

Amended Annexure G (Network Rollout and Coverage Obligations)

of

Ooredoo Qatar Q.P.S.C.

"License for the Provision of Public Mobile Telecommunications Networks
and Services - issued on 07 October 2007 (ICTRA 08/07 A)"

and

Vodafone Qatar P.Q.S.C.

"License for the Provision of Public Mobile Telecommunications Networks
and Services - issued on 29 June 2008 (ICTRA 04/08) and amended on 26
February 2009 (ICTRA 03/09)"

December 2021



ANNEXURE G - NETWORK ROLL-OUT AND COVERAGE OBLIGATIONS

1. GSM AND UMTS

Obligations related to GSM and UMTS remain unchanged. CRA will consider changes in 2023.

2. IMT-ADVANCED (4G/4G+)

The services supported by the IMT-Advanced Radio Access Technology which are offered to the public are subject to the following Continuing Coverage obligations, Additional obligations, and Completion Deadlines.

2.1. Continuing Coverage Obligations

The Continuing Coverage Obligation for IMT-Advanced Radio Access Technology network and services must be, as a minimum:

- 98% of the primary landmass of the State of Qatar. For the avoidance of doubt, this does not include Qatar territorial waters or offshore islands.
- A reception level of -100 dBm at $\geq 95\%$ of any outdoor area of 100m x 100m at a height of 1.5 m above ground level.

2.2. Additional Obligations

2.2.1. Quality of Service Obligation

The average data rate (download) across Qatar must be at all times above 20 Mbps by 31st July 2022.

2.2.2. Adequate Indoor Coverage

- The Licensee must provide the average data rate mentioned above in indoor areas. Whenever a Customer complains about indoor coverage in their premises, the Licensee must provide to the grievant Customer a solution which shall, under its responsibility, improve the indoor coverage.
- Locations shall be prioritized based on the number and type of coverage complaints received from Customers by the Licensees or by CRA and the number of Customers impacted.
- The Licensee must keep records for a five (5) years duration of:
 - The Customer complaints,
 - The Licensee list of selected locations per year and associated selection criteria, and



- The indoor solutions provided to the Customers.
- The Licensee shall provide to CRA each year, no later than March 1st, the list of indoor solutions provided to Customers the previous calendar year, and the list of indoor solutions planned for the year ongoing. Upon request of CRA, the Licensee shall communicate to CRA all its records related to indoor solutions.

3. IMT-2020 (5G)

The Coverage and QoS obligations for IMT-2020 technologies are intended to ensure the availability of the technology within the primary landmass of the State of Qatar in all populated areas, highways, roads, transport hubs, commercial areas, malls, smart cities, and residential establishments. The target is to showcase Qatar's advancement in the ICT sector and its ongoing efforts to provide the best of world class mobile technologies to visitors and residents during international events hosted by the country.

3.1. Spectrum Release

CRA has assigned to each Licensee 100 MHz of spectrum in the 3.5 GHz band on December 31, 2018 ("Release 1" or "Primary Assignment").

CRA intends to release additional spectrum for the IMT-2020 technology to improve the user experience within a fast-evolving ecosystem and use cases. CRA additional spectrum assignments are planned as follows:

- Release 2 (Optional Assignment) → Additional One (1) x 100 MHz blocks in the 3.5 GHz band and/or two (2) x 400 MHz blocks in the 26 GHz band (around August 2021).
- Release 3 (Optional Assignment) → One (1) x 10 MHz blocks in the 700 MHz band (around January 2023).

3.2. Obligations and Commitments

The IMT-2020 obligations shall ensure the technology is available by December 2024 to all users throughout Qatar with a minimum download speed of 100 Mbps.

Commitments are divided in three (3) phases addressing Qatar's short-term and long-term requirements and visions.

3.2.1. Phase 1 (December 31, 2018 - July 31, 2022)

The Licensee must ensure advanced IMT 2020 mobile experience in the Urban Polygon highlighted in Figure 1: [Urban Polygon Illustrative Map]. The Urban Polygon includes the seventy-



three (73) administrative areas of Qatar where all IMT-Advanced outdoor sectors must be upgraded to IMT-2020. A detailed list of the administrative areas is set in Table of Zones under Urban Polygon.

By July 31, 2022, the Licensee must comply with the following requirements:

- With Release 1,
 - Upgrade all outdoor sectors in the Urban Polygon.
 - Enable IMT-2020 with an aggregated download capacity of 600Mbps in each outdoor sector; and
 - Ensure that all IMT-Advanced Indoor sectors in major tourist venues including Stadiums, Hotels, shopping malls, Airport, Metro stations and other commercial establishments are also upgraded to IMT-2020.

