



INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

Radio Frequency Spectrum Policy and Regulations

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NDP

- A seamless information infrastructure that meets the needs of citizens, business and public sector; and provides access to the wide range of services required for effective economic and social participation by 2030

SA Connect Policy

- 100% broadband access to all Citizens by 2020.
- Universal download speed of 100 Mbps by 2030

EC Act, 2005

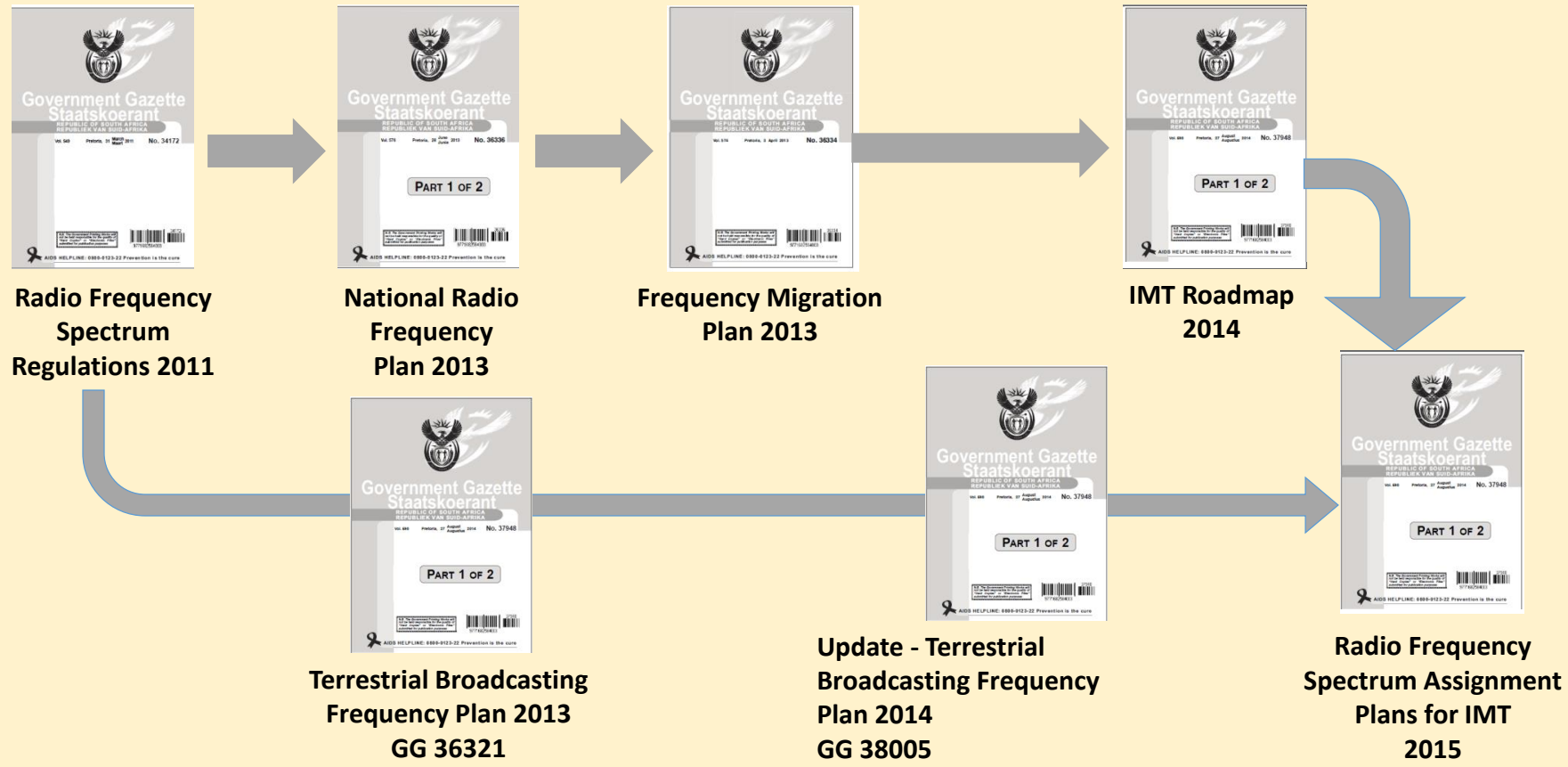
- Establish a technology-neutral licensing framework
- Promote efficient use of spectrum
- Promote open, fair and non-discriminatory access to services
- Facilitate competitive market, ensure sustainability of the sector
- Ensure universal provision of affordable + quality electronic communications services

