

RF Exposure Report

Report No.: SA200522E10

FCC ID: PY320100482

Contains FCC ID: XMR201807EG06A

Test Model: LAX20

Received Date: May 22, 2020

Test Date: July 02, 2020

Issued Date: Aug. 03, 2020

Applicant: NETGEAR, Inc.

Address: 350 East Plumeria Drive San Jose, CA 95134

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.

Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan.

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

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Release Control Record

Issue No.	Description	Date Issued
SA200522E10	Original release.	Aug. 03, 2020

1 Certificate of Conformity

Product: Nighthawk AX6 AX1800 LTE WiFi Router

Brand: NETGEAR

Test Model: LAX20

Sample Status: ENGINEERING SAMPLE


Applicant: NETGEAR, Inc.

Test Date: July 02, 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 :  _____, **Date:** _____ Aug. 03, 2020
Joyce Kuo / Specialist

Approved by :  _____, **Date:** _____ Aug. 03, 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

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

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 26 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

1 The WLAN antennas provided to the EUT, please refer to the following table:

Antenna Set 1	Antenna Ste 2
Dual_Ant 5	Dual_Ant 4
Dual_Ant 6	Dual_Ant 3

From the above antenna conditions, the worst case was found in Antenna Set 1. Therefore only the test data of the mode was recorded in this report.

2 The directional antenna gain, please refer to the following table:

Frequency Range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4~2.4835	4.55	Dipole	R-SMA
5.15 ~ 5.25	5.24		
5.725 ~ 5.85	6.01		

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

3 The WWAN antennas provided to the EUT, please refer to the following table:

Antenna No.	Band	Freq. Range (MHz)	Gain (dBi)	Antenna Type
1	WCDMA Band 2	1850~1910	5.03	PCB
	WCDMA Band 4	1710~1755	4.74	
	WCDMA Band 5	824~849	2.66	
	LTE Band 2	11850~1910	5.03	
	LTE Band 4	1710~1755	4.74	
	LTE Band 5	824~849	2.66	
	LTE Band 7	2500~2570	5.02	
	LTE Band 12	688~716	0.89	
	LTE Band 13	777~787	1.55	
	LTE Band 25	1850~1915	5.03	
	LTE Band 26	814~849	2.66	
	LTE Band 30	2305~2310	5.36	
LTE Band 66	1710~1780	5.12		
2	WCDMA Band 2	1850~1910	4.89	PCB
	WCDMA Band 4	1710~1755	4.61	
	WCDMA Band 5	824~849	2.93	
	LTE Band 2	11850~1910	4.89	
	LTE Band 4	1710~1755	4.61	
	LTE Band 5	824~849	2.93	
	LTE Band 7	2500~2570	4.83	
	LTE Band 12	688~716	1.06	
	LTE Band 13	777~787	1.8	
	LTE Band 25	1850~1915	4.92	
	LTE Band 26	814~849	2.93	
	LTE Band 30	2305~2310	5.53	
LTE Band 66	1710~1780	4.84		

* 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.

2.1 Calculation Result

For WLAN:

Operation Mode	Evaluation Frequency (MHz)	Max Avg. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN 2.4GHz	2412-2462	867.292	4.55	26	0.29108	1
WLAN 5GHz U-NII-1	5180-5240	843.395	5.24	26	0.33180	1
WLAN 5GHz U-NII-3	5745-5825	887.09	6.01	26	0.41669	1

NOTE:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 4.55\text{dBi}$
- 5GHz (U-NII-1): Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.24\text{dBi}$
- 5GHz (U-NII-3): Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.01\text{dBi}$

For WWAN (LTE) module (FCC ID: XMR201807EG06A):

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
LTE B7	2502.5-2567.5	415.91	5.02	26	0.15554	1

*Limit of Power Density = F/1500

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

$WLAN\ 2.4GHz + WLAN\ 5GHz + LTE = 0.29108 / 1 + 0.41669 / 1 + 0.15554 / 1 = 0.86331$

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

Appendix

WWAN (LTE) module (FCC ID: XMR201807EG06A)
 MPE Evaluation

Mode	Equipment Category	Transmitter Range (MHz)		Maximum		Antenna Gain (dBi)	Power Density (mW/cm ²)		Ratio
		Start	Stop	(dBm)	(W)		Valeur	Limit	
UMTS	Band II	1852.4	1907.6	25.09	0.323	5.03	0.12107	1	0.12107
	Band IV	1712.4	1752.6	25	0.316	4.74	0.1108	1	0.11080
	Band V	826.4	846.6	23.87	0.244	2.66	0.05299	0.5509	0.09619
LTE	Band 2	1850.7	1909.3	25.71	0.372	5.03	0.13944	1	0.13944
	Band 4	1710.7	1754.3	25.31	0.34	4.74	0.11921	1	0.11921
	Band 5	824.7	848.3	23.93	0.247	2.66	0.05365	0.5498	0.09758
	Band 7	2502.5	2567.5	26.19	0.416	5.02	0.15557	1	0.15557
	Band 12	699.7	715.3	24.35	0.272	0.89	0.0393	0.4664	0.08426
	Band 13	779.5	784.5	24.22	0.264	1.55	0.04441	0.5196	0.08547
	Band 25	1850.7	1914.3	25.71	0.372	5.03	0.13944	1	0.13944
	Band 26	814.7	823.3	23.89	0.245	2.66	0.05321	0.5431	0.09797
	Band 30	2307.5	2312.5	22.94	0.197	5.36	0.07967	1	0.07967
Band 66	1710.7	1719.3	25.31	0.34	5.12	0.13011	1	0.13011	

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