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Federal Communications Commission ComCom

Federal Office of Communications OFCOM

New award of mobile radio frequencies:

Results of the auction

ComCom media conference

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Why this invitation to bid?

All mobile radio frequencies auctioned together

- Bidders can purchase a new, future-proof spectrum package
- A world first

Expiring licences:

- GSM licences (900 + 1800 MHz): End of 2013
- UMTS licences (2100 MHz): End of 2016

Many new mobile radio frequencies are available:

- "**Digital dividend**" (in the 800 MHz band)
  - ⇨ Good propagation properties (even inside houses)
  - ⇨ Switzerland one of the first countries in Europe
- **UMTS extension band** (2600 MHz)
  - ⇨ Suitable for LTE technology with high bandwidths

Goals: - more frequencies for more bandwidth in mobile communications
- efficient use of spectrum with new technologies (LTE)

Rapidly growing data traffic in mobile radio

Rapidly increasing amounts of data on mobile radio networks

- ⇨ Doubling every 9-12 months

More and more **smartphones (iPhone, Android devices, etc)**:

- ⇨ > 350 000 apps (incl. social networks such as Facebook and Twitter)
- ⇨ mobile internet, mobile TV, YouTube...
- ⇨ "Cloud computing" also mobile: same content present everywhere

Business Mobility:

- ⇨ Office applications and content on all devices
- ⇨ new, flexible forms of working

➔ **All internet applications and content anywhere, anytime on a mobile phone**

➔ **Increase in network capacity essential**

New mobile radio technologies are coming

HSPA+ (Evolved High Speed Packet Access "plus")

- Considerable increase in transfer rates (compared with UMTS)
- Market-ready devices are already available

LTE (Long Term Evolution of UMTS; 4G)

- 3 to 4 times higher spectrum efficiency than UMTS/HSPA
- Increase in data rates to up to 100 Mbit/s in the downstream
- Greater capacity in the network at a relatively low cost

➔ **New generation of mobile communications**
e.g. mobile HDTV, video streaming, on-line gaming…

Why an auction?

- **A transparent procedure**
- **The market determines the value of frequencies**
- **The market decides on the scope of the licences** (not the regulator):
  - ⇨ therefore: **auction of small frequency blocks**
  - ⇨ Operators can acquire a new spectrum package which corresponds to their business models for the future
- **Equal treatment of all candidates:**
  - ⇨ All were able to take part on equal terms
  - ⇨ No unilateral preference for any new entrants

➔ Network operators purchase spectrum corresponding to their needs

➔ No new market entry of an other network operator

Result of the auction:
CHF 996'268'000

Frequency band	Orange	Sunrise	Swisscom
800 MHz	20 MHz	20 MHz	20 MHz
900 MHz	10 MHz	30 MHz	30 MHz
1800 MHz	50 MHz	40 MHz	60 MHz
2.1 GHz FDD	40 MHz	20 MHz	60 MHz
2.1 GHz TDD	0	0	0
2.6 GHz FDD	40 MHz	50 MHz	40 MHz
2.6 GHz TDD	0	0	45 MHz
Adjudication price	**154‘702‘000**	**481‘720‘000**	**359‘846‘000**

Goals of the frequency allocation achieved

- **Consumers benefit:**
  - ✓ **Technological innovation continues**; new broadband services.
  - ✓ **High quality and good coverage**
- **Technological progress supported:**
  - ✓ **free choice of technology**
  - ✓ Operators can **use LTE**
    (high-speed broadband even in peripheral regions)
- **A frequency allocation with a promising future:**
  - ✓ All network operators acquire **good spectrum + more spectrum**
- **Long-term planning and investment security:**
  - ✓ Network operators can plan **up to 2028**
- **Appropriate proceeds from the auction:**
  - ✓ A scarce public resource **valorised appropriatey**
  - ✓ Benefits the **community**

Martin Dumermuth and **Urs von Arx**, OFCOM:

Implementation of the award procedure,

sequence of the auction and licensing

Reasons for the chosen form of the auction

- The participants in the auction can bid on frequency packages.

