

HITL-Reg./2004-05/078

July 15, 2004

Mr. Pradip Baijal

Chairman

Telecom Regulatory Authority of India

A-2/14, Safdarjung Enclave

New Delhi

Dear Sir,

Sub: Consultation Paper on Spectrum Related Issues

We are pleased to enclose our thoughts and suggestions on the captioned Consultation Paper.

Our response is only on select questions in the Consultation Paper. For the rest, we concur with the views expressed in the response submitted by Association of Unified Telecom Operators (AUSPI).

We hope that our views would be given the due consideration.

Yours sincerely

Kapil Dev Kumar

Associate Vice President

HFCL Infotel's Views on Consultation Paper on Spectrum Related Issues

ITEMWISE RESPONSE TO "ISSUES FOR CONSIDERATION"

Chapter 2: Current spectrum availability and requirement

(ii) The consultation paper has discussed ITU method for assessment of spectrum requirement. Based upon the methodology submit your requirement of spectrum for next 5 years. While calculating the required spectrum, please give various assumptions and its basis.

The spectrum requirement for TDD Access Equipments in 1880 -1900 MHz band should be in addition to the requirement of spectrum for CDMA/ GSM based systems. TDD Access Equipments are low power systems with microcellular architecture compared to high power emission of macrocellular systems namely GSM/ CDMA. Due to this architectural difference, the two types of access equipments cannot coexist in the same frequency band necessitating deployment of high power systems in the frequency bands different from the one allocated to TDD Access equipments i.e. 1880-1900 MHz.

(v) Reorganisation of spot frequencies allotted to various service providers so as to ensure the availability of contiguous frequency band is desirable feature for efficient utilisation of spectrum. Please suggest the ways and means to achieve it.

In case of microcellular WLL systems based on TDD access techniques, efficient and optimum utilization is assured by sharing of the entire band of 20 MHz (1880-1900 MHz) by multiple operators.

(vi) Whether the band 1880 – 1900 MHz be made technology neutral for all BSOs / CMSPs / UASLs and be made available with the pair 1970 – 1990 MHz or should it be kept technology neutral but reserved for TDD operations only.

As per footnote IND49 of NFAP 2002, 1880-1900MHz band is reserved for *"microcellular WLL systems based on TDD access techniques, especially indigenously developed technologies, capable of co-existence with multiple operators in the frequency band 1880-1900 MHz on a case-by-case basis"*.

Since many service providers including BSNL, MTNL, HFCL Infotel and Shyam Telelink etc. are already using this band in a big way to provide fixed wireless services of voice and data connectivity, this allotment be left un-touched.

This allocation is already technology neutral, except that it specifically encourages the use of indigenous technologies by way of giving a fillip to technology development in India.

In any spectrum allocation, even while being technology neutral, it is imperative to specify

- ~~the~~ the duplex type (here, TDD),
- ~~the~~ method of sharing spectrum among operators (here, co-existence),
- ~~the~~ channelisation (none, consistent with co-existence criterion), and
- ~~the~~ emission characteristics (here, specified in qualitative terms as "micro-cellular").

Thus, the allocation is already as technology neutral as possible in spectrum allocation. There is no need for any changes in the allocation of this band and should continue to be reserved exclusively for TDD operations only.

Chapter 4: Spectrum Pricing

(xv) What incentives be introduced through pricing to encourage rural coverage and / or using alternative frequency bands like 450 MHz?

Given the exiting allotment of the 1880-1900MHz band is specifically to encourage the use of indigenous technologies by way of giving a fillip to technology development in India, the spectrum charges for corDECT deployments (which are typically in rural areas), be waived which shall provide support to both operators as well as the technology.

(xvii) Should there be different pricing levels for shared spectrum versus spectrum that is allocated with protection? How should this be determined?

For microcellular WLL technologies using TDD access techniques, the spectrum is to be allocated on sharing basis and accordingly charging for spectrum should be on a revenue share basis.

Chapter 5: Spectrum allocation

(xviii) How much minimum spectrum (refer approach (I) and (II)) in section 5.4) should each existing operator be provided? Give the basis for your comments.

Allocation of 1880-1900 MHz (refer footnote IND49 to NFAP2002) is for indigenous microcellular systems, which should be left as it is, (as suggested in comments of Chapter 2 (vi)).

Since this system doesn't require any pairing frequency, another 10 MHz should be allocated either in the frequency band 1900-1910 Mhz (as per footnote IND50 to NFAP2002) or alternatively in band 1910-1920 Mhz (since there are no other systems in this band) for additional requirements for micro-cellular TDD systems.

The 1880-1900 Mhz band is being used for fixed wireless services for Voice and Data, and not for mobile services, hence the allocation of spectrum in this band should have no bearing on the allocation being done for CDMA / GSM services. This spectrum usage should be treated independent of the usage for mobile services.

As in the case of CDMA and GSM band allocations, the allocation follows the requirements of technology for proper functioning and efficient utilisation of the available spectrum. In the case of microcellular WLL systems based on TDD access techniques, efficient and optimum utilization is assured by 'Sharing' of the entire band of 20 MHz (1880-1900 MHz) by multiple operators, and not by 'Splitting' the spectrum between different operators. One carrier per operator can be fixed exclusively for the respective operator to ensure compliance to GOS while remaining being shared by all. The spectrum requirement for TDD Access Equipments in 1880 -1900 MHz band shall be independent and in addition to the requirement of other systems.

(xix) At what stage the amount of spectrum allocation to new entrants be considered in the 800 MHz / 900 MHz / 1800 MHz frequency bands?

In case of microcellular WLL systems based on TDD access techniques, efficient and optimum utilization is assured by sharing of the entire band of 20 MHz (1880-1900 MHz) by multiple operators. All operators, new or existing, shall be allowed to deploy the equipment in this frequency band on sharing basis. One carrier per operator can be fixed exclusively for the respective operator to ensure compliance to GOS while remaining being shared by all. The spectrum requirement for TDD Access Equipments in 1880 -1900 MHz band shall be

independent and in addition to the requirement of other systems.

(xii) What should be the amount of cap on the spectrum assigned to each operator?

In case of microcellular WLL systems based on TDD access techniques, efficient and optimum utilization is assured by sharing of the entire band of 20 MHz (1880-1900 MHz) by multiple operators. One carrier per operator can be fixed exclusively for the respective operator to ensure compliance to GOS while remaining being shared by all. Assuming a max of 4 such operators in any area, 1 exclusive and 7 shared carrier can be assigned to each operator.