



P O Box 412363
Craighall 2024
South Africa
Tel: (011) 325-5741
Fax: (011) 325-5743
e-mail: lois@nabsa.co.za

The Independent Communications Authority of South Africa

7 October 2014

Pinmill Farm Block A

164 Katherine Street

Sandton

2146

ATTENTION: Mr Manyapelolo Richard Makgotlho

RE: NAB WRITTEN SUBMISSION ON THE DRAFT IMT ROADMAP

Dear Mr Makgotlho,

Kindly find attached for your attention, the National Association of Broadcasters' (the NAB) written submission in relation to the Draft IMT Roadmap.

We hope our written submission will assist the Authority in its deliberations.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'Nadia Bulbulia', with a small flourish at the end.

Nadia Bulbulia

Executive Director



P O Box 412363
Craighall 2024
South Africa
Tel: (011) 325-5741
Fax: (011) 325-5743
e-mail: lois@nabsa.co.za

1. Cover Sheet

Title: the National Association of Broadcasters' written submission to ICASA on the draft IMT Roadmap.

Given Name: Nadia
Surname: Bulbulia
Representing: Organisation
Name of organisation: National Association of Broadcasters
Contact telephone number: (011) 325 5741
Contact email address: lois@nabsa.co.za

1.1. Confidentiality

See page 2 above.

1.2. Declaration:

I confirm that the information supplied on the coversheet may be incorporated into a formal consultation response: it can be published by ICASA, unless otherwise specified on this cover sheet, and I authorise ICASA to make use of the information in this response to meet its legal requirements.

Signed  at HYDE PARK

Date 7 OCTOBER 2014

1. Background

- 1.1. The National Association of Broadcasters ("the NAB") is the leading representative of South Africa's broadcasting industry, established over 20 years ago. The NAB aims to further the interests of the broadcasting industry in South Africa, by contributing to its development. The current NAB members are:
 - 1.1.1. The three television services and 18 radio services of the SABC;
 - 1.1.2. Licensed commercial radio broadcasters (including: Primedia, Kagiso Media, Tsiya Group, AME, MSG Afrika, Classic FM, Kaya FM and YFM);
 - 1.1.3. All licensed commercial television broadcasters (e.tv, Multichoice, M-Net, StarSat);
 - 1.1.4. A host of community radio broadcasters and one community television broadcaster;
 - 1.1.5. Both the licensed broadcast signal distributor and the selective and preferential broadcast signal distributors, Sentech and Orbicom.
- 1.2. On 27 August 2014, The Independent Communications Authority of South Africa ("ICASA") published in government gazette 37948, two General Notices:
 - 1.2.1. General Notice 729 of 2014, inviting interested parties to submit written representations on the draft International Mobile Telecommunications ("IMT") Roadmap ("the IMT Roadmap"). The closing date for written representations is 7 October 2014. The General Notice further invites interested parties to indicate whether they will be making oral representations, which will be held from 9 October to 10 October 2014, and the NAB would like to be given the opportunity to participate in oral representations.
 - 1.2.2. General Notice 730 of 2014, which publishes an invitation for comment document, inviting interested parties to answer questions using a prescribed template. The NAB's submission is however set out in detail in this written submission.

