

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 ≤ 50 mm are determined by:

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

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

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:

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

min test separation distances = 5mm,

General RF Exposure:

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

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

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

SAR requirement: S=3.0

General RF Exposure<3

Then SAR evaluation is not required