INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 164 OF 2019

ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

FINDINGS DOCUMENT AND POSITION PAPER ON THE USE OF DIGITAL SOUND BROADCASTING IN SOUTH AFRICA

1. The Independent Communications Authority of South Africa ("the Authority") gave notice of its intention to conduct an inquiry into the use of Digital Sound Broadcasting in South Africa in terms of section 4B of the Independent Communications Authority of South Africa Act no. 13 of 2000 ("ICASA Act"), as indicated in a Discussion Document on Digital Sound Broadcasting ("Discussion Document") published in Government Gazette No. 41534 of 29 March 2018.

2. The Authority has since received responses to the said Discussion Document on 29 March 2018 and has held public hearings from 11 to 13 July 2018.

3. The Authority hereby publish the attached notice regarding the conclusion of the inquiry into the use of Digital Sound Broadcasting in South Africa in terms of sections 4C(6) of the ICASA Act.

RUBBEN MOHLALOGA

CHAIRPERSON

DATE: 12/03/2019

GENERAL NOTICE

NOTICE ____ OF 2018

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

FINDINGS DOCUMENT AND POSITION PAPER ON THE USE OF DIGITAL SOUND BROADCASTING IN SOUTH AFRICA

1. On 29 March 2018, the Independent Communications Authority of South Africa ("the Authority") published a notice in the Gazette[1] of its intention to conduct an inquiry into the use of Digital Sound Broadcasting ("DSB") in South Africa in terms of section 4B of the Independent Communications Authority of South Africa Act no. 13 of 2000 ("ICASA Act").

2. The purpose of the Inquiry was:

   2.1 To examine the prospects of implementation of DSB services in South Africa; and

   2.2 To examine the manner in which the implementation of DSB services can improve spectrum efficiency and management.

3. The Authority published a Discussion Document in the Gazette[2] inviting interested parties to make written representation within forty-five (45) working days.

[1] Government Gazette No. 41534 of 29 March 2018.
[2] *Ibid.*

4. The Authority received twenty-three (23) written submissions by the closing date of 06 June 2018 from the following stakeholders:

- Association of Christian Media ("ACM");
- Capricorn Concepts*3;
- DRM Consortium;
- Gareth Kneale;
- iGagasi 99.5 (Pty) Ltd and Radio Heart 104.9 (Pty) Ltd ("iGagasi and Heart");
- JetCon;
- National Community Radio Forum ("NCRF");
- Primedia (Pty) Ltd ("Primedia");
- Pulpit Media Group ("PMG");
- Radio Telecommunication Services (Pty) Ltd ("RTS") and LS of South Africa
- Radio ("LSoSA");
- South African Broadcasting Corporation ("SABC");
- South African Radio Astronomy Observatory ("SARAO");
- Sentech;
- Vamna Media and Production ("VMP");
- Victory FM*;
- WECODEC;
- WorldDAB;
- Classic FM;
- Kagiso Media;
- Professor Potgieter and Dr Bronwyn E Howell;
- eMedia Investment;
- Commercial Radio Australia* ("CRA"); and
- National Association of Broadcasters* ("NAB")

4.1 The Authority held public hearings on the Discussion Document from 11 to 13 July 2018 where the only nineteen (19) of the

[3] (*) These stakeholders did not make oral representations.

abovementioned stakeholders made oral representations to the Authority. Digital Multimedia Broadcasting ("DMB") did not submit written representations but was however given an opportunity to participate in oral hearings. The Authority allowed DMB to make a presentation as they offered more information on a DMB technology which was mentioned in the Discussion Document.

5. The Authority requested additional information from various stakeholders during the public hearings, and subsequently received the same from ACM, Classic FM, iGagasi and Heart, Primedia, Professor Potgieter, PMG, Sentech, and VMP in July and November 2018. Such additional information contributed towards this findings document and position paper.

6. Furthermore, by virtue of not having received written and oral responses to questions addressed to manufactures posed in the Discussion Document, the Authority solicited further inputs from PMG representing the DRM Consortium as well as from WorldDAB. On 20 September 2018 inputs were received from Big 9 ICT on behalf of PMG and also from Association of Representatives for the Electronic Industry ("AREI") on 28 September 2018, while no inputs were received from WolrdDAB.

7. The Authority has concluded the inquiry into the use of DSB in South Africa.

8. In summary, the Authority's findings are that:

   8.1 There is a need for DSB in South Africa.
   8.2 The list of technical standards prescribed for DSB equipment set out in the Discussion Document is not exhaustive.
   8.3 The Authority notes that the Department of Communications ("DoC") is in the process of finalising the Policy Directive. It is anticipated that the Policy Directive will enable the Authority to license standards for DSB.

8.4 The majority of stakeholders agree that SFN is essential for spectrum efficiency and coverage of vast areas, however SFN would cause harmful interference if not synchronised properly.

8.5 Most stakeholders are in support of multiple MUX operators.

8.6 Stakeholders are of the view that it will not be necessary for a total analogue switch off.

8.7 The majority of stakeholders agreed with the initial licensing of DSB services in primary markets, however, there was a dissenting view that advocated for nationwide implementation instead.

8.8 The Authority finds that the market can take further players as DSB is meant to make spectrum more efficient allowing more players in the market.

9. A copy of the Authority's Findings Document on the use of DSB in South Africa, (which includes the reasons for the findings and the Authority's position on this matter) is available on the Authority's website (www.icasa.org.za) and at the Authority's head office library (Block C, 350 Witch-Hazel Avenue, Eco Point Office Park Eco Park, Centurion) during office hours (Mon-Fri from 09:00 to 16:30).

Contents

1. Introduction

1.1 Section 4B of the Independent Communications Authority of South Africa, Act 13 of 2000 ("ICASA Act") empowers the Independent Communications Authority of South Africa ("the Authority") to conduct enquiries into any matter with regards to the achievement of the ICASA Act and any underlying statutes. Furthermore, section 4 (3) (c) of the ICASA Act states that the Authority "must control, plan, administer and manage the use and licensing of the radio frequency spectrum in accordance with bilateral agreements or international treaties entered into by the Republic." In addition, section 34(6) (c) and (e) of the Electronic Communications Act 36 of 2005 ("ECA") dictates that the national frequency plan must be "aimed at reducing congestion in the use of radio frequency spectrum" and "provide for flexibility and rapid and efficient introduction of new technologies."

1.2 South Africa is a member of regional, continental and international organisations and is bound by the Regional Radiocommunication Conference 2006 agreement ("RRC-06"). On 16 June 2006, it was resolved at the RRC-06 conference that the switch-off from analogue to digital broadcasting services must happen by 17 June 2015. This agreement, among others, prompted the Broadcasting Digital Migration Policy of 2008 ("Policy"), which sets out South Africa's parameters in migrating the country's television and radio broadcasting formats from an analogue to a digital platform.[4]

1.3 The current terrestrial digital migration process for television will allow the freed-up spectrum to be utilised for Digital Sound Broadcasting ("DSB"), amongst other uses. The policy, however, does not make provision for digital sound broadcasting services, leaving the Frequency Modulation ("FM") and Medium Wave ("MW") bands to cater for this service. The Geneva 2006 ("GE06") plan, to which South Africa is a signatory, has made provision for 2 x 1.5 MHz of national terrestrial DSB for the Republic within the VHF Band III (174-230 MHz).

[4] Digital Migration Policy, 2008 (as amended), page 2.

1.4 The Authority established the DSB committee in terms of section 17 of the ICASA Act. The DSB committee's responsibilities are to act in the best interest of the public and to consider the following:

1.4.1 Any prior research conducted;

1.4.2 International best practice; and

1.4.3 Any regulatory impact assessments conducted;

1.5 The purpose of the DSB committee is to develop a findings document on the use of DSB, make recommendations to Council and perform any other function incidental thereto.

1.6 Therefore, the Authority embarked on an inquiry to determine the prospects of implementing DSB services in South Africa as well as to improve radio frequency spectrum efficiency and management.

2. Purpose of the Findings Document

2.1 The purpose of this Findings Document and Position Paper is to provide the Authority's findings and position on its inquiry on the use of digital sound broadcasting in South Africa emanating from the information gathered from:

2.1.1 Desktop research conducted by the DSB committee on the proposed DAB+ and DRM;

2.1.2 DSB trials conducted by sound broadcasting licensees;

2.1.3 International study visits conducted by members of the DSB committee. A report is attached herewith and marked as Annexure A;

2.1.4 Written submissions received in response to the Discussion Document[5] and;

[5] Published in Government Gazette No. 41534 (Notice 670) of 29 March 2018.

2.1.5 Oral representations made at the public hearings and additional information requested by the Authority after the public hearings.

3. **Outline of the process followed**

3.1 At the inception of this inquiry, the Authority conducted desktop research of a number of countries[6], on the use of DSB technologies. Furthermore, the Authority embarked on international study visits to five countries to verify and identify developments in DSB and ascertain whether any of these countries are using DSB technologies. Countries that were visited include:

3.1.1 Germany;

3.1.2 Norway;

3.1.3 United Kingdom;

3.1.4 United States of America; and

3.1.5 Australia.

3.2 These countries were selected based on the following criteria:

3.2.1 The size of market, countries with large markets were preferred over those with smaller market;

3.2.2 Whether the identified countries have sector specific Regulators: in this case it was relevant if the country had a broadcasting and Manufacturing Regulators; and

[6] Singapore, United Kingdom, United States of America and Australia.

3.2.3 Countries were selected for already introduced digital sound broadcasting and whether relevant information could be gained to allow the Authority to learn how this technology was introduced, implemented and regulated.

3.3 The outcomes of these study visits have been taken into account in the Discussion Document.

3.4 Furthermore, the Authority has considered Digital Radio Mondial 30 ("DRM30"), Digital Radio Mondial plus ("DRM+") and Digital Audio Broadcasting plus ("DAB+") industry-led trials[7], which were successful.

4. Legislative framework

4.1 The Authority is empowered, under section 4B and 4C of the ICASA Act, to conduct an inquiry into any matter to achieve the objectives of the ICASA Act or the underlying statutes.

5. Approach to the analysis of submissions on specific comments with regard to the Discussion Document

5.1 The views expressed by the various stakeholders in response to the questions raised by the Authority in the Discussion Document are summarised below, followed by the Authority's findings and positions.

6. Analysis of submissions on specific comments on the Discussion Document

6.1 Question 1: Is there a need for the introduction of DSB technologies in South Africa? Motivate your answer?

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[7] https://sadiba.org/images/PDFfiles/SEN_RFN_REP_MEASM_DRM30_RADIO_PULPIT_FINAL_REPORT_V1_04.pdf; http://www.drm.org/wp-content/uploads/2017/08/Interim_Report_for_DRM_Mode_E_Trial_in_South_Africa_draft_1.46.pdf; https://sadiba.org/images/PDFfiles/DAB_Plus_Field_Measurement_Report_-_SENTECH_-_29Aug2015.pdf

6.1.1 Apart from one submission, the view from most stakeholders[8] was that DBS technologies should be introduced in South Africa.

6.1.1.1 **Professor Potgieter and Dr Bronwyn E. Howell** had an alternative point of view. They made the following comments:

6.1.1.1.1 Gains to DSB technologies are minimal and would be realised only many years into the future;

6.1.1.1.2 South Africa has ample, unused medium-wave spectrum that can be used, as well as the vibrant, emerging, online, digital audio businesses that offer real competition to the established broadcasters;

6.1.1.1.3 If consumers are already switching to online media, an expensive digital radio migration would be a fruitless exercise;

6.1.1.1.4 There are many technical difficulties with DSB technologies, including quality that is not necessarily better than FM;

6.1.1.1.5 Digital radio sets are more expensive than analogue sets and even with a subsidy, a forced migration to digital broadcasting would be very challenging for the historically-disadvantaged;

6.1.1.1.6 The migration process for DSB technologies is complex in other countries;

6.1.1.1.7 To concentrate the market in the hands of a small number of broadcasters, who have the technical ability to execute it, does not promote competition;

[8] CRA, ACM, Vamna Media and Production (VMP), Gareth Kneale, WorldDAB, JetCon, Victory FM, Capricorn concepts, NCRF, WECODEC, SABC, Classic FM, DRM Consortium, SENTECH, Kagiso Media, NAB, Pulpit Media Group (PMG)

6.1.1.1.8 International experience shows that even the most advanced and wealthy nations have had mixed results in terms of the implementation of DSB; and

6.1.1.1.9 Sentech is under-resourced and unlikely to be able to carry DSB. Also the licensees are unlikely to carry DSB services.

6.1.1.2 **RTS and LSoSA** stated that DSB technologies (DAB+ and DRM30) can provide suitable supplementary capacity for analogue FM (where spectrum resources are depleted in primary markets) and can ensure the future longevity of Medium Frequency and High Frequency spectrum through migration to DRM30. These digital technologies are spectrum-efficient and have the potential to significantly assist the cause of universal sound radio broadcasting access to the diverse population of South Africa.

6.1.1.3 **Primedia** stated that the introduction of DSB technologies will not only open new opportunities for current sound broadcasting licensees, but it will also facilitate the introduction of new players in the industry, by freeing up much-needed frequency spectrum in the sound broadcasting space.

