



Corporate Office
901 Explorer Blvd.
Huntsville, AL 35806

U.S. Mail
P.O. Box 140000
Huntsville, AL 35814-4000

Toll Free: 1 800 9ADTRAN
Telephone: 256 963.8000
www.adtran.com

April 30, 2020

Body of European Regulators for Electronic Communications
Zigfrida Annas Meierovica boulevard № 14
LV-1050 Riga
Latvia

Re: Comments of ADTRAN on the Draft BEREC Guidelines on Very High Capacity Networks (submitted via email to VHCN_Guidelines@berec.europa.eu)

ADTRAN, Inc. (“ADTRAN”) submits these comments on the Body of European Regulators for Electronic Communications (“BEREC”) request for comments¹ on the Draft BEREC Guidelines on Very High Capacity Networks (“*Draft Guidelines*”).² As explained below, ADTRAN agrees with most of the *Draft Guidelines*. However, in a few critical areas, the *Draft Guidelines* interpretation of Article 2(2) of the European Electronic Communications Code (“EECC”) would frustrate the “objective of promoting the widespread deployment and take-up of very high capacity networks is at the core of the EU’s ambition towards a gigabit society.”³

ADTRAN, founded in 1986, is a leading global provider of networking and communications equipment. ADTRAN’s products enable voice, data, video and Internet communications across a variety of network infrastructures. ADTRAN’s solutions are currently in use by service providers, schools and libraries, private enterprises, government organizations and millions of individual users worldwide. ADTRAN thus brings an expansive perspective to this proceeding, as well as an understanding of the importance to individuals, communities and countries of robust and ubiquitous broadband.

ADTRAN believes the guiding principle in this effort to adopt guidelines for defining “very high capacity networks” must be fostering the ubiquitous deployment of robust broadband networks that can meet the current and future needs of individual and business customers. Broadband is essential for commerce, communications and connectivity, education, health care, civic involvement and entertainment. Indeed, the Covid-19 pandemic reinforces how essential robust broadband access has become for individuals, businesses, communities and countries. The proposed guidelines, if properly structured, can help foster that goal by creating incentives

¹ https://berec.europa.eu/eng/news_consultations/ongoing_public_consultations/6821-new-deadline-public-consultation-on-draft-berec-guidelines-on-very-high-capacity-networks.

² https://berec.europa.eu/eng/document_register/subject_matter/berec/public_consultations/9037-draft-berec-guidelines-on-very-high-capacity-networks.

³ *Draft Guidelines* at p. 6.

for the deployment of truly robust broadband. In this case, the incentives are the reduced regulatory burdens that apply to broadband that is deemed a “very high capacity network.”⁴

It is also critical, however, that the guidelines correctly determine what constitutes a “very high capacity network.” Otherwise, service providers will be incented to deploy less than robust networks, relegating those providers’ customers and communities to a secondary status. Without truly robust broadband, those customers and communities will not be able to enjoy the manifold benefits of the digital economy. These communities cannot survive, much less thrive, in today’s highly-connected digital economy.

ADTRAN agrees with the *Draft Guidelines* proposal to incorporate the EECC Recital 13 categorization of “very high capacity networks” for fixed-line connections as “an electronic communications network which consists wholly of optical fibre elements at least up to the distribution point at the serving location. ... In the case of fixed-line connection, this corresponds to network performance equivalent to that achievable by an optical fibre installation up to a multi-dwelling building, considered to be the serving location.”⁵ Fibre optic networks satisfy consumer demand for reliability, speed and latency. Moreover, fibre optic networks exhibit low operating costs and are future proof. Near limitless practical additional capacity can be added through the change out of the electronics lighting the fibre, thus fibre optic networks can readily be upgraded as technology continues to evolve.⁶ Such networks are thus inherently the appropriate benchmark for “very high capacity networks.”

ADTRAN additionally supports the *Draft Guidelines* proposal to include technologies besides fibre to the distribution point as “very high capacity networks,” so long as those alternatives indeed provide an “equivalent network performance.”⁷ ADTRAN agrees with the *Draft Guidelines* proposal to define the “equivalent network performance” for a fixed line connection in terms of speed (1 Gbps/200 Mbps), but also including IP packet error ratio (0.05%), IP packet loss ratio (0.0025%), Round-trip IP packet delay (10 ms), IP packet delay variation (2 ms) and IP service availability (99.9% per year).⁸ Establishing comparability across multiple factors, and not just speed, will ensure “equivalent network performance.” Alternative

⁴ *Draft Guidelines* at ¶¶ 88-93.

