



30 July 2012

Attention: Ms. Refilwe Ramatlo

ICASA

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Dear Ms. Ramatlo,

DTT Regulations Submission

The National Digital Radio Mondiale (DRM) Platform of South Africa would like to thank ICASA for the opportunity to make a submission on the above subject. The DRMZA submission is attached as part of this letter.

Yours sincerely,

Johannes von Weyssenhoff

Chairman

DIGITAL RADIO MONDIALE SOUTH AFRICA

SUBMISSION to The Independent Communications Authority of South Africa

ON

DTT Regulations

JULY 2012

1. Background

The South African Digital Radio Mondiale (DRM) Platform (DRMZA) is an open interest group of individuals and corporates who enjoy the benefits of digital broadcasting technologies – DRM in particular, but also other complimenting technologies. It has been founded in 2010 and is the youngest National DRM platform besides Germany, USA, Russia, Spain and France. A similar submission to the Department of Communications (DOC) has been requested by DoC at the SABS workshop held on May 11/12 after a requirement of the presence of a policy has been identified to be mandatory to enable a special amendment to be made to the SANS 826 standard.¹

The amended DTT regulations are dealing particularly with spectrum used for DTT including the issue of community broadcasting: *"Capacity was assigned to TBN in Multiplex 1. Subsequently, new community television stations have been licensed such as Soweto TV, Cape TV and Bay TV. More community TV stations may be licensed before December 2013. The regulations do not enable these and future community TV stations to be accommodated on the OTT multiplexes before analogue switch-off. Hence the regulations need to provide all community TV broadcasting services with capacity on the multiplexes."*

The following submission will offer a technical solution which is going to solve all issues related to community broadcasting and the digital migration and enable guaranteed to cater for all community broadcasting services before analogue switchoff.

¹ In July 2009 SABS had published the standard for set-top box decoders for free-to-air digital terrestrial television, SANS 826:2009 which is now in the process to be aligned with the new DTT standard DVB-T2

2. DRMZA Submission

The DRMZA submission consists of a technical background, including quotations from official ITU and EBU publications, a requirement specification, endorsements by other stakeholders and a request to amend some technical specifications within the broadcasting policy.

2.1 Technical Background

In January 2011, the Minister of Communications of South Africa has officially confirmed DVB-T2 as the Standard for Digital Terrestrial Television (DTT). It has been superseded by the previously confirmed standard DVB-T after extensive discussions about the DTT standard.

Other than DVB-T, which only operates in bandwidth modes of 6, 7 and 8MHz (of which 8MHz is the matching bandwidth in South Africa), DVB-T2 has been designed to also operate in a 1.7MHz mode which corresponds to the channel bandwidth of a Digital Audio Broadcasting (DAB) multiplex. In South Africa, broadcast spectrum has been allocated for DAB in the VHF Band III (after Digital Switchover (DSO)) and the L-Band which is currently available and vacant.

The Nature of a Digital Migration process of broadcasting is to replace existing analogue broadcasting with the transmission of digital broadcasting signals, including a dual illumination period where at the same time analogue and digital signals are broadcasted within the same spectrum. Therefore all digital broadcast standards have been initially designed in a way that one or several digital signals exactly fit into the space of an analogue broadcast channel.

At the time when DVB-T has been implemented (with MPEG-2 video and audio compression), one DVB-T multiplex was able to carry 4-5 standard definition television

programs which was a great improvement towards spectrum efficiency. When the DVB-T standard was enhanced by the utilization of H.264 video compression and AAC audio compression, this number was even doubled.

The latest and most efficient standard DVB-T2 which has been chosen for South Africa is now able to carry up to 20 standard definition television services which is without any doubt a great improvement. But with the same spectrum assignment of 8MHz now being able to cater for such a big amount of services, the originally intended application – to replace one analogue television channel with a few number of television services – has now become different. Whereas the footprint of an analogue television channel or a few digital channels could be adjusted individually by the location and technical properties of the transmitter, the situation within DVB-T2 is that a large number of broadcasting services will have to share the same footprint, which is indeed not always wanted. Under these circumstances it is for example more and more difficult to include local (e.g. community) broadcasting within a multiplex which addresses a different footprint. It even can become a legal issue if the only available multiplex is broadcasting into a region where the local broadcaster is not licensed to broadcast into. On the other hand it would economically be insane to waste a whole 8MHz channel for the distribution of only one or two broadcasting services, especially with regards to the digital dividend.

To provide a solution to this problem, a 1.7MHz mode has been implemented into the DVB-T2 standard which can, dependent on the desired protection level, carry 1 to 4 standard definition television services. The bandwidth of 1.7MHz has been chosen to match spectrum which has originally been allocated to DAB, including a matching spectrum mask.

As mentioned before, DAB spectrum has been allocated within the South African spectrum band plan in VHF and the L-Band and is currently available in the L-Band. In

terms of GE-06 it is to say that the GE-06 conference was held exclusively to internationally co-ordinate spectrum in the VHF Band III and UHF Bands IV and V and therefore the L-Band was not part of this conference, but it had already been declared as digital broadcasting spectrum at the World Administrative Radio Conference (WARC-92) in 1992, where 40 MHz in L-band (1452 - 1492 MHz) were allocated to BSS (S-DAB) and complementary terrestrial broadcasting services in accordance with ITU Resolution 528. The Maastricht, 2002, Special Arrangement, as revised in Constanța, 2007 (MA02revCO07) governs the frequency band 1452 - 1479.5MHz. It has been adopted by CEPT multilateral meeting on 04 July 2007 and has come into force on 01 September 2007. The Arrangement contains technical characteristics for T-DAB and multimedia systems to operate in the L-band. Further, an international co-ordination conference such as RRC-06 for the L-Band is not applicable as the L-band is normally used for small-scale local or regional multiplexes.

