Exhibit: RF Exposure – FCC Colocated Transmitters

FCC ID: 2ADCB-RES7CD

RF Exposure – FCC

The device is a mobile device containing a 902 – 928 MHz proprietary transmitter and a 2400 – 2483.5 MHz BLE transmitter. It is intended to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure and the body of the user or nearby persons.

Radiofrequency Radiation Exposure Evaluation: Mobile Devices

Mobile devices shall be evaluated for RF radiation exposure according to the provisions of FCC §2.1091 and the MPE guidelines identified in FCC §1.1310.

As per FCC §1.1310 Table 1(B), the limit for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields for General Population/Uncontrolled Exposure in the frequency range of 300 MHz to 1.5 GHz is f/1500 mW/cm^2 and in the frequency range of 1.5GHz to 100GHz is 1.0 mW/cm^2. Where f = frequency in MHz.

The power density formula is given by:
$$P_d = (P_{out}*G) / (4*pi*R^2)$$

Where,
P_d = Power density in mW/cm^2
P_{out} = Conducted output power to antenna in mW
G = Numeric Antenna Gain
Pi = 3.1416
R = Separation distance in cm

MPE Calculation: 904 – 926 MHz transmitter

The DTS transmitter has a maximum conducted output power of 19.70dBm or 93.33mW and the highest antenna gain is 1.5dBi or 1.41 numerically.
For a distance of 20cm, the power density is:

$$P_d = (93.33mW * 1.41) / (4 * 3.1416 * (20cm)^2)$$
$$\mathbf{P_d = 0.0262\ mW/cm^2}$$

The device passes the requirement. The calculated power density of 0.0262mW/cm^2 is below the (904/1500) = 0.6 mW/cm^2 limit.

MPE Calculation: 2402 – 2480 MHz transmitter

The DTS transmitter has a maximum conducted output power of 13.98dBm or 25mW and the highest antenna gain is 3.0dBi or 2.0 numerically.
For a distance of 20cm, the power density is:

$$P_d = (25mW * 2.0) / (4 * 3.1416 * (20cm)^2)$$
$$\textbf{P}_d = \textbf{0.0099 mW/cm}^2$$

The device passes the requirement. The calculated power density of 0.0099mW/cm^2 is below the 1.0 mW/cm^2 limit.

Calculations for Simultaneous Transmission

As per FCC KDB447498 7.2:

> *Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0.*

MPE ratio = Ratio of power density to MPE limit, at the test frequency = P_d / (MPE limit)

Max MPE ratio for 915MHz = 0.0262 mW/cm^2 / 0.60 mW/cm^2 = **0.0437**
Max MPE ratio for 2.4GHz = 0.0099 mW/cm^2 / 1.0 mW/cm^2 (worst case) = **0.0099**
0.0099 + 0.0437 = **0.0536 < 1.0**

The EUT passed the requirements. Sum of power density ratio is < 1.0.