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Federal Communications Commission ComCom

Federal Office of Communications

26 November 2010

Invitation to tender for frequency blocks for the national provision of mobile telecommunication services in Switzerland

Edition of 19 July 2011 with amendments according to the decisions of ComCom on 16 May 2011 and 6 July 2011

This document is an unofficial translation.
The official Dossier for public invitation to tender is available in French and German only

CONTENTS

1 INTRODUCTION

ComCom has mandated OFCOM with the public invitation to tender for the mobile radio frequencies. The invitation to tender is taking place with particular reference to the end of the current GSM and UMTS licences on 31 December 2013 and 2016 respectively. In addition, further frequencies in the 800 MHz and 2.6 GHz bands will be available for the provision of mobile radio services. Within the framework of a general overview, ComCom came to the conclusion that the best procedural variant is to award all frequencies available for mobile radio in a single award procedure. The sharply increasing demand for mobile broadband services and the availability of new technologies require additional frequencies and licences which are designed to be as flexible as possible. By means of an early allocation of these frequencies, the intention is to offer players in the market a long-term planning perspective.

The re-allocation of these frequencies is taking place by auction with a view to transparency and non-discrimination. The auction is designed so that both the number of licences to be awarded and their corresponding spectrum is not prescribed by ComCom but determined within the framework of the procedure. In this way, market players will have the possibility of purchasing a frequency configuration which corresponds to their business models. This procedure is intended to allow the instruments of the market to play their part, and the decision regarding the number of licences and their frequency configurations will be left to the market rather than prescribed by the licensing authority. This procedure is intended on the one hand to enable any new operators to acquire mobile radio frequencies. On the other hand, the existing operators will have the possibility of equipping themselves with frequencies suitable for their future demands.

The opening of the public invitation to tender for the mobile radio frequencies was published in the Federal Gazette (Bundesblatt – BBl) dated 30 November 2010. In the Federal Gazette dated 8 February 2011, ComCom announced that the deadline for submission of candidature documents would be extended and the amended timetable for the holding of the auction would be announced at a later date. At the same time, ComCom announced that it would hold a consultation on 28 February 2011 for interested parties.

With the publication in the Federal Gazette of 19 July 2011, ComCom announces that it has now set the deadline for submission of candidature documents for 30 September 2011 and that the tender documents have been amended in the following points:

- Timetable;
- Period for any necessary re-farming in the 900 and 1800 MHz frequency bands;
- Bid restrictions (spectrum caps);
- Reduction in the bank guarantee to be submitted to 50% of the minimum price of the frequencies applied for;
- Updating of the references to CEPT decisions, recommendations and reports.

1.1 General

In November 2009, the Federal Communications Commission (ComCom) decided to re-allocate all frequencies in the 900 MHz/1800 MHz frequency band (GSM) and in the 2100 MHz band (UMTS core band) together with the frequencies in the 800 MHz band (digital dividend) and in the 2600 MHz band (UMTS extension band). The following individual bands are to be awarded:

- 2 x 30 MHz (FDD) in the 800 MHz band
- 2 x 35 MHz (FDD) in the 900 MHz band
- 2 x 75 MHz (FDD) in the 1800 MHz band

- 2 x 60 MHz (FDD) in the 2100 MHz band
- 1 x 20 MHz (TDD) in the 2100 MHz band
- 1 x 15 MHz (TDD) in the 2100 MHz band
- 2 x 70 MHz (FDD) in the 2600 MHz band
- 1 x 50 MHz (TDD) in the 2600 MHz band

All frequencies will be awarded in a single procedure. The allocation of frequencies is exclusively for national use.

1.2 The licensing authority

The licensing authority is ComCom (Art. 24a para. 1 TCA[1]).

1.3 Procedural sequence

1.3.1 Procedure

The procedure for the award of licences is based in particular on the provisions of Art. 22 ff. TCA and on Art. 20, 21, 23 and 24 OFMRL[2]. The procedure for award of the frequencies to a licensee is an auction as set out in Art. 23 OFMRL and is being implemented on ComCom's behalf by OFCOM. After authorisation has taken place, the auction will be held in two stages:

- In the first stage (principal stage), the frequency requirement of the individual participants in the auction will be determined in multiple rounds (abstract allocation) by means of a "Combinatorial Clock Auction" (CCA). On conclusion of the first stage, the basic price to be paid by a bidder for the still abstract frequencies to be acquired is determined.
- In a second stage (the assignment stage), the successful bidders acquire the possibility, in addition to the basic price to be paid, of placing a further bid on their preferred concrete situation of the abstract frequency blocks purchased by them by auction.

A description of the auction design is given in Section 6.

The auction rules mentioned in Chapter 6 are still subject to adjustments. The definitive auction rules will be communicated to the participants in detail after the authorisation decision has been issued.

If conditions change substantially between the publication of the invitation to tender in the Federal Gazette and the licence award, the licensing authority may, taking into consideration the conditions cited in the tender documents, amend the minimum bid or adapt, suspend or abort the procedure (Art. 24 OFMRL).

For the licence award, the licensing authority may call in independent experts with regard to the preparation and implementation of the procedure and to the evaluation of bids (Art. 21 para. 2 OFMRL). In the present case the British company DotEcon was called in.

[1] Telecommunications Act of 30 April 1997 (TCA; CC 784.10)

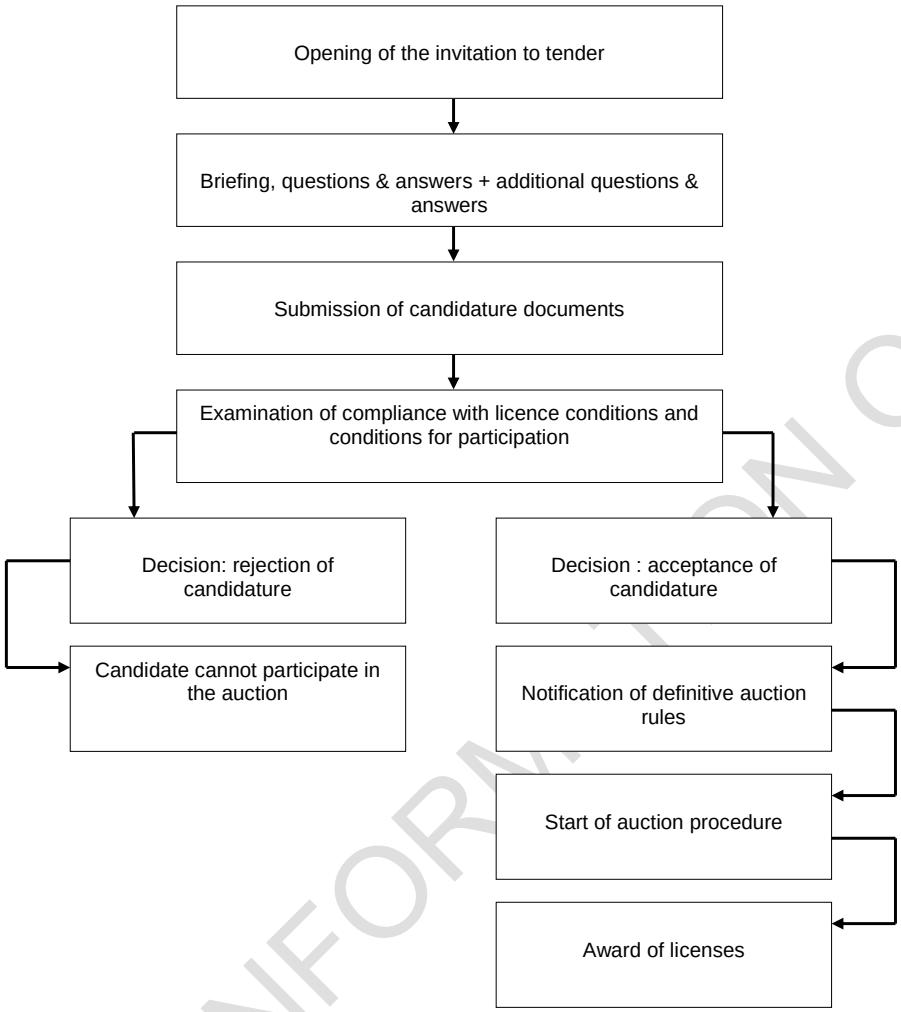
[2] Ordinance of 9 March 2007 concerning Frequency Management and Radiocommunication Licences (OFMRL; CC 784.102.1)

1.3.2 Planning

The most important deadlines for the procedure are listed below. They are subject in particular to changes by the licensing authority in the terms of Art. 24 OFMRL.

