

ETNO Expert Contribution on the ECO Questionnaire related to the Revision of ECC Report 003



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Introduction

ETNO welcomes the opportunity to express its views on the future of the Fixed Service in Europe.

The attached replies are offered for the revision of the ECC Report 003 on the use of Fixed Service in Europe.

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1. What are the expected changes that are likely to happen in various frequency ranges with respect to the fixed service applications (e.g. Numbers of links, Capacity, Modulation, Network topology etc..) over the next 10 years in the following frequency ranges?

The currently observed and expected exponential growth of mobile data traffic will, without any doubt, produce a need for increased backhaul capacity. These needs should be satisfied by increasing the use of optical fiber and wide bandwidth wireless links in the "external" part of the backhaul networks.

Taking into account the progressive saturation of spectrum bands available for Fixed Networks below 15 GHz, a shift towards higher frequency bands would provide the necessary bandwidth.

In parallel, the use of enhanced modulation schemes or more complex technologies should increase the spectrum usage efficiency.

2. What are the new technology developments/ requirements that are going to drive future FWS use in 1) existing bands 2) expansion into possible new bands (including bands above 71GHz)? Please give details

Among the main technology developments currently observed and applicable for both categories 1 and 2, we can cite the following:

- evolution from Time Division Multiplexing to Ethernet (both hybrid and full IP technology)
- implementation of links with dual polarisation (XPIC)
- dynamic optimisation of the link characteristics by using adaptive modulation schemes and transmit power control

3. Are there any bands that are likely to become more important than others? Please provide details

As mentioned above, the saturation of frequency bands below 15 GHz (in particular the 13 and 15 GHz band) will lead to a move towards upper bands whose availability shall be ensured.

Furthermore, the protection and availability of currently used frequency bands shall be guaranteed as well. This is particularly sensible for the 18 and 23 GHz bands that ensure a significant part of the wireless backhauling.

4. How is a frequency band selected over others and what are the criteria used when selecting a specific frequency band (i.e. technical, economical and other policy considerations)? Please give details

1. The selection of a specific frequency band is made in relation with the signal propagation characteristics: low frequency bands are mainly used for long distance backbone, while higher frequency bands (above 10 GHz) are used for the peripheral infrastructure network with more dense and shorter hops.
2. Policy consideration are closely related to the specific administration concerned and are related to saturation and congestion (including fees policy)

5. Is licence exemption a feasible option for fixed wireless systems? If yes, which bands or frequency ranges? Please describe

While ETNO operators favour a licenced use of fixed wireless systems, light licencing procedures including a declaration regime might be developed for high frequencies considering the short hop length and the high frequency re-utilisation rate. Spectrum fees should be reduced accordingly. These possibilities could apply to frequency bands above 60 GHz.

6. What are the planning methods and interference criteria used and how is the planning done in your administration? Please give details

Question for Administrations

7. How important is the link availability and will it still be an important factor in IP based networks? Please describe

The link availability is of the utmost importance for trunk and backbone networks, and still very important for infrastructure networks.

A relaxed availability can be envisaged for IP based networks for the portion of payload used for data connection only (where separable from R99 portion)

8. Are the spectrum management/licensing approaches used in your administration likely to change? Please give details

Question for Administrations

9. Have there been any cases of interference to fixed links reported in your administrations? Please give details including the cause of interference

Question for Administrations

10. For the congested FWS bands, please give details on how congestion is measured

Question for Administrations