1 RF Exposure

General SAR test reduction and exclusion guidance KDB 447498

Section 4.3 General SAR test reduction and exclusion guidance

For Standalone SAR exclusion consideration, when the considering 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 50mm, the SAR Test Exclusion Threshold will be determined as follows

SAR Exclusion Threshold (SARET)

SAR Exclusion Threshold = Step 1 + Step 2

Step 1

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

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 50mm (whichever is lower) = 20
f_{GHz}	=	Transmit frequency (or 100MHz if lower) = 2405

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.

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

For Distances Greater than 50 mm Step 2 applies

Step 2

$$(TSD^{B} – 50mm) * f_{(MHz)}/150$$

Where:

f_{MHz}	=	Transmit frequency
TSD^{B}	=	Min Test separation Distance (mm) = 20

SARET = $({ [(NT \times TSD^{A}) / \sqrt{} f_{GHz}] + (TSD^{B} – 50) * (2405/150(}$
SARET = $\{ [(3.0 \times 20) / \sqrt{}2405] + (20 – 50) * (2405/150) \}$
SARET = (1.22 + -481)
SARET = 479.77 mW

The calculated output power is 8.3 mW (eirp) is less than the SAR Exclusion Threshold of 479.77 mW, at 20mm test separation distance, for general population and uncontrolled exposure.

Therefore standalone SAR evaluation for general population exposure conditions by measurement or numerical simulation is not required.