Deadline	Stage
30 November 2010	Publication of the invitation to tender in the Federal Gazette (Bundesblatt - BBl)
8 December 2010	Presentation of the tender documents and of the auction format for interested parties
7 January 2011	Submission of questions relating to the tender procedure
8 February 2011	Postponement of the submission date
19 July 2011	Continuation of the invitation to tender with new submission date and amendment of the tender documents. Publication of the answers.
10 August 2011	Submission of additional questions relating to the amendments to the tender documents
24 August 2011	Answers to the additional questions relating to the amendments to the tender documents
30 September 2011	Submission of candidature documents
November 2011	Decision on admission to the auction
January/February 2012	Training of the participants in the auction
February/March 2012	Holding of the auction
April/May 2012	Award of the licences

1.3.3 Overview



2 FREQUENCIES

2.1 The frequency situation

Frequencies from the following frequency bands are available for the tender procedure:

Frequency band	Lower band (FDD) from…to… [MHz]	Upper band (FDD) from…to… [MHz]	Simplex band (TDD) from…to… [MHz]	Bandwidth to be awarded [MHz] [MHz]	Availability for use
800 MHz	791 – 821	832 – 862		2 x 30	from 1.1.2013[3]
900 MHz	880 – 915	925 – 960		2 x 35	from 1.1.2015[4] from 1.1.2016[5]
1800 MHz	1710 – 1785	1805 – 1880		2 x 75	from 1.1.2015 [4] from 1.1.2016 [5] 8.6 MHz of which from award of licence
2100 MHz FDD	1920 – 1980	2110 – 2170		2 x 60	from 1.1.2017[6]
2100 MHz TDD			1900 – 1920 2010 - 2025	1 x 20 1 x 15	from 1.1.2017[7] from award of licence[8]
2600 MHz	2500 – 2570	2620 – 2690	2570 – 2620	2 x 70 1 x 50	from award of licence

The precise bandwidths, band limits and any restrictions on use are explained in detail in the following sections. The two transmission techniques FDD and TDD are currently allocated in the respective simplex and duplex bands. This distribution will remain unchanged for the time being (see also section 2.3). With the exception of the 2010-2025 MHz range, the frequencies will be awarded in one bidding procedure (cf. section 2.2.4). Unrestricted use of the frequencies in the 900 MHz and 1800 MHz frequency band is guaranteed only after a transition period for any necessary re-farming work on existing mobile radio networks. This transition period begins on 1.1.2014 and lasts at most one year for the region of Switzerland with the exception of the regions of Basel and Geneva and at most 2 years for the regions of Basel and Geneva (cf. also section 3.1.5)

[3] With restrictions in the regions of Upper Valais and Grisons until 31.12.2013 and in Ticino possibly also beyond this point in time (section 2.4.1)

[4] Latest time for the start of unrestricted utilisation in Switzerland, excluding the regions of Basel and Geneva

[5] Latest time for the start of unrestricted utilisation in the regions of Basel and Geneva

[6] 2 x 14.8 MHz from award of licence

[7] 1 x 5 MHz from award of licence

[8] With power restriction (see section 2.3.3) from award of licence, without power restriction from 1.1.2014

2.2 Allocation of frequency blocks

The frequency spectrum of the individual licences is not fixed in advance but is the result of a two-stage auction procedure, consisting of

- a first auction stage with abstract frequency blocks to determine the extent of the frequencies to be awarded to the individual participants and
- a second auction stage, at the end of which the allocation of concrete frequencies to the individual participants from the available bands will take place.

Abstract and concrete frequency blocks are explained in greater detail below.

2.2.1 Abstract frequency blocks

For the first auction stage (cf. section 6.3), a total of 60 abstract frequency blocks (generic lots) are put out to tender. These are sub-divided into 10 categories (A-J). A description of these categories, relating to the available frequency bands and the block sizes, is given in the table below.

Category	Number of blocks	Band	Size of blocks	Availability for use
A	6	791-821 / 832-862 MHz	2 x 5 MHz	1.1.2013
B	7	880-915 / 925-960 MHz	2 x 5 MHz	from 1.1.2015[9] from 1.1.2016[10]
C	1	1710-1785 / 1805-1880 MHz	2 x 10 MHz	from 1.1.2015 [9] from 1.1.2016 [10] 8.6 MHz of which from award of licence
D	13	1710-1785 / 1805-1880 MHz	2 x 5 MHz	from 1.1.2015 [9] from 1.1.2016 [10]
E	1	1900 – 1920 MHz	1 x 5 MHz	from award of licence
F	3	1900-1920 MHz	1 x 5 MHz	1.1.2017
G	3	1920-1980 / 2110-2170 MHz	2 x 5 MHz	from award of licence
H	9	1920-1980 / 2110-2170 MHz	2 x 5 MHz	1.1.2017
I	14	2500-2570 / 2620-2690 MHz	2 x 5 MHz	from award of licence
J	3	2570-2615 MHz	1 x 15 MHz	from award of licence

[9] Latest time for the start of unrestricted utilisation in Switzerland, excluding the regions of Basel and Geneva

[10] Latest time for the start of unrestricted utilisation in Switzerland in the regions of Basel and Geneva

The precise bandwidths and band limits of the allocated blocks will be determined exactly only after concretisation (second stage of the auction). In view of essential guard bands between the future operators and other services which border on these frequency bands, blocks may be slightly smaller than indicated in the table above. This applies to the 2100 MHz frequency range (FDD) in particular.

2.2.2 Concrete frequency blocks

The allocation of the abstract allocations determined in the first auction stage to combinations of concrete frequency blocks (A1-A6, B1-B7, C/D1-C/D15, E/F1-E/F4, G/H1-G/H12, I1-I14, J1-J3 corresponding to Annex II) takes place within the framework of a further auction stage (cf. Section 6.4). The following criteria are used as a basis:

Coherent spectrum allocation

With regard to efficient spectrum utilisation using broadband technologies, the frequency allocation will take place in such a way that contiguous frequency blocks of a range corresponding to an integer multiple of 2x5 MHz (FDD) or an integer multiple of 5 MHz (TDD) are allocated.

- **Preferential frequencies for GSM**

  The allocation blocks for the 900 MHz and 1800 MHz frequency bands each consist of different number of preferential frequencies for GSM (cf. Annex I). In specific border regions, some allocation blocks have no preferential frequencies with regard to the neighbouring foreign country. Provision of frequencies exclusively from these blocks will not therefore be possible up to the respective border. The distribution of preferential frequencies will be taken into account in the determination of authorised combinations of concrete frequency blocks (cf. Annex VII). This applies in particular to allocations which include no or only very few preferential frequencies for the Basel and Geneva basin regions. Such combinations will be excluded from the allocation in the 900 MHz band in the event of three or four winners from the first stage of the auction. For the 1800 MHz band, combinations which include allocations of specific individual blocks or pairs of blocks with no or only very few preferential frequencies for the Basel and Geneva basin regions will also be excluded.

- **Award of the 2615-2620 MHz frequency range**

  If the concrete blocks I1 and J3 (cf. Annex II) are awarded to the same bidder within the framework of the second stage of the auction, this operator will also receive the additional 2615-2620 MHz frequency range. Otherwise, this range will remain as a guard band (cf. also Section 2.3.4).

The use of some concrete allocation blocks may be restricted due to adjacent uses. In this context, the following restrictions should be mentioned:

- **Potential interference affecting other frequency users**

  Allocation blocks which border directly on other uses with special protection at the limits of the band, such as GSM-R for example, are restricted in their use. This means that transmission parameters such as choice of the centre frequency, transmission power or antenna radiating direction must be restricted or specially adjusted, often depending on the location. In order to avoid interference, coordination of network construction with operators of adjacent services is essential.

- **Potential interference caused by other frequency users**

  For specific allocation blocks, interference potential caused by other uses exists either on the same frequency or in the adjacent frequency range.

- **Potential interference TDD <–> FDD**

  The use of allocation blocks at the FDD – TDD band limits is generally restricted with a view to reciprocal protection from interference. In these cases too, the licensees concerned may be obliged to coordinate.

Relevant details are described in Sections 2.3 and 2.4.

2.2.3 Spectrum caps

In order to ensure competition on the national telecommunications market after the auction, the licensing authority has defined the following spectrum caps per each bidder:

- total 2x25 MHz over the two categories A (800 MHz) and B (900 MHz); i.e. the category A and B frequencies acquired must not exceed 2x25 MHz in total;
- 2x20 MHz in category B (900 MHz);
- total 2x30 MHz over the two categories G and H (2.1 GHz paired)
- total 2x35 MHz over the two categories C and D (1.8 GHz)
- maximum 2x135 MHz of the total available FDD spectrum (categories A, B, C, D, G, H and I)

2.2.4 Separate award of the 2010-2025 MHz block

The award of the 15 MHz block in the 2010-2025 MHz frequency range (block K1 according to Annex II) will take place immediately after the auction of the frequency blocks in categories A-J, in a separate round of bidding (cf. Section 6.5).

2.3 Conditions of use

The allocation of frequencies is exclusively for national use. The conditions of use listed in the following shall apply: the listed decisions / recommendations / reports of the CEPT, ECC and ERC can be found at http://www.erodocdb.dk/default.aspx.

2.3.1 800 MHz

The provisions of the CEPT decisions, recommendations and reports apply:

- ECC/DEC/(09)03: Harmonised conditions for MFCN operating in the band 790-862 MHz
- CEPT Report 030: The identification of common and minimal (least restrictive) technical conditions for 790-862 MHz for the digital dividend in the European Union
- CEPT Report 031: Frequency (channelling) arrangements for the 790-862 MHz band
- CEPT Report 019: Least restrictive technical conditions for WAPECS frequency bands
- ECC/REC/(11)04: Frequency planning and frequency coordination for terrestrial systems for Mobile/Fixed Communication Networks (MFCN) capable of providing electronic communications services in the frequency band 790-862 MHz

This is subject to any amendments or new versions of the above-mentioned CEPT provisions.

