
GENERAL NOTICES

NOTICE 911 OF 2011



Independent Communications Authority of South Africa
Pinmill Farm, 164 Katherine Street, Sandton
Private Bag X10002, Sandton, 2146

PURSUANT TO SECTION 31(3) OF THE ELECTRONIC COMMUNICATIONS ACT 2005 (ACT NO 36 OF 2005), THE INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA HEREBY ISSUES A NOTICE INVITING COMMENTS REGARDING THE DRAFT SPECTRUM ASSIGNMENT PLAN FOR THE COMBINED LICENSING OF THE 800 MHz AND 2.6 GHz BANDS.

The Independent Communications Authority of South Africa (the Authority) hereby gives notice and invites comments on the proposed draft Spectrum Assignment Plan for the radio frequency range 790 - 862 MHz (800 MHz) and 2500 - 2690 MHz (2.6 GHz) in terms of section 31(3) of the Electronic Communications Act of 2005 (the ECA) read with regulations 3 and 7 of the Radio Frequency Spectrum Regulations 2011, published in Government Gazette No. 34172 Notice number 184 of 2011 (the Regulations).

Electronic copies of the proposed spectrum plan are available on the Authority's website (www.icasa.org.za).

Interested persons are hereby invited to submit written representations, including an electronic version of the representation in Microsoft Word, by no later than 16h00 on Friday, 31 January 2012

Written representations or enquiries may be directed to:

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All written representations submitted to the Authority pursuant to this notice shall be made available for inspection by interested persons at the ICASA Library or website and copies of such representations and documents will be obtainable on payment of a fee.

Where representors require that the representation or part thereof be treated confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No. 13 of 2000), must be lodged during the submission of representations. Representors are requested to separate any confidential material into a clearly marked confidential annexure. If, however, the

request for confidentiality is refused, the person making the request will be allowed to withdraw the representation or document in question.



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W.H Currie
ACTING CHAIRPERSON
ICASA

**THE 800 MHz AND 2.6 GHz DRAFT SPECTRUM ASSIGNMENT PLAN IN
TERMS OF SECTION 31(3) OF THE ECA AND REGULATIONS 3 AND 7 OF
THE RADIO FREQUENCY SPECTRUM REGULATIONS OF MARCH 2011**

1. OBJECTIVE

- 1.1. The objective of this draft spectrum assignment plan is to provide a framework for the combined assignment and licensing of the 800 MHz and the 2.6GHz bands in term of section 31(3) of the ECA, read with regulations 3 and 7 of the Regulations, in order to derive economic and societal benefits characterised by coverage and capacity, inherent of the complementary bands to ensure efficient and effective use of the Radio Frequency Spectrum.
- 1.2. The allocation of the said bands is depicted in the National Radio Frequency Plan 2010, which is in line with ITU-R Radio Regulations edition 2008.
- 1.3. The Authority is therefore developing the spectrum assignment plan to prescribe the channelling arrangements and the licensing model and invites comments on the proposal.

2. PURPOSE

- 2.1. The purpose of the spectrum assignment plan is to;
 - (i) Indicate the types of services to be provided
 - (ii) Set out the specific terms and conditions for the use of the 800 MHz and 2.6 GHz radio frequency bands
 - (iii) Set out specific qualification criteria to be met by applicants
 - (iv) Set out the procedures and timetable to be followed for assignment and licensing
 - (v) The apportionment of the 800 MHz and 2.6 GHz bands for International Mobile Telecommunications
 - (vi) Give detailed frequency channelling arrangements
 - (vii) Indicate the licensing approach

3. LEGAL AND REGULATORY FRAMEWORK

- 3.1. In terms of section 31(3) of the ECA, the Authority is required to prescribe procedures and criteria for awarding radio frequency spectrum for competing applications or instances where there is insufficient spectrum available to accommodate demand.
- 3.2. The Authority has developed regulations on radio frequency spectrum to deal with, among other things, development of radio frequency assignment plan and procedures in line with section 31(3) of the ECA.

