



# Open invitation to apply for a licence for the use of radio transmitters in the 1900– 1905 MHz band

Information for applicants  
Draft, September 2007

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## 1 Introduction

With this open invitation, the National Post and Telecom Agency (PTS) invites all interested parties to apply for a national licence for use of radio transmitters in the 1900–1905 MHz band. Such a licence, which is service-neutral and, with certain restrictions, technology-neutral, will be assigned following an auction procedure. The auction will be held on XX 2008.

Those wishing to participate in the auction must submit a written application, a written bid and a bank guarantee to PTS.

PTS has issued this invitation under Chapter 3, Section 8 of the Electronic Communications Act (2003:389), Sections 18 to 20 of the Electronic Communications Ordinance (2003:396) and the National Post and Telecom Agency Regulations (PTSFS 2007:X) on licences to use radio transmitters in the 1900–1905 MHz band. Unless otherwise stated, the references to sections below refer to these Regulations.

### 1.1 Background: why an auction?

PTS has made the assessment that the frequencies available in the frequency band 1900–1905 MHz is not sufficient for awarding licences to all interested parties.

According to the policy<sup>1</sup> of PTS, when competition prevails for licences and an open invitation is required, an auction is the main method to be employed for the assignment of such licences. PTS has made the assessment that, in this case, an auction is the most expedient method for assigning them. An auction also increases the likelihood of the market stakeholder which values a licence the most being assigned it.

### 1.2 Reading instructions and general information

PTS urges all parties interested in participating in the auction to very carefully read through all parts of this document and the Regulations.

Those who wish to participate in the auction must be aware of all preconditions and provisions to avoid any risk of losing the opportunity to obtain the licence. PTS may reject an application from an applicant for, among other reasons, the following:

- if the application, bid or bank guarantee was delivered too late to PTS,
- if the application is incomplete,
- if the application contains incorrect information.

When formulating their applications and when participating in the auction, applicants must comply with the Regulations.

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<sup>1</sup> See PTS Spectrum Policy (PTS-VR-2006:2), which is available in an English translation on the PTS website, [www.pts.se](http://www.pts.se)

Should a winning bidder have submitted incorrect information, PTS may revoke a licence assigned to this bidder through the auction.

The obligation to pay the auction amount, i.e. the winning bid, remains even if PTS revokes the licence.

Please note the following important dates:

- XX 2008  
Application, bid and bank guarantee must have been received by PTS
- XX 2008  
Planned date for opening of bids

Information about the auction will be published on PTS's website; for direct access to the page about this auction, use the shortcut [www.pts.se/1900-auction](http://www.pts.se/1900-auction). News published on the website's news pages may be subscribed to; in this case, spectrum news.

## **2 Licence and licence conditions**

The assignment pertains to a national licence in the frequency band 1900–1905 MHz.

PTS intends to allow the licence and licence conditions to apply for fifteen (15) years.

The winning bidder in the auction will gain access to these frequencies as soon as the auction procedure has been concluded and PTS has assigned the licence.

Besides the auction amount, the bidder who is assigned the licence is to pay a processing charge, which amounts to SEK XX.

The licence will be service-neutral and, with certain restrictions, technology-neutral. The licence holder chooses the technology and area of application within the framework of the licence conditions. The licence holder may also change technology and application during the term of the licence, though also within the framework of the licence conditions.

The licence is associated with required use of TDD, Time Division Duplex. The licence will also be associated with licence conditions in accordance with Appendix 1 of this invitation.

Should a licence holder apply for an amendment to the licence conditions after the auction, so that frequencies can be utilised for FDD instead of TDD, PTS may authorise such amendment. However, PTS can only authorise this kind of amendment if the other licence holders will not be subjected to harmful interference or will accept the occurrence of such interference. The licence holder must also, as necessary, use own frequencies as guard bands in order to prevent harmful interference. When assessing whether amended licence conditions can entail harmful interference for other licence holders, PTS will consider both current radio use and radio use planned within the term of the licence.

