

THE USE OF BAND III IN EUROPE

The pressure on spectrum in the UHF band, where DTT is mainly implemented, has given rise to the idea that Band III could be used to replace the frequencies which may no longer be available to DTT. This guide tells you why Band III cannot replace these frequencies and where and how your organization can contribute to the discussions. Please get involved.

BAND III CHARACTERISTICS

Band III covers the frequencies from 174 to 230 MHz. It is part of the VHF Band which ranges from 30 to 300 MHz. The 56 MHz of Band III are divided into eight 7 MHz channels (from channel 5 to channel 12); each 7 MHz channel can also be sub-divided into four 1.7 MHz channels (from A to D), Figure 1.

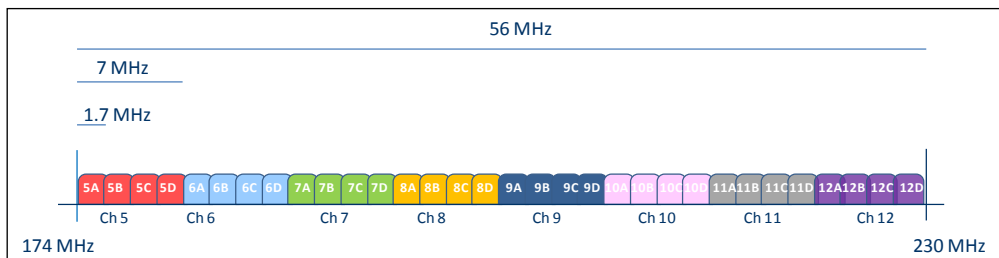


Figure 1: Band III frequency channels

HOW BAND III HAS BEEN PLANNED IN EUROPE

The use of Band III in Europe has been defined by the GE06 Agreement which planned Band III for T-DAB and DVB-T services. DVB-T signals use the full 7 MHz channels in Band III and T-DAB signals use 1.7 MHz channels.

On average, each country got in the plan three T-DAB multiplexes with national coverage and one DVB-T multiplex with national coverage. Additional frequencies were planned for local T-DAB or DVB-T services.

A few countries such as Finland and Italy planned most of Band III for DVB-T services.

T-DAB frequencies can also be used for T-DAB+/DMB and DVB-T frequencies can be used for DVB-T2.

A few countries (e.g. Norway) also planned for T-DAB channel 13, the 10 MHz from 230 to 240 MHz, which is divided into six 1.7 MHz blocks, 13A to 13F.

HOW BAND III IS USED IN DIFFERENT COUNTRIES

The spectrum in Band III is already in use in most of European countries for digital audio broadcasting, digital television, radio-microphones, and other non-broadcasting services.

The usage details of the spectrum vary from country to country depending on national circumstances (national needs, economy, topography, geographic situation, etc.). Table 1 in the Annex collects the current use of Band III in different European countries and their future plans of use¹:

- Belgium, Denmark, France, Germany, Ireland, Italy, Netherlands, Norway, Poland, Spain, Sweden, UK use the T-DAB frequencies as planned. Although not included in the current table, also in the following countries (as per WorldDMB web site information): Czech Republic, Malta and Monaco
- In Germany and Switzerland, also the DVB-T frequencies are used for T-DAB
- Finland, Italy and Sweden use the DVB-T frequencies as planned and the following countries are also considering the same: Denmark and Poland
- In Austria the use of the band is foreseen for T-DAB+
- In many countries digital broadcasting services share the spectrum with additional services: defence, PMSE (e.g. radiomicrophones), short range devices, private mobile radio, and aeronautical communication

CAN BAND III COMPENSATE FOR A REDUCTION OF UHF SPECTRUM

Band III cannot compensate for a reduction of UHF spectrum available for DTT:

- The spectrum in Band III is already in use in most of European countries for digital audio broadcasting, digital television, radiomicrophones and other non-broadcasting services
- The amount of spectrum in Band III, 56 MHz, is small compared with the spectrum planned for DTT in the UHF band. 392 MHz were planned in GE06 and 320 MHz are currently allocated to DTT after the release of the 800 MHz band. Therefore, a substantial compensation of lost UHF-Spectrum is not viable.
- Many European countries do not transmit TV signals in Band III. Antennas have been optimised accordingly to work on the UHF band only. Starting television services in Band III would require re-adapting antennas to tune to Band III. This would have a significant financial impact and would be very disruptive for users. The additional effort is disproportional to the hypothetical achievable benefit.

WHAT CAN BE DONE?

It is crucial that the message to regulators is that Band III cannot be a replacement for any DTT frequencies released from the UHF band. Broadcasters should get involved in their country's discussions on spectrum allocations and brief their national regulators. The EBU can provide additional briefing documents with up-to-date information ahead of their preparatory meetings.

WHO SHOULD YOU CONTACT FOR ASSISTANCE?

Before your next meeting with your national regulator, please contact Elena Puigrefagut (puigrefagut@ebu.ch), Walid Sami (sami@ebu.ch) or Darko Ratkaj (ratkaj@ebu.ch) to obtain the latest supporting documentation from the EBU.

HOW CAN YOU GET INVOLVED IN EBU'S WORK?

To follow our work on Spectrum Management and Regulation, you can login to the EBU Technology & Innovation website and join the SMR group here: tech.ebu.ch/groups/sm

All EBU members can join anyone of strategic programmes or project groups dealing with spectrum (SMR, SMR-SDB, SMR-BNP, FDS, CTN-Mobile).

