

WiMAX Forum® Industry Research Report

Review of April, 2009

About

The WiMAX Forum® Industry Research Report is a monthly summary of primary and secondary research and news, provided by WiMAX Forum to the industry. It includes the latest updates on WiMAX Forum-tracked statistics, product certification, regulatory information, technology standards and more. This report will be published and made available on the WiMAX Forum website the first week of every month. If you have any questions or comments regarding the research contained herein, please contact Jonathan Singer, the WiMAX Forum's Market Research Manager at Jonathan.Singer@wimaxforum.org.

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Executive Summary

- WiMAX Forum currently tracks 472 WiMAX Deployments in 139 Countries.
- This month, WiMAX Forum features an operator profile of Movilmax, a Venezuelan WiMAX operator owned by Omnivision.
- WiMAX Forum Designated Certification Laboratories (WFDCLs) approved 6 new WiMAX Forum Certified™ products in April, 2009. This includes Samsung's new mobile Internet device (MID): Mondri.
- In India, the final version of the National Frequency Allocation Plan-2008 (NFAP-2008) was made effective on April 1, 2009, by the Wireless Planning and Coordination Wing of the Department of Telecommunications.

Global Deployment Update

This section describes the current state of WiMAX deployments across the world. The data for this tool is delivered to us courtesy of Informa Telecoms & Media, and can be viewed online in more detail at www.wimaxmaps.org. Please note that the numbers below do not represent total WiMAX networks in existence, but rather the total deployments that we currently track. Every month we find more data on new deployments or existing deployments and add them to the database. If you are an operator, please check WiMAX Maps to make sure that your organization's information is accurate. If it is either not there or is inaccurate, please email deploymentdata@wimaxforum.org, and we will update our information immediately.

TOTAL DEPLOYMENTS*

**Note: "Deployments" in this case refers to WiMAX networks that are either in service or planned/in deployment (i.e. base stations are being deployed, but there are few/no subscribers yet).*

Total Deployments Tracked	472
<i>Total Deployments Tracked Last Month</i>	468
Total Countries** with WiMAX Deployments	139
<i>Last Month</i>	139

***Note: "Countries" in this case is representative of distinct telecommunications markets, and therefore this number may equal more than the total number of sovereign nations recognized by the UN. For example, Hong Kong and China have different regulatory structures, and are therefore treated as different markets.*

