

Spectrum Allocation for Broadband Wireless Access Services in Mauritius (A Case Study)



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Jerome Louis
Director of Engineering and Licensing
jlouis@imail.icta.mu <http://www.icta.mu>



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This Session

- The ICT Authority – Organisation and Mandate
- Public Consultation Procedure
- Wireless Access Systems – Brief Review
- Drivers for spectrum allocation for BWA services
- Public Consultation on Allocation of Spectrum for BWA
- Results of Consultation
- The ICT Authority Decision of 19 May 2005 (ICTA/DEC/01/2005)
- Post-decision Status
- Conclusion

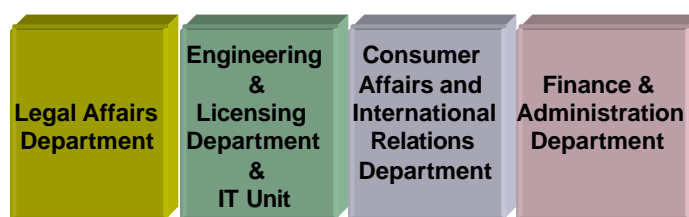


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The ICT Authority – Organisation and Mandate

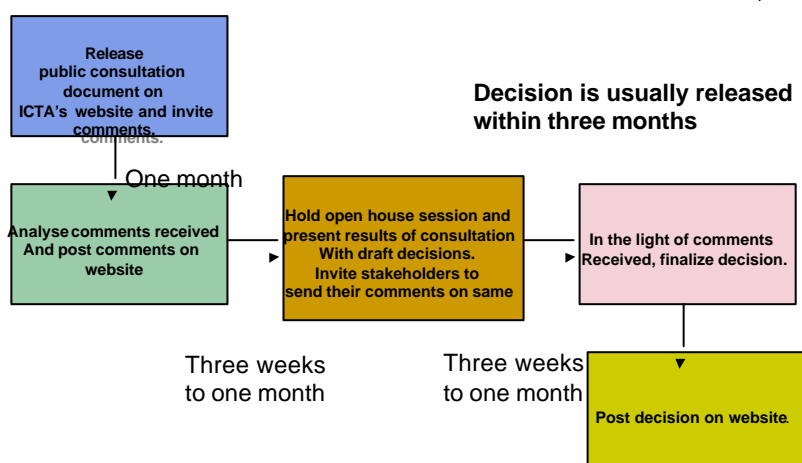
- ICT Authority is the regulator and licensing body for the ICT sector in Mauritius.
- “allocate frequencies and manage, review, and, where appropriate, reorganise the frequency spectrum”(Section 18(1)(p) ICT Act 2001)
- Organisation:-



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Public Consultation Procedure



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Public Consultation Procedure -Considerations



- In this exercise, the Authority constantly takes into consideration:-
 - The Demand
 - The statute
 - The Radio Regulations which is binding on all ITU member states (Article 4, Constitution of the ITU)
 - The resolutions of World Radio Conferences (WRCs)
 - The local context
 - ITU Recommendations
 - The International trends, i.e. position of the European Commission, other regulatory bodies, industry organizations among others.

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Wireless Access Systems – Brief Review



- The International Telecommunication Union (ITU) defines wireless access as:- *“End-user radio connection (s) to core networks, where core networks include, for example, PSTN, ISDN, PLMN, PSDN, Internet, WAN/LAN, CATV”*
 - **Fixed wireless access** – “Wireless access application in which the location of the end-user termination and the network access point to be connected to the end-user are fixed”
 - **Mobile Wireless Access** – “Wireless access application in which the location of the end-user termination is mobile”
 - **Nomadic Wireless Access** – “Wireless access application in which the location of the end-user termination may be in different places but it must be stationary while in use”

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Public Consultation Drivers – Broadband Wireless Access (BWA)

