

**Order to Ooredoo Q.P.S.C.  
Changes to be implemented in the  
Regulatory Accounting System for the  
financial year 2016**

**CRARAC 2018/11/28**

November 28, 2018

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## 1 Background and Introduction

1. The Regulatory Accounting System (“**RAS**”) is an obligation imposed to Ooredoo as a Dominant Service Provider (“**DSP**”) that relates - amongst others - to the calculation of costs used for approving retail Tariff, setting of charges for wholesale services and requirements of cost accounting and accounting separation.
2. Ooredoo delivered the first draft of the Regulatory Accounting System for the financial year 2016 (“**RAS 2016**”) on February 22, 2018 (ref. Ooredoo letter OQ/Reg-5177/2018-02, “**RAS 2016 First Draft**”). This submission included:
  - 2.1 Pro-forma Audit Opinion by an external company;
  - 2.2 Pro-forma Letter of Representation;
  - 2.3 RAS Methodology, Main Body and appendixes;
  - 2.4 RAS Separated Accounts; and
  - 2.5 RAS Cost Model in electronic form.
3. The CRA reviewed the RAS 2016 and issued a first document requiring clarifications and explanations from Ooredoo (ref. email dated March 25, 2018, “**First Document**”).
4. The First Document was discussed between Ooredoo and the CRA in two meetings held on March 27 and 28, 2018.
5. As a result of these meetings, the CRA issued a summary of the main points discussed as well as a list of pending actions that should be addressed by Ooredoo (ref. CRA letter CRA/RAC-T/050/2018, dated on April 16, 2018, “**Second Document**”).
6. On May 21, 2018, Ooredoo responded to the Second Document (“**Ooredoo First Response**”).
7. The CRA found that Ooredoo’s response to the Second Document was not satisfactory and asked for further information and clarifications (ref. CRA letter CRA/RAC-T/078/2018, dated May 27, 2018, “**Third Document**”).
8. Ooredoo responded to the Third Document on June 6, 2018 (ref. Ooredoo letter OQ/Reg-5295/2018-06, “**Ooredoo Second Response**”).
9. As previously, the CRA found that Ooredoo’s response to the Third Document was not satisfactory and asked for further information and clarifications (ref. CRA letter CRA/RAC-T/093/2018, dated June 25, 2018, “**Fourth Document**”).
10. Ooredoo responded to the Fourth Document on July 18, 2018 (ref. Ooredoo letter OQ/Reg-5843/2018-07, “**Ooredoo Third Response**”).
11. After these interactions between the CRA and Ooredoo, the CRA issued a RAS Order on August 29, 2018 (ref. CRARAC 2018/08/29, “**RAS 2016 Order**”), in which the CRA required Ooredoo to submit a second draft of the RAS 2016, implementing changes to improve the reliability and robustness of the RAS. In addition, the RAS 2016 Order also included another request for outstanding information or clarifications.

12. On October 07, 2018, Ooredoo delivered the second submission of RAS 2016 (ref. OQ/Reg-5919/2018-10, "**RAS Second Submission**"), including:
  - 12.1 Pro-forma Audit Opinion by an external company;
  - 12.2 Pro-forma Letter of Representation;
  - 12.3 RAS Methodology, Main Body and appendixes;
  - 12.4 RAS Separated Accounts; and
  - 12.5 RAS Cost Model in electronic form.
13. Following the review of the RAS Second Submission, the CRA has identified that certain changes required by RAS 2016 Order have not been correctly implemented. In addition, based on additional information delivered by Ooredoo, the CRA has identified that further changes are needed.
14. The Order:
  - 14.1 Lists the changes Ooredoo is required to implement in the final version of the RAS 2016 to comply with CRA's requests;
  - 14.2 Sets the next steps and the timeline for the implementation of the RAS 2016.

## **2 Legal Basis**

### **Emiri Decision 42 of 2014**

15. Article (4) of Emiri Decision 42 of 2014 gives to the Communications Regulatory Authority ("**CRA**") the responsibility for regulating the ICT and the Post sector, as well as access to digital media. In particular, the RAS provides the CRA with economic data and other information needed to fulfil the following responsibilities:
  16. Encourage competition and prohibit or minimize anti-competitive practices, prevent misuse by any person or entity of its market dominance position, and take all necessary measures to achieve this (ref. Article 4, c. 3);
  17. Protect the rights and interests of the public and service providers in the market, promote transparency and provide advanced, innovative and quality services at affordable prices to meet the needs of the public (ref. Article 4, c. 4);
  18. Ensure interconnection and access for all users by setting conditions for effective interconnection and access (ref. Article 4, c. 6);
  19. Other tasks or functions entrusted to it under the legislation in force (ref. Article 4, c. 15).
20. Further, the RAS is needed to fulfil the following responsibilities, included in Article (15) of the Emiri Decision:
  21. Develop appropriate tariff regulations, giving priority to the telecommunications market, or telecommunications services according to market requirements, and determine fees for retail and wholesale (ref. Article 15, c. 2);
  22. Set regulations for interconnection and access (ref. Article 15, c. 5).

## **Decree Law No. (34) of 2006 on the promulgation of the Telecommunications Law**

23. Article 18 (8) of the Telecommunications Law (“**Law**”) cites the rights, obligations and terms of interconnection and access, which are available to each licensed service provider including the following:
24. (...) Each licensed service provider shall have the rights and obligations regarding interconnection and access as follows ... 8. any obligations or requests to a dominant service provider regarding interconnection and access as specified by the General Secretariat and which relate to its charges or calculation of costs or the requirements of accounting separation pursuant to the rules of article (24), (25) and (33) of this Law.
25. Article 24 provides that a DSP must provide interconnection and access to all service providers on the same terms and quality as it provides to itself or other affiliates. The RAS process enables the identification of costs that lead to ascertaining such equivalence.
26. Article 25 provides that the RAS itself is a direction and instruction in respect of the rights and obligations of DSPs regarding interconnection and access charges or relating to calculation of costs or accounting separation.
27. Other provisions in the Law empower CRA to undertake functions and duties to ensure interconnection and access agreements meet legal requirements (Article 19(4)), and to determine any additional obligations on DSPs regarding interconnection and access (Article 19 (6)).
28. The RAS is an essential part of identifying the cost of efficient service provision for the purpose of ensuring the tariffs of DSPs do not contain any excessive charges (Article 29).
29. Article 32 enables CRA to require a cost study comparable to the one carried out as part of the RAS.
30. Article 33 requires a DSP to adopt the RAS and any other accounting or business practices as a means to prevent anti-competitive conduct.
31. Article 62 enables CRA to obtain from a service provider the information it needs to exercise its regulatory powers including ensuring that DSPs comply with their license obligations and meet the legal requirements of the Law.