4. THE POLICY OBJECTIVES AND MOTIVATION

- 4.1. The South African government issued a broadband policy document in government gazette number 33377 on 13 July 2010 committing to making broadband available to all its citizens. The intention is to bridge the digital divide, grow the economy by improving the education system, health and government services amongst others. The policy embraces access, affordability and availability of ICT services for all citizens. The policy strives to facilitate affordable, accessible and universal access to infrastructure to citizens, Businesses, communities and the three spheres of

- government and to stimulate the usage of broadband services to promote economic development and growth acting as an enabler for further social benefit..
- 4.2. Recently, the presidency published a national development plan (Vision 2030) on 21 November 2011, which amongst others, seeks to address the following as part of its short term goals on ICT for 2012 - 2015:
- (i) Develop plans to allocate spectrum available with the switchover to digital broadcasting
 - (ii) Develop strategy for universal access
 - (iii) Ensure resourced Regulatory agencies to encourage market entry, fair competition and regulate market failure
 - (iv) Implement service and technology neutral flexible licensing regime
 - (v) Free spectrum for efficient use to drive down costs.
- 4.3. According to Creamer Media's Telecommunications 2011, South Africa Telecoms report, there is approximately 49 million people in South Africa. However there are only 4 million fixed lines, with the majority being in urban areas.
- 4.4. According to the same report the arrival of mobile services in the country changed lives of many South Africans in both urban and rural areas. The mobile penetration is expected to be more than 104% in 2011.
- 4.5. It can, therefore, be concluded that "broadband for all citizens" in South Africa can be achieved mainly through mobile telecommunication technologies.
- 4.6. The 800 MHz and 2.6 GHz bands have been identified worldwide for International Mobile Telecommunication (IMT) technologies, which should provide mobile broadband wireless access.
- 4.7. These bands complement each other in the sense that they fulfil the requirements for capacity and coverage which make them suitable for rural and urban areas and for bridging the digital divide.
- 4.8. It is for the above reasons that the Authority has decided on combined licensing of the bands, to bridge the digital divide and urban-rural divide.

5. LICENSING PHILOSOPHY

- 5.1. It is the intention of the Authority to allow as many entities as possible to access the spectrum in the 800 MHz and 2.6 GHz bands. For this reason the Authority has considered mechanisms that will encourage sharing of spectrum.
- 5.2. In order to fulfil national policy objectives the Authority has considered introducing Wholesale Open Access model and Managed Spectrum Park model as forms of sharing mechanisms over and above Universal Service Access as part of obligations.
- 5.3. Wholesale Open Access model refers to a sharing model where a licenced entity allows other entities to offer services using its network. The Authority defines open access in terms of "no locking", "no blocking" and "no retail". Open Access is a special case of Managed Spectrum Park model described in item 5.8 below.
- 5.4. "no locking" means that there would be no prohibitions against devices that may be connected to the network so long as the devices are compatible with, and do not harm the network.
- 5.5. "no blocking" means that there would be no restrictions against content, applications, or services that may be accessed over the network provided they are legitimate and comply with the laws of the country.

- 5.6. "No retail" means that the licensee will not offer any retail services to end users but will provide basic transport capacity to unaffiliated retail service providers on a non-discriminatory basis. The disassociation of transport from retail services will promote competition and benefit consumers.
- 5.7. The Authority proposes that any entity licenced for both 800 MHz band and 2.6 GHz band should be obliged to build an Open Access network.
- 5.8. The Managed Spectrum Park model refers to a sharing model where a number of entities apply to participate in sharing a block of common spectrum on self-managed basis and according to some regulations and/ or agreed procedures. The model encourages efficient use of spectrum, innovation and flexibility and provide for low-cost compliance and administration over time.
- 5.9. The Authority will also endeavour to set aside spectrum exclusively for entities that do not currently have access to designated IMT bands.
- 5.10. Designated IMT bands in this plan refer to 790 – 862 MHz (800 MHz), 880 – 915/925-960 MHz band (900 MHz), 1710 – 1785/1805 -1880 MHz band (1800 MHz), 1920-1980/2110-2170 (2100 MHz) and 2500 – 2690 MHz band (2.6 GHz).
- 5.11. The band 3400 – 3600 MHz (3.5 GHz) is specifically excluded in the definition of designated to allow current licensees in this band to have access to a lower spectrum range.
- 5.12. Entities in 3.5 GHz band who wish to apply and have access to 2.6 GHz band in the current process must undertake to surrender their spectrum in 3.5 GHz band to the Authority if they are successful unless they present a compelling case why they should be allowed to keep it.
- 5.13. The bands 450-470 MHz and 2300 – 2400 MHz (2.3 GHz) are specifically excluded in the designated IMT bands due to the fact that there are no permanently licenced entities for IMT services in these bands.

