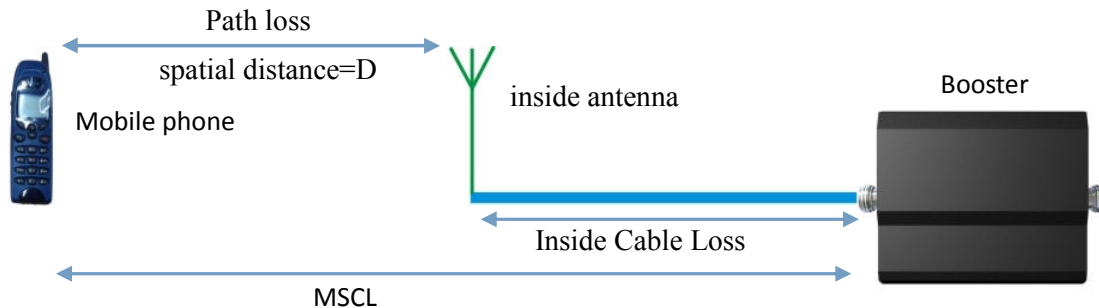


## 1、 Explain the MSCL



**Figure 1**

MSCL= Path loss + Inside Cable Loss - Mobile Antenna Gain - Inside Antenna Gain

### a) Free space propagation loss calculation formula

Path loss (dB) =  $32.45 + 20Lg f + 20Lg d$  or Path loss (dB) =  $20Lg f + 20Lg D - 27.5$   
 $f$  (MHz),  $d$  (km),  $D$ (m)

### b) Minimum Separation Distances for MSCL base on FCC new rule

Minimum Separation Distances for MSCL Calculation or Measurements D(m)	
Inside server antenna types	Minimum separation distances D (m)
Ceiling mounted (e.g., dome-type) antennas	2
Wall mounted (i.e., panel or other type) antennas	1.0 or 2*
Table top antennas	1.0

\* Note:

Wall Mounted (i.e., Panel or other type) Antennas: Alternatively, if a manufacturer clearly specifies a minimum separation distance to consumer devices in the installation manual or other user.

Documentation provided with the booster, a reasonable minimum separation distance could be up to 6feet (or 2 meters) horizontally removed from the antenna. In this case, the user would be required to ensure this minimum separation distance for all SolidRF devices authorized for use with this booster.

## 2、MSCL Calculations

Mobile Antenna Gain=0dBi

Frequency	D (m)	Antenna Gain (dBi)	inside Cable Loss(dB)	Constant(dB)	Path loss (dB)	MSCL
UL1710-1755	2	10	1.8	27.5	43.2	35
UL1850-1915	2	10	1.8	27.5	43.8	35.6
UL824-894	2	7	1.35	27.5	36.8	31.15
UL 698-716	2	7	1.3	27.5	35.3	29.6
UL776-787	2	7	1.3	27.5	36.3	30.6

## 3、Equivalent isotropic radiated power (EIRP)

Frequency	Output Power (dBm)	Outside Antenna Gain (dBi)	Outside Cable Loss (dB)	EIRP(dB m)	Limit MAx(dBm)
UL1710-1755	16.3	9.5	2.55(30feet)	23.25	30
UL1850-1915	19.4	9.5	2.9(30feet)	26	30
UL824-894	17.7	8	1.95(30feet)	23.75	30
UL 698-716	17.5	7	1.9(30feet)	22.6	30
UL776-787	19.3	7	1.9(30feet)	24.4	30
Frequency	Output Power (dBm)	Inside Antenna Gain (dBi)	Inside Cable Loss (dB)	EIRP(dB m)	Limit MAx(dBm)
DL2110-2155	-1.5	10	1.9 (20feet)	6.6	17
DL1930-1995	-5.4	10	1.8 (20feet)	3.7	17
DL869-894	-0.6	7	1.35 (20feet)	5.05	17
DL:728-746	-3.9	7	1.3 (20feet)	1.8	17
DL 746-757	-2.6	7	1.3 (20feet)	3.1	17

Calculation: EIRP =Output Power -Cable loss + Antenna gain