## **Decision of the Board of the Supreme Council for Information and Communication Technology No. (1) of 2009 on the promulgation of the Executive By-Law for the Telecommunications Law**

32. Article 49(1) of the Executive By-Law for the Telecommunications Law (“**By-Law**”) requires DSPs to meet any requirements relating to interconnection or access charges.
33. Article 50(1) of the By-Law requires DSPs to take direction from CRA to implement specific charges or change such charges as determined by CRA. Article 50 (2) requires access charges of a DSP to be cost-based and in accordance with rules or standards determined by the CRA.

34. Article 50(3) requires a DSP to comply with any orders applicable to any pricing, costing and cost separation requirements as prescribed by the CRA.
35. Article 59 of the By-Law says that if CRA requires a DSP to prepare or participate in the development of a cost study and the DSP shall comply. Such a cost study involves CRA deciding on cost categories, form, approach, procedures and timing for the cost study and its implementation (Article 59). The DSP can then be required to adopt identified cost accounting practices to facilitate the cost study or to achieve any other regulatory purpose including the separation of accounts (Article 59).

### **Ooredoo's Individual Licenses**

36. On 7 October 2007, QTel was granted and issued two telecommunications licenses to provide public mobile and fixed telecommunications networks and services (License for the provision of Public Mobile Telecommunication Networks and Service ICTRA 08/07A and License for the provision of Public Fixed Telecommunication Networks and Service ICTRA 08/07B).
37. Ooredoo is required under these licenses to comply with the terms and conditions of the licenses and the ARF (Clauses 4 and 14.1). It is also required under Sub-clause 14.2 to take all reasonable and practicable steps and measures necessary to adapt its business practices and processes to facilitate the introduction and development of competition as directed by CRA. The development of, and the adoption of the RAS into its processes, are part of this process.
38. Clause 11 of the Licenses places specific obligations on Licensees to provide facilities and services to wholesale customers in accordance with pricing, interconnection and access prescribed by the Regulatory Framework. The RAS exercise is part of enabling the Licensee to fulfil this license requirement.
39. Annex D of the Licenses requires Ooredoo to provide its telecommunications services pursuant to retail tariffs. Clause 3 of Annex D applies special procedures to DSPs, including prior review of new and modified tariffs.
40. Sub-clause 2.1 of Annex F of the Licenses states that an interconnection or access agreement will contain interconnection or access prices and any additional cost components of the Licensee or the requesting licensee. Such costs, and prices based on costs, will become apparent during the RAS process and will enable the Licensee and any requesting licensee to enter into agreements based on efficient cost pricing and reduce the instance of disputes over this.
41. Sub-clause 1.1 of Annex I of the Licenses clearly states that when a DSP is ordered by CRA to prepare or otherwise participate in a cost study, it will comply. Sub-clause 1.2 of Annex I orders the compliance by a DSP with any CRA direction to retain an independent auditor. Sub-clause 1.3 of Annex I orders and directs the same compliance regarding the adoption and implementation of accounting procedures, and sub-clause 1.4 orders and directs the same compliance regarding accounting separation requirements.

## **Regulatory Accounting System (RAS) Orders for the financial years 2013+ to Ooredoo Q.S.C. (CRA 2014/05/26a, issued on May 25, 2014)**

42. The Regulatory Accounting System (RAS) Orders for the financial years 2013+ ("**RAS Orders**", ref. CRA 2014/05/26a) was issued by the CRA on May 25, 2014.
43. The RAS Orders are formal Instructions to Ooredoo to prepare and participate in the further development of the RAS as approved by CRA.
44. Section 3 sets the guidelines for the preparation of RAS, including:
  - 44.1 Guiding principles
  - 44.2 Elements of the RAS
  - 44.3 Extent of the RAS and Regulatory Reporting Unit (RRU) structure
  - 44.4 Cost base and Cost standard
  - 44.5 Principles for Cost and revenue allocation
  - 44.6 The applicable Cost of Capital, including specific rules on the Working Capital
  - 44.7 Principles for Retail product costs and revenue allocations
  - 44.8 The Deliverables required on an annual basis
  - 44.9 Requirements on the Audit of the RAS and on the Statement of Compliance
45. Section 4 sets requirements on Performance Bonds, which could be requested to Ooredoo by the CRA to secure the fulfilment of the RAS obligations.
46. Section 5 sets the Process and Timeframe for the annual implementation of the RAS.

### **Timeline for implementing the RAS 2016**

47. Section 5 of the RAS Orders states that "the detailed timelines for the implementation of the RAS will be agreed with Ooredoo at the beginning of each financial year".
48. For the RAS 2016, the following timeline was agreed on October 17, 2017 (ref. CRA's letter CRA/RAC-T/131/2017).

<b>Timeline for implementing the Regulatory Accounting System (RAS) 2016</b>	
<b>Timeline</b>	<b>Content</b>
December 21, 2017	<p><b>First Submission</b> Ooredoo to provide:</p> <ul style="list-style-type: none"> <li>• pro forma of Representation Letter and pro-forma of audit report (audit report wording) (both as per 3.11.4 of the RAS Order 2013+)</li> <li>• draft RAS Methodology, including amongst others: <ul style="list-style-type: none"> <li>○ Description of the RAS (cf. 3.11.1 of the RAS Orders 2013+. This includes amongst others product lists, network components with units, SA and reports)</li> <li>○ Routing Table (logical structure)</li> <li>○ Reports to be implemented (also internal reports)</li> <li>○ A document describing all changes from the previous version (i.e. new products, new cost centers, new network components, changes in drivers, etc.)</li> </ul> </li> </ul> <p><b>Second Submission</b> Ooredoo to provide for CRA review the preliminary results (draft), model and documentation, to include:</p> <ul style="list-style-type: none"> <li>• Preliminary results (the draft SA)</li> <li>• The electronic cost model</li> <li>• All RAS Documentation listed in section 3.11 of the RAS Order 2013+</li> </ul>
January 31, 2018	CRA to provide review comments on the First and Second Submission

