17 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 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 <5mm, the SAR Test Exclusion Threshold for operation in the 2400 – 2483.5 MHz band will be determined as follows

SAR Exclusion Threshold (SARET)

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

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 = When the minimum *test separation distance* is < 5 mm, a distance of 5 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.

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

Operating Frequency 2.412 GHz

SARET = [(3.0 x 5) / √2.412]
SARET = [15 / 1.55]
SARET = 9.677mW

Operating Frequency 2.437 GHz

SARET = [(3.0 x 5) / √2.437]
SARET = [15 / 1.56]
SARET = 9.615mW

Operating Frequency 2.462 GHz

SARET = [(3.0 x 50) / √2.462]
SARET = [15 / 1.57]
SARET = 9.554mW

KDB 447498				
Evaluation Frequency	2412	2437	2462	MHz
SAR Exclusion Threshold	9.677	9.615	9.554	mW
Conduced Power	16.91	19.08	17.98	dBm
Antenna Gain	0	0	0	dBi
Duty Cycle	1	1	1	%
Time Averaged EIRP	0.49	0.81	0.63	mW
SAR Evaluation	***Evaluation Required***			

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