EUT]

Description of Sample:

Model Name: R/C Rock Crawler Vehicle
Model Number: 81501
Additional Model Name: --
Additional Model Number: 81502, 81503, 81504
Additional Model information: Declare the Circuit, PCB layout, Electrical parts and Appearance of the products are identical to the basic model, except the model number for market purpose.
Rating: 3Vd.c. ("AA" size battery x 2)

Description of EUT Operation:

The Equipment Under Test (EUT) is a NKOK, INC of Radio Control toy. The transmitter is 1 wheel and 1 trigger and operating at 49.86MHz. The EUT continues to transmit when trigger is being pressed, Modulation by IC, and type is pulse modulation.

The transmitter has different control:

1. Wheel – control left and right
2. Trigger – control forward and backward

Antenna Requirement (Section 15.203)

The EUT is use of a permanently antenna. The antenna consists of 25.4cm long metal spring covered with rubber. The antenna is not replaceable or user serviceable. The requirements of S15.203 are met. There are no deviations or exceptions to the specifications.

Photo of Antenna





TEST REPORT No.: (5215)187-1697

Test Results

Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.235

Test Method: ANSI C63.4

Test Date(s): 2015-07-10

Temperature: 30.0 °C

Humidity: 72.0 %

Atmospheric Pressure: 100.5 kPa

Mode of Operation: Transmission mode

Tested Voltage: 3Vd.c. ("AA" size battery x 2)

Test Method:

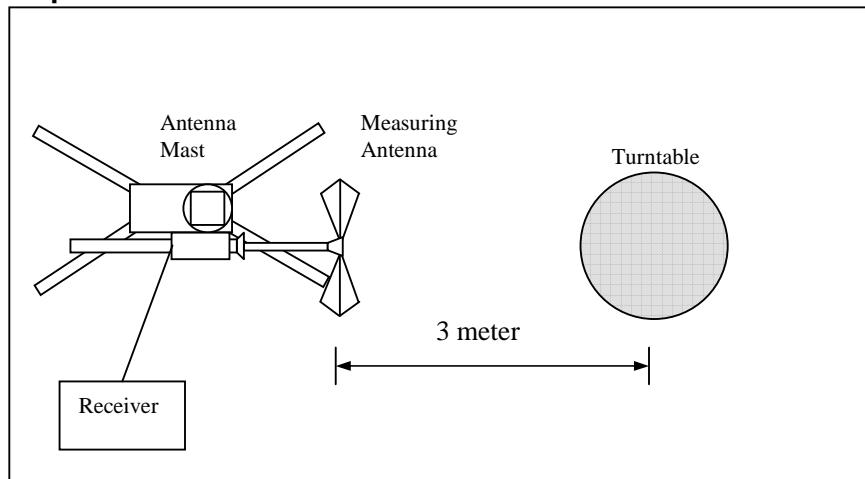
Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009.

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.

Location: The Roof, Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

Test Setup: Open Area Test Site



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TEST REPORT No.: (5215)187-1697

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

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [μ V/m]	Field Strength of Fundamental Emission [Average] [μ V/m]
49.82 – 49.90	100,000 (100 dB μ V/m)	10,000 (80 dB μ V/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 (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
49.86	H	10.0	61.7	100.0	-38.3
49.86	V	10.0	56.8	100.0	-43.2

Detection mode: #Average

Frequency (MHz)	Polarity (H/V) and degree	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
49.86	H	10.0	**57.7	80.0	-22.3
49.86	V	10.0	**52.8	80.0	-27.2

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

**Duty Cycle Correction = $20\log(0.632)$ = -4.0dB

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 100KHz
VBW = 300KHz

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TEST REPORT No.: (5215)187-1697

Radiated Emissions (9kHz – 1GHz)

Test Requirement: FCC Part 15 Section 15.209

Test Method: ANSI C63.4

Test Date(s): 2015-07-10

Temperature: 30.0 °C

Humidity: 72.0 %

Atmospheric Pressure: 100.5 kPa

Mode of Operation: Transmission mode

Tested Voltage: 3Vd.c. ("AA" size battery x 2)