⁵ *Draft Guidelines* at p. 7.

⁶ Indeed, while Gigabit communities are now the “gold standard” for broadband deployment, 10 Gbit technologies over fiber networks are commercially available today. ADTRAN, among others, currently offers 10 Gigabit Passive Optical Networks (PON). <https://portal.adtran.com/web/page/portal/Adtran/group/4554>

⁷ *Draft Guidelines* at pp. 7-9.

⁸ *Draft Guidelines* at p. 10.

technologies that can offer such capabilities should also be deemed “very high capacity networks.”⁹

In contrast to ADTRAN’s support for the *Draft Guidelines*’ treatment of fixed-line connections, ADTRAN has concerns regarding the proposed treatment of wireless connections. As an initial matter, ADTRAN notes that Recital 13 deems a wireless network to be a “very high capacity network” if there is fibre to the base station.¹⁰ Unlike fixed-line connections, where fibre to the distribution point inherently provides robust broadband capabilities, in the case of wireless broadband services, the broadband capabilities will be limited by the transceiver technologies deployed at the base station and the amount of spectrum available to the service provider at that base station. But the *Draft Guidelines* treats a base station utilizing 3G technologies identically to one using 5G technologies if there is fibre to the base station – both would be deemed “very high capacity networks,” notwithstanding the vastly superior speed and lower latency of 5G technologies. As a result, the incentives of reduced regulatory burdens are not necessarily limited to robust wireless networks, thus potentially inhibiting more widespread deployment of truly “very high capacity networks” to the detriment of consumers, businesses and communities. As widely observed across the globe, fixed broadband consumption habits remain consistent regardless of the access technology providing the fixed connection. To this end, the “equivalent network performance” characteristics defined for fibre connections must be considered when setting targets for fixed wireless connections, if we are to avoid the creation of the next digital divide.

This potential problem of deeming non-robust and slow wireless networks as “very high capacity networks” is exacerbated because of ambiguity in the *Draft Guidelines* with regard to the treatment of wireless networks that are used to provide fixed services. The *Draft Guidelines* in some places seem to equate “wireless networks” with “mobile networks.”¹¹ And the *Draft Guidelines* Criterion 4 for assessing the equivalence of a wireless network incorporate slower,

⁹ Some technologies can take advantage of the embedded base of copper loops, in conjunction with installing fiber deeper into the network, and thus could be a way of economically deploying a very high capacity network. For example, next-generation technologies, including G.fast (106 MHz and 212 MHz) with dynamic time assignment (“DTA”), utilize fiber to a node and short copper loops to support symmetric Gigabit rates (up to 2 Gbps aggregate).

¹⁰ *Draft Guidelines* at p. 7. EECC Article 2(2) itself, however, does not unambiguously make such a conclusion.

¹¹ E.g., *Draft Guidelines* at ¶ 29 (“The performance thresholds 2 refer to a wireless network with fibre roll out up to the base station (see paragraph 14b). End-user services provided by such a network are typically based on a mobile network (not e.g. on a public WLAN network). Therefore, the determination of the performance thresholds 2 is based on mobile networks with fibre roll out up to the base station.”); *Draft Guidelines* at ¶ 75 (“For example, if the data rate in this sub-area will be measured during peak-time with a drive test, then the average value of the measured data rate would be at least 150 Mbps in downlink and 50 Mbps in uplink (at the level of the IP packet payload) in case the mobile equipment used in the drive test sufficiently supports the technology used in the wireless network.”); *Draft Guidelines* at ¶ 181 (“This annex determines the performance thresholds 2 (see paragraph 14b) based on the data collected from mobile network operators (see annex 2).”); *Draft Guidelines* at ¶ 182 (“The determination of the performance thresholds 2 is based on mobile networks with fibre roll out up to the base station (see paragraph 22) and the use of LTE Advanced (4G) with carrier aggregation and MIMO with a focus on the carrier aggregation with the highest aggregated spectrum and MIMO with the highest number of parallel data streams (see paragraph 28c).”); *Draft Guidelines* at Annex 6 (speed tests with 4G networks).

less robust measures than Criterion 3 for assessing the equivalence of a fixed-line connection. ADTRAN appreciates the difference in treatment of fixed versus mobile broadband networks, because they are different products that generally do not compete with each other. Customers value the benefits of mobility, and they are willing to trade off speed/quality for the ability to access data services from a portable device.¹²

