RF Exposure Report

Report No.:	SA180129C24
FCC ID:	JOYDA39
Test Model:	AL-T52V1
Received Date:	Jan. 29, 2018
Test Date:	Jan. 31 ~ Feb. 08, 2018
Issued Date:	Feb. 27, 2018
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 Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
SA180129C24	Original release.	Feb. 27, 2018

1 Certificate of Conformity

Product:	Telematics Module
Brand:	Kyocera
Test Model:	AL-T52V1
Sample Status:	Engineering sample
Applicant:	Kyocera Corporation
Test Date:	Jan. 31 ~ Feb. 08, 2018
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.1

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 : _____ , **Date:** Feb. 27, 2018

Suntee Liu / Specialist

Approved by : _____ , **Date:** Feb. 27, 2018

Bruce Chen / 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				
300-1500	…	…	F/1500	30
1500-100,000	…	…	1.0	30

F = Frequency in MHz

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 Conducted 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	17.5	19.65	20	0.018	0.551
FCC Part 27: LTE Band 26 (Channel Bandwidth 1.4MHz)	824.7~848.3	23.4	25.55	20	0.071	0.550
FCC Part 27: LTE Band 26 (Channel Bandwidth 3MHz)	825.5~847.5	23.4	25.55	20	0.071	0.550
FCC Part 27: LTE Band 26 (Channel Bandwidth 5MHz)	826.5~846.5	23.0	25.15	20	0.065	0.551
FCC Part 27: LTE Band 26 (Channel Bandwidth 10MHz)	829~844	23.2	25.35	20	0.068	0.553
FCC Part 27: LTE Band 26 (Channel Bandwidth 15MHz)	831.5~841.5	22.8	24.95	20	0.062	0.554
LTE Band 13 (Channel Bandwidth 5MHz)	779.5~784.5	22.2	24.35	20	0.054	0.519
LTE Band 13 (Channel Bandwidth 10MHz)	782	21.0	23.15	20	0.041	0.521
FCC Part 90S: LTE Band 26 (Channel Bandwidth 1.4MHz)	814.7~823.3	23.8	25.95	20	0.078	0.543
FCC Part 90S: LTE Band 26 (Channel Bandwidth 3MHz)	815.5~822.5	23.5	25.65	20	0.073	0.544
FCC Part 90S: LTE Band 26 (Channel Bandwidth 5MHz)	816.5~821.5	23.4	25.55	20	0.071	0.544
FCC Part 90: LTE Band 26 (Channel Bandwidth 10MHz)	819.0	23.1	25.25	20	0.067	0.546

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	22.8	20	**0.038**	1
WCDMA Band 4	1712.4~1752.6	18.9	20	0.015	1
LTE Band 2 (Channel Bandwidth 1.4MHz)	1850.7~1909.3	28.8	20	**0.151**	1
LTE Band 2 (Channel Bandwidth 3MHz)	1851.5~1908.5	27.7	20	0.117	1
LTE Band 2 (Channel Bandwidth 5MHz)	1852.5~1907.5	27.2	20	0.104	1
LTE Band 2 (Channel Bandwidth 10MHz)	1855.0~1905.0	28.0	20	0.126	1
LTE Band 2 (Channel Bandwidth 15MHz)	1857.5~1902.5	27.3	20	0.107	1
LTE Band 2 (Channel Bandwidth 20MHz)	1860.0~1900.0	27.0	20	0.100	1
LTE Band 4 (Channel Bandwidth 1.4MHz)	1850.7~1909.3	25.0	20	0.063	1
LTE Band 4 (Channel Bandwidth 3MHz)	1851.5~1908.5	25.3	20	0.067	1
LTE Band 4 (Channel Bandwidth 5MHz)	1852.5~1907.5	25.1	20	0.064	1
LTE Band 4 (Channel Bandwidth 10MHz)	1855.0~1905.0	25.9	20	0.077	1
LTE Band 4 (Channel Bandwidth 15MHz)	1857.5~1902.5	25.3	20	0.067	1
LTE Band 4 (Channel Bandwidth 20MHz)	1860.0~1900.0	25.5	20	0.071	1
LTE Band 12 (Channel Bandwidth 1.4MHz)	1850.7~1909.3	24.7	20	0.059	1
LTE Band 12 (Channel Bandwidth 3MHz)	1851.5~1908.5	24.4	20	0.055	1
LTE Band 12 (Channel Bandwidth 5MHz)	1852.5~1907.5	24.4	20	0.055	1
LTE Band 12 (Channel Bandwidth 10MHz)	1855.0~1905.0	24.5	20	0.056	1

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 = 0.038/1 + 0.151/1 = 0.038 + 0.151 = 0.189 < 1

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