- The frequency packages correspond to their business model
  - Value, for which bidders are prepared to pay
  - Continuity for existing licensees:
    - Consistent with the existing frequency allocation

Multi-phase sequence of the auction

- Auction in two stages. The bidders were able:
  1. to combine frequency ranges optimally;
  2. bid in a second phase bid for the preferred frequencies within the individual ranges.

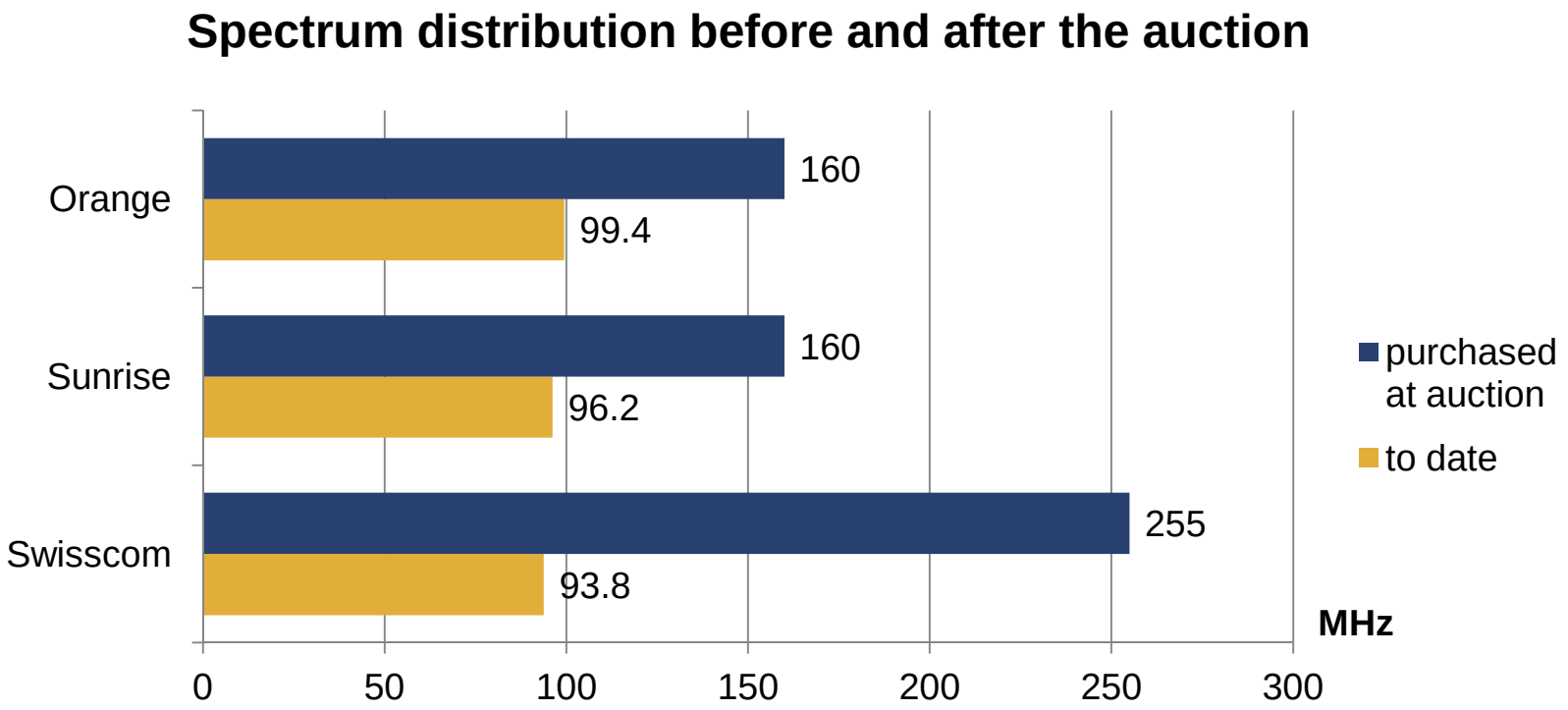
- The auction took place over the internet from the bidders' company headquarters

