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Working Party on Communication Infrastructures and Services Policy

WIRELESS BROADBAND INDICATOR METHODOLOGY

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FOREWORD

This document details the agreed methodology for the OECD's wireless broadband indicator. It was discussed by the Working Party on Communication Infrastructures and Services Policy in December 2009 which agreed to forward the document to the Committee for Information, Computer and Communications Policy (ICCP) for declassification. The ICCP Committee agreed to the declassification of the paper in March 2010.

BACKGROUND

The wireless broadband methodology is the result of several rounds of contributions from, and in-depth discussions among, member countries. The new indicator will assist in informing policy makers and other stakeholders in this increasingly important market segment. The OECD began collecting and reporting broadband data in 2000 as a way to capture and record significant changes in OECD markets for Internet access. The OECD set the minimum threshold for broadband at a download speed of 256 kbit/s at the time, primarily to exclude ISDN technologies at 144 kbit/s and to include the majority of commercial offers then available via other technologies.

Wireless broadband technologies (such as fixed wireless and satellite) have always been included in the historical OECD broadband subscriber statistics, although they have only accounted for a small percentage of total connections. Less than 2% of all reported broadband subscriptions were wireless (fixed and satellite) in June 2008. Mobile network subscriptions (with data services) were not included by the OECD or the ITU in broadband statistics due to their slower speeds and difficulties determining actual use.¹

There have been significant advances in wireless and wired broadband since the OECD first started reporting the number of broadband subscriptions. As highlighted in the *Communications Outlook 2009*, operators directed large amounts of investment to upgrading mobile networks so they could offer higher-speed connectivity. These upgraded 3G (IMT-2000) mobile networks now provide much higher-speed connections than were originally available at the beginning of the data collection. Examples of high-speed wireless data networks available in the OECD are HSDPA², CDMA2000 upgrades³ and WiMAX⁴. The mobile industry is also preparing for another significant upgrade to forthcoming platforms such as Long Term Evolution (LTE) which will provide even higher bandwidth to end users.

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1. It is worth noting that early mobile data technologies such as WAP played an important role in the growth of wireless Internet access and they will continue to be used for the near future in countries such as Korea and Japan.
 2. HSDPA (UMTS) is capable of sharing 14.4 Mbit/s of capacity among all end users in a given cell. As of June 2007 there were a total of 120 HSDPA operators worldwide and commercial networks in 27 of the 30 OECD member countries (3G Americas, 2007).
 3. CDMA2000 networks can also offer “broadband-type” speeds to end users. Qualcomm announced that the next revision of the technology (CDMA2000 1xEV-DO Rev B) will offer a maximum bandwidth of 14.7 Mbit/s in a cell area and should be available in 2007 (Qualcomm, 2007).
 4. Other portable Internet technologies exist which are not tied to mobile phone networks. One of the most well-known is WiMAX. Korea’s WiBro technology (a type of WiMAX) allows users to connect at up to 3 Mbit/s in fast-moving vehicles and has roughly 2 000 subscribers in Seoul.

