The Hashemite Kingdom of Jordan

TELECOMMUNICATIONS REGULATORY COMMISSION

EXPLANATORY MEMORANDUM FOR CHARGES FOR MOBILE INTERCONNECTION SERVICES BASED ON TSLRIC+ MODELS

Implementation of TSLRIC+ for mobile services

Summary

This document sets out details of the TRC's pricing decision in relation to the implementation of TSLRIC+ pricing for the relevant regulated services of mobile operators in Jordan. The purpose of this document is to give the operators an understanding of how the TRC has implemented TSLRIC+ pricing in conjunction with the release of the efficient operator models.

Accompanying this Explanatory Note is a redacted version of the efficient operator model.

Mobile termination rates 2018–2021

The table below sets out the termination rates that will be applied in the period 2018–2021 for Zain, Orange Mobile and Umniah.

Rate per minute (fils)	2018	2019	2020	2021
Blended	**11.6**	**8.4**	**5.2**	**2.0**

Timing of the implementation

The Interconnection charges set out in the Pricing Decision shall apply from 1ST of January 2018. TRC will monitor market conditions and, if justified by changes in market conditions, may update the forecasts and key assumptions in the LRIC models to provide a further check on interconnection tariffs.

Implementation of the glide path

The approach adopted by the TRC when setting the new regulated charges is described below:

1. When the new charges were considered to be close to the previous ones and/or the regulated services under consideration were not material under the current market situation, a fixed charge has been set for the 2018-2021 period, which is extracted as the average of the efficient operator model's results for that period.

2. When the new charges were considered not to be close to the previous ones and the regulated services under consideration were material under the current market situation, a glide path has been defined so as to smooth the impact on the market of the Decision.
3. In the case that the market review situation or the regulation justifies it, TRC may make a revision of rates when needed.

Symmetrical rates

The TRC Decision 17-5/2009 stated that symmetrical prices for all operators are preferred unless there are exogenous cost differences that justify asymmetrical prices. Having reviewed all the available evidences in relation to the cost structures of the different mobile operators, the TRC has concluded that there are no exogenous cost differences that justify asymmetrical rates. The TRC has determined that the final mobile interconnection costs

calculated by the models for the 2018-2021 period are sufficiently close together, and given the uncertainty about future market growth, cost changes and other factors, one set of charges can be implemented. This set of charges is based on the outcomes of the efficient operator model. That is, the TRC has determined to set symmetric charges on all operators for the 2018-2021 period.

Annex 1- Efficient Operator Model

Introduction

Since 2005, the Telecommunications Regulatory Commission (hereinafter, 'TRC') has shown its motivations to adopt a "Total Service Long-Run Incremental Cost Plus" (hereinafter, 'TSLRIC+') as the preferred mechanism for wholesale price setting in the Kingdom.

In September 2009, the TRC published its "Regulatory decision on the principles to be used in the construction of TSLRIC+ models for the costs of interconnection Services", which was later followed by the submission of the Hybrid TSLRIC+ models in June 2011. As a result of that process, the TRC published its regulated wholesale charges in two decisions, one for fixed interconnection and one for mobile interconnection.

Having reached the end of the period reflected in the previous regulatory decisions (2014), the TRC decided back in 2015 to start a new wholesale price setting process to update the applicable charges. The industry was informed in early 2016 of the initiation of this process and was welcomed to participate throughout the process at different stages such as:

- Data gathering process
- 1st and 2nd public consultations on the Hybrid TSLRIC+ Models

As part of this process, the TRC has updated its Hybrid TSLRIC+ models on the grounds of the methodology that was established in September 2009 to recognise the latest technological developments that have taken place in the market, which are detailed in the following sections.

Based on the modelling methodology that was laid out in the Decision, the TRC received data from the three Jordanian mobile network operators. The TRC then engaged in extensive consultation with the operators, each being given the opportunity to comment on its own cost model and on the efficient operator variants and further meetings were conducting for this purpose. These models were accompanied by manuals that described their technical algorithms as well as their overall rationale. In finalising the models and using them to establish interconnection charges, the TRC has carefully considered all the submissions and notes received from the operators in the construction of the TSLRIC+ models during the two consultation rounds that took place.

Since the development of the TRC's Hybrid TSLRIC+ models in 2010, the Jordanian telecom markets have undergone significant changes which need to be recognised to correctly assess the results of the updated TSLRIC+ models. The following sections describe the main evolutions of the telecom sector since 2010 and which have been implemented in the updated models, as well as some specific considerations which are of particular importance for the TSLRIC+ pricing.