The block edge masks (BEM) are defined in ECC/DEC(09)03 (Annex 3).

In particular, the following conditions of use are listed:

- Duplex mode: FDD
- The maximum mean in-block EIRP of base stations complying with ECC/DEC(09)03, Annex 3, Section 1 is specified as follows: +56dBm/5MHz for all blocks

- Maximum mean out-of-block EIRP of base stations: according to ECC/DEC(09)03, Annex 3, Table 4, Case A: (P_{TX_EIRP} –59)dBm/8MHz
- In particular, the block edge masks (BEM) in ECC/DEC(09)03 Annex 3 must be complied with.

2.3.2 900 MHz/1800 MHz

The provisions of the CEPT decisions, recommendations and reports apply:

- ECC/DEC/(02)05amended: Frequency bands for railway purposes 876-880 / 921-925 MHz
- ECC/DEC/(06)13: Designation of GSM-900/1800 bands for terrestrial IMT-2000/UMTS
- ECC/REC/(08)02: Frequency planning and frequency coordination for the GSM 900 (including E-GSM)/UMTS 900, GSM 1800/UMTS 1800 Land Mobile Systems
- ECC/REC/(05)08: Frequency planning and frequency coordination for the GSM 900, GSM 1800, E-GSM and GSM-R Land Mobile Systems
- ECC Report 082: Compatibility study for UMTS operating within the GSM 900/1800
- ECC Report 096: Compatibility between UMTS 900/1800 and systems operating in adjacent bands
- CEPT Report 040: Compatibility between LTE and WiMAX operating within the bands 880-915 MHz / 925-960 MHz and 1710-1785 MHz / 1805-1880 MHz (900/1800 MHz bands) and systems operating in adjacent bands
- CEPT Report 041: Compatibility between LTE and WiMAX operating within the bands 880-915 MHz / 925-960 MHz and 1710-1785 MHz / 1805-1880 MHz (900/1800 MHz bands) and systems operating in adjacent bands
- CEPT Report 042: Compatibility between UMTS and existing and planned aeronautical systems above 960 MHz
- ECC Report 146: Compatibility between GSM MCBTS and other services (TRR, RSBN/PRMG, HC-SDMA, GSM-R, DME, MIDS, DECT) operating in the 900 and 1800 MHz frequency bands
- ECC/DEC/(06)07amended: GSM on board aircraft
- ECC/DEC/(08)08: GSM on board vessels
- ECC Report 082: Compatibility study for UMTS operating within the GSM 900/1800
- ECC Report 096: Compatibility between UMTS 900/1800 and systems operating in adjacent bands
- CEPT Report 019: Least restrictive technical conditions for WAPECS frequency bands
- ERC Report 100: Compatibility between certain radio communications systems operating in adjacent bands. Evaluation of DECT/GSM 1800 compatibility

This is subject to any amendments or new versions of the above-mentioned CEPT provisions.

No block edge masks are defined for the 900 MHz and 1800 MHz bands. The transmission technologies are limited to GSM and the members of the IMT family (see ITU-R Rec. M.1457), in particular IMT-2000/UMTS and LTE.

General conditions of use:

- In frequency block B1, in order to protect GSM-R construction, the expansion and operation of mobile radio systems in the 900 MHz band up to a distance of 4 km from the railway route must be coordinated with GSM-R operators and/or interference prevention techniques must be applied

- In all category B, C and D frequency blocks, in the event of interference, priority[11] is always given to GSM (including GSM-R) over systems with other transmission technologies (e.g. UMTS/ LTE/ WiMAX).
- In the case of operation of systems in the 960 MHz to 1215 MHz frequency band (e.g. DME), techniques to prevent interference may be necessary in frequency block B7 (cf. Annex II).

Conditions of use for GSM:

- No GSM guard channels shall be used between two different operators' blocks used with GSM. The technical network specification will regulate the details.
- In the 1878 – 1880 MHz range, interference due to DECT systems may occur (see ERC Report 100). It is recommended that the upper 2 MHz (1878 - 1880 MHz) are not used to transmit pilot channels (BCCH); otherwise appropriate measures have to be taken (see ERC Report 100).

Conditions of use for GSM MCBTS (multi carrier base station):

- Only equipment of classes 1 and 2 are permitted for GSM MC BTS.
- Power Control (PC) must be used in the up- and downlink.
- The minimum separation of carrier frequencies between GSM MCBTS and GSM-R is 0.4MHz.
- The minimum distance between a GSM MCBTS and a GSM-R-BTS must be at least 50 metres.
- Coordination with other network operators, in particular with operators of GSM-R networks, or the application of techniques to prevent interference may be necessary.

Conditions of use for UMTS/LTE/WiMAX:

- Unless network operators agree otherwise, the GSM channels/carriers at the block limits of the allocated blocks shall be used. The UMTS channels/carriers shall be used between the GSM carriers in the allocated frequency ranges.
- The carrier separation between one's own UMTS carrier and another operator's GSM carrier shall be a large as possible and

  - in the uncoordinated case shall be at least 2.8 MHz or

  - in the coordinated case at least 2.6 MHz.
- The carrier separation between one's own UMTS carrier and that of another operator is

  - in the uncoordinated case at least 5 MHz or

  - 5 MHz or less in the coordinated case.
- In the case of adjacent blocks (channel edge) of different operators with UMTS/LTE/WiMAX use on the one hand and GSM or GSM-R use on the other hand, a separation of at least 200 kHz must be complied with by the holder of the block with UMTS/LTE/WiMAX use.
- In the event of interference, network construction must be coordinated between operators and/or interference prevention techniques shall be applied.
- In the case of adjacent blocks (channel edge) of different operators with UMTS/LTE/WiMAX use on both sides, no minimum separation is necessary (minimum separation 0 kHz).

[11] Priority means that in the event of interference, until further notice the operator of a mobile radio system with a transmission system other than GSM must take measures to prevent interference (mitigation techniques).

2.3.3 2.1 GHz

The provisions of the CEPT decisions, recommendations and reports shall apply

- ECC/DEC/(06)01: IMT-2000/UMTS 1900-1980, 2010-2025 and 2110-2170 MHz
- ERC Report 065: Adjacent band compatibility between UMTS and other 2 GHz services
- CEPT Report 039: Report from CEPT to the European Commission in response to the mandate to develop least restrictive technical conditions for 2 GHz bands
- CEPT Report 019: Least restrictive technical conditions for WAPECS frequency bands.

This is subject to any amendments or new versions of the above-mentioned CEPT provisions.

The block edge masks are defined in CEPT Report 039.

In the case of use of the 1920-1980 MHz FDD band paired with 2110-2170 MHz, interference prevention techniques may be necessary due to the use of services in the 1980-2010 MHz/ 2170- 2200 MHz MSS bands in frequency block G/H12.

The 1900-1920 MHz TDD band may be used as follows (cf. also the following diagram from CEPT Report 039):

- In the case of uncoordinated use of the blocks, a maximum mean EIRP of +20dBm/5MHz is permitted,
- In the case of uncoordinated use or exclusive use by one operator, the power in the 1900-1910 MHz range may increase in accordance with the following diagram.

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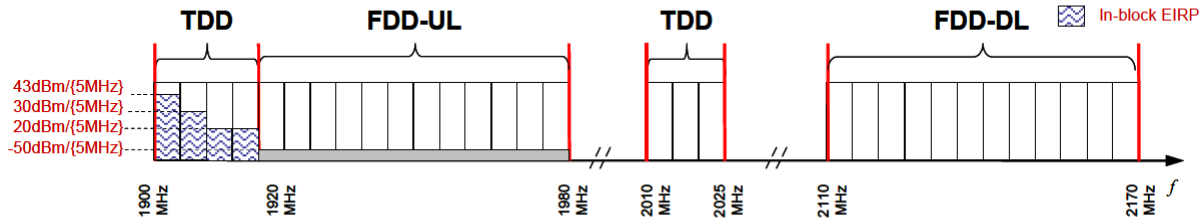


Figure 11: BS BEM for a single TDD operator in the band 1900-1920 MHz

The 2010-2025 MHz TDD band (frequency block K1) may be used as follows:

- In the case of coordinated use, the value of the “max. mean in-block EIRP” is limited to +23 dBm/5MHz until 31.12.2013.
- From 01.01.2014 onwards a limit shall apply with regard to the “max. mean in-block EIRP” according to tables 9 and 10 in CEPT Report 039 (out-of-block limits).
- Use outside buildings may cause interference in the MSS bands (1980-2010 MHz/2170- 2200 MHz). Interference prevention techniques are therefore essential.

2.3.4 2.6 GHz

The provisions of the CEPT decisions, recommendations and reports shall apply

- ECC/DEC/(05)05: ECC Decision on harmonised utilisation of spectrum for IMT-2000/UMTS systems operating within the band 2500-2690 MHz
- ECC/DEC/(02)06: ECC Decision of 15 November 2002 on the designation of frequency band 2500-2690 MHz for UMTS/IMT-2000

- ECC Report 045: Sharing and adjacent band compatibility between UMTS/IMT-2000 in the band 2500-2690 MHz and other services
- ECC Report 119: Coexistence between mobile systems in the 2.6 GHz frequency band at the FDD/TDD boundary
- CEPT Report 019: Least restrictive technical conditions for WAPECS frequency bands
- ECC/REC/(11)05: Frequency planning and frequency coordination for terrestrial systems for Mobile/Fixed Communication Networks (MFCN) capable of providing electronic communications services in the frequency band 2500-2690 MHz

This is subject to any amendments or new versions of the above-mentioned CEPT provisions.