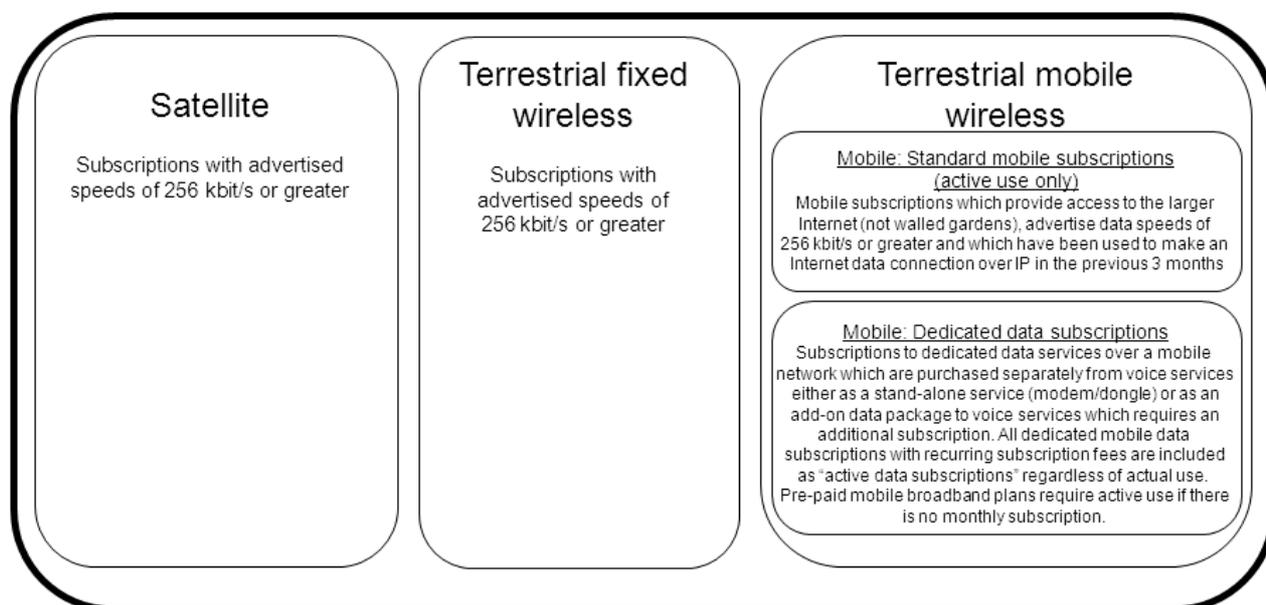
METHODOLOGY

Figure 1 provides a graphical breakdown of the elements in the new wireless broadband methodology. The methodology is also given in an annex at the end of the document.

The indicator is made up of three major components: satellite, terrestrial fixed wireless, and terrestrial mobile wireless. All components include only connections with advertised data speeds of 256 kbit/s or greater.

Figure 1. Wireless broadband indicator

November 2009



The terrestrial mobile wireless category contains two subcategories: standard mobile subscriptions with active data use and dedicated mobile data subscriptions. We will request data from countries broken down by the two subcategories but may simply report them as a combined indicator if a significant number of countries cannot provide the breakdown.

The first subcategory for standard mobile subscriptions includes typical mobile voice subscriptions which also provide access to the larger Internet via HTTP at advertised speeds of at least 256 kbit/s and which have been used to make an Internet data connection using Internet Protocol (IP) in the previous three months. In order for subscriptions to be considered in this category they need to provide access to the broader Internet and not just walled-garden or on-network content.

The second subcategory counts the number of dedicated data subscriptions on mobile networks advertising speeds of at least 256 kbit/s which are purchased separately from voice services either as a stand-alone service (modem/dongle) or as an add-on data package to a voice service requiring an additional subscription. All dedicated mobile data subscriptions with recurring subscription fees in this second subcategory are included as “active data subscriptions” regardless of actual use. The exception is that pre-paid data plans without recurring subscription fees will require active use to be counted.

Figure 2 provides a breakdown of the active use requirement for terrestrial mobile wireless subscriptions.

Figure 2. Terrestrial mobile wireless: Summary of included and excluded items by usage requirement

	Active use Used for an Internet data connection over IP in the previous 3 months	Not Active use Not used for an Internet data connection over IP in the previous 3 months
Standard Mobile Subscriptions Mobile subscriptions where data is available but not purchased as a separate subscription	INCLUDE	EXCLUDE
Dedicated Data Subscriptions Recurring subscriptions to dedicated data services over a mobile network that are purchased separately from voice. Can be a stand-alone service (modem/dongle) or an add-on service to a voice plan	INCLUDE	INCLUDE*

* Prepaid data plans without recurring subscription fees require active use to be counted.

Summary of key elements

Wireless connections using satellite or terrestrial fixed wireless have historically been based on a monthly data subscription model which corresponds to the fixed broadband methodology currently used by the OECD. It is the terrestrial mobile segment which poses particular challenges in terms of the statistics due to the fact that many mobile phones are “broadband capable” but the Internet data services are never used. The OECD organised an expert meeting and requested comments from member countries on the best way to integrate the mobile segment with other wireless technologies to create a meaningful and useful statistic. The decisions of the working party, with input from the expert working group, are provided below.

Actual use

The **standard mobile subscriptions included in the terrestrial mobile wireless broadband component must have actual data usage in the previous three months** to be counted.

