
INTERTEK TESTING SERVICES

For Standalone SAR test exclusion consideration, when the corresponding SAR Exclusion Threshold requirement in KDB 447498 is satisfied, standalone SAR evaluation for general population exposure conditions, by measurement or numerical simulation is not required.

Description the tested model: SN7021

EUT Description	: Audio Doorbell
Model	: SN7021
Operating Configuration(s)	: Fixed on Wall
Operating mode (s)	: Voice call
Device Category	: Fixed Device
Tx Frequency	: 1921.536 – 1928.448 MHz
Production tolerance	: 16 dBm (Minimum) to 21 dBm (Maximum)
Antenna gain	: 0 dBi = 1.00 (num gain)
Maximum source-based time-averaging duty factor	: 4.2% = (1/24 x100%)
Minimum separation distance	: 5 mm
Applicable FCC KDB	: FCC KDB 447498 D01 FCC KDB 865664 D02

From above data, the source-based time-averaging output power is as follow:

$$\begin{aligned}\text{The Maximum Conducted Power} &= 21 \text{ dBm} \\ &= 125.9 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The Maximum conducted Power source-based time-averaging output power} \\ &= (125.9 * 0.042) \text{ mW} \\ &= \mathbf{5.29 \text{ mW}}\end{aligned}$$

In the frequency range of 100MHz to 6GHz and test separation distance $\leq 50\text{mm}$, the SAR Exclusion Threshold will be determined as follow,

$$\begin{aligned}\text{The SAR exclusion threshold} &= (3.0 \times TD) / \sqrt{F(\text{GHz})} \\ &= \mathbf{10.80 \text{ mW}}\end{aligned}$$

$$\text{where } TD = 5 \text{ mm and } F(\text{GHz}) = 1.928 \text{ GHz}$$

Conclusion

Since the calculated conducted source-based time-averaged output power is **5.29 mW**, which is less than the SAR Exclusion Threshold at 5mm test separation distance **10.80 mW** for general population and uncontrolled exposure, standalone SAR evaluation for general population exposure conditions, by measurement or numerical simulation is not required.