

**MTNS RESPONSE IN RELATION TO THE NOTICE REGARDING THE  
INQUIRY FOR THE  
IMPLEMENTATION OF THE RADIO FREQUENCY  
MIGRATION PLAN  
AND THE IMT ROAD MAP GOVERNMENT GAZETTE 45247  
DATED 30 SEPTEMBER 2021**

**03 December 2021**

## 1. INTRODUCTION

Mobile Telephone Networks (Pty) Ltd (“MTN”) wishes to thank the Authority for the opportunity to comment on General Notice 580 in terms of which the Authority invites comments on the inquiry for the implementation of the Radio Frequency Migration Plan and the IMT roadmap as published in Government Gazette 45247 on 30 September 2021.

MTN, in principle, welcomes the inquiry into the implementation of the Radio Frequency Migration Plan and the IMT roadmap and appreciates the extensive work that has been done by the Authority.

It is well documented that spectrum is the lifeblood of mobile connectivity, and licensed spectrum is the foundation for mobile broadband. Mobile broadband is seen as the main medium to access broadband services in Africa, and therefore, timely access to sufficient and affordable spectrum is critical.<sup>1</sup> Likewise, the National Radio Frequency Plan is the foundation document for decisions relating to the use and licensing of spectrum. To provide ubiquitous mobile broadband, operators must invest vast amounts of capital to deploy radio access network (RAN) infrastructure to fully utilise the spectrum in the most effective and efficient manner.

Any investment, especially in a capital-intensive industry such as the mobile telecommunications sector requires a level of regulatory certainty, which is usually provided through legislation and regulations governing that sector, thus any ambiguity contained within this document could result in negative and unintended consequences.

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<sup>1</sup> ATU-R Recommendation 004 - 0

## 2. GENERAL COMMENTS REGARDING PERTAINING TO FORM AND CONTENT

### 2.1. Purpose of Proposed Frequency Band Migration Plan and IMT Roadmap

It is clear from section 34(6) that the Electronic Communications Act<sup>2</sup> (“ECA”) regards the National Radio Frequency Plan as an indispensable tool that has to: -

- enable the Authority to fulfil its statutory mandate and ensure the realization of the ECA’s objectives; as well as
- enable operators and investors to identify opportunities for the introduction of new and innovative technologies and services which would ensure the widest choice in product and price for the consumer.

To ensure that these ECA objectives are realised, the Radio Frequency Migration Plan itself not only needs to be specific and comprehensive regarding the designation of radio frequency bands to be migrated, but also sufficiently transparent and clear regarding the availability of clean and usable radio frequency spectrum bands in the short, medium and long term.

MTN submits that the Authority missed a critical step in the migration and roadmap process, which is to first identify which spectrum is needed in the South African context and available immediately to implement a frequency migration process speedily and as a result has simply listed any possible radio frequency spectrum ranges in this document, for consideration.

In this published inquiry document, some frequency bands (e.g., 450-470MHz, 45.5-47 GHz, 47.2-48.2 GHz, 66 - 71 GHz) are not critical in the South African telecommunications environment currently and should not be included for consideration now. Considering any possible radio frequency spectrum bands in this inquiry will delay and fail any attempt to develop an implementable final radio frequency spectrum migration plan.

MTN respectfully submits that the document published by the Authority on the inquiry for the implementation of the Radio Frequency Migration Plan and the

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<sup>2</sup> Act No. 36 of 2005

IMT roadmap National Radio Frequency Migration Plan is deficient in that it does not provide transparency regarding the availability and current occupancy of the radio frequency spectrum in the bands of interest. For example, Rain already has spectrum allocated in the 3600-3800MHz range and Telkom and Liquid have spectrum in the 3400-3600MHz, hence a clear view of spectrum occupancy such as these in this inquiry into the implementation of the migration plan and IMT roadmap would be valuable for stakeholders that are interested in these frequency ranges. Also, the proposed IMT roadmap and migrations plans in category 2 lists fail to provide certainty about the impact on the existing mobile backhaul network operations.

Technically, migration of microwave backhaul systems to accommodate IMT services in South Africa will be too expensive for mobile network operators since microwave transmission is heavily affected by atmospheric absorption and the most hardware equipment have narrow bandwidth, making hardware equipment unusable in other frequency bands. Therefore, migration of point-to-point microwave links will require decommissioning and scrapping of thousands of hardware equipment as it cannot be used in other frequency bands. New transmission networks would have to be redesigned, requiring establishment of new infrastructure (greenfield sites).

## **2.2. Specification of existing spectrum allocations and planned migrations**

MTN recommends that the radio frequency migration plan and IMT roadmap provide relevant information about the current occupancy in frequency bands and the availability of the unused bands. The published radio frequency spectrum bands in category 1 and 2 migration plans should also take into consideration the regulations on the protection of the Karoo Central Astronomy Advantage Areas published on 15 December 2017, Notice 1411 of Government Gazette No. 41321 and specifically highlight its impact on the IMT Roadmap and future radio spectrum migrations in South Africa.

In developing an implementable Radio frequency migration plan and IMT roadmap, the Authority must immediately provide certainty with respect to the minimum amount of spectrum that will be available for licensing to each network operator especially in the prime 5G bands (i.e., 3.5/26/28 GHz). Specifically, for provisioning of 5G services, the telecommunications

standardization organisations such as GSMA recommend that operators be allocated a minimum of 80-100MHz contiguous spectrum for each band earmarked for 5G services deployments<sup>3</sup>.

