Table 1.

0. General Analog	Terrestrial analog TV penetration (households receiving analog terrestrial TV)	Number of Nationwide networks (public or commercial)	Number of Regional networks (public or commercial)	Number of Local networks (public or commercial)	Switch-off planning (regional or nationwide)	Switch-off strategy (big bang or smooth with simulcast)	If set-top boxes subsidies exist, what is the criteria and the way/amount?
Albania	No data Estimated over 95% of households	1 Public (Albanian Radio Television)		72 (Local & regional)	17.06.2015	Allotment by allotment	 The family members: 4 persons Pamilies in need: 7% Prize of one decoder: (€) 30
Andorra	0	0	0	0	Done	Switch-off already done: we started with a pilot MUX (new programs, so no simulcast) and, once we tested the technology, we did a "big bang" switch-off	-
Austria	-	-	-	-	Region per region	Depending on the region, the simulcast lasted maximum 1 year, normally and mostly 1 month, for low power transmitters zero simulcast	Existed: everyone who paid monthly fees for public broadcasting, got a voucher worth 30 EUR for simple STBs and 40 EUR worth for STBs with return path
Belgium- Flemish Community					In the Flemish Community analogue switch off was completed on		

					the 3th of November 2008.		
Belgium - German- speaking Community	None	None	None	None	No analogue broadcasting for many years	None	No subsidies
Bosnia	98% "unofficial information"	1	7	37	1.12.2014. national wide	Smooth with simulcast	Set of boxes subsidies planned
Bulgaria	A detailed sociological survey, conducted in 2011, has shown that a bit more than 21% of households in Bulgaria receive analog terrestrial television	Three Nationwide analog TV networks – (one public and two commercial).	Four public regional networks.	112 Local commercial networks	The analog switch- off is planned to be nationwide.	Smooth switch- off strategy with six months simulcast period.	The set-top box should have at least DVB-T tuner with MPEG-4 (H.264/AVC) decoding The state has provided a set of measures to assist persons with special social needs who had received targeted assistance for the heating season 2012/2013, by providing them with a free voucher to the value of 30 euro (60 BGN) to buy a decoder. To get it, they have to declare that their TV set is unable to receive digital TV. In order to respect the principle of technology neutrality vouchers will be also distributed for set-top- boxes for the satellite and cable platforms
Croatia	0%	0	0	0	Regional	Simulcast	10 EUR for each tv-fee subscriber
Czech R	0 % (Analogue switch off has been finished.)						

Denmark	0 %	None.	None.	None.	Terrestrial analogue television was terminated 31 October 2009.	Simulcast from 2006 to 2009.	No subsidy exists for set-top boxes.
Estonia	No Terrestrial analog TV in Estonia	0	0	0	It was planned as nationwide	Switch-off strategy was as a big bang	Without STB subsidies
Finland	(analog switch-off in 2007)	2	-	-	nationwide	simulcast 2001- 2007, switch-off in 2007 over night	
Greece	Analogue terrestrial TV is above 99%.	According to Gr and Television (are: 8 private nation 2 pay TV nation 73 private regic 47 private local Also 1 public nationa with 4 self prod Channel) and s (around 4-5)	reek National Cou (NCRT) site (www nal wide coverage onal coverage pro coverage prograd al wide coverage luction programs ome EU additiona	ncil for Radio .esr.gr) there programs programs grams ms broadcaster (incl. Parliament al programs	There is a provision for Regional switch	The strategy is smooth switch off with no simulcast (*). During transition period simulcast is being implemented.	No subsidizing exists.
Hungary	Approximately 520 000 households	3	0	39	nationwide	Smooth with simulcast	
Hungary	900000	3	0	39	National planning (probably switch-off region by region till Dec 2014).	Smooth with simulcast.	Criteria: social position; eligible people get complete reception solution as per their choice (digital cable- satellite-terrestrial) amount: approx. gross HUF 25,000 (approx. EUR 85).
Ireland	N/A	0 Terrestrial	0 Terrestrial	0 Terrestrial	ASO 24 October 2012	Smooth with simulcast	N/A
Israel	Analog TV switch						

				1			
	Off 6/2011						
Latvia	N/A	0	0	8 local stations (commercial)	regional and nationwide	Short simulcast	No subsidies
Lithuania	analogue TV is switched off						
Luxemburg	Close to 0%	0	0	0	2006	Quick with short simulcast	No subsidies
Macedonia	10,5 %	3 public 4 commercial	0 public 0 commercial	58 commercial	31.05.2013	smooth with simulcast	number of set top boxes are planned to be given to social category of people
Malta	Terrestrial analogue TV is no longer in service	Nil	Nil	Nil	Not applicable	Not applicable	Not applicable
Monaco	TV programs are delivered by a cable network managed by Monaco Telecom (100% households). Analog TV was switched off in 2011	Today only one Cable Network Operator (Monaco Telecom) and one public broadcaster, Monaco info, and via Internet, MC Channel (30 channels) GE 06 DVB-T channels not yet switched on	Bearing in mind the size of the Principality, no regional networks	No local network	Digital TV currently delivered by cable only (Switch-off done in 2011)	Done in 2011 (cable TV)	Not relevant
Montenegro	31.30%	2 public, 5 commercial		3 public, 15 commercial	nationwide	Smooth with simulcast	-
Netherlands	0% No analogue TV since 2006						
Norway	No analog transmissions	1	1		Regional. In the first region the switch-	Simulcast. Time with parallel	No subsidies.

	anymore.				off was in March 2008, and in the last region in December 2009.	transmissions was approximately 6-12 months in each region.	
Poland	4,4 million (30% of households)	3 (TVP1, TVP2 – public; POLSAT – commercial)	4 (TVP3 – public, TVN, TV4, TV PULS – commercial)	4 - commercial	nationwide/regional (region by region)	smooth with simulcast	Analogue switch-off without any stb subsidy
Portugal	There is no analog TV in Portugal since 26/04/2012	0	0	0	Regional	Smooth with simulcast	There is a subsidy policy. See the details at the end of the questionnaire (1)
Romania	<20%;	2 x Public National TV Networks (TVR 1 & TVR 2) >10 National Commercial TV Network	5 x Public Regional HP transmitters >10 for commercial regional networks	>20 commercial local transmitters	06/17/2015 nationwide	The strategy project ensures simulcast for Public Program TVR 1	There is no official policy yet about set top boxes at this time
Serbia	According to electronic communications market analysis provided by Republic Agency for Electronic Communications (RATEL) in 2010, the percentage of households receiving analog terrestrial television was 57%. It is estimated that	There are 2 public and 4 commercial Nationwide networks with valid licenses	There are 26 regional commercial networks, and 2 regional for the territory of the autonomous province.	There are 83 local networks.	Due to the lack of suitable frequencies, it will not be possible to simulcast analogue and digital terrestrial television transmissions throughout the whole territory of the Republic of Serbia. The transition will be completed on a phased basis. The Government will	Please see response to the previous question.	Ministry of Foreign and Internal Trade and Telecommunications is working on the development of a help scheme for socially vulnerable citizens and the most disadvantaged population in the process of transition to digital broadcasting in the Republic of Serbia. The help scheme will encompass relevant vulnerability criteria and available national statistics, the identification and

	after switch over, the percentage of users who receive television primarily by digital terrestrial will be 50%. According to the market analysis provided by RATEL for 2011. a number of cable, IPTV and DTH subscribers is increasing. During 2010. the percentage of households receiving cable television was 34%, satellite 8% and IPTV 1%.				adopt the DSO Plan that will determine the sequencing and timetable for the phased transition from analogue to digital in each DSO region.		allocation of relevant budget funds for covering the expenses, as well as options and cost-benefit models for the realization of the help scheme. Social Inclusion and Poverty Reduction Unit within the Office of the Deputy Prime Minister for European Integration is providing assistance to the Ministry.
Slovakia	35,8% primary analogue terrestrial households 53,3% primary and secondary analogue terrestrial households	6 (2 public and 4 commercial)		18 (both local and regional commercial networks)	regional	Smooth with simulcast	All private persons paying for public services (broadcasting services provided by public TV and radio) and at the same time eligible for neediness allowance were eligible for one time subsidy of 20 EUR.
Slovenia	0						
Switzerland	0% (the analogue TV is now switched off)				Nationwide	Smooth with short simulcast	No subsidies
Turkey	~%20	22	14	189	Regional	Smooth with	Not exist yet

						simulcast	
UK	0	0	0	0	Analogue Switch off (Digital switchover – DSO) is complete in the UK	Simulcast and phased regional switch-off	No receiver subsidies are in place except the 'Digital Switchover Help Scheme' (www.helpscheme.co.uk) which was established to provide assistance to potentially vulnerable viewers (the elderly, and those in receipt of certain social security benefits) to convert one TV set to digital for a fixed fee (or cost-free in some cases). Each registered household received DTV equipment (DTT, satellite or cable), installation support (including antenna installation / upgrade if required) and aftercare.
Vatican	Not applicable (no analog TV anymore)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Table 2.

