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INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NO. 272

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**“DRAFT MOBILE BROADBAND SERVICES REGULATIONS”
PURSUANT TO SECTION 67(4) OF THE ELECTRONIC COMMUNICATIONS
ACT NO. 36 OF 2005**

I, Dr. K Modimoeng, Chairperson of the Independent Communications Authority of South Africa hereby publish the draft Regulations set out in the Schedule in terms of section 4 read with section 67(4) of the Electronic Communications Act No. 36 of 2005.

Interested persons are hereby invited to submit written representations with regard to the proposed regulations. Written representations must be submitted to the Authority within thirty (30) working days from the date of the publication of this notice by post or hand delivery at the Authority's offices or via email MarketInquiry2018@icasa.org.za.

Dr. K Modimoeng
Acting Chairperson

SCHEDULE

1. Definitions

In these Regulations, unless the context indicates otherwise, a word or expression to which a meaning has been assigned in the Act or the ICASA Act, 2000 (Act No. 13 of 2000), as amended, has the meaning so assigned, and the following words and expressions shall have the meaning set out below:

"the Act" means the Electronic Communications Act, 2005 (Act No. 36 of 2005);

"Authority" means the Independent Communications Authority of South Africa;

"ECNS" means an electronic communications network service as defined in the Act;

"ECS" means an electronic communications service as defined in the Act;

"ICASA Act" means the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000);

"MTN" means the Mobile Telephone Networks (Pty) Ltd registration Number 1993/001411/07;

"SMP" means significant market power as defined in section 67(5) of the Act

"Vodacom" means Vodacom (Pty) Ltd registration number 1993/003367/07.

2. PURPOSE OF REGULATIONS

The purpose of these regulations is to:

- (a) define relevant wholesale and retail markets or market segments for mobile broadband services;
- (b) determine whether there is effective competition in those relevant markets and market segments;

- (c) determine which, if any, licensees have significant market power in those markets and market segments where there is ineffective competition;
- (d) impose appropriate pro-competitive licence conditions on those licensees having significant market power to remedy the market failure;
- (e) set out a schedule in terms of which the Authority will undertake periodic review of the markets and market segments, taking into account subsection (9) and the determination in respect of the effectiveness of competition and application of pro-competitive measures in those markets; and
- (f) provide for monitoring and investigation of anti-competitive behaviour in the relevant market and market segments.

3. MARKET DEFINITION

The relevant wholesale and retail markets or market segments for mobile services are defined as follows:

- (a) Retail market: mobile retail services provided in regional geographic areas (provincial, split by urban and rural).
- (b) Upstream market 1: wholesale site infrastructure access in local and metropolitan municipalities.
- (c) Upstream market 2: wholesale national roaming services for coverage purposes.
- (d) Upstream market 3a: wholesale national mobile virtual network operator (MVNO); and
- (e) Upstream market 3b: wholesale access point name (APN) services (including resellers).

4. METHODOLOGY

In determining the effectiveness of competition in the markets defined in regulation 3 above, the Authority has applied the following methodology:

- (a) the identification of relevant markets and their definition according to the principles of the Hypothetical Monopolist Test, taking into account

the non-transitory (structural, legal, or regulatory) entry barriers to the relevant markets and the dynamic character and functioning of the relevant markets;

- (b) the assessment of licensees' market shares in the relevant markets; and
- (c) the assessment on a forward-looking basis of the level of competition and market power in the relevant markets.

5. EFFECTIVENESS OF COMPETITION

Pursuant to regulation 4 of these Regulations, the Authority has determined that competition in the Retail market, Upstream market 1, Upstream market 2, and Upstream market 3b, as defined in regulation 3, are ineffectively competitive.

6. SIGNIFICANT MARKET POWER DETERMINATION

MTN and Vodacom are dominant in the following markets:

- (a) Retail market: MTN and Vodacom have significant market power, in terms of the market share threshold, in markets for retail mobile services in between 2 and 7 regions defined by the Authority. MTN and Vodacom also have SMP as a result of vertical relationships that could harm competition.
- (b) Upstream market 1: MTN and Vodacom are dominant, in terms of the market share threshold, in the market for site infrastructure access in 8 and 39 local municipalities, respectively. MTN and Vodacom also have SMP as a result of vertical relationships that could harm competition.
- (c) Upstream market 2: MTN and Vodacom are dominant in the market for wholesale national roaming since there are only two operators that provide this service for coverage purposes in South Africa. MTN and Vodacom also have SMP as a result of vertical relationships that could harm competition.

7. PRO-COMPETITIVE TERMS AND CONDITIONS

1. The SMP operators in markets for retail mobile services, wholesale site infrastructure access, and wholesale national roaming services identified in regulation 6 above, are obliged to keep, and provide to the Authority, and publish (subject to the confidentiality regime set out in the ICASA Act), the following accounts, records and other documents, on a quarterly basis:
 - 1.1. In relation to wholesale access to macro site infrastructure where the licensee owns the site or controls access to it:
 - 1.1.1. A list of sites approved for access within 20 business days of the initial request during the previous quarter, together with the access seeker's name, date of request, date of approval, and all charges, whether recurring or non-recurring, for access to the site;
 - 1.1.2. A list of sites not approved for access within 20 business days of the initial request during the previous quarter, together with the access seeker's name, date of request, and reason for not approving it;
 - 1.1.3. A report on the previous quarter's site access requests summarizing the information in 1.1.1. and 1.1.2. above, including a summary of time to approve the requests, a summary of reasons for not approving site access requests, and average effective charges for the sites shared;
 - 1.1.4. An updated list of all sites used by the SMP operator, and all charges for sharing any macro site infrastructure owned or controlled by the SMP operator; and
 - 1.1.5. In respect of information provided per site, the licensee must also provide the operator's identification code for the site, its longitude and latitude, and Statistics South Africa census 2011 main place code, and site category (including macro > 15m, macro <15m, rooftop, indoor, lamppost, billboard, micro, etc.).
 - 1.2. A report and supporting data on effective prices paid for wholesale roaming services by each roaming customer calculated by dividing the total roaming revenue and data roaming volumes, split by:
 - 1.2.1. Each roaming contract; and
 - 1.2.2. Any contractual price variations used (e.g. metro and non-metro).

- 1.3. A report and supporting data on wholesale national roaming data volumes used by site, together with details of that site including at least the operator's identification code for the site, longitude and latitude, and Statistics South Africa census 2011 main place code.
 - 1.4. A report and supporting data on effective retail prices paid by end user customers for data services overall, calculated by dividing total revenue for data with total volume of data used (in Gigabytes).
 - 1.5. A report and supporting data on effective retail prices paid by end user customer category calculated by dividing total revenue for data with total volume of data used (in Gigabytes) for each of the following categories:
 - 1.5.1. By prepaid, hybrid and postpaid customer segments.
 - 1.5.2. By consumer and business customer segments.
 - 1.5.3. Data used between 5am and 12 midnight and data used from 12 midnight to 5am.
 - 1.5.4. By province, and within provinces, by urban and rural, as defined by the Authority.
 - 1.5.5. Data revenue should exclude fixed-wireless data traffic, wholesale data traffic, mobile virtual network operator data traffic, and enterprise business traffic.
 - 1.6. A report and supporting data on effective wholesale prices paid by ECS and ECNS licensees for MVNO and APN (including wholesale reseller) services calculated by dividing total revenue for data with total volume of data used (GB) split using the following categories:
 - 1.6.1. By wholesale ECS and ECNS licensee customer.
 - 1.6.2. Noting that data revenue should exclude fixed wireless data traffic.
 - 1.7. Furthermore, in the event that any category of retail price is below any wholesale price the SMP operator is required to submit detailed and fully auditable evidence to the Authority, with all assumptions clearly specified, showing that this differential is cost based or temporary.
2. As such, the Authority will monitor retail prices and wholesale prices, and in particular monitor for margin squeeze, which the Competition Commission has indicated it will prosecute if wholesale rates are above effective retail rates.

8. SCHEDULE FOR REVIEW OR REVISION OF MARKETS

The Authority will review the markets for mobile services, to which these Regulations apply, as well as the effectiveness of competition and the application of pro-competitive terms and conditions in those markets when the Authority deems it necessary but not earlier than three (3) years from the date of publication of these Regulations.

9. CONTRAVENTIONS AND PENALTIES

A licensee that contravenes regulation 7 of these Regulations is subject to a fine not exceeding the greater of R5 000 000 (five million Rand) or a maximum of 10% of the licensee's annual turnover for every day or part thereof during which the contravention continued.

10. SHORT TITLE AND COMMENCEMENT

These Regulations are called the "Mobile Broadband Services Regulations, 2021" and will come into force upon publication in the Government Gazette.



Independent Communications Authority of South Africa
350 Witch-Hazel Avenue, Eco Point Office Park
Eco Park, Centurion.
Private Bag X10, Highveld Park 0169
Telephone number: (012) 568 3000/1

FINDINGS DOCUMENT ON MOBILE BROADBAND SERVICES INQUIRY

**Dr. K Modimoeng (Chairperson), P Kadi, Y Kedama, Dr. C Lewis,
Adv. L Mkumatela, Adv. D Qocha, T Semane, PJ Zimri, (Councillors), WA Ngwepe (CEO)**

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1. Introduction

1. Section 67(4) of the Electronic Communications Act, no 36 of 2005 ('the Act'), states that:

"The Authority must, following an inquiry, prescribe regulations defining the relevant markets and market segments and impose appropriate and sufficient pro-competitive licence conditions on licensees where there is ineffective competition, and if any licensee has significant market power in such markets or market segments."

2. The purpose of the Mobile Broadband Services Inquiry ('the Inquiry') is to assess the state of competition and determine whether or not there are markets or market segments within the mobile broadband services value chain which may warrant regulation in the context of a market review in terms of section 67(4) of the Act.
3. Following finalisation of Phase 1 (commencement of the market inquiry)¹, the Authority's preliminary view as contained in the Discussion Document² was that the following relevant markets may require regulatory intervention:
 - 3.1. Mobile services market;
 - 3.2. Site access market; and
 - 3.3. Roaming market.
4. The Authority has since received representations from various stakeholders on the Discussion Document. The representations are summarised in this document, which also provides the Authority's response and final findings.
5. This document contains the Authority's findings, and is structured in terms of the following sections:
 - 5.1. An outline of the process followed;
 - 5.2. Legislative framework;
 - 5.3. A thematic analysis of submissions on comments on the Discussion Document and the Authority's response; and
 - 5.4. An analysis of submissions on specific comments on the Discussion Document and the Authority's response.

¹ Please refer to Government Gazette 42044 for more information.

² <https://www.icasa.org.za/legislation-and-regulations/discussion-document-on-the-market-inquiry-into-mobile-broadband-services>

2. An outline of the process followed

6. On 16 November 2018, the Authority published its Notice of intention to conduct Market Inquiry into Mobile Broadband Services in terms of section 4B of the ICASA Act, read with section 67(4) of the Act.³
7. The Inquiry was conducted in six Phases (i.e. Phase 1 – commencement of the market inquiry, Phase 2 - Discussion Document, Phase 3 – Public Hearings on the Discussion Document, Phase 4 – Findings Document and draft regulations (if necessary), Phase 5 – Public hearings on draft regulations and Phase 6 – Final regulations and reasons document).
8. On 16 November 2018, as part of Phase 1, the Authority published a questionnaire or request for information and opinions from market participants and stakeholders.⁴ The closing date to receive written submissions was 11 March 2019.
9. The Authority received questions of clarification from Telkom on 25 November 2018 and from Vodacom, ISPA, Cell C and MTN on 30 November 2018.
10. On 21 December 2018, the Authority published its Responses to Questions of Clarity on the Mobile Broadband Market Inquiry and subsequently published Updated Responses to Clarity Questions: Mobile Broadband Services Market Inquiry on 8 January 2019.
11. On 06 March 2019, the Authority received a request for an extension to submit responses to the questionnaire of Phase 1 from MTN. The Authority granted an extension in the Government Gazette⁵ to submit their responses to 29 March 2019.
12. Thereafter, the Authority conducted one-on-one meetings with stakeholders that submitted information in terms on the questionnaire, on the following dates:
 - 12.1. Vodacom on 23 April 2019;
 - 12.2. MTN on 24 April 2019;

³ Government Gazette 42044 published on 16 November 2018.

⁴ Ibid

⁵ Government Gazette 42302 published on 13 March 2019.

- 12.3. Cell C on 26 April 2019;
 - 12.4. Telkom on 29 April 2019; and
 - 12.5. Afrihost on 12 June 2019.
13. In addition, the aforementioned stakeholders were given an opportunity to supplement their information provided in response to the Phase 1 questionnaire.
 14. On 29 November 2019, following receipt of information and data in line with the questionnaire or request for information under Phase 1, the Authority published a discussion document (Phase 2) on its website for public comment for a period of 45 working days.
 15. The Authority granted a submission extension for written representations to stakeholders by 15 working days from 6 February 2020 to 27 February 2020.
 16. The Authority received submissions⁶ from the following stakeholders:
 - 16.1. Afrihost;
 - 16.2. Cell C;
 - 16.3. Competition Commission;
 - 16.4. FNB;
 - 16.5. ISPA;
 - 16.6. Liquid;
 - 16.7. MMA;
 - 16.8. Telkom;
 - 16.9. Vodacom; and
 - 16.10. MTN.
 17. Thereafter, the Authority conducted a second series of one-on-one meetings on the following dates:
 - 17.1. Vodacom on 02 October 2020;
 - 17.2. MTN on 01 October 2020;

⁶ SACF's submission dated 27 February 2020 was retracted on 28 February 2020.

