



Exemption from Routine Evaluation – MPE Exposure Evaluation

Applicant: Eppendorf SE
FCC ID: 2AXZD0116800209
Model number/name: PremiumFeatures

The above device is integrated into a host and co-located with an RFID module with FCC ID: 2AXZD0116800152. Both devices can transmit simultaneously.

The above device is exempt from Routine Evaluation, when compared against the MPE RF Exposure Evaluation Limits specified in **FCC Rule Part 1.1310** for mobile devices acc. to **FCC Rule Part 2.1091**:

The separation distance between the user and/or bystander and the device's radiating element must be greater than 20 cm.

FCC ID: 2AXZD0116800209

For RFID (13.56 MHz):

Maximum field strength @3m = 42.054 dBμV/m

EIRP₁ = [42.054 – 95.2] dBm = -53.146 dBm = **4.85*10⁻⁶ mW**

According to table 1(ii) of Part 1.1310(e)(1), the Power Density limit for devices operating in the frequency range 1.34-30 MHz is: $S_{Lim1} = 180/f^2 \text{ mW/cm}^2 = \textbf{0.979 mW/cm}^2$ @13.56 MHz
(f = frequency in MHz)

The Power Density of this transmitter at a separation distance of 20 cm can be calculated as follows:

$$S_{EIRP1} = EIRP_1 / (4 * \pi * R^2) = \textbf{0.964 * 10^{-9} mW/cm}^2$$

(S = Power Density, EIRP = Effective Isotropic Radiated Power, R = Separation Distance)

The Power Density of 0.964*10⁻⁹ mW/cm² is below the MPE RF Exposure Evaluation Exemption Limit of 0.979 mW/cm².

FCC ID: 2AXZD0116800152

For RFID (13.56 MHz):

Maximum field strength = 15.72 dBμV/m @3m

EIRP₂ = [15.72 – 95.2] dBm = -79.48 dBm = **11.3*10⁻⁹ mW**

According to table 1(ii) of Part 1.1310(e)(1), the Power Density limit for devices operating in the frequency range 1.34-30 MHz is: $S_{Lim2} = 180/f^2 \text{ mW/cm}^2 = \textbf{0.979 mW/cm}^2$ @13.56 MHz
(f = frequency in MHz)

The Power Density of this transmitter at a separation distance of 20 cm can be calculated as follows:

$$S_{EIRP2} = EIRP_2 / (4 * \pi * R^2) = \textbf{2.242 * 10^{-12} mW/cm}^2$$

(S = Power Density, EIRP = Effective Isotropic Radiated Power, R = Separation Distance)

The Power Density of 2.242*10⁻¹² mW/cm² is below the MPE RF Exposure Evaluation Exemption Limit of 0.979 mW/cm².



Simultaneous Transmission Considerations acc. to KDB447498 D01 v06, Section 7.2

$$\begin{aligned}\Sigma \text{MPE}_{\text{ratios}} &= (\text{S}_{\text{EIRP1}} / \text{S}_{\text{Lim1}}) + (\text{S}_{\text{EIRP2}} / \text{S}_{\text{Lim2}}) \leq 1 \\ &= (0.964 * 10^{-9} \text{ mW/cm}^2 / 0.979 \text{ mW/cm}^2) + (2.242 * 10^{-12} \text{ mW/cm}^2 / 0.979 \text{ mW/cm}^2) \\ &= 0.987 * 10^{-9} \leq 1\end{aligned}$$

The sum of the MPE ratios of the above transmitters is ≤ 1.0 and thus complies with the exemption for configurations with simultaneous transmission.

Conclusion: The above device is exempt from Routine Evaluation.

Certification Body

UL International (UK) Ltd