<b>Timeline for implementing the Regulatory Accounting System (RAS) 2016</b>	
<b>Timeline</b>	<b>Content</b>
February 15, 2018	Meeting between CRA and Ooredoo to discuss the above comments and finalize the review implementation master, including the changes – agreed or not agreed - Ooredoo is required to implement in the Final Audited Version of the RAS 2016
April 12, 2018	<p><b>Final Audited Submission</b> Ooredoo to provide all the final deliverables. Deliver all results, final description of RAS, final electronic cost model, Audit Statement and all other documents. For the avoidance of any doubt, this will include all elements of this RAS Instruction and specifically deliverables listed in section 3.11 of the RAS Order 2013+ which include inter alia, but not limited to:</p> <ul style="list-style-type: none"> <li>• Description of the RAS (cf. section 3.11.1 of the RAS Order 2013+)</li> <li>• Cost Model (cf. section 3.11.1, 3.11.2 of the RAS Order 2013+)</li> <li>• SA (cf. section 3.11.3 of the RAS Order 2013+)</li> <li>• Audit and Statement of opinion (cf. section 3.11.4 of the RAS Order 2013+)</li> </ul>
May 15, 2018	CRA to issue RAS 2016 Closure Order

49. On December 21, 2017, Ooredoo asked to extend the deadline for the First and Second Submission to February 22, 2018 (ref. Ooredoo's letter OQ/Reg-5117/2017-12).
50. The CRA acknowledged the new timeline set by Ooredoo, expressing its disappointment for the delay (ref. CRA's letter CRA/RAC-T/170/2017, dated December 25, 2017).
51. As described in section 1 above, Ooredoo's First and Second Submissions could not be fully verified by the CRA because Ooredoo did not provide all the required information.
52. As consequence, Ooredoo has delayed six months the implementation of the RAS 2016.

## **3 Order**

### **3.1 Changes to the Second Submission to be implemented in the RAS 2016 Final Audited Submission**

53. Ooredoo is required to implement all changes listed in Annex I below and deliver the RAS 2016 Final Audited Submission by January 6, 2019.
54. In absence of the implementation of the changes, relevant cost attribution would neither be cost causal nor accurate, preventing the CRA from approving the RAS 2016. In addition, the non-compliance with this Order shall be considered as sufficient justification for the CRA to request a performance bond for the implementation of the RAS of the following financial years.

### **3.2 Audit Opinion**

55. The auditor shall verify that Ooredoo has fully implemented all the changes listed in Annex I below.
56. To this end:
  - 56.1 Ooredoo shall provide the Auditor with a comprehensive copy of this Order;
  - 56.2 The auditor shall audit the RAS against the RAS Methodology, the RAS Orders (ref. CRA 2014/05/26a) and also against the requirements of this Order and include the outcomes of its review in the Audit Opinion.

### **3.3 Effective date**

57. The Order is effective from the date of the signature.

## **4 Compliance, Monitoring and Enforcement**

58. The CRA will monitor the compliance of Ooredoo with the Order, inter alia, but not limited against the implementation of the changes listed in section 3 above.
59. In the event of non-compliance, it shall result in one or a combination of the following enforcement provisions as stipulated under the Telecommunication Law:
  - 59.1 Invoking the provisions of chapter sixteen (16) of the Law, whereby the Licensee shall be subject to criminal prosecution as a form of punishment for non-compliance with the relevant provisions of the Law and its license; and
  - 59.2 Such non-compliance shall under Article 70 be punishable as an offence by a term of imprisonment not exceeding two (2) years and or a fine not exceeding one hundred thousand Riyals; or
  - 59.3 Such non-compliance shall under Article 67 be punishable as an offence by imposing a term of imprisonment not exceeding one year and a fine not exceeding one million Qatari Riyals; and
  - 59.4 Under Article 71, the person responsible for the actual management of the corporate entity, shall be punished with the same penalties assigned to the acts that are committed in violation of the rules of this law, if it is proved that such

person was aware of such acts or the breach of his or her duties rendered upon him or her by such management, had contributed to the offense.

60. The CRA may take any other reasonable costs, including benchmarks or the application of a compound risk factor to fulfil its remit.
61. In addition, the CRA may require Ooredoo to provide a performance bond as per clause 4 of the RAS Orders 2013+ (ref. CRA 2014/05/26a, dated May 25, 2014).



Mohammed Ali Al-Mannai

President of the Communications Regulatory Authority

Signed on 28 November 2018

**Annex I To the Order (CRARAC 2018/11/28)**

**Changes to be implemented in the Regulatory Accounting System (“RAS”) for the year 2016**

**1 Changes to RAS 2016 Second Draft to be implemented by Ooredoo**

- 1. The CRA has accepted the majority of changes introduced by Ooredoo in the RAS Second Submission to comply with the RAS Order issued on August 29, 2018 (ref. CRA letter CRA/RAC-T/114/2018, “**RAS 2016 Order**”).
- 2. However, the CRA has identified a number of items<sup>1</sup> for which the implementation performed by Ooredoo does not address satisfactorily CRA’s request for changes, including:
  - 2.1 A-0030 Conversion factors for the mobile access network
  - 2.2 A-0031 Conversion factors for the mobile transmission and core network
  - 2.3 A-0032 Routing factors of aggregated residual products (Product mapping from old to new products)
  - 2.4 A-0035 Outbound Roaming SMS service
  - 2.5 A-0048 Duct costing model
  - 2.6 Cost of Capital
  - 2.7 Cost of International Connectivity
- 3. Each of these items is explained in detail in the sections below, along with the changes required to Ooredoo.

**1.1 A-0030 Conversion factors for the mobile access network**

**1.1.1 2G conversion factors**

- 4. In the RAS 2016 Order, the CRA required Ooredoo to implement the following factors for converting services’ units into minutes. These conversion factors are used in the RAS for the allocation of costs associated to the mobile access network.