The entire upper part of the frequency band 1900–1920 MHz, i.e. 1905–1920 MHz, has been assigned for UMTS TDD in Sweden. The licence holder must consequently be able to coordinate its use with the adjacent licence holders in the 1905–1920 MHz band.

PTS has concluded coordination agreements with the neighbouring countries of Denmark, Norway and Finland as regards the use of radio transmitters for UMTS TDD in border areas. A licence holder using the band 1900–1905 MHz for UMTS TDD must comply with the provisions of these coordination agreements. Should the licence holder utilise technology other than UMTS TDD, the licence holder is required to limit the field strength generated by the base station to a value corresponding to its use of UMTS TDD without preferential codes.

Amended or new licence conditions may be communicated during the term of the licence ensuing from Sweden's obligations as a member of the European Union or ensuing from other binding international agreements.

The adjacent frequency band below 1900–1905 MHz (1880–1900 MHz) is used for DECT (cordless telephones), which is exempt from the licence obligation. This may mean a certain increased risk of interference in the frequency band 1900–1905 MHz.

Under Chapter 3, Section 23 of the Electronic Communications Act, the licence holder is permitted to transfer the licence to a third party following approval by PTS.

## **2.1 Voluntary coordination between licence holders**

It is possible to deviate from certain technical requirements in the licence conditions subject to the precondition that the licence holders affected by the deviations agree to them. The use of the frequencies can be made more efficient if licence holders coordinate their use of radio transmitters.

# **3 Applications**

## **3.1 Submitting an application**

Those wishing to bid in the auction must submit a written application, a written bid and a bank guarantee to PTS. The application, bid and bank guarantee must be delivered to PTS no later than XX 2008. The application is to be submitted to PTS under sealed cover marked "Application 1900–1905 MHz Auction". The sealed cover shall contain the following:

1. an application form in accordance with Section 3.2, "Content of application"
2. a sealed cover containing:
  - a written bid in accordance with Section 4, "Bids", and
  - a bank guarantee in accordance with Section 5, "Bank guarantees"

Applications that have arrived too late will not be considered by PTS. It is the responsibility of the applicant to ensure that its application is received by PTS on time.

The postal address for applications is:

The National Post and Telecom Agency (PTS)  
"Application for 1900–1905 MHz auction"  
Box 5398  
SE-102 49 Stockholm, Sweden

When the application has been opened, PTS will send an e-mail receipt for the application received to the contact person indicated.

An appointment should be made in advance (Sally Ibrahim, +46 (0)8-678 55 00) if the application is to be delivered by hand or by courier. The address is: Birger Jarlsgatan 16, Stockholm.

PTS will not open the applications before the end of the application period.

### **3.2 Content of application**

The application must be made on a special application form drawn up by PTS (see Appendix 2) and be signed by an authorised signatory. If this party is not an authorised signatory, according to an extract from the Trade and Industry Register, or the equivalent for foreign applicants, a power of attorney for such authorisation must be submitted together with the application. The application must contain the following:

Information about:

- the name of the applicant's authorised signatory, supplemented with an extract from the Trade and Industry Register or an equivalent extract for a foreign applicant,
- organisation/corporate identity/personal identity (ID) number or the equivalent for a foreign applicant,
- postal address, and
- contact person with his or her telephone number and e-mail address.

A declaration stating that:

- the applicant has not had a licence revoked in the four most recent years prior to the application deadline for the auction by the National Post and Telecom Agency under Chapter 7, Section 6, items 2 and 4 of the Electronic Communications Act.

## **4 Bids**

In order to participate in the auction, the applicant must submit a written bid in accordance with Section 3.1, "Submitting an application". The bid must be submitted in Swedish kronor (SEK) and must have been signed by an authorised signatory. If this party is not an authorised signatory according to an extract from the Trade and Industry Register, or the equivalent for foreign applicants, a power

of attorney for such authorisation must be submitted together with the application or bid.

