

# Notice Regarding The Inquiry For The Implementation Of The Radio Frequency Migration Plan And The IMT Road Map

03 December 2021

# Contents

1.		3
2.	REGULATORY PARITY	3
3.	PUBLIC INTEREST	4
	ISSUES RELATING TO WORLD RADIOCOMMUNICATIONS CONFERENCE 2 ENDA ITEMS	
5.	MIGRATION OF EXISTING SERVICES: C-BAND	5
6.	IMT FREQUENCY CATEGORY 1 BANDS	6
CA	TEGORY 2 BANDS	31
AD	DITIONAL INFORMATION OF CATEGORY 2	31

### 1. Introduction

SENTECH thanks the Independent Communications Authority of South Africa ("Authority") for the opportunity to make a submission on the *Notice Regarding the Inquiry for The Implementation of The Radio Frequency Migration Plan and The IMT Road Map* ("Inquiry") as published in Government Gazette No. 45247 on 30 September 2021.

# 2. Regulatory parity

The principles of regulatory parity are grounded in ideas of fairness and equality that are fundamental values in the South African our society. SENTECH supports the hypothesis that the Electronic Communications Act refers to efficacy in terms of an "economic justification for regulatory parity...that [says], if all other factors are equal, regulators should treat similar services similarly in order to promote efficiency<sup>1</sup>". The questionnaire of the Inquiry assumes all services making use of radio frequency spectrum base their value with respect to annual revenue. SENTECH will like to bring the Recommendation ITU-R SM.1535 to the attention of the Authority, in particular the following paragraph:

Safety services are radiocommunications services used for safeguarding human life and property. For example, all aeronautical operational and air traffic control and many maritime communications are fundamentally safety of life. The systems, including radionavigation systems and radionavigation satellite systems, used for safety of life often depend on the ability to detect a weak or distant signal where interference can critically affect reception. This means special protection may be required for safety services as stated in RR No. 4.10, because of the criticality of protecting life and property. The necessity for safety systems to detect weak signals makes it important that these systems operate in an environment free from harmful interference. The international radio regulatory authorities recognize that special protection is required for the safety services. In view of the importance of safety systems and their vulnerability to interference to distress and safety communications on any of the discrete frequencies identified at RR Appendices 13 and 15. Furthermore, in addition to the general spurious emission limits specified in the RR,

<sup>&</sup>lt;sup>1</sup> Ismail, Sherille (2004) "Parity Rules: Mapping Regulatory Treatment of Similar Services," Federal Communications Law Journal: Vol. 56 : Iss. 3 , Article 2.

specific standards or applicable ITU-R Recommendations are required to protect some safety services<sup>2</sup>.

#### 3. Public interest

The Authority is misguided by implying and equating value to revenue only, this view is incongruent with the <u>Objects</u> of the Broadcasting, Electronic Communications and ICASA Acts. In terms of the Broadcasting Act, public broadcasting services must advance "national and public interest". The National Development Plan (2030) advance the principle of developing public interest mandates for state-owned entities (SOEs).

The Inquiry does not recognise nor acknowledge that free-to-air broadcasting (FTA) is highly regulated, including how they source funding and the type of content. Majority of broadcasting services in South Africa in based on a FTA principle and therefore, high-cost inputs affect the sustainability of the services. As an example, the Authority is requested to refer to the reasons behind the public process to develop the *Community Broadcasting Services Regulations of 2019*, Government Gazette No. 42323.

The Broadcasting Act fluently outline the principle and purpose of the three tier broadcasting categories:

These principles recognise that the South African broadcasting system comprises public, commercial and community elements which make use of the radio frequencies that are public property and provides, through its programming, a public service necessary for the maintenance of South African identity, universal access, equality, unity, and diversity.

