

## RF Exposure Report

**Report No.:** SA170326E01

**FCC ID:** C3K1802

**Test Model:** 1802

**Received Date:** Mar. 26, 2017

**Test Date:** May 25, 2017

**Issued Date:** June 23, 2017

**Applicant:** Microsoft Corporation

**Address:** One Microsoft Way Redmond WA 98052

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

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### Release Control Record

Issue No.	Description	Date Issued
SA170326E01	Original release.	June 23, 2017

## 1 Certificate of Conformity

**Product:** 802.11a/b/g/n/ac 2T2R dual-band wireless LAN radio

**Brand:** Microsoft

**Test Model:** 1802

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Microsoft Corporation

**Test Date:** May 25, 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 :** Wendy Wu , **Date:** June 23, 2017  
Wendy Wu / Specialist

**Approved by :** May Chen , **Date:** June 23, 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 <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 20cm away from the body of the user.

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

### 2.4 Antenna Gain

Transmitter Circuit	Antenna Type	Connector Type	Antenna Gain(dBi)	Frequency range (MHz to MHz)	Antenna Type
Chain (0)	Microsoft	NA	5.6	2400~2500	PCB
			6.8	5150~5850	
Chain (1)	Microsoft	NA	5.5	2400~2500	PCB
			6.3	5150~5850	

For 1TX configuration mode: max gain was selected as representative antenna.

## 2.5 Calculation Result

### 1TX Mode

Frequency Band (MHz)	Max Power (mW)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	354.813	25.50	5.60	20	0.25629	1
5180-5240	316.228	25.00	6.80	20	0.30111	1
5260-5320	316.228	25.00	6.80	20	0.30111	1
5500-5720	316.228	25.00	6.80	20	0.30111	1
5745-5825	316.228	25.00	6.80	20	0.30111	1

### 2TX Mode

Frequency Band (MHz)	Max Power (mW)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	355.656	25.51	5.60	20	0.25690	1
5180-5240	316.978	25.01	6.80	20	0.30183	1
5260-5320	316.978	25.01	6.80	20	0.30183	1
5500-5720	316.978	25.01	6.80	20	0.30183	1
5745-5825	632.456	28.01	6.80	20	0.60223	1

**NOTE:** 1. This power include tune-up tolerance range that specified in 1803 Tune Up power table.

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