The lowest bid considered will be one (1) krona.

Should the bid be submitted after the end of the application period or in some way other than stated above, it will not be considered.

PTS will only consider bids submitted by applicants fulfilling the requirements for an approved application under Sections 6 to 8 of the Regulations. (Section 11 of the Regulations)

## **5 Bank guarantees**

Applicants are to submit a bank guarantee under sealed cover to PTS in accordance with Section 3.1 "Submitting an application". The bank guarantee must be issued in Swedish kronor (SEK) and have the content indicated by Appendix 3. Furthermore, the bank guarantee must be issued by a bank in a country that is a member of the EEA (European Economic Area) Agreement. The bank guarantee must be at least equivalent to the amount of the bid, plus the processing charge in accordance with Section 17 of the Regulations.

Should the bank guarantee be delivered after the end of the application period in some way other than stated in the above paragraph or with content other than stated in Appendix 2, the applicant's bid will not be considered.

PTS will utilise the bank guarantee if an applicant with a winning bid has not paid the auction amount and processing charge on time.

### **5.1 Return of bank guarantees**

As soon as possible following the conclusion of the auction, bank guarantees will be returned to bidders who did not win the bidding. Bank guarantees will be sent to the postal address indicated by the applicants.

The bank guarantee from the winning bidder will be returned after the auction amount and processing charge have been paid to PTS.

## **6 Auction procedure**

The auction is decided by means of closed bidding. The auction provides the opportunity to submit one bid only. A bid is a binding offer to pay an amount in exchange for the licence included in the auction. This offer ceases to be binding after the auction has been concluded if the bid is not the winning bid.

The applicant that placed the highest bid, fulfilled the requirements for an approved application under Sections 6 to 8 of the Regulations and submitted the bank guarantee in the manner stated above wins the bidding.

Opening of bids is scheduled for XXX at the premises of PTS on Birger Jarlsgatan 16 in Stockholm. If the opening of bids needs to be postponed, PTS will provide information about this. Since the applications will be opened prior to

the opening of bids, the bid and bank guarantee must be under a separate sealed cover within the sealed cover containing the application. All applicants whose applications have been approved may participate in the opening of bids with one representative. PTS will send a notice to the contact person.

When the bids are opened they will be ranked in order of amount. If two or more parties have submitted equal bids, these bids will be ranked by drawing lots. The applicant with the highest ranking in accordance with Section 13 of the Regulations, provided a bank guarantee has been submitted in accordance with Section 9 of the Regulations, has won the bidding.

The auction is concluded after it has been established which applicant has won the bidding. Bids that are not winning bids cease to be binding after the auction has been concluded.

When the auction has been concluded, PTS will publish the name of the winning bidder and the amount of the winning bid.

## **7 Payment and assignment of the licence**

PTS will apply a processing charge of SEK XX to the winning bidder. Those who have not been assigned the licence will not need to pay a processing charge. An invoice for the auction amount and processing charge will be sent to the winning bidder after the auction. This invoice is to be paid within 30 days from the invoice date.

PTS will assign the licence to the winning bidder as soon as possible.

The bank guarantee will be returned to the winning bidder after the auction amount and processing charge have been paid to PTS.

If the invoice is not paid on time, PTS will utilise the bank guarantee. The bank guarantee will be used to pay the processing charge and auction amount.

If, following the conclusion of the auction, it becomes known to PTS that the party which submitted the winning bid has submitted incorrect information in its application or has otherwise not complied with the provisions of the Regulations, the licence assigned to this party through the auction may be revoked. The auction amount must still be paid even if the licence is revoked.

Non-winning bids will cease to be binding when the auction is concluded.

If, following the conclusion of the auction, it becomes known to PTS that the winning bidder submitted incorrect information or otherwise did not follow the provisions of the Regulations, the outcome of the auction will not be changed for other bidders. Consequently, this means that a bidder with the second highest bid will not be assigned the licence if the licence is revoked after the fact.