- 17.3. Cell C on 30 September 2020;
 - 17.4. Telkom on 30 September 2020; and
 - 17.5. Sentech on 01 October 2020.⁷
18. The purpose of the abovementioned one-on-ones was for the Authority to ask questions of clarity on the information submitted and or to discuss some of the questions or comments made by stakeholders in their written submissions on the discussion document.
 19. It should be noted that the invitation for the one-on-ones was extended to Liquid Telecom, Atlas Towers, American Tower Company, Helios Towers and Rain but only Helios responded to the invitation. However, due to delays, the Authority was unable to hold a one-on-one meeting with Helios prior to the public hearings.
 20. The Authority held public hearings on the Discussion Document on 26 and 27 October 2020 where the following stakeholders made oral representations:
 - 20.1. Cell C;
 - 20.2. Competition Commission;
 - 20.3. ISPA;
 - 20.4. MMA;
 - 20.5. Telkom;
 - 20.6. Vodacom; and
 - 20.7. MTN.
 21. On 26 November 2020, the Authority received Vodacom's written response to the questions raised by the Authority during the public hearings held on 26 and 27 October 2020.

3. Legislative framework

22. The Inquiry was initiated in terms of section 67(4) of the Act.

⁷ Sentech did not respond to the Authority's questionnaire published on 16 November 2018. However, the Authority sent a letter dated 12 June 2020 requesting information from Sentech in order to address some of the questions or comments made on the discussion document. In addition, the Authority requested one-on-one with Sentech was for the Authority to ask questions of clarity on the information submitted and or to discuss some of the questions or comments made by stakeholders in their written submissions on the discussion document.

23. In terms of section 67(4) of the Act:

"the Authority must, following an inquiry, prescribe regulations defining the relevant markets and market segments and impose appropriate and sufficient pro-competitive license conditions on licensees where there is ineffective competition, and if any licensee has significant market power in such markets or market segments."

4. Summary of the findings

24. Following the process outlined under section 2 above, the Authority's finding is that competition is ineffective in the following markets:

24.1. Retail market;

24.2. Upstream market 1 (wholesale site infrastructure access in local and metropolitan municipalities);

24.3. Upstream market 2 (wholesale national roaming services for coverage purposes; and

24.4. Upstream market 3b (APN only).

25. The Authority also finds that Vodacom and MTN are dominant in the above three markets namely retail market, upstream market 1 and upstream market 2. In addition, the Authority has identified pro-competitive terms and conditions that should be imposed on licensees in order to address market failure in the relevant markets.

26. To this end, the Authority will publish the draft mobile broadband services regulations in the *Government Gazette* for public consultation.

5. Analysis of submissions on general comments on the Discussion Document

5.1. Introduction

27. The Authority has summarized general comments received by stakeholders thematically, and where comments relate to a specific market, they have been included in the discussion on that market.

28. The Authority notes comments in the following broader areas:

28.1. The relationship between the Competition Commission data service market inquiry ('DSMI'), the invitation to apply process for the assignment of high demand spectrum ('spectrum ITA'), the licensing of a wholesale open access network ('WOAN'), and the need to consider these processes in the present inquiry.

28.2. The impact of new agreements, new technological advancements and taking a forward-looking approach to the Authority's analysis.

5.2. Alignment of regulatory processes

5.2.1. Summary of submissions

29. Various submissions have highlighted parallel regulatory processes, namely the Competition Commission's DSMI, the spectrum ITA process, and the licensing of a WOAN, and noted that the Authority ought to take these into account during the Inquiry.

30. Liquid Telecom states that it is concerned that the outcomes of the Competition Commission's DSMI as well as the spectrum process might have an impact on potential pro-competitive remedies and therefore suggests that the Authority reviews this process before finalising any pro-competitive remedies.

31. Telkom welcomes the Authority's announcement that it is engaging the Competition Commission over the final recommendations of the DSMI, and that alignment between them would reduce regulatory uncertainty and risk. Telkom also notes that there needs to be consistency between the assessment of competition in this Discussion Document and the spectrum licensing process that is currently in-progress. Furthermore, it states that the Information Memorandum (IM) concerning spectrum contains a very limited assessment of competition and, more importantly, contains almost no assessment of how the proposals in the IM will affect the market structure and competition in future. This is of concern to them given that spectrum licensing outcomes are determinants of future market structure and competitive dynamics.

32. Cell C submits that the Authority's approach in examining a market for mobile data within mobile services should be aligned with the Commission's findings and any differences should be clarified by the Authority.

33. ISPA welcomes the Authority's recognition of the need to closely align the outcomes of this process with the pending high-demand spectrum assignment process and the Competition Commission's DSMI outcomes. ISPA further states that the Authority will need to review this process against the outcome of the other two prior to finalising the design of any pro-competitive remedies to be imposed.

5.2.2. The Authority's response

34. The Authority notes concerns over the alignment of regulatory processes, and comments as follows:
35. **Competition Commission Data Inquiry:** While the findings and evidence used by the Competition Commission in their non-confidential report are being taken into account, it is important to note the overlaps and differences between legislative framework governing the two inquiries. The Competition Commission inquiry was initiated under Competition Act no. 89 of 1998 ("the Competition Act"). Section 43A of the Competition Act enjoins the Competition Commission to conduct "*formal inquiry in respect of the general state of competition in a market for goods or services, without necessarily referring to the conduct or activities of any particular named firm.*" In this instance the explicit Terms of Reference of the Competition Commission's Data Services Market Inquiry are to understand *the "cause of high data prices in South Africa and make recommendations to address pricing."*
36. In contrast, this Inquiry is in terms of s67 of the Act read with section 4B of the ICASA Act. Furthermore, section 3(3) of the ICASA Act stipulates that "*the Authority is independent, and subject only to the Constitution and the law, and must be impartial and must perform its functions without fear, favour or prejudice.*" It is thus paramount that the Authority conduct its market review independently irrespective of the outcome of the DSMI process. The Authority has considered the analysis provided by the Competition Commission in its written submission and oral representation in the public hearings pertaining to the Inquiry.
37. **Spectrum ITA and WOAN:** Since the publication of the Discussion Document, a major change in the market has been the publication by the Authority of the spectrum ITA, for the licensing of high demand spectrum, and the WOAN invitation to apply. The conditions attached to the spectrum ITA process as well as the invitation to apply for the WOAN introduce various factors that are likely to change the conditions within wholesale and retail markets. As such, as part of the forward-looking assessment of competition in the market, these changes

need to be accounted for in the analysis of competition. Some aspects of the spectrum ITA that may impact on a forward-looking assessment of competitiveness in the market are the following:

- 37.1. Coverage obligations;
 - 37.2. Spectrum caps and spectrum floors;
 - 37.3. References offers for site access for any licensee requesting site access and guidelines including pricing, timeframes and policies for reserving space on masts;
 - 37.4. Open access to MVNOs (which must have 51% ownership from persons from historically disadvantaged groups with business plans to be submitted within 3-6 months); and
 - 37.5. Requirements for successful applicants that are to be assigned the radio frequency spectrum to procure 30% of national capacity from the WOAN.
38. The impact of some of the aspects of the spectrum ITA will be taken into account in the forward-looking analysis in relevant sections of the Authority's findings.

5.3. Forward-looking analysis and market changes

5.3.1. Summary of submissions

39. Various submissions noted that the Authority did not sufficiently assess the forward-looking aspects of the market including (i) new technological advancements that change the manner in which mobile network sharing and roaming occurs, (ii) the new agreements that have been reached between operators based on these technologies, and (iii) the market transition to 5G. In addition, after the Discussion Document was published, further agreements were signed that operators requested the Authority consider.
40. The Liquid Telecom submission said that it seemed as if the Authority did not take into account technological advancements e.g. 3GPP LTE standards, infrastructure sharing, MOCN (Multi Operator Core Network) and MORAN (Multi Operator RAN) arrangements when compiling the Discussion Document. Liquid Telecom notes these infrastructure approaches have been deployed in South Africa and therefore have already impacted the competitive market landscape and should be considered. Liquid Telecom argued that the separation of network sharing between active and passive sharing is becoming less relevant in the face of network virtualisation and the new sharing technologies. The sharing of LTE

and 5G network infrastructures and adopting network virtualization technologies help to reduce both capital and operational costs.

41. Telkom stated that the Authority is obligated to manage the licensing of 5G spectrum in a pro-competitive manner, and this includes reviewing arrangements that threaten that objective. Telkom added that the Authority needs to conduct the required 5G study concerning the uses of the 3.5 GHz band and remove it from the proposed auction until this study has been completed. The study would be based on the Minister's policy direction on 5G. Telkom is mainly concerned about the impact on future competition in the provision of 5G services, with Vodacom having signed an agreement with Liquid Telecom involving their 58 MHz of 3.5 GHz spectrum. This, according to Telkom, will give them first mover advantage. Telkom also stated that MTN will have a considerable competitive advantage if they have access to all the spectrum licensed to Cell C. Although Cell C will use some of the capacity provided through their spectrum, Telkom argues that most of this capacity will be available to MTN for serving their customers. Telkom notes that the Authority should investigate other spectrum deals for their impact on market structure and competition in the mobile industry. Telkom is also of the view that the Authority also needs to consider whether existing and future regulation will reduce or entrench competition in the market.
42. Cell C believes that 5G should not be considered during the review period.
43. ISPA indicated that the Authority should consider market dynamics such as the agreement entered into between Vodacom and Rain, and planned wholesale 5G services from Liquid Telecom, as well as questions over Cell C's future.
44. Vodacom notes that if the assessment of markets is to be forward-looking, the WOAN and the upcoming High Demand Spectrum assignment must be considered.
45. The Competition Commission also stated that the analysis failed to consider future competition dynamics and the possible implications of 5G technology. The Commission stated that remedies must be strong and forward looking.

5.3.2. The Authority's response

46. Developments in technology have enabled newer forms of RAN sharing, including (i) multi-operator radio access network (MORAN), a form of RAN sharing where equipment is shared but not spectrum, and (ii) multi operator core network sharing (MOCN) which is a form of RAN sharing where all elements of the RAN including spectrum can be shared. The latter means an end user can access their MNO service through all frequencies in the shared network. This can occur with

frequency or spectrum pooling. Changes in LTE standards to an IP based network architecture can also allow for increased network virtualisation. This has changed how sharing occurs in the market.

47. Since the publication of the Discussion Document, several agreements between operators have been developed on the basis of these technologies. This includes agreements between Vodacom and Liquid, MTN and Liquid, and MTN and Cell C. These, together with the agreement between Vodacom and Rain, generally consist of a combination of roaming and managed services agreements. The agreements generally allow for the larger operator to roam using the capacity of the smaller operator, while also providing managed services to the smaller operator.
48. The agreements have implications for our analysis of spectrum holdings as well as sharing. This will be discussed in further detail in each of the relevant sections below.
49. Furthermore, submissions have highlighted the need for a forward-looking approach to 5G. 5G networks have various new benefits including enhanced mobile broadband but also has other applications, including low latency applications and facilitating internet of things ('IoT') and machine to machine communications. There are various features of 5G networks that should be noted. 5G networks are generally dense and use smaller cell sizes. Investments including network upgrades, densification requirements, and increased fibre for backhaul, mean that 5G will be expensive to roll out. The differences in technology, particularly the ability to engage in network slicing in which virtual networks are created over the same infrastructure, mean that infrastructure sharing is incentivised to reduce costs. In addition, localised private networks can potentially be provided by non-MNOs for industrial uses which also changes some aspects of competition. While 5G is relevant to a forward-looking analysis, the future applications and shape of these networks within the next few years in South Africa is not clear. While some networks have begun rolling out 5G, this is still in the early stages, and is in some cases linked to temporary spectrum assignments. The full impact of industrial and other usage and functionalities are still being developed internationally, and the potential for infrastructure development for private networks still has to be seen within the South African context. The technology is unlikely to have matured in the timeframe of this review. As such, while the impact of 5G is included in the analysis where relevant, the Authority notes that it is still in the early stages of development.
50. Finally, submissions to the effect that the WOAN and forthcoming spectrum assignments will improve competitive conditions are likely correct in the longer

term. However, within the short to medium term (the next 3 years), these changes in the market are unlikely to have a substantial impact. In addition, it is likely that the WOAN will need a significant period to build out its network. The Authority therefore does not consider that the WOAN or access to particularly sub-1GHZ spectrum will have a substantial impact on the markets under review in the next three years.

51. These considerations will be discussed in each section of the findings below insofar as it relates to them.

6. Analysis of submissions on specific comments on the Discussion Document

6.1. Approach to market definition (Question 1), approach to effective competition (Question 2, Question 3)

52. Various submissions were addressed broadly at the question of market definition, and the Authority's approach to assessing the effectiveness of competition. These submissions have been addressed where they arise in the context of individual markets, discussed next.

6.2. Retail markets

6.2.1. Product market definition

6.2.1.1. Submissions received

53. Cell C, MTN and Telkom broadly agree that the relevant retail product market includes voice, SMS, and data services. Telkom and Vodacom do not necessarily agree that mobile data bundles larger than 5GB should be excluded from the relevant retail product market.
54. ISPA and Afrihost do not agree with the Authority's conclusion that the retail markets for voice, SMS and data services should all be combined for the purposes of this inquiry. This is because the focus of the inquiry is competition in markets relating to the provision of mobile data services, and because voice, SMS and data are not substitutes. Rather, findings made by the Authority in respect of voice and SMS services should be used as the basis for separate market inquiries under Chapter 10 of the Act. Vodacom also suggests that it may be useful to consider data services separately.
55. Vodacom also states in its written submission that even if fixed services are excluded from the product market definition, a forward-looking assessment of the effectiveness of competition should nonetheless fully consider the competitive

constraint that fixed services impose on mobile services. During the course of the hearings, Vodacom clarified that it does not consider fixed services to be a substitute for mobile during the present review period.