RFS Policy, 2010

- The Policy outlines principles for:
 - Spectrum management to ensure efficient, effective, and transparent of spectrum based on fair pricing principles.
 - Spectrum planning to ensure that all assignments serve the national interest
 - Spectrum availability for government services, scientific research and emergency services



Time Line of Frequency Planning Projects





Spectrum Licensing Regulatory Framework



RFS Regulations, 2015

- Establish a framework to allocate and assign radio frequency spectrum
- Sets out standard terms and conditions for spectrum licences
- Establish transparent, fair and efficient procedures and processes for spectrum licence applications.
- Outlines procedure and criteria for awarding spectrum licenses for competing applications

National Radio Frequency Plan, 2013

- ICASA is required in terms of Section 34 of the ECA to update the plan
- The updated plan included, amongst others, implementation of resolution 232 (WRC12) which allocated spectrum in the band 694 – 790MHz to Mobile and Broadcasting on a co-primary basis which make implementation IMT 700 possible.

Radio Frequency Migration Plan, 2013

- Sets out a review of migration plans since 1996 to 2012 and documented decision of WRC12.
- Provide for significant amount of spectrum that could be released for broadband and the need for advanced planning
- 649 MHz of spectrum was made available for International Mobile Telecommunication

Terrestrial Broadcasting Regulations, 2013 + 2014

- Makes provision for **three (3)** DTT Multiplexes during Analogue to Digital Migration per ITU deadline - 17/06/2015
- Provide for Digital to Digital Terrestrial Television for the post migration process to be implemented after **17 June 2015 as per GE06.**
- Makes provision for the seven **(7)** **DTT Multiplexes** in the UHF Band in the frequency range 470 to 694 MHz



