

Annex 1: Questionnaire

Member State Response details (please complete):

<i>Member State</i>	<i>Name</i>	<i>Organisation</i>	<i>Date</i>
<u>Belgium</u>	<u>Patrick Van der Gracht (Flemish Community)</u>	<u>Department Culture, Youth, Sport and Media</u>	<u>24/09/2012</u>
	<u>Gilles Havelange (French Community)</u>	<u>Wallonia-Brussels Federation</u>	<u>30/09/2012</u>
	<u>Alfred Belleflamme (German-Speaking-Community)</u>	<u>Ministerium der Deutschsprachigen Gemeinschaft Belgiens</u>	<u>27/09/2012</u>

In Belgium, the three Communities based on the language (i.e. the Flemish, French and German-speaking Communities) are competent for broadcasting. This means that the Communities manage the frequency spectrum for broadcasting applications. So in practice the spectrum requirements for television broadcasting could be very different from one Community to another one.

Question 1 (consider section 1 of Annex 1 to help you with your answer):

(See Annex 2 for example answers for your assistance)

- i) Please describe the DTT platform in your country, currently on-air, in following terms (please use the following format for your answers):

Member State	No. of Multiplexes	Reception availability	Reception mode ¹	Number of TV program services and content format	DTT System and modulation	Intended coverage reach ²	Coverage obligation (Y/N) ³	Coverage (as a percentage of population)	Spectrum band used (UHF IV/V or VHF Band III)
Belgium	1	Free to Air	Portable Outdoor	3 SD + 9 radio	DVB-T, 64QAM-1/2	Flemish Community (Flemish Region and Brussels)	Y	>98% with rooftop antenna	UHF IV/V
Belgium	3	Pay TV	Portable Outdoor/Mobile	21 SD + 15 radio	DVB-T, 16QAM 5/6 Transition to DVB-T2, 64QAM 2/3 in Q2 2013	Flemish Community (Flemish Region and Brussels)	N	>98% with rooftop antenna	UHF IV/V
Belgium	1	Free to Air	Portable Outdoor/Mobile	4 SD + 6 radio	DVB-T, 16QAM	French Community (Walloon Region and Brussels)	Y	77.5% (portable outdoor) 96.7% (fixed reception)	UHF IV/V
Belgium	1	Free to Air	Portable Outdoor/Mobile	1 SD	DVB-T, 16QAM	Brussels			UHF IV/V
Belgium	1	Free to Air	Portable Outdoor	4 SD + 6 radio	DVB-T, 16QAM 3/4	German-speaking Community	Y	95%	UHF IV/V

ii) Are there plans to deploy (a) additional DTT multiplexes and/or (b) foresee the launch of new services **in the short term (1 – 5 years)**?

(a) additional DTT multiplexes (please use the following format for your answers)

¹ E.g., fixed (roof-top), portable indoor, portable outdoor, mobile.

² E.g., national, regional, local.

³ Is there a legislative coverage obligation, e.g., a Public Service Broadcaster.

Member State	additional Multiplexes (Y/N)	No. of additional Multiplexes	Reception availability	Reception mode ⁴	Expected content format (SD and or HD)	Expected DTT system and modulation (if known)	Intended coverage reach ⁵	Intended Coverage (as a percentage of population)	Spectrum band used (UHF IV/V or VHF Band III)
Belgium	Y	2	Pay TV	Portable indoor/mobile	SD	DVB-T2, 64QAM,2/3	Flemish Community (Flemish Region and Brussels)	>98% with rooftop antenna	UHF IV/V
Belgium	Y	1	Free to air	Portable outdoor	Not yet decided	Not yet decided	German-speaking Community	95%	UHF IV/V

(b) foresee the launch of new services (please use the following format for your answers)

Member State	Additional Services (Y/N)	Expected content format (SD and or HD)	Reception availability	Expected content format (SD and or HD)	Interactive services (Y/N)	VoD (Y/N)	Ultra High Definition on TV (Y/N)	Other (Y/N)	If answer Yes to Other, please specify
Belgium	Y	SD and HD	FTA and Pay TV	SD and HD	Y	Y	N	Y	OTT services

The future of DTT broadcasting in the French Community is linked with the future of the 700 MHz band. In case of the reallocation of the 700MHz band the French Community will lose most of its coverage layers (about 78%). Therefore launching new services will depend on the number of layers obtained after a possible reorganisation of the spectrum below the 700 MHz band. However, an idea of low-cost offer is currently investigated and is based on actual frequencies (most of these frequencies are in the 700 MHz band)

iii) When do the existing DTT licenses in your country expire?

Answer:

⁴ E.g., fixed (roof-top), portable indoor, portable outdoor, mobile.

⁵ E.g., national, regional, local.

