RF Exposure Report

(Part 0: SAR Char Evaluation)

FCC ID : PY322100558

Equipment : Netgear 5G MHS Travel Router

Brand Name : Netgear

Model Name : MR6400

Applicant : Netgear Inc.
350 E. Plumeria Drive, San Jose, CA 95134, United States

Standard : FCC 47 CFR Part 2 (2.1093)

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

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Approved by: Cona Huang / Deputy Manager

Sporton International Inc.
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History of this test report

Report No.	Version	Description	Issued Date
FA190614-03A	01	Initial issue of report	May. 11, 2022

1. *Introduction*

The FCC RF exposure limit is defined based on time-averaged RF exposure. The product implements Qualcomm Smart Transmit feature which controls the instantaneous transmitting power for WWAN transmitter sto ensure the product in compliance with FCC RF exposure limit over a defined time window, for SAR (transmit frequency ≤ 6GHz). to control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is compliant to the regulation requirement. Cannot operat without SAR characterization at the device level, beforehand.

This report describes the procedures for the SAR char generation, and the parameters obtained from SAR will be used as input for Smart Transmit. SAR char will be entered via the Embedded File System (EFS) to enable the Smart Transmit Feature.

Terminologies in this report

P_{limit}	The time-averaged RF power which corresponds to SAR_design_target.
P_{max}	Maximum target power level
SAR_design_target:	The design target for SAR compliance. It should be less than regulatory power density limit to account for all device design related uncertainties.
SAR char	P_{limit} for all the technologies/bands for all applicable DSI

2. *Product Description*

Product Feature & Specification	
Equipment Name	Netgear 5G MHS Travel Router
Brand Name	Netgear
Model Name	MR6400
FCC ID	PY322100558
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 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 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 n25 : 1850 MHz ~ 1915 MHz 5G NR n30: 2305 MHz ~ 2315 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77: 3450MHz ~ 3550MHz, 3700 MHz ~ 3980 MHz WLAN 2.4GHz 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 WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160

3. *SAR Characterization*

SAR char must be generated to cover all radio configurations and usage scenarios that the wireless device supports for operating at 6 GHz or below. It will then be used as input for Smart Transmit to control and manage RF exposure for f < 6 GHz.

3.1 *SAR design target and uncertainty*

Exposure conditions	SAR design target	W/kg
Body exposure conduction	1g SAR design target	1.03

Item	Uncertainty dB (k=2)
Total uncertainty	1.0

To account for total uncertainty, SAR_design_target should be determined as:

$$SAR\_design\_target < SAR_{regulatory\_limit} \times 10\frac{-total\ uncertainty}{10}$$

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3.2 SAR Char Table

SAR char must be generated to cover all radio configurations and usage scenarios that the wireless device supports for operating at 6 GHz or below. It will then be used as input for Smart Transmit to control and manage RF exposure for f < 6 GHz.

<Plimit for supported technologies and bands (Plimit in EFS file)>

Band	Antenna	Measured Power (dBm)	1g measured SAR (W/kg)	SAR design Target (W/kg)	Duty cycle	Total Uncertainty (dB)	P limit (dBm) time-average power	P Max(*) time-average power
LTE B2	1	23.48	0.899	1.030	100.00%	1.00	24.00	22.50
LTE B5	1	23.27	0.607	1.030	100.00%	1.00	25.50	23.00
LTE B12	1	23.07	0.575	1.030	100.00%	1.00	25.60	23.00
LTE B13	1	23.04	0.572	1.030	100.00%	1.00	25.50	23.00
LTE B14	1	23.09	0.632	1.030	100.00%	1.00	25.20	23.00
LTE B26	1	22.51	0.594	1.030	100.00%	1.00	24.90	23.00
LTE B48**	1	22.78	0.800	1.030	63.30%	1.00	21.80	20.00
LTE B66	1	23.63	0.797	1.030	100.00%	1.00	24.70	23.00
LTE B71	1	22.90	0.491	1.030	100.00%	1.00	26.10	23.00
FR1 n2	1	23.25	0.876	1.030	100.00%	1.00	23.90	22.50
FR1 n5	1	23.50	0.673	1.030	100.00%	1.00	25.30	23.00
FR1 n12	1	23.42	0.591	1.030	100.00%	1.00	25.80	23.00
FR1 n14	1	23.17	0.680	1.030	100.00%	1.00	24.90	23.00
FR1 n25	1	23.22	0.786	1.030	100.00%	1.00	24.30	23.00
FR1 n48	1	22.00	1.360	1.030	100.00%	1.00	20.70	22.00
FR1 n66	1	23.88	0.897	1.030	100.00%	1.00	24.40	23.00
FR1 n71	1	23.30	0.432	1.030	100.00%	1.00	27.00	23.00
FR1 n77	1	22.51	1.350	1.030	100.00%	1.00	21.30	22.00

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Band	Antenna	Measured Power (dBm)	1g measured SAR (W/kg)	SAR design Target (W/kg)	Duty cycle	Total Uncertainty (dB)	P limit (dBm) time-average power	P Max(*) time-average power
LTE B2	2	23.13	0.956	1.030	100.00%	1.00	23.40	23.00
LTE B7	2	22.94	1.020	1.030	100.00%	1.00	22.90	22.50
LTE B25	2	22.79	0.842	1.030	100.00%	1.00	23.60	23.00
LTE B30	2	21.97	1.020	1.030	100.00%	1.00	22.00	22.00
LTE B41**	2	22.85	0.900	1.030	63.30%	1.00	21.40	21.00
LTE B66/4	2	23.22	0.830	1.030	100.00%	1.00	24.10	23.00
FR1 n2	2	23.41	0.984	1.030	100.00%	1.00	23.60	23.00
FR1 n5	2	23.60	0.541	1.030	100.00%	1.00	26.30	23.00
FR1 n25	2	22.96	0.760	1.030	100.00%	1.00	24.20	23.00
FR1 n30	2	22.21	0.986	1.030	100.00%	1.00	22.30	22.00
FR1 n41	2	23.19	1.100	1.030	100.00%	1.00	22.90	22.50
FR1 n48	2	22.99	1.700	1.030	100.00%	1.00	20.80	22.00
FR1 n66	2	23.75	0.643	1.030	100.00%	1.00	25.70	23.00
FR1 n77	2	22.53	1.380	1.030	100.00%	1.00	21.20	22.00
FR1 n77 (SRS)	5	20.33	0.723	1.030	100.00%	1.00	21.80	20.50
FR1 n77 (SRS)	6	19.08	0.932	1.030	100.00%	1.00	19.50	19.50

*P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + 1dB uncertainty.

**All P_{limit} power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD & NR TDD).

The max allowed output power is the P_{limit} + 1dB device uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.