**Decision No. 1/23 of the Board of the Public Utilities Commission**

Adopted 15 September 2022

**Regulations Regarding Bitstream Access**

**I. General Provisions**

1. The regulations prescribe:

1.1. the technical and operational conditions for an electronic communications network for an electronic communications merchant with a significant market power who has a specific access obligation to provide bitstream access (hereinafter – the owner);

1.2. the technical information to be included in a reference offer for bitstream access and the level of detail thereof.

2. The following terms are used in the regulations:

2.1. **backhaul**– the following service provided by the owner to the lessee between the bitstream access point and the electronic communications network facilities of the lessee:

2.1.1. Ethernet backhaul – a connection established at the Ethernet OSI Layer 2;

2.1.2. IP backhaul – a connection established at the IP OSI Layer 3;

2.1.3. access to cable ducts or poles;

2.1.4. lease of dark fibre;

2.2. **bitstream access point**– the interface of the facility of the regional or national level of the geographical hierarchy of the electronic communications network of the owner where the owner ensures the lessee with bitstream access for the provision of electronic communications services to the end-users within the relevant range of operation of the facilities of the relevant geographical hierarchy level of the electronic communications network, using the access network and core network of the owner;

2.3. **lessee**– electronic communications merchant which has concluded the contract for the bitstream access with the owner (hereinafter – the contract);

2.4. **applicant**– the electronic communications merchant who wishes to gain bitstream access.

3. The following abbreviations are used in the regulations:

3.1. **ETSI**– European Telecommunications Standards Institute;

3.2. **Gbit/s**– gigabits per second;

3.3. **IGMP***–* Internet Group Multicast Protocol;

3.4. **IP**– Internet Protocol;

3.5. **ITU-T**– International Telecommunications Union, Telecommunication Standardization Sector;

3.6. **MDF**– Main Distribution Frame;

3.7. **ODF**– Optical Fibre Distribution Frame;

3.8. **OSI**– Open Systems Interconnection;

3.9. **RJ**– Registered Jack;

3.10. **NTU**– Network Termination Unit;

3.11. **VLAN**– Virtual Local Area Network;

3.12. **MAC***–* Media Access Control.

**II. Technological Solutions for Bitstream Access**

4. The following types of bitstream access are possible:

4.1. connection established at the Ethernet OSI Layer 2;

4.2. connection established at the IP OSI Layer 3.

5. The owner shall provide bitstream access by virtually connecting the network termination points present in the access network of the owner with the bitstream access point at the location of the facility of the regional or national level, geographical hierarchy of the electronic communications network of the owner indicated by the lessee in conformity with the operational range of the facilities of the geographical hierarchy level of the electronic communications network of the owner unless otherwise agreed upon by the parties.

6. The owner shall, upon request of the lessee, ensure backhaul within the limits of technical feasibility.

7. In the reference offer for bitstream access, the owner shall include the technical requirements for the electronic interfaces for bitstream access at the following points of electronic communications network:

7.1. network termination point;

7.2. bitstream access point;

7.3. Ethernet or IP backhaul access point.

8. The owner shall ensure the following interfaces at the network termination point for bitstream access:

8.1. without an active NTU. At the network termination point of twisted pair cables, a physical NTU is an outlet with an appropriate RJ type socket. At the network termination point of optical fibre cables, a physical NTU is an optical plug the requirements of which have been published by the owner;

8.2. with an active NTU. The owner shall ensure an active NTU at the termination point according to the choice of the applicant.

9. In the reference offer for bitstream access, the owner shall include a list of compatible active NTUs, indicating the manufacturer and the name of facility granted by the manufacturer, and shall update the list once a year. The owner shall also include in the list of active NTUs the active NTU facilities which are compatible with the facilities of the owner and are no longer manufactured, adding a relevant note thereon. If the owner ensures an active NTU, then the brand of the owner or other information identifying the owner shall not be indicated on the NTUs provided to the lessee.

10. The owner shall ensure a bitstream access point and Ethernet or IP backhaul with the following physical interfaces and download and upload data transmission speeds (hereinafter – the transmission speed), offering the lessee a possibility to control the transmission speed of the electronic communications service provided to the end-user:

10.1. an RJ type socket in which the following transmission speed is ensured: 0.1\*n Gbit/s where n is a natural figure which is greater than 0 and the value of which is determined upon agreement between the lessee and the owner;

10.2. an optical fibre connector the requirements of which have been published by the owner and in which the owner offers to ensure one of the following transmission speeds to the lessee: 1 Gbit/s, 10 Gbit/s, 100 Gbit/s, or another transmission speed upon agreement between the lessee and the owner.