### **3. Comments on Specific Frequency Bands of Interest to MTN**

#### **3.1. 450 – 455MHz, 455– 456MHz, 456 –459 & 459 – 460 & 460 - 470 MHz**

MTN notes that the Authority has previously published a Final Radio Frequency Spectrum Assignment Plan for the frequency band 450 to 470 MHz (IMT450) and a channel arrangement plan for this band on Government Gazette No. 38640 published on 30 March 2015 according to the Recommendation ITU-R M.1036-4. MTN recommends that this frequency band be reserved and not be considered for migration into because the current ecosystem in South Africa is not matured enough for service provisioning in this band.

#### **3.2. 617 – 652 MHz paired with 663 - 698 MHz**

MTN welcomes the inclusion of the 600MHz band in the Authority's IMT roadmap. With ongoing digital TV migration in South Africa, the 617-698MHz will become critical for future mobile broadband services, especially for rural coverage. MTN suggests it is reasonable that this band could be used for mobile services on the same principles of TV white spaces (subject to Non-Interference Non-Protection basis to users under a primary allocation).

#### **3.3. 694-790 MHz**

MTN has noted the removal of "BROADCASTING" from the South African allocation, with "MOBILE" remaining (for IMT700 services). MTN requests that the Authority make available regular updates, monthly or quarterly would be preferable, on the status and associated timelines in relation to the analogue TV shutdown and digital TV restacking in order to ensure a coordinated transition of the band to IMT in South Africa. This progress report should include the current channels being broadcast from each TV broadcast tower so that the MNOs can enable IMT services in areas without interference.

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<sup>3</sup> GSMA: 5G Spectrum GSMA Public Policy Position, March 2021

### **3.4. 790-862 MHz**

MTN has noted the removal of "BROADCASTING" from the South African allocation, with "MOBILE" remaining (for IMT700 services). MTN requests that the Authority make available regular updates, monthly or quarterly would be preferable on the status and associated timelines in relation to the analogue TV shutdown and digital TV restacking in order to ensure a coordinated transition of the band to IMT in South Africa. This progress report should include the current channels being broadcast from each TV broadcast tower so that the MNOs can enable IMT services in areas without interference.

### **3.5. 3 300-3 400 MHz**

MTN urges the Authority to make this spectrum available for assignment in South Africa as soon as possible, subject to the identification of whether there is a need to migrate Radars out of this band. The sooner this band is incorporated into infrastructure being deployed by MNOs the less infrastructure will need to be replaced/added (at significant cost) when this band is made available for IMT in South Africa. It would be beneficial to affected parties for the Authority to make available a public database of the extent of radar/radiolocation use within the 3300-3400 MHz spectrum in South Africa in order to facilitate the use of this spectrum for IMT as soon as possible.

### **3.6. 3 400-3 600 MHz**

MTN welcomes the inclusion of this frequency band in the IMT roadmap and migration plans. MTN further recommends that the Authority makes the information regarding the current occupancy, (Telkom's 28MHz block and Liquid's 56MHz block), public in this inquiry document to enable interested stakeholders to make informed decisions whether to make plans to invest for operations in this frequency band.

### **3.7. 3 600- 3 800 MHz**

MTN is aware of the recent assignments of spectrum within the sub-band 3600-3 800 MHz for BFWA on a secondary basis where frequency sharing with FS PTP and/or FSS is feasible, and that these assignments for BFWA to

different parties overlap with each other. Hence coordination is required not only between BFWA, FS PTP and FSS services, but also between BWFA service providers with overlapping allocations. MTN is aware that there have been instances of BFWA systems interfering with satellite ground stations and would urge the authority to make available a central database of FSS ground station locations in order that the BFWA licensees of this spectrum are able to design their networks to avoid interference with the FSS ground stations.

It would be expected that the entities/organisations with FSS ground stations that wish to be protected from the BFWA systems would be willing to provide such information in order to protect their satellite systems from interference. MTN also notes that some countries have identified the 3600-3800 MHz band for IMT, and that WRC-19 resolved to conduct sharing and compatibility studies in preparation for WRC-23 to consider possible allocation of the 3600-3800 MHz band to mobile, except aeronautical mobile, service on a primary basis within Region 1 which would pave the way for this band to be identified for IMT services within Region 1 (and hence South Africa). MTN welcomes the inclusion of this frequency range in the inquiry for implementation of the radio frequency spectrum migration and IMT Roadmap.

While the Authority has previously acknowledged the possibility that bands such as 3600 - 3800 MHz could be identified for IMT by the ITU, MTN considers that it is not a mere possibility, but highly probable as the frequency band 3600- 3800 MHz has been allocated to the mobile service in Region 1 on a co-primary basis in the European Common Allocations (ECA) Table additionally the Radio Spectrum Policy Group (RSPG) identified the 3400-3800 MHz band to be one of the pioneer bands suitable for the introduction of 5G based services in Europe and the primary band for the introduction of those services.<sup>4</sup>

### **3.8. 3800 - 4200 MHz**

MTN welcomes the inclusion of the 3800-4200MHz band in the migration plan IMT roadmap. For South Africa, this band represents a large span of contiguous spectrum which will support 5G high-capacity mobile services. MTN strongly recommends the Authority ensures that at least 80 - 100 MHz of

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<sup>4</sup> Electronic Communications Committee of CEPT "Harmonised frequency arrangements and least restrictive technical conditions for mobile and fixed communications operating in the band 3400MHz to 3800MHz." Available at: <https://docdb.cept.org/download/1589>

contiguous bandwidth from this band be allocated to each 5G network operator when planning channel arrangements in the 3300-4200MHz.

### **3.9. 4800 - 4990 MHz**

MTN notes that the 4800-4990 MHz frequency range is identified for IMT in South Africa (as per WRC-19 5.441B), and that ITU-R M.1036-6 has a frequency arrangement for this frequency range. Although the IMT market is at an early stage for this spectrum, an increasing number of countries are considering this spectrum for IMT. At WRC-19 over 40 countries identified some or all of the spectrum in this range for IMT, and a few countries (such as China and Hong Kong) have assigned spectrum in this range already. MTN welcomes the inclusion of this particular radio frequency spectrum band in the inquiry for implementation of the radio frequency spectrum migration and IMT Roadmap.

