

ITU Regional Forum for Arab Region:
IMT Systems Technology, Evolution and Implementation
Tunisia, Tunis, 7-9 May 2013

Report and Future Perspective

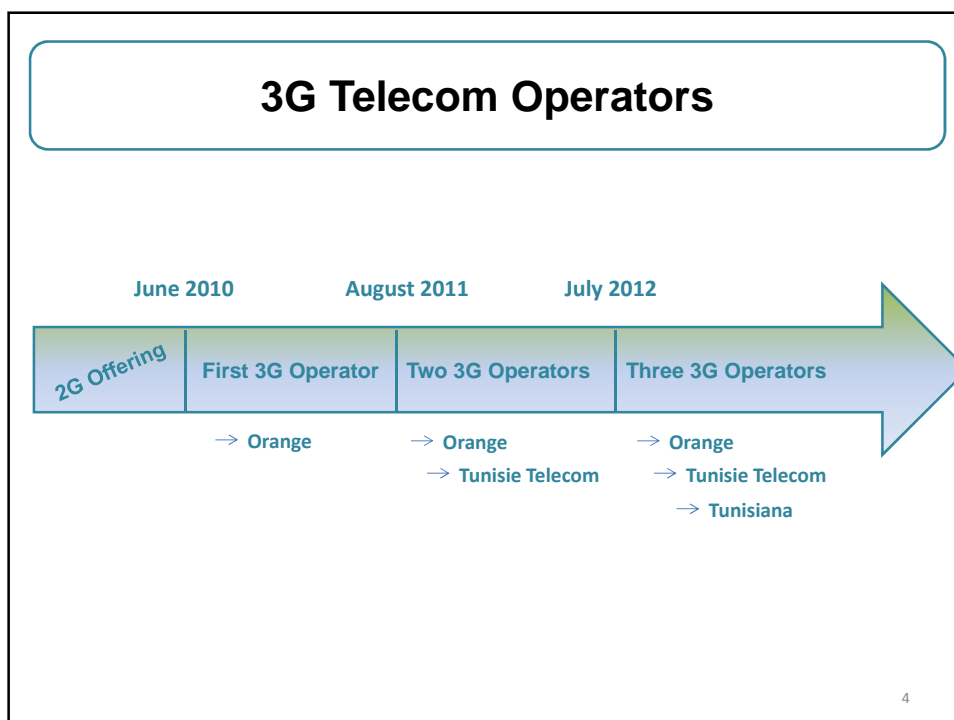
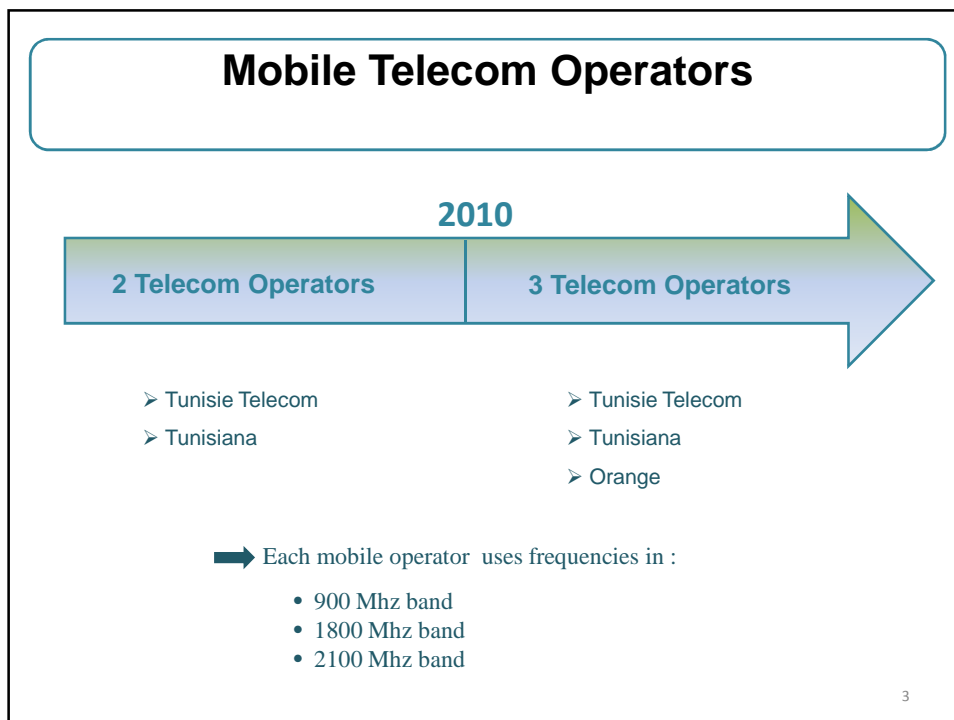
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AGENDA

