

1. General Descriptions of EUT

Equipment	Referenced Device	Model variant
ID	PY322100553	PY323200597
Granted Date	04/08/2022	N/A
Product	Wireless Module	Wireless Module
Brand	NETGEAR	NETGEAR
Test Model	MM32X	MB12X
Serier model	N/A	N/A
RF characteristics	WLAN 2.4GHz 802.11b/g/n/ac/ax	WLAN 2.4GHz 802.11b/g/n/ac/ax
	WLAN 5GHz 802.11a/n/ac/ax	WLAN 5GHz 802.11a/n/ac/ax
		Bluetooth
Difference between two devices	N/A	Firmware Enable Bluetooth Function
The identical parts between two devices	WLAN 2.4G/5G	WLAN 2.4G / 5G
	Design layout of RF main board.	Design layout of RF main board.
	Output power.	Output power.

2. The new equipment to be Granted in this new application (Model:MB12X), only differs from the initial version, (Model: MM32X) are with the only 1 following point:

• **Firmware Enable Bluetooth Function.**

Except **Firmware Enable Bluetooth Function** which not involves RF parameter, and antenna gain. Also, both of these two equipment have the same following points.

• **The Same of 2.4GHz / 5G WLAN function.**

• **The Same common design layout and components of RF main board.**

• **The Same of output power.**

The changes described above do not affect the radio characteristics (WLAN 2.4GHz and 5GHz) of the equipment. Based on engineering judgment of the device design, radio test data retrieved from the initial application Model: MM32X can be re-used for the Model: MB12X equipment.

• **Referencing test items**

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Referenced Test Data	Note
15.207	AC Power Conducted Emission	Yes	
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Yes	
15.247(d)	Antenna Port Emission	Yes	
15.247(a)(2)	6dB bandwidth	Yes	
15.247(b)	Conducted power	Yes	
15.247(e)	Power Spectral Density	Yes	
15.203	Antenna Requirement	Yes	

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Referenced Test Data	Note
15.407(a)(1) 15.407(a)(2) 15.407(a)(3)	RF Output Power	Yes	
15.407(a)(1) 15.407(a)(2) 15.407(a)(3)	Power Spectral Density	Yes	
15.407(e)	6 dB Bandwidth	Yes	
---	Occupied Bandwidth	Yes	
15.407(g)	Frequency Stability	Yes	
15.407(b)(9)	AC Power Conducted Emissions	Yes	
15.407(b)(9)	Unwanted Emissions below 1 GHz	Yes	

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Referenced Test Data	Note
15.407(b) (1/10) 15.407(b) (2/10) 15.407(b) (3/10) 15.407(b) (4(i)/10)	Unwanted Emissions above 1 GHz	Yes	
15.203	Antenna Requirement	Yes	

3. Spot- Check Test Plan

The format and amount of spot-check test data are decided as below,

- Sample amount: 1
- Spot-check rule part, test items, frequency band and test modes, if the output power is not higher than original application.

FCC/ ISED Rule Part	Test Items	Frequency Band	Test Modes
15.247 / RSS-247 (WLAN 2.4G)	Conducted output power	2412-2462 MHz	Low/Mid/High channel with maximum power among 802.11 b/g/n/ax
	Radiated emission – Band edge and Harmonics		One worst channel with maximum power among 802.11 b/g/n/ax
	AC Power Conducted Emission	2412-2462 MHz	One worst channel with maximum power among 802.11 b/g/n/ax
15.407 / RSS-247 (WLAN 5G)	Conducted output power	5180-5240MHz, 5745-5825MHz	Low/Mid/High channel with maximum power among 802.11 a/n/ac/ax
	Radiated emission – Band edge and Harmonics		One worst channel with maximum power among 802.11 a/n/ac/ax
	AC Power Conducted Emission	5180-5240MHz, 5745-5825MHz	One worst channel with maximum power among 802.11 a/n/ac/ax
15.247 / RSS-247 (Bluetooth)	ALL	2402-2480MHz	ALL

Note: RF conducted output power were confirmed and has the same conducted power as Referenced Device (FCC ID: PY322100553)

4. RF Exposure (MPE) Evaluation

RF Exposure data will full evaluate of variant Model: MB12X.

5. Acceptance criteria for spot check

Test Items	Frequency	Deviation Tolerance	Acceptance criteria
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AC Power Conducted Emission	150kHz~30MHz	+/- 3.04dB	The each band worst value of test result for variant device compare to the test result of Referenced device must be within Deviation Tolerance and must be lower than limitation.
Conducted Output power	All operating band	+/- 1.0dB	The test result compare to the test result of Referenced device must be within Deviation Tolerance and calculated EIRP must be lower than limitation for each operating band.
Spurious Emission up to 1GHz	9kHz~30MHz	+/- 3.04dB	The each band worst value of test result for variant device compare to the test result of Referenced device must be within Deviation Tolerance and must be lower than limitation.
	30MHz~200MHz	+/- 3.86dB	
	200MHz~1000MHz	+/- 3.87dB	
Spurious Emission above 1GHz	1GHz~18GHz	+/- 2.29dB	The each band worst value of test result for variant device compare to the test result of Referenced device must be within Deviation Tolerance and must be lower than limitation.
	18G~40GHz	+/- 2.29dB	

***Spot check test result comply with Acceptance Criteria, data referencing is applicable.**

6. Summary Spot- Check Test Result:

Mode	Test Item	Referenced Device Result	Variant Model Result	Test Result
WLAN 2.4G	Conducted output power (dBm)	26.03 dBm	25.89 dBm	Pass
	Radiated emission	Minimum passing margin: -0.1dB	Minimum passing margin: -0.1dB	Pass
	AC Power Conducted Emission	Minimum passing margin: -6.6dB	Minimum passing margin: -6.65dB	Pass
WLAN 5G	Conducted output power (dBm)	5180~5240MHz: 23.93 dBm 5745~5825MHz: 27.74 dBm	5180~5240MHz: 23.89 dBm 5745~5825MHz: 27.55 dBm	Pass
	Radiated emission	Minimum passing margin: -0.1dB	Minimum passing margin: -0.3dB	Pass
	AC Power Conducted Emission	Minimum passing margin: -6.56dB	Minimum passing margin: -6.56dB	Pass