Technological advancements in mobile networks

The most relevant technological advancements that have taken place in the mobile telecoms market are listed below:

1. **3G and 4G Access technologies.** It must be indicated that the calculation algorithms needed for these two technologies have been incorporated in the

updated TSLRIC+ models. In the case of the previous versions, even though 3G algorithms were implemented, these were disabled so that they did not have any impact on the results produced.

2. **Single-RAN equipment.** Operators have started replacing their traditional radio access equipment (e.g. BTSs, NodeBs, eNodeBs) for an advanced equipment called Single-RAN platforms which provide simultaneous 2G, 3G and 4G access functionalities while allowing significant cost reductions. These new equipment are also reflected in the updated TSLRIC+ models.

3. **High capacity transmission links.** Ethernet technologies have been included in the model so as to complement the PDH/SDH technologies taken into consideration in the previous versions of the TSLRIC+ models.

4. **NGN All-IP Core.** The deployment of 4G technologies has been accompanied by the development of core NGN networks that are prepared to support the provision of LTE services. This NGN All-IP network, based on a System Architecture Evolution (SAE) Core scheme, is composed of core platforms such as the MME, the SGW or the PGW, and have also been included in the models to reflect current market realities.

The introduction of 3G and 4G access technologies has led to decreases in services' unit costs thanks to the higher efficiencies reached under each new release (4G being cheaper than 3G, and 3G being cheaper than 2G). The exhibit below provides a graphical overview of the data services unit costs under each different access technology:

Exhibit 1: Costs of providing a MB of traffic under each access technology [Source: TRC]

The exhibit above illustrates that the cost of 3G data traffic becomes much lower than the 2G data traffic, something that would be expected to be replicated in the 3G-4G comparison on the medium term, when 4G networks are massively utilized (from 2020 on the exhibit above).

At the same time, as outlined in a recent report[1] published by the CNMC (Spanish regulator) the implementation of the SingleRAN access technologies could lead to a 32.81% reduction in network costs:

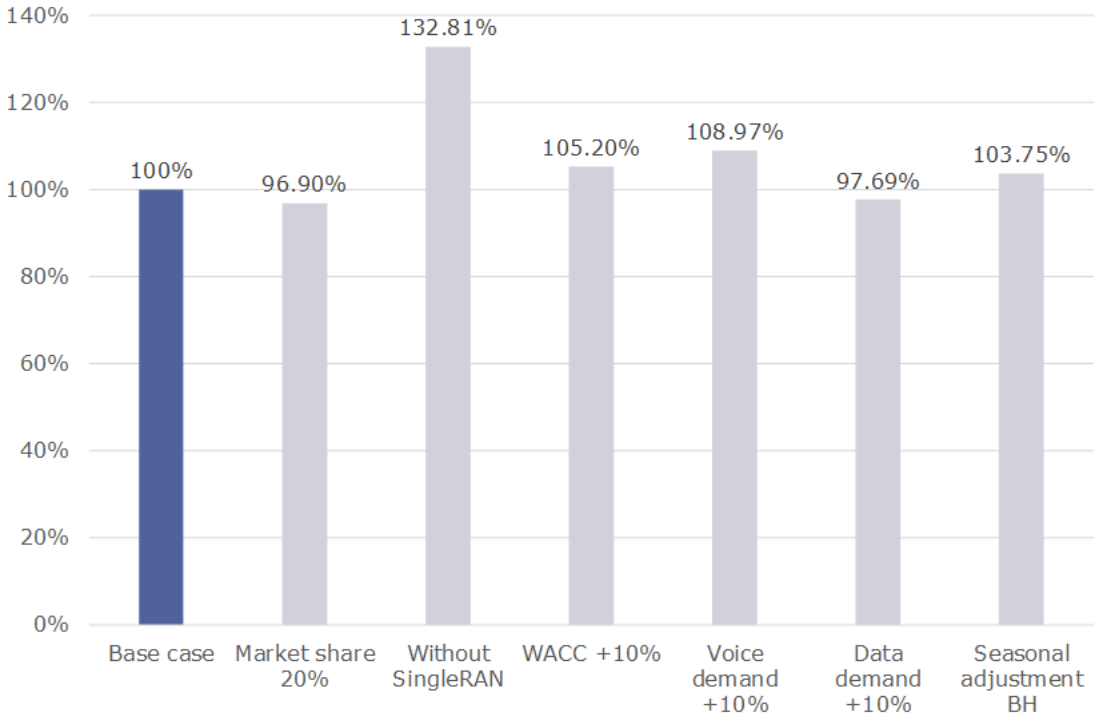

Exhibit 2: Sensitivity analysis of different factors on the cost of mobile voice interconnection in a Bottom-Up LRIC model [Source: CNMC]

Finally, the mobile telecoms market has also benefited from new spectrum bands made available, in particular:

- 800 MHz
- 2100 MHz
- 2600 MHz

The availability of these bands will contribute to both (i) reduced coverage costs and (ii) better capabilities to provide the capacity requirements demanded by the users.