6.1.1.3.1 It stated that the introduction of DSB technologies will further aid in ensuring that those classified under the Historically Disadvantaged Groups ("HDGs") and Black people will have access to ownership opportunities in the sector by being able to apply for broadcasting licenses.

6.1.1.3.2 However, Primedia believes the Authority should also be cognisant of the following challenges when introducing DSB:

6.1.1.3.2.1 DAB+ and DRM technologies have already been superseded by broadcast over Internet Protocol ("IP");

6.1.1.3.2.2 The increase in broadband ubiquity and the gradual decline of data costs has resulted in broadcasters seeing an increase in the number of

audiences using digital platforms for radio consumption. According to Primedia, this trend will continue to grow significantly, even more so as we see a broader access to smart devices, car infotainment systems and satellite television;

6.1.1.3.2.3 **Primedia** does not see the value of investing in DSB technologies considering that the success and benefits of DSB is dependent on the uptake of DSB receivers by the public. Primedia cautioned that the cost of DAB+ and DRM receivers, which currently retail from a minimum of R750 to over R3000 per unit, is an inhibitor to the successful uptake;

6.1.1.3.2.4 The European Broadcasting Union ("EBU")[9] conducted a study into the digital radio rollout in many European countries. The study highlights the key success factors for radio digitisation and points out both its strengths and areas that require action; and

6.1.1.3.2.5 **Primedia** is of the view that a viable way to ensure the successful uptake of DSB technologies without it being rendered obsolete by over-the top ("OTT") services, is by ensuring widespread access to receivers. This can be achieved by ensuring that smart devices include an integrated DAB+ and DRM receiver as standard, and that car manufacturers sell vehicles equipped with DAB and DRM receivers as standard. This will in turn ensure that most South African citizens will have access to DSB services, without having to use data bundles to access OTT services.

6.1.1.4 In relation to potential legislative implications **Primedia** proposed that the Authority assess the limitations in section 65 of the ECA and evaluate whether they would still be valid during the DSB implementation. Primedia is of the view that those limitations were placed to inter alia ensure that:

[9] Market Insights for Digital Radio 2017

6.1.1.4.1 there is a multiplicity of views in sound broadcasting;

6.1.1.4.2 Historically Disadvantaged Individuals ("HDI") have ownership and control of sound broadcasting services;

6.1.1.4.3 there is no monopolisation of sound broadcasting, and

6.1.1.4.4 there is efficient use and equitable distribution of the radio frequency spectrum.

6.1.1.5 **Primedia** was of the view that the above factors would be still be relevant, and that the legislation is still required to protect the sound broadcasting environment. Therefore, Primedia wonders whether the limitations, as per the current clause 65 subsections (2) to (5) of the ECA, would still be relevant, or could be placed in guarding against the above four factors.

6.1.1.6 **Primedia** advocated for a more liberalised approach to ownership and control. Primedia supported the view by the NAB, that the adoption of DSB will require a shift in the regulatory regime, particularly for ownership and control. They strongly believe that the current numerical restrictions to the number of FM and AM services a person may own and control, should be abolished. The restrictions, to some extent, have stifled growth, especially for black-owned broadcasting services.

6.1.1.7 Furthermore, the current limitations have not encouraged current license incumbents to invest in new services, particularly in secondary markets. Primedia argued that the limitations have mitigated against the intended purpose of ensuring that there is investment in the sector and the creation of new players, which in turn will create a multiplicity of views.

6.1.1.8 **Primedia** proposed that the findings made by the Authority in the Position Paper be adopted if DSB is adopted in South Africa, namely:

6.1.1.8.1 legislation should refer only to the control of licensed commercial sound broadcasting services and not distinguish between AM and FM, for the purposes of ensuring diversity of ownership;

6.1.1.8.2 legislation dispense with a finite numerical limit on the number of commercial licenses;

6.1.1.8.3 A structural, percentage-based limitation is favoured; and

6.1.1.8.4 that no person should control more than 35% of the number of commercial sound broadcasting services.

6.1.1.9 **Primedia** proposed an exclusivity period of 18 to 24 months to allow current incumbents to adopt the technology and turn it into an investment, and to allow enough time for the creation of new content to be disseminated in the aforesaid technology.

6.1.1.10 **eMedia** in principle supported the introduction of DSB technologies in South Africa as radio is the only communications network that is still analogue. The use of DSB technologies will result in the efficient use of the scarce and finite radio frequency spectrum.

6.1.1.11 **WorldDAB** viewed DAB+ technology as having much lower transmission costs than analogue or other digital radio technologies, particularly in areas where multiple services are required, for example, nine (9) or more.

6.1.2 **The Authority's finding and position**

6.1.1.1 **The Authority's findings** is that most stakeholders view the introduction of DSB technologies would impact South Africa positively, as there is a universal move to digital platforms, and radio is no different.

6.1.1.2 The submissions indicated that there is a growing demand for radio services and formats as well as more spectrum. The Authority acknowledged that introducing more players will bring innovation and creativity. The Authority further took cognisance of a move from analogue sound broadcasting to DSB worldwide.

6.1.1.1 The Authority noted the contrary view by Professor Potgieter and Dr Bronwyn E. Howell, who state that there is no legitimate need for the introduction of DSB.

6.1.2 **The Authority's position** is that having embarked on international study visits and research, there is evidence that DSB technologies are beneficial and have proven to be successful in other countries such as Norway and Australia. The Authority notes that even though analogue frequencies are ample, the sound quality is generally poor, with higher transmission costs. Furthermore, DSB is necessary to keep up with technological developments and to encourage spectrum efficiency.

6.1.3 In addition, the objectives of the ECA[10] encourage the Authority to move forward in the development of the ICT sector and this can be achieved in this instance through DSB technologies. Therefore, the Authority's position is that the introduction of DSB is necessary in South Africa. The Authority will in the financial year 2019/20 develop draft DSB regulations.

6.2 **Question 2: Do you think the list of technical standards to which the DSB equipment must conform are exhaustive? Motivate your response and suggest other equipment technical standards?**

6.2.1 Most of the submissions received did not respond to the question posed in the Discussion Document[11], as such those submissions are not captured below. However, below are responses relevant to this question.

6.2.1.1 **WECODEC** stated that the standards, as outlined in the Authority's discussion document in relation to DSB equipment, do not include the receiver specifications for DRM30 and DRM+ compatible receivers.

6.2.1.2 **Classic FM** and **DRM Consortium** submitted an updated version of the South African National Standard ("SANS") and European

[10] Section 2(e) (i) (r) (x).
[11] Page 11 and 12.

Telecommunications Standards Institute ("ETSI") standard and suggested that these standards be added for DAB+ and DRM30/DAB+ to make the list exhaustive and current. DRM consortium further submitted that the DRM technology is the only technology that can be used across all the bands and they submitted an updated list for this standard.

6.2.1.3 **Sentech** advocated for the *status quo* to remain, considering the mandate and the relationship between the South African Bureau of Standards ("SABS") and the Authority.

6.2.1.4 **Kagiso Media** further stated that whilst receivers that are DAB+ enabled can receive a DAB signal, those that are DAB enabled cannot receive a DAB+ signal. Countries that were early adopters of the DAB standard might incur the costs of having to switch technologies all over again.

6.2.1.5 **PMG**'s view was that the standards listed in paragraph 3.2.6, are the relevant standards applicable to DRM (ETSI ES 201 980 "DRM System Specification" as well as ETSI TS 102 349 "DRM Receiver Status and Control Interface (RSCI)"). They advocate that these must be considered for adoption and be included in the National Standards.

6.2.1.6 PMG further stated that consideration must be given to ensure that multi-standard, receiver technology is mandated to enable consumers to receive both the analogue and DSB formats. ICASA should proceed to license DRM-based services to encourage receiver take-up. Receivers should be multi-standard and capable of receiving both DAB and DRM services.

6.2.1.7 **WorldDAB** stated that SANS 301 489-11 is equivalent to ETSI TS 301 489-11 and applies to AM, FM, Terrestrial-DAB and DRM30 transmissions. SANS 213 is equivalent to CISPR 13. These standards apply to EMC of multimedia equipment. CISPR 13 was withdrawn on 5 March 2017 and was replaced with CISPR 32.

6.2.1.8 **WorldDAB** also stated the technical standards below:

6.2.1.8.1 SANS 62104:2003 (IEC 62104) – Characteristics of DAB receivers; This standard was updated in 2015 to IEC 62104:2015;

6.2.1.8.2 SANS 62105:1999 (IEC 62105) – Digital audio broadcast system – Specification of the receiver data interface (RDI); This standard is current SANS 300 401:2005 (ETSI EN 300 401) – Radio Broadcasting Systems; Digital Audio Broadcasting (DAB) to mobile, portable and fixed receivers. This standard was updated in 2017 to ETSI EN 300 401 v2.1.1 (2017-01);

6.2.1.8.3 As there have been some significant changes in some documents, it is suggested that the above South African standards are updated to refer to the latest versions of the equivalent documents; and

6.2.1.8.4 Further, it is recommended that the following ETSI standards be added for DAB+:

6.2.1.8.4.1 TS 101 756 v2.2.1 (2017-08). This covers important codes and identifiers to ensure correct operation in both in-country and international operations for terrestrial broadcasting and hybrid radio operation TS 102 563 v1.2.1 (2010-05): Transport of Advanced Audio Coding ("AAC") audio;

6.2.1.8.4.2 For DRM: ES 201 980 v4.1.2 (2017-04): Digital Radio Mondiale (DRM); System specification. This is the DRM core standard;

6.2.1.8.4.3 For DAB+ and DRM30/DRM+: TS 102818v3.1.1 is for Hybrid Digital Radio for XML specifications for service and programme information (SPI);

6.2.1.8.4.4 TS101 499 v3.1.1 is for Hybrid Digital Radio, Slideshow for User Application Specification. This covers MOT slideshow and hybrid delivery; and

6.2.1.8.4.5 TS 102 818 v3.1.1 (2015-01): Hybrid Digital Radio (DAB, DRM, RadioDNS); XML Specification for Service and Programme Information

(SPI). This covers service and programme information delivery by broadcast and IP mechanisms.

6.2.1.9 **RTS and LSoSA** stated that the list of standards meets the minimum requirements and no further improvement is necessary. The applicable ETSI standards should be the terms of reference for any DSB standard.

6.2.2 **The Authority's finding and position**

6.2.2.1 **The Authority's finding** is that some of the stakeholders identified other technical standards that were not included in the Discussion Document such as the South African National Standards ("SANS") and the European Telecommunications Standards Institute ("ETSI") standards, while others advocated for the *status quo* to remain. Thus the Authority found that the list is not exhaustive.

6.2.2.2 None of the participants had proposed in its submission a standard that deals with the performance requirements.

6.2.3 **The Authority's Position** is that it will adopt the regulated National technical standards and those approved by the SABS. The Authority will further consider the updated versions of these standards in line with developments noted.

6.2.4 The SABS catalogue of the SANS does not contain within its publication a technical standard that is prescribed for DSB equipment performance conformity assessment. The technical standard must contain requirements to demonstrate that the DSB equipment effectively uses and supports the efficient use of radio spectrum in order to avoid causing harmful interference.

6.2.5 European Technical Standards Institute (ETSI) has developed a standard that specifies technical characteristics and methods of measurements for

devices that receive broadcast sound services, irrespective of the modulation used whether analogue or digital[12].

The following broadcast radio modulation methods are considered feasible within the current authorization regime in Europe:

6.2.5.1 Amplitude modulation, with or without AMSS (AM);

6.2.5.2 Frequency modulation, with or without RDS (FM);

6.2.5.3 Digital Audio Broadcasting (DAB); and

6.2.5.4 Digital Radio Mondiale (DRM).

6.2.6 Furthermore, conformance is required for each of the modulation methods included in the sound broadcasting receiver.

Relationship between the present document and the essential requirements of Directive 2014/53/EU

Harmonised Standard ETSI EN 303 345				
Requirement			Requirement Conditionality	
No	Description	Reference Clause No:	U/C	Condition
1	Sensitivity	4.2.4	U	
2	Receiver adjacent channel selectivity and blocking	4.2.5	U	
3	Unwanted emissions in the spurious domain	4.2.6	U	

6.2.7 Requirements No. 1, 2 and 3 are unconditionally tested upon the sound broadcasting receiver conformity assessment.

[12] ETSI EN 303 345 V1.1.7 (2017-03)

6.2.8 The Authority will consider proposing the ETSI EN 303 345 standard onto SABS Technical Committees for adoption for the South African marketplace.

6.3 **Question 3: In the absence of a policy directive for providing a standard for DSB, should the Authority provide licenses for other DSB technologies? Please motivate your answer.**

6.3.1 Most of the submissions supported the licensing of DRM/DRM+ and DAB/DAB+, as trials had been conducted based on these standards, and have been agreed to by the SADC region. However, some submissions[13] required the presence of a policy directive prior to the consideration of licensing, whilst some submissions supported licensing of other technologies[14].