Conversion Factor to Minutes	Values to be implemented by Ooredoo		
	2G	3G	4G
Data Factor	4.833	1.046	0.482
SMS Factor	0.0030	0.0012	0.0012
MMS Factor	0.435	0.094	0.043

Table 1: Conversion factors to be implemented by Ooredoo [Source: CRA’s analysis]

- 5. Whereas Ooredoo agreed on the implementation of 3G and 4G conversion factors, in the case of 2G, Ooredoo proposed an alternative methodology to allocate the costs

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<sup>1</sup> The reference is to the issue number as per Appendix H - Implementation Master to the RAS Methodology

related to the mobile access network. Specifically, Ooredoo proposed approach was aimed to align the conversion factor with the actual performance of 2G network components.

6. Ooredoo proposed approach is based on the fact that 2G base stations (i.e. BTS) typically dedicate a specific amount of resources, in form of time slots, to voice, data and messaging services.
7. As such, the costs associated to the BTS should be allocated considering the actual portion of time slots dedicated to each group of services. Ooredoo proposed approach considers that a typical configuration of BTS disposes 8 time slots per sector, with the following distribution:
  - 7.1 6 time slots are employed for voice services, i.e. 6/8 of costs should be allocated directly to voice products;
  - 7.2 1 time slot is employed for data services, i.e. 1/8 of costs should be allocated directly to data products;
  - 7.3 1 time slot is employed for signalling, i.e. 1/8 of costs should be allocated to all services that make use of the BTS based on the number of events;
8. The CRA agreed to use Ooredoo proposed approach based on time slots for allocating costs related to 2G access network.
9. However, in the RAS Second Submission, the attribution of the 2G network costs to the services did not comply with the proportions based on the number of time slots. The following table shows the percentage of costs that should be allocated to each group of services and the actual allocation of the RAS.

Group of services	% of BTS costs allocated		
	Allocation based on time slot proposal <sup>2</sup>	Actual allocation in the RAS <sup>3</sup>	Diff, pp
Voice	82.65%	97.63%	14.98
Data	16.77%	2.33%	14.44
SMS	0.58%	0.04%	0.54
MMS	0.00%	0.00%	0.00

Table 2: Comparison of cost allocation related to 2G mobile access components [Source: CRA's analysis]

10. The CRA is of the view that 2G access network costs shall be attributed as per exhibit below:

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<sup>2</sup> Values provided by Ooredoo in Worksheet 'Result' (cells F31:36) from the file "Ooredoo RAS FY2016 - Draft 7106 - Routing Factors.xlsm" of the Second 2016 RAS Submission.

<sup>3</sup> Calculated considering the total costs received from the BTS component for all services considered in each group of services.

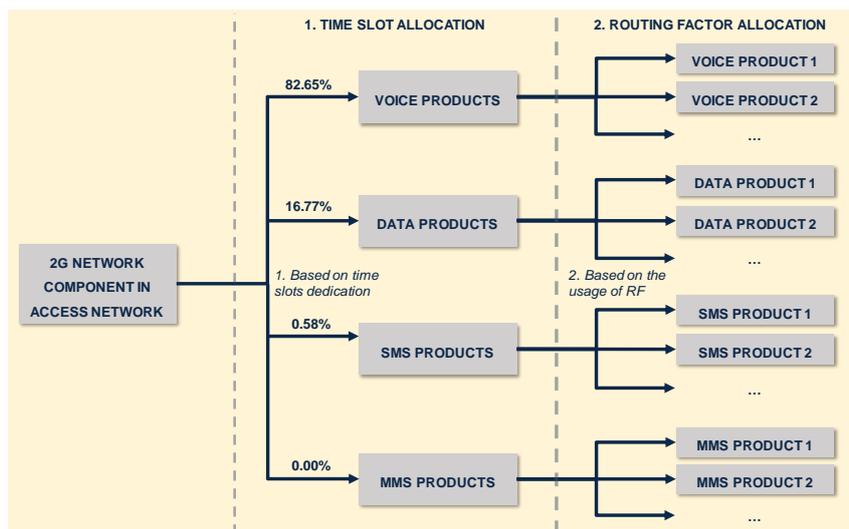


Figure 1 Methodology of allocation costs related to 2G access network [Source: CRA's Analysis]

11. The allocation should be performed in two steps. Firstly, the costs should be split into the different main groups of mobile services (voice, data, SMS and MMS) using the time slot distribution which represents the actual functioning of the network. After that, the cost associated to each group of services should be distributed among the corresponding services based on routing factors.
12. Due the current structure of the RAS, Ooredoo combines in one the two steps described in Figure 1 which is causing the inaccuracies described above.
13. The CRA has identified three potential options to implement Ooredoo proposed methodology:
  - 13.1 A first option consists of introducing an intermediate step in the allocation (as illustrated in Figure 1 Methodology of allocation costs related to 2G access network above), in which the costs corresponding to the 2G network components<sup>4</sup> are allocated based on the time slot distribution to the different group of services (voice, SMS, MMS and data). After that, the cost of each group of services should be distributed through routing factors, as usual, to the individual services. The CRA also understands that this intermediate step would need the creation of additional cost centers in the RAS for each 2G access network component.
  - 13.2 A second option would be to adjust the routing factors to comply with the time slot distribution among the group of services, ensuring at the same time that the original relation among routing factors of the same group of services remains (i.e. an inverse process where the routing factors are modified taking into account the desired allocation percentages).
  - 13.3 A third option would be to employ weights over the volumes of the different services that, when combining them together with the routing factors for the

<sup>4</sup> Only those components that are fully allocated to 2G and are not shared with other technologies.

allocation of network components costs to the services, they would lead to a correct distribution of costs.

14. The CRA requests Ooredoo to implement one of the three above solutions.
15. However, the CRA also understands that the current design of the RAS could raise technical difficulties to implement the three above options based on time slots. In this case, the CRA would accept, as provisional solution to be applied to RAS 2016, to use for the 2G the same methodology applied for 3G and 4G technologies, based on conversion factors instead of time slots. If Ooredoo opts for this approach, Ooredoo shall use the conversion factors proposed by the CRA in the RAS 2016 Order:

Type of service	2G - Conversion factor
Voice	1
Data	4.833
SMS	0.0030
MMS	0.435

Table 3: Conversion factors to be implemented by Ooredoo in case an allocation based on conversion factors is implemented in the RAS for 2G components [Source: CRA's analysis]

16. If this provisional solution would be implemented by Ooredoo in RAS 2016, the CRA is fully open to collaborate and study with Ooredoo in the coming months potential solutions to implement an improved methodology for the following RAS submissions.