Traffic Evolution

The technological changes presented in the previous section were accompanied by an increase in traffic, particularly relevant for data services which experienced a yearly growth of 100% between 2010 and 2017, as illustrated below:

[1] Source: https://telecos.cnmc.es/documents/10138/4360466/20160622_NOT-DTSA-054-16.pdf/b5351d59-f142-4059-8270-07db78a3b2da

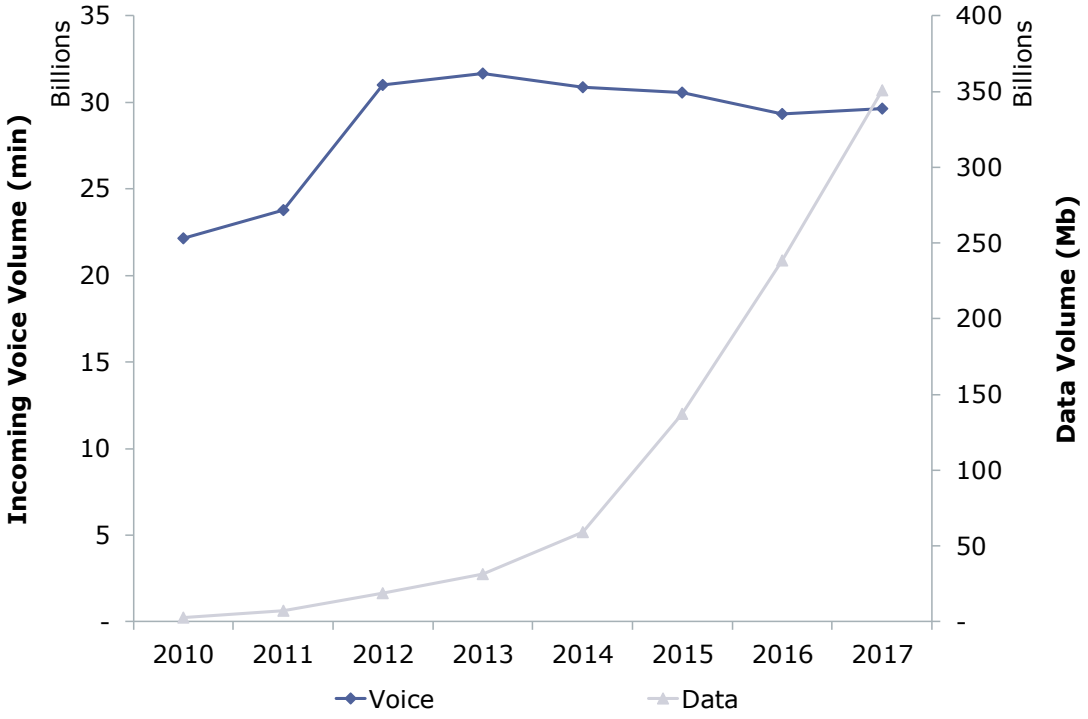

Exhibit 3: Evolution of the voice and data traffic in the mobile sector in the period 2010-2017 [Source: TRC]

The exhibit below shows that same comparison expressing both voice and data volumes in Mbps:

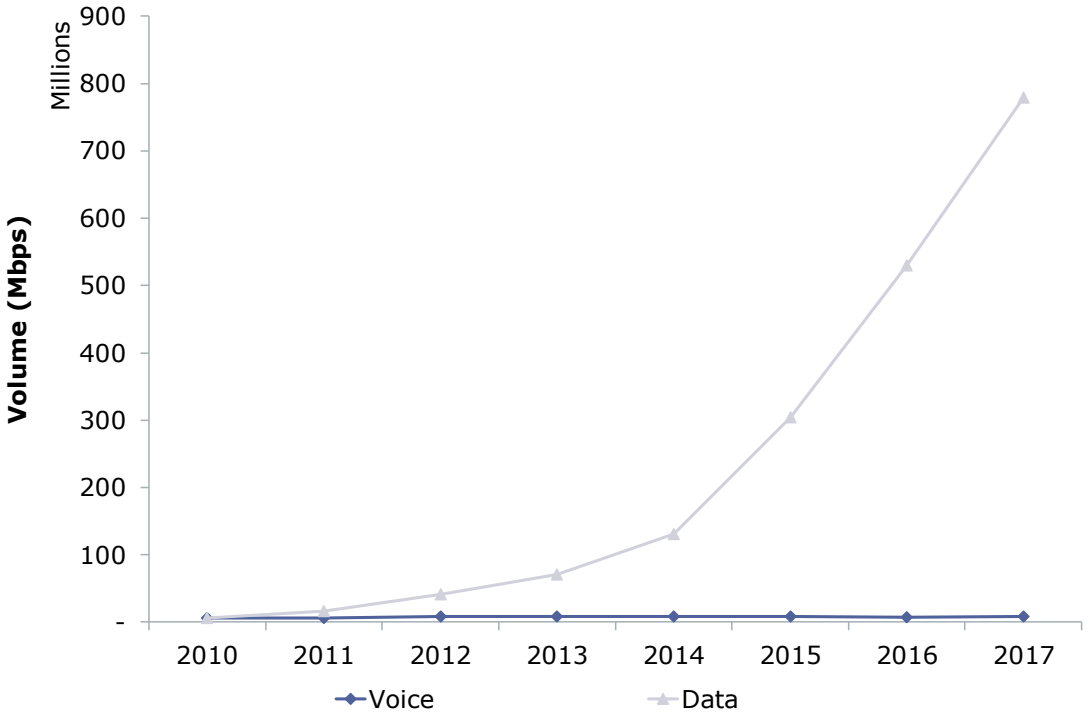

Exhibit 4: Evolution of the voice and data traffic (in Mbps) in the mobile sector in the period 2010-2017 [Source: TRC]

All the above factors (more efficient networks and equipment, and higher economies of scale) have contributed to a general decrease in the unit costs of mobile telecoms services which are reflected in the wholesale prices presented in the Annex 3.

Annex 2 - Overview of the comments received from operators during the Public Consultation

Two consultation rounds have taken place with Jordanian telecom operators to receive their feedback on the design, algorithms and results of the models, with the objective to maximise the consistency of the models. Specifically, the two public consultation rounds that were carried out are described below:

- Consultation round 1 (from December 1st 2016 to January 26th 2017) was aimed at obtaining operators' feedback on the inputs and algorithms of the models
- Consultation round 1 (from February 23rd 2017 to March 23rd 2017) was aimed at obtaining operators' feedback on the outputs of the models.

The table below summarizes the main comments received and the related actions taken by the TRC. It must be noted that comments are presented confidentially.

Comment received from the operator	Action taken by the TRC
An operator outlines that the number of sites calculated in the model in the future period is not aligned with its deployment plans. It expects to install a higher number of sites to improve, among others, the indoor coverage as well as the quality of service.	The forecasts provided by the operator who submitted this comment were neither aligned with its demand projects nor with the other operators' forecasts. Therefore, these forecasts were not taken into consideration.
An operator indicates that the future increase expected in population density and populated areas is not reflected in the model, and notes that this increase will force operators to install a high number of sites that would not be considered.	Similar to the point above in what relates to forecasts, there is no evidence that the operator's contributions will actually become true, and that this will actually be the situation in Jordan. No adjustments on the inputs have been introduced by the TRC as a result of this comment.
An operator outlines that some discrepancies have been identified in the number of sites calculated in the model for the voice and the data increment.	The effective cell radii of the sites in urban environments has been decreased so that the number of sites calculated under the voice-only increment is better aligned with the operator's indications.
An operator argues that the cost related to the specific software included in eNodeB elements dedicated to the provision of voice services (Voice Features "CS Fallback") is not considered in the model.	A new resource "*4G Software (Voice Features CS Fallback)*" has been dimensioned in the model to capture these specific costs.

Comment received from the operator	Action taken by the TRC
An operator notes that the price trends for radio equipment present a negative growth, which is neither aligned with international references nor with the operator's agreements for the purchase of these equipment. This operator states that such agreements are based on fixed prices for a period of 5 years, and are also valid for other assets than radio equipment.	It should be noticed that the operator based its analysis of the international references on the situation of a single market, while the TRC analysed a broad range of countries in order to determine in a robust way the price trends applicable. These price trends use to be homogenous around the globe, as there is a limited number of suppliers which set the prices. Based on the above, no modifications have been introduced in the model.
An operator indicates that the spectrum refarming assumptions of the model are unrealistic.	The inputs of the model are based on the original data reported by the operators in the data gathering process and consequently, no adjustments related to spectrum refarming have been taken into consideration in the final version of the model.
An operator indicates that the downlink spectral efficiency for LTE appears low and should be adjusted to a higher value to better represent the efficiencies reached in current networks.	The downlink efficiency for LTE has been adjusted.
An operator argues that the costs related to 2G BSC and MSCS software are underestimated and not aligned with the costs reported by this operator.	The inputs reported by all operators were crosschecked between them and with international benchmarks to assess their validity. The costs reported by this operator were more than 5 times higher than the highest figure registered in the benchmark/other operators' figures. Therefore, the figures reported were found to be out of a reasonable range and were not adjusted in the model.
An operator states that its 2015 FAR did not include all the payments related to its 3G spectrum licenses, as these payments were only activated in 2016, with a value of around [confidential] million of JD. This operator also indicates that in the case of the 4G spectrum, no annual fee (reflected by means of the OPEX) has been considered.	The spectrum fees paid by the operators were reviewed in the model and an annual fee for 4G licenses was included.
An operator indicates that a glide path should be implemented when setting the new MTR to smooth out the impact of the MTR reduction in the market.	After considering the magnitude of the MTR reduction and its likely impact on the market, the TRC has decided to implement a 3-years glide path for the MTR.