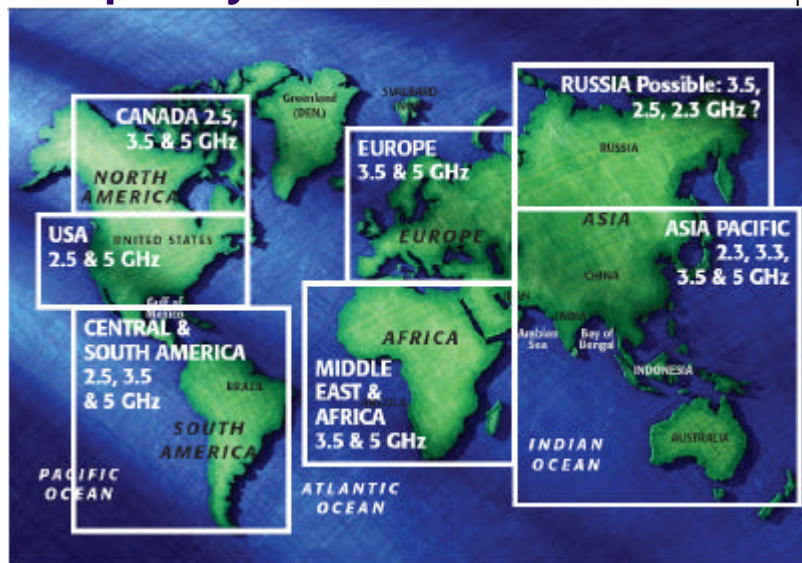
- Spectrum pollution in the 2.4 GHz band – Operators exceeding authorised eirp of 22.15 dBm
- High demand from Internet Service Providers for spectrum – Wireless Internet Services
- Results of WRC-03 on spectrum allocation for BWA
- Global trend – 2.5 GHz, 3.5 GHz, 5.8 GHz, etc... are becoming increasingly popular with advent of WI-MAX (Global distribution of WI-MAX frequencies)

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Global Distribution of WI-MAX Frequency Bands

(Source IEE Communications Magazine Aug/Sept 2005)



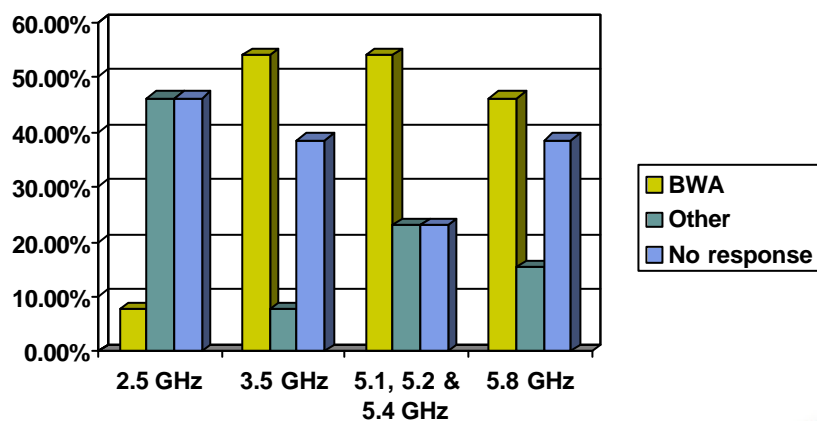
Public Consultation – BWA

- The Authority published a public consultation document entitled “*Spectrum Allocation for Broadband Fixed Wireless Access Services in Mauritius*” on 14 February 2005 (available on <http://www.icta.mu>)
- The consultation paper proposed a list of frequency bands, technical characteristics and regulatory requirements to be adopted for deployment of BFWA
- The consultation exercise ended on 14 March 2005
- The Authority received 13 contributions from stakeholders in Mauritius and abroad
- Open House Session was held on 20 April 2005
- Decision released on 19 May 2005

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Consultation Results



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Summary of Decisions (ICTA/DEC/01/2005)



Frequency Band	Decision
2.400 – 2.4835 GHz	EIRP limited to 20 dBm in accordance with ETSI EN 300 328. All existing operators have been given until 1 st January 2005 to 20 dBm limit. All existing operators limited to 23 dBm.
2.500 – 2.690 GHz	Open for BWA and IMT-2000 – Reserved for Mobile and Nomadic BWA systems. 2.500 – 2.520 GHz and 2.670 – 2.690 GHz reserved for satellite component if IMT-2000. Spectrum licensing applies. Channelisation: 5 MHz
3.400 – 3.600 GHz	Open for BFWA. Power limited to 15 W eirp. Channelisation compliant with ITU-R Rec. F.1488 (allocation blocks formed from the aggregation of 0.25 MHz frequency slots)
5.150 – 5.350 GHz	Open for indoor use only. Technical characteristics in compliance with Res. 229 WRC-03.
40.5 – 43.5 GHz	Open for Multimedia Wireless Systems such as the Multipoint Video Distribution System (MVDS)

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Summary of Decisions (ICTA/DEC/01/2005) (cont'd)



Frequency Band	Decision
5.470 – 5.725 GHz	Earmarked for BWA but not yet opened. The Authority was, at the time of releasing ICTA/DEC/01/2005, still finalizing the technical parameters to be used being given that radiolocation radar systems are operational in these bands. Technical Parameters have now been finalized in consultation with radar operator, and it is expected that decision will be released shortly.
5.725 – 5.850 GHz	