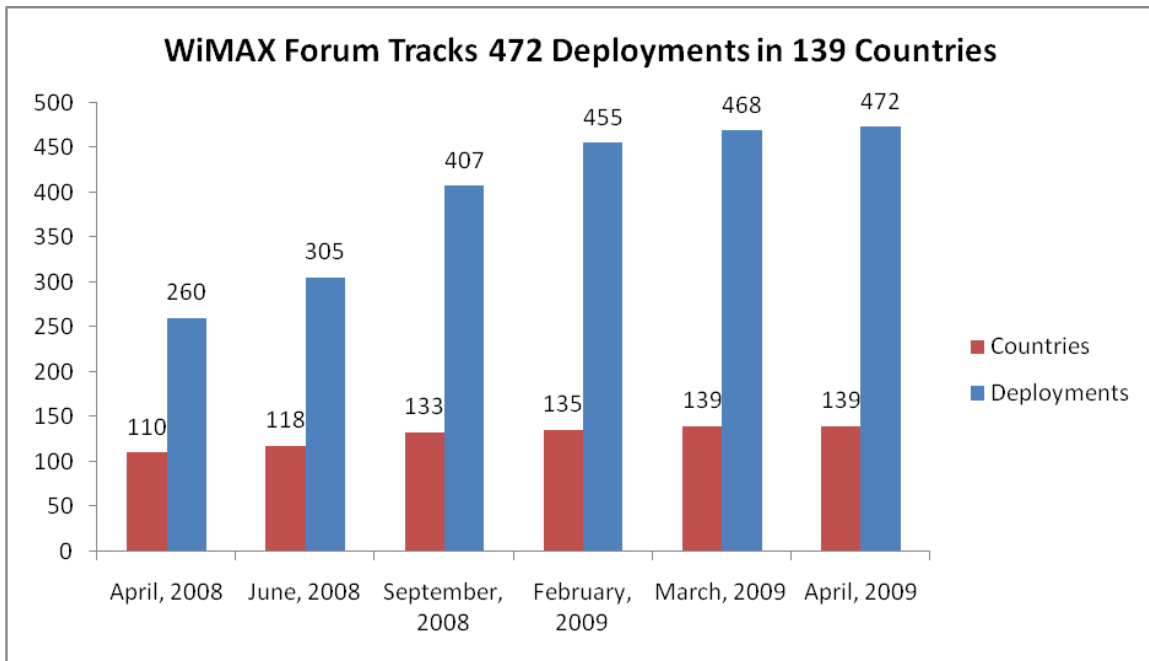
DEPLOYMENTS BY REGION

Africa	97
Asia-Pacific	72
CALA	96
Eastern Europe	75
Middle East	18
North America (USA/Canada)	48
Western Europe	66

DEPLOYMENTS BY FREQUENCY

2.3 GHz Deployments***	27
2.5 GHz Deployments***	59
3.3 GHz Deployments***	9
3.5 GHz Deployments***	232
5+ GHz Deployments***	19

***Note: In above table total deployment by Frequency may not add up to total deployments tracked. The missing deployments' statuses are unknown, and will be confirmed and updated.



For more information please visit www.wimaxmaps.org

POPs Coverage

On February 11th, 2009, WiMAX Forum announced that WiMAX service providers cover at least **430 Million** people. Below is a regional breakout of the estimate:

Region	POPs Covered
Africa	52,000,000
Asia-Pacific	205,000,000
CALA	49,500,000
Eastern Europe	45,300,000
Middle East	20,000,000
North America	28,000,000
Western Europe	34,600,000
TOTAL	434,400,000

These numbers represent an estimate conducted by WiMAX Forum via primary and secondary research of operator POPs coverage on an operator-by-operator basis. Where the operator could not or would not respond to direct inquiry, estimates were made based on public operator statements, number of base stations, government-mandated buildout requirements, and other available information. Proprietary networks (pre-WiMAX/non-WiMAX) were **not included, and geographic overlap of operator coverage areas **was** taken into account.*

Since this research was conducted, many operators have announced changes in POPs coverage. Below are some highlights:

- At WiMAX Forum Congress Asia, UQ Communications announced that at launch of its trial service in February, 2009, its service covered 13.5 million POPs. It also stated that at its commercial launch in July 2009, UQ will provide service in Greater Tokyo, Osaka, Kyoto, Kobe, and Nagoya, giving coverage to an estimated 20-30% of the Japanese population.
- At WiMAX Forum Congress Asia, Packet One Networks confirmed its commitment to covering 35% of the Malaysian population by EOY 2009. Furthermore it plans to cover 45% of the population by 2010, and 65% by 2012.
- At WiMAX Forum Congress Asia, VMAX Telecom announced that it would cover 20% of the population within its licensed area by 3Q2009, and 50% by 1Q2010. It estimates it will cover 90% by 2011/2012.

***If you are a WiMAX operator and wish to be mentioned here, please contact Jonathan Singer, the WiMAX Forum's Market Research Manager at Jonathan.Singer@wimaxforum.org.*

Monthly Featured Operator Case Study

WiMAX Deployments to Watch: Movilmax

Movilmax is the commercial brand for Venezuelan telecommunications company Omnivision's wireless broadband services. In February of 2004 Omnivision acquired a nationwide license for 48 MHz of spectrum in the 2.5 GHz band. In September of 2007 Omnivision launched commercial WiMAX services under Movilmax. Since 2007 Movilmax deployed a series of 802.16e Samsung base stations across Caracas, Guatire, and Vargas State. Movilmax estimates that this network covers a total population of approximately 1 million. In 2009 it plans to expand coverage throughout Caracas (estimated population of 5 million people), and in 2010 will target networks in other major cities such as Maracay, Valencia, and Maracaibo.

[For the full report visit:

<http://www.wimaxforum.org/resources/documents/marketing/casestudies>]

WiMAX Forum Certified™ Products

In April, 2009, WiMAX Forum certified **6 new devices**.