### 1.1.2 4G conversion factors

17. Ooredoo has also proposed 4G conversion factors different to those proposed by the CRA (ref. Table 1), to be applied in the final RAS submission. These conversion factors have been calculated based on technical information coming from Ooredoo's network department. The CRA accepts the conversion factors for 4G proposed by Ooredoo. The following table summarizes the 4G conversion factors to be applied by Ooredoo:

Type of service	4G - Conversion factor
Voice	1
Data	0.9024
SMS	0.0012
MMS	0.0812

Table 4: Conversion factors for 4G components [Source: CRA based on Ooredoo's information]

18. Ooredoo shall consider the above 4G conversion factors for the allocation of the 4G components. It is important to note that this modification should be applied not only to access components but also to transmission/core network components, where a weighted conversion factor considering also 2G and 3G conversion factors is applied.

## 1.2 A-0031 Conversion factors for the mobile transmission and core network

### 1.2.1 2G conversion factors

19. In the RAS 2016 Order, the CRA required Ooredoo to employ the conversion factors of the mobile access networks weighting them with the traffic handled by each technology.

These conversion factors should be used for the allocation of mobile transmission and core network elements.

20. The CRA understands that the actual design of the RAS is not ready to accommodate the approach proposed by Ooredoo based on timeslots in the case of the mobile transmission and core network elements, since the weighting of two parameters of different nature (time slots distribution for 2G and conversion factors for 3G and 4G) would not be feasible.
21. In order to facilitate a viable implementation, and as provisional solution for this year, the CRA requires Ooredoo to employ the conversion factor for 2G access network components suggested by the CRA in the RAS 2016 Order on August 29 (see Table 3 above), for the calculation of the weighted conversion factor of the mobile transmission and core network, instead of relying on the time slot distribution.

### 1.2.2 4G conversion factors

22. See item 1.1.2 above.

### 1.3 A-0032 Routing factors of aggregated residual products (Product mapping from old to new products)

23. The CRA required Ooredoo to calculate the routing factors of the (new) products as weighted average of all the (old) products (i.e. weighting the routing factors of the old products with their traffic volumes).
24. The CRA has observed that Ooredoo has not implemented this requirement in all the cases when there is a product mapping from old to new products. However, given that the impact is limited in terms of cost of the final products, the CRA accepts provisionally, for RAS 2016, the partial implementation performed by Ooredoo.
25. On the other hand, Ooredoo is applying the following formula to weight the routing factor of the old products with their traffic volumes:

$$RF_{NEW} = \frac{RF_{OLD_1} * V_{OLD_1} + RF_{OLD_2} * V_{OLD_2}}{V_{OLD_1} + V_{OLD_2}}$$

Where RF refers to the Routing Factor and  $V_{OLD}$  to the corresponding volume of the old product.

26. The formula applied is correct, but a computational error has been found in its practical implementation. In particular, the formula implemented for obtaining the volume of the old products is<sup>5</sup>:

`=SUMIF('Working Document - Volumes'!$F:$F;L28;'Working Document - Volumes'!$AA:$AA)*N28`

Figure 2: Formula applied for obtaining the volumes of the old products [Source: Ooredoo's Routing Factors Matrix file]

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<sup>5</sup> Column AF of 'Calculation B' worksheet in the file "Ooredoo RAS FY2016 - Draft 7106 - Routing Factors.xlsm". The example of formula shown in particular refers to the cell AF28.

27. However, the second term (for the example above, it is “N28”) refers to the routing factor (RF) of the old product, which should not be included in the formula for obtaining the volume of the old products. Otherwise, the routing factor would be considered two times in the formula shown in point 25 above, leading to an inconsistency. In summary, the formula applied by Ooredoo should exclude the second term, as follows:

=SUMIF('Working Document - Volumes'!\$F:\$F;L28;'Working Document - Volumes'!\$AA:\$AA)

Figure 3: Formula that shall applied for obtaining the volumes of the old products [Source: CRA's analysis]

28. Ooredoo is required to apply correctly the formula indicated above for obtaining the volumes of the old products, by removing the part that relates to the routing factor.

## 1.4 A-0035 Outbound Roaming SMS service

29. The CRA had noted that the service "SMIU02 - Mobile Outbound Roaming SMS" presented the same routing factors than the service "SMNU01 - Mobile to Off-net SMS" (except for certain network components such as international switches or certain platforms). This was due to the fact that Ooredoo assumed that 100% of Outbound Roaming SMS traffic was addressed to their customers in Qatar.
30. The CRA required Ooredoo to apply an equivalent methodology to that used by Ooredoo for the Outbound Roaming Voice traffic related to the calls that come back to Ooredoo in Qatar of roamers users.
31. During the meeting held on November 22, 2018, between Ooredoo and CRA, Ooredoo proposed to remove the routing factors associated to the use of access network components in the case of the Outbound Roaming SMS service, given the low relevance of SMS sent by roamers users that come back to Qatar. This approach has been accepted by the CRA.
32. The CRA requires Ooredoo to remove the routing factors of access network components associated to the Outbound Roaming SMS service.

## 1.5 A-0048 Duct costing model

### 1.5.1 GRC methodology

33. Regarding the GRC methodology implemented by Ooredoo for the allocation of duct costs between core and access accounts, the CRA has identified an inconsistency in the formula of cell M9 of the worksheet "Detailed Costs" of the file "Duct Costing V7 2016".
34. In particular, this cell is not considering the "Duct Distance" in the calculation, different to all the rest of cells in the same column. Therefore, the CRA requires Ooredoo to correct this formula including the "Duct Distance", in an equivalent manner to the rest of cells.
35. The CRA has also observed that the methodology for the allocation of the Joint Box Unit Cost is simplistic (i.e. the cost of the Joint Boxes is not necessarily proportional to the number of conduits per trench, since it depends more on the configurations of Joint Boxes employed in each case). However, given the lack of detailed information to

perform a more accurate allocation, the CRA accepts this methodology for the RAS 2016, but without prejudice to propose an alternative methodology in the future.