¹ For updated information please see <http://www.worlddab.org/>

ANNEX

Table 1: Current use of Band III in different European countries and their future plans of use²

Country	T-DAB current use		DVB-T current use		PMSE	Other	Future plans
Austria	-	No DAB use	-	No DVB use	Yes		5 DAB+ layers foreseen by regulator. The DVB-T layer from GE06 converted to T-DAB
Belgium/Flanders	DAB	1 layer covering Flanders – PSB	-	No DVB use	Yes (in ear systems) on Ch 5 as well as mobile audio links from motorbikes to planes and helicopters	No	There are plans to migrate to DAB+ only after expiration of contract with transmitter provider in 2019
Belgium/Wallonia	DAB	1 layer covering Wallonia – PSB	-	No DVB use	Yes	No	3 DAB+ layers (local or regional) (with the conversion of the DVB-T GE06 layer).
Denmark	DAB	1 nationwide layer 1 regional layer	-	No DVB use			1 regional DAB layer to be used (probably) in the near future. Planning to migrate to DAB+ 1 DVB-T layer in GE-06 under consideration.
Finland	-	No DAB use	DVB-T2	3 national layers (not 100% coverage)	Radiomicrophones 174-230 MHz		DVB-T2 expected to continue, no plans for DAB
France	DAB+	No nationwide coverage. Three cities (Marseille, Nice and Paris) have started in June 2014 with 4 to 6 muxes but without the PSBs and main CBs.	-	No DVB use	Yes	Military service for blocs 12B to 12D	There is still a possibility for T-DMB
Germany	DAB+	1 nationwide layer 2 regional layers	-	No DVB use (layers from GE06 converted to T-DAB)	Yes (for non-professional applications)	No	1 DAB+ nationwide layer 1 DAB+ layer for coverage in congested urban areas 1 DAB+ regional layer
Ireland	DAB/DAB+	1 national layer trial, 2 local network trials		No DVB use. 1 layer planned in GE06	Yes	Short Range Devices (SRD), Aeronautical Comms	
Italy	DAB+	- 3 blocks (12A, 12B, 12C) are reserved to national broadcasters - 1 block (12D) is reserved to regional/local broadcasters.	DVB-T	- 2 channels (ch.5 and ch. 9) assigned to RAI as part of 1 layer with regional contents; - 1 channel (ch. 8) assigned to one national broadcaster; - 3 channels (ch. 6, ch. 7, ch. 11 equivalent to 2 layers)	Yes	Ch13 is allocated to military services. In some local areas blocks in ch. 13 are	At present there are no planned changes to the current situation.

² For updated information please see <http://www.worlddab.org/>

Country		T-DAB current use		DVB-T current use	PMSE	Other	Future plans
		Blocks in ch. 10 are used in 1 region by local broadcasters		reserved for "internal DD" (auction only for broadcasters); - 1 channel (ch. 10) used by local broadcasters in many regions.		temporarily used for DAB+	
Netherlands	DAB+	2 nationwide layers, deployed, 2 nationwide layers being deployed	-	No DVB use	Yes	SRD, land mobile	The DVB-T layer from GE06 converted to T-DAB, Final policy is being developed for the 3 remaining layers.
Norway	DAB	1 nationwide layer 1 regional layer (7 regions) 1 local layer (37 regions) Current migration from DAB to DAB+ within existing layers A few transmitters with DMB for trial (in Oslo region)	-	No other DVB use	No	No	1 nationwide layer reserved for DAB/DMB 1 nationwide layer reserved for DTT
Poland	DAB	2 DAB regional layers	-	No DVB use			The 2 DAB regional layers are planned to have nationwide coverage in 2020. 1 nationwide layer to be used for DTT; to be implemented in near future.
Russia	-	No DAB use	DVB-T2	DVB-T2 limited use: a few RF channels over some territories	Under consideration	-	DVB-T2 Under consideration: DVB-T2 Lite, DAB+
Spain	DAB	3 national networks (1SFN + 2 MFN) but currently only covering Madrid and Barcelona	-	No DVB use	Yes	No	DAB regional layer, with 1/3 SFN multiplex (nowadays without transmissions) and 2/3 MFN multiplex (not expected to be implemented) DAB local layer, with 237 areas covered by different frequency blocks in Band III and L Band (not expected to be implemented) Allowed DVB future use in Band III No firm plans yet to migrate to DAB+, although this should have been done in accordance with the law
Sweden	DAB	1 regional layer	DVB-T2	1 national layer coverage completed with UHF frequencies		Ch13 allocated to DAB in W/revCO	3 DAB+ regional layers 1 DAB+ nationwide layer
Switzerland	DAB+	3 layers in urban areas (one PSB, one commercial, one local) In the German Speaking part, one regional layer in addition.	-	No DVB use (layers from GE06 converted to T-DAB)	Yes, license exempt radiomicrophones		
UK	DAB	2 national networks 1 regional layer (partial coverage) 1 local layer (full coverage)	-	No DVB use (no DVB-T layer planned in GE06)	Yes, interleaved within land mobile	Land mobile has exclusive access to 35 MHz out of 56 MHz available	Capacity available for an additional DAB national layer No firm plans yet to migrate to DAB+ Envisaged the switchover from FM be completed in coming years

