

28/07/2017

**EBU's reply to Ofcom's consultation:
'Consultation publique concernant la mise au concours et
l'attribution de nouvelles fréquences de téléphonie mobile en
Suisse', June 2017**

The European Broadcasting Union (EBU) is very pleased to have the opportunity to contribute towards Ofcom's consultation: *'Consultation publique concernant la mise au concours et l'attribution de nouvelles fréquences de téléphonie mobile en Suisse'*.

The EBU represents 73 public service broadcasters in 56 countries in Europe, the Middle East and North Africa. Our Members operate almost 2,000 television and radio channels together with numerous online platforms. Together they reach audience of more than one billion people around the world, broadcasting in more than 120 languages.

The EBU operates EUROVISION and EURORADIO services. EUROVISION is the premier distributor of sports and news content for the world's top broadcast and media platforms. The EUROVISION network is the largest network in the world directly connected to broadcasters which combines satellite and fibre in a global network. In 2016, the network carried more than 75,000 transmissions representing more than 97,000 hours of viewing.

The public consultation relates to the 700 MHz, 1400 MHz, 3.4-3.8 GHz and 2600 MHz bands. The EBU provides comments and concerns related to EUROVISION's use of the 3.4-3.8 GHz band under review by Ofcom and its adjacent band 3.8-4.2 GHz.

1. Information about the consultation participant

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2. The 3.4-3.8 GHz band

2.1 Use of the band by EUROVISION

The EUROVISION satellite network makes an extensive use of the 3.4-3.8 GHz band, in particular for all coverage in Asia/Africa/America.

The 3.6-3.8 GHz band is currently used to provide services over Americas via two satellites: NSS-806, located at 47.5° West, operated by SES, and IS-34, located at 55.5° West, operated by Intelsat.

- On NSS-806, EUROVISION has a full time lease of a 72 MHz transponder; the uplink centre frequency is 5968 MHz and the downlink centre frequency is 3743 MHz. The downlink coverage is shown in Annex 1.

Uplinks are usually from Leuk, Switzerland, Signalhorn teleport, or from Manassas, SES teleport close to Washington, but also from flyaway antennas or SNGs in America, depending on the event requirements.

Additionally, EUROVISION leases some other transponders on NSS-806 on an occasional use basis, which are also in the downlink band 3.4-3.8 GHz.

Signals are usually received by American broadcasters, and monitored in Leuk, Switzerland. Nevertheless, it is worth noting that downlink in Europe can be used to turnaround some events, therefore NSS-806 downlink over Leuk is not used only for monitoring purposes.

Downlink signals are also monitored in Geneva headquarters through a 3.7 m antenna.

- On IS-34, EUROVISION has a full time lease of a 72 MHz transponder; the uplink centre frequency is 5970 MHz and the downlink centre frequency is 3746 MHz. The downlink coverage is shown in Annex 2.

This transponder is used to broadcast the HyperMux5 (HM5), which is a permanent multiplex containing different services for American customers.

The uplink of HM5 is from Leuk, Switzerland, Signalhorn teleport, or from Lario, a Telespazio teleport in Northern Italy.

Additionally, Eurovision leases some other transponders on IS-34 on an occasional use basis, which may be in the downlink band 3.4-3.8 GHz.

Signals are usually received by American broadcasters, and monitored in Leuk, Switzerland. Nevertheless, it is worth noting that downlink in Europe can be used to turnaround some events, therefore IS-34 downlink over Leuk is not used only for monitoring purposes.

Other C-Band services are occasionally downlinked in Leuk. As an example, Yamal 202 (a Gazprom satellite) in C-band is going to be used for the FIFA World Cup in Russia in 2018. Feeds for the Confederation Cup 2017 in Russia were provided in the 3.8 – 4.2 GHz band, but the FIFA World Cup 2018 signals could be delivered by using transponders in lower part of the spectrum, i.e. within the 3.6-3.8 GHz.

