RF Exposure compliance

RSS-102, issue 6

Company number:	21278
Model number:	DMR818S-U
Applicant:	NiceRF Wireless Technology LTD

5.3.2 Power density limits

Table 7: RF field strength and power density limits for devices used by the general public (uncontrolled environment)

Frequency range (MHz)	Electric field (V_{RMS}/m)	Magnetic field (A_{RMS}/m)	Power density (W/m^2)	Reference period (minutes)
10-20	27.46	0.0728	2	6
20-48	$58.07 / f^{0.25}$	$0.1540 / f^{0.25}$	$8.944 / f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142\, f^{0.3417}$	$0.008335\, f^{0.3417}$	$0.02619\, f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158\, f^{0.5}$	$4.21 \times 10^{-4}\, f^{0.5}$	$6.67 \times 10^{-5}\, f$	$616000/f^{1.2}$

Note: f is frequency in MHz.

Table 8: RF field strength and power density limits for controlled-use devices (controlled environment)

Frequency range (MHz)	Electric field (V_{RMS}/m)	Magnetic field (A_{RMS}/m)	Power density (W/m^2)	Reference period (minutes)
10-20	61.4	0.163	10	6
20-48	$129.8 / f^{0.25}$	$0.3444 / f^{0.25}$	$44.72 / f^{0.5}$	6
48-100	49.33	0.1309	6.455	6
100-6000	$15.60\, f^{0.25}$	$0.04138 f^{0.25}$	$0.6455\, f^{0.5}$	6
6000-15000	137	0.364	50	6
15000-150000	137	0.364	50	$616000 / f^{1.2}$
150000-300000	$0.354 f^{0.5}$	$9.40 \times 10^{-4}\, f^{0.5}$	$3.33 \times 10^{-4}\, f$	$616000 / f^{1.2}$

Note: f is frequency in MHz.

For both table 7 and table 8, refer to Health Canada's Safety Code 6 for relevant notes and additional information.

E.i.r.p. calculation:

Worse case is as below:
33.774dBm@469.99375MHz

Max Output power(dBm)	Tune Up Power(dBm)	Max Tune Up power(mW)	Antenna Gain(dBi)	Antenna Gain (numerical)	Result (mW/cm^2)	Result (W/m^2)
33.774	33±1(34)	2511.89	1.0	1.26	0.10071	1.0071

$$Pd = \frac{Pout * G}{4\pi r^2};$$

Note:

Limit: $0.02619*f^{0.6834} = 1.7549 W/m^2$

PK Output power= conducted power in mW.
G=power gain of the antenna in the direction of interest relative to an isotropic radiator
R=distance to the center of radiation of the antenna in cm

Per RSS-102, issue 6, when the minimum test separation distance is >50 cm, a distance of 50 cm is applied to determine SAR test exclusion. The test exclusion threshold is 1.0071 W/m^2<1.7549 W/m^2, SAR testing is not required.