

1 Respondent Details

This questionnaire forms part of the information gathering phase of the project 'Study on the use of the sub-700 MHz UHF band (470-694 MHz)' being conducted on behalf of the European Commission by LS telcom and VVA. The project will provide information to the European Commission regarding developments in terrestrial broadcast technology, consumer behaviour, the ongoing role of public service media, PMSE (programme making and special events) developments and international developments regarding these aspects from around the world. Please provide as detailed a response to as many questions as possible.

If possible, please complete this questionnaire digitally, adding new lines where additional space is required.

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2 General Questions

2.1 Current Status of 470-694 MHz

1. What technologies currently make use of the spectrum 470-694 MHz, and in what proportions?

DTT (main), PMSE (short-term), SRD (non-registered)

2. Do you have plans to change the use of this band within the next 10 years?

No, but all DTT licences are valid till 31. 12. 2030 only.

2.2 Mobile Technology Questions

1. What sub-1 GHz frequency bands are licensed to mobile operators in your country? Have these frequency bands been deployed and if so, what technologies are in use in each band?

In addition to 900 MHz band (used by GSM and 4G LTE):

700 MHz-band, LTE and 5G. – licences were issued in 2021, deployment is ongoing

800 MHz-band, LTE, NSA 5G. – band has been deployed

2. To what extent is additional sub-1 GHz spectrum required for mobile services (including IMT and PPDR) and in what amounts? Please elaborate why. Do you have any evidence to back this up?

The 380/390 MHz remains for police and emergency services.

The 450/460 MHz band usage is under study; the identified demand on possible for private BB mobile networks, utilities, smart grids, critical communications (incl. government communications) and IoT communications.

3. Could this additional demand be met by spectrum outside of 470-694MHz? Please specify other candidate bands. If not, for what reasons? What could be the possible use cases?

So far, there is no national study on this topic.

CTU is the view that:

- Further need for public mobile services (5G) cannot be satisfied without the 470-694 MHz band.
- The 410/420 MHz and 450/460 MHz bands are promising for specific mainly non-public purposes (incl. government services).
- Besides the allocation of a spectrum band to a specific purpose, there are some other ways how to satisfy some specific needs, e.g. national PPDR roaming, priority BB-PPDR commitment imposed to an MNO, spectrum sharing etc.

3 Digital Terrestrial Television (DTT) Questions

3.1 Current Status of DTT

For questions 1-3 in this section, there is no need to answer if the response is as per Report ITU-R BT.2302-1.

1. How many programmes are offered on your DTT platform? How many of these are national, regional, local, and are they offered free to air (FTA) or for subscription? Please complete the table below.

Programmes	FTA	Subscription
National	Over 30	
Regional	several	some
Local	N/A	N/A

Note: The CTU is not responsible for the content regulation.

2. How many multiplexes operate on your DTT platform? How many of these are national and how many are local/regional?

19 multiplexes: 4 national, 3 regional, 12 local

3. What is the maximum number of local multiplexes and programmes in any one area?

Maximum 3 multiplexes

4. What technology (e.g. transmission, encoding, video quality) do you currently use?

National: DVB-T2 HEVC (ISO/IEC 13818-1, refresh rate 50 Hz, format 16:9, available resolutions 1920x1080, 1440x1080, 1280x720, 960x540)

Only Public Service media (Česká televize) uses FULL HD (1920x1080); commercial content providers (channels) use lower resolutions (in DTT).

Local/Regional can choose either DVB-T or DVB-T2 HEVC

5. What is the split between standard definition, high definition and 4K programmes on your DTT platform? Are viewing figures available, i.e. that separate out use of the different video resolutions over a number of years?

N/A to answer.

6. What is the procedure for licencing spectrum for DTT? What are the conditions attached to the licence? Are there any payments related to the use of spectrum?