### **3.10. 24.25 - 27.5 GHz**

MTN notes the allocation of the 24.25-27.5 GHz for mobile in South Africa, and that WRC-19 Resolution 242 and footnote 5.532AB identified this for IMT. MTN notes that various countries in ITU Region 1 have already assigned spectrum for IMT within this range e.g., Denmark, Finland, Greece, Italy & Slovenia. This so called mmWave 5G spectrum is required for new 5G use cases requiring low latency and high bandwidth, hence it is important for South Africa to make this spectrum available as soon as possible in order for the country to keep up with the global pace of the 4<sup>th</sup> industrial revolution. While parts of this spectrum range will require harmonisation requiring incumbents to migrate existing systems, MTN believes there are portions that may be fast tracked for allocation. The 26.5–27.5 GHz seems to be a popular subrange allocated in many countries; and a potential subrange to focus on in South Africa. This is depicted in figure 1 below.



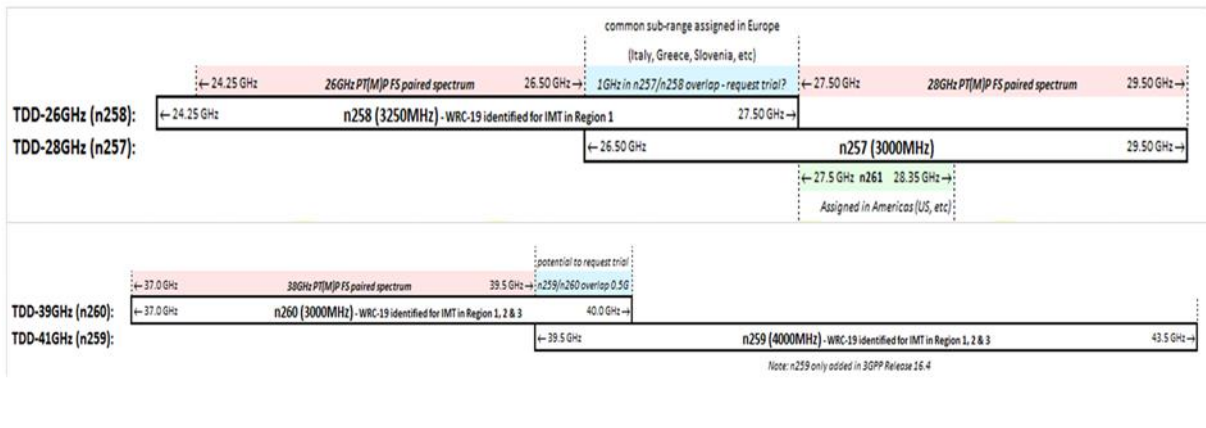


Figure 1

MTN is currently assigned a national block on the 26GHz radio frequency spectrum band and utilizes this spectrum to provide mobile network backhaul via wireless point to point microwave links.

### 3.11. 27.5-29.5 GHz

While the 27.5-29.5GHz frequency range has not been identified for IMT in Region 1 at WRC-19, MTN notes that it is allocated for “MOBILE” in the Draft National Radio Frequency Plan. This spectrum range has been allocated for IMT in various countries, mostly in ITU Region 2 and 3, and hence may be considered for IMT in South Africa in the future. The Authority should accelerate the harmonization process on 26/39GHz bands in line with region-1 trend and what was tabled at WRC-19 to allow for TDD assignments.

MTN is currently assigned a national block on the 28GHz radio frequency spectrum band and utilizes this spectrum to provide mobile network backhaul via wireless point to point microwave links.

### 3.12. 37-43.5 GHz

MTN notes that the 37-43.5GHz frequency range has been identified for IMT (WRC-19 5.550B) across all ITU regions, and this is reflected for South Africa in the Draft National Radio Frequency Plan. While the IMT market is at an early stage for this spectrum, it is being deployed for 5G in some countries already e.g., AT&T is deploying 39GHz spectrum (within the 37-40 GHz frequency range) for 5G in the USA. Hence, MTN recommends that the Authority focus on IMT allocations in this band (in particular the 37-40 GHz sub range) along with

the 26GHz band to cater for new 5G use cases requiring low latency and high bandwidth. MTN, therefore welcomes the inclusion of this radio frequency spectrum band in the IMT roadmap.

MTN is currently assigned a national block on the 38GHz radio frequency spectrum band and utilizes this spectrum to provide mobile network backhaul via wireless point to point microwave links.

### **3.13. 45.5-47 GHz and 47.2-48.2 GHz**

MTN notes that the 45.5-47 GHz as well as the 47.2-48.2 GHz frequency ranges have been identified for IMT in South Africa (among other countries) at WRC-19 (Notes 5.553A & 5.553B). MTN's understanding is that these frequency ranges do not yet have a 5G ecosystem and hence the authorities initial focus should be on assigning spectrum for IMT within the 26GHz and 39GHz bands.