Comment received from the operator	Action taken by the TRC
An operator indicates that the percentage of dimensioning overcapacity is lower than its actual figures.	The TRC had already clarified that the dimensioning overcapacity should be analysed together with the planning horizon. Consequently, the effective dimensioning overcapacity considered in the model is higher than the one reflected in the "dimensioning overcapacity" field.
An operator argues that the MoU forecasts are not realistic and should consider other scenarios.	The MoU forecasts used in the model are based on the initial data provided by the operators in the data gathering process. No retrospective adjustments on the inputs originally submitted by the operators have been implemented.
An operator argues that the CapEx obtained in the model is not aligned with its financial statements.	Due to the nature of the model (which considers a CCA cost base and modern equivalent assets), it is expected that differences will arise between the model and the operator's financials (specially in terms of annual investment or GBV vs GRC, as they do not follow the same base). Nevertheless, the TRC highlights that the relevant financial KPIs (namely OpEx and depreciation) are aligned with the figures reported by the operators for 2015.
An operator notes that the unitary costs employed for the 2G spectrum licenses in the operator's model are lower than the ones used for the efficient operator, which would not be appropriate under the definition of "efficient". The operator also outlines that even if its spectrum costs, as registered in its FAR, could be lower than the other operators, it could be due to the useful life considered.	Given the hybrid nature of the model, the license cost employed for the operator has been introduced in order to match the cost as reflected in the operator's FAR. Following TRC's approved principles, the cost of the efficient operator has been calculated as the average of three mobile operators. Since licenses costs of the other operators were higher than the concerned operator's costs, the cost for the efficient operator results in a higher value than that use for the concerned operator. Based on the above, no adjustments have been introduced in the model.
An operator explains that, in the case of costs related to 3G licenses, the GBV value calculated in the model would differ from that reported in its FAR. Additionally, this operator recognises its mistake in the written comments, where a value of [confidential] instead of [confidential] had been presented.	Based on the operator's contribution, the cost of the 3G licenses has been adjusted to match the GBV as presented in the operator's FAR.
An operator indicates that a glide path should not be implemented for the setting of the new MTR, due to the already extended period of validity of the previous charge set in 2014.	After considering the magnitude of the MTR reduction and its likely impact on the market, the TRC has decided to implement a 3-years glide path for the MTR.

Comment received from the operator	Action taken by the TRC
An operator argues that the WACC value considered in the model is too high.	The WACC value considered in the model was extracted from TRC's recent decision on WACC values and was not subject to discussion under this process.
An operator argues that the traffic volume forecasts for data considered in the model are unrealistic.	The future demand considered in the model for the Jordanian operators is based on the forecasts provided by the operators in the data gathering process. Therefore, no adjustments have been introduced in these inputs.
An operator notes that the cost trend used in the models for building and lands is not aligned with the Jordanian market.	The cost trends have been updated based on the indications provided by this operator.
An operator indicates that the costing figures related to electricity should be subject to a 15% mark-up to cope for meters reading overheads, redundant equipment for electricity, generators, fuel, etc.	Based on the operator's comment, an overhead factor of 15% was included in the models for the relevant services.
An operator notes that the model is designed to cost some retail services. However, the model does neither compute nor consider any retail cost in the assessment of retail services costs. This leads to some retail services having the same unit costs as the wholesale service they rely on.	TRC clarified that retail costs were not to be included in the Hybrid TSLRIC+ model, given that it deals only with network-related costs.
An operator asks confirmation from the TRC that the costs calculated by the model for unregulated services are not relevant.	The model needs to include all the services, independent on whether they are regulated or not, as required in TRC's principles (TSLRIC+: Total Service LRIC+). At the same time, this is essential to ensure a proper cost allocation exercise. Irrespective of the above, only the relevant services are regulated by the TRC and their results are presented in Annex 3 of this document.
An operator does not accept the costs produced by the model for operator assistance services. It notes that this service is outsourced to a third party and that the regulated cost for the service should be at least equal to the cash out amount incurred by the operator.	TRC clarifies that the contract with a third party does not need to properly represent the costs of an efficient operator, which is the aim of the model. At the same time, it highlights that the cost provided (+300 fils/min) would represent that if the call agent is busy 50 minutes out of an hour, it would be generating more than 15 JD/hour or more than 120 JD/man-day, which is felt to be out of a reasonable range. Based on the above, the TRC has kept the usage of the outcome produced by the model.