Nationwide DTT licenses have been awarded based on a decision of the CTU (NRA).
Regional/Local – individual licensing, first-come-first-served

Conditions - the minimum data rate for one program is 1.8 Mb / s, ensure EPG transmission, distribute programs in accordance with the Act on the Operation of Radio and Television Broadcasting

Payments related to the use of spectrum – yearly fee according to the order of the Government no. 154/2005 Sb.

7. What percentage of households are entirely dependent on DTT, i.e. have access to DTT, but not satellite TV, cable TV, IPTV or other way of reception? What is the proportion who take a paid DTT service?

DTT is free-to-air in CZE. The DTT reception is available in 53.2% of households (Source: Nielsen Atmosphere research, 2021). However, number households depending on DTT-only is lower (exact numbers N/A).
Satellite TV is available nationwide.

8. What is the average viewing time on the DTT platform (if data is available)?

N/A to answer.

9. What is the current broadcasting landscape in your country (i.e. share of DTT with rooftop antenna, cable TV, satellite TV, IPTV; TV over PC, laptop, tablet, smartphone; other)?

N/A

10. What is the % of households that have bundle subscriptions:
- 4-play (telephony+internet+TV+mobile telephony)
 - 3-play (telephony+internet+TV)
 - 2-play (internet+TV)

All for a), b) and c) are not available in relation to households

- d. MMDS

MMDS is not used in the Czech Republic

- e. Linear TV with rooftop antenna

Not available.

3.2 Public service media (PSM), FTA distribution and DTT

UNESCO defines public broadcasting as broadcasting that is “made, financed and controlled by the public, for the public. It is neither commercial nor state owned, free from political interference and pressure from commercial forces.”

The Council of Europe also recognises the important role of public service media in upholding the fundamental right to freedom of expression and information, in accordance with Article 10 of the European Convention on Human Rights, enabling people to seek and receive information, and promoting the values of democracy, diversity and social cohesion.

The obligations of public service media are consequently built upon fulfilling these roles, this leads to the following remit for PSM ([Council of Europe, 2006](#)):

- PSM must be used on a regular basis and have a high reach;
- PSM must provide a range of content and services that are both different from what the market can provide and at the same time able to attract large audiences;
- Providing content and specific services to small groups with specific needs and to citizens as individual consumers are also a part of the PSM remit.

Based on Article 114 of Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code, Member States may also impose “must carry” obligations for the transmission of specified radio and television broadcast channels to ensure these services are accessible for end-users with disabilities.¹

In addition, one of the general requirements for PSM organisations identified by EBU defining the PSM business model is “the possibility for free-to-air (FTA) or equivalent, no additional costs for the viewers and listeners”.²

FTA means that radio-or television content is distributed without any form of encryption and is available to the audience free of charge beyond an obligatory licence fee and costs due to the acquisition of receiving devices³. DTT is the backbone to FTA access and the most widely used means of receiving television globally⁴.

1. To what extent is the FTA model (as described above) still important today for fulfilling PSM requirements in your country on a scale from 1 to 5 (1 - not important at all, 5 - very important)?

1 = Not Important At All	2 = Of Little Importance	3 = Average	4 = Important	5 = Very important
				CZE: 53 % of FTA via DTT

¹ Source: [Electronic Communications Code](#)

² Source: [EBU](#)

³ Source: [EBU](#)

⁴ Source: [BNE](#)

2. Why is this the case? Can you also elaborate taking into account the free-to-view⁵ content distribution option? Please elaborate.

The importance of PSM raises partly from the legal framework (the law imposes an obligation to distribute PSM content via DTT) and partly from the fact that PSM DTT is FTA service.

3. Are there any national requirements and obligations to provide an FTA service? Are they limited to DTT platforms? Please elaborate.

Yes, according to Law no. 483/1991 Coll. (Czech Television Act) and 127/2005 Coll. (Electronic Communications Act), CTU (NRA) shall provide the frequencies for FTA DTT TV networks.

4. Is a “must-carry” obligation (Art. 114 of the Code) imposed in your Member State? Please elaborate.

Yes, in connection with radio frequencies, see Q2 and Q3.