1. Gene ral	DTT					DD		
	Number of Nationwide multiplexes (public or commercial)	Numb er of Regio nal multi plexe s (publi c or comm ercial)	Number of Local multiplex es (public or commerci al)	Digital Switch-on day (per region, if applicable)	Complete analogue Switch- off day	Digital Dividend (800 MHz) spectrum allocation planned for which date and for which services? Which part of the band?	Digital Dividend (700 MHz) spectrum allocation planned for which date and for which services? Which part of the band?	Other Digita I Divid end scena rio (plea se descr ibe)
Alba nia	2 Public Nationwide MUXs + 3 Private Nationwide MUXs	1 Regio nal MUX (11 Netw orks)	2 Potentialit y MUXs (In total there are 8 National MUXs)	10/1/2012	6/17/2015	The band 790-862 MHz, for mobile broadband services (TRA-ECS). IMT is considered as a part of TRA- ECS. The date is to be decided by the progress of switch-off (Partial release of spectrum from analogue transmissions). The final (complete release of band from analogue) is June 2015. (To be decided by update of National Allocation Table)		To be decid ed in accor danc e with the switc h- over adva nce and NTFA amen dmen t.
Ando rra	6	0	0	December 2004 (one pilot MUX)	Done 25/09/2007	Done LTE all	Not planned yet	-
Austr	5 Multiplexes	6	11	10/26/2006	6/11/2011	Spectrum for terrestrial	Whole 700 MHz band	N.A.

ia	*)	Multi plexe s	Multiplex es			systems capable of providing electronic communications services was allocated in the year 2010, by the national council of ministers, whole band 791-862 MHz, except the duplex gap 821 – 832 MHz, which is planned for PMSE	allocated for Broadcasting Services in Austria, partly used for DVB-T and from April 2013 extensively for DVB-T2	
Belgi um- Flemi sh Com muni ty	At this moment 4 multiplexes on air in the Flemish Community (1 public, 3 commercial)				3th of November 2008		At this moment the 700 MHz band is planned for DTT and licensed for DTT	
Belgi um - Germ an- spea king Com muni ty	1 multiplex on air (for the public broadcaster)	3 multi plexe s, 1 of which on air durin g tests	None	None	For many years		Planned for DTT	None
Bosni a	2 (1 public + 1 commercial)	2 (com merci al)	2 (commerc ial)	To be defined	1.12.2014.	Date will be defined for all 800MHz band	Will be considered after WRC 15	No
Bulga ria	7 Nationwide multiplexes (one public and 6 commercial).	N/A	One Local multiplex for the area of Sofia-city.	The digital Switch-on day for the whole country is 1 March 2013, the beginning of the simulcast.	The analog Switch-off day is set to 1 September 2013	The 800 MHz frequency band is basically used for military purposes, part of the band (814-822 MHz is also used for broadcasting purposes and would	N\A	N\A

						continue to be so until termination of the military use of the band scheduled for 2017, and after providing the necessary financial resources		
Croat ia	4 national + 1 national/regio nal/local	1 natio nal/re gional /local	1 national/r egional/lo cal	4/1/2009	End of 2010	The 790-862 MHz frequency band was assigned on 29th October 2012 to two mobile operators (2x20 MHz to Hrvatski Telekom and VIPnet).	Not at this moment.	-
Czec h R	4 (one public nationwide, 3 commercial nationwide multiplexes)	0	13	DTT operated in all regions.	6/30/2012	All DD spectrum (790– 862 MHz) has been already allocated for mobile service.	Allocation of the 700 MHz band coordinated within common European approach; probably beyond 2017	
Den mark	2 public and 4 commercial multiplexes.	2 of the above menti oned natio nwide multi plexe s (one comm ercial and one public) provi de regio	1 of the above mentione d nationwid e multiplex es provide local content divided by each SFN in the multiplex.	First nationwide DTT service started in 2006.	Terrestrial analogue television was terminated 31 October 2009.	791-821 MHz and 832-862 MHz have been allocated to IMT services since 1 January 2013. IMT networks are in operation. 823-831 MHz may be used for PMSE equipment.	The 700 MHz band is currently used for DTT services.	

		nal conte nt divide d in eight regio ns.						
Eston ia	6	0	0	7/1/2010	7/1/2010	July 1, 2012 for LTE (790 - 862 MHz)	It will be planned after analogue switch-off in Russia (July 1, 2015)	No other scena rios
Finla nd	6 in UHF, 3 in VHF	4	-	In 2001, 3 multiplexes	September 1st 2007	790-862 MHz allocated for Mobile; auction in 2013, mobile broadband services \rightarrow network roll-out in 2014	planned for Mobile, 2017→, mobile broadband, 694(?)-790 MHz (WRC-15)	
Gree ce	There are 8 nation-wide layers	See above . Also per RRC 06 geogr aphic al allot ment there are some spare muxs (1-2).	See above. Also per RRC 06 geographi cal allotment there are some spare muxs (1- 2)	Switch off is anticipated to 30/6/2014, subject to the of the European Commissi Derogation Demand that h expressed by Greece.	b be finalized by positive response ion to the has been	The band of 800 MHz has been allocated for MOBILE SERVICE (NFAT). Derogation has been requested in EU for availability of the frequency band for digital dividend from 30/6/2014.	Currently only for DTT Broadcasting.	-
Hung ary	There are 3 multiplexes in operation (5 are licensed).	0	0	1st December, 2008: At 3 main transmitter sites 2 DVB-T and 1 DVB-H multiplexes with FTA	31.12.2014 as the latest	Planned for mobile services after ASO	decisions not taken yet	-

				and pay-TV programs were switched on (56%) 1st December, 2009: Further 10 main and middle transmitter sites (2 DVB-T multiplex: 88%) 1st December 2010: Further 7 main and middle transmitter sites + gapfillers (2 DVB-T multiplex: 95%) 1st December 2011: Further 3 main transmitter sites + gapfillers (2 DVB-T multiplex: 96%, DVB-H multiplex replaced by DVB-T: 85%) 2012: gapfillers				
Hung ary	3	0	0	1 Dec. 2008 – 1 Dec. 2011 (the 3 MUXes were introduced gradually in all regions in that period)	Till 31 Dec. 2014	2013-2014: 790-862 MHz for mobile broadband	Not yet defined.	Not yet defin ed.
Irela nd	1 current, 6 total planned	0	0	2011	10/24/2012	allocated to mobile 25 October 2012	No plans	No plans
Israel	1 public multiplex			6/1/2011	6/1/2011	We already operate land mobile systems from 806 MHz to 862 MHz	Part of the 700 MHz band may be allocated to mobile public safety	LTE PPDR may enter
Latvi a	1 public + 5 commercial	1 comm ercial	0	Rollout started beginning 2009	01.06.2010.	790-862 MHz Band for Mobile/Fixed Communications Networks from 01.07.2015.	n/a	n/a
Lithu ania	4 operational, 3 more to come	1 opera tional	13 operation al, 4 more	2002 experimental, mid 2006 permanent	10/29/2012	790-862 MHz for MFCN after 29 Jun 2013	not planned	-

		, 2 more to come	to come					
Luxe mbur g	4	0	0	2006	1.9.2006	1.1.2013, 790-862 MHz	Calendar in line with EU decisions, 694-790 MHz	
Mace doni a	 3 commercial (with conditional access), for reemission, pay TV programs 2 free to air- public, only for public broadcaster 1 - commercial free to air, emission on national TV stations 	1 - comm ercial free to air, emissi on on regio nal TV statio ns	ongoing public consultati ons	1.06.2013	Yes (1.06.2013)	1.06.2013 allocation for IMT (Ongoing auction process for LTE operator)	No decision yet	No decisi on yet
Malt a	9 (1 public, 8 commercial)	0	0	-	10/31/2011	790 – 862 MHz is still allocated to and being used for DTT services. The allocation of this band to mobile services is not established yet.	The 700 MHz band is still allocated to and being used for DTT services. A policy on the future of this band has not been established yet.	
Mon aco	0 (Only delivered by cable network)	Not releva nt	Not relevant	Digital switch-on for cable network in 2011	30 November 2011 on cable TV	Not yet allocated. New regulatory framework currently being prepared	New regulatory framework currently being prepared. Not yet allocated	Not yet defin ed
Mont	0	0	0	0	Jun 17, 2015	Dates not decided yet, IMT	Not decided yet	-

eneg ro						services, 790-862 MHz band		
Neth erlan ds	1 Public / 4 Commercial	The public netw orks includ es also 1 regio nal progr am, in total 13 regio nal progr ams	No local TV available	12/1/2006		1th of January 2013 800 Mhz has become available for LTE services	No decision is made yet.	-
Norw ay	5	1		Digital switch-on was in the first region 1st September 2007. All the regions had switch-on by the end of 2008. (Information per region is available at: 'Tabelloversikt åpning/stenging av nett' in http://www.ntv.no/mod ules/module_123/proxy. asp?D=2&C=242&I=1188 ∣=158)	Analog switch- off was in the last region 1st December 2009.	The government announced in September 2009 plans to allow 800MHz band for mobile broadband. There are plans to auction the frequency range 790-862MHz. The auction dates are not decided.	No plans. Norway will follow the international progress. Frequency range 470-790MHz is licensed for DTT until 2nd June, 2021. Five of six muxes are currently in use.	NA
Pola nd	3 (MUX1- partly commercial), MUX2-	1 (MUX 4 – comm	4 – commerci al (not yet in	MUX-1 (14.12.2011), MUX2 (30.09.2010), MUX3 (27.10.2010), MUX4 (03.04.2012)	31 July 2013	The band 790-862 MHz is allocated to the mobile service on a primary basis. According to RR 5.312 (rev	No decision yet.	No other scena rio

	commercial, MUX3-public)	ercial mobil e TV)	operation)			WRC-12), frequency band 860-862 MHz is also allocated for the aeronautical service on the co-primary basis, and this allocation is valid until 31.12.2017. The auction for the 800 MHz band is scheduled to take place in 4th quarter of 2013. The authorization process will be completed by the end of 2nd quarter of 2014.		has been yet consi dered
Portu gal	1	0	0	4/29/2009	4/26/2012	Planned in 16-Dec-2010; electronic communication services; 790-862 MHz.	Under study	Not appli cable
Rom ania	4 x UHF & 1 x VHF; At this time there are on air 2 pilot projects: - one is public, consisting of 6 transmitters broadcasting 2 DVB-T multiplexes - the other is commercial, consisting of 3 transmitters broadcasting 1 DVB-T multiplex	Will be defin ed after licens e award s of natio nal multi plexe s	Will be defined after license awards of national multiplex es	2013-2015	06/17/2013, nationwide	License awards in 2012 for GSM and others mobile services	N/A	N/A
Serbi	The sole	As	As stated	Transition to digital only	In accordance	Allocation plan of radio-	It is expected to make	-