2. Timing and procedural issues

- 2.1. In terms of General Notice 729 of 2014, written representations are due on 7 October 2014, and two days thereafter, the Authority will be holding oral hearings. The NAB is concerned that the short space of time for oral hearings will inevitably deny the Authority enough time to read through the written submissions, and be prepared for the oral presentations.
- 2.2. Furthermore, the NAB is concerned by the manner in which the Authority appears to be rushing this process. As much as the IMT Roadmap indicates that the process is intended to focus on a 5-10 year time frame, as this should allow stakeholders and the Authority enough time to consult widely, there appears to be a contradiction as the Authority also envisages that after this consultative process, the conditions of the use of bands for IMT will be specified in the Radio Frequency Spectrum Plans ("RFSPs"), and the RFSPs will be subjected to a limited consultation period of two weeks.¹
- 2.3. The Authority appears to rely on the misconception that the conversion to Digital Terrestrial Television ("DTT") and the switch off of analogue television broadcasting shall be completed in mid-2015, allowing spectrum for IMT to support the targets set out in the SA connect broadband Policy². The Authority is well placed to know that digital migration in South Africa has been mooted for many years. As much as the International Telecommunications Union's ("the ITU") timeline for the end of analogue protection is 15 June 2015, the process in South Africa has been delayed due to a number of factors, and we can now say with certainty that the migration will not be complete by 2015. Digital migration is dependent on a number of factors, ranging from; the finalisation of the Broadcasting Digital Migration Policy ("BDM Policy") by government, the availability of set-top-boxes, the pronouncement of the switch-on-date, the availability of a workable subsidy scheme for deserving house-holds etc.
- 2.4. Even if digital migration could be rushed through in less than the originally envisaged three year period³, there will still be DTT Mux 1 and DTT Mux 2 frequency assignments above 790MHz after analogue switch-off, requiring a

¹ At page 14/223 of the IMT Roadmap.

² Ibid at page 15/233

³ 2006 BDM Policy.

further digital-to-digital frequency migration, in order to accommodate the digital dividend 1.

- 2.5. It is worth pointing out that with the migration of digital television broadcasting services out of the 790-864 MHz UHF band (dividend 1) approximately 3 million viewers will be negatively impacted for a period of time estimated between 1 to 5 days per transmitter that needs to be re-tuned. More so, the migration of existing broadcasting services, out of the 690-790MHz UHF band (dividend 2) has a much higher impact of approximately 22 million viewers who will be negatively affected.⁴
- 2.6. The NAB therefore cautions the Authority that in attempting to swiftly migrate broadcasting services out of both the digital dividend 1 and 2, great financial and socio-economic impact will be incurred.

3. WRC-12 Resolution 232

- 3.1. Resolution 232 of the WRC-12 resolved as follows:
- *To allocate the frequency band 694-790 MHz in Region 1 to mobile services on a co-primary basis with other services to which this band is allocated on a primary basis; [our emphasis]*
 - *That the allocation will be effective after WRC-15; and*
 - *That WRC-15 will specify the technical and regulatory conditions applicable to the mobile service allocation, taking into account the ITU-R studies.*
- 3.2. The resolution further stipulates that the allocations in the frequency band 694-790MHz will be effective after WRC-15. This is contrary to ICASA's interpretation of the Resolution in the draft Plan, where ICASA envisages that allocations would be effective immediately after WRC-12.
- 3.3. The Resolution further mandates the ITU-R to study the spectrum requirements for the mobile service and for the broadcasting service in this frequency band.

⁴ NAB written submission to ICASA on the update of the 2013 Terrestrial Broadcasting Frequency Plan - 18 March 2013.

The resolution lists a range of other matters requiring further study before the allocation on a co-primary basis becomes effective.

- 3.4. The resolution does not allow the allocation of the frequency band 694 – 790 MHz any time before the WRC-15. What the Resolution does is to pave the way for the allocation of radio frequency spectrum, and also provide for a sharing arrangement between broadcasting and mobile broadband on a co-primary basis, pending further studies.
- 3.5. More importantly, the technical and regulatory conditions applicable to any allocation to mobile services will only be determined at WRC-15, after studies have been conducted, which studies must consider the spectrum requirements for broadcasting services.
- 3.6. Contrary to Resolution 232, ICASA states that “The band 694-862 MHz will be used exclusively for IMT (mobile services), subject to the outcome of WRC-15 and planning for this use of the band will be a concurrent process to the planning of the migration of the broadcast services. It is intended that the process for the assignment of the band 694-862 MHz for mobile services will take place prior to the end of the dual illumination period.”
- 3.7. Clearly the indication by ICASA to allocate the 700MHz exclusively to IMT services is contrary to the ITU position, as WRC 2012 did not allocate 700 MHz to IMT on a primary or exclusive basis. Rather, it resolved to allocate the band to IMT on a co-primary basis with services which are allocated the spectrum on a primary basis after 2015 (broadcasting services). It would be a policy decision for each member country to take if it chooses to migrate broadcasting services out of these bands. This is confirmed by the ITU Footnote 5.312A, which stipulates:

In region 1, the use of the band 694-790 MHz by the mobile, except aeronautical mobile services is subject to the provisions of Resolution 232 (WRC-12).

- 3.8. However, footnote 5.312A does not give countries immediate authority to make allocations to mobile services of the 694-790 MHz band. Its application is tied in with the WRC-12 Resolution, which outlines conditions under which the mobile

services as well as IMT services may be permitted to utilise frequency band 694-790MHz.

3.9. For a policy decision of this nature to take place; to vacate broadcasting services out of the 700MHz and 800MHz bands, a study should be performed not just on the economic value of profits that can be realized by use of the radio frequency bands, but also the social value by calculating what the absence of a broadcasting service in these bands would cost the public.

3.10. The NAB therefore submits IMT must be allocated on a co-primary basis in the 700MHz band.

3.11. On the basis of proposals from administrations, the WRC-15 is among others tasked to:

“consider additional spectrum allocations to the mobile services on primary basis and identify additional frequency bands for IMT, and related regulatory provisions to facilitate the development of terrestrial mobile broadband applications, in accordance with Resolution 233 (WRC-12)”.

3.12. In other words, the WRC -12 recognised that there are other frequency bands that IMT services could be deployed on a primary basis, and these do not include band 694-790MHz, as this band is only available for co-primary sharing of IMT services with broadcasting services. Figure 1 below depicts the envisaged outcome:

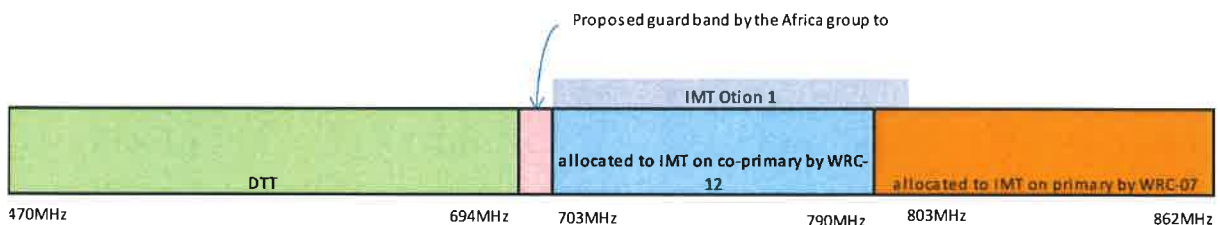


Figure 1

The following analysis is made with the following assumptions:

- There may be no developments on the efficiency of DVB-T2
- In doing the following analysis, consideration has also given to various configurations of the DVB-T2 technical parameters.
- The 9MHz Guard band that is proposed by the SADC is firmly supported.

Spectrum Analysis (UHF 470 MHz to 862 MHz)

	Channels	Range	Dividend (MHz)	Dividend % of UHF	Range	Remaining BS Spectrum (MHz)	Remaining BS % (UHF)
Dividend 1	9	790-862	72	18	470-790	328	82
Dividend 2	12	694-790	96	24	470	304	76
	-	470-694	-	-	-	232	58

Service Analysis (UHF 470 to 694 MHz)

	Channel	Channels per mux	7 Mux Capacity	DVB-T2 Evolution Roadmap	Year
Standard Definition	2	16	112	No developments	2010
High Definition	4	8	56	No developments	2014
Ultra high Definition	8	4	28	No developments	2016/ASO

3.13. Dual illumination Market

3.14. Each DTT multiplex has capacity of+ 33 mb/s which translate into 22 SD channels or 6 HD channels. There are therefore only very limited possibilities for the expansion of terrestrial broadcasting services during dual illumination, in comparison to other broadcasting platforms like satellite which will offer a multitude of channels. in summary, the WRC decisions to reduce UHF spectrum has exerted pressure on the terrestrial broadcasting industry, considering that DVB compression developments are not yet congruent to the compensate for lost spectrum.