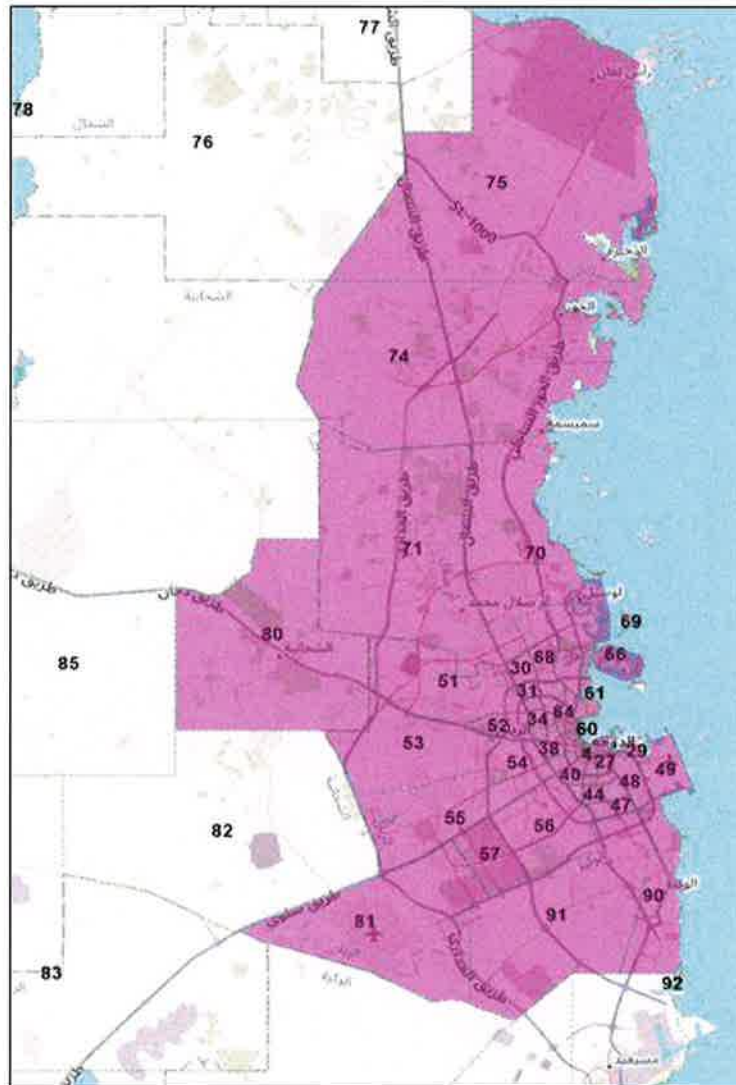


Figure 1: Urban Polygon Illustrative Map



3.2.2. Phase 2 (August 1, 2022 – December 31, 2023)

The Phase 2 of the Rollout obligations will ensure that IMT-2020 Radio Access Technology is available in all IMT-Advanced sectors in Qatar.

By December 31, 2023, the Licensee must comply with the following additional requirements:

- With Release 1,
 - Upgrade all outdoor IMT-Advanced sectors are upgraded to IMT-2020 in the primary landmass¹ of the State of Qatar. and
 - Enable IMT-2020 with a minimum sector aggregated download capacity of 600 Mbps in all outdoor sectors.
- With Release 2,
 - Ensure that the additional blocks (partial/whole) of Release 2 is used in conjunction with the Primary Assignment to enhance capacity and download speed experience in IMT-2020 in at least 50% of sectors in Qatar; and
 - Ensure that the aggregated throughput capacity per sector is above 1.5 Gbps in at least 50% of the sectors in Qatar.

3.2.3. Phase 3 (January 1, 2024 – December 31, 2024)

By December 31, 2024, the Licensee must comply with the following additional obligations:

- Ensure that the average data rate is above 100 Mbps for all users.
- With Release 3, a Continuing Coverage obligation for IMT-2020 technologies for:
 - 98% of the primary landmass of the State of Qatar. For the avoidance of doubt, this does not include Qatar territorial waters or offshore islands and
 - Reception level at [TBD] dBm \geq 95% of any outdoor area of 100m x 100m at a height of 1.5m above ground level which will be set prior to Spectrum Release 3.

¹ For the avoidance of doubt, this does not include Qatar territorial waters or offshore islands



3.3. Obligations for Additional Spectrum Release

The Release 2 and Release 3 of the IMT-2020 spectrum will require additional commitments from the licensee regarding services offered. The commitments listed below will be monitored by CRA, and specific mandatory obligations, if necessary, will be set in the future by CRA.

