

FCC Part15, Subpart B ICES-003

TEST REPORT

For

TOY Receiver

MODEL NUMBER: 3717UB

FCC ID: G6D3717UB

REPORT NUMBER: 4789413573

ISSUE DATE: March 24, 2020

Prepared for

NEW BRIGHT INDUSTRIAL CO., LTD 9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD, KOWLOON BAY, KOWLOON,HONG KONG.

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch

Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China

> Tel: +86 769 22038881 Fax: +86 769 33244054 Website: www.ul.com

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	03/24/2020	Initial Issue	



Summary of Test Results							
Standard	Result	Remark					
ECC Part15, Subpart B	Conducted Disturbance	Class B	PASS				
ANSI C63.4-2014	Radiated Disturbance below 1 GHz	Class B	PASS				
ICES-003 Issue 6	Radiated Disturbance above 1 GHz	Class B	PASS				

Note:

(1) "N/A" denotes test is not applicable in this Test Report

(2) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less.

(3) This test report is only published to and used by the applicant, and it is not for evidence purpose in China.



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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	NEW BRIGHT INDUSTRIAL CO., LTD
Address:	9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD,
	KOWLOON BAY, KOWLOON,HONG KONG.
Manufacturer Information	
Company Name:	NEW BRIGHT INDUSTRIAL CO., LTD
Address:	9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD,
	KOWLOON BAY, KOWLOON,HONG KONG.
EUT Information	
EUT Name:	TOY Receiver
Model:	3717UB
Sample Status:	Normal
Sample ID:	2945735

Sample Status.	Nomai
Sample ID:	2945735
Sample Received Date:	March 12, 2020
Date of Tested:	March 13, 2020 ~ March 20, 2020

APPLICABLE STANDARDS				
STANDARDS TEST RESULTS				
FCC Part15, Subpart B ANSI C63.4-2014 ICES-003 Issue 6	FCC Part15, Subpart B ANSI C63.4-2014 PASS ICES-003 Issue 6			

Prepared By:

Checked By:

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Andy Xiong Project Engineer Associate

Approved By:

Theretuo

Stephen Guo Laboratory Manager

Shawn Wen Laboratory Leader

2. TEST METHODOLOGY

All tests were performed in accordance with the standard FCC Part15 Subpart B & ANSI C63.4-2014 and ICES-003 Issue 6.

3. FACILITIES AND ACCREDITATION

	A2LA (Certificate No.: 4102.01)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	has been assessed and proved to be in compliance with A2LA.
	FCC (FCC Recognized No.: CN1187)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	Has been recognized to perform compliance testing on equipment subject to
	the Commission's Declaration of Conformity (DoC) and Certification rules
	ISED(Company No.: 21320)
Accreditation	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Certificate	has been registered and fully described in a report filed with
	Industry Canada. The Company Number is 21320.
	VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	has been assessed and proved to be in compliance with VCCI, the
	Membership No. is 3793.
	Facility Name:
	Chamber D, the VCCI registration No. is G-20019 and R-20004
	Shielding Room B, the VCCI registration No. is C-20012 and T-20011

Note: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China.



4. CALIBRATION AND UNCERTAINTY

4.1. Measuring Instrument Calibration

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Measurement Frequency Range	к	U(dB)		
Conducted emissions from the AC mains power ports	0.009MHz ~ 0.15MHz	2	4.00		
Conducted emissions from the AC mains power ports	0.15MHz ~ 30MHz	2	3.62		
Radiated emissions	30MHz ~ 1GHz	2	4.00		
Radiated emissions	1GHz ~ 18GHz	2	5.78		
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.					

5. EQUIPMENT UNDER TEST

5.1. Description of EUT

EUT Name	TOY Receiver
Model	3717UB
Rated Input	DC 5V
Battery	DC 6.4V

5.2. Test Mode

Test Mode	Description
Mode 1	Charging
Mode 2	Running
Mode 3	Receiving

5.3. EUT Accessory

Item	tem Accessory Brand Name		Model Name	Description	
1	Controller	NEW BRIGHT	N/A	N/A	



5.4. Support Units or Accessories for System Test

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Specification	Series No.
1	Adapter	HUAWEI	HW-050200C01	Input: AC 100-240V 50/60Hz, 0.5A Output: DC 5V/2A	B78559KA622330

The following cables were used to form a representative test configuration during the tests.

