Seminar on proposed technical licence conditions

Award of available spectrum: 1781.7-1785 MHz paired with 1876.7-1880 MHz

Ofcom

Date: 26 October 2005

Seminar outline

- Section 1 – Introduction
- Section 2 – Specification of the in-band power
- Section 3 – Out-of-block emissions
- Section 4 – Antenna height
- Section 5 – Licence exemption for user stations
- Section 6 – Engineering coordination

Introduction

- Ofcom's thinking on a number of technical issues has progressed significantly in the light of responses received since the publication of the Consultation on award proposals on 28 July 2005 and the earlier seminar on 8 September 2005.

- The purpose of this seminar is to provide an update on these technical issues and to provide an opportunity to answer stakeholders' questions and receive feedback prior to the publication of a Statement and the auction Information Memorandum expected in November 2005.

- The matters presented do not necessarily imply a decision by Ofcom on matters that were subject to the Consultation in July. Ofcom's conclusions on these will be set out in the Statement mentioned above.

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Specification of the in-band power

- Power will be specified as an EIRP density mask for in-band emissions in **dBm per kHz** for both of the paired bands.
- Guard bands to protect the adjacent licensed spectrum from interference will be internal to the Spectrum Bands by the application of a sloped mask at the inside edge of the Spectrum Bands.*
- Consequentially, in-band power will be specified for the entire Spectrum Bands (i.e. for the whole of both the bands 1781.7-1785 MHz and 1876.7-1880 MHz).*

*Change since Technical Note of 18 October 2005

The in-band mask

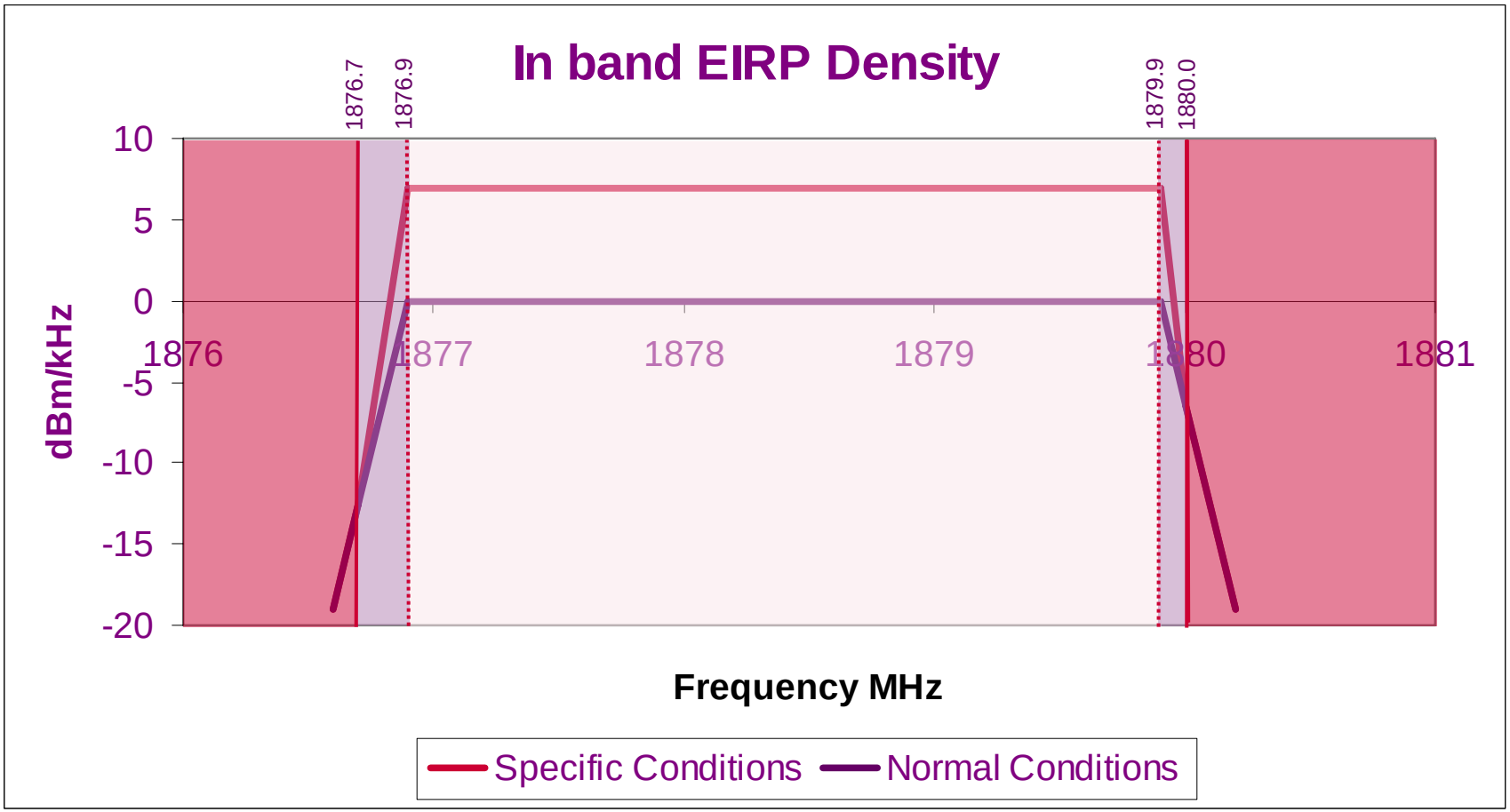
- Within the sub-bands 1781.9 – 1784.9 MHz and 1876.9 – 1879.9 MHz:
  - under normal conditions, an in-band EIRP density mask up to **0 dBm per kHz** averaged over the occupied bandwidth of the transmission will apply;
  - under specific circumstances (where all licensees agree), an in-band EIRP density mask up to **7 dBm per kHz** averaged over the occupied bandwidth of the transmission will apply.
- It is expected that the higher level will only apply, subject to licensees' agreement, where systems are geographically or physically isolated (for instance in basements or tunnels).
- For the lower 200 kHz and upper 100 kHz portion of each band a slope mask will apply which is derived from the GSM specification 05-05.*