No.	Band	Q1: Rate1 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 & 459 – 460 & 460 - 470 MHz	4	No		Yes			
2.	617 – 652 MHz paired with 663 - 698 MHz	4	No		No			MTN suggests it is reasonable that this band could be used for mobile services on the same principles of TV white spaces.
3.	694 - 790 MHz	5	Yes	Temporary spectrum utilized for small scale	Yes	Determine total data volume	Coverage impact. Only small scale deployments	5 sites deployed (3 sites in Free State;

				deployment of 5G		on NR700 since April'20 and perform estimation	due to analogue transmitters in areas not switched off yet	2 sites in Eastern Cape)
4.	733 – 758 MHz (700MHz Guard frequency bands)	5	No		No			
5.	790 - 862 MHz	5	Yes	Temporary spectrum utilized for LTE deployment during COVID	Yes	Determine total data volume on L800 since April'20 and perform estimation	Coverage impact. Only small scale deployments due to analogue transmitters in areas not switched off yet	5 sites deployed (3 sites in Free State; and 2 sites in Eastern Cape)
6.	862 - 890 MHz (including 862-876 MHz)	4	No		No			
7.	890 - 942 MHz	5	Yes	MTN has licensed spectrum in this band (FDD)	Yes		Huge LTE coverage impact on national level	12659 sites deployed

8.	942 - 960 MHz	5	Yes	MTN has licensed spectrum in this band (FDD)	Yes			12659 sites deployed
9.	1350 - 1375 MHz paired with 1492 - 1518 MHz	1	No		No			
10.	1375 - 1400 MHz paired with 1427 - 1452 MHz	1	No		No			
11.	1452 - 1492 MHz	1	No		No			
12.	1492 - 1518 MHz	1	No		No			
13.	1880 - 1900 MHz (1880 - 1920 MHz +1885 - 1980 MHz)	4	No		No			B2, B35, B39 B2 FDD & B39 TDD popular for LTE & 5G
14.	1980 - 2010 / 2170-2200 MHz + 2010-2025 MHz	5	No		No			Can be used to increase current licensed bandwidth on B1
15.	2010-2025 MHz Planned for IMT	1 Band 34 IMT popular TDD band	No		No			

16.	2025 – 2110 paired with 2200 - 2285 MHz	1	No		No			11786 UMTS sites deployed on B1 8681 LTE sites deployed on B1
17.	2300 - 2400 MHz	1 Band 34 popular TDD band for LTE & 5G NR	No		No			
18.	2500 - 2690 MHz	1	No		No			B7 should not be part of ICASA spectrum roadmap
19.	3300 - 3400 MHz	5	No		Yes			
20.	3400 - 3600 MHz	5	Yes	Temporary spectrum utilized for LTE deployment	Yes	Determine total data volume on NR3500 since April'20 and perform estimation	Coverage impact In several areas	697 sites deployed on 3.5Ghz band
21.	3600 - 3800 MHz	5	No		Yes			
22.	3800 - 4200 MHz	5	No		Yes			
23.	4800 - 4990 MHz	5	No		Yes			

24.	24.25 - 27.5 GHz	5	Yes	Mobile and Enterprise Network Backhaul via wireless point to point and point to multi-point links	Yes		1057 links affected. Financial costs to decommission and install other PTP links. Network availability will be disrupted.	MTN has already done 28GHz showcases in past but would like to deploy 26GHz commercially in future
25.	37 - 43.5 GHz (including 38-39.5 GHz for HAPS)	5	Yes	Mobile Network Backhaul via wireless point to point links	Yes		2476 links affected. Financial costs to decommission and install other PTP links. Network availability will be disrupted.	MTN has already done 28GHz showcases in past but would like to deploy 39GHz commercially in future
26.	45.5-47 GHz	1	No		No			
27.	47.2 - 48.2 GHz (identified for IMT in Region 2 and	3	No		No			Not a popular band to deploy 5G

	another 69 countries from Regions 1 and 3)							services at present (n262 band not mature yet)
28.	66 - 71 GHz	1	No		No			1.Can be used for 60GHz WiGig deployments.
29.	75.2 - 87.5 MHz	3	Yes	Mobile Network Backhaul via wireless point to point links	Yes			Part of E-band PTP Transmission (73.375-75.875 GHz paired with 83.375-85.375GHz
30.	138 - 144 MHz	1	No		No			
31.	150.05 - 153 MHz	1	No		No			
32.	156.4875 - 156.5625 MHz	1	No		No			
33.	156.875-174MHz	1	No		No			
34.	174 - 223 MHz	1	No		No			
35.	214 - 230 MHz T-DAB	1	No		No			
36.	223 - 230 & 230 - 238 MHz	1	No		No			
37.	238 - 267 MHz	1	No		No			



38.	335.4 - 380 MHz	1	No		No			
39.	380 - 387 & 387 - 390 & 390 - 399.9 MHz	1	No		No			
40.	410 - 420 & 420 - 430 MHz	1	No		No			
41.	440 - 450 MHz	1	No		No			
42.	470 - 493 MHz	1	No		No			
43.	825 to 830 MHz and 870 to 875 MHz	1	No		No			
44.	1518 - 1525 MHz	1	No		No			
45.	1525 - 1530 & 1530 - 1535 & 1535 - 1559 MHz	1	No		No			
46.	1668 - 1675MHz	1	No		No			
47.	2290 - 2300 MHz	1	No		No			
48.	5470 - 5725 MHz	1	No		No			
49.	5725 - 5850 MHz	1	No		No			
50.	5850 - 5925 MHz	1	No		No			
51.	5925 - 6425 MHz	1	No		No			1.Wifi 6E can be deployed in 6GHz to enhance Wifi experience as part of 4IR.

								<p>2. Both 5G and Wi-Fi (on 6GHz or 60GHz) are complementary technologies achieving gigabit speeds, lower latencies and increased capacity over their predecessors.</p> <p>3. 5G and Wi-Fi 6 will provide an advancement in performance for new and existing networks for the next generation of advanced applications.</p>
52.	6425 – 7025 MHz (or 7125 MHz)	5	Yes	Mobile Network Backhaul via wireless point to point links	Yes		1099 links affected. Financial costs to decommissio	

							n and install other PTP links. Network availability will be disrupted.	
53.	10700 - 11700MHz	5	Yes	Mobile Network Backhaul via wireless point to point links	Yes		139 links affected. Financial costs to decommission and install other PTP links. Network availability will be disrupted.	
54.	15400 - 15700 MHz	2	No		Yes			
55.	57 - 66 GHz							
56.	71-76 GHz and 81- 86 GHz	5	Yes	Mobile Network Backhaul via wireless point to point links	Yes		133 links affected. Financial costs to decommission and install	

							other PTP links. Network availability will be disrupted.	
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**4. 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.**

- All frequency bands of interest to MTN have been considered in this inquiry document.

