

**RF Exposure and SAR exclusion**

**For**

**Cambridge Consultants Limited**

**On**

**RCOM BS (BASE STATION)**

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## 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 200mm, the SAR Test Exclusion Threshold for operation in the 5470MHz to 5725 MHz band will be determined as follows

#### SAR Exclusion Threshold

$$NT = \{ [ (MP/TSD) * \sqrt{f_{GHz}} ] + (TSD - 50mm) * 10 \}$$

Where:

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	=	Min Test separation Distance (mm) = 200
$f_{GHz}$	=	Transmit frequency (or 100MHz if lower)

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.

$$MP = \{ [ (NT \times TSD) / \sqrt{f_{GHz}} ] + (TSD - 50) * 10 \}$$

#### Operating Frequency 5.4825 GHz

$$\begin{aligned} MP &= \{ [ (3.0 \times 50) / \sqrt{5.4825} ] + (200 - 50) * 10 \} \\ MP &= \{ [150 / 2.34 ] + (150 * 10 \} \\ MP &= 1564.1 \text{mW} \end{aligned}$$

#### Operating Frequency 5.6025 GHz

$$\begin{aligned} MP &= \{ [ (3.0 \times 50) / \sqrt{5.6025} ] + (200 - 50) * 10 \} \\ MP &= \{ [150 / 2.37 ] + (150 * 10 \} \\ MP &= 1563.3 \text{mW} \end{aligned}$$

#### Operating Frequency 5.7125 GHz

$$\begin{aligned} MP &= \{ [ (3.0 \times 50) / \sqrt{5.7125} ] + (200 - 50) * 10 \} \\ MP &= \{ [150 / 2.39 ] + (150 * 10 \} \\ MP &= 1562.8 \text{mW} \end{aligned}$$



Channel Frequency (MHz)	EIRP (mW)	SAR Exclusion Threshold (mW)	SAR Evaluation
5482.5	229	1564.1	Not Required
5602.5	347	1563.3	Not Required
5712.5	275	1562.8	Not Required

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