	This Month	Last Month
Total WiMAX Forum Certified Products	103	97

Recent Certified Devices

Below is a list of the WiMAX devices certified in April, 2009:

Company	Product Name	Product Type	Frequency
Samsung	SWD-M100	Mobile Internet Device	2.5 GHz
Motorola	WAP 35400	Base Station	3.5 GHz
Motorola	WAP 25600	Base Station	2.5 GHz
Motorola	CPEi25750	Indoor CPE	2.5 GHz
Motorola	CPEi25150	Indoor CPE	2.5 GHz
Intel	N/A	Reference Design	3.5 GHz

WiMAX Forum Certified Product Vendors

WiMAX Vendors with WF Certified Products	Total
Base Station Vendors	25
Subscriber Station Vendors	29

- Base Station Vendors
 - Airspan Networks, Alcatel-Lucent, Alvarion, Aperto Networks, Axxcelera, Cisco Systems, E.T. Industries, Huawei Technologies, Motorola, NEC, Nokia Siemens Networks, Nortel, PointRed Telecom Pvt Ltd, POSDATA, Proxim Wireless Corporation, Redline Communications, Runcom Technologies Ltd., Samsung, Selex Communications, SEQUANS Communications, Soma Networks, SR Telecom, Telsima, WiNetworks, ZTE Corporation

- Subscriber Station Vendors
 - Airspan Networks, Alcatel-Lucent, Alvarion, Aperto Networks, Axxcelera Broadband Wireless, Beceem, E.T. Industries, Fujitsum, GCT Semiconductor, Inc., Gigaset Communications, Huawei Technologies, Intel Corporation, MODACOM Co., Ltd., Motorola, NEC, Oki Electric Industry Co., Ltd., POSDATA, Redline Communications, Runcom Technologies Ltd., Samsung, Selex Communications, SEOWON INTECH Co., Ltd., SEQUANS Communications, Siemens AG, SR Telecom, Telsima, Wavesat Inc., ZTE Corporation, ZyXEL Communications Inc.

Regulatory Update

In partnership with WiMAX Forum Regulatory Working Group, AT4 Wireless maintains a detailed [Spectrum & Regulatory database](#). The database provides regular monthly updates detailing global regulatory proceedings. Below is a free, extracted highlight from this month’s report:

- **India: New version of the National Frequency Allocation Plan made effective** - The final version of the National Frequency Allocation Plan-2008 (NFAP-2008) was made effective on April 1, 2009, by the Wireless Planning and Coordination Wing of the Department of Telecommunications. The NFAP-2008 has been developed within the frame work of ITU taking into account spectrum requirement of Government as well as private sectors with a view to meeting

