

RF Exposure evaluation

Product Description: Smart Ski Helmet

Model Number: RS1 FCC ID: 2AEKFRSX

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

f(GHz) is the RF channel transmit frequency in GHz

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

According to the follow transmitter output power (Pt) formula:

Pt = (E x d) 2/(30 x gt)

Pt=transmitter output power in watts

gt=numeric gain of the transmitting antenna (unitess)

E=electric field strength in V/m

d=measurement distance in meters (m)

According to the formula described above:

For AB1522S

Emax=95.69dBuv/m=0.061V/m, d=3m, g_t=1

 $P_{t}= (E \times d)^{2}/(30 \times g_{t}) = (0.061 \times 3)^{2}/(30 \times 1) = 0.0011163 W = 1.12 mW$

For NRF51822

Emax=87.83dBuv/m=0.025V/m, d=3m, g_t=1

 $P_t = (E \times d)^2 / (30 \times g_t) = (0.025 \times 3)^2 / (30 \times 1) = 0.0001875 W = 0.19 mW$

The simultaneous module maximum transmit power=1.12mW+0.19mW=1.31mW

The result is rounded to one decimal place for comparison

Worse case is as below: [2402MHz -1.31mW output power]

 $(1.31 \text{mW} / 5 \text{mm})^* [\sqrt{2.402} (\text{GHz})] = 0.41 < 3.0 \text{ for } 1 - \text{g SAR}$

Then SAR evaluation is not required

NOTE: For the maximum power, you can refer FCC test report.

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