



DigiTeam
NIGERIA

Corporate Presentation

PRESENTATION BY THE CHAIRMAN OF THE IMPLEMENTATION COMMITTEE
ON TRANSITION FROM ANALOGUE TO DIGITAL BROADCASTING IN NIGERIA -

DigiTeam NIGERIA

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COMMONWEALTH BROADBAND FORUM

16 - 17 JUNE

NICON LUXURY HOTEL ABUJA

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DIGITAL SWITCHOVER AND SPECTRUM DIVIDEND:

PAVING THE WAY TOWARDS BROADBAND ACCESS

PRESENTATION OUTLINE:

WHAT IS THE SPECTRUM DIVIDEND?

GENESIS OF THE SPECTRUM DIVIDEND

EXPECTATIONS OF SPECTRUM DIVIDEND FROM THE DIGITAL SWITCHOVER.

CONSIDERATIONS FOR THE USE OF THE SPECTRUM DIVIDEND

THE CASE FOR MOBILE BROADBAND

NEED FOR GLOBAL HARMONIZATION

CONCLUSION.

WHAT IS DIGITAL DIVIDEND?

SIMPLY PUT,

DIGITAL DIVIDEND CAN BE DEFINED AS THE AMOUNT OF SPECTRUM THAT WILL BE FREED UP AFTER THE SWITCHOVER FROM ANALOGUE TO DIGITAL TERRESTRIAL BROADCASTING.

GENESIS OF THE SPECTRUM DIVIDEND

TWO REGIONAL CONFERENCES WERE HELD BY ITU FOR THE PURPOSE OF DEVELOPING A DIGITAL PLAN FOR TERRESTRIAL BROADCASTING IN REGION 1 OF THE ITU.

SESSION 1:

RRC-04 ESTABLISHED THE TECHNICAL BASIS FOR REGIONAL AGREEMENT, INCLUDING INTER-SESSIONAL STUDIES

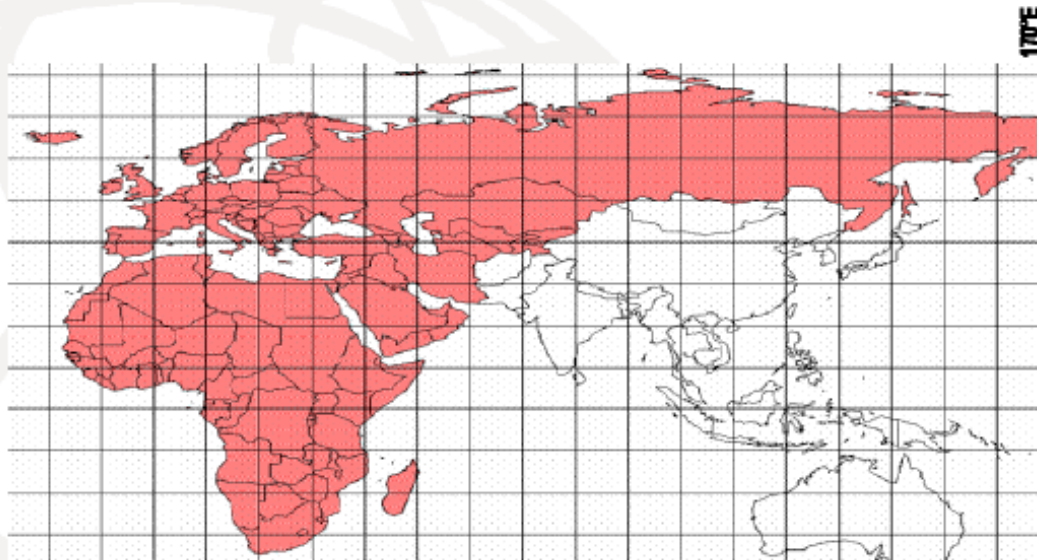
SESSION 2

RRC-06 CARRIED OUT PLANNING EXERCISES AND DREW THE DIGITAL PLAN FOR REGION 1.



