



SPOT CHECK EVALUATION

FCC ID : PY322100564
Equipment : Netgear 5G MHS Travel Router
Model Name : MR6150
Applicant : Netgear Inc
350 E. Plumeria Drive, San Jose, CA 95134, United States
Standard : 47 CFR Part 2, 22(H), 24(E), 27, 90(R), 90(S), 96

The product was received on May 11, 2022, and testing was started from May 28, 2022 and completed on Aug. 25, 2022.

We, Sporton International Inc. Wensan Laboratory, 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. Wensan Laboratory, the test report shall not be reproduced except in full.

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)



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History of this test report

Version	Description	Issue Date
01	Initial issue of report	Sep. 02, 2022



1. Introduction Section

FCC ID: PY321100529, PY322100558 and FCC ID: PY322100564 (variant model) use the same identical internal printed circuit board layouts, and based on their similarity, spot check and data referencing for the FCC Part 22, 24, 27, 90, 96 (equipment class: PCB, CBE) has been used following FCC KDB 484596 D01 v01. The spot check data in this report is used to justify the data reuse.

The applicant should take full responsibility that the test data as referenced in this report represent compliance for this FCC ID (FCC ID: PY322100564).



2. Model Difference Information

PY321100529 / PY322100558 and PY322100564 use the identical internal printed circuit board layout, and the major differences which may relate to RF are listed below:

- FR2 related components are available only on PY321100529
- Smaller size of the display on PY322100564
- Software difference on PY322100564: enable FR1 n77 HPUE
- Software difference on PY322100564: WLAN radios increase RF output power in the 2.4 and 5GHz bands
- Software difference on PY322100564: does not support WIFI 6E

The detail of similarity and difference is illustrated in the operational description. Based on the information, spot check of conducted power and emission level was performed and presented in this report to justify the data referencing.



3. Spot Check Verification Data Section

Conducted power test and radiated spurious emission test configurations were selected from the worst cases identified in the parent model and tested to demonstrate the test data from original model remains representative for the variant model.

Summary for power and RSE spot check for each rule entry and technology is listed as below:

Test Item	Mode	PY321100529 Parent Worst Result	PY322100564 Variant Check Result	Difference (dB)
Conducted Power (dBm)	WWAN LTE Band 2	23.48	23.34	-0.14
	WWAN LTE Band 4	23.16	23.13	-0.03
	WWAN LTE Band 5	23.27	23.30	0.03
	WWAN LTE Band 7	22.95	22.54	-0.41
	WWAN LTE Band 12	23.12	22.80	-0.32
	WWAN LTE Band 14	23.09	22.97	-0.12
	WWAN LTE Band 30	21.97	22.08	0.11
	WWAN LTE Band 48	22.54	22.09	-0.45
	WWAN LTE Band 66	23.83	23.93	0.1
	WWAN NR n2	23.84	23.82	-0.02
	WWAN NR n5	23.39	23.85	0.46
	WWAN NR n12	23.41	23.33	-0.08
	WWAN NR n14	23.07	23.54	0.47
	WWAN NR n30	22.37	22.32	-0.05
	WWAN NR n66	23.97	23.88	-0.09

Test Item	Mode	PY322100558 Parent Worst Result	PY322100564 Variant Check Result	Difference (dB)
Conducted Power (dBm)	WWAN LTE Band 13	23.04	22.87	-0.17
	WWAN LTE Band 25	23.02	23.37	0.35
	WWAN LTE Band 26	22.81	23.16	0.35
	WWAN LTE Band 41	24.20	23.94	-0.26
	WWAN LTE Band 71	23.05	22.64	-0.41
	WWAN NR n25	23.52	23.47	-0.05
	WWAN NR n41	23.38	23.32	-0.06
	WWAN NR n48	22.63	22.57	-0.06
	WWAN NR n71	23.35	23.21	-0.14



Test Item	Mode	ANT	PY321100529 Parent Worst Result	PY322100564 Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBm)	WWAN LTE Band 7	2	-35.97	-36.07	-0.1
	WWAN LTE Band 48	1	-44.31	-48.80	-4.49
	WWAN LTE Band 66	2	-36.29	-42.27	-5.98
	WWAN NR n2 (EN-DC 66A_n2A)	1	-38.38	-40.61	-2.23
	WWAN NR n2 (SA mode)	2	-39.83	-39.41	0.42
	WWAN NR n5 (EN-DC 2A_n5A)	1	-33.52	-47.72	-14.2
	WWAN NR n5 (EN-DC 12A_n5A)	2	-33.24	-36.05	-2.81
	WWAN NR n12 (SA mode)	1	-37.99	-53.86	-15.87
	WWAN NR n14 (SA mode)	1	-50.59	-57.67	-7.08
	WWAN NR n30 (EN-DC 14A_n30A)	2	-43.10	-47.30	-4.2

