FCC Part 1.1307, 1.1310, 2.1091, 2.1093, RSS-102, Issue 6, Section 5.3.2: RF Exposure

Emission Frequency (GHz)	Average Field Strength Plus Tune-up Tolerance (1 dB) (dBuV/m)	Converted Average Levels W/(mW)	Peak Field Strength Plus Tune-up Tolerance (1 dB) (dBuV/m)	Converted Peak Levels W/(mW)
24.08	105.6	0.011/(11)	105.8	0.011/(11)
24.12	104.2	0.008/(8)	104.4	0.008/(8)
24.16	106.0	0.012/(12)	106.1	0.012/(12)

- Field strength conversion: dBuV/m – 104.77 + 20 Log (3m) = dBm
- W= 10^(dBm/10)/1000

MPE Co-location Calculations

FCC and ISED:

ISED RSS 102, Issuse 6, Section 7.6 Field reference level (FRL) evaluation: Mobile devices or other apparatus under the scope of RSS-102 requiring an FRL exposure evaluation shall be assessed in accordance with the requirements outlined in the latest version of IEEE C95.3. Thus, FCC ISED RF exposure calculations are interchangeable.

The maximum permissible RF exposure for an uncontrolled environment is specified in FCC 1.1310 Table 1 and RSS 102, Issue 6, Table 7.

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

where:
S = Power density (mw/cm^2)
EIRP = Equivalent Isotropic Radiated Power
R = 20 cm separation distance

Power Density of the EUT at 24.08 GHz TX

- The MPE limit for the above device operating at 24.08 GHz for uncontrolled environments is 1 mW/cm^2.
- The maximum total output power + tune-up is 12 mW (0.012 W), and S is 0.0024 mW/cm2 at a 20 cm separation.

Thus, the EUT meets the uncontrolled exposure limit at 20 cm.

Power Density of WiFi Dongle EW-7811UTC, FCC ID: NDD9578111305, IC: 4701A-78111401

- The MPE limit for the above WiFi device operating at 2.412 GHz and 5 GHz for uncontrolled environments is 1 mW/cm^2.
- The maximum total output power + tune-up is 191.4 mW (0.1914W), and S is 0.04 mW/cm2 at a 20 cm separation for the WiFi operating at 2.4 GHz
- The maximum total output power + tune-up is 281 mW (0.281W), and S is 0.04 mW/cm2 at a 20 cm separation for the WiFi operating at 5GHz

Co-location - Summary of MPE EUT + WiFi DTS + WiFi 5GHz

Transmitter	Frequency (GHz)	MPE Result (mW/cm^2)	FCC Limit (mW/cm^2)	Ratio
MEVO Range	24.08	0.0024	**1.0**	0.0024
WiFi	2.412 – 2.462	0.04	**1.0**	0.04
WiFi	5.745 – 5.825	0.06	**1.0**	0.06
			Sum of Ratios	**0.1024**

Rounding up the sum of the ratios per FCC KDB policy, the sum of the ratios must be <1.

The sum of ratios 0.1024 is less than 1

Thus, the EUT meets the uncontrolled exposure limit at 20 cm when both transmitters transmit simultaneously and does NOT require MPE measurement.