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [µV/m]	Measurement Distance m
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

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TEST REPORT No.: (5215)187-1697

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 (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
99.72	H	12.0	28.9	43.5	-14.6
149.58	H	10.5	24.6	43.5	-18.9
199.44	H	9.8	24.2	43.5	-19.3
249.30	H	13.1	24.6	46.0	-21.4
299.16	H	13.8	25.7	46.0	-20.3
349.02	H	15.8	27.9	46.0	-18.1
398.88	H	17.5	30.2	46.0	-15.8
448.74	H	17.9	30.6	46.0	-15.4
498.60	H	19.1	31.5	46.0	-14.5
548.46	H	20.3	32.2	46.0	-13.8

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
99.72	V	12.0	26.5	43.5	-17.0
149.58	V	10.5	24.8	43.5	-18.7
199.44	V	9.8	23.9	43.5	-19.6
249.30	V	13.1	24.3	46.0	-21.7
299.16	V	13.8	25.8	46.0	-20.2
349.02	V	15.8	26.8	46.0	-19.2
398.88	V	17.5	30.0	46.0	-16.0
448.74	V	17.9	31.4	46.0	-14.6
498.60	V	19.1	31.3	46.0	-14.7
548.46	V	20.3	32.9	46.0	-13.1

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz
VBW = 120KHz

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TEST REPORT No.: (5215)187-1697

26dB Bandwidth of Fundamental Emission

Test Requirement: FCC 47 CFR 15.235

Test Method: ANSI C63.4

Test Date(s): 2015-07-10

Temperature: 30.0 °C

Humidity: 72.0 %

Atmospheric Pressure: 100.5 kPa

Mode of Operation: Transmission mode

Tested Voltage: 3Vd.c. ("AA" size battery x 2)

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]
49.8616	33.0	within 49.82-49.90

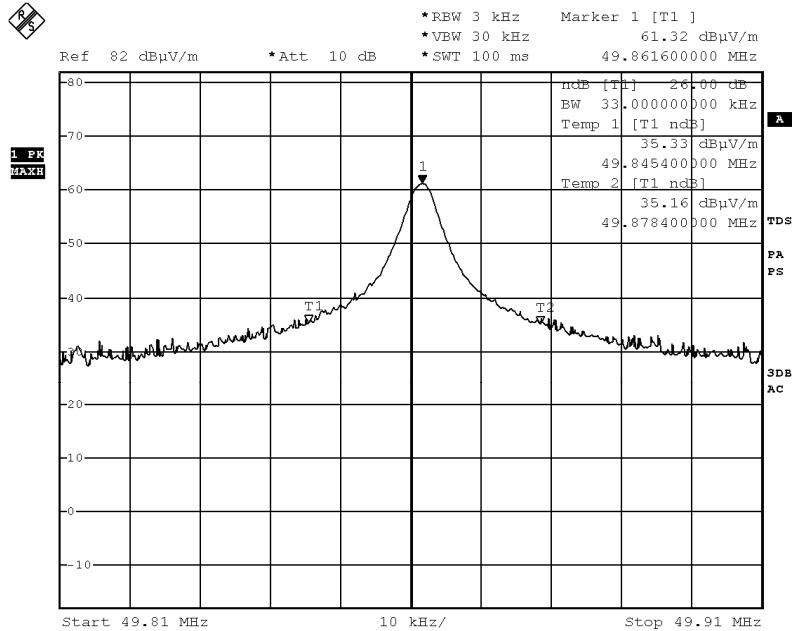


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TEST REPORT No.: (5215)187-1697

Measurement Data

Test Result of 26dB Bandwidth of Fundamental Emission: PASS



Date: 10.JUL.2015 10:30:52

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TEST REPORT No.: (5215)187-1697

Duty Cycle Correction During 100msec:

Each function key sends a different series of characters, but each packet period (100msec) never exceeds a series of 20 long (1.6msec) and 52 short (0.6msec) pulses. Assuming any combination of short and long pulses maybe obtained due to encoding the worst case transmit duty cycle would be considered $(20 \times 1.6\text{msec}) + (52 \times 0.6\text{msec})$ per 100msec = 63.2% duty cycle. Figure A through B shows the characteristics of the pulse train for one of these functions.