3.15. Broadcasting market after ASO

3.16. 7 Multiplexes provide moderate possibility for channel expansion. The Authority's proposed 7-Multiplex plan, utilising spectrum below 694 MHz, will only provide for 28 channels in Ultra HD at analogue switch off. As the DVB-T2 evolution roadmap does not provide projections on the compression efficiency developments, this analysis is therefore based on the assumption that the DVB-T2 will still be at same efficiency level.

4. The cost to migrate

4.1. The NAB is concerned that as much as ICASA desires broadcasters to speedily vacate the much sought after spectrum, no talk of incentivising the migrating

broadcasters is being mooted. The NAB has on several occasions demonstrated to the Authority the need for migrating broadcasters to be incentivised.

4.2. On 6 November 2012, at the request of the Authority, the NAB wrote a follow-up submission to the Authority⁵, indicating amongst others, ways in which migrating broadcasters could be compensated for the migration.

4.3. Apart from the obvious dual illumination costs broadcasters will incur as a result of migrating from analogue to digital, broadcasters will still need to undergo a digital-to-digital migration process. Furthermore, there will be a restacking of frequencies, in order to realize the actual dividend.

4.4. The NAB therefore reiterates its submission to the Authority, and proposes that the following compensation mechanisms be put in place:

4.5. Incentive Auctions

4.6. The NAB proposes that a monetary consideration be given to broadcasters for relinquishing the valuable spectrum post the migration. The Federal Communication Commission ("FCC") in the US has devised innovative ways of encouraging broadcasters to speedily relinquish the sought after spectrum, by introducing incentive auctions. This is a system where broadcasters are given a portion of the auction proceeds. Seeing that ICASA has opted for spectrum auctioning *vis-a-vis* beauty contest, ICASA could likewise come to an agreement with broadcasters to compensate them with a portion of the proceeds from the spectrum auctioned. If the telecommunications sector is in urgent for additional spectrum, it should be prepared to pay a substantial amount for it.

4.7. License fees exemptions

4.8. Seeing that digital migration is a costly exercise to be undertaken by broadcasters, the NAB discourages any costs that would add to this burden. In an attempt to ease the burden on broadcasters, the NAB proposes that ICASA should consider giving migrating terrestrial television broadcasters license fees

⁵ NAB written Submission to ICASA on the Draft Frequency Migrations Regulations And Plan

exemptions during the dual illumination process. This will allow broadcasters to focus their resources on digital migration.

4.9. Equitable allocation of analogue spectrum relinquished

- 4.10. In line with the recommendations made by the 2007 Digital Migration Working Group report (the DMWG), the NAB proposes that ICASA should consider an equitable allocation of capacity a mux in exchange for the relinquished analogue spectrum.

5. The 7 MUX Plan

- 5.1. The Authority has put forth a proposal for a 7 MUX plan for the consideration of the Joint Spectrum Advisory Group (JSAG). While this proposal may seem practical at this point, the NAB is concerned about the sustainability of this proposal. In the event that DTT standards do not evolve as rapidly as anticipated, the NAB is concerned that broadcasting services will run out of spectrum for future enhanced broadcasting services such as HD, UHD and 3D, which require additional spectrum. It is concerning that once the migration has been completed; broadcasting services are expected to surrender 58% of the spectrum currently allocated to it, to telecommunications services.
- 5.2. As opposed to other ITU region 1 countries, which rely on other forms of broadcasting transmissions such as cable, terrestrial and satellite broadcasting for universal access, South Africa is highly reliant on terrestrial broadcasting. Audiences which rely on terrestrial television are generally poorer and will be less able to easily adopt other technologies for the provision of broadcasting content, such as satellite or broadband. In pursuing its mandate to safeguard the public interest, the Authority should be primarily concerned with the impact of terrestrial television spectrum reduction on this segment of society.