The block edge masks for use of the 2500-2690 MHz band are defined in CEPT Report 019, Annex IV. A distinction is made between two types of conditions of use:

- Unrestricted blocks: maximum EIRP = 61dBm/5MHz[12]
- Restricted blocks: maximum EIRP = 25dBm/5MHz[13]

The following applies to the use of the 2620-2690 MHz FDD downlink band:

- The conditions for unrestricted blocks apply to all frequency blocks I1 – I14

The following applies to the use of the 2570-2620 MHz TDD band:

- The conditions for unrestricted blocks apply to the bottom 5 MHz in frequency blocks J1, J2 and J3.
- If frequency blocks I1 and J3 are awarded to different operators, the 2615-2620 MHz range shall serve as a guard band. Otherwise the provisions for unrestricted use shall apply.
- The conditions for unrestricted blocks apply to the remaining frequency blocks J1, J2 and J3.

2.4 Other directives regarding use

With regard to the utilisation of the frequencies which are being put out to tender, the following constraints and restrictions shall also be complied with.

2.4.1 800 MHz

The European Commission is increasing the pressure on its member states to release the 800 MHz band as quickly as possible for mobile radio services and to cease broadcasting services in this band. Until now, Italy has been the only country bordering Switzerland which is insisting on the continued use of this frequency band for terrestrial digital television. As long as Italy maintains this attitude, interference from Italian broadcast transmitters can be expected in Ticino. Consequently, the operation of mobile radio networks on the channels concerned in Ticino may be adversely affected or even rendered impossible.

Until the end of 2013, two DVB-T distribution networks will be using individual channels in the 800 MHz band in Switzerland – one in Upper Valais and one in Grisons. It will therefore not be possible to use certain frequency blocks locally until 31.12.2013. The technical network specification will regulate the details.

2.4.2 2.1 GHz

Protection from interference in the 2010-2025 MHz band due to spurious emissions by systems above 2025 MHz is guaranteed from 01.01.2014.

[12] CEPT Report 19, Annex IV, Table A 4.2

[13] CEPT Report 19, Annex IV, Table A 4.4

There is potential for interference in the 1900-1930 MHz TDD and FDD ranges (at least in the medium term), due to unauthorised operation of DECT equipment which uses frequencies which are intended for the regions of Latin America, North America and China. The UMTS uplink band 1920 MHz – 1930 MHz is particularly affected. The sectors concerned are affected up to a distance of 1.5 km from the equipment which is causing the interference, depending on the topography and building density.

2.4.3 2.6 GHz

Radar equipment for air traffic control is in operation In Switzerland, especially at Zurich and Geneva airports. It uses frequencies adjacent to the downlink frequency band (2690 MHz). These radar installations use pulsed signals and generate high field intensities which may locally interfere with mobile radio (which works in the upper segment of the frequency band).

2.5 Frequency utilisation and coordination at the national border

The detailed conditions for the utilisation of frequencies at the national border will be included in the technical network specification. These concern the conditions for use of the same channel by mobile radio on both sides of the national borders. They are intended to ensure that operators in all countries in the border regions can provide services up to the respective border. Conditions of use only give an overview of the currently applicable regulations.

2.5.1 800 MHz

At the time of the invitation to tender, there are not yet any adopted recommendations regarding “cross border coordination” of IMT2000/UMTS throughout Europe which regulate the use of these frequencies up to the respective national borders. The technical parameters relating to use which are essential for the establishment of bilateral and multilateral agreements have only been partly developed to date.

The recently multilateral HCM Agreement ,signed in October 2010, defines the following threshold value:

The maximum interference field strength may amount to 26dBµV/m per 5 MHz bandwidth at a height of 10m above ground aggregated from all sectors of a base station/node-B measured at the border. This value may be adjusted at a later date.

2.5.2 900/1800 MHz

GSM 900 MHz:

The maximum interference field strength for non-preferential frequencies may amount to 19dBµV/m per 200 kHz bandwidth at a height of 3m above ground at the border. The maximum interference field strength for preferential frequencies may amount to 19dBµV/m per 200 kHz bandwidth at a height of 3m above ground on a line 15 km behind the border in the neighbouring country.

GSM 1800 MHz:

The maximum interference field strength for non-preferential frequencies may amount to 25dBµV/m per 200 kHz bandwidth at a height of 3m above ground at the border. The maximum interference field strength for preferential frequencies may amount to 25dBµV/m per 200 kHz bandwidth at a height of 3m above ground on a line 15 km behind the border in the neighbouring country.

UMTS 900/1800 MHz:

The maximum interference field strengths are extrapolated according to the signal bandwidth.

The operation of GSM has priority over new systems with broader bands (IMT-2000/UMTS, LTE, etc.)

A detailed description of the conditions of use and preferential frequencies will be included in the technical network specification. An overview of the distribution of the preferential frequencies is provided in Annex I.

The apportionment of preferential frequencies in the 1800 MHz frequency band with Italy is provisional. It is not possible to specify a point in time at which this utilisation can be definitively confirmed.

2.5.3 2.1 GHz

IMT-2000/UMTS:

The maximum interference field strength when preference codes are used may amount to 37dBµV/m per 5 MHz (FDD and TDD) bandwidth at a height of 3m above ground aggregated from all sectors of a base station/node-B measured at a line 15 km behind the border in the neighbouring country. The border region with France is an exception.

At the border with France, the maximum interference field strength if preference codes are used may amount to 45/36dBµV/m per 5 MHz (FDD/TDD)bandwidth measured at a height of 3m aggregated from all sectors of a base station/node-B measured at the border.

2.5.4 2.6 GHz

At the time of the invitation to tender, at the pan-European level only recommendations regarding “cross border coordination” of IMT-2000/UMTS have been adopted. These specify how these frequencies are to be used up to the respective national borders with IMT-2000/UMTS. As with the 800 MHz band, the technical utilisation parameters required for the adoption of bilateral and multilateral agreements are also limited to the development stage regarding the 2600 MHz band. The multilateral HCM Agreement, signed in October 2010 defines the following threshold value:

The maximum interference field strength may amount to 39dBµV/m per 5 MHz bandwidth at a height of 10 metres above ground aggregated from all sectors of a base station/node-B measured at the border.

This value may be adjusted at a later date.

3 LICENCES

3.1 Description

The object of the licence is the utilisation of the radio spectrum in accordance with section 2 for the provision of mobile telecommunications services in Switzerland.

3.1.1 Term of the licences

The licenses will be awarded on conclusion of the auction. The utilisation rights to the respective frequencies shall commence at the earliest from the time of availability listed under section 2.1. The licences are valid until 31.12.2028.

3.1.2 Auction price

The auction price for the acquired frequency packages must be settled as a single payment within 30 days of award of the licence. The payment must be made via a bank based in Switzerland and approved in accordance with the Federal Act on Banks and Savings Banks (CC 952.0).

Reimbursement of the auction price in the event of restriction, suspension, revocation or withdrawal of the licences and in the event of early abandonment of the licence is not possible (Art. 23 para. 2 OFMRL).

3.1.3 Calling-in of the bank guarantee

If the auction price is not paid within the allowed period of 30 days, the licensing authority shall demand payment of the bank guarantee in the full amount without notice. Any difference between the amount paid by means of the bank guarantee and the auction price remains due.

3.1.4 Utilisation obligations

General obligation regarding utilisation: the licensee is obliged to use the allocated frequencies as set out in Article 1 TCA and to provide commercial telecommunications services over its own transmission and reception units. In addition, the following provisions apply:

- Licensees who have the right to use frequencies below 1 GHz are obliged to ensure coverage of 50% of the population of Switzerland with mobile radio services via their own infrastructure by 31 December 2018 at the latest (800 MHz) and 31 December 2020 (900 MHz);

- Licensees who have the right to use frequencies in the 1800 MHz and 2100 MHz FDD bands are obliged to ensure coverage of 25% of the population of Switzerland with mobile radio services via their own infrastructure by 31 December 2020 (1800 MHz) and by 31 December 2021 (2100 MHz FDD) respectively.

The rights of use granted with the licence may be withdrawn without compensation

- from the frequencies provided with a coverage obligation, if the required coverage is not provided within the period prescribed;

- from the other frequencies (2100 MHz TDD and 2600 MHz bands), if the general utilisation obligation is not fulfilled by 1 January 2019 at the latest.

In general, the utilisation and coverage obligations may be changed only if the licensee proves that it is not able to meet them for reasons beyond its control. The licensee must prove conclusively that it has made every reasonable attempt to meet its obligations.