6.3.1.1 **CRA** stated that in Australia broadcasters made recommendations to the Minister and the regulator to adopt DAB+ and once rollout was complete, a review of the most suitable platform for remote coverage would be undertaken.

6.3.1.2 **Gareth Kneale** stated that DRM might be a possible additional Technology, however, there is no other DSB Technology that should be considered, and that there is no need to provide a license for same.

6.3.1.3 **eMedia** stated that because South Africa has adopted a technology neutral policy, then there must be one DSB standard adopted. The adoption of one standard will enable the country to benefit from the economies of scale, which will result in affordable radio equipment.

6.3.1.4 **eMedia** was of the considered view that further introduction of other standards is unnecessary and has the potential to destabilise and result in confusion of the migration process. They further pointed out that introducing new standards will cause unnecessary delays.

[13] Jetcon.
[14] Victory FM.

6.3.1.5 **WorldDAB** stated that South Africa currently has standards for the operation of DAB+ and DRM and that several trials have been undertaken or are ongoing for both standards. WorldDAB provided that the Southern African Digital Broadcasting Association (" SADIBA") encouraged the Authority to officially adopt the DAB+ and DRM30 standards as soon as possible to provide a clear indication to the South African broadcasting industry of the technologies to be used for DSB. It also encouraged the Authority to adopt an approach like the European Union recommendation R138 v2.08 (2017-11) which makes the following recommendation amongst others:

6.3.1.5.1 The needs of all radio services in a country be considered when making plans for the digitisation of radio, including future linear and non-linear service expansion and the available spectrum;

6.3.1.5.2 It further encouraged that digital radio broadcasting in VHF Band III, where it is available, be established and DAB+ (ETSI TS 102 563) audio services be used for new services;

6.3.1.5.3 For countries wishing to deploy digital radio broadcasting in other frequency bands, such as those currently used for analogue radio broadcasting, DRM (ETSI ES 201 980) can also be considered; and

6.3.1.5.4 Conditions for digital switchover be defined, agreed and publicly communicated within each European country to expedite the process.

6.3.1.6 **JetCon** stated that the Authority must not provide licenses for the DSB technologies in the absence of a policy directive. South Africa needs certainty on the policy and standards which will attract foreign direct investment on the manufacturing of Receivers.

6.3.1.7 **Victory FM** agreed that the country cannot diversify media without allowing other DSB technologies to exist.

6.3.1.8 **WECODEC** stated that licenses could be provided for DRM and DAB+ preferably to community radio stations as there is no spectrum available in this regard, as indicated by the implementation of the moratorium. The commercial rollout may require additional consideration before implementation.

6.3.1.9 **Sentech** stated that the purpose of the policy directive requirement with respect to DSB is different as opposed to the requirement to have a policy directive for Digital Terrestrial Television ("DTT") migration. With the latter, the policy directive related to the State-funded network, infrastructure requirements and the subsidisation of Set-Top-Boxes ("STB") for certain households.

6.3.1.10 **Sentech** stated that section 3(1) (d) of the ECA implied that the Minister has discretion to make policies on the general application of terrestrial DSB services but not in issuing a policy advancing a technology. Sentech also advanced the opinion that, by ratifying the Final Acts of RRC-06, South Africa has subsequently adopted the DAB frequency plan in the VHF band III. Sentech believed that the outcome of RRC-06 should be interpreted in the same context as the proceedings of the World Radiocommunication Conference because of the active involvement of the industry in supporting country positions. Therefore, the ratification of the Final Acts of RRC-06 was done after the participation of the broadcasting industry.

6.3.1.11 **Sentech** acknowledged that the ECA is a technology-neutral legislation and therefore empowers the Authority to "provide licenses for other DSB technologies" in the radio frequency bands where currently-terrestrial analogue audio services are deployed.

6.3.1.12 Sentech advised the Authority to address the following:

6.3.1.12.1 Linking requirements for new services;

6.3.1.12.2 Licensing of DSB for existing services (i.e. obligations, duplication of services, etc.);

6.3.1.12.3 The role and accommodation of OTT services;

6.3.1.12.4 The impact of deploying different technologies within each band;

6.3.1.12.5 Whether the Authority intends to introduce a switch-off date for analogue services;

6.3.1.12.6 Whether DSB will incur the consequence of impacting the current;

6.3.1.12.7 Licensing regime (Individual Electronic Communications Network Services ("IECNS") (multiplex operators) and content providers);

6.3.1.12.8 Licensing criteria (analogue vs digital, public tender process for IECNS (multiplex operators);

6.3.1.12.9 The extent of DSB impact on existing standards and terms regulations (e.g. content, validity, etc.);

6.3.1.12.10 Exemption to Free-To-Air ("FTA") services from paying spectrum fees;

6.3.1.12.11 The introduction of subscription audio services and the need for must-carry principles;

6.3.1.12.13 Whether current licensees will be protected when introducing new entrants;

6.3.1.12.14 Accessibility of services and devices for people with disabilities; and

6.3.1.12.15 The impact of introducing DSB (Short Wave ("SW"), AM, VHF, FM and VHF band III) on content regulations.

6.3.1.13 **Kagiso Media** stated that flowing from Government's policy framework, the Authority needed to establish a clear regulatory framework that will govern the licensing, incentivising and general oversight of the digital radio broadcasting sector.

6.3.1.13 **NCRF** stated that in the absence of a policy, one of the current relevant policies should be utilised. As South Africa is a signatory to the ITU, the ITU policy framework should be able to guide the licensing of DSB, however, the NCRF wished to put forward a much faster process of publishing of the policy which engages contributions from other departments such as the DoC and Government Communications Information Systems.

6.3.1.14 **PMG's** view is that technological neutrality has been, and is, a key objective of the ECA. The Authority should proceed with providing licenses for DAB and DRM technologies even in the absence of a formal DSB policy directive from the DoC. It does, however, caution against other technologies being licensed in South Africa as these would not be appropriate for Region 1 of the ITU.

6.3.1.15 **PMG** noted the provisions of paragraph 3.3.8 of the Discussion Document and queried why the Third Trial License Report had not been made public and was of the view that an update of this section be included to provide for the incorporation of the findings of the Third Trial License Report in the Authority's Position Paper that resulted from the Discussion Document.

6.3.1.16 **PMG** further stated that South Africa as part of region 1 should adopt the same DSB technology as the rest of the region to unlock benefits of economies of scale in terms of numbers of receivers. Further, when travelling within the region (e.g. harmonisation within the Southern African Development Community), the technologies should extend beyond physical borders as limited by network planning and coverage parameters.

6.3.1.17 **PMG** stated that its research showed that there is a demand for local receiver manufacturing capability and for the adoption of common DSB standards within the region, to stimulate demand and uptake of DSB services to unlock additional socio-economic benefits through local receiver manufacture/assembly and related activities.

6.3.1.18 **RTS and LSoSA** stated that the Authority should only consider providing licenses for DRM30 and DAB+ respectively. License conditions should

include the applicant measurable commitment to the promotion of the technology down to user level. This could include receiver subsidisation, sponsored areas of development of receivers, marketing campaigns, etc.

6.3.1.19 **RTS and LSoSA** stated that the concept of a trade-off between the DSB and the very successful existing FM services should be avoided at all costs as this could be construed as unnecessary and wasteful and create an artificial resistance towards the new technologies. In all cases, DSB should be considered as complementary to existing FM services. The "weight" and social value of FM broadcasts as a universal sound broadcast access medium in South Africa is significantly more compelling than in Europe, for example.

6.3.1.20 **Classic FM** submitted that South Africa has standards for the operation of DAB+ and DRM emanating from the numerous trials using these two standards. The submission considered the introduction of more DSB technologies as unnecessary and potentially destabilising. Classic FM noted that the addition of further standards will confuse the broadcasting sector and supporting industries and slow the introduction of digital radio in South Africa.

6.3.1.21 **DRM Consortium** submitted that the Authority should provide licenses for both standards of DRM (DRM for wide coverage, below 30 MHz or DRM30 and DRM for local coverage, above 30 MHz or DRM+). This, according to their submission, is because DRM is the most technologically-advanced and newest global digital radio standard able to broadcast in all frequency bands (both AM and FM). Furthermore, their experience in India has been such that the regulatory body has recommended digitising using the DRM technology for the country in the FM band.

6.3.1.22 **SARAO** provided the Authority with additional information on frequency bands that the Authority should be mindful not to interfere with the Square Kilometre Array ("SKA") project, the frequency bands are tabled as follows:

RAS Allocation (MHz)	RAS Status	Comments
13.36 – 13.41	PRIMARY	No adjacent BS allocation.
25.55 – 25.67	PRIMARY	Any Broadcasting Services in the adjacent band (25.67-26.1 MHz) should consider 5.149 of the RR and ensure that RAS services are protected.
37.5 – 38.25	SECONDARY	No adjacent BS allocation.

6.3.2 **The Authority's finding and position**

6.3.2.1 **The Authority's findings** is that while most stakeholders are of the view that the Authority must confine its licensing to those standards that have gone through trials, and have been agreed to at a regional level, other stakeholders are of the view that there is room to consider other standards. They are further of the view that there is no need for a Policy Directive to pronounce on standards for the Authority to license these standards. The Authority's finding is that despite there not being a final Policy Directive on standards that can be licensed for DSB, the Authority may adopt standards for DSB in the absence of such Policy Directive. This finding is based on submissions received and the fact that in terms of section 3(4) of the ECA, the Authority is required to consider Policy Directives from the Minister. Be that as it may, the DoC consulted the Authority on the draft Policy Directive.

6.3.2.2 The DoC has since published a draft Policy Directive on the introduction of DSB in South Africa on 28 September 2018, inviting public comments. In such a draft Policy Directive, the DoC proposed the following standards:

6.3.2.2.1 DRM 30 to complement MW;

6.3.2.2.2 DRM+ to complement FM; and

6.3.2.2.3 DAB+ for VHF Band III.

6.3.3 **The Authority's position** is that it supports the introduction of these standards based on the trials conducted by industry stakeholders as the trials verified that DRM 30, DRM+ and DAB+ are suitable standards.

6.4 **Question 4: South Africa, through its international agreements at ITU and SADC level, agreed on DAB+ and DRM systems. Please indicate which other digital sound broadcasting technology (ies), if any, should be considered for South Africa? Please motivate.**

6.4.1 Most submissions stated that no other standards should be considered for the sake of synchronisation in the SADC region. Differing views expressed that the Authority should be flexible in its approach to the introduction of new technologies, as the ECA supports technological neutrality[15].

6.4.1.1 **Victory FM** stated that the RAVIS system should be utilised as it is an advanced technology and is of a high quality and would boost Small, Medium and Micro-Sized Enterprises which are in the manufacturing industry and can reduce unemployment and boost the economy. Further, DSB should simulcast with analogue FM and AM to reach rural listeners.

6.4.1.2 Although the **NCRF** indicated its support for the synchronisation of standards within the SADC region, it also advocated for the consideration of the ISDB-T, which is an integrated technology and can expand systems to other broadcasting mechanisms like mobile technology broadcasting services.

6.4.1.3 **Kagiso Media** shared the same view and stated that South Africa has already agreed to adopt the DAB+ and DRM systems for digital sound broadcasting, however, there is nothing preventing the adoption of other complementary technologies should they become available.

6.3.1.4 Additionally, Kagiso Media provided that because internet radio is fast growing as well as access through satellite systems, and that band 1452 –

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1492 MHz will be further assessed for future use, South Africa should adopt a flexible approach to technology.

6.4.2 **The Authority's finding and position**

6.4.2.1 **The Authority's finding** is that there were differing views regarding whether or not the Authority should consider other technologies outside of its commitments at the regional and international level

6.4.2.2 **The Authority's position** is that although other technologies were proposed, it will only consider the proposed technologies in line with SADC for harmonisation purposes.

6.5 **Question 5: To use the spectrum efficiently, the digital sound broadcasting network can be planned on a Single Frequency Network ("SFN"). Do you think that it would be applicable for purposes of digital sound broadcasting? Please motivate.**

6.5.1 Submissions on this question were split between those that supported the use of SFN16 only, and those that supported the use of both SFN for the metropolis and Multiple Frequency Network ("MFN") for provincial coverage[17] or the adoption of MFN[18]

6.5.1.1 **CRA** stated that the use of SFNs is common in DAB+ for both local and national services.

6.5.1.2 **Gareth Kneale** stated that MFN should be considered when it comes to Regional Broadcasters and this includes community radio stations, and the different requirements for suburban as opposed to rural areas, and different terrains such as flatter regions compared with mountainous regions such as the Western Cape.

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[16] CRA, WorldDAB, JetCon, Kagiso Media, WECODEC, eMedia, Victory FM, NCRF, DRM Consortium, and the RTS and LSoSA.
[17] Sentech, The SABC, NAB and PMG.
[18] Gareth Kneale.