The OECD does not impose a use requirement in order for fixed (wired) broadband subscriptions to be included in the published OECD statistics. Satellite and fixed-wireless subscriptions have long been included in the historical methodology without a usage requirement. It was decided, however, that it is necessary to impose a use requirement on certain types of mobile subscriptions. This is done to exclude mobile phone subscriptions which are capable of accessing the Internet, but that have not been used for such data access.

The expert group spent considerable time discussing the use requirement for terrestrial mobile wireless and eventually decided on a definition which separates broadband on mobile networks into two groups: standard mobile and dedicated data subscriptions.

Standard mobile subscriptions

In order for standard mobile subscriptions to be counted the subscription must provide access to the larger Internet using HTTP and must have been used for an “Internet data connection” during the previous three months. Below are the requirements for standard subscriptions to be counted as “active” broadband use.

1. The subscription must allow for access to the greater Internet via HTTP. Subscriptions which only offer “walled garden” or email-only services will not be considered. A subscription is not counted if a terrestrial mobile operator only provides access to a limited number of websites, content, and/or applications such as games, ring tones, music, and pictures that are offered directly by the mobile operator and customised for that operator’s network and devices.
2. “Active use” on a standard mobile subscription requires an Internet data connection during the previous three months. The Internet data connection is a connection to content or services using the Internet Protocol (IP).
3. Standard SMS and MMS messaging do not count as an active Internet data connection even if they are delivered via IP.
4. E-mail and instant messaging traffic delivered over IP only qualify as an active data use if the subscription allows for general HTTP access.
5. In cases where data access (limited with a data cap or not) is bundled in with a subscription and not sold separately, the subscriber will only be counted if they have made an Internet data connection in the previous three months.
6. Table 1 provides examples of different mobile/data plans found in the OECD and how they are counted under the methodology.

Dedicated data subscriptions

7. Many mobile operators offer stand-alone data services which often use a dongle or other style of modem which is not attached to a voice plan. These plans are automatically included and there is no use requirement if there is a recurring subscription fee.
8. If the mobile voice subscriber pays a separate monthly subscription fee for data access then the mobile device would automatically be considered active. This is done in an effort to harmonise with the other wireless broadband categories (*i.e.* satellite and terrestrial fixed wireless). An example would be a mobile phone plan which offers users a data option for an additional fee each month. If the user pays for the separate data fee then the subscription is considered a dedicated data subscription and there is no use requirement to be included in the count.
9. Prepaid mobile data plans, even if they are stand-alone services, require active use in the previous three months to be counted if they do not have a recurring subscription fee.

Table 1. Active use: several voice and data package scenarios and how they are counted in the methodology

Type of plan	Voice segment	Data segment	How counted
Stand alone voice	Standard voice subscription	No subscription. Pay as you go data.	Must have active use.
3G dongle/modem subscription	None	Monthly subscription for data	Automatically counted as active.
Bundled voice and limited data	Standard voice subscription	Some data included in monthly subscription	Must have active use because the data plan is not purchased separately.
Bundled voice and unlimited data	Standard voice subscription	Advertised as “unlimited” data in the combined package but data caps are still common.	Must have active use because the data plan is not purchased separately.
Stand alone voice plan where the user subscribes to an add-on data plan	Standard voice subscription	Separate data plan	Automatically counted as active because the user purchased the data plan separately.
Stand alone voice plan where the user buys data credits periodically to fill up the account	Standard voice subscription	No stand-alone data subscription. Only pay-as-you-go credits.	Must have active use because there is no data service purchased separately from voice.
Pre-paid data-only plan using wireless modem	No subscription	No subscription	Must have active use.

In summary, there is no use requirement imposed on the first two categories (satellite and terrestrial fixed wireless). In the last category for terrestrial mobile wireless, subscriptions are counted as active either if there was a dedicated data subscription with a recurring fee or if a subscription allowing access to the greater Internet via HTTP has been used to make an IP data connection during the previous three months.

Handset/modem breakdowns

There is **no differentiation between handsets and modems** in the data collection.

A number of regulators gather data on mobile broadband subscriptions based on a breakdown of handsets and modems. The breakdown, while appealing, is imprecise because many handsets can be used in tethering mode as a modem. The distinction between handsets and modems is already blurring in many circumstances and it was decided that this breakdown was insufficiently “future-proof” for inclusion in the methodology.