6.2.1.2. The Authority's response

56. In relation to the analysis of data services, the 5GB cut-off used in the Discussion Document was due to the overwhelming proportion of transactions (close to 100%) that are for 5GB or less, and allowed for analytical convenience when considering pricing, for example. Nonetheless, in light of the submissions that all mobile data ought to be included in the market, and given the larger bundle sizes made available more recently since the discussion document was published, the Authority considers a product market for voice, SMS and all mobile data (including allowances above 5GB).
57. As discussed above, many of the submissions indicated that considering voice, SMS and data together is a reasonable approach to assessing the product market. However, Afrihost, ISPA and Vodacom suggested that data services be considered separately, in part due to the focus of this mobile broadband inquiry. During the course of the hearings, it became clear that Vodacom did not consider a separate market for data services currently. While ISPA maintains that this should be the emphasis of the inquiry, the evidence available to the Authority suggests that customers buying data services also buy voice services and, albeit to a lesser extent, SMS services. Since no evidence was presented to contradict this, the Authority considers voice, SMS, and data services as part of one aggregated market. This is not because these services are substitutes for one another from the demand side (as ISPA explains is not the case), i.e. the Authority does not consider an SMS or voice call to be a substitute for browsing the internet. Market aggregation is also not the same thing as considering supply-side substitution (emphasized by MTN, for instance), at the market definition stage. The Authority considers supply-side substitution when assessing the effectiveness of competition (see Section 6.2.3). Rather, the Authority aggregates these markets because competitive dynamics are similar in all three cases and so are aggregated for analytical purposes. As explained in Section 3 of the Discussion Document:

"In addition, while many products may not be substitutes from a demand-side perspective, there is utility in aggregating products for analytical purposes into one market if competitive dynamics are sufficiently similar."⁸

⁸ See, for example, Niels, G., Jenkins, H., & Kavanagh, J. (2011). Economics for competition lawyers. Oxford University Press. See section 2.7.5.

58. The aggregation of markets with similar competitive dynamics is also discussed in Section 6.2.2.2.

6.2.2. Geographic market definition

6.2.2.1. Submissions received

59. Various submissions, including from Cell C, the Competition Commission, ISPA, MTN, and Telkom, suggest that the Authority should define and assess a national geographic market, rather than local geographic markets. The reasons for this include that mobile licences in South Africa are national in scope and operators compete nationally, and all mobile operators offer national coverage. In addition, SIM cards and airtime from all operators are distributed widely, and customers generally face similar supply conditions, choices, and competitive dynamics. Furthermore, there were submissions to the effect that the Authority provided no evidence in the Discussion Document to demonstrate that retail market outcomes (prices) are significantly worse in municipalities with higher than average HHIs. MTN considers that the Authority should have considered municipalities as being linked together via a chain of substitution, and via supply-side substitution. In addition, a service that has mobility as its main feature should not be considered on a local market basis. Furthermore, stakeholders indicated that the Authority has not presented any compelling evidence to support the choice of municipalities as the relevant geographic unit. The Authority should have assessed the extent to which competition differs appreciably across different municipalities before defining market boundaries. Price and usage variation between geographies does not indicate separate markets. Assessing narrow geographies also does not take into account the nature of infrastructure competition, in which operators compete to roll out coverage nationally. A further concern raised was that, when assessing demand side substitution, ICASA failed to determine what degree of switching would be sufficient for a constraint to exist.

60. At the same time, while Vodacom also agrees with aspects of the above submissions, they suggest that municipalities may be a reasonable starting point for a geographic analysis. Vodacom also states that there may be indications for a sub-national market noting that *"For example, Vodacom employs regional managers who monitor Vodacom's market position in particular regions, whilst also having some autonomy over investment budgets for their region and Vodacom does also have some regional variation in its retail pricing."* Vodacom highlights that whilst adopting some form of sub-national market definition may be justified from an economic perspective, it is not clear from the Discussion Document why ICASA has decided that municipalities would be the most appropriate unit.

6.2.2.2. The Authority's response

61. As described above, a number of objections have been raised in relation to the Authority's narrowly defined municipal markets for mobile services. There were some references, for example, to the experience in other countries, where markets are often defined as national in scope. It is worth considering, at this stage, the international experience in this regard, and in particular that proposed most recently by the European Commission (EC).⁹ Referring to alternative fibre infrastructures deployed in densely populated areas versus more concentrated markets in less densely populated areas [emphasis added]:

61.1. ***"In both the above markets, competitive problems are unlikely to persist uniformly across a given Member State and such markets should be subject to a thorough geographical analysis. Therefore, when defining relevant markets in accordance with Article 64(3) of the Code, national regulatory authorities should identify geographic areas where the conditions of competition are similar or sufficiently homogeneous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different, having particular regard to the question whether the potential operator having significant market power acts uniformly across its network area or whether it faces appreciably different conditions of competition to a degree that its activities are constrained in some areas but not in others.***

61.2. *To date, national regulatory authorities have found most markets to be national because the incumbent's copper network had a national coverage. However, as the deployment of alternative networks progresses, competitive conditions can vary significantly and sustainably between different areas of the same Member State (for instance between urban and rural areas), thus making necessary the definition of separate markets.*

62. These principles, which consider differentiating between areas that have rival infrastructures from those that do not, can equally be applied to markets for mobile services. In countries like South Africa, where most people primarily connect to the internet via mobile, it is important to consider different competitive conditions in respect of mobile services. This is not least because the nature of spectrum licensing is changing in many countries, including South Africa, and it

⁹ See: <https://ec.europa.eu/digital-single-market/en/news/recommendation-relevant-markets>

increasingly has a geographic dimension. For instance, the Authority has recently made dynamic access to TV white spaces spectrum possible on a geographic basis using a geographic database.¹⁰ The Authority has provided for the sharing of mobile spectrum on a geographic basis in the spectrum ITA. Increased geographic differentiation in spectrum licensing is also promoted by the European Commission.¹¹

63. In respect of where to start the geographic market definition process, the European Commission recommends considering administrative boundaries:¹²

63.1. For the purpose of the geographic market definition, national regulatory authorities should define a basic geographic unit as a starting point for assessing competitive conditions. Such unit might follow the network topology or administrative boundaries, depending on national circumstances. In all cases, following the Commission's practice¹³, the geographic unit should be (a) of an appropriate size, i.e. small enough to avoid significant variations of competitive conditions within each unit but big enough to avoid a resource-intensive and burdensome micro-analysis that could lead to market fragmentation, (b) able to reflect the network structure of all relevant operators, and (c) have clear and stable boundaries over time. As regards condition (b), national regulatory authorities should rely on the geographical survey of networks foreseen in Article 22 of the Code.

64. At the same time, it is important to group together narrow geographies, even if they are non-adjacent:

64.1. Following the principles of competition law, and based on the analysis of the geographic units previously described, national regulatory authorities should then establish a first definition of the scope of the geographic markets by aggregating together units that exhibit similar competitive conditions. National regulatory authorities should assess competitive conditions in a forward-looking manner, by looking at structural and behavioural indicators, taking into account in particular, in line with Article 64(3) of the Code, the importance of infrastructure-based competition. National regulatory authorities should use indicators such as the number of competing networks, their respective

¹⁰ See: <https://www.icasa.org.za/legislation-and-regulations/regulations-on-the-use-of-television-white-spaces-2018>

¹¹ See, for instance, Directive (Eu) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code.

¹² See: <https://ec.europa.eu/digital-single-market/en/news/recommendation-relevant-markets>

¹³ "In particular, Communication from the Commission C/2018/2374— Guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services, , OJ C 159, 7.5.2018, p. 1–15."

market shares, trends in market shares, an analysis of pricing behaviour and price differences at regional level and behavioural patterns such as localised marketing strategies, characteristics of demands or customer switching and churn. The resulting definition of geographic markets should be checked against an analysis of demand and supply side substitutability. Non-adjacent geographic markets that present similar competitive conditions may be analysed together at this stage.

65. In the Discussion Document, the Authority considered an administrative boundary, that of local and metropolitan municipalities. As discussed above, stakeholders suggested that, in fact, because the service is mobile and because people travel between municipalities, broader markets ought to be considered. It is important to note in this regard that the available evidence suggests that in fact most travel undertaken at least in the Gauteng province is within municipalities (90%), according to the Council for Scientific and Industrial Research's Gauteng Household Travel Survey.¹⁴ This suggests that municipalities are a reasonable starting point for the Authority's approach to geographic market definition.
66. Nonetheless, in response to comments made by stakeholders, and in light of the European Commission's recent draft recommendations, the Authority considers it reasonable to aggregate geographies that have similar competitive conditions. In particular, where almost 90% of customers are served by only two networks, the competitive conditions are clearly different to municipalities where customers are more evenly distributed between mobile operators. This is the case particularly for rural municipalities in South Africa. The Authority considers rural municipalities to be those in which 50% or more of the population lives in a traditional area or farm (outside of an urban area), as defined by Statistics South Africa.¹⁵
67. In addition, during the course of the hearings and in the written submissions, stakeholders not only indicated differences in costs between rural and urban areas, but stakeholders also indicated that there are regional differences in mobile operator management, pricing and investment decisions. This is also evident in the strategic, internal management documents submitted by stakeholders. These factors suggest that geographic markets initially defined according to narrow municipal administrative boundaries in the Discussion

¹⁴ See: https://www.csir.co.za/sites/default/files/Documents/GHTS%20201920%20FINAL_LOW%20RES%20%281%29.pdf

¹⁵ See metadata for Statistics South Africa community profiles for Census 2011, available at: https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/517/get_microdata

Document can be aggregated into regional markets, which the Authority considers to be segmented into rural and urban areas, by province.

6.2.3. Supply-side substitution

6.2.3.1. Submissions received

68. Telkom stated that it is appropriate to consider supply-side substitution factors in the assessment of competition rather than in the definition of relevant markets. In contrast, MTN argues that supply-side substitution should be considered at the market definition stage. Vodacom explains that the Authority's market review guidelines consider supply-side substitution at the market definition stage.

6.2.3.2. The Authority's response

69. The Authority's guideline for conducting market reviews, published in March 2010, considers supply-side substitution in the section discussing market definition. However, it is important to note that the practice of the competition authorities in South Africa is to consider supply-side substitution at the competitive effects stage of the assessment rather than the market definition stage, though the approach can be altered on a case-by-case basis.¹⁶ In the Primedia / Paarl Media case, the Competition Tribunal ('the Tribunal') stated that it had historically been of the view that supply-side substitution should be taken into account during the competitive analysis.¹⁷ The Tribunal notes that there are arguments for and against both approaches, but that what ultimately matters is that the correct enquiry into whether entry is likely, timely and sufficient is made. It highlights that there can be analytical challenges with considering supply-side substitution at the market definition stage, cautioning that "When used at market definition stage this enquiry can be very wide and can lead to overinclusion".¹⁸

70. The Competition Tribunal's approach in considering supply-side substitution at the competitive effects assessment stage is reasonable in the circumstances of this market inquiry, since assessing this at the market definition stage indeed runs the risk of defining overly broad product and geographic markets. In this market inquiry, the Authority considers supply-side substitution at the stage of assessing the effectiveness of competition and whether any firms have market power, in order to avoid defining overly broad markets.

¹⁶ See Competition Tribunal decision in case number 13/X/Feb11.

¹⁷ Paragraph 45.

¹⁸ Paragraph 53.

6.2.4. Effectiveness of competition

6.2.4.1. Barriers to entry

Submissions received

71. Telkom broadly agrees with the Authority's assessment of the barriers to entry and expansion in the South African retail mobile services market. Telkom also agrees that competitive access to spectrum, sites and national roaming are amongst other prerequisites for successful infrastructure-based competition. Similarly, Cell C submits that barriers to entry include network effects, sunk costs, economies of scale and scope, and access to capital. There were contrary submissions from MTN and Vodacom, to the effect that barriers to entry are overstated.
72. Telkom further agrees with the Authority that competition problems in the voice market must be addressed to promote competition in mobile data. This, according to Telkom, includes striving for best-practice regulation of number portability and mobile call termination rates. However, it suggests that the Authority and the Commission liaise more closely on their respective findings to ensure more support for the Authority's assessment and findings. Similarly, the Competition Commission proposed strengthening of assessment of retail competition through consideration of evidence in the Commission's DSMI report.

The Authority's response

73. The Authority maintains the view that barriers to entry are substantial for the reasons set out in the Discussion Document. There was little evidence to contradict this finding supplied by any of the stakeholders, and much support in favour of it. The Authority's concerns in relation to voice services were also not seriously contradicted.
74. It is appropriate to consider, when assessing barriers to entry, whether supply-side substitution from a geographic perspective would be timely, likely, and sufficient to mitigate any market power in a region identified by the Authority as a relevant market. This is unlikely in retail markets for mobile services, given the significant entry barriers, discussed above and in the Discussion Document, that are present in markets for mobile services in South Africa. As is discussed in more detail below, in many rural markets, entrants have not been able to reduce the market share of the incumbents, MTN and Vodacom, much below 90%. There is therefore very little reason to expect supply-side substitution to be timely, likely, and sufficient to defeat the exertion of market power in any geographic markets.

While much is made of the possibilities for supply-side substitution by MTN and Vodacom, they present very little evidence in this regard.

75. With regards to the strengthening of assessments by taking into account evidence in the DSMI report, the Authority was only in a position to consider the non-confidential evidence of the DSMI report.

6.2.4.2. Dynamic character and functioning of markets: Market shares

Submissions received

76. In respect of market shares, Cell C agrees with the approach by the Authority in determining the market shares of the various licensees. It further submits that the Authority's determination that the "market is highly concentrated across most municipalities" has been the case for many years and is unlikely to change in the short to medium term even with the upcoming spectrum auction process. Cell C states that the Commission's report unequivocally found that the retail mobile market has remained concentrated, with two incumbents holding more than 80% of key revenue market share indicators, despite the entry of two challenger networks, over time. In addition, Vodacom's share of mobile and data services exceeds the thresholds used in the Competition Act for a conclusive determination of dominance. There have previously not been any specific pro-competitive remedies in the past to address this market failure. Future spectrum assignments are also unlikely to change this as the factors involved such as defining lots, determining the reserve price, and the availability of the spectrum is a long process which might not have any material impact on the market structure in the medium term. Cell C is also in support of the Authority's analysis of the effectiveness of competition but believes that there are more grounds and evidence to rely on for this conclusion, and that liaison by the Authority with the Commission would be valuable.
77. Similarly, Telkom agrees that the retail mobile services market in South Africa is concentrated, regardless of how geographic markets are defined, and that the high levels of concentration observed in the market are persistent.
78. The Competition Commission stated that the assessment of retail competition more broadly can be improved. In particular, the Authority should consider the structure of retail pricing whereby the poor are charged high prices per megabyte or are forced to purchase data bundles of lower utility (i.e. restricted and short-term validity bundles).
79. MTN and Vodacom argue, however, that ICASA only considered market shares of mobile operators, without assessing the degree of competition in the relevant

markets. In addition, the disruptive impact of Telkom needs to be considered. As such, the analysis is not only contrary to requirements in the Act to assess competition on a forward-looking perspective but also impose disproportionate remedies. In addition, MTN points out:

79.1. significant infrastructure investments made by MNOs over the years;

79.2. degree of national coverage for mobile data services;

79.3. faster connection speeds (with MTN ranked as the best network in Africa);

79.4. data volumes which have increased exponentially over time with effective data prices falling drastically; and

79.5. data prices that are pro-poor in nature, i.e. subscribers who pay the least for mobile services end up paying the lowest effective data prices.

