

## RF Exposure evaluation

According to 447498 D01 General RF Exposure Guidance v05

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq$  50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$

$f(\text{GHz})$  is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

$$\text{eirp} = \text{pt} \times \text{gt} = (\text{Exd})^2/30$$

where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, ---  $10((\text{dBuV/m})/20)/106$

d = measurement distance in meters (m)---3m

So  $\text{pt} = (\text{Exd})^2/30 \times \text{gt}$

### RF Exposure evaluation for BS-561

Copied from the FCC test report: clause 3.8 Maximum Peak Output Power

Normal mode:

<b>Carrier Frequency /GHz</b>	2.402	2.441	2.480
<b>Reading Level /dBm</b>	-0.059	0.197	0.249
<b>Cable Loss/ dB</b>	2.8	2.8	2.8
<b>Conducted Max Output Power/dBm</b>	2.741	2.997	3.049
<b>Antenna gain/ dBi</b>	0	0	0
<b>EIRP= Conducted Max Output Power+ Antenna gain /dBm</b>	2.741	2.997	3.049
<b>EIRP / mW</b>	<b>1.880</b>	<b>1.990</b>	<b>2.018</b>

min test separation distances = 5mm,

General RF Exposure:

$$(1.880 \text{ mW}) / 5.0 \text{ mm} \times \sqrt{2.402 \text{ GHz}} = 0.5827$$

$$(1.990 \text{ mW}) / 5.0 \text{ mm} \times \sqrt{2.441 \text{ GHz}} = 0.6230$$

$$(2.018 \text{ mW}) / 5.0 \text{ mm} \times \sqrt{2.480 \text{ GHz}} = 0.6356$$

SAR requirement: S=3.0

General RF Exposure<3

Then SAR evaluation is not required

**EDR mode:**

<b>Carrier Frequency /GHz</b>	2.402	2.441	2.480
<b>Reading Level /dBm</b>	-0.607	-0.252	-0.213
<b>Cable Loss/ dB</b>	2.8	2.8	2.8
<b>Conducted Max Output Power/dBm</b>	2.193	2.548	2.587
<b>Antenna gain/ dBi</b>	0	0	0
<b>EIRP= Conducted Max Output Power+ Antenna gain /dBm</b>	2.193	2.548	2.587
<b>EIRP / mW</b>	<b>1.657</b>	<b>1.798</b>	<b>1.814</b>

min test separation distances = 5mm,

General RF Exposure:

$$(1.657 \text{ mW})/5.0\text{mm}) \times \sqrt{2.402 \text{ GHz}} = 0.5136$$

$$(1.798 \text{ mW})/5.0\text{mm}) \times \sqrt{2.441 \text{ GHz}} = 0.5618$$

$$(1.814 \text{ mW})/5.0\text{mm}) \times \sqrt{2.480 \text{ GHz}} = 0.5714$$

SAR requirement: S=3.0

General RF Exposure<3

Then SAR evaluation is not required