A licence not assigned through the auction or revoked will be assigned following a new procedure.

## 8 Questions and information

Information about the auction is published on PTS's website under: Spectrum/For the industry/Licences in 1900-1905 MHz.

For quick access to the correct page, write the following in the address field:  
[www.pts.se/1900-auction](http://www.pts.se/1900-auction).

News published on the website's news pages may be subscribed to; in this case, spectrum news. Subscribers will automatically receive an e-mail message as soon as a news item has been published. Subscribe by entering "Spectrum" and thereafter "Latest news" on the website, and select "Subscribe to news". Tick the areas "Spectrum" and "Press releases".

Questions about the procedure may be sent by e-mail to the address [1900-1905mhz@pts.se](mailto:1900-1905mhz@pts.se). These questions and PTS's responses will be published on the PTS website, see the subheading "Questions and Answers".

## 9 Appendices

1. Licence conditions
2. Application form
3. Wording of the bank guarantee
4. Template for bid

## Appendix 1

### Licence conditions for 1900–1905 MHz:

#### *Licence conditions*

1. The licence pertains to the right to use radio transmitters in Sweden.
2. The licence is valid up to and including 31 December 2023.
3. The licence pertains to the frequency band 1900–1905 MHz.
4. The licence is associated with required use of Time Division Duplex (TDD). The frequency band is to be used for both reception and transmission from terminal, repeater and base station.
5. Power radiated from base station and repeater downlink may not exceed 54 dBm/MHz e.i.r.p.<sup>2</sup>.
6. Power radiated from base station transmitter and repeater downlink may not, 0 to 10 MHz outside the frequency band 1900–1905 MHz, exceed the values shown in the table below.

| Frequency offset from block edge ( $ \Delta F $ ) in MHz | Maximum radiated power (e.i.r.p.)       |
|--|---|
| $ \Delta F =0$   | 54 dBm/MHz                              |
| $0< \Delta F <0.2$                                       | +4.5 dBm/30kHz                          |
| $0.2< \Delta F <1.0$                                     | +4.5 -15*( $ \Delta F -0.2$ ) dBm/30kHz |
| $1.0< \Delta F <10$                                      | +5.5 dBm/MHz                            |

$|\Delta F| = 0$  is equivalent to the upper or lower edge of the frequency band 1900–1905 MHz that has been assigned for base station or repeater transmission. (See figures 1 and 2).

7. The licence holder shall see to it that the radiated power from the user terminals and uplink repeaters that are connected to the licence holder's network does not exceed the values shown in the table below. (See figures 3 and 4).

| Frequency MHz (F) | Maximum transmitter power   |
|-------------------|-----------------------------|
| $1890<F<1894$     | -23.5 dBm/MHz               |
| $1894<F<1895$     | -13.5 -10*(1895-F) dBm/MHz  |
| $1895<F<1899$     | -9.5 -1*(1899-F) dBm/MHz    |
| $1899<F<1900$     | -9.5 -15*(1900-F) dBm/30kHz |
| $1900<F<1905$     | +18.2 dBm/MHz               |
| $1905<F<1906$     | -9.5 -15*(F-1905) dBm/30kHz |

<sup>2</sup> Equivalent Isotropically Radiated Power

|             |                            |
|-------------|----------------------------|
| 1906<F<1910 | -9.5 -1*(F-1906) dBm/MHz   |
| 1910<F<1911 | -13.5 -10*(F-1910) dBm/MHz |
| 1911<F<1915 | -23.5 dBm/MHz              |

8. The licence holder shall avoid giving rise to harmful interference to other possible radio use in the frequency band 1905–1920 MHz by coordinating the use of base station transmitters and repeaters with possible existing radio transmitters in the frequency band 1905–1920 MHz.
9. The licence holder is permitted to deviate from the technical specifications in items 5 to 7 above subject to the precondition that other relevant licence holders approve of such deviation.
10. Should the licence holder use UMTS TDD technology, the licence holder must comply with the provisions of the coordination agreements concluded by Sweden with the following countries (these agreements are available on the PTS website, [www.pts.se](http://www.pts.se)):
  - Denmark
  - Norway
  - Finland
11. Should the licence holder not use UMTS TDD technology, the following applies: the field strength of the base station carrier may not exceed 21 dB $\mu$ V/m/5 MHz on or beyond the Swedish border. Measurement methods for and definitions of 'border' (or 'coastline') are provided by the above-mentioned coordination agreements.