THE ITU REGIONS

Planning Area –GE06-



Planning area: *Region 1 (parts of Region 1 situated to the west of meridian 170° E and to the north of parallel 40° S, except the territory of Mongolia) and in the Islamic Republic of Iran*

REGION 1 OF THE ITU

RRC-06 RESULTED IN NEW DIGITAL PLANS FOR TERRESTRIAL BROADCASTING BASED ON THE FOLLOWING BROADCASTING STANDARDS:

- **T-DAB FOR SOUND BROADCASTING AND**
- **DVB-T FOR TELEVISION BROADCASTING.**

COVERING THE FOLLOWING FREQUENCY BANDS:

- **174 - 230 MHZ. (VHF)**
AND
- **470 - 862 MHZ. (UHF).**

THE AGREED TRANSITION PERIOD:

- **FROM 17 JUNE 2006 TO 17 JUNE 2015,**
- **ALLOWING SOME COUNTRIES AN ADDITIONAL FIVE-YEAR EXTENSION FOR THE VHF BAND TILL JUNE 17, 2020**

However because of further development in Television Technology, both in:

- **Video Processing and Compression**
- **New Generation Television Transmission Formats,**

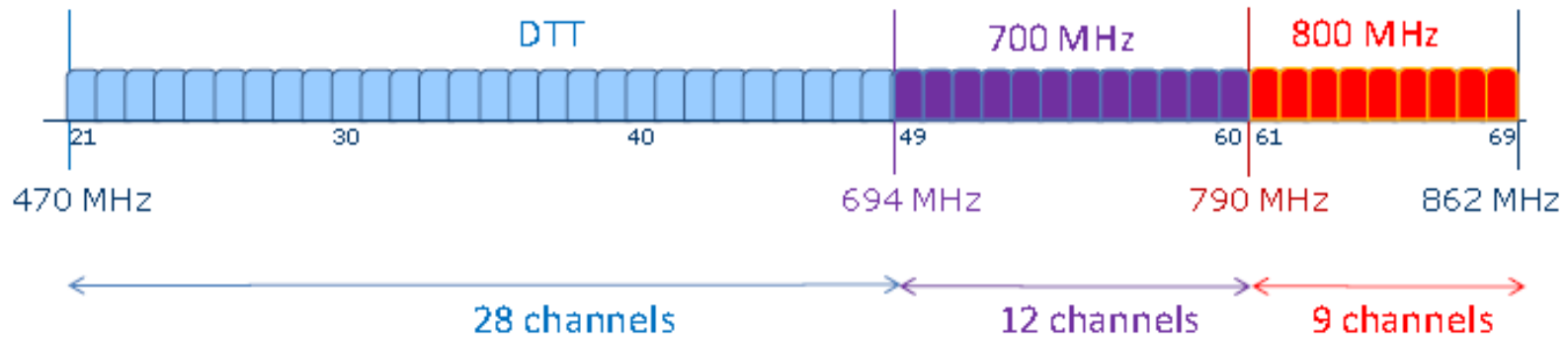
which has resulted in greater efficiency in the use of the available spectrum, modifications have been made to the GE-06 Agreement thus reducing the exclusive Broadcast Band width as follows:

At the World Radio Conference in Geneva 2007 (WRC-07) it was resolved that the Frequency Band 790 to 862 MHz. which, before now was only exclusively allocated to Broadcasting on a Primary Basis be now available for Primary allocation to other Services.

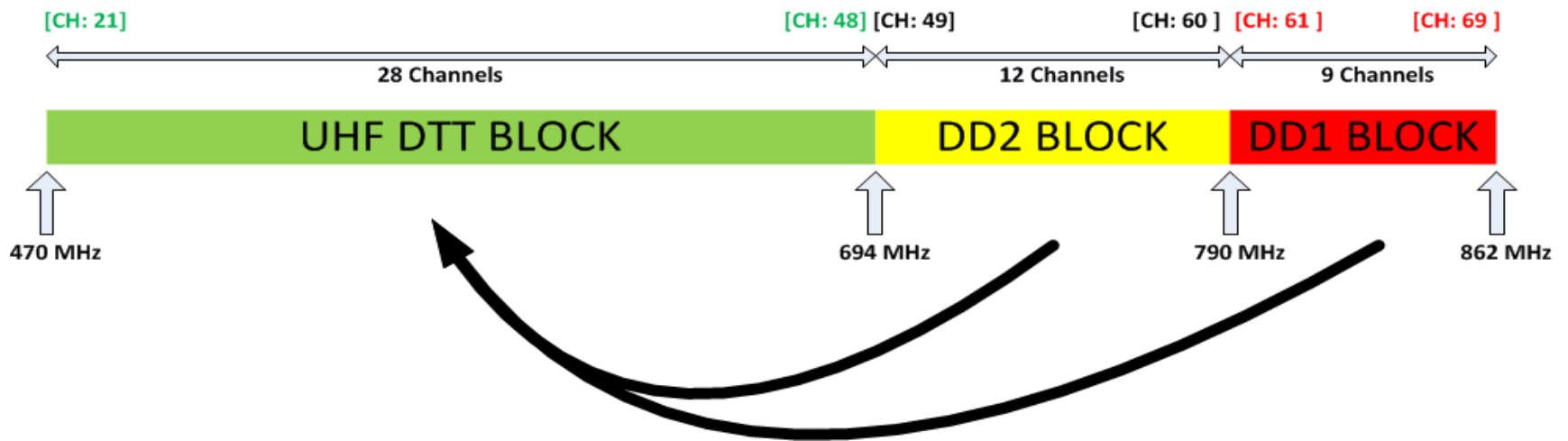
This gave birth to what we refer to as Digital Dividend 1 (790 to 862 MHz.) or DD1

Also at the World Radio Conference in Geneva 2012 (WRC-12) it was further resolved (***RESOLUTION 232 WRC-12***) that the Frequency Band 694 to 790 MHz. should be available for Primary Allocation for use by Mobile Broadband.