6. FREQUENCY CHANELLING ARRANGEMENT

- 6.1. The 800 MHz band channel arrangement is as follows:
 - 6.1.1. The 800 MHz band has been allocated to the mobile, except aeronautical mobile, service in accordance with Article 5 provision of the ITU radio regulations. The band is identified for IMT and is allocated in terms of Resolution 224 and 749 as revised in the World Radiocommunications Conference 2007 (WRC-07).
 - 6.1.2. The Authority proposes that the design of frequency channel arrangement for the 800 MHz band should be in line with the decision ECC/DEC/(09)03 of the European Communications Committee (ECC) and the draft revision of the ITU-R Recommendation M.1036-3.
 - 6.1.3. The reason to consider ECC decision ECC/DEC/(09)03 is due to the fact that the European Community (EC) is in ITU-R Region 1, same as the Southern African Development Community (SADC) of which South Africa is a member.
 - 6.1.4. SADC has already opted for the arrangement in annex 1 of ECC/DEC/ (09)03 as the preferred arrangement. For this reason the Authority proposes that the design be based on this option in South Africa.
 - 6.1.5. The aforementioned arrangement is 2 x 30 MHz with a duplex gap of 11 MHz, based on a block size of 5 MHz, paired and with reverse duplex direction, and a guard band of 1 MHz starting at 790 MHz. The FDD downlink starts at 791 MHz and FDD uplink starts at 832 MHz.

6.2. The 2.6 GHz band channel arrangement is as follows:

- 6.2.1. The frequency band 2 500-2 690 MHz (2.6 GHz) has been allocated to the mobile, except aeronautical mobile, service in accordance with the provision 5.384A, 5.384B of the ITU radio regulations. The band is identified for IMT in terms of Resolution 223 as revised in WRC-07.
- 6.2.2. The Authority proposes that the design of frequency configuration for this band should be in line with ITU-R Recommendation M.1036-3 (current and the draft review) and EC decision 2008/477/EC. The reason to consider EC decision 2008/477/EC is due to the fact that the EC is in ITU-R Region 1, same as SADC of which South Africa is a member.
- 6.2.3. SADC, in line with EC, has already adopted option 1 of the ITU-R Recommendation M.1036-3 (C1 in Table 3 of the Recommendation) as the preferred arrangement. For this reason the Authority proposes to implement the preferred arrangement as adopted.
- 6.2.4. The preferred arrangement is a duplex spacing of 120 MHz for paired spectrum operation (FDD) with uplink located at 2500 to 2570 MHz and downlink located at 2620 to 2690 MHz. The sub-band 2570 to 2620 MHz is used for unpaired spectrum operation (TDD).

7. THE CURRENT STATUS OF 800 MHZ AND 2.6 GHZ BANDS

- 7.1. The 800 MHz band is currently used for television broadcasting by broadcasters and for CDMA2000 services by Neotel (PTY) LTD on coordination basis. Neotel has been assigned 2 x 4.92 MHz of the band which spread throughout the frequency range 827.775 – 832.695 MHz paired with 872.775 – 877.695 MHz due to coordination requirements.
- 7.2. The Authority seeks to licence the 800 MHz band prior to spectrum release from broadcasting. The release is anticipated in year 2015 or immediately after that. This approach will allow successful applicants to plan ahead. It also allows successful applicants to consider innovative ways of using the spectrum in coordination with broadcasters prior to complete release of the spectrum.
- 7.3. The 2.6 GHz is currently configured as unpaired spectrum or TDD spectrum and a portion is currently assigned to Sentech (PTY) LTD (Sentech) and Wireless Business Solutions (PTY) LTD (WBS) respectively. Sentech is assigned 50 MHz from 2500 to 2550 MHz and WBS is assigned 15 MHz from 2550 to 2565 MHz.