- ▶ **Analysis-Internet Market**
- ▶ **Spectrum for IMT**

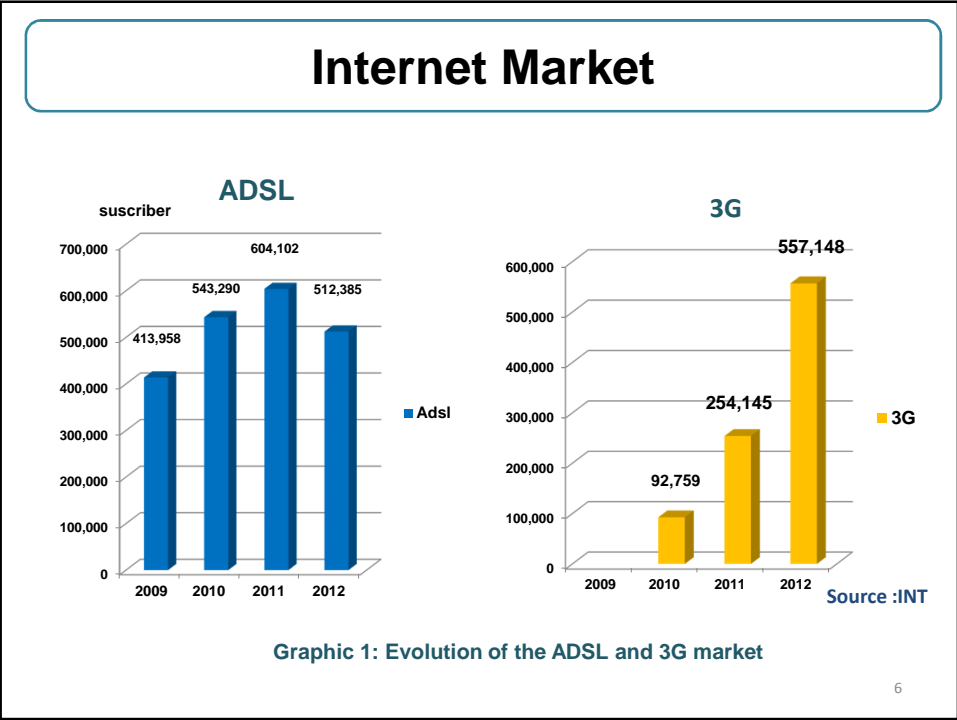
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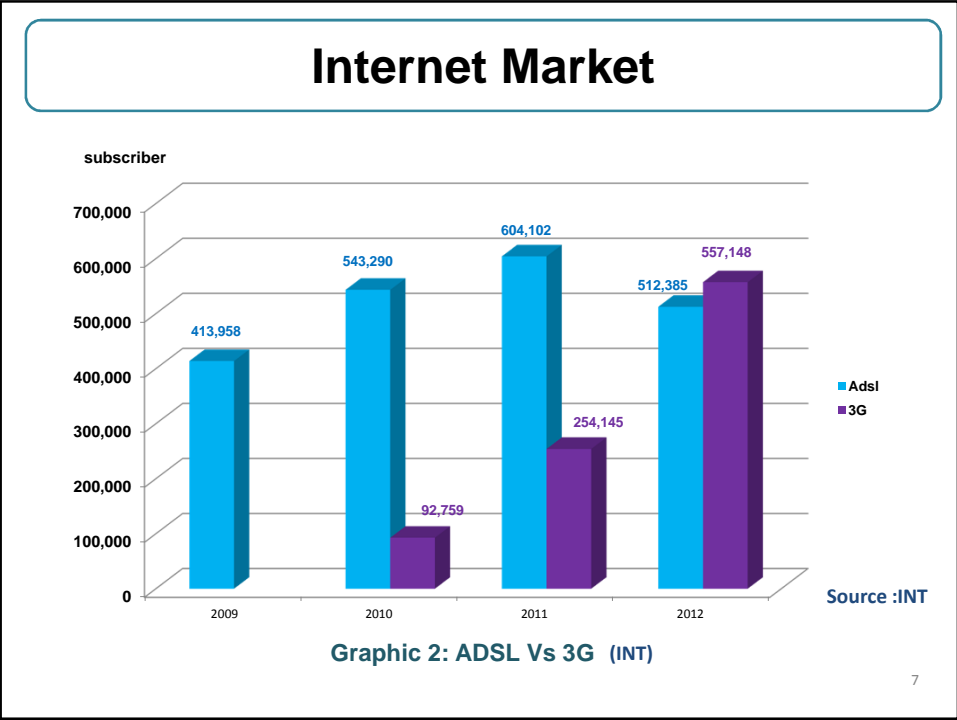


