

**RF EXPOSURE EVALUATION****EUT Specification**

EUT	Cell Phone Signal Booster			
Model Number	CZ05N-LLCPA			
FCC ID	2AMPBCZ05N-LLCPA			
Antenna gain (Max)	Mode	Frequency(MHz)	Antenna Gain(dBi)	Cable loss(dB)
	UP LINK	824-849	0	0.5
		1850-1915	1.8	1
		1710-1755	1.8	1
		699-716	0	0.5
		777-787	0	0.5
	DOWNLINK	869-894	0	/
		1930-1995	1.8	/
		2110-2155	1.8	/
		729-746	0	/
		746-756	0	/
Operation Frequency	Cellular: Uplink: 824 - 849MHz, Downlink: 869 - 894MHz AWS-1: Uplink: 1710 - 1755MHz, Downlink: 2110 - 2155MHz Broadband PCS: Uplink: 1850-1915MHz, Downlink: 1930-1995MHz Low A-E Blocks: Uplink:699-716MHz, Downlink: 729-746MHz 700 MHz Upper C Block: Uplink:777-787MHz, Downlink: 746-756MHz			
Input Rating	DC 5V from AC ADAPTER or DC 12V from CAR CHARGER			
Max. output power	Cellular: Uplink: 824 - 849MHz,23.43dBm, Downlink: 869 - 894MHz,10.33dBm AWS-1: Uplink: 1710 - 1755MHz, 23.32dBm, Downlink: 2110 - 2155MHz, 9.31dBm Broadband PCS: Uplink: 1850-1915MHz, 21.68dBm, Downlink: 1930-1995MHz, 8.32dBm Low A-E Blocks: Uplink:699-716MHz, 22.87dBm,Downlink: 729-746MHz, 9.04dBm 700 MHz Upper C Block: Uplink:777-787MHz,23.21dBm, Downlink: 746-756MHz, 9.85dBm			

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**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/cm ²)	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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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 =3.14

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

P_d the limit of MPE, 1mW/cm² . If we know the maximum gain of the antenna and 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 (dB)	Ant. Gain (dBi)	EIRP (mW)	EIRP (mW)	Power density at 20cm (mW/ cm2)	Power density Limits (mW/cm2)
UL824 -849	23±1	24	0.5	0	23.50	223.872	0.044561	0.55
DL 869-894	10±1	11	0.5	0	10.50	11.220	0.002233	0.58
UL1710 -1755	23±1	24	1	1.8	24.80	301.995	0.060110	1
DL 2110-2155	9±1	10	1	1.8	10.80	12.02	0.002393	1
UL 777 -787	23±1	24	0.5	0	23.50	223.87	0.044560	0.52
DL 746-756	10±1	11	0.5	0	10.50	11.220	0.002233	0.52
UL 699-716	23±1	24	0.5	0	23.50	223.872	0.044561	0.47
DL 729-746	9±1	10	0.5	0	9.50	8.913	0.001774	0.49
UL1850-1915	22±1	23	1	1.8	23.80	239.88	0.047747	1
DL 1930-1995	8±1	9	1	1.8	9.80	9.55	0.001901	1

Remark: EIRP= Conducted Output Level+ Max Antenna Gain- Cable Loss

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