Flemish Community

The DTT licence in the Flemish Community for the television broadcasting network expires in June 2024 with a possibility of prolongation by 15 years. The Flemish Government assigned frequencies to the public broadcaster VRT without expiration date.

French Community

The management contract of the RTBF (the public broadcaster) is renewable every 5 years.

German-speaking Community

No expiration time for public broadcaster. Other multiplexes are not yet assigned. The legally foreseen licenses are for nine years and prolongable for the same duration.

Question 2

How do you foresee different means of reception (DTT, ADSL, Cable, satellite, etc) complementing each other?

Answer:

Flemish Community

In the Flemish Community (Flemish Region and Brussels) there are already different platforms and means of reception of digital television such as ADSL/VDSL, cable, DTT and satellite.

Cable and ADSL/VDSL focus on big (primary) TV screens in the home. The programmes from the public broadcaster are also provided in DTT and this free to air (universal service/general interest). The DTT offer in the Flemish Community (Flanders and Brussels) focuses mainly on the other tv-screens in the home (such as second screen for example in the bedrooms, kitchen,...) and on the mobile and nomadic user (such as TV screens in the car, holiday cabin, ...). Cabled networks (reception mode cable/ADSL/VDSL) and DTT networks (reception mode DTT) thus complement each other as described above. The DTT network is or will be built to provide mobile and portable indoor coverage. The different platforms also complement each other with the programme offer, free to air versus pay tv, coverage and possibilities of interactivity. With different platforms the public also has the opportunity to be able to choose between those platforms and as a consequence also competition between platforms is stimulated.

French Community

Different means of reception are complement to each other in the French Community.

DTT provide a good coverage and an easy and free access to the public broadcaster. It is also a good solution for isolated area (not always deserved by cable or ADSL) and summer houses. The free to air access is one very important feature.

German-speaking Community

All this reception modes coexists in the territory of the German-speaking Community but until now are not really complementary to each other. The DTT-platform is the only that offers programs **free to air** with mobile/portable coverage. Even more important is the fact, that for the German-speaking Community, the smallest and only fully rural Community of the three Communities in Belgium, only the DTT-platform allow to broadcast multiplexes of attractive programs (programs mostly in German) for the population, staying economically cost-effective.

Cable, Satellite and IPTV-operators are **not** German-speaking Community-based operators and her programs-offers in German varied depending on legal obligation (e. g. must carry-programs).

Even more, the only one cable operator deploy only a basic **unidirectional** network with 15 from 30 programs in german by analogue distribution and much less programs by digital distribution (8 from 70 programs).

The historical telephone company operator deploy the only multiple-play offer, but have not significant market penetration due to the poor offer (3 from 70 programs) in German.

In a country with the absence of national broadcaster, the situation of distribution of programs- and linked services is atypical in the German-speaking Community: for the primary reception of programs, only an average of 42% of the households use the cable without interactive services (vs. 20% have a satellite equipment and the rest DTT).

This may be a serious risk, that the cable operator will cease his activity in German-speaking Community with the end of analogue distribution of TV-programs in few years.

Question 3:

- i) Do you think that the DTT platform in your country will evolve to being capable of delivering audio-visual services also to mobile terminals?

Answer:

Flemish Community

Yes. The greatest part of the current and future DTT platform in the Flemish Community (Flemish Region and Brussels) is already built or will be built to provide mobile reception. The DTT platform is the only platform that will be able to provide high quality audio-visual services to mobile receivers in a one to many environment.

French Community

Yes. Because of the growth of data traffic on broadband networks, the possibility to use the DTT service on mobile terminals must be considered. DTT and mobile broadband networks can be complement to each other: the audio-visual content on mobile device is distributed via wireless broadband and the potential of DTT can optimise the transmission of such data. It is also necessary that mobile terminals include tuners for DTT reception.

German-speaking Community

Yes, following the mainstream in neighboring regions.

- ii) If yes, what is the required evolution of the DTT network platform architecture? Please give details in relation to: -
 - a. the DTT network topology (whether there will be a need to migrate from high- power/ high- tower to low- power/ low- tower type of networks);
 - b. to the use of MFN versus SFN networks to achieve the evolution, and
 - c. a possible migration to a new DTT system(e.g. to facilitate interactive services) and transmitting technologies (e.g., DVB-T2, DVB-T2 Lite, etc.).

Answer:

Flemish Community

a) The DTT network topology is a single frequency network (SFN) with a number of high-power high -tower ‘umbrella’ transmitters, complemented with medium power transmitters in high populated areas.

b) SFN networks are already used and will still be used in the future.

c) A transition of multiplexes with commercial services is planned from DVB-T to DVB-T2 in Q2 of 2013. The transition to DVB-T2 will be used to increase the robustness of the signal and to provide deeper indoor coverage. The focus is put on improved mobile and indoor reception. At this moment the content is in SD, in the future this will evolve to HD.