8. IN-BAND MIGRATION IN 800 MHZ AND 2.6 GHZ BANDS

- 8.1. Due to the current status of the bands, there is a requirement for an in-band migration of the incumbents in order to make the bands aligned to the preferred frequency channel arrangements.
- 8.2. The Authority has embarked on a consultative process with the incumbents in September 2011 and considered their views accordingly.
- 8.3. The Authority therefore, proposes the arrangements in sections 8.7, 8.8 and 8.9 below.
- 8.4. The proposals for in-band migration of Sentech and WBS in the 2.6 GHz band will enable alignment to harmonised arrangement in SADC and allow a minimum of three additional operators assigned at least 2 x 15 MHz each in the 2.6 GHz.
- 8.5. The proposals for in-band migration for Neotel in the 800 MHz band will enable alignment to harmonised arrangement.

- 8.6. The in-band migration of Neotel in and migration of Sentech to the 800 MHz band will allow one additional operator to be assigned 2 x 10 MHz each.
- 8.7. The following is proposed for Sentech in-band migration:
- 8.7.1. Sentech should retain 30 MHz as 2 x 15 MHz FDD in the 2.6 GHz band made up of 2500 to 2515 MHz paired with 2620 to 2635 MHz
 - 8.7.2. In addition Sentech should be assigned 20 MHz as 2 x 10 MHz FDD in the 800 MHz band in lieu of 20 MHz in 2.6 GHz band.
 - 8.7.3. The advantage of the above arrangement for Sentech is that it will be possible to retain the preferred harmonised frequency plan and Sentech would be able to address both capacity and coverage driven scenarios and, hence, fulfil its mandate for broadband coverage in rural areas.
 - 8.7.4. Sentech expressed a view that they would like to keep 2 x 25 MHz FDD in the 2.6 GHz with an option to switch 2 x 10 MHz to the 800 MHz band in the future.
 - 8.7.5. Given this process underway, the Authority is of the view that the proposal by Sentech is unattainable.
- 8.8. The following is proposed WBS in-band migration:
- 8.8.1. WBS should be migrated to occupy the upper 20 MHz of the sub-band 2570 to 2620 MHz as unrestricted spectrum.
 - 8.8.2. The above arrangement affords 20 MHz unrestricted block of spectrum to WBS, which is an acceptable minimum spectrum for efficient operations in this band.
 - 8.8.3. In addition WBS should be allowed to use guard band spectrum which is 5 MHz at each of the edges of their allocation as restricted spectrum, with a condition that pay spectrum fees for the guard bands as if it were a normal assignment. This will result in efficient use of the spectrum.
 - 8.8.4. The rationale for allowing WBS to use the restricted spectrum (guard bands) is based on technical requirements for restricted Block Edge Mask (BEM) as expressed in EC decision 2008/477/EC and ECC Report 131.
 - 8.8.5. In terms of the requirements the upper 5 MHz block of the TDD sub-band (i.e. 2615 to 2620 MHz) should be restricted and the power level should be below that of standard blocks in order to protect FDD receiving terminal stations. There is no required protection to TDD terminal stations in this block other than standard out-of-band emissions protection criteria.
 - 8.8.6. Further, in a TDD to TDD frequency boundary, the first 5 MHz block of the upper TDD spectrum is designated as a restricted block and the power level should be below that of standard blocks in order to protect TDD operation below the boundary. On the other hand the restricted block is not afforded the same level of protection other than standard out-of-band emissions protection criteria.
 - 8.8.7. It should also be noted that the Authority is of the opinion that WBS should be able to derive maximum benefit from the spectrum in the guard bands. It is for this reason that the Authority proposes to oblige WBS to pay the full amount of the spectrum.
 - 8.8.8. During the consultative process, WBS indicated that they might require additional FDD spectrum in the band for the future.