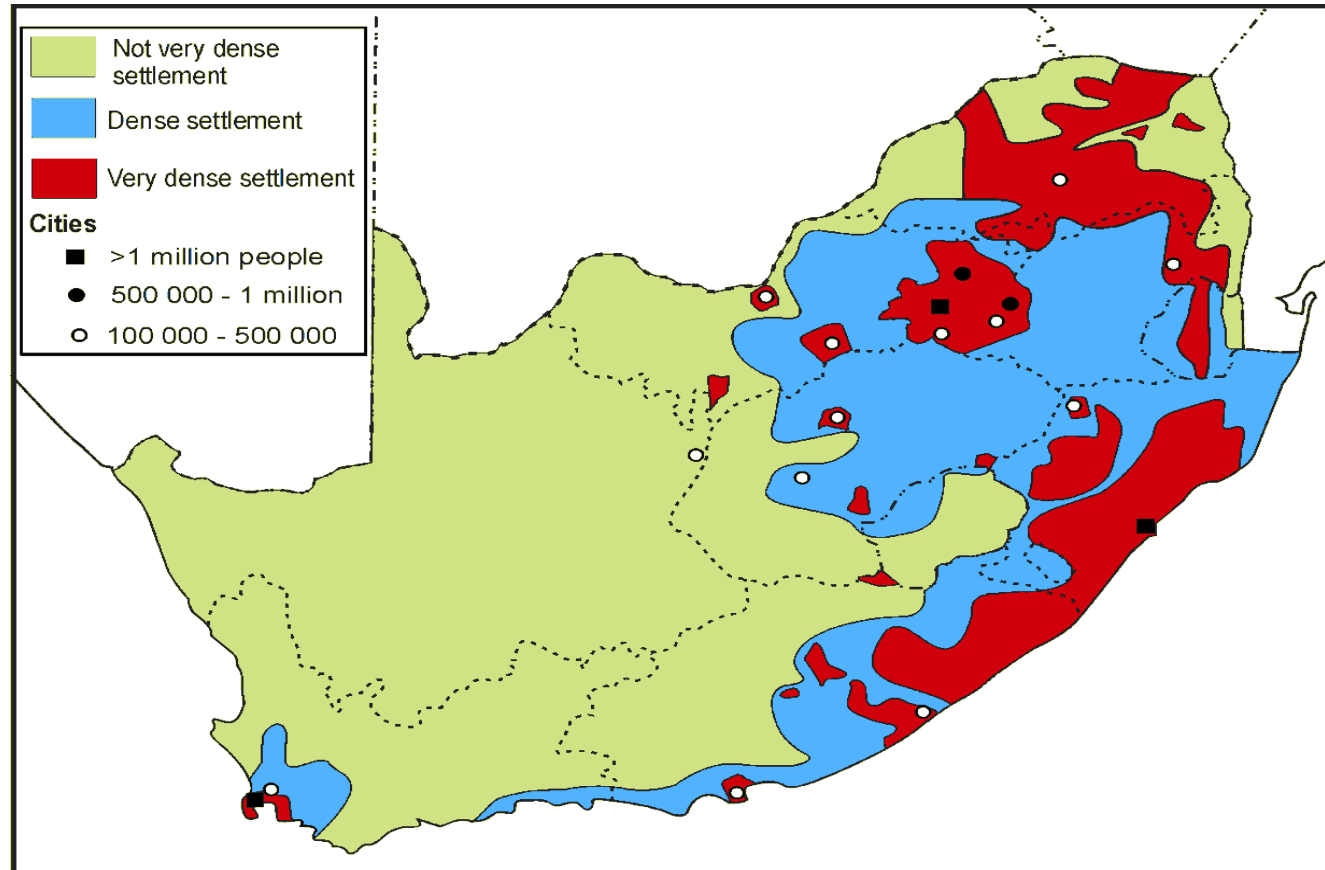
The IMT Roadmap



- ❑ A key driver for the deployment of IMT bands is critical role that mobile broadband plays in meeting the objectives of 'broadband for all' as encapsulated in the SA Connect targets
- ❑ The IMT Roadmap deals the deployment of *inter alia* the 700 MHz and 800 MHz digital dividend bands and 2.6 GHz band to provide universal service and:
 - summarises the international (ITU) and regional (SADC) perspective on IMT
 - indicates timelines for the deployment of IMT spectrum i.e. widespread coverage with adequate bandwidth capacity
- ❑ According to SA Connect Policy *the efficient assignment and subsequent use of high demand spectrum to meet broadband demand is vital and the cost of not releasing the spectrum timeously is high*



Population Zones in South Africa



USO

- Away from the metropolitans, South Africa characterized by two types of economic landscape:
 - Areas of low population density characterized by commercial farming and small settlements.
 - Areas of evenly dispersed fairly high density population with near subsistence farming.
 - Probably 80% of the underserved population occupies less than 10% land area.
- Without broadband these areas will fall even further behind and decline economically.
- The 700 MHz & 800 MHz bands (plus possibly 450-470 MHz band) are best means of providing basic coverage.
- **Assignments of these bands should include enforced universal service coverage obligations.**



IMT Spectrum for Broadband Capacity/Speed



- ❑ Currently 380 MHz is assigned and used for IMT (including UMTS and LTE) and 80 MHz for GSM in South Africa
- ❑ However by 2020, a minimum of 1011 MHz and a maximum of 1036 MHz will be required for IMT (incl. GSM) in order to achieve the SA Connect Policy objectives and realize the NDP Vision 2030
- ❑ The bulk of the required spectrum can be provided through the assignment of the 700 and 800 MHz as well as the 2 600 MHz bands