The Band 694 to 790 MHz. is referred to as Digital Dividend 2 (DD2)



UHF SPECTRUM SHOWING THE BANDS AFFECTED BY THE DECISIONS OF WRC-07 & WRC-12



IMPLICATION OF MODIFICATION TO THE GE-06 PLAN

Effectively therefore, what is available to Terrestrial Television Broadcasting as an Exclusive Primary Allocation is therefore

470 to 694 MHz.

EXPECTATIONS OF SPECTRUM DIVIDEND FROM THE DIGITAL SWITCHOVER

From the foregoing, we can say that the potential Spectrum Dividend is as follows:

- **DD1 790 - 862 MHz.**
- **DD2 694 - 790 MHz.**

The question is:

Should all of these go for Broadband use?

Who are the Contenders for the use of the Spectrum Dividend?

CONSIDERATIONS FOR THE USE OF THE SPECTRUM DIVIDEND

The following are the Major Contenders:

- **Digital Terrestrial Television:**

While tremendous progress has been achieved in Signal Compression and Delivery, significant progress is also being made in the Television Signal Acquisition and Production Facilities that requires the use of additional spectrum by Broadcasters. Notably:

- HIGH DEFINITION (HD.)
- ULTRA-HIGH DEFINITION (UHD.)
- 3-DIMENSIONAL (3-D) TELEVISION.
- BROADCAST MOBILE TELEVISION
AND FOR THE FUTURE
- HOLOGRAPHIC PROJECTION

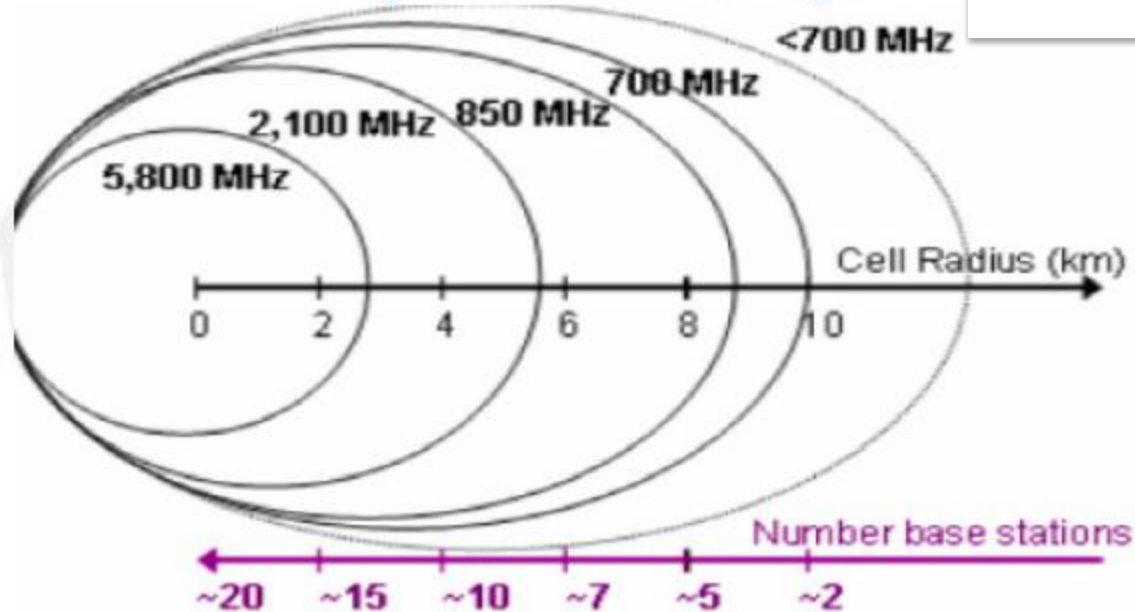
- **Advanced Mobile Services**
- **Commercial Wireless Broadband Services, both to Fixed Locations and Mobile Devices**
- **Wireless Broadband Services for Public Safety and Disaster Relief**
- **Services Ancillary to Broadcasting and Programming (SAB/SAP)**

THE CASE FOR MOBILE BROADBAND

What is the attraction of this Candidate Frequency Band (694 to 862 MHz.)to Mobile Broadband?