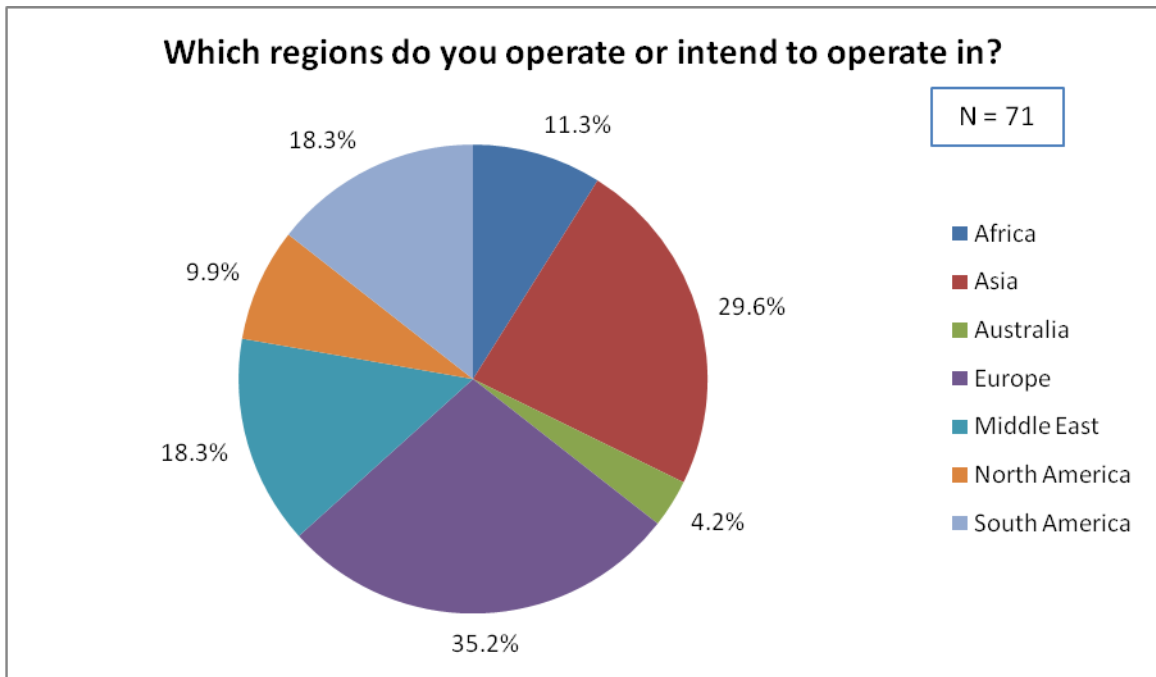
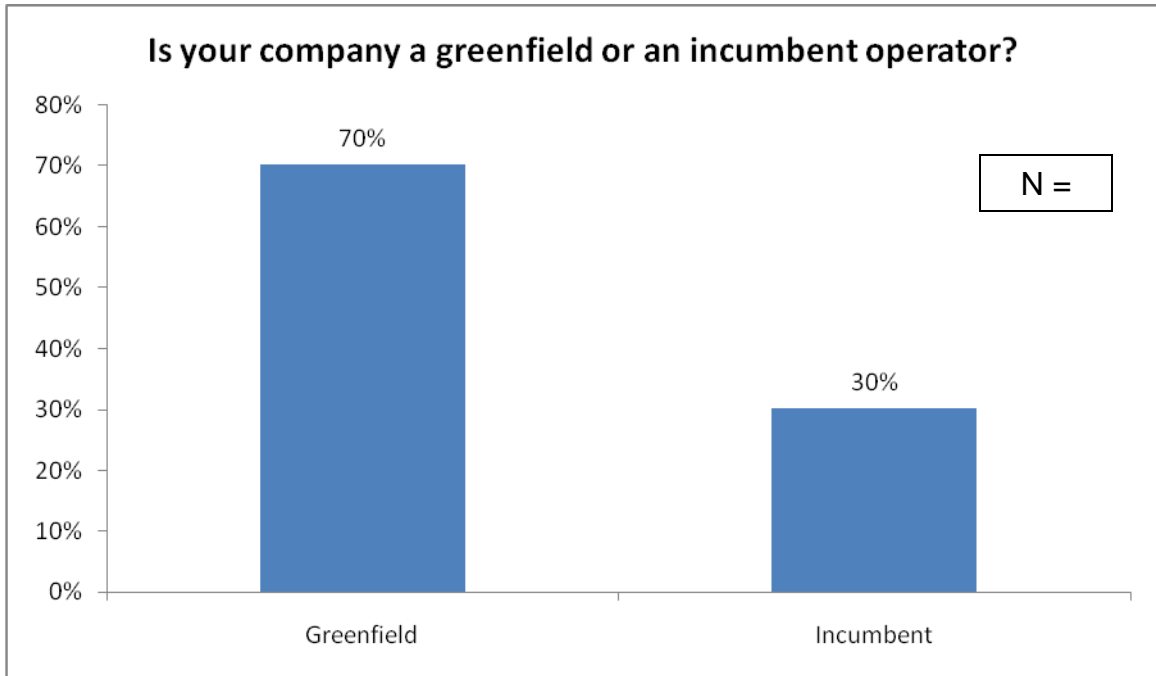
requirements of new emerging spectrum efficient technologies as well as protecting existing assignments. Regarding the bands of WiMAX™ interest, the 2300-2450 MHz, 2500-2690 MHz and 3400-3500 MHz bands has been allocated for IMT services, in accordance with international decisions. The specific Indian remarks to the table establishes that the requirements of Broadband Wireless Access (BWA) applications in the frequency bands 698-806 MHz, 2300-2400 MHz, 2535-2655 MHz, 3300-3400 MHz and 3400-3600 MHz may be considered on a case-by-case basis.