#### *Additional information*

The aim of the conditions concerning the maximum power that may be radiated by a base station transmitter outside the frequency band assigned through the licence is to minimise the risk of interference between licence holders using adjacent frequency blocks. It is nevertheless possible that interference may arise in individual cases, especially if base stations are located very close together and the required site planning has not been carried out. It is also possible that interference could arise in cases where user terminal equipment has high antenna gain.

It follows from Chapter 6, Section 12 of the National Post and Telecom Agency Regulations (PTS Code of Statutes – PTSFS 2007:4) concerning exemptions from licence obligations for certain radio transmitters, that exceptions from the licence obligation apply to radio transmitters using Ultra-Wideband (UWB) technology. In the frequency band 1600–3400 MHz, this type of radio transmitter may emit a maximum average power flux density of EIRP -85 dBm/MHz and a maximum peak power density of -50 dBm/50 MHz EIRP. If this type of radio transmitter reaches a large market, it may consequently be projected that the level of interference in the frequency band 1900–1905 MHz will increase.

Under the provisions of Chapters 7 and 8 of the Electronic Communications

Act, PTS may request information about individual radio transmitters. PTS may also request information about the number of radio transmitters.

The adjacent frequency band below 1900–1905 MHz (1880–1900 MHz) is used for DECT (cordless telephones), which is exempt from the licence obligation. This may mean a certain increased risk of interference in the frequency band 1900–1905 MHz.

Existing licenses in the frequency band 1905–1920 MHz are associated with the condition of use of UMTS TDD technology. One possible method of coordination for the licence holder is to time synchronise the use of radio transmitters.

It is prescribed by the Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (the R&TTE Directive) that radio and telecommunications terminal equipment placed on the market and put into service within the European Union shall fulfil the essential requirements of the Directive. Equipment that fulfils harmonised standards is presumed to comply with the essential requirements. In terms of radio equipment, an essential requirement is that the equipment shall effectively utilise the radio spectrum and must not give rise to harmful interference. For example, this means that equipment may not give rise to harmful interference outside the frequency band 1900–1905 MHz. ITU Recommendation ITU-R SM.329-10 recommends values for spurious emissions by radio equipment.