## **5. Category 2 Bands**

### **5.1. List 1 Category 2 Bands**

MTN welcomes the Authority's decision to consider these frequency bands for IMT services. It is crucial that the Authority provide detailed information about planned channel arrangements, current occupancy, and availability of these proposed IMT bands to allow interested parties to make decisions.

MTN has already been allocated specific channels in the 26GHz and 38GHz bands for mobile network backhaul via wireless point to point links nationally. About 1057 microwave links have already been deployed nationally and may be affected by further frequency spectrum migration, (see Figure 3 & 5 below).

### **5.2. List 2: Category 2 Bands**

MTN has been allocated a block in the 28GHz frequency band and is deploying high-capacity E-band individual PTP links in the 75.2-87.5 MHz frequency band for mobile network backhaul via wireless point to point links. 1874 microwave links deployed nationally.

The proposed frequency bands in List 2 may not be suitable to migrate existing services from List 1. For example:

- migration of 26GHz (List 1) PTP services for all network operators to the nearest 28GHz (List 2) may introduce congestion in the 28GHz frequency band. Migrating to lower frequency bands, e.g., 23GHz or 18GHz may reduce the capacity of microwave transmission network links and impact the overall customer experience.

- Migration of 38GHz (List 1) PTP operations to will also impose similar challenges as the 26GHz case mentioned above.

Microwave transmission operations are very sensitive to atmospheric absorption, hence the concern above regarding migration of existing 26GHz,28GHz and 38GHz microwave links to other frequency bands. Also, microwave backhauling equipment have very narrow bandwidth and so migration out of a certain band to a new one will be costly to mobile network operators as migrated hardware equipment will not work in the new frequency band, requiring that mobile transmission networks be completely redesigned, and new greenfield sites built.

MTN strongly recommends that the Authority conduct a more detailed feasibility study of the proposed radio frequency migrations in lists 1 and 2 of the category 2 bands in this document, taking into consideration the current occupancy and looking at individual existing allocations and the impact of the migrations and IMT roadmap on existing mobile backhaul systems. Failure to conduct this feasibility study will result in long delays in the implementation of the necessary frequency migrations and the migration process will be very expensive for mobile network operators. Consultation with the affected network operators should be conducted after the Authority's own feasibility study to derive all possible solutions that will eventually lead to the release of the much-needed IMT spectrum.

## **6. Other Radiocommunications frequency bands**

The Authority should consider block allocations in the 18GHz band (17.7-19.7 GHz) and the 21.2-23.6 GHz to existing users of this spectrum to allow migration of the 26GHz PTP operations into these bands.

## **7. Proposed applications and potential users of Category 2 bands**

28GHz frequency band must be assigned for use by Mobile Network Operators for 5G services. Careful channel arrangement plans and harmonisation would have to be done to avoid inducing harmful interference to mobile backhaul operations.

## 8. Technical feasibility of migration

The Frequency Migration Regulations of 2013 published in Government Gazette no. 36334 provides a basic framework for best practices that South Africa should follow. However, the Authority must prioritise the current South Africa context and engage the industry players regularly when deriving a new frequency migration plan that is implementable. Coexistence analysis, harmonization and coordination required to execute the proposed frequency migration must be done through consultation with existing users of spectrum and other interested parties to ensure that the final migration is effective and efficient.

The 5G ecosystem in South Africa is not matured enough for immediate allocation of some frequency bands considered in this document. For example, even though international standardisation bodies have encouraged countries to consider 450-470MHz, 45.5-47 GHz and 47.2-48.2 GHz, 66-71 GHz for IMT services, the South African 5G ecosystem is not ready for service provisioning in these frequency bands.

The Authority should focus on the following key frequency bands for implementation of radio frequency migration plans:

- **694-790 MHz,**
- **790-862 MHz**
- **3 300-3 400 MHz**
- **3 400-3 600 MHz**
- **3600 - 3800 MHz**
- **3800 - 4200 MHz**
- **4800 - 4990 MHz**
- **24.25 - 27.5 GHz**
- **27.5-29.5 GHz (28 GHz)**
- **37-43.5 GHz**

As highlighted in section 5.2. above, the proposed migration has a huge impact on existing mobile backhaul operation in the **24.25 - 27.5 GHz, 27.5-29.5 GHz (28 GHz) and 37-43.5 GHz** radio frequency spectrum bands, requiring a more technical feasibility studies on coexistence and harmonisation in these bands.

## 9. Impact of the proposed radio frequency spectrum migrations on MTN network

8644 MTN sites (unique site count with frequency band overlap at the site considered i.e., the site is counted once for multiple affected bands) and 6778 Point-to-Point microwave links (4904 Category 1 links + 1874 28GHz links in Category 2) are affected by proposed migration frequencies. The 1874 28GHz band links are included, due to the 28GHz band being proposed as a “migration to” band in Category 2 Second List. The concern being the introduction of interference to these existing sites.

a) 6 GHz (6425 – 7025 MHz (or 7125 MHz))

