



BUREAU
VERITAS

TEST REPORT NUMBER: (8523)067-0096(A)(REVISION)

TEST REPORT

Applicant:	New Bright Industrial Co., Ltd	Fax:	---
		E-mail:	---
Address :	New Bright Building 11 Sheung Yuet Road, Kowloon Bay, Kowloon,Hongkong		
Test Date :	2023-3-15 to 2023-3-17		

Manufacturer or Supplier :	New Bright Industrial Co., Ltd
Address :	New Bright Building 11 Sheung Yuet Road, Kowloon Bay, Kowloon,Hongkong
Sample Description:	Toy Transmitter
Model number:	G31H
Additional Model :	G32H, G33H, 2036H
Rated Voltage:	DC3V (AA*2)
FCC ID :	G6D31HN
IC :	9650A-31HN

The submitted sample of the above equipment has been tested according to following standard(s)

47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
RSS-102 Issue 5 March 2015

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Assistant Manager

Name: Nick Lung

Date: APR 20,2023

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2 General Information

2.1 Client Information

Applicant:	New Bright Industrial Co., Ltd
Address of Applicant:	New Bright Building 11 Sheung Yuet Road, Kowloon Bay, Kowloon,Hongkong
Manufacturer:	New Bright Industrial Co., Ltd
Address of Manufacturer:	New Bright Building 11 Sheung Yuet Road, Kowloon Bay, Kowloon,Hongkong

2.2 General Description of EUT

Name:	Toy Transmitter
Tset Model No.:	G31H
Serial No:	G32H, G33H, 2036H
Trade Mark :	N/A
Software Version:	V1.2
Hardware Version:	V2.1
Frequency Range:	2410-2473MHz
Modulation Type:	GFSK
Number of Channels:	32
Sample Type:	Portable product
Antenna Type:	PCB Trace
Antenna Gain:	-3.34dBi



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3 SAR Evaluation

3.1 IC RF Exposure Compliance Requirement

3.1.1 Standard Requirement

IC:According to RSS-102 Issue 5 March 2015

2.5.1 Exemption Limits for Routine Evaluation – SAR Evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1.

FCC:

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

3.1.2 Limits

FCC:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

f(GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion



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IC:

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance^{4,5}

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

Remakr: If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.



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3.1.3 EUT RF Exposure

Measurement Data

IC:

$$e_{irp} = p_t \times g_t = (E \times d)^2 / 30$$

where:

p_t = transmitter output power in watts,

g_t = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, $10^{((dB\mu V/m)/20)/10^6}$,

d = measurement distance in meters (m)---3m,

$$\text{So } p_t = (E \times d)^2 / 30 / g_t$$

The worst case refer to report (8523)067-0096 is below:

Antenna polarization: Horizontal		
Frequency (GHz)	Level (dB μ V/m)	Value
2.473	91.34	Peak

For 2473MHz:

Field strength = 91.34dB μ V/m @3m

Ant. gain -3.34dBi; so Ant numeric gain=0.463

$$\text{So } p_t = \{ [10^{(91.34/20)} / 10^6 \times 3]^2 / 30 / 0.463 \} \times 1000 \text{mW} = 0.881 \text{mW}$$

0.881mW < 4.0mW

So the SAR test is not required.



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2.473	91.34	Peak

For 2473MHz:

Field strength = 91.34dB μ V/m @3m

Ant. gain -3.34dBi; so Ant numeric gain=0.463

So $pt = \{ [10^{(91.34/20)} / 10^6 \times 3]^2 / 30 / 0.463 \} \times 1000 \text{mW} = 0.881 \text{mW}$

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot \sqrt{f(\text{GHz})} \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g

Calculated value = $0.881 / 5 \cdot \sqrt{2.473} = 0.277 < 3$

So the SAR test is not required.