3.1.5 Transition period for any frequency re-farming

Operators which, within the framework of the auction, acquire frequencies in the 900/1800 MHz band previously used by other operators shall, together with the operators previously using the frequencies concerned, within three months of award of the licence submit to OFCOM for the attention of ComCom a proposal for frequency re-farming work. This proposal must take into account the following:

- Operators which previously used frequencies in the 900/1800 MHz band but which do not acquire any rights to use spectrum within the framework of the auction, have no right to use the frequencies beyond 31.12.2013.
- The re-farming work may consist of one or more re-farming stages, but must aim at a conversion which is as rapid as possible.
- The newly acquired spectrum rights must be available to operators nationwide and without restrictions by 01.01.2015 at the latest. The regions of Basel and Geneva are excluded. For these regions a deadline of 01.01.2016 applies.

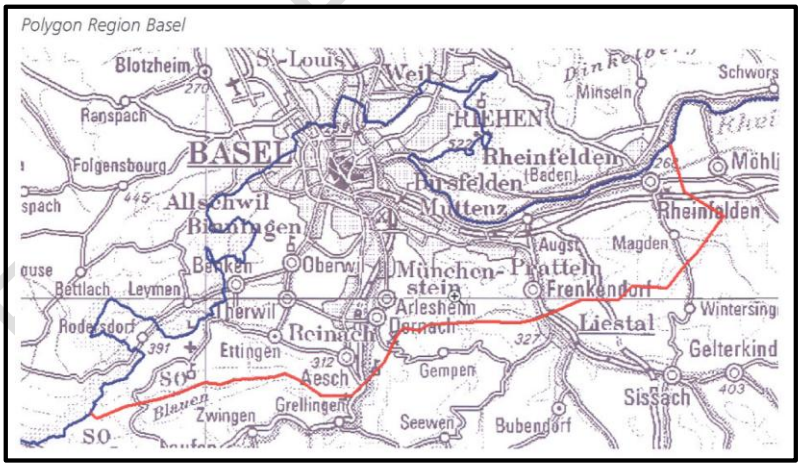
OFCOM shall review the joint proposal and make an application to ComCom. If ComCom suggests changes to the procedure, it will consult the parties beforehand.

If the operators fail to agree on a joint proposal they shall submit their own re-farming proposal to OFCOM within the period specified. OFCOM shall review the submitted proposals, consult the operators involved in the re-farming and make an application to ComCom. The re-farming plan approved by ComCom is binding on the operators. OFCOM shall control its implementation and propose measures to ComCom if necessary.

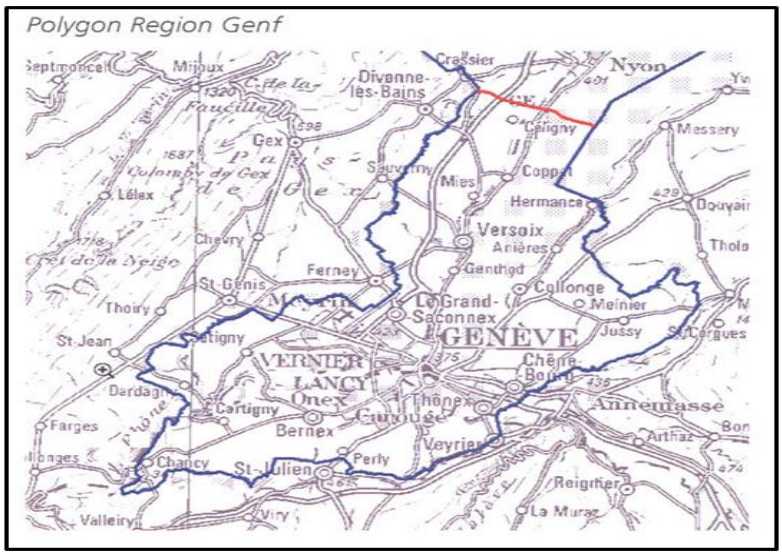
For the re-farming work which is necessary in connection with new allocation of spectrum rights in the 2.1 GHz band, an analogous procedure shall apply subject to the following caveat: The proposal for the re-farming work must be submitted to OFCOM by 31.12.2013. The re-farming work is to be carried out so that the exercise of the newly acquired spectrum rights is guaranteed in full by 01/01/2017.

The regions of Basel and Geneva

The Basel region is defined according to the following map (blue and red line).



The Geneva region is defined according to the following map (blue and red line).



During the above-mentioned transition phase, the affected operators at the above boundaries of the regions of Basel and Geneva may mutually agree on preferential use, maximum interference field strength and interference distance, in so far as these arrangements do not affect the arrangements regarding national frontiers. In the absence of agreement or in the event of interference, the non-preferential case as follows enters into force at the boundaries of the zones:

900 MHz band

The field strength of any carrier generated by a base station at a height of 3 metres above ground at the zone boundary shall not exceed a value of 19 dBµV / m per 200 kHz.

1800 MHz Band

The field strength of any carrier generated by a base station at a height of 3 metres above ground at the zone boundary shall not exceed a value of 25 dBµV / m per 200 kHz.

Reporting obligation concerning frequency re-farming

To enable tracking of the progress of the re-farming work, operators are obliged to communicate to OFCOM periodically every three months, commencing 31 March 2014, the status of the re-farming work. The obligation to provide information ends as soon as OFCOM receives proof that all necessary re-farming work has been concluded.

3.1.6 Spatial planning, protection of nature and the countryside; joint-use of equipment

In the case of installations outside building zones, Art. 24 Spatial Planning Act and the relevant case law shall be taken into consideration.

The licensee shall make all reasonable efforts during the construction and operation of the transmitter sites to enable the shared use of these sites for other location-based purposes outside the building zone. If it depends on a site outside the construction zone, it is additionally obliged to use existing sites belonging to other licensees or other existing buildings or facilities, provided they have sufficient capacity.

The licensee shall inform the Cantons in advance of their network planning. When it does so, it shall provide information on the proposed new sites and any sites already approved, under construction or in service. In the case of structures outside the building zone, the licensee shall provide the informa-

tion necessary to assess the location constraints according to Art. 24 of the Spatial Planning Act. OFCOM reserves the right to publish a list of sites in operation.

The licensee is obliged to cooperate when developing coordination processes in order to minimise the impact on the area and landscape and at the same time to comply with the Ordinance on Protection from Non-Ionising Radiation (OPNIR)[14] and to comply with the developed processes. The site data for the assessment of joint-use must be disclosed.

Art. 36 TCA is reserved.

3.1.7 Immission protection

The licensee shall ensure that the transmission infrastructures comply with the OPNIR's immission and equipment limits with regard to design, construction and operation. The licence contains provisions regarding implementation of the rules on protection from non-ionising radiation with regard to the design, construction and operation of transmission infrastructures. These provisions relate to the choice of antenna sites, site coordination, quality assurance to comply with the OPNIR limit values and issues relating to the application of the OPNIR.

3.1.8 Transfer of the licence

In accordance with Art. 24d para. 1 TCA, the licence may be transferred in part or in whole to a third party only with the consent of the licensing authority. The consent provision also applies to the economic transfer of the licence (Art. 24d TCA).

3.2 Licence and administration fees

3.2.1 Licence fees for radio communication licenses

The licence fees for utilisation of the allocated radio spectrum are included in the auction price. Therefore, no further licence fees will be charged throughout the term of the licence.

3.2.2 Administrative fees for the award of licences

The administration fees for the invitation to tender and award of licences are included in the auction price in accordance with Art. 39 para. 4 TCA.

3.2.3 Administrative fees for the administration and technical supervision of the frequency spectrum

According to Art. 40 TCA and in conjunction with Art. 9 of the DETEC Ordinance concerning Administrative Fees in the Telecommunications Sector[15], the licensee is obliged to pay annual administration fees for the administration and technical supervision of the frequency spectrum. The fee is determined on the basis of the technical network specification (Annex III of the licence).

3.3 Amendments to the existing legal basis

In the case of the present licences to be awarded, in particular the Telecommunications Act (TCA), the Federal Radio and Television Act (RTVA) and the relevant implementation rules apply. The conditions of the present licences to be awarded are subject to any changes in the legal basis applicable to it (cf. 1.1 of the specimen licence). In particular, the administration fees according to Section 3.2.3 shall be fixed in accordance with the applicable legal basis and may be subject to change during the course of the term of the licence (in terms of the basis for calculation and the amount). Reservations also remain

[14] Ordinance of 23 December 1999 concerning Protection from Non-Ionising Radiation (OPNIR; CC 814.710)

[15] DETEC Ordinance of 7 December 2007 concerning Administrative Fees in the Telecommunications Sector (DETEC Telecommunications Fees Ordinance, CC 784.106.12)

particularly with regard to future regulations on network access for third parties. For any legal issues and interpretations, the respective applicable revisions of the law and regulations shall prevail in each case.

3.4 Specimen licence

For information, a specimen licence is appended to this document (Annex VI). The definitive wording of the licences to be awarded on conclusion of this tender process may deviate from this.

4 TERMS AND CONDITIONS FOR PARTICIPATION IN THE TENDER PROCEDURE

4.1 Opening of the procedure, submission of candidatures and deadlines

The public invitation to tender was published in the Federal Gazette (Bundesblatt – BBl) dated 30 November 2010. In the Federal Gazette dated 8 February 2011, ComCom announced that the deadline for submission of candidature documents would be extended and the amended timetable for the holding of the auction would be announced at a later date. With the publication in the Federal Gazette of 19 July 2011, ComCom announced that it has now set the deadline for submission of candidature documents for 30 September 2011.