### *Category 1 – Second list*

2198 Sites and 1099 Backhaul links affected.

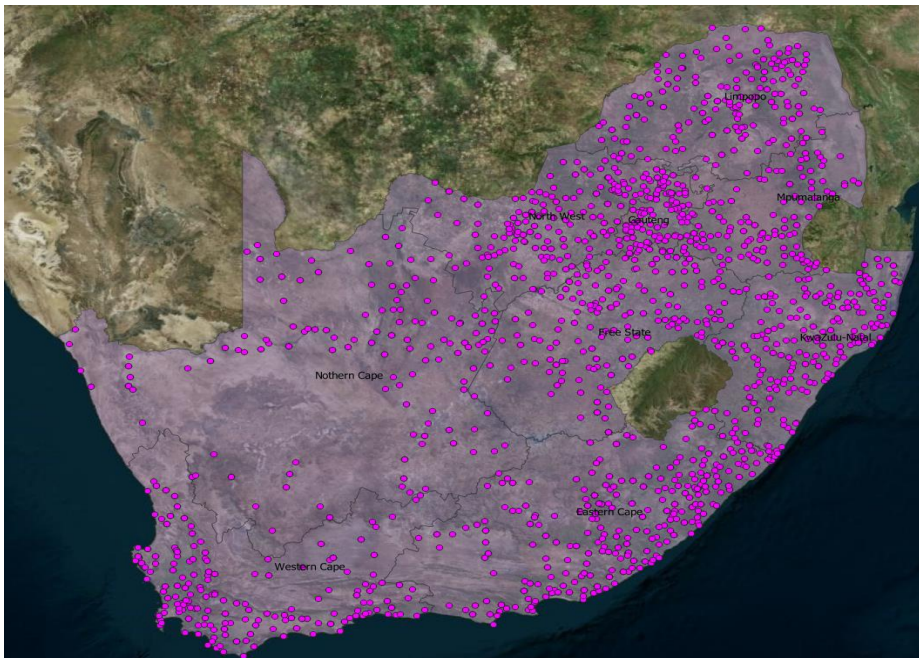


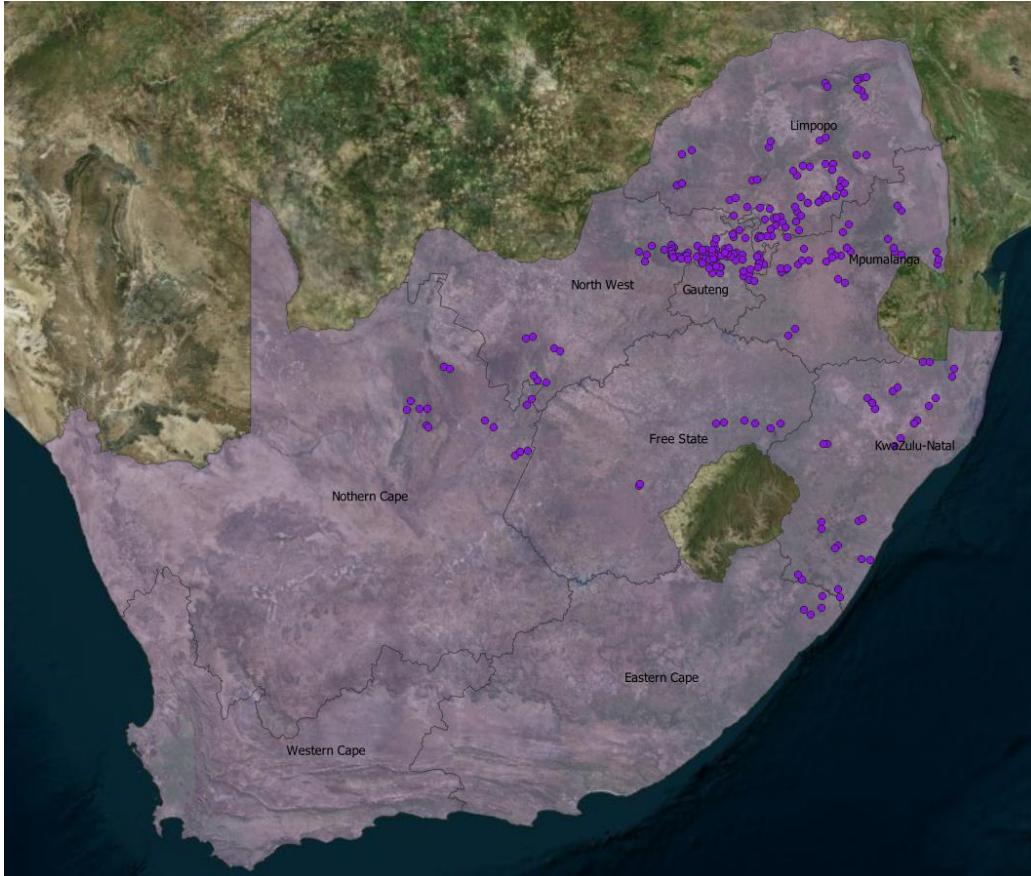
Figure 1: Visual distribution of 6GHz sites affected



b) 11 GHz (10700 – 11700 MHz)