### 1.5.2 Allocation of ducts costs to final products

36. After the review of the file “5201 Duct Space Analysis (005)”, the CRA has identified the following issues:

36.1 Methodology implemented for the allocation of access ducts costs to final products;

36.2 Percentages extracted from the GRC methodology;

36.3 Contention ratios.

#### 1.5.2.1 Methodology implemented for the allocation of access ducts costs to final products

37. During the meetings held on March 27 and 28, 2018, between Ooredoo and the CRA, Ooredoo explained that the allocation of costs related to ducts components was performed in 5 subsequent stages, as indicated in the following chart (ref. CRA letter CRA/RAC-T/050/2018, dated on April 16, 2018, “Second Document”):

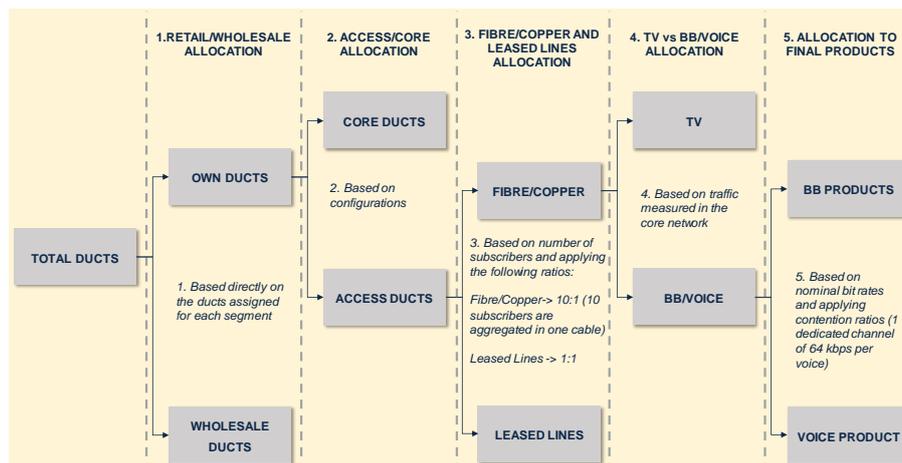


Figure 4: Allocation of access ducts to final products<sup>6</sup> [Source: CRA based on Ooredoo’s explanations]

38. During the meeting, the CRA required Ooredoo to provide the inputs and supporting calculations employed to define the above allocations. After multiple requests, Ooredoo finally submitted the requested information on November 18, 2018.

39. Based on the received information, the CRA has identified that the allocation employed in the RAS Second Submission differs from the approach described by Ooredoo in the abovementioned meeting. More specifically, it has been observed that steps 3, 4 and 5 of the above exhibit are performed simultaneously by means of a unique step, resulting in different allocation criteria than those described during previous meetings. Figure 5:

<sup>6</sup> It is worth noting that the aggregation factor of 10:1 was later replaced by a 12.18:1 in the case of residential customers and 4.63:1 in the case of business customers, as informed by Ooredoo.

shows the actual allocation methodology implemented by Ooredoo (ref. file “5201 Duct Space Analysis (005)”):

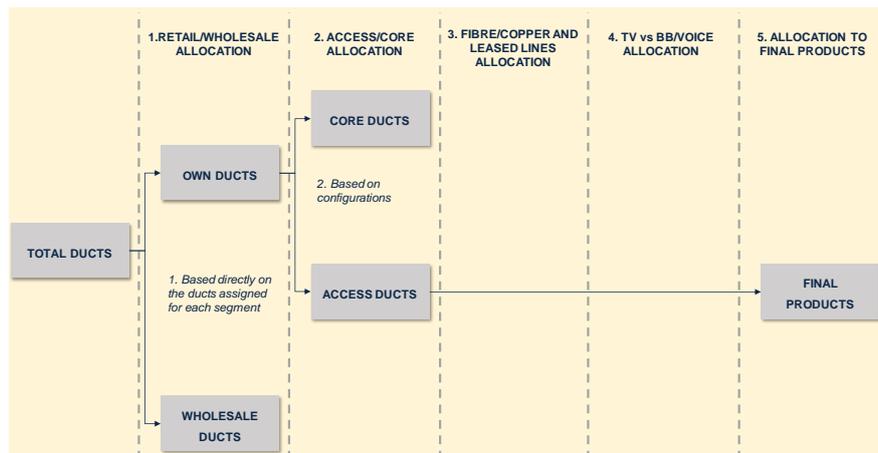


Figure 5: Actual methodology for the allocation of access ducts to final products<sup>7</sup>  
 [Source: CRA based on Ooredoo's information]

40. According to Ooredoo's explanations, an individual wire is being employed for each leased line, while various broadband customers are generally aggregated into one wire. This step would be reflected in the step 3 of the above Figure 4:, by means of the aggregation factors.
41. However, combining the aggregation factors (step 3 in Figure 4:) together with the peak traffic in the core network (step 4 in Figure 4:) and the nominal bitrates and contention ratios (step 5 in Figure 4:), by means of an unique allocation step (step 5 in Figure 5:), results that the actual use of ducts made by leased lines and fibre/copper services is not properly implemented in the RAS.
42. As illustrative example, the CRA has estimated the allocation percentages that would be obtain if the step 3 is performed separated from steps 4 and 5, as follows:

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<sup>7</sup> While other specific factors are recognized for some services, the allocation of step 5 is mainly based on the following formula for the calculation of the driver values = subscribers x average bandwidth x contention ratio x peak traffic (if applicable) / aggregation factor.