Analysis-Internet Market

2009-2012

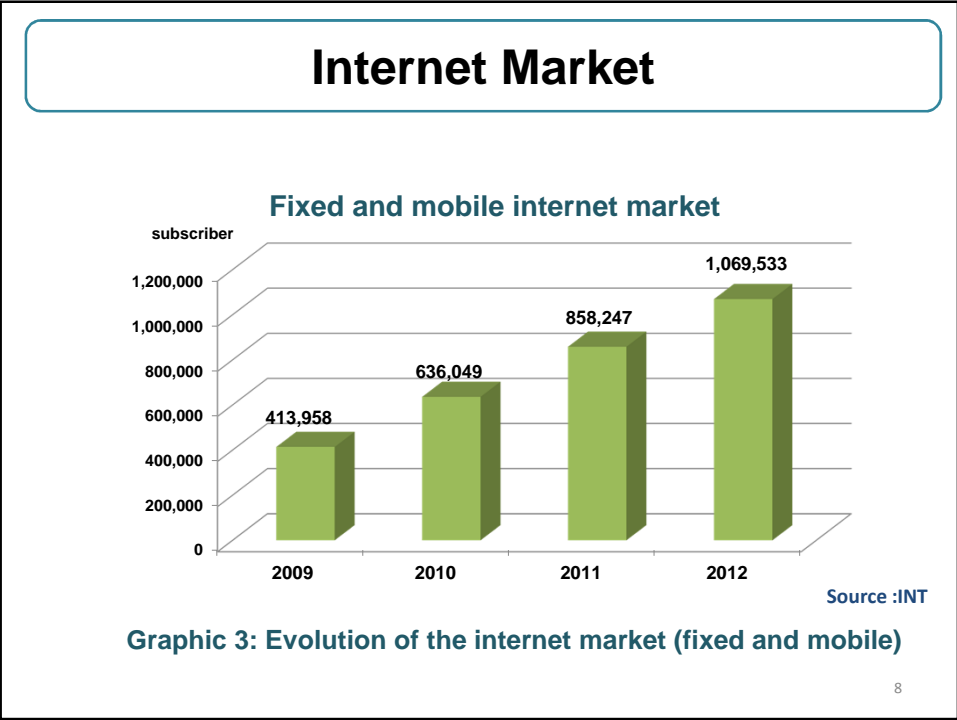
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Graphic 2: ADSL Vs 3G (INT)

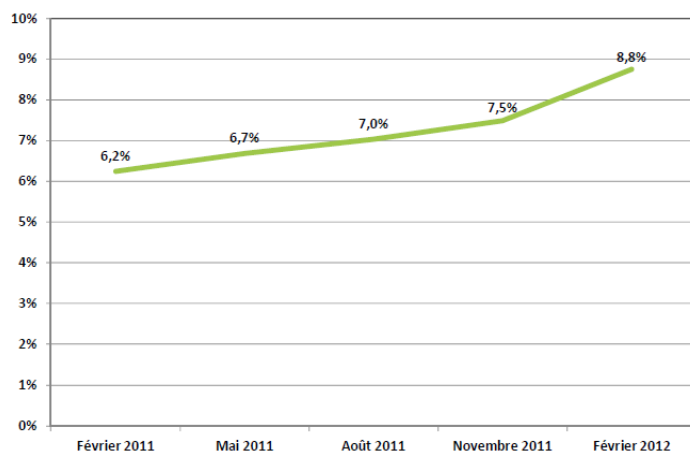
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Graphic 3: Evolution of the internet market (fixed and mobile)

