

**DMSL response to**  
[Coexistence of new services in the 700 MHz band with digital terrestrial television](#)

**Question 1: Do you have any comments on our conclusions that**

**a) the risk of interference from mobile handsets to DTT will be minimal and**

*DMSL has not seen interference to DTT due to mobile handsets using the 800 MHz band.*

**b) the risk of interference from mobile base stations in 700 MHz to DTT will be broadly similar to the risk for 800 MHz, with some tens of thousands of households potentially affected?**

*The information supplied to Ofcom on the impacted numbers of households from 4G at 800 MHz for this consultation is, to the best of our knowledge, accurate at the time of writing. DMSL is happy to continue supporting Ofcom in its understanding of the impact of mobile services on DTT, and possible mitigation methods for potential DTT interference.*

*DMSL has supplied data for some of the Ofcom report but has not drawn its own conclusions from this data. DMSL only has experience of the impact of 4G at 800 MHz on DTT. The majority of interference cases that DMSL has resolved have resulted from an overloading of amplifiers rather than adjacent channel interference.*

**Question 2: Do you have any comments on our analysis of coexistence risks related to set-top aerials,**

*Set-top aerial performance outlined in the consultation mirrors what we have seen in homes during visits for at800 related work.*

**direct signal ingress to receivers**

*The conclusions in the consultation are inline with the feedback from similar cases from the at800 programme. There have been only a handful of cases of direct ingress causing interference. All have been due to mast downlink signals rather than mobile handsets.*

*Direct ingress to TVs has been confined to specific circumstances and equipment: first generation flatscreen TVs from circa 2006-07 located with their rear close to a window with direct line of sight to a nearby mobile mast.*

**Impact of DTT on mobile services and**

*DMSL has not been made aware of instances of DTT interference to mobile services during the at800 programme and so DMSL can't provide any further insight.*

**Interference to cable TV?**

*We have no observations on the impact of mobile handsets on cable TV set-top boxes and modems as at800 do not carry out work on this equipment.*

**Question 3: Do you agree with our conclusions that DTT receiver filters will be the most effective mitigation technique for the 700 MHz band and that group K aerials will also help to mitigate against 700 MHz coexistence issues?**

DMSL's experience suggests that filters offer protection against unwanted signals. However where 4G has been found to cause visible interference this has often been indicative of aerial systems not providing adequate DTT signal strength and/or quality. Additional basic aerial system work - better fly leads, connectors, cabling, realigned aerials, signal attenuators or removal of unnecessary amplification - is often needed to ensure the continued reliable reception of DTT.

Filters that are designed and tested to meet required standards and have a low level insertion loss will be needed in various types: consumer, outdoor and communal designs.

However, filter specification is complicated by the location of COM7 and COM8 multiplexes in the 700 MHz centre gap: 733 - 758 MHz.

DMSL therefore foresees two potential options for filter specification:

<b>Type of low-pass filter</b>	<i>Protect against 700 MHz handset uplink</i>	<i>Allow use of centre gap for COM7 &amp; COM8</i>	<i>Protect against future SDL</i>	<i>Protect against 700 MHz BTS downlink</i>
<i>Blocks frequencies above 703 MHz</i>	YES	NO	YES	YES
<i>Blocks frequencies above 758 MHz</i>	NO	YES	NO	YES

In addition, Group K aerials designed to cover UHF channels 21-48 could be a key contributor for handling 700 MHz mitigation.

However, if COM7 and COM8 use the centre gap, Group T aerials capable of receiving beyond Ch48 would be needed.

In areas where there are a number of transmitters all using different frequencies, there is likely to be interference from adjacent transmitter cases due to more muxes being used in a smaller frequency span. To reduce this risk of interference from neighbouring transmitters, log periodic wideband aerials are recommended due to their highly directional gain. However these aerials are not always the most appropriate to use in low signal areas.