а	multiplex	stated	above,	terrestrial television	with the DSO	frequencies ("Official	700 MHz frequencies	
	operator in	above	broadcast	transmission will be	Plan that is to be	Gazette of the Republic	available for forming	
	the Republic	,	ers with a	rolled out on a phased	adopted by the	Serbia", no. 99/2012)	Digital Dividend 2 in	
	of Serbia is	there	local	basis.The Government	Government,	foresees that, after DSO	compliance with the	
	the network	will	license	will adopt the DSO Plan	based on the	and the latest till 17. June	Final Acts of World	
	operator	be	will have	that will determine the	Rulebook on	2015, part of the spectrum	Radiocommunication	
	Public	two	access to	sequencing and	Transition from	which corresponds to the	Conference 2012 (WRC-	
	enterprise	natio	the	timetable for the phased	Analogue to	TV channels 61-69 UHF	12), after 2015	
	ETV with a	nwide	nationwid	transition to digital	Digital TV	(frequencies 790-862 MHz),		
	permit to	free-	e free-to-	(DVB-T2) broadcasting	broadcasting and	will be used for Digital		
	commission	to-air	air MUX2		Access to the	Dividend 1 (DD1) and it will		
	and operate	multi			Multiplex in	be based on service and		
	two	plexe			Terrestrial Digital	technology neutrality.The		
	nationwide	s in			Broadcasting	strategic documents		
	free-to-air	the			("Official Gazette	indicate that the country is		
	multiplexes in	specif			of the Republic	open to make the DD1		
	the specified	ied			Serbia", no.	frequencies available for		
	UHF channels	UHF			55/2012) and	mobile services, in		
	during the	chann			the Strategy for	compliance with the EU and		
	DSO period.	els			Switchover from	ITU agreements and		
	The Strategy	durin			Analogue to	suggestions. The strategic		
	for Switchover	g the			Digital	documents clearly point		
	from	DSO			Broadcasting of	that, in order to make the		
	Analogue to	perio			Radio and	800 MHz frequencies		
	Digital	d.			Television	available for further		
	Broadcasting	Broad			Programmes in	utilization the digital		
	of Radio and	caster			the Republic of	switchover has to be		
	Television	s with			Serbia ("Official	completed, as Serbia		
	Programs in	а			Gazette RS", No.	currently lacks the sufficient		
	the Republic	natio			52/09 and	amount of free frequencies		
	of Serbia	nal			18/12), the	to make the required 72		
	("Official	and/o			switchover to	MHz band available by		
	Gazette of the	r			digital	channel relocations only		
	Republic	regio			broadcasting of			
	Serbia", no.	nal			TV programmes			
	52/2009 and	licens			will be			
	18/2012)	e will			implemented in			
	allows the	have			phases by 17.			

operation of	acces		June 2015 at		
further	s to		latest, in		
multiplexes if	MUX1		accordance with		
there is a			international		
market need			obligations of		
and it is			the Republic of		
financially			Serbia		
feasible to do			501510.		
so Access to					
the					
multinleves					
will be					
granted					
initially to all					
hroadcasters					
which already					
own a license					
for analogue					
broadcasting					
as defined in					
the Rulebook					
on Transition					
from					
Analogue to					
Digital TV					
broadcasting					
and Access to					
the Multinley					
in Terrestrial					
Digital					
Broadcasting					
("Official					
Gazette of the					
Republic					
Serbia" no					
55/2012)					
Specifically					
broadcasters					
biouucusters					

	with a national and/or regional license will have access to the first multiplex (MUX1), while local coverage broadcasters will be provided access to the second multiplex (MUX2), by the Republic Broadcasting Agency.							
Slova kia	4 (1 public and 3 commercial)	NA	32	Dec. 2009	31.12.2012	By end of 2013. TRA-ECS	The whole 700 MHz is heavily used by broadcasting service; licenses have been issued until September 2029	NA
Slove nia	2	0	6	From 2006 to 2010	2010 december	For mobile since 2013	No official decision yet but broadcasting services will be avoided	
Switz erlan d	1	2	0	2002	2009	800 MHz band is planned for mobile services. The first mobile network in this band exists since November 2012.	The discussions are on- going.	The strate gy for the whol e UHF band

								is requi red.
Turk ey	7	1 (Same MUX)	1 (Same MUX)	1/11/2013	2/3/2015	After analogue switch- off/mobile services other than broadcasting/790- 862MHz	Under consideration	No
UK	6 (3 of these multiplexes carry some regionalised content for the English regions and the UK's devolved nations). Ofcom has recently commenced the process of awarding an 'interim' licence for 2 further national multiplexes using '600 MHz' spectrum (550-606 MHz).	0	(operating in the Manchest er area only). A nationwid e local TV multiplex licence has recently been awarded (which will carry separately -licensed local program me services at specific locations). Initial local program me service local program	The UK's DVB-T networks launched in November 1998	10/24/2012	LTE services using 800 MHz spectrum (791 MHz to 862 MHz) are expected to launch during mid-2013. See http://stakeholders.ofcom. org.uk/spectrum/spectrum- awards/awards-in- progress/	The UK is currently considering its position on the 700 MHZ band. Ofcom's UHF Strategy Statement (http://stakeholders.ofc om.org.uk/consultation s/uhf- strategy/statement/) provides more details of the current position.	Not appli cable

Vatic	5	already been awarded for 19 UK towns and cities, and the first of these services are expected to launch by the end of 2013, with further roll-out during 2014. Awards of program me service licences for further locations are likely to follow in due course.	Completed in 2011	Not planned	Not planned	
an						

Table 3.

2. DTT Spectru m Licensin g	Network Provider Licensing Process to be followed or have been followed (e.g. auction, beauty contest, other)	Number of National Licensed Network Provider S	Numb er of Region al Licens ed Netwo rk Provid ers	License Duration	Spectrum Licensing Scheme (e.g. per MUX and site or per layer – layer(s) consisting of one or more MUX for all sites in the country)	Criteria for the order of the assigned channels to network providers (e.g. low frequencies (MUXs) in the DTT TV band assigned to the highest bidder in case of auction)	Fees: ► Annual Spectrum usage fees Or ► One-time fee for the whole license duration Or ► Combined? Or ► If no spectrum fees and why?	The frequency usage (MUX) was/is based on a predefined network topology (Digital Frequency Map) with specific characteristics (sites, eirp, antenna patterns, technology) or only to GE 06 entries (allotments or assignments)? Please provide URL of the Digital Frequency Map if published.	Roll-out obligations (e.g. time, coverage, must carry)
Albania	Beauty contest	3	Not define d	15 years	License per MUX	No specific criteria	There is no spectrum fee. It is a frequency tax applied by tax law (once per year)	GE 06 digital Plan assignments	Coverage: Fase 1: 75 % of territory 85 % of population. Fase 2: 85 % of territory Over 90 % of population
Andorra	No licensing process. It is the Andorran Governme nt who decides new	0	0	-	-	-	No spectrum fees. The Government decides the new programs that should be broadcasted according to the national interest. And it is the	It is more based on GE06 and the National Table of Frequency Allocation. The size of the country allowed us to have a real SFN network not constrained by other specific characteristics	

	channels to be broadcast ed and delegates to Servei de Telcomuni cació d'Andorra to make it possible as broadcast er.						broadcaster who should afford the cost of the related investments.		
Austria	Beauty contest	1	4	10 years	Both schemes are applicable in Austria	No criteria in this respect	No fees as a result of the Austrian Media politics to ease the introduction of new digital TV programs in Austria and to support diversity of opinion and media pluralism.	GE06 assignments and allotments are basically used for the implementation. In detail the planning is done in close cooperation with the regulatory Authority, some planning triggers modification procedures according article 4 of the GE06 agreement	Time and coverage obligations are applied for all licenses, for the nationwide MUX A additionally "Must Carry" is applied for the public broadcaster
Belgium -Flemish Commu nity	Beauty contest	1 in the Flemish Commun ity		15 years, potential ly renewabl e by 15 years	Global licence' per package of frequency channels. 'Broadcastin g licence' per transmitter	Beauty contest, 7 criteria	Annual spectrum usage fee	GE06 allotments and technical characteristics corresponding to bilateral agreements	
Belgium	Beauty	1 for	1 until	without	Not yet	Not yet	Not yet decided	GE06 allotments and	Not yet decided

