





RF EXPOSURE REPORT

Applicant	Particle Industries, Inc
Address	126 Post St,4th floor, San Francisco, CA 94108 USA

Manufacturer or Supplier	Particle Industries, Inc
Address	126 Post St,4th floor, San Francisco, CA 94108 USA
Product	B Series
Brand Name	Particle
Model	B402
Additional Model & Model Difference	B404 ; See items 1
Date of tests	Jun. 04, 2019 ~ Jul. 03, 2019

- IC RSS-102 Issue 5
- IEEE C95.3

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Breeze Jiang Senior Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	 Date: Jan. 12, 2021

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VERITAS

Test Report No.: IM2011WDG0365

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
IM190604N039	Original release	Jul. 18, 2019
IM2011WDG0365	Based on the original report IM190604N039 changed the product name and model, added brand name	Jan. 12, 2021

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1. CERTIFICATION

IC:	20127-B402
PRODUCT:	B Series
BRAND NAME:	Particle
MODEL NO.:	B402
ADDITIONAL MODEL:	B404
TEST SAMPLE:	Engineering Sample
APPLICANT:	Particle Industries, Inc
STANDARDS:	IC RSS-102 Issue 5
	IEEE C95.3



2. RF EXPOSURE LIMIT

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FREQUENCY RANGE (MHz)	ELECTRIC FIELD STRENGTH (V/m)	MAGNETIC FIELD STRENGTH (A/m)	POWER DENSITY (W/m ²)	AVERAGE TIME (minutes)
LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE				
48-300	22.06	0.05852	1.291	6
300-6000	3.142*F ^{0.3417}	0.008335*F ^{0.3417}	0.02619*F ^{0.6834}	6

F = Frequency in MHz

3. MPE CALCULATION FORMULA

$$Pd = (Pout * G) / (4 * pi * r^2)$$

where

Pd = power density in W/m²

Pout = output power to antenna in W

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in m

4. 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**.



5. ANTENNA GAIN

The antennas provided to the EUT, please refer to the following table:

Frequency Band	Antenna Gain (dBi)	Antenna Type
BT-LE (GFSK)	2.00	FPCB Antenna
LTE(Band 2)	3.50	FPCB Antenna
LTE(Band 4)	3.50	FPCB Antenna
LTE(Band 5)	1.00	FPCB Antenna
LTE(Band 12)	1.00	FPCB Antenna
LTE(Band 13)	1.00	FPCB Antenna

6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

TUNE-UP POWER TABLE

Band	Frequency (MHz)	Operating Mode	Tune-Up Power And Tolerance (dBm)
BT-LE	2402	GFSK(1Mbps)	-4.0
LTE 2	1880	QPSK	24.8
LTE 4	1732.5	QPSK	25.0
LTE 5	836.5	QPSK	25.0
LTE 12	707.5	QPSK	25.0
LTE 13	782	QPSK	25.0



BT

Band	Frequency (MHz)	Operating Mode	Antenna Gain (dBi)	Tune-up Power (dBm)	E.I.R.P Power (mW)	Power Density (W/m ²)	limit (W/m ²)	PASS / FAIL
BTLE	2402	GFSK	2	-4.0	0.63	0.00126	5.35	PASS

LTE

Band	Frequency (MHz)	Operating Mode	Antenna Gain (dBi)	Tune-up Power (dBm)	E.I.R.P Power (mW)	Power Density (W/m ²)	limit (W/m ²)	PASS / FAIL
Band 2	1880	QPSK	3.50	24.80	676.083	1.35	4.53	PASS
Band 4	1720	QPSK	3.50	25.00	707.946	1.41	4.26	PASS
Band 5	829	QPSK	1.00	25.00	398.107	0.79	2.59	PASS
Band 12	707.5	QPSK	1.00	25.00	398.107	0.79	2.32	PASS
Band 13	782.0	QPSK	1.00	25.00	398.107	0.79	2.49	PASS

CONCLUSION:

The BT and WWAN can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

(0.00126/5.35)+(1.41/4.26) = 0.33<1, which is less than the "1" limit.

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