RF EXPOSURE EVALUATION REPORT

FCC ID	:	**PY321100529**
Equipment	:	**Netgear 5G MHS Travel Router**
Brand Name	:	**Netgear**
Model Name	:	**MR6500**
Applicant	:	**Netgear Inc. 350 E. Plumeria Drive, San Jose, CA 95134, United States**
Standard	:	**47 CFR Part 2.1091**

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part 1.1310, 1.1307 and Part 2.1091 and it complies with applicable limit.

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.

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Cona Huang

Approved by: Cona Huang / Deputy Manager

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History of this test report

Report No.	Version	Description	Issued Date
FA190614E	Rev. 01	Initial issue of report	Jan. 24, 2022

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Netgear 5G MHS Travel Router
Brand Name	Netgear
Model Name	MR6500
FCC ID	PY321100529
Wireless Technology and Frequency Range	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n14 : 788 MHz ~ 798 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n77: 3700 MHz ~ 3980 MHz, 3450MHz ~ 3550MHz 5G NR n260 : 37 GHz~40 GHz WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz WLAN 6E: 5925 MHz ~ 6425 MHz, 6425 MHz ~ 6525 MHz, 6525 MHz ~ 6875 MHz, 6875 MHz ~ 7125 MHz
Mode	LTE: QPSK, 16QAM, 64QAM, 256QAM 5G FR1: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM 5G FR2: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/ WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160
EUT Stage	Identical Prototype

Reviewed by: Jason Wang

Report Producer: Paula Chen

2. Maximum RF average output power among production units

Radio Tech	Band Number	Antenna name	Maximum Transmit Power Level (dBm)
LTE	B2	ANT1	23.5
LTE	B4	ANT2	24
LTE	B5	ANT1	24
LTE	B12	ANT1	24
LTE	B14	ANT1	24
LTE	B66	ANT1	24
LTE	B2	ANT2	24
LTE	B7	ANT2	23.5
LTE	B30	ANT2	23
LTE	B66	ANT2	24
LTE	B48	ANT1	23
5G FR1	N2	ANT1	23.5
5G FR1	N5	ANT1	24
5G FR1	N12	ANT1	24
5G FR1	N14	ANT1	24
5G FR1	N66	ANT1	24
5G FR1	N77	ANT1	22.3
5G FR1	N2	ANT2	24
5G FR1	N5	ANT2	24
5G FR1	N30	ANT2	23
5G FR1	N66	ANT2	24
5G FR1	N77	ANT2	22.2
5G FR1	N77	ANT5	21.5
5G FR1	N77	ANT6	20.5

FR2	Maximum EIRP power(dBm)	
	n260	32.63

Mode		Maximum Average Power (dBm)	
		Ant 3	Ant 4
WLAN	2.4GHz WLAN	10	10
	5GHz/6GHz WLAN	10	10

3. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

4. Radio Frequency Radiation Exposure Evaluation

4.1. Standalone Power Density Calculation

Band	Transmit Antenna	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
LTE Band 2	1	0.67	23.50	24.17	0.26	261.22	0.052	1.000	0.052
LTE Band 4	2	0.54	24.00	24.54	0.28	284.45	0.057	1.000	0.057
LTE Band 5	1	-0.88	24.00	23.12	0.21	205.12	0.041	0.549	0.074
LTE Band 12	1	-0.83	24.00	23.17	0.21	207.49	0.041	0.466	0.089
LTE Band 14	1	-0.83	24.00	23.17	0.21	207.49	0.041	0.525	0.079
LTE Band 66	1	0.67	24.00	24.67	0.29	293.09	0.058	1.000	0.058
LTE Band 2	2	0.45	24.00	24.45	0.28	278.61	0.055	1.000	0.055
LTE Band 7	2	-0.53	23.50	22.97	0.20	198.15	0.039	1.000	0.039
LTE Band 30	2	1.05	23.00	24.05	0.25	254.10	0.051	1.000	0.051
LTE Band 66	2	0.54	24.00	24.54	0.28	284.45	0.057	1.000	0.057
LTE Band 48	1	0.17	23.00	23.17	0.21	207.49	0.041	1.000	0.041
n2	1	0.67	23.50	24.17	0.26	261.22	0.052	1.000	0.052
n5	1	-0.88	24.00	23.12	0.21	205.12	0.041	0.549	0.074
n12	1	-0.83	24.00	23.17	0.21	207.49	0.041	0.466	0.089
n14	1	-0.83	24.00	23.17	0.21	207.49	0.041	0.525	0.079
n66	1	0.67	24.00	24.67	0.29	293.09	0.058	1.000	0.058
n77	1	0.17	22.30	22.47	0.18	176.60	0.035	1.000	0.035
n2	2	0.45	24.00	24.45	0.28	278.61	0.055	1.000	0.055
n5	2	-1.60	24.00	22.40	0.17	173.78	0.035	0.549	0.063
n30	2	1.05	23.00	24.05	0.25	254.10	0.051	1.000	0.051
n66	2	0.54	24.00	24.54	0.28	284.45	0.057	1.000	0.057
n77	2	1.66	22.20	23.86	0.24	243.22	0.048	1.000	0.048
n77(SRS)	5	0.98	21.50	22.48	0.18	177.01	0.035	1.000	0.035
n77(SRS)	6	3.31	20.50	23.81	0.24	240.44	0.048	1.000	0.048
n260	0/1			32.63	1.83	1832.31	0.365	1.000	0.365
2.4GHz WLAN	3	2.63	10.00	12.63	0.02	18.32	0.004	1.000	0.004
2.4GHz WLAN	4	2.15	10.00	12.15	0.02	16.41	0.003	1.000	0.003
5/6GHz WLAN	3	3.40	10.00	13.40	0.02	21.88	0.004	1.000	0.004
5/6GHz WLAN	4	2.59	10.00	12.59	0.02	18.16	0.004	1.000	0.004