5. Is there a requirement to provide some channels in older or more basic standards to allow wider accessibility to the relevant services?

No

6. Can you estimate the share of viewers entirely dependent on FTA TV broadcasting reception⁶ (e.g. % of households) in your country?

N/A

7. What will be the future of FTA TV broadcasting in your country? Are there any emerging trends or foreseeable developments that might shape the current market? Please elaborate.

The issue is matter of national discussion. Preliminary numbers show the growing importance of mobile services. E.g., in 2020 and 2021, annual growth of mobile data throughput increased of 71 % to 80 % annually (sources: Česká tisková kancelář and CTU).

⁵ means that radio- or television content is distributed with some form of encryption. This requires a conditional access system to decrypt the signal. Apart from a one-time fee for unlocking reception or acquisition of a smartcard to gain access to the content FTV reception is free of charge in the same way as FTA.

Source: [EBU](#)

⁶ Covering all FTA distribution platforms (if any e.g. satellite, DTT) but not cable TV, IPTV or other encrypted ways of reception/subscription services.

3.3 Future Status of DTT

1. What are the expectations of consumers with regards to content? To what extent do consumers expect to be able to use catch-up, on demand etc.? To what extent do they expect content to be available in HD, 4K etc.?

CTU has no relevant data on this topic. However, we expect that consumers in CZE will follow trends identified in Europe. For example, development of services like video stream services, video on demand services, at least Full HD quality, and other interactive OTT services independent on the distribution platform.

2. Is it a strategic objective of the DTT platform to keep pace with quality improvements (e.g. HD, 4K) observed in content delivery via IP, satellite and cable?

Not in case of commercial content providers.

3. To what extent are receivers available in your country's market that will allow decoding of these updated technologies (e.g. HD, 4K, HbbTV)?

Receivers are available, HbbTV is used and PSM channels use HD.

4. Do you have plans to adopt newer transmission (e.g. DVB-T2), encoding (e.g. MPEG4 or HEVC) or video technologies (e.g. 4K, HDR, HFR)? Alternatively, do you have information about any such developments in your country? If so, when and why?

DVB-T2 HEVC has been already introduced in nationwide networks.

5. What would the likely costs associated with these changes be? Please separate out the costs (according to ownership) if possible.

Not relevant, see Q4

6. What might the impact be of not upgrading to newer technology standards?

Not relevant, see Q4

7. Do you have any plans to change DTT network topology or reception mode (e.g. making greater use of single frequency networks, moving to "low-tower" or mobile reception) or do you have information of any such developments in your Member State? If so, when and why?

No such plans. The main goal is to tune-up properly the SFN nationwide networks, especially in case of PSM DTT network.

8. What would the likely costs associated with these changes be? Please separate out the costs (according to ownership), if possible.

N/A to answer.

9. Would support to viewers need to be made available in the event of updates to DTT technology (e.g. home support for retuning)? What might the likely cost of this support programme be?

Not relevant, see Q4

10. What do you expect the future broadcasting landscape may look like in your country in 5 to 10 years (i.e. the balance between DTT, cable TV, satellite TV, IPTV, TV over PC, laptop, tablet, smartphone; other), and beyond? Please elaborate.

We expect further increase of IPTV usage.

3.4 Alternative Means of Television Delivery

1. Has 5G broadcasting been trialled in your country? Are there any plans for additional trials? By whom?

Not yet, but major operator of DTT launched a trial.

2. Would 5G broadcast support the range of channels necessary to make the platform competitive?

5G broadcast will be an additional way of broadcasting.

3. What spectrum would you envisage 5G broadcast primarily operating in? Under what procedure/conditions would it be licenced?

N/A.

4. Would 5G broadcast satisfy your free to air (FTA)/view requirements? Please elaborate.

Hard to say, we have no experience with 5G broadcasting yet.

