



UTILISATION OF DIGITAL DIVIDEND IN MONTENEGRO

Vesna Popović, BScEE
vesna.popovic@ekip.me

**Regional Seminar for Europe and CIS on Spectrum Management and Transition to Digital Terrestrial
Television Broadcasting
21-23 March 2016, Bucharest, Romania**





DIGITAL DIVIDEND

- ▶ Digitalisation of TV broadcasting in Montenegro was completed by the 17. 06. 2015.
- ▶ For the entire digitization of analogue TV broadcasting in Montenegro one DVB -T2 MUX (MPEG4) was enough, allowing the maximum width of spectrum of the digital dividend in 800 MHz;
- ▶ Studies on possible use of the DD spectrum in Montenegro (conducted by Faculty of Electrical Engineering Podgorica) – outcome in the form of certain recommendations:
 - In the band 176-230 MHz to develop a digital radio systems;
 - In the band 470-694 MHz to develop only digital television systems;
 - In the band 694-790 MHz digital television systems to be developed until WRC - 15, and then to consider the allocation of the band for the implementation of the EC mobile networks (LTE);
 - Range 790-862 MHz is optimal to deploy mobile EC networks (LTE).
- ▶ Allotment Plan of RF in the range 790-862 MHz for TRA - ECS systems "Official Gazette of Montenegro", No. 55/14



DIGITAL DIVIDEND

- ▶ Study on the method of allocation of radio frequencies in 790-862 MHz band in order to offer optimal solutions by defining: the model and structure of the public tender, the validity period of the approval, the width of the unit blocks, spectrum cap, the coverage dynamics, initial price was conducted.
- ▶ The study provided three scenarios:
 - ▶ I scenario: The assignment of radio frequencies only in the bands 800 MHz;
 - ▶ II scenario: The assignment allocation of radio frequencies from 800 MHz and 2.6 GHz;
 - ▶ III scenario: The assignment of radio frequencies from 800 MHz and 2.6 GHz, as well as radio - frequency band of 900 MHz, 1800 MHz and 2 GHz, for which the validity period expires in the beginning of 2017.



DIGITAL DIVIDEND

- ▶ Agency decided to go for the scenario III
- ▶ On going activities related to **PREPARATION OF THE PUBLIC BIDDING PROCEDURE** for the awarding approvals for the use of available radio-frequencies in the bands 800 MHz, 900 MHz, 1800 MHz, 2 GHz and 2.6 GHz for the implementation of a public mobile electronic communication networks via **AUCTION in CCA format**.
- ▶ Initial lump fee for 800 MHz approx. 9 mil. EUROS.



DIGITAL DIVIDEND II

Allotment area name	174 - 230 MHz (ch 5 - ch 12) BROADCASTING		470 - 694 MHz (ch 21 - ch 48) BROADCASTING	694 - 790 MHz (ch 49 - ch 60) BROADCASTING
BJELASICA	6	10A, 11A, 12A	25, 29, 37, 43	60
LOVCEN	8	10B, 11C, 12C	27, 31, 35	57
TVRDAS	6	10A, 11A, 12A	22, 26, 32, 46	49 , 53, 55
PODGORICA			21, 24, 30, 33, 38, 39, 44	53



DIGITAL DIVIDEND II

- ▶ According to the national plan of allocation:
 - ▶ 694-790 MHz: BROADCASTING, Mobile
- ▶ In most cases the band 694-790 MHz has been avoided for the implementation of DVB-T2 networks (only ch 49 is used for AA Tvrđas, MUX1).
- ▶ Pursuant to the WRC in 2015 and the decision CEPT ECC/DEC/(15)01 this band in Montenegro will be allocated to the mobile service on a primary basis and identified for IMT.



DIGITAL DIVIDEND - challenges

- ▶ Band 700 MHz:
 - Channel 49 is used in allotment zone of Tvrdaš, but The Agency initiate negotiations with MUX operator, to migrate on the RFs below 800 MHz, believing that this could be relatively quickly and easily done.
- ▶ Band 800 MHz:
 - On channels 61-69 (precisely: 62, 64, 67 and 69) harmful interference was identified, coming from Albanian digital broadcasters – issue that must be delt and hope to be solved in the near future.



Thank you for your attention

Questions?

vesna.popovic@ekip.me