RF Exposure Report

Report No.:	SABHAA-WTW-P21040941
FCC ID:	JOYCW1011
Test Model:	AL-T51A2-2
Series Model:	AL-T52V1, AL-T51A2-1
Received Date:	Apr. 25, 2021
Test Date:	Apr. 29 ~ May 02, 2021
Issued Date:	May 10, 2021
Applicant:	Kyocera Corporation
Address:	2-1-1 Kagahara,Tsuzuki-ku Yokohama-city Kanagawa 224-8502 Japan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan BranchLin 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

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
SABHAA-WTW-P21040941	Original release.	May 10, 2021

1 Certificate of Conformity

Product:	Telematics Module
Brand:	Kyocera
Test Model:	AL-T51A2-2
Series Model:	AL-T52V1, AL-T51A2-1
Sample Status:	Engineering Sample
Applicant:	Kyocera Corporation
Test Date:	Apr. 29 ~ May 02, 2021
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 :  , **Date:** May 10, 2021

Gina Liu / Specialist

Approved by :  , **Date:** May 10, 2021

Dylan Chiou / Senior 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^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.

3 Calculation Result of Maximum Power

Function	Frequency Band (MHz)	ERP (dBm)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WCDMA Band 5	826.4~846.6	16.5	18.65	20	0.015	0.551
FCC Part 22: LTE Band 26 (Channel Bandwidth 1.4MHz)	824.7~848.3	21.3	23.45	20	0.044	0.550
FCC Part 90: LTE Band 26 (Channel Bandwidth 1.4MHz)	814.7~823.3	22.6	24.75	20	0.059	0.543

Note: ERP=EIRP-2.15

Function	Frequency Band (MHz)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WCDMA Band 2	1852.4~1907.6	21.6	20	0.029	1
WCDMA Band 4	1712.4~1752.6	17.8	20	0.012	1
LTE Band 2 (Channel Bandwidth 10MHz)	1850.7~1909.3	25.9	20	0.077	1
LTE Band 4 (Channel Bandwidth 10MHz)	1715.0~1750.0	24.0	20	0.050	1
LTE Band 12 (Channel Bandwidth 1.4MHz)	699.7~715.3	23.2	20	0.042	0.466

Conclusion:
The formula of calculated the MPE is:
CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1
CPD = Calculation power density
LPD = Limit of power density

Max.: WWAN 3G + WWAN 4G = 0.029/1 + 0.059/0.543 = 0.029 + 0.109 = 0.138 < 1

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