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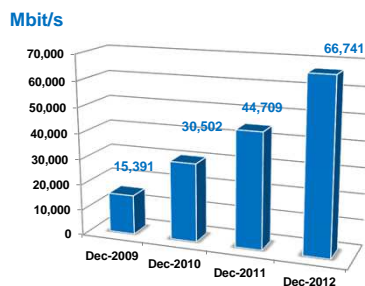
Internet Market



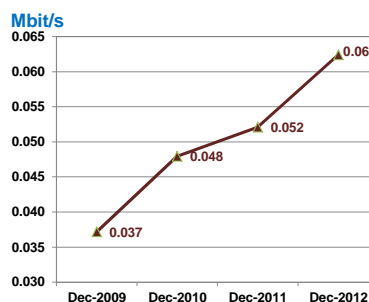
source :INT

Broadband internet penetration rate

International Bandwidth Use



■ Total consumption of the market



— Conso./ subscriber

Source: ATI

N.B

- All ISP are using the caching system which is giving a saving (economy) of IBW as 25%
- The international traffic carried through national network to attend the international network should be increased by 25%
- The national traffic is estimated at 5% of the international traffic.

Example : for December 2012 the traffic carried through national network is estimated to : 86800 Mbit/s

Internet Market analysis

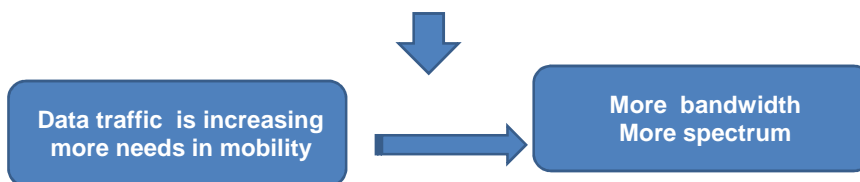
The penetration of 3G technology get two categories of consequences concerning:

Market :

- ▶ The technology of the 3G is cannibalizing the ADSL: The evolution during the last three years shows a clear regression of the market of the ADSL against a fast one of the 3G.
- ▶ The outdoor is getting the upper hand compared with the indoor.

Consumer Behavior:

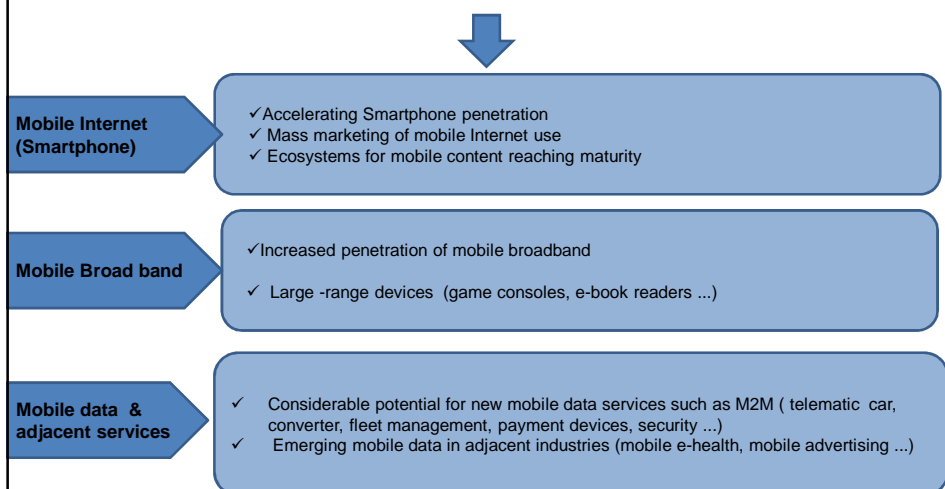
- ▶ Customers are changing behavior, the market is now fairly shared.
- ▶ The use of internet is increasing what affects consumption per subscriber of band width is also increasing.