# 4. Issues relating to World Radiocommunications Conference 2023 Agenda Items

There is great concern regarding the Authority's proposal of including radio frequency bands that are currently under consideration in compliance with the outcomes of World Radiocommunications Conference 2019 (WRC-19) on Agenda Items for WRC-23. It is also important to note the Republic of South Africa's policy position on the radio frequency band 3800 – 4200 MHz at the WRC-15. The country's policy position did not support the allocation of mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) in the radio frequency band 3700

<sup>&</sup>lt;sup>2</sup> Recommendation ITU-R SM.1535

SENTECH SOC LTD: Inquiry regarding the implementation the of the Radio Frequency Migration Plan and the International Mobile Telecommunications (IMT) Roadmap for public consultation

- 3800 MHz. With respect to WRC-23 Agenda Items, the country will only consider policy position on the radio frequency band 3600 – 3800 MHz in terms of Agenda Items 1.2 and 1.3.

The Authority is quite aware that the following radio frequency bands 470 – 960 MHz (Agenda Item 1.5) / 3600 – 3800 MHz (Agenda Items 1.2 and 1.2) / 4800 – 4990 MHz (Agenda Item 1.1) / 6425 – 7125 MHz (Agenda Item 1.2) are currently under discussion as part of World Radiocommunication Conference 2023 (WRC-23). The general understanding is that all country positions for WRC-23 are subject to Cabinet approval post Conference Preparatory Meeting 2, 2023 (CPM2-23) and before official submission to WRC-23 for consideration. Taking into consideration that the ITU Task Group 6/1 is yet to agree and let alone undertake compatibility studies for Agenda Item 1.5, it is not clear on what basis the Authority is considering the bands for IMT.

In terms of section 34(1) of the EC Act, the Minister of Communications and Digital Technologies is the country's representative on WRC matters as the conference reviews and revises international treaty governing the global use of the radio-frequency spectrum. The inclusion of bands currently under discussion at the ITU WRC-23 in the Inquiry is beyond the scope of the Authority. The Authority has no legislative mandate to determine country policy on behalf of Parliament. The Authority must refer to section 231 of the Constitution of the Republic of South Africa, *International agreements*, read together with sections 30(2)(a) and sections 34(1), (2) and (3) of the EC Act.

### 5. Migration of existing services: C-band

SENTECH is concerned that either than IMT the Authority has invested limited or no effort towards understanding the ecosystem and the context under which existing services operate. SENTECH operates C-band uplinks (main links) and Ku-band uplinks as redundancy links for signal distribution to terrestrial broadcasting sites, including for directto-home (DTH) downlinks. The C-band is currently experiencing increasing interference from broadband fixed wireless access (BFWA) services, whilst the Ku-band is experiencing interference from mobile network operators (MNO's) operating point-to-point microwave links.

In South Africa, there is no equivalent alternative to C-band for signal distribution. The fibre penetration density is still too low and the upfront cost investment requirement for fibre to terrestrial broadcasting sites is too high. Ku-band is used for redundancy and cannot be used for primary links due to rain-fade inconsistencies compared to the C-band. High frequencies, such as services in the Ka-band are more susceptible to rain-fade.

# 6. IMT frequency category 1 bands

Νο	Band	Q1: Rate <sup>3</sup> the importance of this band to your business.	Q2: Does your firm use this band? (Yes/No)	Q3: If yes to Q2, what does your firm use this band for?	Q4: Does your firm have plans to use this band in the future?	Q5: If your firm uses this band or plans to use it, what is the value (in annual revenues) of the use of this band for your application ?	Q6: If yes to Q2, what would be the impact if you had to vacate this band?	Q7: Additional comments and if yes to Q2, how many sites in total have you deployed for this band and how many sites per province?
1.	450 – 455 & 455 – 456 & 456 – 459 &	3 (Radio Regulations requirements for the adjacent-	No	N/A	N/A	N/A	N/A	N/A

 $<sup>^{3}</sup>$  1 = Not relevant to my organisation; 2 = Minor relevance but not commercially relevant to my organisation; 3 = Some relevance commercially to my organisation; 4 = Reasonably commercially relevant to my organisation; 5 = Critical commercial relevance to my organisation

