

Certification Test Report

**FCC ID: S04YX300-PCS-CEL
IC: 5544A-YX300PCSCEL**

**FCC Rule Part: CFR 47 Part 22 Subpart H, Part 24 Subpart E
IC Radio Standards Specification: RSS-131**

ACS Report Number: 07-0256-LD

**Applicant: Wireless Extenders Inc.
Model(s): YX300-PCS-CEL**

RF Exposure

General Information:

Applicant: Wireless Extenders
ACS Project: 07-0256-LD
Model: YX300-PCS-CEL
Device Category: Mobile
Exposure Conditions: Uncontrolled/General Population

Technical Information:**Antenna descriptions**

The YX300 internal antenna (a.k.a donor antenna) is a dual-band, patch Antenna which is mounted onto the PCB. When the YX300 is installed on a window, this antenna faces outside towards the cellular network. The PEAK gain in the PCS frequency band is 4.5 dBi and the PEAK gain in the cellular frequency band is 0 dBi.

The coverage antenna is a dual-band, Omni-directional, dipole-type with less than 2dBi PEAK gain in both bands. The attached coaxial cable has a loss of 5.5dB in the cellular band and 8.5dB in the PCS band.

An upgrade coverage antenna may be available with up to 6dBi of PEAK gain in both bands and a coaxial cable loss of 4dB in the cellular band and 6.5dB in the PCS band

CELLULAR OPERATION:**UPLINK:**

Antenna Type: Inverted F
Antenna Gain Maximum: 0dBi
Max Transmitter Output Power: 20.67dBm
Max System EIRP: 20.67dBm / 0.117W

DOWNLINK:

Antenna Type: Omni Dipole
Antenna Gain Maximum: 6dBi
Cable Loss: 4dB
Max Transmitter Output Power: 7.41dBm
Max System EIRP: 9.41dBm / 0.009W

PCS OPERATION:**UPLINK:**

Antenna Type: Inverted F
Antenna Gain Maximum: 4.5dBi
Max Transmitter Output Power: 20.44dBm
Max System EIRP: 24.94dBm / 0.311W

DOWNLINK:

Antenna Type: Omni Dipole
Antenna Gain Maximum: 6dBi
Cable Loss: 6.5
Max Transmitter Output Power: 11.37dBm
Max System EIRP: 10.87dBm / 0.012W

MPE Calculation

The Power Density (mW/cm^2) is calculated as follows:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = power density (in appropriate units, e.g. mW/cm^2)

P = power input to the antenna (in appropriate units, e.g., 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 (appropriate units, e.g., cm)

Calculations were performed at the frequencies with the highest output power as determined during testing.

Maximum Permissible Exposure (MPE) General Population/Uncontrolled Exposure								
Transmit Frequency (MHz)	Radio Power (dBm)	Power Density Limit (mW/cm^2)	Radio Power (mW)	Antenna Gain (dBi)	Antenna Gain (mW eq.)	Distance (cm)	Power Density (mW/cm^2)	Configuration
836	20.67	0.56	116.68	0	1.000	20	0.023	Uplink
894	7.41	0.60	5.51	2	1.585	20	0.002	Downlink
1850	20.44	1.00	110.66	4.5	2.818	20	0.062	Uplink
1990	11.37	1.00	13.71	-0.5	0.891	20	0.002	Downlink

Installation Guidelines

End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

RF Exposure

In accordance with FCC requirements of human exposure to radio frequency fields, the radiating element shall be installed such that a minimum separation distance of 20 centimeters will be maintained.

Conclusion

This device complies with the MPE requirements by providing adequate separation between the device, any radiating structure and the general population.