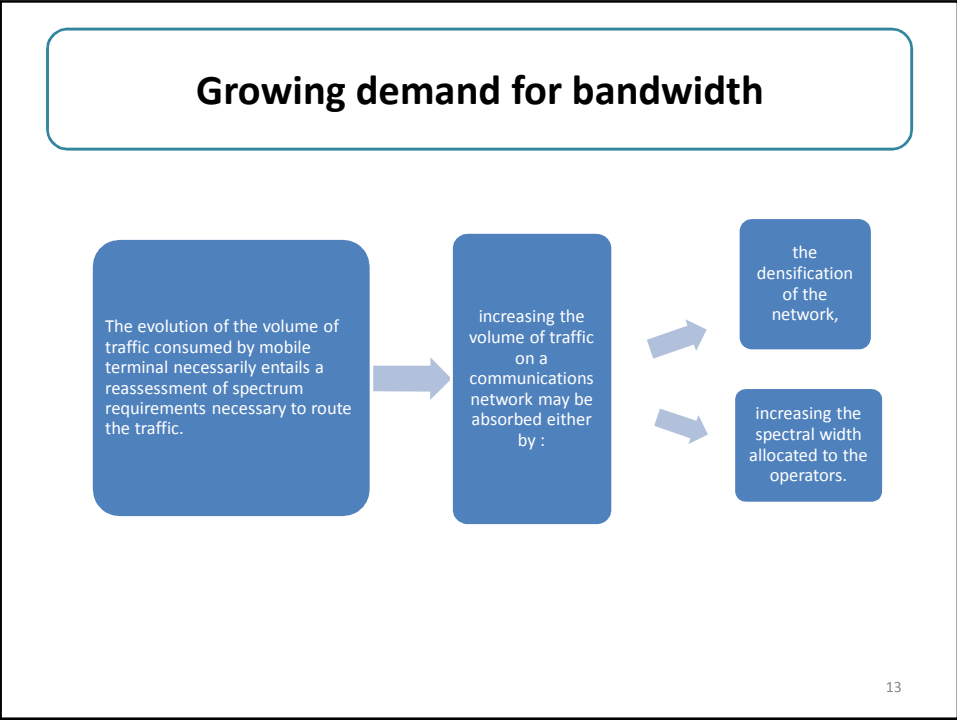
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Growing demand for bandwidth

In addition to increasing bandwidth demand for fixed, changes in the mobile data market also requires an increase in bandwidth capacity as illustrated below:



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Spectrum for IMT

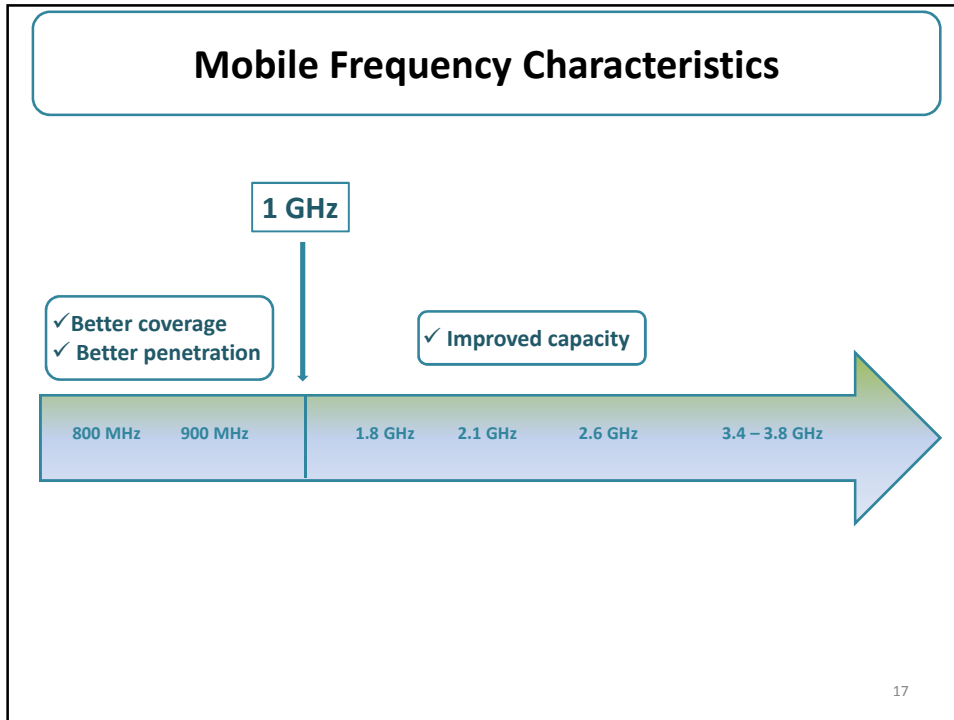
IMT Frequency Bands

- ❑ The calculations developed the spectrum bandwidth requirements ranging from **1280 MHz** to **1720 MHz** (that represented a lower and higher market) .
- ❑ The following frequency bands are currently identified for IMT in all three ITU Regions:
 - **450 – 470 MHz;**
 - **790 – 960 MHz;**
 - **1710 – 2025 MHz**
 - **2110 – 2200 MHz;**
 - **2300 – 2400 MHz;**
 - **2500 – 2690 MHz**
- ❑ Additional frequency bands identified for IMT on Regional or National basis:
 - **698-790 MHz** (Region 2 and some countries of Region1 (WRC-12))
 - **610 – 790 MHz** (9 countries in Region 3: Bangladesh, China, Rep. of Korea, India, Japan, New Zealand, Papua New Guinea, Philippines and Singapore.)
 - **3400 – 3600 MHz** (Over 80 Administrations in Region 1 plus 9 in Region 3 including India, China, Japan and Rep. of Korea).

Frequency bands identified for IMT Recommendation ITU R M. 1036-7

450-470	20 Mhz
698-960	262 Mhz
1710-2025	315 Mhz
2110-2200	90 Mhz
2300-2400	100 Mhz
2500-2690	190 Mhz
3400-3600	200 Mhz
Total	1177 Mhz

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Use of different band

In order to totalize the necessary band width for IMT implementation, regulator should take necessary arrangement et choose the adapted band width as identified by ITU recommendation

450- 470 MHz	<ul style="list-style-type: none"> The size of the band may limit the capacity and service bit-rate of the IMT network This band will not be implemented in most European (CEPT) countries in case of Tunisia this band is used and will not concerned by IMT
700 MHz 698 – 790 MHz second digital dividend	<ul style="list-style-type: none"> grow the technical developments in matters of signal compression MPEG4 (H264) ,HEVC (H265) standard DVB-T2 and modulations technique to provide capacity and quality Review the plan of Genève 06 by elimination of channels 49-60 Broadcasting Plan only in channels 21-48 commit the necessary coordination with neighboring countries the release of the bands DD2 will generate for Tunisia about 90 Mhz
800 MHz 790-862 MHz first digital dividend	<ul style="list-style-type: none"> grow the technical developments in matters of signal compression MPEG4 (H264) ,HEVC (H265) , standard DVB-T2 and modulations to provide capacity and quality Review the plan of Genève 06 by elimination of channels 61-69 commit the necessary coordination with neighboring countries the release of the bands DD1 and DD2 will generate for Tunisia about 168 MHz

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Use of different band

1800 Mhz

- Availability of network equipment and mobile devices
- Several mobile operators exploit commercially the 1800 Mhz band for LTE.
- The 1800 Mhz band may be an additional resource for other candidate bands
- The deployment of LTE in the 1800 MHz band with a historical GSM operator may rely on reuse of sites and antenna systems already deployed in the GSM, which could be expected to facilitate and accelerate the development of an LTE coverage
- Possibility of Converting 1800 MHz band from 2G to 4G
- For Tunisia the use rate of this band is 60 % of total capacity , 30 Mhz is available for future IMT

2110 – 2200 MHz

- The use rate of the band is 75% of total capacity.
- There are a free capacity of **15 MHz which can be available** for operators ,in order to develop their infrastructure and improve the quality of service.
- No availability for future IMT in this band

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Use of different band

2300 – 2400 Mhz

- This band is used for fixed services
- Release the frequency band used by customers through financing the new infrastructure in the new frequency band
- No availability of spectrum for IMT in this band

2500 – 2690 Mhz

- This band is used for fixed services
- Release the frequency band used by customers through financing the new infrastructure in the new frequency band
- No availability of spectrum for IMT in this band

3400 – 3600 Mhz

- Allowed for Wimax
- The operators can convert it to IMT

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Eventually Candidates bands for IMT case of Tunisia	
450-470	0 Mhz
698-862	168 Mhz
1710-1885	30 Mhz
2110-2200	0 Mhz
2300-2400	0 Mhz
2500-2690	0 Mhz
3400-3600	200 Mhz
Total	398 Mhz

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