Test Item	Mode	ANT	PY322100558 Parent Worst Result	PY322100564 Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBm)	WWAN LTE Band 13	1	-50.08	-54.93	-4.85
	WWAN LTE Band 41	2	-34.47	-34.46	0.01
	WWAN NR n71 (EN-DC 2A_n71A)	1	-41.74	-39.70	2.04
	WWAN NR n41 (SA mode)	2	-34.38	-34.74	-0.36
	WWAN NR n48 (UL MIMO)	1+2	-45.53	-45.88	-0.35

**Conclusion:**

Radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

The spot check emission level is not degraded more than 3dB, and the margin to the limit is greater than 1.5dB, data referencing is justified according to the guidance in the KDB inquiry



4. Reference detail Section

Rule Part	Equipment Class	Wireless Technology	Frequency Band (MHz)	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Title	FCC ID Filling (Variant)
22, 24, 27, 90, 96	PCB CBE	LTE	2/4/5/7/12/14/ 30/48/66 ULCA 48C/66B/66C	PY321100529	Original Grant	FG190614A FG190614C FG190614E FG190614G	PY322100564
		LTE	13/25/26/41/71 ULCA 41C	PY322100558	Original Grant	FG190614-03A FG190614-03C	PY322100564
		NR	n2/n5/n12/n14/n30/n66	PY321100529	Original Grant	FG190614B FG190614D FG190614F	PY322100564
		NR	n25/n41/n48/n71 UL MIMO n48	PY322100558	Original Grant	FG190614-03B FG190614-03E	PY322100564



5. List of Measuring Equipment

<Radiation for FCC Part 22(H), 24(E), 27(D), 27(F), 27(H), 27(L), 27(M), 27(N), 90(R)>

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	May 13, 2022	May 28, 2022~ Jun. 07, 2022	May 12, 2023	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00993	18GHz~40GHz	Nov. 30, 2021	May 28, 2022~ Jun. 07, 2022	Nov. 29, 2022	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00994	18GHz~40GHz	Nov. 04, 2021	May 28, 2022~ Jun. 07, 2022	Nov. 03, 2022	Radiation (03CH16-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 15, 2021	May 28, 2022~ Jun. 07, 2022	Oct. 14, 2022	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	May 28, 2022~ Jun. 07, 2022	Jun. 21, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2,804 012/2	18-40G	Jan. 04, 2022	May 28, 2022~ Jun. 07, 2022	Jan. 03, 2023	Radiation (03CH16-HY)
Signal Generator	Agilent	MG3694C	163401	0.1Hz~40GHz	Feb. 13, 2022	May 28, 2022~ Jun. 07, 2022	Feb. 12, 2023	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	41912 & 05	30MHz to 1GHz	Feb. 06, 2022	May 28, 2022~ Jun. 07, 2022	Feb. 05, 2023	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N-06	47020 & 06	30MHz to 1GHz	Oct. 09, 2021	May 28, 2022~ Jun. 07, 2022	Oct. 08, 2022	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1G~18GHz	Aug. 04, 2021	May 28, 2022~ Jun. 07, 2022	Aug. 03, 2022	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Mar. 10, 2022	May 28, 2022~ Jun. 07, 2022	Mar. 09, 2023	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1G	Jul. 05, 2021	May 28, 2022~ Jun. 07, 2022	Jul. 04, 2022	Radiation (03CH16-HY)
Preamplifier	EMEC	EM1G18G	060812	1-18GHz	Dec. 27, 2021	May 28, 2022~ Jun. 07, 2022	Dec. 26, 2022	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec.09,.2021	May 28, 2022~ Jun. 07, 2022	Dec.08,.2022	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A	MY57290111	3Hz~26.5GHz	Dec.15,.2021	May 28, 2022~ Jun. 07, 2022	Dec.14,.2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11680/4P E	NA	Aug. 28, 2021	May 28, 2022~ Jun. 07, 2022	Aug. 27, 2022	Radiation (03CH16-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11688/4P E	NA	Aug. 28, 2021	May 28, 2022~ Jun. 07, 2022	Aug. 27, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300-5 757	NA	Aug. 28, 2021	May 28, 2022~ Jun. 07, 2022	Aug. 27, 2022	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	May 28, 2022~ Jun. 07, 2022	N/A	Radiation (03CH16-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	May 28, 2022~ Jun. 07, 2022	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	May 28, 2022~ Jun. 07, 2022	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	May 28, 2022~ Jun. 07, 2022	N/A	Radiation (03CH16-HY)