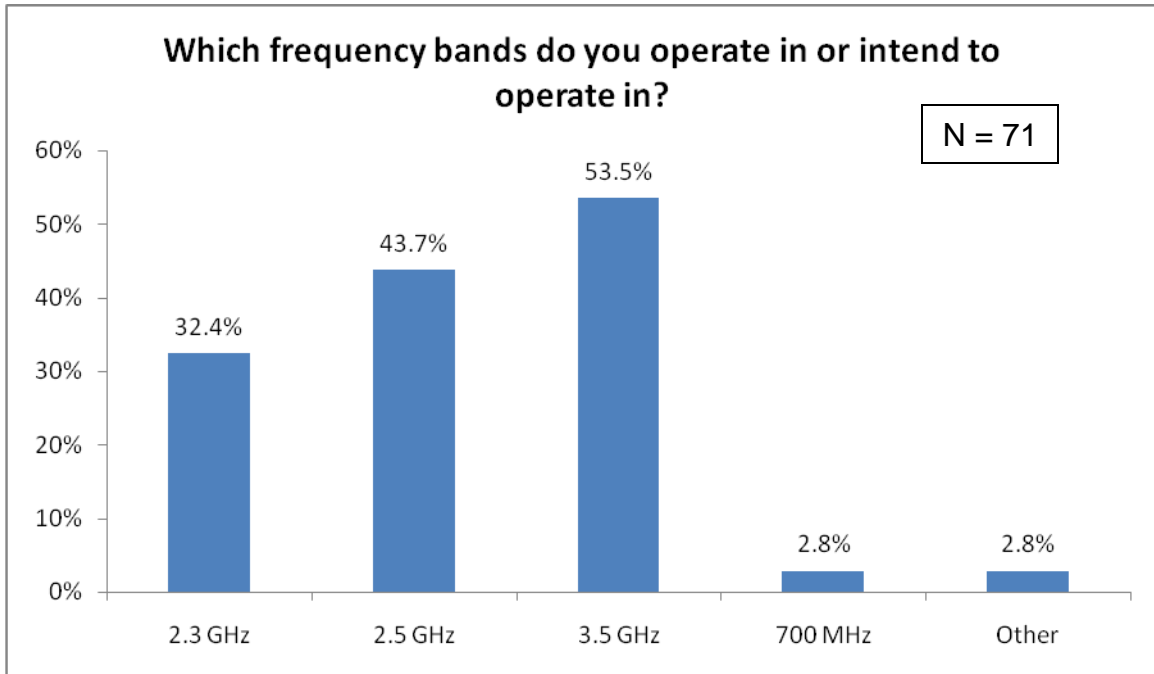
Survey Data

In 1Q2009 WiMAX Forum conducted a survey of over 70 WiMAX operators. This study, created by the WiMAX Forum Network Operators Task Force, focused on operators' wants, needs, and plans for low cost devices. While individual responses were anonymous, we can confirm the participation of major WiMAX operators such as Clearwire, KT, UQ Communications, Irish Broadband, Wateen Telecom, TATA and others. Below are some highlights of the results. More detailed information on the survey will be made available at a later date.

Demographic Highlights

In total the survey was responded to by approximately 10-15% of global WiMAX operators. Responses came from operators of all different sizes, including both greenfield operators and incumbents. Responses also came from a variety of geographies roughly in proportion to the actual geographical segmentation of the world's WiMAX operators (excepting slightly heavier participation from the Middle East and lower participation from Africa). Despite the slight geographic skew, the results may still be reasonably used as a guide to understanding the general attitude of the WiMAX operator ecosystem.





Survey Data Highlights

Several survey questions regarding operator attitudes are important to note here, and are outlined in the charts below. Of the more than 70 participants, more than 50 responded to a question on the importance of certification. 89% of those surveyed indicated that their companies would require WiMAX Forum Certification for devices, while 10% believe it to be a definite to benefit to device manufacturers wishing to build for these operators. Only a single operator definitively said that Certification was not at all required. Another important data point is that 74% of respondents plan to sell WiMAX devices through general retail stores.

3rd Party Research Highlights

Each month WiMAX Forum highlights 3rd Party Research covering the WiMAX Industry. Below are the most recently published reports:

MIC

[Current Product Development of Mobile WiMAX Chipset Suppliers: Intel, Beceem, Sequans](#)

Date: April, 2009

This research analyzes the three major chipset suppliers' product development, providing insight into the future development trends of mobile WiMAX chipsets and application products.