Annex 3- Pricing of mobile services:

The tables below set out the pricing of all mobile services based on the efficient-operator model.

National Call Termination

Rate per minute (fils)	2018	2019	2020	2021
Blended	11.6	8.4	5.2	2.0

Number Translation Traffic Origination (NTTO) / Prepaid Calling Card Access

Rate per minute (fils)	2018	2019	2020	2021
Blended	2.1	2.1	2.1	2.1

National Call Transit

Rate per minute (fils)	2018	2019	2020	2021
Blended	0.4	0.4	0.4	0.4

Carrier Selection / Pre-selection traffic origination service

	2018	2019	2020	2021
Selection rate per minute (fils)	2.1	2.1	2.1	2.1
Pre- Selection rate per minute (fils)	2.3	2.3	2.3	2.3
Installation/ CAC setup (JD)	4.5	4.5	4.5	4.5

Emergency calls

Rate per minute (fils)	2018	2019	2020	2021
Blended	0.9	0.9	0.9	0.9

Customer sited interconnect link – Microwave

JD per E1 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	4.1	4.1	4.1	4.1

JD per 16E1 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	6.8	6.8	6.8	6.8

JD per 48E1 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	29.2	29.2	29.2	29.2

JD per STM-1 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	49.3	49.3	49.3	49.3

JD per STM-4 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	65.7	65.7	65.7	65.7

JD per STM-16 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	87.5	87.5	87.5	87.5

JD per STM-64 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	143.6	143.6	143.6	143.6

JD per Fast Ethernet link per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	11.4	11.4	11.4	11.4

JD per Gigabit Ethernet link per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	13.3	13.3	13.3	13.3

JD per 10 Giga Ethernet link per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	23.2	23.2	23.2	23.2

The charges for Trunk Segment and Terminating Segment Services will be applicable for the links installation and rental charges.

Customer sited interconnect link – Fibre

JD per E1	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	4.1	4.1	4.1	4.1

JD per E3	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	6.8	6.8	6.8	6.8

JD per DS3	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	10.4	10.4	10.4	10.4

JD per STM-1	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	49.3	49.3	49.3	49.3

JD per STM-4	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	65.7	65.7	65.7	65.7

JD per STM-16	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	87.5	87.5	87.5	87.5

JD per STM-64	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	143.6	143.6	143.6	143.6

JD per Fast Ethernet link	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	11.4	11.4	11.4	11.4

JD per Gigabit Ethernet link	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	13.3	13.3	13.3	13.3

JD per 10 Giga Ethernet link	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	23.2	23.2	23.2	23.2

The charges for Trunk Segment and Terminating Segment Services will be applicable for the links installation and rental charges.

Interconnect link extension - per km

The charges for Trunk Segment and Terminating Segment Services will be applicable for the installation and rental charges.

Operator-sited interconnect link

The charges for Trunk Segment and Terminating Segment Services will be applicable for the installation and rental charges.

Collocation and Infrastructure Sharing

JD per month	2018	2019	2020	2021
Outdoor space (Average space of 5 m²)/ Rental per 3 antennas of the tower per m2	397.2	397.2	397.2	397.2
Power supply/ 1 Amp	49.7	49.7	49.7	49.7
Indoor space (Average space of 3 m²)/ Rental per m2	307.4	307.4	307.4	307.4
Sharing of space in towers	184.2	184.2	184.2	184.2

Duct and Dark Fibre sharing

JD/metre	2018	2019	2020	2021
Installation	0.6	0.6	0.6	0.6
1 pair of dark fibre monthly rental / 1 metre	0.3	0.3	0.3	0.3
Duct monthly rental / 1 metre	0.2	0.2	0.2	0.2

National Directory Enquiries

Rate per minute (fils)	2018	2019	2020	2021
Blended	32.3	32.3	32.3	32.3

Operator Assistance (including Call Connection Services)

