

RF Exposure Report

Report No.: SA170822E13

FCC ID: AK8J20H095

Test Model: J20H095

Received Date: Aug. 22, 2017

Test Date: Sep. 12 to 13, 2017

Issued Date: Oct. 24, 2017

Applicant: Sony Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Release Control Record

Issue No.	Description	Date Issued
SA170822E13	Original release.	Oct. 24, 2017

1 Certificate of Conformity

Product: WLAN/BT Module

Brand: FOXCONN

Test Model: J20H095

Sample Status: ENGINEERING SAMPLE

Applicant: Sony Corporation

Test Date: Sep. 12 to 13, 2017

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 :



Date:

Oct. 24, 2017

Wendy Wu / Specialist

Approved by :



Date:

Oct. 24, 2017

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 ²)	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 ²)*	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/cm²

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 20cm away from the body of the user.

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

2.4 Antenna Gain

For WLAN				
Ant No.	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type
1	-0.84	2.4~2.5	Metal PIFA	none
	0.45	5.15~5.25		
	1.14	5.25~5.35		
	0.34	5.47~5.725		
	-0.13	5.725~5.85		
2	3.87	2.4~2.5	Metal PIFA	none
	3.21	5.15~5.25		
	3.67	5.25~5.35		
	3.56	5.47~5.725		
	3.38	5.725~5.85		
For Bluetooth				
Ant No.	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type
1	4.23	2.4~2.4835	Metal PIFA	none

2.5 Calculation Result of Maximum Conducted Power

For WLAN:

Frequency Band (MHz)	Max. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	691.119	4.84	20	0.41907	1
5180-5240	233.419	4.95	20	0.14517	1
5260-5320	186.215	5.51	20	0.13175	1
5500-5700	201.905	5.11	20	0.13028	1
5745-5825	404.291	4.81	20	0.24346	1

NOTE:

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.84\text{dBi}$

5GHz:

UNII-1: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.95\text{dBi}$

UNII-2A: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.51\text{dBi}$

UNII-2C: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.11\text{dBi}$

UNII-3: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.81\text{dBi}$

For Bluetooth:

BT-EDR

Frequency Band (MHz)	Max. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2402-2480	7.568	4.23	20	0.00399	1

BT-LE

Frequency Band (MHz)	Max. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2402-2480	3.048	4.23	20	0.00161	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 = $0.41907 / 1 + 0.00399 / 1 = 0.42306$

WLAN 5GHz + Bluetooth = $0.24346 / 1 + 0.00399 / 1 = 0.24745$

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

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