<Radiation for FCC 96 >

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	May 13, 2022	May 29, 2022~ May 30, 2022	May 12, 2023	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	37059 & 01	30MHz~1GHz	Oct. 09, 2021	May 29, 2022~ May 30, 2022	Oct. 08, 2022	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 09, 2021	May 29, 2022~ May 30, 2022	Oct. 08, 2022	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1328	1GHz~18GHz	Dec. 03, 2021	May 29, 2022~ May 30, 2022	Dec. 02, 2022	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1212	1GHz~18GHz	Mar. 10, 2022	May 29, 2022~ May 30, 2022	Mar. 09, 2023	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170251	18GHz~40GHz	Nov. 30, 2021	May 29, 2022~ May 30, 2022	Nov. 29, 2022	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170576	18GHz~40GHz	May 14, 2022	May 29, 2022~ May 30, 2022	May 13, 2023	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 23, 2022	May 29, 2022~ May 30, 2022	Mar. 22, 2023	Radiation (03CH12-HY)
Preamplifier	Aglient	8449B	3008A02375	1GHz~26.5GHz	May 24, 2022	May 29, 2022~ May 30, 2022	May 23, 2023	Radiation (03CH12-HY)
Preamplifier	E-INSTRUME NT TECH LTD.	ERA-100M-18 G-56-01-A70	EC1900270	1GHz-18GHz	Dec. 27, 2021	May 29, 2022~ May 30, 2022	Dec. 26, 2022	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 24, 2021	May 29, 2022~ May 30, 2022	Dec. 23, 2022	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY53470118	10Hz~44GHz	Jan. 12, 2022	May 29, 2022~ May 30, 2022	Jan. 11, 2023	Radiation (03CH12-HY)
Base Station	Anritsu	MT8821C	6201432816	2/3/4G/FDD/TD D with44)/LTE-3C C DLCA/2CC ULCA, CatM1/NB1/NB 2	May 10, 2021	May 29, 2022~ May 30, 2022	May 09, 2023	Radiation (03CH12-HY)
5G Wireless Test Platform	Anritsu	MT8000A	6262148275	FR1 (MT8821C SN:6262116725)	Aug 09, 2021	May 29, 2022~ May 30, 2022	Aug 08, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 10, 2022	May 29, 2022~ May 30, 2022	Mar. 09, 2023	Radiation (03CH12-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 10, 2021	May 29, 2022~ May 30, 2022	Dec. 09, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 21, 2022	May 29, 2022~ May 30, 2022	Feb. 20, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 21, 2022	May 29, 2022~ May 30, 2022	Feb. 20, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803953/2	30MHz~40GHz	Mar. 08, 2022	May 29, 2022~ May 30, 2022	Mar. 07, 2023	Radiation (03CH12-HY)
Filter	Wainwright	WLKS1200-12 SS	SN2	1.2GHz Low Pass Filter	Mar. 16, 2022	May 29, 2022~ May 30, 2022	Mar. 15, 2023	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	SN2	6.75GHz High Pass Filter	Mar. 16, 2022	May 29, 2022~ May 30, 2022	Mar. 15, 2023	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP140349	N/A	Sep. 30, 2021	May 29, 2022~ May 30, 2022	Sep. 29, 2022	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	May 29, 2022~ May 30, 2022	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	May 29, 2022~ May 30, 2022	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	May 29, 2022~ May 30, 2022	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	May 29, 2022~ May 30, 2022	N/A	Radiation (03CH12-HY)

**<Conducted for FCC Part 22, 24, 27, 90, 96>**

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Radio Communication Analyzer	Anritsu	MT8821C	6262025280	LTE FDD/TDD LTE-2CC DLCA/ULCA	Oct. 29, 2021	Jun.13 2022 ~ Aug. 25, 2022	Oct. 28, 2022	Conducted (TH03-HY)
Base Station (Measure)	Anritsu	MT8821C	6261849015	LTE	Ocr. 06, 2021	Jun. 13 2022 ~ Aug. 25, 2022	Oct. 05, 2022	Conducted (TH03-HY)
Base Station (Measure)	Anritsu	MT8000A	6261940327	FR1	Oct. 29, 2021	Jun. 13 2022 ~ Aug. 25, 2022	Oct. 28, 2022	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101908	10Hz~40GHz	Oct. 01, 2021	Jun. 13 2022 ~ Aug. 25, 2022	Sep. 30, 2022	Conducted (TH03-HY)
Signal Analyzer	Rohde & Schwarz	FSV3044	101049	10Hz~44GHz	Aug. 31, 2021	Jun. 13 2022 ~ Aug. 25, 2022	Aug. 30, 2022	Conducted (TH03-HY)
Hygrometer	Testo	608-H11	34893240	NA	Nov.17, 2021	Jun.13 2022 ~ Aug. 25, 2022	Nov.16, 2022	Conducted (TH03-HY)

Note: Test equipment calibration is traceable to the procedure of ISO17025.

END of this report