- 3.3.1. Indoor coverage for business, commercial and residential establishments in Qatar: The Licensee must provide to grievant Customers adequate indoor solution for the betterment of the indoor coverage in their premises.
- 3.3.2. Fixed access products: The Licensee must enable fixed access services to boost enhanced video and immersive media services for households and businesses on its IMT-2020 network.
- 3.3.3. Vertical industry: The Licensee must open innovative use-cases of the IMT-2020 technology in the various vertical industries, such as manufacturing, health, automotive and media which requires to deploy customized networks and products with network slicing to deliver tiered services.
- 3.3.4. Increased monitoring and transparency: The Licensee must provide improved information and ensure transparency in providing network statistics, outages, and rollout data to Customers.

4. COVERAGE MAPS

The Licensee must publish on its website and provide to Customers and government entities detailed maps, updated at least on a half yearly basis, specifying the availability of IMT, IMT-Advanced and IMT-2020 services within the Qatar Territory. Maps must provide a level of granularity enabling to assess which telecommunications service is available in a given location (homes, place of business and leisure), and its associated quality, with information beneficial to all.

- 4.1. The Licensee must publish maps that can reflect the theoretical quality of a service available in IMT-Advanced (4G/4G+) and IMT 2020 (5G). This means that a 5G map that mixes very different frequency bands – such as the 3.5 GHz band on the one hand, and different bands on the other, would not meet this requirement, unless it clearly depicts for the user at least two QoS levels on the map and hence should be clearly portrayed in the coverage maps.
- 4.2. The following guidelines should be considered while preparing the maps
 - 4.2.1. Produce and publish 4G/4G+ and 5G availability maps.
 - 4.2.2. Provide clear title and legends.
 - 4.2.3. Be transparent about the methodology used to produce the map: specify whether it is a



computer simulated coverage map as on a date (or up to xx/202x, if applicable) location of activated 5G cell sites, on topography, etc.

- 4.2.4. Provide reminders for obvious requirements, viz. that users must have a 5G compatible device to access a 5G service.
- 4.2.5. If the Licensee wants to display a provisional coverage map in addition to displaying a map that depicts current coverage, make the map's timeline clear ("map of coverage within x months").
- 4.2.6. Indicate the areas where a portion of the throughput is supplied by 4G and / or 5G (which implies that those areas are covered with the anchor band).
- 4.2.7. Coverage maps should reflect the quality of service that can be accessed with a 5G device and or a plan (if such plans are provided by the Licensee).
- 4.2.8. Note: This would not apply to a 5G map that mixes together very different frequency bands – such as the 3.5 GHz band on the one hand, and different bands on the other – unless it clearly depicts for the user at least two QoS levels on the map (e.g., two or more tiers of connection speed).
- 4.2.9. The map must be user-friendly for the very basic user, with options to the advanced/experienced users.

5. MONITORING RESOURCES

- The Licensee shall provide to CRA the performance statistics and cell configuration data from the network in regular intervals for a Performance Data Analysis System as required by CRA for near real-time monitoring of the Network Performance.
- The Licensee must provide the necessary connectivity, SIM cards and Data servers for Network Audits and Investigations carried out by CRA without any cost to CRA. CRA will carry out annual network audits to verify the compliance of the Licensee with its various obligations.

6. COMPLIANCE TO THE ARF

- As a condition precedent to this grant, the Licensees must issue a written statement certifying that it is compliant with the ARF and must undertake to always comply with the ARF. Accordingly, the CRA will not assign spectrum to the Licensee and/or will retrieve spectrum assigned to the Licensee if the Licensee fails to comply with the requirements of any Non-Compliance Notice which has been issued and/or which will be issued by the CRA.



7. CERTIFICATION

The Licensee must certify to CRA, no later than one (1) month following each Completion Deadline prescribed for each relevant Coverage and/or Rollout Obligation, that the relevant Obligations have been met in full.

The Licensee must provide:

- a) A sworn authentication of the certificate signed by the CEO of the Licensee stating that the respective obligations have been met.
- b) The Licensee must support the claims with an independent certification by an internationally recognized body that the Rollout, Coverage and QoS Obligations (as set out in this document) have been met in the stipulated timeframe. The Licensee must select the body based upon its independence, resource availability and experience in such a way as to ensure the certification is completed to a high-level of quality in its own cost. The Measurement Methodology for verification will be discussed and agreed with CRA two months prior to the Completion Deadline.
- c) The coverage, quality and rollout obligations must be re-assessed on a regular basis by CRA, to adapt these obligations to the evolution of technologies and to the services offered to the public.
- d) If the Licensee fails to comply with the Rollout and Coverage Obligations for a given Radio Access Technology, it must use all reasonable efforts to fulfil the obligation without further delay.
- e) The Licensee will be considered relieved of the Coverage Obligation associated with a Radio Access Technology planned to be phased out if another Radio Access Technology deployed by the Licensee meets the Continuing Coverage Obligation and provides similar Public Mobile Telecommunications Services with improved quality of service/performance.
- f) CRA will verify the compliance of the Licensees after completion of the deadline along with its Annual Network Audit conducted every year with the agreed Measurement Methodology. The compliance to the average data rate obligation will be verified with 90% of the relevant test samples collected achieving 100 Mbps. Samples will be collected from each zone and shall be evenly distributed from the geographical area. Samples will be collected while stationary and from areas with proper coverage.



