

SUBMISSIONS IN RESPONSE TO ICASA'S NOTICE ON THE LICENSING PROCESS FOR INTERNATIONAL MOBILE TELECOMMUNICATIONS ("IMT") SPECTRUM IN RESPECT OF THE PROVISIONING OF MOBILE BROADBAND WIRELESS OPEN ACCESS SERVICES FOR URBAN AND RURAL AREAS USING THE COMPLEMENTARY BANDS, IMT700, IMT800, IMT 2300, IMT2600 AND IMT3500.

1. INTRODUCTION

Rain (Pty) Ltd ("Rain") welcomes the opportunity to comment on ICASA's Information Memorandum in Government Gazette 42820 of 01 November 2019: ICASA'S NOTICE ON THE LICENSING PROCESS FOR INTERNATIONAL MOBILE TELECOMMUNICATIONS ("IMT") SPECTRUM IN RESPECT OF THE PROVISIONING OF MOBILE BROADBAND WIRELESS OPEN ACCESS SERVICES FOR URBAN AND RURAL AREAS USING THE COMPLEMENTARY BANDS, IMT700, IMT800, IMT 2300, IMT2600 AND IMT3500.

On the 26 July 2019 the Department of Communication and Digital Technologies (DCDT) Minister Stella Ndabeni-Abrahams released the Policy on High Demand spectrum and Policy Direction on the licensing of a Wireless Open-Access Network ("WOAN").

On the 01 November 2019, ICASA published an Information Memorandum to provide guidance to prospective applicants on the process and criteria to be applied on the licensing of the Radio Frequency Spectrum for the designated Assignment Plans;

- IMT700 (703-790MHz), **2 X 30MHz**
- IMT800 (790-862MHz), **2 X 30MHz**
- IMT2300 (2360-2400MHz), **1 X 40MHz**
- IMT2600 (2500-2690MHz), **1 X 170MHz** and
- IMT3500 (3400-3600MHz) **1 X 116MHz.**

Our submission focuses mainly on the salient aspects of Information Memorandum and does not address every point raised in the ICASA document.

2. OBJECTIVES OF THE LICENSING THE IDENTIFIED IMT BANDS

The Authority has outlined its objectives for the licensing of the IMT700, IMT800, IMT 2300, IMT2600 AND IMT3500 Bands amongst which includes;

- Promoting the empowering of HDGs, in particular women, youth and persons with disabilities;
- Increasing universal access;
- Promoting consumer interests in terms of quality services and pricing;
- Making provision for the WOAN;
- Promoting innovation; and
- The reduction of cost to communicate.

Since its establishment Rain has strived to ensure that Government's and ICASA's objectives of universal access, inclusive participation by all societal groups, innovation and affordability in the Information and Digital Communications Sector is realized.

Rain has continued to build a national LTE (Long Term Evolution) Advanced (LTE-A) network for the provision of both mobile and fixed-wireless high-speed data services. We have recently launched a 5G Network, a first in Africa, in our efforts of growth our Telecommunications sector thus creating job opportunities in our country.

3. THE PROPOSED SPECTRUM FOR LICENSING

ICASA has proposed different Options to award and license the available Spectrum, each with several LOTS to be considered.

700 and 800MHz band



	700MHz band										800MHz band															
	703	708	713	718	723	728	//	758	763	768	773	778	783	791	796	801	806	811	816	//	832	837	842	847	852	857
Option 1	Lot B	Lot C	Lot D					Lot B	Lot C	Lot D					WOAN						WOAN					
Option 2	Lot B	Lot C	Lot D					Lot B	Lot C	Lot D				Future	WOAN					Future	WOAN					
Option 3	Lot B	Lot C	Lot D					Lot B	Lot C	Lot D				Lot E	WOAN					Lot E	WOAN					
Option 4	WOAN			Future				WOAN			Future			Lot B	Lot C	Lot D					Lot E	Lot B	Lot C	Lot D		
Option 5	WOAN	Lot C	Lot D					WOAN	Lot C	Lot D				Lot E	WOAN	Lot B					Lot E	WOAN	Lot B			

The various options for the 700 and 800MHz bands are illustrated above.

Options 1 - 3 are identical for the 700MHz band, in the 800MHz band there are a few permutations.

Option 1 gives the WOAN 5MHz more spectrum, but at the cost of creating an unattractive, unallocated 5MHz block, effectively wasting it.

Options 2 and 3 either have a Lot E or an empty allocation.

Options 1-3 contemplates giving the WOAN the bulk of 800MHz spectrum, Option 4 proposes giving it the bulk of 700MHz spectrum.

RAIN proposes that the free spectrum in Options 2 and 4 also be auctioned with the rest of the spectrum.