- German - speakin g Commu nity	contest	public broadcas ter	now for tests	time- limit for public broadcas ter 9 years for commerc ial broadcas ters	decided	decided		technical characteristics corresponding to bilateral agreements	
Bosnia	Beauty contest	2	2	To be defined	Per layer	Not defined yet	Annual Spectrum usage fees	Only to GE 06 entries Not published	Will be defined in the License
Bulgaria	In the early 2004, the licensing of the Local network was done by an auction. Afterward s, contest procedure s for six multiplexe s have been conducted	Three National Licensed Network Providers	N/A	The duration of the licenses is 15 years.	The Spectrum Licensing Scheme is per layer(s), consisting of one or more multiplexes for the whole territory of the country.	N/A	Combined One- time fee and Annual Spectrum usage fee.	The frequency usage (MUX) is based on GE 06 allotments.	All licenses include time and coverage obligations. Must carry obligations are defined for six networks (five commercial and one public MUX).
Croatia	Public tender.	2 (the network operator is the same for	1	10 years	1st licence- 2 national multiplexes MUX A and MUX B	The channels were assigned according to availability	Annual spectrum usage fees.	The frequency usage is based on GE06 entries (allotments and assignments).	Must carry, latest start of operation and minimal coverage (not smaller % than

		both)			2nd licence - 1 national/reg ional/local multiplex MUX D 3rd licence - 2 national pay-tv multiplexes MUX C and MUX E	(coordination with neighboring countries).		http://www.hakom.hr/U serDocsImages/dokume nti/Plan_%20digitalne_t elevizije- raspodjela_kanala.pdf	analogue).
Czech R	Nationwid e multiplexe s: • There are no plans to deploy new nationwid e DTT networks. • Existing DTT nationwid e licenses had been transform ed from former analogue transmissi on licenses.	3	0	National Providers : 2021 / 2022 / 2024 Local providers : No later than 31 Decembe r 2017	Spectrum licenses are issued per layer followed by individual licenses for each site.	Not specified	Combined fees.	Nationwide multiplexes are based on GE 06 allotments. Local multiplexes are bases either on GE 06 assignments or on individually coordinated frequencies.	Coverage obligations were set up for public DTT. Commercial DTT operators are obliged to publish the free capacity of their networks

	transmissi on: First come first served.								
Denmar k	6 multiplexe s were made available by the end of October 2009. 2 multiplexe s for public service and 4 were awarded to Boxer TV A/S through tender by beauty contest.	2	0	The licenses acquired by Boxer TV A/S will end at 3 April 2020. The two public service MUXs are available per law.	The technical spectrum license is per site.The distribution license awarded to Boxer TV in the tender is per MUX.	No criteria of this kind were made.	Annual fee.	The frequency usage is based on the GE06 agreement and some bilateral agreements. http://www.erhvervssty relsen.dk/oversigt-over- kanalfordelingen-i- danmark	Five MUX have nation wide coverage (public ~100% population coverage, commercial > minimum 97% population coverage), the six' MUX is being implemented fall 2013.
Estonia	Beauty contest, Auction	2	0	1 year	Per MUX and site.	The common regular principle of Network Provider Licensing Process	Annual Spectrum usage fees only.	The frequency usage (MUX) was based on a GE06 Plan allotments and assignments.	Time (6 months), coverage (% of territory) with deadline.
Finland	beauty contest	3	1	current license period	network licenses per MUX	none	Annual Spectrum usage fees	Based on the GE06 entries (allotments or assignments) as well as	roll-out time and coverage obligations

				until the end of 2016 (one multiplex until 2026), new network licenses after 2016 to be granted for 20 years				bilateral coordination	defined in the network licenses
Greece	Under considerat ion.	Under consider ation.	Under consid eration	Under consider ation.	Under consideratio n.	Under consideration	Under consideration.	The Digital Frequency Map is based on the CMD 42800/2012.The relevant decision with the technical characteristics is located in the following url link: Κοινή Υπουργική Απόφαση (ΦΕΚ: 2704/Β΄/5-10-2012)	Under consideration.
Hungary Nationa I Media and Infocom municat ions	The digital television broadcasti ng tender (beauty contest) was in 2008	1	0	12 years	Layers consisting of 5 MUX for all sites in the country	No criteria. All the frequencies were assigned to one winner.	The Hungarian Administration uses combined fee. One-time fee for the 5 nationwide multiplexes and monthly frequency fees per transmitters.	GE06 entries.	All (time, coverage, must carry) obligations: The necessary population coverage has been defined for the five multiplexes from 2008 to 2013.

Hungary Antenn a Hungari a Ltd., Nationa I Media and Infocom municat ions Authori ty of Hungary	Competiti on tender, beauty contest (performe d in April 2008).	1	0	12 years	Licences for 5 MUXs (Hungary has 8 MUXs as per GE06) were granted in one package in 2008 for the winner of the tender. 3 MUXs could be operated from that year, 2 of them can be deployed after the ASO.	Licences for 5 MUXs were granted in one package in 2008 for the winner of the tender (Antenna Hungaria Ltd.).	Combined: - one-time tender fee - annual fee based on revenue - frequency fee	Predefined network topology.	Roll-out time: 2008-2015. Coverage: according to the coverage plan in the authority contract with NMHHMust carry: Hungarian public TV and radio programmes (4+3).
Ireland	Provided for in national legislation , Broadcasti ng Act 2009	1	0	12 years	A multiplex per national layer.	None	Annual spectrum fee (€114,000, ComReg document 07/90)	Combination: pre- defined network topology plus GE06. http://www.comreg.ie/_ fileupload/File/Broadcas t_Technical_Parameters. xlsx	98% population by end 2011
Israel							Spectrum fees	GE06 entries	
Latvia	Beauty contest	1	0	31.12.20 13.	For all layers in the country	Not applicable	Frequency assignment usage fee is applicable	Network topology based on GE06 entries http://www.lattelecom.l v/majai/virszemes_tv_n ew /tehniska_informacija/	One layer (for public and commercial free to air programs) to cover > 99% territory

Lithuani a	beauty contest	3	17	for 6 MUXs and regional – 10 years (until 2022- 2023), for 1 MUX – 20 years (until 2031)	per layer	each layers contains channels from all over the range 470-790 MHz, no explicit order	Spectrum usage (supervision) fee on monthly basis, approx. 10 EUR per site per channel per month. Approx. 800 EUR beauty contest fee.	4 MUXs – predefined network topology, 3 MUXs – GE06 entries	1 MUX – coverage, 5 MUXs – roll-out time in certain places, 1 MUX – no explicit obligation for public service provider
Luxemb urg	Same licensee as for analog	1	0	-2020	Per MUX	There was no bid or auction, the license of the existing operator was switched from analog to digital	Annual and in kind - Combined with license for content broadcasting	Assignments and allotments of GE 06	No
Macedo nia	beauty contest	3	1	10 years	per operator for each location	2 separate beauty contest processes for 2 operators (3+2 MUX); 2 MUX for public operator (by low) First come first served	Combined fees: • onetime fee for granting radiofrequency band utilization (budget income) • Annual Spectrum usage-frequency fee according to the " RULES on the manner of the annual fee calculation for radio frequency utilization",	GE 06 allotments	 Percent of coverage in predicted time schedule; must carry obligations are defined only for operator with conditional access mux-es

							www.aek.mk, (Agency income)		
Malta	Beauty contest	2	0	Commer cial licence: 11 May 2021 Public licence: indefinit e	One license per operator	These were defined in the call for applications.	Annual fee of €5,823 per frequency channel	As per the GE-06 plan entries.	95% of national coverage within 19 months from license grant
Monaco	Licensing process under the responsibi lity of the Electronic Communi cations Departme nt (DCE). New regulatory framewor k currently being prepared	1	Not releva nt	10 years	New regulatory framework currently being prepared	New regulatory framework currently being prepared	New regulatory framework currently being prepared	For DVD-T channels, frequencies usage will be based on the GE 06 entries.	New regulatory framework currently being prepared. Must carry for cable network
Monten egro	Not yet	0	0	-	-	-	Annual Spectrum usage fees	GE 06 entries	-
Netherl ands	As just one commerci al organizati on was interested	2 (1 public, 1 commerc ial)	0	Till January 2017	1 Layer 1 Multiplex	-	Fees based on used ERP (radiated power)	Only to Ge'06 entries allotments	County wide coverage, in general indoor reception based, in some regions at least on the basis of rooftop