With regards to DVB-T2 within the L-Band, the EBU Report *Tech 3348 - Frequency & Network Planning Aspects of DVB-T2*, Geneva May 2011, describes that e.g. "The 1k FFT mode which offers the highest Doppler performance is intended primarily for operation in the L-band (about 1.5 GHz)...". It further confirms "*ITU-R Rec. BT.1877 [BT1877] indicates that the 7 MHz and 8 MHz channel variants of DVB-T2 are compatible with the GE06 Plan for digital television broadcasting and the 1.7 MHz channel variant is compatible with T-DAB frequency planning*". Another relevant document, the DVB Document A133, "*Digital Video Broadcasting (DVB); Implementation guidelines for a second generation digital terrestrial television broadcasting system (DVB-T2)*", June 2011, which is also an official ETSI document (ETSI TS 102 831 V1.1.1 (2010-10)) states "*To allow DVB-T2 to be used in narrower RF channel assignments in e.g. band III and in the L-band, the bandwidth 1,712 MHz is also included*". Surely there are more existing official sources available stating that the 1.7MHz mode of DVB-T2 has been designed to operate in DAB assignments in VHF Band III and the L-Band which should be considered within DVB-T2 planning strategies. Further it should be noticed that the DAB assignment already has been extended to

Digital Multimedia Broadcasting (DMB) which can be seen as an interim technology which has now finally be superseded by DVB-T2.

It is obvious that the implementation of DVB-T2 as a national broadcast standard, especially if it is implemented as primary digital standard, would be incomplete if the above mentioned considerations would be ignored.

2.2. Requirement Specification

2.2.1 Community Broadcasting and its Relevance in the Production of Local Content

In post-colonialism Africa the preservation of African customs and heritage is an essential responsibility of every African nation. The media industry is playing a key role within this responsibility. Whereas mainstream media often struggle to fulfill this requirement as they often have to maintain business objectives by matching with more demand on popular international content, especially community broadcasting has been identified as one of the core sources of real local content. As heritage is generally preserved within communities at a higher focus than in urban regions where people merely just share space because of economic than cultural reasons, the South African government is promoting the relevance of community broadcasting as one of the key elements of media at all, whereas it must be stated that every day more and more cultural assets disappear with the disappearance of individuals who can tell the stories. On the other hand currently there are a lot of exiting cases of demand for the introduction of community broadcasting – both radio and television – which cannot be catered for due to lack of broadcast spectrum.

The production of local content can and will happen within the communities where local African spirit is still alive. Therefore it is essential that there is an existing broadcast industry, even if driven within a simple environment. At the end of the chain of any

media production is the publication; without publication there will be no motivation to continue the production. This is the reason why community broadcasting must be on air which requires spectrum.

2.2.2 Digital Migration and Community Broadcasting

Although the introduction of DVB-T2 as most spectrum efficient technology is quite promising, at the second sight it will not cater for the needs of community broadcasting if smaller assignments, as defined in the DVB-T2 1.7MHz mode, will not be made available. The footprints of the 8 MHz assignments with more than 15 TV channels will not meet the requirements of individual local broadcaster's requirements – not the existing ones and by far not the future ones. The space of local 8MHz assignments will never be filled and such implementation will be, technically absolutely applicable, seen as a pure waste of bandwidth which can monetize much easier if it is assigned to multichannel broadcasters or becomes part of the digital dividend.

The only way to ensure that community broadcasting will have a local platform and can grow – vertically and horizontally –, is the provision of small spectrum assignments, and this needs to take place at the launch of DTT and not only after DSO. As VHF Band III spectrum is currently occupied by analogue television which will remain until DSO, the L-Band is the only spectrum available for such application. In South Africa the L-Band (1.452-1.495GHz) is a dedicated broadcasting band for DAB which is compatible with DVB-T2, as already demonstrated in the previous chapter "Technical Background". Because of its frequency properties, the L-Band is also ideal for the utilization of local broadcasting. It is therefore a requirement of community broadcasting to make use of the L-Band for television and sound broadcasting in the L-Band (1.452-1.495GHz). However, as the previous television channel 12 had been vacated to avoid interferences with international aviation distress frequency 243MHz, there is some spectrum within this previous assignment remaining which could at least temporarily be used for DVB-T2 1.7MHz transmissions.

3 Conclusion – Request for Amendment of Broadcast Spectrum in the L-Band as Part of the DTT regulations

DRMZA proposes that ICASA extends the existing assignment of the broadcast spectrum 1.452-1.495GHz from “DAB” to “DAB/DMB/DVB-T2 sound, multimedia and television broadcasting” and includes the L-Band as spectrum being used as official spectrum for DTT broadcasting.

A realignment of the Muxes 1, 2 and 3 may be undertaken accordingly as within these multiplexes less spectrum will required for community broadcasting, especially if it comes to smaller target areas.

DTT Narrowband broadcasting should be offered as available technology for community broadcasting additionally to the assignments of Muxes 1, 2 and 3 in the DTT regulations.