80. In addition, given the focus of the inquiry on data services, Vodacom is of the view that active data subscriber shares are arguably a more relevant measure of market structure. Moreover, both Vodacom's and MTN's data subscriber shares are significantly lower than the total subscriber share figures that ICASA presents in Figure 4 of the Discussion Document, at 39.6% and 25.1% respectively. Telkom's and Cell C's data shares on the other hand are significantly higher, at 14.4% and 20.9%. Vodacom is of the view that the analysis should have considered market share dynamics within the narrow sub-national markets it has defined. However, ICASA appears to have only considered changes in market structure over time at a national level.

The Authority's response

81. The Authority has considered the Competition Commission's DSMI report, which considers competition in some detail and arrives at the conclusion that markets for mobile services are not competitive. While the Authority's analytical approach differs from a geographic market perspective, the findings are comparable between the two regulators.

82. It is true that MTN and Vodacom have invested significant amounts in infrastructure over the past years, and that speeds, coverage and data volumes have increased over time. However, there remains a persistent duopoly in many regions in South Africa, discussed in further detail below, and this is evidence of ineffective competition. While MTN says its prices are pro-poor, the Competition Commission holds the contrary view. This is a difficult question to answer on the evidence before the Authority but there is good evidence of ineffective competition irrespective of whether low-income consumers pay more.

83. Following the Authority's approach to aggregating municipalities by province and urban / rural areas, the Authority has now considered market shares over time when assessing the dynamic character and functioning of the markets (see Table 1). As can be seen on Table 1, the shares of 90-day connections accounted for by the incumbents (MTN and Vodacom) has not changed significantly over the year in most regions. This is not only so in urban areas but also in rural areas. It is also apparent, as mentioned above, that consumers in rural areas typically choose between only MTN or Vodacom, who share close to 90% of many rural markets.

Table 1: Incumbent (MTN and Vodacom) share of 90-day active connections, by provinces and rural and urban split between 2018 and 2019

Province	Urban / rural	End 2018	End 2019
Eastern Cape	Rural	91%	82%
	Urban	70%	69%
Free State	Rural	69%	64%
	Urban	77%	78%
Gauteng	Urban	69%	68%
KwaZulu-Natal	Rural	87%	84%
	Urban	68%	66%
Limpopo	Rural	88%	87%
	Urban	84%	79%
Mpumalanga	Rural	89%	91%
	Urban	86%	86%
North West	Rural	84%	81%
	Urban	75%	74%
Northern Cape	Rural	69%	88%
Northern Cape	Urban	80%	77%
Western Cape	Urban	61%	60%

84. The Authority computed the numbers presented on Table 1 based on operator submissions of 90-day active subscribers by main place, adjusted overall for any differences between the total number of active subscribers reported in public disclosures, and the total number of subscribers reported by operators.
85. An important question is why there is a lack of dynamism in these markets. It is likely that this is linked to barriers to entry for challenger networks (including Telkom and Cell C), discussed above, and to competition problems in the market for voice services, as set out in the Discussion Document. There were no serious objections to the latter analysis in any of the stakeholder submissions.

6.2.4.3. Dynamic character and functioning of the market: International benchmarking and profitability

Submissions received

86. In relation to the international price benchmarking analysis, Telkom agrees with the Authority's conclusions in respect of the international price comparisons. However, Telkom requests clarity on whether the prices in figure 12 and 14 are quoted in US\$ or Rands (ZAR).
87. There are several concerns raised by MTN and Vodacom, most notably on the impact of spectrum constraints faced by the South Africa operators. These operators suggest it is important to consider differences in non-price factors when interpreting price benchmarking evidence. For instance, MTN and Vodacom note that the severe lack of spectrum combined with the low population density in South Africa drives up network costs. With no compelling evidence of some degree of market failure presented, Vodacom is of the view that it is misleading to conclude that the benchmarking analysis "indicates some degree of possible market failure given that some countries, notably China, out-perform South Africa on both price and quality". As such, it is not possible to draw any meaningful conclusions from direct comparisons of market outcomes in different countries, without considering the full range of factors that might be driving any observed differences. The average spectrum assigned per operator (arguably a more important measure of spectrum availability) in China is almost four times higher than in South Africa.
88. The Competition Commission suggested that the Authority's price benchmarking be updated with more recent data and more countries should be included in the international price comparisons. Furthermore, the Commission indicated international comparison should be complemented by other analysis such as profitability of operators in South Africa compared to other countries, etc. to bolster the results of the comparisons. In addition, the Competition Commission stated that the discussion document failed to justify or explain its analysis of non-price factors. In addition, the Commission indicated that evidence of the relationships between price and non-price factors are contradictory.

The Authority's response

89. In addition to non-price factors such as data speeds and LTE coverage¹⁹, the Authority acknowledged the potential impact of inadequate spectrum assignment

¹⁹ Refer to section 4.2.3.2 of the Discussion Document.

on the quality of services and data prices²⁰ and also that spectrum should be assigned to operators as soon as possible.

90. The Authority does not consider it appropriate to update and complement its international benchmarking exercise as the outcome of such exercise is expected not to be fundamentally different to the Authority's initial analysis. Nevertheless, the Authority's preliminary findings in the Discussion Document were corroborated by the Competition Commission's international prices comparison and profitability analysis in the DSMI report.²¹"

6.2.4.4. Dynamic character and functioning of the market: Forward-looking assessment

91. As explained above in Section 5.3, stakeholders raised concerns about the fact that the Authority needs to assess the effectiveness of competition in retail markets on a forward-looking basis. For instance, stakeholders submitted that the planned assignment of high-demand spectrum to MNOs in the near term and to the WOAN, will have a fundamental impact on the market.
92. In particular, stakeholders have suggested that the WOAN, new spectrum assignments and Telkom's growth all suggest that markets may become more competitive on a forward-looking basis. However, as mentioned above, while the Authority believes that the WOAN and new spectrum assignments will have a formidable impact on the market in the longer term, in the next three years this is unlikely, given the delays with the digital dividend process and the time the WOAN will likely need to establish itself. Furthermore, while Telkom has grown over the past years, Cell C has declined, and entry overall in various regions in South Africa has been limited, as discussed above. This suggests that markets are ineffectively competitive and will continue to be so on a forward-looking basis.

6.2.5. Significant market power

6.2.5.1. Market shares

93. Stakeholder submissions in relation to market shares were linked to submissions on geographic market definition, discussed above. The Authority, taking into account the revised market definition aggregating similar geographies, has recomputed market shares by region, following the same approach discussed above in Section 6.2.4.2. Licensees that have market shares of greater than 45%

²⁰ Refer to para 62 – 64 of the Discussion Document.

²¹ Refer to section 3 and 6 of the Competition Commission DSMI report.

and are therefore dominant and have SMP in terms of the Act are shown on Table 2.

94. The Authority finds Vodacom to be dominant in 7 regions in 2018 and 2019, and MTN dominant in 5 regions in 2018 and 2 regions in 2019 (Table 2). MTN and Vodacom are therefore dominant and have SMP in a number of retail markets for mobile services.

Table 2: Dominant operators (90-day active subscriber share of more than 45%), by province and rural / urban split

Province	Urban / Rural	Dominant, 2018	Dominant, 2019
Eastern Cape	Rural	MTN	MTN
	Urban	MTN	
Free State	Rural	MTN	
	Urban	MTN	MTN
KwaZulu-Natal	Rural	Vodacom	Vodacom
	Urban	Vodacom	
Limpopo	Rural	Vodacom	Vodacom
	Urban	Vodacom	Vodacom
Mpumalanga	Rural	Vodacom	Vodacom
	Urban	Vodacom	Vodacom
North West	Rural		Vodacom
Northern Cape	Rural	Vodacom	Vodacom
	Urban	MTN	

6.2.5.2. Vertical integration

Submissions received

95. In relation to vertical integration, Telkom broadly agrees with the Authority's view that concentration in wholesale markets is linked to concentration in the retail market.
96. Cell C submits that the degree of vertical integration by the two large incumbents is likely harmful to competition and gives rise to both operators having significant market power at the wholesale and retail level. This is evidenced by the limited sharing of infrastructure and very high costs of roaming and apparently high cost of site sharing.
97. However, Vodacom raises concerns that the Authority concluded that vertical integration is harmful to competition without finding evidence of an associated abuse of market power (e.g. foreclosure). In addition, there is a submission to

the effect that the extent of barriers to entry is overstated and the impact of spectrum constraints on operators' ability to offer wholesale capacity to other operators is ignored.

The Authority's response

98. The Authority's consideration of the degree of vertical integration in the markets in the Discussion Document is not really contradicted, save for the claim that there ought to be evidence of abuse of market power, such as foreclosure. However, the Authority's primary role is to regulate on a forward-looking, 'ex-ante' basis, and so finding market power only after concluding there has been an abuse is not a proper approach. In any event, the Authority has received a number of complaints from stakeholders regarding foreclosure of access to incumbent site infrastructure, high wholesale roaming and other wholesale charges, and the Competition Commission raised concerns about wholesale site access, national roaming and APN charges. There are therefore reasons to be concerned about foreclosure. The Authority therefore considers the vertical relationships that MTN and Vodacom have could harm competition. This means that MTN and Vodacom have SMP in terms of the Act.

6.2.6. Remedies

6.2.6.1. Submissions received

99. Cell C recommends that the Authority considers the problem of on-net and off-net price differentiation by dominant operators in the Inquiry insofar as remedies are concerned. The Competition Commission agrees with this.
100. MTN, Telkom, and Vodacom agree with ICASA's focus on resolving the market inefficiencies in the upstream market before considering whether regulation is required at the retail level.
101. Vodacom states that any remedies need to be proportionate and focused on identified market failures. Investment incentives must be considered when designing remedies, considering the objects in the Act. Vodacom points out that remedies can be geographically differentiated even with national market definitions. Vodacom also suggests the Authority considers the Australian Competition and Consumer Commission approach to potential regulation in telecommunication services, centred around the long-term interests of end users ('LTIE').

6.2.6.2. The Authority's response

102. The Authority considers that the remedies in wholesale markets, discussed below, are sufficient to remedy the ineffective competition and significant market power found in retail markets. As regards Vodacom's LTIE suggestion, the Authority considers the objectives set out in the Act when arriving at decisions, which include '*promote the interests of consumers with regard to the price, quality and the variety of electronic communications services*', and has done so in this instance while balancing this objective with other objectives set out in the Act, as discussed above in Section 5.2.2.

6.3. Input: Spectrum

6.3.1. Spectrum – a market or input

6.3.1.1. Submissions received

103. Various submissions have raised the issue of the definition of spectrum as a market.
104. The Commission indicated that it was not necessary to define a market for spectrum, and suggested that spectrum be treated as a wholesale input.
105. Similarly, Telkom is of the view that spectrum should not be defined as a market, and states that it has never seen other regulators define spectrum as a market. In South Africa, although transfers of spectrum licences or control of spectrum licences, etc. are allowed, regulatory approval is required. In particular, Telkom is concerned that referring to a "spectrum market" may be interpreted to mean that there exists an active market for trading, leasing, sub-letting, etc. of spectrum licences between licensees, which does not exist in South Africa.
106. Vodacom indicated that it is unusual to define a separate market for spectrum but agrees with ICASA's decision to define the market nationally.

6.3.1.2. The Authority's response

107. While there is some debate as to whether it is appropriate to define spectrum as a market or as an input, the Authority's analysis do not change substantially with the approach used. Even if spectrum is assessed as an input, the Authority's key conclusions, which relate to the impact on competitive dynamics of shortages of spectrum and figure assignments of spectrum, are still relevant. Based on the submissions received, the Authority has revised its findings to consider spectrum as an input rather than as a market and considers its impact on downstream

markets, including wholesale and retail services. Any regulatory considerations in relation to spectrum, including remedies, are considered in the Authority's invitation to apply process, and will be assessed in terms of the Radio Frequency Spectrum Regulations and related regulations, rather than as part of this inquiry.

6.3.2. New agreements and forward-looking assessment

6.3.2.1. Submissions received

108. In the period since the discussion document was finalized there have been a range of agreements entered into using MOCN technology. These are "roaming" agreements. However, as they also relate to the network capacity made possible by access to spectrum, several submissions to this inquiry discussed these agreements.
109. On the one hand, Liquid Telecom agrees with the Authority's preliminary view on spectrum. Liquid Telecom submitted that current MOCN based roaming arrangements are likely to have pro-competitive benefits going forward.
110. However, Telkom and Cell C (in its written submission) argue that these agreements create imbalances in access to spectrum. Telkom is of the view that the roaming arrangements MTN and Vodacom have with Liquid Telecom, Cell C, and Rain are spectrum agreements and require regulatory scrutiny and must also be considered when assessing competition. Telkom argues that applying asymmetric spectrum assignments or obligations between operators with SMP and smaller players is a valuable tool to redress the skewed market, and to allow more effective competition by smaller players.
111. Similarly, Cell C highlights the impact of these transactions on the market. Cell C presented information on the financial effects of these transactions to the Commission hearings on high data prices. It is of the view that allowing a large operator access to Rain spectrum constitutes regulatory and anticompetitive failure, though during the course of the hearings (and subsequent to Cell C concluding its own MOCN arrangement with MTN), Cell C has clarified its stance to suggest that these agreements are less of a concern. Cell C also believes that 5G should not be considered during the review period, since this will not affect competition in the short-term, and 4G rollouts have yet to be completed.
112. Vodacom and MTN agreed that spectrum should be assigned on an urgent basis in a pro-competitive manner and in a way that optimizes its efficient use. They also agree that this will reduce costs. ISPA agrees that it is an important consideration. However, Telkom disagrees with the view expressed in the Discussion Document that licensing additional spectrum would lead to an

automatic reduction in the price of data in the short term by Vodacom or MTN and stated that this will not occur unless the structure of the market also changes significantly. Telkom argues that Vodacom and MTN possess market power, allowing significant mark-ups over their costs. Assigning more spectrum to Vodacom and MTN would not reduce their market power and may enhance it. Afrihost agrees that regulation at the spectrum level is not a solution to ineffective competition at the retail level. Cell C is of the view that merely having access to spectrum on its own is not useful due to financial constraints that make rolling out national networks for the optimal use of spectrum extremely difficult.