5. Are free to view alternatives available on other platforms (e.g. satellite TV, cable TV, IPTV)? Do these platforms have an obligation to carry free to view versions of the relevant services?

Almost all DTT content is available on other platforms.

6. To what extent do these alternatives meet the free to view requirements? If they do not, would there be a mechanism to require operators to offer a free to view option if DTT were to cease?

We expect that PSM DTT FTA will be operated after 2030. Other options will be matter of future considerations.

3.5 Regulatory Perspective

1. Has your country taken a regulatory viewpoint on the future of the sub-700 MHz spectrum (470 – 694MHz) beyond 2025/2030? Please elaborate. If not, when do you expect this could happen?

Not yet. The national discussion will be launched in Feb/March 2022, preliminary results are expected in mid-2022.

2. What would be the impact of the following scenarios beyond 2030 (e.g. economic, social)?
 - a. Continued use of the band for broadcasting and PMSE, with the opportunity to use non-broadcast services in the band if they are compatible with existing DTT;

- b. The introduction of a dedicated 600MHz mobile band (aligned with international developments such as have taken place in ITU Region 2), and hence another reduction in DTT and PMSE spectrum;
- c. Potential reduction in spectrum for current DTT and PMSE, with the introduction of an optional sub-band (e.g. 600 MHz) for shared mobile use with equal rights to broadcast, subject to co-ordination and compatibility, or for converged business models; and
- d. Conversion of the frequency range 470–694 MHz to joint mobile/broadcasting with equal rights.

Incompatibility between DTT and Mobile doesn't allow independent national solutions. Therefore, we are of the view that future solutions will fall under a **flexible approach** allowing future solutions addressing both national needs and a harmonised framework (if feasible). In addition, possible transitional period and predictability can deliver a message for policymakers, investors, consumers, and other stakeholders.

Generally, possible scenarios shall address **society-wide benefits** and **long-term outlook** (predictions, trends, expectations). In the case of private sector interest (namely commercial TV content delivery and mobile service network investors), scenarios shall consider i.a. **feasible business cases** and investment security.

4 PMSE Questions

4.1 Current Status of PMSE

1. What frequency bands are currently used for PMSE (especially radio microphones)?

General list is here:

<https://efis.cept.org/views2/pmserec2510.jsp>

National document is here:

https://www.ctu.eu/sites/default/files/obsah/ctu/sdeleni-o-vydani-opatreni-obecne-povahy-casti-planu-vyuziti-radioveho-spektra-c.pv-p/10/05.2020-5-pro-kmitoctove-pasmo-470-960-mhz/obrazky/rsup-p-10-5.2020-5_en_fin.pdf

2. How is spectrum made available for PMSE (e.g., individual licences, licence exempt)? Are there any payments associated with the use of spectrum for PSME?

Individual licences (short-term) and licence exempt are possible (depending on the technical parameters). There is payment for short-term licence (according to law no. 127/2005 Sb.)

3. What has been the peak demand for PMSE spectrum at any one event? In which band? Over what geographical area was this required? What was the peak duration?

E.g., the CTU issued licences for PMSE operation for about 100 frequencies for PMSE in the 400–2600 MHz bands in the area of racing circuit for cars and motorcycles or ski arena for one week.

4. How regularly do events requiring such large amounts of PMSE spectrum take place?

Two times annually.

5. Has the demand for PMSE spectrum changed over recent years? How? Please elaborate.

Not.

4.2 Future Status of PMSE

1. Do you expect the spectrum needs of PMSE to change over the next 5 to 10 years, and beyond? How? Please elaborate.

No.

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2. Have there been developments in PMSE technology that would allow for more efficient use of spectrum? How do you see PMSE technology will develop in the future?

N/A.

4.3 Alternative Means of PMSE Delivery

1. Are you considering alternative methods of delivering PMSE (e.g. 5G) or are you aware of any such developments?

The CTU has no evidence on this issue.

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2. What effect, including economic, might migrating to these alternative methods have?

N/A