SENTECH SOC LTD: Inquiry regarding the implementation the of the Radio Frequency Migration Plan and the International Mobile Telecommunications (IMT) Roadmap for public consultation

	459 – 460 & 460 - 470 MHz	channel interference.)						
2.	617 – 652 MHz paired with 663 - 698 MHz	5	Yes	Terrestrial Broadcasting	Yes. Based on the <b>Terrestrial</b> <b>Broadcastin</b> <b>g</b> <b>Frequency</b> <b>Plan (2013)</b> <b>Regulations</b> . Including 5G broadcast and DTT sharing of UHF band and broadcast infrastructure	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. Due to the diminishing rate of return on terrestrial infrastructure for broadcasting, majority of the network is acknowledged as for public interest. The company's revenue is recorded per service as illustrated in the audited	The reduction of the provincial seven (7) multiplexes as per the Authority's <b>Terrestrial</b> <b>Broadcastin</b> <b>g Frequency</b> <b>Plan (2013)</b> <b>Regulations,</b> to four (4) multiplexes.	The assignment per site / per province is specified in the Authority's Terrestrial Broadcasting Frequency Plan (2013) Regulations.

						annual report https://www.s entech.co.za/ sites/default/fil es/Sentech 2 019- 2020 Integrat ed Report.pdf		
3.	694 - 790 MHz	4	Yes	Terrestrial Broadcasting	No	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. Due to the diminishing rate of return on terrestrial infrastructure for broadcasting, majority of the network is acknowledged as for public interest. The company's	The Minister of Communicati ons and Digital Technologies is currently managing the migration of television services from this band through the Department's Project Management Office.	The assignment per site / per province is specified in the Authority's Terrestrial Broadcasting Frequency Plan (2013) Regulations.

						revenue is recorded per service as illustrated in the audited annual report <u>https://www.s</u> <u>entech.co.za/</u> <u>sites/default/fil</u> <u>es/Sentech_2</u> <u>019-</u> <u>2020 Integrat</u> <u>ed Report.pdf</u>		
4.	733 – 758 MHz (700MHz Guard frequency bands)	4	Yes	Terrestrial Broadcasting	No	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. Due to the diminishing rate of return on terrestrial infrastructure for broadcasting, majority of the network is	The Minister of Communicati ons and Digital Technologies is currently managing the migration of television services from this band through the Department's Project Management Office.	The assignment per site / per province is specified in the Authority's Terrestrial Broadcasting Frequency Plan (2013) Regulations.

						acknowledged as for public interest. The company's revenue is recorded per service as illustrated in the audited annual report <u>https://www.s</u> <u>entech.co.za/</u> <u>sites/default/fil</u> <u>es/Sentech 2</u> <u>019-</u> <u>2020 Integrat</u> <u>ed_Report.pdf</u>		
5.	790 - 862 MHz	4	Yes	Terrestrial Broadcasting	No	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. Due to the diminishing rate of return on terrestrial	The Minister of Communicati ons and Digital Technologies is currently managing the migration of television services from this band through the Department's Project	The assignment per site / per province is specified in the Authority's Terrestrial Broadcasting Frequency Plan (2013) Regulations.

				infrastructure for broadcasting, majority of the network is acknowledged as for public interest. The company's revenue is recorded per service as illustrated in the audited annual report https://www.s entech.co.za/ sites/default/fil es/Sentech 2 019- 2020 Integrat ed_Report.pdf	Management Office.	
6.	862 - 890 MHz (including 862-876 MHz)					
7.	890 - 942 MHz					

8.	942 - 960 MHz				
9.	1350 - 1375 MHz paired with 1492 - 1518 MHz				
10.	1375 – 1400 MHz paired with 1427 – 1452 MHz				
11.	1452 - 1492 MHz				
12.	1492 - 1518 MHz				
13.	1880 - 1900 MHz (1880 - 1920 MHz +1885 - 1980 MHz)				
14.	1980 - 2010 / 2170- 2200 MHz + 2010- 2025 MHz				
15.	2010-2025 MHz Planned for IMT				