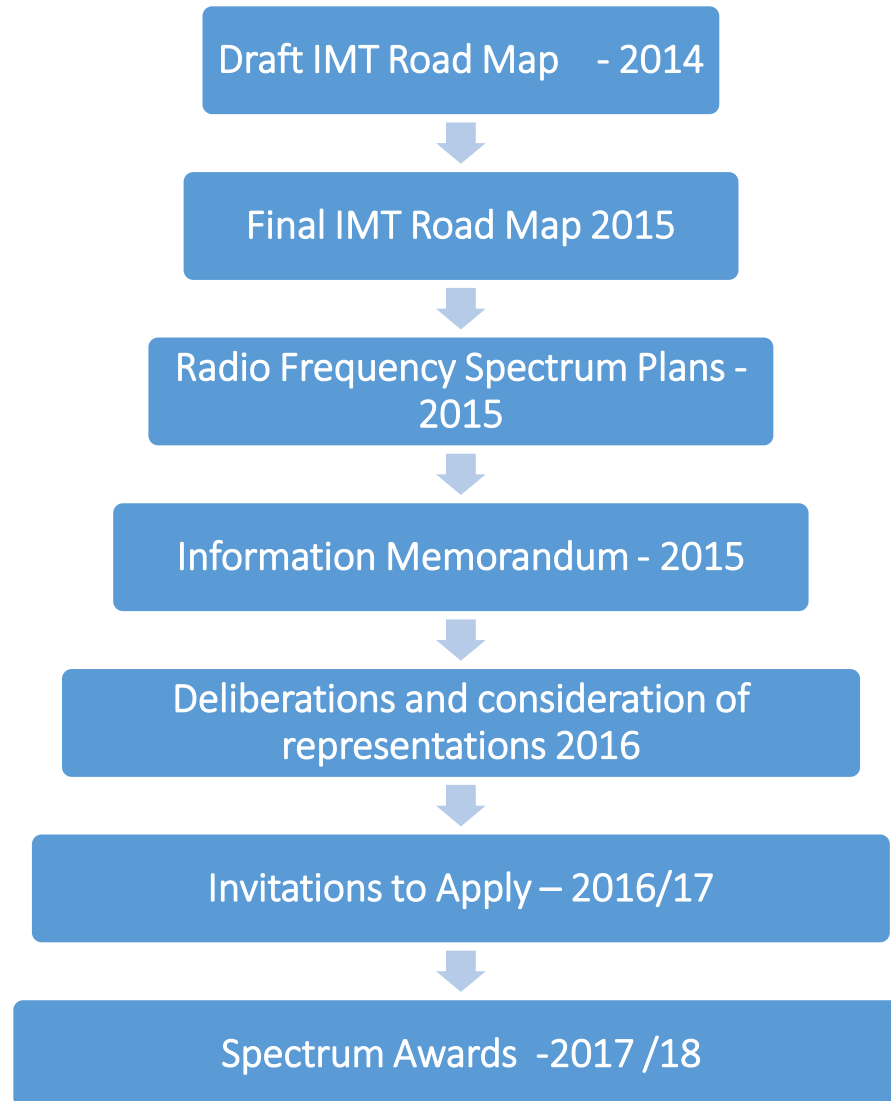


Available Spectrum Capacity



IMT SPECTRUM (2016-2020)

BAND	2015-16 Baseline	2016-17	2017-18	2018-19	2019-2020	Total	2020-2021
IMT450	0	0	0	20	0	20	0
IMT700	0	0	60	0	0	60	0
IMT800	0	60	0	0	0	60	0
IMT900	66	0	0	0	0	0	4
IMT1800	144	0	0	0	0	0	0
IMT2100	120	0	0	0	0	0	0
IMT2300	80	0	0	20	0	20	0
IMT2600	20	140	25	0	0	165	0
IMT3500	136	0	0	0	64	64	0
TOTAL	566	200	85	40	64	389	4



- Range of technical options and feasibility studies per band for IMT usage and migration considered
- Identification of technical solutions for each IMT band
- Detailed technical parameters for each band outlines
- Consultation process providing information to prospective applicants intending to apply for the radio frequency spectrum licenses within the designated range
- Consideration of options for the best fit model for licensing of IMT bands
- ITAs for licensing / assignment of specific spectrum bands in line with sec 31(3) of the ECA
- Licences granted