Rain acknowledges the fact that the Authority has, on deferent LOTS, Rains Spectrum specifically in the 2600MHz, has been recognized as “Assigned to Incumbent” thus not to be contended in terms of this licensing process. Rain is Licensed in the 2600MHz (2570 – 2590MHz) “Assigned” is in terms of “Option 1”.

Rain notes other proposed Options by the Authority (Option 2) for IMT2600 where ICASA has suggested the conversion of the entire 2500 - 2690MHz (1 X 170MHz) Band to TDD.

ICASA has also proposed an “In-band Migration” for Rain, 2570 - 2590MHz to 2540 - 2560MHz.



2600MHz Band:

	2500	2510	2520	2530	2540	2550	2560	2570	2580	2590	2600	2610	2620	2630	2640	2650	2660	2670	2680	
Previous plan	FDD							TDD					FDD							
Current plan	TDD																			

RAIN notes that in Options 2-4 the band will be replanned from its current FDD (band 7) and TDD (band 38) to all TDD (band 41). RAIN supports this replanning of the entire band to TDD but notes that when it was assigned its spectrum assignment in the 2.6GHz band, it was still allocated as FDD/TDD. Consequently, RAIN had to purchase Band 38 equipment, which include filters to protect the FDD allocations below and above the band. Because of this hardware limitation, it isn't possible for RAIN to migrate out of Band 38 without swopping the equipment. The equipment has already been deployed in over a thousand sites and it would cost several hundreds of millions of Rands and some time to swop out. RAIN would require financial compensation and adequate time to do this migration.

	2500	2505	2510	2515	2520	2525	2530	2535	2540	2545	2550	2555	2560	2565	2570	2575	2580	2585	2590	2595	2600	2605	2610	2615	2620	2625	2630	2635	2640	2645	2650	2655	2660	2665	2670	2675	2680	2685
Current															GB	RAIN																						
Option 1	WOAN				LOT B		LOT C		LOT D		LOTE				RAIN					WOAN			WOAN		LOT B		LOT C		LOT D		LOTE							
Option 2	WOAN								RAIN				LOT B								LOT C								LOT D									
Option 3	WOAN								LOT B								LOT C								LOT D				LOTE		RAIN							
Option 4	WOAN								LOT B								RAIN				LOT C								LOT D				FREE					
Option 5	WOAN								LOT B								LOT C								LOT D				LOTE		RAIN							

The current and various options are illustrated in the diagram above.

Currently RAIN is assigned spectrum in 2575-2595MHz, with a guard band from 2570-2575MHz to protect the adjacent FDD allocation. This is the spectrum RAIN is currently using, procured suitable equipment for and has deployed its network in. The most attractive option for RAIN in any potential spectrum auction would be if it could acquire an allocation from 2570-2620MHz.

Option 1:

	2500	2505	2510	2515	2520	2525	2530	2535	2540	2545	2550	2555	2560	2565	2570	2575	2580	2585	2590	2595	2600	2605	2610	2615	2620	2625	2630	2635	2640	2645	2650	2655	2660	2665	2670	2675	2680	2685
Option 1	WOAN								LOT B		LOT C		LOT D		LOTE				RAIN					GB			WOAN		WOAN		LOT B		LOT C		LOT D		LOTE	
Option 1.1	WOAN								LOT B		LOT C		LOT D		LOTE				GB			RAIN					WOAN		WOAN		LOT B		LOT C		LOT D		LOTE	



This option proposes that RAIN perform an in-band migration from 2575-2595MHz to 2570-2590MHz. This is not feasible, as RAIN's network would cause interference with the assignee in Lot E.

There is also made provision for a 5MHz guard band between RAIN's assignment and the WOAN's TDD assignment from 2595-2620MHz. This isn't required if RAIN and the WOAN synchronizes their networks. It would be more efficient for RAIN to remain in its current allocation from 2575-2595MHz as per Option 1.1.

It proposes to assign both FDD and TDD spectrum to the WOAN, which is very inefficient, as the WOAN would not be able to benefit from having more spectrum which it can transmit off a single radio, but would need to deploy two sets of radios and likely two sets of antennas too. This would dramatically increase its CAPEX and OPEX. RAIN would be in the same situation if it wanted to bid for more spectrum and because of this reason would probably elect not to participate in the auction.

Option 2:

This option proposes an all TDD band, with the WOAN assigned 40MHz, two blocks of 50MHz and a third of 30MHz.

It proposes that RAIN migrate to 2540-2560MHz, which is unfortunately not easy, as noted in 1.