16.	2025 – 2110 paired with 2200 - 2285 MHz	5	Yes	Studio Transmitter Links (STLs) for terrestrial audio	Yes. The band was recently (2019) identified by the Authority for the migration of STLs from the 800 MHz band	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. This band attracts annual spectrum fees, therefore economic value is only considered in terms of cost to service provisioning in the value	The likely discontinuati on terrestrial audio services dependent on STLs. The following provisions in Objects of the EC Act will prove challenging to achieve: Sections 2(c), (d), (g), (h), (k), (m), (n), (r), (s) and (v)	SENTECH is still busy with the migration of STLs from the 800 MHz to this band. SENTECH is migration at least 154 <u>links</u> .
						the value chain.		
						The company's revenue is recorded per		
						service as illustrated in the audited annual report <u>https://www.s</u> entech.co.za/		

17.	2300 - 2400 MHz				sites/default/fil es/Sentech 2 019- 2020_Integrat ed_Report.pdf		
18.	2500 - 2690 MHz						
19.	3300 - 3400 MHz						
20.	3400 - 3600 MHz						
21.	3600 - 3800 MHz	4	Yes	Yes. Satellite	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. This band attracts annual spectrum fees, therefore economic	The integrity and viability of broadcasting services will be negatively affected. Inability to comply with the Authority's End-User Subscriber Service Charter.	

						considered in terms of cost to service provisioning in the value chain. The company's revenue is recorded per service as illustrated in the audited annual report <u>https://www.s</u> <u>entech.co.za/</u> <u>sites/default/fil</u> <u>es/Sentech 2</u> <u>019-</u> <u>2020 Integrat</u> <u>ed_Report.pdf</u>		
22.	3800 - 4200 MHz	5	Yes	Satellite portion (space-to- Earth) in the signal distribution value chain.	Yes. Satellite	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. This band attracts	The integrity and viability of broadcasting services will be negatively affected. Inability to comply with the Authority's End-User	

				annual spectrum fees, therefore economic value is only considered in terms of cost to service provisioning in the value chain. The company's revenue is recorded per service as illustrated in the audited annual report https://www.s entech.co.za/ sites/default/fill es/Sentech_2 019- 2020 Integrat ed_Report.pdf	Subscriber Service Charter.	
23.	4800 - 4990 MHz					
24.	24.25 - 27.5 GHz					

25.	37 - 43.5 GHz (including 38-39.5 GHz for HAPS)				
26.	45.5-47 GHz				
27.	47.2 - 48.2 GHz (identified for IMT in Region 2 and another 69 countries from Regions 1 and 3)				
28.	66 - 71 GHz				

Are there any other IMT or other Radiocommunications frequency bands which have not been covered above that you feel need to be considered? Please detail these frequency bands and why they need to be considered.

Νο	Band	Q1: Rate <sup>4</sup> the importance of this band to your business.	Q2: Does your firm use this band? (Yes/No)	Q3: If yes to Q2, what does your firm use this band for?	Q4: Does your firm have plans to use this band in the future?	Q5: If your firm uses this band or plans to use it, what is the value (in annual revenues) of the use of this band for your application ?	Q6: If yes to Q2, what would be the impact if you had to vacate this band?	Q7: Additional comments and if yes to Q2, how many sites in total have you deployed for this band and how many sites per province?
29.	75.2 – 87.5 MHz	3. Radio Regulations requirements for the adjacent- channel interference.	No	N/A	N/A	N/A	N/A	N/A

 $<sup>^{4}</sup>$  1 = Not relevant to my organisation; 2 = Minor relevance but not commercially relevant to my organisation; 3 = Some relevance commercially to my organisation; 4 = Reasonably commercially relevant to my organisation; 5 = Critical commercial relevance to my organisation

SENTECH SOC LTD: Inquiry regarding the implementation the of the Radio Frequency Migration Plan and the International Mobile Telecommunications (IMT) Roadmap for public consultation