- Two aspects of the ICTA/DEC/01/2005 will now be proposed for discussion:-
 - Provision of Wireless Internet Services by ISPs
 - Allocation of the 2.5 GHz band for BWA and IMT-2000

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Decision on the Provision of Wireless Internet Services by ISPs



- “that notwithstanding the fact that ISPs are authorised to set-up their own last mile, they should not be allowed to compete directly or indirectly with PLMN operators in as much as mobility is concerned;
- that Internet Service Providers (ISP) shall **only** be allowed to offer FWA and NWA (semi-fixed) services;
- that MWA services shall **only** be offered to the public by duly licensed PLMN operators;
- that in the provision of NWA services, ISPs shall ensure:-
 - that the systems are **not capable of providing handover**;
 - that their subscribers are able to access the Internet Services either when stationary or while moving between places **within** a hotspot coverage area at **pedestrian speed**;
 - that when their subscribers move from one hotspot coverage area to another, their Internet session is **not seamlessly sustained**;
 - that the service they offer may at **no times** be construed as being a mobile service offering **seamless mobility features** (e.g. handover, operation at vehicular speeds, roaming, etc...);”

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Allocation of the 2.5 GHz band for BWA and IMT-2000



- Band plan with channel separation of 8 MHz has been used, so far, in Mauritius for the purpose of running Multichannel Multipoint Distribution Systems (MMDS)
- No. 5.384A of the ITU Radio Regulations states that “The bands, or portions of the bands, 1 710-1 885 MHz and **2 500-2 690 MHz**, are identified for use by administrations wishing to implement **International Mobile Telecommunications-2000 (IMT-2000)** in accordance with Resolution 223 (WRC-2000)...”

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Allocation of the 2.5 GHz band for BWA and IMT-2000 (cont'd)



- Resolution 225 of the World Radio Conference 2003 (WRC-03) resolves *“that the band 2 500 – 2 520 MHz and 2 670 – 2690 MHz as identified for IMT-2000 in No. 5.384A and allocated to the mobile-satellite service may be used by administrations wishing to implement the satellite component of IMT-2000; however, depending on market developments, it may be possible in the longer term for bands 2 500 – 2 520 MHz and 2 670 – 2690 MHz to be used by the terrestrial component of IMT-2000”*
- On 18 March 2005, the Electronic Communications Committee (ECC) adopted Decision (02)06 on the *“harmonised utilisation of spectrum for IMT-2000/UMTS systems operating within the band 2.500-2.690 GHz”* to make available for use the said band by IMT-2000/UMTS systems by 01 January 2008, subject to market demand and national licensing schemes.

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Allocation of the 2.5 GHz band for BWA and IMT-2000 (cont'd)

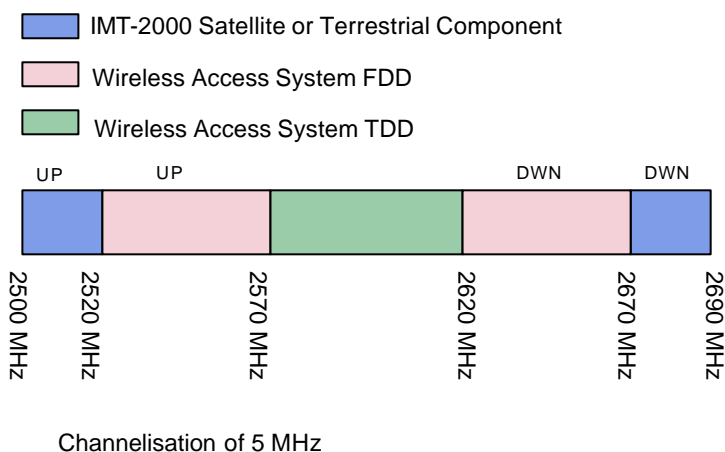


- The WIMAX Forum has identified the 2.5 – 2.7 GHz band as one of the bands which according to it is most likely to be harmonized internationally for operation of IEEE 802.16 technology
- The Forum plans to influence the ITU so as to allow the IEEE 802.16 technology to be part of the IMT-2000 family which, as at date, consists of WCDMA, CDMA-2000, TD-SCDMA, DECT and EDGE

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The 2.5 GHz band plan for Mauritius (ICTA/DEC/01/2005)



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Post – Decision Status

- 2.4 GHz band – Operators have reduced their eirp to 23 dBm, new entrants are authorised to operate at 20 dBm.
- 2.5 GHz band – Frequency assignment effected, an ISP has started operating a Wireless Nomadic Internet Service.
- 3.5 GHz band – Application for spectrum licence received from several ISPs.

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Conclusion

- In this presentation we have seen: -
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Thank You



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