*Category 1 – Second list*

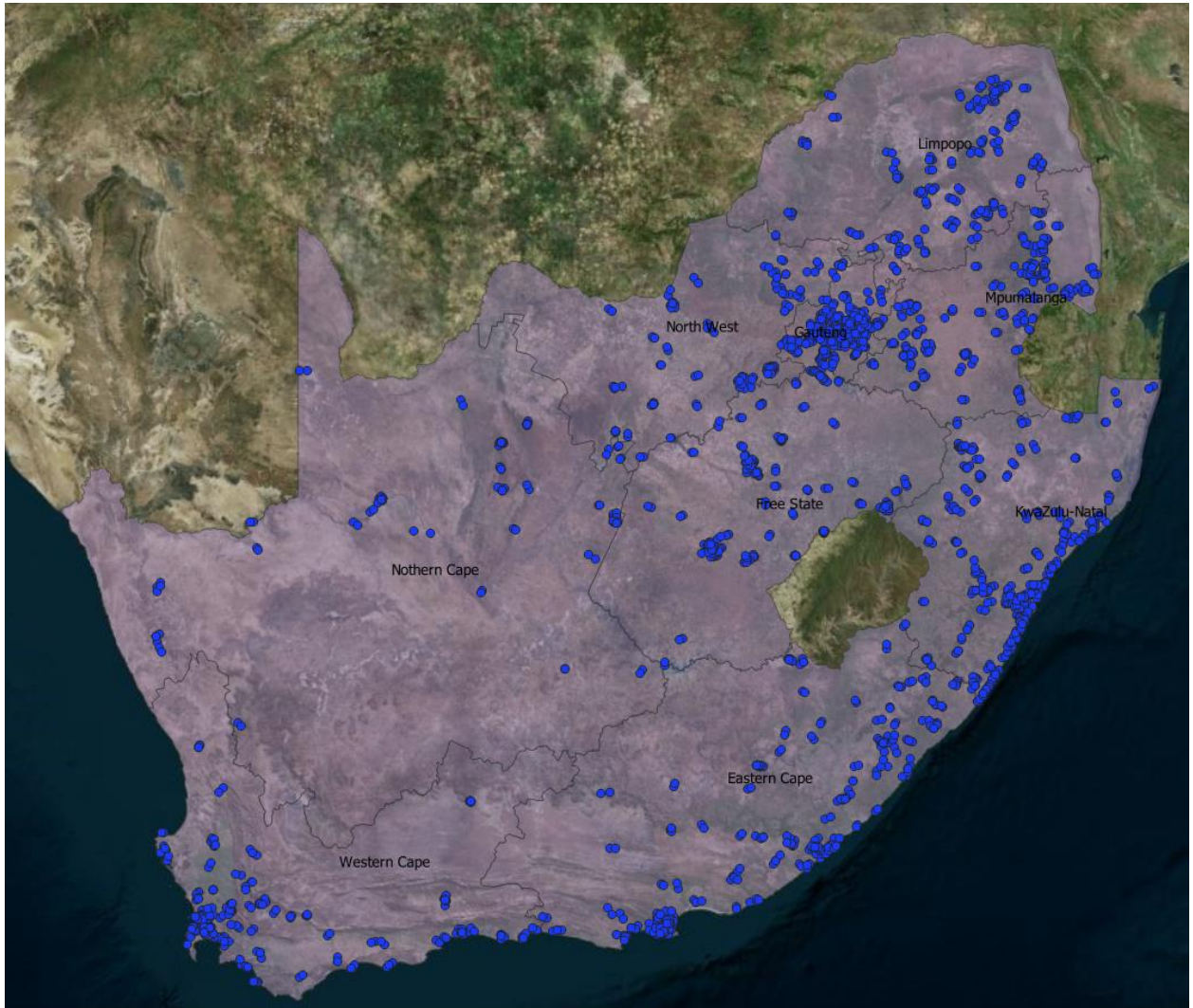
278 Sites and 139 Backhaul links affected.



*Figure 2: Visual distribution of 11GHz sites affected*

c) 26 GHz (24.25 - 27.5 GHz)

*Category 1 - First List and Category 2 – First List*  
2114 Sites and 1057 Backhaul links affected.



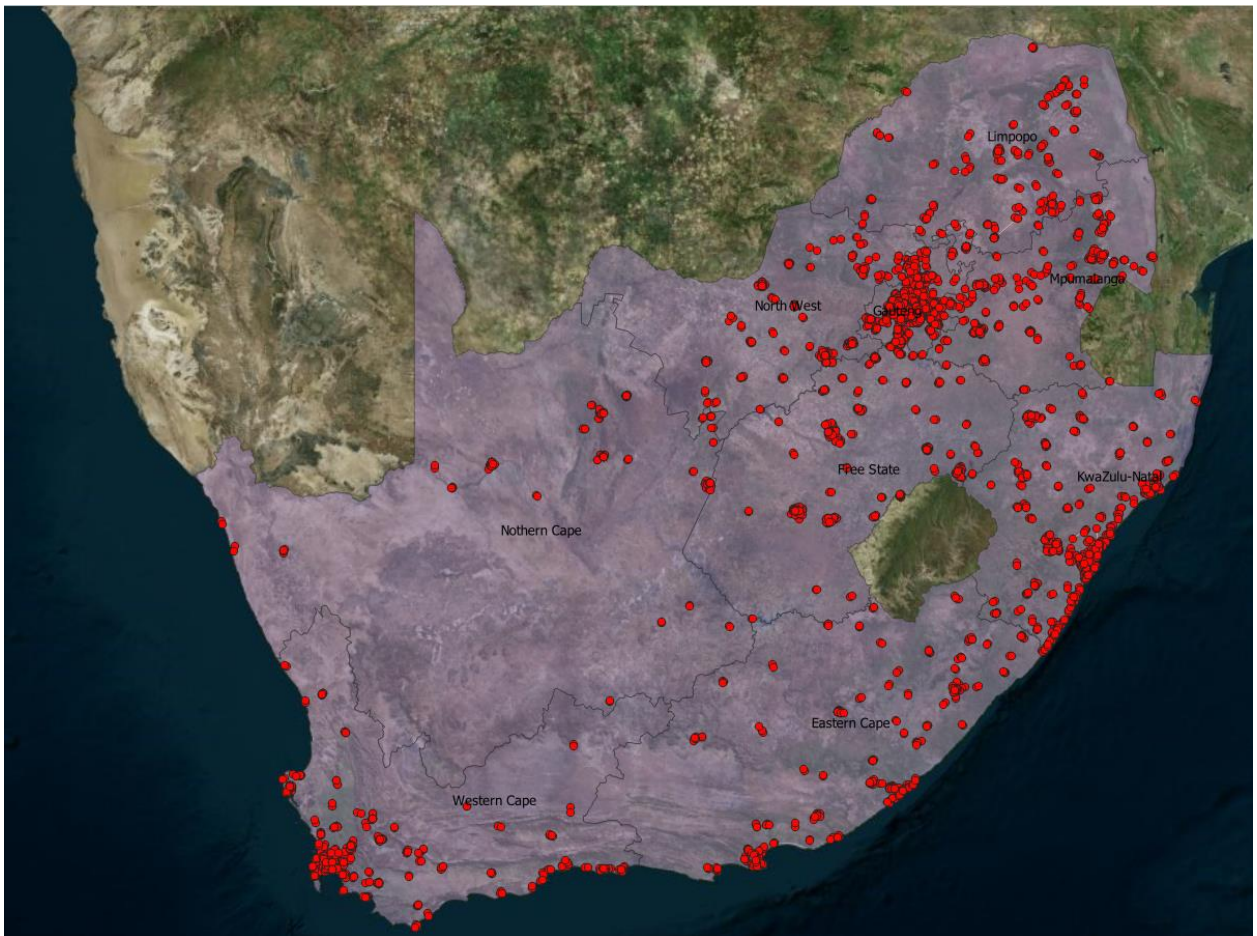
*Figure 3: Visual distribution of 26GHz sites affected*

