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| **THE NAB WRITTEN SUBMISSION ON THE DRAFT FREQUENCY MIGRATION PLAN 2018**  **12 OCTOBER 2018** |

**DRAFT FREQUENCY MIGRATION PLAN 2018**

**Introduction**

1. The National Association of Broadcasters (NAB) is a leading representative of South Africa’s broadcasting industry, representing the interests of all three tiers of broadcasters. Our members include the public broadcaster, commercial and community broadcasters, signal distributors, as well as industry associates.
2. On 24 August 2018 the Independent Communications Authority of South Africa (ICASA) published the draft frequency migration plan for public consultation. Interested persons were given until 12 October 2018 to submit their input.
3. The NAB welcomes this opportunity to make a few general comments. Whilst some of the issues have been raised in previous submissions, they remain pertinent to the broadcasting industry and are equally relevant to the published draft plan under consideration.

**Paragraph 4.9**

1. It is unclear how the restacking of DTT services in the bands 694 - 862 MHz is to take place or what measures have been put in place to ensure this transition. The NAB notes that whilst the draft plan provides that the process of moving television services from analogue to digital is in progress, to date this migration plan has not been succinctly defined. The NAB respectfully submits that the migration plan ought to be finalised and consulted upon to ensure the orderly migration (re-stack) of broadcast services without disruption to the viewing public.
2. The draft plan provides for the migration of studio links (STL) due to the allocation of the 700 MHz and 800 MHz for mobile and IMT, as reflected in the 2013 Frequency Migration Plan. The NAB notes with concern that these STLs have been given assignments in the destination bands allocated for fixed point to point links.
3. The NAB submits that most of these STLs are still operational in the lower part of the 830 MHz band pending the completion of the DTT migration process, including STLs supporting the SABC’s radio broadcast networks. Furthermore, the proposed destination bands are not the ‘traditional bands’ used for STLs, therefore compatible replacement equipment is not readily available from most manufactures. A limited number of specific STLs for use in South Africa will have to be produced which may result in higher manufacturing and retail costs, making them prohibitively expensive.
4. The NAB further submits that whilst the switching off of analogue television transmission has begun, the completion of the migration process has been laboured with numerous challenges, in particular the unavailability of set-top boxes and the lack of consumer support structures. Concerns have also been raised regarding the stability of the seven mux plan which is based on large province-wide single frequency networks. Furthermore, the delay in the migration process poses significant risks to the current protection of analogue services, particularly those of the SABC.
5. The NAB recommends that ICASA consider migrating STLs to alternative bands which are widely used for STLs in Region 1 where STL units are readily available. The NAB submits that 220MHz in band III is one such alternative band to which STLs may be allocated. The NAB also recommends that the digital dividend spectrum should only be brought into use after analogue switch off and the successful implementation of the Broadcast Digital Migration process.

**Paragraph 4.10.6 (174 – 223 MHz)**

1. It is the NAB’s understanding that once the DTT migration has been completed, a portion of this band will become available for T-DAB services. The 2013 Draft Frequency Plan proposed that two Mux allotments be made for each province. However, these allotments may not be sufficient for all the major metropolitan cities. The NAB therefore recommends that the allotment be increased to a minimum of 4 Muxes.
2. The NAB notes that only channels 11 and 12 have been allocated for possible use by T-DAB services. The NAB submits that this allotment is limited as the full frequency band for T-DAB runs from channel 5A through to channel 13F. Whilst not all countries have adopted the full band of VHF frequencies, all commercial DAB receivers can tune to the full list as standard. The NAB recommends that ICASA increase the number of channels for T-DAB services.

**Paragraph 4.10.7 (223 – 230MHz & 230 – 238 MHz)**

1. The NAB notes that whilst the DTT STB specification makes provision for DTT channels in the VHF band, the draft plan does not make any reference to the possible two VHF DTT channels that may be planned for DTT. The NAB recommends that in the event that DTT is not introduced in the VHF band, these allocations should be reserved for T-DAB.
2. The NAB further recommends that the table of T-DAB allocations be revised as frequencies for the Free State and the Eastern Cape have the same frequency allocations. The overlapping coverage area from transmitter sites in both provinces is quite significant and may result in interference and disruption of some services.

**Paragraph 4.10.15 (790 – 862 MHz)**

1. In line with our comments in paragraphs 6 and 8 above, the NAB recommends that ICASA carefully consider the cost implications of migrating STLs to bands where compatible STL units are not readily available. The NAB respectfully requests ICASA to provide clarity on which fixed point to point bands have actually been selected for STLs.

