

RF Exposure Report

Report No.: SABEOP-WTW-P20100005

FCC ID: NKRM18QAG

Test Model: M18QAG

Received Date: July 10, 2020

Test Date: Oct. 20, 2020

Issued Date: Nov. 12, 2020

Applicant: Wistron NeWeb Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory

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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
SABEOP-WTW-P20100005	Original release.	Nov. 12, 2020

1 Certificate of Conformity

Product: M2M DATA MODULE

Brand: Wistron NeWeb Corporation

Test Model: M18QAG

Sample Status: ENGINEERING SAMPLE

Applicant: Wistron NeWeb Corporation

Test Date: Oct. 20, 2020

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.3 -2002

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 : Vivian Huang , **Date:** Nov. 12, 2020
Vivian Huang / Specialist

Approved by : Clark Lin , **Date:** Nov. 12, 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

2.1 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

2.2 Classification

The antenna of this product, under normal use condition, is at least 20 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.3 Antenna Gain

For GPS					
Antenna No.	Band	Freq. Range (MHz)	Antenna Net Gain (dBi)	Antenna Type	Connector Type
1	GPS	1602	2.24	Dipole	SMA
For WWAN					
Antenna No.	Band	Freq. Range (MHz)	Antenna Net Gain (dBi)	Antenna Type	Connector Type
2	LTE / WCDMA (2)	1850~1910	1.56	Dipole	SMA
	LTE / WCDMA (4)	1710~1755	1.62	Dipole	SMA
	LTE / WCDMA (5)	824~849	3.2	Dipole	SMA
	LTE / WCDMA (12)	699~716	1.49	Dipole	SMA
	LTE / WCDMA (14)	788~798	1.66	Dipole	SMA

*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.

2.4 Calculation Result

Operation Mode	Evaluation Frequency (MHz)	Max. Conducted Power		Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
		(mW)	(dBm)				
WCDMA B2	1850-1910	261.818	24.18	1.56	20	0.07460	1
WCDMA B5	824-849	305.492	24.85	3.20	20	0.12698	0.54933*
LTE B2	1850-1910	247.742	23.94	1.56	20	0.07059	1
LTE B4	1710-1755	242.661	23.85	1.62	20	0.07010	1
LTE B5	824-849	267.916	24.28	3.20	20	0.11136	0.54933*
LTE B12	699-716	255.27	24.07	1.49	20	0.07157	0.466*
LTE B14	788-798	240.436	23.81	1.66	20	0.07010	0.52533*

* Limit of Power Density = $f/1500$ (For frequency below 1500MHz)

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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