

Telecom Engineering Centre
(Department of Telecommunications)
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F.No.TBVV/F/Spectrum-95/TEC.2007

Dated: 6th June, 2007

Subject: Comments of TEC on Consultation Paper on "Review of key license conditions and capping of number of access providers"

Kindly refer to your Consultation Paper No.7/2007 on "Review of key license conditions and capping of number of access providers".

2. The enclosed technical comments of TEC may be of help to TRAI while examining the response to Question Nos. 29 & 30 (Chapter 7) of the Consultation Paper from stakeholders.

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Technical comments in response to Q29 and Q30 (Chapter 7) of the Consultation paper on Review of license terms and conditions and capping of number of access providers dated June 12, 2007 issued by TRAI are given as follows.

1. Spectrum is a scarce resource and if allotted liberally without considering the technical possibilities of optimal utilization may limit the number of access providers thereby affecting competition. One proposal is to allot a small separate band (say 3 MHz in 1800 MHz band in case of CMTS) exclusively for in-door coverage that can be shared by various service providers.

All service providers will have to cooperate amongst themselves so that interference between them doesn't occur. TRAI may guide the licensees to form an industry body that will self-regulate as done in the UK. Operators may register all radio equipment in the database hosted by TRAI/ Licensor/ WPC.

2. Restrictions on EIRP, Antenna Height, Out of Block Emission: To confine radiation within buildings or premises etc, there will be a need to define few critical RF requirements such as:
 - a. Maximum limits on EIRP e.g. 0 dBm per KHz within the occupied bandwidth of the system, as that may be sufficient to provide services such as in-building GSM, local area GSM (such as in a theme-park) or in other constrained areas.
 - b. The highest point of outdoor antenna systems may be restricted.
 - c. The out-of-block emission mask in terms of absolute EIRP values within a specified measurement bandwidth etc.

Such RF requirements may be defined by TRAI/ TEC/ Licensor/ WPC or alternatively by industry body that will self-regulate.

3. Engineering Co-ordination among licensees: As same spectrum will be used by multi operators in the same locality, it will need engineering coordination. For this, the fundamental principle may be to allow existing operators to manage engineering coordination themselves via the establishment of an Industry Code of Practice. Having a reasonable number of channels will allow multiple operators to co-exist in an area. This will also allow single operators to cover larger areas (in such a way that multiple GSM base-stations won't interfere with each other).
4. Industry Code of Practice: To address different issues during deployment, operation & maintenance and for self-regulation, all operators may have to prepare industry code of practice. It may be in the licensees' best interest to abide voluntarily by the Code and therefore it is likely to be self enforcing. TRAI may reserve the right to impose its own engineering coordination procedure in case a need is felt by the regulator at any stage. The Industry Code

of Practice in general may like to consider as an aid to self regulate the following for indoor solutions:

- a. General principles
- b. Use of site surveys
- c. Use of the minimum number of carriers necessary
- d. Use of the minimum transmitter power necessary
- e. Positioning of base station to take advantage of natural shielding
- f. Sharing of information
- g. What information needs to be shared?
- h. How will the information be shared?
- i. When should information be shared?
- j. Local agreements
- k. How are they reached?
- l. How are they recorded?
- m. Coordination procedure
- n. When is coordination needed?
- o. What propagation models to use?
- p. Methodology for calculating potential interference?
- q. What level of interference is acceptable?
- r. Site engineering
- s. Band segmentation
- t. Response time to requests for coordination
- u. Dispute resolution

The above list is indicative only and is not an exhaustive list of issues that may need to be addressed.