

ANNEX 1 – AD HOC QUESTIONNAIRE

AD HOC QUESTIONNAIRE

INFORMATION ON COVERAGE REGARDING THE DATA SERVICE PROVIDED IN THE 1920-1980 MHz / 2110-2170 MHz SUB-BAND

MEO - Serviços de Comunicações e Multimédia, S.A. (MEO), NOS, Comunicações, S.A. (NOS) and VODAFONE PORTUGAL - Comunicações Pessoais, S.A. (VODAFONE), are required under article 32(1)(a) of the Electronic Communications Law and the respective Rights of Use of Frequencies (RUF) for terrestrial electronic communications, to ensure, in the provision of data services in the 1920-1980 MHz / 2110-2170 MHz sub-band, a minimum coverage at municipality level, *both in terms of population and of geographical distribution*, not lower than that confirmed on the dates of the renewal of the RUF, on 21 April 2018, 4 June 2018 and 5 May 2018, respectively.

For that purpose and under the terms mentioned in the RUF, the reference basis for the coverage level ensured is considered to be the information sent to ANACOM by MEO, NOS, and VODAFONE in the context of the present questionnaire, approved by this Authority on 2017.

Therefore, pursuant to Article 27(1)(t), under the terms of Article 108, and for the purposes provided for in Article 109(1)(c), all contained in Law 5/2004 of 10 February, in the wording currently in force, MEO, NOS and VODAFONE are required to send ANACOM the present questionnaire, duly completed, within 60 working days from the date of renewal of the respective RUF.

The questionnaire consists of two parts:

- Part A: Information on coverage related to the provision of data services using the 1920-1980 MHz / 2110-2170 MHz sub-band;
- Part B: Elements to be presented in support of the coverage results, regarding the provision of data services using the 1920-1980 MHz / 2110-2170 MHz sub-band, reported in Part A of the questionnaire.

Identification of the responding company: _____

Company contact point:

Name: _____

Telephone contacts: _____

Fax: _____

email: _____

PART A

Information on coverage relating to data services using the 1920-1980 MHz / 2110-2170MHz sub-band, confirmed on the date of the renewal of the corresponding Rights of Use of Frequencies for the provision of terrestrial electronic communications services.

INDICATOR 1 – DATA SERVICE - TOTAL POPULATION COVERED ON 2018

(date to be filled by the responding company)

Maximum download speed in Mbps, at national level	TOTAL NATIONAL POPULATION (thousands of inhabitants)¹	TOTAL POPULATION COVERED (%)²	Indication of the technology(ies) considered for assessing the population at <u>national level</u> using the 1920-1980 MHz / 2110-2170 MHz sub-band

¹ The latest Census published by Instituto Nacional de Estatística (Statistics Portugal) at the time that the information relates to should be taken as a reference.

² This indicator refers to the ensured population coverage at national level in the 1920-1980 MHz/2110-2170 MHz sub-band relative to the data service for the maximum speed provided (maximum download speed) at national level. The speed (rate) should correspond to the theoretical upper rate that is possible for a user in an external environment, including signalling/codification traffic, regardless of the user's distance from the base station, i.e., it is intended that every user can benefit from this facility in the area in question.

INDICATOR 2 – DATA SERVICE – TOTAL POPULATION COVERED ON ... 2018

(date to be entered by the responding company)

LIST OF MUNICIPALITIES	Maximum download speed in Mbps per municipality	POPULATION PER MUNICIPALITY (in thousands of inhabitants) ¹	POPULATION COVERED PER MUNICIPALITY (%) ³	Indication of the technology(ies) considered for calculating the population coverage in each municipality using the 1920-1980 MHz / 2110-2170 MHz sub-band
Municipality A				
Municipality B				
Municipality C				
...				

³ This indicator refers to the ensured population coverage by municipality in the 1920-1980 MHz/2110-2170 MHz sub-band relative to the data service for a maximum speed provided (maximum download speed) in the respective municipality. The speeds (rates) should correspond to the theoretical upper rate that is possible for a user in an external environment, including signalling/codification traffic, regardless of the user's distance from the base station, i.e., it is intended that every user can benefit from this facility in the area at stake.

PART B

Elements to be presented in support of the coverage results reported in Part A of this questionnaire:

In addition to the response to Part A of the questionnaire, the responding company should send ANACOM a description of the coverage(s) in outdoor spaces based on the reception at 1.5 m above the ground, on maps of an appropriate scale (at least 1:1 500 000). The assumptions and methodology used for the calculation of the coverages reported should be indicated, and the following elements should be indicated, per reported speed:

- maps used in the calculations, including population maps;
- propagation model(s);
- measurements taken for the calibration of the propagation models used;
- location of the base stations that provide the service, including the type of antennas used and their radiation diagrams, as well as the associated technology and bandwidth;
- calculation of the link budget(s), including parameters per reported speed, such as the sensitivity value, SINR, Eb/No, type of modulation, etc.