113. According to Vodacom, technical parameters such as download-link capacity of the assigned spectrum must be factored in when doing analysis of spectrum assignments/ holdings. A forward-looking assessment should consider ICASA's plan to assign both 700MHz and 800MHz spectrum, which means that Telkom should be able to acquire low frequency spectrum in the upcoming auction.

6.3.2.2. The Authority's response

114. In terms of the analysis of spectrum, there have been two key developments in the market since the publication of the discussion document. This is firstly, the publication of a new ITA for high demand spectrum and secondly, the increase in number of MOCN roaming arrangements that are focused on capacity.

115. A key area that has been raised in submissions, in part due to changes in the period after the discussion document was published, is the impact of new roaming agreements on utilisation of spectrum capacity. Roaming agreements signed between operators based on MOCN technology has meant that MTN and Vodacom are able to use the capacity of others where they are constrained. A question has been raised as to whether this amounts to an asymmetric spectrum advantage that would in effect maintain the first mover advantage of the larger operators.

116. This pertains to the following agreements:

116.1. Vodacom: Vodacom has agreements with Liquid Telecom and Rain. These allow Vodacom to roam on the networks of its partners.

116.2. MTN has similar agreements with Liquid Telecom and Cell C. MTN has an agreement with Cell C that allows it to roam on the Cell C network, as an extension of Cell C's previous roaming agreements.

117. Telkom and Cell C raised concerns that these agreements provide the incumbent operators with an advantage in terms of capacity though, as mentioned above, more recently after Cell C entered into its own MOCN arrangement with MTN, Cell

C indicated it is no longer opposed to these arrangements. The Authority considered whether this increase in capacity provides the incumbent operators a first mover advantage in new technologies such as 5G. During the public hearings Cell C and Telkom presented graphs of spectrum allocations that added the spectrum owned by smaller operators to that of Vodacom and MTN in instances in which they had spectrum sharing agreements. For example, Telkom's presentation showed Cell C with no spectrum, and their full share accruing to MTN.

118. However, the Authority's view is firstly, that MTN and Vodacom have not acquired the spectrum, since they are only able to make use of it through roaming. Secondly, the arrangements are typically not exclusive. Thirdly, these agreements are generally structured to allow for roaming on the remaining available RAN capacity, at the capacity provider's discretion, and Cell C, Rain and Liquid Telecom each use capacity for their own subscribers. The latter requirement relates to the fact that the spectrum licensee must control the transmission of communications on its network, a requirement in the Act, which sets out in s31 in relation to the spectrum bands concerned here that:

"no person may transmit any signal by radio or use radio apparatus to receive any signal by radio except under and in accordance with a radio frequency spectrum licence granted by the Authority to such person in terms of this Act."

119. As such, the Authority does not find it appropriate to consider the spectrum capacity that is available to MTN and Vodacom due to these agreements as an accretion in their total spectrum holdings.
120. Nevertheless, the competitive impacts of these spectrum agreements need to be considered. On the one hand, the increase in capacity creates a measure of asymmetry between the larger two operators and the smaller operators (particularly Telkom). Historically such agreements have been found to be problematic. For example, during the proposed Vodacom Neotel merger (that was subsequently abandoned) the Competition Commission imposed a condition to the effect that Vodacom would not be allowed to use Neotel's spectrum for a period of time. It can be noted that MTN at the time vigorously opposed this merger on the grounds of the additional spectrum Vodacom would acquire access to. In addition, a transaction between MTN and Telkom that had reciprocal roaming and managed network services was prohibited by the Competition Commission on the basis that it would enable MTN to access additional capacity.

121. The access to additional capacity in the context of a spectrum constrained market does confer some benefit to the large operators. It can potentially provide the incumbent operators with a first mover advantage in new technologies (such as 5G) which could serve to enhance the market power of incumbents. It also potentially creates a cost advantage- though this may lead to lower retail and wholesale prices. Where the roaming deals are tied to the facilities leasing or managed services deals, this complicates the analysis further if smaller operators that require facilities are required to provide capacity in exchange for such deals. This potentially limits their ability to provide capacity to others even though the agreements are non-exclusive.
122. However, it is also important to consider the counterfactual within the current market context. The arrangements may have facilitated the entry and expansion of Rain as a wholesale and retail competitor in 4G and 5G mobile broadband, which is also pro-competitive. Furthermore, the arrangement between MTN and Cell C likely allows for Cell C's continued presence in the market. Thus, if the counterfactual is that, for example, Cell C exited the market, and Rain maintains a smaller presence, this implies that the agreements have had some benefit. While the Commission has raised concerns over the fact that the incumbents have not responded to price decreases by smaller operators, they still provide alternatives to consumers and may expand further in the future and have a greater competitive impact.
123. An important contextual consideration is that Cell C is in financial difficulty and at risk of exit. While the first mover advantage in 5G is a potential concern, from a spectrum perspective, it can be noted that Telkom also has a small allocation of spectrum in the 3.5GHz range which places it in a position to start considering 5G services, and is able to gain access to additional 3.5GHz spectrum through the forthcoming auction. Liquid Telecom is a wholesale provider with a 5G offering, and has non-exclusive agreements. RAIN has launched 5G services. All of this suggests that MTN and Vodacom do not have an unnaturally strong advantage in launching 5G services. Furthermore, while MTN and Vodacom are accessing additional capacity, they do have significantly more subscribers, and additional spectrum is needed to serve these subscribers.
124. As such, the Authority's view is that these MOCN deals, while falling short of spectrum trading or sharing, likely confers some advantage to the largest operators in terms of capacity. However, this asymmetry in capacity is not undue given asymmetries in numbers of subscribers. Furthermore, symmetrical spectrum holdings are not necessary to achieve effective competition. As explained in the Discussion Document, Ofcom in the United Kingdom for example

considered whether any asymmetries in low frequency spectrum holdings would result in a weakening of competition in a 2018 auction, and found this to be unlikely, despite large asymmetries in sub-1GHz holdings. More recently, Ofcom proposed an overall spectrum cap of 37%, i.e. no more than two operators buying the maximum spectrum could achieve symmetrical spectrum holdings, even though there are four mobile network operators in the UK.²² This is well above the spectrum shares of Vodacom and MTN which would be approximately 30%-31% each (out of a total of 609MHz) even if all of Cell C, Liquid Telecom and RAIN's spectrum (100MHz) were allocated to each incumbent operator's current holdings (81-86MHz).

125. Moreover, the Authority considers that the smaller operators are able to use their spectrum assignments as bargaining power to leverage roaming, site access and managed services arrangements. The net impact of these deals is increasing the ability for operators such as Rain to compete in retail markets, providing consumers with additional choice. Furthermore, Cell C benefits from better roaming quality and limiting the cost of infrastructure build which it cannot afford at this stage. As such, these agreements potentially provide a mechanism for increasing retail competition and consumer choice.

126. It is important to note that the spectrum landscape is likely to change in the coming years, as a result of the spectrum ITA and the WOAN. As noted above, the Authority does not consider the full impact of the spectrum ITA and the WOAN to be felt within the next three years. Nonetheless, it can be noted that the auction design considers competition and there are spectrum floors and caps designed to enhance procompetitive outcomes. Even if MTN and Vodacom reach their full spectrum cap set out in the ITA (184MHz) and all of the smaller operator spectrum were added to each incumbent's share (100MHz each), which would be an incorrect approach as discussed above, then MTN and Vodacom's share would be 28% (of the 1015MHz total as set out in the ITA). While this would be higher than the post-auction cap imposed on Telkom and other licensees (184MHz, or 18% of the total), it is important to note that, as discussed above, Ofcom in the UK does not consider symmetry to be a pre-requisite for an operator to be effectively competitive, proposing a cap of 37% in a four operator market. Furthermore, Telkom and other licensees are able to use the additional capacity made available through the Vodacom and MTN MOCN deals via their own roaming arrangement with Vodacom (or MTN, if it chooses to switch in the future), and licensees may be able to participate in the WOAN's spectrum assignment (80MHz).

²² See: <https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2020/plans-for-spectrum-auction>

127. As such, while the Authority will monitor the competitive effects of these agreements, they are not currently considered to be harmful to the competitive process. The competitive effect of these agreements at present allows for increased funding and capacity for at least two smaller operators and are therefore not incompatible with competition in the market in the current context. At the same time, the Authority will continue to monitor the competitive effects of these agreements, and any future agreements will also be carefully monitored by the authorities.

6.4. Upstream market 1: Site infrastructure access

6.4.1. Product market

6.4.1.1. Submissions received

128. Vodacom, Cell C and Telkom agree that there is a separate market for site access, which is distinct from the market for national roaming.

129. MTN and Vodacom submit that the upstream market is incorrectly defined. MTN argues that there is no market for site access but rather access to property in order to construct passive infrastructure while Vodacom states that all sites including rooftops and urban infrastructure that can be used as sites should be included. They also submit that where a site is leased the owner has control over property rights.

130. The Commission raised a concern about the Authority's focus on sites rather than facilities included in the findings document on priority markets (i.e. upstream infrastructure markets) stating that the Authority should have considered additional markets for access to other types of facilities. Vodacom is of the view a market for duct and pole access should be defined too.

6.4.1.2. The Authority's view

131. The Authority finds that there is a separate market for site infrastructure access, distinct from national roaming and from other facilities such as ducts and poles, as they are not substitutes on the demand side. Any analysis of additional facilities, such as ducts and poles used for fixed lines, can be considered in a future market inquiry into fixed line services if necessary.

132. In terms of product markets, the Authority considered the different types of sites discussed in the various submissions, as follows:

132.1. Macro sites (less than 15m, and greater than 15m);

132.2. Rooftops;

132.3. Indoor (including distributed antennae systems); and

132.4. Micro, lampposts, billboards.

133. Macro sites (referring to site infrastructure higher than 15m, or less than 15m) are typically used for coverage but also provide additional network capacity where needed. Rooftops, particularly in urban areas, are typically a substitute for macro site infrastructure, not least where there is no space to build mast infrastructure. At the same time, the Authority does not agree with the submissions from MTN and Vodacom to the effect that all rooftops are equally substitutes. This is because, according to stakeholder submissions from Cell C and Telkom, in fact suitable rooftops have already been taken up by MTN and Vodacom, who were first to market as mobile network operators. It is also difficult to obtain permission to use rooftops to build new sites, as approvals may be needed from various authorities, as explained in the Discussion Document. It is therefore not the case that any rooftop space across South Africa is a substitute for existing rooftops used by mobile operators. The Authority therefore includes only existing rooftops used by operators in site infrastructure markets. At the same time, the Authority agrees that where the rooftop is not owned by a licensee that installs infrastructure on it, the licensee does not own the relevant site, and so this does not form part of that licensee's market share (this is discussed in more detail in Section 6.4.3.2).

134. Indoor sites, including distributed antennae systems, are typically used for additional capacity or to differentiate an operator's offering, in shopping malls or stadia, for example. While these sites vary to a significant degree, they can cover very large floor areas. In this respect, pricing for these types of sites is likely constrained by that for macro sites and rooftops, and vice versa. The Authority therefore considers indoor sites to be part of the wholesale market for site infrastructure.

135. However, micro solutions, lampposts, and billboards are unlikely to provide the equivalent coverage and capacity offered by macro sites, rooftops, and indoor sites (such as distributed antennae systems in shopping malls etc.). As MTN explains in its submissions, it would not be correct to include all different kinds of sites as providing equivalent alternatives to one another. While smaller lamppost, billboard and micro solutions may play an important role in 5G networks in future as Vodacom suggests, the evolution of 5G networks is currently uncertain, as discussed above, and so the Authority does not consider these alternatives to be sufficiently substitutable for macro sites, rooftops and

indoor sites. The Authority therefore does not include micro solutions, lampposts, and billboards in the relevant product market for site infrastructure.

6.4.2. Geographic market

6.4.2.1. Submissions received

136. There are mixed views on whether markets for sites or facilities are local, sub-national or national. ISPA agrees with the definition of markets at a local and metropolitan municipal level. Vodacom states that there may be a case for defining sub-national markets for site access but that this needs to be shown more clearly stating *"However, based on Vodacom's understanding of the site access market, it considers that there are likely to be grounds for defining sub-national markets, although more work needs to be done by ICASA to determine the most appropriate geographic unit."* Cell C in the public hearings noted that site access is sub-national and probably local.²³

137. Telkom, MTN and the Competition Commission are of the view that dominance should be assessed in a national market rather than in local or municipal geographic markets. Telkom notes that the Authority's proposed remedies in this market apply nationally. MTN argues that the areas that can be covered by any individual tower overlap substantially with the areas that can be covered by other towers, and so there is likely to be a chain of substitution, on the demand side.