	, this organizati on was licensed.								reception.
Norway	Other. Requirem ents set by the authority. Only one applicant.	1	1	15 years, 2.6.2006- 2.6.2021	All muxes (in frequency band 470- 790 MHz) in one national license.	NA	Annual spectrum usage fees.	Only according to GE06, both allotments and assignments.	Yes, it was required that base network (with minimum 3 muxes/ signal packets) covers at least 95% of the permanent households within 42 months after issuing the license, and at least 70% of the cottages and leisure homes.
Poland	Spectrum license for MUX4 (mobile TV) was issued after beauty contest for Network Provider; Spectrum licenses for MUX1 was issued for MUX co- operators	1 Network Provider authorize d by MUX1-3 Operator S	1 Provid er (Mobil e TV MUX Operat or) but in 2015 this MUX may be nation wide	10-15 years	Spectrum licenses per MUX and allotments of the national or regional layer; Radio licenses per sites	There isn't that kind of the criteria	Combined: annual spectrum usage fees for the whole license duration		MUX1, MUX2 – minimum people coverage: 95% of population,

(5				
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ers) for				
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beauty				
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Spectrum				
license for				
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was				
issued				
directly				
for Public				
TV (TVP)				
without				

	any beauty contest or auction								
Portuga I	Beauty contest	1	0	15 years.	Per MUX and site.	The spectrum to be used was defined in the beauty contest.	Annual spectrum usage fee is 360.000 €	Yes, it is based on a predefined network topology; http://tdt.telecom.pt/	See the details at the end of the questionnaire (2)
Romani a	Up till now no licensing process took place; Procedure of licensing will be defined by the Regulator (ANCOM) after Govern Strategy is approved	None	None	9 years	Per MUX	will be defined by the Regulator (ANCOM) after Govern Strategy is approved	will be defined by the Regulator (ANCOM) after Govern Strategy is approved	GE06	>90% of population for the multiplex that will carry public TV programs TVR 1 and TVR 2
Serbia	According to the article 104. of the Electronic Communi cations Law ("Official	There is one National Licenced Network Provider during the DSO period accordin	-	RATEL will grant an individua I licence for the use of radio frequenc ies which	Spectrum licencing scheme will imply issuing licences per MUX and site.	The lowest frequencies in the DTT TV band will be assigned to the national licenced network provider during the	Annual spectrum usage fees	Allocation plan of the Frequencies/Locations/ Allotments for Terrestrial Digital TV Broadcasting Stations in UHF bands in the Republic of Serbia will define digital frequency map with specific characteristics, e.g.	The phased roll out will be implemented in accordance with international obligations of the Republic of Serbia and it will be finished untill 17 June 2015, at

Gazette of	g to the	will give	DSO period,	channels, sites, heights	latest.
the	Electroni	right to	Public	of antenna,	Coverage for the
Republic	с	ETV to	enterprise	polarizations, eirp,	first and the
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44/2010)	Law	ate UHF	to the	entries.	95% and 90% of
the sole	("Official	channels	Rulebook on	5	the population,
multiplex	Gazette	in	Transition	Please provide URL of	respectively.
operator	of the	accordan	from	the Digital Frequency	
in the	Republic	ce with	Analogue to	Map if published.	
Republic	Serbia",	the law	Digital TV	This new Allocation plan	
of Serbia,	no.	regulatin	broadcasting	is proposed by Republic	
during the	44/2010)	g the	and Access to	Agency for Electronic	
DSO	– Public	area of	the Multiplex	Communications and it	
period, is	enterpris	electroni	in Terrestrial	will be adopted by the	
the	e ETV	С	Digital	Ministry of Foreign and	
network		communi	Broadcasting	Internal trade and	
operator		cations.	("Official	Telecommunications in	
Public		Duration	Gazette of	near future.	
enterprise		will be	the Republic	http://www.ratel.rs/upl	
ETV. For		defined	Serbia", no.	oad/documents/javne_r	
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during the				
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ETV and				
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Slovakia	Nationwid e multiplexe s: beauty contest Local multiplexe s: individual authorisat ions are issued based on submitted applicatio ns for the issuance of authorisat ion and dependin g on results of relevant internatio nal frequency coordinati	1 (4 nationwi de MUXs operated by 1 provider)	17	Nationwi de multiplex es: until 09.09.20 29 Local multiplex es: authorisa tions are issued for 7 years	A nationwide layer (representin g one MUX) for all sites in the country was subject to selection procedure.	NA	Nationwide multiplexes: one- off payment for the allocation of frequencies as the expected minimal offer. No annual fee applies. Local multiplexes: no fee for the right to use the frequency (provision of Act on electronic communications)	Frequency usage within a multiplex is a combination of GE06 entries (main transmitter network) and sites with specific characteristics (low power re-transmitters and gap-filler transmitters)	Nationwide multiplexes: network launch date, population coverage rate at the launch date, planned progress of the population coverage rate and other roll-out obligations result from the offer submitted by the candidate within the selection procedure. Local multiplexes: obligation to achieve at least 66% multiplex capacity occupation within one year since the authorization issue date (condition set by the regulator)
Slovenia	Public tender	1	0	10 years	Per layer	No criteria, but in most cases lower channels are used first.	One-time fee for the whole license duration + Annual Spectrum usage fee	GE06 allotments and assignemnts	Mux A for public services: 95% of the population
Switzerl and	Licenses have been directly assigned	1	2	Public: until 2018 Private:	Per layer (for the national broadcaster	No criteria, frequency layers from		The GE06 Allotment plan was used and the existing transmitter sites were re-used to an	Public: none Privat: 75% of the content must be broadcast

				foreseen	1	the GE06 Plan		extent nossible	
				until 2024	, Per region (for a local broadcaster)			http://www.bakom.adm in.ch/themen/ radio_tv/01214/02301/i ndex.html?lang=en	
Turkey	A single transmissi on facility and operator company (Anten A.Ş.) is authorize d by Radio and TV supreme Council	1	1	10 years	National MUX and layer, regional and local MUX and site	No criteria for assigning channels to network provider.	Combined; Annual spectrum usage fees and one-time fee for the whole license duration	The frequency usage is based on GE06 entries but some specific characteristics have been revised within restrictions determined in GE06 Final Acts. Here is the URL of "Turkey National DVB-T2 Frequency Plan": http://www.rtuk.org.tr/ upload/File/(2)DVBT2%2 0.pdf	It's obligated to cover %70 of the population. 1 MUX is assigned to the public broadcaster in Turkey.
UK	Legislative reservatio n in the case of the BBC's DVB-T multiplexe s, and for the multiplex carrying the former analogue commerci al Public	6, plus 1 recently awarded local TV multiplex licence (not yet on-air)	0	12 years, except in the case of the future 600 MHz interim multiplex which may be revoked if required for DTT re- allocatio	Spectrum licences specify frequencies and transmissio n site locations for each MUX (MFN, supplement ed by very limited use of SFNs in some areas).	A joint frequency planning project, chaired by Ofcom and including DTT multiplex operators and infrastructure providers, carries out frequency planning for DTT services.	Multiplexes pay an annual licence fee.	The UK's networks are based on a combination of GE-06 entries (some of which have been modified to implement the clearance of DTT from channels 61 & 62 ['800 MHz clearance']), bilaterally coordinated assignments, and lower power assignments not requiring coordination. No frequency map available.	3 multiplexes are classed as 'public service broadcaster' (PSB) multiplexes and are required to cover at least 98.5% of the UK population following completion of analogue switch- off. Sufficient frequency resource was allocated to these

	Service Broadcast er channels. 'Beauty contest' (according to statutory criteria) in the case of the remaining DTT networks.			n. However the licence will have a guarante ed minimu m term extendin g to 31 Decembe r 2018.		See also 'Roll- out obligations' question below.			broadcasters to allow this objective to be met. The remaining 3 'commercial' (COM) multiplexes do not have specific coverage obligations (except that their coverage cannot fall below pre switch-off levels). The commercial multiplexes use much of the remaining UHF DTT frequency resource and serve approximately 90% of the UK population. The multiplex switchover equired to follow a switchover timetable set out in their licences.
Vatican	-	1	4	Not applicabl e	MUX/Site	Not applicable	No fees	GE06 assignments only	Not applicable

3. International Coordination	Estimated number of countries involved in international coordination process (DTT and DD)	Has the international coordination process started?
Albania	7 countries I, MNE, SRB, GRE, MKD, GR, BIH,	Yes
Andorra	3 countries Andorra, Spain and France	Yes
Austria	9 countries	Yes
Belgium-Flemish Community	5 neighboring countries for DTT	Yes for DTT
Belgium - German- speaking Community	5 neighboring countries	Yes for DTT
Bosnia	10 countries	Yes
Bulgaria	9 countries	Yes
Croatia	8 countries	Yes, immediately after Geneva 2006 and is still going on.
Czech R	4 or more, depending the specific situation.	DTT coordination process is provided on case-by case basis nowadays.
Denmark	4 in direct negotiation meetings, 4 in per-mail negotiations and 4 in formal-only coordination	Yes. The coordination on the 800 MHz DD is finished.
Estonia	9 countries (BLR,DNK,D,FIN,LTU,LVA,POL,RUS,S).	Yes. It was started in the end of 2004.
Finland	Typically 3, maximum 8	new process begun for DVB-T \rightarrow T2 transition
Greece	11 countries	Yes
Hungary National Media and Infocommunications	DTT:10; DD: 7	Yes
Antenna Hungaria Ltd., National Media and Infocommunications Authority of Hungary	10 countries	Yes
Ireland	1 countries	Yes, and is ended (June 2012)
Israel	7 countries close to Israel	No
Latvia	8 countries	Ongoing

Lithuania	6 countries	Yes
Luxemburg	4 (GER, F, NL, BEL)	Finalized, Assignments from the GE-06
Macedonia	Neighboring countries	No
Malta	4 countries	Yes for DTT
Monaco	3 countries (France, Italy, Monaco)	Yes
Montenegro	6 countries	GE06 in force for DTT since 2006
		DD coordination yet to be started
Netherlands	8 countries	Still going on
Norway	In addition to Geneva 2006 agreement we have bilateral negotiations and agreements with the neighbor countries, especially Sweden and Denmark concerning the 6. Mux	Yes
Poland	-	Yes
Portugal	2 countries (Spain and Morocco)	Yes, concerning the 800 MHz band only.
Romania	>5 countries	N/A
Serbia	International coordination process (DTT and DD) will be conducted with all neighboring countries	Republic Agency for Electronic Communications is entitled for conducting coordination process with Regulatory Bodies in the neighboring countries.
Slovakia	9 countries	4 nationwide networks have been coordinated for the transition period
Slovenia	5 countries	Yes
Switzerland	5 countries	Yes
Turkey	21 countries	Yes
UK	4 immediate neighbors, 5 next neighboring countries	Digital switchover and 800MHz Clearance: coordination with 2 immediate neighbouring countries completed, and 2 almost completed.
Vatican	Not evaluated	No
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Table 5.

