

## RF Exposure Report

**Report No.:** SABDTL-WTW-P21060469-1

**FCC ID:** VUI-TANG

**Test Model:** 84945296C

**Received Date:** Feb. 15, 2022

**Test Date:** Mar. 15 ~ Apr. 13, 2022

**Issued Date:** May 18, 2022

**Applicant:** PEGATRON CORPORATION

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City  
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**FCC Registration /  
Designation Number:** 788550 / TW0003



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### Release Control Record

Issue No.	Description	Date Issued
SABDTL-WTW-P21060469-1	Original release	May 18, 2022

## 1 Certificate of Conformity

**Product:** Telematics & Network Gateway (TANG)

**Brand:** 

**Test Model:** 84945296C

**Sample Status:** DV

**Applicant:** PEGATRON CORPORATION

**Test Date:** Mar. 15 ~ Apr. 13, 2022

**Standards:** FCC Part 2 (Section 2.1091)

**References Test Guidance:** KDB 447498 D01 General RF Exposure Guidance v06

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 RF characteristics under the conditions specified in this report.

**Prepared by :** Pettie Chen, **Date:** May 18, 2022  
Pettie Chen / Senior Specialist

**Approved by :** Jeremy Lin, **Date:** May 18, 2022  
Jeremy Lin / Project Engineer

## 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 <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 2.2 MPE Calculation Formula

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

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

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

### 2.3 Classification

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

### 3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Average Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
<b>WLAN</b>					
2412-2462	16.29	4.71	20	0.025	1
5180-5240	14.49	4.81	20	0.017	1
5260-5320	14.21	5.71	20	0.020	1
5500-5720	14.65	5.41	20	0.020	1
5745-5825	14.07	4.51	20	0.014	1

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

For WWAN module (Brand: Quectel, Model: AG521R-NA, FCC ID: VUI-DAV001)

Band	ERP Power (dBm)	EIRP Power (dBm)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
<b>Module 1</b>					
LTE B2	-	23.24	20	0.042	1.00
LTE B4	-	23.18	20	0.041	1.00
LTE B5	22.2	24.35	20	0.054	0.54
LTE B7	-	23.28	20	0.042	1.00
LTE B12	20.41	22.56	20	0.036	0.46
LTE B13	20.25	22.40	20	0.035	0.52
LTE B14	21.21	23.36	20	0.043	0.53
LTE B25	-	23.28	20	0.042	1.00
LTE B26 (Part 22)	22.31	24.46	20	0.056	0.54
LTE B26 (Part 90)	22.38	24.53	20	0.056	0.54
LTE B66	-	23.23	20	0.042	1.00
LTE B71	20.91	23.06	20	0.040	0.44

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- EIRP = ERP + 2.15dB

Band	ERP Power (dBm)	EIRP Power (dBm)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
Module 2					
LTE B2	-	23.23	20	0.042	1.00
LTE B4	-	23.44	20	0.044	1.00
LTE B5	22.33	24.48	20	0.056	0.54
LTE B7	-	23.20	20	0.042	1.00
LTE B12	20.29	22.44	20	0.035	0.46
LTE B13	20.35	22.50	20	0.035	0.52
LTE B14	21.48	23.63	20	0.046	0.53
LTE B25	-	23.17	20	0.041	1.00
LTE B26 (Part 22)	22.64	24.79	20	0.060	0.54
LTE B26 (Part 90)	22.41	24.56	20	0.057	0.54
LTE B66	-	23.27	20	0.042	1.00
LTE B71	20.87	23.02	20	0.040	0.44
Module 3					
LTE B2	-	23.22	20	0.042	1.00
LTE B4	-	23.29	20	0.042	1.00
LTE B5	22.10	24.25	20	0.053	0.54
LTE B7	-	23.18	20	0.041	1.00
LTE B12	20.38	22.53	20	0.036	0.46
LTE B13	19.62	21.77	20	0.030	0.52
LTE B14	20.90	23.05	20	0.040	0.53
LTE B25	-	23.21	20	0.042	1.00
LTE B26 (Part 22)	22.00	24.15	20	0.052	0.54
LTE B26 (Part 90)	21.72	23.87	20	0.048	0.54
LTE B66	-	23.44	20	0.044	1.00
LTE B71	20.67	22.82	20	0.038	0.44

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. EIRP = ERP + 2.15dB

Note:

1. Directional gain:

2412-2462MHz: Directional Gain = 1.7dBi + 10log(2) = 4.71dBi

5180-5240MHz: Directional Gain = 1.8dBi + 10log(2) = 4.81dBi

5260-5320MHz: Directional Gain = 2.7dBi + 10log(2) = 5.71dBi

5500-5720MHz: Directional Gain = 2.4dBi + 10log(2) = 5.41dBi

5745-5825MHz: Directional Gain = 1.5dBi + 10log(2) = 4.51dBi

2. 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.

**Conclusion:**

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

The simultaneous operation mode was determined by client.

WLAN 2.4GHz + WWAN (module 1) + WWAN (module 2) + WWAN (module 3)

$= 0.025/1 + 0.056/0.54 + 0.060/0.54 + 0.053/0.54 = 0.3380$

WLAN 5GHz + WWAN (module 1) + WWAN (module 2) + WWAN (module 3)

$= 0.020/1 + 0.056/0.54 + 0.060/0.54 + 0.056/0.54 = 0.3385$

Therefore the maximum calculations of above situations are less than the "1" limit.

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