

IMT in the 600 MHz band



The use of the 600 MHz band for IMT is a valuable option for countries looking for cost-effective methods to increase the capacity of mobile networks in rural areas, including providing service to critical infrastructure such as roads, ports, and mines.

Implementation of technical and regulatory measures through cross-border agreements helps ensure interference-free spectrum use when plans for this spectrum differ across borders.


With these in place, every country can implement IMT in the 600 MHz band.



Why 600 MHz for IMT?

STATUS	IMPORTANCE FOR 5G AND 6G
<ul style="list-style-type: none"> – 600 MHz IMT has progressed since its initial identification in 2015. – Digital TV (DTV) transition is in process or finalised in most countries, freeing up additional spectrum. – Appropriate technical and regulatory measures allow 600 MHz use by both services. 	<ul style="list-style-type: none"> – 5G using the 600 or 700 MHz bands has higher levels of coverage, availability and indoor quality of service. – Costs of implementation reduced, improving coverage of unserved areas.

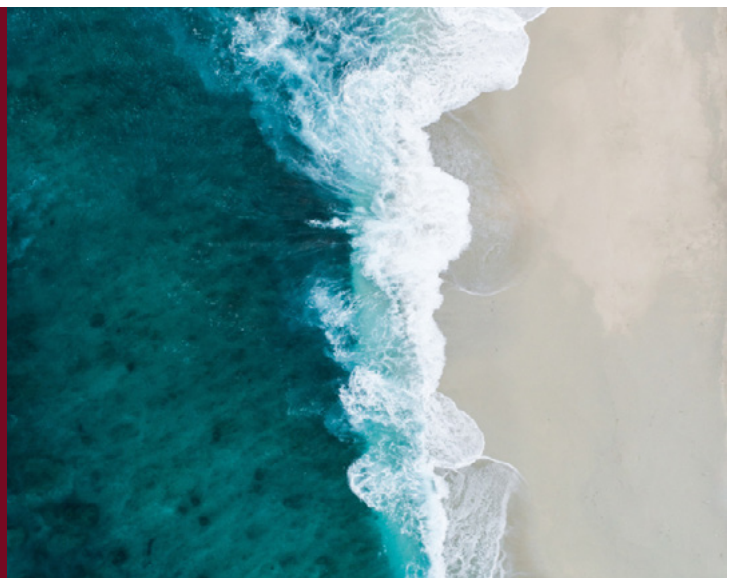
How can every country implement IMT?

TECHNICALLY AND REGULATORY MEASURES	BILATERAL AGREEMENT BENEFITS
<ul style="list-style-type: none"> – Bilateral agreements help spectrum use in border areas. – Especially relevant when one neighbour has broadcasting and the other IMT. 	<ul style="list-style-type: none"> – Flexibility to meet spectrum demands for both IMT and DTV broadcasting. – Ensure interference-free IMT AND broadcasting operation in in border areas. – Clarity on spectrum needs in border areas for spectrum plans while facilitating border agreements. – Understanding of needs of the communities in border areas – Identification of possible cooperation initiatives with neighbouring countries.

What to consider in a bilateral agreement?

Countries wishing to use the 600 MHz band for IMT networks need to understand their neighbours' plans for the band. Depending on the initial assessment administrations can develop:

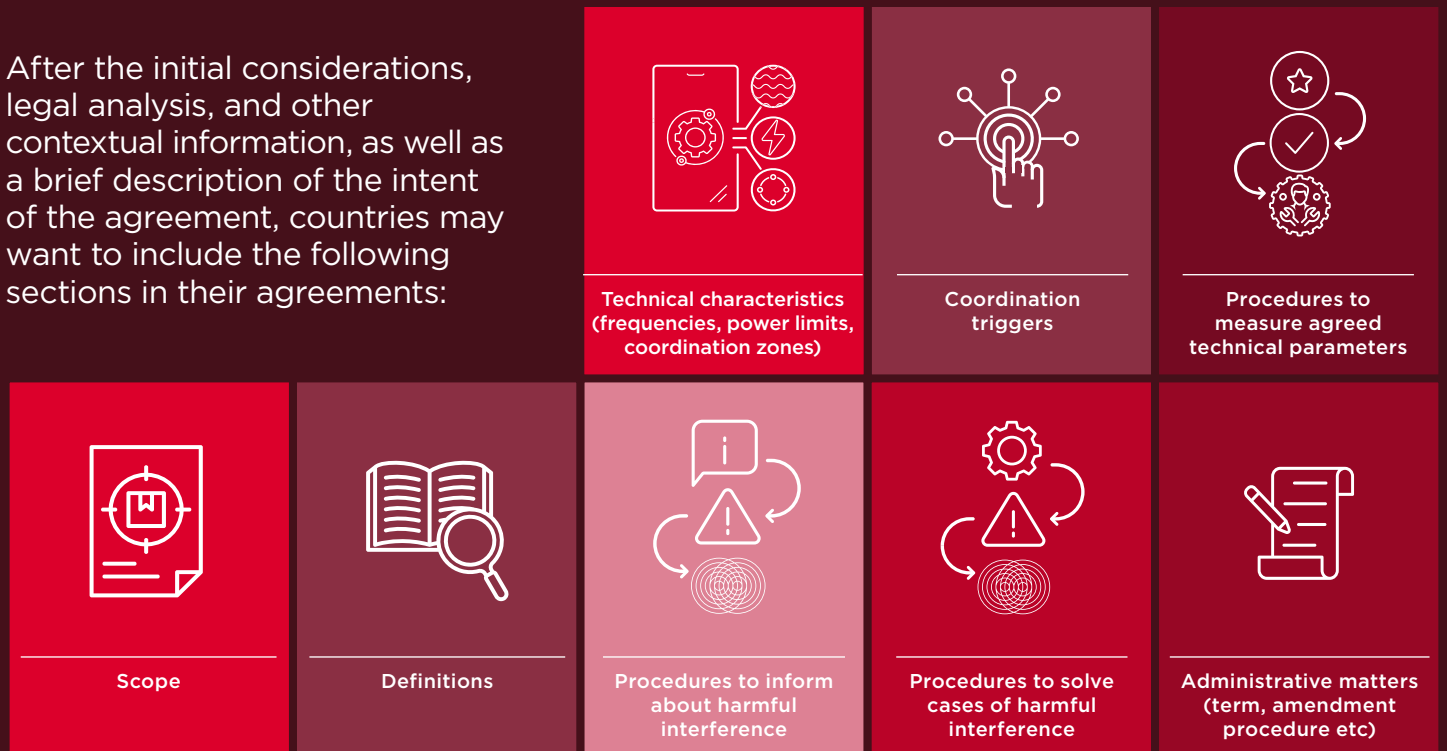
- straightforward border agreements
- agreements to accommodate future IMT plans
- an agreement to ensure the coexistence of DTV and IMT emissions on both sides of the border



Example bilateral agreement

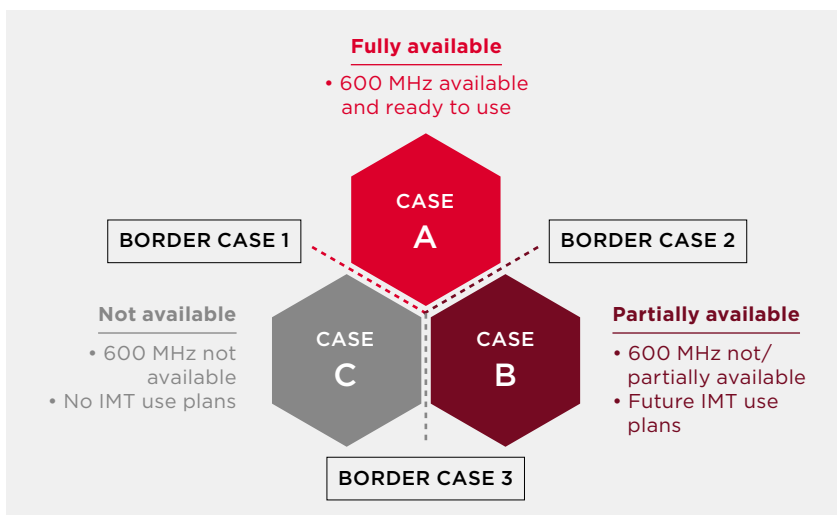
STRUCTURE FOR A BILATERAL SPECTRUM AGREEMENT

After the initial considerations, legal analysis, and other contextual information, as well as a brief description of the intent of the agreement, countries may want to include the following sections in their agreements:



600 MHz at the border


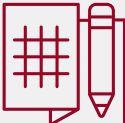
Differences in current or future 600 MHz use, including the pace of IMT deployment, are likely to exist between neighbouring countries. As a consequence, there are three main possible cases when considering the status of the 600 MHz band for IMT implementation in each country.



Both countries in case A: Administrations should work on reaching border agreements to deploy IMT in the 600 MHz band as soon as possible.

Both countries in case B: A timeline should be established for IMT implementation, possibly including plans to allow simultaneous, temporary IMT and DTV use in both countries.

