Maximum Public Exposure to RF (MPE) CFR 15.247 (i)

The maximum exposure level to the public from the RF power of the EUT shall not exceed a power density, **S**, of 1 mW/cm^2 at a distance, d, of 20 cm from the EUT.

Therefore, for:

ZigBee

Peak Power (Watts) = 0.153 (from Table 13 of Test Report)
Gain of Transmit Antenna = 2.3 dB_i = 1.698, numeric (from Table 4 of Test Report)
d = Distance = 20 cm = 0.2 m

S = (PG/ $4\pi d^2$) = EIRP/4A = 0.153 (1.698)/4*π*0.2*0.2
=0.2598/0.5030 = 0.5165 w/m^2
= (0.5165 W/m^2) (1m^2/W) (0.1 mW/cm^2)
= 0.05165 mW/cm^2

which is << less than 1 mW/cm^2

WiFi

Peak Power (Watts) = 0.018 (from Table 13 of Test Report)
Gain of Transmit Antenna = 2.3 dB_i = 1.698, numeric (from Table 4 of Test Report)
d = Distance = 20 cm = 0.2 m

S = (PG/ $4\pi d^2$) = EIRP/4A = 0.018 (1.698)/4*π*0.2*0.2
=0.0645/0.5030 = 0.0608 w/m^2
= (0.0608 W/m^2) (1m^2/W) (0.1 mW/cm^2)
= 0.00608 mW/cm^2

which is << less than 1 mW/cm^2

Bluetooth

Peak Power (Watts) = 0.025 (from Table 13 of Test Report)

Gain of Transmit Antenna = 2.3 dB_i = 1.698, numeric (from Table 4 of Test Report)

d = Distance = 20 cm = 0.2 m

S = ($PG/ 4\pi d^2$) = EIRP/4A = 0.025 (1.698)/4*π*0.2*0.2
=0.0425/0.5030 = 0.0844 w/m^2
= ($0.0844 W/m^2$) ($1 m^2/W$) (0.1 mW/cm^2)
= 0.00844 mW/cm^2

which is << less than 1 mW/cm^2

NOTE: This information included here for simultaneous MPE calculation reasons only.

Simultaneous transmission MPE calculation for all radios in the EUT that operate in the 2400-2483.5 MHz band.

From above for operation at 20cm or greater:

Individual Power Spectral Density ratios:

Zigbee: 0.05165 mW/cm^2

WiFi: 0.00608 mW/cm^2

Bluetooth: 0.00844 mW/cm^2

Sum of the total of all three radios = 0.06617 mW/cm^2

which is << less than 1 mW/cm^2