

RF Exposure Report

Report No.: SA200710C07

FCC ID: L6AITE100-1

Test Model: ITE100-1

Received Date: Jul. 10, 2020

Date of Evaluation: Oct. 28, 2020

Issued Date: Nov. 03, 2020

Applicant: BlackBerry Limited

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FCC Registration /
Designation Number: 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SA200710C07	Original Release	Nov. 03, 2020

1 Certificate of Conformity

Product: mmwave RF Cargo Sensor with short range RF connectivity

Brand: BlackBerry

Test Model: ITE100-1

Sample Status: Identical Prototype

Applicant: BlackBerry Limited

Date of Evaluation: Oct. 28, 2020

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C93-2002

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.

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Approved by : Dylan Chiou, **Date:** Nov. 03, 2020
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/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

π = 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

SRD (903~927 MHz): Monopole Antenna with 2.91 dBi gain

SRD (2405~2480 MHz): Monopole Antenna with 2.66 dBi gain

2.5 Calculation Result of Maximum Conducted Power

Band	Frequency Band	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
SRD	904 ~ 926 MHz	17.52	2.91	20	0.022	0.601
SRD	2405 ~ 2475 MHz	17.55	2.66	20	0.021	1.00
SRD (15.249)	903~927 MHz	-1.431	2.91	20	0.00028	0.601
SRD (15.249)	2405 ~ 2480 MHz	-2.03	2.66	20	0.00023	1

Band	Frequency Band	EIRP Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
Part 95	77~81 MHz	27.54	0	20	0.1129	1

Note:

1. Output power (dBm) = Field Strength (dBuV/m)@3m - 95.23, Output power (mW) = $10^{(\text{Max power (dBm)}/10)}$
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. 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
4. SRD & other technology cannot transmit same time.

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$$\text{SRD} = 0.022 / 0.601 + 0.021 / 1.00 = 0.037$$

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

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