8.8.9. It is the Authority's opinion that such stance by WBS is not warranted and might be viewed as uncompetitive.

8.8.10. Alternatively, the Authority seeks comments on the proposal that the 5 MHz guard bands be reserved for future use for low power devices and technologies.

8.9. The following is a proposed Neotel in-band migration

8.9.1. The Authority proposes that Neotel should be migrated to occupy the first 2 x 10 MHz in the 800 MHz band.

8.9.2. The proposal affords Neotel an increased and technically acceptable amount of radio frequency spectrum for future deployment of IMT technologies in the 800 MHz band.

8.9.3. During the consultative process, Neotel, raised concerns that IMT technologies are not currently geared towards voice services and their current deployment of CDMA2000 is suitable for voice and could still have a life cycle of about 10 years.

8.9.4. For this reason the Authority proposes that Neotel is allowed to keep 2 x 1.2 MHz for CDMA200 in the band.

8.9.5. In order to mitigate any possible technical issues, the Authority should oblige Neotel to keep the 2 x 1.2 MHz assignment as close as practically possible to their 2 x 10 MHz proposed assignment and ensures that no interference is caused to other services in the band.

9. THE SPECTRUM ASSIGNMENT PLAN AND LICENSING FRAMEWORK

9.1. For the purpose of planning the 2.6 GHz band for licensing, the following spectrum blocks are defined:

9.1.1. Block A is 2 x 15 MHz spectrum made up of 2500 to 2515 MHz paired with 2620 to 2635 MHz to be assigned to Sentech.

9.1.2. Block B is 2 x 20 MHz spectrum made up of 2515 to 2535 MHz paired with 2635 to 2655 MHz

9.1.3. Block C is 2 x 20 MHz spectrum made up of 2535 to 2555 MHz paired with 2655 to 2675 MHz

9.1.4. Block D is 2 x 15 MHz spectrum made up of 2555 to 2570 MHz paired with 2675 to 2690 MHz

9.1.5. Block E is 20 MHz unpaired spectrum made up of 2570 to 2590 MHz

9.1.6. Block F is 30 MHz unpaired spectrum made up of 20 MHz spectrum in 2590 to 2615 MHz and spectrum in the guard bands made up of 2590 to 2595 MHz and 2615 to 2620 MHz

