

RF Exposure Report

Report No.: SA191227E01

FCC ID: C3K1889

Test Model: 1889

Received Date: Jan. 14, 2020

Test Date: Apr. 13 to May 14, 2020

Issued Date: June 24, 2020

Applicant: Microsoft Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SA191227E01	Original release.	June 24, 2020

1 Certificate of Conformity

Product: Dual-band wireless accessory radio

Brand: Microsoft

Test Model: 1889

Sample Status: ENGINEERING SAMPLE

Applicant: Microsoft Corporation

Test Date: Apr. 13 to May 14, 2020

Standards: FCC Part 2 (Section 2.1091)

IEEE C95.3 -2002

References Test KDB 447498 D01 General RF Exposure Guidance v06
Guidance:

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.

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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 20 cm away from the body of the user.

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

2.4 Antenna Gain

Antenna No.	Transmitter Circuit	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type	Cable Length
MAIN	0	4.56	2.4 ~ 2.4835GHz	PCB	NA	NA
		3.93	5.15~5.25GHz (5G B1)	PCB	NA	NA
		3.94	5.25~5.35GHz (5G B2)	PCB	NA	NA
		3.48	5.47~5.725GHz (5G B3)	PCB	NA	NA
		3.35	5.725~5.85GHz (5G B4)	PCB	NA	NA
DIV	1	---	2.4 ~ 2.4835GHz	PCB	NA	NA
		3.21	5.15~5.25GHz (5G B1)	PCB	NA	NA
		3.3	5.25~5.35GHz (5G B2)	PCB	NA	NA
		2.64	5.47~5.725GHz (5G B3)	PCB	NA	NA
		2.97	5.725~5.85GHz (5G B4)	PCB	NA	NA

2.5 Calculation Result of Maximum Conducted Power

Operation Mode	Evaluation Frequency (MHz)	Max Power Average		Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
		(mW)	dBm				
WLAN (2.4GHz)	2412~2462	10.839	10.35	4.56	20	0.00616	1
WLAN (U-NII-1)	5180~5240	10.28	10.12	3.93	20	0.00506	1
WLAN (U-NII-3)	5745~5825	10.568	10.24	3.35	20	0.00455	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. This max average power could cover tune-up power tolerance.

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