FIRST IS THE PROPOAGATION CHARACTERISTICS:

Why this bands (700 and 800 MHz)?



The propagation characteristics of spectrum

Source: BBC R&D.

This clearly shows that, for Mobile Broadband Deployment, these Candidate Frequencies require fewer Base Stations to cover a given Coverage Area.

This is therefore ideal for Rural Broadband Penetration. Most Rural Areas of Africa lack Basic Infrastructure and the fastest way to bridge the Digital Divide is via Mobile Broadband.

SECOND:

BECAUSE THESE BANDS ARE CONGROUS TO THE GSM FREQUENCIES, SIMILAR TECHNOLOGIES AND A LOT OF THE EXISTING GSM INFRASTRUCTURE CAN BE INTEGRATED FOR BROADBAND SERVICE DELIVERY.

THIS WILL REDUCE THE COST OF DEPLOYMENT TREMENDOUSLY.

NEED FOR GLOBAL HARMONIZATION

To derive maximum benefit from the use of the Spectrum Dividend, there is a need for Global Harmonization of the use of these frequencies.

In the past 25 years there were three great Consumer Revolution

- **The World Wide Web** - **About 2 Billion Connected Machines**
- **Personal Computers** - **Several Billions**
- **The GSM Mobile Phone** - **About 5 Billion**

What is it that these 3 have in common and what led to the Revolution?

The answer to these questions are not far fetched:

- **Common Technical Standards**
- **In the case of the GSM, Global Harmonized Frequency Bands**

Prior to the evolution of the GSM, the First Generation Mobile Phones in Nigeria costs the equivalent of about \$ 1,500.00 US.

Today in Nigeria, for less than \$ 20.00 US you can get an activated GSM Line, with a lot more features.

The need for Harmonization can be summed up as follows:

- **Reduces the cost of Mobile Hardware**
- **Enables Global Roaming**
- **Reduces the complexity of the Radio Equipment Design.**
- **Reduces Interference with Adjacent Services**
- **Makes High Quality Equipment affordable to Consumers.**

ACCESS TO THE SPECTRUM DIVIDEND

Considering the overall eventual benefits of Mobile Broadband to the Rural Populace, Broadcasters in Africa are reluctantly in support of ceding the Candidate Frequency Bands 694 to 862 MHz. to Mobile Broadband and have been working with assistance from the ITU in the re-planning and relocating all the RRC-06 Assignments that fall within the DD1 & DD2. within 470 to 694 MHz.

Coordination is also on between neighbouring Countries.

However access to the Spectrum Dividend can only be possible after the completion of the Digital Switch Over (DSO)

Unfortunately, most of the African Countries could not meet the DSO deadline of June 17, 2015.

Even when the Spectrum Dividend is made available access may not be immediate. Consideration has to be given to the following:

- **IMMEDIATE DEVELOPMENTAL NEEDS OF THE NATION**
- **FUTURE DEVELOPMENT OF BOTH THE TELECOMMS. AND THE BROADCAST INDUSTRIES**
- **DEFINETELY MOBILE BROADBAND WILL BE A VERY IMPORTANT SOLUTION TO RURAL COMMUNICATIONS AND THIS IS MOST IMPORTANT TO OVERALL DEVELOPMENT..**
- **BROADBAND IN THE RURAL COMMUNITIES WILL GRANT ACCESS TO THE FOLLOWING:**

- **e-GOVERNMENT**
- **e-BANKING**
- **DISTANCE LEARNING**
- **e –MEDICINE & MEDICARE**
- **ACCESS TO FAST INTERNET AT AFFORDABLE COST.**

CONCLUSION.

No doubt, Broadband is crucial to our development. Mobile Broadband is the fastest way to bridge the Rural Digital Divide in Africa.

- **We must therefore ensure a quick completion of the DSO to free the Spectrum Dividend**
- **WRC-15 is round the corner there is a need to push for the Global Harmonization of the Spectrum Dividend for Mobile Broadband**
- **Having missed the June 17, 2015 DSO, can we review out Digital Terrestrial Television Standards of DVB-T2 & MPEG-4 in light of the better High Efficiency Video Coding (HEVC) Compression Standard (MPEG-5) which can result in further Spectrum Dividend**
- **Finally, in deploying, emphasis must be placed on Service Delivery rather than how much money the Spectrum is sold for.**

THANK YOU ALL VERY MUCH.

ENGR. E. I. AMANA.
CHAIRMAN DigiTeam Nigeria
eddyamana@gmail.com