FCCID: 2AGF2X-037

RF Exposure evaluation

According to 447498 D01 General RF Exposure Guidance v06

4.3. General SAR test exclusion guidance

4.3.1. Standalone SAR test exclusion considerations

a) For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following: [(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR, [30] where
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation31
   - The result is rounded to one decimal place for comparison
   - The values 3.0 and 7.5 are referred to as numeric thresholds in step b) below

   The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

[30] This is equivalent to the formula written as: [(max. power of channel, including tune-up tolerance, mW)/(60/√f(GHz) mW)]·[20 mm/(min. test separation distance, mm)] ≤ 1.0 for 1-g SAR; also see Appendix A for approximate exclusion threshold numerical values at selected frequencies and distances.

eirp = pt x gt = $(EXd)^2/30$
where:
pt = transmitter output power in watts,
gt = numeric gain of the transmitting antenna (unitless),
E = electric field strength in V/m, --- 10^[(dBuV/m)/20]/10^6
d = measurement distance in meters (m)---3m
So pt = $(EXd)^2/30$ x gt

RF Exposure evaluation

Copied from the FCC test report:

Radiated spurious emissions:

470.200 MHz, Horizontal							
Spurious Emission Frequency (MHz)	Read value (dBm)	Cable Loss (dB)	Antenna Factor (dB)	1-18GHz Pre-amplifier (dB)	Ture value (dBm)	Limit/ dBm	Margin(dB)
Fundamental: 470.2	-18.5	1.7	16.0	0	-0.8	24	-24.8

470.200 MHz, Vertical							
Fundamental: 470.2	-6.7	1.7	16.0	0	11.0	24	-13.0
486.980, Horizontal							
Fundamental: 487.0	-18.5	1.8	16.1	0	-0.6	24	-24.6
486.980, Vertical							
Fundamental: 487.0	-6.0	1.8	16.1	0	11.9	24	-12.1
607.800 MHz, Horizontal							
Fundamental: 607.8	-22.2	1.9	19.3	0	-1.0	24	-25.0
607.800 MHz, Vertical							
Fundamental: 607.8	-10.3	1.9	19.3	0	10.9	24	-13.1

tune-up tolerance=±1dB,
min. test separation distance = 5 mm, since the min distance from the antenna (within the input phone) to the outer = 1.0 mm
Field strength = 11.0 dBm in 470.200MHz
Field strength = 11.9 dBm in 486.980MHz
Field strength = 10.9 dBm in 607.800MHz

Max. power of channel after included tune-up tolerance
Field strength = 12.0 dBm=15.85 mW in 470.200MHz
Field strength = 12.9 dBm=19.50 mW in 486.980MHz
Field strength = 11.9 dBm=15.49 mW in 607.800MHz

So (15.85 mW)/5.0mm)x √0.470200 GHz = 2.174 <3
So (19.50 mW)/5.0mm)x √0.486980 GHz = 2.721 <3
So (15.59 mW)/5.0mm)x √0.607800 GHz = 2.415 <3

Then SAR evaluation is not required