4. DTT Technical	Technology chosen (e.g. DVB-T or DVB-T2 or neutral)	Video coding chosen (e.g. MPEG-2 or MPEG-4 or neutral)	Number of sites (not including gap fillers)	Number of MUXs per site	Estimated coverage with above characteristics (terrain and/or population)	Multiplexin g technology chosen (statistical, dynamic or neutral)	Bit Stream Payload (bit rate of MUX)	Guidelines for Gap Filler technical characteristi cs (e.g. eirp, pattern, SFN or MFN)	How many HD programs are there currently provided?	Is Mobile TV permitted in the license? If Yes, has it been deployed?
Albania	DVB-T2	MPEG-4	To be decided, in evaluatio n of responde rs to the RFP.		Population (80- 90 %)	Multiplexers are to be statistically multiplexed into a two ASI data stream in accordance with European Standard EN 50083-9. (To be decided by RFP document)	The central Headend system shall support up to 3 HD x AVC H264 compressed digital video services which shall be compressed at variable bit rates of between 3 Mbps and 15 Mbps. (To be decided by RFP document)	Gap fillers can be considered in the response. The responder can propose the use of gap fillers to meet the coverage requirement s. 2. A Gap filler / Repeater comprises all the functions of a chain starting with the input of a RF UHF	There are some unlicensed HD programes over unlicensed terrestrial digital networks	There is no restriction It is failed two years ago an experimen t from the private company "Digitalb"

								frequency, down conversion to IF, up conversion to another or the same RF frequency. 3. All repeaters shall be capable to operate in a Single Frequency Network using Echo canceller. (To be decided by RFP document)		
Andorra	DVB-T	MPEG-2	13	6	99 % Population	Statistical	22 to 24 Mbps	We have just one gap filler that will be replaced before the end of the year.	No one	No, not permitted
Austria	Currently DVB-T and DVB-T2, switch over to DVB-T2 is envisaged *)	MPEG-2 for DVB- T and MPEG-4 for DVB- T2 *)	Around 350, because auf mountain ous topology	Up to 6	Up to 98% of the Austrian population	statistical	DVB-T up to 17 Mbit/s, DVB-T2 up to 25 Mbit/s *)	No specific guidelines, SFN is preferred but in certain cases under	3 *) Note *) Start of DVB- T2 in Austria is April 2013	No restriction s for Mobile TV in Austria

			a lot of sites are needed					certain conditions MFNs are also possible in Austria		
Belgium- Flemish Commun ity	DVB thus possibility DVB-T/DVB- T2	MPEG- 2/MPEG -4	+/- 13 sites	MUXs on 8 sites, 3 MUXs on 5 sites	>98% (rooftop) population		14 17 Mb/s		not yet	Yes, no dvb-h deployed. The intended reception mode is portable outdoor/m obile.
Belgium - German- speaking Commun ity	DVB allowing broadcastin g currently in DVB-T and DVB-T2 in the future	MPEG-2 / MPEG- 4	3 to 4 sites	2 MUXs on 3/4 sites and 2 MUXs on 2/3 sites	> 97 % of the population on rooftop	statistica	15 Mb/s	SFN	Not yet	No
Bosnia	DVB-T	MPEG 4	Not defined	Not defined	Not defined	Statistical	20Mb/s	SFN	None	Yes. Not deployed yet
Bulgaria	DVB-T	MPEG 4	N/A	Differs	Different for each of networks	Statistical multiplexing	19,91 Mbit/s for the Nationwide networks; 15.61 Mbit/s for the Local network.	N/A	HD programs are not currently provided.	N/A
Croatia	DVB-T for MUX A, MUX B and MUX D, neutral for	MPEG-2 for MUX A, MUX B and MUX D,	Around 30	Up to 5	More than 95% population	statistical	Approximately 19 Mbit/s for DVB-T and 36 Mbit/s for DVB- T2	SFN	3 (but these are only on pay-tv platform)	no

	MUX C and MUX E (DVB-T2 is used)	neutral for MUX C and MUX E (H.264/ AVC is used)								
Czech R	DVB-T (not obligatory prescripted)	MPEG-2 and MPEG-4 (based on provider s [´] decision s).	287	n.a.	Nationwide multiplexes: 86 % to 99.9 % population	Mostly statistical multiplex.	Appx. 20 – 25 Mbit/s	MFN with individually coordinated parameters.	More than 2 within regular (non- trial) transmission	Networks are adapted for roof reception.
Denmark	Four DVB-T multiplexes, one DVB-T2 multiplex and an additional DVB-T2 multiplex is on its way.	MPEG-4	27 sites in each multiplex + 19 gap fillers	5 and 6 by fall 2013	Boxer TV A/S > 99.2 %.Public service 99.7 %	Statistical multiplexing	Boxer TV A/S: DVB-T MUX 3-4: 22.39 Mb/s DVB-T2 MUX 5: 36.55 Mb/s Public service: DVB-T MUX 1-2: 19.9 Mb/s	Only SFN gap fillers are employed. Boxer TV is only allowed SFN gap fillers in the distribution license awarded by tender.	7 HD channels in all.	Yes, in one MUX but not yet deployed.
Estonia	DVB-T and DVB-T2.	MPEG-4 AVC	6	10 (includi ng 3 not full complet ed)	MUX1 – 100% of territory. MUX2,3,4,6,7 – 90% of territory,.	Statistical multiplexing	MUX1;7 -16- QAM, MUX2;3 - 64-QAM, MUX 4;6 -QPSK.	Eirp, pattern, SFN.	1 (trial DVB- T2 network).	Not permitted
Finland	currently both -T and -T2; after	currentl y both; after	38-40	now typically 4-5	typical population coverage 5 200	statistical	DVB-T ~21 Mbits/s, DVB-T2 ~38 Mbit/s	currently none, after 2016 SFN	9	one nationwid e mobile-

	2016 two DVB-T (MPEG-2) multiplexes shall continue, otherwise transition to DVB-T2 (MPEG-4)	2016 two multiple xes with MPEG-2 shall continu e, otherwi se MPEG-4			000 / MUX			should be used		tv (DVB- T2) multiplex, no deployme nt yet
Greece	DVB-T (RRC- 06) was used for the planning of the frequency map. Other technology could be used as long as some technical characteristi cs remain the same(Com mon Ministerial Decision (CMD) 42800/2012)	Currentl y (transiti on period) MPEG-4 is used in most cases. It is expecte d to be continu ed.	There are 156 sites(Co mmon Ministeri al Decision (CMD) 42800/20 12)	Varying from 8- 10 (Comm on Ministe rial Decisio n (CMD) 42800/ 2012)	96.2 % estimated coverage of the population	Under consideratio n.	Varying from 22- 27 Mbps depending on the chosen Guard Interval (Common Ministerial Decision (CMD) 42800/2012)	Max eirp 22 dBW (Common Ministerial Decision (CMD) 42800/2012)	In the transition period there is only one HD program, which is not broadcasting full time.	Under considerati on.
Hungary National Media and Infocom	DVB-T	MPEG-4	26	3 MUXs in case of 21 sites and 2	Population coverage of MUX A and C: 96 % Population	Statistical	22,39 Mbit/s	ERP: cc.10- 30dBW. The patterns are mainly directed.	3	It was allowed in the original contract

municati ons				MUXs in case of 5 sites.	coverage of MUX B: 85%			Mainly operating in SFN.		for one multiplex. According to the modified contract the mobile TV license are changed for DVB-T as well.
Antenna Hungaria Ltd., National Media and Infocom municati ons Authorit y of Hungary	DVB-T	MPEG-4	31	3	MUX A: 98 % of population MUX B: 90 % of population MUX C: 98 % of population	Statistical multiplexing	22 Mbit/s	EIRP, pattern, SFN are controlled by NMHH.	3	According to the original licence, in MUX B DVB-H had been introduced in Budapest in 2008. In 2011 the licence was converted to DVB-T. Now MUX B is used for DVB-T in the whole country.
Ireland	DVB-T	MPEG-4	64	8 multiple xes per site	98% population	Statistical	24 Mbit/s	MFN	1	No