2.2 Use of the adjacent band 3.8-4.2 GHz by EUROVISION

The C-band is also used to provide services over Asia, through the satellite Apstar-7, located at 76.5° East, operated by Apstar. On Apstar-7, EUROVISION has a full time lease of a 36 MHz transponder; the uplink centre frequency is 6205MHz and the downlink centre frequency is 3980 MHz. The downlink coverage is shown in Annex 3. Uplinks are from Emek

Haela, Israel, MX1 teleport, or from Taipo, an Apstar teleport close in Hong Kong, but also from flyaway antennas or SNGs in Asia, depending on the event requirements. Signals are monitored from Leuk teleport.

In addition to the above networks, EUROVISION uses the C-Band on Arabsat-5C, located at 20° East, for the Multimedia Exchange Network Over Satellite (MENOS). MENOS is a networking concept used to exchange multimedia content over satellite. All the exchange material transmits through a central hub station, which also provides permanent two-way satellite IP connectivity among all the remote stations. MENOS is deployed over the Middle-East, North Africa and Europe in partnership with the Arab State Broadcasting Union (ASBU) and the Arab Satellite Telecommunication Organization Arabsat (the downlink coverage is shown in Annex 4). In order to get access to MENOS, EUROVISION makes use of a Skyware antenna (2.4m) installed at the headquarters in Geneva, operated under the Ofcom Licence Ref. 1000347396: carrier bandwidth is 7.28 MHz, uplink frequency is 6352.11 MHz and downlink frequency is 4117.8 MHz.

2.3 The EUROVISION teleport in Leuk, Switzerland

Signalhorn teleport located in Leuk, Switzerland (46°19'N 7°38'E) has a key role in the EUROVISION network.

The teleport delivers to EUROVISION global satellite communication solutions, as uplinks of permanent multiplexers, ad-hoc transmissions for specific news and sport events, turnarounds of video services.

Furthermore, Leuk teleport allows EUROVISION to monitor several services transmitted through the satellite network.

On top of that, Leuk Teleport acts as a backup network for the EUROVISION control centre: it is the most advanced such facility within the EUROVISION Network, and functions as a safety net in the event of disruption.

With regards to the C-Band EUROVISION downlink services, Leuk teleport makes available several dishes: NSS-806 at 47.5° West is received on LEK-9 (7.3m), IS-34 55.5° West on LEK-5 (16m) and Apstar-7 76.5° East is received by a 7.3 m antenna.

2.4 The EUROVISION headquarters in Geneva, Switzerland

The EVC is the main coordination and monitoring point of the Eurovision Network and is based in Geneva, Switzerland (46°13'N 6°07'E). The EVC is equipped to fully manage from end to end any transmission in the network. It is the first escalation point in case of technical problems affecting the service.

EVC monitoring is equipped with several antennas. With regards to the C-Band, EVC is currently monitoring NSS-806 services by using a 3.7m dish antenna pointed at 47.5° West. Also EVC makes use of a 2.4 m antenna pointed to Arabsat-5C at 20° East to get access to the MENOS network to exchange multimedia content over the satellite.

2.5 EBU views regarding the use of the 3.4-3.8 GHz band by IMT

Given the crucial role of the C-Band for the EUROVISION satellite network with one of its main teleports located in Leuk, Switzerland, and with its headquarters in Geneva, the EBU urges Ofcom to undertake all necessary steps to ensure protection of the satellite services in both locations from interference from IMT services in the 3.4-3.8 GHz band.

Before the start of IMT operations in the 3.4-3.8 GHz band, field trials are needed to investigate potential interference and identify which mitigation techniques need to be put in place around Leuk and Geneva to ensure an interference free operation of the band.

ECC Decision (11)06 'Harmonised frequency arrangements for mobile/fixed communications networks (MFCN) operating in the bands 3400-3600 MHz and 3600-3800 MHz' provides least restrictive conditions, in the form of block-edge-mask for different power levels in order to allow coexistence between MFCN applications. The technical conditions were prepared in 2011 and revised in 2014 and were derived for IMT applications available at the time. Currently, the CEPT is reviewing the harmonised technical conditions with a view to their suitability for 5G terrestrial wireless systems and amend these, if necessary. The final report is expected by June 2018 and should be the starting point when performing interference measurements.

