RF Exposure Report

Report No.:	SABGSN-WTW-P20070580-7
FCC ID:	2AX8C-3544
Test Model:	FL44TE
Received Date:	Jul. 29, 2020
Date of Evaluation:	Nov. 27, 2020
Issued Date:	Dec. 01, 2020
Applicant:	Amazon.com Services LLC
Address:	410 Terry Ave N Seattle, WA 98109 650 694 8333
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 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
SABGSN-WTW-P20070580-7	Original Release	Dec. 01, 2020

1 Certificate of Conformity

Product:	Fleet Edge
Brand:	N/A
Test Model:	FL44TE
Sample Status:	Engineering Sample
Applicant:	Amazon.com Services LLC
Date of Evaluation:	Nov. 27, 2020
Standards:	FCC Part 2 (Section 2.1091)
References Test Guidance :	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 RF characteristics under the conditions specified in this report.

Prepared by : Gina Liu , **Date:** Dec. 01, 2020

Gina Liu / Specialist

Approved by : , **Date:** Dec. 01, 2020

Dylan Chiou / Senior Project Engineer

2 General Information

1. The EUT contains following accessory devices.

Product	Brand	Model	Description
BT/WLAN Module	Intel	9560NGW	802.11 a/b/g/n/ac Wireless LAN + Bluetooth 5
WWAN Module	Quectel	EM06-A	WCDMA, LTE

2. The antenna information is listed as below.

Antenna information				Peak gain w/ cable loss (dBi)			
Brand	Type	Antenna Part number	Ant.	BT/WLAN 2.4 GHz	WLAN 5.15~5.35 GHz	WLAN 5.47~5.725 GHz	WLAN 5.725~5.85 GHz
TAOGLAS	Multiband	MA491.A.BICG.005.gb	0	-1.85	-4.8	-4.8	-4.8
			1	-3.05	-3.5	-3.5	-3.5

WWAN Antenna											
Band		WCDMA 2 / LTE 2	WCDMA 4 / LTE 4	WCDMA 5 / LTE 5	LTE 7	LTE 12	LTE 13	LTE 25	LTE 26	LTE 30	LTE 66
Gain (dBi)	Ant. 0	-0.4	**1.4**	**-3**	-2.6	-1.4	-1.4	-0.4	**-3**	-2.6	**1.4**
	Ant. 1	**-0.1**	1.2	-3.4	**-1.9**	**-0.9**	**-0.9**	**-0.1**	-3.4	**-1.9**	1.2

3 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

2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

Pout = 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**.

2.4 Calculation Result of Maximum Conducted Power

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WCDMA II	1850-1910	24.00	-0.1	20	0.049	1.00
WCDMA IV	1710-1755	24.00	1.4	20	0.069	1.00
WCDMA V	824-849	24.00	-3	20	0.025	0.55
LTE 2	1850-1910	24.00	-0.9	20	0.041	1.00
LTE 4	1710-1755	23.50	1.4	20	0.061	1.00
LTE 5	824-849	24.00	-3	20	0.025	0.55
LTE 7	2500-2570	23.50	-1.9	20	0.029	1.00
LTE 12	699-716	23.50	-0.9	20	0.036	0.47
LTE 13	777-787	23.50	-0.9	20	0.036	0.52
LTE 25	1850-1915	23.50	-0.1	20	0.044	1.00
LTE 26	814-849	23.50	-3	20	0.022	0.54
LTE 30	2305-2315	23.50	-1.9	20	0.029	1.00
LTE 66	1710-1780	23.50	1.4	20	0.061	1.00
WLAN	2412-2472	21.00	0.58	20	0.029	1.00
	5180-5250	23.00	-1.12	20	0.031	1.00
	5250-5320	23.00	-1.12	20	0.031	1.00
	5500-5720	23.50	-1.12	20	0.034	1.00
	5745-5825	24.50	-1.12	20	0.043	1.00
BT	2402-2480	10.00	-3.05	20	0.001	1.00

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
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
3. 2.4GHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}] = 0.58$ dBi
   5.0GHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}] = -1.12$ dBi

Simultaneous Transmission Evaluation:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN + BT + WWAN = 0.043/1 + 0.001/1 + 0.036/0.47 = 0.121

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

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