6. NAB proposals for inclusion in the IMT roadmap

6.1. *Studio-to-Transmitter Links*

- 6.2. The NAB has on several occasions made submission to ICASA on studio-to-transmitter links ("STLs"), and we wish to reiterate our previous concerns in this instance. STLs are currently allocated spectrum on an ad-hoc basis within 700/800 bands and enjoy no regulatory protection.

- 6.3. To this end, the NAB proposes that STLs should be allocated specific frequencies in the UHF band. STLs must be allocated designated spectrum in the bands below the intended migratory bands, with regulatory protection. The NAB is concerned that the second digital to digital migration (694 MHz- 790 MHz) may have a further negative impact on STLs.
- 6.4. The NAB is aware that this issue is before JSAG (pursuant to our recommendation), and we wish to implore on the Authority to publicise studies conducted by JSAG, and move the JSAG proposal forward in finalising the IMT roadmap.
- 6.5. There is also great concern for the future of short range devices such as wireless microphones operating in the UHF band. The Authority should therefore have an alternative frequency band earmarked for such devices. These include;
- Mipro: 10MW- 630-934MHz wireless microphones;
 - In-ear Monitor: 620-874MHz 100MW;
 - Sennheiser: G band: 556-608MHz;
 - A band: 516-558MHz;
 - B band: 626-668MHz.

6.6. *Guard Bands*

- 6.7. In order to ensure the most efficient use of broadcasting spectrum and the maximum amount of available spectrum for broadcasting services, guard bands between IMT and broadcasting bands should be allocated on the IMT side of the bands. It is our view that a minimum of 2MHz between bands should be earmarked as guard bands. For example; if broadcasting is to migrate out of the (790 – 862) MHz band, the guard band should be allocated at 790 MHz and upwards (790 – 794). Allocating the guard band on the broadcasting side of the band (786 – 790) makes the uppermost frequency unusable as television requires a minimum of 8MHz bandwidth to operate. The inefficient use of the television spectrum will have a knock-on effect on other services, such as DAB, and can result in less spectrum being available for these other services. If television broadcasting services are to forfeit spectrum for IMT services, then the

remaining spectrum needs to be utilised in the most efficient and transparent manner possible to ensure equitable access.

6.8. The IMT roadmap envisages that proper investigations ought to be conducted in order to define the possibilities of any co-existing scenario of IMT with existing technologies and applications, and the minimum required guard bands⁶. The NAB welcomes this view, and advises that a widely consultative process be conducted in this regard, and this should also involve JSAG.

7. Conclusion

7.1. In conclusion, the NAB wishes to highlight that the availability of the IMT spectrum depends on the completion of the digital migration process by the broadcasters. To this end, the NAB wishes ICASA to note the following digital migration milestones, which still need to be achieved for digital migration to become a reality:

Process	Comment
Digital Migration	BDM policy not yet updated, performance period not yet published
STB	Decision on STB control, on manufacturing time lines and subsidies not yet concluded
7 Mux plan	Large SFN's have a potential of self-interference and the cost of in band migration to the below 694MHz has not been quantified
Awareness campaign	A proper plan to inform the public about digital migration needs to be developed- Project Management Office

7.2. The NAB therefore proposes that the Authority should focus its efforts on ensuring the successful completion of the migration, which will yield the dividend. The NAB welcomes the opportunity to make its written submission, and we hope our inputs will add value to ICASA's deliberations.

⁶ At page 61/233 of the IMT Roadmap.