

RF Exposure Evaluation Declaration

Product Name : DWAM83 Wireless Audio Module

Model No. : 1492549

FCC ID : AK81492549

Applicant : Sony Corporation

Address : 1-7-1 Konan, Minato-ku, Tokyo 108-0075 Japan

Date of Receipt : Jan. 30, 2016

Test Date : Jan. 30, 2016~Mar. 07, 2016

Issued Date : Mar. 08, 2016

Report No. : 1612100R-RF-US-P20V01

Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

Issued Date : Mar. 08, 2016

Report No. : 1612100R-RF-US-P20V01



Product Name : DWAM83 Wireless Audio Module
Applicant : Sony Corporation
Address : 1-7-1 Konan, Minato-ku, Tokyo 108-0075 Japan
Manufacturer : Weifang GoerTek Electronics Co., Ltd
Address : Gaoxin 2 Road, Free Trade Zone, Weifang, Shandong,
261205, P.R. China
Model No. : 1492549
FCC ID : AK81492549
EUT Voltage : DC 3.3V
Brand Name : Sony
Applicable Standard : KDB 447498D01V06
FCC Part1.1310(b)
Test Result : Complied
Performed Location : Quietek Corporation - Suzhou EMC Laboratory
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou,
215006, Jiangsu, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Registration Number: 800392

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Laboratory Information

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	:	BSMI, NCC, TAF
USA	:	FCC
Japan	:	VCCI
China	:	CNAS

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://www.quietek.com/english/about/certificates.aspx?bval=5>
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/index_en.aspx

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1612100R-RF-US-P20V01	V1.0	Initial Issued Report	Mar. 08, 2016

1. RF Exposure Evaluation

1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product	:	DWAM83 WIRELESS AUDIO MODULE
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

● Antenna information:

Model No.	N/A				
Antenna manufacturer	TP-LINK				
Antenna Delivery	☐	1*TX+1*RX	☒	2*TX+2*RX	☐ 3*TX+3*RX
Antenna technology	☒	SISO			
	☐	MIMO	☐	Basic	
			☐	CDD	
			☐	Beam-forming	
Antenna Type	☐	External	☐	Dipole	
	☒	Internal	☐	PIFA	
			☒	PCB	
			☐	Ceramic Chip Antenna	
			☐	Metal plate type F antenna	
Antenna A Gain	1.57dBi for 2.4GHz, 2.82dBi for 5.2GHz, 3dBi for 5.8GHz				
Antenna B Gain	0.82dBi for 2.4GHz, 0.67dBi for 5.2GHz, 2.8dBi for 5.8GHz				

RF Exposure Evaluation

- Output Power into Antenna & RF Exposure Evaluation Distance:

Ant A

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
2.4G	2412 ~ 2464 MHz	73.1139	0.020880
5G	5180 ~ 5240 MHz, 5736 ~ 5814 MHz	35.9749	0.014280

Ant B

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
2.4G	2412 ~ 2464 MHz	74.8170	0.017978
5G	5180 ~ 5240 MHz, 5736 ~ 5814 MHz	34.9140	0.013235

Note: The standalone power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is below the limit of 1 mW/cm².

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