

RF Exposure Report

Report No.: SA200603E10 R1

FCC ID: PY320200501

Test Model: MR80

Series Model: MS80

Received Date: June 03, 2020

Test Date: Aug. 27, 2020

Issued Date: Nov. 11, 2020

Applicant: NETGEAR, Inc.

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

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Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
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**FCC Registration /
Designation Number:** 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SA200603E10	Original release.	Sep. 07, 2020
SA200603E10 R1	Modified Distance to Human Body & Simultaneously transmission condition.	Nov. 11, 2020

1 Certificate of Conformity

Product: Orion

Brand: NETGEAR

Test Model: MR80

Series Model: MS80

Sample Status: ENGINEERING SAMPLE

Applicant: NETGEAR, Inc.

Test Date: Aug. 27, 2020

Standards: FCC Part 2 (Section 2.1091)
IEEE C95.3-2002

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

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 : Cherry Chuo, **Date:** Nov. 11, 2020
Cherry Chuo / Specialist

Approved by : Clark Lin, **Date:** Nov. 11, 2020
Clark Lin / Technical 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

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

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

2.3 Classification

The antenna of this product, under normal use condition, is at least 27 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Frequency Range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Connector Type
2.4~2.4835	4.31	PIFA	i-pex(MHF)
5.15 ~ 5.25	4.72		
5.725 ~ 5.85	6.02		

Note: More detailed information, please refer to antenna specification.

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.5 Calculation Result

Operation Mode	Evaluation Frequency (MHz)	Max Average Power (mW)	Directional Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN 2.4GHz	2412~2462	915.235	4.31	27	0.26952	1
WLAN 5GHz (U-NII-1)	5180~5240	925.902	4.72	27	0.29966	1
WLAN 5GHz (U-NII-3)	5745~5825	927.847	6.02	27	0.40508	1

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: The directional gain = 4.31 dBi
5GHz:
For U-NII-1: The directional gain = 4.72 dBi
For U-NII-3: The directional gain = 6.02 dBi

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

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz (U-NII-1)} + \text{WLAN 5GHz (U-NII-3)} = 0.26952 / 1 + 0.29966 / 1 + 0.40508 / 1 = 0.97426$$

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

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