11. In the reference offer for bitstream access, the owner shall determine the guaranteed transmission speed which is not less than 80 % of the connection speed at the bitstream access point.

12. In the reference offer for bitstream access, the owner shall include the reservation of a facility for the bitstream access point, using reserved facility modules and interfaces. The lessee may select the bitstream access point with or without reservation of the facility.

13. In the reference offer for bitstream access, the owner shall include a possibility for the lessee to select one or two dark fibres for backhaul, taking into account the possibilities of the owner’s facility at the bitstream access point.

14. In the reference offer for bitstream access, the owner shall include the reservation of dark fibre for backhaul, ensuring black fibre along different routes. The lessee may select the bitstream access point with or without reservation of dark fibre for backhaul. The owner shall ensure reservation of black fibre for backhaul upon receipt of an application for the reservation of black fibre for backhaul from the lessee which is possible at any stage of ensuring the bitstream access.

15. In the reference offer for bitstream access, the owner shall include a possibility for the lessee to select reservation of black fibre for backhaul with one dark fibre where one dark fibre has been used for backhaul or two black fibres where two black fibres have been used for backhaul.

16. The owner shall include a possibility in the reference offer for bitstream access for the lessee to select a contention ratio for Ethernet and IP backhaul.

17. The owner shall include in the reference bitstream access offer at least the following categories of the electronic communications service for download and upload for bitstream access and Ethernet and IP backhaul:

17.1. voice service category;

17.2. Internet access service category;

17.3. television programme distribution service category.

18. The owner shall include in the reference bitstream access offer at least the following quality requirements for the bitstream access established at the Ethernet OSI Layer 2 and Ethernet backhaul for each electronic communications service category which shall not be lower than those for the electronic communications service provided by the owner in retail:

18.1. traffic transmission priorities in the electronic communications network of the owner, indicating the methods specified in the priority Ethernet frame and offering a possibility for the lessee to determine the priority for the traffic;

18.2. one-way frame delay;

18.3. inter-frame delay variation;

18.4. frame loss;

18.5. availability.

19. The owner shall, upon request of the lessee, provide multicast for bitstream access at the Ethernet OSI Layer 2 in the following manner:

19.1. at the Ethernet OSI Layer 2 and local level using the IGMP;

19.2. at the Ethernet OSI Layer 3 for bitstream access at regional and national level, using Layer 3 functionality;

19.3. by assigning the lessee a separate VLAN for the television programme distributions service.

20. If requested by the lessee, the owner shall provide each end-user of the lessee with its own VLAN for bitstream access at the Ethernet OSI Layer 2 when providing the voice service or Internet access service. The lessee shall determine the security requirements for the bitstream access at the Ethernet OSI Layer 2 in its electronic communications network.

21. The owner shall provide the lessee with a possibility to identify its end-users for bitstream access at the Ethernet OSI Layer 2 on the level of central office facilities or VLAN.

22. The owner shall provide the lessee with a possibility to apply security measures for bitstream access at the Ethernet OSI Layer 2, the IP OSI Layer 3, and higher layers of OSI.

23. The owner shall include in the reference offer for bitstream access at least the following quality requirements for the bitstream access established at the IP OSI Layer 3 and IP backhaul for each electronic communications service category which shall not be lower than those for the service provided by the owner in retail:

23.1. transmission speed;

23.2. IP packet delay;

23.3. IP packet delay variation;

23.4. IP packet loss ratio;

23.5. IP packet error rate;

23.6. maximum and minimum guaranteed transmission speed.

24. The owner shall include in the reference offer for bitstream access a possibility for the lessee to use three MAC addresses.

**III. Closing Provisions**

25. Decision No. 1/25 of the Public Utilities Commission of 14 September 2017, Technical and Operational Regulations of an Electronic Communications Network Regarding the Bitstream Access (*Latvijas Vēstnesis*, 2017, No. 186; 2018, No. 199), is repealed.

26. Sub-paragraph 19.2 of these regulations shall come into force on 1 January 2023.

27. The regulations shall come into force on 1 October 2022.

Chair of the Board of the Public Utilities Commission A. Ozola