

Appendix A: FCC Part 1.1307, 1.1310, 2.1091, 2.1093; RF Exposure

MPE Co-location Calculations

The maximum permissible RF exposure for an uncontrolled environment is specified in FCC 1.1310 table 1B.

From OET 65, $S = \text{EIRP} / 4\pi R^2$

where:

S = Power density (mw/cm²)

EIRP = Equivalent Isotropic Radiated Power

R = 20 cm separation distance

Power Density for BLE

Maximum rated conducted power including tune-up tolerance is 0.001 W

The maximum antenna gain 1.0 numeric.

S = 0.0002 mW/cm² at 20 cm separation

Power Density for Wi-Fi (FCC ID: 2AJVP-OMEGA2)

From the RFE exhibit for FCC ID: 2AJVP-OMEGA2, the maximum power density is 0.0199 mW/cm²

Mode	Max PK Output power(dBm)	Tune Up Power(dBm)	Max Tune Up power(mW)	Antenna Gain(dBi)	Antenna Gain (linear)	MPE (mW/cm ²)
11b	17.84	17±1(18)	63.10	2	1.5849	0.0199
11g	17.29	17±1(18)	63.10	2	1.5849	0.0199
11n/HT20	16.63	17±1(18)	63.10	2	1.5849	0.0199
11n/HT40	13.79	13±1(14)	25.12	2	1.5849	0.00792

$$Pd = \frac{P_{out} * G}{4\pi r^2};$$

Note:

Note: The estimation distance is 20cm

Note: PK Output power= conducted power.

Conducted power see the test report UNI1600921033-E, antenna gain=2dBi.

Co-location - Summary of MPE: BLE + Wi-Fi (FCC ID: 2AJVP-OMEGA2)

Transmitter	Frequency (MHz)	MPE Result (mW/cm ²)	FCC Limit (mW/cm ²)	Ratio
BLE	2402 - 2480	0.0002	1	0.0002
Wi-Fi	2412 - 2462	0.0199	1	0.0199
			Sum of Ratios	0.0201

Sum of ratios = 0.02 < 1, therefore compliant.

Thus, the EUT meets the uncontrolled exposure limit at 20 cm when all transmitters are transmitting simultaneously.