Remarks: -

Duty Cycle Correction = $20\text{Log}(0.632) = -4.0\text{dB}$

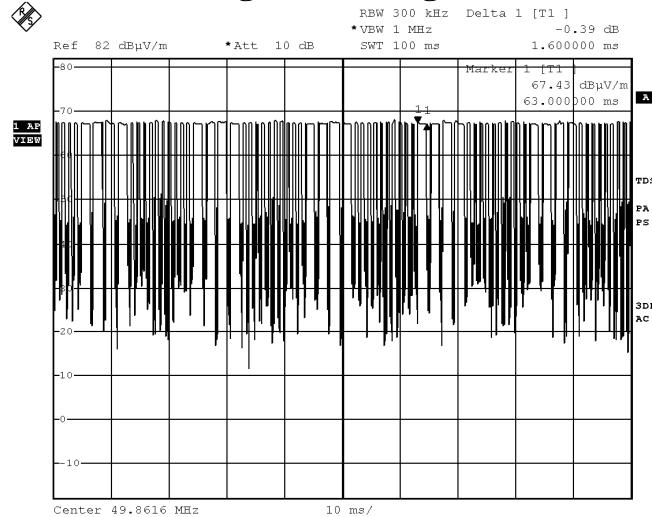
The following figures (Figure A to Figure B) show the characteristics of the pulse train for one of these functions.



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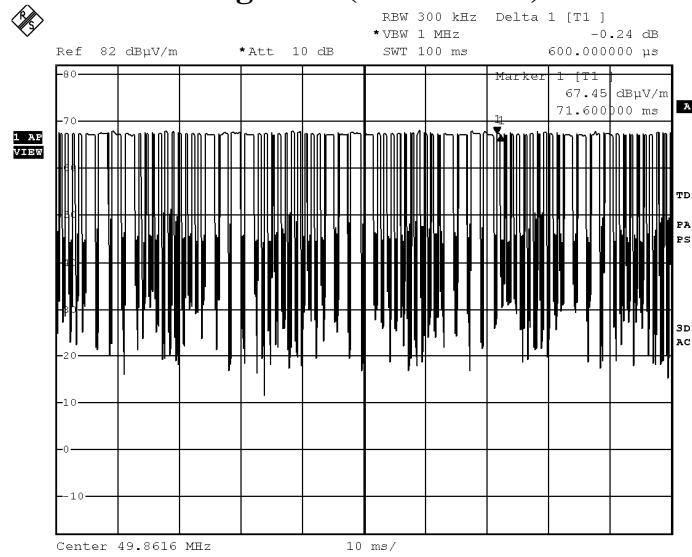
TEST REPORT No.: (5215)187-1697

Figure A (Long Pulse)



Date: 10.JUL.2015 10:34:20

Figure B (Short Pulse)



Date: 10.JUL.2015 10:34:40

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TEST REPORT No.: (5215)187-1697

Photographs of EUT



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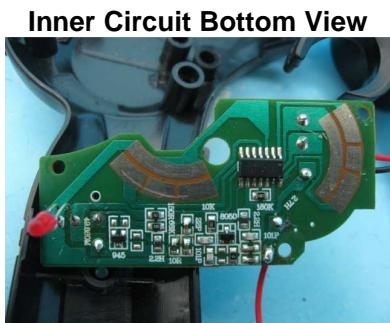
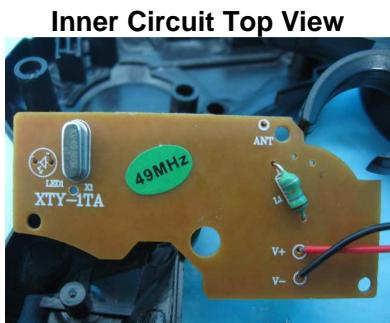
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TEST REPORT No.: (5215)187-1697

Photographs of EUT





TEST REPORT No.: (5215)187-1697

Measurement of Radiated Emission Test Set Up



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

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