6.4.2.2. The Authority's response

138. The Authority maintains that the geographic market for sites is local, and that geographic markets are at least as narrow as local municipalities. Firstly, sites required are decided upon on a local geographic basis and current sharing agreements specify individual sites. A site in one municipality is highly unlikely in most instances to be substitutable for a site in another, as it likely does not provide the required coverage. While remedies may be easier to implement on a national basis, the market power that necessitates a remedy derives from local dynamics. While MTN makes an argument that there is a chain of substitution in sites, they provide no evidence for this. Furthermore, it would seem unreasonable that a price increase in Johannesburg would be constrained by a site in Cape Town by means of a chain of substitution.

²³ Cell C Presentation to Public Hearings, Slide12

6.4.3. Effective competition

6.4.3.1. Submissions received

139. Cell C and Telkom both agree that there is ineffective competition in site access and that this has been a barrier to expansion.
140. Vodacom and MTN disagree with the finding of ineffective competition in part due to disagreements with the market definition. Additionally, MTN argues that there is no evidence that MNOs are charging above competitive prices for site access, nor is there evidence that MNOs are earning substantially higher margins in areas where there is only one MNO. Vodacom argues that the analysis overlooks existing site sharing in South Africa and overstates barriers.
141. Liquid Telecom stated that the approach used by the Authority on the site access market does not consider the pro-competitive benefits being realised through the process of network virtualisation.
142. There were also some computational concerns raised by ISPA and Telkom in relation to sites and market shares.
143. On a forward-looking basis some submissions note that 5G sites should be considered. However, as discussed above, there are disagreements relating to the timeline over which 5G will become relevant. ISPA and the Commission state that given the timelines for the conclusion of this inquiry the Authority should be looking at access to sites for 5G network deployments. In contrast, Cell C argued that 5G is not relevant to consider within the applicable timeframe. Telkom asked the Authority to give special consideration to indoor sites enabled by Distributed Antenna Systems ("DAS").

6.4.3.2. The Authority's response

144. There are substantial barriers to entry in markets for site infrastructure, as set out in the Discussion Document. These include (i) the high cost of building sites, (ii) the need for minimum efficient scale, which can be complex to attain in areas with lower volumes, and (iii) legal and regulatory barriers such as municipal by-laws which increase the time and complexity of building sites. As such, for operators seeking site infrastructure access, there is often no viable alternative. While infrastructure sharing is common in South Africa, access seekers have pointed to delays, and noted that it remains a barrier.
145. As a result of these barriers to entry, MTN's submission to the effect that there would be supply-side substitution, from operators in one geography building and

making available sites in another geography, are unlikely to be correct. The Authority is of the view that, given these barriers to entry, supply-side substitution is unlikely to be timely, likely, or sufficient to defeat the exertion of market power in any given municipality.

146. The computational concerns raised by licensees in relation to site market shares have been addressed, as follows:

146.1. First, the Authority considers only macro sites (more than 15m high, and less than 15m high) where the infrastructure is owned by an operator, as counting for that operator's market share (i.e. used in the numerator of the licensee's market share calculation).

146.2. Second, macro sites, rooftops and indoor sites (including distributed antennae systems etc.) are considered as part of the market (i.e. they are used in the denominator for the market share calculation), but they are not assigned to any individual operator. Lampposts, billboards, and the like are excluded from the market, as discussed above.

146.3. Duplicates in relation to macro sites, rooftops, and indoor sites were removed by eliminating any sites that are within 50 metres of another site. In addition, shared site infrastructures and split sites owned by a licensee are counted only once. Other duplications reported by operators have been removed in accordance with the submissions received.

147. Many municipal markets for site infrastructure are highly concentrated. In the case of 90 municipalities, MTN and Vodacom's share of sites is 60% or more. More than half of these in municipalities classified as rural, using the same definition described above in Section 6.2. Vodacom sets out in its comments on the Discussion Document that it computes that it alone has a dominant market share in 17 municipalities (the Authority computes that Vodacom is dominant in 39 municipalities, as discussed below). In addition, MTN and Vodacom are in a privileged position in terms of having had a first mover advantage, benefiting from being licensed many years before other licensees, and due to historically high call termination rates. This meant they were able to build out sites in the most advantageous locations first. Their downstream market power is in part a reflection of this. While there are potential competitors, Cell C has exited site infrastructure to a large extent or plans to do so soon. Furthermore, while Telkom is rolling out infrastructure, it still does not have extensive coverage at this point.

Table 3: Highly concentrated markets for site infrastructure (CR2 greater than 60%), by municipality

Municipality code	Municipality name	District / metropolitan council	Province	Urban / rural
EC101	Camdeboo	Cacadu	Eastern Cape	Urban
EC106	Sundays River Valley	Cacadu	Eastern Cape	Urban
EC123	Great Kei	Amathole	Eastern Cape	Rural
EC128	Nxuba	Amathole	Eastern Cape	Urban
EC138	Sakhisizwe	Chris Hani	Eastern Cape	Rural
EC142	Senqu	Joe Gqabi	Eastern Cape	Rural
EC442	Umzimvubu	Alfred Nzo	Eastern Cape	Rural
EC444	Ntabankulu	Alfred Nzo	Eastern Cape	Rural
FS161	Letsemeng	Xhariep	Free State	Urban
FS164	Naledi	Xhariep	Free State	Urban
FS181	Masilonyana	Lejweleputswa	Free State	Urban
FS182	Tokologo	Lejweleputswa	Free State	Urban
FS183	Tswelopele	Lejweleputswa	Free State	Urban
FS185	Nala	Lejweleputswa	Free State	Urban
FS191	Setsoto	Thabo Mofutsanyane	Free State	Urban
FS193	Nketoana	Thabo Mofutsanyane	Free State	Urban
FS195	Phumelela	Thabo Mofutsanyane	Free State	Urban
FS196	Mantsopa	Thabo Mofutsanyane	Free State	Urban
FS205	Mafube	Fezile Dabi	Free State	Urban
KZN211	Vulamehlo	Ugu	KwaZulu-Natal	Rural
KZN213	Umzumbe	Ugu	KwaZulu-Natal	Rural
KZN214	UMuziwabantu	Ugu	KwaZulu-Natal	Rural
KZN215	Ezingoleni	Ugu	KwaZulu-Natal	Rural
KZN221	uMshwathi	UMgungundlovu	KwaZulu-Natal	Rural
KZN224	Impendle	UMgungundlovu	KwaZulu-Natal	Rural
KZN227	Richmond	UMgungundlovu	KwaZulu-Natal	Rural
KZN233	Indaka	Uthukela	KwaZulu-Natal	Rural
KZN235	Okhahlamba	Uthukela	KwaZulu-Natal	Rural
KZN242	Nqutu	Umzinyathi	KwaZulu-Natal	Rural
KZN244	Msinga	Umzinyathi	KwaZulu-Natal	Rural

Municipality code	Municipality name	District / metropolitan council	Province	Urban / rural
KZN253	Emadlangeni	Amajuba	KwaZulu-Natal	Rural
KZN254	Dannhauser	Amajuba	KwaZulu-Natal	Rural
KZN261	eDumbe	Zululand	KwaZulu-Natal	Rural
KZN262	UPhongolo	Zululand	KwaZulu-Natal	Rural
KZN265	Nongoma	Zululand	KwaZulu-Natal	Rural
KZN266	Ulundi	Zululand	KwaZulu-Natal	Rural
KZN271	Umhlabuyalingana	Umkhanyakude	KwaZulu-Natal	Rural
KZN272	Jozini	Umkhanyakude	KwaZulu-Natal	Rural
KZN273	The Big 5 False Bay	Umkhanyakude	KwaZulu-Natal	Rural
KZN275	Mtubatuba	Umkhanyakude	KwaZulu-Natal	Rural
KZN283	Ntambanana	Uthungulu	KwaZulu-Natal	Rural
KZN431	Ingwe	Sisonke	KwaZulu-Natal	Rural
KZN432	Kwa Sani	Sisonke	KwaZulu-Natal	Rural
KZN433	Greater Kokstad	Sisonke	KwaZulu-Natal	Urban
KZN435	Umzimkhulu	Sisonke	KwaZulu-Natal	Rural
LIM331	Greater Giyani	Mopani	Limpopo	Rural
LIM332	Greater Letaba	Mopani	Limpopo	Rural
LIM335	Maruleng	Mopani	Limpopo	Rural
LIM341	Musina	Vhembe	Limpopo	Urban
LIM342	Mutale	Vhembe	Limpopo	Rural
LIM351	Blouberg	Capricorn	Limpopo	Rural
LIM352	Aganang	Capricorn	Limpopo	Rural
LIM353	Molemole	Capricorn	Limpopo	Rural
LIM361	Thabazimbi	Waterberg	Limpopo	Urban
LIM362	Lephalale	Waterberg	Limpopo	Rural
LIM364	Mookgopong	Waterberg	Limpopo	Urban
LIM367	Mogalakwena	Waterberg	Limpopo	Rural
LIM471	Ephraim Mogale	Greater Sekhukhune	Limpopo	Rural
LIM472	Elias Motsoaledi	Greater Sekhukhune	Limpopo	Rural
LIM473	Makhuduthamaga	Greater Sekhukhune	Limpopo	Rural
LIM474	Fetakgomo	Greater Sekhukhune	Limpopo	Rural

Municipality code	Municipality name	District / metropolitan council	Province	Urban / rural
MP301	Albert Luthuli	Gert Sibande	Mpumalanga	Rural
MP302	Msukaligwa	Gert Sibande	Mpumalanga	Urban
MP304	Pixley Ka Seme	Gert Sibande	Mpumalanga	Urban
MP305	Lekwa	Gert Sibande	Mpumalanga	Urban
MP306	Dipaleseng	Gert Sibande	Mpumalanga	Urban
MP314	Emakhazeni	Nkangala	Mpumalanga	Urban
MP321	Thaba Chweu	Ehlanzeni	Mpumalanga	Urban
MP323	Umjindi	Ehlanzeni	Mpumalanga	Urban
MP324	Nkomazi	Ehlanzeni	Mpumalanga	Rural
NC067	Khâi-Ma	Namakwa	Northern Cape	Urban
NC071	Ubuntu	Pixley ka Seme	Northern Cape	Urban
NC073	Emthanjeni	Pixley ka Seme	Northern Cape	Urban
NC075	Renosterberg	Pixley ka Seme	Northern Cape	Urban
NC084	!Kheis	Siyanda	Northern Cape	Urban
NC086	Kgatelopele	Siyanda	Northern Cape	Urban
NC092	Dikgatlong	Frances Baard	Northern Cape	Urban
NC451	Joe Morolong	John Taolo Gaetsewe	Northern Cape	Rural
NW374	Kgetlengrivier	Bojanala	North West	Urban
NW381	Ratlou	Ngaka Modiri Molema	North West	Rural
NW382	Tswaing	Ngaka Modiri Molema	North West	Rural
NW385	Ramotshere Moiloa	Ngaka Modiri Molema	North West	Rural
NW393	Mamusa	Dr Ruth Segomotsi Mompoti	North West	Urban
NW394	Greater Taung	Dr Ruth Segomotsi Mompoti	North West	Rural
NW396	Lekwa-Teemane	Dr Ruth Segomotsi Mompoti	North West	Urban
NW397	Kagisano/Molopo	Dr Ruth Segomotsi Mompoti	North West	Rural
NW401	Ventersdorp	Dr Kenneth Kaunda	North West	Rural
WC012	Cederberg	West Coast	Western Cape	Urban
WC052	Prince Albert	Central Karoo	Western Cape	Urban
WC053	Beaufort West	Central Karoo	Western Cape	Urban

148. In addition to market shares, the Authority also considered the pricing of sites when preparing the Discussion Document, in addition to complaints from stakeholders about delays and refusals to access sites. In the Authority's analysis

of site prices, many access seekers pay considerably more than reasonable cost ranges for sites, particularly historically. This is especially so when considering that the costs need to be divided by two and in many instances more operators where sites are shared, and considering the pairing arrangements between MTN and Vodacom, also discussed below in Section 6.4.4.

149. There were submissions from MTN and Vodacom to the effect that they already share sites or have an incentive to share sites to reduce costs. At the same time, the same stakeholders do not appear to be willing to functionally separate or even divest sites to tower companies in South Africa, as they have done in other countries. Furthermore, much of the sharing that happens is between MTN and Vodacom. There are indications therefore that markets for access to sites is ineffectively competitive.
150. Furthermore, these competitive dynamics are unlikely to change in the next three years. As discussed above, there are substantial barriers to entry into the market for site infrastructure, and alternatives are unlikely to emerge over the next 3 years. As discussed above, it is unclear that 5G will have a significant impact on the dynamics of access to sites in the short-term, and therefore the market is unlikely to change significantly. The relative market power of the licensees in markets for site infrastructure access is therefore unlikely to change in the next three years.
151. As such, the Authority finds there is ineffective competition in the market for site infrastructure in municipalities.

6.4.4. Significant market power

152. The Authority finds that, based on market shares, Vodacom and MTN are dominant in the provision of site access in particular municipalities. Applying the revised market definition above, which reflects only sites owned by the licensee, MTN and Vodacom are dominant in 8 and 39 municipalities, respectively (Table 4).