30.	138 – 144 MHz						
31.	150.05 – 153 MHz						
32.	156.4875 – 156.5625 MHz						
33.	156.875 – 174 MHz						
34.	174 – 223 MHz	5	Yes	Terrestrial Broadcasting	Yes. Based on the Terrestrial Broadcastin g Frequency Plan (2013) Regulations	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. Due to the diminishing rate of return on terrestrial infrastructure for broadcasting, majority of the network is acknowledged	The assignment per site / per province is specified in the Authority's Terrestrial Broadcasting Frequency Plan (2013) Regulations.

						as for public interest. The company's revenue is recorded per service as illustrated in the audited annual report <u>https://www.s</u> <u>entech.co.za/</u> <u>sites/default/fill</u> <u>es/Sentech_2</u> <u>019-</u> <u>2020_Integrat</u> <u>ed_Report.pdf</u>	
35.	214 – 230 MHz T-DAB	5	Yes	Terrestrial Broadcasting	Yes. Based on the Terrestrial Broadcastin g Frequency Plan (2013) Regulations and Digital Sound Broadcastin g Services Regulations (2021).	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. Due to the diminishing rate of return on terrestrial infrastructure	The assignment per site / per province is specified in the Authority's <b>Terrestrial</b> <b>Broadcasting</b> <b>Frequency Plan</b> (2013) Regulations.

						for broadcasting, majority of the network is acknowledged as for public interest. The company's revenue is recorded per service as illustrated in the audited annual report <u>https://www.s</u> <u>entech.co.za/</u> <u>sites/default/fil</u> <u>es/Sentech_2</u> <u>019-</u> <u>2020_Integrat</u> <u>ed_Report.pdf</u>	
36.	223 – 230 & 230 – 238 MHz	5	Yes	Terrestrial Broadcasting	Yes. Based on the Terrestrial Broadcastin g Frequency Plan (2013) Regulations and Digital Sound Broadcastin g Services	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. Due to	The assignment per site / per province is specified in the Authority's Terrestrial Broadcasting Frequency Plan (2013) Regulations.

					Regulations (2021).	the diminishing rate of return on terrestrial infrastructure for broadcasting, majority of the network is acknowledged as for public interest. The company's revenue is recorded per service as illustrated in the audited annual report <u>https://www.s</u> <u>entech.co.za/</u> <u>sites/default/fill</u> <u>es/Sentech 2</u> <u>019-</u> 2020 Integrat	
						2020 Integrat ed_Report.pdf	
37.	238 – 267 MHz	5	Yes	Terrestrial Broadcasting	Yes. Based on the Terrestrial Broadcasting	SENTECH does not assign economic value, in terms of	The assignment per site / per province is specified in the Authority's <b>Terrestrial</b> <b>Broadcasting</b>

		Frequency	annual	Frequency	Plan
		Plan (2013)	revenue, to	(2013) Regulat	
		( /	separate radio	( / - 5	
			frequency		
			bands. Due to		
			the		
			diminishing		
			rate of return		
			on terrestrial		
			infrastructure		
			for		
			broadcasting,		
			majority of the		
			network is		
			acknowledged		
			as for public		
			interest.		
			The		
			company's		
			revenue is		
			recorded per		
			service as		
			illustrated in		
			the audited		
			annual report		
			https://www.s		
			entech.co.za/		
			sites/default/fil		
			es/Sentech_2		
			<u>019-</u>		
			2020_Integrat		
			ed_Report.pdf		