However, the *Draft Guidelines* may allow a broadband service provider using fixed wireless technology to obtain the benefits of being deemed a “very high capacity network,” because Criterion 2 and Criterion 4 are not necessarily limited to mobile networks.¹³ The *Draft Guidelines* do not explicitly require that a fixed wireless network needs to meet Criterion 3 to be deemed a “very high capacity network,” and thus could fall well below the criteria to demonstrate the equivalence of a fibre-to-the-distribution-point for a fixed-line connection.¹⁴ Indeed, a fixed wireless network need not even meet the lower criteria for a wireless network if

¹² The U.S. Federal Communications Commission discussed this difference in its most recent annual report on broadband deployment, *Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion*, FCC 2050 (released April 24, 2020) at ¶¶ 10-11 (available at <https://www.fcc.gov/document/new-fcc-report-shows-digital-divide-continuing-close-0>):

The Commission concluded at the time of both the *2018 Report* and the *2019 Report* that mobile services were not full substitutes for fixed service, but that both services still independently met the statutory definition of advanced telecommunications capability. The record before us provides some evidence that consumers increasingly rely on mobile broadband for accessing and sharing information, and they can substitute fixed and mobile broadband when accessing certain services and applications (such as e-mail or social media, for example). Moreover, mobile wireless providers continue to improve their networks, notably through the deployment of 5G technology, which may have performance characteristics similar to fixed services in certain environments. Mobile wireless providers also continue to offer new retail data plans that make mobile service an increasingly-attractive alternative to fixed services. . . . The record also provides substantial evidence, however, that fixed and mobile services often continue to be used in distinct ways, and that users tend to subscribe to both services concurrently and treat them as complements. For example, a fixed broadband service subscriber cannot use this service while traveling. Similarly, in-home connected devices, such as smart lights, Internet-connected security devices, or smart thermostats, often include features that allow for their use outside of the home, and consumers are unlikely to be able to take full advantage of these remote monitoring capabilities without the benefit of a mobile broadband connection (in addition to their fixed broadband service). Mobile broadband subscribers, meanwhile, may not be able to use their mobile devices as in-home hotspots to stream large quantities of high-definition video content (due to either plan restrictions or data limits). While users may substitute between mobile and fixed broadband when accessing certain services and applications, the record indicates that they are not yet functional substitutes for all uses and customer groups. Based on the record before us, we again find that fixed broadband and mobile wireless broadband services are not functional substitutes in all cases.

¹³ *Draft Guidelines* at ¶ 76 (“Criterion 4 refers to ‘any network which provides a wireless connection’ and therefore applies technologically neutral to all networks which provide a wireless connection (e.g. mobile networks, public WLAN (WiFi) networks, satellite networks).”).

¹⁴ *Cf.*, *Draft Guidelines* at ¶ 71 (“As mentioned in paragraph 20, a ‘wireless very high capacity network’ (i.e. a network that meets criteria 2 or 4, or both), may also meet the performance thresholds of criterion 3 and, if this is the case, it may be considered equivalent to a ‘fixed very high capacity network’.”).

there is fibre to the base station.¹⁵ Thus, rather than limiting the incentives for fixed-line connection networks to ones which provide Gigabit services, the *Draft Guidelines* would apparently allow those incentives to fixed wireless networks that do not even provide 150 Mbps service. This would seem to be inconsistent with Article 2(2)'s directive to define an alternative technology deemed a "very high capacity network" as one "which is capable of delivering, under usual peak-time conditions, similar network performance in terms of available downlink and uplink bandwidth, resilience, error-related parameters, and latency and its variation".

ADTRAN thus urges BEREC to modify the *Draft Guidelines* to avoid granting the incentives that follow from designation as a "very high capacity" network to fixed wireless networks that do not actually provide an equivalent level of service to an all fibre network. To accomplish this, ADTRAN suggests that the final Guidelines clarify that Wireless Networks for purposes of applying Criterion 2 or Criterion 4 means mobile services, not fixed services. Thus, a fixed wireless network would need to meet Criterion 3 to qualify as a "very high capacity network." ADTRAN believes that such a modification would best help achieve the goal of the ubiquitous deployment of robust broadband networks capable of meeting current and future needs. Please let us know if we can provide any further information or assistance in this matter.

Sincerely,

/s/

Ronan Kelly

Chief Technology Officer, EMEA & APAC Regions
ADTRAN, Inc.

¹⁵ *Draft Guidelines* at p. 10 ("Note that a network which qualifies as a very high capacity network according to criterion 2 does not necessarily fulfil criterion 4.").