

FCC MPE CALCULATION (FCC ID: 2AH4HATD300B)

RF Exposure Requirements:	47 CFR §1.1307(b)
RF Radiation Exposure Limits:	47 CFR §1.1310
RF Radiation Exposure Guidelines:	FCC OST/OET Bulletin Number 65
EUT Frequency Band:	BLE: 2402-2480MHz GSM850: 824.2 – 848.8 MHz GSM1900: 1850.2 – 1909.8 MHz WCDMA Band II: 1852.4 – 1907.6 MHz WCDMA Band V: 826.4 – 846.6 MHz LTE Cat-1 Band 2: 1850.7-1909.3MHz LTE Cat-1 Band 4: 1710.7-1754.3MHz LTE Cat-1 Band 5: 824.7-848.3MHz LTE Cat-1 Band 7: 2502.5 – 2567.5MHz
Limits for General Population/Uncontrolled Exposure in the band of:	300 - 1500 MHz,
Power Density Limit:	f/1500 mW/cm ²
Limits for General Population/Uncontrolled Exposure in the band of:	1500 - 100,000 MHz
Power Density Limit:	1 mW / cm ²

Equation: $S = PG / 4\pi R^2$ or $R = \sqrt{PG / 4\pi S}$

Where, S = Power Density

P = Power Input to Antenna

G = Antenna Gain

R = distance to the center of radiated antenna

Prediction distance 20 cm

EUT: ATD300B

Radio	Frequency (MHz)	Max Conducted Average Output Power (dBm)	Antenna Gain (dBi)	Separation distance (cm)	Power Density (mW/ cm ²)	MPE Limit (mW/ cm ²)
BLE	2400-2480	3.35	-2.5	20	0.0002	1
GSM	824.2 – 848.8	25.97	0.77	20	0.0939	0.549
GSM	1850.2 – 1909.8	25.00	2.92	20	0.1232	1
WCDMA Band II	1852.4 – 1907.6	25.00	2.92	20	0.1232	1
WCDMA Band V	826.4 – 846.6	25.00	0.77	20	0.0751	0.551
LTE Band2	1850.7-1909.3	25.00	2.92	20	0.1232	1
LTE Band4	1710.7-1754.3	25.00	3.05	20	0.1270	1
LTE Band5	824.7-848.3	25.70	0.77	20	0.0883	0.550
LTE Band7	2502.5 – 2567.5	25.00	3.72	20	0.1482	1

The above results show that the device complies with the MPE requirement.

The BLE is able to transmit simultaneously with cellular band.

The ratio = $0.0002/1 + 0.0939/0.549 = 0.171 < 1.0$

The above results show that the device complies with the simultaneous transmission MPE requirement.

Completed By: David Zhang

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Date: July 19th, 2019

ISED RF Exposure Evaluation (ISED ID: 21385-ATD300B)

RF Exposure Requirements:

RSS-102 Issue 5: March 2015

RF Radiation Exposure Limits:

RSS-102 Issue 5: March 2015

RF Radiation Exposure Guidelines:

RSS-102 Issue 5: March 2015

EUT Frequency Band:

BLE: 2402-2480MHz
GSM850: 824.2 – 848.8 MHz
GSM1900: 1850.2 – 1909.8 MHz
WCDMA Band II: 1852.4 – 1907.6 MHz
WCDMA Band V: 826.4 – 846.6 MHz
LTE Cat-1 Band 2: 1850.7-1909.3MHz
LTE Cat-1 Band 4: 1710.7-1754.3MHz
LTE Cat-1 Band 5: 824.7-848.3MHz
LTE Cat-1 Band 7: 2502.5 – 2567.5MHz

Limits for General Population/Uncontrolled Exposure in the band of:

300 - 6,000 MHz

Exemption limit for Routine Evaluation:

$1.31 \times 10^{-2} f^{0.6834} \text{ W}$

EUT: ATD300B

Radio	Frequency (MHz)	Max Conducted Output Power (dBm)	Antenna Gain (dBi)	Max E.I.R.P (dBm)	Max E.I.R.P (W)	Evaluation Exemption limit (W)
BLE	2402-2480	3.35	-2.5	0.85	0.001	2.676
GSM	824.2 – 848.8	25.97	0.77	26.74	0.472	1.289
GSM	1850.2 – 1909.8	25.00	2.92	27.92	0.619	2.239
WCDMA Band II	1852.4 – 1907.6	25.00	2.92	27.92	0.619	2.241
WCDMA Band V	826.4 – 846.6	25.00	0.77	25.77	0.378	1.291
LTE Band2	1850.7-1909.3	25.00	2.92	27.92	0.619	2.240
LTE Band4	1710.7-1754.3	25.00	3.05	28.05	0.638	2.122
LTE Band5	824.7-848.3	25.70	0.77	26.47	0.444	1.289
LTE Band7	2502.5 – 2567.5	25.00	3.72	28.72	0.745	2.752

The above results show that the E.I.R.P of this device is below the exemption limit for Routine Evaluation.

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