FCC RF Exposure Report

Report No.:	FCC_RF_SL20012301-XIR-002_MPE Rev_2.0
FCC ID:	GKM-XT2500
Test Model:	XT2500
Series Model:	N/A
Received Date:	04/28/2020
Test Date:	04/29/2020-04/30/2020
Issued Date:	06/22/2020
Applicant:	Xirgo Technologies
Address:	188 Camino Ruiz, Camarillo, CA 93012
Manufacturer:	BCM Corporation
Address:	Plot 21, Jalan Hi-Tech 4, Kulim Hi-Tech Park, Phase 1, 09090 Kulim, Kedah, MALAYSIA
Issued By:	Bureau Veritas Consumer Products Services, Inc.
Lab Address:	775 Montague Expressway, Milpitas, CA 95035
Test Location (1):	775 Montague Expressway, Milpitas, CA 95035
FCC Registration / Designation Number:	540430

ACCREDITED
TESTING CERT # 2742-01

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Release Control Record

Issue No.	Description	Date Issued
FCC_RF_SL20012301-XIR-002_MPE	Initial Release	05/04/2020
FCC_RF_SL20012301-XIR-002_MPE Rev_1.0	Update FCC ID and add LTE calculate	05/13/2020
FCC_RF_SL20012301-XIR-002_MPE Rev_2.0	Update Product Name	06/22/2020

1 Certificate of Conformity

Product:	XT2500
Brand:	Xirgo Technologies
Test Model:	XT2500
Sample Status:	Engineering sample
Applicant:	Xirgo Technologies
Test Date:	04/29/2020-04/30/2020
Standards:	FCC Part 2 (Section 2.1093) KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services, Inc., Milpitas 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:** 06/22/2020

Deon Dai / Test Engineer

Approved by : _____ , **Date:** 06/22/2020

Chen Ge / Engineer Reviewer

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.

2.4 Antenna Gain

The antenna type is Chip Antenna with 1.5 dBi peak gain.

2.5 Calculation Result of Maximum Conducted Power

Type	Max Power (dBm)	Max Power (mW)	Turn-Up Tolerance	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
BLE	4.48	2.81	±1dB	1.5	20	0.000992	1
LTE Band 2	23.93	247.17	±1dB	2.5	20	0.11	1
LTE Band 4	22.42	174.58	±1dB	3.0	20	0.087	1
LTE Band 5	23.81	240.44	±1dB	4.0	20	0.151	0.549
LTE Band 12	23.67	232.81	±1dB	0.0	20	0.058	0.466
LTE Band 13	23.87	243.78	±1dB	4.0	20	0.153	0.518

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. Calculate MPE thresholds from condition “1” formulas.
3. BT BLE antenna type is Chip antenna with 1.5 dBi gain.
4. Simultaneous Transmission with cellular module, FCC ID: XMR201707BG96

3 Conclusion

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

Max Co-location mode = BLE + LTE B13 = (0.000992/1+ 0.153/0.518) = 0.2953 < 1

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

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