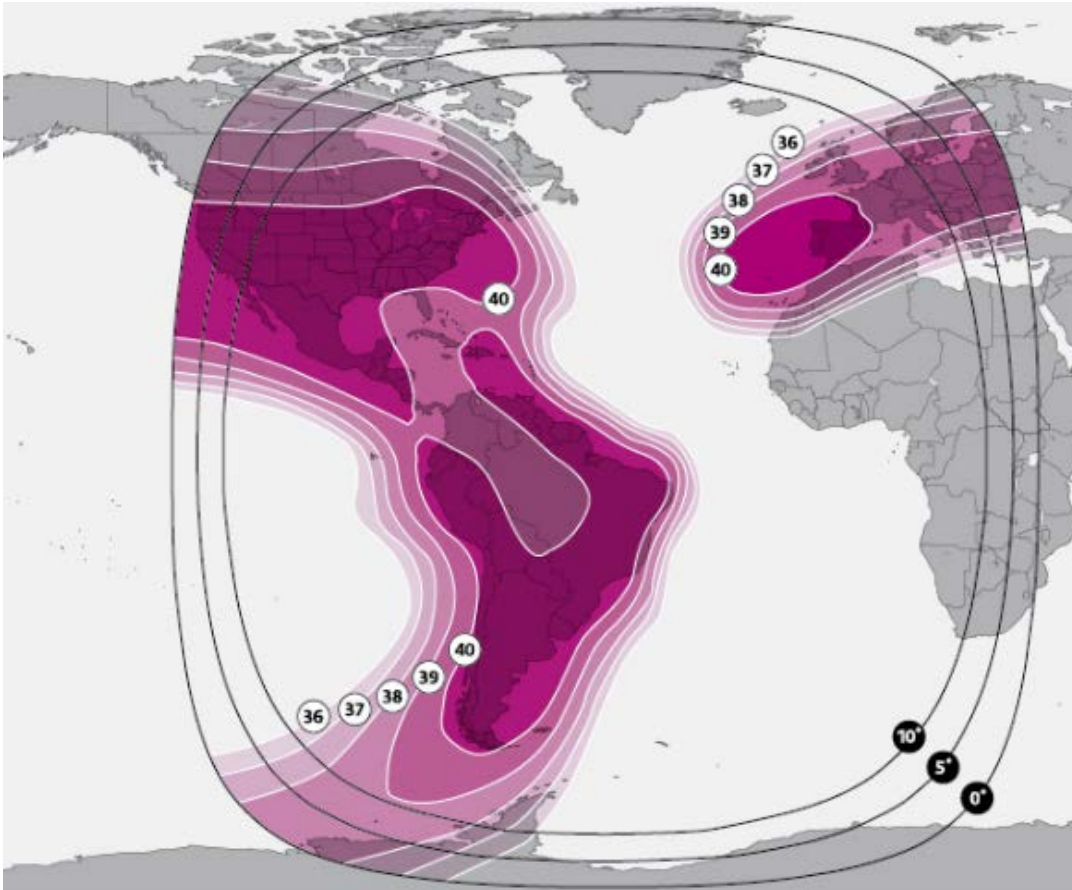
The interference analysis should not only be done within the 3.4-3.8 GHz band but it should be extended to the higher part of the C-Band, the 3.8-4.2 GHz band. This portion of the band is also highly used by EUROVISION and it could suffer from adjacent channel interference from the use of the 3.4-3.8 GHz band by IMT services.

EBU would also like to note that the costs of the implementation of any mitigation technique that might be required to avoid harmful interference to incumbent satellite services in Leuk and in Geneva should be covered by the future new user of the C-Band.

The EUROVISION services and its staff remain available to join Ofcom in their interference analysis prior to the start of any IMT operation in the 3.4-3.8 GHz band.