**Paragraph 4.10.25 (1452 – 1492 MHz)**

1. The draft plan makes provision for the possible allotment of the L band for DAB services. The NAB wishes to remind ICASA of the L band trials which were conducted from 2001 to 2003 in Johannesburg from the Brixton Tower. The findings indicated that the transmission power was 250 watts, with a limited coverage area.
2. The NAB submits that in line with the findings outlined in the paragraph above, the use of the L band for T-DAB is very limited and only a few countries have adopted and are using this band for T-DAB services. Furthermore, most motor manufactures no longer support use of the L band for T-DAB services as the necessary units require separate antennas for the VHF and L band respectively. The NAB recommends band III VHF as the ideal band for T-DAB as outlined above, and that additional VHF allocations be made in the VHF band in lieu of the L-Band not being pursued for T-DAB.

**Paragraph 4.10.31 (3600 – 4200 MHz)**

1. Worldwide the C-band is considered as extremely robust against rain fade and reliable for a number of applications including data links, emergency services as well as television and radio broadcasting links. As stated in our previous submission, the C-band spectrum represents over US$ 42 billion of satellite investment, excluding the investment in ground infrastructure. The satellite beams of C-band cover large geographic areas, resulting in cost effective communications networks. To illustrate this, Sentech uses a C-band satellite to deliver all of the SABC radio and television services to all of the terrestrial transmitter sites spread across South Africa.
2. Satellite receivers are extremely sensitive devices because they are designed to receive extremely weak signals from satellites located in space 36,000 kilometers above the equator. Many of the newer applications which are seeking to utilize C-band spectrum, such as terrestrial wireless systems, emit signals from many locations and in all directions simultaneously. This transmission mode, coupled with the levels of power requested for such operations, can easily interfere with satellite receivers.
3. In some countries such as Bolivia, Tanzania, Hong Kong, and the United States where regulators have allowed terrestrial wireless services to use C-band, there has been substantial interruptions of satellite broadcasting services, affecting hundreds of millions of viewers. The interference caused by terrestrial wireless systems is not limited to same band operations. Out-of-band interference received from terrestrial wireless services in adjacent bands is also a problem; high power signals from wireless systems in an adjacent band are sufficient enough to make it impossible for sensitive satellite receivers to operate in an adjacent band.
4. Satellite services cannot easily be changed or moved to other bands as frequency dependent components are designed and launched into space based on long-term service delivery using that particular satellite on the designed frequencies. The NAB recommends that ICASA consult prior to proposing any changes in the frequency usage of satellite services in order to determine the current availability of in-orbit capacity for the proposed change. This will enable ICASA to assess the extent to which the proposed changes will be able to technically and commercially serve the services and support the changes under consideration.
5. Against this background the NAB submits that terrestrial wireless deployment in just a part of the C-band would negatively impact satellite services and should be re-considered. Any spectrum re-allocation should not adversely affect existing spectrum users. Satellite spectrum, especially in the C-band is an extremely scarce resource, and the allocation thereof requires a stable and consistent regulatory environment. The NAB further submits that it is not possible to migrate C-Band links to Ku-Band and retain the same link availability that the C-Band provides.

**Paragraph 4.10.36 (10700 – 11700 MHz)**

1. The NAB wishes to remind ICASA of the complaints regarding harmful interference from FS to FSS and uncoordinated FSS services in this band which have been reported since early 2017. These interference cases, international best practice and the technical coordination criteria for sharing in this band are currently being investigated within a combined industry forum under the auspice of the Southern African Digital Broadcasting Association.
2. In order to avoid perpetuating harmful interference to FS and FSS users in this band, the NAB recommends that ICASA hold back on licensing FS services until the coordination measures as envisaged in the radio frequency band plan for DTH services outlined in government gazette 19343 of 9 October 1998 have been published and operationalized.
3. Section 2 read together with 30 of the Electronic Communications Act 36 of 2005 as amended, requires ICASA to investigate and resolve all instances of harmful interference. Currently a considerable portion of South African television households depend on interference free access to the band 10700 – 11700 MHz for access to satellite broadcast services. The NAB therefore requests ICASA to mitigate against any further interference and ensure protection of DTH services.

**Conclusion**

1. The NAB has through its numerous submissions actively participated in ICASA’s processes towards digital migration to ensure compliance with international regulations as agreed to and adopted by South Africa. The NAB thanks ICASA for the opportunity to make input to the draft plan, and we look forward to continued engagement on the frequency migration process.