Table 4: Dominant firms in market for site infrastructure, by municipality

Municipal code	Municipality name	District / metro council name	Province	Dominant operator	Urban or Rural
EC107	Baviaans	Cacadu	Eastern Cape	Vodacom	Urban
EC123	Great Kei	Amathole	Eastern Cape	MTN	Rural
EC138	Sakhisizwe	Chris Hani	Eastern Cape	MTN	Rural
EC441	Matatiele	Alfred Nzo	Eastern Cape	Vodacom	Rural
EC442	Umzimvubu	Alfred Nzo	Eastern Cape	Vodacom	Rural

Municipal code	Municipality name	District / metro council name	Province	Dominant operator	Urban or Rural
EC444	Ntabankulu	Alfred Nzo	Eastern Cape	Vodacom	Rural
FS182	Tokologo	Lejweleputswa	Free State	MTN	Urban
KZN213	Umzumbe	Ugu	KwaZulu-Natal	MTN	Rural
KZN215	Ezingoleni	Ugu	KwaZulu-Natal	MTN	Rural
KZN224	Impendle	UMgungundlovu	KwaZulu-Natal	Vodacom	Rural
KZN235	Okhahlamba	Uthukela	KwaZulu-Natal	Vodacom	Rural
KZN236	Imbabazane	Uthukela	KwaZulu-Natal	Vodacom	Rural
KZN242	Nqutu	Umzinyathi	KwaZulu-Natal	Vodacom	Rural
KZN244	Msinga	Umzinyathi	KwaZulu-Natal	Vodacom	Rural
KZN253	Emadlangeni	Amajuba	KwaZulu-Natal	Vodacom	Rural
KZN254	Dannhauser	Amajuba	KwaZulu-Natal	Vodacom	Rural
KZN265	Nongoma	Zululand	KwaZulu-Natal	Vodacom	Rural
KZN271	Umhlabuyalingana	Umkhanyakude	KwaZulu-Natal	Vodacom	Rural
KZN272	Jozini	Umkhanyakude	KwaZulu-Natal	Vodacom	Rural
KZN274	Hlabisa	Umkhanyakude	KwaZulu-Natal	Vodacom	Rural
KZN283	Ntambanana	Uthungulu	KwaZulu-Natal	Vodacom	Rural
KZN285	Mthonjaneni	Uthungulu	KwaZulu-Natal	Vodacom	Rural
KZN286	Nkandla	Uthungulu	KwaZulu-Natal	Vodacom	Rural
KZN293	Ndwedwe	iLembe	KwaZulu-Natal	Vodacom	Rural
KZN432	Kwa Sani	Sisonke	KwaZulu-Natal	Vodacom	Rural
KZN435	Umzimkhulu	Sisonke	KwaZulu-Natal	Vodacom	Rural
LIM335	Maruleng	Mopani	Limpopo	Vodacom	Rural
LIM351	Blouberg	Capricorn	Limpopo	Vodacom	Rural
LIM352	Aganang	Capricorn	Limpopo	Vodacom	Rural
LIM353	Molemole	Capricorn	Limpopo	Vodacom	Rural
LIM364	Mookgopong	Waterberg	Limpopo	Vodacom	Urban
LIM366	Bela-Bela	Waterberg	Limpopo	Vodacom	Urban

Municipal code	Municipality name	District / metro council name	Province	Dominant operator	Urban or Rural
LIM471	Ephraim Mogale	Greater Sekhukhune	Limpopo	Vodacom	Rural
LIM472	Elias Motsoaledi	Greater Sekhukhune	Limpopo	Vodacom	Rural
LIM473	Makhuduthamaga	Greater Sekhukhune	Limpopo	Vodacom	Rural
LIM474	Fetakgomo	Greater Sekhukhune	Limpopo	Vodacom	Rural
MP323	Umjindi	Ehlanzeni	Mpumalanga	Vodacom	Urban
MP324	Nkomazi	Ehlanzeni	Mpumalanga	Vodacom	Rural
NC067	Khâi-Ma	Namakwa	Northern Cape	MTN	Urban
NC071	Ubuntu	Pixley ka Seme	Northern Cape	Vodacom	Urban
NC075	Renosterberg	Pixley ka Seme	Northern Cape	Vodacom	Urban
NC081	Mier	Siyanda	Northern Cape	MTN	Urban
NC086	Kgatelopele	Siyanda	Northern Cape	Vodacom	Urban
NC451	Joe Morolong	John Taolo Gaetsewe	Northern Cape	Vodacom	Rural
NW374	Kgetlengrivier	Bojanala	North West	Vodacom	Urban
NW401	Ventersdorp	Dr Kenneth Kaunda	North West	MTN	Rural
WC052	Prince Albert	Central Karoo	Western Cape	Vodacom	Urban

153. MTN and Vodacom are also in vertical relationships between their upstream site infrastructure and downstream activities. This could harm competition, since each operator has a reduced incentive to provide access to its site infrastructure, as this would result in lower downstream market shares and profit margins. There have been complaints during the course of this inquiry that access to MTN and Vodacom's site infrastructure is problematic.

154. MTN and Vodacom are also in vertical relationships with each other in relation to site sharing in that they provide each other with paired site access to a significant extent. While this arrangement has benefits for these licensees and consumers since costs are lower, this vertical relationship could harm competition since space on site infrastructure might not be available for third parties, entrenching MTN and Vodacom's market positions.

155. MTN and Vodacom are therefore in vertical relationships between their upstream site infrastructure and downstream activities that could harm competition, and this means that each of these licensees have significant market power in markets for site infrastructure.

6.4.5. Remedies

6.4.5.1. Submissions received

156. The Authority had suggested a suite of recommendations focused on the redrafting of the facilities leasing regulations and detailed guidelines as well as accounting separation.

Facilities leasing

157. There are contrasting views on facilities leasing regulations. Various submissions note that essential facilities regulations are required, but some argue that redrafting of the Facilities Leasing Regulations is not required.

158. MTN argues that facilities leasing obligations already exist in s43(1) of the Act and that this is sufficient. However, most other operators believe that amendments are necessary. Cell C and the Competition Commission recommend that the Authority determine the list of essential facilities as mandated by section 43 of the Act. ISPA and Vodacom support the revision of Facilities Leasing Regulations. Vodacom stated that despite the existence of the Facilities Leasing Regulations, it has been unsuccessful in gaining effective access to the ducts and poles controlled by Telkom due to the shortcomings in these regulations. Telkom supports the review of the facilities leasing regulations on condition the Authority ensures that it only applies to those with SMP.

159. Cell C has concerns over the time to redraft and supports quicker amendments. Afrihost argues that it will be time-consuming, difficult, costly, and probably not very effective to regulate site access.

Accounting separation

160. Telkom and ISPA support the proposal to require operators with SMP in the site access market to adopt accounting separation for their sites (with Telkom extending this to all wholesale markets). MTN and Vodacom argue that accounting separation is an inappropriate and disproportionate remedy and is likely to be difficult to apply in practice and financially burdensome.

Other

161. ISPA supports the concept of a prohibition on indefinite reservations of co-location space and similar obstructive conduct. MTN states that sharing, especially passive sharing, may significantly load the host network site with the equipment installed by the guest operators, which could limit potential future network development and that prohibiting the indefinite reservation of space on

masts by the incumbent operators may be practically difficult to implement and can disincentivise investment.

162. The Commission is of the view that the proposed remedies would not address the identified market failure, and believes that an access price remedy is required.
163. Cell C and Vodacom note the barrier posed by regulatory processes and approvals by municipalities etc., including EIAs and wayleaves and requests that ICASA assist in simplifying and expediting this.

6.4.5.2. The Authority's response

164. The Authority agrees that, as a first remedy, the process of defining essential facilities needs to be started.
165. Furthermore, while the Authority had proposed developing regulations for site access dealing with timeframes and conditions in the Discussion Document, the Authority's spectrum ITA has requirements for Tier 1 operators to:

165.1. "Produce a reference offer for site access to be offered to any licensee requesting site access and guidelines, including pricing, timeframes and policies for reserving space on masts."

166. As such, it is no longer necessary to develop detailed guidelines, as on a forward-looking basis it would be more reasonable to monitor the impact of the very similar requirements of the proposed spectrum licence conditions.
167. While the Authority had also contemplated accounting separation in the Discussion Document, there are concerns over the complexity, cost and time needed to developing these. As such, the Authority proposes a remedy in which operators with SMP in the market provide the Authority with the information set out in the draft Mobile Broadband Services Regulations.
168. The Authority considers the above remedies to be sufficient to remedy concerns in markets for site access. While Telkom suggested functional separation as a further remedy for site infrastructure, and the Commission proposes price controls, the Authority considers that a proportionate intervention is to first attempt less intrusive remedies and then assess, in the next review of the markets, whether additional measures are needed. This balances the objectives in the ECA.

6.5. Upstream market 2: Roaming

6.5.1. Product market definition

6.5.1.1. Submissions received

169. Various operators agree that national roaming is a separate market from other wholesale services such as MVNO and wholesale APNs. MTN and Telkom agree that there is a wholesale national roaming product market which is separate to the provision of wholesale MVNO and APN services.

170. While Vodacom concurs that there is a separate market for national roaming, they argue that the relevant product market should be defined as “*roaming services in remote areas*”. Vodacom considers that the scope of the market should be confined to those parts of South Africa which could be considered natural monopolies on a forward-looking basis, i.e. where entry is not economically feasible.

6.5.1.2. The Authority’s Response

171. The Authority finds that national roaming is separate to other wholesale infrastructure and in a separate market to other wholesale services such as MVNO and wholesale APN services. However, based on changes in the market, a single market for all roaming services also seems too simplistic. Based on our initial assessment and comments received, the Authority notes that there are two types of roaming agreements.

172. Firstly, national roaming driven by a need for **coverage**. This is the traditional national roaming agreement that was used by smaller operators such as Cell C and Telkom to supplement their coverage in areas in which they had not yet built out a network. This can be equally provided by only two market players, Vodacom and MTN, who have a national footprint.

173. Secondly, national roaming agreements that have recently been entered into that are driven by a need for **additional capacity**. This includes the agreements recently entered into using MOCN technology. These agreements can be undertaken with operators with a limited geographic footprint as is evident by the recent agreements such as that between MTN and Liquid Telecom, MTN and Cell C, Vodacom and Rain and Vodacom and Liquid Telecom.

174. The Authority finds that while providers of traditional coverage roaming services can provide additional capacity, the providers of roaming that are being used for additional capacity (such as Liquid, Rain and Cell C) are unable to provide

coverage. The provision of national roaming that provides supplementary coverage across the country is therefore distinct from the provision of roaming for additional capacity as given an increase in price, customers requiring supplementary coverage would not switch to roaming provided by an operator with capacity but without a national network that can provide coverage. As such, the Authority defines a market for national roaming that allows for supplementary coverage.

6.5.2. Geographic market definition

6.5.2.1. Submissions received

175. In contrast to product market definition, several operators disagree with narrow geographic market definitions for roaming.

176. Telkom, MTN and the Competition Commission disagree with a narrow geographic market definition. Telkom notes that they have two options regardless of where they require roaming services in the country. MTN argues that the Authority would have at its narrowest a distinction between urban and rural but that that the application of supply side substitution would make it national instead.

177. In contrast Vodacom notes that there is scope for sub-national markets for national roaming. They argue that more discussion over the most appropriate geographic unit is required, but that in their view it should be "*national roaming in remote areas*" which could be further sub-divided. Alternatively, they state that if ICASA does not accept this approach they should "*define separate geographic markets and distinguish between areas based on the level of actual and prospective infrastructure competition in those areas.*"²⁴

178. Cell C and Telkom raise concerns that remedies on a narrow geographic area will not be practical. In particular, it would be infeasible to have to negotiate roaming separately for each narrow geographic area with the dominant operator in that area. These outcomes according to Telkom would be complex and risky for smaller operators seeking national roaming services.

6.5.2.2. The Authority's response

179. The Authority has taken these submissions into account and finds that the market for roaming is national for the following reasons:

²⁴ Vodacom Submission on Discussion Document, p85.

179.1. Parties negotiate for roaming on a national rather than localized basis with national pricing;

179.2. Operators that utilize national roaming have submitted that it is inappropriate to consider roaming on a site by site basis as they require full coverage; and

179.3. From a demand side perspective, a SSNIP in the price of roaming at a specific site would not lead to the operator switching as agreements are not negotiated and engaged in on this basis in practice.

180. However, the Authority notes that there are still local dynamics and differentials in pricing for different categories of sites. Going forward a differentiation on the basis of metro and non-metro or urban and rural may be relevant if circumstances and the manner in which these contracts are negotiated, or coverage required changes.

6.5.3. Effectiveness of competition

6.5.3.1. Submissions received

181. Vodacom is of the view that the national roaming market in South Africa is already competitive. They argue that they compete strongly with MTN and that Rain offers some roaming. Furthermore, going forward, they argue that Liquid and Telkom may be able to offer roaming in the future. They also note that the Authority should be wary of using sites for market share analysis. MTN argues that ICASA's finding that there are evident competition concerns based on high roaming prices and poor quality is not substantiated with factual evidence.

182. Telkom agrees with the Authority's assessment of barriers to entry into this market and is of the view that customers have little countervailing power. They further agreed with the Authority's assessment that, while in the past, prices for national roaming have been high and competition in the provision of this service has been ineffective, the market was now more competitive. In particular, Telkom stated that competition between Vodacom and MTN for national roaming customers has been dynamic in the recent years, leading to price reductions and quality improvements. This enables it to compete more effectively than it could under historical national roaming agreements.

183. However, in contrast, Cell C submitted that the Authority's statement that "in future there is likely to be more competition on price and terms of national roaming" is not based on facts or evidence. In support of its view, Cell C highlights

the difficulties it faced when attempting to amend its roaming agreement with Vodacom and MTN.

184. There are also some arguments that the analysis of roaming does not account for newer technologies and deals signed more recently. Liquid Telecom is of the opinion that the Authority's view on roaming markets reflect a static and historic view of the roaming market and that various agreements including their agreement with MTN and Vodacom be considered. The Commission recommended that the Authority considers roaming on a forward-looking basis in anticipation of potential competition problems arising from the latest technologies, as problems arose in the past.

6.5.3.2. The Authority's response

185. The Authority maintains its conclusion that there has historically been ineffective competition in this market.

185.1. There were high levels of concentration with only two operators that were (and are) able to offer roaming services for coverage.

185.2. The Authority's analysis shows that the average effective price paid for roaming has in the past often been higher than the average retail price for the roaming providers indicating ineffective competition.

185.3. Submissions have noted quality issues (for example with seamless handover and dropped calls) in the past.

186. *Market share:* The only parties that are able to offer national roaming for the purpose of coverage are MTN and Vodacom with population coverage of close to 99% for 2G and 3G, and 4G coverage is not far behind. As such, market shares in terms of national roaming are very high. While it is true that Liquid and Rain are providing roaming services, the view of the Authority is that this is for the purpose of capacity and not national coverage and as such is different.

