

# Agreement between the Danish Energy Agency, and the Swedish Post and Telecom Authority concerning the use of the 700 MHz-band (694-790 MHz) for DTT service in Denmark and MFCN service in Sweden

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February 2016

## Protection of DTT from MFCN and protection of MFCN from DTT

This agreement is valid from 1 April 2017 until a potential change of service away from DTT in the 700 MHz band in Denmark. Denmark will inform Sweden as soon as a final date of the change of service is set.

### 1. Principles and definitions

- 1.1. The 700 MHz band, as referred to in this agreement, corresponds to the frequencies from 694 MHz to 790 MHz.
- 1.2. The agreement covers the protection of DTT in accordance with Geneva Agreement 2006 (GE06) from MFCN with the FDD (Frequency Division Duplex) arrangement, including SDL (Supplemental Downlink, up to 4x5 MHz in the duplex gap) in accordance with ECC Decision (15)01. The use of other arrangements such as TDD (Time Division Duplex) is not covered in this agreement.
- 1.3. This agreement also covers the protection of MFCN from new or previously not coordinated DTT allotments/transmitters in the 700 MHz band.
- 1.4. This agreement covers the coordination of MFCN base stations in relation to DTT. The MFCN user equipment, or terminals, are allowed to be used on a non-interference basis, in accordance with ITU RR 4.4.
- 1.5. This agreement is based on the concept of field strength levels. The power sum method is used for accumulation.
- 1.6. The latest version of ITU-R P.1546 "Method for point-to-area predictions for terrestrial services in the frequency range 30-3000 MHz" shall be used for predictions of field strength values.

### 2. Use of frequencies without coordination by administrations

- 2.1. DTT transmitters may continue to operate and to be implemented in the 700 MHz band in both Denmark and Sweden as set out in the GE06, as well as in the agreements from 2009<sup>1</sup>

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<sup>1</sup> Agreement to solve problems in the UHF-Band for the multilateral area Denmark-Poland-Sweden-Germany, signed 16 September 2009

2011<sup>2</sup> and 2012<sup>3</sup>. MFCN shall not claim protection from DTT services operating according to the GE06 Plan and the bilateral agreement.

- 2.2. MFCN base stations may be implemented in the 700 MHz band without coordination in relation to DTT as long as the cumulative interfering field strength is below 34 dB( $\mu$ V/m)/1 MHz, calculated for 1% of the time and 50% of the locations, 10 m above ground, at the border of co-channel (overlapping frequencies) DTT allotments which have DTT transmitters in operation.
- 2.3. In case of using MFCN stations with other channel bandwidths (BW) than 1 MHz, the coordination trigger field strength E shall be adjusted by a factor in comparison with  $E_0$  as defined in paragraph 2.2:  
 $E = E_0 + 10 \cdot \log_{10}(BW/1)$ , where BW is measured in MHz
- 2.4. New DTT services not covered by the provisions of paragraph 2.1 may be implemented in Denmark in the 700 MHz band without coordination with Sweden in relation to MFCN as long as the cumulative interfering field strength is below 54 dB( $\mu$ V/m)/5 MHz, calculated for 10% of the time and 50% of the locations, at a height of 1.5 m above the ground at the Swedish border or beyond.
- 2.5. New DTT services not covered by the provisions of paragraph 2.1 may be implemented in Sweden in the 700 MHz band without coordination with Denmark in relation to MFCN as long as the cumulative interfering field strength is below 54 dB( $\mu$ V/m)/5 MHz, calculated for 10% of the time and 50% of the locations, at a height of 1.5 m above the ground at the Danish border or beyond.
- 2.6. GE06 Plan entries which are not implemented and are not in operation do not need to be taken into account when bringing into operation an MFCN base station. Such base stations will become subject to coordination if the GE06 Plan entry is implemented and the coordination trigger given in 2.2 is exceeded. A three month notice will have to be given before implementing and operating a previously not implemented GE06 Plan entry in the band 694 - 790 MHz (CH49 -CH60).

### **3. Coordination procedure**

- 3.1. Establishment of agreements between operators shall be encouraged to the extent possible. Subject to agreement between operators other technical characteristics can be used, e.g. other field strength limits or propagation models.
- 3.2. Any case of interference shall as far as possible be resolved among operators concerned. If not resolved, or in case of unequal access to the spectrum band, assistance might be sought from the administrations.

### **4. Revision and cancellation**

- 4.1. This agreement may be revised upon mutual agreement of the two administrations.
- 4.2. This agreement may be cancelled with a notice of at least twelve months from any of the two parties.

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<sup>2</sup> Coordination agreement relating to DTT services in the UHF-Band in Denmark-Sweden-Norway, signed April 2011

<sup>3</sup> Agreement between Denmark and Sweden concerning the use of the broadcast band planned at the RRC 2006 conference and at the multilateral replanning meetings at Warsaw 16.09.2009 and the trilateral agreement between DNK-S-NOR of April 2011 for the band 470-790 MHz, signed April and May 2012.

4.3. This agreement is valid until a potential change of service in the 700 MHz band in Denmark.

**5. Entry into force**

5.1. This agreement shall enter into force 1 April 2017.

This agreement has been drawn in two identical copies, one for Denmark and one for Sweden.

Place København

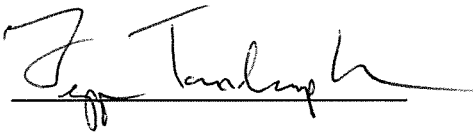
Place STOCKHOLM

Date 1/3 2016

Date 23/2 - 16

For the Danish Energy Agency

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