6.5.1.3 **WorldDAB** agreed that SFN operation was essential for spectrum efficiency and robust transmission network area coverage. According to WorldDAB, SFN allows repeaters / gap fillers to operate in blackspot /dead spot areas on the same frequency without the need for alternative frequencies as required for FM. SFNs can also be used to provide wide area coverage. However, it was cautioned that care was needed in the design of the transmission network to ensure appropriate transmitter power, antenna site spacing and timing synchronisation to avoid self-interference. According to WorldDAB, MFNs are necessary when coverage areas carry different content, for example, different local area services. The number of multiplexes required for an area is dependent on the demand for services.

6.5.1.4 **eMedia** stated that the introduction of SFN will lead to efficiencies in the usage of spectrum in the metropolitan areas of South Africa. During the trial, an SFN was trialled between Pretoria and Johannesburg, and it was successful.

6.5.1.5 **JetCon** agreed that it would be applicable for purposes of DSB. It stated that analogue AM and FM radio broadcast networks as well as digital broadcast networks can operate through SFN. SFNs are not generally compatible with analogue television transmission.

6.5.1.6 **JetCon** also stated that a simplified form of SFN can be achieved by a low power co-channel repeater, booster or broadcast translator, which is utilised as gap-filler transmitter.

6.5.1.7 **Victory FM** stated that DSB trials by the SABC using SFN configuration covered most of the Gauteng province with end-to-end technical functionality and other successes being achieved. As such, provincial radio coverage was possible.

6.5.1.8 **NCRF** stated that as per the Discussion Document by ICASA, and the ITU framework, DAB+ and DRM systems can function on both SFN and MFN. Although both systems have been trialled in South Africa, only the DAB+ system was trialled on SFN. With its potential ability to cover a wider area,

it will be very important to ensure monitoring and compliance in ensuring that the community radio sector remains focused in its geographic communities.

6.5.1.9 **WECODEC** stated that DRM had been implemented over thousands of kilometres using shortwave SFN. There were different spectrum requirements for different applications, thus there should be a combination. If DSB is deployed over large SFN, local coverage for community radio will be compromised.

6.5.1.10 The **SABC** stated that DAB+ can be operated on SFN as demonstrated by NAB's DAB+ trial, of which SABC is the license holder. SFN has network instability disadvantages especially when implemented over a large, province-wide or nationwide basis. SABC recommended that SFN be planned in metropolis areas and MFN in other parts of the country to ensure stable and reliable networks for radio services in the country.

6.5.1.11 **Classic FM** submitted that DSB could be planned on SFN operation and is essential for spectrum efficiency and robust transmission network area coverage. It further noted that SFN would benefit cases relating to coverage and better penetration as opposed to FM. According to Classic FM, a proper, long-term plan for densely-populated areas such as a metropolis should be considered in terms of frequency allotment, as opposed to other areas in the country. It must further be considered whether there might be a requirement for an additional VHF Band III television channel that could be allocated to DAB+;

6.5.1.12 **Classic FM** is of the view that DAB+ can be implemented immediately on channel 13F (239 MHz), considering that 7 metropolises are waiting for analogue switch-off, and that there are up to 13 channels allocation with the MNET ad hoc switch-off. In addition, they considered that the services which were never actually switched on were possibly 13 in total. To have the same coverage on FM, for instance, will require 24 separate transmitters and 24 separate frequencies to be utilised, whilst with the SFN,

one transmitter is needed for all 24 services and will lower the costs for broadcasters.

6.5.1.13 **DRM Consortium** submitted that SFN is one of the great advantages of digital radio as compared with analogue radio. In DRM, SFN can be used successfully whether below or above 30 MHz, making the reuse of the same frequency one of its great advantages. The way it works is that two or more transmitters can transmit the same content (same bit) at the same time on the same frequency (which would lead to interference on analogue). SFN networks further helps in the case of gap fillers.

6.5.1.14 **Sentech** pointed out that:

6.5.1.14.1 With lessons learned from the DTT migration process, requirements of terrestrial community audio broadcasters must be dealt with differently from those of individual licensees;

6.5.1.14.2 Although use of SFN is more spectrum-efficient with the added benefit of network gain in digital systems, all content in an SFN must be identical to the different transmitter sites and be synchronised in time. In a multi-channel and radio frequency sharing conditions, large area SFNs limit the flexibility of individual broadcasters to determine their footprints. Provincial-sized SFNs will force all broadcasters sharing a multiplex to have the same coverage footprint. Large SFNs do not empower the adoption of the three tiers (public, commercial and community) of sound broadcasters' license conditions and business models. It is therefore proposed that a combination of SFNs for the main metropolitan areas and MFNs for rural areas be adopted; and

6.5.1.14.3 It supports a regulatory framework catering for all categories of broadcasting.

6.5.1.15 **Kagiso Media** stated that SFN is currently the best option for digital sound broadcasting networks. However, the question of who will operate the SFN is pertinent for the Authority to consider. It seems logical that if the SFN

frequency licenses are licensed in geographical terms then the transmission service provider/s (e.g. Sentech or other independent service providers) would have to bid to be the operators of the SFN and the multiplex. When the transmission service provider wins the bid, then it would be responsible to put infrastructure in place for broadcasters. Broadcasters would then lease a channel from the SFN license holder. However, this might negatively impact the broadcasters as this creates a monopoly, that is, the SFN license holder will be able to unilaterally raise lease prices which could be too high for broadcasters. The Authority will need to consider measures to safeguard against this risk by awarding the multiplex licenses to broadcasters directly. This enables the management of the multiplex on commercial terms rather than on monopolistic activity. In addition, this will stimulate investment by enabling more service providers to enter the market to manage technical broadcasting infrastructure.

6.5.1.16 **Kagiso Media** further stated that the Authority will have to set guidelines on channel composition on the SFN frequency, for example, if a single SFN is licensed to carry 18 channels. These channels would need to be allocated as follows:

6.5.1.16.1 40% commercial content distributers;

6.5.1.16.2 40% public content distributers; and

6.5.1.16.3 20% community content distributers.

6.5.1.17 The NAB stated that DAB+ and DRM systems can function on both single frequency and multi-frequency networks. It, however, noted that in South Africa only the DAB+ was tried on SFN. The findings on DAB+ trials indicated that SFN has network instability disadvantages especially when implemented over a large geographic area. NAB recommends that SFN be used in larger metropolitan areas and multi-frequency networks be used in other parts of the country.

6.5.1.18 **PMG** was of the view that it is senseless to restrict a DSB network to SFN or MFN. Both DSB technologies (DAB+ and DRM) can operate in a single or MFN configuration. Consequently, both ought to be allowed and licensed.

6.5.1.19 **RTS and LSoSA** stated as follows:

6.5.1.19.1 The use of SFN techniques has been well considered for DSB and applied as part of the trials in Johannesburg and Pretoria respectively. It is an essential component of any digital transmission system and must be applicable for any commercial rollout.

6.5.1.19.2 The current, published ICASA DAB+ frequency allotment plan in the VHF Band III includes SFN frequencies per province. RTS and LSoSA also noted that should this plan be implemented per province there will be a good chance of interference between the Free State and Eastern Cape SFN networks.

6.5.2 **The Authority's finding and position**

6.5.2.1 **The Authority's finding** is that the majority of stakeholders agree that SFN is essential for spectrum efficiency and coverage of vast areas. On the other hand, other stakeholders articulated that SFN would cause harmful interference if not synchronised properly.

6.5.2.2 **The Authority's position** is that although the use of SFN on its own would be applicable for DSB, it would however not be practical in the context of South Africa's tiered broadcasting structure. A hybrid model (SFN and MFN) that caters for all three tiers of broadcasting seem to be more applicable for DSB in South Africa. The Authority is also of the view that the commercial and public sound broadcasting services can be operated by one MUX operator on SFN, and different operators for MFN could be considered for community broadcasting services.

6.6 **Question 6 has two (2) sub questions and we have divided them same below:**

6.6.1 **Question 6.1: Should the Authority consider one or more multiplex ("MUX") operator(s) for DSB? Please motivate.**

6.6.1.1 All submissions except for the NAB recommended the use of multiple MUX operators.

6.6.1.1.1 **CRA** stated that in Australia, it was the broadcasters' view that to control costs, the broadcasters in any given license area were given the first opportunity to form a joint venture company to own and operate the MUX.

6.6.1.1.2 **VMP** states that more operators should be introduced into the provision of DSB. Providing the rationale that introducing competition to Sentech will prove beneficial to the market.

6.6.1.1.3 **Gareth Kneale** agreed that the Authority should consider more MUX operators, simply because of free enterprise and for cases where in rural regions it may not be viable for Sentech to provide MUXs and transmission equipment.

6.6.1.1.4 **WorldDAB** stated that there are numerous ways to provide multiplex and transmission services. All countries are slightly different but use a mixture of the basic separation of services and ownership models, each of which has its own advantages and disadvantages. The basic model is that the independent network operator provides multiplex and transmission services. In this model network operator:

6.6.1.1.4.1 does not generate any content; and

6.6.1.1.4.2 charges the broadcasters a free for capacity on each multiplex that they have services.

6.6.1.1.5 **WorldDAB** also stated that broadcasters own and operate the multiplex and Transmission system. In this model:

6.6.1.1.5.1 when more than one broadcaster has services on a multiplex the multiplexer and transmission systems can be owned by a Joint Venture Company ("JVC") which in turn is owned by the broadcasters,

6.6.1.1.5.2 the JVC may sub-contract some transmission services to network operators, e.g. for antenna tower aperture, and

6.6.1.1.5.3 where the broadcasters own and operate the multiplex system and contract transmission services.

6.6.1.1.6 **eMedia** stated that the Authority must, in its final DSB regulations, make it possible for each broadcaster to choose its signal distributor to promote competition. It would be illegal for the Authority to prescribe regulations for the licensing of one MUX operator.

6.6.1.1.7 **JetCon** was of the view that the Authority should consider more MUX operators to be able to transform the sound broadcasting sector in South Africa.

6.6.1.1.8 **Victory FM** supported more than one MUX operator for economic reasons and for media diversification.

6.6.1.1.9 **NCRF** enquired whether the ECA has any provisions relating to a MUX operator license category. In the case that the ECA does not have such provisions, it proposed that ICASA consider developing a framework to determine who can be licensed as a MUX operator and determine the requirements. NCRF expressed that it is not opposed to a multi-operator system as this will assist community broadcasters to propagate to other different devices.

6.6.1.1.10 **WECODEC** stated that large multiplexes have led to DAB+ being the only broadcast standard in other countries. A combination of DAB+ and DRM multiplexes will allow versatility and/or individual small multiplexes.

6.6.1.1.11 **The SABC** stated that it is important for the Authority to consider many MUX operators as allowed by the frequency plan and broadcasters must have their own MUXs. The SABC proposes separate MUX operators for national, regional and local coverage to cater for broadcasters with a universal service mandate (e.g. the SABC) and small community players who need a local MUX operator.

6.6.1.1.12 **Classic FM** submitted that there are three models to deal with the matter and offered the following differing options:

6.6.1.1.12.1 A network operator such as Sentech as the Common Carrier which provides multiplex and transmission services;

6.6.1.1.12.2 Broadcasters own and operate the multiplex and transmission system; and

6.6.1.1.12.3 Mixed model where the broadcasters own and operate the multiplex system and contract transmission services.

6.6.1.1.13 Classic FM recommended that commercial broadcasters be allowed to select their model of choice.

6.6.1.1.14 The **DRM Consortium** submitted that their technology uses the existing channels, which leaves the broadcaster in charge of its own existing infrastructure without the need of a multiplex and/or operator. It supports a multiplex operator where broadcasters share the cost to be carried by an operator. Furthermore, a single antenna can be used to simulcast the two signals on the legacy network.

6.6.1.1.15 **Sentech** proposed that a public tender process like that which was envisioned in the Digital Migration Regulations, regulation 9, should be considered by the Authority. Additionally, in a multichannel and/or spectrum-sharing environment, Sentech recommends radio frequency spectrum for terrestrial broadcasting services be assigned to ECNS

licensees. ECNS licensees will be empowered to seek innovative ways to diversify revenue and consequently reduce dependency on traditional broadcasting.

6.6.1.1.16 The **NAB** stated that currently, broadcasters either choose to self-provide or enter into a commercial contract with a signal distributor (ECNS licensee). It therefore recommends that the *status quo* be maintained since any change in the licensing framework will bring about uncertainty to the detriment of the industry and will require amendments to the legislation. It noted that, currently, there is no broadcaster that has been licensed to be a MUX operator. Broadcasters are required to choose a MUX operator as there must be more than one broadcaster on a single MUX.

6.6.1.1.17 **PMG** was of the view that ICASA should not consider licensing only one DSB MUX operator. This would of course constitute a monopoly which would open the door to abuse of power and result in a lack of variety of service providers and customer-focused incentives.

6.6.1.1.18 **RTS and LSoSA** stated that it is extremely important that the Authority considers future (independent) MUX operators as well as Transmission Service Providers that could operate within the DSB landscape. There are several considerations for this view, however, where commercialisation is being established as a major driver of viable business cases for new technologies, these entities should be allowed to support the technologies in the interest of the users. An example might be where independent operators can provide low power MUX operators for community broadcasters covering some geographical areas instead of certain commercial market technology deployments. The current changes in the broadcast signal distribution environment and the convergence with telecommunication demands liberation of the signal distribution environment rather than isolation or monopoly.