The candidature documents must be delivered in person or by courier **subject to prior notification**, by

30 September 2011, 17.00 at the latest to

Federal Office of Communications

Telecom Services Division, Mobile radio frequencies tender

Zukunftstrasse 44

CH – 2501 Biel.

For this purpose, Mr Urs von Arx, head of section “mobile and satellite services” for the invitation to tender, must be contacted in advance by telephone: +41 32 327 5856 .

The information on the frequency requirement and the bank guarantee (Section 4.4.2) must be delivered separately in a sealed envelope with the name of the candidate.

OFCOM will issue confirmation of receipt to the candidate.

4.2 Amendment, suspension and cancellation of the tender procedure

If conditions change substantially between publication of the invitation to tender in the Federal Gazette and the award of licence, the licensing authority may, taking into account the conditions cited in the tender documents, amend the minimum bids, or amend, suspend or cancel the procedure (Art. 24 OFMRL). There is no entitlement to compensation.

4.3 Admission to the procedure

4.3.1 General conditions

In order to be able to participate in the auction, all candidates must demonstrate in advance that they meet the legal conditions for granting the licence (Art. 23 TCA) and the specific obligations cited in these tender documents. To this end, candidates shall submit a candidature dossier in accordance with the conditions listed in Section 5.

Any company may put itself forward as a candidate for the frequencies being put out to tender either on its own or as part of a consortium.

The restrictions relating to the effect on competition (cf. Section 5.4.3) shall apply.

4.4 Submissions

4.4.1 Form and content of submissions

Candidates shall render a single submission. In terms of structure and content, the submission shall be formulated in accordance with the information required in Chapter 5 and in accordance with the classification scheme in that chapter (title and numbering).

The submission consists of the candidature and its annexes (candidature documents). The candidature documents must be submitted in an official language of Switzerland or in English to the address given in Section 4.1, with an accompanying letter. With the exception of the frequency allocation application, the bank guarantee (cf. Section 4.4.2 below) and the accompanying letter, all documents must be submitted in six copies. The candidature may not exceed 50 A4 pages (excluding annexes). The accompanying letter, the candidature and the "frequency allocation application" annex must bear the signature(s) of the person(s) authorized by the candidate.

By their signature, the candidates confirm that they are in agreement with all the conditions contained in the tender documents.

An electronic version (pdf format) of the candidature documents must also be delivered to OFCOM.

The submitted candidature is a binding commitment with the licensing authority and cannot be withdrawn.

4.4.2 Bank guarantee and frequency requirement

The frequency allocation application and the bank guarantee (cf. Section 5.2 and 5.3) are to be placed in a sealed envelope. Each bidder may submit only one envelope containing a single frequency allocation application and a bank guarantee to OFCOM.

4.4.3 Trade secrets

The candidate must also submit an additional version of its candidature in duplicate, in which it has covered or deleted any elements relating to trade secrets. It must, however, also provide a brief summary of the essential elements of the covered or deleted information.

4.4.4 Incomplete submissions, additional clarifications

If the submission is incomplete or provides inadequate information, or if additional clarifications are required in the course of evaluation, OFCOM will fix a period of seven days for the required information to be submitted. The information and documents submitted must also meet the above requirements relating to structure, language and number of copies to be submitted.

If the deadline expires without the additional information or clarifications being submitted, the submission will not be considered.

4.5 Costs

All the expenses incurred by the candidate in connection with the candidature (the costs of preparing and submitting the candidature documents, of any additional clarifications and of further preparation relating to the auction) within the framework of the invitation to tender are to be borne in full by the candidate. Reimbursement on the part of the licensing authority is excluded.

4.6 OFCOM briefing event

In order to explain the design and format of the auction and to clarify any questions regarding the auction procedure, OFCOM held a briefing event for interested parties on 8 December 2010. On 28 February 2011 ComCom held a consultation for interested parties.

4.7 Questions/answers

The parties making submissions had until 7 January 2011 to address their questions concerning the procedure, the auction rules and the structure and content of the candidature documents in writing **and** electronically (on CD, DVD, in Microsoft Word or RTF format) to the address above (Section 4.1) (the date of the postmark is decisive).

OFCOM will generate a list of questions received and corresponding answers and will distribute them at the same time as publication of the amended tender documents by post to all parties who have registered with OFCOM. The list of questions and answers will also be published in anonymised form on the OFCOM website at www.bakom.ch.

Additional questions concerning the amendment to the tender documents may be submitted to OFCOM in writing **and** electronically (on CD, DVD, in Microsoft Word or RTF format) until 10 August 2011. An answer from OFCOM will be forthcoming by 24 August 2011.

The anonymity of those posing the questions is guaranteed.

4.8 Decision on admission to the auction procedure

After evaluating the submissions, the licensing authority will inform the candidates by written decision as to whether they are eligible to participate in the auction.

The decisions on admission or non-admission to the auction procedure will be drawn up in one of the official languages of Switzerland.

With the authorisation to take part in the auction, the candidate becomes a bidder.

4.9 Administration fees

Administration fees are levied for the decision on admission in accordance with Art. 2 of the DETEC Ordinance concerning Administrative Fees in the Telecommunications Sector. These are calculated on the basis of the time expended. The hourly rate is CHF 210.

4.10 Publication

ComCom and OFCOM reserve the right to publish the names and addresses of candidates, the definitive data for the award of the licences and the result of the auction.

5 CANDIDATURE DOCUMENTS

The candidature documents must include the following information and be formulated in accordance with the following classification scheme (title and numbering).

5.1 Information on the party making the submission

5.1.1 General information

The candidate shall provide in the candidature its name and address and submit a copy of its statutes. It shall also provide details (name and percentage) of the proportional ownership of its company.

It shall attach an organisation chart of the company plus the names and addresses of the responsible contact persons (for administrative or technical questions). Foreign candidates must also provide a correspondence address in Switzerland to which all correspondence, particularly communications, summonses and decisions relating to the licensing procedure, may be addressed with legal force.

The following are also to be attached: a certified extract from the commercial register (or an equivalent document, in a form recognised in Switzerland, of the country in which the company is based) plus any company reports for the last three years.

5.1.2 Activity in the telecommunications market

The candidate must indicate whether it is registered in Switzerland as a telecommunications service provider[16], is active abroad in the telecommunications sector or is associated with or linked in any way with a telecommunications service provider. Links with companies which are in turn associated with other telecommunications service providers must also be disclosed.

5.1.3 Power of attorney

The candidate must indicate at least one representative with power of attorney or an authorised signatory. The power of attorney and the authority to sign shall be recorded in a notarial deed or a certified extract from the commercial register.

5.2 Assessment of the development of the market and of technology and of the frequency requirement

The candidate shall present its assessment and planning relating to the future development and introduction of new mobile radio technologies and services. In addition, it shall indicate its assessment of the overall future development of the Swiss mobile market.

In this context, the candidate shall specify its frequency requirement in the application form provided (cf. Annex IV). Each candidate must submit the completed frequency allocation application in order to be able to take part in the auction (cf. Section 4.4.2).

The frequency allocation application lists all categories of frequency blocks, the number of blocks in a category and the corresponding minimum bids as well as the eligibility points for each frequency block.

The candidate must specify in this application the number of frequency blocks per category which it is prepared to purchase for the respective minimum bids. In so doing, it must comply with the spectrum caps as mentioned in Section 2.2.3.

The completed form constitutes a binding bid. The candidate undertakes to purchase, unconditionally and irrevocably, the specified blocks at the minimum prices, if the first phase of the auction were not to take place (cf. Section 6.1.2 and auction rules).

[16] Telecommunications service providers must register with the Federal Office of Communications, which is responsible for supervision of telecommunications service providers (art. 4 para. 1 TCA)

However, if the first stage of the auction does take place, the number of bidding rights which are available to the candidate in the first bidding round will be derived from the blocks applied for in the form (cf. Section 6.2 and auction rules).

The information must be provided in accordance with the form described in Annex IV.

5.3 Bank guarantee

Candidates must submit a bank guarantee which is valid until 31 August 2012 (cf. Section 4.4.2). The licensing authority may request an extension of the bank guarantee. The amount guaranteed by the bank corresponds to at least 50% of the value of the frequencies applied for (cf. Section 5.2) relating to the minimum bid.

The licensing authority may then require increases in the bank guarantee during the auction. The amount and the deadline for submission of the additional guarantees will be communicated in good time. The bidding process will be suspended until the expiry of this period.

A candidate which cannot provide the required bank guarantees will be excluded from the procedure.

The format of the bank guarantee is governed by the provisions in Annex V.

5.4 Licensing conditions

5.4.1 Technical capabilities and technical planning (Art. 23 para. 1 letter a TCA; Art. 16 para. 2 OFMRL)

The candidate shall indicate the extent to which it, its partners or its agents possess the necessary technical capabilities. It shall designate a responsible technical person.