*Change since Technical Note of 18 October 2005

Examples of in-band mask

- The 0 dBm per kHz limit:
  - For GSM (occupied bandwidth of 200 kHz) this equates to 23 dBm (or 200 mW) per carrier which is identical to original proposal in the July Consultation;
  - For a cdma 1x based system (occupied bandwidth of 1.25 MHz) this equates to 31 dBm per carrier; and
  - For a narrowband system with an occupied bandwidth of say 25 kHz this equates to 14 dBM per carrier.
- The alternative 7 dBm per kHz limit:
  - For GSM this equates to 30 dBm (or 1 W) per carrier.

In-band mask*



*Change since Technical Note of 18 October 2005

Duplex direction

- Following suggestions in response to the July consultation, Ofcom is considering not specifying any particular duplex (uplink/downlink) direction in the licences.
- Each licensee would be free to choose which technology is deployed for each of the paired band and how this is configured.
- Provided the same in-band EIRP density mask and out-of-block mask are applied to both bands, Ofcom does not expect there to be any greater interference potential if alternative duplex arrangements are allowed.

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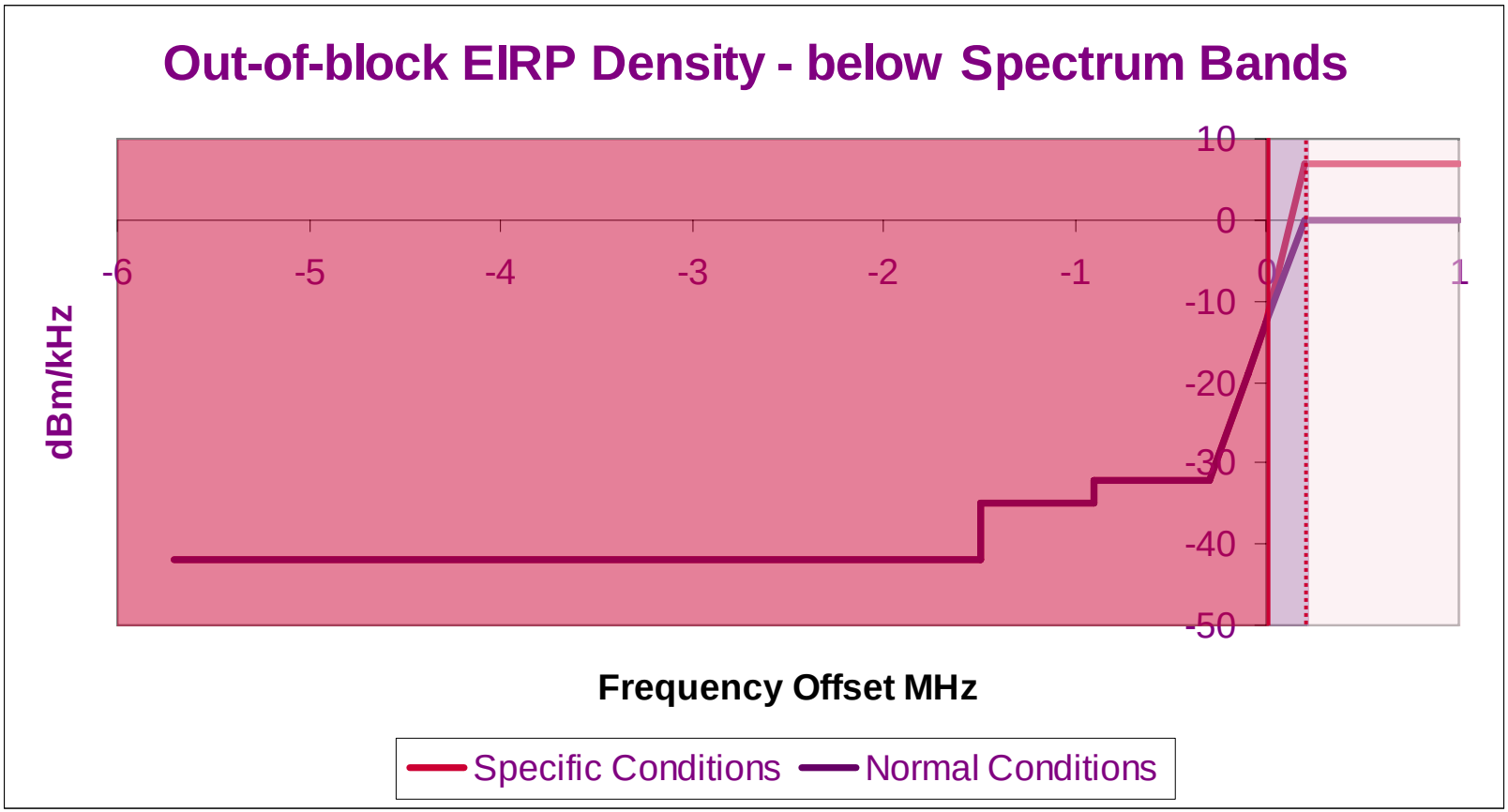
Specification of out-of-block emissions