Israel	DVB-T	MPEG-4	28	1-28	All Country	Statistical	12 Mb/s	SFN	Only SD	No DVBH in the license
Latvia	DVB-T + DVB-H	MPEG-4	17	6	MUX1 > 99% territory All others > 90% territory and > 97% population	statistical	16-22 Mbit/s	Not defined	1	Mobile TV permitted, however not used
Lithuania	DVB-T	MPEG-4	106 operatio nal (15 of them regional/l ocal)	1-5 operati onal	98% of population	statistical	20-22 Mbps per MUX	-	3 in regional MUX (2 sites)	technology neutral license, only DVB-T deployed
Luxembu rg	DVB-T	MPEG-2	1	4	95 % of population				2	Mobile TV was foreseen with one allotment
Macedon ia	DVB-T	MPEG-4	36 commerc ial operator s 48 public operator	5 for commer cial operato rs 2 for public operato r	80 % population coverage for commercial operators Not defined for public operator (as much as possible)	Not defined by Agency	19.906 Mbit/s or 24.882 Mbit/s	SFN	1	No
Malta	DVB-T	MPEG-2	4	9	>95% of national territory	Not regulated	Not regulated	Within the parameters of the GE06 plan entries	0	No
Monaco	Not yet defined for the terrestrial frequencies	Not yet defined for the terrestri al	1	6	Monaco and French Riviera (in coordination with the French authorities)	Not yet defined	Not yet defined	Not yet defined	Not yet defined for DVD-T channels but delivered by	New regulatory framework currently being

		frequen cies							the cable network	prepared
Montene gro	DVB-T2	MPEG-2	-	-	-	-	-	-	-	-
Netherla nds	DVB-T	MPEG-2	67	5	98% (terrain)	Neutral	(15-20Mbit/sec)	Max - 10dbW. Same conditions as main station	0	Yes, not deployed
Norway	DVB-T is adopted by the license owner.	MPEG-4 is adopted by the license owner.	430 transmitt ers which includes 42 main transmitt ers. (In addition there are 545 low power transmitt ers located in rural areas outside DTT and DTH coverage (satellite shadow areas) that only contain the NRK (Norwegi	Five muxes installe d on all transmi tters except the satellite shadow transmi tters.	Around 98% of the permanent households and 87% of the leisure homes. In addition comes the satellite shadow network covering about 6000 permanent households (approx. 14 000 people)	Statistical	22,12 Mb/s	Both SFN and MFN	7 (mostly 720p)	The license requires that 3 Multiplexe s must be built with DTT technology . The license given by June 2006 describes the limitations. No Mobile TV deployed so far. More informatio n here: http://ww w.ntv.no/ module_1 23/proxy.a

			an public broadcas ter) multiplex . This to fulfill an obligatio n to cover 100 % of the populatio n when summariz ing all digital platforms .)							sp?I=307& C=33&D=2 &mnusel License (in Norwegian): http://ww w.regjerin gen.no/upl oad/kilde/ sd/red/20 02/0039/d dd/pdfv/2 82810- konsesjon _for_oppr ettelse_og _drift_av_ digitalt_ba kkenett_fo r_fjernsyn. pdf
Poland	DVB-T for MUX1, MUX2 and MUX3; neutral for MUX4 (mobile TV; but DVB-T was chosen)	MPEG-4	About 45 per nationwi de network	3 MUXs per site	95-98% of the population coverage	statistical	24 Mbits/s per MUX	SFN, pattern, eirp	2	Yes; The spectrum license for MUX4 is dedicated for mobile TV; There is no restriction in licenses for MUX1,2 and 3 to implement mobile receiving

										modes
Portugal	DVB-T	MPEG-4	Total 242 sites ó 217 (Portugal mainland), 14 (Azores islands) and 11 (Madeira islands)	1	100% cov. pop. ó 92,75% terrestrial cov. pop. + 7,25% satellite cov. pop.	Statistical	19,91 Mbit/s	No	None	No
Romania	DVB-T2 has been chosen	MPEG-4 has been chosen; it is already employ ed in the 2 Pilot Projects	N/A; depends on the actual network of the operator(s) that will be awarded license(s)	Depend s on the operato rs' network s; operato rs will be encoura ged to use the same sites	The multiplex that will carry public TV programs TVR 1 and TVR 2 must cover at least 90% of Romania population	Neutral	N/A	As necessary	1 by Radiocom and 2 by Commercial Company MediaPro (on pilot projects)	N/A
Serbia	Governmen t of the Republic of Serbia, in July 2009, adopted DVB-T2 as the technical standard for television	Govern ment of the Republi c of Serbia, in July 2009, adopted ITU-T H.264/A	74 transmiss ion site	During the DSO period, Public enterpri se ETV will provide two MUXs per site,	Coverage for the first and the second multiplex will be at least 95% and 90% of the population, respectively	Neutral	Approximate bit rate of MUX will be 37 Mbps	Allocation plan of the Frequencies /Locations/ Allotments for Terrestrial Digital TV Broadcastin g Stations in UHF bands	The initial digital network was launched on 21. March 2012. This network makes a digital test signal accessible to	-

	signal broadcastin g	VC (MPEG- 4 part 10) as the technica I standar d for data compre ssion within multiple xes		and further multiple xes if there is a market need and it is financia lly feasible to do so				in the Republic of Serbia will define digital frequency map with specific characteristi cs, e.g. channels, sites, heights of antenna, polarization s, eirp, antenna patterns, in accordance with GE 06 entries.	approximatel y 50% of citizens across Serbia, DVB- T2 signal is transmitted from 15 locations, and it is used for test purposes. HD programme is already one of the programmes broadcasted within the multiplex in the Initial network for testing	
Slovakia	DVB-T	MPEG-2 and MPEG-4	38	2-4	80-98% population coverage depending on MUX	statistical	Nationwide multiplexes: MUX2 and public MUX: 19.91 MUX1 and MUX4: higher net bit rate is envisaged Local multiplexes: case-by-case scenario, least allowed system variant for local broadcasting: B1	Regarding gap-fillers deployment SFN approach is applied at first.	1	Νο

Slovenia	DVB-T	MPEG-4	120	2	96%	National networks: statistical Local networks: static	From 9 to 22.4 Mbit/s	SFN with MFN exceptions where certain conditions are met	0	Yes. No deployme nt.
Switzerla nd	DVB-T	MPEG-2	Public: 219 Private: up to 56	One per site (for the public broadca ster) Up to five (for private broadca sters)	Public:~95% Private:~70%		16.6 Mb/s (public broadcaster) 26.4-31.7 Mb/s (private broadcasters)	SFN	0	No Mobile TV is implement ed
Turkey	DVB-T2	MPEG-4	952	8	Above %80 of the population	Dynamic	27 Mbit/s	SFN, OMNI	11	No
UK	DVB-T (5 existing national multiplexes and 1 future local TV multiplex) DVB-T2 (1 existing national multiplex and 2 future '600 MHz' national multiplexes)	MPEG-2 (5 existing national multiple xes and 1 future local TV multiple x). MPEG-4 (1 existing national multiple x and 2	1156 (existing national multiplex es)	6 (80 sites – carrying PSB & COM multiple xes) 3 (1076 sites – carrying PSB Multipl exes only) Future services	98.5% population coverage (3 existing public service multiplexes). Approximately 90% population coverage (3 existing commercial multiplexes). Future services: -Initial phase of local TV	Neutral – No regulatory requirement s (in practice, statistical multiplexing is used by the UK's DTT broadcaster s).	24.1 Mbit/s (2 DVB-T public service multiplexes) 40.2 Mbit/s (1 DVB-T2 public service multiplex) 27.1 Mbit/s (3 DVB-T commercial multiplexes) Future services: -9.05 Mbit/s (local TV multiplex)	Not applicable	4	Currently mandated modulatio n modes are not optimized for mobile TV use.

		future '600 MHz' national multiple xes).		: - Initial phase of local TV multiple x deploy ment expecte d to be 24 sites. - Interim 600 MHz multiple x expecte d to be deploye d at up to 30 sites.	multiplex deployment expected to cover approximately 40% of the UK population (subject to pre- launch coverage optimisation). -Interim 600 MHz multiplex could achieve up to approximately 66% population coverage. The successful licence applicant would be required to roll-out services so that they achieve 50% population coverage of the UK within 24 months of licence award.		-40.2 Mbit/s (Interim 600 MHz multiplex – transmission mode to be confirmed)			
Vatican	DVB-T DVB- T2 optional	Neutral	3	2	100%	NEUTRAL	-	Not applicable	2	Yes/ not yet

Table 6.

