

## DECISION

### DTT - Plan for installation of main transmitters

#### 1. Determination of 11 September 2014 - DD on the plan for installation of main transmitters

By determination of ANACOM, of 11 September 2014<sup>1</sup>, to which reference is made, the then PT Comunicações, S.A. (PTC), now MEO – Serviços de Comunicações e Multimédia S.A. (hereinafter MEO) was granted a **temporary network license**, as follows:

1. *To grant PTC a temporary network license, for a period of 180 days, consisting of 4 stations, to be implemented within at the most 5 working days from the date of notification of this determination, as follows:*
  - a) *Mendro transmitter: channel 40 (622-630 MHz);*
  - b) *Palmela transmitter: channel 45 (662-670 MHz);*
  - c) *São Mamede transmitter: channel 47 (678-686 MHz);*
  - d) *Marofa transmitter: channel 48 (686-694 MHz).*
2. *To determine that the maximum effective radiated power (e.r.p.) of each station referred to in the preceding paragraph shall be limited to 10 kW. As regards the São Mamede transmitter, the maximum e.r.p. shall be 100 W in the 20º-110º sector.*
3. *To order PTC to submit to ICP - ANACOM, within 10 working days, the following elements for each station:*
  - a) *antenna height;*
  - b) *antenna radiation pattern;*
  - c) *e.r.p. to be used.*
4. *To order PTC to put in place, by no later than the date of effective implementation by PTC of the network referred in paragraph 1, the appropriate procedures intended to reimburse costs incurred by users due to the adjustment to the network now licensed, on the basis of means identified in point III.2, and to subsequently report steps taken to ICP - ANACOM.*

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<sup>1</sup> Available at: [Temporary network licensing - DTT](#).

5. *To order PTC to put in place, by no later than the date of effective implementation by PTC of the network referred in paragraph 1, the plan for communication to DTT users covered by new transmitters, disclosing the information required by the entry into operation of the network now licensed, including the responsibility for adjustment costs which may be incurred, which shall be notified to ICP - ANACOM.*

The same determination approved also the following **draft decision** (DD):

6. *To order PTC to present, within 10 working days, a plan for the installation of main transmitters required to address problems encountered in areas not covered by the current MFN network or by the 4 transmitters now temporarily licensed.*
7. *To submit the determination in the preceding paragraph to the prior hearing of PTC, under articles 100 and 101 of the Administrative Procedure Code, so that the company may assess the matter in writing, within 10 working days from the date of notification hereof.*

## **2. Prior hearing**

Having been notified for the purpose of the hearing of stakeholders, MEO expressed its view within the period prescribed, by letter received at ANACOM on 29.09.2014<sup>2</sup>.

The reasoning put forward in the prior hearing, as well as ANACOM's views thereon, are included in the prior hearing report which is deemed to be an integral part of this decision, reference being made to the contents thereof.

## **3. Analysis**

### **3.1. Verification of instability of the SFN network**

The results achieved by ANACOM's probe network, the graphic records of which were sent to MEO by letter of 24 July 2014, clearly demonstrate that, in the week from 14 to 20 July 2014, the network showed a marked instability, which was more predominant on the 16 July, all the more so as, for most of these cases, in the preceding and

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<sup>2</sup> Letter with reference 20445880, of 29.09.2014.

subsequent weeks, technical parameters assessed remained stable as a whole (for example, electric field and MER).

It is stressed that ANACOM's probes were designed, developed and manufactured by the consortium *UBIWHERE/WAVECOM*, in full conformity with technical requirements laid down in specifications, which were made publicly available when the respective international tender was launched, and always under the scientific supervision of university researchers and teachers from the *Instituto de Engenharia de Sistemas e Computadores - Tecnologia e Ciência* (INESC-TEC - the Institute for Systems and Computer Engineering - Technology and Science) and from the *Faculdade de Engenharia* of *Universidade do Porto* (FEUP - the Faculty of Engineering of the University of Oporto).

These probes were later subject to a wide range of tests, to comply with radio interface requirements (arising from the R&TTE Directive<sup>3</sup> regime), as well as with requirements imposed by the low voltage directive<sup>4</sup> and the electromagnetic compatibility directive<sup>5</sup>, the respective EC declaration of conformity having been issued.

All probes used by ANACOM were subject to a strict quality control, throughout the process of manufacturing, and, in particular, in the post-production stage, having undergone individual laboratory tests and checks, using reference equipment that was calibrated and screened under internationally acknowledged standards. All these procedures were monitored, accompanied and validated by the project's scientific coordination team, consisting of 3 PhDs in electrical engineering from INESC-TEC and FEUP.

As a consequence, there is no doubt as to the integrity and reliability of data collected by ANACOM's probe network and, as such, as to the diagnosis of instability in the SFN network.