Network Component – L71	Subscribers			Aggregated subscribers = a/12.18 + b/4.63 + c/1	Driver based on Aggregated subscribers	Actual driver used in the RAS	Diff. pp
	(a) Fibre /copper Residential customers <sup>8</sup>	(b) Fibre /copper Business customers <sup>9</sup>	(c) Leased Lines <sup>10</sup>				
AN30a [Access Fibre FTTX]	205,278	27,371	-	22,770	55.91%	65.45%	9.54
AN22 [Copper]	39,019	22,719	3,674	11,789	28.95%	4.69%	-24.26
AN30b [Access Fibre Legacy]	-	-	6,167	6,167	15.14%	29.86%	14.72

Table 5: Differences in the allocation between driver based on aggregated subscribers and driver used in the RAS  
[Source: CRA's analysis]

43. The CRA requires Ooredoo to perform the allocation of ducts costs according to the methodology described by Ooredoo during the meetings held on March 27 and 28, 2018, by means of three subsequent steps. It also worth noting that this modification affects also all other access network components that are allocated to services in an equivalent manner to the ducts (as per the driver “7121.5 - NC to Products allocations” from the Appendix D of the RAS).
44. In addition to the above, the CRA also notes that:
- 44.1 In the case of the specific component “AN22 – Copper”, Ooredoo is making use of an additional input “Nos of Links split ratio” whose use is not justified and, at the same time, the origin of such input is unknown to the CRA given that figures in the received file are pasted as value. Therefore, the CRA requires Ooredoo not to consider this input in the allocation.
- 44.2 It has been observed that only a reduced number of business services<sup>11</sup>, namely “Fixed IP/ MPLS Internet (Non-usage)”, “Fixed Office in a Box (Non-usage)”, “Fixed Dial-up Data”, are considering their average bandwidth and contention ratios for the allocation, while all the rest of business services do not consider these two components. In light of this, the CRA requires Ooredoo to use an uniform criterion for the allocation of costs to business services.

#### 1.5.2.2 Percentages extracted from the GRC methodology

45. The CRA has observed differences between the actual drivers used in the RAS Second Submission to split the ducts costs between access and core (see file “5201 Duct Space Analysis (005).xlsx”), and the output values obtained from the GRC calculation (see file “Duct Costing V7 2016”), as follows:

<sup>8</sup> It corresponds to Single, Double and Triple-Play residential customer services for copper and fibre networks. Bundled subscribers have been counted once.

<sup>9</sup> It corresponds to Single, Double and Triple-Play business customer services for copper and fibre networks. Bundled subscribers have been counted once.

<sup>10</sup> Following services have been considered: Fixed International Leased Circuits (Non-usage), Fixed National IP / MPLS VPN (Non-usage), Fixed IP/ MPLS Internet (Non-usage), Fixed Dedicated internet access (Non-usage), Fixed National Leased Circuits - Distance (Non-usage), Fixed Digital access PR - ISDN (Non-usage), Fixed SIP Trunking (Non-usage), Fixed Digital access BR - ISDN (Non-usage).

<sup>11</sup> The CRA excludes from this list, Single, Double and Triple play products.

	Allocation from GRC Calculation	Allocation used in the RAS	Diff, pp
Access own ducts	55.18%	59.69%	+4.51
Core own ducts	43.70%	39.19%	-4.51

Table 6: Differences between GRC's results and actual drivers used in the RAS  
[Source: CRA's analysis]

46. The CRA requires Ooredoo to use the results from the GRC methodology to split the ducts costs between access and core.

### 1.5.2.3 Contention ratios

47. The CRA has observed some differences between the contention ratios used by Ooredoo in the file "5201 Duct Space Analysis (005).xlsx" (ref. column "Avrge CR" of the worksheet "Users of Duct") and the contention ratios obtained using the regression curve presented in previous interactions (see worksheet "CR Calculations" of the same file).

Service	Segment	Average Bandwidth, Mbps	Average CR used in the RAS	Estimated CR based on the regression curve <sup>12</sup>	Diff. %
DFNR08 [Fixed Fibre Broadband - Double play (Non-usage)]	Residential	31.33	0.0216	0.0259	20.19%
	Business	21.31	0.0295	0.0319	8.17%
DFNR09 [Fixed Fibre Broadband - Triple Play (Non-usage)]	Residential	19.15	0.0288	0.0338	17.66%
	Business	19.15	0.0300	0.0338	13.00%
DFNR11 [Fixed ADSL Double Play (Non-usage)]	Residential	1.88	0.1127	0.1186	5.19%
	Business	2.62	0.0932	0.0990	6.27%
DFNR07 [Fixed IP/ MPLS Internet (Non-usage)] - Fibre	Business	6.38	0.3333	0.0613	-81.62%
DFNR07 [Fixed IP/ MPLS Internet (Non-usage)] - Copper	Business	0.33	0.3333	0.3016	-9.51%

Table 7: Differences between CR used in the RAS and calculated using the proposed regression curve  
[Source: CRA's analysis]

48. The CRA requires Ooredoo to use the correct contention ratios calculated using the regression curve.
49. Additionally, the CRA has also identified one inconsistency between the average bandwidth of the service "DFNR08 [Fixed Fibre Broadband - Double play (Non-usage)]" used to allocate the MPLS component and the value used by Ooredoo to allocate the cost from duct access network components:

<sup>12</sup> Calculated using the following regression curve:  $CR = \frac{1}{6 * BW^{0.54}}$

Service	Segment	Average Bandwidth based on MPLS allocation <sup>13</sup>	Average Bandwidth based on Access Network allocation <sup>14</sup>
DFNR08 [Fixed Fibre Broadband - Double play (Non-usage)]	Residential	19.41	31.33
	Business		21.31

Table 8: Differences between CR used in the RAS [Source: CRA's analysis]

50. The CRA requires Ooredoo to use the same average bandwidths for the service "DFNR08 [Fixed Fibre Broadband - Double play (Non-usage)]" in both the MPLS and ducts access network allocation.

## 1.6 Cost of Capital

51. Ooredoo is required to change the Cost of Capital to 10.45% in the following Reports:
- 51.1 Report #15, Wholesale RRU, Statement of costs by category for the year ended 31 December 2016;
- 51.2 Report #16, Wholesale RRU, Detailed Statement of Wholesale revenue and product costs for the year ended 31 December 2016;
- 51.3 Report #22, Retail RRU, Detailed Statement of Retail RRU revenues and costs for the year ended 31 December 2016.

## 1.7 Cost of International Connectivity

52. Ooredoo is required to modify the allocation of the cost of the extra capacity associated to the international connectivity resold to its subsidiaries or acquired for a future usage. In particular, this extra cost shall be allocated to the "IN999 – International development product" account.