38.	335.4 – 380 MHz						
39.	380 – 387 MHz						
	387 – 390 MHz &						
	390 – 399.9 MHz						
	390 – 399.9 WI 12						
40.	410 – 420 &						
	420 – 430 MHz						
	420 – 430 WHZ						
41.	440 – 450 MHz						
42.	470 – 493 MHz	5	Yes	Terrestrial Broadcasting	Yes. Based on the	SENTECH does not	The assignment per site / per province is
				g	Terrestrial	assign	specified in the
					Broadcastin	economic value, in	Authority's <b>Terrestrial</b>
					g Frequency	terms of	Broadcasting
					Plan (2013)	annual	Frequency Plan
					Regulations . Including	revenue, to separate radio	(2013) Regulations.
					5G	frequency	
					broadcast	bands. Due to	
					and DTT	the	
					sharing of UHF band	diminishing rate of return	
					and	on terrestrial	
					broadcast	infrastructure	
						for	
						broadcasting,	

					infrastructure	majority of the network is acknowledged as for public interest. The company's revenue is recorded per service as illustrated in the audited annual report <u>https://www.s</u> <u>entech.co.za/</u> <u>sites/default/fill</u> <u>es/Sentech 2</u> <u>019-</u> <u>2020 Integrat</u> <u>ed Report.pdf</u>		
43.	825 – 830 MHz & 870 – 875 MHz	3 (825 – 830 MHz)	Yes	Terrestrial Broadcasting	Yes. Based on the Terrestrial Broadcasting Frequency Plan (2013)	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. Due to the diminishing	The Minister of Communicati ons and Digital Technologies is currently managing the migration of television services from this band through the	The assignment per site / per province is specified in the Authority's Terrestrial Broadcasting Frequency Plan (2013) Regulations.

				rate of return on terrestrial infrastructure for broadcasting, majority of the network is acknowledged as for public interest. The company's revenue is recorded per service as illustrated in the audited annual report <u>https://www.s</u> <u>entech.co.za/</u> <u>sites/default/fill</u> <u>es/Sentech 2</u> <u>019-</u> <u>2020 Integrat</u> <u>ed Report.pdf</u>	Department's Project Management Office.	
44.	1518 – 1525 MHz					
45.	1525 – 1530 MHz 1530 – 1535 MHz &					

	1535 – 1559 MHz							
46.	1668 – 1675 MHz							
47.	2290 – 2300 MHz							
48.	5470 – 5725 MHz							
49.	5725 – 5850 MHz							
50.	5850 – 5925 MHz							
51.	5925 – 6425 MHz	5	Yes	Satellite portion (Earth -to- Space) in the signal distribution value chain.	Yes. Satellite	SENTECH does not assign economic value, in terms of annual revenue, to separate radio frequency bands. This band attracts annual spectrum fees, therefore economic value is only considered in terms of cost	The integrity and viability of broadcasting services will be negatively affected. Inability to comply with the Authority's End-User Subscriber Service Charter.	

						to service provisioning in the value chain. The company's revenue is recorded per service as illustrated in the audited annual report <u>https://www.s</u> <u>entech.co.za/</u> <u>sites/default/fill</u> <u>es/Sentech 2</u> <u>019-</u> <u>2020 Integrat</u> <u>ed Report.pdf</u>		
52.	6425 – 7025 MHz / 7125 MHz							
53.	10700 – 11700 MHz	5	Yes	DTH, secondary linking for terrestrial broadcasting , VSAT services and	Yes. Continue using it for DTH, secondary linking for terrestrial broadcasting , VSAT	SENTECH does not assign economic value, in terms of annual revenue, to separate radio	The integrity and viability of broadcasting services will be negatively affected. Inability to comply with	

			business	services and	frequency	the	
			television.	business	bands. This	Authority's	
				television.	band attracts	End-User	
					annual	Subscriber	
					spectrum	Service	
					fees,	Charter.	
					therefore		
					economic	The following	
					value is only	provisions in	
					considered in	Objects of	
					terms of cost	the EC Act	
					to service	will prove	
					provisioning in	challenging	
					the value	to achieve:	
					chain.	Sections	
						2(c), (d), (g),	
					The	(h), (k), (m),	
					company's	(n), (r), (s)	
					revenue is	and (v).	
					recorded per		
					service as		
					illustrated in		
					the audited		
					annual report		
					https://www.s		
					entech.co.za/		
					sites/default/fil		
					es/Sentech 2		
					019-		
					2020_Integrat		
					ed Report.pdf		
					<u></u>		
54.	15400 – 15700 MHz						

55.	57 – 66 GHz				
56.	71 – 76 GHz and				
	81 – 86 GHz				

# **Category 2 bands**

13.1. Are there any other IMT or other Radiocommunications frequency bands which have not been included in the tables above that you feel need to be considered? For this band(s) please also provide answers to question below.