Bidding restrictions

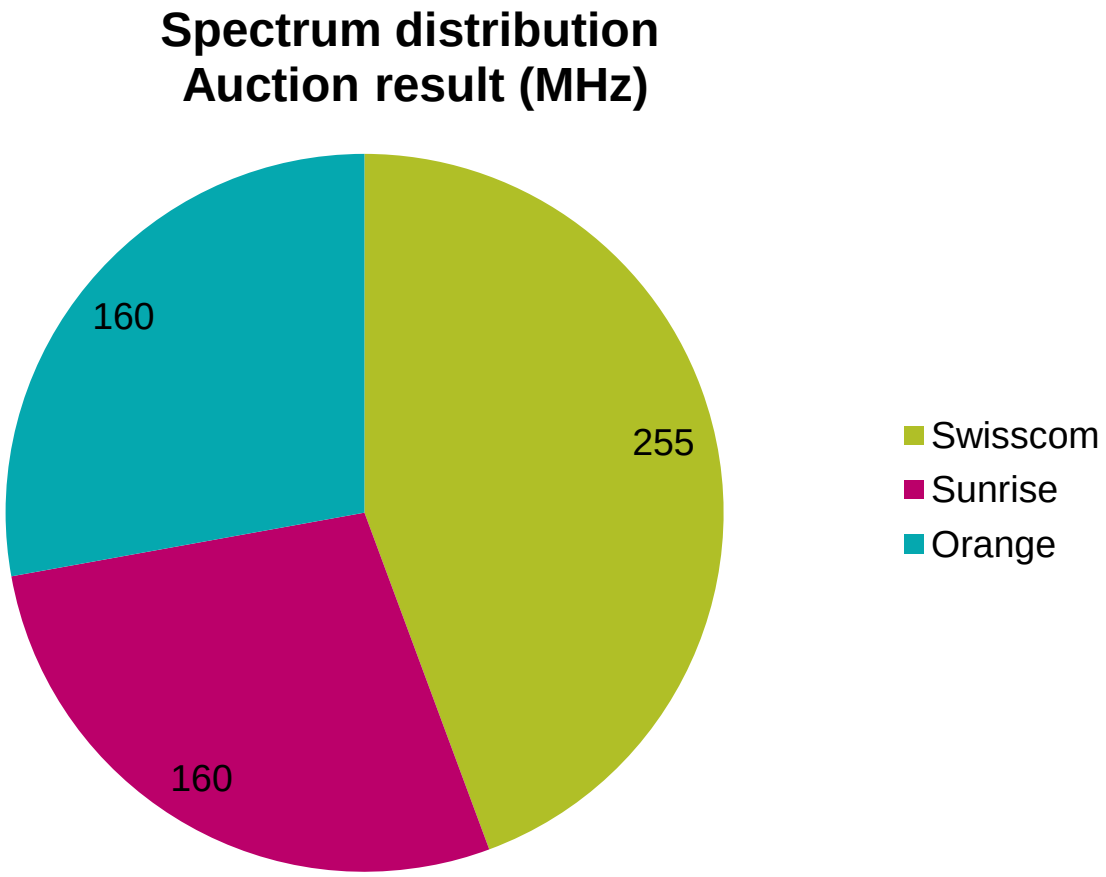
Bidding restrictions (spectrum caps)

- Maximum extent of frequencies per frequency band
- Competition
  - Enabling competition during the auction
  - Increasing competition as much as possible after the auction by ensuring sufficient spectrum per bidder
- No bidder may acquire the entire 900 MHz spectrum (GSM)
- No market displacement of existing operators possible
- Existing UMTS operators can purchase at least the current range of frequencies in the 2100 MHz band (UMTS)
- No single bidder can dominate the major part of the GSM spectrum (900 MHz, 1800 MHz)

