

## 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 /** 788550 / TW0003

**Designation Number:**



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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 :**

  
Suntee Liu / Specialist

**Date:**

Feb. 27, 2018

**Approved by :**

  
Bruce Chen / Project Engineer

**Date:**

Feb. 27, 2018

## 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

Function	Frequency Band (MHz)	ERP (dBm)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
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 <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WCDMA Band 2	1852.4~1907.6	22.8	20	<b>0.038</b>	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	<b>0.151</b>	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:

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

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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