- Power will be specified as an EIRP density mask for out-of-block emissions in **dBm per kHz**.*
- Out-of-block emissions will be derived from the GSM specification 05-05 (and will be a continuation of the in-band sloped mask at the band edges).*

*Change since Technical Note of 18 October 2005

Out-of-block mask*



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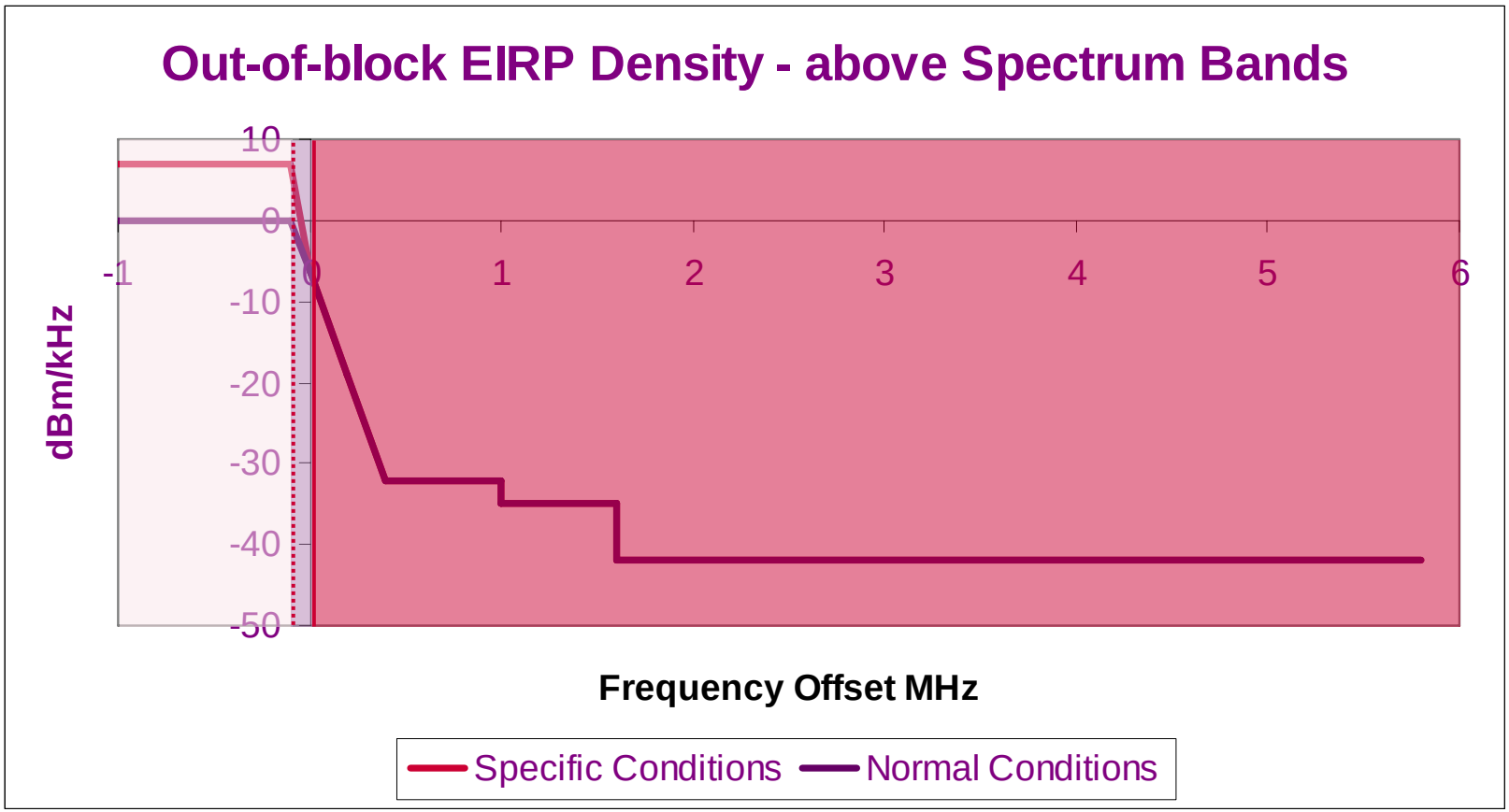
Out-of-block mask*