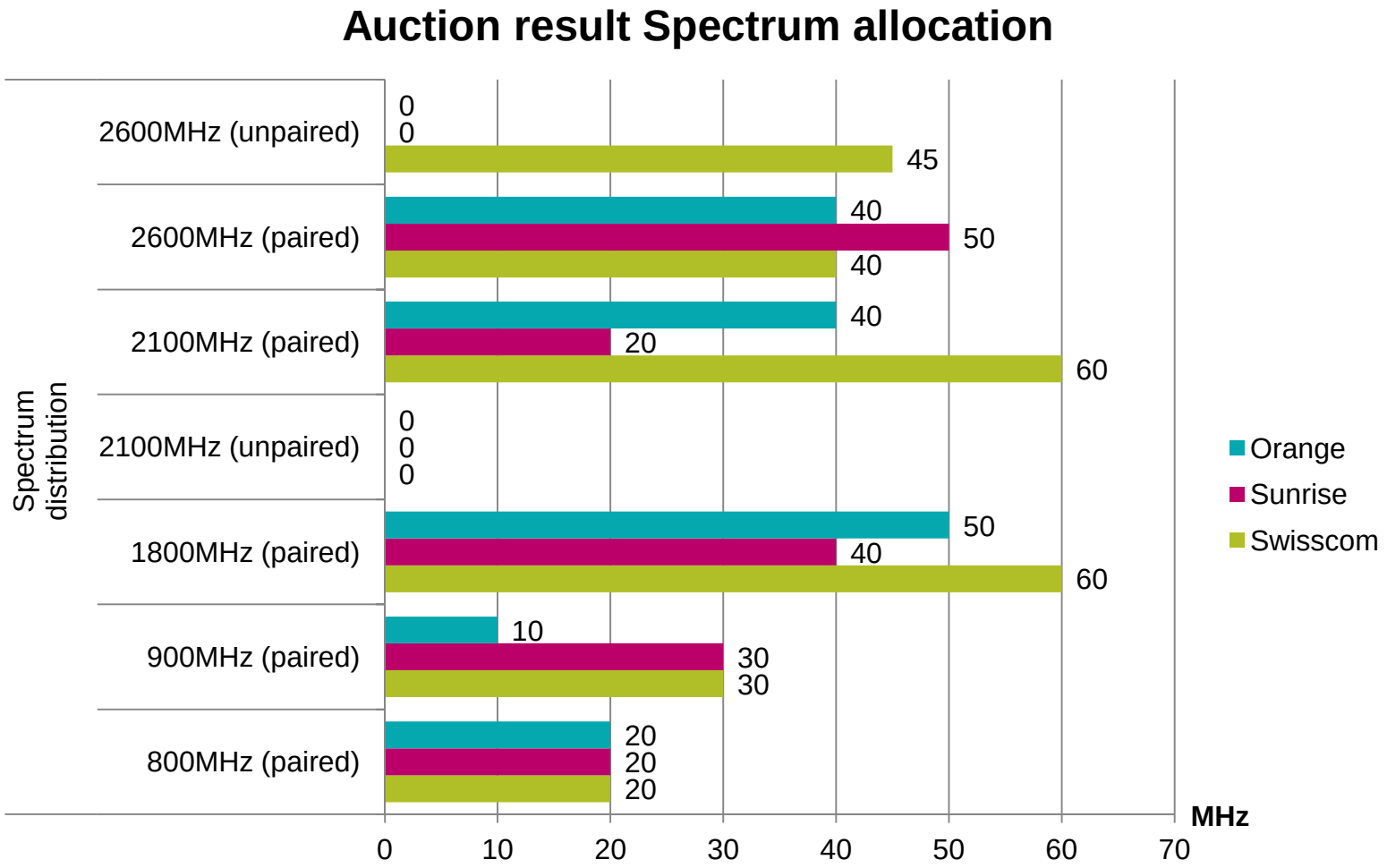
Distribution of the frequency spectrum (I)



Distribution of the frequency spectrum (II)



Allocation of the frequency spectrum



Licences (1)

- Term
  - Planning/investment security: early allocation and a term extending until 2028
  - Utilisation of free frequencies from award of licence onwards

- Neutrality with respect to technology
  - Flexible utilisation of the spectrum for future developments

- Conditions relating to utilisation
  - Gradation:
    - 50% population coverage for frequencies < 1 GHz
    - 25% population coverage for FDD frequencies > 1 GHz
    - General obligation to use TDD frequencies > 1 GHz
  - No frequency hoarding
  - Freedom with respect to configuration (coverage, quality)
  - Supervisory procedures in the event of non-compliance

Licences (2)

- Protection from immissions and spatial planning
  - Conditions as strict as those in existing licences
  - Provisions of Ordinance on Protection from Non-Ionising Radiation (OPNIR)
  - Shared use of sites outside the construction zone
  - Informing the cantons about network planning in good time