It is further clarified that, in most of the cases where ANACOM registered instability, reception conditions had been validated *ex ante*, on site, with mobile means, and in

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<sup>3</sup> Directive 1999/5/EC of the European Parliament and of the Council, of 9 March, on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity, transposed by Decree-Law No 192/2000, of 18 August.

<sup>4</sup> Directive 2006/95/EC of the European Parliament and of the Council, of 12 December, on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits, transposed by Decree-Law No 6/2008, of 10 January.

<sup>5</sup> Directive 2004/108/EC of the European Parliament and of the Council, of 15 December, on the approximation of the laws of the Member States relating to electromagnetic compatibility, transposed by Decree-Law No 3257/2007, of 28 September, as amended by Decree-Law No 20/2009, of 19 January.

some circumstances echoes were registered outside the guard interval, which already suggested some potential for interference, under more adverse conditions of the propagation channel. Results obtained during the reported period were as such not surprising.

It is therefore reiterated that, in the period concerned, interference phenomena did effectively occur, which are clear from the inverse correlation electric field vs MER, which caused instability to the DTT SFN network and a consequent loss of service.

As conveyed to MEO, ANACOM cannot rule out the possibility that the verified instability may occur again, taking into account the changes in propagation conditions that take place every year, especially during the summer season.

Under these circumstances, and in the light of the above, ANACOM was of the opinion the recurrence of problems that occurred in the week from 14 to 20 July 2014 should be prevented, in the framework defined in the decision of 16 May 2013.

### **3.2. Resolution of the network instability in areas not covered by the MFN network and by temporarily licensed transmitters**

By letter dated 14 August 2014, ANACOM notified MEO to identify transmitters - to be included in the temporary licenses to be granted - that were required for the resolution of problems occurred in areas not covered by the MFN network (which were indicated), in order to ensure the provision of the service with the necessary levels of quality, taking into account the instability already demonstrated and with a view to prevent a recurrence of problems verified from 14 to 20 July 2014.

In its letter of 22 August 2014, MEO failed to identify any transmitters, as it did not acknowledge the existence of any problems in those areas, although it did inform the locations identified in ANACOM's letter that were likely to be covered by a theoretical coverage of the 4 MFN transmitters the license for which had been required.

As referred above, ANACOM, by determination of 11 September 2014, granted to MEO a temporary network license, for a period of 180 days, consisting of 4 stations. Subsequently, by determination of 13 March 2015<sup>6</sup>, this Authority decided to renew the referred temporary license.

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<sup>6</sup> [Renewal of temporary DTT network licence - MEO](#)

Restating that it was necessary to prevent a recurrence of problems occurred during the week from 14 to 20 July 2014, in the framework defined in decision of 16 May 2013, ANACOM analysed the behaviour of probes installed in areas not covered by the MFN network or by the 4 transmitters the temporary license for which was granted, from the week from 20 June 2014 up to 20 July 2015, and in this context it was found that it cannot unquestionably be said that any of the probes had been unavailable for longer than 1% of the time<sup>7</sup>, as a result of transmission failure of any of the network's transmitters and/or due to interference generated by transmitters of the network.

As such, ANACOM takes the view that, for now, there seem to be no reasons to order MEO to present a plan for the installation of main transmitters as provided for in point 6. of determination of 11 September 2014, that is, in areas not covered by the current MFN network or by the 4 temporarily licensed transmitters.

Nevertheless, it is stressed that in the final decision on terrestrial coverage obligations and on the amendment of the RUF<sup>8</sup>, published on the date of this decision, objective criteria are defined allowing for the assessment, with a greater degree of certainty, of possible and future periods of unavailability of service reception.

#### **4. Determination**

Therefore, in the light of arguments put forward above, ANACOM's Management Board, in the scope of powers provided for in article 8, paragraph 1 e) and h), of its Statutes, approved by Decree-Law No 39/2015, of 16 March, in the pursuit of regulatory objectives provided for in article 5, paragraph 1 c) and paragraph 4 d) of the Electronic Communications Law, pursuant to articles 15 and 16 of the same Law, in accordance with articles 15 and 16 of the same Law, under point 4 of the decision of 16 May 2013, and article 26 q) of its Statutes, hereby determines not to impose on MEO the planned measure to present a plan for the installation of main transmitters, as provided for in point 6. of the determination of 11 September 2014, thus bringing this procedure to an end.

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<sup>7</sup> The document ETSI TR 101 190 establishes that a location is regarded as covered if the required carrier-to-noise (C/N) and carrier-to-interference (C/I) values are achieved for 99% of the time.

<sup>8</sup> The draft decision of which was approved by determination taken by ANACOM on 25 June 2015, available at: [New draft decision on the definition of DTT terrestrial coverage obligations.](#)