
Project:	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Voting Instructions for TG3 Initial PHY Proposals	
Date Submitted	2000-11-14	
Source(s)	Anader Benyamin-Seeyar (for Ad-Hoc Group) Harris Corporation Inc. 3 Hotel de Ville Dollard-des-Ormeaux, Quebec, Canada, H9B 3G4	Voice: (514) 822-2014 Fax: (514) 421-3756 mailto:abenyami@harris.com
Re:	This contribution is submitted as an output from the 802.16.3 Task group discussion in Session #10.	
Abstract	This document provides voting instructions and a list of Evaluation Criteria parameters for evaluation of PHY system proposals at low frequency band (Sub 11 GHz) wireless access.	
Purpose	This contribution for action by Task Group as part of the process for selecting and inviting follow-up proposals for Session #11.	
Notice	This document has been prepared to assist IEEE 802.16. It is not binding on the contributing individual(s) or organization(s).	
Release	The contributor acknowledges and accepts that this contribution may be made public by IEEE 802.16.	
Patent Policy and Procedures	The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures (Version 1.0) < http://ieee802.org/16/ipr/patents/policy.html >, including the statement “IEEE standards may include the known use of patent(s), including patent applications, if there is technical justification in the opinion of the standards-developing committee and provided the IEEE receives assurance from the patent holder that it will license applicants under reasonable terms and conditions for the purpose of implementing the standard.”	

VOTING INSTRUCTIONS FOR TG3 INITIAL PHY PROPOSALS

Eligibility:

All IEEE 802.16 members and observers are eligible to submit voting scores but only the scores of members will be counted for the purpose of invitation. Average scores of members and nonmembers will be reported separately. Individual scores, with the identity of the scorer, will be available on the password-protected web area.

Proposals:

These are the twenty proposals submitted and reviewed by TG3 during Session #10 in Tampa. The proposal documents and any associated presentation materials are or will be available on the IEEE 802.16 TG3 web site <<http://ieee802.org/16/sub11>>.

Voting Deadline:

Scores should be submitted no later than 12:00 noon (PST [U.S. West Coast Time]) on **Monday, November 20**, 2000 using the predefined Excel scoresheet file as described below.

Logistics:

- 1) Obtain a copy of the file Excel scoresheet from http://ieee802.org/16/sub11/docs/802163-00_19r1.xls. Change the file name to “xxx TG3 PHY Voting.xls” where xxx is your **first initial and** family name.
- 2) Open the Excel file. Fill in your name in the yellow cell E3; it will automatically be entered into the cells below.
- 3) Enter your scores as integers from 1 through 10 for Evaluation criteria against each proposal. 1 is the minimum score, and 10 represents an ideal proposal in the given criteria. Submitters receiving an average score of 6 or better (out of 10) in any criteria will be invited to submit more a detailed contribution for Session #11.

Leave blank any cell which you **DO NOT** wish to score. The blank will not be considered in the average.

- 4) Save the completed file, and e-mail to abenyami@harris.com by the above deadline.

Evaluation Criteria List for Initial Voting Purposes

1. **Meets system requirements**

How well does the proposed PHY protocol meet the requirements described in the current version of the 802.16.3 Functional Requirements (FRD)?

2. **Channel spectrum efficiency**

Defined in terms of single channel capacity (TDD or FDD) assuming all available spectrum is being utilized (in terms of Bits/sec/Hz). Supply details of PHY overhead.

- Modulation Scheme
- Gross Transmission Bit Rate
- Gross (Uplink/Downlink) Bit Rate @ PHY to MAC Interface
- Occupied BW

3. **Simplicity of Realization**

How well does the proposed PHY allow for simple implementation or how does it leverage on existing technologies? For example:

a) SS cost optimization

How does the proposed PHY affect SS cost?

b) BS cost optimization

How does the proposed PHY affect BS cost?

c) Installation Cost

4. **Spectrum resource flexibility**

a) Flexibility in the use of the frequency band (i.e. channelization, modularity, band pairing, and Upstream/DownStream data Asymmetry)

b) **Channel Rate Flexibility**

Data Rate adjustment capability at PHY to accommodate the channel quality variations.

5. System Spectrum Efficiency

Defined in terms of available capacity, availability and coverage (in bits/sec/Hz/cell).

Takes into account Re-use factor, and interference rejection capability. Tested with the number of cells needed to cover a predefined scenario:

6. System service flexibility

How flexible is the proposed PHY to support FRD optional services and potential future services

7. Protocol interfacing complexity

Interaction with other layers of the protocol, specifically MAC and Network Management. Provide the PHY delay.

8. Reference system gain

Sector coverage performance for a typical BWA deployment scenario (supply, reference system gain). Provide practical link budget analysis. (Refer to Gain definition within FRD).

9. Robustness to interference

- Resistance to intra-system interference (i.e., frequency re-use) and external interference cause by other systems.

- Provide co-channel, adjacent channel interference levels and spectral spillage resulting from modulation.

10. Robustness to channel impairments

Small and large scale fading (Rain fading, multipath, N(non or near) LOS, LOS, Foliage effect, Freq. Selective fading, atmospheric effects.)

11. Robustness to radio Impairments

Specify the degradation due to radio impairments such as phase noise group delay of filters, amplifier nonlinearities, etc.

12. Support of advanced antenna techniques

Specify how the system would support advanced techniques, such as smart antennas, Diversity, or space-time coding.

13. Compatibility with existing relevant standards and regulations