

## RF Exposure Report

**Report No.:** SA180416E05

**FCC ID:** AK8J20H098

**Test Model:** J20H098

**Received Date:** Apr. 16, 2018

**Test Date:** Apr. 30, 2018

**Issued Date:** May 28, 2018

**Applicant:** Sony Corporation

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

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
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**Test Location:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**FCC Registration /  
Designation Number:** 723255 / TW2022

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## Table of Contents

<b>Release Control Record</b> .....	<b>3</b>
<b>1 Certificate of Conformity</b> .....	<b>4</b>
<b>2 RF Exposure</b> .....	<b>5</b>
2.1 Limits For Maximum Permissible Exposure (MPE) .....	5
2.2 MPE Calculation Formula .....	5
2.3 Classification .....	5
2.4 Antenna Gain .....	6
2.5 Calculation Result .....	7

### Release Control Record

Issue No.	Description	Date Issued
SA180416E05	Original release.	May 28, 2018

## 1 Certificate of Conformity

**Product:** WLAN/BT Module

**Brand:** FOXCONN

**Test Model:** J20H098

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Sony Corporation

**Test Date:** Apr. 30, 2018

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :**

*Mary Ko*

**Date:**

May 28, 2018

Mary Ko / Specialist

**Approved by :**

*May Chen*

**Date:**

May 28, 2018

May Chen / Manager

## 2 RF Exposure

### 2.1 Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20m away from the body of the user.

So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

<b>For WLAN</b>				
Ant No.	Antenna Gain (dBi)	Frequency rang (MHz)	Antenna type	Connector type
1	-0.26	2412~2472	Metal PIFA	none
	1.89	5180~5240		
	2.3	5260~5320		
	3.14	5500~5700		
	1.53	5745~5825		
2	0.52	2412~2472	Metal PIFA	none
	3.73	5180~5240		
	3.01	5260~5320		
	2.12	5500~5700		
	1.15	5745~5825		
<b>For Bluetooth</b>				
Ant No.	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type
1	0.85	2.4~2.4835	Metal PIFA	none

## 2.5 Calculation Result

### WLAN:

Frequency Band (MHz)	Max. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	702.041	3.15	20	0.28846	1
5180-5240	248.775	5.87	20	0.19122	1
5260-5320	237.912	5.67	20	0.17464	1
5500-5700	198.167	5.66	20	0.14513	1
5745-5825	328.118	4.35	20	0.17773	1

Note:

2.4GHz: Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 3.15\text{dBi}$

5GHz:

UNII-1: Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.87\text{dBi}$

UNII-2a: Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.67\text{dBi}$

UNII-2c: Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.66\text{dBi}$

UNII-3: Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 4.35\text{dBi}$

### BT-EDR:

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2402-2480	9.183	0.85	20	0.00222	1

### BT-LE:

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2402-2480	3.199	0.85	20	0.00077	1

### Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + Bluetooth =  $0.28846 / 1 + 0.00222 / 1 = 0.29068$

WLAN 5GHz + Bluetooth =  $0.19122 / 1 + 0.00222 / 1 = 0.19344$

**Therefore the maximum calculations of above situations are less than the "1" limit.**

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