6.6.1.1.19 The **DRM Consortium** submitted that their technology uses the existing channels, which leaves the broadcaster in charge of its own existing

infrastructure without the need of a multiplex and/or operator. It supported a multiplex operator whereby broadcasters share the cost to be carried by an operator. Furthermore, a single antenna can be used to simulcast the two signals on the legacy network.

6.6.2 **Question 6.2: Would you propose a total switch–from traditional analogue AM and FM sound broadcasting? Please motivate.**

6.6.2.1 **Victory FM** recommended total switch-off while PMG suggested a wait-and-see approach to determine whether a total switch-off would be necessary. The rest of the submissions did not support a total switch-off.

6.6.2.2 **CRA** stated that, at this early stage, South Africa should not propose a total analogue radio switch-off. It takes considerable time and coordination to transition audiences to a new, digital, audio platform and replace their existing radios in homes, vehicles and workplaces with new, digital radios.

6.6.2.3 **VMP** said it would not propose a total switch-off of analogue sound broadcasting, stating that certain members of the population would not be able to afford the new DSB receivers.

6.6.2.4 **Gareth Kneale** did not promote a digital switch-off. According to him, considering that the first country, Norway, only completed this at the end of 2017, and other well-established countries in favour of DAB+ are only in the planning stages, and therefore only take place within the next few years, it would be wise to wait on the implications and determine for what the analogue frequencies can be utilised.

6.6.2.5 **WorldDAB** stated that there is always a transition period from analogue to DSB. The transition period for DSB is longer than DTV due to the need to support analogue car receivers.

6.6.2.6 **eMedia** also stated that the decision to switch-off analogue must be made when most citizens are able to receive DSB services. The Authority will determine the optimum percentage of those citizens able to receive the DSB services and thus enable the switch-off of the analogue sound broadcasting services.

6.6.2.7 **Victory FM** agreed with the total switch-off, as technically there will not be any future clash of spectrum between the DSB technology and analogue or any complications. Moreover, this will assist with facilitating global change.

6.6.2.8 **NCRF** proposed a co-existence of DAB and traditional FM for a specified period. As indicated previously, community radio has not featured heavily in the talks about DAB. It is important to allow the process to unfold seamlessly with no station being off air because of a switch-over. However, the regulator must set the schedule to facilitate the rollout process in community radio to move faster.

6.6.2.9 **WECODEC** stated that the switch-off from analogue to digital should be considered after many years of preparation and when most of the population is using digital radios. Setting a date for the launch of digital radio would encourage stakeholders.

6.6.2.10 **The SABC** discouraged the switch-off of traditional analogue transmitters due to the unaffordability of a typical DSB receiver estimated at R1000.00. Switch-off of analogue should be determined by the adoption of digital services by consumers. The cost of receivers and the cost of signal distribution should underpin the switch-off date of analogue services.

6.6.2.11 **Classic FM** recommended that commercial broadcasters be allowed to select their model of choice. Classic FM did not support a switch-off of traditional analogue broadcasters and viewed the introduction of terrestrial DSB services as an added delivery medium. It noted that it will become an unnecessary expense in time, with possibly the SABC and commercial

broadcasters being the some of the first to close their analogue services due to the costs of dual illumination. However, it submitted that switching off analogue services will help promote the switch to digital and encourage the take-up of new, digital radio-capable receivers.

6.6.2.12 **DRM Consortium** submitted that although radio does not have the advantage of being able to deliver a big digital dividend like digital television, a transition period will always be necessary to introduce the advantages of DSB, migrate the existing listeners and gain new listeners to the new digital platform. This transition period should be as short as possible since the cost of maintaining both analogue and digital on air can be relatively high.

6.6.2.13 **DRM** Consortium further stated that a switch-off date needed to be set as this focuses the minds and efforts of both the listeners and broadcasters and does not stretch the project into uncertain times.

6.6.2.14 **Sentech** pointed out that since digital and analogue sound broadcasting can be operated successfully simultaneously, it proposed an annual measure of DSB take-up. Through a public participation process, the Authority can determine the percentage take-up required to commence analogue switch-off.

6.6.2.15 **Kagiso Media** stated that in the Terrestrial Broadcasting Frequency Plan, 2013, the Authority indicated that a switch-off date for AM and FM transmission in South Africa would not be set. It further stated that digital audio broadcasting would be an additional audio service available.

6.6.2.16 **Kagiso Media** further stated that a complete switch-off of analogue transmission is not necessary for the following reasons:

6.6.2.16.1 The ITU has not prescribed a mandatory switch-off;

6.6.2.16.2 Digital radio can co-exist with analogue radio that operates in the AM/FM frequency bands because there is no sharing of frequencies;

6.6.2.16.3 The spectrum that may be released through migration is not required or other services; and

6.6.2.16.4 Most countries have not set a switch-off date and are rather adopting a gradual approach to digital.

6.6.2.17 Kagiso Media stated that a complete switch-off is not feasible in the short to medium term. South Africa should consider a total switch-off only when a critical mass of consumers has access to digital receivers and the incumbents have recouped their investment in digital equipment. The Authority should set the benchmark (e.g. 60% population uptake) as the point at which it can then set the date for the digital radio switchover.

6.6.2.18 The **NAB** recommended that analogue sound broadcasting services must continue to be available. Unlike DTT, DSB is meant to serve as an alternative distribution platform. Currently, the DAB+ receivers may not be affordable and therefore it is important for the market for DSB services to be allowed time to grow and establish itself before there can a total switch-off.

6.6.2.19 **PMG** further stated that there may well be socio-economic trade-offs given that sound broadcasting, which is one of the primary means of accessing information in the rural areas, and the cost of DSB receivers, will be a factor. While initially affordability may be an issue, this can be addressed through some subsidy or marketing process to reduce receiver cost and stimulate take-up. According to PMG, only a few international countries have achieved a total switch-off of analogue sound broadcasting services.

6.6.2.20 PMG also stated that ICASA should adopt a 'wait and see' approach to this issue because if digital sound receiver sets become generally affordable and

there is no listener backlash to a proposed total switch-off, there would be no reason not to have such a total switch-off.

6.6.2.21 **RTS and LSoSA** further stated that the commercialisation of DSB should not signal shutdown of traditional analogue sound broadcasting in South Africa. However, the present AM/SW broadcast landscape should be encouraged to migrate to DRM (dependent on market forces with receivers and availability or readiness of transmission infrastructure).

6.6.2.22 **Primedia** disagreed with total switch-off as most South Africans will not have access to DAB receivers and the prices of receivers currently available on the market are still relatively high for a South African household to purchase. This phenomenon is not unique to South Africa alone. The Market Insights for Digital Radio 2017 Report shows that even in European markets with a larger and wealthier middle class, access to receivers is still relatively low. The slow uptake has also resulted in many European countries pushing back the analogue switch-off date due to the slow uptake of DSB technology. In the South African context, Primedia believes that there should not be a switch-off of the analogue signals until access to receivers to South African Households is over 90%.

6.6.2.23 **Primedia** stated that it is aware, as indicated in the Discussion Document, that with the advent of digital terrestrial television, households will be able to use their set top boxes to receive sound broadcasting services. This will ensure that there is a widespread uptake of DSB. However, the analogue signal should still be used until there is widespread access to affordable DAB receivers. Furthermore, Primedia was encouraged that the Authority recognised that "ideally, digital audio broadcasting should augment and not replace AM and FM".

6.6.2.24 **Igagasi and Heart FM** stated that converting to DSB will require listeners to buy a digital receiver. This will come at a cost which, at present, is undetermined. While no doubt the cost of such receivers will decrease over

time, once more receivers are manufactured and purchased, it will clearly be out of reach of a substantial portion of the population due to, *inter alia*, the disparity in income levels and demographics existing in South Africa.

6.6.2.25 **Igagasi and Heart FM** further stated that, as a benchmark, the current cost of an FM/AM receiver should not be less than R400.00 (see the Hi Fi Corporation website). Given that the introduction of DSB will require a new technology, it is submitted that a DSB receiver will be most costly. The aforesaid position is not a novel one. When discussions took place in the United Kingdom regarding the switchover to DSB, the Shadow Culture Minister at the time, Helen Goodman, stated that UK has had the same experience.

6.6.2.26 **Igagasi and Heart FM** also stated that, while recognising the additional costs which broadcasters will need to incur if there is not a total switch-off in the initial phase after the introduction of DSB, it submitted that there should not be a total switch-off in the short or medium term.

6.6.3 **The Authority's finding and position**

6.6.3.1 **The Authority's finding** in relation to question 6.1 is that most stakeholders are in support of multiple MUX operators. Other stakeholders go further to advise the Authority of the various models available, ranging from a network operator owned multiplex such as Sentech, a broadcaster owned and operated multiplex, a mixed model where the broadcaster owns and operate the multiplex system and contract transmission services and lastly a multiplex that is partly owned by a broadcaster.

6.6.3.2 **The Authority's position** will use the similar licensing framework for DTT, which assigns MUX operators or part thereof to the broadcaster. This licensing framework further allows for signal distributors to be licensed. The Authority's position is therefore that it will consider more than one MUX operator in line with its existing framework.

6.6.3.3 With respect to question 6.2, **the Authority's finding** is that based on submissions received from stakeholders, it will not be necessary for a total analogue switch off for various reasons such as, the availability of digital receivers and costs thereof. Further, international trends reveal that analogue can co-exist with digital services until there is enough up-take of receivers. Also, the submissions received did not advocate for a total switch-off, but rather suggested a moratorium be imposed wherein current existing players who transmit through analogue systems would be allowed to establish themselves and the market for DSB and only then would new players be introduced in this regard.

6.6.3.4 **The Authority's position** is that it agrees that DSB is a complementary service to analogue AM and FM services, and that there will not be a switch-off of same, the Authority notes that the decision to switch off analogue sound broadcasting vests with the policy maker by way of publication in a government gazette. This decision is therefore not within the remit of the Authority.

6.7 **Question 7: Should the Authority adopt the strategy used in other international markets of licensing DSB services in the primary markets[19] first and then action a nationwide rollout? Please motivate.**

6.7.1 The CRA, VMP, Gareth Kneale, Word DAB, eMedia, WECODEC, Classic FM, Kagiso Media and Primedia supported commencing with DSB rollout in the primary markets. While, JetCon, the SABC, Sentech and DRM Consortium support a nationwide rollout. The NCRF believed that consideration should be taken regarding the local environment instead of simply applying any method. Lastly, the NAB and PMG suggested that ICASA reviews spectrum availability and conducts a market readiness study. PMG was the only stakeholder which supported an immediate nationwide rollout of DSB services.

[19] Primary Markets shall mean geographical markets of Gauteng and the metropolitan areas of and around Cape Town and Durban, as outlined in the Position Paper on Ownership and Control published on 13 January 2004, page 40.

6.7.1.1 **CRA** stated that it makes sense to, where possible, issue licenses in the largest population centres initially, providing more people with the ability to access digital radio services. Once rollout in these markets is underway, a second and potentially third phase of planning can occur for the next tier of markets where channel allotments can be made. Frequency and channel coordination with neighbouring countries can also be done in these secondary phases.

6.7.1.2 **VMP** agreed with licensing in the primary markets first and stated that the Authority should look at key findings that are relevant to the South African market. VMP used Australia as an illustration in that its audiences wanted new content on the DAB+ platform. The new formats drove the take-up of digital receivers. VMP advocated for a nationwide rollout and for more licensees to be given a nationwide footprint to compete with the SABC.

6.7.1.3 **Gareth Kneale** stated that the Authority should license the primary market of Gauteng where multiple test phases have been completed. Then the other major regions should be planned, tested and then licensed once testing has been completed and is successful.

6.7.1.4 **World DAB** stated that the approach of rolling out DSB to larger population centres first followed by the next largest set of population areas can be tackled over time in all areas suitable for the technology.

6.7.1.5 **eMedia** supported the licensing of DSB services in the primary markets first followed by a nationwide rollout, as had been done in many other countries around the world.

6.7.1.6 **JetCon** was of the view that an immediate nationwide rollout strategy will be the best to fast track the transformation of the sector as the technology has the flexibility to satisfy any coverage need in Band II ranging from national and regional networks to community stations.

6.7.1.7 **Victory FM** agreed on primary markets rollout first because there is still a huge demand for new allocations of frequencies. If the Authority does not adopt strategies used by other international markets, it might not have active regulations to accommodate new frequencies and may have many challenges in implementing and sustaining the DSB services.

6.7.1.8 **NCRF** stated that with the ITU being the hallmark of this process, it moved for a licensing procedure that is not necessarily like any international market but rather is conducive to the broadcasting environment in South Africa. The important factor will be to ensure the alignment of the regulatory specifications with the ITU framework.

6.7.1.9 **WECODEC** was of the view that deployment varies from country to country.

6.7.1.10 **The SABC** stated that the issue of primary and secondary markets falls completely away in digital dispensation. In the digital age, the signal can be distributed over internet, DTT/DTH and DSTV platforms. What needs to be considered is the readiness of the market, through market research and the availability of spectrum. The SABC further recommended that DSB be licensed first to existing broadcasters and then, after market research has been concluded and sustainability of the market and new entrants have been confirmed, then licenses can be made available for new entrants.

