
RF EXPOSURE EVALUATION

EUT Specification

EUT	Cell Phone Signal Booster																																	
Model Number	17Y																																	
FCC ID	2BHHQ17Y																																	
Antenna gain (Max)	<table><tr><td>Mode</td><td>Frequency(MHz)</td><td>Antenna Gain(dBi)</td><td>Cable loss(dB)</td></tr><tr><td rowspan="4">UP LINK</td><td>824 - 849</td><td>10</td><td>3</td></tr><tr><td>699 - 716</td><td>10</td><td>3</td></tr><tr><td>777-787</td><td>10</td><td>3</td></tr><tr><td>1850-1907</td><td>10</td><td>3</td></tr><tr><td rowspan="4">DOWNLINK</td><td>869 - 894</td><td>9</td><td>3</td></tr><tr><td>729-746</td><td>9</td><td>3</td></tr><tr><td>746-756</td><td>9</td><td>3</td></tr><tr><td>1930-1987</td><td>9</td><td>3</td></tr></table>				Mode	Frequency(MHz)	Antenna Gain(dBi)	Cable loss(dB)	UP LINK	824 - 849	10	3	699 - 716	10	3	777-787	10	3	1850-1907	10	3	DOWNLINK	869 - 894	9	3	729-746	9	3	746-756	9	3	1930-1987	9	3
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Operation Frequency	Cellular:Uplink: 824MHz - 849MHz, Downlink: 869MHz - 894MHz Lower A-E Blocks: Uplink: 699MHz-716MHz, Downlink: 729MH-746MHz 700 MHz Upper C Block: Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz Broadband PCS: Uplink: 1850-1907MHz, Downlink: 1930-1987MHz																																	
Input Rating	DC 12V from Switching Power Supply																																	
Max. output power	Cellular: Uplink: 824MHz - 849MHz, 18.77dBm, Downlink: 869MHz-894MHz, 15.29dBm Lower A-E Blocks: Uplink: 699-716MHz, 23.56dBm, Downlink: 729-746MHz, 13.59dBm 700 MHz Upper C Block: Uplink: 777-787MHz, 25.86dBm, Downlink:746-756MHz, 14.00dBm Broadband PCS: Uplink: 1850-1907MHz, 21.89dBm, Downlink: 1930-1987MHz, 15.86dBm																																	

Test Requirement:

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	..	..	F/300	6
1500-100000	..	..	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	..	..	F/1500	6
1500-100000	..	..	1	30

11.1 Friis transmission formula: $P_d = \frac{P_{out} G}{4\pi R^2}$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1416

R = distance between observation point and center of the radiator in cm = 20cm

Pd the limit of MPE, $1\text{mW}/\text{cm}^2$. If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result

Operating Mode Frequency(MHz)	Tune up tolerance (dBm)	Max tune up conducted power(dBm)	Cable loss	EIRP(mW)	Ant. Gain(dBi)	Power density at 20cm (mW/ cm ²)	Power density Limits(mW/cm ²)
UL824 -849	19 ± 1	20	3	501.187	10	0.099707	0.54
DL 869-894	15 ± 1	16	3	158.489	9	0.031530	0.57
UL 699-716	23 ± 1	24	3	1258.925	10	0.250454	0.46
DL 729-746	13 ± 1	14	3	100.000	9	0.019894	0.48
UL 777-787	26 ± 1	27	3	2511.886	10	0.499722	0.51
DL 746-756	14 ± 1	15	3	125.893	9	0.025045	0.49
UL 1850-1907	22 ± 1	23	3	1000	10	0.198943	1
DL 1930-1987	16 ± 1	17	3	199.526	9	0.039694	1

Signature:

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