d) 28 GHz (27.5-29.5 GHz)

*Category 2 – Second list*

(Proposed as a “migration to” band ion Category 2 – Second list. Concern being the introduction of interference)

3748 Sites and 1874 Backhaul links affected.

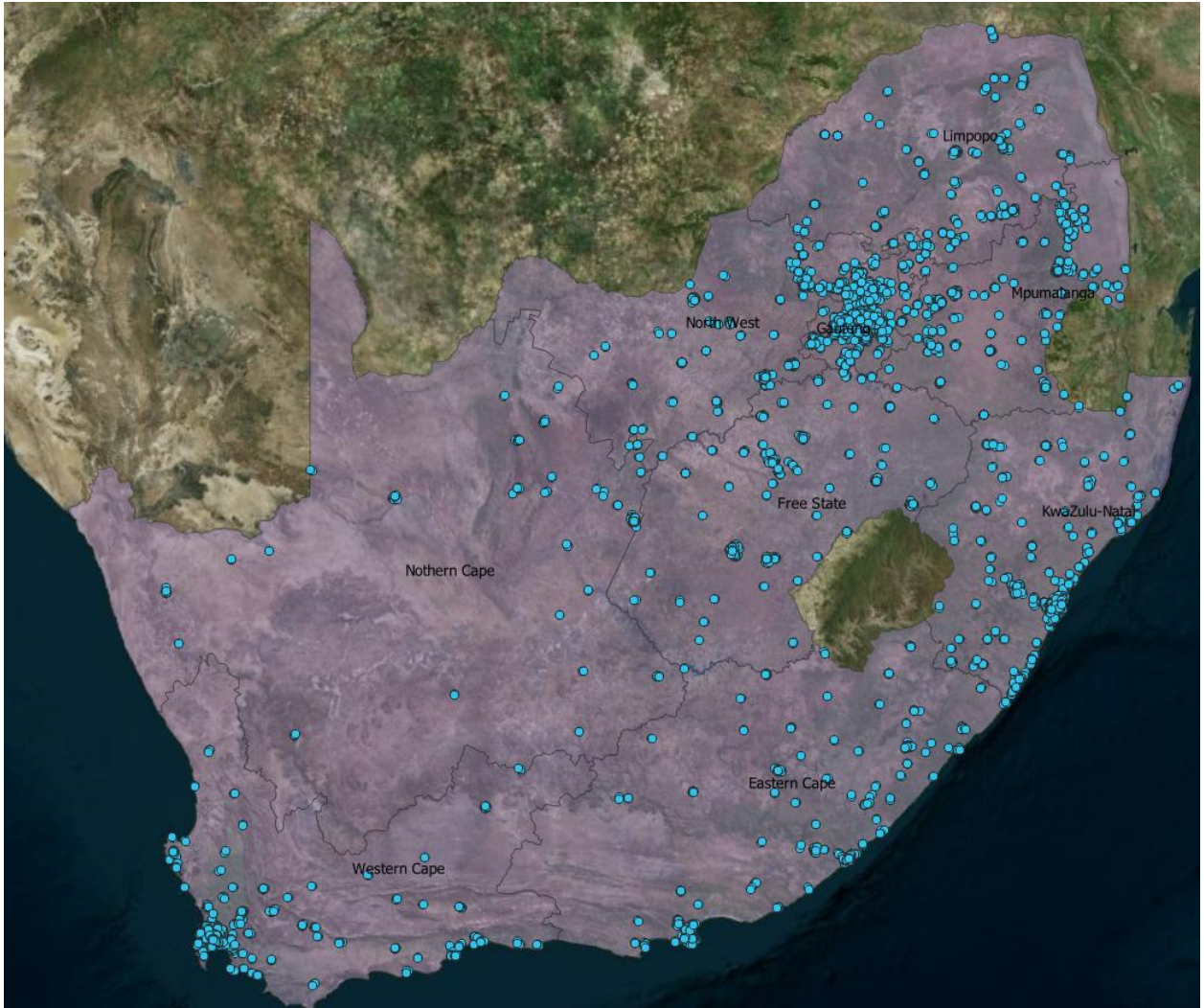


*Figure 4: Visual distribution of 28GHz sites affected*



e) 38 GHz (37 - 43.5 GHz- including 38-39.5 GHz for HAPS)

*Category 1 - First List and Category 2 – First List*  
4952 Sites and 2476 Backhaul links affected.



*Figure 5: Visual distribution of 38GHz sites affected*