6.7.1.11 **Classic FM** submitted that the rolling out of the new DSB network will need to be phased in as was done in the rollout of the original analogue FM network.

6.7.1.12 Classic FM recommended that DAB+ be rolled out in the primary markets first, followed by a phased approach to the secondary markets leading to an eventual countrywide rollout. Further submission was that the current frequency plan or draft planning has two allotments throughout the whole country but for the major metropolis, it is not enough, and they anticipate that Gauteng will need a lot more.

6.7.1.13 **DRM Consortium** submitted that the proposal for a phased market rollout is in danger of concentrating first on those who have access to a wealth of information, live in rich enclaves with IP, satellite, digital TV access. They proposed a nationwide rollout from the start, then a commitment by stakeholders to a launch-date of DSB and to a switch-off date of analogue. It further proposed a national rollout plan that included the stakeholders, a national working group, together with a consolidated campaign informing the listeners of the proposed switch-over.

6.7.1.14 **Sentech** did not support the strategy to introduce DSB initially for primary markets. It stated that the introduction of DSB must follow the objectives of the ECA, section 2(g), (h), (k), (s) (i) and (t). DSB services should enable the Authority to leapfrog to address national, regional and local inequalities that analogue services were unable to address. The Authority also needs to address the issue of digital divide through the introduction of DSB services.

6.7.1.15 **Kagiso Media** stated that the strategy of licensing DSB services in primary markets first may be prudent owing to the saturation of frequencies for analogue broadcasting in these areas.

6.7.1.16 The **NAB** submitted that it was not necessary to consider licensing in terms of primary or secondary markets. The Authority should be guided by the availability of spectrum, the readiness of the market and the uptake of DSB services by the consumers. The NAB is, however, of the view that (for DSB licensing) the Authority should prioritise broadcasters who are already bearing onerous transmission costs for analogue broadcasting. It further submits that currently only channel 13F is available for DSB and that this spectrum could be used for a small-scale commercial DSB launch ahead of the earmarked DAB+ spectrum becoming available.

6.7.1.17 **PMG** did not agree with the proposal to rollout in the primary markets first in South Africa as the primary markets are where there is most FM. PMG

respectfully submitted that the critical issue is not to focus on primary versus other markets but to rollout DSB wherever possible. From a spectrum point of view, it has long been recognised by South African policymakers that the needs of rural people have been marginalised. Dual illumination should be allowed so that broadcasters can provide both an analogue and a DSB service. In the case of DRM, it would be immediately possible given the amount of spectrum available in the AM bands and this would bring immediate benefits to the needs of the currently marginalised rural population.

6.7.1.18 **PMG** respectfully took issue with the International Benchmark exercise reported in section 5 of the Discussion Document instead of focussing on developing countries. PMG questioned focussing on countries that are essentially mono-lingual (as is the case with all countries bench-marked), as South Africa has eleven (11) official spoken languages. According to PMG, this ignored one of the fundamental rationales for introducing DSB as soon as possible in South Africa.

6.7.1.19 PMG queried the inclusion of Singapore in any International Benchmarking exercise on DSB, given that it is an extremely small territory that is almost entirely urbanised. The rollout of DSB services should not be held back and not be dependent on full DTT migration for DAB+ which requires spectrum to become free. However, DRM fits into the current frequency plan and should be allowed to rollout DSB services immediately.

6.7.1.20 **RTS and LSoSA** stated that the strategy of creating additional capacity in the primary markets by way of DSB is appropriate. However, South Africa's rural demographic profile is somewhat different to the run-of –the-mill international markets and needs a specific strategy to best protect its interests during the deployment and promotion of DSB.

6.7.1.21 **Primedia** agreed with the phased approach. If the Authority adopts a principle of dual illumination, it believed that licensees in the primary markets will be better placed to adopt DSB technology. Access to DAB

receivers is more prevalent in primary markets than it is in secondary markets.

6.7.1.22 **Primedia** also proposed that, if licensees in the primary markets are licensed first, the Authority implement an exclusivity period whereby no new licensee will be licensed on DAB in the primary markets for a set period. Primedia believed that this approach will encourage investment in the technology by current licensees and it would serve as a commercial incentive for current licensees to take up the technology and invest in new content for the platform.

6.7.1.23 **Primedia** was of the view that the Authority should conduct a Regulatory Impact Assessment ("RIA") to assess the viability of the introduction of DSB technologies from a commercial point of view. The Authority should also bear in mind the current state of the South African economy, which has seen a significant reduction in advertising spend due to the tough economic climate experienced by many companies. Sound broadcasters have lost their share of advertising to platforms such as Google, Facebook and other online publishers. Any further fragmentation of the sector will see further declines in advertising spend as more advertisers move to advertising on digital platforms, which affords them a better opportunity to reach out to their target markets better than that which radio can offer. Therefore, investment into DSB technology by sound broadcasters may never see a return on investment.

6.7.2 **The Authority's finding and position**

6.7.2.1 **The Authority's finding** is that most stakeholders agreed with the initial licensing of DSB services in primary markets. A dissenting view was also noted that advocated for nationwide implementation instead. The Authority further notes the view that the issue of markets is mute in the digital dispensation as digital services can be accessed on a variety of platforms. The findings also indicated that there should be a consideration of the South African landscape and market readiness prior to deciding on where it should

initially be implemented and the conduction of a market review as well as the availability of spectrum.

6.7.2.2 **The Authority's position** is that there should be licensing of DSB services firstly in the primary markets than implementing a nationwide roll-out. Implementing a nationwide rollout will not be prudent from a cost perspective. The Authority is of the view that the initial implementation of DSB services in primary markets will promote a sustainable environment for DSB services. Moreover, spectrum constraints and/or congestions is primarily being experienced in the primary markets.

6.8 **Question 8: Can the current sound broadcasting market afford new DSB licensees in community, commercial and public service? In your answer, explain your reasons and/or choice for any of your submission.**

6.8.1 CRA, eMedia, World DAB, the SABC, Classic FM and Kagiso Media supported the introduction of a moratorium. ACM, NCRF and the NAB recommended that the Authority conduct prior market research. VMP, Gareth Kneale, Victory FM, PMG, RTS and LSoS proposed the introduction of new licenses immediately.

6.8.1.1 **CRA** stated that in Australia, the incumbent broadcasters were given a modest allocation of free spectrum and there was a six year "no new entrants" clause to incentivise them to invest in digital radio services. They were also allowed to bid for any spare spectrum up to a cap and to use that spectrum without format restriction.

6.8.1.2 CRA stated that the key to the affordability is to ensure:

6.8.1.2.1 free/low cost access to digital spectrum for eligible broadcaster,

6.8.1.2.2 costs are shared amongst as many broadcasters as are in the local area,

6.8.1.2.3 that there is an access agreement sanctioned by the competition regulator that prevents profiteering by the transmission service provider or MUX license holder,

6.8.1.2.4 that there is shared capital investment in digital infrastructure (transmitters, antennas, combiners),

6.8.1.2.5 there are shared transmission costs and other opex; and

6.8.1.2.6 there are fair access fees for community broadcasters who are entitled to them.

6.8.1.3 **ACM** stated that there is overwhelming consumer demand driven by content and features.

6.8.1.4 **VMP** was of the view that the market can afford new DSB licensees. The introduction of DSB will introduce competition into the sector and bring about innovation, investment and create employment. VMP takes a free market approach in that the market alone should determine who survives.

6.8.1.5 **Gareth Kneale** stated that new Radio Channels would attract new listeners who do not currently listen to what is currently broadcast. With Sentech or other broadcast transmission providers providing the broadcast side, the commercial broadcasters and independent radio stations could lease equipment on the studio and studio link side and terminate the leases on the new equipment needed if the return on investment is not realised. Many of these stations may currently be broadcasting via Internet Radio or analogue and their existing listeners would now be able to receive via DAB+ and/or DRM with no data costs. This may also attract listeners who now stream services back to Live Radio because of the advantages of radio for broadcasts such as news updates, weather forecasts, advanced traffic information, competitions, real time interactions with the radio presenters, etc.

6.8.1.5 **eMedia** stated that one of the benefits for the adoption of DSB is to provide more choice for consumers. The use of digital transmission technologies requires less spectrum to carry the same amount of information than the existing analogue broadcasting system.

6.8.1.6 Thus, according to eMedia, more capacity could be made available for launching new services or allowing more operators to provide audio services. They recommend a moratorium on new licenses initially, as the incumbent licensees will have to carry the burden of dual illumination costs. eMedia further stated that given the number of the current community, commercial and public analogue licensees in the market, it is of the view that the Authority must conduct a market study to determine the optimum number of DSB services which can be carried and sustained.

6.8.1.7 **WorldDAB** stated that this additional capacity provides the opportunity to deliver more public, commercial and community radio services. In general, the broadcasters who are already established are best placed to provide the initial simulcast services and to develop new, digital-only services. WorldDAB also stated that public service broadcasters reap a benefit from the introduction of additional services through being able to offer the public more variation in content and higher quality content.

6.8.1.8 **WorldDAB** further stated that commercial and community broadcasters need to justify the cost of establishing DAB+ and the provision of additional services, which is a very challenging market due to increased competition from international sources. It said that it would be useful to provide an incentive package to ensure that the existing broadcasters participate.

6.8.1.9 **JetCon** was of the view that there is a market in South Africa for DSB licensees due to the past skewed policies of Apartheid. South Africans need more local relevant content which will be sufficient for the South African environment.

6.8.1.10 **Victory FM** stated that it agrees that if the government can subsidise community stations and support them through advertising. The community

broadcaster can benefit and sustain itself through subscribers, but the prices must be reasonable because most of the population are still dealing with unemployment, low salaries, debts, and businesses are struggling to pay for adverts on radios.

6.8.1.11 **NCRF** stated that its members rely largely on grants from the government and Media Development and Diversity Agency (MDDA). It will be important for the regulator to conduct a feasibility study which will consider various socio-economic factors which the stations are faced with daily. With stations situated in various sectors of society, a blanket approach of affordability will not be feasible. This can already be seen in relation to signal distribution, whereby some stations are able to service their monthly instalments regularly while others, without government intervention, will severely suffer.

6.8.1.12 **WECODEC** agreed that the market ensure that it can afford new DSB licenses that will lead to innovation, job creation and a new opportunity to address challenges.

6.8.1.13 **The SABC** proposed that broadcasters will have to bear the cost of dual illumination and the cost of new content for DSB services. As a public broadcaster with 18 radio stations, the cost will be high. There is therefore a need to refrain from licensing new entrants until existing broadcasters have overcome this financial hurdle.

6.8.1.14 **Classic FM** was of the view that despite the recent popularity of IP audio services, for example Apple Music and Spotify amongst others, which are encroaching into radios' listening share, terrestrial radio still has a place in the market and can still thrive. Hence, DAB+'s ability to offer more services in that area than can be achieved by using traditional analogue makes it an obvious choice to deliver more public, commercial and community radio services.

6.8.1.15 **Kagiso Media** recommended a moratorium on new licenses during the transitional period as an incentive to incumbent broadcasters to invest in

new equipment and assets to be able to earn a return and recoup such investment. This will allow time to move listeners to digital radio. Both Australia and Canada adopted this approach of first licensing current broadcasters on a transitional basis before opening it up to new players.

6.8.1.16 The **NAB** recommended that the Authority must conduct a socio-economic impact assessment which will highlight the financial implications of implementing DSB and provide some guidance on the most feasible and cost-effective manner to make DSB services available. NAB stated that DSB has the potential to enable greater diversity of content, language and formats. However, a market study is required to assess the feasibility of licensing new DSB services.

6.8.1.17 **PMG** was of the view that licensing new DSB licensees is essential to bridge the digital divide that exists in the country, particularly in respect of community and public broadcasting services.

6.8.1.18 **RTS and LSoSA** stated that the Authority should encourage the emergence of new licensees for the DSB landscape for several reasons including the diversification of content providers (both community and commercial sound broadcasters). This would be done by allowing the participation of smaller MUX and signal distribution providers; it may be possible to allow for MUXs that serve geographic areas (same analogy as per existing FM radio services). RTS and LSoSA also stated that there should be subsidisation across all tiers on the user level as a licensing condition.

6.8.2 **The Authority's finding and position**

6.8.2.1 **The Authority's findings** is that a number of stakeholders' advocate for a national roll out, while others believe the market is not ready to allow new players and are therefore advocating for a market study and a moratorium to this effect, to allow current analogue players to establish themselves prior to introducing new players for DSB. The Authority has observed that the participation in DSB trial by commercial sound broadcasters has created a level of expectation for a licensing new players.

6.8.2.2 **The Authority's position** is that a market study may have to be conducted prior to the introduction of new broadcasting market entrants.

7. **Additional questions for Consumers**

7.1 The questions directed at consumers were not responded to by consumers but were rather addressed by WECODEC and Classic FM, whose views are already addressed above.

