Maximum Permissible Exposure (MPE)

According to subpart FCC §1.1307 (b)(1) and §2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

NOTE：

1. f = frequency in MHz;

*2. * = Plane-wave equivalent power density;*

The RF Exposure level is calculated using the general equation:

$$S = PG/4\pi R^2$$

Where:

S = power density (W/m^2)

P = power input to the antenna (W)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator (Numeric)
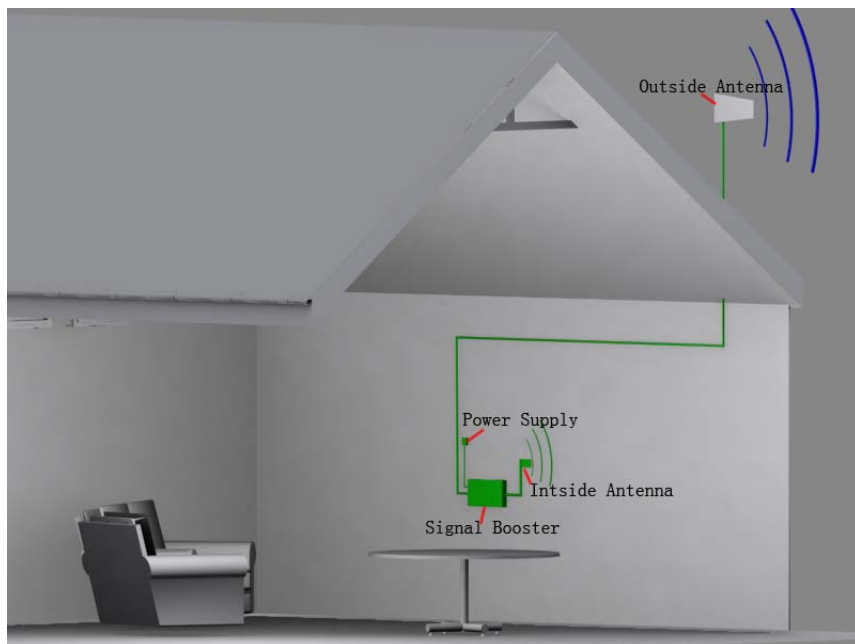
R = distance to the center of radiation of the antenna (m)

PG = EIRP (effective isotropic radiated power) [W]

Result:

Morlab has received documents from the applicant show:

Outdoor antenna gain<=10dBi, and the RF cable loss between the device and Outdoor antenna >5dB. So the outdoor antenna sets gain<=5dBi including the RF cable loss.

Indoor antenna gain<=5dBi, without RF cable

For the signal booster NC-CG850-SB, Base on the Max RF output power for GSM/AWGN 4.1MHz /CDMA mode, the max S as below list.

Link	Mode	Frequency (MHz)	RF Power (dBm)	Antenna Gain(dBi)	R (cm)	S (mW/cm2)	Limit (mW/cm2)	Verdict
Down Link	GSM	881	9.71	5	20	0.00588	0.58733	compliance
	AWGN	881	5.49	5	20	0.00223	0.58733	compliance
	CDMA	881	6.04	5	20	0.00253	0.58733	compliance
Uplink Link	GSM	839	22.13	5	20	0.10274	0.55933	compliance
	AWGN	839	19.92	5	20	0.06176	0.55933	compliance
	CDMA	839	19.64	5	20	0.05791	0.55933	compliance

So, the power density is kept in all modes.

Regards!

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