International Perspective



- ❑ EU Commission plans to coordinate the release of 700 MHz band for mobile services and restrict TV broadcasting to the sub-700 MHz bands
- ❑ EU countries in ITU Region 1 have auctioned the 800-MHz digital dividend spectrum and raised significant amounts:
 - Germany raised **€3,576.5 Million**
 - Spain raised **€305.3 Million**
 - Sweden raised **€197.3 Million**
- ❑ Australia (ITU Region 3) raised nearly **AUSTRALIAN \$2 billion** in auction of the 700 MHz (DD2)
- ❑ Canada (ITU Region 2) auction of **700 MHz (2014)** raised **over CANADIAN \$5,2 Billion**
- ❑ Brazil (ITU Region 2) auction of the **700MHz spectrum (2014)** raised over **US \$2.39 billion** which excludes an extra **US \$1.47 billion** cost to be paid by the operators for the clearing of the band



Potential Impact for RSA



- According to a study by Deloitte (2012, Sub-Saharan Mobile Observatory Report) the benefits of releasing additional IMT spectrum (including DD1 and DD2) for the South African economy over the period 2015-2020 is quantified as follows:
 - An increase of over 10 million mobile broadband subscribers
 - More than 21% increase in mobile broadband penetration
 - More than US\$ 15,9 billion increase in GDP
 - An increase of US\$ 30 billion in tax revenue
 - Creation of an additional 1,4 million jobs

- This data illustrates the annualised opportunity cost of not licensing the available IMT Spectrum (IMT700, IMT800 and IMT2600).



A.I 1.1: Additional global allocation for mobile services

The bands 1427-1452 and 1492-1518 MHz have been identified for IMT worldwide

A.I 1.2: Use of 694-790 MHz band by mobile services

WRC-15 confirmed the primary mobile allocation in the band 694-790 MHz band in Region 1. A new WRC Resolution was agreed to address compatibility of the mobile service with broadcasting and aeronautical radio navigation services, highlighting need for studies on applications ancillary to broadcasting

A.I 10: Future Agenda Items for WRC 19

The following bands were identified for IMT including eleven (11) bands above 24 GHz, to be studied for 5G at WRC-19. The Resolution excludes bands around 6-20 GHz and 27.5-29.5 GHz. (The bands to be studied - already allocated to mobile - are 24.25 GHz - 27.5 GHz, 37 - 40.5 GHz, 42.5 - 43.5 GHz, 45.5 - 47 GHz, 47.2 - 50.2 GHz, 50.4 - 52.6 GHz, 66 - 76 GHz, 81 - 86 GHz. Other bands to be studied (but not yet globally allocated to mobile) are 31.8 - 33.4 GHz, 40.5 - 42.5 GHz, 47 - 47.2 GHz

Other priority items identified for WRC-19

1. Pico /Nano satellite under AI 7.
2. HAPS frequency bands identification. (Google/Facebook issue).
3. Consideration of RLAN (WIFI) between 5 150 MHz and 5 925 MHz



WRC-15
Agenda Item
1.1

- *RESOLUTION 224 (REV.WRC-15), RES COM4/8, RES 750, RES COM4/7, RES COM4/6*
- Allocation of Frequency Bands 1427-1452 and 1492-1518 MHz for the terrestrial component of IMT
- **This additional frequency allocations is of major importance for universal deployment of quality broadband networks in South Africa. It is also central to future evolution of 5G technologies**

WRC-15
Agenda Item
1.2

- *RESOLUTION COM4/4 (WRC-15)* - Use of the frequency band 694-790 MHz in Region 1 by the mobile, except aeronautical mobile service means:
- **The 700 MHz band will be available for broadband access. The band could be assigned for use in full compliance with the ITU Radio Regulations, 2016. This is positive for the country's efforts for universal broadband deployment in line with SA Connect. Furthermore, Broadcasters in South Africa could be confident that the broadcasting frequency band 470-694 MHz will be adequately protected from interference by the IMT services in the 700 MHz band**

WRC-15
Agenda Item
1.3

- *RESOLUTION 646 (REV.WRC-15)* - Use of harmonized frequency ranges for PPDR, taking into account national/regional requirements and cross border coordination
- **The outcome of this resolution have major implications for the future availability of IMT spectrum for PPDR agencies such as the SA Police Service, Emergencies Services etc.**
- **However, a number of countries (including RSA) have not ratified the Tampere Convention**



Ensure universal broadband coverage

Facilitate entry by new players into the market

Encourage Transformation in the Sector

Create a stable and sustainable environment for future investment

Adherence to International Standards and Global Best Practice



Thank You!!