187. In terms of effectiveness of competition, at present the Authority notes that there are high market shares from the perspective of capability to provide national roaming as only two operators have this capability. Furthermore, there is little evidence of potential or actual competitors at present or in timeframe envisaged by this inquiry. This is important to note in the context of barriers to entry in the provision of roaming. As such, companies seeking roaming have extremely limited choice.

188. *Barriers to entry:* Key barriers includes sunk costs of network construction, economies of scale, scope, and low population densities (particularly with respect to sites in remote areas). Switching of a roaming provider is limited by the long duration of contracts. Furthermore, vertical integration means that providers of national wholesale roaming services also compete in the retail market. On a supply side basis, a SSNIP on a particular site would also unlikely induce entry from a competitor in a reasonable time period. While MTN argues that supply-side substitution means that a provider of urban roaming would be able to enter rural roaming in response to a price increase, based on the submissions made which note the barriers related to building out infrastructure, the Authority considers that this is not plausible in the market at present.
189. However, as noted in the discussion document there have been some changes to the market more recently. Prices have come down and quality issues such as seamless handover have been largely resolved as a result of newer technologies. In addition, there is some evidence of countervailing power at this stage as some roaming agreements that provide coverage (for example MTN / Cell C and Vodacom / Rain) were negotiated in tandem with those that provide spectrum-constrained operators with additional capacity. Based on the new contracts that have been signed there is evidence that the dynamics in the market are changing. It is possible though that this countervailing power will be limited once again as spectrum constraints are lifted, and so the market may change. The Authority notes that countervailing power has not been sufficient in the past to constrain MTN and Vodacom's pricing and terms and conditions.
190. We note the concerns raised by the Commission and Cell C particularly regarding forward looking behaviour with respect to new technologies such as 5G. In particular, we note the concern that first mover advantage in 5G could potentially cement dominance in the market of the two largest operators. At the same time, 5G requires substantial investment and the market structure may lend itself to network sharing. Furthermore, the Authority notes that in a variety of markets infrastructure sharing is being promoted to assist with 5G rollout. In addition, there are potentially other providers of 5G infrastructure such as tower companies. Given an initial 5G rollout is likely to be initially targeted at corporate and commercial customers and dense areas it is possible that operators with suitable 5G spectrum will be able to also provide some coverage in the initial stages. Given the fact that these deals are being commercially negotiated at present, it is unclear what impact they will have.
191. As such, potential changes that may occur on a forward-looking basis are not guaranteed. In the context of the very high levels of concentration, high prices

and substantial barriers to entry, the Authority considers the market for national roaming to be ineffectively competitive within the forecast period.

6.5.4. Significant market power

192. The Authority finds that with coverage levels of 99% and only two options available to purchasers of roaming for the purpose of national coverage, combined with significant barriers to entry, MTN and Vodacom are dominant and have significant market power in the market for national roaming. This is compounded by the fact that these companies are vertically integrated and incentives in the retail market may impact on their pricing of roaming at the wholesale level. MTN and Vodacom therefore have SMP due to their vertical relationships that could harm competition.

6.5.5. Remedies

6.5.5.1. Submissions received

193. There is a difference in opinion between operators on whether regulation is required, and what form this should take. Telkom does not believe that regulations to facilitate national roaming agreements are necessary at this current stage. Telkom believes this market should be monitored by the Authority. However, it acknowledges that future conditions may warrant the introduction of the sort of regulations described by the Authority in the Discussion Document.

194. Vodacom and MTN are of the view that there is no need for any regulation of roaming services at all given the existing level of competition in the segment. They both raise concerns that regulating roaming services could undermine incentives to invest and reduce differentiation.

195. Cell C is in support of some of the Authority's analysis and findings on roaming but both Cell C and the Commission are concerned that there is no proposal for price controls. The Commission recommends that ICASA include "*a requirement that operators with SMP provide roaming access at a price that reflects a reasonable discount on retail prices.*" It also agrees with accounting separation but does not agree with mandating a roaming offer.

196. Liquid Telecom has no concerns with the imposition of mandatory roaming offers and regulations to facilitate roaming, however only if these are forward looking and technologically neutral to ensure they are not obsolete.

197. Telkom, Liquid Telecom, the Commission and ISPA agree with the proposal to impose accounting separation. Telkom and Liquid Telecom believe that this should be applied to all the wholesale products of operators found to have SMP

in the retail market but not on smaller operators. A mandatory roaming reference offer is also supported by ISPA. Vodacom and MTN disagree with accounting separation due to its cost and complexity.

198. Telkom and Cell C note that remedies are only likely to be effective if they are imposed nationally.

6.5.5.2. The Authority's response

199. It should be noted that at present Vodacom and MTN are providers of national roaming for coverage. Cell C, MTN and Liquid Telecom purchase roaming for coverage. This is distinct from the newer types of agreements which cannot be used for the purposes of augmenting coverage in the same way.

200. New agreements have been reached between operators. The prices of the latest agreements are substantially lower than those historically. The new agreements have meant that prices for roaming have come down. It is also important to note that while Cell C is in favour of price regulation in roaming, Telkom submits that *"the prices and quality of these services have improved in recent years (...) This market is currently changing, and the Authority should adopt a "wait and see" approach and monitor the market as conditions may change in the future."*

201. Based on changing market conditions (including patterns of price reductions) and submissions made, the Authority believes that at present a pricing remedy is not necessary in roaming markets on an ex-ante basis. Furthermore, the Authority submits that an approach that incentivizes infrastructure competition and allows for commercially negotiated deals is preferable. Investments resulting in competitive differentiation should be allowed sufficient room to be recouped. Regulations that disincentivise dynamic competition and investment (such as price regulation) should be avoided insofar as they dampen incentives to rollout infrastructure and lead to a lack of differentiation in the market. At the same time, the Authority notes the Commissions suggested remedy of roaming rates being required to be at a discount to retail rates. The Authority agrees that roaming rates should not fall below retail rates, unless an operator can provide convincing evidence that it is temporary or based on costs.

202. However, there are some complexities with designing such a remedy that need to be considered. Firstly, there are challenges in what effective retail rate should be used given variations in price depending on promotions, time of day, variation in consumer and business rates, and this will have to be very carefully defined. Secondly, explicitly linking retail and roaming prices could potentially create competitive distortions in the two markets as reductions in retail prices will affect

roaming margins despite having a different cost base. This could occur, for example, if retail prices are predominantly based on costs in dense areas and roaming prices are predominantly based on costs in remote areas. It also may inadvertently force a link between retail and roaming prices that are not based on dynamics in those markets. This is particularly as if there are large differences in the traffic patterns and costs of provision that are used for retail as opposed to roaming pricing.

203. In order to assist with monitoring these markets, the Authority requires that companies with SMP in the market for national roaming for the purpose of coverage provide the Authority with the information set out in the draft Mobile Broadband Services Regulations.

204. As such, the Authority will monitor roaming prices, and in particular monitor for margin squeeze which the Competition Commission has indicated it will prosecute if roaming rates are above effective retail rates.

205. While the Authority did consider reference offers there is the concern that reference offers for roaming could have unintended consequences in setting a floor on roaming prices and stifle dynamism in the market. However, should roaming rates appear to exceed retail rates, these will be referred to the Competition Commission for investigation.

6.6. Upstream market 3: MVNO and APN services

6.6.1. Market definition

6.6.1.1. Summary of submissions received

206. Many submissions agree with the conclusion that MVNO and APN services are in a separate market to roaming services. Vodacom agrees with the finding that MVNO and APN services lie outside (and downstream of) the market for roaming. ISPA agrees with the market definition provided that the key element of this upstream market is access to wholesale offers allowing bulk purchase and resale of data. However, while Liquid Telecom agrees to the separation of these markets from the roaming market, they note that technological changes are beginning to blur the lines between the two markets.

207. Some submissions argue that the market should be defined by the Authority. The Commission raises concerns that it has not been defined while MTN argues that the market should be defined and this should consider the various business models that comprise MVNOs in order to understand market dynamics. In contrast, Vodacom indicated that there is no need to arrive at a firm view on

whether MVNO and APN services constitute separate markets and Telkom agrees with the Authority's preliminary view to not conclude definitively on relevant markets. Cell C is of the view that the markets for MVNOs and APN services should not be reviewed at all.

6.6.1.2. The Authority's response

208. It can be noted that there are different types of wholesale customers or MVNOs that operate at different levels of the network ranging from what is termed a "full MVNO" or thick MVNO, to enhanced service provider, service provider (or thin MVNO) and reseller model.
209. A full MVNO engages in all services including own distribution, market, billing, and customer care, provides its own SIM Cards and value-added services as well as core network services but does not have its own spectrum. A medium MVNO would provide sim-cards and value-added services, billing and customer care, distribution and marketing but would not provide core network services. A service provider would provide billing, customer service, marketing and distribution. A reseller would only provide marketing and distribution. As such, there is a continuum across forms of wholesale provision.
210. However, it is likely that MVNO and wholesale APN services (including resellers) are in separate markets from a demand side perspective. A SSNIP in the price of APN packages will not lead to consumers switching to an MVNO service. This was supported by representations made by ISPA, some of whose members offer branded reseller or wholesale services. They note that there is greater complexity to MVNO agreements and investment required in branding and distribution.
211. In terms of geographic market, the Authority finds that the market is national, given the national nature of these wholesale arrangements.

6.6.2. Effectiveness of competition and remedies

6.6.2.1. Summary of submissions

212. There is contention over whether there is ineffective competition in the market.
213. Cell C submits that there is no competition problem in this market and that addressing the provision of wholesale capacity to MVNOs should not be a priority, noting that the provision of MVNO services assists Cell C in its efforts to obtain scale benefits which is of importance given Cell C's financial difficulties.
214. Vodacom disagrees with the assertion that the lack of supply of MVNO services in South Africa is suggestive of ineffective competition. Vodacom indicated that

it provides MVNO services indirectly through Cell C and has entered into negotiations to provide MVNO services. MTN too, believes that there is a misconception that Cell C is the only MNO which wholesales to MVNOs.

215. Telkom agrees with the Authority's preliminary view to not conclude definitively on relevant markets, and the effectiveness of competition on the MVNO and APN market. Furthermore, Telkom broadly agrees that competition problems in this market are likely to be linked to competition problems in the wholesale markets for site access and national roaming.
216. The Commission, ISPA and Afrihost do not agree with the approach and findings. The Commission raised a concern that the discussion document did not conclude on whether there is a licensee with SMP in the provision of wholesale access to MVNO and APN services.
217. In addition, Cell C and Vodacom noted that the Authority requires successful spectrum auction bidders to provide MVNO services in terms of the process for the assignment of high demand spectrum.

6.6.2.2. The Authority's response

218. In South Africa historically only Cell C provided MVNO services which allowed the customer to create the brand, services, customer relationships, marketing, and distribution while Cell C engages in technical fulfilment. If wholesale MVNO supply was in a separate market, Cell C historically had 100% of that market. However, the Authority finds that this share is not reflective of market power as (1) other operators have the ability to provide these services if they wish to, (2) in instances in which there is competition *for* the market, market share is not necessarily reflective of competitive dynamics, and (3) market shares should rather be assessed on the basis of capacity to provide these services. There are also indications that as capacity constraints have eased; the larger operators are entering the MVNO market. For instance, Vodacom has supplied evidence that it has negotiated offers with MVNO providers but that these have ultimately been unsuccessful either because they chose to go with Cell C who was cheaper or because they did not proceed. MTN has also announced a new MVNO platform and a new MVNO partnership with Pick n Pay.²⁵ In addition, the ITA for high demand spectrum requires that MVNO offers be provided. This is likely going to have a significant impact on the market for MVNO services.

²⁵ MTN Press Release (2020), "MTN expands SA's digital eco-system with launch of MVNO service", 19 October 2020, available at: <https://www.mtn.co.za/Pages/press-release-detail.aspx?pressID=123>

219. Going forward there is likely to be changes in the type of MVNO services requested, particularly with the introduction of 5G and the IoT which may create the opportunity for MVNOs to develop specific products and value propositions. It is important that these prices and contracts are carefully monitored going forward.
220. The Authority maintains that historically there has been ineffective competition in the market for the provision of MVNO services. There has historically been a lack of provision of services from the larger operators and only one supplier to the market. The MVNO market has been small as a proportion of total volumes. As at December 2019 Cell C estimated that mobile market share of MVNO retail subscribers at being less than 1.5% of the market.
221. However, it is important to note there is no evidence that any participant in this market has significant market power.
222. Based on this and given the changes occurring in the market the Authority does not believe there is ineffective competition in the wholesale market for MVNO services.
223. A second area of concern raised is APN services to wholesale resellers. Various operators provide forms of wholesale services to resellers. This includes wholesale APN services to resellers such as Afrihost, Vox, RSA Web and Internet Solutions as well as various other providers. These differ in terms of business plan from those focused on businesses to those that are sold to final customers. It can be noted that there are several operators that offer this service.
224. There are also a range of effective prices paid by different customers. This depends to a large extent on the volume contracted for, and the period of the agreement. The prices per GB provided to the Authority show that there are clearly instances in which the wholesale rate is in excess of the retail rate, particularly when promotional offers are considered. Evidence provided to the Authority also suggests that these wholesale prices have not gone down over time as much as retail prices have. The wholesale prices above retail prices, together with the price trends over time strongly suggests ineffective competition in the provision of APN services.
225. Submissions from ISPA request that the Authority consider wholesale price regulation or separation as has occurred for Telkom with Openserve.
226. Similar to the MVNO market, however, the Authority believes that all operators have the capacity to provide these agreements, and in fact several operators do. From the Authority's assessment of the market, however, there is no evidence

that entities in the market have significant market power. As such regulation of APN cannot be engaged in to remedy problems in this market.

227. However, the Authority's view is that competition concerns in the retail market will likely be remedied through wholesale interventions including with respect to APN and MVNO price monitoring, set out in the draft Mobile Broadband Services Regulations. As noted, there are several changes in the market at present including obligations related to spectrum licensing and additional capacity. As such, the Authority recommends the monitoring approach to prices in the future, as set out in in the draft Mobile Broadband Services Regulations. If prices appear to be high relative to retail prices these will be referred to the Competition Commission for investigation.