7.2 The Authority further tried to solicit comments on the Discussion Document from consumers through the assistance of Consumer Activation Programs and liaised with the Authority's Consumer Advisory Panel, no comments were received by the Authority in this regard.

8. **Additional questions for Broadcasters**

8.1 **What is your understanding, expectations and concerns as broadcasters with respect to DSB?**

8.1.1 **Classic FM's** concern is whether government will be able to subsidise or offer other incentives in the form of free spectrum and/or a license fee rebate to broadcasters for a certain period.

8.1.2 **PMG** stated that broadcasters are concerned about being unable to promote the adoption of digital radio receiver sets because no DSB licenses are currently being granted by ICASA. Such licenses are essential to begin the rollout of receiver sets and the take-up thereof by the public.

8.2 **How will DSB impact your sound broadcasting services business?**

8.2.1 **WECODEC** stated that DSB will allow the radio station to broadcast English and Afrikaans simultaneously. The trials have shown that there is great interest in innovation by the community.

8.2.2 **Classic FM** stated that there will be a cost impact. There could be listenership increases especially if niche broadcasters are able to expand their existing coverage. If incentives allow a station to start another service, this will have cost implications regarding the setup, amongst other things. There will also be a need for a coordinated marketing plan to inform the radio industry and listeners of the introduction of DSB and encourage the take-up thereof. This will increase costs, but these will be recovered over time.

8.3 **What are the projected financial implications associated with DSB, considering that Digital Terrestrial Television (DTT) is to be implemented prior to DSB?**

8.3.1 **PMG** submitted that the implementation of DTT will not have cost implications for DSB other than the costs of listener or audience education to promote the take-up of digital sound receiver sets.

8.4 **What issues of concern should the Authority be wary of when implementing and planning for the regulation of DSB, with respect to competition, spectrum concerns, financial considerations, etc.?**

8.4.1 **WECODEC** proposed that market entry should be low to allow innovative initiatives and opportunities.

8.4.2 **Classic FM** stated that broadcasters will need to justify the cost of establishing DAB+ and providing additional services, which can be very challenging in this market due to increased competition from international sources.

8.4.3 **PMG** was of the view that the most important issue is the possibility of Authority inadvertently creating monopolies and holding back the rollout of DSB, when spectrum is in fact available.

8.5 **Do you believe DSB will encourage growth in your business or will it create unnecessary financial pressure on your business?**

8.5.1 **WECODEC** stated that it will provide growth in the business.

8.5.2 **Classic FM** stated that it will encourage growth as it will provide another terrestrial platform to provide listeners with coverage that they do not currently enjoy where there is poor signal. Advertisers will be encouraged to spend on a station that can be heard clearly and easily.

8.6 **Have you conducted research on DSB and the implementation and regulation of same that you can share with the Authority?**

8.6.1 **WECODEC** stated that it has submitted its final trial report to the Authority.

8.6.2 **Classic FM** had participated in the Joint SADIBA/NAB DAB+ Trial in Gauteng and through this process has gained enormous technical knowledge.

8.6.3 **PMG** stated that it has been extremely involved in the testing of DRM and its detailed tests results report has been submitted to the Authority.

8.7 **Please provide the Authority with any further information you deem necessary and asked for herein?**

8.7.1 **Classic FM** stated that currently there is no provision in the ECA for a MUX operator license category. The Authority may want to consider developing a framework to determine who can be licensed as a MUX operator and set out the requirements should it deem it necessary to license MUX operators separately.

8.7.2 **Igagasi and Heart FM** stated that DSB will create greater opportunities for existing sound broadcasters by increasing the capacity in broadcasting transmission networks. However, the cost of transitioning to digital

broadcasting will be substantial. Thus 'bigger' or 'more profitable' players in the industry will have a greater opportunity to build an income or advertising base as opposed to smaller players and they are concerned about the impact on competition with the introduction of DSB.

8.7.3 **Primedia** recommended that the Authority conducts a Regulatory Impact Assessment which will, amongst other things, consider the costs of DAB+ and DRM receivers, to ensure that they are accessible to the public.

8.7.4 **Primedia** further stated that once issues relating to the cost of receivers are addressed, the introduction of DSB technologies will aid in achieving the objects set out in section 2(d), (e), (g) and (i) of the Broadcasting Act (Act 4 of 1999) which includes ensuring that there are new players in the sector, ensure a plurality of views, a broad range of services, investment in the sector and the efficient use of spectrum.

8.8 **How would the introduction of digital sound broadcasting benefit the service providers?**

8.8.1 **WECODEC** stated that it will benefit all interested parties, Sentech and alternative stakeholders.

8.8.2 **Classic FM** stated that Sentech will be well placed to start an initial nationwide rollout thereby allowing it to join and benefit financially from DAB+. Independent "licensed" MUX operators could provide transmission facilities to commercial and community broadcasters. Smaller "licensed", independent, MUX operators could provide low power DAB+ services for community broadcasters in smaller geographic areas. All of this would lead to additional job creation in the broadcasting sector.

8.8.3 **PMG** was of the view that additional sound broadcasting services, through the licensing of DSB, would stimulate a variety of economic activity such as additional programme production.

8.9 **What is your understanding of DSB and the impact it will have on your business model and financial projections in South Africa once implemented?**

8.9.1 **WECODEC** stated that they had designed and manufactured their own DRM receiver. The implementation of DSB will allow WECODEC to start their own community-based digital radio manufacturing plan that will create sustainable jobs.

8.9.2 **AREI** stated that the DSB receiver manufacturer will have a significant impact on AREI Member Companies. Such companies, some of whom are currently manufacturing Terrestrial Set-Top Boxes, have struggled in the current economic climate due to the large proportion of imported consumer electronics.

8.10 **What financial, competition, manufacturing etc. challenges do you anticipate having with respect to DSB?**

8.10.1 **WECODEC** stated that the market potential and competition will be helpful rather than challenging.

8.10.2 **AREI** stated that mistakes made with the Terrestrial Set-Top Boxes, such as corruption and nepotism, are to be avoided. The second challenge is to regulate the importation of receivers to ensure that local manufacturers are given an opportunity to compete in producing receivers. The cost of the receivers may also be a challenge as the current technology is expensive, whilst the royalties and licenses are extensive.

8.11 **Do you plan on building and manufacturing equipment for DSB in South Africa in partnership with state or regulatory assigned Broad-based Black-Economic Empowerment and Historically-Disadvantaged Groups?**

8.11.1 **WECODEC** stated that it has plans to create manufacturing facilities and is willing to share its experience with Broad-based Black-Economic Empowerment and Historically-Disadvantaged Groups.

8.12 **What is your business plan, if any with respect to preparing yourselves for manufacturing and selling DBS equipment for South African consumers?**

8.12.1 WECODEC stated that it will have a lucrative business if DRM only or DRM/DAB is chosen.

8.13 **What pricing negotiations are you open to discussing with relevant bodies, including the Authority, to make the said DSB equipment affordable for consumers?**

8.13.1 WECODEC stated that entry level equipment should not exceed R500.00.

9 **Additional questions for manufacturers**

9.1 The Authority did not receive responses from manufactures by the closing date for submissions. The Authority did however seek same thereafter to solicit these views as it believes that the information provided herein is vital for purposes of gathering information for this inquiry. Below are the questions and responses received:

9.1.1 **Will the introduction of DSB create more jobs for South Africans in your sector? If not why, if yes, how will this impact the statistics on job levels in the South African economy?**

9.1.1.1. **BIG 9 ICT** stated that there will be job creation on a large scale, a boost in economic growth (building rental/security/support services, etc.) and skills and knowledge transfer. They further stated that DSB equipment

refers not just to digital radio receivers but also to infrastructure. It is incumbent upon the State to trigger investment that will result in the desired job creation and economic growth, by providing tangible incentives to foreign investors willing to invest in infrastructure, intellectual property, skills transfer, manufacturing plants, etc. Such incentives could be in the form of tax breaks, purchase preferences, contributions to establishment costs, etc.

9.1.2 **Do you plan on building and manufacturing equipment for DSB in South Africa in partnership with state or regulatory assigned Broad-Based Black-Economic Empowerment (B-BBEE) and Historically Disadvantaged Groups (HDG)?**

9.1.2.1 **BIG 9 ICT** stated that it has already identified suitable BBBEE and HDG partners.

9.1.2.2 **AREI** stated that its member companies would consider this strategy.

9.2 **What is your business plan, if any, with respect to preparing yourselves for manufacturing and selling DSB equipment for South African consumers?**

9.2.1 **BIG 9 ICT** stated that its business plan for the TITUS II digital radio receiver involved the manufacturing of a range of digital receivers to serve the digital radio listener market in the whole of Africa. Its business plan includes manufacturing in South Africa, marketing, sales and distribution of digital radio receivers throughout Africa.

9.2.2 **AREI** stated that the manufacturing of DSB receivers would be very similar to STBs, therefore business for manufacturing of DSB equipment exists in principle as its member companies had previously prepared business plans for the STB Tender. AREI further suggested that its selling of DSB equipment

would be through existing retail structures that currently sell STBs. Further, AREI suggests that receivers could be exported into Africa.

9.3 **What pricing negotiations are you open to discussing with relevant bodies, including the Authority, to make the said DSB equipment affordable for consumers?**

9.3.1 According to **BIG 9 ICT**, affordability is relative. Its business plan caters for a range of digital receivers to be manufactured and sold. Affordability can best be addressed through providing a range of digital radio receivers (from a basic unit at very affordable price to a top-of-the-range unit at a higher, but still affordable price). The profit motive in business dictates that manufactured goods are not sold below cost. This implies that pricing is calculated at cost plus margin. All costs must be considered to ensure the sustainability of the business. Pricing negotiations may take place however, they must consider these basic principles.

9.3.2 The pricing negotiations will thus have a bearing on margins and mark-ups. One must also appreciate the fine balance between investment (to create jobs and grow the economy) and low prices (to ensure affordability). Investment may only be realistically expected if business sustainability can be guaranteed; and a reasonable return on investment must be possible as reward for the creation of jobs (and payment of salaries and other employee benefits).

9.3.3 **AREI** posed the question of what the relevant bodies would be offering and stated that pricing is also proportional to the volume. AREI further stated that if the Authority understood the potential of Proudly South African manufactured DSB receivers for export into Africa, and assisted with initial subsidy for local consumers, this would result in a competitive DSB receiver market.

9.4 **Will the introduction of DSB create more jobs for South Africans in your**

sector? If not, why, if yes how will this impact the statistics on job levels in the South African economy?

9.4.1 According to **BIG 9 ICT**, the introduction of DSB will create more jobs in the digital, receiver-manufacturing sector. Based on the manufacturing of 150,000 units per month, 340 jobs will be created directly by the manufacturing of the Titus II in South Africa. A multitude of indirect jobs will also be created through sales, marketing, technical and user support, security, cleaning, etc. This will impact positively on the job level statistics in South Africa.

9.4.2 **AREI** responded in the affirmative and commented that an estimate of the statistical increase of jobs is subjective.

9.5 **What projected impact do you believe that DSB will have on your business in terms of growing same and enhancing operations in South Africa?**

9.5.1 **BIG 9 ICT** indicated that the impact of DSB on its business will be substantial. It does not envisage large growth or any significant expansion of its business operations without the introduction of DSB.

9.5.2 **AREI** stated that DSB will have a significant impact on the growth of the electronics sector, and many businesses in the sector would benefit.

9.6 **Would you be prepared to partner with the Authority or the state in ensuring the success and uptake of DSB in South Africa?**

9.6.1 **BIG 9 ICT** indicated that it would be willing to, in principle, partner with the Authority and/or the state, however further information would need to be provided herein.

9.6.2 **AREI** stated that its member companies would consider this strategy, however cautioned that the Authority/State would have to ensure and guarantee that the errors made in the STB tender were not repeated.

9.7 **How would it impact the car and radio manufacturers business if the Authority had to develop regulations making it mandatory for radio receivers they manufacture to have at least one digital interface?**

9.7.1 Though **BIG 9 ICT** was of the view that the question was unclear, it did however indicate that the intention of such regulations is understood to encourage the transition to DSB and is thus supported. However, BIG 9 ICT was uncertain whether the mandate of ICASA extends to imposing regulations on industries that are not part of the ICT sector or are in foreign countries. It therefore suggested that ICASA encourages the inclusion of such a digital interface, which would be in the best interests of the manufacturers.

9.7.2 **AREI** would support regulation to encourage the growth of the local electronics sector.

9.7.3 **SARAO** provided the Authority with additional information on frequency bands that the Authority should be mindful not to interfere with the Square Kilometre Array ("SKA") project, the frequency bands are tabled as follows:

10 **Conclusion and way forward**

10.1 The Authority believes that this comprehensive Findings and Position Paper will allow the objectives of the ECA to be achieved to ensure a multi-channel environment. It is the country's developmental agenda in creating the digital economy towards the 4th Industrial Revolution.

10.2 A market review in terms of section 67 of the ECA may be a prerequisite prior to the introduction of new entrants in the DSB market and the introduction of new regulations if necessary.

