Prepared (also subject responsible if other)		No.			
EAB/AZ/MPJ Carl-Gunnar Sjoberg					
Approved	Checked	Date	Rev		Reference
EAB/AZ/MPJ (Peter Kaltenbrunner)		2004-03-17	A		

ERICSSON

Letter about MPE matters

Federal Communications Commission
Authorization and Evaluation Division
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046

FCC-ID: OSBBRU19   (applied for)

Dear Madame / Sir,

Regarding the comments and advice we received about our initial MPE estimation and the possible request for routine evaluation our response is a follows:

The BRU1 base station is designed for indoor usage only. It will be operated and serviced by a professional operator, namely Cingular Wireless, Atlanta GA. The base station is designed for easy mounting and repair, but will never be re-located by any consumer (compare other cellular base-stations for GSM, TDMA etc). The value of the base station is quite substantial and it will be installed in a fixed and safe position where tampering, theft or sabotage can be avoided. The safe distance will be at least 1 m

Our suggestion is to add this in our installation instruction. This is a more realistic case than the 0.2 m case, which most probably never will occur.

If this isn't a feasible solution we can of course update the MPE estimation to be based on a 0.2 m separation instead (see appendix). The calculation shows that the base station in its original configuration is well below the exposure limit.

Please advise!

Best regards,

Carl-Gunnar Sjoberg

Applicant

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Appendix

RF exposure assessment by calculation

BRU1 base stations mounting instructions assume fixed indoor mounting of the base station with an antenna mounted on the base station chassis. Relevant distances for RF exposure in practice exceed the range of the RF near-field range, thus MPE (not SAR) is addressed.

TX maximum output power is 1000 mW (30 dBm) at 100% duty cycle.
According to formula [1] below, power density at R=0.2 m distance is approximately 0.326 mW / cm^2 << 0.6 mW / cm^2, assuming 2.15dB gain over isotropic antenna and ideal feed line (lossless).

$$(TX_{Pmax} * G_{TX}) / (4 * \Pi * R * R) \qquad \textbf{[1]}$$

TX$_{Pmax}$ maximum TX output power
G$_{TX}$ combined transmitter antenna gain and feeder loss
Π 3.1415
R distance to point checked for RF exposure

The product is marketed with a chassis mounted antenna. It is required to be installed only by professional personnel. The installation manual contains a warning note requiring the installation responsible to maintain an antenna safety distance from general public to meet RF exposure limits, considering maximum output power, feeder loss and antenna gain in every case.

Above example shows margin to the commission's exposure limit ([1]) of
2.5 dB. Any installation using higher than 2.5 dB combined antenna gain and feeder loss arrangements and/or closer distances than 0.2 m to general public shall require the installation responsible to prove RF exposure performance of his/her installation meets the applicable limits.

([1]) Regulative reference: 47 CFR, chapter 1, part 1, subpart I, item 1.1310,
Radio frequency radiation exposure limits,
table 1 Limits for maximum permissible exposure,
part (B) Limits for general population, uncontrolled exposure
Power density f [MHz] /1500 [mW / cm^2] = 900 / 1500 = 0.6 [mW / cm^2]