The methodology can still be used to proxy the growth of certain types of connections. Mobile subscriptions using a dedicated modem fall into the second subcategory of terrestrial mobile wireless subscriptions. The ratio of dedicated subscriptions to total wireless broadband subscriptions could still provide policy makers with important information on the breakdown of the market for mobile broadband within their countries.

Data limits

Data caps / bitcaps were applied to 36% of all broadband connections in the OECD in September 2008. The percentage was much higher for wireless broadband over satellite and fixed-wireless networks at 63%. Broadband plans over mobile networks were the most restrictive due to spectrum availability limitations, with 89% of offers imposing a data limit each month.

Data limits over all technologies can range from 20 megabytes of usage per month up to 200 gigabytes of data traffic each month or more across all plans.

It was decided there would be **no data allowance threshold for statistics** to be included in the wireless broadband data collection. The OECD has never required a certain traffic allowance for fixed-line broadband and it was decided that imposing a minimum usage allowance would be ineffective because regulators would not have access to this data in most cases. As a result, data limits are not considered as part of the mobile broadband methodology.

Fixed/mobile

The OECD will **gather fixed-wireless and mobile broadband statistics under the umbrella of a new wireless broadband indicator**. Fixed-wireless subscription data historically have been included in OECD broadband statistics in the subset of “Other” broadband connections while data on high-speed Internet connectivity over mobile networks was excluded.

This wireless broadband indicator now pulls together both fixed-wireless technologies such as satellite and mobile technologies such as IMT-2000 (3G). Currently, fixed-wireless statistics are included in the historical broadband data collection but account for only 2% of total connections. These data will be shifted out of the historical data collection and merged into this new wireless broadband indicator. The OECD will then publish two separate broadband indicators, one wired and the other wireless.

Speed

The speed threshold for inclusion in the data should remain at 256 kbit/s.

There were discussions about raising the minimum threshold for wireless connections to be considered “broadband”. The current level of 256 kbit/s applies well to mobile because it includes third-generation mobile technologies while excluding second-generation technologies such as GPRS.

A data limit other than 256 kbit/s would be artificial and of little use to policy makers and researchers because actual speeds on wireless networks vary so significantly from advertised theoretical speeds.

Collection schedule

The OECD currently collects and publishes broadband statistics twice a year and any new wireless broadband statistics would be gathered and collected on the same schedule. There have been some suggestions to move from a biannual to an annual data collection for all broadband data and if the Working Party on Communication Infrastructures and Services Policy (CISP) agrees to move in this direction, the new wireless broadband indicator would also be collected once per year.

Conclusion

It is important for the OECD to have an indicator which measures the development of wireless broadband connections across countries. The indicator methodology formulated in February 2009 at an OECD expert meeting in Lisbon and revised based on comments from OECD delegations appears to be robust and sufficiently forward looking.

The Secretariat will also continue working with international organisations such as the ITU and regional bodies such as the EU to harmonise methodologies and reduce the burden on regulatory and statistical agencies.

METHODOLOGY FOR THE OECD WIRELESS BROADBAND INDICATOR

1. Satellite: Subscriptions with advertised download speeds of at least 256 kbit/s.
2. Terrestrial fixed wireless: Subscriptions with advertised download speeds of at least 256 kbit/s.
3. Terrestrial mobile wireless:
 1. Standard mobile subscriptions (only included with active use): Includes mobile subscriptions which advertise data speeds of 256 kbit/s or greater and which have been used to make an Internet data connection via IP in the previous 3 months. To be counted, the subscription must allow access to the greater Internet via HTTP and must have been used to make a data connection using the Internet Protocol in the previous three months. Standard SMS and MMS messaging do not count as an active Internet data connection even if they are delivered via IP.
 2. Mobile: Dedicated data subscriptions: Subscriptions to dedicated data services over a mobile network which are purchased separately from voice services either as a stand-alone service (modem/dongle) or as an add-on data package to voice services which requires an additional subscription. All dedicated mobile data subscriptions with recurring subscription fees are included as “active data subscriptions” regardless of actual use. Pre-paid mobile broadband plans require active use if there is no monthly subscription.
4. DOES NOT INCLUDE
 1. Wi-Fi, except for the rare cases when Wi-Fi is used as the transport technology for a fixed-wireless Internet service provider. The lines supporting Wi-Fi hotspots are already counted once in the fixed-broadband subscriber methodology.

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