9.2. For the purpose of planning the 800 MHz band for licensing, the following spectrum blocks are defined:

9.2.1. Block X is 2 x 10 MHz spectrum made up of 791 to 801 MHz paired with 832 to 842 MHz to be assigned to Neotel

9.2.2. Block Y is 2 x 10 MHz spectrum made up of 801 to 811 MHz paired with 842 to 852 MHz to be assigned to Sentech.

9.2.3. Block Z is 2 x 10 spectrum made up of 811 to 821 MHz paired with 852 to 862 MHz

- 9.3. For the purposes of the licensing process, the following licensing packages are defined:
- 9.3.1. Package 1 consists of Block B in the 2.6 GHz band and Block Z in the 800 MHz band.
 - 9.3.2. Package 2 consists of Block C in the 2.6 GHz band.
 - 9.3.3. Package 3 consists of Block D in the 2.6 GHz band.
 - 9.3.4. Package 4 consists of Block A in the 2.6 GHz band and Block Y in the 800 MHz band.
 - 9.3.5. Package 5 consists of Block E in the 2.6 GHz band.
 - 9.3.6. Package 6 consist of Block F in the 2.6 GHz band
 - 9.3.7. Package 7 consists of Block X in the 800 MHz band
- 9.4. The Authority proposes that packages or blocks defined above be apportioned as follows:
- 9.4.1. The Authority proposes to licence **Package 1** to an individual ECNS licence holder on Wholesale Open Access conditions described in 5.3 of this document.
 - 9.4.2. The Authority proposes licensing **Package 2** to an individual ECNS licence holder that has no spectrum license in any of the designated IMT bands.
 - 9.4.3. The Authority proposes licensing **Package 3** to an individual ECNS licence holder that has no spectrum license in any of the designated IMT bands.
 - 9.4.4. The Authority proposes to licence Package 4 to Sentech on Wholesale Open Access conditions as defined in 5.3 of this document.
 - 9.4.5. The Authority proposes that Package 5 should be reserved for Managed Spectrum Park. With this, the Authority will in future invite and set out conditions for applicants who wish to participate in the Managed Spectrum Park process.
 - 9.4.6. The Authority proposes licensing Package 6 to WBS.
 - 9.4.7. The Authority proposes licensing Package 7 to Neotel.
 - 9.4.8. Further, the Authority proposes to allow Neotel to keep and be licensed for 1.2 MHz in the 830.8–832 MHz paired with 1.2 MHz in 875.8–877 MHz band for CDMA operations.
- 9.5. Successful applicants are expected to provide broadband services in line with the IMT framework as defined by the ITU.
- 9.6. For the purposes of clause 9.5 above, IMT refers to IMT-2000, IMT-Advanced and future technologies succeeding IMT.
- 9.7. The bands should be used in accordance with terms set out in the section about apportioning of the spectrum blocks and in accordance with other terms and conditions set out in the ITA.
- 9.8. The qualification criteria to be met by applicants are set out in the ITA.
- 9.9. Procedures and timetable for the licensing process is set out in the ITA.
- 9.10. A summary of the licensing framework as discussed is shown in Table 1, Table 2 and Table 3 attached.

Table 1: Spectrum plan and licensing framework for the 800 MHz band

Chanel Block	Frequency Range (MHz)	Amount of Spectrum	Proposed Assignments
	790 -791	1 MHz	Unused guard band
X	791 to 801 paired with 832 - 842	2 x 10 MHz	To be assigned to Neotel
Y	801 – 811 paired with 842 - 852	2 x 10 MHz	To be assigned to Sentech on Wholesale Open Access conditions
Z	811 – 821 paired with 852 – 862	2 x 10 MHz	To be assigned with Block B in 2.6 GHz band to an individual ECNS licence holder on Wholesale Open Access conditions described in 5.3 of this document.
W1	821 – 830.8	9.8 MHz	Unused duplex spacing
W2	830.8 - 832	1.2 MHz	To be used by Neotel

Table 2: Spectrum plan and licensing framework for the 2.6 GHz band

Chanel Block	Frequency Range (MHz)	Amount of Spectrum	Proposed Assignments
A	2500 to 2515 paired with 2620 to 2635	2 x 15 MHz	To be assigned to Sentech on Wholesale Open Access conditions
B	2515 to 2535 paired with 2635 to 2655.	2 x 20 MHz	To be assigned with Block Z in 800 MHz band to an individual ECNS licence holder on Wholesale Open Access conditions described in 5.3 of this document
C	2535 to 2555 paired with 2655 to 2675	2 x 20 MHz	To be assigned to an individual ECNS licence holder that has no spectrum assigned in any of the designated IMT bands.
D	2555 to 2570 paired with 2675 to 2690	2 x 15 MHz	To be assigned to an individual ECNS licence holder that has no spectrum assigned in any of the designated IMT bands.
E	2570 to 2590 Unpaired	20 MHz	Reserved for Managed Spectrum Park and it is to be licenced separately in future
F1	2590 to 2615 Unpaired	20 MHz	Guard band to be used by WBS
F2	2590 to 2595 guard band	5 MHz	WBS
F3	2615 to 2620 guard band	5 MHz	Guard band to be used by WBS