Rate per minute (fils)	2018	2019	2020	2021
Blended	32.3	32.3	32.3	32.3

Billing and Collection Service

Billing (JD/bill)	2018	2019	2020	2021
Billing and collection	0.9	0.9	0.9	0.9

Wholesale Trunk Segment Service

	2018	2019	2020	2021
Installation charges (JD)				
Trunk Segment of Leased Line	394.8	394.8	394.8	394.8
Rental charges (JD/month)				
Z0 (from 0 up to 16 km) - 64kbps	0.6	0.6	0.6	0.6
Z0 (from 0 up to 16 km) - 128kbps	0.9	0.9	0.9	0.9
Z0 (from 0 up to 16 km) - 256kbps	1.7	1.7	1.7	1.7
Z0 (from 0 up to 16 km) - 512kbps	3.1	3.1	3.1	3.1
Z0 (from 0 up to 16 km) - 1024kbps	6.0	6.0	6.0	6.0
Z0 (from 0 up to 16 km) - E1	11.8	11.8	11.8	11.8
Z0 (from 0 up to 16 km) - E3	91.7	91.7	91.7	91.7
Z0 (from 0 up to 16 km) - DS3	118.6	118.6	118.6	118.6
Z0 (from 0 up to 16 km) - STM1	439.0	439.0	439.0	439.0
Z0 (from 0 up to 16 km) - STM4	1,508.6	1,508.6	1,508.6	1,508.6

	2018	2019	2020	2021
Z0 (from 0 up to 16 km) - STM16	5,682.9	5,682.9	5,682.9	5,682.9
Z0 (from 0 up to 16 km) - Fast Ethernet	259.8	259.8	259.8	259.8
Z0 (from 0 up to 16 km) - Gigabit Ethernet	2,440.4	2,440.4	2,440.4	2,440.4
Z0 (from 0 up to 16 km) – 10 Giga Ethernet	24,390.3	24,390.3	24,390.3	24,390.3
Z1 (from 16 up to 40 km) - 64kbps	1.5	1.5	1.5	1.5
Z1 (from 16 up to 40 km) - 128kbps	2.5	2.5	2.5	2.5
Z1 (from 16 up to 40 km) - 256kbps	4.4	4.4	4.4	4.4
Z1 (from 16 up to 40 km) - 512kbps	8.2	8.2	8.2	8.2
Z1 (from 16 up to 40 km) - 1024kbps	15.8	15.8	15.8	15.8
Z1 (from 16 up to 40 km) - E1	31.0	31.0	31.0	31.0
Z1 (from 16 up to 40 km) - E3	240.5	240.5	240.5	240.5
Z1 (from 16 up to 40 km) - DS3	311.1	311.1	311.1	311.1
Z1 (from 16 up to 40 km) - STM1	1,151.8	1,151.8	1,151.8	1,151.8
Z1 (from 16 up to 40 km) - STM4	3,958.3	3,958.3	3,958.3	3,958.3
Z1 (from 16 up to 40 km) - STM16	14,910.9	14,910.9	14,910.9	14,910.9
Z1 (from 16 up to 40 km) - Fast Ethernet	681.8	681.8	681.8	681.8
Z1 (from 16 up to 40 km) – Gigabit Ethernet	6,403.2	6,403.2	6,403.2	6,403.2
Z1 (from 16 up to 40 km) – 10 Giga Ethernet	63,995.5	63,995.5	63,995.5	63,995.5
Z2 (from 40 up to 80 km) - 64kbps	4.0	4.0	4.0	4.0
Z2 (from 40 up to 80 km) - 128kbps	6.5	6.5	6.5	6.5
Z2 (from 40 up to 80 km) - 256kbps	11.6	11.6	11.6	11.6
Z2 (from 40 up to 80 km) - 512kbps	21.7	21.7	21.7	21.7
Z2 (from 40 up to 80 km) - 1024kbps	41.9	41.9	41.9	41.9
Z2 (from 40 up to 80 km) - E1	82.3	82.3	82.3	82.3
Z2 (from 40 up to 80 km) - E3	637.5	637.5	637.5	637.5
Z2 (from 40 up to 80 km) - DS3	824.5	824.5	824.5	824.5
Z2 (from 40 up to 80 km) - STM1	3,052.6	3,052.6	3,052.6	3,052.6
Z2 (from 40 up to 80 km) - STM4	10,490.8	10,490.8	10,490.8	10,490.8
Z2 (from 40 up to 80 km) - STM16	39,518.8	39,518.8	39,518.8	39,518.8
Z2 (from 40 up to 80 km) - Fast Ethernet	1,806.9	1,806.9	1,806.9	1,806.9
Z2 (from 40 up to 80 km) – Gigabit Ethernet	16,970.6	16,970.6	16,970.6	16,970.6
Z2 (from 40 up to 80 km) – 10 Giga Ethernet	169,609.7	169,609.7	169,609.7	169,609.7
Z3 (from 80 up to 150 km) - 64kbps	8.3	8.3	8.3	8.3
Z3 (from 80 up to 150 km) - 128kbps	13.5	13.5	13.5	13.5
Z3 (from 80 up to 150 km) - 256kbps	24.0	24.0	24.0	24.0
Z3 (from 80 up to 150 km) - 512kbps	44.9	44.9	44.9	44.9
Z3 (from 80 up to 150 km) - 1024kbps	86.7	86.7	86.7	86.7
Z3 (from 80 up to 150 km) - E1	170.4	170.4	170.4	170.4
Z3 (from 80 up to 150 km) - E3	1,319.7	1,319.7	1,319.7	1,319.7
Z3 (from 80 up to 150 km) - DS3	1,707.0	1,707.0	1,707.0	1,707.0
Z3 (from 80 up to 150 km) - STM1	6,319.5	6,319.5	6,319.5	6,319.5
Z3 (from 80 up to 150 km) - STM4	21,718.5	21,718.5	21,718.5	21,718.5
Z3 (from 80 up to 150 km) - STM16	81,813.6	81,813.6	81,813.6	81,813.6
Z3 (from 80 up to 150 km) - Fast Ethernet	3,740.7	3,740.7	3,740.7	3,740.7
Z3 (from 80 up to 150 km) - Gigabit Ethernet	35,133.3	35,133.3	35,133.3	35,133.3
Z3 (from 80 up to 150 km) – 10 Giga Ethernet	351,133.9	351,133.9	351,133.9	351,133.9
Z4 (more than 150 km) - 64kbps	14.9	14.9	14.9	14.9
Z4 (more than 150 km) - 128kbps	24.3	24.3	24.3	24.3
Z4 (more than 150 km) - 256kbps	43.1	43.1	43.1	43.1
Z4 (more than 150 km) - 512kbps	80.8	80.8	80.8	80.8
Z4 (more than 150 km) - 1024kbps	156.0	156.0	156.0	156.0
Z4 (more than 150 km) - E1	306.5	306.5	306.5	306.5
Z4 (more than 150 km) - E3	2,374.1	2,374.1	2,374.1	2,374.1
Z4 (more than 150 km) - DS3	3,070.8	3,070.8	3,070.8	3,070.8

