

ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.

MPE ASSESSMENT REPORT

Report Type:

FCC MPE assessment report

Model:

8812CU3

REPORT NUMBER:

220102160SHA-003

ISSUE DATE:

April 21, 2022

DOCUMENT CONTROL NUMBER:

TTRFFCCMPE-01_V1 © 2018 Intertek





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Report no.: 220102160SHA-003

Applicant: ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.

No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China

Manufacturer: ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.

No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China

FCC ID: SVN-R8812AF

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06 FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

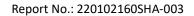
PREPARED BY:

REVIEWED BY:

Project Engineer Reviewer

Sky Yang Wakeyou Wang

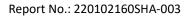
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Revision History

Report No.	Version	Description	Issued Date
220102160SHA-003	Rev. 01	Initial issue of report	April 21, 2022





1 GENERAL INFORMATION

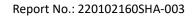
1.1 Description of Equipment Under Test (EUT)

Product name:	WiFi Module	
Type/Model:	8812CU3	
Description of EUT:	WiFi Module	
Rating:	3.3Vdc	
Category of EUT:	Class B	
EUT type:	☐ Table top ☐ Floor standing	
Software Version:	V1.0	
Hardware Version:	v5.9.0.1_36324_ COEX20200103	
Sample received date:	November 23, 2021	
Date of test:	November 23, 2021 to March 21, 2022	

1.2 Technical Specification

For 2.4 GHz ISM Band of Wi-Fi

Frequency Range:	2400MHz ~ 2483.5MHz		
	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n-HT20, IEEE 802.11n-		
Support Standards:	HT40		
	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK)		
	IEEE 802.11g: OFDM(64-QAM, 16-QAM, QPSK, BPSK)		
	IEEE 802.11n-HT20: OFDM(64-QAM, 16-QAM, QPSK, BPSK)		
Type of Modulation:	IEEE 802.11n-HT40: OFDM(64-QAM, 16-QAM, QPSK, BPSK)		
	IEEE 802.11b: 11		
	IEEE 802.11g: 11		
	IEEE 802.11n-HT20: 11		
Channel Number:	IEEE 802.11n-HT40: 9		
	IEEE 802.11b: Up to 11 Mbps		
	IEEE 802.11g: Up to 54 Mbps		
	IEEE 802.11n-HT20: Up to MCS15		
Data Rate:	IEEE 802.11n-HT40: Up to MCS15		
Channel Separation:	5 MHz		
	ANTO PCB antenna: 6.07dBi		
Antenna Information:	ANT1 PCB antenna: 5.15dBi		

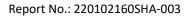




TEST REPORT

For 5 GHz U-NII Bands of Wi-Fi

For 5 GHz U-NII Bands of	Wi-Fi		
	5150 MHz to 5250 MHz (U-NII-1)		
	5250 MHz to 5350 MHz (U-NII-2A)		
	5470 MHz to 5725 MHz (U-NII-2C)		
Frequency Range:	5 725 MHz to 5 850 MHz (U-NII-3)		
Support Standards:	IEEE 802.11a/n/ac		
	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK)		
	IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK)		
	IEEE 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)		
	IEEE 802.11a/n-HT20/ac-VHT20: 20 MHz		
Tune of Madulation	IEEE 802.11n-HT40/ac-VHT40: 40 MHz		
Type of Modulation:	IEEE 802.11ac-VHT80: 80 MHz		
	5150 MHz to 5250 MHz:		
	4 for IEEE 802.11a/n-HT20/ac-VHT20		
	2 for IEEE 802.11n-HT40)/ac-VHT40		
	1 for IEEE 802.11acVHT80		
	5250 MHz to 5350 MHz:		
	4 for IEEE 802.11a/n-HT20/ac-VHT20		
	2 for IEEE 802.11n-HT40)/ac-VHT40		
	1 for IEEE 802.11acVHT80		
	- 101 1022 00212200111100		
	5470 MHz to 5725 MHz:		
	11 for IEEE 802.11a/n-HT20/ac-VHT20		
	5 for IEEE 802.11n-HT40/ac-VHT40		
	2 for IEEE 802.11ac-VHT80		
	5725 MHz to 5850 MHz:		
	5 for IEEE 802.11a/n-HT20/ac-VHT20		
	2 for IEEE 802.11n-HT40/ac-VHT40		
Channel Number:	1 for IEEE 802.11ac-VHT80		
	IEEE 802.11a: Up to 54 Mbps		
	IEEE 802.11n-HT20: Up to MCS15		
	IEEE 802.11n-HT40: Up to MCS15		
	IEEE 802.11ac-VHT20: Up to MCS8		
Data Batas	IEEE 802.11ac-VHT40: Up to MCS9		
Data Rate:	IEEE 802.11ac-VHT80: Up to MCS9 IEEE 802.11a/n-HT20/ac-VHT20: 20 MHz		
	IEEE 802.11n-HT40/ac-VHT40: 40 MHz		
Channel Separation:	IEEE 802.11ac-VHT80: 80 MHz		
Tanner Copulation	PCB antenna		
	ANTO:		
	5150-5250MHz 5.02dBi		
	5250-5350MHz 6.15dBi		
	5470-5725MHz 8.46dBi		
Antenna Information:	5725-5850MHz 9.23dBi		





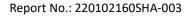
TEST REPORT

ANT1:
5150-5250MHz 6.45dBi
5250-5350MHz 6.48dBi
5470-5725MHz 7.26dBi
5725-5850MHz 5.38dBi

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized,	CNAS Accreditation Lab Registration No. CNAS L0139
certified, or accredited by these	FCC Accredited Lab Designation Number: CN1175
organizations:	IC Registration Lab Registration code No.: 2042B-1
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02





2 MPE Assessment

Test result: Pass

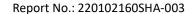
2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength	H-field strength	B-field	Equivalent plane wave
	(V/m)	(A/m)	(uT)	power density
				S _{eq} (W/m ²)
0-1 Hz	-	$3,2 \times 10^4$	4×10^{4}	-
1-8 Hz	10 000	$3.2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	4 000/f	5 000/f	-
0,025-0,8 kHz	250/f	4/f	5/f	-
0,8-3 kHz	250/f	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	0,73/f	0,92/f	-
1-10 MHz	87/f ^{1/2}	0,73/f	0,92/f	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	1,375 f ^{1/2}	0,0037 f ^{1/2}	0,0046 f ^{1/2}	f/200
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is \leq 1.0

MPE Ratios are Calculated as[(MPE1/Limit) + (MPE2/Limit) +....] ≤ 1.0





2.2 Assessment Results

Power density (S) is calculated according to the formula:

 $S = P / (4\pi R^2)$

Where $S = power density in mW/cm^2$

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 220102160SHA-001 and 220102160SHA-002:

The maximum radiated power is Modulation mode: IEE 802.11NHT40 for 2452MHz

Power_{ant0}= (25.27+6.07) dBm= 1361.445mW;

Power_{ant1}= (22.83+5.15) dBm= 628.06mW;

Here R is chosen to be 20cm,

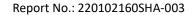
 $S1= P/(4\pi R^2) = 1361.445/(4*3.14*20*20) = 0.271 mW/cm^2$

 $S2= P / (4\pi R^2) = 628.058 / (4 * 3.14 * 20 * 20) = 0.125 mW/cm^2$

MPE Ratio= (0.277/1) +(0.125/1) =0.396<1.0

So the transmitter complies with the RF exposure requirements and the SAR is not required.

The module does not support 2.4G WIFI and 5G WIFI to work simultaneously





Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.