### Additional information of category 2

- 14. In respect of each of the category 2 bands, provide any information on the feasibility of changes in usage of these bands, in the following respects:
- 14.1. Proposed applications and potential users that might be assigned spectrum in the band.

In terms of section 34(2) of the EC Act, the Minister is required to "approve the national radio frequency plan developed by the Authority", the 2021 edition. The absence of the publication of the final 2021 national radio frequency plan indicate that the Minister is yet to approve the plan. The Authority must also acknowledge that the Minister, through the Policy on High Demand Spectrum and policy Direction on the Licensing of a Wireless Open Access Network (Government Gazette No. 42597 of July 2019), indicated the Department's intention of formulation policy on 5G taking into consideration the outcome of WRC-19.

It is therefore SENTECH's understanding that any discussion of the following radio frequency bands is subject to Ministerial policy: spectrum lower than 6 GHz and bands allocated to mobile and identified for IMT at the wRC-19. Section 3.7 of the Policy on High Demand Spectrum and policy Direction on the Licensing of a Wireless Open Access Network, reads as following:

The Authority is directed to investigate and report to the Minister on the spectrum requirements of 5G in bands lower than 6 GHz and the millimetre wave (mmW) bands currently under study at the 2019 World Radiocommunication Conference (WRC - 19). The report should be provided to the Minister within six months after the WRC - 19. The investigation should cover the affected bands, the required ecosystem to support 5G in these bands, and the implications of the licensing of these bands on competition and the current structure of the mobile market. To this extent, the licensing of the 5G candidate bands will be informed by the outcome of the aforementioned investigation and report from the Authority. The Minister will thereafter, issue a separate policy direction on the 5G candidate bands.

Therefore, the bands in the table below should not be subjected to the Inquiry's public process until the Minister has approved the 2021 national radio frequency plan and issued a "separate policy direction on the 5G candidate bands".

No	Band	Comments				
1	450 – 455 & 455 – 456 & 456 – 459 & 459 – 460 & 460 - 470 MHz	Band lower than 6 GHz				
2	1452 - 1492 MHz	Band lower than 6 GHz				
3	1492 – 1518 MHz	Band lower than 6 GHz				
4	2300 - 2400 MHz	Band lower than 6 GHz				
5	3300 - 3400 MHz	Band lower than 6 GHz and WRC-15 Mobile allocation				
6	3600 - 3800 MHz	Band lower than 6 GHz and under discussion for WRC-23				
7	3800 – 4200 MHz	Band lower than 6 GHz				
8	24.25 – 27.5 GHz	WRC-19 Mobile allocation and IMT identification				
9	1980-2010 / 2170-2200 MHz + 2010- 2025 MHz	Band lower than 6 GHz				
10	738 – 758 MHz	Allocation and identification already incorporated and approved into the national radio frequency plan. There is no need to include 700 MHz band.				
11	4800 – 4990 MHz	Band lower than 6 GHz and under discussion for WRC-23				
12	37 - 43.5 GHz	WRC-19 Mobile allocation and IMT identification				
13	45.5 - 47 GHz	WRC-19 Mobile allocation and IMT identification				
14	47.2 - 48.2 GHz	WRC-19 Mobile allocation and IMT identification				
15	66 – 71 GHz	WRC-19 Mobile allocation and IMT identification				
16	5925 - 6425 MHz	Band lower than 6 GHz and under discussion for WRC-23				
17	380 - 387 & 387 - 390 & 390 - 399.9 MHz	Band lower than 6 GHz				
18	1518 - 1525 MHz	Band lower than 6 GHz and WRC-15 Mobile allocation				