	2018	2019	2020	2021
Z4 (more than 150 km) - STM1	11,368.5	11,368.5	11,368.5	11,368.5
Z4 (more than 150 km) - STM4	39,070.5	39,070.5	39,070.5	39,070.5
Z4 (more than 150 km) - STM16	147,178.4	147,178.4	147,178.4	147,178.4
Z4 (more than 150 km) - Fast Ethernet	6,729.4	6,729.4	6,729.4	6,729.4
Z4 (more than 150 km) - Gigabit Ethernet	63,203.0	63,203.0	63,203.0	63,203.0
Z4 (more than 150 km) – 10 Giga Ethernet	631,671.4	631,671.4	631,671.4	631,671.4

Wholesale Terminating Segment Service

	2018	2019	2020	2021
Installation charges (JD)				
Terminating Segment of Leased Line	43.2	43.2	43.2	43.2
Rental charges per link (from 0 up to 3 km) (JD/month)				
64kbps	18.7	18.7	18.7	18.7
128kbps	19.6	19.6	19.6	19.6
256kbps	21.2	21.2	21.2	21.2
512kbps	24.5	24.5	24.5	24.5
1024kbps	31.1	31.1	31.1	31.1
E1	44.2	44.2	44.2	44.2
E3	590.1	590.1	590.1	590.1
DS3	627.1	627.1	627.1	627.1
STM1	1,093.2	1,093.2	1,093.2	1,093.2
STM4	2,349.3	2,349.3	2,349.3	2,349.3
STM16	7,106.7	7,106.7	7,106.7	7,106.7
Fast Ethernet	815.6	815.6	815.6	815.6
Gigabit Ethernet	3,156.0	3,156.0	3,156.0	3,156.0
10 Giga Ethernet	26,919.1	26,919.1	26,919.1	26,919.1
Rental charges per km (> 3 km) (JD/month)				
64kbps	6.2	6.2	6.2	6.2
128kbps	6.5	6.5	6.5	6.5
256kbps	7.1	7.1	7.1	7.1
512kbps	8.2	8.2	8.2	8.2
1024kbps	10.4	10.4	10.4	10.4
E1	14.7	14.7	14.7	14.7
E3	196.7	196.7	196.7	196.7
DS3	209.0	209.0	209.0	209.0
STM1	364.4	364.4	364.4	364.4
STM4	783.1	783.1	783.1	783.1
STM16	2,368.9	2,368.9	2,368.9	2,368.9
Fast Ethernet	271.9	271.9	271.9	271.9
Gigabit Ethernet	1,052.0	1,052.0	1,052.0	1,052.0
10 Giga Ethernet	8,973.0	8,973.0	8,973.0	8,973.0