10.3 The Authority will consider all these developments closely and will devise an implementation plan following further consultation with relevant stakeholders during its regulation-making process.

Annexure A

11 International study visits findings

11.1 International study visits were conducted to empower DSB committee with insights on DSB technologies that have been implemented in other jurisdictions. Furthermore, to gain insights on the challenges and lessons learned during implementation phase of the researched countries. Some of the insights gained empowered the DSB committee in formulating some of its positions.

11.2 Germany

11.2.1.1 ICASA's delegation met with the following entities:

11.2.1.1.1 Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post and Eisenbahnen (BNetzA); Mr Klaus Michels (Head of Section Broadcasting);

11.2.1.1.2 DRM Consortium; namely Mr Stoll Mathias; and

11.2.1.1.3 Digitalradio Büro Deutschland; namely Mr Carsten Zorger (Head of Division).

11.3 Status of DSB deployment:

11.3.1 Second phase witch-over strategy; implemented after 2011; has led to a 97% population coverage for DAB+;

11.3.2 The take-up rate of new cars (German manufacturers) with DAB-radio (as standard and as an option) was at approximately 39.1% in 2017; and

11.3.3 Dual illumination of DAB+ and FM (FM switch-off is still to be determined).

11.4 **Lessons learnt from switch-over strategies I (1997 – 2003):**

11.4.1 Telecommunications Act in 2004 – 2010 was the tool used to drive analogue switch-off without an extensive consultation process with the relevant stakeholders;

11.4.2 Single Frequency Node (SFN) approach contributed to failure.

11.5 **Challenges with Switch-over Strategies II:**

11.5.1 Challenges include frequency coordination with neighbouring countries and spillages due to different technology adoption; and

11.5.2 Technology uptake on the consumer-end-user is still affected by the high cost of receivers.

11.6 **Norway**

11.6.1 **ICASA's delegation met with the following entities:**

11.6.1.1 Norwegian public broadcaster, NRK;

11.6.1.2 The incumbent telecommunications company for mobile phones and land lines, Norkring /Telenor;

11.6.1.3 Commercial radio broadcasters, P4;

11.6.1.4 The Norwegian Media Authority, which works collaboratively with Nkom by granting radio and television broadcasting content licenses, whilst Nkom grants spectrum licenses; and

11.6.1.5 Digital radio Norge, which was an organisation made up of different stakeholders with the intention of promoting and publicising the switch-over of digital radio in Norway.

11.7 **Status of DSB deployment:**

11.7.1 The switch process, started in January 2017, applied to all national radio stations and commercial, local, radio stations broadcasting in larger cities; and Community radio and smaller, local, radio stations are still broadcasting on FM.

11.8 **Norway adopted a DAB technology**

11.8.1 **Switch off criteria of FM:**

11.8.1.1 The commercial DAB MUX (12D) must have at least 90% coverage (by population); and

11.8.1.2 Public broadcaster NRKs must have similar coverage as NRK's FM coverage (P1).

11.9 **The challenges include:**

11.9.1 new technology brings its own challenge;

11.9.2 propagation calculations, correct models;

11.9.3 same coverage as FM (FM stereo/ mono);

11.9.4 two different agreements, GE06 and CO07;

11.9.5 experienced coverage vs theoretical coverage;

11.9.6 low quality car receivers (including adaptors), poor antenna;

11.9.7 installations and service following between multiplexes;

11.9.8 Adjacent channel interference; and

11.9.9 Community broadcasters and resistance to DAB.

11.10 **United Kingdom**

11.10.1 ICASA's delegation met with the following entities:

11.10.1.1 OFCOM;

11.10.1.2 DRM Consortium; and

11.10.1.3 Digital Radio UK.

11.10.2 The licensing framework has changed in that the regulator provides services licenses and then the applicant approaches the MUX operator to be carried on the network;

11.10.3 The licensing of multiplex operators is managed by a commercial company for the commercial licenses and one by the BBC for their licenses;

11.10.4 Originally, the Government assigned spectrum for use by DAB. Since 2003, Ofcom has been wholly responsible for managing spectrum;

11.10.5 Originally, the Government assigned spectrum for use by DAB. Since 2003, Ofcom has been wholly responsible for managing spectrum;

11.10.6 Originally, the Government assigned spectrum for use by DAB. Since 2003, Ofcom has been wholly responsible for managing spectrum;

11.10.7 Dispute between services licenses and multiplex operators are adjudicated by the competition commission;

11.10.8 According to the Digital Radio UK, which is a lobby group for DAB services, there is robust revenue, investment and listenership for DAB services.

11.10.9 The three CCCs for the success of DAB services are Coverage, Content and Cars. They have been able to partner with most manufacturers to include DAB receivers in the cars; and

11.10.10 There are adapters for old traditional receivers at home and in the cars.

11.11 **United States of America**

11.11.1 The committee visited the United States of America (USA) to conduct a study on the implementation of DSB in that country. Four (4) entities were visited namely:

11.11.1.1 The US Federal Communications Commission ("FCC") and the National Association of Broadcasters (NAB);

11.11.1.2 National Public Radio (NPR);

11.11.1.3 Xperi; and

11.11.1.4 The DRM Consortium

11.11.2 **Status of DSB in the USA**

11.11.2.1 The USA adopted In Band On Channel ("IBOC") technology in 2005 branded as HD radio as their only standard for digital radio owned and licensed exclusively by Ibiquity now known as Xperi.

11.11.2.2 The USA was interested in implementing DAB in the mid-90s but later opted to trial for what was then called band technology instead of a technology that required new spectrum.

11.11.2.3 The technology was first tested in early 2002 through the National Radio Systems Committee (NRSC) which is a structure made up of broadcasters and manufactures for research, study and making recommendations for technical standards relating to radio broadcasting and the reception of radio broadcast signals.

11.11.2.4 The adoption of IBOC started in 2002 with a period allowing for a hybrid model to enable radio stations to simulcast their broadcasts.

11.11.2.5 The IBOC model is used on analogue spectrum on both FM and AM offering better audio quality and data services without a need for new spectrum. The adoption of an in-band standard meant that there was no requirement for a sunset date for analogue radio switch-off.

11.12 **Australia**

11.12.1 **Australian Communications and Media Authority (ACMA)**

11.12.1.1 ACMA presented on the genesis of the Australian journey from 2005 when DAB was introduced in Australia and the industry, not satisfied with the limitations of DAB, later approached then WorldDMB now WorldDAB for a better standard; DAB+ was implemented in 2009 and the receivers were available to the market and cars. The following are the highlights of the ACMA presentation:

11.12.1.1.1 Digital radio is viewed to be supplementary to AM and FM and there are no plans to switch off analogue radio. Deployment is prioritised in the capital cities namely Sydney, Melbourne, Brisbane, Adeline and Perth. The uptake is driven by news, morning and evening drive time shows.

11.12.1.1.2 The legislation does not specify the technology e.g. DAB/DAB+. The Digital Radio Planning Committee comprises of ACMA, commercial, public and community broadcasters. A Technical Sub-Committee was established under the Digital Radio planning committee jointly with all stakeholders to determine the overall approach (regional wide and area plans); allotment planning; no license area aggregation; transmitter site selection with minimum interference.

11.12.1.2 **DAB+ Standard**

11.12.1.2.1 Australian broadcasters drove the government to choose DAB+ without any other alternative Digital radio due to the investment made in to the

research, trials and infrastructure rolled out.

11.12.1.2.2 The Digital Radio network is a Single Frequency Network.

11.12.1.2.3 Trials were conducted in Canberra and Darwin further; plans are underway to implement Digital Radio in 2019.

11.12.1.2.4 Currently no monitoring is done for DAB due to extensive planning done prior to implementation and less chances of interference.

11.12.1.3 **Legislation and licensing regime**

11.12.1.3.1 There are three tiers of broadcasting namely: Public, Commercial and Community broadcasting.

11.12.1.3.2 Licensing is divided in to content and transmission license whereby; the public broadcaster is licensed nationally and according to the public charter of Australia and the commercial broadcasters and community are licensed according to the ACMA licensing framework.

11.12.1.3.3 The commercial broadcasters are licensed in specific license area. community broadcasters are divided in to two, wide coverage area which covers the same area as commercial broadcasters, sub metropolitan area which covers the small geographic area. Currently Sydney has 9 community wide area and 6 commercials.

11.12.1.4 **Multiplex ownership**

11.12.1.4.1 The multiplexes are owned by joint venture companies that consist of stakeholders and there's two categories of multiplex namely:

11.12.1.4.1.1 Category 1 owned by commercial and community.

11.12.1.4.1.2 Category 2 occupied by the National broadcasters i.e. ABC and Special Broadcasting Service (SBS).

11.12.1.4.1.3 The Multiplex operator are licensed in every licensed area whereby 2/9 of the multiplex capacity is occupied by the commercial and community broadcasters; 1/9 of the multiplex capacity is occupied by the national broadcasters.

11.12.1.5 **Competition**

11.12.1.5.1 The incumbents invested and drove the implementation of Digital Radio in Australia thus a moratorium to halt new broadcasters in to the market was in place from 2009 to 2015.

11.12.1.6 **Market**

11.12.1.6.1 Digital radio has 30% penetration in five (5) metropolitans whereby it was driven by to the collaboration of CRA and ACMA along with the retailers. Governments contribution was through subsidies for community broadcasters. The Digital radio awareness was driven by:

11.12.1.6.1.1 CRA advertised and conducted workshops for public awareness.

11.12.1.6.1.2 Retailers made DAB receivers available.

11.12.1.6.1.3 Car manufacturers included DAB+ receivers in cars.

11.12.2 **Australian Broadcasting Authority (ABC)**

11.12.2.1 **Licensing**

11.12.2.1.1 ABC is licensed per transmitter whereby they approach ACMA, then provides coverage plans and transmitter parameters i.e. antenna

heights, transmitter power, GPS co-ordinates and infill gaps fillers or repeaters. The service license is for a 15-year period.

11.12.2.2 **Multiplexes**

11.12.2.2.1 Sydney has three multiplexes, two community and commercial broadcasting, one for the Public broadcaster. For Public broadcaster's ABC has 11 channels and occupies 2/3 of the Multiplex, SBS occupies 1/3 of the Multiplex (the overall channels for public broadcasters are 18 of 84 kbps). Channel 9C and 8A are used for DAB. Channel 9A is for commercial broadcasters. ABC has 240 transmitters for local network. Local radio covers 98% of the population.

11.12.2.2.2 ABC is funded by the government as a result 5 DAB+ services were established, and 3 additional services were self-funded.

11.12.2.3 **Monitoring**

11.12.2.3.1 Outsource a service provider (Telstra) to conduct monitoring on their network in a form of national network operating centre.

11.12.2.4 **Viability**

11.12.2.4.1 Analogue covers more coverage area, but services are more expensive than DAB+.DAB+ is cheaper yet covers a small area and needs fillers.

11.12.3 **Commercial Radio Australia (CRA)**

11.12.3.1 CRA has 260 members consisting of small family run stations to big commercial radio stations. CRA has One Hundred and Three (103) licenses to operate within specific areas, five (5) out of 103 of the license areas currently operate on DAB+ namely: Sydney, Melbourne, Brisbane, Adeline and Perth. Canberra and Darwin will only operate on DAB+ from 2019. CRA has been the in the forefront of digital radio in Australia by participating in the establishment of DAB+ along with WorldDAB and

steering the regulator (ACMA) in to adopting digital radio as a form of audio broadcasting.

11.12.3.2 CRA promotes digital radio by education and training courses specific to radio with updated and current content. The participants are given opportunities whereby up to 95% are absorbed or employed with the 260 CRA members. Further, CRA initiates skills survey within their 260 members to realise what skills are of need and what necessary training is applicable to nature that skill. CRA in partnership with retailers give away gift vouchers to consumers. Further, advertisements are posted on billboards, taxi backs and aired on radio.

11.12.3.3 To date Australia has 65+ DAB+ population coverage with 4.49 million DAB enabled devices sold in Australia and 60% of new vehicles sold in the past 12 months were fitted with a DAB+ receivers, in total 1.98 million DAB+ fitted cars have been sold in Australia since 2011.

11.12.3.4 According to CRA to date 30.4% of people listen to digital radio via DAB+ with an average time spent listening time of 10 hrs 34 mins per week. Listenership surveys are also conducted through Share of Audio using GFK which is a comprehensive annual study of the Australians' audio consumption habits. According to the 2018 study 62.3% of Australians' listen to radio.

11.12.3.5 CRA under category 1 shares 2/9 of the multiplex with the wide area community radio whereby they occupy block 9A and 9B from the multiplex. Sydney has 8 channels of DAB+.

11.12.3.6 CRA along with other industry bodies established a technical committee to come up with the 5 planning principles for DAB+ to have a smooth transition to digital radio namely:

11.12.3.6.1 Principle 1 regional plan for 5 metros.

11.12.3.6.2 Principle 2 proposed frequency allotment.

11.12.3.6.3 Principle 3 Is not used as it recommends license area aggregation.

11.12.3.6.4 Principle 4 Transmitter site selection and co-location.

11.12.3.6.5 Principle 5 RF planning parameters.