



2016 – Digital Terrestrial Television transition in Romania

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History

- **Geneva 2006** – Regional Radiocommunication Conference for planning of Digital Terrestrial Television RRC06 – Romania: **6 MUX-es** in UHF (**470 – 862 MHz**) and **1 MUX** in VHF, in DVB-T standard,
- **Geneva 2012** – World Radiocommunication Conference – allocation of **790-862 MHz** Band to terrestrial mobile services on primary basis – **Digital Dividend 1 (DD1)**
- **17 iunie 2015** – switch-off of Analogue terrestrial TV in UHF in Romania. In VHF TVA stations will transmit until **31 decembrie 2016**.
- **Geneva 2015** - World Radiocommunication Conference – allocation of **694-790 MHz** Band to terrestrial mobile services on primary basis – **Digital Dividend 2 (DD2)**

ANCOM – Approaches and Actions

- Legislative measures after WRC 2012
- Technical measures and frequencies international coordination
- Spectrum auctions for the DTT MUX-es
- Technical Authorization of the transmitters.

Legislative measures

The Strategy regarding the transition from analogue terrestrial television to digital terrestrial television and implementation of multimedia digital services at national level – HG nr. 403/19.06.2013 officially published in 03.07.2013

Provisions:

- Television system : DVB-T2
- Number of multiplexes : 5 (4 in UHF band (21-48), 1 in VHF)
- 1 multiplex in UHF for public programs - free to air, coverage conditions (90% of population, 80% of territory till 31 December 2016)
- 4 commercial multiplexes without specific development conditions
- Switch – off date for analogue television :17 June 2015.
- The date of entry in force of the multiplex licenses :17 June 2015.

Technical approaches and frequencies international coordination

Technical approaches:

- re-planning of DTT MUX-es in 470-694MHz Band in order to make available both DD1 and DD2 for mobile services
- redistribution of channels from GE-06 Plan and find new available channels, in order to obtain **4 national MUX-es**
- redistribution of channels from GE-06 Plan and find new available channels, in order to obtain some regional MUX-es – **40 regional MUX-es**

International coordination:

- the plan modifications were coordinate with neighboring countries by correspondence and bilateral meetings between 2013 – 2014

Spectrum auctions

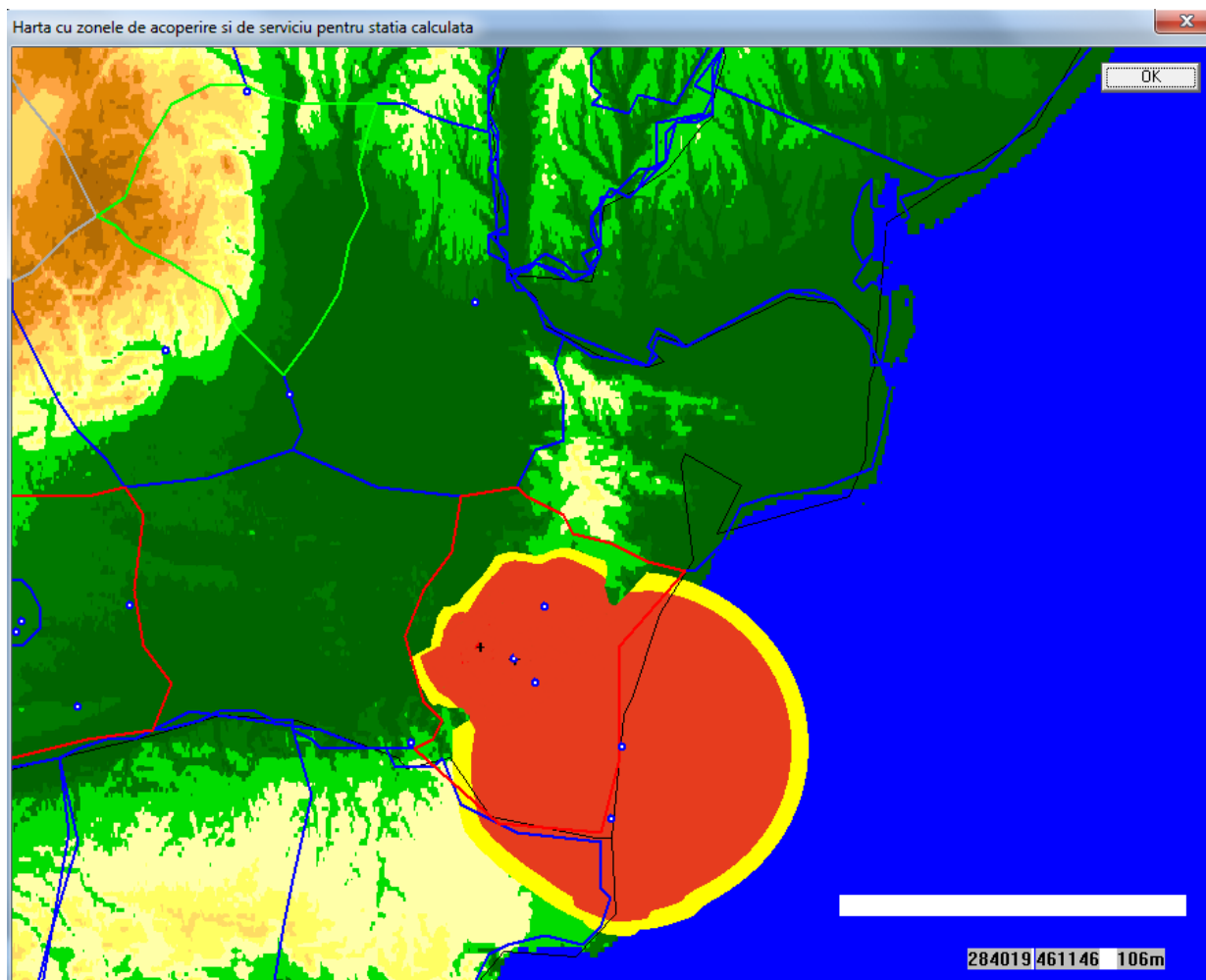
- **March 2014 - June 2014** – auction for **5 national MUX-es** for DTT (4 in UHF and 1 in VHF):
 - **3 National MUX-es in UHF – National Broadcasting Company (Radiocom)**
- **November 2014 - February 2015** – auction for **40 regional MUX-es** and **19 local MUX-es**:
 - **9 regional MUX-es**
- **March 2015 - May 2015** – auction for **31 de regional MUX-es** and **19 local MUX-es**
 - **4 regional MUX-es and 1 local MUX**

