RF Exposure Evaluation Report

Product	:	projector
Trade mark	:	万播/wanbo
Model/Type reference	:	X1, X2, X3, X5, WB-TX1, WB-TX2, WB-TX3, WB-TX5, X1 Pro, X2 Pro, X3 pro, X5 pro, X1 Max, X2 max, X3 max, X5 max, X1R, X1Rmax, X2Rmax, X3Rmax, T1, T2, T3, T4, T5, T1max, T2max, T3max, T4max, T5max, T2Rmax, T3Rmax, Mini, F1, F2, F3, F6, F8
Serial Number	:	N/A
Report Number	:	EED32N80174402
FCC ID	:	2APZF-WB20210401
Date of Issue	:	Dec. 16, 2021
Test Standards	:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Test result	:	PASS

Prepared for:

Shenzhen Wanbo Technology Co., Ltd.
C502, BC Building, Gaoxinqi Industry Park,
District 67, Xingdong Community,
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Prepared by:

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Date: Dec. 16, 2021

Check No.:2241310321

2 Version

Version No.	Date	Description
00	Dec. 16, 2021	Original

3 Contents

4 General Information

4.1 Client Information

Applicant:	Shenzhen Wanbo Technology Co., Ltd.
Address of Applicant:	C502, BC Building, Gaoxinqi Industry Park, District 67, Xingdong Community, Xin'an Street, Baoan Area, Shenzhen
Manufacturer:	Shenzhen Wanbo Technology Co., Ltd.
Address of Manufacturer:	C502, BC Building, Gaoxinqi Industry Park, District 67, Xingdong Community, Xin'an Street, Baoan Area, Shenzhen
Factory:	Hongying Technology (Shenzhen) Co., Ltd
Address of Factory:	201, building 3, factory building, 23 jinhuwan Industrial Park, 930 dashuikeng community, Fucheng street, Longhua District, Shenzhen

4.2 General Description of EUT

Product Name:	projector
Model No.:	X1, X2, X3, X5, WB-TX1, WB-TX2, WB-TX3, WB-TX5, X1 Pro, X2 Pro, X3 pro, X5 pro, X1 Max, X2 max, X3 max, X5 max, X1R, X1Rmax, X2Rmax, X3Rmax, T1, T2, T3, T4, T5, T1max, T2max, T3max, T4max, T5max, T2Rmax, T3Rmax, Mini, F1, F2, F3, F6, F8
Test model:	X2
Trade Mark:	万播/wanbo
EUT Supports Radios application:	IEEE 802.11b/g/n(HT20 and HT40): 2412MHz to 2462MHz

4.3 Product Specification subjective to this standard

Frequency Range:	IEEE 802.11b/g/n(HT20 and HT40): 2412MHz to 2462MHz
Modulation Type:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM,QPSK,BPSK)
Test Power Grade:	Default
Test Software of EUT:	SecureCRTPortable
Antenna Type:	Internal antenna
Antenna Gain:	2.88dBi
Power Supply:	AC 100-240V~ 50/60Hz
Max Conducted Peak Output Power:	14.27dBm The Max Conducted Peak Output Power data refer to the report EED32N80174401
Sample Received Date:	Mar. 31, 2021
Sample tested Date:	Mar. 31, 2021 to Apr. 24, 2021
Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified. Model No.: X1, X2, X3, X5, WB-TX1, WB-TX2, WB-TX3, WB-TX5, X1 Pro, X2 Pro, X3 pro, X5 pro, X1 Max, X2 max, X3 max, X5 max, X1R, X1Rmax, X2Rmax, X3Rmax, T1, T2, T3, T4, T5, T1max, T2max, T3max, T4max, T5max, T2Rmax, T3Rmax, Mini, F1, F2, F3, F6, F8. Only the model X2 was tested, Other models compared with X2, all parts of the product, Their electrical circuit design, layout, components used and internal wiring are identical, except only the model name different.	

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ **Equation 1**

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm^2

5.2 Maximum Permissible Exposure

Substituting the MPE safe distance using d = 20 cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm^2

2.4G WIFI

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
6	2437	19.588	2.88	20	0.0112	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
1	2412	26.73	2.88	20	0.0153	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
1	2412	22.90867	2.88	20	0.0131	1

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
9	2452	18.745	2.88	20	0.0107	1

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80174401 for EUT external and internal photos.

*** End of Report ***