	2500	2505	2510	2515	2520	2525	2530	2535	2540	2545	2550	2555	2560	2565	2570	2575	2580	2585	2590	2595	2600	2605	2610	2615	2620	2625	2630	2635	2640	2645	2650	2655	2660	2665	2670	2675	2680	2685
Option 2	WOAN								RAIN			LOT B										LOT C					LOT D											
Option 2.1	WOAN								LOT B										RAIN			LOT C					LOT D											

An easy compromise is to move Lot B 20MHz lower and assign RAIN spectrum from 2590-2610MHz (Option 2.1). This requires RAIN to do an in-band migration to higher in Band 38 and although this involves a lot of work, it isn't as onerous as the out-of-band migration as RAIN doesn't need to replace all its equipment.



	2500	2505	2510	2515	2520	2525	2530	2535	2540	2545	2550	2555	2560	2565	2570	2575	2580	2585	2590	2595	2600	2605	2610	2615	2620	2625	2630	2635	2640	2645	2650	2655	2660	2665	2670	2675	2680	2685
Option 2	WOAN								RAIN				LOT B								LOT C								LOT D									
Option 2.1	WOAN								LOT B								RAIN				LOT C								LOT D									
Option 2.2	LOT B								LOT C								RAIN				WOAN								LOT D									
Option 2.3	WOAN								LOT B								RAIN				LOT D				LOT C													

If RAIN were to participate in the spectrum auction Option 2.2 makes Lot C attractive to RAIN, or Option 2.3 makes Lot D somewhat attractive to RAIN.

Option 3:

	2500	2505	2510	2515	2520	2525	2530	2535	2540	2545	2550	2555	2560	2565	2570	2575	2580	2585	2590	2595	2600	2605	2610	2615	2620	2625	2630	2635	2640	2645	2650	2655	2660	2665	2670	2675	2680	2685
Option 3	WOAN								LOT B								LOT C								LOT D								LOTE		RAIN			
Option 3.1	WOAN								LOT B								RAIN				LOT C								LOT D								LOTE	
Option 3.2	WOAN								LOT B								RAIN				LOTE		LOT C								LOT D							

Option 3 requires RAIN to migrate from 2575-2595MHz to 2670-2690MHz. As explained earlier in this document this poses significant commercial and technical challenges.

Option 3.1 shows a compromise where RAIN doesn't need to do an out-of-band migration while leaving the same size lots available to other operators.

If RAIN were to participate in the spectrum auction, Option 3.1 would make Lot C attractive to it, otherwise Option 3.2 would make Lot E attractive to it.

Option 4 and Option 5:

Comments are the same as for Option 3.

Combination between 700/800 and 2600MHz:

Option 1: RAIN doesn't support this option as it believes the replanning of the 2.5GHz band to all TDD (Band 41) is a better, more spectrally efficient solution for the industry.

RAIN prefers the larger 50MHz spectrum allocations made available by **Option 2.**

RAIN would support an auction where it is able to acquire either 700 or 800MHz spectrum, with a preference for 800MHz and more 2600MHz spectrum.

4. OBLIGATIONS FOR SPECTRUM LICENSING

ICASA has proposed that any bidder that will be considered for the licensing of Spectrum not licensed to the WOAN will have the following Obligations;

- Data services must have an average upload speed of 15Mbps and the “downlink user experience” must have a throughput of at least 30Mbps to 100% of the population of South Africa by 2025,

Only the two large operators have access to the infrastructure required to even contemplate trying to meet these obligations. Even then meeting the obligations in deep rural areas would be very expensive and consequently have an impact on data prices network wide. Perhaps a model needs to be considered where the operators co-build and share rural infrastructure. Smaller operators are frustrated and battle to get access to larger operators’ physical infrastructure. There needs to be a regulatory intervention to ensure that smaller operators have access to the infrastructure they need to meet these obligations.

RAIN has no problem enabling the MVNOs. RAIN would readily procure capacity from the WOAN if it has suitable coverage and is commercially attractive, but as a smaller operator RAIN doesn’t have as much demand as the large operators. RAIN suggests that market share is also used as a parameter in determining how much capacity each of the successful bidders need to procure.

RAIN has no objection in providing access to its infrastructure to the WOAN on commercially reasonable terms. RAIN suggests that this obligation gets extended to all operators to offer access to infrastructure at reasonable commercial terms, without creating artificial technical barriers to doing so.

RAIN supports the view that there should be social obligations but requests the regulator to consider smaller operators when making these obligations. Perhaps these obligations can also be linked to market share.

RAIN supports the empowerment provisions.

5. SPECTRUM AUCTION

ICASA's proposal is to auction the spectrum to the highest bidder. Interested Licensees who wish to apply for the spectrum will be free to bid on any of the groups of spectrum that ICASA divided into lots.

The reserve price for each lot will be different and will be determined by the Authority. Stakeholders and prospective licensees are specifically invited to make representations on the factors and/or principles that the Authority should consider in determining the reserve prices applicable to each lot.

Rain has no objection to the Auction process and will await ICASA to outline specific information on the bidding process.

Yours faithfully,



Mlindi Kgamededi
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