Still available: **2 national MUX-es (1 in UHF, 1 in VHF), 27 regional MUX-es and several local MUX-es.**

Technical Authorization

- ANCOM has awarded license for all the winners of the auctions for 10 years, until 2025
- The DVB-T2 features were implemented into the compatibility software in order to assess the interference of implemented transmitters (SFN or MFN) and estimate the coverage
- The License owner proposes the technical parameters of the assignments/SFN network and ANCOM, after the analysis, give the Technical Authorization for the assignment/network or impose modifications.

SFN implementation of ROU001 allotment



AUTORIZAȚIE DE ASIGNARE A FRECVENȚELOR RADIO TDT/N101-2/2014

Titular: SOCIETATEA NATIONALA DE RADIOCOMUNICATII S.A.
Sediu: BUCURESTI, Sos. Oltenitei nr. 103, Sector 4,
Nr. Oficiul Registrului Comerțului: J40/7677/1998,
Cod de înregistrare fiscală: RO10881986,

I. Date generale:

1. Multiplexul: **MUX1**
2. LUF: **TDT-MUX1/29.09.2014**
3. Denumire alocare: **ROU001**
4. Canal: **30**
5. Denumire stație: **CERNAVODA**

II. Caracteristici tehnice generale:

1. Sistemul de transmisie: **DVB-T2**
2. Tipul modulației: **256QAM**
3. Rata de codare: **3/4**
4. Număr purtătoare (FFT): **32k**
5. Intervalul de gardă: **1/8**
6. Matricea semnalelor pilot: **PP2**

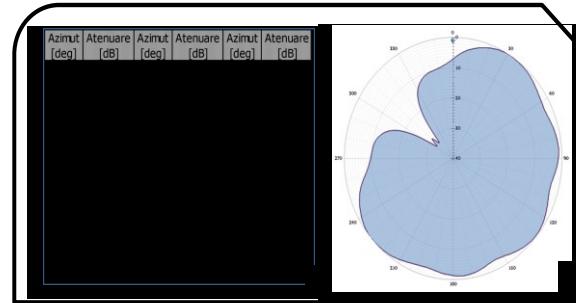
III. Date amplasament emițător:

1. Adresă: **Cernavoda, Str. Victoriei nr. 41, jud. Constanta**
2. Coordonate geografice: **28°E02'24" ; 44°N20'57"**
3. Înălțimea antenei: **53 m**
4. Hefmaxim: **145 m**
5. *Amplasare emițător în alocare:*



IV. Parametri tehnici de emisie:

1. PARmaxim: **0,20 kW**
2. Sistem radiant:
 - a. Polarizare: **H**
 - b. Tilt: **0°**
 - c. Directivitate: **D**
 - d. *Caracteristica de radiație în plan orizontal:*



V. Mențiuni

1. Prin prezenta autorizație se stabilesc condițiile tehnice specifice în care se va realiza stația de emisie.
2. Prezenta autorizație este anexă la licența de utilizare a frecvențelor radio în sistem digital terestru de televiziune nr. **TDT-MUX1 / 29.09.2014** și face parte integrantă din aceasta.

Conclusions

- Romania is still in the process of development of Digital Terrestrial Television in DVB-T2 standard
- In Romania, the band of DD2 is already free for mobile services,
- ANCOM remain open and involved in the coordination process with neighboring countries in order to release the 694-862MHz Band in whole region for mobile services.

Thank you!



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