ANNEX 1

NSS-806 at 47.5° West: 3.4-3.8 GHz downlink coverage



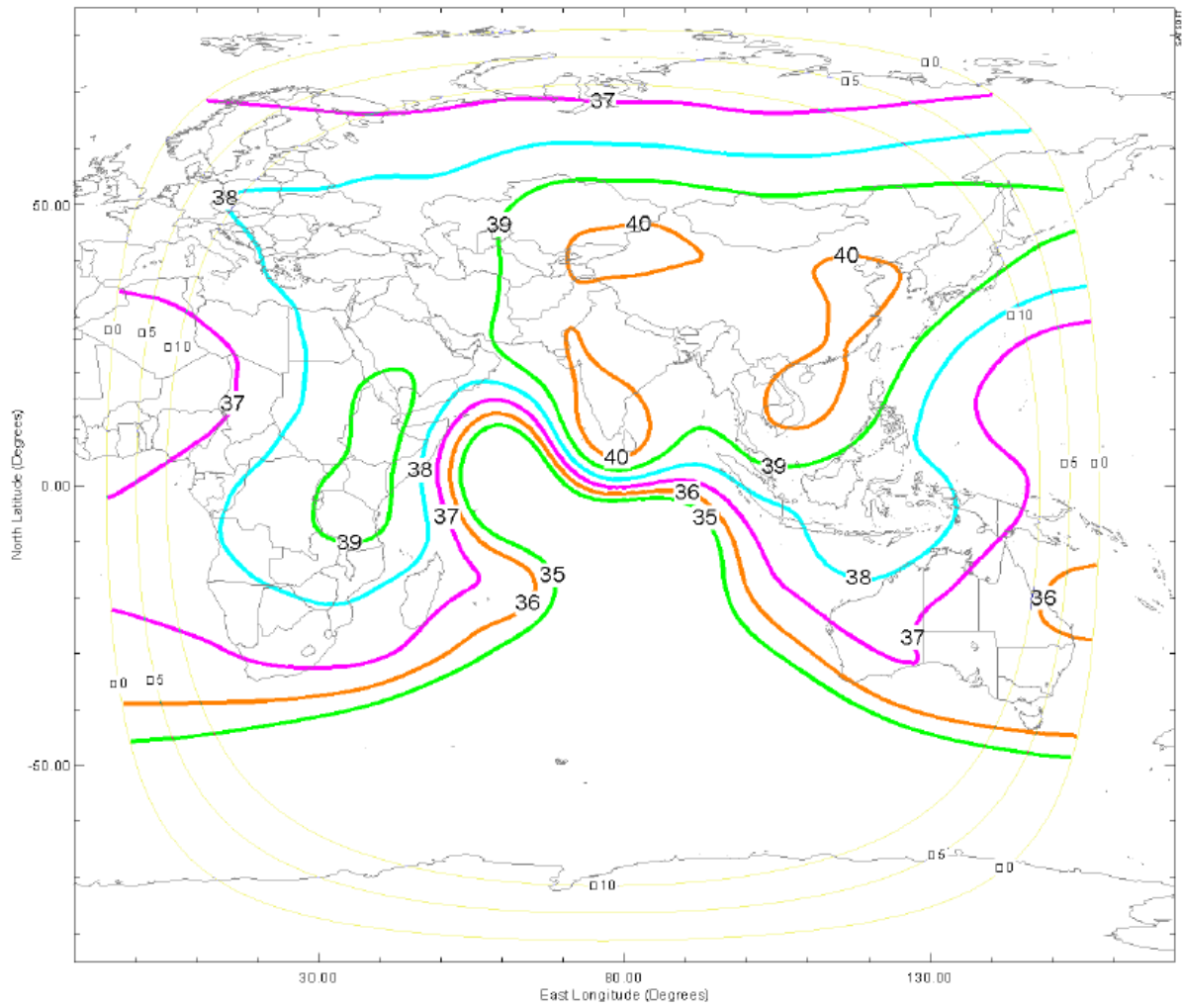
ANNEX 2

IS-34 at 55.5° West: 3.4-3.8 GHz downlink coverage



ANNEX 3

APSTAR-7 at 76.5° East: 3.8-4.2 GHz downlink coverage



ANNEX 4

ARABSAT 5C at 20° East: 3.8-4.2 GHz downlink coverage