TABLE OF ZONES UNDER URBAN POLYGON

S.No	Zone Name	Zone No
1	Al Jasra	1
2	Al Bidda	2
3	Fereej Mohammed Bin Jasim / Mushaireb	3
4	Mushaireb	4
5	Al Najada / Brahat Al Jufairy / Fereej Al Asmakh	5
6	Old Al Ghanim	6
7	Al Souq	7
8	Wadi Al Sail	10
9	Rumaila	11
10	Al Bidda	12
11	Mushaireb	13
12	Fereej Abdel Aziz	14
13	Al Doha Al Jadeeda	15
14	Old Al Ghanim	16
15	Al Rufaa / Old Al Hitmi	17
16	Slata / Al Mirqab	18
17	Doha Port	19
18	Wadi Al Sail	20
19	Rumaila	21
20	Fereej Bin Mahmoud	22
21	Fereej Bin Mahmoud	23
22	Rawdat Al Khail	24
23	Al Mansoura / Fereej Bin Dirham	25



S.No	Zone Name	Zone No
24	Najma	26
25	Umm Ghuwailina	27
26	Al Khulaifat / Ras Bu Abboud	28
27	Ras Bu Abboud	29
28	Duhail	30
29	Umm Lekhba	31
30	Madinat Khalifa North / Dahl Al Hamam	32
31	Al Markhiya	33
32	Madinat Khalifa South	34
33	Fereej Kulaib	35
34	Al Messila	36
35	Fereej Bin Omran / New Al Hitmi / Hamad Medical City	37
36	Al Sadd	38
37	Al Sadd / New Al Mirqab / Fereej Al Nasr	39
38	New Slata	40
39	Nuaija	41
40	Al Hilal	42
41	Nuaija	43
42	Nuaija	44
43	Old Airport	45
44	Al Thumama	46
45	Al Thumama	47
46	Doha International Airport	48
47	Doha International Airport	49



S.No	Zone Name	Zone No
48	Al Thumama	50
49	Al Gharrafa / Gharrafat Al Rayyan / Izghawa / Bani Hajer / Al Seej / Rawdat Egdaim / Al Themaid	51
50	Al Luqta / Lebday / Old Al Rayyan / Al Shagub / Fereej Al Zaeem	52
51	New Al Rayyan / Al Wajba / Muaither	53
52	Fereej Al Amir / Luaib / Muraikh / Baaya / Mehairja / Fereej Al Soudan	54
53	Fereej Al Soudan / Al Waab / Al Aziziya / New Fereej Al Ghanim / Fereej Al Murra / Fereej Al Manaseer / Bu Sidra / Muaither / Al Saliya / Al Mearad.	55
54	Fereej Al Asiri / New Fereej Al Khulaifat / Bu Samra / Al Maamoura / Bu Hamour / Mesaimeer / Ain Khaled	56
55	Industrial Area	57
56	Wholesale Market	58
57	Al Dafna	60
58	Al Dafna / Al Qassar	61
59	Lekhwair	62
60	Onaiza	63
61	Lejbailat	64
62	Onaiza	65
63	Onaiza / Leqtaifiya / Al Qassar	66
64	Hazm Al Markhiya	67
65	Jelaiah / Al Tarfa / Jeryan Nejaima	68
66	Jabal Thualeb / Al Kharayej / Lusail / Al Egl / Wadi Al Banat	69
67	Leabaib / Al Ebb / Jeryan Jenaihat / Al Kheesa / Rawdat Al Hamama / Wadi Al Wasaah / Al Sakhama / Al Masrouhiya / Wadi Lusail / Lusail / Umm Garn / Al Daayen	70
68	Al Kharaitiyat / Izghawa / Umm Slal Mohammed / Bu Fesseela / Umm Slal Ali / Umm Al Amad / Umm Obairiya / Lekhshaina / Sunay Lehmaid	71



S.No	Zone Name	Zone No
69	Simaisma / Al Jeryan / Al Khor	74
70	Al Thakhira/Rass Laffan/Umm Birka	75
71	Mebaireek	81
72	Al Wakra	90
73	Al Thumama / Al Wukair/Al Mashaf	91
Total		73

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