Item	Type of cable	Shielded Type	Ferrite Core	Specification
/	/	/	/	/



6. MEASURING EQUIPMENT AND SOFTWARE USED

Conducted Emissions								
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date			
EMI Test Receiver	R&S	ESR3	101961	Dec. 5, 2019	Dec. 5, 2020			
Two-Line V- Network	R&S	ENV216	101983	Dec. 5, 2019	Dec. 5, 2020			
		So	ftware					
[Description		Manufacturer	Name	Version			
Test Software	for Conducted	Emissions	Farad	EZ-EMC	Ver. UL-3A1			
Radiated Emissions								
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date			
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec. 6, 2019	Dec. 6, 2020			
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Sept. 17, 2018	Sept. 17, 2021			
Preamplifier	HP	8447D	2944A09099	Dec. 5, 2019	Dec. 5, 2020			
EMI Measurement Receiver	R&S	ESR26	101377	Dec. 05, 2019	Dec. 05, 2020			
Horn Antenna	TDK	HRN-0118	130939	Sept. 17, 2018	Sept. 17, 2021			
Preamplifier	TDK	PA-02-0118	TRS-305- 00067	Dec. 05, 2019	Dec. 05, 2020			
High Pass Filter	Wi	WHKX10- 2700-3000- 18000-40SS	23	Dec. 05, 2019	Dec. 05, 2020			



7. EMISSION TEST

7.1. Conducted Disturbance Measurement

7.1.1. Limits of conducted disturbance voltage

FREQUENCY	Class A	(dBµV)	Class B (dBµV)			
(MHz)	Quasi-peak	Average	Quasi-peak	Average		
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46*		
0.50 -5.0	73.00	60.00	56.00	46.00		
5.0 -30.0	73.00	60.00	60.00	50.00		

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

7.1.2. Test Procedure

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. LISN at least 80 cm from nearest part of EUT chassis.
- d. For the actual test configuration, please refer to the related Item: Photographs of Test Configuration.



7.1.3. Test Setup



For the actual test configuration, please refer to Appendix I: Photographs of Test Configuration.

7.1.4. Test Environment

Temperature:	23°C
Humidity:	58%
ATM pressure:	101kPa

7.1.5. Test Mode

Pre-test Mode:	Mode 1
Final Test Mode:	Mode 1



7.1.6. Test Results

Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1753	34.01	9.61	43.62	64.71	-21.09	QP
2	0.1753	18.45	9.61	28.06	54.71	-26.65	AVG
3	0.3096	19.85	9.60	29.45	59.98	-30.53	QP
4	0.3096	1.75	9.60	11.35	49.98	-38.63	AVG
5	0.5089	28.22	9.60	37.82	56.00	-18.18	QP
6	0.5089	24.18	9.60	33.78	46.00	-12.22	AVG
7	1.1217	13.52	9.61	23.13	56.00	-32.87	QP
8	1.1217	10.09	9.61	19.70	46.00	-26.30	AVG
9	4.1927	8.69	9.66	18.35	56.00	-37.65	QP
10	4.1927	4.99	9.66	14.65	46.00	-31.35	AVG
11	11.4012	6.19	9.77	15.96	60.00	-44.04	QP
12	11.4012	0.28	9.77	10.05	50.00	-39.95	AVG

Remark:

Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor) Margin = Result - Limit

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Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz



140.	rrequeitcy	Reading	Concor	Result	Luur	margin	Kennark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1917	31.51	9.60	41.11	63.96	-22.85	QP
2	0.1917	16.92	9.60	26.52	53.96	-27.44	AVG
3	0.5089	26.34	9.60	35.94	56.00	-20.06	QP
4	0.5089	24.42	9.60	34.02	46.00	-11.98	AVG
5	1.0858	10.68	9.61	20.29	56.00	-35.71	QP
6	1.0858	9.15	9.61	18.76	46.00	-27.24	AVG
7	2.1903	11.13	9.63	20.76	56.00	-35.24	QP
8	2.1903	7.29	9.63	16.92	46.00	-29.08	AVG
9	6.8934	5.48	9.71	15.19	60.00	-44.81	QP
10	6.8934	1.62	9.71	11.33	50.00	-38.67	AVG
11	15.8063	-0.57	9.95	9.38	60.00	-50.62	QP
12	15.8063	-3.92	9.95	6.03	50.00	-43.97	AVG

Remark:

Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor) Margin = Result - Limit



7.2. Radiated Disturbance Measurement

7.2.1. Limits of radiated disturbance measurement

Below 1 GHz

Measurement Method and Applied Limits: ANSI C63.4:

Frequency		Class B	
(MHz)	Field strength (uV/m) (at 10m)	Field strength (dBuV/m) (at 3m)	Field strength (dBuV/m) (at 3m)
30 - 88	90	49.5	40
88 - 216	150	53.9	43.5
216 - 960	210	56.9	46
Above 960	300	60	54

Above 1 GHz Measurement Method and Applied Limits: ANSI C63.4:

Frequency (MHz)	Class A				Class B		
	(dBuV/m	(dBuV/m) (at 3m) (dBuV/m) (at) (at 10m)	(dBuV/m) (at 3m)		
	Peak	Average	Peak	Average	Peak	Average	
Above 1000	80	60	69.5	49.5	74	54	

Frequency Range of Radiated Disturbance Measurement

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

NOTE:

- (1) The limit for radiated test was performed according to FCC Part 15, Subpart B;
- (2) The tighter limit applies at the band edges;
- (3) Emission level (dBuV/m) = 20log Emission level (uV/m),

3m Emission level = 10m Emission level + 20log(10m/3m);



7.2.2. Test setup and procedure

Below 1G and above 30MHz



The setting of the spectrum analyser

RBW	120K
VBW	300K
Sweep	Auto
Detector	Peak and QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.4-2014.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp was used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80cm above ground.

4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

5. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

6. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

Above 1G



The setting of the spectrum analyser

RBW	1M
VBW	3M
Sweep	Auto
Detector	Peak: Peak AVG: RMS
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.4-2014.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80cm above ground.

4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

5. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

6. For measurement above 1GHz, the peak emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the peak limit specified in Section 15.109. If peak result complies with average limit, average result is deemed to comply with average limit.

7. The average emission measurement will be measured by the RMS detector and must comply with the average limit specified in Section 15.109.



7.2.3. Test Environment

Radiated Disturbance - below 1 GHz		Radiated Disturbance - above 1 GHz	
Temperature:	24°C	Temperature:	24.5°C
Humidity:	65%	Humidity:	56%
ATM pressure:	101kPa	ATM pressure:	101kPa

7.2.4. Test Mode

Radiated Disturbance - below 1 GHz		Radiated Disturbance - above 1 GHz	
Pre-test Mode:	Mode 1 - Mode 3	Pre-test Mode:	Mode 1 - Mode 3
Final Test Mode:	Mode 1 - Mode 3	Final Test Mode:	Mode 2 & Mode 3

Note: All test modes have been tested, but only the worst case data recorded in the report.



7.2.5. Test Results - below 1GHz

Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz



Remark:

Result = Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)

Margin = Result - Limit



Test Mode: Mode 1 Test Voltage: AC 120V/60Hz



Remark:



Test Mode: Mode 2 DC 6.4V Test Voltage:



Remark:

Result = Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)

Margin = Result - Limit



Test Mode:Mode 2Test Voltage:DC 6.4V



Remark:



Test Mode:Mode 3Test Voltage:DC 6.4V



Remark:



 Test Mode:
 Mode 3

 Test Voltage:
 DC 6.4V



Remark:



7.2.6. Test Results – above 1GHz

Test Mode:	Mode 2
Test Voltage:	DC 6.4V



Note: 1. Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)

2. Margin = Result - Limit

3. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

4. Peak: Peak detector.

5. AVG: RMS detector.



Test Mode: Mode 2 Test Voltage: DC 6.4V



Note: 1. Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)

2. Margin = Result - Limit

3. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

4. Peak: Peak detector.

5. AVG: RMS detector.



 Test Mode:
 Mode 2

 Test Voltage:
 DC 6.4V



Note: 1. Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)

2. Margin = Result - Limit

3. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

4. Peak: Peak detector.

5. AVG: RMS detector.

6. The high pass filter loss factor already add into the correct factor.

7. Proper operation of the transmitter prior to adding the filter to the measurement chain.



Test Mode: Mode 2 Test Voltage: DC 6.4V



Note: 1. Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)

2. Margin = Result - Limit

3. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

4. Peak: Peak detector.

5. AVG: RMS detector.

6. The high pass filter loss factor already add into the correct factor.

7. Proper operation of the transmitter prior to adding the filter to the measurement chain.



Test Mode:Mode 3Test Voltage:DC 6.4V



Note: 1. Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor) 2. Margin = Result - Limit

3. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

4. Peak: Peak detector.

5. AVG: RMS detector.



Test Mode: Mode 3 Test Voltage: DC 6.4V



Note: 1. Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)

2. Margin = Result - Limit

3. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

4. Peak: Peak detector.

5. AVG: RMS detector.



 Test Mode:
 Mode 3

 Test Voltage:
 DC 6.4V



Note: 1. Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)

2. Margin = Result - Limit

3. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

4. Peak: Peak detector.

5. AVG: RMS detector.

6. The high pass filter loss factor already add into the correct factor.

7. Proper operation of the transmitter prior to adding the filter to the measurement chain.



Test Mode:Mode 3Test Voltage:DC 6.4V



Note: 1. Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor)

2. Margin = Result - Limit

3. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

4. Peak: Peak detector.

5. AVG: RMS detector.

6. The high pass filter loss factor already add into the correct factor.

7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

END OF REPORT