5.4.2 Compliance with applicable law

A candidate must guarantee that it complies with the applicable law, specifically the TCA, the corresponding implementing regulations and the licensing requirements. In this regard, it must:

1. state the organisational measures by means of which it will ensure compliance with the provisions relating to privacy and data protection in accordance with Art. 46 TCA as well as telecommunications law, specifically with regard to telecommunications secrecy in accordance with Art. 43 TCA.
2. specify whether it , related companies or persons involved in its company have been or are affected by one of the following measures within the five years preceding the submission of the bid, at home or abroad:
    - revocation of licences or authorisations in the telecommunications sector awarded by the state,
    - imposition of restrictions due to disregard of obligations under licences awarded by the state or authorisations in the telecommunications sector.
    - prosecution for a breach of the applicable national or international telecommunications law, the rules on cartels and other restraints on competition, the rules on unfair competition, employment law or for a breach of data protection provisions.
    - a pending procedure relating to any of the above-mentioned cases.

5.4.3 Effects on competition

The award of a radio communication licence must not significantly impede effective competition, except where reasons of economic efficiency justify an exception (Art. 23 para. 4 TCA).

Only those candidates who have sufficient economic independence from other candidates may participate in the auction. One or more undertakings under unified economic management cannot submit multiple independent candidatures.

The candidate shall indicate

- other companies active in the telecommunications sector with which it constitutes an economic or legal entity;
- other companies in the telecommunications sector which it is obliged to assist owing to actual circumstances.

The candidate shall name

- the shareholders or members whose share of the company capital is more than ten percent;
- the groups of shareholders or members who, for various - especially legal - reasons may jointly exercise significant influence on the decisions of the candidate (e.g. a shareholder pact).

The applicant shall disclose

- other telecommunications companies in which it has a financial interest;
- other companies with which it cooperates within the framework of technology partnerships, purchasing or marketing partnerships or other types of cooperation.

Sufficient economic independence between the candidates must be ensured throughout the award process. A merger of two or more candidates, and any process such as the acquisition of shares or the conclusion of a contract, which, directly or indirectly, gives a candidate control over a candidate previously independent of it or over parts of such, must be reported to the licensing authority and may lead to the disqualification of one or all participating candidates from the award procedure or to special licence conditions.

In the event of doubt about the possible impact of the award of a licence on competition, the licensing authority shall consult the Competition Commission. If the participation of a candidate might adversely affect effective competition, it may be excluded from participation.

5.5 Provisions of building, planning and environmental law

5.5.1 Spatial planning and protection of the environment

The party making a submission must list the measures it wishes to take to ensure compliance with the requirements of spatial planning[17] and the protection of the environment[18], the landscape and nature[19].

[17] Guidelines on the problem of mobile radio installations and spatial planning, Federal Office for Spatial Development, December 2004 (http://www.are.admin.ch/dokumentation/publikationen/00056/index.html?lang=de&download=NHzLpZeg7t,lnp6I0NTU042l2Z6ln1acy4Zn4Z2qZpnO2Yuq2Z6gpJCDd4J5gGym162epYbg2c_JjKbNoKSn6A-- only available in German, French and Italian)

[18] CC 814.01

[19] Mobile radio antennae: Consideration of the requirements of protection of nature and the countryside, Notice dated 30 October 1998, Federal Office for the Environment, Forests and the Countryside

5.5.2 Ordinance on Protection from Non-Ionising Radiation OPNIR

The party making a submission must present the planned measures to ensure compliance with the provisions of the Ordinance on Protection from Non-Ionising Radiation[20].

5.6 Licence conditions

With regard to the conditions of use cited in Section 3.1.4, the candidate shall attach a map with the planned geographical provisions including planned deadlines for the achievement of such provisions.

[20] Ordinance concerning Protection from Non-Ionising Radiation of 23 December 1999 (OPNIR; CC 814.710)

6 Auction

This chapter provides a summary overview of the auction. The auction rules mentioned in Annex III are still subject to adjustments. The definitive auction rules will be communicated to the participants in detail after the authorisation decision has been issued.

6.1 Auction structure

6.1.1 General

The auction will be conducted over the public internet using an electronic auction system. Further details about the necessary hard- and software will be provided to each qualified bidder in due time. OFCOM intends to conduct a mock auction for approved candidates before the auction starts so that there is an opportunity to become acquainted with the electronic auction system.

The design of the auction for categories A to J is a combinatorial clock auction and it generally proceeds in two stages:

- The first stage is the so-called principal stage, and it determines the number of generic lots that are to be awarded to each winning bidder in each of the categories A to J, and the base prices that have to be paid by winning bidders for the packages of generic lots they won.
- The second stage is the so-called assignment stage. It determines the specific frequencies in categories A to J that are awarded to each winning bidder and any additional prices that must be paid by bidders for being assigned specific frequencies. It consists of a single round of bidding.

For category K (2010-2025MHz), there is a separate bidding stage f. This is a single round second price, sealed bid auction (Vickrey Auction) for the single lot available.

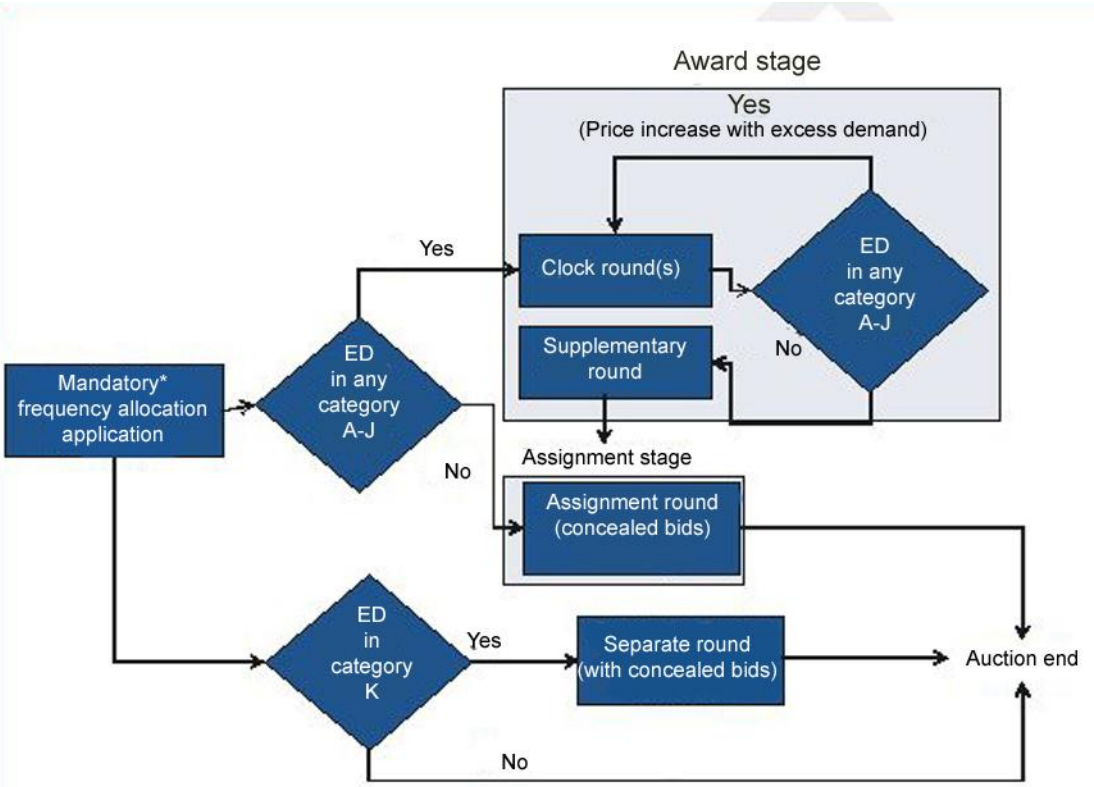
6.1.2 Implementation of the first auction stage and the additional bidding round

Upon completion of the assessment of applications, a principal stage is required if, for one or more of the categories A to J, the sum across all bidders of lots specified in each bidder's lot application form for the respective category exceeds the number of lots available in that category (i.e. if there is at least one category in categories A to J for which demand exceeds supply).

A separate bid round for 2010-2025 MHz (see chapter 6.5) is required if two or more bidders have included the category K lot in their lot application. If a separate bid round for 2010-2025 MHz is not required, the (single) bidder (if any) who requested the category K lot in its lot application form will be considered the winner of this lot. The successful bidder will have to pay the reserve price.

ComCom will announce whether the principal stage and a separate bid round for the frequency block 2010-2025 MHz is required in accordance with the rules.

The overall process of the auction is illustrated in the figure below. A description of this process is provided in Section 1.4 of the auction rules.



*"Binding" means that if there is no scarcity of frequencies in all the categories being put out to tender (.i.e. if the first stage of the auction does not take place), the applicant must accept unconditionally and irrevocably the frequency blocks applied for at the minimum bid. Otherwise, the information provided in the frequency allocation application (Annex IV) determines the eligibility points, i.e. the extent of the bids which can be made in the auction (cf. section 5.2 and 1.2.4 and 1.2.5 of the auction rules).

6.2 Reserve prices and eligibility

There is a minimum price attached to each lot as well as a number of eligibility points. The eligibility points determine the maximum amount (maximum number) of abstract frequency blocks for which a bidder may bid in the first auction stage. The eligibility points and the reserve prices for category A to K are summarised in the table below.