5. Other	Have you adopted a recycling scheme for obsolete analogue equipment (e.g. TV sets and Broadcasting equipment)? Please describe	Wireless microphones usage (e.g. dedicated MUX or in secondary basis or under license or different band)	Are there any other plans for the future?	Any regulation for EMF (electromagnetic radiation)? If yes and exists, relevant URL
Albania	No	To be decided from RFP.	Extended digital dividend after June 2015.	ETSI Standards.
Andorra	We have been involved in an ITU initiative in order to reallocate all the obsolete analogue broadcasting equipment in developing countries.	No wireless microphones usages	No	Mainly ITU an European regulation mentioned in the NTAF
Austria	No scheme from the Authority adopted. This is the business of the operator	Usage in UHF is on secondary basis band on a licence regime	Ongoing international discussion in CEPT and ITU	No, regulations according to European legislation
Belgium- Flemish Communit Y	-	-	-	-
Belgium - German- speaking Communit Y	Νο	In dedicated channels and in secondary basis	None	Yes (for the Walloon region) http://www.issep.be/page.asp?id=164& langue=FR
Bosnia	No	On secondary basis	Yes	Yes www.rak.ba
Bulgaria		The band 470-862 MHz is also allocated on a secondary basis and used on a tuning range basis for Radio microphones.	N/A	In accordance with the Technical requirements for operation of the electronic communications networks of the broadcasting service and the related equipment, the transmitting equipment should conform to the requirements of Ordinance No 9 of 1991 for the maximum levels of electromagnetic fields in populated areas and definition

				of the sanitary zones around emitting objects.
Croatia	The network operator (Transmitters and communications Ltd.) is selling its obsolete analogue transmitters. No recycling scheme for TV sets was adopted as they still can be used with set-top-boxes.	Secondary basis.	Not at this moment.	Yes. http://narodne- novine.nn.hr/clanci/sluzbeni/2011_08_9 8_2036.html
Czech R	Yes. The Act No. 185/2001 Coll., on waste and on amendment to some other laws, has brought rules on the prevention of waste production and on waste management. Prices of all equipment contain a charge, which is used for funding of ecological disposal of obsolete devices.	Nowadays, microphones usage has various bands for operation (e.g., up to 2 GHz, bands 36.4–38.5 MHz; 169.5 MHz, 174 MHz, 470–789 MHz, 823–832 MHz, 863–865 MHz, 1785–1800 MHz).	National scenario of migration to 2nd generation of DTT under consideration.	EIRP powers are subject of international coordination. As for EMC issue, all relevant EMC standards should be obeyed. Health issue is subject of ICNIRP standards.
Denmark	Yes. Industry is mandated by law to recycle obsolete electronic equipment, such as old analogue TV-sets. Industry has formed a common association called Elretur handling the practical recycling task: http://www.elretur.dk	A list of frequencies that may be used for wireless microphones is provided here: http://www.dba.erhvervsstyrel sen.dk/spectrum-resources- wireless-mics In the band 470 – 790 MHz wireless microphones may use interleaved spectrum.	An additional DTT multiplex will be introduced in the VHF band.	Yes. The EMC directive (2004/108/EC) is implemented in the national legislation. https://www.retsinformation.dk/forms/ r0710.aspx?id=29325
Estonia	No information.	In secondary basis (without license in different band).	Other plans are missing (unofficial information)	Yes, "The limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)" https://www.riigiteataja.ee/akt/163816
Finland	Yes, households can return all obsolete home electronics to recycling centers without any fee	Licensed use on a secondary basis	DVB-T2 transition in 2017, partial UHF band re-planning under 700 MHz band needed	EMC Directive 2004/108/EY (http://ec.europa.eu/enterprise/sectors / electrical/documents/emc/legislation/

Greece	Under consideration.	Under consideration.	-	According the relevant framework for antenna construction licensing there is reference for human exposure to EMF. The relevant authority is Greek Atomic Energy Commission : (http://www.eeae.gr)
Hungary National Media and Infocomm unications	-	secondary basis		64/2004. (VII. 26.) ESZCSM decree: http://www.njt.hu/cgi_bin/njt_doc.cgi? docid=84814.118610
Antenna Hungaria Ltd., National Media and Infocomm unications Authority of Hungary	No	secondary basis	Not yet defined.	Ministerial decree on health limits: http://english.nmhh.hu/dokumentum/1 50090/63_2004_eszcsm_eng_lekt_0705 21.pdf
Ireland	WEEE – recycling scheme for all electrical goods	Dedicated UHF channel 38 (606 – 614 MHz) plus interleaved spectrum	?	Licence condition in WT Licences from ComReg. www.comreg.ie
Israel		794-806 MHz; unlicensed unprotected	Additional 2 muxes in 2013-14; "unofficial information"	We approve 10% ICNIRP power density level for the public http://old.sviva.gov.il/bin/en.jsp?enPag e=e_BlankPage&enDisplay=view&enDis pWhat=Zone&enDispWho=legal_&enZo ne=legal_
Latvia	General recycling approach for electronic equipment apply	Use on secondary bases in 470- 862 MHz Band.	New beauty contest for commercial multiplex operator, licensed from 01.01.2014.	No national regulation, EU recommendation for general public applies
Lithuania	No	light licensing regime	No	Limit on power density S < 10 $\mu W/cm^2$
Luxembur g	No specific scheme – electronic equipment usually deposited at recycling centers	Secondary basis or different band		ICNIRP

Macedoni a	No decided	Yes, according to the ERC/REC 70-03	To be decided	Ongoing process
Malta	No	Yes, currently operating on a secondary basis under a light- licensing regime on TV channel 69.		All operators shall comply with the ICNIRP radiation emission standards.
Monaco	Yes only for TV sets	Yes under license	New regulatory framework and strategy under preparation	Yes (Decree n° 3.020 dated the 26th November 2010
Monteneg ro	No	Secondary basis	-	Yes
Netherlan ds	No	Secondary basis	Under study	Standard European rules
Norway	Yes, since 2001 we have a system for recycling of electronic devices. Retailers are also obliged to collect old equipment from their customers (About 2500 places). 80-90 % of returned analogue equipment is reused.	Wireless microphones may use white spots in the frequency range 470-510MHz. License is needed. Wireless microphones may also use which spots in the frequency range 510-790MHz. Max ERP 50mW. (Regulations providing general authorizations for the use of radio frequencies.) License is not needed. Spectrum availability might be found in a web page: http://www.finnsenderen.no/fi nnsender	Not decided yet.	Norway follows the European harmonized standards (EN302 296)?
Poland	http://mos.gov.pl/drukuj/19008 _electrical_and_electronic_litter _ process_more_transport_less.ht ml	On secondary basis without any license or under license in case of higher power level		http://www.en.uke.gov.pl/files/?id_plik =63
Portugal	No	In a secondary basis (174-216 MHz, 470-750 MHz and 758-	Under study	Yes; http://www.anacom.pt/streaming/Regu

		789 MHz) and in different bands (863-865 MHz and 785- 1800 MHz)		lamento86_2007.pdf? contentId=402520&field=ATTACHED_FIL E
Romania	Local broadcast operators plan to upgrade some of the UHF transmitters from analogue to digital and use the existing distribution networks	N/A	N/A	EMF is monitored by ANCOM; http://www.ancom.org.ro
Serbia	-	Secondary services that share frequency sub-band 694-790 MHz, on the basis of the temporary licences, are: radio microphones according to ERC REC 70-03, portable and mobile and point-to-point audio links according to ERC REP 42	-	-
Slovakia	Obsolete analogue transmitters are currently under process of recycling by specialized undertaking. All recyclable parts will be demounted and separated.	Wireless microphones may be operated on the basis of the general authorisation for the use of frequencies in specified frequency bands Wireless microphones may also be operated in the frequency band 470-790 MHz on the basis of the individual authorisation for the use of frequencies under the condition of not causing unacceptable interference to, and not claiming protection from operation of DTT networks (secondary service)	Slovak Republic intends to support the further development of DTT.	Decree no. 534 of 2007 regarding the detailed requirements applicable to sources of the electromagnetic radiation and limits for exposure of population to the electromagnetic radiation in the environment issued by the Ministry of Health of the Slovak Republic. Available only in Slovak language http://www.uvzsr.sk/docs/leg/534_200 7_elmag_ziarenie.pdf
Slovenia	No.	On secondary basis.	Further muxes will use DVB-T2	No.
Switzerlan d	No.	Secondary basis		Ordonnance du 18 novembre 2009 sur la compatibilité électromagnétique (OCEM)

				http://www.admin.ch/ch/f/rs/7/734.5.fr .pdf
Turkey	Network provider (Antenna Co., Ltd.) is considering the use of current analog broadcasting equipment and STBs will support all existing TV sets.	Yes, in a secondary basis	-	Yes, By-Law on Determination, Control and Inspection of the Limit Values of Electromagnetic Field Force from the Electronic Communication Devices According to International Standards (http://eng.btk.gov.tr/mevzuat/yonetm elikler/index.php)
UK	No	Programme Making and Special Events (PMSE) usage in UHF TV bands is on a secondary basis, except UHF channel 38 (606- 614 MHz) which is reserved for PMSE use.	Further local TV DTT services are expected to launch in the coming months: (http://licensing.ofcom.org.uk/t v-broadcast-licences/local/). Ofcom has also recently set out proposals for the award of a licence to establish temporary DTT multiplexes, using DVB-T2, in the '600 MHz' spectrum band (550-606 MHz). http://stakeholders.ofcom.org.u k/consultations/600mhz- award/.	Interface Requirements for Broadcast transmitters operating in frequency bands administered by Ofcom: http://stakeholders.ofcom.org.uk/binari es/spectrum/spectrum-policy- area/spectrum-management/research- guidelines-tech-info/interface- requirements/ir2022.pdf
Vatican	Νο	Secondary/ different band	UHDTV and 3DTV	YES, from 1993 referring to IRPA guidelines updated in 2003 adopting ICNIRP standards