Table 3: Packages for licensing of the 2.6 GHz and 800 MHz bands

Packages	2.6 GHz Block	800 MHz Block	Proposed Assignments
1	B	Z	To be assigned to an individual ECNS licence holder on Wholesale Open Access conditions
2	C	N/A	To be assigned to an individual ECNS licence holder that have no spectrum assigned in any of the designated IMT bands
3	D	N/A	To be assigned to an individual ECNS licence holder that have no spectrum assigned in any of the designated IMT bands
4	A	Y	To be assigned to Sentech on Wholesale Open Access conditions
5	E	N/A	Reserved for Managed Spectrum Park and it is to be licenced separately in future
6	F1	N/A	Guard band to be used by WBS or Reserved for future use
	F2		WBS
	F3		Guard band to be used by WBS or Reserved for future use
7	N/A	X	To be assigned to Neotel

Figure 1: Spectrum licensing configuration for the 2.6 GHz band

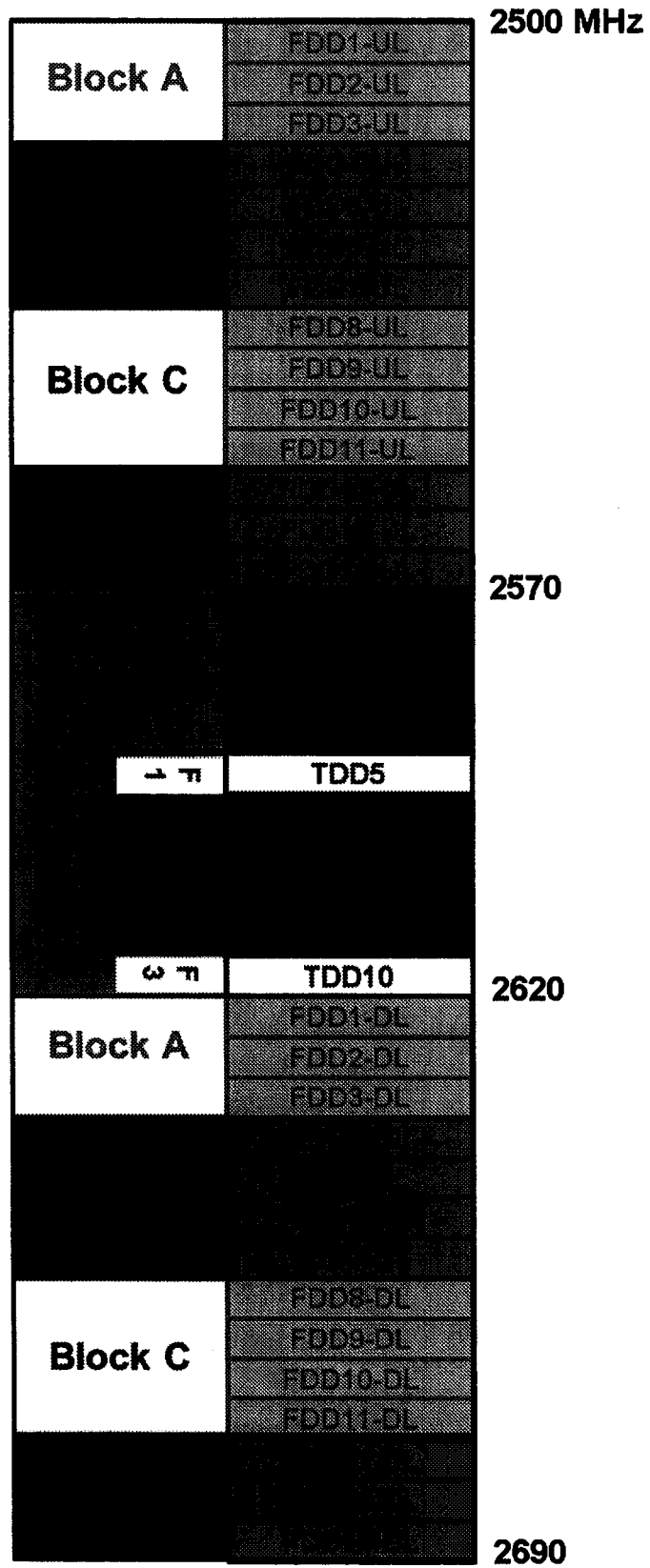


Figure 2: Spectrum licensing configuration for the 800 MHz band