Bid category	Frequency block size	Eligibility points per frequency block	Minimum bid (CHF) per frequency block
Category A	2x5MHz	6	21.3 million
Category B	2x5MHz	6	21.3 million
Category C	2x10MHz	4	16.6 million
Category D	2x5MHz	2	7.1 million
Category E	5MHz	1	4.15 million
Category F	5MHz	1	2.7 million
Category G	2x5MHz	2	8.3 million
Category H	2x5MHz	2	5.4 million
Category I	2x5MHz	2	8.3 million
Category J	15MHz	3	12.45 million
Category K	15 MHz	Not applicable	12.45 million

6.3 Overview of the principal stage

The principal stage, if required, consists of:

- a number of primary rounds followed by
- a supplementary round.

All bids made in the principal stage are package bids. This means that a bid may only win in its entirety and a bidders cannot win a combination of lots for which they did not place a package bid. The maximum amount of spectrum which a bidder may acquire by auction is limited on the one hand by the total number of eligibility points (Section 6.2) and on the other hand by the spectrum caps fixed by ComCom (Section 2.2.3).

6.3.1 Primary rounds

In the first primary round, the initial price for each of the categories A to J will be set equal to the reserve price for that category. Each bidder can submit one bid stating the number of lots in each category on which she wishes to bid at the given prices, subject to the activity rule described below and to the overall spectrum caps. When the primary round is closed, demand is aggregated across all bidders. If demand exceeds supply in any category, another primary round is scheduled. In subsequent primary rounds, the auction manager will increase the price for lots in a particular category if demand for lots in that category exceeded supply in the previous round.

The primary rounds end after a round in which there is no excess demand for lots in any of the categories.

Bidders are subject to an activity rule whose purpose is to encourage bidders to reveal their demand at different price levels in order to support a price discovery process. A bidder's activity in a round, measured as the sum of eligibility over all the lots included in her bid, cannot exceed her eligibility for that round. A bidder's initial eligibility is determined by the sum of eligibility points of all lots included in her frequency allocation application. In any subsequent primary round, her eligibility is equal to her

activity in the previous primary round. This implies that a bidder's eligibility may remain constant or decrease throughout the primary rounds; it cannot increase.

6.3.2 Supplementary round

The supplementary round offers bidders an opportunity, subject to certain constraints, to:

- express their maximum willingness to pay for packages on which they have bid in the primary rounds; and
- submit bids for packages on which they did not bid in the primary rounds.

The constraints on supplementary bids are as follows:

- Supplementary bids can be submitted only for packages where the sum of eligibility points across all lots in the package is equal to, or less, than the bidder's initial eligibility.
- Any supplementary bid must not be smaller than the sum of reserve prices across all the lots in the package.
- Any supplementary bid submitted for a package on which the bidder has bid during the primary rounds must be greater than the corresponding primary bid.
- If a bidder was active in the last primary round, the supplementary bid made on the combination of lots (package) of the last primary bid is unconstrained.
- If the bidder was not active in the last primary round, a supplementary bid for the package of the bidder's last primary bid is constrained to an amount that is determined by applying the prices in the round after the last primary bid to the lots included in this package (i.e. by applying the prices of the last round in which the bidder was eligible to bid on that package to the component lots of that package).
- All other supplementary bids are constrained by the following rule: for any package A (other than the package of the bidder's last primary bid), an anchor package is determined as follows. Suppose the bidder was last eligible to bid for A in round n, but that in round n, the bidder made a primary bid for package B with a lower sum of eligibility points across lots. Then package B is the anchor package, and the supplementary bid for A cannot exceed the bidder's highest bid for B plus the price difference between A and B at the prices of round n. Note that the bidder's highest bid for B could be either a supplementary bid or a primary bid.

The consequence of these rules is that all bids are constrained relative to the bid for the final primary package by a difference determined through the primary bids (more specifically: by the prices in the round in which a bidder reduced her eligibility). In this respect, a bidder's supplementary bids have to be consistent with the preferences she revealed in the primary rounds.

The exact determination of these caps is explained in the auction rules. The electronic auction system will automatically calculate these for bidders and it will not be possible to submit bids that do not comply with the caps.

6.3.3 Winner determination and calculation of base prices

The winning bids are the combination of those bids, selected from all primary and supplementary bids submitted during the primary and supplementary bid rounds, that generate the highest total value subject to accepting at most one bid from each bidder, and not allocating more lots than are available in each category.

Base prices are determined according to Section 3.3.27 - 3.3.29 in the auction rules. They are the lowest prices which the successful bidders (together) would have had to bid in order to be successful with their respective bids. In addition, the base price of any successful bid shall be at least as high as the sum of the minimum bids for the respective abstract frequency blocks. The calculation of base prices is explained in detail in the auction rules.

6.4 Overview of the assignment stage

The principal stage will have already determined how many generic lots each bidder will receive in each category and the base prices that successful bidders have to pay for their respective packages, but not the specific frequencies that these bidders are to be assigned. The purpose of the assignment stage is to determine how the available frequencies in categories A to J are distributed in the relevant frequency bands amongst winners of the principal stage, and any additional prices to be paid by each winning bidder for obtaining a specific assignment.

All bidders that have won multiple lots in the same frequency band are guaranteed to receive contiguous frequency assignments within that band.

The assignment stage is a sealed-bid round. There is a separate assignment bidding procedure for each frequency band, although bidding will take place simultaneously for all bands where the assignment of frequencies needs to be determined through a bidding process.

Each bidder who has won lots in the principal stage will be presented with a list of possible assignment options for her, and would have the opportunity to bid the amount that she would be willing to pay for a given specific assignment in each band in addition to the overall base price determined in the principal stage. Winners who are indifferent between the different assignment options do not have to make any assignment bids. As in the principal stage, winners will be determined by identifying the feasible combination of bids with the highest total value, accepting exactly one bid from each bidder (which may be a zero bid representing indifference).

Additional prices will be determined using the same principle as for the base prices. They are the lowest prices which the successful bidders (together) would have had to bid in order to be successful with their respective bids. The calculation of additional prices is explained in detail in chapter 4.8 of the auction rules.

6.5 Separate bid round for 2010-2025 MHz

The round is separate from the principal and assignment stages conducted for categories A to J.

The 2010-2025 MHz round follows a single round, sealed bid format. All eligible bidders can submit one bid for the lot in category K within the same fixed time window.

Only bidders who have included the category K lot in their lot application form are eligible to participate in a separate bid round for 2010-2025 MHz.

7 Violations of the law and consequences thereof

7.1 Collusion

From publication of the tender documents onwards, it is forbidden for parties interested in participation to establish contact with other parties interested in participation directly or indirectly via intermediaries or to exchange information with the aim of influencing the outcome of the auction. Public notification of presumed or actual bidding strategies or concrete bids or other statements likely to influence the participation or bidding behaviour of third parties is also forbidden.

Candidates who act in collusion as defined in the paragraph above may not be allowed to take part in the auction or may be excluded from the bidding procedure, depending on the stage of the procedure. A licence which has already been awarded will be revoked without compensation. The provisions of Section 7.3 below shall apply *mutatis mutandis*.

7.2 Non-participation in the auction

Any candidate who has submitted an application in accordance with Section 4.4.1 and fulfilled the conditions for admission to the auction procedure and who does not participate in the auction remains liable to a proportion of the administration fees for the invitation to tender and award of the licences. Further liability claims in accordance with Section 1.2.4 of the auction rules (Annexe III) are reserved. Furthermore the non-participating candidate may be subject to an administrative penalty in accordance with Art. 60 TCA.

7.3 Infringement of the auction rules

In the event that a bidder breaches the auction rules and if the breach is likely to influence the outcome of the bidding procedure to the detriment of the other bidders, the fallible bidder may be excluded from the bidding procedure. If there is a risk of delay, the exclusion may take place without a previous hearing of the fallible bidder. Apart from the exclusion, an administrative penalty as defined in Art. 60 TCA may also be imposed on it.

An exclusion may be decreed up to the time of award of the licence. If the infringement comes to the attention of the licensing authority only after the award of the licence, the licence will be revoked without compensation within the framework of a surveillance procedure. In principle, the legal effectiveness of the other licences awarded on the basis of the auction will not be affected by such a revocation.

An exclusion may be dispensed with if the infringement has no effects on the outcome of the bidding procedure. In this case the imposition of an administrative penalty as defined in Art. 60 TCA is reserved.

7.4 Other infringements

A bidder may be excluded at any time from the bidding procedure if it is found that it has obtained its authorization to take part in the auction through false information or if for other reasons it does not fulfil or no longer fulfils the authorization requirements defined in the present document.
The provisions of Section 7.2 above shall be applied *mutatis mutandis*.

7.5 Consequences of an exclusion

If a bidder is excluded from the bidding procedure because of an infringement of the auction rules, the bidding rounds affected by the infringement will be cancelled and the bidding procedure will be repeated.

8 Annexes

Annex I: Breakdown of preferential frequencies

Annex II: Designation and description of frequency blocks

Annex III: Auction rules

Annex IV: Frequency allocation application

Annex V: Specimen template for the bank guarantee

Annex VI: Specimen licence

Annex VII: Restrictions on submission of bids in the 900/1800 MHz band