## 1.8 Retail Leased Lines, Wholesale Transmission Links and Interconnection Links – costs related to the distance

### 1.8.1 Average distance for Retail Leased Lines and Wholesale Transmission Links

53. Ooredoo is using an average distance for these products, calculated based on a sample of 100 links.
54. The CRA notes that:
- 54.1 Ooredoo has not justified why the sample is representative of the links;

<sup>13</sup> Value provided by Ooredoo in the file "CN63-CN66 MPLS Component.xlsx" from Worksheet 'Calculation A'. No further disaggregation between residential and business segments was provided by Ooredoo.

<sup>14</sup> Values provided by Ooredoo in the file "5201 Duct Space Analysis (005).xlsx" from Worksheet 'Users of Duct'.

- 54.2 Contrary to the interconnection links file, there is not possibility of checking if distances included are reasonable (i.e. there are not coordinates nor other equivalent information that allows us to perform any sanity check);
- 54.3 The column H (DISTANCE - SDH Rings) of the file delivered by Ooredoo<sup>15</sup> is not the sum of distances of all rings used by the service (i.e. columns D:G);
- 54.4 The average distance is calculated without excluding rings that do not have information (i.e. which have zero km of distance). If we exclude these rings, the average distance would increase from 178 km to 239 km.
- 54.5 The average distance is calculated as a simple average. However, given that number of links for the 7 groups reported is different, a weighted average distance considering the number of links in each group would be more accurate. This modification would change the average distance from the previous 239 km to 249 km.
- 54.6 We doubt that this distance can be used for the full list of network components. For instance, this average distance is being employed also for “Base Transceiver Station (BTS) to Base Station Controller (BSC) (2G)” or “Node B to Radio Network Controller (RNC) (3G)”, but these components are quite different to the typical SDH rings.
55. Based on the above, the CRA requires Ooredoo to use 249 km as average distance for both Retail Leased Lines and Wholesale Transmission Links.
56. Further verifications on the sample and on applicability of the related average distance to the full list of network components will be performed during the implementation of the RAS 2017.

### 1.8.2 Average distance for Interconnection Links

57. Ooredoo submitted information showing that the average distance for the Interconnection Links is 347 km (i.e. provisioned km).
58. The CRA notes that:
- 58.1 Ooredoo routes the Interconnection Links through a SDH link named SDH641, whose length is 272 km. This is a meshed link, chosen to increase the security of the Interconnection Links;
- 58.2 The CRA cannot verify the distance submitted by Ooredoo;
- 58.3 The linear distance of the Interconnection Links is only 47 km, i.e. the provisioned km is 7 times higher than the linear distance;

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<sup>15</sup> Ref. “Transmission circuit length Calculation RAS 2016.xls”

58.4 The divider for calculating the cost per unit of the distance component is not the linear distance but the linear distance weighted by the number of E1s provisioned<sup>16</sup>.

58.5 The Interconnection Links is bi-directional, i.e. it used 50% by Vodafone and 50% by Ooredoo.

59. Based on the above, the CRA requires Ooredoo to use 173.5 km (i.e. 347x50%) as average distance for the Interconnection Links. This is consistent with non-discrimination principle, i.e. Ooredoo Retail Arms shall bear the 50% of the cost of the Interconnection Links. The same approach shall be applied when attributing the cost of the capacity component of the Interconnection Links.

60. Further verifications on this matter will be performed during the implementation of the RAS 2017.

### 1.8.3 Retail Leased Lines, Wholesale Transmission Links and Interconnection Links – attribution of the costs related to the distance to the services

61. Additionally, the CRA still has doubts regarding the allocation of network components costs to link services, as demonstrated by the inconsistencies identified in the use of the equivalent number of E1s<sup>17</sup>.

62. In the email, the CRA indicated that it found an inconsistency between the information received in the meeting and the response given by Ooredoo in a previous round of clarifications. To support its position the CRA clarified that:

62.1 The latest information provided by Ooredoo showed that Ooredoo counts on 6 STM1 links for interconnecting with Vodafone. The CRA noticed that the number of provisioned circuits used by Ooredoo for the allocation of links (ref. file “PP-A34 SDH Rings Length”) is 379. If this value is divided by the conversion factor of 63 (to convert E1 to STM1), the result is 6 circuits, which matches with the number of 6 STM1 provided by Ooredoo.

62.2 This seems to indicate that the driver used for the allocation of the distance component is (at least for the interconnection links) equal to number of equivalent E1 circuits x average circuit length (347.5 km for interconnection links). That is, Ooredoo is converting the number of physical circuits (in this case, 6 STM1) to number of equivalent E1s.

62.3 However, in a previous round of clarifications, Ooredoo answered with an opposite argument. Particularly, in the Fourth Response (dated July 18, 2018), responding to question # 22, Ooredoo stated that “*These numbers are different as one is the capacity in E1s while the other is the number of circuits, e.g. a single STM1 circuit this would be 1 circuit which is equivalent to 63 E1s*”. This response was given by Ooredoo to justify the differences between the provisioned and billed capacity for

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<sup>16</sup> Ref. file “Interco Link revenue 2016.xls”

<sup>17</sup> Ref. to e-mail sent by the CRA to Ooredoo on November 22, 2018, i.e. minutes of the meeting held on November 22, 2018

the service wholesale transmission links. This answer does not seem consistent with the approach followed for interconnection links.

63. Therefore, according to Ooredoo's information and responses, it is not clear anymore to the CRA what is reflected in the number of provisioned circuits (ref. column "Total No. of 2MB circuits" of the file "PP-A34 SDH Rings Length") i.e. whether this is the number of circuits or the number of equivalent E1s.
64. If this information refers to the number of actual circuits (for instance, a STM1 should be counted as 1), at least, in the case of the interconnection links, the number of 379 links should be replaced by 6.
65. Ooredoo is required:
  - 65.1 To provide an explanations on the above finding;
  - 65.2 If needed, to correct the driver using consistently the number of circuits (this is CRA preferred solution) or to the number of equivalent E1s (Ooredoo shall support its choice from a technical point of view).

\*\*\* End of Document \*\*\*