KDB 447498

Section 4.3 General SAR test reduction and exclusion guidance

For Standalone SAR exclusion consideration, when 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.

In the frequency range below 100 MHz to 6 GHz and test separation distance of 50 mm, the SAR Test Exclusion Threshold for operation at 902.1 MHz, 914.7 MHz and 927.3 MHz will be determined as follows

SAR Exclusion Threshold (SARET)

SAR Exclusion Threshold   =   Step 1 + Step 2

Step 1

$$NT \quad = \quad [\,(MP/TSD^A) * \sqrt{f_{GHz}}\,]$$

NT	=	Numeric Threshold (3.0 for 1-g SAR and 7.5 for 10-g SAR)
MP	=	Max Power of channel (mW) (inc tune up)
TSD^A	=	Min Test separation Distance or 50 mm (whichever is lower) = 50 mm

We can transpose this formula to allow us to find the maximum power of a channel allowed and compare this to the measured maximum power.

$$= \quad [(NT \times TSD^A)\,/\,\sqrt{f_{GHz}}]$$

For Distances Greater than 50 mm Step 2 applies

Step 2

$$(TSD^B - 50\ mm) * 10\}$$

Where:
     TSD^B =   Min Test separation Distance = 50 mm

Operating Frequency 902.1 MHz

MP=   [(7.5 x 50) / √0.9021] + { (50 – 50) * [902.1/150] }
MP=   [375 / 0.9498] + { 0 * 6.01 }
MP=   394.8 mW

The calculated output power 12.74 mW (Peak) is less than the SAR Exclusion Threshold of 394.8 mW.

Operating Frequency 914.7 MHz

MP=   [(7.5 x 50) / √0.9147] + { (50 – 50) * [914.7/150] }
MP=   [375 / 0.9564] +{ 0 * 6.10 }
MP=   392.1 mW

The calculated output power 11.83 mW (Peak) is less than the SAR Exclusion Threshold of 392.1 mW.

Operating Frequency 927.3 MHz

MP=   [(7.5 x 50) / √0.9273] + { (50 – 50) * [927.3/150] }
MP=   [375 / 0.9630] + { 0 * 6.18 }
MP=   389.4 mW

The calculated output power 10.72 mW (Peak) is less than the SAR Exclusion Threshold of 389.4 mW.

Calculated output power is based on the maximum conducted output power and a 0 dBi gain antenna.

Therefore standalone SAR evaluation for general population exposure conditions by measurement or numerical simulation is not required. Section 4.3 General SAR test reduction and exclusion guidance