## In-band radiated power and out-of-band emission for base station transmitter and repeater

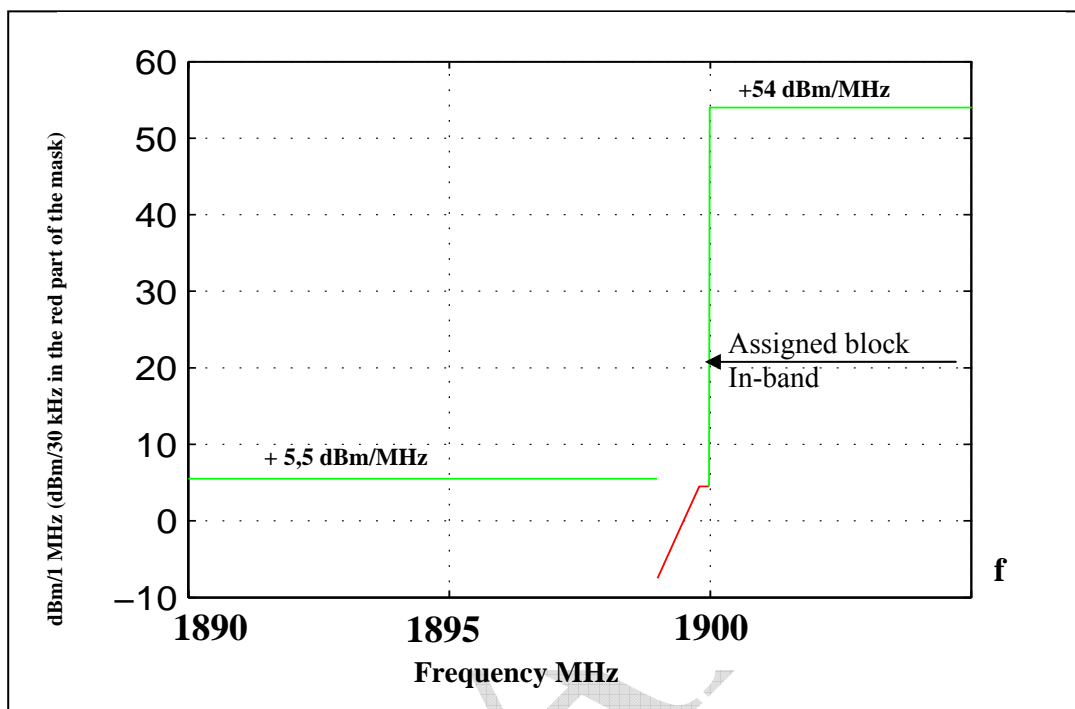


Figure 1: Maximum radiated power (e.i.r.p) from base station transmitter and repeater downlink 0 to 10 MHz from the lower band edge.

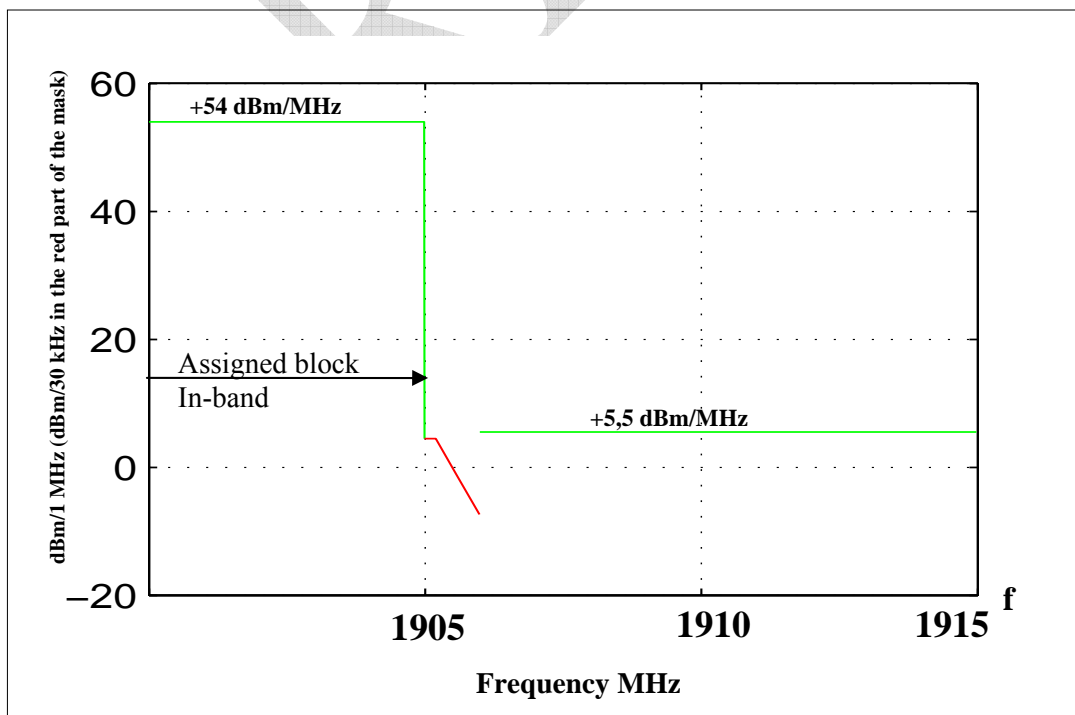


Figure 2: Maximum radiated power (e.i.r.p) from base station transmitter and repeater downlink 0 to 10 MHz from the upper band edge.