4.2. Sim-Tx analysis

Exposure condition	NO.	Simultaneous Transmission Configurations	Support
Body condition	1	WWAN + 2.4GHz Ant3 + 2.4GHz Ant4	V
	2	WWAN + 5GHz Ant3 + 5GHz Ant4	V
	3	WWAN + 2.4GHz Ant3 + 5GHz Ant4	V
	4	WWAN + 2.4GHz Ant4 + 5GHz Ant3	V
	5	LTE + FR1 + 2.4GHz Ant3 + 2.4GHz Ant4	V
	6	LTE + FR1+ 5GHz Ant3 + 5GHz Ant4	V
	7	LTE + FR1+ 2.4GHz Ant3 + 5GHz Ant4	V
	8	LTE + FR1+ 2.4GHz Ant4 + 5GHz Ant3	V
	9	LTE + FR2 + 2.4GHz Ant3 + 2.4GHz Ant4	V
	10	LTE + FR2 + 5GHz Ant3 + 5GHz Ant4	V
	11	LTE + FR2+ 2.4GHz Ant3 + 5GHz Ant4	V
	12	LTE + FR2+ 2.4GHz Ant4 + 5GHz Ant3	V
	13(1)	WWAN + 6GHz Ant3 + 6GHz Ant4	V
	14(1)	WWAN + 2.4GHz Ant3 + 6GHz Ant4	V
	15(1)	WWAN + 2.4GHz Ant4 + 6GHz Ant3	V
	16(1)	LTE + FR1+ 6GHz Ant3 + 6GHz Ant4	V
	17(1)	LTE + FR1+ 2.4GHz Ant3 + 6GHz Ant4	V
	18(1)	LTE + FR1+ 2.4GHz Ant4 + 6GHz Ant3	V
	19(1)	LTE + FR2 + 2.4GHz Ant3 + 2.4GHz Ant4	V
	20(1)	LTE + FR2 + 6GHz Ant3 + 6GHz Ant4	V
	21(1)	LTE + FR2+ 2.4GHz Ant3 + 6GHz Ant4	V
	22(1)	LTE + FR2+ 2.4GHz Ant4 + 6GHz Ant3	V
	23	2.4GHz Ant3 (client) + 5GHz Ant4(AP)	V
	24	5GHz Ant3 (Client) + 2.4GHz Ant4 (AP)	V
	25	6GHz Ant3 (Client) + 2.4GHz Ant4 (AP)	V

Maximum WWAN Power Density / Limit	Maximum WLAN Ant3 Power Density / Limit	Maximum WLAN Ant4 Power Density / Limit	∑(Power Density / Limit) of LTE + WLAN Ant3 + WLAN Ant4
0.365	0.004	0.004	0.373

Note:

1. AP mode in WiFi 6E 6-7GHz is enabled only when the device is connected to AC mains
2. ∑(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)].
3. In simultaneous transmission for this device, 5G NR and LTE transmission are managed and controlled by Qualcomm® Smart Transmit, while the RF exposure from WLAN radios is managed using legacy approach, therefore simultaneous transmission compliance can be assessed on LTE+ WLAN Ant3 + WLAN Ant 4 or NR + WLAN Ant3 + WLAN Ant 4.
4. Considering all of the EIRP performance listed in the table above was consider wrost antenna combination for WWAN + WLAN Ant 3 + WLAN ant 4, the aggregated (power density /limit) is smaller than 1.

Conclusion:

According to 47 CFR §1.1307, the RF exposure analysis concludes that the RF Exposure is FCC compliant.