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Antenna height

- Ofcom intends to maintain a restriction on the **maximum height of outdoor antenna systems of 10 metres**.
- We have been asked to provide greater clarity on the term outdoor and how the restriction will be enforced.
- Ofcom does not believe there is any ambiguity in the term. If an antenna is mounted within the fabric of a building (i.e. it is indoors) it cannot be outdoors.
- It is assumed that the external walls, roof, etc. of a building will provide the necessary shielding. However, the actual material from which the building is constructed is irrelevant in deciding if an antenna is indoors or outdoors – though it may be relevant to engineering coordination considerations.
- Enforcement of the outdoor height restriction will be treated in the same manner as the enforcement of any other licence condition.

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Licence exemption for user stations (handsets)

- For user stations (i.e. handsets) that fall within the scope of the current Licence Exemption Regulations (SI No. 74/2003) the requirements of the Exemption Regulations will continue to apply.

- At present the Exemption Regulations cover personal communications networks (PCN) handsets transmitting in the whole of the band 1710 – 1785 MHz. PCN handsets will be exempt from licensing and outside the scope of the concurrent licences.

- Ofcom has no plans to extend the Exemption Regulations to cover handsets transmitting in the 1876.7 – 1880 MHz band (i.e. reversed duplex use of the bands). Handsets transmitting in this band will be subject to the provisions of the concurrent licences.

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Engineering coordination – Industry Code of Practice

- As outlined in the July Consultation, a fundamental principal is to allow licensees to manage Engineering Coordination themselves via the establishment of an industry Code of Practice (to be agreed within six months of licences being issued).
- Ofcom believes that licensees are best placed to assess their own needs and Ofcom does not plan to take an active role in the Code's development. Nor does Ofcom intend to approve the Code. It will be the licensees' responsibility to ensure that their Code is consistent with other statutory obligations such as competition rules.
- However, Ofcom will need to assess whether the objectives set out for the Code in the licence are being met. This is likely to best achieved by monitoring the results as licensees roll out services.
- Ofcom will reserve the right to impose its own Engineering Coordination procedure in cases where licensees either fail to agree their own Code or it becomes clear that the industry Code is not working (i.e. the objectives are not being met).

What happens in the first six months

- Licensees will be free to start rolling out services as soon as the licences are issued.
- However, in rolling out services before the industry Code of Practice on Engineering Coordination is agreed, licensees will need to bear in mind that their deployment could potentially be incompatible with the future Code and may subsequently need significant re-engineering.
- Provided licensees act responsibly, there is unlikely to be a real problem. The fact that licensees will be negotiating the Code at the same time as they are making early deployments should enable them to make reasonable judgments on whether they are likely to need to adjust their deployments once the Code is agreed.

Enforcement of the Code of Practice

- It should be in the licensees best interest to abide voluntarily by the Code and therefore it should be self enforcing.
- It is Ofcom's expectation that the Code should contain some form of dispute resolution procedure.
- If licensees see a benefit in establishing an independent body responsible for overseeing/managing Engineering Coordination, they will be free to agree such an arrangement amongst themselves.

Enforcement of the Code of Practice

- **Ofcom will not police the industry Code** and will not play an active part resolving individual coordination disputes.
- However, where there is widespread failure in Engineering Coordination, Ofcom retains the right to impose its own Engineering Coordination procedure.
- Failure to comply with an Engineering Coordination procedure imposed by Ofcom will be a breach of licence conditions.

Q & A