## In-band radiated power and out-of-band emission for terminal and repeater

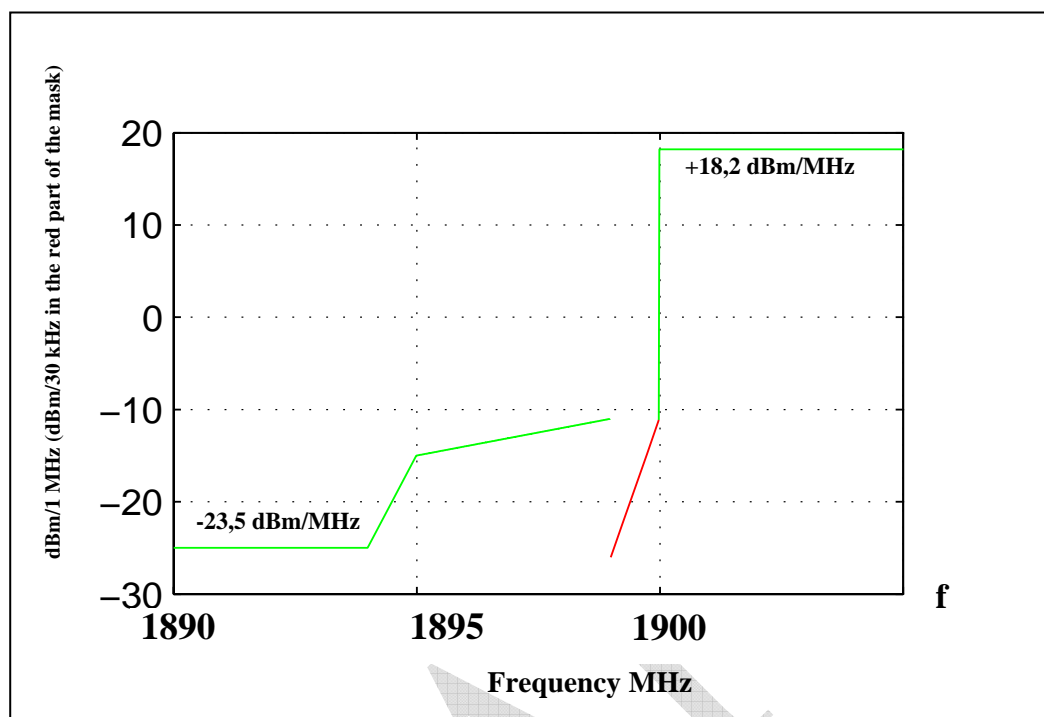


Figure 3: Maximum transmitter power from terminal and repeater uplink 0 to 10 MHz from the lower band edge.