French Community

a) The reception of the DTT network architecture would be based on handheld device. It would require higher level of the signal compared to the fixed reception. On the other hand, DTT network topology need to be denser to improve mobility in large areas.

b) The implementation of SFN is well established. The principal advantage is the spectrum efficiency. The disadvantage is the cost and the difficulty of the implementation. Mobile terminal reception can be achieved by MFN or SFN or a mixture of both: many parameters are to be taken into account.

c) The improvement of the technologies, and the choices of the future standards, must be taken into account to improve the efficiency of the future network.

German-speaking Community

- a) The DTT network topology is SFN with high power transmitters and some gap-fillers in region with difficult reception due to the [disadvantageous topography](#). We don't see the need to change our networks.
 - b) The networks mentioned in a) continue to be in use because they are well adapted for regional coverage.
 - c) The possible migration to new DTT systems and/or transmitting technologies depends on generalized availability from DVB-T2 etc. In the case of the German-speaking Community that will be after 2017 or 2020 following the evolution in Germany and the other German-speaking countries.
- iii) Do you believe that a DTT platform evolving towards delivering audio-visual services also to mobile terminals may also be used by mobile operators to cope with:
- a. the data traffic required to deliver linear video content (i.e., with mobile terminals including broadcasting tuners), and
 - b. certain non-linear content that could be pushed (and stored)?

Answer:

Flemish Community

We are of the opinion that DTT is the only platform via air that will deliver audio-visual content in all scenarios where a one-to-many transmission is needed. This can be both in a linear model as a pushed content model.

French Community

- a. Yes: DTT networks are designed for linear video content.
- b. Non-linear content can be provided with DTT. The DVB-RCT system is able to provide interactive service using the existing infrastructure already used for DVB-T.

German-speaking Community

Yes, but the primary use of DTT-platforms must remain the free to air broadcasting function. This function is crucial for small areas and for minorities like the German-speaking Community.

- iv) What evolutions do you expect would be required for mobile networks to be capable of delivering linear video content ubiquitously to both fixed and mobile terminals?

Answer:

Flemish Community

With the current technology it is not possible to bring linear video through mobile terminals in a one-to-many model. DTT is fully scalable and not affected by the number of receivers. Quality of service for delivering video is very important but cannot be delivered by mobile networks with the current state of the art.

French Community

Linear video with large audience is the aim of DTT network. An evolution for mobile network to be capable of delivering linear video is a cooperation with the DTT network.

German-speaking Community

Linear TV is already being provided over DTT. Mobile networks are not a viable alternative to DTT. The two platforms should be used in a complementary way which would facilitate their evolution and possible future convergence.

- v) Of a possible convergence between terrestrial mobile and (evolved) DTT platforms, what do you consider will be the consequences of mobile networks being capable of delivering linear video content to mobile terminals?

Answer:

Flemish Community

It seems to us too early to anticipate to such a convergence. See also point 4.

French Community

Like an FM-receiver on a mobile phone, we can imagine a DTT receiver on the new mobile.

German-speaking Community

Too early to know it today.

Question 4:

- i) How many DTT multiplexes do you expect will be needed in your country in the long-term (beyond 2020),

Answer:

Flemish Community

Minimum 6 to 8 DTT multiplexes.

French Community

The subject is still under study and will depend on the possible reorganisation of the spectrum after a possible reallocation of the 700 MHz band.

- The public broadcaster will certainly need two or more multiplexes (to reach a good coverage we need the mixture between SFN and MFN's).
- A Low-Cost offer is a potential project. (four multiplexes)
- Opening the market to new operators, depending on the spectrum resources, cannot be excluded.

German-speaking Community

Concerning the German-Speaking Community, 3 or 4 multiplexes must be considered as a minimum number for a minority in a country without national broadcasting and taking into account the fact that other ways of program distribution are not economically viable for such a little community.

ii) What services do you expect the DTT multiplexes to carry (assuming use of DVB-T2/HEVC)?

Answer:

Flemish Community

Linear content, pushed content and in the long term HD content.

French Community

HEVC would enhance compression efficiency. Therefore DVB-T2/HEVC should increase the total number of services in a multiplex (with better video quality). With HEVC/DVB-T2, services such as 3DTV, UHD TV should be possible. But these services also depend on the total spectrum available for DTT.

German-speaking Community

Broadcasting the own programs of German-speaking community, a dedicated choice of programs in German (not only the neighbour programs available on the other side of the countries borders) and the same for the neighbouring languages, French, Dutch and Luxemburgian. to engross the relationship with our neighbours in the Maas-Rhine-EuRegio and the Great Region Saar-Lorraine- Luxembourg- Wallonia and German-speaking Community.

iii) What transition and migration paths do you anticipate will be required to achieve this long-term DTT goal for your country?

Answer:

French Community

In case of transition between DVB-T and DVB-T2, maybe we will need some transition multiplexes.