

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

Comments - NBP Public Notice #1

GN Docket Nos. 09-47, 09-51,
and 09-137

Via the ECFS

COMMENTS OF IEEE 802.18

IEEE 802.18, the Radio Regulatory Technical Advisory Group (“the RR-TAG”) within IEEE 802¹ hereby submits its Comments in the above-captioned Proceeding. This document was prepared and approved by the RR-TAG, and also was reviewed by the IEEE 802 Executive Committee.²

The members of the RR-TAG that participate in the IEEE 802 standards process are interested parties in this proceeding. We appreciate the opportunity to provide these comments to the Commission.

INTRODUCTION

1. On August 20, 2009, the Commission released a public notice seeking comment on the definition of “broadband” in support of the Commission’s efforts to complete a National Broadband Plan.
2. In these comments, the RR-TAG addresses some of the issues that the Commission raises in the public notice.

¹ The IEEE Local and Metropolitan Area Networks Standards Committee (“IEEE 802” or the “LMSC”)

² This document represents the views of IEEE 802.18. It does not necessarily represent the views of the IEEE as a whole or the IEEE Standards Association as a whole.

3. In our response, we will take the Commission's questions released in the public notice in the order presented. Where IEEE 802.18 has no response or position, we will state "No Comment", for the sake of clarity.

IEEE 802.18 RESPONSES TO THE COMMISSIONS QUESTIONS

4. **Question 1: Form, Characteristics, and Performance Indicators**
5. **Question 1a: the form that a definition of broadband should take?**
6. Our recommendation is that the term broadband should be defined from the perspective of the end user. All of the characteristics of the broadband network should be referred to the portal where the end user accesses the broadband service, on the broadband network side of any personal or commercial networks under the end user's control.
7. For example, the following network metrics, if used in the definition, should be referred to the user's access portal: peak or sustained data transfer rates, latency, reliability (or availability).
8. In addition, where appropriate, the types of applications which are required to be supported should be defined, for instance VOIP, video, file sharing, video gaming, video conferencing, etc.
9. **Question 1b: whether to develop a single definition, or multiple definitions?**
10. We believe that broadband should be defined in terms of two broad categories: (a) fixed base, which could include wired infrastructure, or, wireless fixed infrastructure (for example, point to multipoint satellite systems, or fixed terrestrial wireless systems), and (b) mobile infrastructure (for example, cellular systems).
11. **Question 1c: whether an application-based approach to defining broadband would work, and how such an approach could be expressed in terms of performance indicators?**
12. As mentioned above, we believe an applications based element in the definition is important in order to characterize the broadband system more precisely. For example, some applications, such as file sharing, email, or instant messaging involve only bursts of data, so access portal peak data rate is a good metric, while, for other applications, such as multimedia streaming, and video conferencing, the access requirement is for sustained minimum data rates to support acceptable user experiences.
13. **Question 1d: the key characteristics and specific performance indicators that should be used to define broadband?**

14. As a minimum, we believe peak data rate, sustained data rate over some reasonable period, perhaps over hours, latency, and reliability are key characteristics of any definition of broadband.
15. **Question 1e: what segment(s) of the network each performance indicator should measure, such as the local access link to the end user, or an end-to-end path?**
16. As mentioned above, we recommend that the end user access portal is the point where broadband performance should be considered.
17. **Question 1f: how factors such as latency, jitter, traffic loading, diurnal patterns, reliability, and mobility should specifically be taken into account?**
18. We recommend that the end user perception of performance be the main driver in determining what factors to take into account.
19. **Question 1g: whether different performance indicators or definitions should be developed based on technological or other distinctions, such as mobility or the provision of the service over a wired or wireless network?**
20. See our comments in response to Question 1b.
21. **Question 1h: the feasibility and verifiability of measuring different performance indicators?**
22. We believe that the performance indicators we have recommended can be measured and verified with existing technology and properly engineered test platforms and methodologies.
23. **Question 2: Thresholds.**
24. **Question 2a: what minimum thresholds should be assigned to the performance indicators?**
25. Our belief is that a definition that is useful to consumers should be the primary objective in setting thresholds. We further believe that separate minimum thresholds are necessary for wireless vs wired networks. In our deliberations, we could not come to agreement on specific metrics.
26. **Question 2b: the minimum thresholds necessary for broad classes of applications to function properly?**
27. No comment.
28. **Question 2c. whether we should adopt multiple, escalating tiers of minimum thresholds?**
29. We recommend that the Commission consider multiple levels of service definitions which would clarify the service offerings in the market place. For instance, service level one might

be a certain peak data rate, a certain sustained data rate, a certain latency and a certain reliability level, and will support a specific list of applications.

30. **Question 3: Updates.**

31. **Question 3a: what ongoing process should be put in place to update the definition, particularly the threshold levels?**

32. Our recommendation is that full reviews of the definition and its applicability to user access performance should be conducted regularly, with periodic updates between the full reviews.

33. **Question 3b: how often should such updates should occur?**

34. We recommend that the Commission consider undertaking full reviews every 4 years, with updates every year.

35. **Question 3c: what criteria should be used to adjust thresholds over time?**

36. No comment.

37. **Question 3d: how modifications over time to the definition will affect the Commission's ability to collect and publish meaningful data on broadband deployment and adoption?**

38. No comment.

CONCLUSION

39. IEEE 802.18 submits these responses to the Commission's questions with the hope that our contributions will support the Commission's efforts in completing a National Broadband Plan.

40. IEEE 802.18 looks forward to working with the Commission in future proceedings related to this issue.

Respectfully submitted,

/s/

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