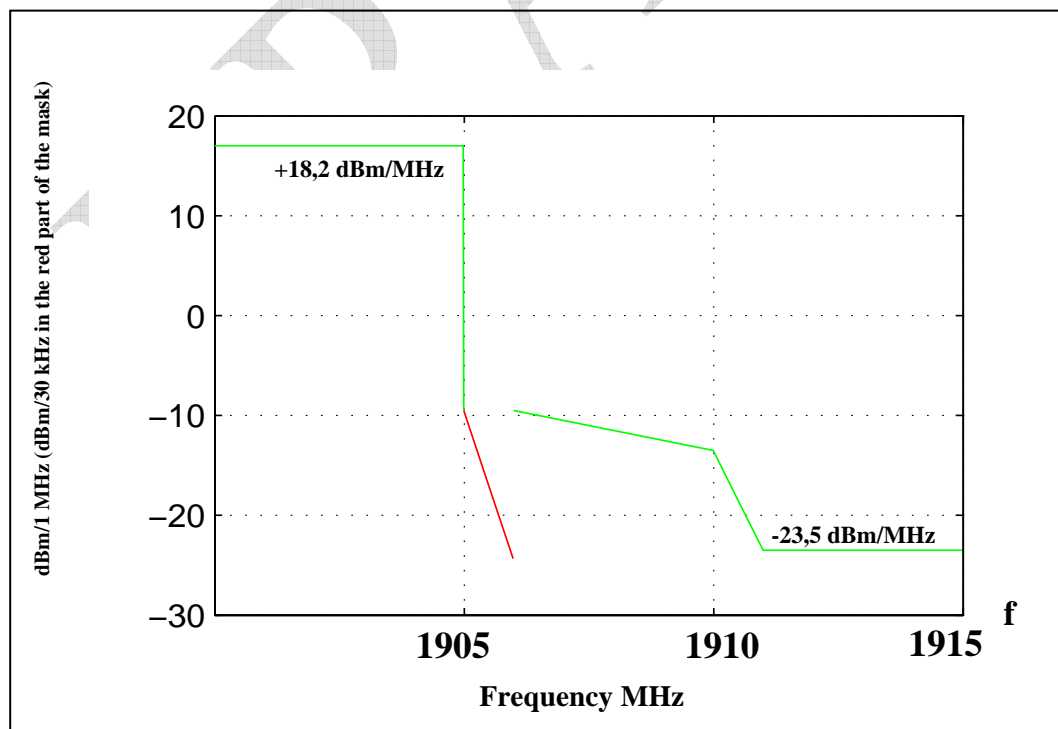


Figure 4: Maximum transmitter power from terminal and repeater uplink 0 to 10 MHz from the upper band edge.

**Appendix 3****ON DEMAND GUARANTEE****The Applicant**

(Name)  
 (Address)  
 (Post code)  
 (Identification/registration number)

At the request of  
**Beneficiary**

Post- och Telestyrelsen (PTS)  
 Box 5398  
 SE-102 49 STOCKHOLM  
 SWEDEN

We, the undersigned  
**Bank**

(Name)  
 (Address)  
 (Post code)  
 (Identification/registration number)

*GUARANTEE*

in favour of the Applicant's following

**Obligations**

All administrative charges and/or auction fees resulting from the auction of a license in the 1900–1905 MHz band in Sweden

**Up to and including an amount of**

XXXX Swedish kronor (SEK).

**On Demand Guarantee**

The Bank shall irrevocably and on demand from PTS pay to PTS the requested sum up to and including the above amount. The demand shall be made in writing. The written demand shall be signed by the Director General of PTS. The Bank shall not be entitled to any other examination or documentation of the claim. The undertaking of the Bank is independent and unconditional in relation to PTS.

**Payment and interest**

The Bank shall effect payment of the amount required within eight (8) days of receipt of a demand. After this time, if the required sum has not been paid, the Bank shall pay default interest pursuant to Section 6 of the Interest Act (SFS 1975:635) until payment is effected.

**Law and jurisdiction**

This Guarantee shall be subject to Swedish law and the jurisdiction of Swedish courts.

The agreed venue for any litigation with respect to this Guarantee shall be Stockholms Tingsrätt (Stockholm City Court).

**Validity**

This Guarantee shall remain valid until  
Xx yy 2008

**Enforcement clause**

The Bank agrees that a judicial decision made by Swedish courts shall be directly enforceable in relation to the Bank.

Date

Signature

.....

DRAFT

**Appendix 4**

X Corp.  
Hereby submits the following

**BID**

in the Swedish National Post and Telecom Agency's  
auction of a licence to use radio transmitters in the  
frequency band 1900–1905 MHz.

The bid amounts to  
SEK X

... 2008

.....  
Signature

.....  
Name and title