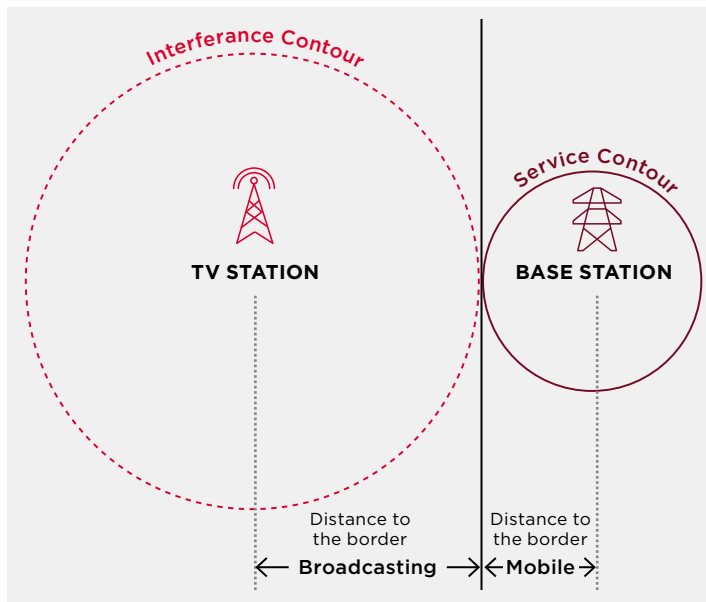
Both countries in case C: The countries should continue to engage regarding their respective spectrum needs, potentially allowing future adoption of the 600 MHz band for IMT.

BORDER CASE 1	BORDER CASE 2	BORDER CASE 3
<p>When IMT use is not planned on one side, but band is fully available for IMT deployment on the other</p> <hr/> <p>An agreement to use the 600 MHz band for both broadcasting and IMT should be drafted with both parties considering the timing of the IMT implementation, including ways to accommodate IMT use in the border area.</p> 	<p>When band is fully available for IMT deployment on one side, but only partially on other side</p> <hr/> <p>An agreement to use the 600 MHz band for both broadcast and IMT should be drafted, with both parties considering the timing of the IMT implementation and proposing a timeframe for the necessary migration.</p> 	<p>When IMT is not planned on one side, but band is partially available for deployment on the other</p> <hr/> <p>Countries should begin to consider plans for the spectrum use at the border area that consider the expected future use of the band.</p> 

600 MHz at the border

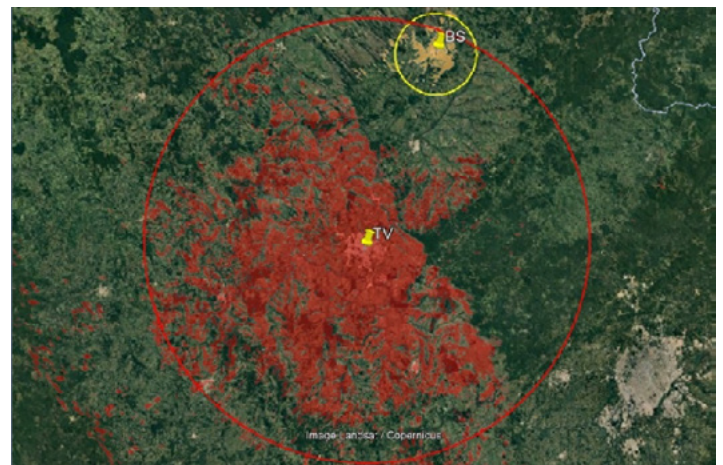
Based on technical studies between IMT and broadcasting, it is possible to determine interference and service contours. Examples of distances to support the determination of coordination zones

INTERFERENCE SCENARIO	INTERFERENCE CONTOUR	SERVICE AREA CONTOUR
IMT into broadcasting	13 km (from IMT base station)	39 km (from DTV station)
Broadcasting into IMT	70 km (from DTV station)	12 km (from IMT base station)



Distance from the border could be up to 70 km for DTV stations and 13 km for IMT base stations.

Compatibility with neighboring country's stations may be proved by studying a real-world example of a specific location, for instance, showing no harmful interference even when stations are close together when considering the terrain information.



Countries may consider dividing the use of the band between IMT and DTV channels

In some cases, coexistence of IMT and DTV stations in the same frequency range at the border may not be feasible, and DTV stations cannot be moved to channels below 614 MHz. To address this, prioritizing DTV channel migration to reduce interference risk is crucial.

Another option is to divide the use of the band to accommodate the implementation of IMT on one side of the border, while still protecting DTV channels operating on the other side of the border.

